



June 12, 2024

City of Kansas City, Mo.
Law Department
City Hall, 21st Floor, Suite 2102
414 E 12th St.
Kansas City, MO 64106

Attn: Ms. Charlotte Ferns
Senior Associate City Attorney

RE: Kansas City International Airport Terminal Modernization Project
Clark, Weitz, Clarkson, JV (CWC) Project No. 17041
Design & Construction of Gas Service

Dear Ms. Ferns,

You requested that CWC confirm that the design and construction of the natural gas was in compliance with applicable regulations and was tested as to its safety and integrity – and passed all such tests – prior to placement into commercial use.

Attached to this letter is a compilation of the responses that we have shared previously on this subject including a letter from Henderson Engineers confirming the design of the gas service and a statement from Taliaferro & Browne regarding their involvement in the design. These documents are bookmarked in the attached file. Also included are the responses from US Engineering to the Data Request from PSC. With this information, CWC finds and confirms that the design and construction of the gas service was in compliance with the Development Agreement and applicable regulations, and was properly tested, prior to placement into commercial use.

You also asked that we provide the “as built” drawings of the natural gas system as installed, that includes diameter of pipelines and wall thickness of pipelines.

The as-built drawings are attached to this letter and bookmarked, as well as the design specifications that states the wall thickness of pipelines.

Please feel free to contact me (240-997-1392) if you have any questions regarding this matter.

Very Truly Yours,

A handwritten signature in blue ink, appearing to read "Mark Goodwin".

Mark Goodwin
Vice President
Clark/Weitz/Clarkson, a Joint Venture



January 23, 2024

Jade Liska
Kansas City Aviation Department
601 Brasilia Ave
Kansas City, MO 64153

RE: Kansas City International Airport – Terminal Gas System Design
Project No. 1850001000

Dear Jade:

The gas piping system design for the terminal facility is designed per standards and regulations, as we know and understand them and per comments/ discussions with utility. Individual connection locations were designed for each concession space per the tenant matrix and requested thru any change orders. All metering was designed and provided by others. Henderson Engineer's design started the gas routing 5 feet outside the terminal enclosure to terminate in the tenant space.

Please contact me if you have any questions.

Sincerely,

Henderson Engineers

James Dietz
Senior Project Manager



Mark Goodwin <mark.goodwin@clarkconstruction.com>

Re: [External] RE: Henderson Contract

1 message

Mark Goodwin <mark.goodwin@clarkconstruction.com>
To: Brian Zorbini <Brian.Zorbini@usengineering.com>
Cc: Adam Provost <Adam.Provost@useinnovations.com>

Mon, Oct 9, 2023 at 10:14 AM

Thanks, Brian.

Mark Goodwin | Vice President
CLARK CONSTRUCTION GROUP, LLC
m. 240.997.1392
1627 Main St., Ste 400
Kansas City, MO 64108
www.clarkconstruction.com

On Mon, Oct 9, 2023 at 8:35 AM Brian Zorbini <Brian.Zorbini@usengineering.com> wrote:

See attached Mark. Let me know if anyone has any questions or additional requests.

B. Zorbini | Sr. PM

816.985.3333 Mobile

From: Mark Goodwin <mark.goodwin@clarkconstruction.com>
Sent: Thursday, October 5, 2023 12:00 PM
To: Brian Zorbini <Brian.Zorbini@usengineering.com>
Cc: Adam Provost <Adam.Provost@useinnovations.com>
Subject: Re: [External] RE: Henderson Contract

CAUTION This email was not sent from a U.S. Engineering team member.

Are we good on this subject?

Mark Goodwin | Vice President
CLARK CONSTRUCTION GROUP, LLC
m. 240.997.1392
1627 Main St., Ste 400
Kansas City, MO 64108
www.clarkconstruction.com

On Mon, Oct 2, 2023 at 12:34 PM Brian Zorbini <Brian.Zorbini@usengineering.com> wrote:

Mark,

I'm going to double check with our legal group to make sure they don't have any objections or think sections may need redacted and we should be able to get this over to you.

Thanks,

B. Zorbini | Sr. PM

816.985.3333 Mobile

From: Mark Goodwin <mark.goodwin@clarkconstruction.com>

Sent: Friday, September 29, 2023 3:50 PM

To: Brian Zorbini <Brian.Zorbini@usengineering.com>; Adam Provost <Adam.Provost@useinnovations.com>

Subject: Henderson Contract

CAUTION This email was not sent from a U.S. Engineering team member.

Brian,

I have an unusual request. The Owner has some issue with Spire regarding gas service to the concessions and they requested all lower tier agreements relating to utilities. We communicated that lower tier agreements are not owed and they came back with the following language from the Development Agreement.

“Contract” means any agreement, including any supplement or amendment thereto, by the Developer with any other Person, Contractor or Supplier to perform any part of the Work or provide any materials, equipment or supplies for any part of the Work. The definition specifically includes subcontracts with any Contractors or Suppliers at all tiers. “Contractor” has a similar definition, applicable to all Work, at all tiers. “Work” means all of the labor, services and obligations required to be furnished, performed, provided or discharged by Developer, its Agent, Contractors or subcontractors of any tier, including all administrative, design, engineering, construction and payment to third parties. Sec. 8.1.2 requires Developer to allow Owner ready access to all Contracts. Sec. 8.1.3 requires Developer to promptly make available to Owner, upon Owner’s request, fully signed copies of all Contracts. Since Contracts include any agreement at any tier, these requirements apply to the subcontracts in question.

Moreover, Sec. 8.3.10 provides that each Contract at every tier shall include requirements that the contractor will permit audit thereof by the both the Developer and Owner in respect to any matter contemplated by the Contract Documents. “Contract Documents” includes documents necessary for construction of the Project, which should include the subcontracts and the work produced by them.

Additionally, Sec. 15.1.1 requires Developer to keep and maintain in Kansas City all Project Records unless otherwise agreed. Though the Development Agreement also provides a process for handling requests made pursuant to the Sunshine Law, I know of no reason why the requested documents would be closed. Regardless, City is asking for the documents for its own purposes and not as the result of a public records request. Sec. 5.2.1 obligates Developer to cooperate with Owner in review, inspection and Oversight of the Work, which I believe should include review of the requested subcontracts and associated work.

In addressing the end of the project, Sec. 7.4.1 provides that for Substantial Completion all documents required under the Contract Documents must be submitted to Owner. Sec. 10.9.2 sets out requirements associated with City making final payment. These include that the Developer has completed all work and provided all documents in conformance with the Contract Documents.

Please share the contract agreement, including contract modifications, between US Engineering and Henderson Engineers.

Let me know if you have any questions.

Thanks.

Mark Goodwin | Vice President
CLARK CONSTRUCTION GROUP, LLC
m. 240.997.1392
www.clarkconstruction.com

EXTERNAL EMAIL: If this message came from an unknown sender or you believe it to be a security threat, do not click links/attachments and click on the Phish Alert button in Outlook. Never give out your user ID, password or personal information via email.



Fwd: EXTERNAL: Re: [External] FW: Info needed for PSC action - short turn around time

1 message

Mark Goodwin <mark.goodwin@clarkconstruction.com>
To: Daniel Moylan <daniel.moylan@edgemoor.com>

Thu, Jan 25, 2024 at 11:35 AM

See below.

Mark Goodwin | Vice President
CLARK CONSTRUCTION GROUP, LLC
m. 240.997.1392
1627 Main St., Ste 400
Kansas City, MO 64108
www.clarkconstruction.com

----- Forwarded message -----

From: **Brenton Sells** <bsells@tb-engr.com>
Date: Thu, Jan 25, 2024 at 9:17 AM
Subject: RE: EXTERNAL: Re: [External] FW: Info needed for PSC action - short turn around time
To: Mark Goodwin <mark.goodwin@clarkconstruction.com>, Lindsay Allen <lindsay.allen@som.com>
Cc: Jennifer Finley <jennifer.finley@som.com>, Laura Ettelman <laura.ettelman@som.com>, Luis Alarcon <luis.alarcon@som.com>, Dick Montgomery <rmontgomery@tb-engr.com>, Leonard Graham <lgraham@tb-engr.com>, Jim Ivy <jivy@pmg-kci.com>

Mark- Please see below per your request.

1. Taliaferro & Browne's scope for natural gas service is specifically outlined within the Design Deliverable Matrix, Exhibit K, to the **Design Services Agreement** as follows:
 - a. (LSC – 68) *Spire Gas new service plan and details, including equipment schedules, specifications, etc. Design team will provide preliminary design to Spire. Spire will complete the design. Handoff will occur after alignment and grade is set at approximately 60% plan development level.*
2. Taliaferro & Browne provided 60% layout of the natural gas service within IFC issuance of plan sheet C-7100 PLAN & PROFILE SPIRE GAS SERVICE of the New Single Terminal and Parking at KCI construction documents.
 - a. Taliaferro & Browne was requested to delineate work to be completed by the Private Utility and the Contractor within said plan.
 - i. A typical meter set was integrated as detail 3 on the plan to assist in delineation between the Utility's and the Contractor's scopes only. This detail was provided by Spire via KCAD's Owner's representative.
3. T&B's involvement in the service line coordination was limited to the 60% documentation shown on plan C-7100.
4. No construction submittals regarding the natural gas service were anticipated by, provided to, nor reviewed by Taliaferro & Browne.
5. No construction observation of natural gas service was performed by Taliaferro & Browne.

In summary, we cannot address this issue. Please feel free to reach out with any questions.

Brenton P. Sells, P.E., LEED® AP | SENIOR CIVIL ENGINEER

ENGINEERING TOMORROW'S INFRASTRUCTURE

1020 East 8th Street, Kansas City, Missouri 64106

p816.283.3456 x144 m816.645.5543 f816.283.0810

bsells@tb-engr.com

www.tb-engr.com

On Mon, Jan 22, 2024 at 11:40 AM Mark Goodwin <mark.goodwin@clarkconstruction.com> wrote:

Brent and Dick,

See below, Jade is asking that our designers involved in the gas piping and gas meter provide:

1. A statement from design-engineers clarifying that the facility's natural gas system was built to the appropriate standards as we understand them. We have already given them the design documents we have, and given them an opportunity for inspection, so I think what they are looking for is assurance that the system is sound and built according to applicable standards. It would be helpful for the statement to explain why they believe the standards they used were appropriate for the project.

We understand that Henderson designed the piping and your firm designed the gas meter.

Could you please provide a response on this subject that we can forward to KCAD?

Thank you.

Mark Goodwin | Vice President
CLARK CONSTRUCTION GROUP, LLC
m. 240.997.1392

1627 Main St., Ste 400

Kansas City, MO 64108
www.clarkconstruction.com

----- Forwarded message -----

From: Liska, Jade <Jade.Liska@kcmo.org>

Date: Wed, Jan 17, 2024 at 9:57 AM

Subject: RE: EXTERNAL: Re: [External] FW: Info needed for PSC action - short turn around time

To: Daniel Moylan <daniel.moylan@edgemoor.com>

Cc: Mark Goodwin <mark.goodwin@clarkconstruction.com>

Here is what we need you to answer...

The background for the request is that PSC is questioning whether the system was designed/constructed to the appropriate standards, or whether it should have been designed to the standards of the terminal being a "gas supplier". We have been advised that if PSC determines that the terminal is a gas supplier, then the design/construction standards would have been different and required different documentation, testing and approvals. PSC is asking for a statement from the design/engineering team that helps them make their determination. Their focus isn't on the submeters, but on a master-meter system instead (e.g. is the system designed like a condo or office building that makes gas available to tenants, or is it designed so that the airport supplies gas to end users like a utility). We have already provided them with detailed documents about the system and they have made at least one inspection. They should know quite a bit about the system, but are now looking for a document which assures them from an engineering perspective that it was designed/constructed as it should have been.



J. Jade Liska, PLA

Deputy Director of Aviation

Planning and Engineering Division | Aviation Department

Kansas City International Airport | City of Kansas City, MO

601 Brasilia Ave | Kansas City, Missouri | 64153

Office: 816-243-3045

Email: jade.liska@kcmo.org

FlyKC.com KCMO.gov

From: Daniel Moylan <daniel.moylan@edgemoor.com>

Sent: Wednesday, January 17, 2024 9:22 AM

To: Liska, Jade <Jade.Liska@kcmo.org>

Cc: Mark Goodwin <mark.goodwin@clarkconstruction.com>

Subject: EXTERNAL: Re: [External] FW: Info needed for PSC action - short turn around time

Jade - We are working on getting this from the designers, however I need some clarity, or more specificity, around the request for a letter stating "...that the gas system and gas meter they built was appropriate for how the gas was going to be operated and used in the new terminal program.". Do you want them to go into any detail about "how the gas was going to be operated and used? Or do you literally want a letter stating that what was installed/built was appropriate?

The reason I ask is that when we spoke about this a couple months ago, I seem to recall that the question asked was whether or not the gas supply/system was designed for a submeter application. Do you want them to make any statements around this topic?

Thank you

Dan

Daniel J Moylan, PE | Development Director

Edgemoor Infrastructure & Real Estate

1627 Main St., Suite 410 | Kansas City, MO | 64108

daniel.moylan@edgemoor.com

m. 913 202 2675

www.edgemoor.com

www.kci-edgemoor.com

On Tue, Jan 16, 2024 at 11:23 AM Liska, Jade <Jade.Liska@kcmo.org> wrote:

Dan-Mark:

We are still having issues with the design of the GAS LINE and METER that was built by CWC for the new terminal. See below from our attorney regarding the information needing for this PSC investigation (Public Service Commission), which regulate utilities for the state.

What we need from Edgemoor-CWC (in the next day or two), we need a letter from the CWC GAS UTILITY Designer that the gas system and gas meter they built was appropriate for how the gas was going to be operated and used in the new terminal program.

Thanks.

Jade Liska, PLA



Deputy Director

Planning and Engineering Division

Office (816) 243-3045

Kansas City Aviation Department | City of Kansas City, Missouri

601 Brasilia Avenue, Kansas City, MO 64153

From: Ferns, Charlotte <Charlotte.Ferns@kcmo.org>

Sent: Friday, January 12, 2024 11:40 AM

To: Cooper, Melissa W <Melissa.Cooper@kcmo.org>; Freeman, Adam <Adam.Freeman@kcmo.org>; Liska, Jade <Jade.Liska@kcmo.org>

Importance: High

The City recently met with PSC to discuss several issues related to the pending action for the natural gas system in the new terminal. It looks like the PSC has not yet completed its determination as to whether KCAD is a gas supplier subject to the related requirements (e.g. a gas utility) or its service is more in the nature of a standard building with a master meter set-up. As we discussed, the determination of which standards apply may have long-term consequences for operation of the new terminal, and drive significant costs. It is in the City's best interest to help PSC determine that KCAD is not a gas utility, that the building was built to the appropriate standards, and that we are prepared to address emergency situations. To that end, I need the below items. **If you can't get them to me by COB Thursday, January 18th, please let me know when they will be available.** It is my hope that if we can get the info to the PSC quickly, they may not take the next step to escalate the matter (bringing in PHAMSA to help make the determination). If you have any questions or want to talk about this further, please don't hesitate to call me. You will likely need to include PMG in this discussion as well as reaching out to Edgemoor. Thanks

1. A statement from design-engineers clarifying that the facility's natural gas system was built to the appropriate standards as we understand them. This will probably need to come from Edgemoor and its subcontractors. We have already given them the design documents we have, and given them an opportunity for inspection, so I think what they are looking for is assurance that the system is sound and built according to applicable standards. It would be helpful for the statement to explain why they believe the standards they used were appropriate for the project.



Charlotte Ferns

Senior Associate City Attorney

Law Department

Corporate Legal Services

City of Kansas City, Mo.

Phone: (816) 243-3022

Email: charlotte.fern@kcmo.org

City Hall, 21st Floor, Suite 2102

414 E. 12th Street, Kansas City, Missouri 64106

and

601 Brasilia Avenue

Kansas City, MO 64153

KCMO.gov

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EXTERNAL: This email originated from outside the kcmo.org organization. Use caution and examine the sender address before replying or clicking links.



Mark Goodwin <mark.goodwin@clarkconstruction.com>

RE: EXTERNAL: Re: EXTERNAL: Re: [External] RE: KCI-New Terminal Natural Gas - PSC Data Requests

1 message

Brian Zorbini <Brian.Zorbini@usengineering.com> Wed, Mar 27, 2024 at 8:07 AM
To: Mark Goodwin <mark.goodwin@clarkconstruction.com>, "Liska, Jade" <jade.liska@kcmo.org>
Cc: Daniel Moylan <daniel.moylan@edgemoor.com>, "jivy@pmg-kci.com" <jivy@pmg-kci.com>, Warren Taylor <wtaylor@fscmep.com>, Terry Cassidy <tcassidy@pmg-kci.com>, "Cooper, Melissa W" <Melissa.Cooper@kcmo.org>, "Freeman, Adam" <Adam.Freeman@kcmo.org>, "Ferns, Charlotte" <Charlotte.Ferns@kcmo.org>

Attached is additional information regarding questions 1 and 2 that took us a little longer to track down the information.

B. Zorbini | Sr. PM

816.985.3333 Mobile

From: Brian Zorbini
Sent: Tuesday, March 26, 2024 1:13 PM
To: Mark Goodwin <mark.goodwin@clarkconstruction.com>; Liska, Jade <jade.liska@kcmo.org>
Cc: Daniel Moylan <daniel.moylan@edgemoor.com>; jivy@pmg-kci.com; Warren Taylor <wtaylor@fscmep.com>; Terry Cassidy <tcassidy@pmg-kci.com>; Cooper, Melissa W <Melissa.Cooper@kcmo.org>; Freeman, Adam <Adam.Freeman@kcmo.org>; Ferns, Charlotte <Charlotte.Ferns@kcmo.org>
Subject: RE: EXTERNAL: Re: EXTERNAL: Re: [External] RE: KCI-New Terminal Natural Gas - PSC Data Requests

All,

See attached updated responses and additional info that was requested.

B. Zorbini | Sr. PM

816.985.3333 Mobile

From: Brian Zorbini
Sent: Tuesday, March 5, 2024 3:49 PM
To: Mark Goodwin <mark.goodwin@clarkconstruction.com>; Liska, Jade <jade.liska@kcmo.org>
Cc: Daniel Moylan <daniel.moylan@edgemoor.com>; jivy@pmg-kci.com; Warren Taylor <wtaylor@fscmep.com>; Terry Cassidy <tcassidy@pmg-kci.com>; Cooper, Melissa W <Melissa.Cooper@kcmo.org>; Freeman, Adam <Adam.Freeman@kcmo.org>; Ferns, Charlotte <Charlotte.Ferns@kcmo.org>
Subject: RE: EXTERNAL: Re: EXTERNAL: Re: [External] RE: KCI-New Terminal Natural Gas - PSC Data Requests

All,

We are still trying to track down the items we have not provided info on yet. We have had to reach out to the national UA and others to retrieve some of this documentation if it even exists, but I wanted to let you know that we are struggling to find this information.

B. Zorbini | Sr. PM

816.985.3333 Mobile

From: Brian Zorbini

Sent: Wednesday, February 21, 2024 6:27 AM

To: Mark Goodwin <mark.goodwin@clarkconstruction.com>; Liska, Jade <jade.liska@kcmo.org>

Cc: Daniel Moylan <daniel.moylan@edgemoor.com>; jivy@pmg-kci.com; Warren Taylor <wtaylor@fscmep.com>; Terry Cassidy <tcassidy@pmg-kci.com>; Cooper, Melissa W <Melissa.Cooper@kcmo.org>; Freeman, Adam <Adam.Freeman@kcmo.org>; Ferns, Charlotte <Charlotte.Ferns@kcmo.org>

Subject: RE: EXTERNAL: Re: EXTERNAL: Re: [External] RE: KCI-New Terminal Natural Gas - PSC Data Requests

All,

See below email correspondence regarding welding qualifications and attachments. We are still working on all the requests but the attached word doc. Lists the comments we have at this time.

Ryan,

Attached are the member's (WQR) welder qualification records and continuity for the SMAW process. The WQR specifies welding variables, qualification ranges, and examination results. The WQR also outlines the following: The (ATR) authorized testing representative and contractor representative were responsible for conducting the final visual examination of the completed test specimens. The members' test specimens were sent to a third-party testing facility for non-destructive, radiographic examination.

Best Regards,

Andrew Bruce

Local 8 welding instructor/CWI

B. Zorbini | Sr. PM

816.985.3333 Mobile

From: Mark Goodwin <mark.goodwin@clarkconstruction.com>

Sent: Tuesday, February 20, 2024 10:12 AM

To: Liska, Jade <jade.liska@kcmo.org>

Cc: Daniel Moylan <daniel.moylan@edgemoor.com>; jivy@pmg-kci.com; Warren Taylor <wtaylor@fscmep.com>; Terry Cassidy <tcassidy@pmg-kci.com>; Cooper, Melissa W <Melissa.Cooper@kcmo.org>; Freeman, Adam <Adam.Freeman@kcmo.org>; Ferns, Charlotte <Charlotte.Ferns@kcmo.org>; Brian Zorbini

<Brian.Zorbini@usengineering.com>

Subject: Re: EXTERNAL: Re: EXTERNAL: Re: [External] RE: KCI-New Terminal Natural Gas - PSC Data Requests

***CAUTION* This email was not sent from a U.S. Engineering team member.**

Jade,

Brian Zorbini with US Engineering, copied on this email, is the point of contact working to collect the answers to the questions asked. I spoke to Brian this morning and he understands the need to provide responses. He's actively working with others to collect responses and he plans to provide available responses no later than the end of this week.

Let me know if you have any questions.

Thanks.

Mark Goodwin

Vice President

Clark Construction Group, LLC

On Feb 20, 2024, at 9:54 AM, Liska, Jade <jade.liska@kcmo.org> wrote:

Mark:

This matter is highly important and urgent per the project requirements, that has been asked by the regulatory agencies.

Whom do you suggest we contact, from US Engineering, to get these items answered and a response needed. We are now late and the regulatory agencies will need to be notified of our progress ASAP.

Jade

<image001.png>

J. Jade Liska, PLA

Deputy Director of Aviation

Planning and Engineering Division | Aviation Department

Kansas City International Airport | City of Kansas City, MO

601 Brasilia Ave | Kansas City, Missouri | 64153

Office: 816-243-3045

Email: jade.liska@kcmo.org

FlyKC.com KCMO.gov

From: Mark Goodwin <mark.goodwin@clarkconstruction.com>
Sent: Sunday, February 18, 2024 11:55 AM
To: Ferns, Charlotte <Charlotte.Ferns@kcmo.org>
Cc: Liska, Jade <Jade.Liska@kcmo.org>; Daniel Moylan <daniel.moylan@edgemoor.com>; Jim Ivy <jivy@pmg-kci.com>; Warren Taylor <wtaylor@fscmep.com>; Terry Cassidy <tcassidy@pmg-kci.com>; Cooper, Melissa W <Melissa.Cooper@kcmo.org>; Freeman, Adam <Adam.Freeman@kcmo.org>
Subject: EXTERNAL: Re: EXTERNAL: Re: [External] RE: KCI-New Terminal Natural Gas - PSC Data Requests

Edgemoor and CWC do not have any information regarding these questions.

I've reached out and followed up with US Engineering again. They stated earlier this past week that this is a lot of very specific information that is going to take them some time to dig up, if they are able to find the information.

I'll let you know as soon as US Engineering responds with an update.

Thank you.

Mark Goodwin | Vice President
CLARK CONSTRUCTION GROUP, LLC
m. 240.997.1392

[1627 Main St., Ste 400](#)

[Kansas City, MO 64108](#)
www.clarkconstruction.com

On Fri, Feb 16, 2024 at 5:05 PM Ferns, Charlotte <Charlotte.Ferns@kcmo.org> wrote:

I am following up on the status of these requests. This is an ongoing regulatory action, and we need to respond as required by the Public Service Commission.

<image002.jpg>

Charlotte Ferns

Senior Associate City Attorney

Law Department

Corporate Legal Services

City of Kansas City, Mo.

Phone: (816) 243-3022

Email: charlotte.ferns@kcmo.org

City Hall, 21st Floor, Suite 2102

414 E. 12th Street, Kansas City, Missouri 64106

and

[601 Brasilia Avenue](#)

[Kansas City, MO 64153](#)

KCMO.gov

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From: Liska, Jade <Jade.Liska@kcmo.org>

Sent: Thursday, February 15, 2024 5:42 PM

To: Mark Goodwin <mark.goodwin@clarkconstruction.com>

Cc: Daniel Moylan <daniel.moylan@edgemoor.com>; Jim Ivy <jivy@pmg-kci.com>; Warren Taylor <wtaylor@fscmep.com>; Terry Cassidy <tcassidy@pmg-kci.com>; Cooper, Melissa W <Melissa.Cooper@kcmo.org>; Freeman, Adam <Adam.Freeman@kcmo.org>; Ferns, Charlotte <Charlotte.Ferns@kcmo.org>

Subject: RE: EXTERNAL: Re: [External] RE: KCI-New Terminal Natural Gas - PSC Data Requests

Dan-Mark:

Checking on status of the request as the deadline is today. Wanted to make sure I didn't miss any email updates or information on the Data Request, that you could have sent today.

Jade

<image001.png>

J. Jade Liska, PLA

Deputy Director of Aviation

Planning and Engineering Division | Aviation Department

Kansas City International Airport | City of Kansas City, MO

601 Brasilia Ave | Kansas City, Missouri | 64153

Office: 816-243-3045

Email: jade.liska@kcmo.org

FlyKC.com KCMO.gov

From: Mark Goodwin <mark.goodwin@clarkconstruction.com>

Sent: Tuesday, February 13, 2024 7:38 PM

To: Liska, Jade <Jade.Liska@kcmo.org>

Cc: Daniel Moylan <daniel.moylan@edgemoor.com>; Jim Ivy <jivy@pmg-kci.com>; Warren Taylor <wtaylor@fscmep.com>; Terry Cassidy <tcassidy@pmg-kci.com>; Cooper, Melissa W <Melissa.Cooper@kcmo.org>; Freeman, Adam <Adam.Freeman@kcmo.org>

Subject: EXTERNAL: Re: [External] RE: KCI-New Terminal Natural Gas - PSC Data Requests

Jade,

I've shared the request with US Engineering asking them to provide whatever information they can by this Thursday and to advise when any remaining information will be provided.

Mark Goodwin | Vice President
CLARK CONSTRUCTION GROUP, LLC
m. 240.997.1392

1627 Main St., Ste 400

Kansas City, MO 64108
www.clarkconstruction.com

On Tue, Feb 13, 2024 at 10:13 AM Liska, Jade <Jade.Liska@kcmo.org> wrote:

Dan and Mark:

I forgot to ask you yesterday at our meeting, on your progress of completing these questions that we sent about the SPIRE service that was completed for the new terminal.

<image001.png>

J. Jade Liska, PLA

Deputy Director of Aviation

Planning and Engineering Division | Aviation Department

Kansas City International Airport | City of Kansas City, MO

601 Brasilia Ave | Kansas City, Missouri | 64153

Office: 816-243-3045

Email: jade.liska@kcmo.org

FlyKC.com KCMO.gov

From: Liska, Jade

Sent: Friday, February 9, 2024 3:52 PM

To: Daniel Moylan <daniel.moylan@edgemoor.com>; mark.goodwin@clarkconstruction.com

Cc: Jim Ivy <jjivy@pmg-kci.com>; Warren Taylor <wtaylor@fscmep.com>; Terry Cassidy <tcassidy@pmg-kci.com>; melissa.cooper@kcmo.org; Adam Freeman (adam.freeman@kcmo.org) <adam.freeman@kcmo.org>

Subject: KCI-New Terminal Natural Gas - PSC Data Requests

Dan and Mark:

From the original requests on the SPIRE gas meter and connections that we have discussed and you provided the information back on 1.23.2025 and 1.25.2024, the new questions and required information needed is attached.

