KRAUS-ANDERSON®
CONSTRUCTION COMPANY

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3716 Oneota Street
Duluth, MN 55807
O 218.722.3775
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KRAUS-ANDERSON® CONSTRUCTION COMPANY

ADDENDUM NO. 2
May 31, 2013

Duluth International Airport
New Parking Structure and Exterior Wayfinding Signage
Bid Package 2D
Duluth, MN 55811

TO ALL CONTRACTORS:

The following are clarifications and/or changes to the Plans and Specifications, dated May 15, 2013, to be Bid on June 11, 2013, for the above named Project. Acknowledge receipt of this Addendum in the space provided on the Bid Form. Failure to do so may subject the Bidder to disqualification.

1. A specific Bid Form Packet is required for the Prime Contractor's bid submission on this project. Bidders must contact Kim Lofquist, Kraus-Anderson® Construction Company, at 218-722-3775 or kim.lofquist@krausanderson.com to obtain the required Bid Form Packet.

   A. Bid Form Packet documents can be found in Volume 1 of the Project Manual, following is a list of those documents included in the Bid Form Packet: City of Duluth cover page; Bid Form; City of Duluth Purchasing Division General Specifications; AIA Document A310 Bid Bond; Affidavit of Non-Collusion; EEO Affirmative Action Policy Statement & Compliance Certificate; Forms 1 & 2 for Demonstration of Good Faith Efforts, Good Faith Efforts Affidavit and Certificate of Good Faith Efforts.

2. **Section 00 41 00 – Bid Form**

   A. Bid Form

      1. Bid Form replaced in its entirety.

3. **Section 01 01 40 Work Scope Descriptions**

A. Work Scope Index

1. Work Scope 3.40D – Precast Wall Panel & Floor Plank – Delete reference to Specification Section 03 41 01 Precast Hollow Core Slabs.

2. Work Scope 5.10D – Struct. Steel & Misc. Metal Fabrication & Erection – Delete Specification Section and Remarks: "05 75 13 Wire Cloth Complete" and replace with the following "05 75 12 Wire Cloth Complete, As It Relates to Alternate No. 10B and 11A."

3. Work Scope 7.10D – Metal Panels & Roofing – Add the following under Specification Sections and Remarks: "05 75 12 Wire Cloth Complete, As It Relates to Alternate No. 10C and 11B."

4. Work Scope 7.10D – Metal Panels & Roofing – Add the following under Specification Sections and Remarks: "05 50 00 Metal Fabrications Complete, As It Relates to Alternate No. 12B."

B. Work Scope Descriptions

1. Work Scope 3.40D – Precast Wall Panel & Floor Plank:

   a. Delete Specification Section reference "03 41 01 Precast Hollow Core Slabs Complete." This section is no longer included.

   b. Add the following to Par. 1.03, M. Coordination of Openings Required by Others, Item 2 to read: "Include required sleeves in Precast Floor Plank as shown on Sheet E101 for electrical conduit."

2. Work Scope 5.10D – Struct. Steel & Misc. Metal Fabrication & Erection:

   a. Delete Specification Section reference "05 75 13 Wire Cloth Complete" and replace with the following "05 75 12 Wire Cloth Complete, As It Relates to Alternate No. 10B and 11A."

   b. Add the following to Par. 1.02, R. Equipment Screen, Item 4 to read: "All work associated with the Equipment Screen is to be included in Alternate No. 12A. Do not include this in base bid."

3. Work Scope 7.10D – Metal Panels & Roofing:

   a. Add the following under Specification Sections: "05 75 12 Wire Cloth Complete, As It Relates to Alternate No. 10C and 11B."

   b. Add the following under Specification Sections: "05 50 00 Metal Fabrications Complete, As It Relates to Alternate No. 12B."

4. Work Scope 10.20D – Interior & Exterior Wayfinding Signage:

   a. Add the following to Par. 1.07 Unit Prices and Cost Break Downs, Item B to read: "Provide a breakout price on the Construction Manager issued Bid Form for all work associated with the construction of the Exterior Wayfinding Signage. This price should include all material, labor, equipment, and overhead and profit."

5. Work Scope 26.10D – Electrical Systems:

   a. Add the following to Par. 1.07 Unit Prices and Cost Break Downs, Item B to read: "Provide a breakout price on the Construction Manager issued Bid Form for all work associated with the construction of the Exterior Wayfinding Signage. This price should include all material, labor, equipment, and overhead and profit."

   b. Add the following Paragraph to Section 1.03 Special Coordination or Installation Requirements, Item J to read: "J. Communication Tie In to Existing Terminal: Reference reflective ceiling plan, sheet A210 – For Reference, that is included with this addendum for work associated with communication wiring tie in to existing terminal. A site visit is encouraged to review the as-built conditions. All the work associated with the removal and reinstallation of finishes is to be included with this work."

5. **General Information**

   A. See attached ***Pre-Bid Meeting Sign-In Sheet***.

   B. See attached Kraus-Anderson® Construction Company ***Pre-Bid Meeting Agenda***.

   C. The Pre-Bid Meeting clarification: The Pre-Bid Meeting was not mandatory; however, contractors are still required to review the Sign-In Sheet and Agenda. A site visit is also recommended to ensure contractors have an understanding of the existing conditions.

   D. Add Reynolds, Smith & Hills, Inc.'s, Addendum No. 2 dated May 31, 2013, in its entirety.

END OF ADDENDUM NO. 2

(Bidder may copy this form on his own letterhead)
SUBMIT IN DUPLICATE

BID FORM

BID TO: Duluth Airport Authority;
By the City Purchasing Agent
Room 100 City Hall
Duluth, MN 55802

BID FROM: _____
_____
_____
_____

In accordance with the Invitation to Bid and the proposed Contract Documents prepared by Reynolds, Smith and Hills, Inc., relating to the construction of:

Duluth International Airport
New Parking Structure and Exterior Wayfinding Signage
Bid Package 2D
Duluth, Minnesota

the undersigned, having visited the site of proposed construction and having become thoroughly familiar with local conditions affecting the cost and performance of the Work and with all requirements of the Contract Documents and related Addenda, hereby proposes and agrees to provide all labor, materials, equipment, applicable permits and taxes required to construct and complete the Work in accordance with the Contract Documents and Addenda for the following amounts:

Base Bids:

Instructions for Submitting Base Bids:

- Base Bid includes the Parking Structure and Skywalk.
- Provide Skywalk and Exterior Wayfinding Signage breakdown in space provided. These costs are to be included in the base bid and broken out in the space provided.
- Note: Cost breakdowns are for funding purposes only. These will not have an impact on award.
- For bidders wishing to submit bids on more than one Work Scope, space has been provided to submit bids for Multiple Work Scopes on the same Bid Form.
- State Base Bid in both words and figures in spaces provided.

1. Base Bid for Work Scope No. 2.20D Title Civil, Site Work, & Building Earthwork

   Bid Amount: _____ $_____

   a. Cost Breakdown No. 1: Skywalk (Part of Unit Price 71)

   Breakdown Amount: _____ $_____

2. Base Bid for Work Scope No. 2.90D Title Landscaping

   Bid Amount: _____ $_____

   a. Cost Breakdown No. 1: Skywalk

   Breakdown Amount: _____ $_____

3. Base Bid for Work Scope No. 3.30D Title Concrete

   Bid Amount: _____ $_____

   a. Cost Breakdown No. 1: Skywalk

   Breakdown Amount: _____ $_____

4. Base Bid for Work Scope No. 3.40D Title Precast Wall Panel & Floor Plank

   Bid Amount: _____ $_____

   a. Cost Breakdown No. 1: Skywalk

   Breakdown Amount: _____ $_____

5. Base Bid for Work Scope No. 4.20D Title Unit Masonry

   Bid Amount: _____ $_____

   a. Cost Breakdown No. 1: Skywalk

   Breakdown Amount: _____ $_____

6. Base Bid for Work Scope No. 5.10D Title Struct. Steel & Misc. Metal Fabrication & Erection

   Bid Amount: _____ $_____

   a. Cost Breakdown No. 1: Skywalk

   Breakdown Amount: _____ $_____

7. Base Bid for Work Scope No. 7.10D Title Metal Panels & Roofing

   Bid Amount: _____ $_____

   a. Cost Breakdown No. 1: Skywalk

   Breakdown Amount: _____ $_____

8. Base Bid for Work Scope No. 8.22D Title Overhead Coiling Doors

   Bid Amount: _____ $_____

   a. Cost Breakdown No. 1: Skywalk

   Breakdown Amount: _____ $_____

9. Base Bid for Work Scope No. 8.30D Title Doors, Frames, Hardware, & Misc. Specialties (Materials Only)

   Bid Amount: _____ $_____

   a. Cost Breakdown No. 1: Skywalk

   Breakdown Amount: _____ $_____

10. Base Bid for Work Scope No. 8.40D Title Aluminum Framed Automatic Entrances, Storefronts, and Glass

    Bid Amount: _____ $_____

    a. Cost Breakdown No. 1: Skywalk

    Breakdown Amount: _____ $_____

11. Base Bid for Work Scope No. 9.20D Title Metal Studs & Drywall

    Bid Amount: _____ $_____

    a. Cost Breakdown No. 1: Skywalk

    Breakdown Amount: _____ $_____

12. Base Bid for Work Scope No. 9.60D Title Terrazzo

    Bid Amount: _____ $_____

    a. Cost Breakdown No. 1: Skywalk

    Breakdown Amount: _____ $_____

13. Base Bid for Work Scope No. 9.65D Title Flooring

Bid Amount: _____ $_____

a. Cost Breakdown No. 1: Skywalk

Breakdown Amount: _____ $_____

14. Base Bid for Work Scope No. 9.90D Title Painting

Bid Amount: _____ $_____

a. Cost Breakdown No. 1: Skywalk

Breakdown Amount: _____ $_____

15. Base Bid for Work Scope No. 10.20D Title Interior & Exterior Wayfinding Signage

Bid Amount: _____ $_____

a. Cost Breakdown No. 1: Skywalk

Breakdown Amount: _____ $_____

b. Cost Breakdown No. 2: Exterior Wayfinding Signage

Breakdown Amount: _____ $_____

16. Base Bid for Work Scope No. 14.20D Title Elevator

Bid Amount: _____ $_____

a. Cost Breakdown No. 1: Skywalk

Breakdown Amount: _____ $_____

17. Base Bid for Work Scope No. 21.10D Title Fire Suppression System

Bid Amount: _____ $_____

a. Cost Breakdown No. 1: Skywalk

Breakdown Amount: _____ $_____

18. Base Bid for Work Scope No. 22.10D Title Mechanical Systems

Bid Amount: _____ $_____

a. Cost Breakdown No. 1: Skywalk

Breakdown Amount: _____ $_____

19. Base Bid for Work Scope No. 26.10D Title Electrical Systems

Bid Amount: _____ $_____

a. Cost Breakdown No. 1: Skywalk

Breakdown Amount: _____ $_____

b. Cost Breakdown No. 2: Exterior Wayfinding Signage

Breakdown Amount: _____ $_____

Combined Base Bid:

Work Scope Numbers and Titles on which Combined Bid is based:

Work Scope No. ____ Title: _____

Work Scope No. ____ Title: _____

Work Scope No. ____ Title: _____

Work Scope No. ____ Title: _____

Work Scope No. ____ Title: _____

Combined Bid Amount: _____ $_____

Alternates:

Refer to Section 01 23 00 for complete description of Alternates.

				ADD
Alternate No.	1A	to Work Scope	8.40D	$_____
Alternate No.	1B	to Work Scope	26.10D	$_____
Alternate No.	2	to Work Scope	3.40D	$_____
Alternate No.	3A	to Work Scope	9.60D	$_____
Alternate No.	3B	to Work Scope	9.65D	$_____
Alternate No.	4	to Work Scope	26.10D	$_____
Alternate No.	5	to Work Scope	26.10D	$_____

ADD

Alternate No. 6 to Work Scope 26.10D $_____

Alternate No. 7 to Work Scope 26.10D $_____

Alternate No. 8 to Work Scope 26.10D $_____

Alternate No. 9 to Work Scope 26.10D $_____

Alternate No. 10A to Work Scope 3.40D $_____

Alternate No. 10B to Work Scope 5.10D $_____

Alternate No. 10C to Work Scope 7.10D $_____

Alternate No. 11A to Work Scope 5.10D $_____

Alternate No. 11B to Work Scope 7.10D $_____

Alternate No. 12A to Work Scope 5.10D $_____

Alternate No. 12B to Work Scope 7.10D $_____

Addenda: Receipt of the following Addenda to the Contract Documents and their costs being incorporated into the Bid is acknowledged (provide Addenda numbers below):

Addenda No.	Dated	Addenda No.	Dated

Bid Acceptance: If written notice of the acceptance of this Bid is received by the undersigned within 60 days after date set for opening of this Bid, or at any other time thereafter before Bid is withdrawn, the undersigned agrees to enter into and execute a Contract with the Owner in accordance with this Bid as accepted and in a form acceptable to Owner, and to furnish and deliver to the Construction Manager the Performance Bond, Payment Bond, and proof of insurance coverage, all within 10 days after notice of acceptance of this Bid.

Execution of Proposal: The entity(ies) signing this proposal is fully authorized to sign on behalf of the named firm and to fully bind the named firm to all of the conditions and provisions of the Contract. This proposal shall remain valid and not be withdrawn for 60 calendar days after bid due date.

Submitted this _____ day of _____, 20_____.

Name of Firm: _____

Street Address: _____

City: _____ State: _____ Zip: _____

Phone Number: _____ Fax Number: _____

Bidder is: (check one)

☐ Individual ☐ Partnership ☐ Corporation

If Bidder is a corporation, give legal name of corporation, state where incorporated, and names of president and secretary; if a partnership, give names of all individual co-partners composing the firm. If an individual, give first and last name in full.

_____

_____

_____

_____

Name (typed or printed): _____

Signature: _____

Title: _____

END OF DOCUMENT

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PRE-BID MEETING SIGN-IN SHEET

"Duluth International Airport – New Parking Structure and Exterior Wayfinding Signage"

"Bid Package 2D"

Third Floor Conference Room – Existing Passenger Building – Duluth International Airport

May 29, 2013

	Name	Company	Address	Phone Number	Fax Number	E-Mail Address	Bidding Work Scope(s)
1	John E. Hippchen	RS&H	4525 Airport Approach Rd Duluth MN 55811	218-722-1227	218-722-1052	john.hippchen@rsandh.com	10.20D
2	WARREN OLSEN	SUMMIT SIGNS	5051 MILLER TRUNK	390-6839	728-263	WOLSEN@SUMMIT-SIGNS	SIGNS
3	MISSY MARSHALL	SummitSigns	"	"	"	"	
4	Mike Holznagel	Gorman Dieu Mech					P+H+F.P.
5	Chris Thacker	Laborers union #1091		218-428-7876			
6	Troy Westendorf	Bedrock Flind Inc	4204 Enterprise circle Duluth	218-720-3948	720-3492	BFI4204@yahoo.com	Div. 4
7	BRAD WERNER	KOLLMER CONST	11571 RUPP DR BURNSVILLE MN	952890-6772	890-5521	brad-werner@KOLLMERCONSTRUCTION	Div 3
8	Drew Johnson	St. Germain's Glass	See Card				
9	PAUL ZUJAK	JAMAR	ROOF	391-3222			
10	Tim Horn	VEIT		218-348-8226		THORN@VEITUSA.com	EARTH

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PRE-BID MEETING SIGN-IN SHEET

"Duluth International Airport – New Parking Structure and Exterior Wayfinding Signage"

"Bid Package 2D"

Third Floor Conference Room – Existing Passenger Building – Duluth International Airport

May 29, 2013

	Name	Company	Address	Phone Number	Fax Number	E-Mail Address	Bidding Work Scope(s)
11	Roger Anderson	Harbor City Mission, Inc	610 South 5th Ave W. Duluth	218-628-3686	218-628-3706	roger@harborcitymission.com	All
12	Mike St. Cyr	Hunt Electric	4330 west 1st Street	218-624-6505		MSt.Cyr@hunteleci.com	
13	Bill Cote	Laborers 1091	2002 London rd	218-728-5151		Bill1091LU@aol.com	
14							
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19							
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PRE-BID MEETING SIGN-IN SHEET

"Duluth International Airport – New Parking Structure and Exterior Wayfinding Signage"

"Bid Package 2D"

Third Floor Conference Room – Existing Passenger Building – Duluth International Airport

May 29, 2013

	Name	Company	Address	Phone Number	Fax Number	E-Mail Address	Bidding Work Scope(s)
21	Greg Peterson	HMI	PO Box 16212 Duluth 55816	218.722-~~6181~~ 6181	218-722-2191	greg@HMIDuluth.com	concrete
22	Jeff Widness	HMI	"	218 3438299	"	"	"
23	Ken Schlars	Summit Fire	4208 Enterprise Circle	218 740 4412	218-740 4413	Kschlars@summitfire.com	#21
24	Andrew E Hanson	SignSource	7660 Quattro Dr. Chanhassen	763-232-1954	952-908-9102	andrewh@sign-source.com	101400
25							
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PRE-BID MEETING SIGN-IN SHEET
"Duluth International Airport – New Parking Structure and Exterior Wayfinding Signage"
"Bid Package 2D"
Third Floor Conference Room – Existing Passenger Building – Duluth International Airport
May 29, 2013

	Name	Company	Address	Phone Number	Fax Number	E-Mail Address	Bidding Work Scope(s)
32	Heath Line	KGM	9211 Hwy 53 Angora MN	(218)666-5698	(218)666-5708	heath@kgmcontractors.com	Civil
33	NEAL Hommerman FOR ROB KORTBEIN	SCHINDLER ELEVATOR		(651)406-5300	(651)406-5321	rob.kortbein@us.schindler.com	ELEVATOR
34							
35	Steve Olson	Hanson Precast	Maple Grove MN	763-493-6218	763-425-1277	steve.olson@hanson.com	precast
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PRE-BID MEETING SIGN-IN SHEET

"Duluth International Airport – New Parking Structure and Exterior Wayfinding Signage"

"Bid Package 2D"

Third Floor Conference Room – Existing Passenger Building – Duluth International Airport

May 29, 2013

	Name	Company	Address	Phone Number	Fax Number	E-Mail Address	Bidding Work Scope(s)
43	CRAIG BURSCH	MBJ	501 LAKE AVE SOUTH #300 DULUTH, MN 55804	218-722-1056	218-722-9306	CBURSCH@MBJENG.COM	No.
44	Chad Stolp	Jamar	4701 Mike Colalillo Dr.	281-393-6936		chad.stolp@jamarcompany.us	
45	John Matalamaki	Lakehead Sign	16000 29th St Clayton, MN 55720	218 879-4712 x204		Johnm@lakeheadsign.com	10.20
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PRE-BID MEETING SIGN-IN SHEET

"Duluth International Airport – New Parking Structure and Exterior Wayfinding Signage"

"Bid Package 2D"

Third Floor Conference Room – Existing Passenger Building – Duluth International Airport

May 29, 2013

	Name	Company	Address	Phone Number	Fax Number	E-Mail Address	Bidding Work Scope(s)
53	DAVID NELSON	ULLAND	P.O.BOX 340 CLOQUET MN 55720	218-384-4266	384-4110	DNELSON@ULLAND.COM	EARTH
54	RICK OSTGARD	WELLS CONCRETE	623 N. LILAC DR. MPLS, MN 55448	612.756.4662	763.544.0642	RICK.OSTGARD@WELLSCONCRETE.COM	PRECAST
55							
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PRE-BID MEETING SIGN-IN SHEET
"Duluth International Airport – New Parking Structure and Exterior Wayfinding Signage"
"Bid Package 2D"
Kraus-Anderson® Construction Company Work Site Trailer
May 23, 2013

	Name	Company	Address	Phone Number	Fax Number	E-Mail Address	Bidding Work Scope(s)
1	John E. Hippchen	RS&H	4525 Airport Approach Rd Duluth MN 55811	218-722-1227	218-722-1052	john.hippchen@rsandh.com	10.20D
2	John Venglarek	Harmon	7844 W Central Ave Toledo OH, 43571	419.410-1315	419-841-7160	John.Venglarek@Harmonsign.com	10.20.D
3							
4							
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9							
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KRAUS-ANDERSON® CONSTRUCTION COMPANY

Pre-Bid Meeting Agenda
May 29, 2013 @ 2:00 p.m.

RS&H IMPROVING YOUR WORLD

Duluth International Airport

New Parking Structure and Exterior Wayfinding Signage BP-2D

Attendance Sheet

1. Everyone must sign the attendance sheet. Make sure to write clearly and write down what Work Scope(s) you are bidding along with your contact information.

Project Team

1. Owner – Duluth Airport Authority:
   a. Tom Werner – Executive Director.
   b. Blaine Peterson – Operations Director.
   c. Ryan Welch – Airport Facilities Manager.
2. Design Team:
   a. Marc Godzina – Aviation Architect – Reynolds, Smith & Hills, Inc.
   b. John Hippchen – Civil and Aviation Engineer – Reynolds, Smith & Hills, Inc.
   c. Brian Morse – Senior Registered Architect – TKDA Architects.
   d. Paul Johnson – Structural Engineer – Meyer Borgman Johnson.
3. Construction Manager – Kraus-Anderson® Construction Company:
   a. Mike Dosan – Sr. Project Manager.
   b. Andy Towner – Project Manager.
   c. Steve Bergerson – Project Superintendent.
   d. Kim Lofquist – Project Assistant.

Project Description

1. The bidding is for BP-2D New Parking Structure and Exterior Wayfinding Signage. This project is a New project, completely separate from the Terminal project.
2. The parking structure is a four-story structure consisting of cast-in-place below grade footings, foundations, and slab; and, three levels of precast walls and planks above grade. There are two circulation towers with an elevator in the Northeast tower. The DAA maintenance area will be enclosed and tempered. All other areas are open air.
3. The skywalk will connect the parking structure to the second floor mezzanine of the existing terminal. This work is not scheduled to start until June of 2014.
4. The signage package consists of both interior signage and exterior wayfinding signage.

Work Scope Overview

1. There is a total of 19 Work Scopes for bidders to submit their bids on.
2. See Specification section 01 01 40 for Work Scope Descriptions and Work Scope Index for quick reference as to the Specification sections you will be responsible for bidding.
3. Review Work Scopes from PowerPoint to better inform bidders.

Bidding Requirements

1. Bid Form Packet – Sent after last Addendum has been issued:
   a. Affidavit of Non-Collusion.
   b. EEO Certificate.
   c. DBE Utilization Form.
   d. Letter of Intent – Certificate of Good Faith Effort.
   e. Bid Form.
2. Bid Due Date – June 11, 2013 @ 2:00 p.m. at the City of Duluth Purchasing.
3. This project has a Project Labor Agreement that will be signed after award.
4. Buy American Certification – Skywalk Only. See under Mandatory Contract Provisions.

Schedule

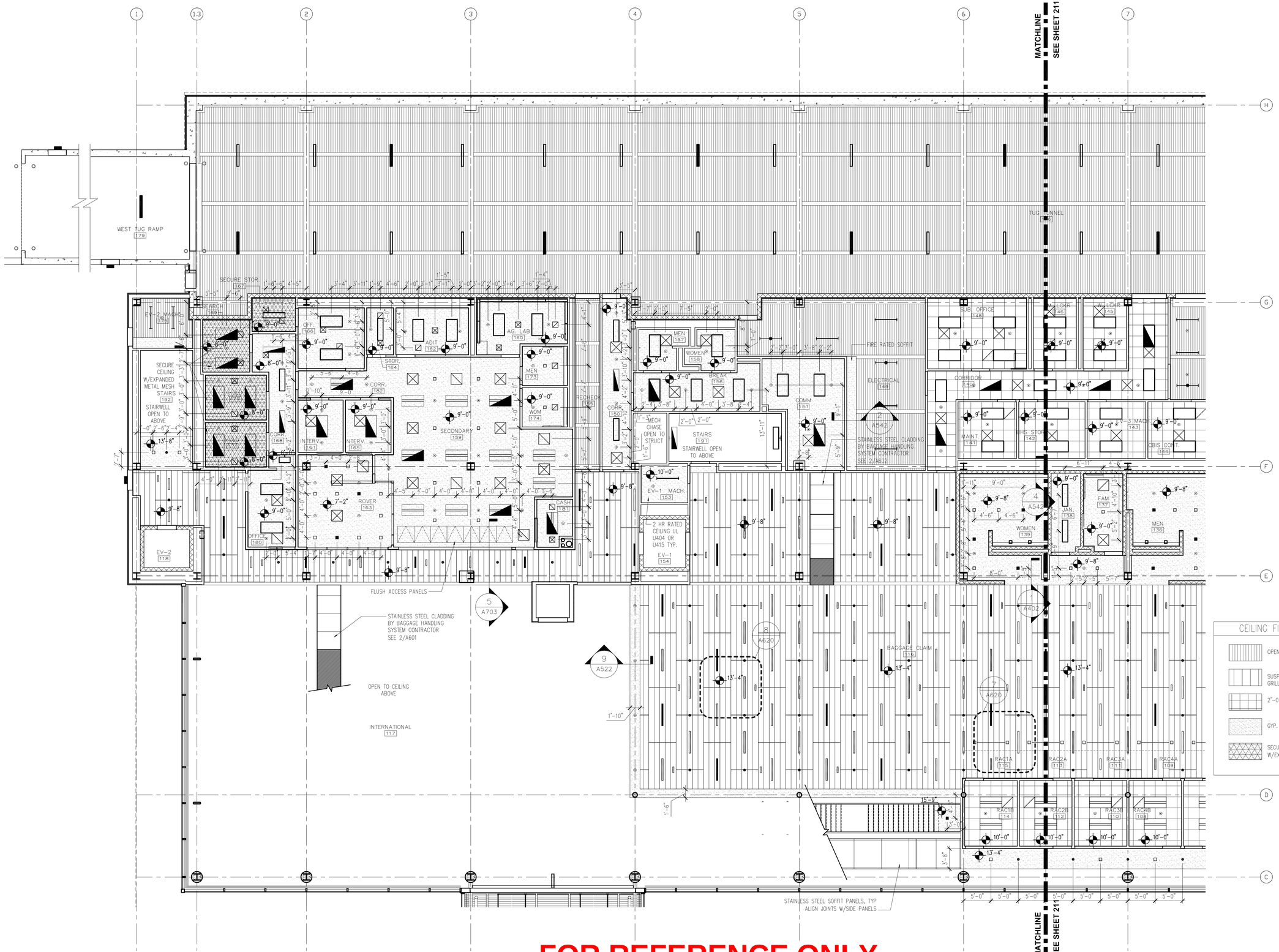
1. See Civil Plans for civil and utility demolition phasing.
2. Parking Structure Milestone Schedule:
   a. Site work starts July 15, 2013.
   b. Concrete footings and foundations complete by September 30, 2013.
   c. Precast construction complete by December 27, 2013.
   d. Parking structure substantial completion by March 14, 2013.
   e. Parking structure final completion by April 18, 2013.
3. All work associated with the Skywalk will not start until June of 2014.