SPIRE is asking more questions 1-11 (see attached) and needing responses in each of these questions in the a., b., c. etc. items listed.

I need responses no later than February 15th. If there is some information which cannot be provided by that date, please let me know (1) what request number, (2) what information specifically, (3) why we can't provide it by the deadline, and (4) when it will be made available. Thanks

Thanks for your help.

<image001.png>

J. Jade Liska, PLA

Deputy Director of Aviation

Planning and Engineering Division | Aviation Department

Kansas City International Airport | City of Kansas City, MO

601 Brasilia Ave | Kansas City, Missouri | 64153

Office: 816-243-3045

Email: jade.liska@kcmo.org

FlyKC.com KCMO.gov

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EXTERNAL EMAIL: If this message came from an unknown sender or you believe it to be a security threat, do not click links/attachments and click on the Phish Alert button in Outlook. Never give out your user ID, password or personal information via email.

5 attachments



Andrew Bruce.pdf

127K



WPS 1-12-1 Rev7 (5-15-19) (MB) AP.pdf

3437K



Kyle Simmons.pdf

127K



Robert Wagner.pdf

149K



Data Requests February 2-24 - USEC Response 03-26-24.docx

22K

Data Request from PSC

NOTE: Responses may be provided by the MOPSC to PHMSA

1. The City of Kansas City's response to Staff Data Request 0002 included a copy of Submerged Metal Arc Welding (SMAW) certifications for three (3) welders along with a Welding Procedure Specification and a Procedure Qualification Record within a folder named "welder_welding_certs".

a) Please provide the procedure used for the welder qualifications and explain what welding standard was used by the City of Kansas City to construct the steel KCI natural gas system (e.g. API 1104, Section IX of the ASME Boiler and Pressure Vessel Code, or Appendix C of the Missouri Public Service Commission's Pipeline Safety Regulations).

b) If API 1104 was used, please provide the relevant section and reference the Appendix that was used (e.g. section 6, section 12, Appendix A, or Appendix B of API Standard 1104).

c) If Section IX of the ASME Boiler and Pressure Vessel Code was used, please provide a description of the relevant sections used for construction of the KCI steel natural gas system.

RESPONSE: See attached weld procedures WPS 1-56-1. These procedures do reference compliance with the ASME Boiler and Pressure Vessel Code. However we are unable to provide information regarding the specific sections of the ASME code manual.

Response 03.27 – Additional weld procedures and certifications for the SMAW WPS 1-12-1 are included.

2. The City of Kansas City's response to Staff Data Request 0002 included a copy of SMAW welding certifications for three (3) welders within a folder named "welder_welding_certs". The welder certification records included among other things welding continuity dates for both GTAW Manual and SMAW Manual. Please clarify what welding process, or processes, were used (e.g. Gas Tungsten Arc Welding-GTAW; Gas Metal Arc Welding-GMAC, Submerged Metal Arc Welding-SMAW, etc.) to construct the steel portion of the KCI natural gas system.

RESPONSE: SMAW Procedures were used for welding in the field. GMAW was used in the fabrication of the piping in USE's fab shop

3. The City of Kansas City's response to Staff Data Request 0002 included a copy of SMAW welding certifications for three (3) welders within a folder named "welder_welding_certs". The welder certification records included various welding continuity dates up to and including May 22, 2020 for SMAW Manual.

a) For each welder, please provide documentation for how the welders' weld test coupons were tested (e.g. destructively or non-destructively) for SMAW Manual and the results of those tests during both calendar years 2019 and 2020.

b) For each welder, please provide a description of the welder qualification testing procedure(s) used to evaluate the SMAW Manual weld test coupons.

Data Request from PSC

NOTE: Responses may be provided by the MOPSC to PHMSA

c) Was any welding of steel performed on the steel portion of the KCI natural gas system during calendar year 2021? If “yes”, please provide a description of what was welded, when it was welded, name of the welder, and include the welding process that was used.

d) Was any welding of steel performed on the steel portion of the KCI natural gas system during calendar year 2022? If “yes”, please provide a description of what was welded, when it was welded, name of the welder, and include the welding process that was used.

RESPONSE: 1. See email from Andrew Bruce. 2. See email from Andrew Bruce. 3. None.

4. None.

Email referenced:

The WQR specifies welding variables, qualification ranges, and examination results. The WQR also outlines the following: The (ATR) authorized testing representative and contractor representative were responsible for conducting the final visual examination of the completed test specimens. The members' test specimens were sent to a third-party testing facility for non-destructive, radiographic examination.

4. The City of Kansas City’s response to Staff Data Request 0001, part 2, stated that “Construction for the natural gas line, from the Spire meter location through the terminal building started around January of 2020. Construction of the natural gas system, prior to concession tie-in, was completed with the pressurization with gas around 12/22/2021 (Refer to document titled “download (3).pdf” within the Item 10 test data directly for a record of pipeline pressurization)”. For the below ground segment of 6” HDPE plastic piping from the Spire gas meter to the point at which it transitions to steel just before entering the building within MER8, please respond to the following:

1) For construction that occurred during calendar year 2020, please provide a description of all below ground plastic joint type(s) (e.g. butt heat fusion, electrofusion, socket heat fusion, etc.) that were installed.

2) For construction that occurred during calendar year 2020, please provide a description of all below ground fittings (e.g. mechanical fittings) that were installed.

3) If any below ground plastic joints were installed during the period of January 1, 2021 through and including December 31, 2021 please include a description of the plastic joint type(s) (e.g. butt heat fusion, electrofusion, socket heat fusion, etc.) that were installed.

4) If any below ground fittings were installed during the period of January 1, 2021 through and including December 31, 2021 please include a description of the plastic fitting(s) that were installed.

RESPONSE: 1. Butt fusion and electrofusion couplings were installed for this install. 2. Two transition fittings, two 6” butt fusion 45’s, one butt fusion 90. 3. Nothing. 4. Nothing

5. In response to Staff Data Request 0001, part 2, the City stated that “Construction for the natural gas line, from the Spire meter location through the terminal building started around January of 2020. Construction of the natural gas system, prior to concession tie-in, was completed with the

Data Request from PSC

NOTE: Responses may be provided by the MOPSC to PHMSA

pressurization with gas around 12/22/2021...". The City of Kansas City's response to Staff Data Request 0003, included the manufacturer's product information and specifications for plastic pipe and various fittings. For the below ground portion of 6" HDPE plastic piping from the Spire gas meter to the point at which it transitions to steel just before entering the building within MER8, please respond to the following:

1) Please provide the City of Kansas City's plastic joiner qualification records for all joiners that constructed plastic pipe joints (including all plastic fittings if applicable) for the below ground portion of the 6" HDPE plastic piping during calendar year 2020.

2) If any plastic pipe joints (including plastic fittings) were constructed on the below ground portion of 6" HDPE plastic piping during calendar year 2021, please provide the name(s) of the joiner(s) and the time period for when their joints were installed.

RESPONSE: We have been unable at this time to identify the actual individuals that performed the underground scope, and are unable to provide any additional information at this time.

6. In its response to Staff Data Request 0003, the City provided a copy of the joining procedures for the aboveground Viega MegaPressG fittings. However, no joining procedures have been provided for the aboveground MetraFlex expansion loop fittings. Please provide the qualified joining procedure for the aboveground MetraFlex expansion loop fittings.

RESPONSE: This information can be found in the project submittal records specifically submittals 220516-009-0 and 220516-020-0. These show the grooved Victaulic joints for the expansion loops

7. Please provide joining procedures for the City's plastic portion of its pipeline facilities (including but not limited to joining procedures for any mechanical, heat, or electrofusion completed to install the City's plastic pipeline facilities).

RESPONSE: USEC response is not applicable since question is referencing the "City's" Portion

8. The City of Kansas City's response to Staff Data Request 0003, included a folder named exterior_hdpe_underground. This included a document entitled "22 70 00-001-G4-UG Plumbing-Natural Gas Pipe and Fitting Product Data_EOR Stamped-SOM.pdf". On page 7 of this document a non-functional link is included for a file entitled "Underground Natural Gas.pdf". Please provide Staff with a copy of the file named "Underground Natural Gas.pdf".

RESPONSE: See attached document

Data Request from PSC

NOTE: Responses may be provided by the MOPSC to PHMSA

9. The City of Kansas City's response to Staff Data Request 0010.0 provided test pressure records for its natural gas piping that is downstream of the Spire Missouri West owned meter and considered to be part of the KCI natural gas system. The City of Kansas City's response to Staff Data Request 0001.0, part 3, stated that "Construction on the natural gas, prior to concession tie-in, was completed with the pressurization with gas around 12/22/2021 (Refer to document titled "download (3).pdf" within the Item 10 test data directly for a record of pipeline pressurization)." 20 CSR 4240-40.030(10)(J)1. requires that at the initial time an operator physically turns on the flow of gas to new fuel line installations the following is required: A. Each segment of fuel line must be tested for leakage to at least the delivery pressure; B. A visual inspection of the exposed, accessible customer gas piping, interior and exterior, and all connected equipment shall be conducted to determine that the requirements of any applicable industry codes, standards or procedures adopted by the operator to assure safe service are met; and C. The requirements of any applicable local (city, county, etc.) codes must be met.

a) Please provide the City of Kansas City's leakage test records as required by 20 CSR 4240-40.030(10)(J)1.A. through (10)(J)1.C. for all concessionaire gas fuel line piping installations that have been pressurized with natural gas so that a vendor or concessionaire can operate their business within the KCI airport.

b) If the City of Kansas City's leakage test records for all concessionaires gas fuel line piping installations as requested in part a) have already been submitted as one or more attachments in response to Staff Data Request 0010.0, please give a description as to where the documentation can be found.

RESPONSE: City of Kansas City/ Clark Construction has all the tests performed on the natural gas above and below grade.

10. In response to Staff Data Request 0001, part 1, the City of Kansas City provided a description of its' natural gas facilities and stated in part that "KCI's natural gas piping system consists of two general areas consisting of a short underground segment and a larger above ground segment. The natural gas piping system was designed and installed per the 2012 Uniform Plumbing Code (UPC)...".

a) Please describe and provide a copy of all documents that specify the building codes and standards the City of Kansas City adopts for the installation of the KCI natural gas system.

b) Please explain if the City of Kansas City's adopted building codes and standards as described in part a) above reference and allow the use of the 2012 Uniform Plumbing Code for installation of natural gas facilities.

RESPONSE: Question to be answered by CWC and/or SOM

11. See Below

a) Please describe the specific location where the City's pipeline begins and Spire's pipeline facility ends (include maps or diagrams to illustrate).

Data Request from PSC

NOTE: Responses may be provided by the MOPSC to PHMSA

b) Please indicate if pressure limiting devices used to control the pressure or provide overpressure protection for the City's natural gas system are owned and operated by the City or by Spire.

RESPONSE: Attachment shows location of meter set where red cloud is. Highlighted yellow shows where HDPE was utilized.

NEW SINGLE TERMINAL AND PARKING AT KCI

OWNER
KANSAS CITY INTERNATIONAL AIRPORT
 601 Brasilia Avenue, Kansas City, MO 64153
 PROJECT NUMBER - 62180497

OWNER'S REPRESENTATIVE
PMG Paslay Management Group
 533 Mexico City Avenue, Kansas City, MO 64153
 DEVELOPER

DESIGN-BUILDER
EDGEMOOR INFRASTRUCTURE & REAL ESTATE
 533 Mexico City Avenue, Kansas City, MO 64153

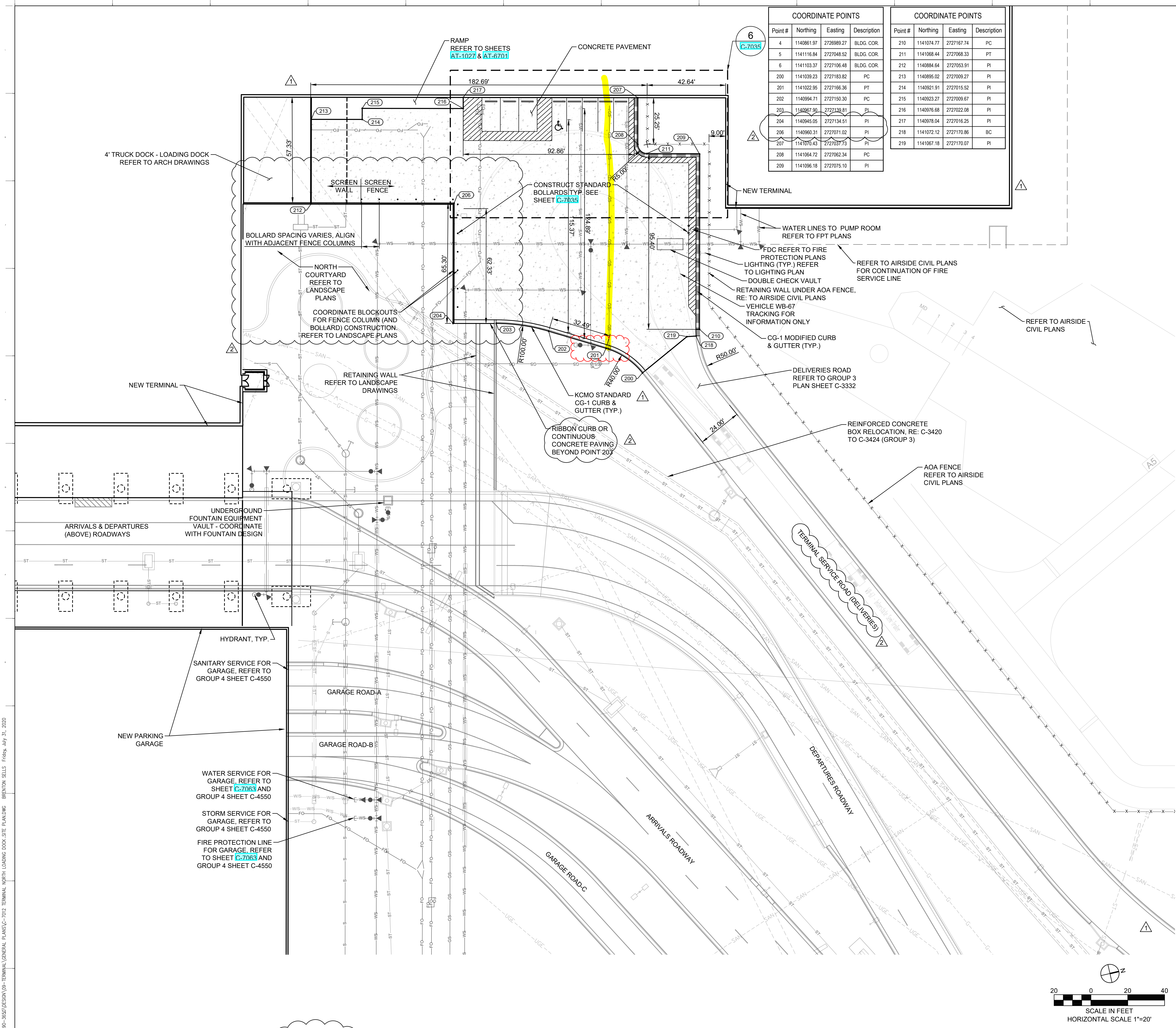
ARCHITECT & STRUCTURAL ENGINEER
CLARK WEITZ CLARKSON
 533 Mexico City Avenue, Kansas City, MO 64153

ARCHITECT & STRUCTURAL ENGINEER
SOM
 Skidmore, Owings & Merrill LLP
 14 Wall Street, New York, NY 10005

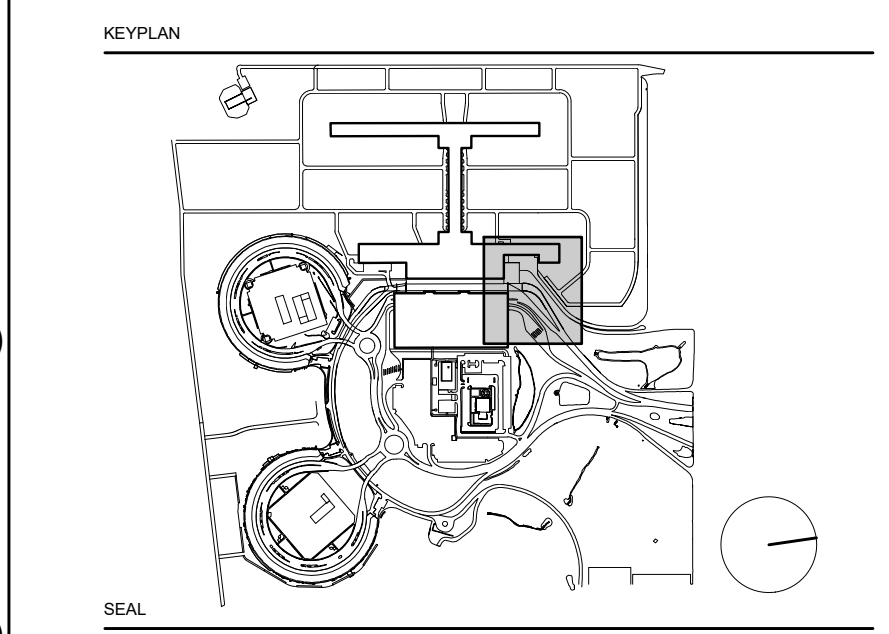
CONSULTANT TEAM
Draw Architecture - Collaborating Architect
Weller Architects - Collaborating Architect
HJM Architects Inc. - Collaborating Architect
FSC Inc. - Fire Protection / Code / Life Safety
Henderson - Mechanical / Plumbing / Electrical
LAND3 Studio - Landscape Architect
Garver - Airside Civil
Entro - Signage / Wayfinding
Olsson - Traffic Planning
BNP - Baggage Handling
Vanderlande - Baggage Handling
Michele & Associates - ADA
Thornton Tomasetti - Protective Design
SK Design Group - Glycol / Landside Utilities
TREK Design Group - Airside Storm Drainage
ARUP - Aircraft Parking / Gate Eq. / AIS / ICT
Taliaferro & Browne Inc. - Landside Civil
Custom Eng. Inc. - Landside Utilities / Airside Utilities
3T Design & Development - Landside Utilities
HG Consulting Group - Permitting
Lightworks - Lighting / Landside Lighting
Dubois Consultants - Struc. Terminal
Leigh & O'Kane - Roadway Structure
Argus Consulting - Hydrant Fuel System
Transsolutions - Terminal Planning
Premier Engineering - Demolition
ICF - Concessions
Lerch Bates - VHT Consultants
Cityfi - Smart Technology
Priority Engineers - Traffic Engineering

- GENERAL NOTES
- FOR SITE EROSION CONTROL PLAN AND DEMOLITION PLAN REFER TO GROUP 3 PACKAGE.
 - FOR UTILITY SERVICE LAYOUT REFER TO SHEET C-7020
 - LANDSIDE CIVIL WORK OUTSIDE OF SCOPE INDICATED IS SHOWN FOR REFERENCE ONLY. WORK DOCUMENTED IN EARLY WORK PACKAGES FROM GROUPS 2A, 2B AND 3.
 - ALL CONCRETE FLATWORK OR ASPHALTIC CONCRETE PAVEMENT TO BE REMOVED THAT IS ADJACENT TO CONCRETE OR ASPHALTIC CONCRETE PAVEMENT TO REMAIN. SHALL BE CUT FULL DEPTH WITH A CONCRETE SAW FIRST TO FORM A NEAT EDGE AGAINST EXISTING PAVEMENT.
 - PROVIDE DOWELED EXPANSION JOINT AT ALL PC & PT OF CURB AND GUTTER.
 - PROVIDE CURB CONTRACTION JOINTS AT 10' MAXIMUM CENTERS.
 - CONTRACTOR SHALL RESEED ALL DISTURBED AREAS.
 - MATERIAL AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH KCMO STANDARD SPECIFICATION [HTTPS://WWW.KCMO.GOV/CITY-HALL/DEPARTMENTS/PUBLIC-WORKS/PUBLIC-WORKS-DESIGN-CONSTRUCTION-STANDARDS](https://www.kcmo.gov/city-hall/departments/public-works/public-works-design-construction-standards)

COORDINATE POINTS				COORDINATE POINTS			
Point #	Northing	Easting	Description	Point #	Northing	Easting	Description
4	1140861.97	2726989.27	BLDG. COR.	210	1141074.77	2727167.74	PC
5	1141116.84	2727048.52	BLDG. COR.	211	1141068.44	2727068.33	PT
6	1141103.37	2727106.48	BLDG. COR.	212	1140884.64	2727053.91	PI
200	1141039.23	2727183.82	PC	213	1140895.02	2727009.27	PI
201	1141022.95	2727166.36	PT	214	1140921.91	2727015.52	PI
202	1140994.71	2727150.30	PC	215	1140923.27	2727009.67	PI
203	1140967.90	2727138.81	PI	216	1140976.68	2727022.08	PI
204	1140945.05	2727134.51	PI	217	1140978.04	2727016.25	PI
206	1140960.31	2727071.02	PI	218	1141072.12	2727170.86	BC
207	1141070.43	2727071.73	PI	219	1141067.18	2727170.07	PI
208	1141064.72	2727062.34	PC				
209	1141096.18	2727075.10	PI				



- LEGEND
- FULL DEPTH CONCRETE PAVEMENT
 - CONCRETE SIDEWALK OR PAD
 - CG-1 MODIFIED CURB & GUTTER DETAIL 4 SHEET C-7135
 - KCMO STANDARD CG-1 CURB & GUTTER
 - ELEC. SERVICE
 - FIBER OPTIC SERVICE
 - GAS SERVICE
 - WATER OR FIRE MAIN/SERVICE
 - STORM SEWER
 - SANITARY SEWER
 - UTILITY CASINGS (GP-3)
 - ELEC. LINE (GROUP 2A)
 - FIBER LINE (GROUP 2A)
 - NATURAL GAS LINE (GROUP 2A)
 - WATER MAIN (GROUP 2A)
 - CHILLED WATER (SUPPLY) (GROUP 2A)
 - CHILLED WATER (RETURN) (GROUP 2A)
 - WATER OR FIRE MAIN/SERVICE (GROUP 4)
 - STORM SEWER (GROUP 2A, 2B, 3, OR 4)
 - SANITARY SEWER (GROUP 2A OR 4)
 - DUCT BANK (GROUP 2A)
 - EX. UNDERGROUND POWER LINE
 - EX. OVERHEAD UTILITY LINES
 - EX. UNDERGROUND TELEPHONE LINE
 - EX. UNDERGROUND FIBER LINE
 - EX. UNDERGROUND CABLE TV LINE
 - EX. GAS LINE
 - EX. GAS SERVICE LINE
 - EX. WATER MAIN
 - EX. WATER SERVICE
 - EX. STEAM LINE
 - REMOVABLE BOLLARD
 - STANDARD BOLLARD
- GIS UTILITIES NOT SHOWN ON THIS PLAN FOR CLARITY.



SEAL

 LEONARD J. GRAHAM P.E. - LANDSIDE CIVIL E-18801

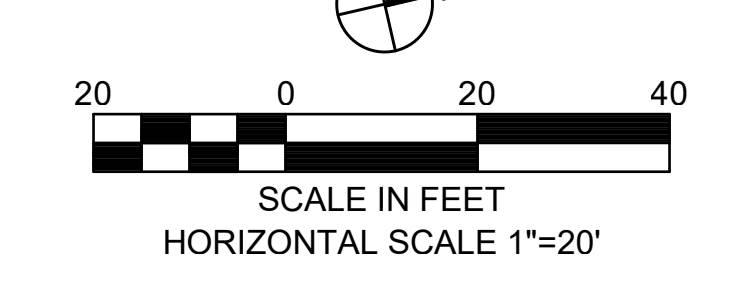
NO.	DATE	DESCRIPTION
1	JULY 16, 2020	LANDSIDE CIVIL - ISSUED FOR BULLETIN 4
2	APRIL 15, 2020	LANDSIDE CIVIL - ISSUED FOR CONSTRUCTION
3	NOVEMBER 21, 2019	TO PROGRESS/COMPLETION
4	NOVEMBER 20, 2019	ISSUED FOR RFP #14
5	NOVEMBER 13, 2019	ISSUED FOR SCHEMATIC DESIGN

TERMINAL NORTH LOADING DOCK SITE PLAN

DRAWING NUMBER
C-7012

1 TERMINAL NORTH LOADING DOCK SITE PLAN

SCALE: 1"=20'



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PHILLIP MCGUINN

UAID #: 002710517
TRADE: PLB
LOCAL: 008 - KANSAS CITY MO
ADDRESS: 1505 NE WESTWIND DR
CITY, ST, ZIP: LEES SUMMIT, MO 64086
INITIATION DATE: 09/30/2019
CFC NUMBER:
REPRESENTATIVE: BIRD, BRADLEY
MEMBER STATUS: ACTIVE
DUES PAID THRU: 01/2024

 PLEASE PROVIDE A PICTURE

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CERTIFICATION DATA

WELDER'S CURRENT STATUS

TYPE	BEGIN	END	STATUS
GTAW (MACHINE OR AUTO ORBITAL)	11/01/2023	05/01/2024	
GTAW MANUAL	11/01/2023	05/01/2024	
SMAW MANUAL	11/01/2023	05/01/2024	

BACKFLOW

certtype	TYPE	BEGIN	END	FIRST TEST	RETEST
BACKR	BF REPAIRER	12/31/2021	12/31/2024		
BACKT	BF TESTER	12/31/2021	12/31/2024		

EPA SEC. 608 REFRIGERANT HANDLING

certtype	TYPE	CERT DATE	TEST PAPERS
CORE	CORE CERT	05/12/2022	
TYPE I	TYPE I CERT	05/12/2022	
TYPE II	TYPE II CERT	05/17/2022	
TYPE III	TYPE III CERT	05/12/2022	

FOREMAN

certtype	TYPE	BEGIN	END	FIRST TEST	RETEST
FRMAN	FOREMAN	11/16/2022	11/16/2026		

MEDICAL GAS

TYPE	BEGIN	END	CONT DATE	STATUS
BRAZE	12/30/2023	06/30/2024	12/07/2022	
NFPA	01/03/2023	01/03/2026	01/03/2023	

WELDING TEST EVENTS

CERTTYPE	TYPE	DATE TESTED	TEST LOCAL	SESSION	TEST PAPERS
UA-18A	GTAW (MACHINE OR AUTO ORBITAL)	01/11/2022	008	20098	DOC
UA-25	GTAW MANUAL	08/27/2019	230	13942	DOC
UA-41	GTAW MANUAL	08/20/2019	230	13820	DOC
UA-63	GTAW/SMAW	08/28/2019	230	13936	DOC
UA-21	SMAW MANUAL	07/25/2019	230	13664	DOC
UA-100	SMAW MANUAL	07/18/2019	230	13611	DOC

WELDING CONTINUITY

TYPE	CONT DATE	COMPANY/ATF	SUBMITTED BY
MEDGAS:ASME IX BRAZER (6 MONTHS)	12/30/2023	NITC:STANGER INDUSTRIES	
MEDGAS:ASME IX BRAZER (6 MONTHS)	06/30/2023	NITC:STANGER INDUSTRIES	
MEDGAS:ASME IX BRAZER (6 MONTHS)	06/07/2023	NITC:STANGER INDUSTRIES	
MEDGAS:ASME IX BRAZER (6 MONTHS)	12/07/2022	NITC:LOCAL 0008 -- NITC	
MEDGAS:NFPA	01/03/2023	NITC:LOCAL 0008 -- NITC	
WELDER:GTAW (MACHINE OR AUTO ORBITAL)	11/01/2023	Stanger Industries	abruce
WELDER:GTAW (MACHINE OR AUTO ORBITAL)	05/01/2023	Stanger Industries	abruce
WELDER:GTAW (MACHINE OR AUTO ORBITAL)	11/01/2022	Rand Construction	abruce
WELDER:GTAW (MACHINE OR AUTO ORBITAL)	05/01/2022	MCELROYS PLUMBING	abruce
WELDER:GTAW (MACHINE OR AUTO ORBITAL)	05/01/2022	MCELROYS PLUMBING	abruce
WELDER:GTAW (MACHINE OR AUTO ORBITAL)	01/11/2022	TEST: UA-18A	008
WELDER:GTAW MANUAL	11/01/2023	Stanger Industries	abruce
WELDER:GTAW MANUAL	05/01/2023	Stanger Industries	abruce
WELDER:GTAW MANUAL	11/01/2022	Rand Construction	abruce
WELDER:GTAW MANUAL	05/01/2022	MCELROYS PLUMBING	abruce
WELDER:GTAW MANUAL	05/01/2022	MCELROYS PLUMBING	abruce
WELDER:GTAW MANUAL	11/01/2021	MC INDUSTRIAL	abruce
WELDER:GTAW MANUAL	05/22/2021	She Digs It	kadney
WELDER:GTAW MANUAL	11/22/2020	Plumbers Local 8 TC	008
WELDER:GTAW MANUAL	05/22/2020	Plumbers Local 8 TC	kadney
WELDER:GTAW MANUAL	11/22/2019	Plumbers Local 8 TC	kadney
WELDER:GTAW MANUAL	08/28/2019	TEST: UA-63	230
WELDER:GTAW MANUAL	08/27/2019	TEST: UA-25	230
WELDER:GTAW MANUAL	08/20/2019	TEST: UA-41	230
WELDER:SMAW MANUAL	11/01/2023	Stanger Industries	abruce
WELDER:SMAW MANUAL	05/01/2023	Stanger Industries	abruce
WELDER:SMAW MANUAL	11/01/2022	Rand Construction	abruce
WELDER:SMAW MANUAL	05/01/2022	MCELROYS PLUMBING	abruce
WELDER:SMAW MANUAL	05/01/2022	MCELROYS PLUMBING	abruce
WELDER:SMAW MANUAL	11/01/2021	MC INDUSTRIAL	abruce
WELDER:SMAW MANUAL	05/22/2021	She Digs It	kadney
WELDER:SMAW MANUAL	11/22/2020	Plumbers Local 8 TC	008
WELDER:SMAW MANUAL	05/22/2020	Plumbers Local 8 TC	kadney
WELDER:SMAW MANUAL	11/22/2019	Plumbers Local 8 TC	kadney
WELDER:SMAW MANUAL	08/28/2019	TEST: UA-63	230
WELDER:SMAW MANUAL	07/25/2019	TEST: UA-21	230
WELDER:SMAW MANUAL	07/18/2019	TEST: UA-100	230

ROBERT WAGNER



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UAID #: 001082900
TRADE: PLB
LOCAL: 008 - KANSAS CITY MO
ADDRESS: 22151 HAND RD
CITY, ST, ZIP: ATCHISON, KS 66002
INITIATION DATE: 07/01/1985
CFC NUMBER:
REPRESENTATIVE: BIRD, BRADLEY
MEMBER STATUS: ACTIVE
DUES PAID THRU: 01/2023

CERTIFICATION DATA

WELDER'S CURRENT STATUS

TYPE	BEGIN	END	STATUS
GTAW MANUAL	04/08/1995	10/08/1995	EXPIRED
SMAW MANUAL	11/01/2022	05/01/2023	EXPIRED

ATR

certtype	TYPE	BEGIN	END	FIRST TEST	RETEST
ATR	AUTH TESTING REP	03/01/2007	NA	20070301	20070301

FOREMAN

certtype	TYPE	BEGIN	END	FIRST TEST	RETEST	
FRMAN	FRMAN: UAMCAA FOREMAN	03/27/2013	03/27/2017	20130327	20130327	DOC

MEDICAL GAS

TYPE	BEGIN	END	CONT DATE	STATUS
BRAZE	06/30/2022	12/30/2022	06/30/2019	EXPIRED
NFPA	01/23/2021	01/23/2024		EXPIRED

OSHA

certtype	TYPE	BEGIN	END	FIRST TEST	RETEST
30HR	OSHA 30-HR SAFETY & HEALTH COURSE/SMART MARK	07/23/2015	NA	20150723	20150723

WELDING TEST EVENTS

CERTTYPE	TYPE	DATE TESTED	TEST LOCAL	SESSION	TEST PAPERS
UA-3	GTAW/SMAW	04/08/1995	021	337	
UA-1	SMAW MANUAL	04/08/1995	021	337	
UA-2	SMAW MANUAL	04/08/1995	021	337	
UA-1	SMAW MANUAL	09/20/2011	8	9349	DOC
UA-21	SMAW MANUAL	12/09/2013	8	5901	DOC
UA-21	SMAW MANUAL	12/09/2013	8	5901	DOC

WELDING CONTINUITY

TYPE	CONT DATE	COMPANY/ATF	SUBMITTED BY
MEDGAS:ASME IX BRAZER (6 MONTHS)	06/30/2022	NITC:U.S. ENGINEERING	
MEDGAS:ASME IX BRAZER (6 MONTHS)	12/30/2021	NITC:US ENGINEERING	

United Association - Certification Display

MEDGAS:ASME IX BRAZER (6 MONTHS)	06/30/2021	NITC:US ENGINEERING CONST	
MEDGAS:ASME IX BRAZER (6 MONTHS)	12/30/2020	NITC:US ENGINEERING CONST	
MEDGAS:ASME IX BRAZER (6 MONTHS)	06/30/2020	NITC:U.S. ENGINEERING	
MEDGAS:ASME IX BRAZER (6 MONTHS)	12/30/2019	NITC:PLUMBERS LOCAL 8 TC	
MEDGAS:ASME IX BRAZER (6 MONTHS)	06/30/2019	NITC:US Engineering Const	autop:kadney
MEDGAS:ASME IX BRAZER (6 MONTHS)	12/30/2018	NITC:U.S. ENGINEERING	autop:kadney
MEDGAS:ASME IX BRAZER (6 MONTHS)	06/30/2018	NITC:Plumbers Local 8	autop:csimmons
MEDGAS:ASME IX BRAZER (6 MONTHS)	12/30/2017	NITC:U.S. Engineering Com	autop:lu8ins1
MEDGAS:ASME IX BRAZER (6 MONTHS)	06/30/2017	NITC:U.S. Engineering Co.	autop:lu8op2
MEDGAS:ASME IX BRAZER (6 MONTHS)	06/30/2017	NITC:	autop:
MEDGAS:ASME IX BRAZER (6 MONTHS)	12/30/2016	NITC:U.S. Engineering Co.	autop:lu8op2
MEDGAS:ASME IX BRAZER (6 MONTHS)	06/30/2016	NITC:US Engineering	autop:lu8op2
MEDGAS:ASME IX BRAZER (6 MONTHS)	12/30/2015	NITC:US Engineering	autop:lu8op2
MEDGAS:ASME IX BRAZER (6 MONTHS)	06/30/2015	NITC:US Engineering	autop:lu8op2
MEDGAS:ASME IX BRAZER (6 MONTHS)	12/30/2014	NITC:US Engineering	autop:lu8op2
MEDGAS:ASME IX BRAZER (6 MONTHS)	11/26/2014	NITC:US Engineering	autop:lu8op2
MEDGAS:ASME IX BRAZER (6 MONTHS)	05/27/2014	NITC:US Engineering	autop:lu8op2
MEDGAS:ASME IX BRAZER (6 MONTHS)	11/27/2013	NITC:US Engineering	autop:lu8op2
MEDGAS:ASME IX BRAZER (6 MONTHS)	05/27/2013	NITC:US Engineering	autop:lu8tc1
MEDGAS:ASME IX BRAZER (6 MONTHS)	11/27/2012	NITC:	autop:
MEDGAS:ASME IX BRAZER (6 MONTHS)	06/01/2012	NITC:	autop:
MEDGAS:ASME IX BRAZER (6 MONTHS)	12/01/2011	NITC:US Engineering Co	autop:lu8tc1
MEDGAS:ASME IX BRAZER (6 MONTHS)	06/01/2011	NITC:USE	autop:lu8tc1
MEDGAS:ASME IX BRAZER (6 MONTHS)	12/01/2010	NITC:US Engineering	autop:lu8tc1
MEDGAS:ASME IX BRAZER (6 MONTHS)	12/01/2010	NITC:US Engineering	autop:lu8tc1
MEDGAS:ASME IX BRAZER (6 MONTHS)	06/01/2010	NITC:	autop:
MEDGAS:ASME IX BRAZER (6 MONTHS)	06/01/2010	NITC:	autop:
MEDGAS:ASME IX BRAZER (6 MONTHS)	12/01/2009	NITC:US Engineering Co	autop:lu8op
MEDGAS:ASME IX BRAZER (6 MONTHS)	12/01/2009	NITC:US Engineering Co	autop:lu8op
MEDGAS:ASME IX BRAZER (6 MONTHS)	06/01/2009	NITC:US Engineers	008:autop:lu8tc1
MEDGAS:ASME IX BRAZER (6 MONTHS)	12/01/2008	NITC:USE	008:autop:lu8tc1
MEDGAS:ASME IX BRAZER (6 MONTHS)	06/01/2008	NITC:US Engineers	008:autop:lu8tc1
MEDGAS:ASME IX BRAZER (6 MONTHS)	12/14/2007	NITC:US Engineers	008:autop:lu8tc1
MEDGAS:ASME IX BRAZER (6 MONTHS)	06/18/2007	U S Engineering Company	008:lu8tc1
MEDGAS:ASME IX BRAZER (6 MONTHS)	12/22/2006	US Engineering	008:lu8tc1
MEDGAS:ASME IX BRAZER (6 MONTHS)	06/26/2006	US Engineering	008:lu8tc
MEDGAS:ASME IX BRAZER (6 MONTHS)	12/27/2005	US Engineering	008:lu8tc
MEDGAS:ASME IX BRAZER (6 MONTHS)	07/01/2005	U.S. Engineering	008:lu8tc
MEDGAS:ASME IX BRAZER (6 MONTHS)	01/03/2005	U.S. Engineering	008:lu8tc
MEDGAS:ASME IX BRAZER (6 MONTHS)	07/15/2004	U.S. Engineering	008:lu8tc
MEDGAS:ASME IX BRAZER (6 MONTHS)	01/17/2004	U.S. Engineering	008:lu8tc
MEDGAS:ASME IX BRAZER (6 MONTHS)	01/22/2003	U.S. Engineering	008:lu8tc
MEDGAS:ASME IX BRAZER (6 MONTHS)	07/26/2002	U.S. Engineering	008:lu8tc
MEDGAS:NFPA	01/23/2021	NITC:US ENGINEERING CONST	
WELDER:SAW MANUAL	11/01/2022	U.S. Engineering	abruce
WELDER:SAW MANUAL	05/01/2022	U.S. ENGINEERING	abruce
WELDER:SAW MANUAL	11/01/2021	US ENGINEERING	abruce
WELDER:SAW MANUAL	05/22/2021	US Engineering	kadney
WELDER:SAW MANUAL	11/22/2020	U.S. Engineering Construc	008
WELDER:SAW MANUAL	05/22/2020	U.S. Engineering Construc	kadney
WELDER:SAW MANUAL	11/22/2019	U.S. Engineering Construc	kadney
WELDER:SAW MANUAL	05/22/2019	U.S. Engineering Construc	kadney
WELDER:SAW MANUAL	11/22/2018	U.S. Engineering	kadney
WELDER:SAW MANUAL	05/23/2018	US ENG	lu8ins
WELDER:SAW MANUAL	12/01/2017	US ENG	lu8ins
WELDER:SAW MANUAL	06/01/2017	US ENG	UA
WELDER:SAW MANUAL	12/01/2016	US ENG	lu8ins

United Association - Certification Display

WELDER: SMAW MANUAL	06/01/2016	US ENGINEERING	UA
WELDER: SMAW MANUAL	12/03/2015	US ENGINEERING	lu8ins
WELDER: SMAW MANUAL	06/03/2015	US ENGINEERING	UA
WELDER: SMAW MANUAL	12/03/2014	US ENGINEERING	lu8ins
WELDER: SMAW MANUAL	09/12/2014	US ENGINEERING	lu8ins
WELDER: SMAW MANUAL	03/12/2014	US ENGINEERING	lu8ins
WELDER: SMAW MANUAL	12/09/2013	TEST: UA-21 at: 008	008 SID: 5901
WELDER: SMAW MANUAL	09/11/2013	US ENGINEERING	lu8op2
WELDER: SMAW MANUAL	03/11/2013	US Engineering	lu8tc1
WELDER: SMAW MANUAL	09/13/2012	US Engineering	lu8tc1
WELDER: SMAW MANUAL	03/20/2012	US Engineering	lu8tc1
WELDER: SMAW MANUAL	09/20/2011	TEST: UA-1 at: 008	008 SID: 9349

UNITED ASSOCIATION Welder Qualification Record

First Name										MI	Last Name												
R	O	B	E	R	T						W	A	G	N	E	R							
UA Card Number								ATF Local			Session ID No.			Test Date (mm/dd/yy)									
0	0	1	0	8	2	9	0	0	0	0	8	5	9	0	1	1	2	/	0	9	/	1	3

TESTING CONDITIONS
 Weld Test Specification followed: UA-21 / NCPWB 1-12-1
 Specification of Base Metal(s): SA 106 Thickness: 0.436"

QUALIFICATION LIMITS				
WELDING VARIABLES	ACTUAL VALUES		RANGES QUALIFIED	
Process	SMAW		SMAW	
Filler Metal F-Number	3	4	1, 2, 3, 4	
Deposited Weld Thickness	0.125"	0.311"	(F 3,2,1) up to 0.250"	(F 4,3,2,1) up to 0.622"
Backing	none	weld	(F 3) with or without	(F 4,2,1) required
Pipe Diameter	2.375" O.D.		1" O.D. & over	
Base Metal P-Number	P-1 to P-1		P-1 thru P-15F, P-34, & P-41 thru P-49	
Position	6G		all	
Vertical Progression	upward		upward	

EXAMINATION RESULTS																								
ATR Visual Examination of Completed Weld (QW-302.4): Acceptable																								
Test Lab Radiographic Examination Results (QW-191): Acceptable																								
Independent Test Lab Name: KTL TESTING LAB																								
Test Lab Report No:	X	R	2	1	-	0	0	1	0	8	2	9	0	0	-	1	3	1	2	.	P	D	F	

We certify that the statements in this record are correct and that the test coupons were prepared, welded, and tested in accordance with requirements of Section IX of the ASME Code.

<p><u>Kit Roudebush</u> Test Lab Representative Printed Name</p> <p>DAVID C HUDSON8 UA Authorized Test Representative Printed Name</p> <p><u>Patrick Wieso</u> Manufacturer/Contractor Representative Printed Name</p> <p><u>U.S. Engineering</u> Manufacturer/Contractor Company Name</p>	<p><u>Kit Roudebush</u> Test Lab Representative Signature</p> <p><u>David Hudson</u> UA Authorized Test Representative Signature</p> <p><u>Patrick Wieso</u> Manufacturer/Contractor Representative Signature</p>	<p><u>12-16-13</u> Date</p> <p><u>12/9/2013</u> Date</p> <p><u>12/9/13</u> Date</p>
--	--	--

This form must be faxed to 410.267.0536 for processing.

U A 2 1 - 0 0 1 0 8 2 9 0 0 - 1 3 1 2 . P D F



WELDER QUALIFICATION RECORD

UA-21

First Name: P H I L L I P MI: Last Name: M C G U I N N

UA Card Number: 5 0 9 1 1 6 7 4 7 ATF Local: 2 3 0 Session ID No.: 1 3 6 6 4 Test Date (mm/dd/yy): 0 7 / 2 5 / 1 9

Weld Procedure Specification followed: UA-2 / NCPWB 1-12-1
 Specification of Base Metal(s): SA-106 Thickness: 0.436"

WELDING VARIABLES	ACTUAL VALUES		RANGES QUALIFIED	
Process	SMAW		SMAW	
Filler Metal F-Number	3	4	1, 2, 3, 4	
Deposited Weld Thickness	0.125"	0.311"	F3,2,1 up to 0.250"	F4 up to 0.622"
Backing	none	weld metal	F3 with or without	F4,2,1 required
Pipe Diameter	2.375" O.D.		1" O.D. & over	
Base Metal P-Number	P-1 to P-1		P-1 thru P-15F, P-34, & P-41 thru 49	
Position	6G		all	
Vertical Progression	upward		upward	

Visual Examination of Completed Weld: Acceptable

Guided Bend Test Radiographic Test Results: Acceptable

We certify that the statements in this record are correct and that the test coupons were prepared, welded, and tested in accordance with requirements of Section IX of the ASME Code.

Jose M. Velez
RT Level III/X-Ray Associates LLC
 Test Lab Representative Printed Name: ROBERTO CADENAS
 Test Lab Representative Signature: *Roberto Cadenas*
 Date: AUG 02 2019

UA Authorized Test Representative Printed Name: SCOTT CORBIN
 UA Authorized Test Representative Signature: *Scott Corbin*
 Date: 7-25-19

Supervising Contractor Representative Printed Name: A.O. REED
 Supervising Contractor Representative Signature: _____
 Date: 7-25-19



UA ATR/CWI - AWS CWI STAMP

The undersigned Contactor hereby adopts this Welder Qualification Record and accepts the responsibility for construction of weldments performed by the UA Member Welder in accordance with the Contractor's Welding Procedure Specifications.

Company Name: _____
 Company Representative Signature: _____ Date: _____

INDEPENDENT TEST LAB REPORT

RADIOGRAPHIC EXAMINATION

Lab Test Report No.

X R 0 2 1 - 5 0 9 1 1 6 7 4 7 - 1 9 0 7 . P D F

Test Assembly ID Number

U A 2 1 P M 6 7 4 7

First Name

P H I L L I P

MI

Last Name

M C G U I N N

Test Lab Name: X-RAY ASSOCIATES LLC

Address: 482 West Arrow Hwy. Unit L, San Dimas, CA 91773-2905

Technique Information

x-ray voltage or isotope type used: 240 kV 12 mA 60 Secs.	focal spot size or source size: 3.0mm	number of exposures: 3
distance from source of radiation to object: 48 Inches	single or double wall exposure: Double Wall	single or double wall viewing: Double Wall
distance from source side of object to film: 2 Inches	number of film in each film holder: N/A	film manufacturer and type/designation: N/A
IQI type/designation: ASME #20	IQI location: Source Side	actual density range: Gray Scale

Interpretation Data

Radiograph Location	Test Results		Type and Size of Rejected Indications
	Accept	Reject	
A	X		
B	X		
C	X		

Evaluated By (signature):



Date:

AUG 0 2 2019

Evaluator's Printed Name:

Jose M. Velez

Level of Certification:

RT III

UA WELDER QUALIFICATION CONTINUITY REPORT

Welder's First Name	MI	Last Name
P H I L L I P		M C G U I N N
UA Card Number	UA Testing Local	
5 0 9 1 1 6 7 4 7	2 3 0	

WELDER CONTINUITY INFORMATION

Indicate the last date the process was used

SMAW		/		/		*Manual Welding
GTAW		/		/		*Manual Welding
GMAW		/		/		*This includes Flux-Cored Arc Welding (FCAW)
Automatic or Machine Welding (GTAW)		/		/		*This includes Orbital Welding
Torch Brazing		/		/		*Non Med-Gas

We certify that the statements made on this record are correct:

Manufacturer/Contractor Company Name	
Manufacturer/Contractor Representative Signature	Date:
Printed Name & Title of Company Representative	
UA Local Union Number	
UA Authorized Test Representative Signature	Date:
Printed Name of UA Authorized Test Representative	

Mail To: The UA Testing Local shown above, ATTN: UA Authorized Testing Representative



NATIONAL CERTIFIED PIPE WELDING BUREAU

WELDING PROCEDURE SPECIFICATION

NO. 1-56-1

FOR

GAS METAL ARC WELDING SHORT CIRCUTING TRANSFER (GMAW-S)

AND

GAS METAL ARC WELDING, SPRAY TRANSFER MODE

OF

CARBON STEEL PIPE, VALVES, FITTINGS AND FLANGES
BOTH WITH AND WITHOUT POSTWELD HEAT TREATMENT

This document is the property of

(NCPWB Member Company Name)

This Welding Procedure Specification (WPS) and Procedure Qualification Record(s) (PQR) are issued by the NCPWB for adoption by its members. Reproduction or use of this WPS and PQR(s) by anyone other than members of the NCPWB is prohibited

WELDING PROCEDURE SPECIFICATION (WPS)

Company Name: _____	Welding Process: GMAW-S/ GMAW-Spray
WPS Number: 1-56-1 Revision: 3 Date: 5-15-19	Type: Semi-Automatic or Machine
Supporting PQRs: 93001, 93002	

Joints (QW-402)

Joint Design: Joint Design: Single-V or U, Double-V or U, Fillets, Repairs, Build-up. **Details:** See Typical Joint Designs
Backing: Optional for Short Circuiting, Required for Spray **Backing or Retainer Type:** Not permitted

Base Metals (QW-403)	Filler Metals (QW-404)	Root	Fill
P-Number: 1 Group Number: 1, 2 to P-Number: 1 Group Number: 1, 2 Thickness Range Base Metal: 0.187 to 2.0" Fillet Welds: All Minimum Pipe Outside Diameter: Grooves: All Fillet: All	Specification Number: AWS Classification: F-number: A-Number: Max. Deposited Weld Metal: Grooves: Fillets: Max. Bead Thickness: Supplemental Filler Metal: GMAW Transfer Mode: Pulsed Power Source:	SFA 5.18 ER70S-2 or -3 6 1 0.20" All 1/8" Not Permitted Short Circuiting Not permitted	SFA 5.18 ER70S-2 or -3 6 1 2" All 3/8" Not Permitted Spray or Pulsed Optional
Postweld Heat Treatment (PWHT) (QW-407) Temperature Range (°F): None or at 1100 to 1200 Holding Time (hr.): As required by contract			

Gas (QW-408) Shielding Gas: 85% Ar, 15% CO2 20 to 35 CFH Backing Gas: None Training Gas: None	Positions (QW-405) Welding Positions: GMAW-S and Pulse: All GMAW Spray, Flat Progression: Root downhill, Fill uphill	Preheat (QW-406) Minimum Preheat (°F): 50, 200°F if over 1 inch thick and no PWHT Maximum Interpass (°F): 500 Preheat Maintenance: None Required
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Electrical Characteristics (QW-409)

Weld Layer	Welding Process	Filler Metal		Amps/Wire Feed Speed	Volts	Current		Travel Speed	Other	
		Class	Dia, (in.)			Type	Polarity			
1,2	GMAW-S	ER70S-2	0.035	90 to 100	15 to 18	DC	EP (Rev)	7 to 10 ipm	Set inductance at low to middle range for spray set to max for short circuit	
		or	0.045	120 to 140 ipm	15 to 18			7 to 10 ipm		
Fill	GMAW Spray	ER70S-3	0.035	100 to 130/ 70 to 125 ipm	27 to 33			10 to 25 ipm		Cover Pass Volts may be raised 2 volts to flatten bead
			0.045	230 to 300/ 420 to 630 ipm	27 to 35			13 to 30 ipm		
				250 to 410/ 280 to 560 ipm						

Technique (QW-410)

<p>Tungsten Size/Type: Not Applicable Shielding Gas Cup Size: Smallest available for GMAW-S Pulsed Current: Optional Multiple or single pass per side: Either Multiple or single electrodes: Single Contact-tube-to-work Distance (stickout): See Other Backgouging: Carbon arc followed by grinding or grinding Repair Method: Grinding</p>	<p>Initial Cleaning: Remove cutting oxide by grinding or machining, remove silica between passes with grinder or hammer. Interpass Cleaning: Remove slag with slag hammer or grinder. Stringer or Weave Bead: Either, but weave preferred Peening: Not permitted Other: Contact tube to work distance: 1/4 to 3/8 for GMAW-S and 1/2 to 5/8 for GMAW Spray. Use large gas nozzle for spray and pulse modes. In short-circuiting, spatter is caused by excess voltage; in spray, spatter is caused by not enough voltage.</p>
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The undersigned contractor, a member of the Nation Certified Pipe Welding Bureau, hereby adopts this jointly developed procedure as its company Welding Procedure Specification and certifies that this procedure has been qualified as shown on the attached Procedure Qualification Record.



Contractor: _____

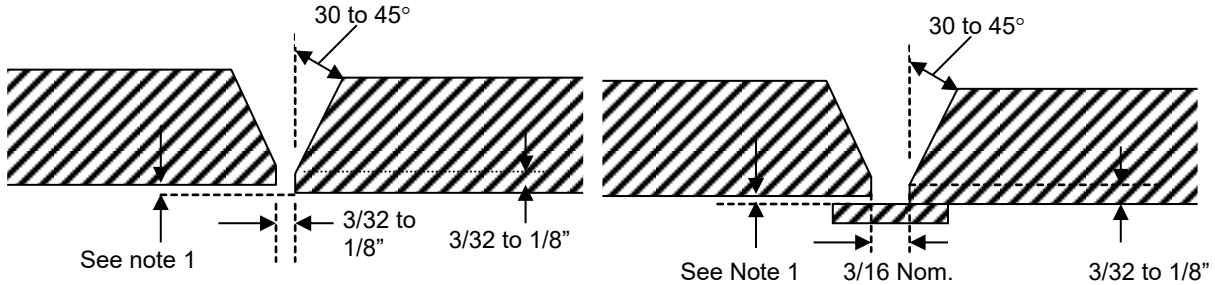
By: _____ **Date:** _____

Title: _____

Typical Joint Designs

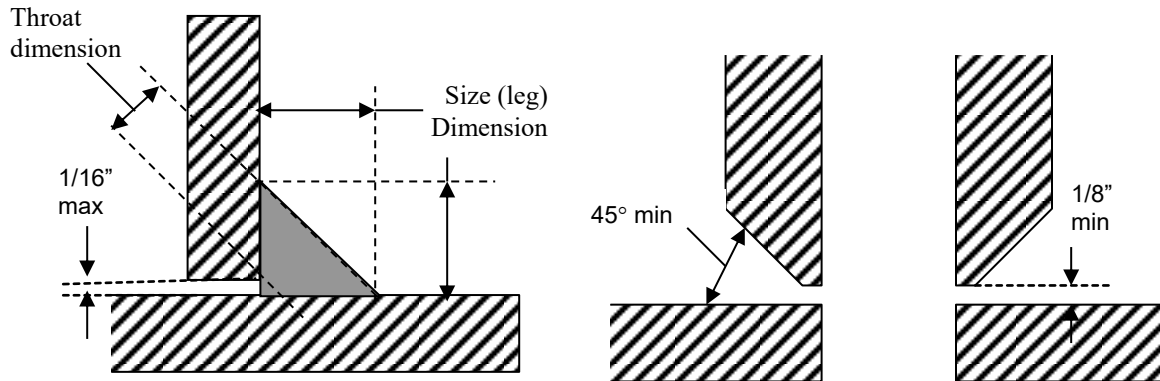
Other joint designs shown on Engineering drawings supersede these joint details

Butt welds

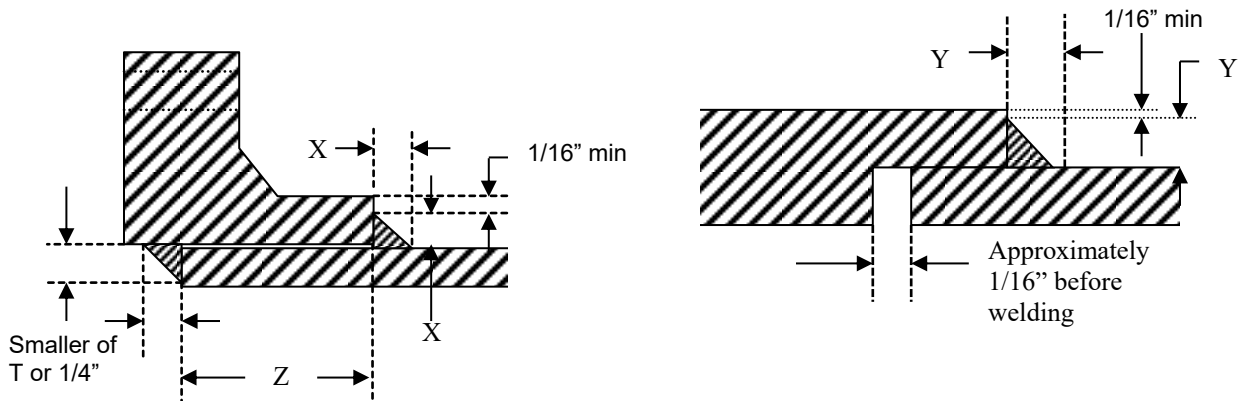


Note 1: 1/8 inch maximum except for B31.1 and B31.5 work, 1/16 inch maximum

Fillet, Nozzle and Branch Connection Welds



Slip-on Flange and Socket Welds



T = The nominal thickness of the pipe

X = the lesser of 1.4T or the hub thickness unless another size is shown on the engineering drawings

Y = the lesser of 1.1T or the fitting thickness unless another size is shown on the engineering drawings

Z = for B31.9 work, minimum of the greater of the pipe nominal wall thickness or 1/4 in. (6 mm) and face fillet is not required unless specified by the design.