Other Issues

1. Safety.
2. Security – John Hippchen and Andy Towner explanation to bidders.
3. Coordination with Owner, Architect, Engineers, and Construction Manager.
4. Issuing of Final Addendums – Addendum #1 already issued, Addendum #2 Friday, May 31, 2013. Addendum #3 by Friday, June 7, 2013.
5. All questions are due to Kim Lofquist, @ kim.lofquist@krausanderson.com, by 5PM on June 5th. Answers will be issued with the final addendum.
6. DAA Items – Blaine and Ryan

Questions & Closing Comments

1. Bidder questions.
2. Additional site visits – coordinate with Construction Manager.
3. Tour of building – hard hats, vests, and safety glasses required.



CEILING FINISH LEGEND

- OPEN TO STRUCTURE ABOVE
- SUSPENDED WOOD PANEL GRILLES
- 2'-0"x2'-0" LAY-IN CEILING
- GYP. BD. CEILING
- SECURED GYP. BD. CEILING W/EXPANDED METAL MESH

FOR REFERENCE ONLY

1 ENLARGED FIRST FLOOR REFLECTED CEILING PLAN - AREA A
1/8" = 1'-0"

Drawing: T:\P\2131882.091 Duluth New Terminal\Cad\A\Sheets\A210 Enlarged First Floor RCP Area A.dwg Plotted on: 3/21/2012 9:07 PM Plotted by: lp, Mark

RS&H
IMPROVING YOUR WORLD

Reynolds, Smith and Hills, Inc.
4525 Airport Approach Rd, Ste A
Duluth, Minnesota 55811
218-722-1227 Fax: 218-722-1052
www.rsandh.com

DULUTH AIRPORT AUTHORITY

DULUTH INTERNATIONAL AIRPORT DULUTH, MN

NEW PASSENGER TERMINAL

CONSULTANTS

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

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

M/E/P/FP Engineers:
COSENTINI ASSOCIATES INC.
1 South Wacker Drive, 37th Floor, Chicago IL 60606
TEL: (312) 201-7408 / FAX: (312) 201-0031

Baggage Handling Systems Consultants:
BNP ASSOCIATES INC.
101 East Ridge Office Park, Suite 103, Danbury CT 06810
TEL: (203) 792-3000 / FAX: (203) 792-4900

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

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
	100% REVIEW	12.15.10
	BID PACKAGE 2A	1.24.11
1	BP2A - ADDENDUM 6	3.11.11
	BP2A CONFORMANCE SET	5.2.11
	BID PACKAGE 2B REVIEW	7.6.11
	BID PACKAGE 2B	8.23.11
2	BP2B ADDENDUM 2	9.15.11
	BP2B CONFORMANCE	10.21.11
	BID PACKAGE 2C	2.10.12
	BP2C CONFORMANCE	3.20.12

DATE ISSUED: 03-20-12
REVIEWED BY: TC
DRAWN BY: MKG/MI
DESIGNED BY: TC

AEP PROJECT NUMBER
213-1882-091

SHEET TITLE
ENLARGED FIRST FLOOR REFLECTED CEILING PLAN AREA A

SHEET NUMBER
A210

BID PACKAGE 2C CONFORMANCE

RS&H IMPROVING YOUR WORLD

Date: May 31, 2013

RE: City of Duluth Bid #13-4401
New Parking Structure and
Exterior Wayfinding Signage
Bid Package 2D

Addendum No. 2

TO: Prospective Bidders

This Addendum forms a part of the Contract Documents and modifies the original Bidding Documents dated April 15, 2013. Acknowledge receipt of this Addendum in the space provided on the Bid Form. Failure to do so may subject the Bidder to disqualification.

1.0 PROJECT MANUAL

1.1 Bid Form:

1.2 Table of Contents:

Volume 2 of 2 – Part 11 Division 03 Concrete**:** **Delete Section 03 41 01 Precast Hollow Core Slab from Table of Contents.**

Volume 2 of 2 – Part 11 Division 01 General Requirements**:** **Add Section 01 23 00 Alternates to the table of contents.**

1.3 Technical Specifications:

Volume 1 – Part 9 Special Provisions, SP 7.3 Salvage and Reinstall Gate Operator w/New Loops**:**
Add the following text: Contractor shall also relocate and reconnect the existing communication conduit and wire to the gate arm at the new location. Additional conduit, communication wire and handholds will be incidental to the cost. (See attached drawing for reference).

Volume 1 – Part 11 Division 1-49 Technical Specifications, Division 1 – General Requirements:
Add: Specification Section 01 23 00 Alternates in its entirety. (5 pages)

Volume 2 – Part 11 Division 1-49 Technical Specifications Division 03 Concrete**:**
Delete Specification Section 03 41 01 Precast Hollow Core Slab in its entirety.

Volume 2 – Part 11 Division 1-49 Technical Specifications Division 03 Concrete**:**
Revise Specification Section 03 45 00 Architectural Wall Panels: Delete Section 1.5.A, items 2, 3, and 4.

Volume 2 – Part 11 Division 1-49 Technical Specifications Division 03 Concrete:
Section 03 41 00 Precast Structural Concrete: Section 1.2A1 add the following to read:

1. Precast structural concrete as indicated on drawings. Examples could include:
   (a) Solid and hollow core flat slabs
   (b) Single and double tees
   (c) Columns, beams and spandrels
   (d) Stairs and risers
   (e) Structural (non-architectural) solid or insulated flat wall panels
   (f) All other structural precast elements not specifically noted above

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Volume 2 – Part 11 Division 1-49 Technical Specifications Division 09 Painting**:**

Revise Specification Section 09 91 00 Painting:

Add Section 1.1.A, item 4, to read:

4. Parking stall lines and markings.

Add Section 3.5.F, to read:

F. Parking Stall Lines and Markings:
   1. 1 coat PPG Zoneline Traffic and Zone Marking Paint, Latex.
   2. Follow manufacturers' recommendations for surface cleaning/preparation and application.
   3. Typical line markings to be 11-53 White.
   4. No parking / access aisle markings to be 11-54 Yellow
   5. Handicap symbols and line marking to be 11-55 Handicap Blue

2.0 DRAWINGS: *Replace drawings listed below with sheets included with this Addendum No. 2*

Structural Drawings: Replace (S-Series) in its entirety - 17 sheets.

Drawing A701:
Door Schedule: Remove Note 3 from Door 301

Replace original issue for bid drawings with sheets included with this addendum No. 2:

A104 Enlarged Skywalk Plans
A302 Enlarged Skywalk Elevation

E002 Luminaire Schedule and Notes
E010 Electrical Site Plan
E100 Lower Level Electrical Plan
E101 First Level Electrical Plan
E102 Second Level Electrical Plan
E103 Third Level Electrical Plan
E104 Skywalk Electrical Plan
E601 Electrical and Communication Riser Diagrams
E701 Electrical Panel Schedules

3.0 OTHER:

END OF ADDENDUM NO. 2

NEW PARKING STRUCTURE AND EXTERIOR WAYFINDING SIGNAGE
DULUTH INTERNATIONAL AIRPORT
DULUTH, MINNESOTA

SECTION 01 23 00 - ALTERNATES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for alternates.

1.3 DEFINITIONS

A. Alternate: An amount proposed by bidders and stated on the Bid Form for certain work defined in the Bidding Requirements that may be added to or deducted from the Base Bid amount if Owner decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.
   A. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate alternate into the Work. No other adjustments are made to the Contract Sum.

1.4 PROCEDURES

A. Coordination: Modify or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.
   A. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.

B. Notification: Immediately following award of the Contract, notify each party involved, in writing, of the status of each alternate. Indicate if alternates have been accepted, rejected, or deferred for later consideration. Include a complete description of negotiated modifications to alternates.

C. Execute accepted alternates under the same conditions as other work of the Contract.

D. Schedule: A Schedule of Alternates is included at the end of this Section. Specification Sections referenced in schedule contain requirements for materials necessary to achieve the work described under each alternate.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 SCHEDULE OF ALTERNATES

A. **Alternate No. 1A:** Work Scope 8.40D

Replace aluminum-framed entrances as shown on A701 and specified in 08 41 13 with sliding automatic entrances as shown on A701 (remark note 3) and A703 and specified in 08 42 29.23 for the parking structure and skywalk.

Add the sum of: _____ Dollars ($_____).

B. **Alternate No. 1B:** Work Scope 26.10D

Provide and install automatic door operator circuit as required at all sliding automatic entrances. Refer to the door schedule on A701 (remark note 3), A703 details, and electrical plans for the extent of this alternate.

Add the sum of: _____ Dollars ($_____).

C. **Alternate No. 2:** Work Scope 3.40D

Provide an acid etch / sand blast with integral color finish as outlined in specification section 03 45 00 and shown on architectural plans in lieu of “As-Cast” panel finish.

Add the sum of: _____ Dollars ($_____).

D. **Alternate No. 3A:** Work Scope 9.60D

Replace linoleum flooring with thin set epoxy terrazzo floor in the skywalk to match existing terminal mezzanine terrazzo. Note: Terrazzo inside existing terminal (north of door 302C) is to be included in base bid.

Add the sum of: _____ Dollars ($_____).

E. **Alternate No. 3B:** Work Scope 9.65D

Replace linoleum flooring with thin set epoxy terrazzo floor in the skywalk to match existing terminal mezzanine terrazzo. Note: Terrazzo inside existing terminal (north of door 302C) is to be included in base bid.

Add the sum of: _____ Dollars ($_____).

F. **Alternate No. 4:** Work Scope 26.10D

Replace metal halide light fixtures in the Parking Structure with LED light fixtures as shown on the electrical plans.

Add the sum of: _____ Dollars ($_____).

G. **Alternate No. 5:** Work Scope 26.10D

Replace fluorescent light fixtures in the Skywalk with LED light fixtures as shown on the electrical plans.

Add the sum of: _____ Dollars ($_____).

H. **Alternate No. 6:** Work Scope 26.10D

Provide and install exterior light fixtures Type F1, wiring, and control wiring as shown on electrical plan and schematic control diagram.

Add the sum of: _____ Dollars ($_____).

I. **Alternate No. 7:** Work Scope 26.10D

Provide and install room 106 data outlets as shown on electrical plans wired to GCTC. Note: Underside of skywalk is pathway for comm, so work associated with skywalk construction will not be completed until the summer of 2014.

Add the sum of: _____ Dollars ($_____).

J. **Alternate No. 8:** Work Scope 26.10D

Provide and install 23 CCTV cameras as shown on electrical plan wired to GCTC using CAT6 wire in conduit. Provide CCTV 24 port POE switch with power supply, setup, licenses, and any software additions necessary for Terminal Video Management System. Note: Underside of skywalk is pathway for comm, so work associated with skywalk construction will not be completed until the summer of 2014.

Add the sum of: _____ Dollars ($_____).

K. **Alternate No. 9:** Work Scope 26.10D

Provide and install landscape light bollards as shown on electrical prints. Include all necessary wiring, excavation, concrete, and backfill work associated with the installation of the bollards as detailed on E150 and E002.

Add the sum of: _____ Dollars ($_____).

L. **Alternate No. 10A:** Work Scope 3.40D

Provide and install solid 10" precast panels with openings for mesh infill (by others) along grid line B instead of solid concrete panels with no openings. Reference A310 for opening detail. The panels on the north wall of DAA Parking 104 are not to receive openings as this space is tempered.

Add the sum of: _____ Dollars ($_____).

M. **Alternate No. 10B:** Work Scope 5.10D

Provide and install wire mesh infills along grid line B as shown on architectural plans and specified in section 05 75 12 "Wire Cloth". The panels on the north wall of DAA Parking 104 are not to receive openings as this space is tempered. Note: This alternate is only for the wire mesh infill at grid line B. Reference Alternate No. 11 for wire mesh infill at exterior walls.

Add the sum of: _____ Dollars ($_____).

N. **Alternate No. 10C:** Work Scope 7.10D

Provide and install wire mesh infills along grid line B as shown on architectural plans and specified in section 05 75 12 "Wire Cloth". The panels on the north wall of DAA Parking 104 are not to receive openings as this space is tempered. Note: This alternate is only for the wire mesh infill at grid line B. Reference Alternate No. 11 for wire mesh infill at exterior walls.

Add the sum of: _____ Dollars ($_____).

O. **Alternate No. 11A:** Work Scope 5.10D

Provide and install wire mesh infill at exterior wall panels as shown on architectural plans and specified in section 05 75 12 "Wire Cloth". This alternate does not include wire mesh at grid line B.

Add the sum of: _____ Dollars ($_____).

P. **Alternate No. 11B:** Work Scope 7.10D

Provide and install wire mesh infill at exterior wall panels as shown on architectural plans and specified in section 05 75 12 "Wire Cloth". This alternate does not include wire mesh at grid line B.

Add the sum of: _____ Dollars ($_____).

Q. **Alternate No. 12A:** Work Scope 5.10D

Provide and install Louvered Screen System as shown on A522 and specified in section 05 50 00 “Metal Fabrications”. Include coordination with roofing contractor for base plate installation.

Add the sum of: _____Dollars ($_____).

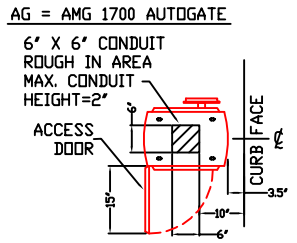
R. **Alternate No. 12B:** Work Scope 7.10D

Provide and install Louvered Screen System as shown on A522 and specified in section 05 50 00 “Metal Fabrications”.

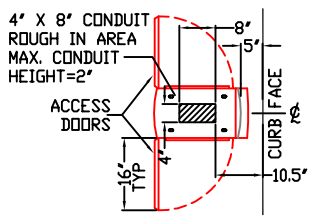
Add the sum of: _____Dollars ($_____).

END OF SECTION 01 23 00

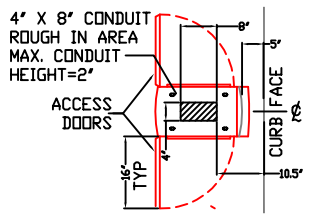
AG = AMG 1700 AUTOGATE



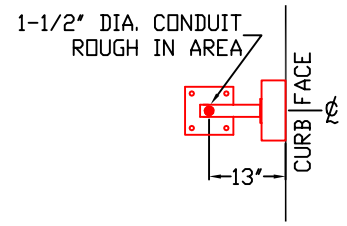
TD = TICKET DISPENSER



EX = EXPRESS PARC

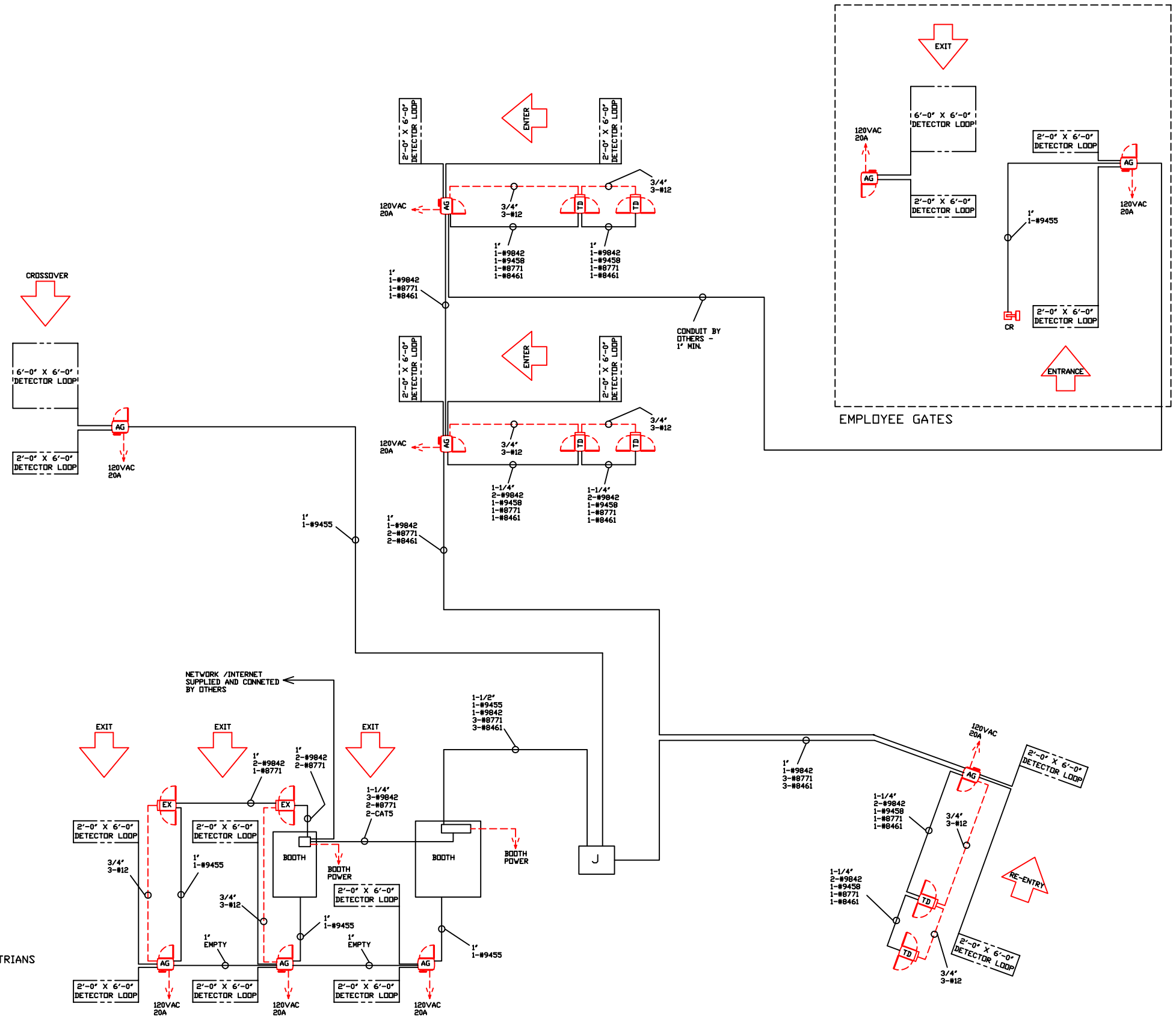


CR = CARD READER
(10' X 10' ENCLOSURE)



NOTES:

EQUIPMENT IS DESIGNED FOR AUTOMOBILE TRAFFIC ONLY. NO MOTORCYCLES, BICYCLES, OR PEDESTRIANS
EQUIPMENT IS DESIGNED TO BE MOUNTED TO A LEVEL 6' HIGH CONCRETE PAD
SEE LOOP DATA SHEET FOR INSTALLATION DETAILS
120 VAC MUST NOT DROP BELOW 105VAC WITH A 15A LOAD.
CABLES LISTED ARE BELDEN



NOTES:	REV	DATE
	B	7/23
	C	8/07

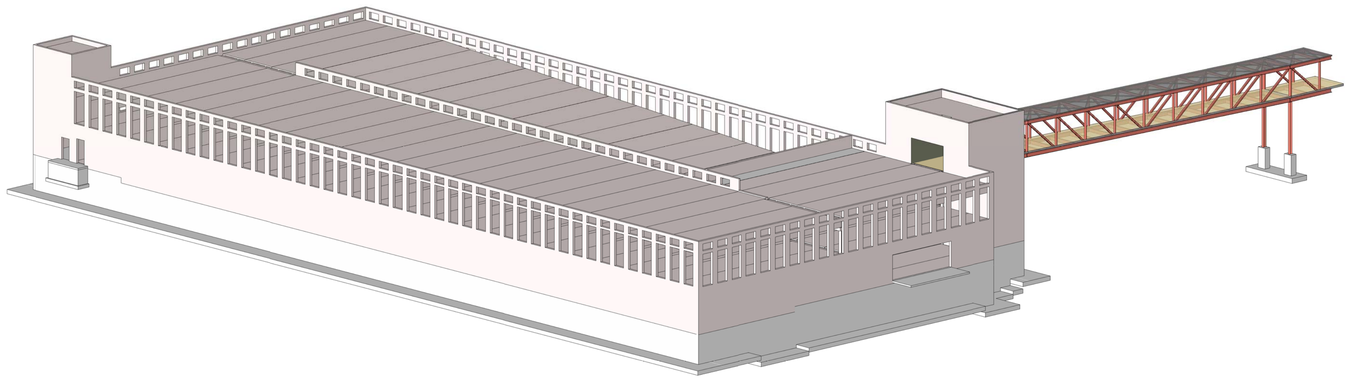
AMANO McGANN

PARKING, REVENUE, ACCESS SYSTEMS, AND SOFTWARE

2520 BROADWAY STREET N.E. SUITE 100 (612) 524-6325
MINNEAPOLIS, MN 55413 FAX: (612) 331-5187

PROJECT	DULUTH AIRPORT			
TITLE	ELECTRICAL RISER			
DATE	BY	SCALE	#	
7/10/09	MF	NONE	2008-01	

FOR REFERENCE ONLY



SHEET LIST

SHEET #	SHEET NAME
S001	TITLE SHEET
S002	GENERAL STRUCTURAL NOTES
S100	FOUNDATION PLAN
S101	FIRST LEVEL FRAMING PLAN
S101A	FIRST LEVEL LOAD MAP
S102	SECOND LEVEL FRAMING PLAN
S102A	SECOND LEVEL LOAD MAP
S103	THIRD LEVEL FRAMING PLAN
S103A	THIRD LEVEL LOAD MAP
S104	SKYWALK FLOOR AND ROOF FRAMING PLANS
S301	TRUSS ELEVATION AND DETAILS
S401	SCHEDULES
S501	STRUCTURAL FOUNDATION DETAILS
S502	STRUCTURAL FOUNDATION DETAILS
S503	STRUCTURAL FOUNDATION DETAILS
S701	STRUCTURAL FRAMING DETAILS
S702	STRUCTURAL FRAMING DETAILS

STRUCTURAL ABBREVIATIONS:

A	
ADDL	ADDITIONAL
ADJ	ADJACENT
ALT	ALTERNATE
ALUM	ALUMINUM
AR	ANCHOR ROD
ARCH	ARCHITECT
B	
BDE	BOTTOM OF DECK ELEVATION
BM	BEAM
BOT	BOTTOM
BP	BEARING PLATE / BASE PLATE
BR	BOTTOM REINFORCING
BTWN	BETWEEN
C	
CANTL	CANTILEVER
C/C	CENTER TO CENTER
CIP	CAST IN PLACE
CGS	CENTER OF GRAVITY STRAND
CJ	CONTROL JOINT
CJP	COMPLETE JOINT PENETRATION
CL	CENTER LINE
CLR	CLEAR
CMU	CONCRETE MASONRY UNIT
COL	COLUMN
CONC	CONCRETE
CONN(S)	CONNECTION(S)
CONST	CONSTRUCTION
CONT	CONTINUOUS
D	
d	NAIL DIAMETER
db	BAR DIAMETER
DBA	DEFORMED BAR ANCHOR
DBL	DOUBLE
DEG	DEGREE
DEMO	DEMOLITION
DF	DOUGLAS FIR-LARCH
DIA	DIAMETER
DIAG	DIAGONAL
DL	DEAD LOAD
E	
EA	EACH
EF	EACH FACE
EL	ELEVATION
ELEC	ELECTRICAL
ELEV	ELEVATOR
EJ	EXPANSION JOINT
EMBED	EMBEDMENT
EQ	EQUAL
EQUIP	EQUIPMENT
ES	EACH SIDE
EW	EACH WAY
E-W	EAST - WEST DIRECTION
(E)	EXISTING
EXP	EXPANSION
F	
FDN	FOUNDATION
FD	FLOOR DRAIN
FFE	FINISHED FLOOR ELEVATION
FLR	FLOOR
FS	FOOTING STEP
FT	FEET
FTG	FOOTING
FV	FIELD VERIFY
G	
GA	GAGE/GAUGE
GALV	GALVANIZED
GB	GRADE BEAM
GC	GENERAL CONTRACTOR
GLB	GLUE LAMINATED BEAM
GR	GRADE
GSN	GENERAL STRUCTURAL NOTES
GWB	GYPSUM WALL BOARD

H	
HK	HOOK
HORIZ	HORIZONTAL
HSA	HEADED STUD ANCHOR
HSS	HOLLOW STRUCTURAL SHAPE
HT	HEIGHT
I	
ID	INSIDE DIAMETER
ISF	INSIDE FACE
J	
JT	JOINT
JBE	JOIST BEARING ELEVATION
K	
K	KIPS
KLF	KIPS PER LINEAL FOOT
KSF	KIPS PER SQUARE FOOT
KSI	KIPS PER SQUARE INCH
KO	KNOCK OUT
L	
LB(S)	POUND(S)
LL	LIVE LOAD
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LONG	LONGITUDINAL
LSL	LAMINATED STRAND LUMBER
LWT	LIGHT WEIGHT
LVL	LAMINATED VENEER LUMBER
M	
MAX	MAXIMUM
MECH	MECHANICAL
MEP	MECHANICAL, ELECTRICAL & PLUMBING
MEZZ	MEZZANINE
MFR	MANUFACTURER
MIN	MINIMUM
MISC	MISCELLANEOUS
MTL	METAL
N	
NIC	NOT IN CONTRACT
N-S	NORTH - SOUTH DIRECTION
NTS	NOT TO SCALE
NWT	NORMAL WEIGHT
O	
OC	ON CENTER
OD	OUTSIDE DIAMETER
OSF	OUTSIDE FACE
OPNG	OPENING
OPP	OPPOSITE
O/O	OUT TO OUT
P	
PAF	POWER ACTUATED FASTENER
PC	PRECAST CONCRETE
PL	PLATE
PLF	POUNDS PER LINEAL FOOT
PLYWD	PLYWOOD
PRE FAB	PREFABRICATED
PROJ	PROJECTION
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PSL	PARALLEL STRAND LUMBER
PT	POST TENSIONED

Q	
QTY	QUANTITY
R	
R	RADIUS
RD	ROOF DRAIN
REF	REFERENCE
REINF	REINFORCEMENT/REINFORCING
REQD	REQUIRED
RO	ROUGH OPENING
RTU	ROOF TOP UNIT
S	
SB	SOIL BORING
SC	SLIP CRITICAL
SCHED	SCHEDULE
SER	STRUCTURAL ENGINEER OF RECORD
SF	SQUARE FOOT
SIM	SIMILAR
SL	SNOW LOAD
SOG	SLAB ON GRADE
SPA	SPACES
SPEC	SPECIFICATION
SPF	SPRUCE PINE FIR
SS	STAINLESS STEEL
SSLT	SHORT-SLOT LOAD TRANSVERSE
STD	STANDARD
STIFF	STIFFENER
STL	STEEL
STRUCT	STRUCTURE / STRUCTURAL
SYM	SYMMETRICAL
SYP	SOUTHERN YELLOW PINE
T	
T/G	TOUNGE AND GROOVED
TBE	TOP OF BEAM ELEVATION
TDE	TOP OF DECK ELEVATION
TEMP	TEMPORARY
TFE	TOP OF FOOTING ELEVATION
TGBE	TOP OF GRADE BEAM ELEVATION
TPCE	TOP OF PILE CAP ELEVATION
TPE	TOP OF PIER ELEVATION
TR	TOP REINFORCING
TRANS	TRANSVERSE
TSE	TOP OF SLAB ELEVATION
TWE	TOP OF WALL ELEVATION
TYP	TYPICAL
U	
UNO	UNLESS NOTED OTHERWISE
URM	UNREINFORCED MASONRY
V	
VERT	VERTICAL
W	
W/	WITH
W/O	WITHOUT
WD	WOOD
WF	WIDE FLANGE
WL	WIND LOAD
WP	WORK POINT
WT	WEIGHT
WWF	WELDED WIRE FABRIC