PROCEDURE QUALIFICATION RECORD (PQR)

WPS followed during welding of test coupon: 1-5-1 / 1-6-1 PQR Number: 93001
 Welding Process(s) used: GMAW Short Circuiting/Spray Date Test Coupon was welded: 7/23/93
 Base Metal Specification: ASTM A36 to Base Metal Specification: ASTM A36
 P Number: 1 Group No: 1 to P Number: 1 Group No: 1 Plate/Pipe Diameter: 1" thick plate
 Base Metal Thickness(in.): 1.00 Joint Type: single vee-groove welded from both sides
 Filler Metal Specification: SFA 5.18 Classification: ER70S-2 F-No.: 6
 A-No.: 1 Deposited Weld Metal Thickness (in.): 0.187 / 0.813 Maximum Pass Thickness(in.): 0.25
 Filler Metal Size (in.): 0.035 Supplementary Filler Metal: None
 Preheat Temperature (°F): 50 Interpass Temperature (°F): Not Rec. Welding Position/Progression: Flat
 Current Type: DC Polarity: Reverse (EP) Travel Speed (ipm): Below
 Shielding Gas Composition (CFH): 85% Argon, /15% CO2, (30) Backing Gas(CFH): None
 Tungsten Size/Type: N/A GMAW Transfer Mode: Below
 Stringer/Weaver Bead: Stringer Oscillation: N/A
 Single/Multi-Pass: Multiple Single/Multi-Electrode: Single
 Postweld Heat Treatment (°F): 1150 Heat Treatment Time (hr.): 1
 Other: _____

Layer	Process	Filler Classification	Diameter	Amperage	Travel Speed	Volts	Heat Input	Other
1st Side	GMAW Short Circ.	ER70S-2	0.035"	100 to 125	Not Recorded	17	N/A	
2nd Side	GMAW Spray	ER70S-2	0.035"	230 to 270	Not Recorded	27	N/A	

Reduced Section Tensile Tests Rectangular Specimens Turned Specimens Full-Section Specimen

Specimen	Width/Dia. (in)	Thickness (in)	Area (sq in)	Ultimate Load (lbs)	Ultimate Stress (psi)	Failure Location
T-1	0.497	round	0.194	13,575	70,000	Weld Metal
T-2	0.496	round	0.193	13,475	69,800	Weld Metal

Bend Tests: Trans. Root and Face (QW462.3a) Trans. Side (QW-462.2) Long. Root and Face (QW-462.3b)

Type	Results	Type	Results
Side	Acceptable	Side	Acceptable
Side	Acceptable	Side	Acceptable

Toughness Test Charpy Specimen Size: None Test Temperature N/A

Specimen Number	Notch Location	Charpy V-Notch Test				Drop-Weight Test	
		Foot-Lbs.	Ft-lb Av.	Percent Shear	Lateral Exp. (mils)	Break	No Break

Fillet Weld Test Macro Examination _____ Fillet Weld Test Leg Sizes: _____

Weld Deposit Analysis: C:0.119, Mn:0.95, Si:0.40, P:0.013, S:0.013, Cr:0.034, Ni:0.089, Mo:0.063, Cu:0.059, V:0.007

Other Tests: _____

Welder's Name: Phil Martin Stamp No. XXX-XX-5345 Welding Witnessed By: J.G. Briggs, PH&B

Test Conducted by: Tom Wilson and M. G. Boliger, Gladstone Labs Laboratory Test Number: 3-154

We Certify that the statements in this record are correct and that the test welds were prepared, welded and tested in accordance with the requirements of Section IX of the ASME Code.

NATIONAL CERTIFIED

PIPE WELDING BUREAU



Contractor: _____

By: *James J. Lechely*

By: _____ Date: _____

Note: First five digits of welder's stamp number have been deleted.

Chairman, Technical Committee

NCPWB Form QW-483 6/91

PQR Number 93001

PROCEDURE QUALIFICATION RECORD (PQR)

WPS followed during welding of test coupon: 1-5-1 / 1-6-1 PQR Number: 93002
 Welding Process(s) used: GMAW Short Circuiting/Spray Date Test Coupon was welded: 7/23/93
 Base Metal Specification: ASTM A36 to Base Metal Specification: ASTM A36
 P Number: 1 Group No: 1 to P Number: 1 Group No: 1 Plate/Pipe Diameter: 1" thick plate
 Base Metal Thickness(in.): 1.00 Joint Type: Single vee-groove welded from both sides
 Filler Metal Specification: SFA 5.18 Classification: ER70S-2 F-No.: 6
 A-No.: 1 Deposited Weld Metal Thickness (in.): 0.187 / 0.813 Maximum Pass Thickness (in.): 0.25
 Filler Metal Size (in.): 0.035 Supplementary Filler Metal: None
 Preheat Temperature (°F): 50 Interpass Temperature (°F): Not Rec. Welding Position/Progression: Flat
 Current Type: DC Polarity: Reverse (EP) Travel Speed (ipm): Below
 Shielding Gas Composition (CFH): 85% Argon, /15% CO2, (30) Backing Gas (CFH): None
 Tungsten Size/Type: N/A GMAW Transfer Mode: Below
 Stringer/Weaver Bead: Stringer Oscillation: N/A
 Single/Multi-Pass: Multiple Single/Multi-Electrode: Single
 Postweld Heat Treatment (°F): None Heat Treatment Time (hr.): N/A
 Other: _____

Layer	Process	Filler Classification	Diameter	Amperage	Travel Speed	Volts	Heat Input	Other
1st Side	GMAW Short Circ.	ER70S-2	0.035"	100 to 125	Not Recorded	17	N/A	
2nd Side	GMAW Spray	ER70S-2	0.035"	230 to 270	Not Recorded	27	N/A	

Reduced Section Tensile Tests Rectangular Specimens Turned Specimens Full-Section Specimen

Specimen	Width/Dia. (in)	Thickness (in)	Area (sq in)	Ultimate Load (lbs)	Ultimate Stress (psi)	Failure Location
T-1	0.501	round	0.097	14,950	75,900	Base Metal
T-2	0.500	round	0.196	14,925	76,150	Base Metal

Bend Tests: Trans. Root and Face (QW462.3a) Trans. Side (QW-462.2) Long. Root and Face (QW-462.3b)

Type	Results	Type	Results
Side	Acceptable	Side	Acceptable
Side	Acceptable	Side	Acceptable

Toughness Test Charpy Specimen Size: None Test Temperature N/A

Specimen Number	Notch Location	Charpy V-Notch Test				Drop-Weight Test	
		Foot-Lbs.	Ft-lb Av.	Percent Shear	Lateral Exp. (mils)	Break	No Break

Fillet Weld Test Macro Examination _____ Fillet Weld Test Leg Sizes: _____

Weld Deposit Analysis: C:0.119, Mn:0.95, Si:0.40, P:0.013, S:0.013, Cr:0.034, Ni:0.089, Mo:0.063, Cu:0.059, V:0.007

Other Tests: _____

Welder's Name: Phil Martin Stamp No. XXX-XX-5345 Welding Witnessed By: J.G. Briggs, PH&B

Test Conducted by: Tom Wilson and M. G. Boliger, Gladstone Labs Laboratory Test Number: 3-165

We Certify that the statements in this record are correct and that the test welds were prepared, welded and tested in accordance with the requirements of Section IX of the ASME Code.

NATIONAL CERTIFIED

PIPE WELDING BUREAU



Contractor: _____

By: James J. Lechely

By: _____ Date: _____

Note: First five digits of welder's stamp number have been deleted.

Chairman, Technical Committee

NCPWB Form QW-483 6/91

PQR Number 93002

DRISCOPEX[®] 6500 Series

DRISCOPEX[®] 6500 Series MDPE Gas Distribution Pipe



DRISCOPEX[®] MDPE Pipe is manufactured to meet your needs in compliance with ASTM D2513, NSF Gas and DOT 49 CFR 192.

Selected sizes conform to CSA B137.4 and UPC product standards.

Produced from only the highest rated MDPE pipe material, DRISCOPEX[®] 6500 Series Pipe is manufactured from a PE 2708 and PE 80 resin listed in PPI-TR4.

DRISCOPEX[®] MDPE Pipe Advantages:

- ✓ Durable
- ✓ Leak Tight
- ✓ Excellent Flow
- ✓ Abrasion Resistant
- ✓ Fatigue Free
- ✓ Impact Resistant
- ✓ Trenchless Install
- ✓ Bend Radius
- ✓ Chemical Resistant
- ✓ UV Protection
- ✓ Flexibility
- ✓ Environmental

DriscoPlex MDPE Series Pipe Material Physical Properties

Property	Standard	Typical Value†
Material Designation Code	ASTM D2513	PE 2708
Cell Classification	ASTM D3350	234373E; 234375E
Density [2]	ASTM D1505	0.939 g/cm ³ (Yellow)
Melt Index [3]	ASTM D1238	0.18 g/10 min
Flexural Modulus [4]	ASTM D790	>90,000 psi
Tensile Strength [3]	ASTM D638 Type IV	2,800 psi
SCG (PENT) [7]	ASTM F1473	>2,000 hours
HDB at 73°F (23°C) [3]	ASTM D2837	1,250 psi
Color; UV Stabilizer [E]	ASTM D3350	Yellow; UV Stabilized
RCP, Full Scale, at 32°F (0°C)	ISO 13478	>123 psi (>8.5 bar)

This is not a product specification and does not guarantee or establish specific minimum or maximum values or manufacturing tolerance for material or tubing products to be supplied. Values obtained from tests of specimens taken from tubing product may vary from these typical values. The RCP properties were determined on 8" SDR 11 pipe.

DRISCOPLEX[®] 6500 Series

CTS = Copper Tube Size

Nominal Size (Inches)	Dimension Ratio	Outside Diameter (Inches)	Minimum Wall (Inches)	MAOP @ 73°F per CFR Part 192.121 (psi)	Weight (lbs) per 100 ft.	Coil/Joint (feet)	Nominal Packing Dimensions ID / OD / Width	Number Coils / Joints Per Pallet or Bundle	Pallet/ Bundle Footage	Number Pallet / Bundles Per Truck	48 ft. Truck
1/2"	*NA	0.625	0.09	125	6.5	1,000'	30"/44"/6"	12	12,000'	26	312,000'
1"	*NA	1.125	0.099	77	14	500'	30"/42"/11"	8	4,000'	26	104,000'

*N/A - The wall thickness is minimum per D2513 and not a function of DR.

IPS = Iron Pipe Size

Nominal Size (Inches)	Dimension Ratio	Outside Diameter (Inches)	Minimum Wall (Inches)	MAOP @ 73°F per CFR Part 192.121 (psi)	Weight (lbs) per 100 ft.	Coil/Joint (feet)	Nominal Packing Dimensions ID / OD / Width	Number Coils / Joints Per Pallet or Bundle	Pallet/ Bundle Footage	Number Pallet / Bundles Per Truck	48 ft. Truck
3/4"	DR 11	1.05	0.095	80	12	500'	30"/44"/10"	7	3,500'	26	91,000'
1"	DR 11	1.315	0.120	80	19	500'	30"/44"/12"	6	3,000'	26	78,000'
1 1/4"	DR 10	1.66	0.166	89	33	500'	48"/72"/7-1/2"	12	6,000'	7	42,000'
1 1/2"	DR 11	1.9	0.173	80	40	500'	48"/75"/8-1/2"	8	4,000'	7	28,000'
2"	DR 11	2.375	0.216	80	63	500'	52"/78"/13"	7	3,500'	7	24,500'
3"	DR 11	3.5	0.318	80	136	500'	70"/96"/23-3/4"	4	2,000'	6	12,000'
	DR 11.5		0.304	76	181	40'	soft bundles	50	2,000'	14	28,000'
4"	DR 11	4.5	0.409	80	225	500'	70"/93"/41"	2	1,000'	6	6,000'
	DR 11.5		0.391	76	217	40'	soft bundles	29	1,160'	14	16,240'
			600'	70"/93"/49-1/2"	upright	12	7,200'				
DR 13.5	0.333	64	187	40'	soft bundles	29	1160'	14	16,240'		
6"	DR 11	6.625	0.602	80	489	40'	soft bundles	13	520'	14	7,280'
	DR 11.5		0.576	76	471	40'	soft bundles	13		14	7,280'
			500'	84"/120"/50"	upright	8 coils	4,000'				
	DR 13.5		0.491	64	407	40'	soft bundles	13		14	7,280'
500'	84"/120"/50"	upright	8 coils	4,000'							
8"	DR 11	8.625	0.784	80	828	40'	soft bundles	9	360'	10	3,600'
	DR 11.5		0.75	76	798	40'	soft bundles	9			
	DR 13.5		0.639	64	690						
10"	DR 11	10.75	0.977	80	1237	40'	soft bundles	9	360'	7	2,520'
	DR 11.5		0.855	76	1237	40'	soft bundles	9			
12"	DR 13.5	12.75	0.944	64	1507	40'	bulk packs	8 joints/layer	320'	6	1,920'

This product flyer is intended for reference purposes. It should not be used in place of the advice from a licensed Professional Engineer. Pressure Rating is based on an operating temperature of 73°F per 49 CFR 192. Pipe weights are calculated in accordance with PPI TR-7. Nominal OD and Minimum wall plus 6% is used in estimating fluid flow. Actual ID will vary. When designing components to fit the pipe ID, refer to pipe dimensions and tolerances in the applicable pipe manufacturing specification. - These wall thicknesses are minimum per D2513 and not a function of DR.



PerformancePipe.com

DRISCOPEX® 6500

MDPE PIPE and FITTINGS DATA SHEET

DriscoPlex® 6500 Pipe and Fittings meet or exceed:

ASTM D2513, D2683, D3261
 CAN/CSA-B137.4
 UPC
 ASTM D3350, cell classification PE234373E and PE234375E
 PPI TR-4 designations PE2708 (PE2406) and PE80
 PPI TN-30

DriscoPlex® 6500 Yellow MDPE Pipe and Fittings for

Natural Gas Distribution, LPG and
 Propane Gas Distribution, Yard Gas
 Iron Pipe Size OD (IPS) ½" to 24",
 Copper Tube Size OD (CTS) ½" to 1 ¼"
 Coils available up through 6"

Outdoor Storage up to Three (3) Years per ASTM D2513

NOMINAL PIPE PROPERTIES ⁽¹⁾	UNIT	TEST METHOD	VALUE
Density	gms / cm ³	ASTM D1505	0.939 (yellow)
Melt Index (MI) Condition 190°C / 2.16kg	gms / 10 min	ASTM D1238	0.18
Hydrostatic Design Basis 73°F (23°C)	psi	ASTM D2837	1250
Hydrostatic Design Basis 140°F (60°C)	psi	ASTM D2837	1000
Minimum Required Strength	MPa (psi)	ISO 9080	8.0 (116)
Rapid Crack Propagation (Pc) 0°C (32°F) ⁽³⁾	Bar (psi)	ISO 13478	8.5 (123)
Color; UV Stabilizer [E]	--	ASTM D3350	Yellow; UV stabilized
Pipe Test Category	--	ASTM D2513	CEE
NOMINAL MATERIAL PROPERTIES ^{(1) (2)}	UNIT	TEST METHOD	VALUE
Flexural Modulus at 2% secant	psi	ASTM D790	>90,000
Tensile Strength at Yield	psi	ASTM D638 Type IV	2,800
Elongation at Break 2 in / min., Type IV bar	%	ASTM D638	>800
Hardness	Shore D	ASTM D2240	63
PENT	hrs	ASTM F1473	>2,000
Vicat Softening Temperature	°F	ASTM D1525	227
Brittleness Temperature	°F	ASTM D746	< -103

1. This is not a product specification and does not guarantee or establish specific minimum or maximum values or manufacturing tolerances for material or piping products to be supplied.
2. Values obtained from tests of specimens taken from piping product may vary from these typical values.
3. Determination made on 8" DR-11 pipes for Full Scale test. Pc calculated in accordance with ISO 13478.

When Performance Matters Rely on
Performance Pipe

Bulletin: PP107 / March 2010

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Performance Pipe, a division of Chevron Phillips Chemical Company LP | 5085 W. Park Blvd | Suite 500 | Plano, TX 75093 | Phone: 800-527-0662 | Fax: 972-599-7348

This data sheet provides typical properties for Performance Pipe DriscoPlex® pipe and fittings. Before using this product, the user is advised and cautioned to make their own determination and assessment of the safety and suitability of the product for the specific use in question and is further advised against relying on the information contained herein as it may relate to any specific use or application. It is the ultimate responsibility of the user to ensure that the product is suited and the information is applicable to the user's specific application. Chevron Phillips Chemical Company LP does not make, and expressly disclaims, all warranties, including warranties of merchantability or fitness for a particular purpose, regardless of whether oral or written, express or implied, allegedly arising from any usage of any trade or from any course of dealing in connection with the use of information contained herein or the product itself. The user expressly assumes all risk and liability, whether based in contract, tort or otherwise, in connection with the use of the information contained herein or the product itself. Further, information contained herein is given without reference to any intellectual property issues, as well as federal, state or local laws which may be encountered in the use thereof. Such questions should be investigated by the user. The data sheet may change periodically. Visit www.PerformancePipe.com for the most current data sheet.

Please visit www.performancepipe.com for the most up-to-date information

NOTE: The sizes and packaging shown represent typical Performance Pipe products. Other sizes and/or packaging may be available. Contact Performance Pipe for additional information. Pipe weights are calculated in accordance with PPI TR-7. Dimensions and weights are subject to change without notice.

CTS = COPPER TUBE SIZE

Part Number	Nominal Size (Inches)	Minimum Wall (Inches)	Nominal Outside Diameter (Inches)	Dimension Ratio	MAOP (psig per CFR Part 192 @ 73.4° F or less)	Weight per 100 ft.	Coil/ Joint (feet)	Nominal Packing Dimensions ID/OD/Width	Number Coils/Joints Per Pallet or Bundle	Pallet / Bundle Footage	Number Pallet / Bundles Per Truck	48 ft. Truck
1002425	1/2"	0.090	0.625	7.0	400	6.5	1,000'	28" / 14" / 8"	12	12,000'	26	312,000'
1002445	1"	0.099	1.125	11.5	76	14.0	500'	30" / 42" / 11"	8	4,000'	26	104,000'

IPS = IRON PIPE SIZE

Part Number	Nominal Size (Inches)	Minimum Wall (Inches)	Nominal Outside Diameter (Inches)	Dimension Ratio	MAOP (psig per CFR Part 192 @ 73.4° F or less)	Weight per 100 ft.	Coil/ Joint (feet)	Nominal Packing Dimensions ID/OD/Width	Number Coils/Joints Per Pallet or Bundle	Pallet / Bundle Footage	Number Pallet / Bundles Per Truck	48 ft. Truck
1002239	3/4"	0.095	1.050	11	80	12	500'	30" / 44" / 10"	7	3,500'	26	91,000'
1002249	1"	0.120	1.315	11	80	19	500'	30" / 44" / 12"	6	3,000'	26	78,000'
1002263	1 1/4"	0.166	1.660	10	89	33	500'	48" / 72" / 7 1/2"	12	6,000'	7	42,000'
1002284	2"	0.216	2.375	11	80	63	500'	52" / 76" / 13"	7	3,500'	7	24,500'
1002323	3"	0.304	3.500	11.5	76	131	40'	soft bundles	50	2,000'	14	28,000'
500'							70" / 96" / 23 1/2"	4	2,000'	6	12,000'	
1002349	4"	0.391	4.500	11.5	76	217	40'	soft bundles	29	1,160'	14	16,240'
600'							70" / 93" / 49 1/2"	upright		12	7,200'	
1,000'							84" / 116" / 49"	upright		8 coils	6,000'	
1002367	6"	0.576	6.625	11.5	76	471	40'	soft bundles	13	520'	14	7,280'
500'							84" / 120" / 50"	upright		8 coils	4,000'	
1002373		0.491	6.625	13.5	64	407	40'	soft bundles	13	520'	14	7,280'
500'							84" / 120" / 50"	upright		8 coils	4,000'	
1002384	8"	0.750	8.625	11.5	76	798	40'	soft bundles	9	360'	10	3,600'
1071013		0.639		13.5	64	690						
1007003	12"	0.944	12.750	13.5	64	1507	40'	bulk packs	8 jts/layer	320'	6	1,920'

NOTE: The August revision was strictly for ease in reading columns for minimum wall and DR. No specific data was changed.

Model Specification 304

DriscoPlex® 6500 Series

PE 2406 Gas Distribution Pipe and Fittings

The user may choose to adopt part or all of this Model Specification; however, the user should ensure that all parts used are appropriate for the user's purpose. See notice below.

1 General Terms and Conditions

- 1.1 Scope. This specification covers requirements for DriscoPlex™ 6500 PE 2406 polyethylene pipe and fittings for underground gas distribution systems. All work shall be performed in accordance with these specifications.
- 1.2 Engineered and Approved Plans. Underground gas distribution piping construction shall be performed in accordance with engineered construction plans for the work prepared under the direction of a Professional Engineer. Plans shall conform to the standards and regulations for gas distribution piping. Pipe, fittings, and the installation shall meet the applicable requirements of the U. S. Department of Transportation, Pipeline Safety Regulations, Title 49, Code of Federal Regulations, Part 192. Private systems shall meet relevant requirements of NFPA 54/ANSI Z223.1, or NFPA 58, or ASME B31.8.
- 1.3 Referenced Standards. Where all or part of a Federal, ASTM, ANSI, NFPA, etc., standard specification is incorporated by reference in these Specifications, the reference standard shall be the latest edition and revision.
- 1.4 Licenses and Permits. A licensed and bonded Contractor shall perform all underground gas distribution piping construction work. The Contractor shall secure all necessary permits before commencing construction.
- 1.5 Inspections. All work shall be inspected by an Authorized Representative of the Owner or Operator who shall have the authority to halt construction if, in his opinion, these specifications or standard construction practices are not being followed. Whenever any portion of these specifications is violated, the Project Engineer or his Authorized Representative, shall, by written notice, order further construction to cease until all deficiencies are corrected. A copy of the order shall be filed with the Contractor's license application for future review. If the deficiencies are not corrected, performance shall be required of the Contractor's surety.

2 Polyethylene Pipe and Fittings

- 2.1 Qualification of Manufacturers. The Manufacturer shall have manufacturing and quality control facilities that are capable of producing and assuring the quality of the pipe and fittings required by these Specifications. The Manufacturer's production facilities shall be open for inspection by the Customer or his Authorized Representative.

The pipe and fitting manufacturer shall be ISO Certified in accordance with the current edition of ISO 9001 and a documented quality management system that defines product specifications and manufacturing and quality assurance procedures that assure conformance with customer and applicable regulatory requirements. Upon request, the

NOTICE. This publication is intended for use as a guide to support the designer of piping systems, but it should not be used in place of the advice of a professional engineer. Performance Pipe has made every reasonable effort to ensure the accuracy of this publication, but it may not provide all necessary information, particularly with respect to special or unusual applications. This publication may be changed from time to time without notice. Contact Performance Pipe to determine if you have the most current edition.

manufacturer shall provide a current Certificate of Compliance form and independent ISO 9000 Registrar.

- 2.2 Approved Manufacturers. Manufacturers that are qualified and approved by the Project Engineer are listed below. Products from unapproved manufacturers are prohibited.

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- 2.3 Materials. Materials used for the manufacture of polyethylene pipe and fittings shall be PE 2406 medium density polyethylene meeting cell classification 234363E per ASTM D 3350; and shall be Listed in PPI (Plastics Pipe Institute) TR-4 with standard grade HDB ratings of 1250 psi at 73°F, and 1000 psi at 140°F. All pipe and fittings materials shall be opaque yellow in color. Materials shall be stabilized against ultraviolet deterioration and shall be suitable for unprotected outdoor storage for at least four (4) years.

- 2.4 Interchangeability of Pipe and Fittings. The same Manufacturer shall supply polyethylene pipe and heat fusion fittings. Pipe and fittings from different Manufacturers shall not be interchanged.

- 2.5 Polyethylene Pipe. Pipe shall be DriscoPlex™ 6500 PE 2406 polyethylene pipe, and shall be manufactured and tested in accordance with the latest published edition of ASTM D 2513.

- 2.6 Polyethylene Fittings. Polyethylene heat fusion fittings shall be manufactured and tested by the pipe manufacturer in accordance with ASTM D 2513 and D.O.T. requirements.

- 2.7 Manufacturer's Quality Control. The pipe and fitting manufacturer shall have an established quality control program responsible for inspecting incoming and outgoing materials. Incoming polyethylene materials shall be inspected for density, melt flow rate, UV protection and contamination. The supplier shall certify the cell classification properties of incoming material. Incoming materials shall be approved by Quality Control before processing into finished goods.

- 2.7.1 Outgoing materials shall be checked for diameter, wall thickness, roundness, concentricity, toe-in, inside and outside surface finish, markings, and end cut. Quality control shall verify production checks, and test for density, melt flow rate, hoop tensile strength and ductility. X-ray inspection procedures shall be used to inspect molded fittings for voids, and knit line strength shall be tested. All fabricated fittings shall be inspected for joint quality and alignment. Representative tests to verify long-term performance shall include slow crack growth, pipe inside surface ductility, and ambient and elevated temperature sustained pressure testing.

- 2.7.2 Permanent Records. The Manufacturer shall maintain records of manufacturing location, pipe production and resin lots for at least 50 years.

- 2.8 Compliance Tests. The Manufacturer shall certify the inspection and testing of the materials and products. In case of conflict with Manufacturer's certifications, the Contractor, Project Engineer, or Operator may request retesting by the Manufacturer or have retests performed by an outside testing service. All retesting shall be at the requestor's expense, and shall be performed in accordance with the Specifications.

3 Joining

- 3.1 Heat Fusion Joining. Butt, socket, and saddle fusion joints in polyethylene gas piping shall be made using procedures that have been qualified and approved by the Operator in accordance with Title 49, CFR, Part 192.283.

- 3.1.1 In accordance with C.F.R. 49, part 192, Section 192.285, the Operator shall ensure that

all persons making heat fusion joints have been qualified to make joints in accordance with the Operator's Approved Qualified Fusion Procedures. The Operator shall maintain records of qualified personnel, and shall certify that qualification training was received not more than 12 months before commencing construction. The Contractor shall ensure that all persons making heat fusion joints are qualified in accordance with this section.

- 3.1.2 The Manufacturer shall offer qualified fusion procedures and training materials for the use of the Operator.
- 3.1.3 Butt Fusion of Unlike Wall Thickness. Butt fusion shall be performed between pipe ends, or pipe ends and fitting outlets that have the same outside diameter and are not different in wall thickness by more than one Standard DR, for example, SDR 9 to SDR 11, or SDR 11 to SDR 13.5. Transitions between unlike wall thickness greater than one SDR shall be made with a transition nipple (a short length of the heavier wall pipe with one end machined to the lighter wall) or by mechanical means or electrofusion. Standard DR's for polyethylene pipe are 7.3, 9, 11, 13.5, 17 and 21.
- 3.2 Joining by Other Means. Polyethylene gas pipe and fittings may be joined together or to other materials by transition fittings, fully restrained mechanical couplings, or electrofusion. These devices shall be designed for joining polyethylene to another material and shall be approved by the Operator for use in his gas distribution system. When joining by other means, the installation instructions of the joining device manufacturer shall be observed.
- 3.2.1 When mechanical OD compression couplings are used, polyethylene gas pipe shall be reinforced with a stiffener in the pipe bore. Stiffeners shall be properly sized for the diameter and wall thickness of polyethylene pipe being joined. For service pipe connections, the stiffener length shall match the pipe end penetration depth into the coupling.

4 Installation

- 4.1 General. Polyethylene gas distribution piping shall be installed be in accordance with C.F.R. 49, Part 192, Subpart G (mains), Subpart H (service lines), applicable codes and regulations and ASTM D 2774.
 - 4.1.1 When delivered, a receiving inspection shall be performed, and any shipping damage shall be reported to the Manufacturer within 7 days.
- 4.2 Burial Depth. All polyethylene gas distribution piping shall be installed in accordance with applicable federal, state and local codes and shall have at least 12" of cover in private property, and at least 18 inches of cover in streets and roads.
- 4.3 Excavation. Trench excavations shall conform to the plans and drawings, as otherwise authorized in writing by the Project Engineer or his Approved Representative, and in accordance with all applicable codes. The Contractor shall remove excess groundwater. Where necessary, trench walls shall be shored or reinforced, and all necessary precautions shall be taken to ensure a safe working environment.
- 4.4 Foundation & Bedding. Pipe shall be laid on grade and on a stable foundation. Unstable trench bottom soils shall be removed, and a 6" foundation or bedding of compacted Class I material shall be installed to pipe bottom grade. A trench cut in rock or stony soil shall be excavated to 6" below pipe bottom grade, and brought back to

grade with compacted Class I bedding. All ledge rock, boulders and large stones shall be removed.

- 4.5 Pipe Handling. Pipe shall be handled in a safe manner that avoids damage to the product. When lifting with slings, only wide fabric choker slings capable of safely carrying the load, shall be used to lift, move, or lower pipe and fittings. Wire rope or chain shall not be used. Slings shall be of sufficient capacity for the load and shall be inspected before use. Worn or damaged equipment shall not be used.
- 4.6 Backfilling. Embedment material soil type and particle size shall be in accordance with ASTM D 2774. Embedment shall be placed and compacted to at least 90% Standard Proctor Density in 6" lifts to at least 6" above the pipe crown. During embedment placement and compaction, care shall be taken to ensure that the haunch areas below the pipe springline are completely filled and free of voids.
- 4.7 Protection against shear and bending loads. In accordance with ASTM D 2774, connections shall be protected where an underground polyethylene branch or service pipe is joined to a branch fitting such as a service saddle, branch saddle or tapping tee on a main pipe, and where pipes enter or exit casings or walls. The area surrounding the connection shall be embedded in properly placed, compacted backfill, preferably in combination with a protective sleeve or other mechanical structural support to protect the polyethylene pipe against shear and bending loads.
- 4.8 Final Backfilling. Final backfill shall be placed and compacted to finished grade. Native soils may be used provided the soil is free of debris, stones, boulders, clumps, frozen clods or the like larger than 8" in their largest dimension.
- 5 Testing.
- 5.1 Fusion Quality. The Contractor shall ensure the field set-up and operation of the fusion equipment, and the fusion procedure used by the Contractor's fusion operator while on site. Upon request by the Owner, the Contractor shall verify field fusion quality by making and testing a trial fusion. The trial fusion shall be allowed to cool completely; then test straps shall be cut out and bent strap tested in accordance with ASTM D 2657. If the bent strap test of the trial fusion fails at the joint, the field fusions represented by the trial fusion shall be rejected. The Contractor at his expense shall make all necessary corrections to equipment, set-up, operation and fusion procedure, and shall re-make the rejected fusions.
- 5.2 Leak Testing. Leak testing shall be conducted in accordance with Performance Pipe Technical Note 802 *Leak Testing*.
- 5.2.1 Polyethylene gas distribution systems that are subject to D.O.T. Pipeline Safety Regulations shall be tested in accordance C.F.R. 49, Part 192, Sections 192.509, 192.511, or 192.513 as applicable.
- 5.2.2 The Contractor shall take all precautions to eliminate hazards to persons near lines being tested. Pipes being tested shall be supervised at all times.

PERFORMANCE PIPE, a division of
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Fax: 972-599-7348
Web: www.driscoplex.com

Conventional PE Fusion Fittings



PRECISION IS CENTRAL.

As experts in pipe joining solutions, we know precision is vital to every fitting and how they are fused. We offer the most complete range of conventional fusion fittings, injection molded and tested in our state of the art manufacturing facilities to exacting quality standards.

Georg Fisher Central
Plastics can custom build
to suit your needs.

Gas | Water & Waste Water |
Energy | Industrial

UNRIVALED EXPERIENCE

Georg Fischer Central Plastics has taken the lead in creating pipe joining solutions since plastics were first used in the industry.

Since the early 1960s, researching and developing top of the line pipe fittings, and manufacturing them to perfection has been at the core of our business. We've learned a lot along the way and are confident that when it comes to creating durable, leak-free piping systems we have the best solutions.

We have the broadest and most complete line of Butt, Saddle, and Socket Fusion Fittings available, all manufactured and tested in our facility in Shawnee, Oklahoma. Our high-capacity manufacturing plant, certified ISO 9001, is built around advanced technologies, including fully automated injection molding to ensure precision and quality.

With leading edge, in-house engineering design capabilities and testing facilities, we design and manufacture over 10,000 pipe joining solutions for the gas, water and energy sectors.

ADVANCED IN-HOUSE TESTING

Georg Fischer Central Plastics has a comprehensive in-house lab and testing facility. The following tests are performed on all of our Butt, Saddle and Socket fittings:

- ASTM D 1599 - Minimum Hydraulic Burst Pressure Test
- ASTM D 1598 - Sustained Pressure Test Results
- ASTM D638 Tensile Strength Test
- PE3408/PE4710 Fittings are tested to the requirements of AWWA C906 (where applicable)
- PE3408/PE4710 FM Tested and Approved (where applicable)

STATE-OF-THE ART MANUFACTURING

- Fully controlled production system
- ISO 9001 quality system
- High volume capabilities
- Robotic welding
- Fully-automated injection molding
- Tool & die facility
- Advanced powder coating system
- Many proprietary processes



Polyethylene is the ideal material to create leak-free systems with no connections to corrode or loosen.

Butt Fusion Fittings.

Call us for availability of other sizes and dimensions. Visit gfcp.com to view product details in our catalog.

MOLDED PE2406/PE2708:

- Manufactured and tested to the requirements of ASTM D2513 and ASTM D3261 and are sized for use with pipe conforming to ASTM D2513 and with Butt fittings conforming to ASTM D3261.
- PE2406 /PE2708 Butt fittings are molded from a virgin yellow medium density resin in accordance with the material specifications listed in ASTM D3350 with a designation of PE2406/ PE2708.
- All PE2406/ PE2708 Butt Fittings are compatible for heat fusion with any pipe or fitting manufactured from a like or similar resin.
- PE2406/PE2708 fittings have been qualified for fusion using PPI generic fusion procedures.

MOLDED PE3408/PE4710:

- Manufactured and tested to the requirements of ASTM D2513, ASTM D3261, and ANSI/AWWA C906 for use with outside diameter controlled pipe and fittings conforming to ASTM D2513, ASTM D3035, ASTM F-714.
- Butt fittings are molded from an NSF listed resin in accordance with the material specifications listed in ASTM D3350 with a designation of PE3408/PE4710.
- GFCP PE3408/PE4710 Butt fittings are manufactured and tested to the requirements of ASTM D2513 and ASTM D3261 (where applicable) and are compatible for heat fusion with any pipe and or fitting manufactured from a like or similar resin.
- PE3408/PE4710 fittings have been qualified for fusion using PPI generic fusion procedures.

FEATURES:

- Pressure rated for natural gas and potable water applications
- IAPMO Approved (where applicable)
- CSA Approved (where applicable)
- PE3408/PE4710 FM Approved (where applicable)
- PE3408/PE4710 fittings are tested to the requirements of AWWA C906
- Can be joined by butt, socket, electrofusion or mechanical methods
- Can be heat fused with all conventional and electrofusion fusion methods



90° ELBOWS

PE2406/PE2708

3/4" - 12" IPS
1" CTS

PE3408/PE4710

3/4" - 12" IPS and 4" - 12" DIPS



TEES

PE2406/PE2708

3/4" - 12" IPS
1/2" - 1" CTS

PE3408/PE4710

3/4" - 12" IPS and 1/2" & 1" CTS
and 4" - 12" DIPS



45° ELBOWS

PE2406/PE2708

3" - 12" IPS

PE3408/PE4710

2" - 12" IPS and 4" - 12" DIPS



REDUCERS

**PE2406/PE2708 and
PE3408/PE4710**

Wide range of sizes and
dimensions available.



END CAPS

PE2406/PE2708

1/2" - 12" IPS
1/2" - 1" CTS

PE3408/PE4710

1/2" & 1" CTS
3/4" - 12" IPS



PURGE CAPS

Socket Fusion:

PE2406/PE2708

Main sizes 2" - 8" IPS
Outlet Sizes 1/2" & 1" CTS

Butt Fusion:

PE2406/PE2708

Main sizes 2" - 8" IPS
Outlet Sizes 1/2" & 1" CTS

Purge caps are available for socket
fusion or butt fusion. Available with
PE pups fused on (as shown)
or without.



PURGE POINTS

PE2406/PE2708

1 1/4" & 2" IPS

PE 3408/PE4710

1 1/4" & 2" IPS



Saddle Fusion Fittings.

Side-wall Tapping Tees
Service Saddles
Branch Saddles

Call us for availability of other sizes and dimensions. Visit gfcp.com to view product details in our catalog.

MOLDED PE2406/PE2708:

- Manufactured and tested to the requirements of ASTM D2513 and ASTM D3261 and are sized for use with pipe conforming to ASTM D2513 and with Butt fittings conforming to ASTM D3261 as applicable.
- Molded from a virgin yellow medium density resin in accordance with the material specifications listed in ASTM D3350.
- Compatible for side-wall fusion with any pipe or fitting manufactured from a like or similar resin.
- Have been qualified for fusion using PPI generic fusion procedures.

MOLDED PE3408/PE4710:

- Manufactured and tested to the requirements of ASTM D2513, ASTM D3261 and ANSI/AWWA C906
- For use with outside diameter controlled pipe and fittings conforming to ASTM D2513, ASTM D3035, ASTM F-714 and with Butt fittings conforming to ASTM D3261.
- Molded from NSF listed resin in accordance with the material specifications listed in ASTM D3350.
- Compatible for side-wall fusion with any pipe and fitting manufactured from a like or similar resin.
- Qualified for fusion using PPI generic fusion procedures.

FEATURES:

- Pressure rated for natural gas and potable water applications
- IAPMO Approved (where applicable)
- CSA Approved (where applicable)
- PE3408/PE4710 are tested to the requirements of AWWA C906
- Can be heat fused to pipe wall using conventional side-wall fusion methods
- Outlets can be heat fused using conventional or electrofusion fusion methods

BRANCH SADDLES



HVTT WITH ROUND BASE

PE2406/PE2708

IPS x IPS

PE 3408/PE4710

IPS x IPS, IPS x DIPS,
DIPS x DIPS

Wide range of sizes and dimensions available.

TAPPING TEES



ROUND BASE AND BUTT OUTLET

PE 3408/PE4710
Main Size: 2" - 12" IPS and 4" - 12" DIPS
Outlet Size: 1" IPS and ¾" - 1" CTS



RECTANGULAR BASE AND BUTT OUTLET

PE2406/PE2708 and PE3408/PE4710



RECTANGULAR BASE AND COMBO OUTLET

PE2406/PE2708

Wide range of sizes and dimensions available.



RECTANGULAR BASE AND SOCKET OUTLET

PE2406/PE2708 and PE3408/PE4710
Main Size: 1¼" - 8" IPS
Outlet Size: ½" - 1 ¼" IPS and ½" - 1" CTS

TRAINERS



TAPPING TEE TRAINERS

PE2406/PE2708 w/Butt Outlet
Main Size: 2" - 4" IPS
Outlet Size: ¾" IPS and 1" IPS - 1" CTS

PE 3408/PE4710 w/Butt Outlet
Main Size: 2" IPS
Outlet Size: ½" CTS

PE2406/PE2708 w/Socket Outlet
Main Size: 1¼" - 6" IPS
Outlet Size: 1" IPS and ½" - 1" CTS

PE 3408/PE4710 w/Socket Outlet
Main Size: 2" & 4" IPS
Outlet Size: 1" IPS

SERVICE SADDLES



ROUND BASE AND BUTT OUTLET

PE2406/PE2708 and PE3408/PE4710

Wide range of sizes and dimensions available. Also available with 12" sleeves.



RECTANGULAR BASE AND SOCKET OUTLET

PE2406/PE2708 and PE3408/PE4710

TAPPING TEES WITH STABS AND EFV'S



STAB OUTLET

GF Central Plastics offers factory-installed stab outlets and excess flow valves on our conventional tapping tees.



EXCESS FLOW VALVE

HIGH VOLUME TAPPING TEES



HVTT WITH SQUARE BASE

PE 2406/PE2708 (SDR 11 Outlets)
Main Size: 2" - 12" IPS and 4" - 12" DIPS
Outlet Size: 2" IPS



HVTT WITH LARGE ROUND BASE

PE 3408/PE4710 w/Socket Outlet (SDR 11 Outlets)
Main Size: 2" - 12" IPS and 4" - 12" DIPS
Outlet Size: 2" IPS



CAST IRON TRANSITION TEE W/ BRASS THREADS AND BUTT OUTLETS

PE2406/PE2708
Outlet Size: 1 ¼" IPS and 1" CTS
Tapping Thread Size: 1" - 2" Brass



PE 3408/PE4710
Outlet Size: 1" - 1 ¼" IPS and 1" to 1 ¼" CTS
Tapping Thread Size: 1" - 2" Brass

Socket Fusion Fittings.

MOLDED PE2406/PE2708:

- Manufactured and tested to the requirements of ASTM D2513 and ASTM D2683 and are sized for use with pipe conforming to ASTM D2513.
- Molded from a virgin yellow medium density resin in accordance with the material specifications listed in ASTM D3350.
- Compatible for heat fusion with any pipe or fitting manufactured from a like or similar resin.
- PE2406/PE2708 fittings have been qualified for fusion using ASTM D2657 generic fusion procedures.

MOLDED PE3408/PE4710:

- Fully manufactured and tested to the requirements of ASTM D2513 and ASTM D2683
- Manufactured for use with outside diameter controlled pipe and fittings conforming to ASTM D2513 and ASTM F-714.
- Molded from a virgin black high density resin in accordance with the material specifications listed in ASTM D3350.
- PE3408/PE4710 Fusion fittings are manufactured and tested to the requirements of ASTM D2513 and ASTM D2683 and are compatible for heat fusion with any pipe and or fitting manufactured from a like or similar resin.
- PE3408/PE4710 fittings have been qualified for fusion using ASTM D2657 generic fusion procedures.

FEATURES:

- Pressure ratings up to SDR7 on most sizes
- IAPMO Approved (where applicable)
- CSA Approved (where applicable)
- Can be used with all socket fusion methods

Call us for availability of other sizes and dimensions. Visit gfc.com to view product details in our catalog.

COUPLINGS



PE2406/PE2708
Main Size: ½" - 4" IPS
and ½" & 1" CTS
PE3408/PE4710
Main Size: ½" - 4" IPS
and ½" & 1" CTS

ELBOWS



PE2406/PE2708
Main Size: ½" - 4" IPS
and ½" & 1" CTS
PE3408/PE4710
Main Size: ½" - 4" IPS
and ½" & 1" CTS

TEES



PE2406/PE2708
Main Size: ½" - 4" IPS
and ½" & 1" CTS
PE3408/PE4710
Main Size: ½" - 4" IPS
and ½" & 1" CTS

REDUCING TEES



PE2406/PE2708
and **PE3408/PE4710**
Wide range of sizes and dimensions
available.

REDUCERS



PE2406/PE2708 and
PE3408/PE4710
Wide range of sizes and dimensions
available.

END CAPS



PE2406/PE2708
Main Size: ½" - 4" IPS
and ½" & 1" CTS
PE3408/PE4710
Main Size: ½" - 3" IPS
and ½" CTS

PURGE CAPS



PE2406/PE2708
Main sizes 2" - 8" IPS
Outlet Sizes ½" & 1" CTS



PE Adapters.

PE3408/PE4710:

- Manufactured and tested to the requirements of ASTM D3261 and ANSI/ AWWA C906 for use with pipe conforming to ASTM D2513/3035, F-714 and with Butt fittings conforming to ASTM D3261 as applicable.
- Molded from an NSF listed resin in accordance with the material specifications listed in ASTM D3350.
- Compatible for heat fusion with any pipe or fitting manufactured from a like or similar resin.

FEATURES:

- Pressure rated for municipal and industrial applications
- FM Approved (where applicable)
- Tested to the requirements of AWWA C906
- Can be heat fused using conventional and electrofusion fusion methods
- Can be beveled for butterfly valves when requested
- MJ Adapters can be provided with stiffeners when requested

GASKETED



Nominal Size:
4" & 6" IPS
Outlet Size:
4" & 6" PSM
and 4" & 6" Sch 40

BALL VALVES



Full Port PE3408/PE4710
1 1/4" – 12" IPS
NSF rated
The trunnion-pin design allows easy opening and closing of valves in large diameter pressure piping systems.

Call us for availability of other sizes and dimensions. Visit gfc.com to view product details in our catalog.

MJ ADAPTERS



PE3408/PE4710
2" – 24" IPS to IPS
and 2" – 24" DIPS to DIPS
Beveled for Butterfly Valves available on request.
Standard 45° bevel unless otherwise specified by customer.
Gland Packs sold separately (includes gasket, ring and bolts).

FLANGE ADAPTER



PE3408/PE4710

3/4" – 54" IPS and 3" – 30" DIPS
Beveled for Butterfly Valves available on request. Standard 45° bevel unless otherwise specified by customer.

BACK-UP RINGS



3/4" – 54" IPS and 3" – 30" DIPS

Material: ASTM A536, GR 65/45/12

Standard: Convuluted Type, Ductile Iron, 150 lb. Drilling

Finish: Red Oxide Primer

Epoxy coated and stainless steel back-up rings available.

MJ ACCESSORY KITS



2"–24" IPS/DIPS

MJ Accessory Kits Include: ductile iron gland ring, rubber gasket, T-bolts & hex nuts.



CARBON STEEL GLAND RING

14"–24" IPS/DIPS

MJ Accessory Kits Include: rubber gasket, T-bolts, heavy flat washers & hex nuts. Does not include gland ring – black carbon steel ring must be ordered separately.





GEORG FISCHER
PIPING SYSTEMS

GEORG FISCHER CENTRAL PLASTICS

Georg Fischer Central Plastics builds quality piping systems that are efficient, reliable and safe - supplying products and solutions with unparalleled integrity.

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Oklahoma - Head Office

39605 Independence
Shawnee, OK 74804

Texas

4949 Joseph Hardin Drive
Dallas, TX 75236

1.800.654.3872

gfcpc.com

Gas | Water & Waste Water | Energy | Industrial

Transition Fittings



QUALITY IS CENTRAL.

Quality at Georg Fischer Central Plastics is backed by the most extensive research and development, quality assurance and in-house testing programs in the industry.

LEADERS IN TRANSITION FITTINGS

Georg Fischer Central Plastics is known as North America's leader in designing and manufacturing HDPE piping systems. We specialize in HDPE fittings and pipe, but also work in metals. Our time-tested products ensure very durable piping systems from end to end.

We've been in the piping connection business for nearly 60 years, developing high quality and innovative products to meet the ever-changing needs of the piping industry. Along the way, we have developed new products, many becoming industry standards. For example, almost 50 years ago, we were the first to develop and introduce an HDPE to steel transition fitting - one that remains the fitting of choice for many piping systems around the world.

Gas | Water & Waste Water |
Energy | Industrial

TAKING PRODUCTION SERIOUSLY

At Georg Fischer Central Plastics, we are dedicated to excellence and innovation. We continually invest in new technologies to ensure our production capabilities are second to none. Our head office in Shawnee, Oklahoma spans seven acres and includes a manufacturing facility operating under strict ISO standards.

In 2012, we also acquired Independent Pipe Products, Inc. With facilities in Dallas, Texas and Abbeville County, South Carolina, this makes Georg Fischer Central Plastics a provider of Design-Flow® HDPE Pipe in sizes as large as 65" in diameter.

Hands down, we have more HDPE piping systems products than anyone in the business. And if we don't have it, we can custom build it.

We work closely with our customers to custom design product for specific application. With advanced, in-house engineering and testing facilities, we continue to develop innovative products and solutions to meet the demands of today's piping infrastructure.

- ISO 9001 quality system
- ISO 14001 and ISO 18001 certified
- High volume capabilities
- Robotic welding
- Fully automated injection molding
- Tool & die facility
- Advanced powder coating system

Our transition fittings undergo an extensive testing program to ensure consistent, high performance in the field.

CATEGORY 1

CARBON STEEL TO PE
STAINLESS STEEL TO PE
BRASS TO PE

GEOTHERMAL TRANSITIONS

- Socket fusion couplings

ID CONTROLLED TRANSITIONS

- Smooth piggable transitions for any pipeline application

SOCKET WELD TRANSITIONS

- The easiest weld to perform in the field for any application

SPECIALTY TRANSITION FITTINGS

- Custom designed in-house and produced in a leading ISO 9001 manufacturing facility

CATEGORY 3

A lower cost alternative for many municipal and industrial applications.

Specialty Transition Fittings.

Custom engineered
in-house to exact
specifications.
Every time.

Call us for availability of
other sizes and dimensions.
Visit gfcpc.com to view
product details in
our catalog.



WELD-END TRANSITION FITTINGS

PE2406/PE2708 Gas Pipe
PE3408 Gas Pipe
PE3408/PE4710 Oil Field Pipe
Steel weld end epoxy coated
(1/2"–24")



THREADED EXTERNAL COATED TRANSITIONS

PE3408/PE4710 Pipe
PE2406/PE2708 Gas Pipe
Steel thread end epoxy coated
(1/2"–8")

CATEGORY 1: TRANSITION FITTINGS

As with all of our Transition Fittings, our polyethylene-to-steel joints are actually many times stronger than the PE pipes they attach to. Our time-tested design eliminates human error in the plastic-to-steel connection by providing a tamper-proof, gas tight, ASTM D2513 Category 1 mechanical joint.

Our Category 1 Fittings exceed the hydrostatic burst pressure and tensile strength of the polyethylene pipe and are designed to exceed ASTM F1973 specifications.



THREADED INTERNAL COATED TRANSITIONS

PE3408 Oil Field Pipe
Steel threaded internal
coated (1/2"–8")



FLANGE TRANSITION FITTINGS

PE2406/PE2708 Pipe
Steel flange end epoxy coated (2"–24")



VICTAULIC TRANSITION FITTINGS

PE3408 Pipe
Steel victaulic end epoxy coated (2"–24")

CARBON STEEL TO PE FEATURES AND BENEFITS

- All products are protected with an electrostatically-applied, fusion-bonded epoxy powder coating specifically designed for the exterior of gas or petroleum pipelines
- One-piece design eliminates loose parts
- PE-to-steel transition joints are stronger than the PE pipe itself
- Transition joint designed to effectively resist pullout
- The transition design utilizes a double O-ring design for added protection
- All gas carrying welds on steel transitions are 100% air tested

TECHNICAL SPECIFICATIONS

- Steel Gas Carrier — API 5L — ASTM A53
- Pipe Threads — ANSI B1.20.1
- PE Pipe per ASTM D2513
- Protective Coating Specs
- All parts are protected with an electrostatically applied, fusion-bonded epoxy powder coating specifically designed for the exterior of gas petroleum pipelines
- 8 mils minimum thickness
- AGA 49 grey
- Cathodic disbondment testing per ASTM G8
- Salt spray testing per ASTM B117
- Impact resistance testing per ASTM G14

OPTIONS

- Tracer wire connector
- Special designs and custom specifications available
- Protective sleeves available
- Available in Schedule 40 and Schedule 80

Our Brass and Stainless Transitions meet the demands of municipal and industrial application.

Call us for availability of other sizes and dimensions. Visit gfcpc.com to view product details in our catalog.

BRASS AND STAINLESS FITTINGS

Brass and Stainless Fittings meet all requirements for a true Category 1 mechanical joint. The PE to brass or stainless joint is many times stronger than the PE pipe.

TRANSITION FEATURES

- Compression design effectively resists pullout
- No-weld design on brass and stainless transitions
- Minimum shear points

TESTING AND COMPLIANCE

All GF Central Plastics transition fittings meet or exceed the following applicable standards:

- Sustained Pressure Test per ASTM D1598
- ASTM D2513 Category I
- Leak Test per ASTM E515
- Tensile Pull Test per ASTM D638
- Constant Tensile Load Test per ASTM F1588



THREADED BRASS

Sizes: (3/4"-2")

TECHNICAL STANDARDS AND SPECIFICATIONS

- Tested to AWWA C906 requirements
- Meets or exceeds the following applicable standards:
 - DOT Code of Federal Regulations
 - Title 49 Part 192
 - ASTM D2513 CAT. 1 (where applicable)
 - ASTM D638
- Threads per ANSI B1.20.1
- Brass Adapter Insert – Brass 360 Alloy
- Compression Ring – Stainless 304 standard, Stainless 316 available

STAINLESS STEEL

Sizes: (3/4"-3")

TECHNICAL STANDARDS AND SPECIFICATIONS

- Meets or exceeds the following applicable standards:
 - DOT Code of Federal Regulations
 - Title 49 Part 192
 - ASTM D2513 CAT. 1 (where applicable)
 - ASTM D638
- Threads per ANSI B1.20.1
- Stainless Steel Adapter Insert – Stainless 304 standard, Stainless 316 available
- Compression Ring – Stainless 304 standard, Stainless 316 available
- NSF Approved

ID CONTROLLED TRANSITION FITTING

Our ID Controlled Transition Fitting ensures a smooth piggable leak-free transition between polyethylene pipe and steel pipe. Designed with a smooth bore inner diameter, the ID Controlled Transition Fitting eliminates the internal retainers found in most transition fittings. The ID Controlled Transition Fitting is the ideal solution for pipelines that demand an unimpeded pathway.