MARKS AND SYMBOLS LEGEND:

MARKS:

B1001	CONCRETE BEAM MARK NUMBER
BP1	BEARING / BASE PLATE MARK NUMBER
BRF1	BRACE FRAME MARK NUMBER
BR1	MILD STEEL BOTTOM REINFORCING MARK NUMBER
C1	COLUMN MARK NUMBER
CC1	CONCRETE COLUMN MARK NUMBER
D1	STEEL DECK MARK NUMBER
DC1	DROP CAPITAL MARK NUMBER
DP1	DRILLED PIER MARK NUMBER
EP1	EMBEDDED PLATE MARK NUMBER
F1	SPREAD FOOTING MARK NUMBER
GB1	GRADE BEAM MARK NUMBER
HCP	HOLLOW CORE PLANK
HD1	HOLD DOWN MARK NUMBER
J10	JOIST MARK NUMBER
L1	LINTEL MARK NUMBER
LC1	LIGHT GAGE COLUMN MARK NUMBER
MC1	MASONRY COLUMN MARK NUMBER
MF1	MOMENT FRAME MARK NUMBER
P1	PIER MARK NUMBER
PC1	PILE CAP MARK NUMBER
PTB101	POST TENSIONED CONCRETE BEAM MARK NUMBER
S1	SLAB MARK NUMBER
SC1	STEEL COLUMN MARK NUMBER
SR1	STUD RAIL REINFORCING MARK NUMBER
SW1	SHEAR WALL MARK NUMBER
T1	TRUSS MARK NUMBER
TR1	MILD STEEL TOP REINFORCING MARK NUMBER
W1	WALL MARK NUMBER
WC1	WOOD COLUMN MARK NUMBER
WF1	WALL FOOTING MARK NUMBER
WO1	WEB OPENING
WSW1	WOOD SHEAR WALL MARK NUMBER

GENERAL SYMBOLS:

APPROXIMATE LOCATION OF DRAIN TILE

MATCH LINE

LINE OF DEMOLITION

(?'-?") SLAB STEP LOCATION WITH ELEVATIONS

SLAB STEP LOCATION

CHANGE IN SLAB SLOPE

CHANGE IN SLAB THICKNESS

1 KEY NOTE MARK NUMBER

0 NEW BUILDING GRID LINE

0 EXISTING BUILDING GRID LINE

ELEVATION MARKER

SHADED AREA INDICATES EXISTING CONSTRUCTION

W1 WALL MARK NUMBER

APPROXIMATE LOCATION OF UTILITY PIPE PENETRATION THROUGH FOUNDATION WALL

FS FOOTING STEP LOCATION

SB1 APPROXIMATE LOCATION OF SOIL BORING

COMPRESSION PILE

T TENSION / COMPRESSION PILE

TEST PILE

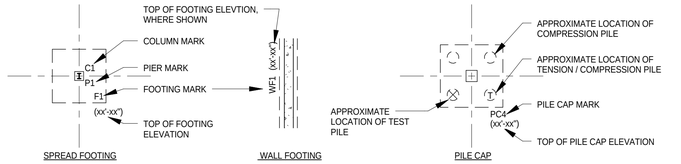
SPAN DIRECTION OF ELEMENT

EXTENT OF ELEMENT

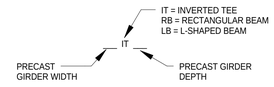
CONTINUOUS EXTENT OF ELEMENT

PLAN SYMBOLS LEGEND:

FOUNDATION SYSTEM:

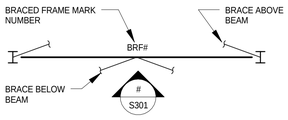


PRECAST CONCRETE FRAMING SYSTEM:

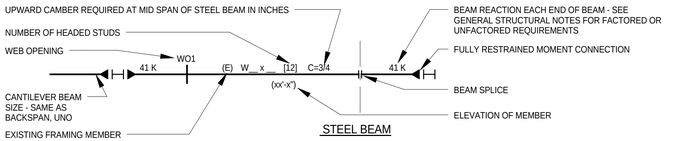


NOTES:
1. PRECAST GIRDER WIDTHS AT INTERIOR BEAM LINES MAY BE ADJUSTED BASED ON THE PRECAST SUPPLIER'S STANDARD
2. PRECAST GIRDER DEPTHS MAY NOT EXCEED DEPTHS NOTED.

STEEL FRAMING SYSTEM:



BRACE FRAME



STEEL BEAM

RS&H
IMPROVING YOUR WORLD

Reynolds, Smith and Hills, Inc.

4525 Airport Approach Rd, Ste A
Duluth, Minnesota 55811
218-722-1227 FAX 218-722-1052
www.rsandh.com

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
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
TITLE SHEET

SHEET NUMBER
S001

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 (PER IBC 2006, CHAPTER 17):

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

* Please see referenced tables for exceptions.

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

2006 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 360-05 Specification for Structural Steel Buildings

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

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

ASCE 3-01 Structural Design of Composite Slabs

MATERIAL PROPERTIES:
Reinforcing Steel (Fy):

Typical (all reinforcing and accessories shall be epoxy coated)	60,000 psi	ATSM A615 Grade 60
Weldable	60,000 psi	ASTM A706 Grade 60

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

Controlled Low	1,200 psi	Maximum
Strength Material (CLSM)	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 A992
Angles, Channels, Plates, and Bars	36,000 psi	ASTM A36
Grade B Rectangular HSS	46,000 psi	ASTM A500
Grade B Round HSS	42,000 psi	ASTM A500
Grade B Steel Pipe	35,000 psi	ASTM A53

MATERIAL PROPERTIES (Cont):
Structural Fasteners:

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

Cold-formed Light Gauge Metal Framing (Fy):

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

DESIGN LOADS:
LATERAL LOADS:
Primary Frame Wind Data:
Basic Wind Speed: 90 mph
Wind Importance Factor: 1.0
Exposure: C

Primary Seismic Data: No design required

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

GRAVITY LOADS:
Roof Snow Load:

Ground Snow Load, Pg:	60 psf
Flat-Roof Snow Load, Pf:	42 psf
Snow Exposure Factor, Ce:	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 Lane:	42 psf
Parking Stall:	82 psf
Vehicle Impact at 18' AFF:	6000 lbs
Parking Concentrated Load:	2000 lbs

Exterior Site Surcharge Loads:

Fire Trucks:	250 psf
Sidewalk:	250 psf

FOUNDATIONS:
Refer to Geotechnical report number DU-12-02390 prepared by Braun Intertec, dated 9/28/2012.

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 60" 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 back filled with free draining fill approved by the Geotechnical Engineer. Provide drain tile required by the contract documents and verify with architect and civil engineer.

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

For stepping of wall footings reference drawings for detail.

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

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

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

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

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

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

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

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

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

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

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

Calcium chloride is not permitted as a concrete additive.

Concrete Cover on Reinforcing:

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

Concrete covers are intended to meet the requirements of the IBC 2000 section 719 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
	#6 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-116 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 - A416, "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. (REVIEW ACI 16.5.1.2)

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 6 inch compactable granular base. Refer to the specification for requirements for the compactable granular base.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Masonry cement mortar is not allowed.

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

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

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

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

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

Provide bond beam with reinforcing at all floor lines, 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 (HIGH-LOW BOND BEAMS):
For all masonry beams use lintel blocks.

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

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

Grout masonry beams solid. Mechanically vibrate grout in place.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

STRUCTURAL STEEL CONNECTIONS:
All steel connections shall be designed by the steel fabricator for the criteria indicated on the drawings unless noted or detailed otherwise. Connection design shall conform to the requirements of the AISC Specifications for the design, fabrication, erection of structural and OSHA regulations. Submit calculations certified by a Professional Engineer who is licensed in the state 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 web copes must be made to a 1 inch minimum radius.

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

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

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

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

Steel roof deck shall be as noted on plan.

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

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

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

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

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

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

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

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

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

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

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

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

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Landscape Architects:
ARCHITECTURAL RESOURCES
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: Paul A Johnson
Date: 05-15-13 Reg. No.: 20379

REVISIONS

NO.	DESCRIPTION	DATE

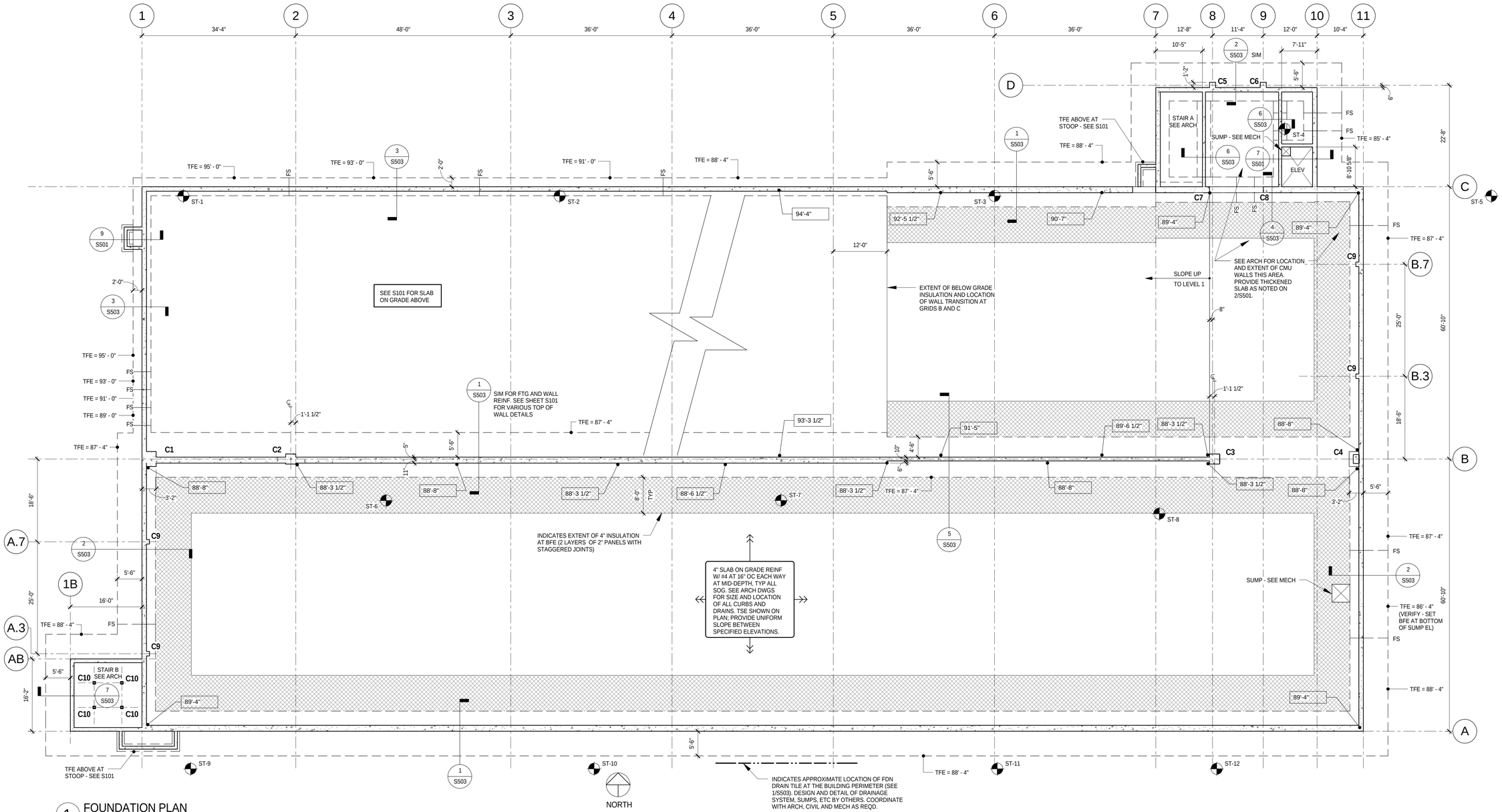
DATE ISSUED: 05/15/2013
REVIEWED BY: PAJ
DRAWN BY: SJL
DESIGNED BY: MDN / PAJ

AEP PROJECT NUMBER
213-1882-114

SHEET TITLE
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 1398.1 = 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 CURBS.
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. SKYWALK 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 C SHALL BE EPOXY COATED.

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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
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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

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.: 20379

REVISIONS

NO.	DESCRIPTION	DATE

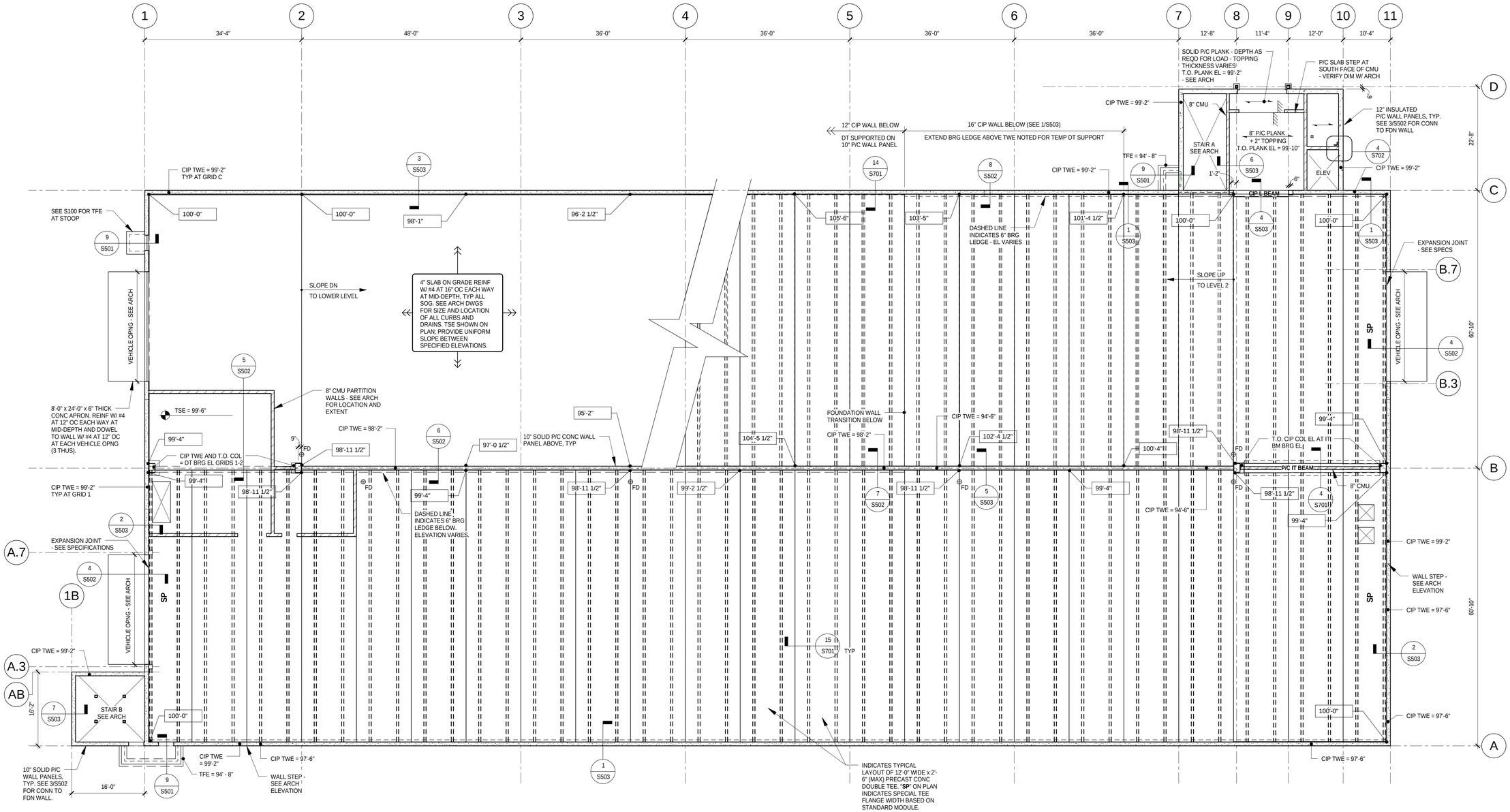
DATE ISSUED: 05/15/2013
REVIEWED BY: PAJ
DRAWN BY: SJL
DESIGNED BY: MDN / PAJ

AEP PROJECT NUMBER
213-1882-114

SHEET TITLE
FOUNDATION PLAN

SHEET NUMBER
S100

ISSUED FOR BID



1 FIRST LEVEL FRAMING PLAN

3/32" = 1'-0"

PLAN NOTES:

1. SEE SHEET S100 FOR TYPICAL PLAN NOTES.
2. CANTILEVERED CONCRETE FOUNDATION WALLS ARE NOT DESIGNED FOR P/C ERECTION CRANES OR OTHER HEAVY EQUIPMENT SURCHARGES. MAINTAIN MINIMUM 20' CLEAR FROM FACE OF FOUNDATION WALLS TO EDGE OF ANY HEAVY EQUIPMENT.
3. SEE S101A, S102A, S103A FOR LOAD MAPS SHOWING GRAVITY AND LATERAL DESIGN LOADS FOR P/C ELEMENTS AND SYSTEMS.

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213-1882-114

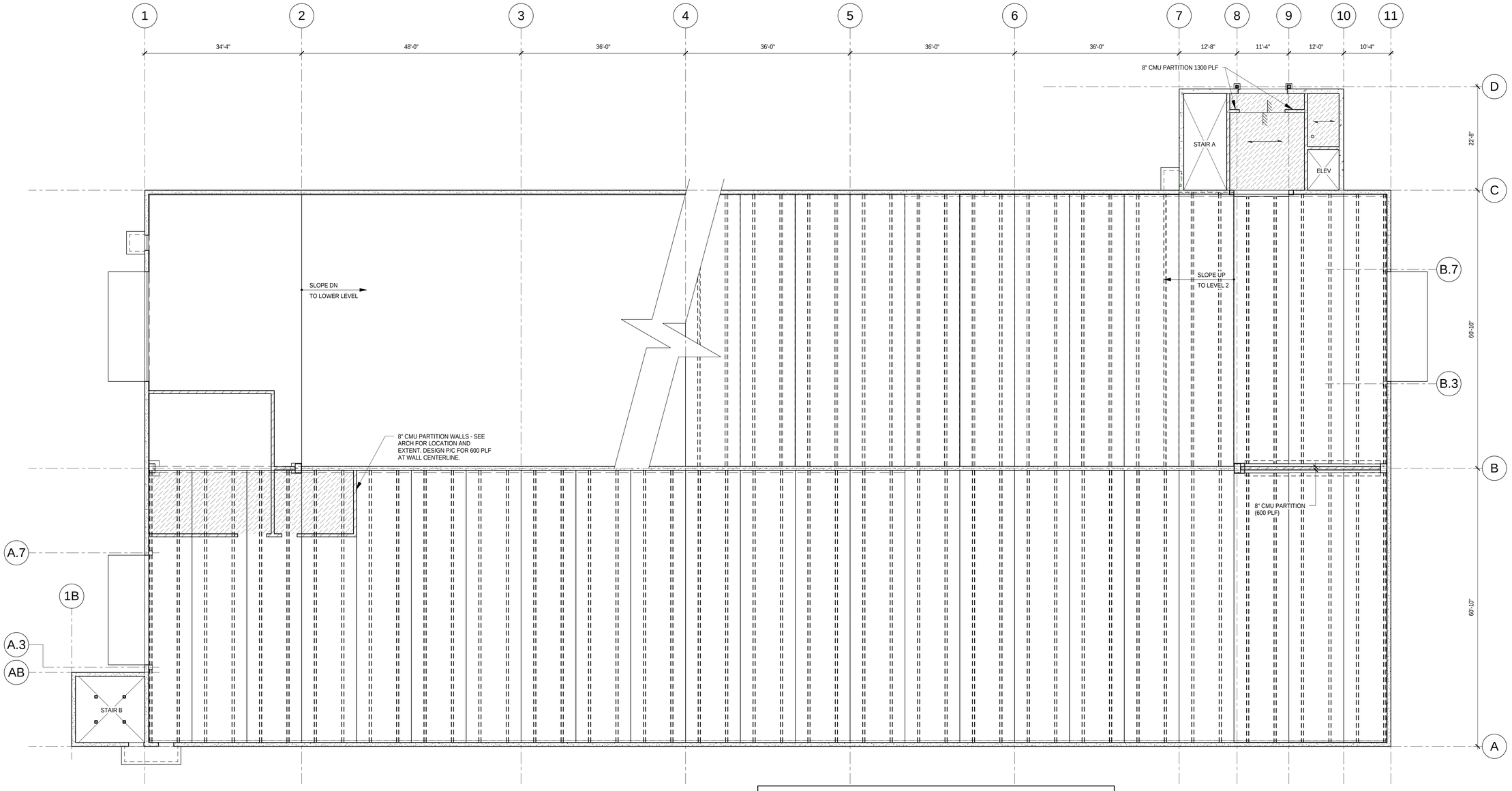
SHEET TITLE

FIRST LEVEL FRAMING PLAN

SHEET NUMBER

S101

ISSUED FOR BID



1 FIRST LEVEL - LOAD MAP

3/32" = 1'-0"

NORTH

NOTES:

1. ALL LOADS INDICATED ON LOAD MAP PLAN AND SCHEDULE ARE WORKING (UNFACTORED) LOADS.
2. REFER TO GENERAL STRUCTURAL NOTES AND SPECIFICATIONS FOR P/C DESIGN REQUIREMENTS. P/C SUPPLIER IS RESPONSIBLE FOR THE DESIGN OF ALL P/C ELEMENTS AND CONNECTIONS FOR PERPENDICULAR AND IN-PLANE LOADING.
3. UNIFORM WIND LOADS AS SHOWN ARE FOR DESIGN OF MAIN WIND-FORCE RESISTING SYSTEMS AND MAY BE APPLIED AT THE TOP OF FLOOR ELEVATION. THESE LOADS SHALL BE DISTRIBUTED THROUGH THE FLOOR DIAPHRAGMS AT EACH LEVEL AND INTO LATERAL LOAD RESISTING ELEMENTS ON GRIDS A, AB, B, C, D, 1B, 1, 7, 10 AND 11.

UNIFORMLY DISTRIBUTED LOAD MAP SCHEDULE

MARK	LIVE LOAD (PSF)	SUPERIMPOSED DEAD LOAD (PSF)
	42	10
	82	10
	40	10
	100	30

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DESIGNED BY: MDN / PAJ

AEP PROJECT NUMBER

213-1882-114

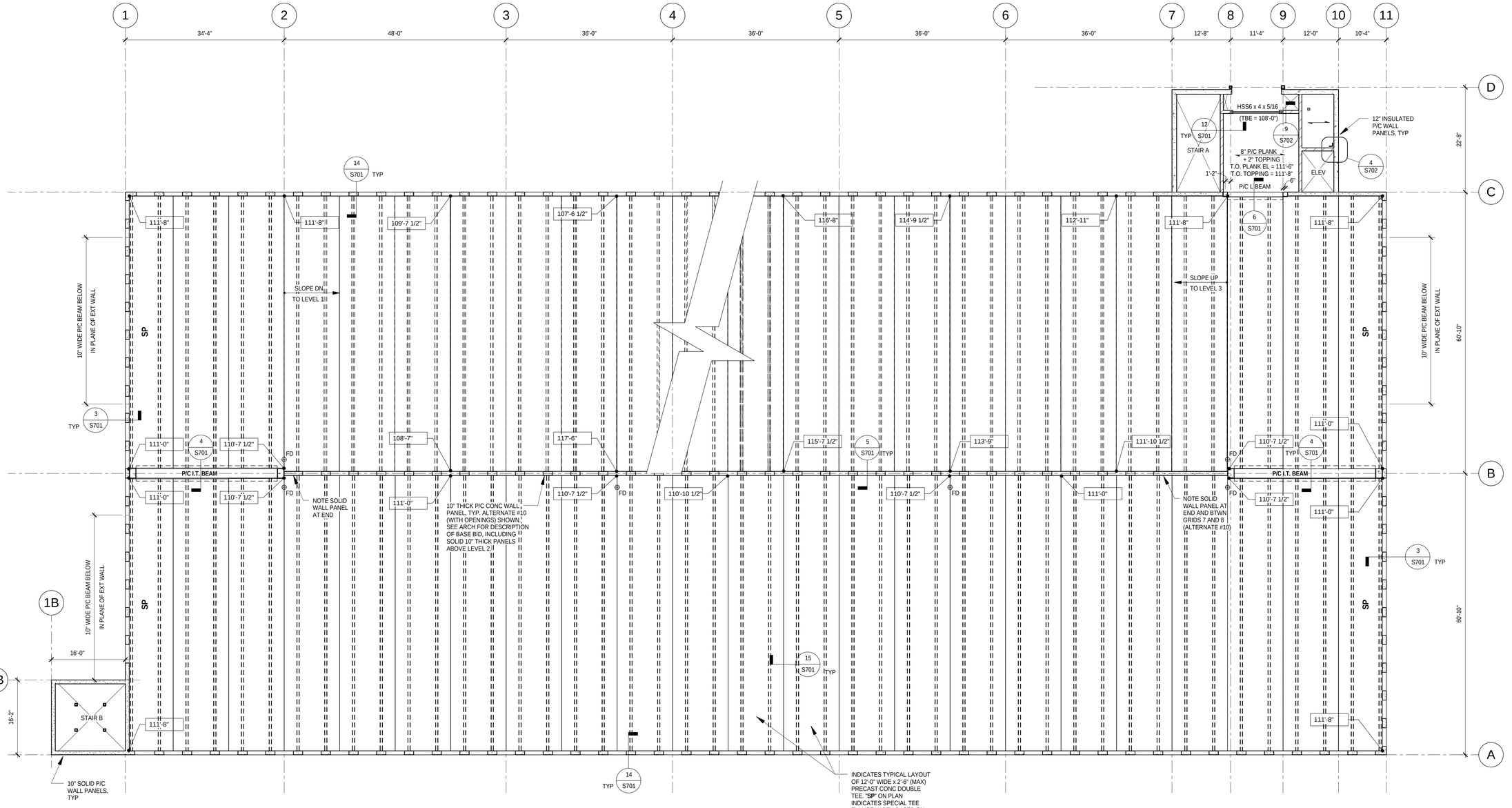
SHEET TITLE

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 MAPS SHOWING GRAVITY AND LATERAL DESIGN LOADS FOR P/C ELEMENTS AND SYSTEMS.