SPECIFICATIONS

- Available in 2" to 24" IPS
- Available in Threaded, Welded, Victaulic, and Flanged Ends

MATERIALS AVAILABLE

- PE Pipe: PE3408/PE4710
- Carbon Steel per A53/API-5L
- Stainless Steel per A312 Type 304 Welded
- Red Brass per B43 Type 23000 Seamless
- Electrostatically applied Fusion-Bonded
- Epoxy Coating (carbon steel only)
- Qualified to ASTM D2513 Category 1 standards
- Meets ASTM D2513 Category 1 requirements for natural gas applications

APPLICATIONS

- Water & Waste Water
- Gas Distribution
- Energy



Simplify your transitions with the easiest weld to perform in the field.

SOCKET WELD TRANSITIONS

Simple and effective, the Category 1, Socket Weld Transition Fitting allows for a precise connection while eliminating several steps during installation.

The fitting's socket easily slips over the pipe, requiring only one weld.

The Socket Weld Transition Fitting also eliminates the need for a root pass grind of the cap. This one-step transition fitting improves precision and saves precious time in the field.

Georg Fischer Central Plastics Socket Weld Transition Fittings meet ASTM D2513 specifications.

SIZES

- PE sizes from ½" CTS through 24" IPS
- Steel sizes from ½" IPS through 24" IPS

SPECIFICATIONS

POLYETHYLENE PIPE

- PE2406/PE80, PE3408/PE3608, PE4710/PE100 shall according to market requirements in which the Transition Fitting is installed.
- PE2406 IAPMO & CSA Listed where applicable.

STEEL PIPE/NIPPLE

- Per ASTM A53 Type E Grade A or API 5L Grade B.
- Schedule 40, (Standard) & Schedule 80. (Optional)
Other wall thicknesses available by request.

RETAINER RING

- Steel Tubing C1020 / C1035 per ASTM A513 or equivalent.

O RINGS

- Buna-N (Nitrile) per ASTM D2000.



Call us for availability of other sizes and dimensions. Visit gfc.com to view product details in our catalog.

SPECIALTY TRANSITION FITTINGS

We are specialists in custom design and production of specialty fittings for the most rigorous applications. With advanced in-house engineering capabilities and testing facilities, we can help you design and build one-of-a-kind transition fittings. We work closely with our customers to custom design and manufacture. Bring us an idea and we will work with you to create fittings for your specific needs.

CAPABILITIES INCLUDE

- Custom engineering on 3D software
- Certified welding to ASME Boiler Code and API 1104
- Fusion bonded epoxy and polyester coatings
- Proprietary epoxy/polyester Dual Coat System
- Full traceability of all components sold
- Sizes up to 24"



12" TRANSITION



12" x 8" TRANSITION



PULLING HEAD



16" TRANSITION



HAMMER



FEMALE TRANSITION

GEOHERMAL TRANSITIONS

SOCKET FUSION COUPLINGS



SOCKET PE3408/PE4710

MALE THREAD

3/4" NPT x 1" IPS – 2" NPT x 2" IPS

FEMALE THREAD

1/2" FPT x 3/4" IPS – 1/2" FPT x 1/2" IPS

MALE THREAD 90° ELBOW

1" NPT x 1" IPS and 1 1/4" NPT x 1 1/4"

Category 3 transitions are a lower-cost alternative for many municipal and industrial applications.

Call us for availability of other sizes and dimensions. Visit gfc.com to view product details in our catalog.

CATEGORY 3: TRANSITION FITTINGS

The design of our Category 3 Transition Fittings is simple and reliable. PE pipe is inserted through the entire fitting, making the Category 3 transition perfect for applications involving the transport of abrasive or corrosive materials, such as slurry applications.

Category 3 transitions are available in epoxy-coated carbon steel, stainless steel, and red brass; all with PE3408/4710 pipe. Category 3 transitions are designed to provide a full pressure seal, plus a pipe restraint rating equivalent to the anticipated thermal stresses occurring in a pipeline.

FEATURES AND BENEFITS

- Qualified to ASTM D2513 Category 3 standards
- ID fully lined with HDPE for total corrosion protection
- Available in stainless steel, bronze and epoxy-coated steel
- Threaded and victaulic connections
weld flanged
- Protective sleeves available upon request

APPLICATIONS

- Water and Waste Water
- Oilfield
- Industrial
 - Dredging
 - Landfill
 - Irrigation
 - Mining
 - Process lines
 - Salt water disposal
- Geothermal
- NOT suitable for gas distribution

TECHNICAL SPECIFICATIONS

- Size Range: 3/4" IPS – 24" IPS
- Materials Available:
 - PE Pipe: PE3408/PE4710
 - Carbon Steel per A53/API-5L
 - Stainless Steel per A312
 - Type 304 Welded
 - Red Brass per B43
 - Type C23000 Seamless
- Electrostatically applied Fusion-Bonded Epoxy Coating (carbon steel only)

All transition fittings have been tested to meet or exceed the following requirements:

- ASTM D1598
- ASTM 1500
- ASTM D1638
- ASTM E515
- CSA Z245.20



**Threaded, Victaulic,
Weld and Flanged
Ends available**

**Epoxy-coated
Carbon Steel,
Stainless Steel,
or Red Brass**

**Polyethylene
pipe inserted
through the
entire fitting**





GEORG FISCHER
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Georg Fischer Central Plastics builds quality piping systems that are efficient, reliable and safe - supplying products and solutions with unparalleled integrity.

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Texas

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Dallas, TX 75236

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UA / NCPWB



Joint Welder Testing Program

Welder Qualification Test Record

Welder's Name: _____ UA/NCPWB ID No. _____ Stamp No: _____
 Test Location: _____ City: _____ State: _____

Testing Conditions and Ranges Qualified

Identification of WPS followed during welding of test coupon: _____
 Specification of Test Coupon Base Metal: _____ Thickness (in.): _____

Welding Variables

Actual Values

Range Qualified

Welding Process(es) used: _____
 Type of welding (manual, semi-automatic): _____
 Base Metal P-Number _____ to P-Number: _____
 Plate Pipe (enter diameter if pipe or tube): _____
 Backing (metal, weld metal, backwelded, etc): _____
 Filler Metal (SFA) Specification(s) (info. only): _____
 Filler Metal or Electrode Classification(s) (info. only): _____
 Filler Metal or Electrode F-Number: _____
 Solid, Metal Cored or Flux Cored wire for GTAW: _____
 Consumable Insert for GTAW or PAW: _____
 Deposit Thickness for each process and variation (in.): _____
 Position (2G, 6G, 3F, etc.): _____
 Progression (uphill, downhill): _____
 Backing Gas for GTAW, PAW, GMAW: _____
 GMAW Transfer Mode (short circuiting, spray, etc.): _____
 GTAW Current Type/Polarity (AC, DCEP, DCEN): _____

* Indicates that at least 3 layers of weld metal were deposited

Testing and Results

Visual Examination of Completed Weld: _____ Date of Test: _____

Bend Test Transverse Root and Face (QW-462.3(a)) Side (QW-462.2)

Type	Result	Type	Result	Type	Result

Radiographic / Ultrasonic Examination Results: _____ Lab Test No.: _____

Film or Specimens Evaluated By: _____ Title: _____ Company: _____

Contractor/Fabricator's Supervisor: _____ Title: _____ Company: _____

We certify that the statements in this record are correct and that the test coupons were prepared, welded and tested in accordance with the requirements of Section IX of the ASME Code.

National Certified Pipe Welding Bureau

Chapter Number: _____
 Secretary: _____
 Date: _____

United Association Authorized Testing

Representative Name: _____
 Date: _____

Contractor/Fabricator Name

Signature: _____
 Date: _____



UA / NCPWB



Joint Welder Testing Program

Welder Qualification Test Record

Welder's Name: _____ UA/NCPWB ID No. _____ Stamp No: _____
 Test Location: _____ City: _____ State: _____

Testing Conditions and Ranges Qualified

Identification of WPS followed during welding of test coupon: _____
 Specification of Test Coupon Base Metal: _____ Thickness (in.): _____

Welding Variables

Actual Values

Range Qualified

Welding Process(es) used: _____
 Type of welding (manual, semi-automatic): _____
 Base Metal P-Number _____ to P-Number: _____
 Plate Pipe (enter diameter if pipe or tube): _____
 Backing (metal, weld metal, backwelded, etc): _____
 Filler Metal (SFA) Specification(s) (info. only): _____
 Filler Metal or Electrode Classification(s) (info. only): _____
 Filler Metal or Electrode F-Number: _____
 Solid, Metal Cored or Flux Cored wire for GTAW: _____
 Consumable Insert for GTAW or PAW: _____
 Deposit Thickness for each process and variation (in.): _____
 Position (2G, 6G, 3F, etc.): _____
 Progression (uphill, downhill): _____
 Backing Gas for GTAW, PAW, GMAW: _____
 GMAW Transfer Mode (short circuiting, spray, etc.): _____
 GTAW Current Type/Polarity (AC, DCEP, DCEN): _____

* Indicates that at least 3 layers of weld metal were deposited

Testing and Results

Visual Examination of Completed Weld: _____ Date of Test: _____

Bend Test Transverse Root and Face (QW-462.3(a)) Side (QW-462.2)

Type	Result	Type	Result	Type	Result

Radiographic / Ultrasonic Examination Results: _____ Lab Test No.: _____
 Film or Specimens Evaluated By: _____ Title: _____ Company: _____
 Contractor/Fabricator's Supervisor: _____ Title: _____ Company: _____

We certify that the statements in this record are correct and that the test coupons were prepared, welded and tested in accordance with the requirements of Section IX of the ASME Code.

National Certified Pipe Welding Bureau

Chapter Number: _____
 Secretary: _____
 Date: _____

United Association Authorized Testing

Representative Name: _____
 Date: _____

Contractor/Fabricator Name

Signature: _____
 Date: _____



Welder Qualification Test Record

Welder's Name: _____ UA/NCPWB ID No. _____ Stamp No: _____
 Test Location: _____ City: _____ State: _____

Testing Conditions and Ranges Qualified

Identification of WPS followed during welding of test coupon: _____
 Specification of Test Coupon Base Metal _____ Thickness(in.): _____

Welding Variables

Actual Values

Range Qualified

Welding Process(es) used: _____

Type of welding (manual, semi-automatic): _____

Base Metal P-Number _____ to P-Number: _____

Plate Pipe (enter diameter if pipe or tube): _____

Backing (metal, weld metal, backwelded, etc): _____

Filler Metal (SFA) Specification(s) (info. only): _____

Filler Metal or Electrode Classification(s) (info. only): _____

Filler Metal or Electrode F-Number: _____

Solid, Metal Cored or Flux Cored wire for GTAW: _____

Consumable Insert for GTAW or PAW: _____

Deposit Thickness for each process and variation (in.): _____

Position (2G, 6G, 3F, etc.): _____

Progression (uphill, downhill): _____

Backing Gas for GTAW, PAW, GMAW: _____

GMAW Transfer Mode (short circuiting, spray, etc.): _____

GTAW Current Type/Polarity (AC, DCEP, DCEN): _____

Testing and Results

Visual Examination of Completed Weld: _____ Date of Test: _____

Bend Test Transverse Root and Face (QW-462.3(a)) Side (QW-462.2)

Type	Result	Type	Result	Type	Result

Radiographic / Ultrasonic Examination Results: _____ Lab Test No.: _____

Film or Specimens Evaluated By: _____ Title: _____ Company: _____

Contractor/Fabricator's Supervisor: _____ Title: _____ Company: _____

Welding Witnessed by: _____ Title: _____ Company: _____

We certify that the statements in this record are correct and that the test coupons were prepared, welded and tested in accordance with the requirements of Section IX of the ASME Code.

**National Certified Pipe
 Welding Bureau**
 Chapter Number: _____

Secretary: _____
 Date: _____

Contractor/Fabricator Name
 Signature: _____
 Date: _____



NATIONAL CERTIFIED PIPE WELDING BUREAU

WELDING PROCEDURE SPECIFICATION

NO. 1-12-1

FOR

SHIELDED METAL ARC WELDING (SMAW)

OF

CARBON STEEL PIPE, VALVES, FITTINGS AND FLANGES
USING E6010 ELECTRODE FOLLOWED BY E7018 ELECTRODE

This document is the property of



U.S. ENGINEERING
CONSTRUCTION

(NCPWB Member Company Name)

This Welding Procedure Specification (WPS) and Procedure Qualification Record(s) (PQR) are issued by the NCPWB for adoption by its members. Reproduction or use of this WPS and PQR(s) by anyone other than members of the NCPWB is prohibited

WELDING PROCEDURE SPECIFICATION (WPS)



Company Name: U.S. Engineering Construction **Welding Process:** SMAW
WPS Number: 1-12-1 **Revision Number:** 7 **Revision Date:** 5-15-19
Supporting PQRs: 87103, 87110, 060626, 100815 **Type:** Manual

Joints (QW -402)

Joint Design: Single-V or U, Double-V or U, Fillets, Repairs, Build-up. **Details:** See Typical Joint Designs
Backing: Optional for EXX10, required for E7018 **Backing or Retainer type:** Carbon Steel when used

<p>Base Metals (QW-403)</p> <p>P- Number 1 Group No. 1 and 2 P- Number 1 Group No. 1 and 2</p> <p>Base Metal Thickness Range*</p> <p>Groove Welds: 1/16" to 1-1/4" Fillet welds: All</p> <p>Minimum Outside Diameter</p> <p>Groove Welds: All diameters. Fillet Welds: All diameters</p> <p><small>*This WPS may not be used on thicknesses where the code or contracts requires PWHT</small></p>	<p>Filler Metals and Electrodes (QW-404)</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">Welding Process:</td> <td style="width: 20%;">SMAW</td> <td style="width: 30%;">Balance</td> </tr> <tr> <td>Specification Number:</td> <td>SFA 5.1 or 5.5</td> <td>SMAW</td> </tr> <tr> <td>AWS Classification:</td> <td>E6010 or E7010-A1*</td> <td>SFA 5.1</td> </tr> <tr> <td>F-number:</td> <td>3</td> <td>E7018</td> </tr> <tr> <td>A-Number:</td> <td>1 or 2</td> <td>4</td> </tr> <tr> <td>Maximum Weld Metal Thickness:</td> <td></td> <td>1</td> </tr> <tr> <td>Grooves:</td> <td>0.25"***</td> <td>1.0"</td> </tr> <tr> <td>Fillets:</td> <td>All</td> <td>All</td> </tr> <tr> <td>Maximum Bead thickness:</td> <td>3/16"</td> <td>3/16"</td> </tr> <tr> <td>Supplemental Filler Metal:</td> <td>N/A</td> <td>N/A</td> </tr> <tr> <td>Consumable Insert:</td> <td>N/A</td> <td>N/A</td> </tr> <tr> <td>Pulsed Power Supply:</td> <td>N/A</td> <td>N/A</td> </tr> <tr> <td>Penetration-enhancing flux:</td> <td>N/A</td> <td>N/A</td> </tr> </table> <p><small>*Use of E7010-P1 is also permitted. When welding Group 2 materials to themselves, use E7010-XX. E7018-1, E7018M, E7018-R and E7018-H4 through H16 are also permitted. ** While the PQRs support a qualified weld metal thickness of 1.25", only 0.25 in. may be deposited with F-3 type electrodes.</small></p>	Welding Process:	SMAW	Balance	Specification Number:	SFA 5.1 or 5.5	SMAW	AWS Classification:	E6010 or E7010-A1*	SFA 5.1	F-number:	3	E7018	A-Number:	1 or 2	4	Maximum Weld Metal Thickness:		1	Grooves:	0.25"***	1.0"	Fillets:	All	All	Maximum Bead thickness:	3/16"	3/16"	Supplemental Filler Metal:	N/A	N/A	Consumable Insert:	N/A	N/A	Pulsed Power Supply:	N/A	N/A	Penetration-enhancing flux:	N/A	N/A	
Welding Process:	SMAW	Balance																																							
Specification Number:	SFA 5.1 or 5.5	SMAW																																							
AWS Classification:	E6010 or E7010-A1*	SFA 5.1																																							
F-number:	3	E7018																																							
A-Number:	1 or 2	4																																							
Maximum Weld Metal Thickness:		1																																							
Grooves:	0.25"***	1.0"																																							
Fillets:	All	All																																							
Maximum Bead thickness:	3/16"	3/16"																																							
Supplemental Filler Metal:	N/A	N/A																																							
Consumable Insert:	N/A	N/A																																							
Pulsed Power Supply:	N/A	N/A																																							
Penetration-enhancing flux:	N/A	N/A																																							
<p>Postweld Heat Treatment (QW-407)</p> <p>Temperature: None Max. Holding Time: N/A</p>																																									

<p>Preheat (QW-406)</p> <p>Minimum metal temp: 50°F, 200°F if over 1" thick. Interpass Temp. (Max): 350°F Preheat Maintenance: Not required</p>	<p>Positions (QW-405)</p> <p>Positions permitted: All Progression when in Vertical: Uphill</p>	<p>Gas (QW-408)</p> <p>Shielding: N/A Backing: N/A Trailing Shield: N/A</p>
--	---	--

Electrical Characteristics and Related Matters (QW-409)

Weld Layer	Process	Electrode or Filler		Current			Travel Speed* (ipm)	Other
		Class	Diameter	Type/Polarity	Volts	Current or WFS		
Root and fill	SMAW	EXX10	3/32"	DCEP (+)	N/A	40 to 80	3 to 5	
			1/8			75 to 125		
Fill and fillet	SMAW	E7018	3/32"	DCEP (+)	N/A	70 to 100	3 to 6	*recommended only
			1/8			105 to 155	3 to 7	
			5/32			130 to 200	4 to 9	

Technique (QW-410)

<p>Tungsten Size and Type: Not applicable Shielding Gas Cup Size: Not applicable Single or Multiple Pass per Side: Either Single or Multiple electrodes: Single Contact-tube-to-work distance (stickout): Not applicable Repair Method: Grinding. Backwelding is permitted. Stringer or Weave Bead: Either</p>	<p>Initial Cleaning: Remove grease or oil with solvent. Remove cutting oxide by grinding. Interpass Cleaning: Remove slag with slag hammer, grinder or wire brush. Backgouging: Grinding or carbon arc followed by grinding. Peening: Not permitted Other:</p>
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The undersigned Contractor, a member of the National Certified Pipe Welding Bureau, hereby adopts this jointly developed procedure as its Welding Procedure Specification and certifies that this procedure has been qualified as shown on the above referenced Procedure Qualification Records.

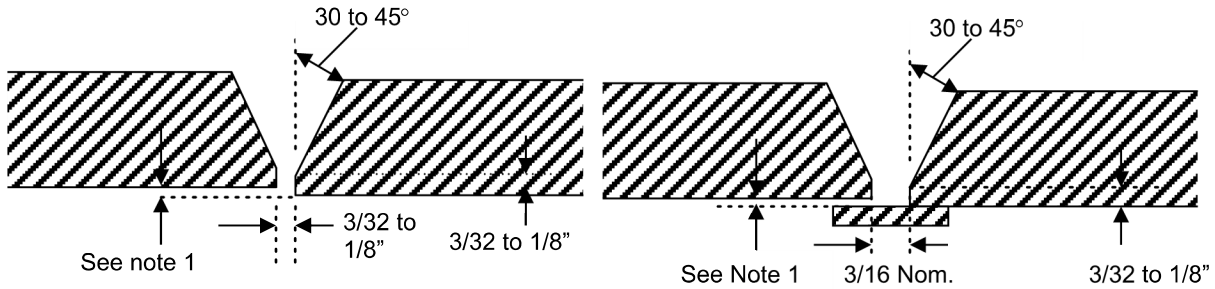
Eric W Smith
 CWI 21050651
 QC1 EXP. 5/1/2024

Company Name: U.S. Engineering Construction
By: Eric W. Smith **Date:** 11-28-23
Title: Quality Control Manager

Typical Joint Designs

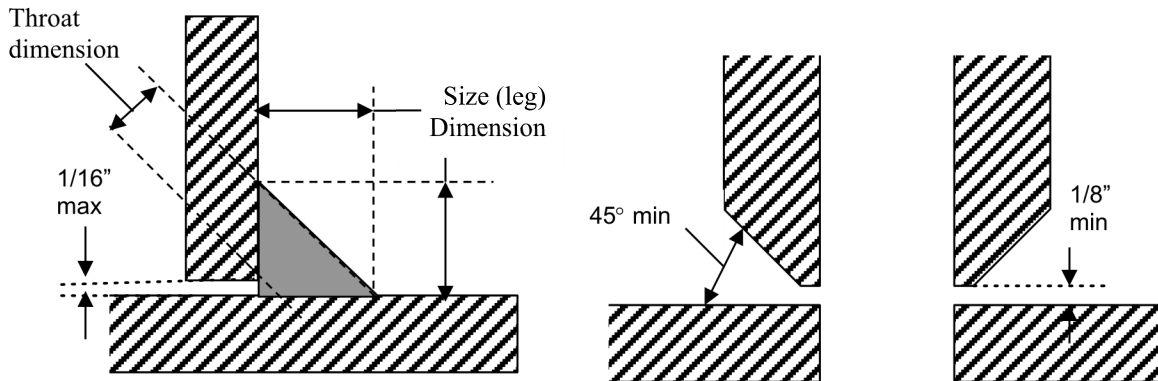
Other joint designs shown on Engineering drawings supersede these joint details

Butt welds

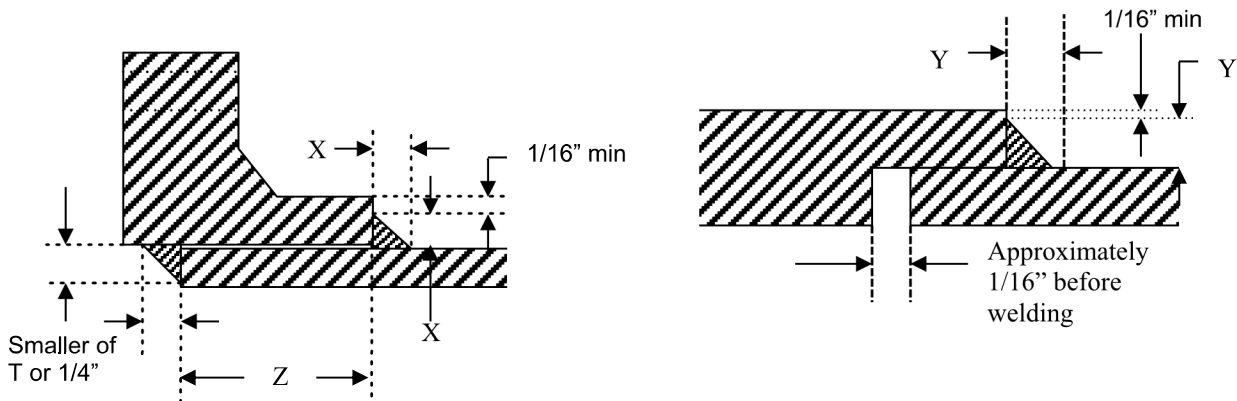


Note 1: 1/8 inch maximum except for B31.1 and B31.5 work, 1/16 inch maximum

Fillet, Nozzle and Branch Connection Welds



Slip-on Flange and Socket Welds



T = The nominal thickness of the pipe

X = the lesser of 1.4T or the hub thickness unless another size is shown on the engineering drawings

Y = the lesser of 1.1T or the fitting thickness unless another size is shown on the engineering drawings

Z = for B31.9 work, minimum of the greater of the pipe nominal wall thickness or 1/4 in. (6 mm) and face fillet is not required unless specified by the design.

Procedure Qualification Record

Identification of WPS followed during welding of test coupon: SP-137KRev 1 dated 2-3-84
Welding Process(es) used: SMAW followed by SMAW, Manual **Date coupon was welded:** 3-8-84
Base Metal Specification: SA-106 Grade B **to Base Metal Specification:** SA-106 Grade B
P-Number: 1 **Group No:** 1 **to P-Number:** 1 **Group No:** 1 **Plate/Pipe Diameter:** NPS 5
Base Metal Thickness(in.): 3/8" **Joint Type:** Single V-groove welded on backing **F-Number:** 4
Filler metal specification: SFA 5.1 **AWS Classification:** E7018
A-Number: 1 **Weld Deposit Thickness(es)(in.):** 0.375 **Maximum Pass Thickness:** 1/8"
Filler metal size: 1/8" and 3/32 **Supplementary filler metal:** N/A
Preheat temperature (°F): 78 **Interpass temp. (°F)** 500 **Welding position/progression:** 1G
Current Type and polarity: DCEP **Travel speed (ipm):** see below
Shielding gas composition, CFH: N/A **Backing gas composition, CFH:** N/A
Tungsten size/type: N/A **GMAW transfer mode:** N/A
Postweld Heat treatment (°F): None **Postweld heat treatment time (hr.):** N/A
Stringer/Weave bead: Weave **Oscillation:** N/A
Single/Multi-pass: Multiple **Single/Multi-electrode:** Single
Other: _____

Weld Layer	Process	Electrode or filler metal	Size (in)	Current			Travel Speed (ipm)	Other
				Type/Polarity	Volts	Amps		
Root	SMAW	E7018	3/32	DCEP		100	6	
Fill	SMAW	E7018	3/32	DCEP		100	6	
Fill	SMAW	E7018	1/8	DCEP		100	6	

Reduced Section Tensile Tests Rectangular Turned Full Section

Specimen	Width/dia (in.)	Thickness (in.)	Area (in ²)	Load (lbs.)	Tensile Str. (psi)	Location of failure
1	0.755	0.265	0.200	14,400	72,000	Base Metal
2	0.750	0.266	0.199	14,100	71,000	Base Metal

Bend Tests Transverse Face and Root Side Longitudinal Face and Root

Type	Result	Type	Result	Type	Result
Side	Acceptable	Side	Acceptable		
Side	Acceptable	Side	Acceptable		

Toughness Tests Charpy Specimen Size _____ Test Temperature _____

Specimen	Notch location	Ft-lbs	Lateral Expansion (mils)	Percent Shear	Drop Weight Break	No Break

Weld deposit analysis: _____

Other tests: _____


Welder's name: Stu Schwlim Stamp: SS Welding Witnessed by: Jim Sekely, Schneider, Inc

Tests conducted by: E. Gallagher, Pittsburgh Testing Lab Laboratory test number: 846987

We hereby certify that the statements in this record are correct and that the test welds were prepared, welded and tested in accordance with the requirements of Section IX of the ASME Code.