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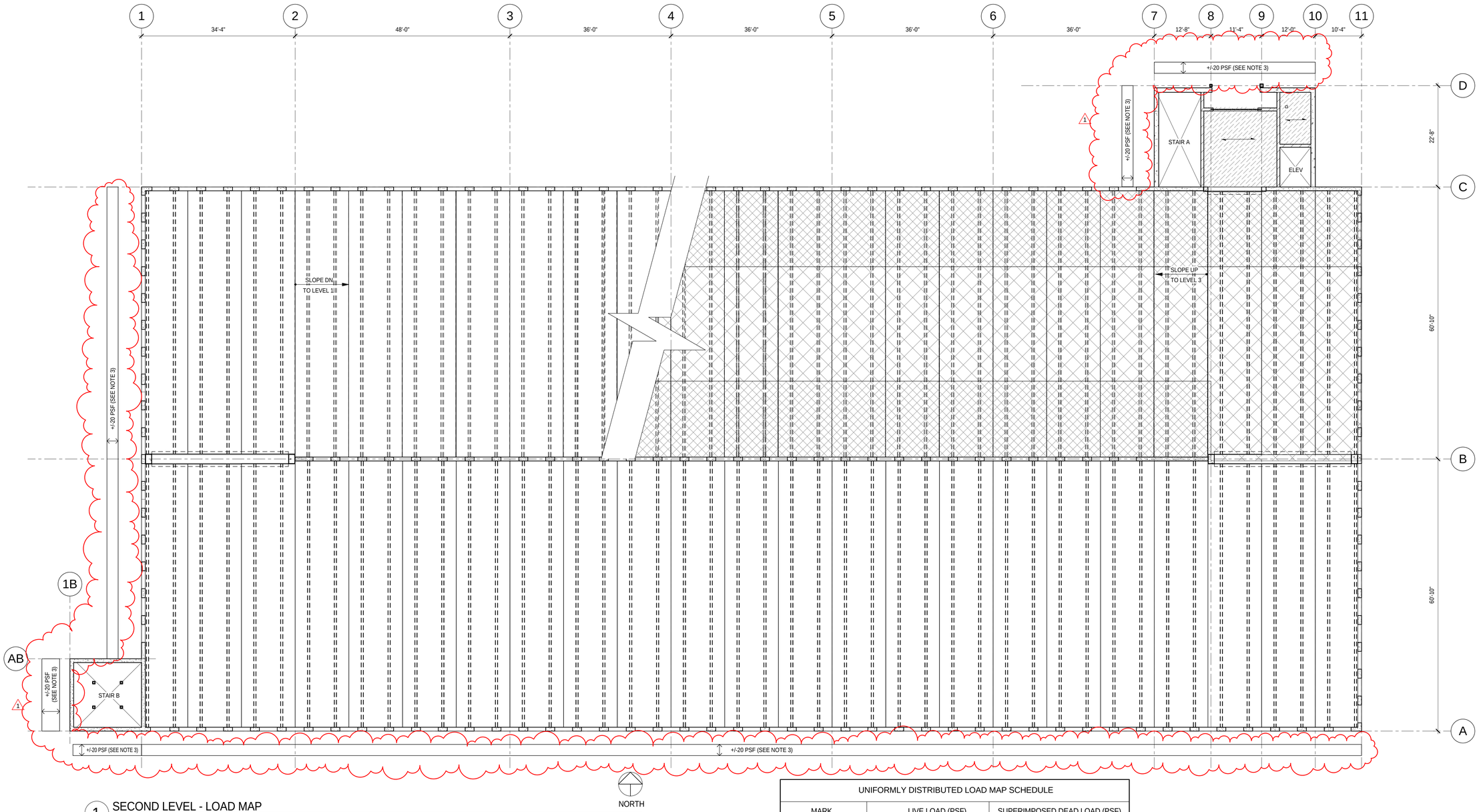
DRAWN BY: SJL
DESIGNED BY: MDN / PAJ

AEP PROJECT NUMBER
213-1882-114

SHEET TITLE
SECOND LEVEL FRAMING PLAN

SHEET NUMBER
S102

ISSUED FOR BID



1 SECOND LEVEL - LOAD MAP

3/32" = 1'-0"

NORTH

NOTES:

1. ALL LOADS INDICATED ON LOAD MAP PLAN AND SCHEDULE ARE WORKING (UNFACTORED) LOADS.
2. REFER TO GENERAL STRUCTURAL NOTES AND SPECIFICATIONS FOR P/C DESIGN REQUIREMENTS. P/C SUPPLIER IS RESPONSIBLE FOR THE DESIGN OF ALL P/C ELEMENTS AND CONNECTIONS FOR PERPENDICULAR AND IN-PLANE LOADING.
3. REFER TO PLANS AND SECTIONS TO DETERMINE TRIBUTARY AREAS. THESE LOADS SHALL BE DISTRIBUTED THROUGH THE FLOOR DIAPHRAGMS AT EACH LEVEL AND INTO LATERAL LOAD RESISTING ELEMENTS ON GRIDS A, AB, B, C, D, 1B, 1, 7, 10 AND 11. P/C DESIGNER MAY USE A LOWER UNIFORMLY DISTRIBUTED WIND LOAD FOR MAIN WIND FORCE RESISTING SYSTEMS IF JUSTIFIED BY AN ANALYSIS OF ASCE-7 AND THE BUILDING CODE. INDIVIDUAL COMPONENTS SHALL BE DESIGNED ACCORDING TO ASCE-7 AND THE IBC AS REQUIRED BASED ON TRIBUTARY AREA AND LOCATION.

UNIFORMLY DISTRIBUTED LOAD MAP SCHEDULE

MARK	LIVE LOAD (PSF)	SUPERIMPOSED DEAD LOAD (PSF)
	42	10
	82	10
	40	10
	100	30

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REVISIONS

NO.	DESCRIPTION	DATE
1	ADDENDUM 2	5-31-13

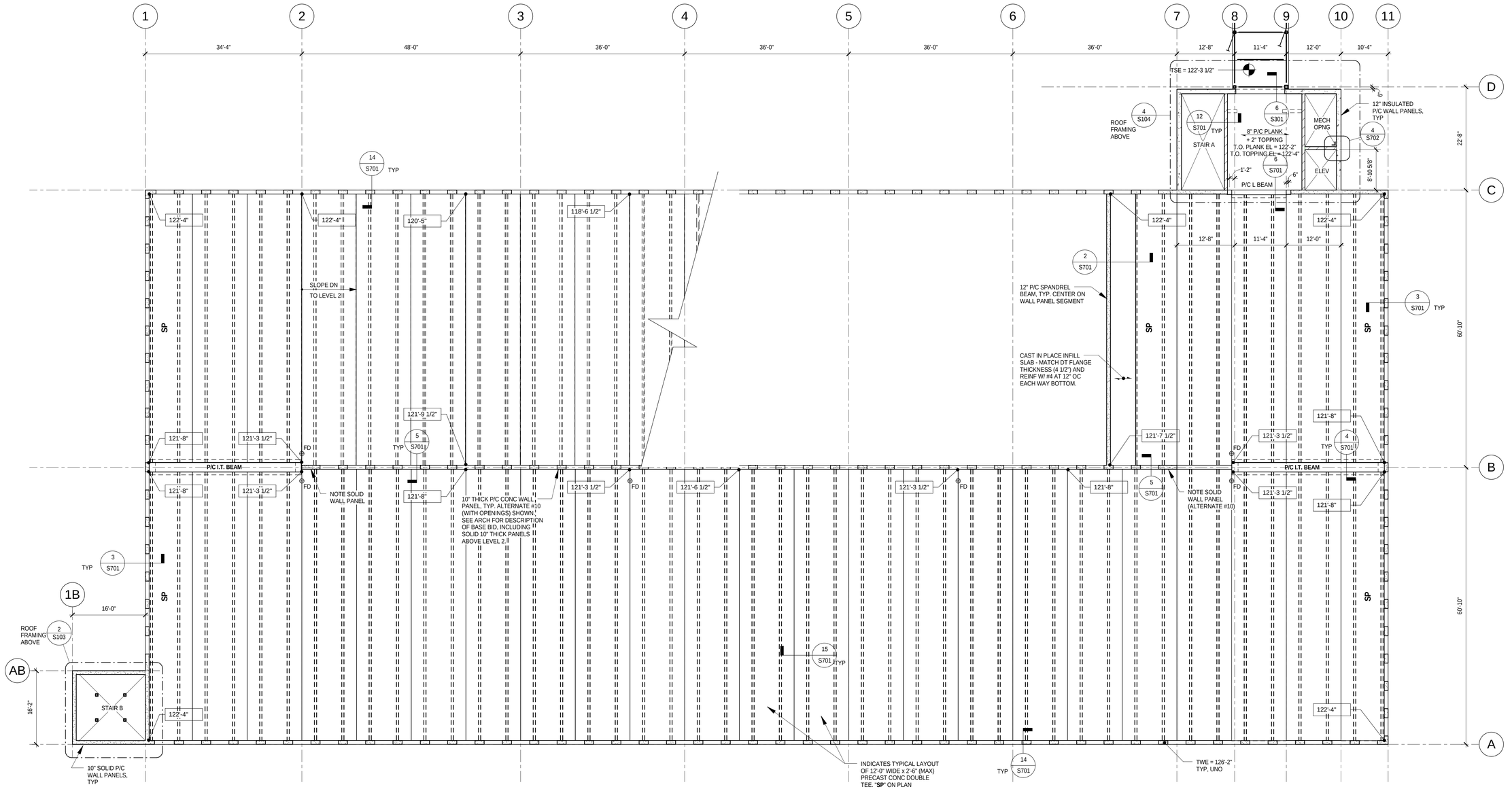
DATE ISSUED: 05/15/2013
REVIEWED BY: PAJ
DRAWN BY: SJL
DESIGNED BY: MDN / PAJ

AEP PROJECT NUMBER
213-1882-114

SHEET TITLE
SECOND LEVEL LOAD MAP

SHEET NUMBER
S102A

ISSUED FOR BID



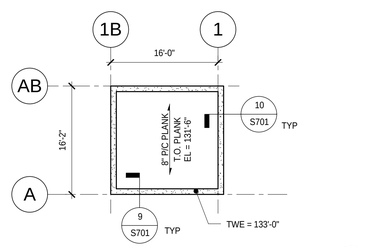
NORTH

1 THIRD LEVEL FRAMING PLAN

3/32" = 1'-0"

PLAN NOTES:

1. SEE SHEET S100 FOR TYPICAL PLAN NOTES.
2. SEE S101A, S102A, S103A FOR LOAD MAPS SHOWING GRAVITY AND LATERAL DESIGN LOADS FOR P/C ELEMENTS AND SYSTEMS.



NORTH

2 STAIR B ROOF FRAMING PLAN

3/32" = 1'-0"

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DATE ISSUED: 05/15/2013
REVIEWED BY: PAJ
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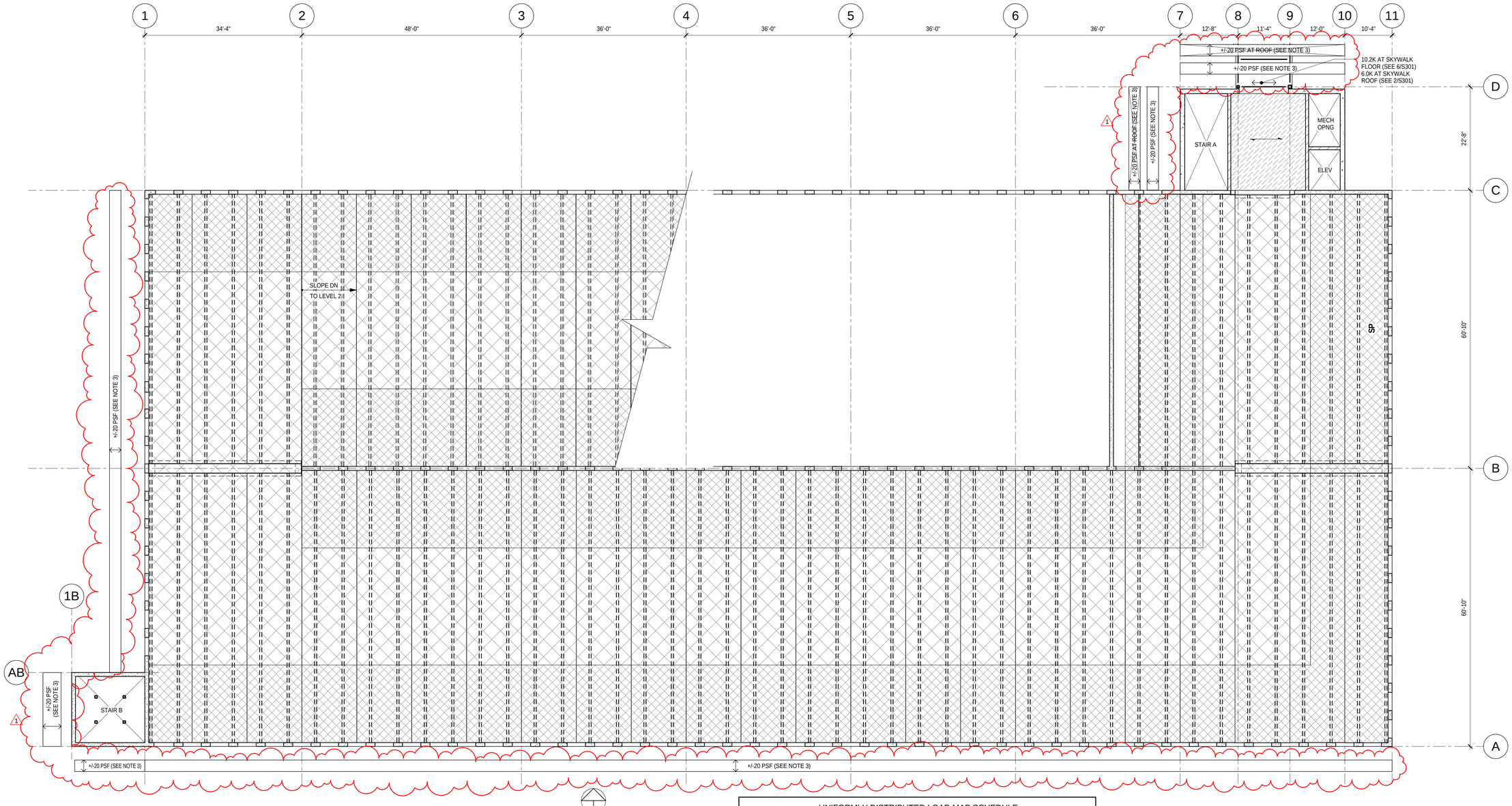
AEP PROJECT NUMBER
213-1882-114

SHEET TITLE
THIRD LEVEL FRAMING PLAN

SHEET NUMBER
S103

ISSUED FOR BID



1 THIRD LEVEL - LOAD MAP

3/32" = 1'-0"

NOTES:

1. ALL LOADS INDICATED ON LOAD MAP PLAN AND SCHEDULE ARE WORKING (UNFACTORED) LOADS.
2. REFER TO GENERAL STRUCTURAL NOTES AND SPECIFICATIONS FOR P/C DESIGN REQUIREMENTS. P/C SUPPLIER IS RESPONSIBLE FOR THE DESIGN OF ALL P/C ELEMENTS AND CONNECTIONS FOR PERPENDICULAR AND IN-PLANE LOADING.
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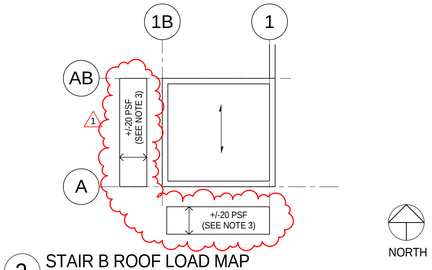
UNIFORMLY DISTRIBUTED LOAD MAP SCHEDULE

MARK	LIVE LOAD (PSF)	SUPERIMPOSED DEAD LOAD (PSF)
	42	10
	82	10
	40	10
	100	30



2 STAIR B ROOF LOAD MAP

3/32" = 1'-0"

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1	ADDENDUM 2	5-31-13

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AEP PROJECT NUMBER

213-1882-114

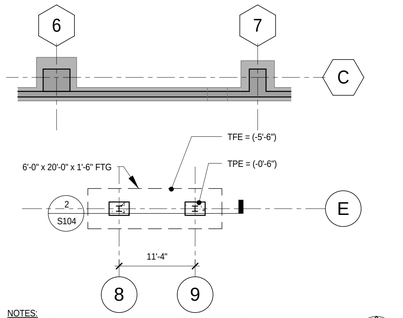
SHEET TITLE

THIRD LEVEL LOAD MAP

SHEET NUMBER

S103A

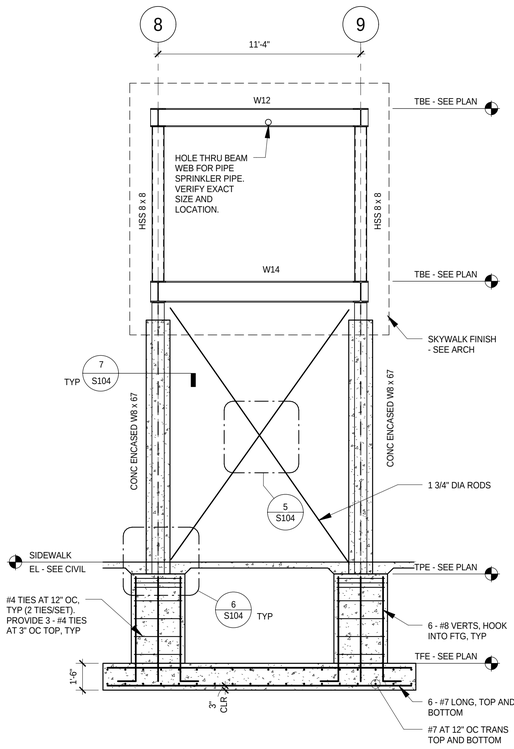
ISSUED FOR BID



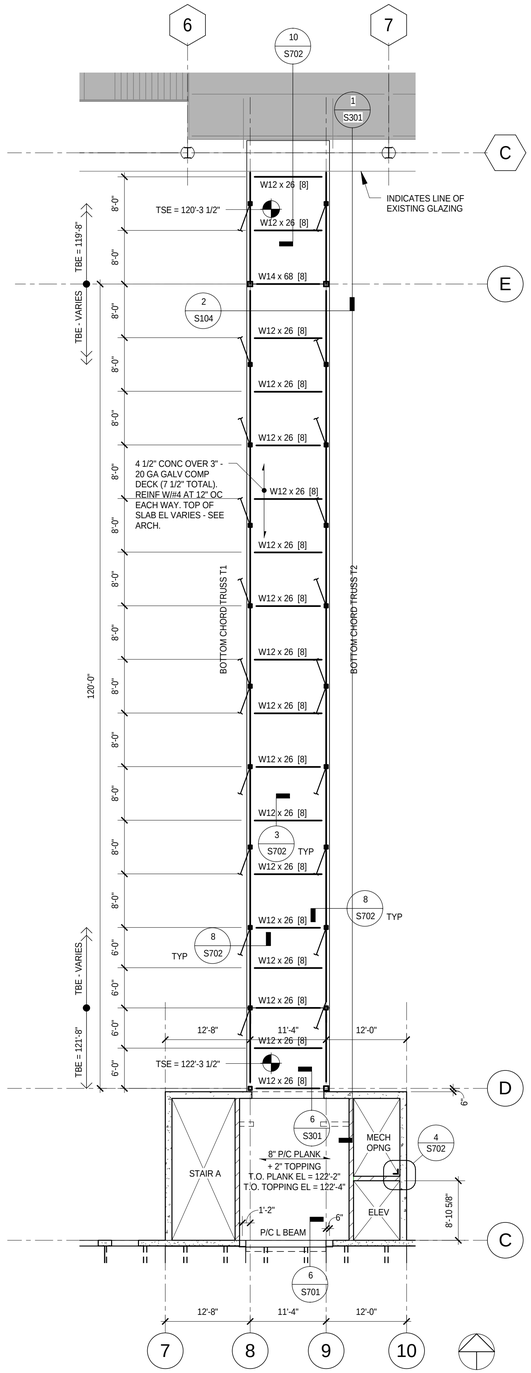
NOTES:
1. SEE S100 FOR TYPICAL NOTES; VALIDATE BEARING PRESSURE (4000 PSI REQD).
2. TFE, TPE NOTED RELATIVE TO EXISTING GRADE (SIDEWALK ELEVATION AT GRADE).

NORTH

1 SKYWALK FOUNDATION PLAN
3/32" = 1'-0"

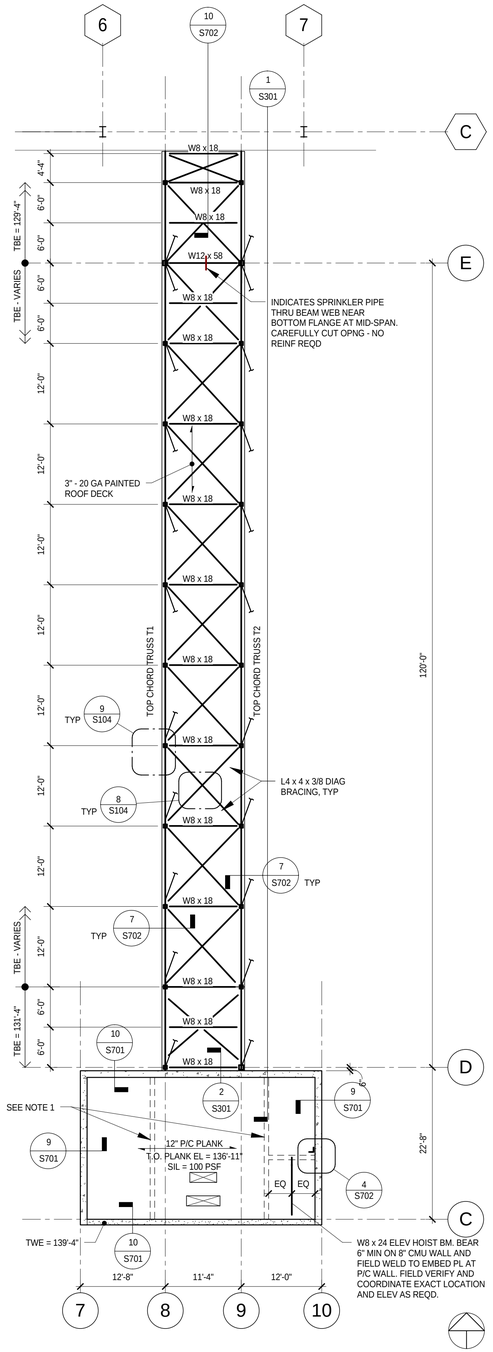


2 SKYWALK BRACE FRAME ELEVATION
1/4" = 1'-0"



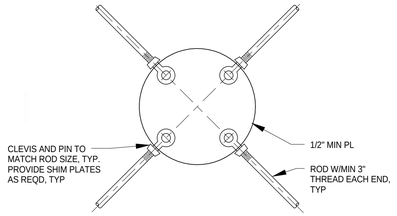
3 SKYWALK FLOOR FRAMING PLAN
3/32" = 1'-0"

NOTES:
1. SEE SHEET S103 FOR FRAMING SOUTH OF GRID D AND TYPICAL NOTES.
2. TOP OF STEEL ELEVATION VARIES, SEE 1/S301 FOR TRUSS ELEVATION AND DETAILS.
3. [8] ON PLAN INDICATES QUANTITY OF 3/4" DIAMETER x 5" LONG (AFTER WELDING) HEADED STUDS. SEE 3/S702 AND GENERAL STRUCTURAL NOTES.

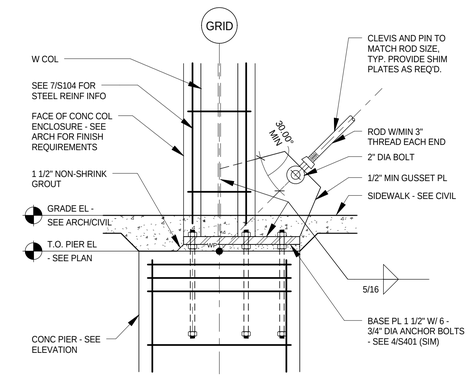


4 SKYWALK ROOF FRAMING PLAN
3/32" = 1'-0"

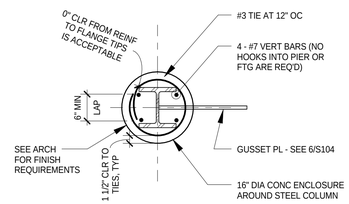
NOTES:
1. 8" CMU THIS PLAN ARE NON-BEARING. SEE 6/S702 (SIM) FOR CONNECTION TO UNDERSIDE OF 12" PLANK.
2. SEE 11/S701 FOR OPENING DETAIL THROUGH PLANK.



5 SECTION AT BRACING INTERSECTION
3/4" = 1'-0"

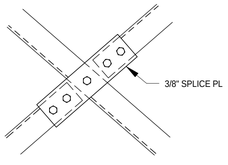


6 SECTION AT COLUMN BASE
3/4" = 1'-0"

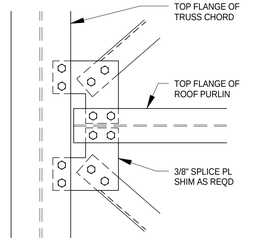


NOTES:
1. SEE PLAN FOR LOCATIONS.

7 CONCRETE ENCASED WIDE FLANGE COLUMN
3/4" = 1'-0"



8 TYPICAL BRACE CONNECTION
1" = 1'-0"



9 TYPICAL BRACE CONNECTION
1" = 1'-0"

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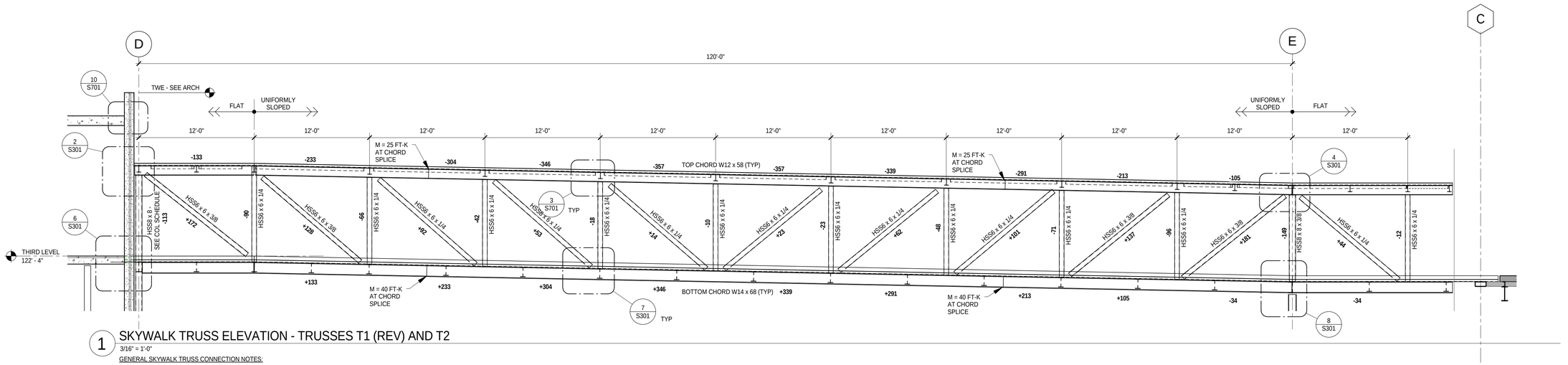
AEP PROJECT NUMBER
213-1882-114

SHEET TITLE
SKYWALK FLOOR AND ROOF FRAMING PLANS

SHEET NUMBER
S104

ISSUED FOR BID

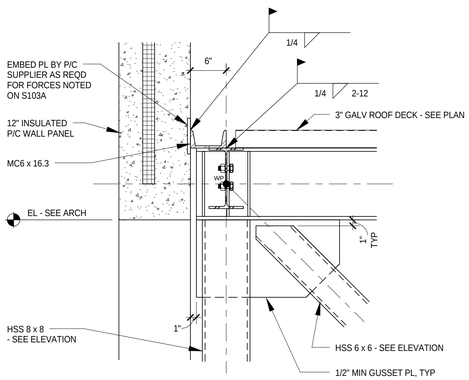


1 SKYWALK TRUSS ELEVATION - TRUSSES T1 (REV) AND T2

3/16" = 1'-0"

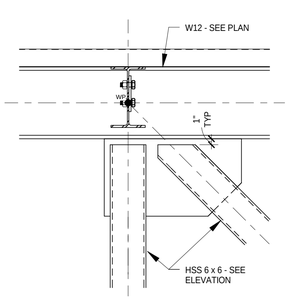
GENERAL SKYWALK TRUSS CONNECTION NOTES:

1. ALL PLATE MATERIAL USED IN CONNECTIONS: ASTM A572-50.
2. ALL ANGLE MATERIAL USED IN CONNECTIONS: ASTM A-36.
3. MINIMUM WELD = 5/16" FILLET, E90xx WELDING ELECTRODES.
4. CONNECTIONS SHOWN ARE CONCEPTUAL; LENGTH OF WELDS AND SIZE OF PLATES WILL VARY AS REQUIRED FOR DESIGN FORCES INDICATED.
5. TRUSS WEB MEMBER CONNECTIONS SHALL BE DESIGNED FOR A MINIMUM 50% OF THE MEMBER GROSS TENSION CAPACITY.
6. MEMBER FORCES INDICATED IN KIPS (K) ARE WORKING (UNFACTORED). COMPRESSION FORCES NOTED (-), TENSION FORCES NOTED (+).
7. PROVIDE 1 1/2" (+0, -1/4") CAMBER AT MIDPOINT OF 120'-0" SPAN.
8. CONTRACTOR TO SUBMIT PROPOSED CHORD SPLICE LOCATION AND DETAILS FOR REVIEW. SEE TRUSS ELEVATION FOR RECOMMENDED SPLICE LOCATIONS.



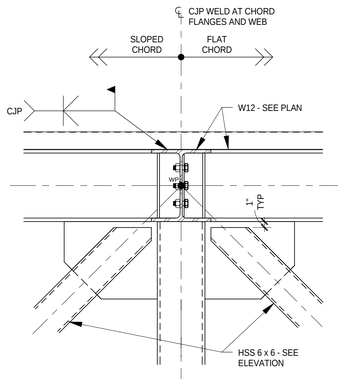
2 SECTION

1" = 1'-0"



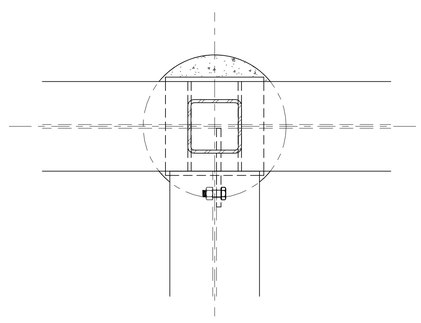
3 TYPICAL DETAIL

1" = 1'-0"



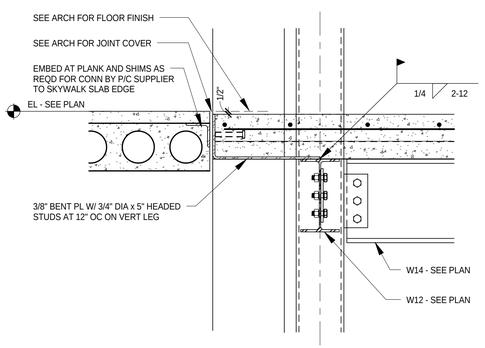
4 DETAIL

1" = 1'-0"



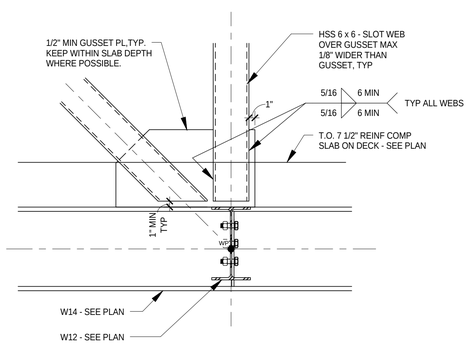
5 PLAN DETAIL

1 1/2" = 1'-0"



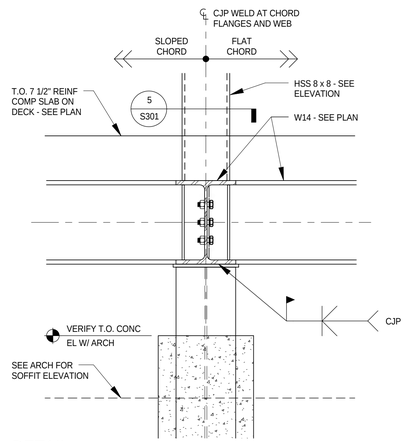
6 SECTION

1" = 1'-0"



7 TYPICAL DETAIL

1" = 1'-0"



8 DETAIL

1" = 1'-0"

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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
TRUSS ELEVATION AND DETAILS

SHEET NUMBER
S301

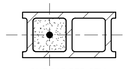
ISSUED FOR BID

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	-	-



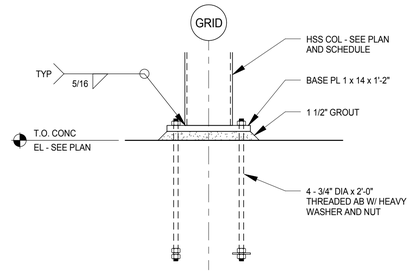
NOTES:
1. REINFORCING BAR DEVELOPMENT LENGTH SCHEDULE APPLIES TO UNCOATED, GRADE 60 REINFORCING BARS IN ASTM C 90 HOLLOW UNITS.
2. FOR EPOXY COATED BAR, MULTIPLY THE ABOVE LENGTHS BY 1.5.
3. MAXIMUM SPACING OF BARS BEING LAPPED IS ONE FIFTH THE LAP SPLICE LENGTH, NOT TO EXCEED 8".
4. REINFORCING BARS 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

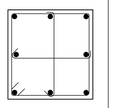
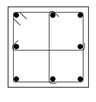
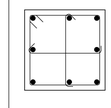
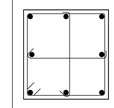
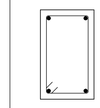
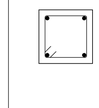
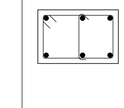
BEAM SHEAR CONNECTION SCHEDULE			
BEAM SIZE	MINIMUM ROWS OF BOLTS	MINIMUM DESIGN [SERVICE CAPACITY] (KIPS)	COMMENTS
W8	2	8	
W10	2	8	
W12	3	16	
W14	3	16	
W16	3	26	
W18	4	26	

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

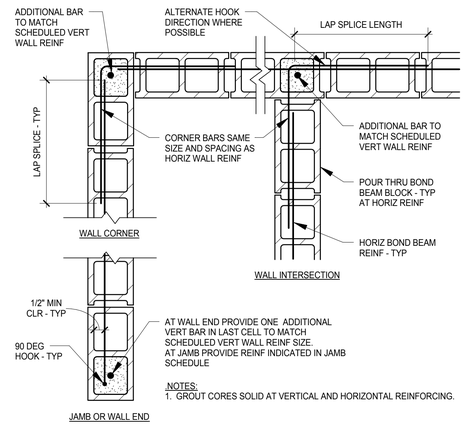


4 BASE PLATE DETAIL
1" = 1'-0"

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
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.

5 COLUMN SCHEDULE
NO SCALE

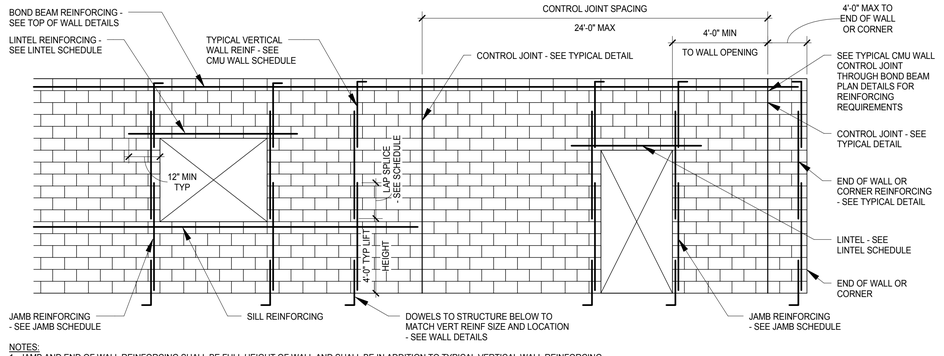


6 TYPICAL CMU WALL REINFORCING PLAN DETAILS
NO SCALE

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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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

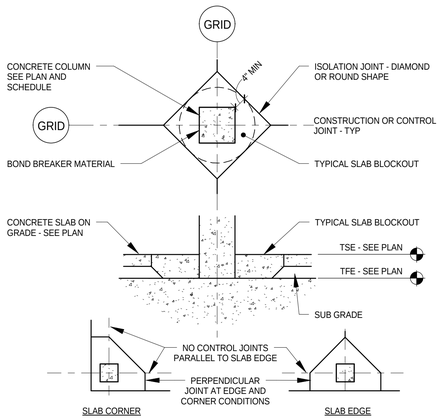
DATE ISSUED: 05/15/2013
REVIEWED BY: PAJ
DRAWN BY: SJL
DESIGNED BY: MDN / PAJ

AEP PROJECT NUMBER
213-1882-114

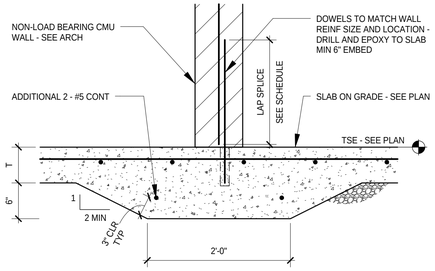
SHEET TITLE
SCHEDULES

SHEET NUMBER
S401

ISSUED FOR BID

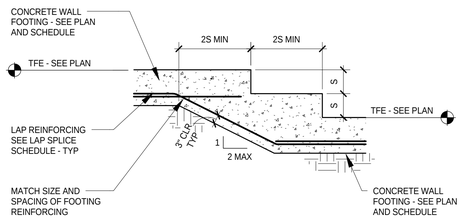


1 TYPICAL COLUMN ISOLATION JOINT
NO SCALE



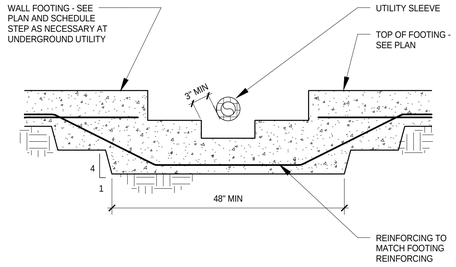
NOTES:
1. SEE NON-LOAD BEARING CMU WALL REINFORCING SCHEDULE FOR ADDITIONAL INFORMATION.
2. THICKENED SLAB SHALL BE CENTERED ON CMU WALL LOCATIONS, UNLESS NOTED OTHERWISE.
3. CONTRACTOR'S OPTION PROVIDE CAST-IN HOOKED DOWELS IN LIEU OF DRILL AND EPOXY DOWELS.

2 TYPICAL THICKENED SLAB ON GRADE AT INTERIOR NON-LOAD BEARING CMU WALL DETAIL
NO SCALE



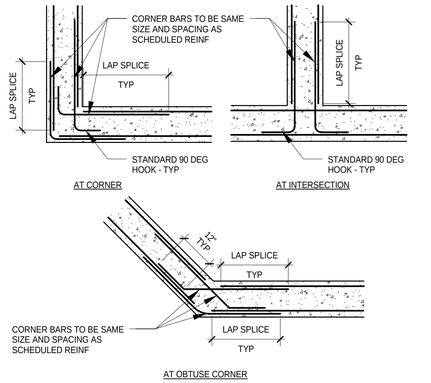
NOTES:
1. SEE PLAN FOR FOOTING STEP LOCATIONS.
2. 'S' SHALL NOT EXCEED 16" FOR CMU WALLS OR 24" FOR CAST-IN-PLACE OR PRECAST CONCRETE WALLS.

3 TYPICAL WALL FOOTING STEP
NO SCALE



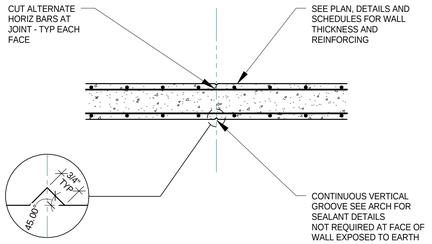
NOTES:
1. SEE TYPICAL WALL FOOTING STEP DETAIL FOR ADDITIONAL INFORMATION.
2. UTILITY SLEEVE DIAMETER TO BE 2" GREATER THAN UTILITY PIPE OUTSIDE DIAMETER. PROVIDE 1" COMPRESSIBLE MATERIAL BETWEEN SLEEVE AND UTILITY.
3. AT FOOTINGS BELOW CMU WALLS, COORDINATE WALL FOOTING STEP LOCATIONS WITH CMU COURSING.

4 TYPICAL STEPPED WALL FOOTING AT UTILITIES
NO SCALE



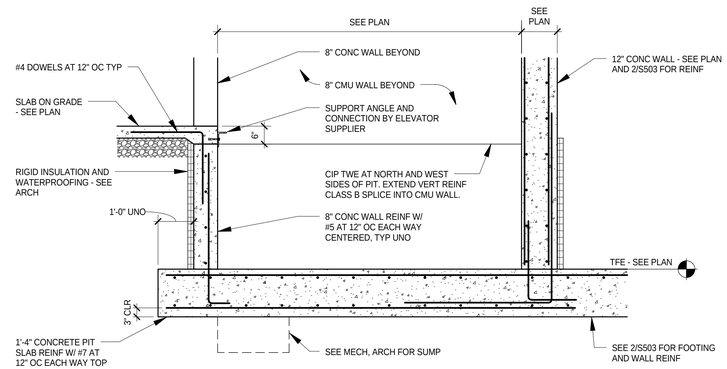
NOTES:
1. VERTICAL REINFORCING NOT SHOWN FOR CLARITY

5 TYPICAL CORNER BAR PLACING DETAIL
NO SCALE

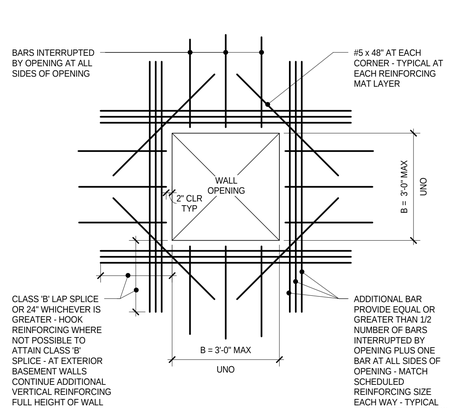


NOTES:
1. SUBMIT PROPOSED JOINT LOCATIONS FOR APPROVAL IF NOT SHOWN ON DRAWINGS.
2. MAXIMUM SPACING OF CONTROL JOINTS IS 20 FT ON CENTER OR 1 1/2 TIMES THE WALL HEIGHT ON CENTER, WHICHEVER IS LESS.
3. DO NOT USE THIS DETAIL FOR SHEAR WALLS OR WALLS THAT SPAN HORIZONTALLY.

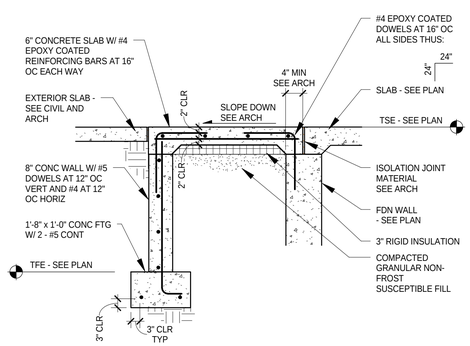
6 TYPICAL VERTICAL CONTROL JOINT FOR CONCRETE WALLS
NO SCALE



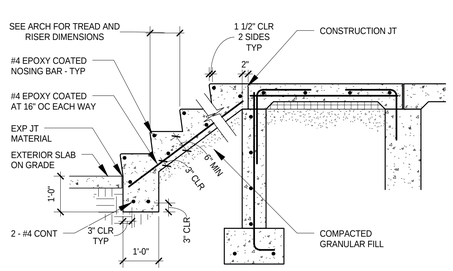
7 SECTION THRU ELEVATOR PIT
NO SCALE



8 TYPICAL ADDITIONAL BAR PLACING DETAIL FOR WALL OPENING
NO SCALE

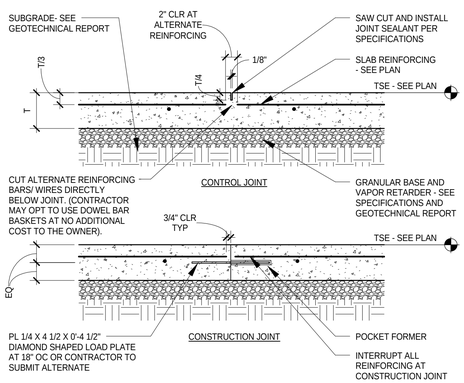


9 TYPICAL STOOP DETAIL
NO SCALE



NOTES:
1. SEE TYPICAL STOOP DETAIL FOR ADDITIONAL INFORMATION

10 TYPICAL STOOP AND STAIR ON GRADE DETAIL
NO SCALE



NOTES:
1. PROVIDE CHAIRS FOR SUPPORT OF REINFORCING.
2. AT EXTERIOR SLAB ON GRADE LOCATIONS, VAPOR BARRIER IS NOT REQUIRED.
3. PROVIDE DIAMOND SHAPED LOAD PLATE COMPLIANT WITH ACI 302.1 R.

11 TYPICAL SLAB ON GRADE CONSTRUCTION
NO SCALE

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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

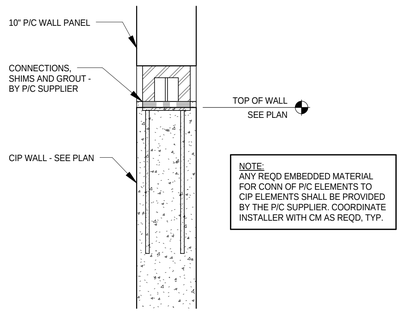
DATE ISSUED: 05/15/2013
REVIEWED BY: PAJ
DRAWN BY: SJL
DESIGNED BY: MDN / PAJ

AEP PROJECT NUMBER
213-1882-114

SHEET TITLE
STRUCTURAL FOUNDATION DETAILS

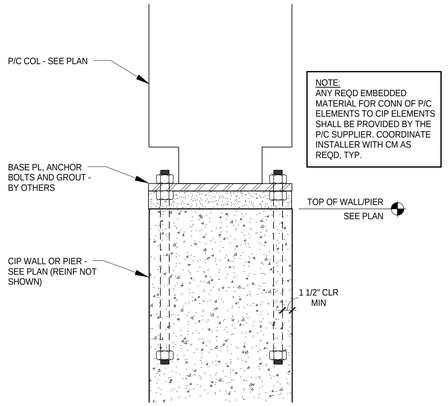
SHEET NUMBER
S501

ISSUED FOR BID



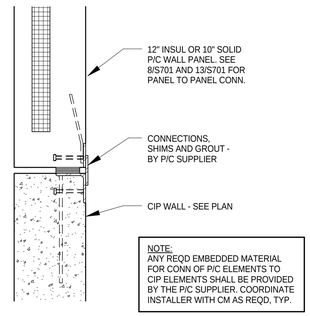
1 TYPICAL P/C WALL PANEL CONNECTION TO CIP FOUNDATION WALL

NO SCALE



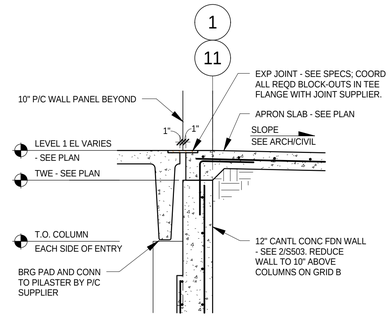
2 TYPICAL P/C COLUMN CONNECTION TO CIP COLUMN/WALL

NO SCALE



3 TYPICAL INSULATED P/C WALL PANEL CONNECTION TO CIP FOUNDATION WALL

NO SCALE



4 SECTION

1/2" = 1'-0"

5 SECTION

1/2" = 1'-0"

6 SECTION

1/2" = 1'-0"

7 SECTION

1/2" = 1'-0"

NOTES:
1. DETAIL APPLIES AT FOUR (4) DOUBLE TEES BETWEEN GRIDS 5 AND 7 (SEE PLAN).
2. COORDINATE FIREPROOFING REQUIREMENTS WITH ARCHITECTURAL.

8 SECTION

1/2" = 1'-0"

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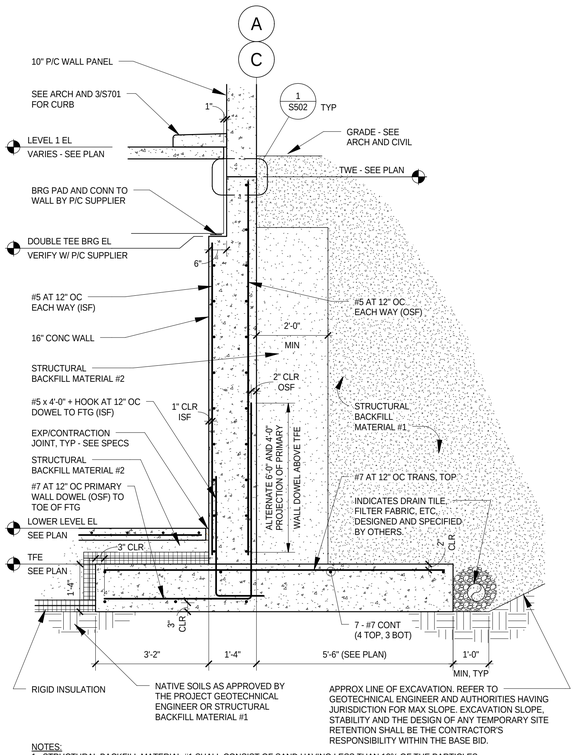
213-1882-114

SHEET TITLE
STRUCTURAL FOUNDATION DETAILS

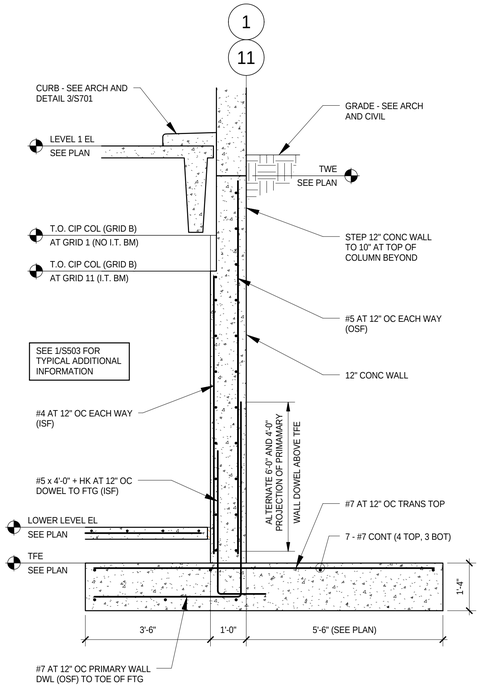
SHEET NUMBER
S502

ISSUED FOR BID

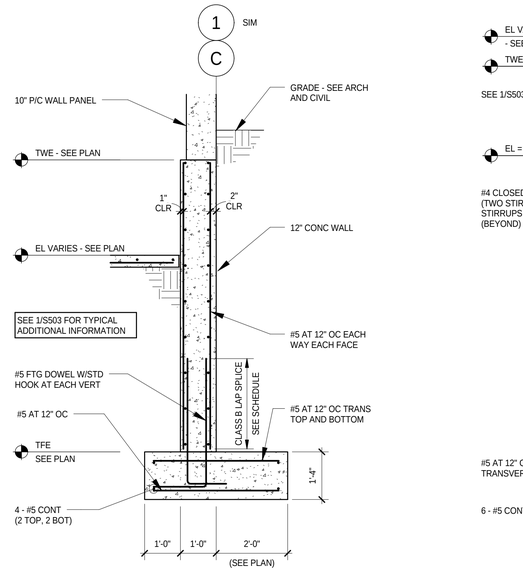


NOTES:
1. STRUCTURAL BACKFILL MATERIAL #1 SHALL CONSIST OF SAND HAVING LESS THAN 12% OF THE PARTICLES BY WEIGHT PASSING A #200 SIEVE. (REFER TO PROJECT GEOTECHNICAL REPORT).
2. STRUCTURAL BACKFILL MATERIAL #2 SHALL CONSIST OF SAND HAVING LESS THAN 50% OF THE PARTICLES BY WEIGHT PASSING A #40 SIEVE AND LESS THAN 5% OF THE PARTICLES BY WEIGHT PASSING A #200 SIEVE. (REFER TO PROJECT GEOTECHNICAL REPORT).
3. REFER TO THE PROJECT GEOTECHNICAL REPORT AND SPECIFICATIONS FOR ADDITIONAL INFORMATION, INCLUDING MAXIMUM BACKFILL LIFTS, COMPACTION, MOISTURE, ETC.
4. SEE ARCHITECTURAL DRAWINGS FOR WATERPROOFING, INSULATION, ETC. SEE S501 FOR CONSTRUCTION JOINT AND OTHER TYPICAL DETAILS.

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

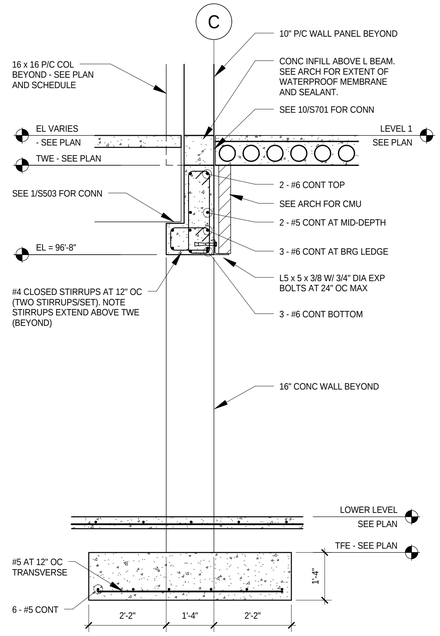


2 SECTION
1/2" = 1'-0"

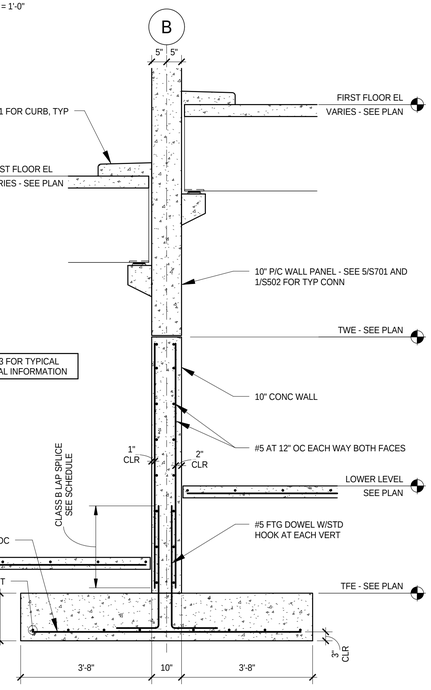


NOTE:
1. MAXIMUM DIFFERENTIAL BACKFILL ELEVATION BETWEEN ISF AND OSF OF WALL = 6'-0" THIS DETAIL ONLY.