National Certified



Company: 

By: Eric W. Smith Date: 11-28-23


 Chairman, Technical Committee

PQR Number 87103

NCPWB Form QW-483

PROCEDURE QUALIFICATION RECORD (PQR)

WPS followed during welding of test coupon: WPS 1.10, Rev 0 dated 8-1-74 PQR Number: 87110
 Welding Process(s) used: SMAW Date Test Coupon was welded: 10-25-82
 Base Metal Specification: ASME SA106 Grade B to Base Metal Specification: ASME SA106 Grade B
 P Number: 1 Group No: 1 to P Number: 1 Group No: 1 Plate/Pipe Diameter: NPS 12 Std
 Base Metal Thickness(in.): 0.375 Joint Type: Single V-groove without backing
 Filler Metal Specification: SFA5.1 Classification: E6010 F-No.: 3
 A-No.: 1 Deposited Weld Metal Thickness (in.): 0.375 Maximum Pass Thickness (in.): < 1/8
 Filler Metal Size (in.): below Supplementary Filler Metal: N/A
 Preheat Temperature (°F): 50 Interpass Temperature (°F): Not Rec. Welding Position/Progression: 6G uphill
 Current Type: DC Polarity: Reverse Travel Speed (ipm): Below
 Shielding Gas Composition (CFH): N/A Backing Gas (CFH): N/A
 Tungsten Size/Type: N/A GMAW Transfer Mode: N/A
 Stringer/Weaver Bead: Stringer and Weave Oscillation: N/A
 Single/Multi-Pass: Multiple Single/Multi-Electrode: Single
 Postweld Heat Treatment (°F): None Heat Treatment Time(hr.): N/A
 Other: _____

Layer	Process	Filler Classification	Diameter	Amperage	Travel Speed	Volts	Heat Input	Other
1	SMAW	E6010	1/8	100	Not Recorded			
2	SMAW	E6010	5/32	140	Not Recorded			
3,4	SMAW	E6010	3/16	160	Not Recorded			

Reduced Section Tensile Tests Rectangular Specimens Turned Specimens Full-Section Specimen

Specimen	Width/Dia. (in)	Thickness (in)	Area (sq in)	Ult.imate Load (lbs)	Ultimate Stress (psi)	Failure Location
T-1	0.680	0.341	0.232	15,950	68,750	Base Metal
T-2	0.726	0.334	0.242	16,650	68,800	Base Metal

Bend Tests: Trans. Root and Face (QW462.3a) Trans. Side (QW-462.2) Long.Root and Face (QW-462.3b)

Type	Results	Type	Results
Root	Acceptable	Face	Acceptable
Root	Acceptable	Face	Acceptable

Toughness Test Charpy Specimen Size: None Test Temperature N/A

Specimen Number	Notch Location	Charpy V-Notch Test				Drop-Weight Test	
		Foot-Lbs.	Ft-lb Av.	Percent Shear	Lateral Exp. (mils)	Break	No Break

Fillet Weld Test Macro Examination _____ Fillet Weld Test Leg Sizes: _____

Weld Deposit Analysis: _____

Other Tests: _____

Welder's Name: Edward Deen Stamp No. 56 Welding Witnessed By: Tompkins-Beckwith

Test Conducted by: Charles L. Moore, PE, PTL Laboratory Test Number: JAX3781

We Certify that the statements in this record are correct and that the test welds were prepared, welded and tested in accordance with the requirements of Section IX of the ASME Code.

NATIONAL CERTIFIED

PIPE WELDING BUREAU

By: *James J. Schely*
 Chairman, Technical Committee



Contractor:  U.S. ENGINEERING CONSTRUCTION

By: Eric W. Smith Date: 11-28-23

Updated A-number 11-18

Procedure Qualification Record

Identification of WPS followed during welding of test coupon: 1-12-1 Rev 3 dated 3-15-94
Welding Process(es) used: SMAW followed by SMAW, Manual **Date coupon was welded:** 8-2-06
Base Metal Specification: SA-106 Grade B **to Base Metal Specification:** SA-106 Grade B
P-Number: 1 **Group No:** 1 **to P-Number:** 1 **Group No:** 1 **Plate/Pipe Diameter:** 2-3/4 in OD
Base Metal Thickness(in.): 5/8" **Joint Type:** Single V-groove welded one side **F-Number:** 3 / 4
Filler metal specification: SFA 5.1 / SFA 5.1 **AWS Classification:** E6010 / E7018
A-Number: 1 / 1 **Weld Deposit Thickness(es)(in.):** 0.125 / 0.50 **Maximum Pass Thickness:** 1/8"
Filler metal size: 1/8" and 5/32 **Supplementary filler metal:** N/A
Preheat temperature (°F): 60 **Interpass temp. (°F)** N/A **Welding position/progression:** 6G*
Current Type and polarity: DCEP **Travel speed (ipm):** see below
Shielding gas composition, CFH: N/A **Backing gas composition, CFH:** N/A
Tungsten size/type: N/A **GMAW transfer mode:** N/A
Postweld Heat treatment (°F): None **Postweld heat treatment time (hr.):** N/A
Stringer/Weave bead: Both **Oscillation:** N/A
Single/Multi-pass: Multiple **Single/Multi-electrode:** Single
Other: *Root was run downhill, fill passes uphill. Two coupons were welded.

Weld Layer	Process	Electrode or filler metal	Size (in)	Current			Travel Speed (ipm)	Other
				Type/Polarity	Volts	Amps		
Root	SMAW	E6010	1/8	DCEP		50 to 60		
Fill	SMAW	E7018	1/8	DCEP		80 to 90		
	SMAW	E7018	5/32	DCEP		100 to 110		

Reduced Section Tensile Tests Rectangular Turned Full Section

Specimen	Width/dia (in.)	Thickness (in.)	Area (in ²)	Load (lbs.)	Tensile Str. (psi)	Location of failure
1	0.757	0.560	0.424	34,200	80,700	Weld Metal
2	0.692	0.588	0.407	33,900	83,300	Weld Metal

Bend Tests Transverse Face and Root Side Longitudinal Face and Root

Type	Result	Type	Result	Type	Result
Side	Acceptable	Side	Acceptable		
Side	Acceptable	Side	Acceptable		

Toughness Tests Charpy Specimen Size _____ Test Temperature _____

Specimen	Notch location	Ft-lbs	Lateral Expansion (mils)	Percent Shear	Drop Weight Break	No Break

Weld deposit analysis: _____

Other tests: _____

Welder's name: S. Heine Stamp: 9279 Welding Witnessed by: Leonard Tune, Durr Mechanical

Tests conducted by: Inspection and Testing Services, Inc Laboratory test number: S112235

We hereby certify that the statements in this record are correct and that the test welds were prepared, welded and tested in accordance with the requirements of Section IX of the ASME Code.

National Certified



Company: _____



By: Eric W. Smith

Date: 11-28-23

By: [Signature]
Chairman, Technical Committee

Corrected tensile results 5-17

Procedure Qualification Record

Identification of WPS followed during welding of test coupon: 1-12-1 Rev 3 dated 3-15-94
Welding Process(es) used: SMAW, Manual **Date coupon was welded:** 8-5-10
Base Metal Specification: SA-36 **to Base Metal Specification:** SA-36
P-Number: 1 **Group No:** 1 **to P-Number:** 1 **Group No:** 1 **Plate/Pipe Diameter:** Plate
Base Metal Thickness(in.): 5/8" **Joint Type:** Single V-groove welded one side **F-Number:** 3
Filler metal specification: SFA 5.1 **AWS Classification:** E6010
A-Number: 1 **Weld Deposit Thickness(es)(in.):** 5/8" **Maximum Pass Thickness:** 0.25"
Filler metal size: 1/8" and 3/32 **Supplementary filler metal:** N/A
Preheat temperature (°F): 100 **Interpass temp. (°F)** 500 **Welding position/progression:** 2G
Current Type and polarity: DCEP **Travel speed (ipm):** see below
Shielding gas composition, CFH: N/A **Backing gas composition, CFH:** N/A
Tungsten size/type: N/A **GMAW transfer mode:** N/A
Postweld Heat treatment (°F): None **Postweld heat treatment time (hr.):** N/A
Stringer/Weave bead: Both **Oscillation:** N/A
Single/Multi-pass: Multiple **Single/Multi-electrode:** Single
Other: _____

Weld Layer	Process	Electrode or filler metal	Size (in)	Current			Travel Speed (ipm)	Other
				Type/Polarity	Volts	Amps		
Root	SMAW	E6010	3/32	DCEP		70 to 80	2 to 6	
Fill	SMAW	E6010	1/8	DCEP		100 to 125	2 to 6	

Reduced Section Tensile Tests Rectangular Turned Full Section

Specimen	Width/dia (in.)	Thickness (in.)	Area (in ²)	Load (lbs.)	Tensile Str. (psi)	Location of failure
1	0.730	0.585	0.427	32,265	75,560	Base Metal
2	0.765	0.584	0.447	34,000	76,100	Base Metal

Bend Tests Transverse Face and Root Side Longitudinal Face and Root

Type	Result	Type	Result	Type	Result
Side	Acceptable	Side	Acceptable		
Side	Acceptable	Side	Acceptable		

Toughness Tests Charpy Specimen Size _____ **Test Temperature** _____

Specimen	Notch location	Ft-lbs	Lateral Expansion (mils)	Percent Shear	Drop Weight Break	No Break

Weld deposit analysis: _____

Other tests: _____

Welder's name: Matthew Jones Stamp: 25L54 Welding Witnessed by: Dale Witte, Speer Mechanical

Tests conducted by: Bruce Tanner, CTL Engineering Laboratory test number: 100302294COL

We hereby certify that the statements in this record are correct and that the test welds were prepared, welded and tested in accordance with the requirements of Section IX of the ASME Code.

National Certified

Company: 



By: Eric W. Smith Date: 11-28-23



By: _____
Chairman, Technical Committee

Corrected tensile calculation 5-17



Mark Goodwin <mark.goodwin@clarkconstruction.com>

Re: EXTERNAL: Re: EXTERNAL: Re: [External] RE: KCI-New Terminal Natural Gas - PSC Data Requests

1 message

Mark Goodwin <mark.goodwin@clarkconstruction.com>

Wed, Mar 6, 2024 at 6:39 PM

To: "Ferns, Charlotte" <Charlotte.Ferns@kcmo.org>

Cc: Brian Zorbini <Brian.Zorbini@usengineering.com>, "Liska, Jade" <Jade.Liska@kcmo.org>, Daniel Moylan <daniel.moylan@edgemoor.com>, "jivy@pmg-kci.com" <jivy@pmg-kci.com>, Warren Taylor <wtaylor@fscmep.com>, Terry Cassidy <tcassidy@pmg-kci.com>, "Cooper, Melissa W" <Melissa.Cooper@kcmo.org>, "Freeman, Adam" <Adam.Freeman@kcmo.org>

Maybe we need a 30 minute meeting to review the questions and answers thus far. I would propose between 8 and 9 am on Friday. Brian Zorbini and Jade, could that time work for you?

Brian Zorbini, one reason for the call is that I would think question 2 "*Please clarify what welding process, or processes, were used (e.g. Gas Tungsten Arc Welding-GTAW; Gas Metal Arc Welding-GMAC, Submerged Metal Arc Welding-SMAW, etc.) to construct the steel portion of the KCI natural gas system.*" would be relatively easy to answer and maybe we're not reading it the same.

Charlotte, Clark/Weitz/Clarkson (CWC) subcontracted the design and installation of the gas piping to US Engineering so I don't think that CWC or Clark has the answers to these questions.

For Question 9, where Brian Zorbini responded that "*City of Kansas City /Clark Construction has all the tests...*", this question 9.a and 9.b requests leakage test records for all concessionaire gas fuel line piping. CWC did not install the concessions work and we do not have the testing records for this scope.

Terry and Brian, let me know if between 8 and 9 on Friday morning could work.

Thanks.

Mark Goodwin | Vice President

CLARK CONSTRUCTION GROUP, LLC

m. 240.997.1392

1627 Main St., Ste 400

Kansas City, MO 64108

www.clarkconstruction.com

On Wed, Mar 6, 2024 at 8:29 AM Ferns, Charlotte <Charlotte.Ferns@kcmo.org> wrote:

It looks like some of this information may reside with Clark Construction or others. There are questions which are not related to individual certifications; rather to specifics of the work which was done, building codes and standards, files which were referenced but not yet provided, etc. Who is working on providing that information?



Charlotte Ferns
Senior Associate City Attorney

Law Department

Corporate Legal Services

City of Kansas City, Mo.

Phone: (816) 243-3022

Email: charlotte.fern@kcmo.org

City Hall, 21st Floor, Suite 2102

414 E. 12th Street, Kansas City, Missouri 64106

and

601 Brasilia Avenue

Kansas City, MO 64153

KCMO.gov

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From: Brian Zorbini <Brian.Zorbini@usengineering.com>

Sent: Tuesday, March 5, 2024 3:49 PM

To: Mark Goodwin <mark.goodwin@clarkconstruction.com>; Liska, Jade <Jade.Liska@kcmo.org>

Cc: Daniel Moylan <daniel.moylan@edgemoor.com>; jivy@pmg-kci.com; Warren Taylor <wtaylor@fscmep.com>; Terry Cassidy <tcassidy@pmg-kci.com>; Cooper, Melissa W <Melissa.Cooper@kcmo.org>; Freeman, Adam <Adam.Freeman@kcmo.org>; Ferns, Charlotte <Charlotte.Ferns@kcmo.org>

Subject: RE: EXTERNAL: Re: EXTERNAL: Re: [External] RE: KCI-New Terminal Natural Gas - PSC Data Requests

EXTERNAL: This email originated from outside the kcmo.org organization. Use caution and examine the sender address before replying or clicking links.

All,

We are still trying to track down the items we have not provided info on yet. We have had to reach out to the national UA and others to retrieve some of this documentation if it even exists, but I wanted to let you know that we are struggling to find this information.

B. Zorbini | Sr. PM

816.985.3333 Mobile

From: Brian Zorbini
Sent: Wednesday, February 21, 2024 6:27 AM
To: Mark Goodwin <mark.goodwin@clarkconstruction.com>; Liska, Jade <jade.liska@kcmo.org>
Cc: Daniel Moylan <daniel.moylan@edgemoor.com>; jivy@pmg-kci.com; Warren Taylor <wtaylor@fscmep.com>; Terry Cassidy <tcassidy@pmg-kci.com>; Cooper, Melissa W <Melissa.Cooper@kcmo.org>; Freeman, Adam <Adam.Freeman@kcmo.org>; Ferns, Charlotte <Charlotte.Ferns@kcmo.org>
Subject: RE: EXTERNAL: Re: EXTERNAL: Re: [External] RE: KCI-New Terminal Natural Gas - PSC Data Requests

All,

See below email correspondence regarding welding qualifications and attachments. We are still working on all the requests but the attached word doc. Lists the comments we have at this time.

Ryan,

Attached are the member's (WQR) welder qualification records and continuity for the SMAW process. The WQR specifies welding variables, qualification ranges, and examination results. The WQR also outlines the following: The (ATR) authorized testing representative and contractor representative were responsible for conducting the final visual examination of the completed test specimens. The members' test specimens were sent to a third-party testing facility for non-destructive, radiographic examination.

Best Regards,

Andrew Bruce

Local 8 welding instructor/CWI

B. Zorbini | Sr. PM

816.985.3333 Mobile

From: Mark Goodwin <mark.goodwin@clarkconstruction.com>
Sent: Tuesday, February 20, 2024 10:12 AM
To: Liska, Jade <jade.liska@kcmo.org>
Cc: Daniel Moylan <daniel.moylan@edgemoor.com>; jivy@pmg-kci.com; Warren Taylor <wtaylor@fscmep.com>; Terry Cassidy <tcassidy@pmg-kci.com>; Cooper, Melissa W <Melissa.Cooper@kcmo.org>; Freeman, Adam <Adam.Freeman@kcmo.org>; Ferns, Charlotte <Charlotte.Ferns@kcmo.org>; Brian Zorbini <Brian.Zorbini@usengineering.com>
Subject: Re: EXTERNAL: Re: EXTERNAL: Re: [External] RE: KCI-New Terminal Natural Gas - PSC Data Requests

CAUTION This email was not sent from a U.S. Engineering team member.

Jade,

Brian Zorbini with US Engineering, copied on this email, is the point of contact working to collect the answers to the questions asked. I spoke to Brian this morning and he understands the need to provide responses. He's actively working with others to collect responses and he plans to provide available responses no later than the end of this week.

Let me know if you have any questions.

Thanks.

Mark Goodwin

Vice President

Clark Construction Group, LLC

On Feb 20, 2024, at 9:54 AM, Liska, Jade <jade.liska@kcmo.org> wrote:

Mark:

This matter is highly important and urgent per the project requirements, that has been asked by the regulatory agencies.

Whom do you suggest we contact, from US Engineering, to get these items answered and a response needed. We are now late and the regulatory agencies will need to be notified of our progress ASAP.

Jade

<image001.png>

J. Jade Liska, PLA

Deputy Director of Aviation

Planning and Engineering Division | Aviation Department

Kansas City International Airport | City of Kansas City, MO

601 Brasilia Ave | Kansas City, Missouri | 64153

Office: 816-243-3045

Email: jade.liska@kcmo.org

FlyKC.com KCMO.gov

From: Mark Goodwin <mark.goodwin@clarkconstruction.com>
Sent: Sunday, February 18, 2024 11:55 AM
To: Ferns, Charlotte <Charlotte.Ferns@kcmo.org>
Cc: Liska, Jade <Jade.Liska@kcmo.org>; Daniel Moylan <daniel.moylan@edgemoor.com>; Jim Ivy <jivy@pmg-kci.com>; Warren Taylor <wtaylor@fscmep.com>; Terry Cassidy <tcassidy@pmg-kci.com>; Cooper, Melissa W <Melissa.Cooper@kcmo.org>; Freeman, Adam <Adam.Freeman@kcmo.org>
Subject: EXTERNAL: Re: EXTERNAL: Re: [External] RE: KCI-New Terminal Natural Gas - PSC Data Requests

Edgemoor and CWC do not have any information regarding these questions.

I've reached out and followed up with US Engineering again. They stated earlier this past week that this is a lot of very specific information that is going to take them some time to dig up, if they are able to find the information.

I'll let you know as soon as US Engineering responds with an update.

Thank you.

Mark Goodwin | Vice President
CLARK CONSTRUCTION GROUP, LLC
m. 240.997.1392

1627 Main St., Ste 400

Kansas City, MO 64108
www.clarkconstruction.com

On Fri, Feb 16, 2024 at 5:05 PM Ferns, Charlotte <Charlotte.Ferns@kcmo.org> wrote:

I am following up on the status of these requests. This is an ongoing regulatory action, and we need to respond as required by the Public Service Commission.

<image002.jpg>

Charlotte Ferns
Senior Associate City Attorney

Law Department

Corporate Legal Services

City of Kansas City, Mo.

Phone: (816) 243-3022

Email: charlotte.ferns@kcmo.org

City Hall, 21st Floor, Suite 2102

414 E. 12th Street, Kansas City, Missouri 64106

and

601 Brasilia Avenue

Kansas City, MO 64153

KCMO.gov

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From: Liska, Jade <Jade.Liska@kcmo.org>
Sent: Thursday, February 15, 2024 5:42 PM
To: Mark Goodwin <mark.goodwin@clarkconstruction.com>
Cc: Daniel Moylan <daniel.moylan@edgemoor.com>; Jim Ivy <jivy@pmg-kci.com>; Warren Taylor <wtaylor@fscmep.com>; Terry Cassidy <tcassidy@pmg-kci.com>; Cooper, Melissa W <Melissa.Cooper@kcmo.org>; Freeman, Adam <Adam.Freeman@kcmo.org>; Ferns, Charlotte <Charlotte.Ferns@kcmo.org>
Subject: RE: EXTERNAL: Re: [External] RE: KCI-New Terminal Natural Gas - PSC Data Requests

Dan-Mark:

Checking on status of the request as the deadline is today. Wanted to make sure I didn't miss any email updates or information on the Data Request, that you could have sent today.

Jade

<image001.png>

J. Jade Liska, PLA

Deputy Director of Aviation

Planning and Engineering Division | Aviation Department
Kansas City International Airport | City of Kansas City, MO
601 Brasilia Ave | Kansas City, Missouri | 64153

Office: 816-243-3045

Email: jade.liska@kcmo.org

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From: Mark Goodwin <mark.goodwin@clarkconstruction.com>
Sent: Tuesday, February 13, 2024 7:38 PM
To: Liska, Jade <Jade.Liska@kcmo.org>
Cc: Daniel Moylan <daniel.moylan@edgemoor.com>; Jim Ivy <jivy@pmg-kci.com>; Warren Taylor <wtaylor@fscmep.com>; Terry Cassidy <tcassidy@pmg-kci.com>; Cooper, Melissa W <Melissa.Cooper@kcmo.org>; Freeman, Adam <Adam.Freeman@kcmo.org>
Subject: EXTERNAL: Re: [External] RE: KCI-New Terminal Natural Gas - PSC Data Requests

Jade,

I've shared the request with US Engineering asking them to provide whatever information they can by this Thursday and to advise when any remaining information will be provided.

Mark Goodwin | Vice President
CLARK CONSTRUCTION GROUP, LLC
m. 240.997.1392

1627 Main St., Ste 400

Kansas City, MO 64108
www.clarkconstruction.com

On Tue, Feb 13, 2024 at 10:13 AM Liska, Jade <Jade.Liska@kcmo.org> wrote:

Dan and Mark:

I forgot to ask you yesterday at our meeting, on your progress of completing these questions that we sent about the SPIRE service that was completed for the new terminal.

<image001.png>

J. Jade Liska, PLA

Deputy Director of Aviation

Planning and Engineering Division | Aviation Department
Kansas City International Airport | City of Kansas City, MO
601 Brasilia Ave | Kansas City, Missouri | 64153

Office: 816-243-3045

Email: jade.liska@kcmo.org

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From: Liska, Jade
Sent: Friday, February 9, 2024 3:52 PM
To: Daniel Moylan <daniel.moylan@edgemoor.com>; mark.goodwin@clarkconstruction.com
Cc: Jim Ivy <jivy@pmg-kci.com>; Warren Taylor <wtaylor@fscmep.com>; Terry Cassidy <tcassidy@pmg-kci.com>; melissa.cooper@kcmo.org; Adam Freeman (adam.freeman@kcmo.org) <adam.freeman@kcmo.org>
Subject: KCI-New Terminal Natural Gas - PSC Data Requests

Dan and Mark:

From the original requests on the SPIRE gas meter and connections that we have discussed and you provided the information back on 1.23.2025 and 1.25.2024, the new questions and required information needed is attached.

SPIRE is asking more questions 1-11 (see attached) and needing responses in each of these questions in the a., b., c. etc. items listed.

I need responses no later than February 15th. If there is some information which cannot be provided by that date, please let me know (1) what request number, (2) what information specifically, (3) why we can't provide it by the deadline, and (4) when it will be made available. Thanks

Thanks for your help.

<image001.png>

J. Jade Liska, PLA

Deputy Director of Aviation

Planning and Engineering Division | Aviation Department

Kansas City International Airport | City of Kansas City, MO

601 Brasilia Ave | Kansas City, Missouri | 64153

Office: 816-243-3045

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 **Data Requests February 2-24.docx**
21K

PLUMBING PLAN NOTES:
P206 3/4" NPW UP FROM BFG.

NEW SINGLE TERMINAL AND KCI

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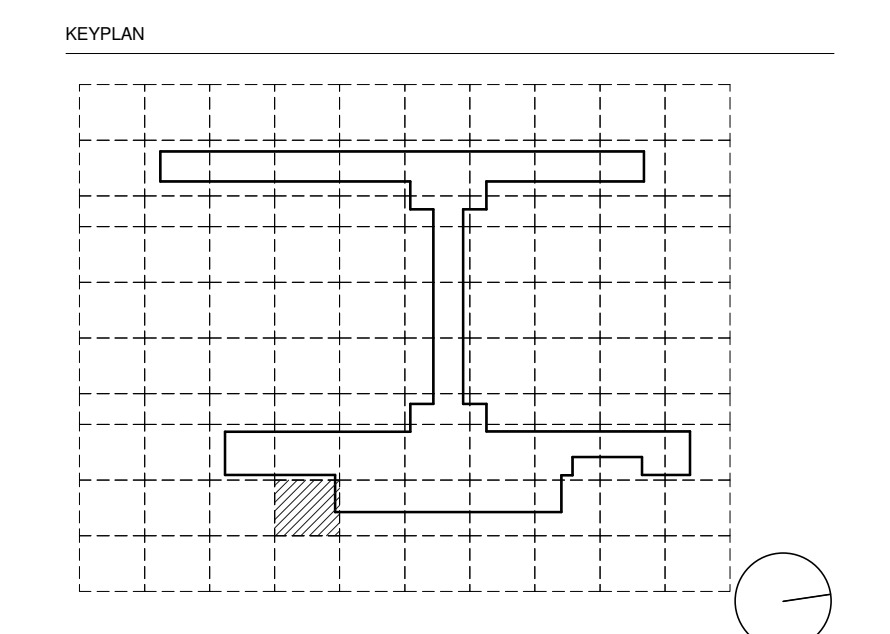
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- Argus Consulting** - Hydrant Fuel System
- Transsolutions** - Terminal Planning
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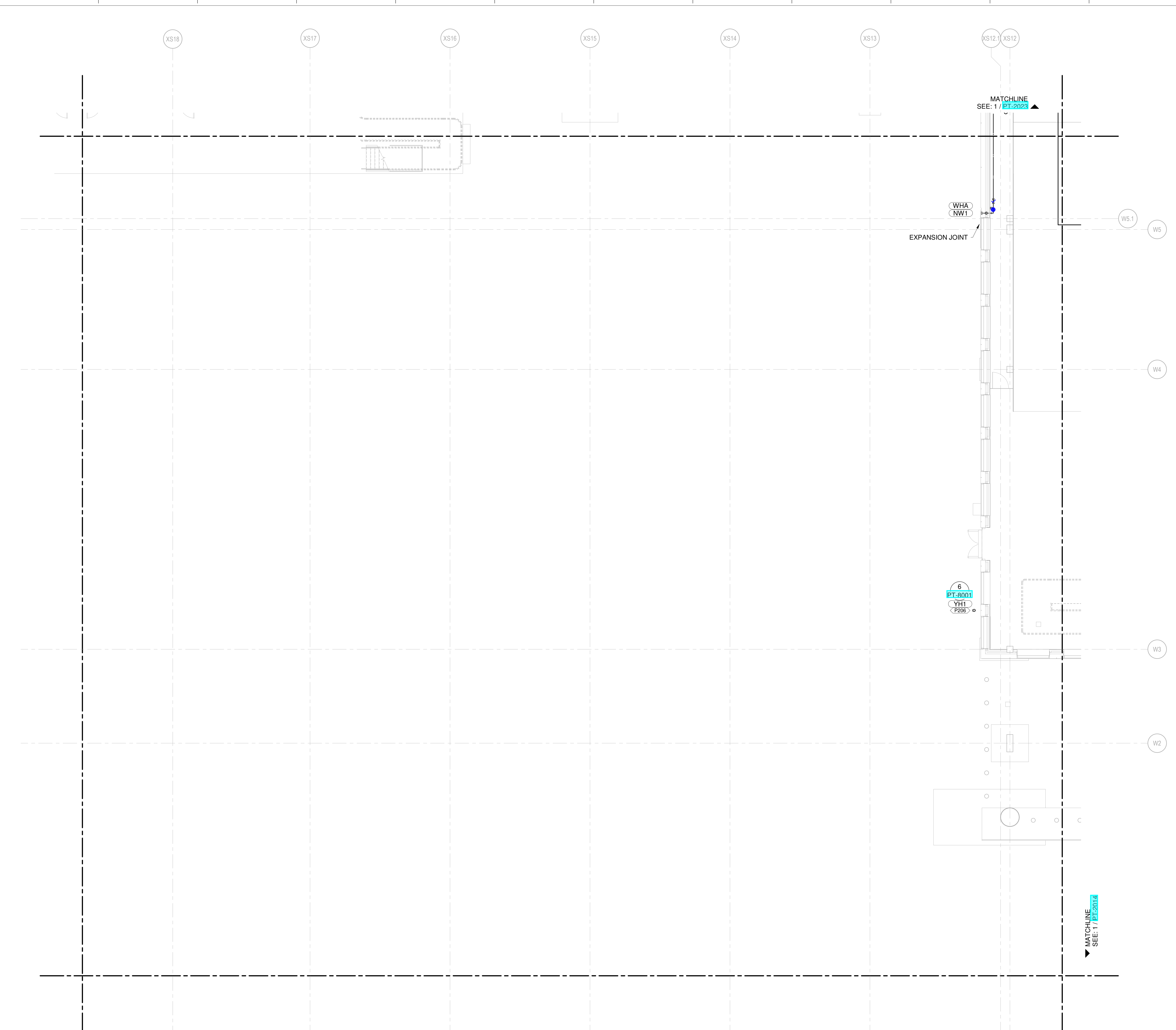
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6	NOVEMBER 20, 2019	ISSUED FOR GCP G.D.