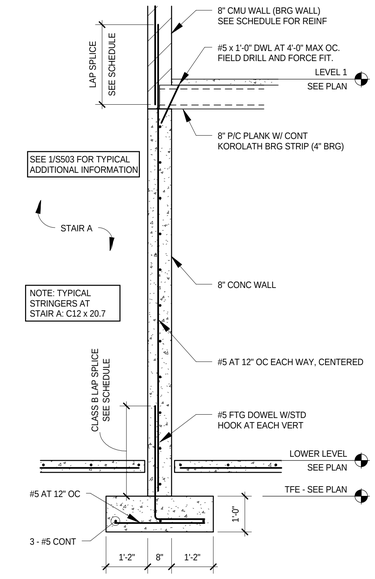
3 SECTION
1/2" = 1'-0"



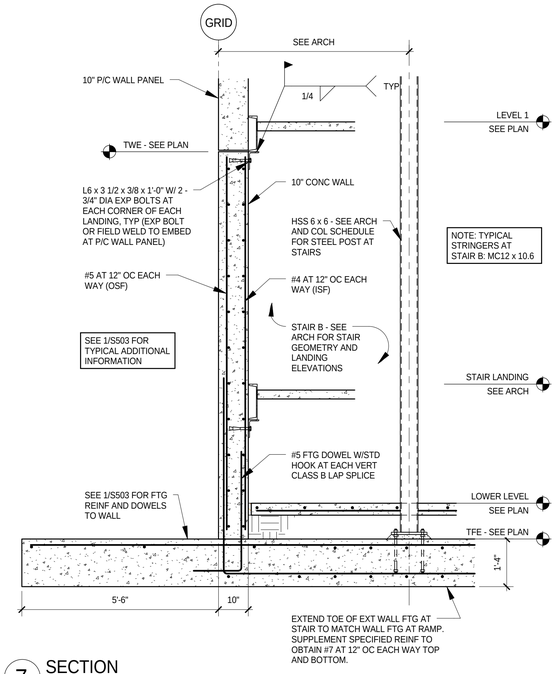
4 SECTION
1/2" = 1'-0"



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



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



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

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REVISIONS

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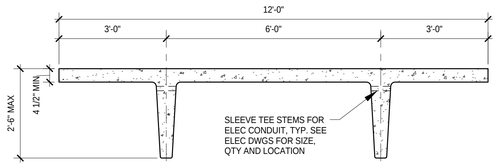
DRAWN BY: SJL
DESIGNED BY: MDN / PAJ

AEP PROJECT NUMBER
213-1882-114

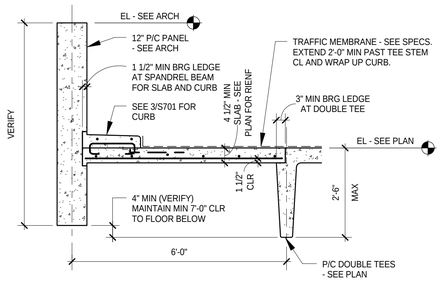
SHEET TITLE
STRUCTURAL FOUNDATION DETAILS

SHEET NUMBER
S503

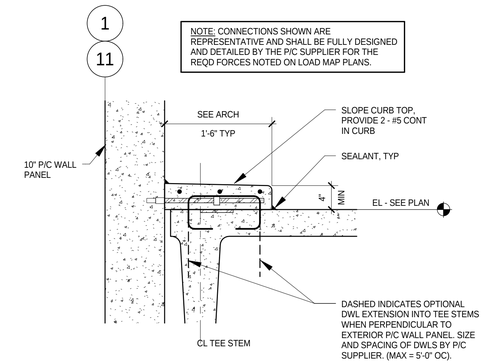
ISSUED FOR BID



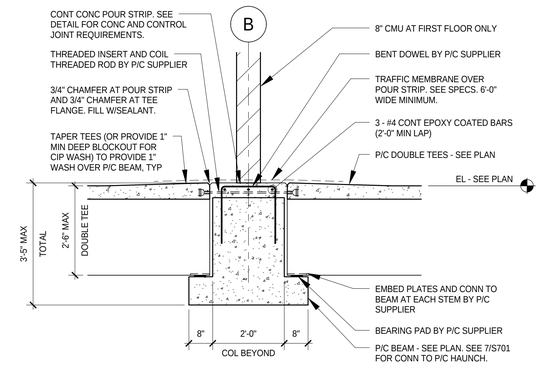
1 TYPICAL PRECAST DOUBLE TEE SCHEMATIC
1/2" = 1'-0"



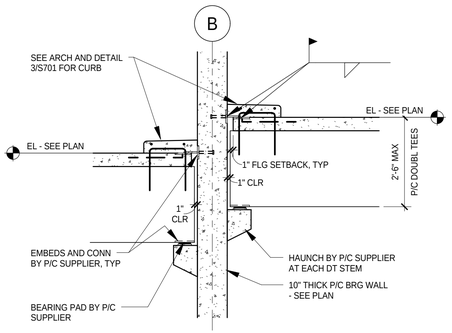
2 SECTION
1/2" = 1'-0"



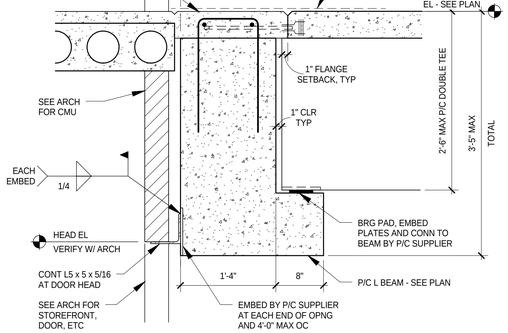
3 TYPICAL SECTION
1" = 1'-0"



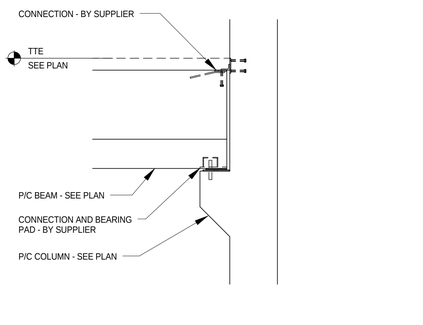
4 TYPICAL SECTION AT PRECAST INVERTED TEE BEAM
1/2" = 1'-0"



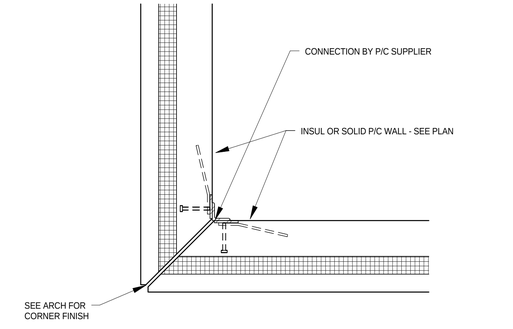
5 TYPICAL SECTION AT PRECAST BEARING WALL
NO SCALE



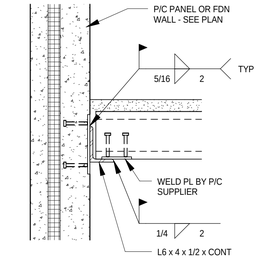
6 TYPICAL SECTION AT PRECAST L BEAM
NO SCALE



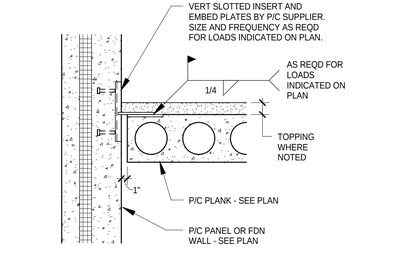
7 BEAM TO SINGLE HAUNCH COLUMN DETAIL
NO SCALE



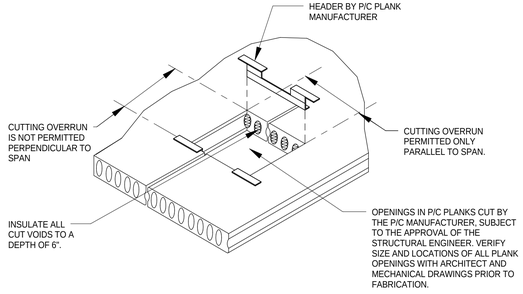
8 TYPICAL CORNER DETAIL
NO SCALE



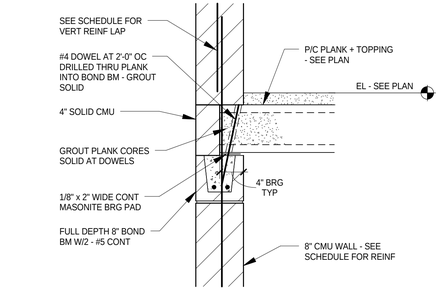
9 TYPICAL SECTION
1" = 1'-0"



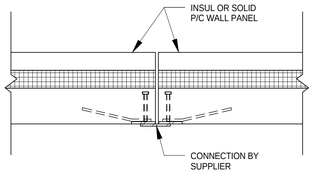
10 TYPICAL SECTION
1" = 1'-0"



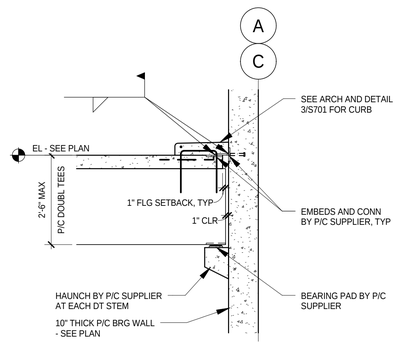
11 TYPICAL OPENING REINFORCING AT PRECAST PLANK
NO SCALE



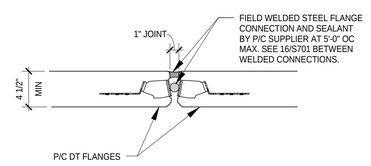
12 SECTION AT PLANK BEARING
1" = 1'-0"



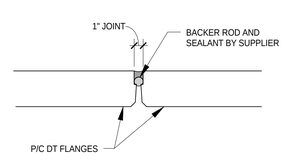
13 WALL PANEL CONNECTION
NO SCALE



14 TYPICAL SECTION AT PRECAST BEARING WALL
1/2" = 1'-0"



15 TYPICAL P/C JOINT DETAIL AT FLANGE CONNECTION
NO SCALE



16 TYPICAL P/C JOINT DETAIL AWAY FROM FLANGE CONNECTION
NO SCALE

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AEP PROJECT NUMBER
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SHEET TITLE
STRUCTURAL FRAMING DETAILS

SHEET NUMBER
S701

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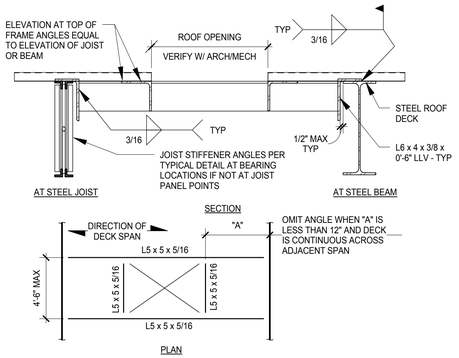
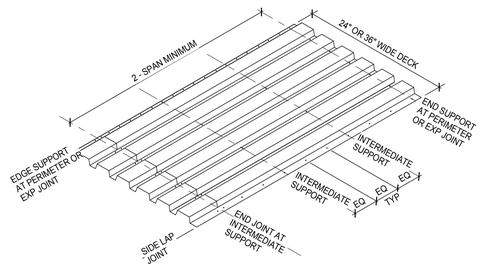


NOTES:
1. VERIFY OPENING SIZES AND LOCATIONS WITH MECHANICAL CONTRACTOR PRIOR TO FABRICATION.
2. WELD DECK AT OPENING AT EACH FLUTE WITH PUDDLE WELDS PER TYPICAL DECK ATTACHMENT DETAILS.
3. DO NOT CUT OPENING IN DECK UNTIL NECESSARY, CONTRACTOR TO COORDINATE.
4. THIS ROOF OPENING FRAME IS NOT DESIGNED 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.

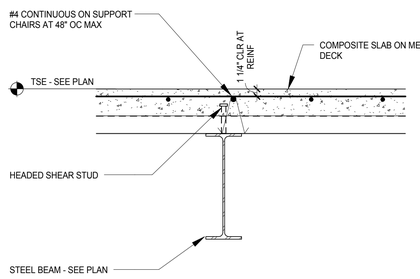
1 TYPICAL 3" ROOF DECK OPENING DETAIL (≤ 4'-6")
NO SCALE



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

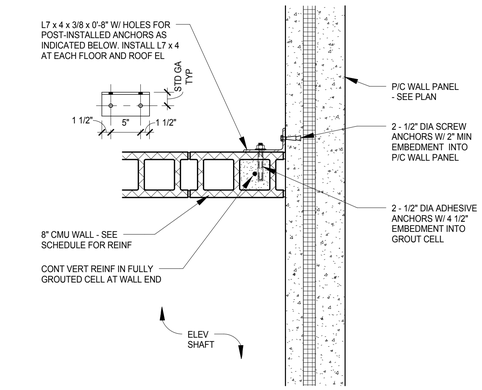
NOTES:
1. ALL PUDDLE (ARC-SPOT) WELDS SHALL BE 5/8" DIAMETER.
2. PROVIDE DECK ATTACHMENTS AT SPACING SHOWN UNLESS NOTED OTHERWISE ON DRAWINGS.
3. DECK SHEETS SHALL BE BUTTED AT END JOINTS. PROVIDE 1 1/2" MINIMUM BEARING.
4. HEADED STUD INSTALLED THROUGH THE DECK MAY BE SUBSTITUTED FOR PUDDLE WELD.

2 TYPICAL COMPOSITE FLOOR DECK ATTACHMENT DETAIL
NO SCALE

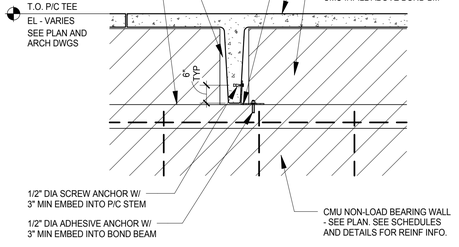


NOTES:
1. SEE TYPICAL DETAILS FOR DECK ATTACHMENT AND HEADED STUD INFORMATION.

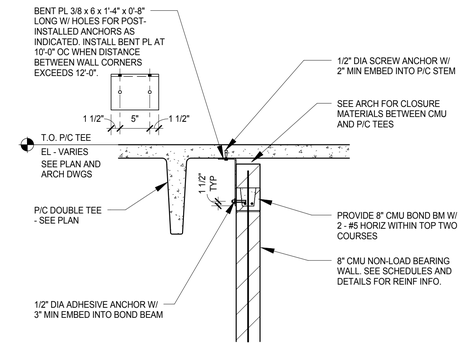
3 TYPICAL COMPOSITE FLOOR DECK PERPENDICULAR TO BEAM DETAIL
NO SCALE



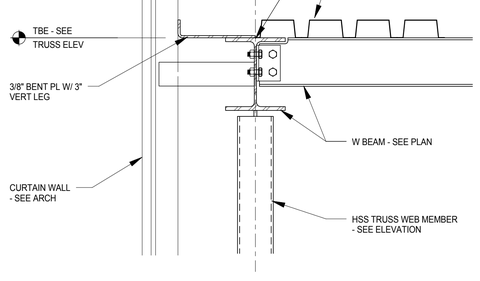
4 PLAN DETAIL
1" = 1'-0"



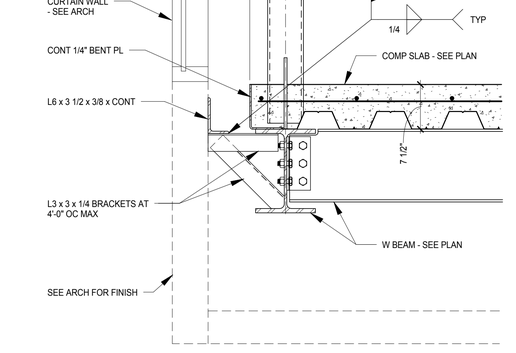
5 SECTION - TOP OF CMU WALL PERPENDICULAR TO P/C TEES
NO SCALE



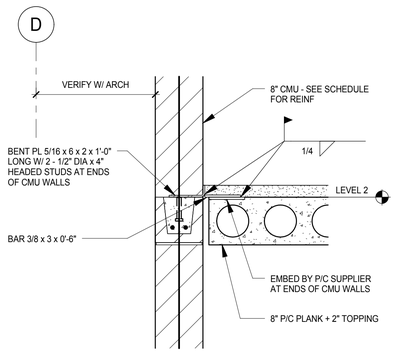
6 SECTION - TOP OF CMU WALL PARALLEL TO P/C TEES
NO SCALE



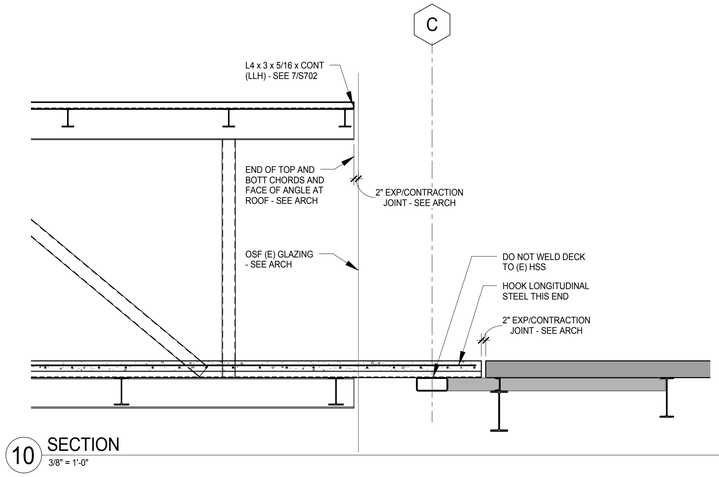
7 SECTION
1" = 1'-0"



8 SECTION
1" = 1'-0"



9 SECTION
1" = 1'-0"



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

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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

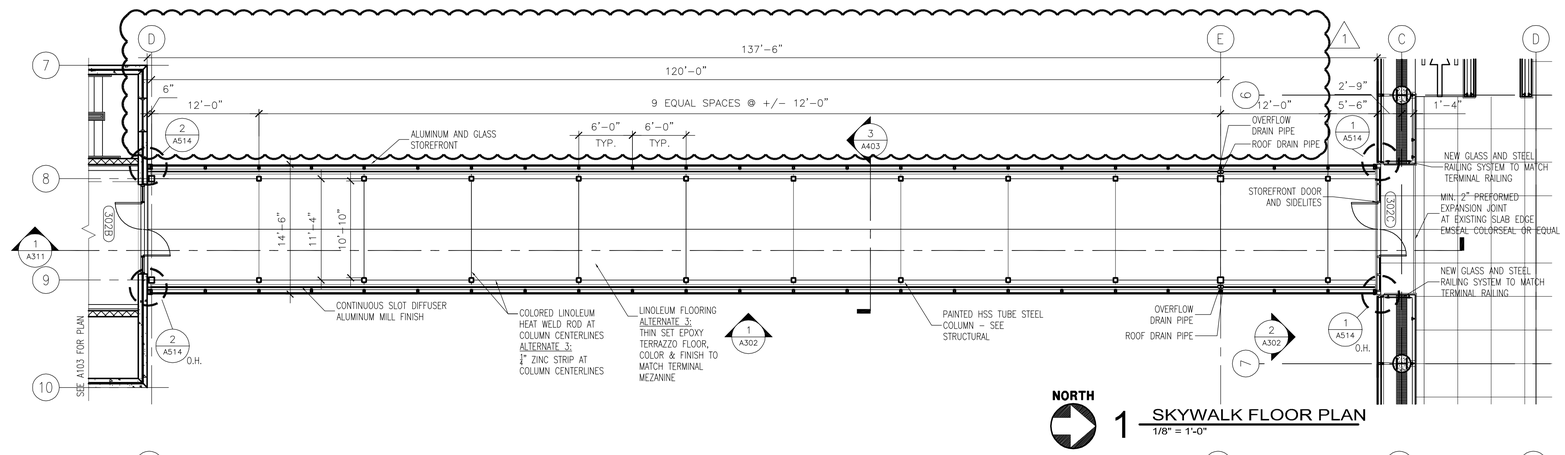
DATE ISSUED: 05/15/2013
REVIEWED BY: PAJ
DRAWN BY: SJL
DESIGNED BY: MDN / PAJ

AEP PROJECT NUMBER
213-1882-114

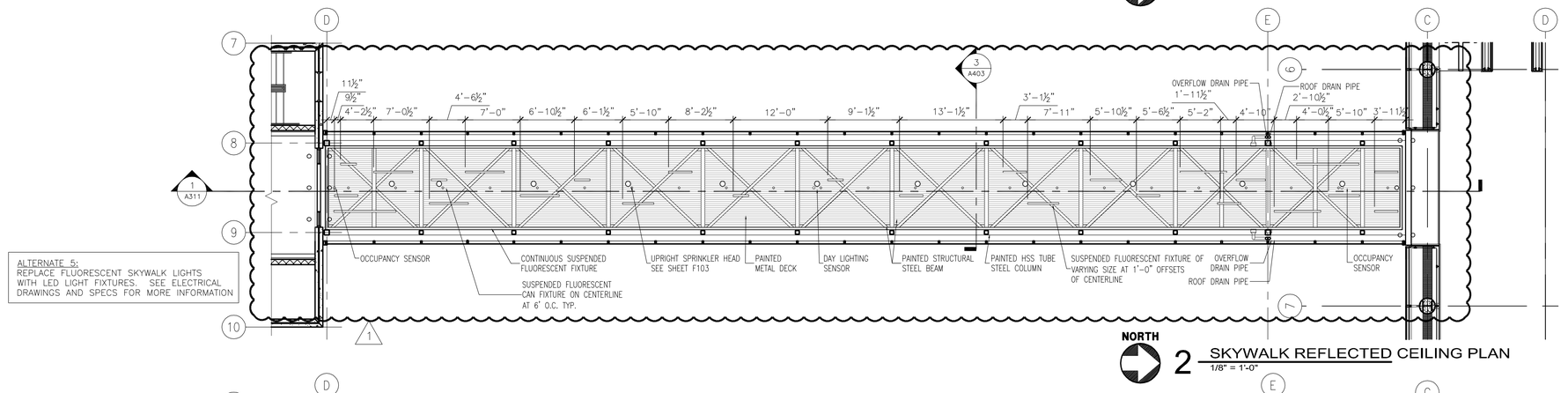
SHEET TITLE
STRUCTURAL FRAMING DETAILS

SHEET NUMBER
S702

ISSUED FOR BID

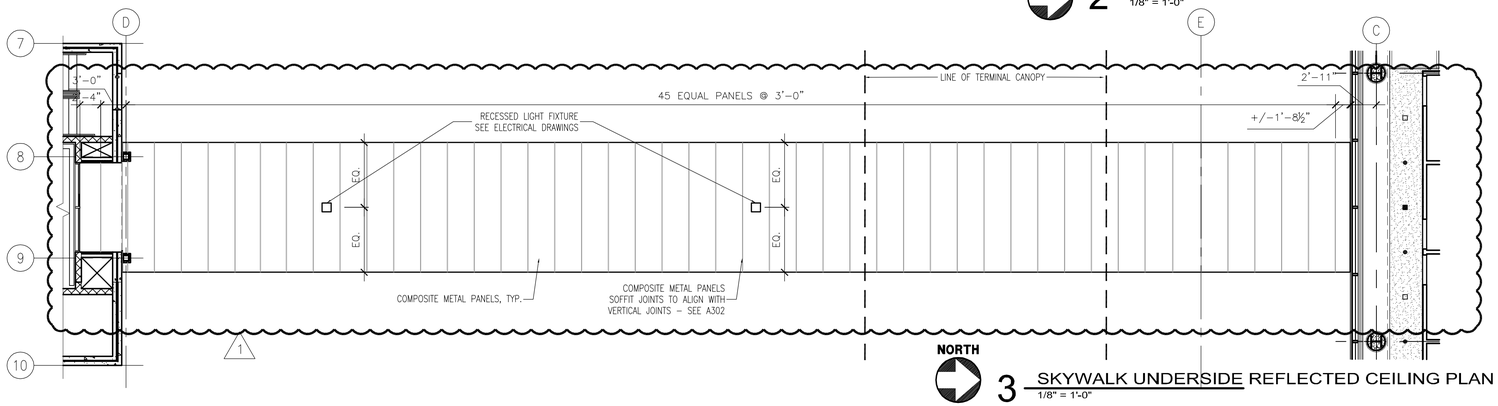


1 SKYWALK FLOOR PLAN
1/8" = 1'-0"

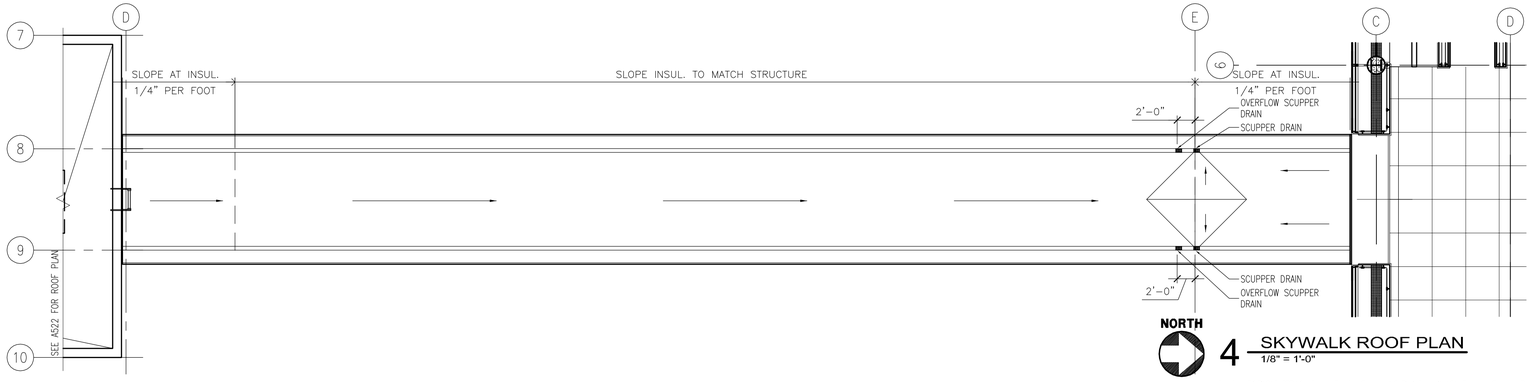


ALTERNATE 5:
REPLACE FLUORESCENT SKYWALK LIGHTS WITH LED LIGHT FIXTURES. SEE ELECTRICAL DRAWINGS AND SPECS FOR MORE INFORMATION

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



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



4 SKYWALK ROOF PLAN
1/8" = 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
1	ADDENDUM 2	5-31-13

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

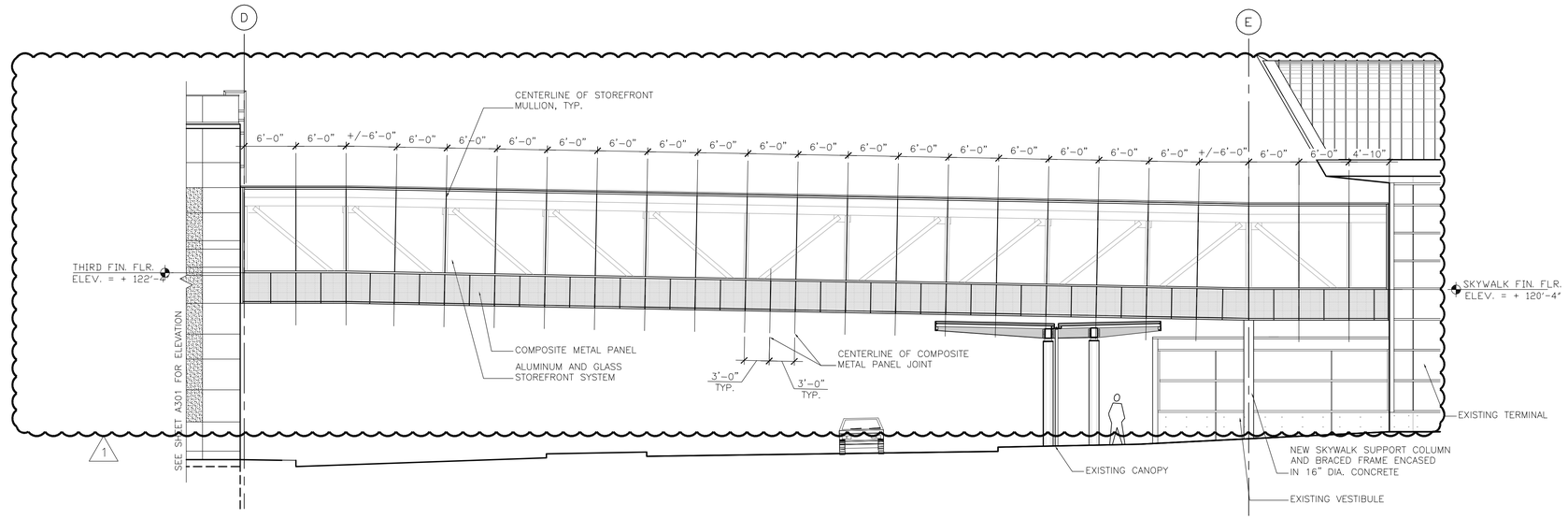
AEP PROJECT NUMBER
213-1882-114

SHEET TITLE
SKYWALK PLAN REFLECTED CEILING PLAN AND ROOF PLANS

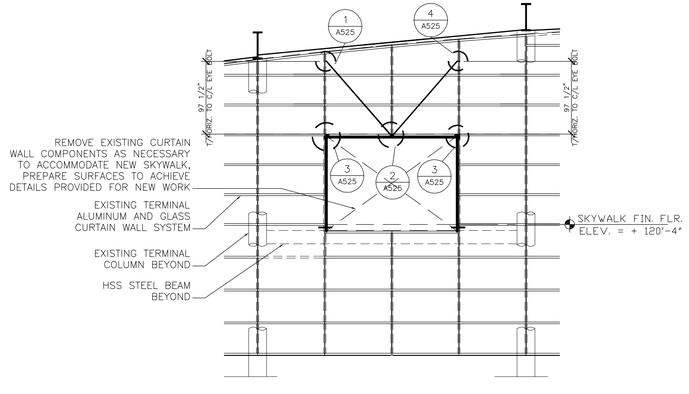
SHEET NUMBER
A104

ISSUED FOR BID

Drawing: T:\P\213188Z.114 Duluth Parking Structure\CAD\A\Sheets\A104 Enlarged Skywalk Plan.dwg Plotted on: 5/31/2013 1:01 PM Plotted by: Godzina, Marc



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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Signature:

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REVISIONS

NO.	DESCRIPTION	DATE
1	ADDENDUM 2	5-31-13

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: I:\P\2131882.114 Duluth Parking Structure\CAD\A\Sheets\A302 Enlarged Elevations - Skywalk.dwg Plotted on: 5/31/2013 12:51 PM Plotted by: Godzina, Marc

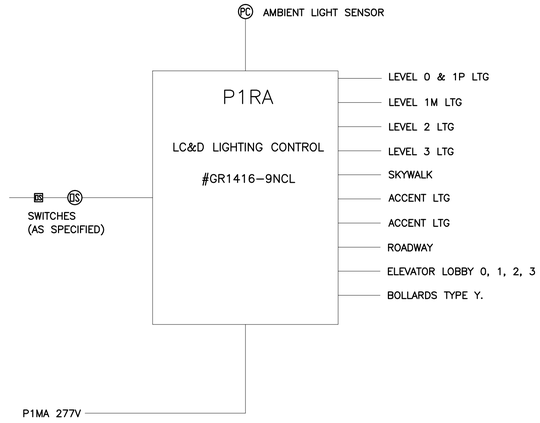
LUMINAIRE SCHEDULE

SEE NOTES THIS SHEET

MARK	DESCRIPTION	MOUNTING	LAMPS QTY	LAMPS TYPE	LAMP WATTS	VOLTS		APPROVED MANUFACTURER	MODEL/SERIES NUMBER	SEE NOTE
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 AND MOTION SENSOR.	WALL	2	F28T5	28	277	1	KENALL	ES548MS-228RSI-DV2H-PP-EL-TR	
							2	LITHONIA	VSLC SERIES	
							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; WITH EASY HINGED ACCESS. LENS FRAME, DIE-CAST ALUMINUM HOUSING WITH SILICONE GASKETS. -20° F HPF BALLAST; UL LISTED FOR WET LOCATION.	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	16.
							3			
							4			
F2 F2	WALLPACK FULL CUTOFF, STARVIEW COMPLIANT; DIE CAST ALUMINUM HOUSING; ACRYLIC LENS; QUARTER SPHERE SHAPE; MOUNTS DIRECT TO WALL. 4000K COLOR TEMPERATURE; BUTTON PHOTOCONTROL; BATTERY BACKUP. IP65 COMPLIANT FIXTURE.	WALL	–	LED	53W	277	1	LITHONIA	WSQ LED-2-10A700/40K-SR2-ELCW	
							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			
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	VU SERIES	
							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	4.6/2.8 (UNIT WATTS)	120/277	1	DUAL LITE		
							2	LITHONIA	LVS-W-#-#-ELN-CW	
							3	MCPHILBEN	ER60ML SERIES	
							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 FILTER 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 ROOF 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.
16. LIGHT FIXTURES SHALL BE CONNECTED IN EACH WALL OPENING AT 18" BELOW OPENING BOTTOM AND MONITORED AS ACCENT UPLIGHT.



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 SPECIFIED IN OPERATION SEQUENCE.

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

OUTDOOR LUMINAIRE SHALL BE CONTROLLED BY PHOTOCELL AND ASTRONOMIC CLOCK. COORDINATE SYSTEM SETUP AND OPERATING HOURS WITH OWNER PER OPERATION SEQUENCE.

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
1	ADDENDUM 2	5-31-13

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

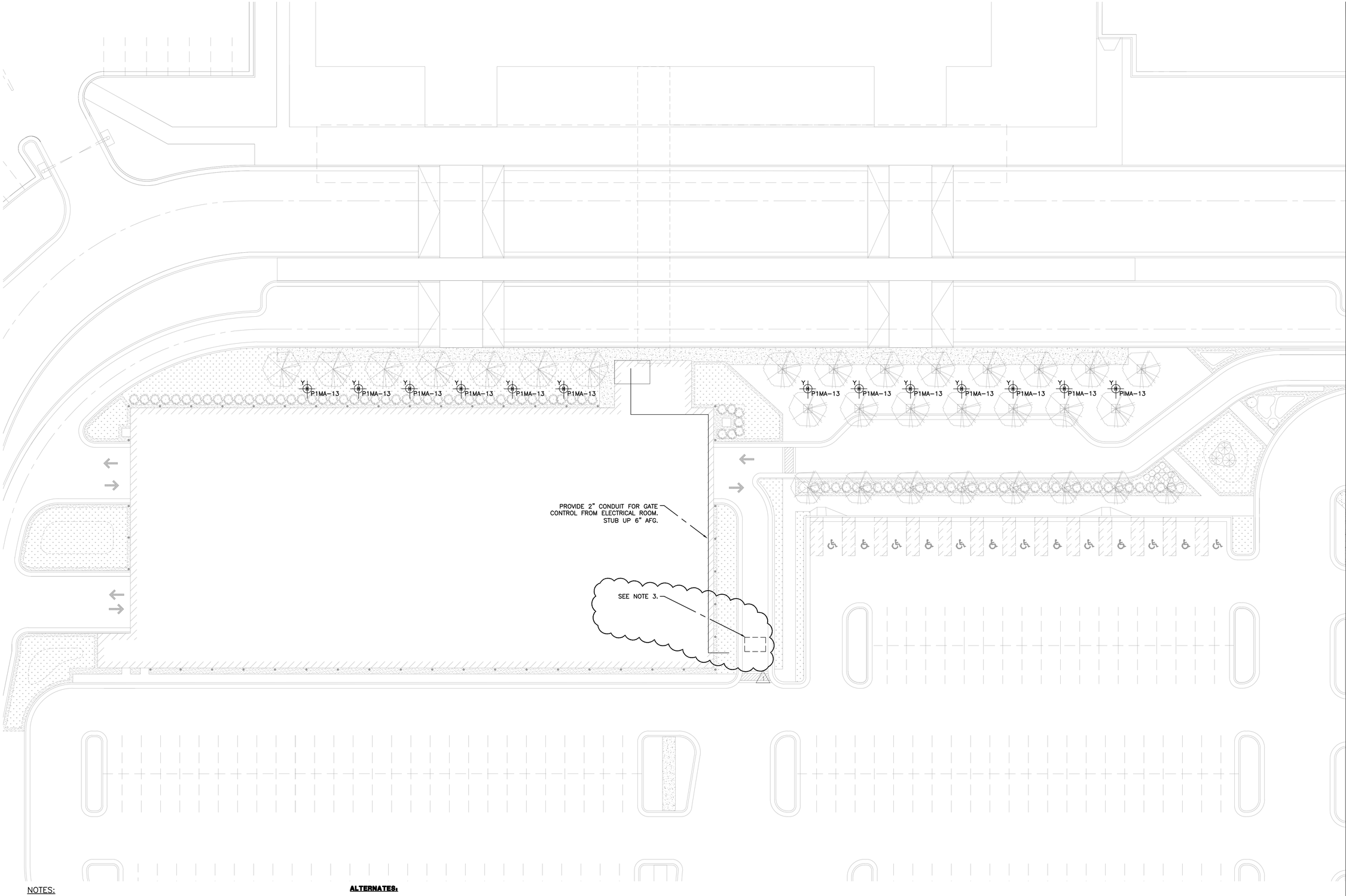
AEP PROJECT NUMBER
213-1882-114

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: 5/31/2013 9:32 AM Plotted by: Lazari, 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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REVISIONS

NO.	DESCRIPTION	DATE
1	ADDENDUM 2	5-31-13

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

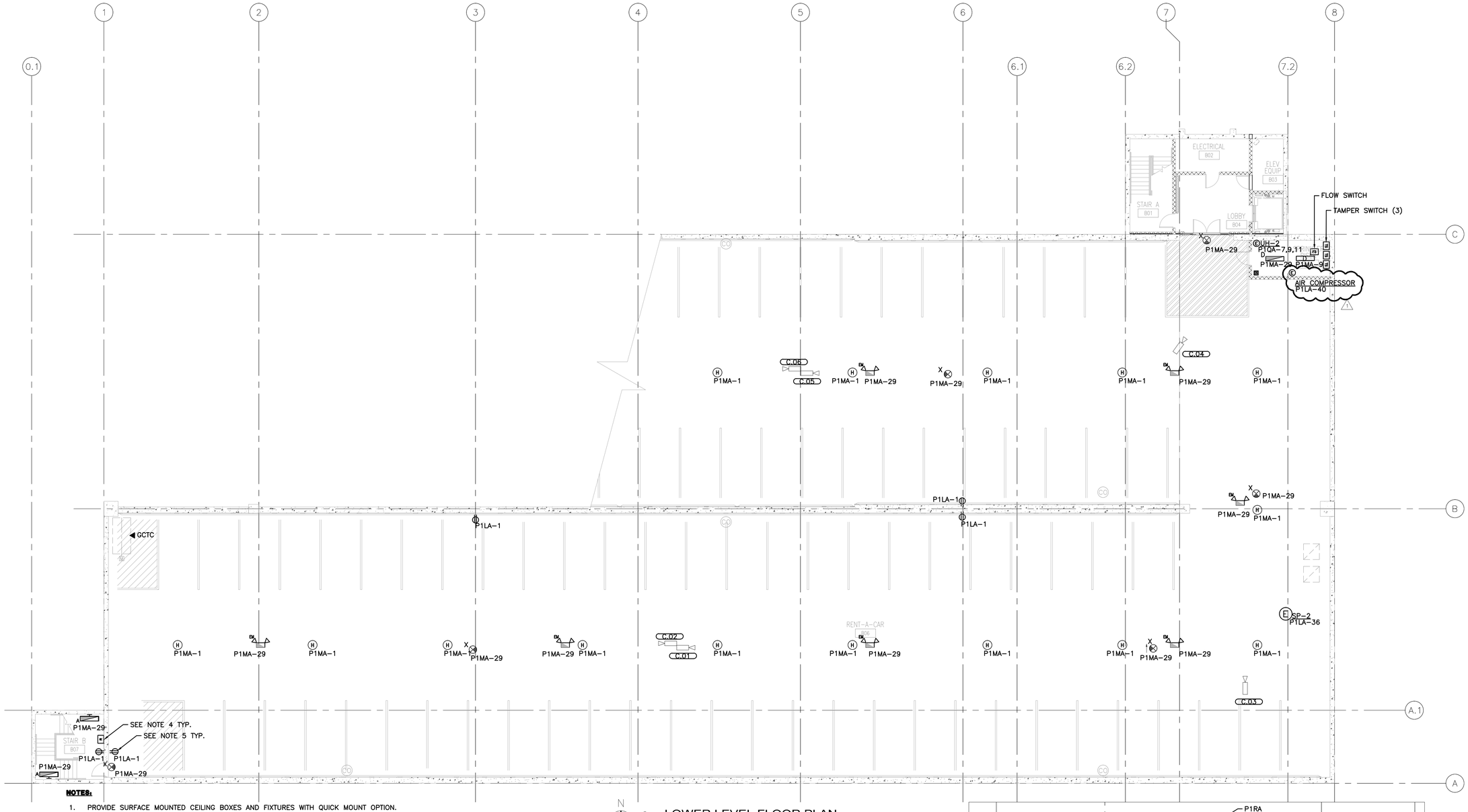
AEP PROJECT NUMBER
213-1882-114

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: 5/31/2013 9:32 AM Plotted by: Llazari, 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 E002. 1
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 SIMPLEX GRINNELL FACP FOR ELEVATOR &SPRINKLER CONTROL SUPERVISION NETWORK CONNECTED TO TERMINAL BUILDING FA SYSTEM. ROUTE FA NETWORK CONNECTION IN SEPARATE CONDUIT TOGETHER WITH COMMUNICATION CONDUIT ALONG UNDERSIDE OF SKYWALK TO TERMINAL BUILDING FACP. CONNECT SPRINKLER SYSTEM TAMPER & FLOW SWITCHES NOTIFICATION APPLIANCES, & INITIATING DEVICES TO FACP. PROVIDE ELEVATOR RECALL CONNECTIONS AS REQUIRED BY AHJ. 1
8. PROVIDE CONNECTIONS OF ALL CO DETECTORS TO HVAC CONTROL PANEL PER MANUFACTURERS INSTRUCTIONS. COORDINATE WORK WITH MECHANICAL CONTRACTOR SEE MECHANICAL DRAWINGS.
9. PROVIDE ELEVATOR TYPE CONTROL SWITCH WITH SHUNT TRIP, SELECTIVE COORDINATION & FIRE SAFETY SIGNAL INTERFACE EQUAL TO BUSSMAN POWER MODULE.

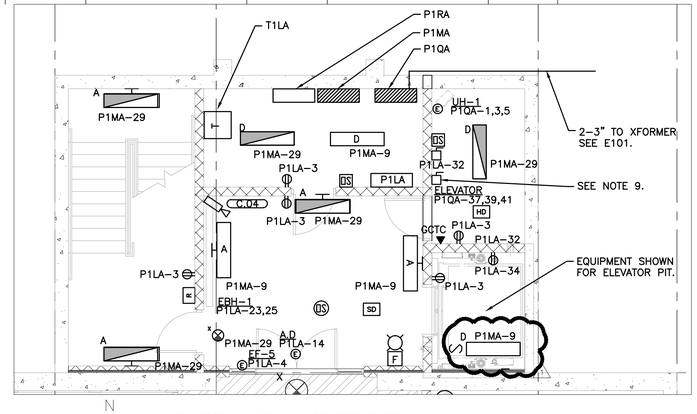
N
1 LOWER LEVEL FLOOR PLAN
3/32" = 1'-0"

ALTERNATES:

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

ALTERNATE 4:
PROVIDE FIFTY TWO (52) TYPE H-ALT LIGHT FIXTURES INSTEAD OF TYPE H SHOWN. PROVIDE EIGHT (8) TYPE F-ALT LIGHT FIXTURES INSTEAD OF TYPE F SHOWN.
BASE BID: TYPE H & F LIGHT FIXTURES. 1

ALTERNATE 8:
PROVIDE 28 CCTV CAMERAS SHOWN ON PLAN WIRED TO GCTC USING CAT6 WIRE IN CONDUIT. PROVIDE CCTV PoE SWITCHES WITH POWER SUPPLY, SETUP, LICENSES, & ANY SOFTWARE ADDITIONS NECESSARY FOR TERMINAL VIDEO MANAGEMENT SYSTEM. SEE DETAIL 2 E601.
BASE BID: NO CCTV. 1



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

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REVISIONS

NO.	DESCRIPTION	DATE
1	ADDENDUM 2	5-31-13

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

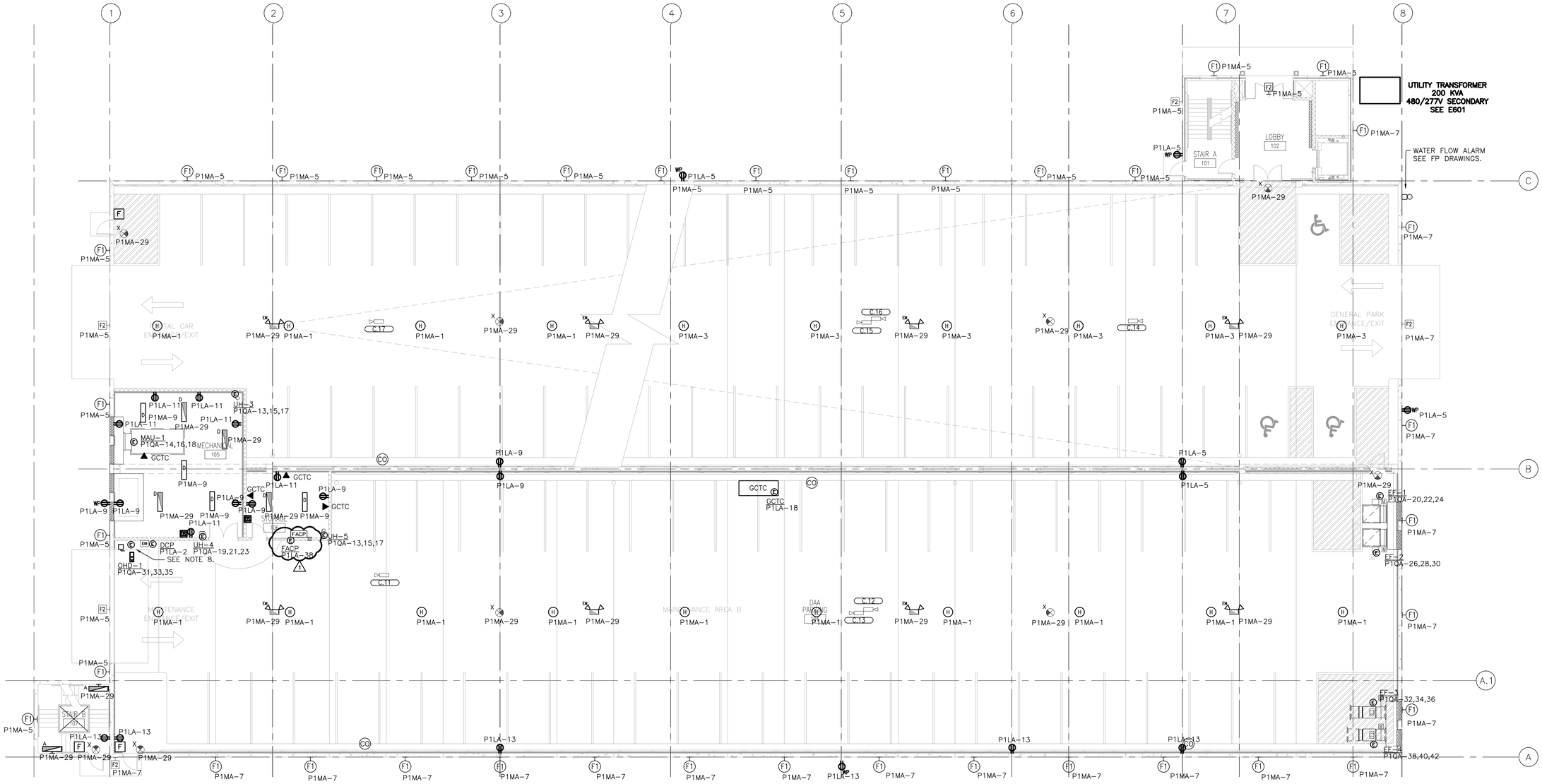
AEP PROJECT NUMBER
213-1882-114

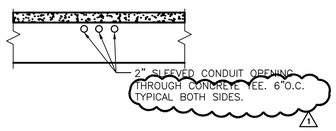
SHEET TITLE
LOWER LEVEL ELECTRICAL PLAN

SHEET NUMBER
E100

ISSUED FOR BID

Drawing: T:\P\2131882.114 Duluth Parking Structure\CAD\E\E100 Lower Level Lighting Plan.dwg Plotted on: 5/31/2013 9:32 AM Plotted by: Lazari, Rional





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 E002. 1
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 SIMPLEX GRINNELL FACP FOR ELEVATOR & SPRINKLER CONTROL SUPERVISION NETWORK CONNECTED TO TERMINAL BUILDING FA SYSTEM. ROUTE FA NETWORK CONNECTION IN SEPARATE CONDUIT TOGETHER WITH COMMUNICATION CONDUIT ALONG UNDERSIDE OF SKYWALK TO TERMINAL BUILDING FACP. CONNECT SPRINKLER SYSTEM TAMPER & FLOW SWITCHES NOTIFICATION APPLIANCES, & INITIATING DEVICES TO FACP. PROVIDE ELEVATOR RECALL CONNECTIONS AS REQUIRED BY AHJ. 1
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).
BASE BID: MANUAL DOORS. 1

ALTERNATE 4:
PROVIDE FIFTY TWO (52) TYPE H-ALT LIGHT FIXTURES INSTEAD OF TYPE H SHOWN, PROVIDE EIGHT (8) TYPE F-ALT LIGHT FIXTURES INSTEAD OF TYPE F SHOWN.
BASE BID: TYPE H & F LIGHT FIXTURES. 1

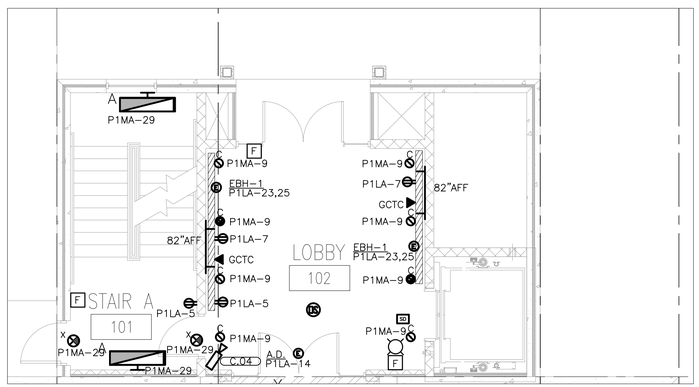
ALTERNATE 6:
PROVIDE EXTERIOR LIGHT FIXTURES TYPE F1 AS SHOWN ON PLAN, WIRING,AND CONTROL WIRING AS SHOWN IN SCHEMATIC CONTROL DIAGRAM.
BASE BID: NO TYPE F1 LIGHT FIXTURES. 1

ALTERNATE 7:
PROVIDE ROOM 106 DATA OUTLETS AS SHOWN ON PLAN WIRED TO GCTC.
BASE BID: NO DATA OUTLETS IN ROOM 106. 1

ALTERNATE 8:
PROVIDE 28 CCTV CAMERAS SHOWN ON PLAN WIRED TO GCTC USING CAT6 WIRE IN CONDUIT. PROVIDE CCTV PoE SWITCHES WITH POWER SUPPLY, SETUP, LICENSES, & ANY SOFTWARE ADDITIONS NECESSARY FOR TERMINAL VIDEO MANAGEMENT SYSTEM. SEE DETAIL2 E601.
BASE BID: NO CCTV. 1

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
1	ADDENDUM 2	5-31-13

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

AEP PROJECT NUMBER
213-1882-114

SHEET TITLE

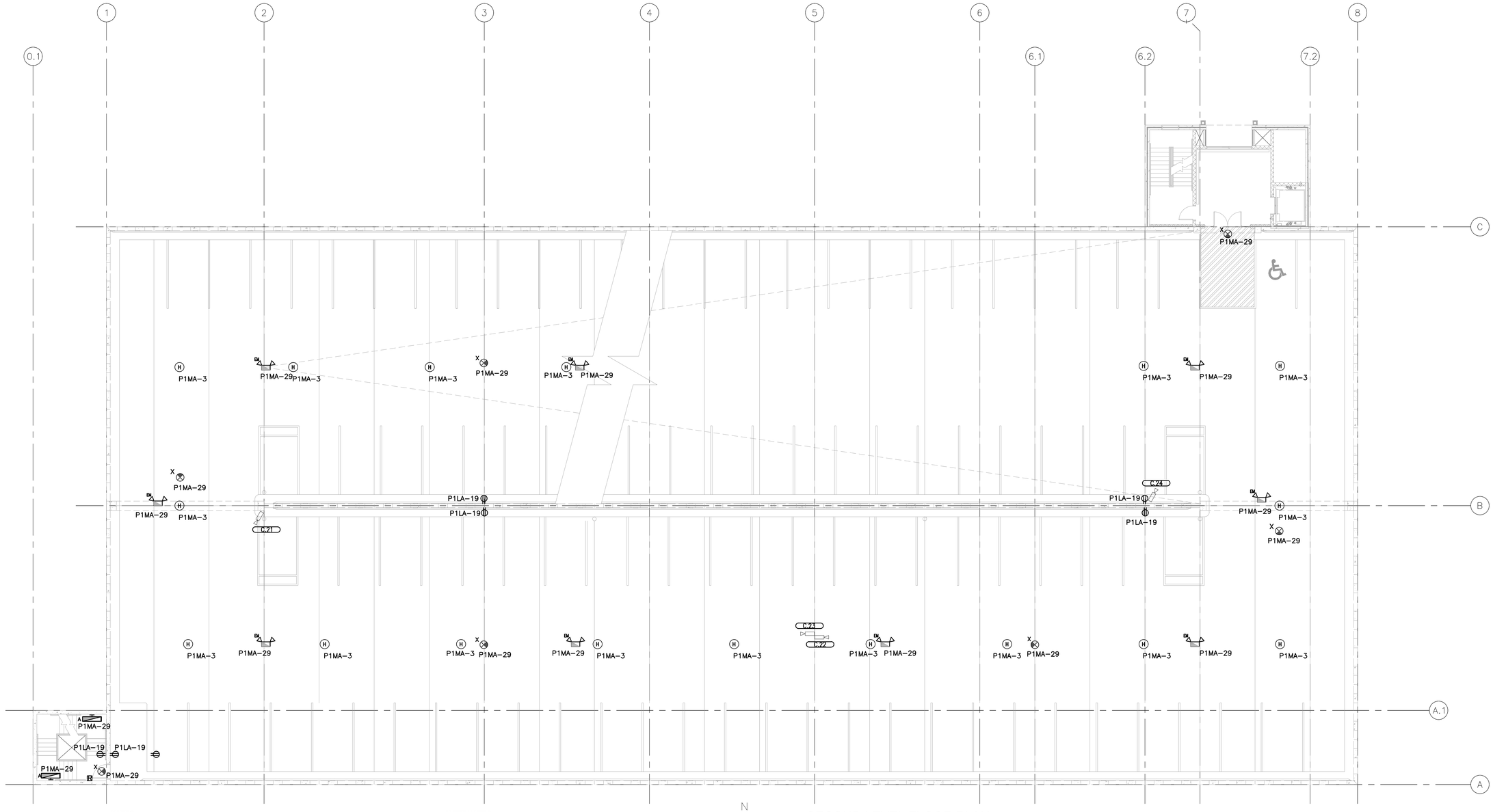
FIRST LEVEL ELECTRICAL PLAN

SHEET NUMBER

E101

ISSUED FOR BID

Drawing: T:\P\2131882.114 Duluth Parking Structure\CAD\E\E101 First Level Lighting Plan.dwg Plotted on: 5/31/2013 9:33 AM Plotted by: Lizarri, Ronal



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 E002.
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:

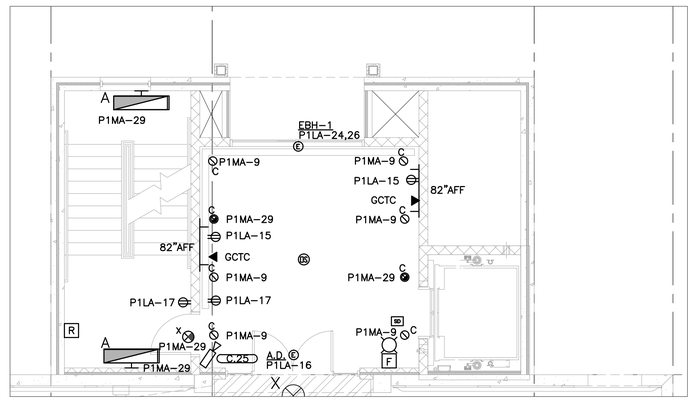
ALTERNATE 1:
PROVIDE AUTOMATIC DOOR OPERATOR CIRCUIT AND WIRING AT ELEVATOR LOBBY AND SKYWALK (BOTH ENDS).
BASE BID: MANUAL DOORS.

ALTERNATE 4:
PROVIDE FIFTY TWO (52) TYPE H-ALT LIGHT FIXTURES INSTEAD OF TYPE H SHOWN. PROVIDE EIGHT (8) TYPE F-ALT LIGHT FIXTURES INSTEAD OF TYPE F SHOWN.
BASE BID: TYPE H & F LIGHTING FIXTURES.

ALTERNATE 8:
PROVIDE 28 CCTV CAMERAS SHOWN ON PLAN WIRED TO GCTC USING CAT6 WIRE IN CONDUIT. PROVIDE CCTV PoE SWITCHES WITH POWER SUPPLY, SETUP, LICENSES, & ANY SOFTWARE ADDITIONS NECESSARY FOR TERMINAL VIDEO MANAGEMENT SYSTEM. SEE DETAIL 2 E601.
BASE BID: NO CCTV.

N

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



N

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

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1	ADDENDUM 2	5-31-13

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

AEP PROJECT NUMBER
213-1882-114

SHEET TITLE

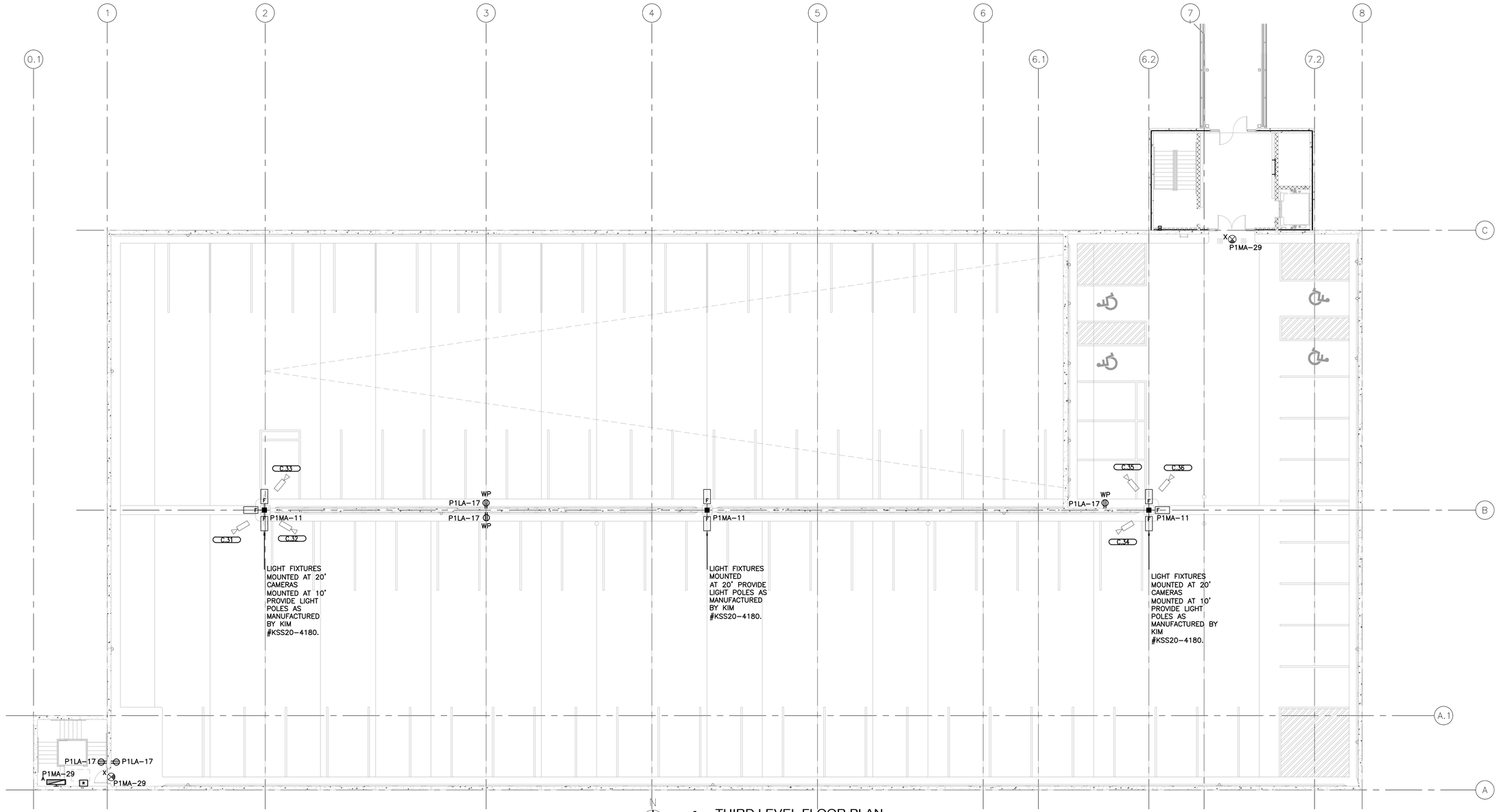
SECOND LEVEL ELECTRICAL PLAN

SHEET NUMBER

E102

ISSUED FOR BID

Drawing: T:\P\2131882.114 Duluth Parking Structure\CAD\E\E102 Second Level Lighting Plan.dwg Plotted on: 5/31/2013 9:33 AM Plotted by: Lazari, Rional



1 THIRD LEVEL FLOOR PLAN
3/32" = 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.
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.
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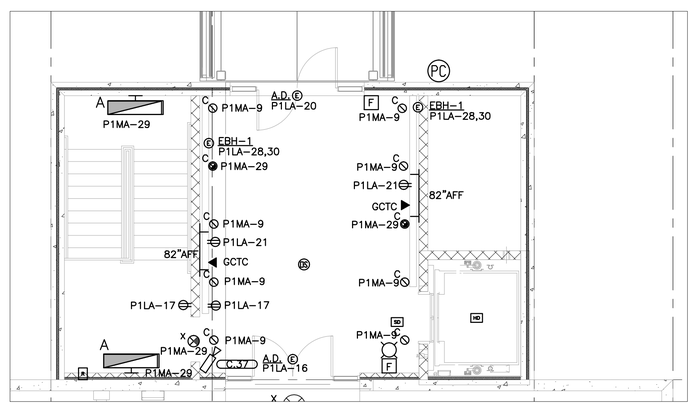
ALTERNATES:

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

ALTERNATE 4:
PROVIDE FIFTY TWO (52) TYPE H-ALT LIGHT FIXTURES INSTEAD OF TYPE H SHOWN. PROVIDE EIGHT (8) TYPE F-ALT LIGHT FIXTURES INSTEAD OF TYPE F SHOWN.
BASE BID: TYPE H & F LIGHTING FIXTURES.

ALTERNATE 8:
PROVIDE 28 CCTV CAMERAS SHOWN ON PLAN WIRED TO GCTC USING CAT6 WIRE IN CONDUIT. PROVIDE CCTV PoE SWITCHES WITH POWER SUPPLY, SETUP, LICENSES, & ANY SOFTWARE ADDITIONS NECESSARY FOR TERMINAL VIDEO MANAGEMENT SYSTEM. SEE DETAIL 2 E601.
BASE BID: NO CCTV.



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

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REVISIONS

NO.	DESCRIPTION	DATE
1	ADDENDUM 2	5-31-13

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

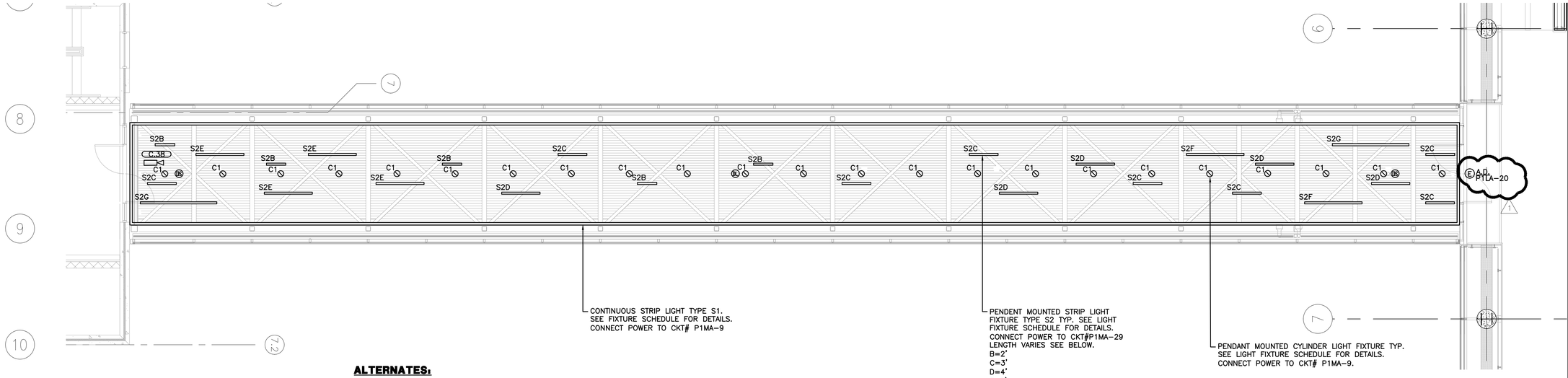
AEP PROJECT NUMBER
213-1882-114

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: 5/31/2013 9:33 AM Plotted by: Lazari, Rional

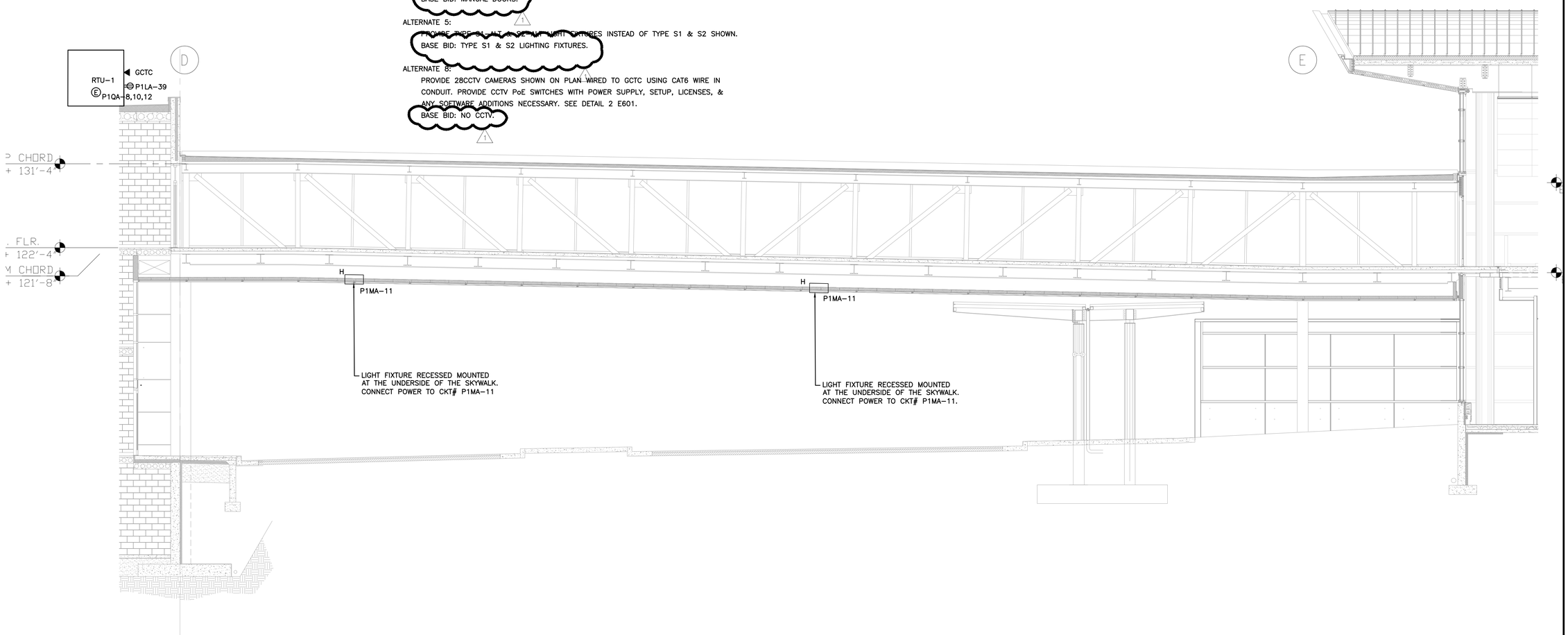


ALTERNATES:

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

ALTERNATE 5:
PROVIDE TYPE S1 ALT & S2 ALT LIGHT FIXTURES INSTEAD OF TYPE S1 & S2 SHOWN.
BASE BID: TYPE S1 & S2 LIGHTING FIXTURES.

ALTERNATE 8:
PROVIDE 28CCTV CAMERAS SHOWN ON PLAN WIRED TO GCTC USING CAT6 WIRE IN CONDUIT. PROVIDE CCTV PoE SWITCHES WITH POWER SUPPLY, SETUP, LICENSES, & ANY SOFTWARE ADDITIONS NECESSARY. SEE DETAIL 2 E601.
BASE BID: NO CCTV.



N

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

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1	ADDENDUM 2	5-31-13

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

AEP PROJECT NUMBER
213-1882-114

SHEET TITLE

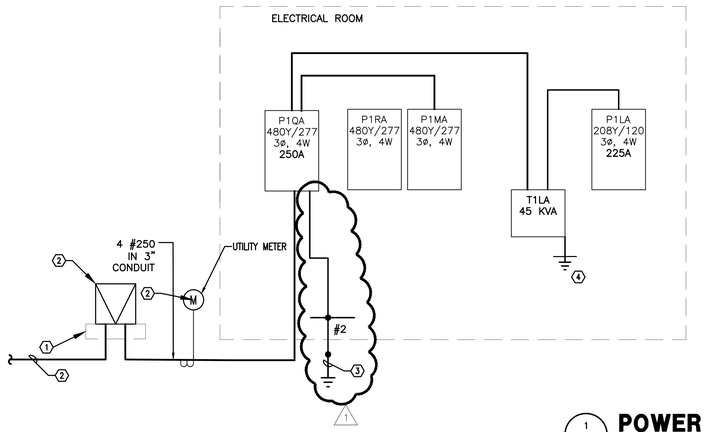
SKYWALK ELECTRICAL PLAN

SHEET NUMBER

E104

ISSUED FOR BID

Drawing: T:\P\2131882.114 Duluth Parking Structure\CAD\E\E104 Enlarged Skywalk Plan.dwg Plotted on: 5/31/2013 9:35 AM Plotted by: Liazari, Rishal



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:

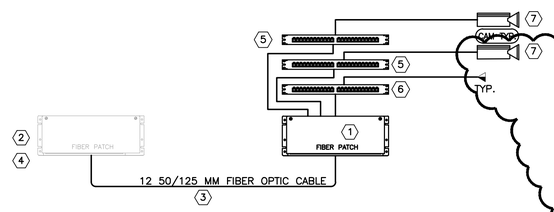
1. CONCRETE PAD PER UTILITY STANDARDS. PROVIDE SECONDARY CONDUIT DUCTBANK, CONCRETE ENCASED, AND CABLE. TRANSFORMER CONNECTIONS BY UTILITY CO.
2. CONTRACTOR SHALL COORDINATE INSTALLATION WITH UTILITY PROVIDER PER UTILITY REQUIREMENTS. SEE DWG. E101 FOR LOCATION.
3. PROVIDE SERVICE ENTRANCE GROUND PER 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.



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 F.O. PATCH PANEL IN TERMINAL BUILDING MDF. PROVIDE DUAL PATCH CONNECTIONS TO NETWORK CORE SWITCH.
3. PROVIDE 24 STRAND 50 MICRON OM3 MM FIBER OPTIC CABLE FROM MDF F.O. PATCH PANEL TO GCTC. INSTALL IN CONDUIT ROUTE IN CEILING UNDER TERMINAL MEZZANINE, TO UNDERSIDE OF SKYWALK, TO PARKING STRUCTURE GCTC. PROVIDE 3M MAXCELL INNER DUCT IN CONDUIT.
4. EXISTING FIBER OPTIC PATCH PANEL W/ SPLICE TRAYS & TYPE 'SC' CONNECTION IN MDF.
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. PROVIDE F.O. PATCH CONNECTION TO MDF CCTV SERVER. THIS PART OF WORK SHALL BE BID SEPARATELY UNDER ALTERNATE #8
6. 24 PORT NETWORK SWITCH W/ 1 GIG UPLINK. SWITCH SHALL BE COMNET CNGE2FE24MS OR APPROVED EQUAL. SWITCH IS DEDICATED FOR COMMUNICATION USE ONLY.
7. PROVIDE CCTV CAMERA. CAMERA SHALL BE ARECONT MV1355DN, IQINVISION ALLIANCE 1QA21, AXIS P3344-V OR APPROVED EQUAL WITH DAY/NIGHT (0.5 LUX OR LESS MIN), FIXED DOME 1.3 MEGAPIXEL (MIN), PROGRESIVE SCAN, 2.8-12MM OR EQUIVALENT, H264/MJPEG ENCODING MULTI-STREAM CAMERA. PROVIDE WEATHER/VANDAL PROOF ENCLOSURE WITH HEATER AND FAN. ALL THE WORK INCLUDING CCTV INSTALLATION, CONNECTION ETC. SHALL BE BID SEPARATELY UNDER ALTERNATE #8.

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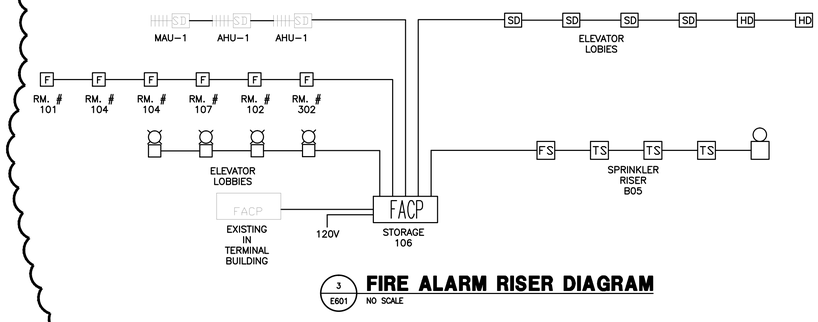
2 E601 TECHNOLOGY RISER DIAGRAM

NO SCALE



3 E601 FIRE ALARM RISER DIAGRAM

NO SCALE

FIRE ALARM NOTES:

1. ALL DEVICES AND EQUIPMENT SHOWN SHALL BE NEW AND UL LISTED. SYSTEM AND WIRING SHALL COMPLY WITH NFPA 72. WIRING AND NUMBER OF DEVICES ON A CIRCUIT SHALL COMPLY WITH MANUFACTURER'S RECOMMENDATIONS.
2. PROVIDE WATER FLOW SWITCH, ALARM BELL, AND VALVE TAMPER SWITCHES WIRING TO NEW FACP FROM EACH SWITCH.
3. SMOKE DETECTORS SHALL BE LOCATED NO LESS THAN 5 FEET FROM ANY DIFFUSER.
4. MANUAL PULL STATIONS SHALL BE MOUNTED AT 46" AFF TO CENTERLINE.
5. AUDIBLE NOTIFICATION SPEAKERS SHALL COMPLY WITH UL 1480 AND BE MOUNTED 96" AFF TO BOTTOM OF DEVICE, BUT NOT CLOSER THAN 6" BETWEEN TOP OF DEVICE AND CEILING.
6. VISUAL NOTIFICATION DEVICES-COMPLY WITH UL1971. LIGHT SOURCE TO BE MOUNTED 80" AFF OR 6" BELOW THE CEILING, WHICHEVER IS LOWER. STROBES TO BE SYNCHRONIZED BY CIRCUIT AND AREA.
7. COMBINATION NOTIFICATION DEVICES SHALL BE MOUNTED WITH BOTTOM OF UNIT AT 80" AFF
8. ALL CONTROL PANELS SHALL BE 36" AFF TO BOTTOM OF PANEL AND SHALL BE NO HIGHER THAN 78" AFF TO TOP OF PANEL.
9. ALL DEVICE BOXES SHALL BE RECESSED IN WALL OR CEILING WHEN POSSIBLE. AVOID CONFLICTS WITH LIGHT FIXTURES, DIFFUSERS, GRILLS, DUCTS, PIPING, STRUCTURAL MEMBERS, AND OTHER OBSTRUCTIONS.
10. ALL FIRE ALARM WIRING SHALL BE IN SEPARATE CONDUIT. CONDUIT SHALL BE MARKED WITH RED BAND EVERY 20'. PULL BOXES SHALL HAVE RED COVERS.

1

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REVISIONS

NO.	DESCRIPTION	DATE
1	ADDENDUM 2	5-31-13

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

AEP PROJECT NUMBER
213-1882-114

SHEET TITLE
ELECTRICAL AND COMMUNICATION RISER DIAGRAMS

SHEET NUMBER
E601

ISSUED FOR BID

Drawing: T:\P\2131882.114 Duluth Parking Structure\CAD\E\E600 Riseres .dwg Plotted on: 5/31/2013 9:35 AM Plotted by: Lazari, Rional

Electrical P1QA Schedule

VOLTS/PHASE/WIRE	PANEL SIZE & TYPE	MAIN SIZE & TYPE	CABINET	MIN	FED FROM	NOTES
480/3/4	250 A	250A 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	225 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	1	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	2	1ST FL EBH			1081	2ND FL EBH	2	20	24
25	20			1081						
				1081					20	26
27	20	2	LOWER FL. EBH		610					
					1237		3RD FL EBH	2	20	28
29	20					610				
						1237			20	30
31	20	3	SPARE	0						
				960			ELEVATOR DS	1	20	32
33	20				0					
					960		SP-1	1	20	34
35	20					0				
						960	SP-2	1	20	36
37	20	1	SPARE	0						
				180			FACP	1	20	38
39	20	1	SPARE		0					
					1650		FP COMPRESSOR	1	20	40
41	20	1	SPARE			0				
						0	SPARE	1	20	42
43	20	1	SPACE	0						
				0			SPACE	1	20	44
45	20	1	SPACE		0					
					0		SPACE	1	20	46
47	20	1	SPACE			0				
						0	SPACE	1	20	48
49	20	1	SPACE	0						
				0			SPACE	1	20	50
51	20	1	SPACE		0					
					0		SPACE	1	20	52
53	20	1	SPACE			0				
						0	SPACE	1	20	54
			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	125 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	EMERGENCY LTG & EXIT.			3950				
						0			20	30
			CONNECTED LOAD	9495	7565	10110	= 27170			

* CLEARLY MARK CB "EMERGENCY-DO NOT TURN OFF"

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DRAWN BY: RJL
DESIGNED BY: RJL

AEP PROJECT NUMBER
213-1882-114

SHEET TITLE
ELECTRICAL PANEL SCHEDULES

SHEET NUMBER
E701

ISSUED FOR BID

Drawing: T:\P\2131882.114 Duluth Parking Structure\CAD\E\E600 Riseres .dwg Plotted on: 5/31/2013 9:35 AM Plotted by: Lazari, Rional