DRAWING TITLE
LEVEL 1 - ARRIVALS WATER & GAS PART PLAN T13

DRAWING NUMBER
PT-2013



- CONDENSATE DRAIN
- CONDENSATE PUMP DISCHARGE
- DOMESTIC COLD WATER
- DOMESTIC HOT WATER
- DOMESTIC HOT WATER RECIRC.
- GREASE WASTE
- INDIRECT DRAIN
- MEDIUM PRESSURE NATURAL GAS
- NON-POTABLE WATER
- OVERFLOW STORM DRAIN
- SOIL
- STORM DRAIN
- SLUMP PUMP DISCHARGE
- VENT
- ▲ REPRESENT EQUIPMENT
- ▼ REPRESENT VALVES

1 LEVEL 1 - ARRIVALS WATER & GAS PART PLAN T13
 SCALE: 1/8" = 1'-0"

SHANE M. LUTZ

PLUMBING PLAN NOTES:
 P005 DO NOT ROUTE ANY PLUMBING PIPING OVERHEAD IN THE IDF OR IDF ROOMS. ALL SANITARY AND VENT PIPING ABOVE THIS AREA SHALL BE PROTECTED WITH DOUBLE CONTAINMENT AS PER SPECIFICATIONS.
 P168 3/4" NPW UP TO YARD HYDRANT ABOVE.
 P206 3/4" NPW UP FROM BFG.
 P264 INSTALL HTRC BELOW ARCHITECTURAL CEILING AT 17'-6" AFF TO BOTTOM OF BOX.
 P401 INSTALL HEAT TAPE ON HORIZONTAL AND VERTICAL EXPOSED WATER PIPING AND ON EXPOSED PORTION OF YARD HYDRANT (YH).

NEW SINGLE TERMINAL AND PARKING AT KCI

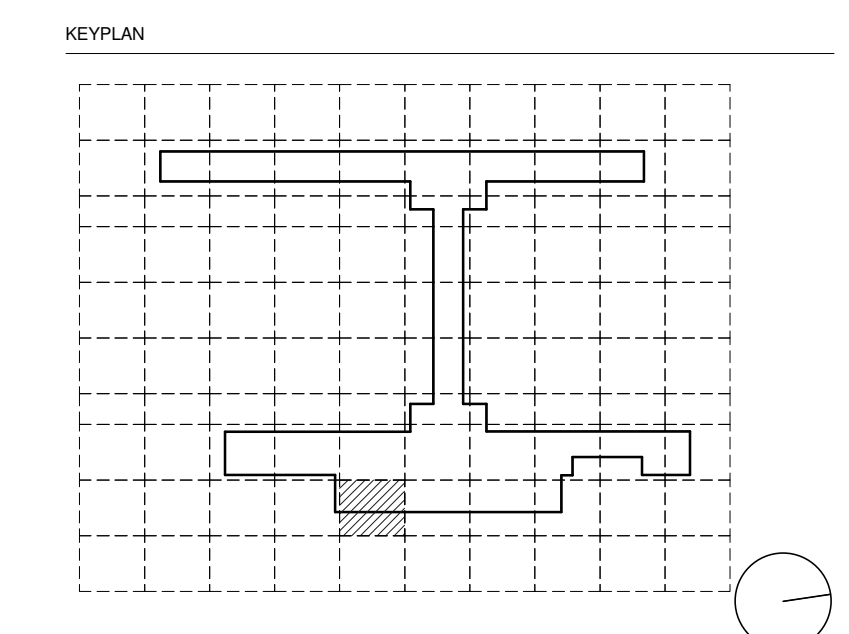
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 - Trekk Design Group - Airside Storm Drainage
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 - Custom Eng. Inc. - Landside Utilities / Airside Utilities
 - 3T Design & Development - Landside Utilities
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 - Lightworks - Lighting / Landside Lighting
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 - Leigh & O'Kane - Roadway Structure
 - Argus Consulting - Hydrant Fuel System
 - Transolutions - Terminal Planning
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 P: 913-742-9200

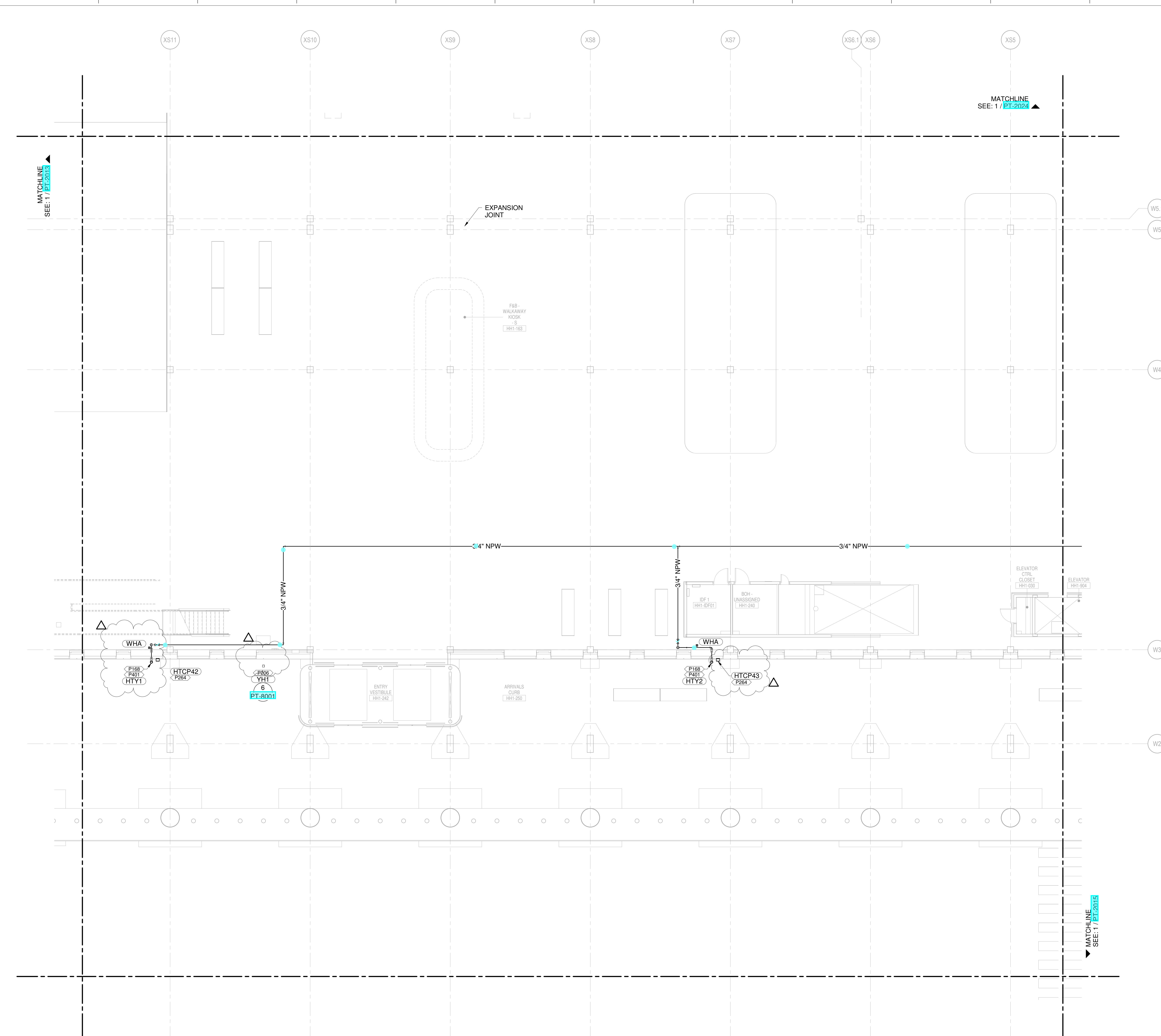
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8	AUGUST 13, 2019	ISSUED FOR SCHEMATIC DESIGN

DRAWING TITLE
LEVEL 1 - ARRIVALS WATER & GAS PART PLAN T14

DRAWING NUMBER
PT-2014

- CONDENSATE DRAIN
- CONDENSATE PUMP DISCHARGE
- DOMESTIC COLD WATER
- DOMESTIC HOT WATER
- DOMESTIC HOT WATER RECIRC.
- GREASE WASTE
- INDIRECT DRAIN
- MEDIUM PRESSURE NATURAL GAS
- NON-POTABLE WATER
- OVERFLOW STORM DRAIN
- SOIL
- STORM DRAIN
- SUMP PUMP DISCHARGE
- VENT
- REPRESENT EQUIPMENT
- REPRESENT VALVES



1 LEVEL 1 - ARRIVALS WATER & GAS PART PLAN T14
 SCALE: 1/8" = 1'-0"

PLUMBING PLAN NOTES:
 P188 3/4" NPW UP TO YARD HYDRANT ABOVE.
 P206 3/4" NPW UP FROM BFG
 P234 1-1/4" CW (15 FU) CAPPED FOR FUTURE TENANT CONNECTION.
 P235 1-1/2" CW (30 FU) CAPPED FOR FUTURE KIOSK CONNECTION.
 P284 INSTALL HTCP BELOW ARCHITECTURAL CEILING AT 17'-6" AFF TO BOTTOM OF BOX.
 P401 INSTALL HEAT TAPE ON HORIZONTAL AND VERTICAL EXPOSED WATER PIPING AND ON EXPOSED PORTION OF YARD HYDRANT (YH).

NEW SINGLE TERMINAL AND PARKING AT KCI

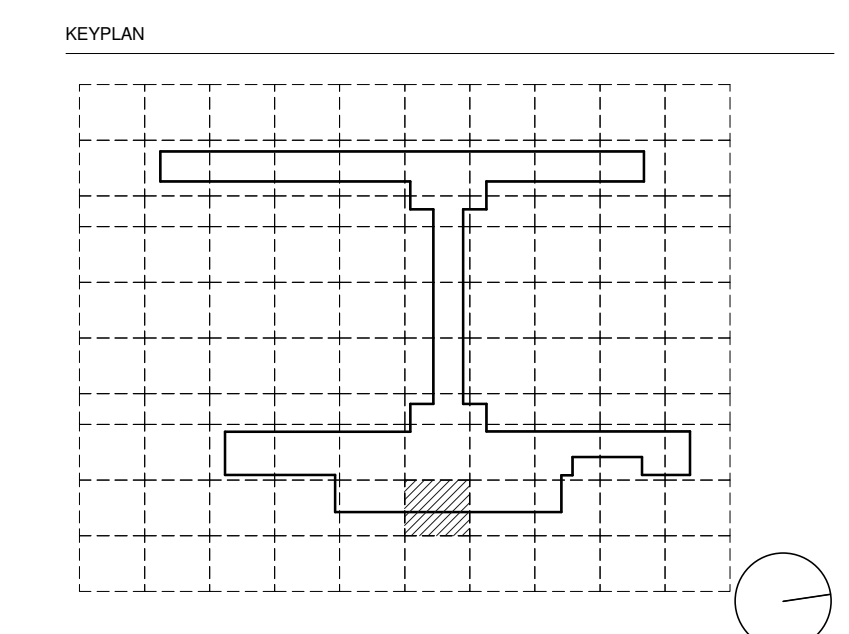
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 Transsolutions - Terminal Planning
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 ICF - Concessions
 Lerch Bates - VHT Consultants
 Cityfi - Smart Technology
 Priority Engineers - Traffic Engineering



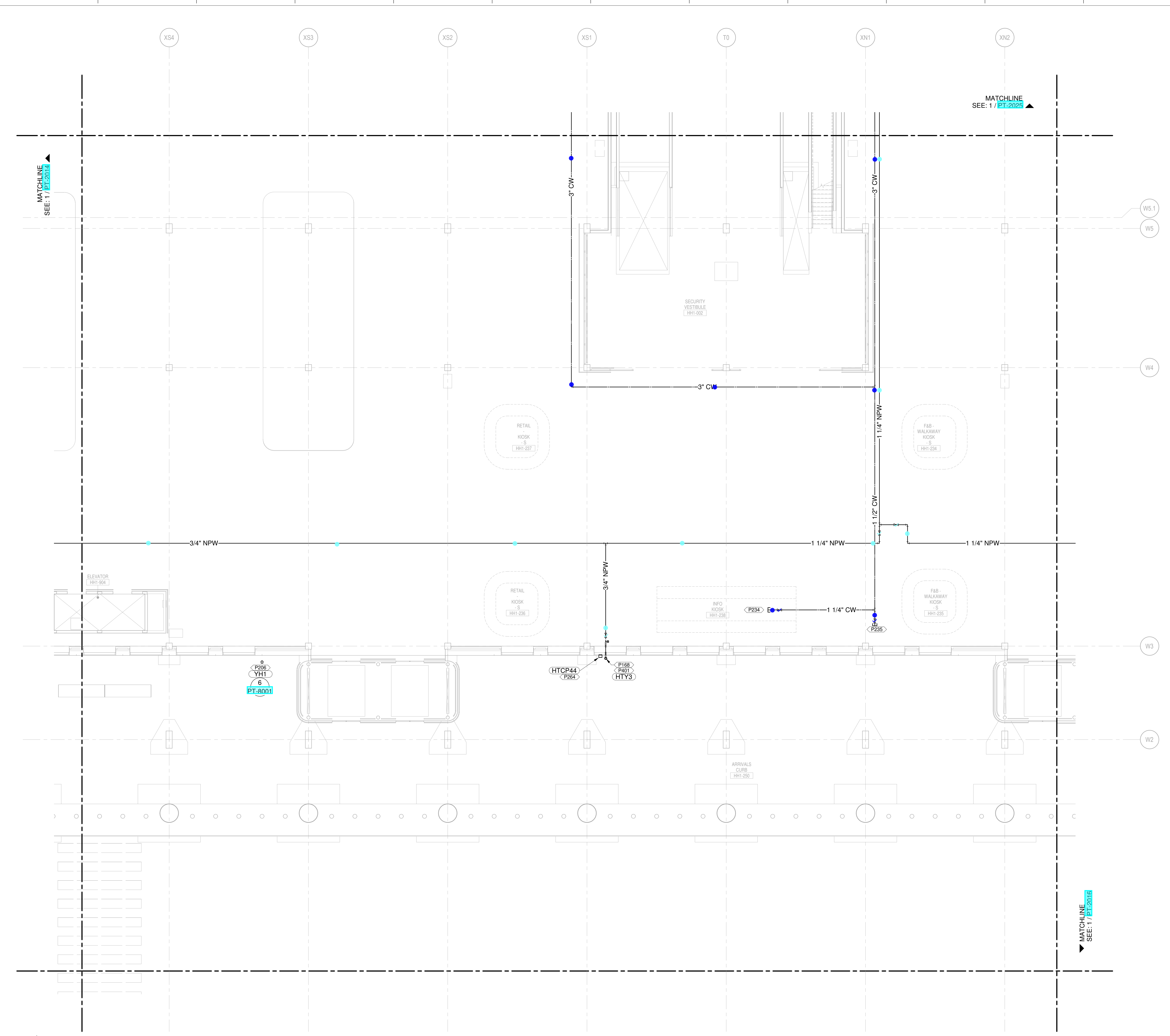
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8	AUGUST 13, 2019	ISSUED FOR SCHEMATIC DESIGN

DRAWING TITLE
LEVEL 1 - ARRIVALS WATER & GAS PART PLAN T15

DRAWING NUMBER
PT-2015

- CONDENSATE DRAIN
- CONDENSATE PUMP DISCHARGE
- DOMESTIC COLD WATER
- DOMESTIC HOT WATER
- DOMESTIC HOT WATER RECIRC.
- GREASE WASTE
- INDIRECT DRAIN
- MEDIUM PRESSURE NATURAL GAS
- NON-POTABLE WATER
- OVERFLOW STORM DRAIN
- SOIL
- STORM DRAIN
- SUMP PUMP DISCHARGE
- VENT
- ▲ REPRESENT EQUIPMENT
- ▼ REPRESENT VALVES



1 LEVEL 1 - ARRIVALS WATER & GAS PART PLAN T15
 SCALE: 1/8" = 1'-0"

PLUMBING PLAN NOTES:
 P005 DO NOT ROUTE ANY PLUMBING PIPING OVERHEAD IN THE IDF OR IDF ROOMS. ALL SANITARY AND VENT PIPING ABOVE THIS AREA SHALL BE PROTECTED WITH DOUBLE CONTAINMENT AS PER SPECIFICATIONS.
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 P401 INSTALL HEAT TAPE ON HORIZONTAL AND VERTICAL EXPOSED WATER PIPING AND ON EXPOSED PORTION OF YARD HYDRANT (YH).

NEW SINGLE TERMINAL AND PARKING AT KCI

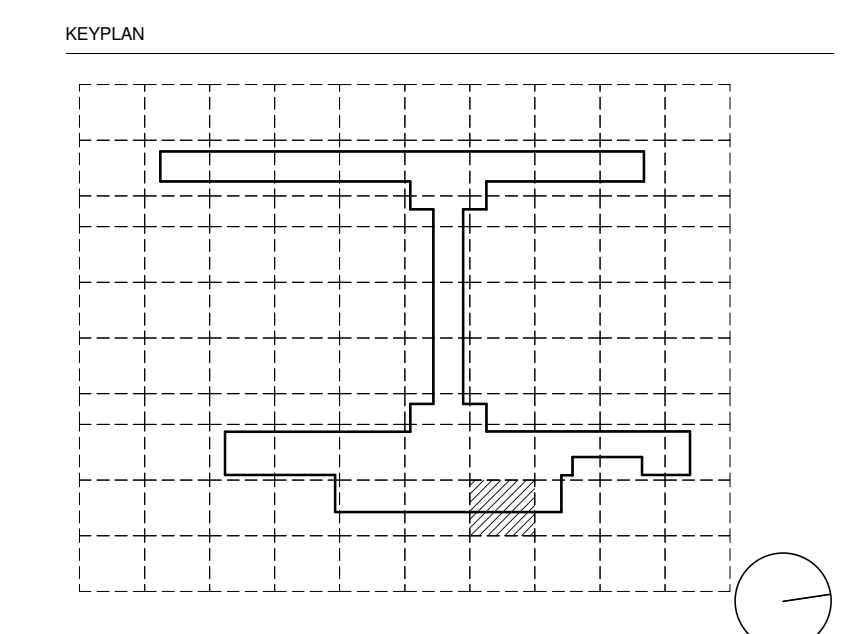
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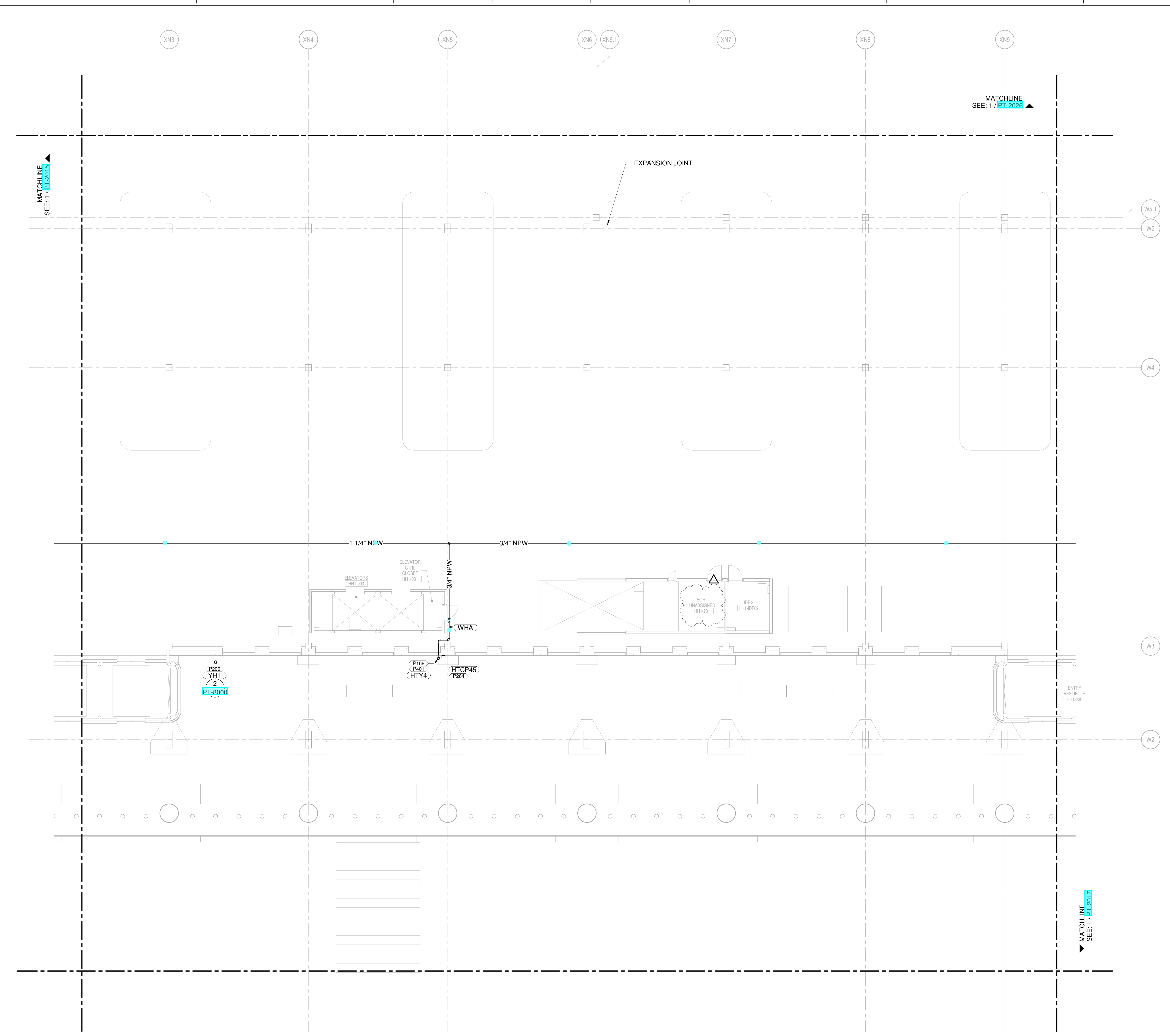
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6	JANUARY 23, 2019	CD PROGRESS
7	NOVEMBER 20, 2019	ISSUED FOR RFP, DD
8	AUGUST 11, 2019	ISSUED FOR SCHEMATIC DESIGN

DRAWING TITLE
LEVEL 1 - ARRIVALS WATER & GAS PART PLAN T16

DRAWING NUMBER
PT-2016

- CONDENSATE DRAIN
- CONDENSATE PUMP DISCHARGE
- DOMESTIC COLD WATER
- DOMESTIC HOT WATER
- DOMESTIC HOT WATER RECIRC.
- GREASE WASTE
- INDIRECT DRAIN
- MEDIUM PRESSURE NATURAL GAS
- NON-POTABLE WATER
- OVERFLOW STORM DRAIN
- SOIL
- STORM DRAIN
- SLUMP PUMP DISCHARGE
- VENT
- ▲ REPRESENT EQUIPMENT
- ▼ REPRESENT VALVES



1 LEVEL 1 - ARRIVALS WATER & GAS PART PLAN T16
 SCALE: 1/8" = 1'-0"

PLUMBING PLAN NOTES:
P154 PROVIDE PIPE ALIGNMENT GUIDES.
P155 PROVIDE PIPE ANCHORS.
P168 3/4" NPW UP TO YARD HYDRANT ABOVE.
P206 3/4" NPW UP FROM BFG.
P264 INSTALL HTCP BELOW ARCHITECTURAL CEILING AT 17'-6" AFF TO BOTTOM OF BOX.
P401 INSTALL HEAT TAPE ON HORIZONTAL AND VERTICAL EXPOSED WATER PIPING AND ON EXPOSED PORTION OF YARD HYDRANT (YH).

NEW SINGLE TERMINAL AND PARKING AT KCI

OWNER
KANSAS CITY INTERNATIONAL AIRPORT
601 Brasilia Avenue, Kansas City, MO 64153
PROJECT NUMBER - 62180497

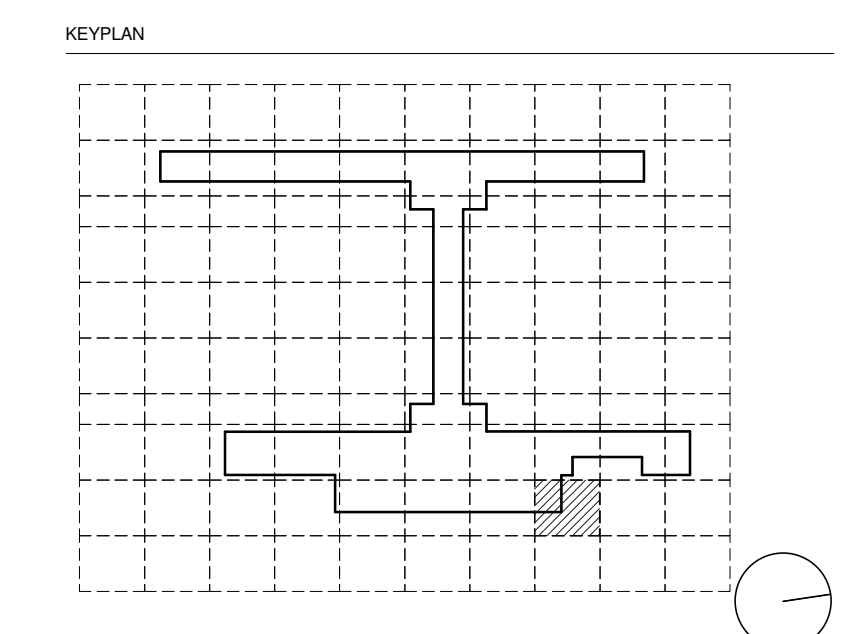
OWNER'S REPRESENTATIVE
PMG Paslay Management Group
533 Mexico City Avenue, Kansas City, MO 64153
DEVELOPER

EDGEMOOR
INFRASTRUCTURE & REAL ESTATE
533 Mexico City Avenue, Kansas City, MO 64153
DESIGN-BUILDER

CLARK WEITZ CLARKSON
A GREAT TOGETHER
533 Mexico City Avenue, Kansas City, MO 64153

ARCHITECT & STRUCTURAL ENGINEER
SOM
Skidmore, Owings & Merrill LLP
14 Wall Street, New York, NY 10005
CONSULTANT TEAM

- Draw Architecture - Collaborating Architect
- Wellner Architects - Collaborating Architect
- HJM Architects Inc. - Collaborating Architect
- FSC Inc. - Fire Protection / Code / Life Safety
- Henderson - MEP / FA / PA / Sec Engineer of Record
- LAND3 Studio - Landscape Architect
- Garver - Airside Civil
- Entro - Signage / Wayfinding
- Olsson - Traffic Planning
- BNP - Baggage Handling
- Vanderlande - Baggage Handling
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- Thornton Tomasetti - Protective Design
- SK Design Group - Glycol / Landside Utilities
- Trekk Design Group - Airside Storm Drainage
- Arora Engineers, Inc. - AIS / ICT
- ARUP - Aircraft Parking / Gate Eqp. / AIS / ICT / FA
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- HC Consulting Group - Permitting
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- Dubois Consultants - Struc. Terminal
- Leigh & O'Kane - Roadway Structure
- Argus Consulting - Hydrant Fuel System
- Transolutions - Terminal Planning
- Premier Engineering - Demolition
- ICF - Concessions
- Lerch Bates - VHT Consultants
- Cityfi - Smart Technology
- Priority Engineers - Traffic Engineering

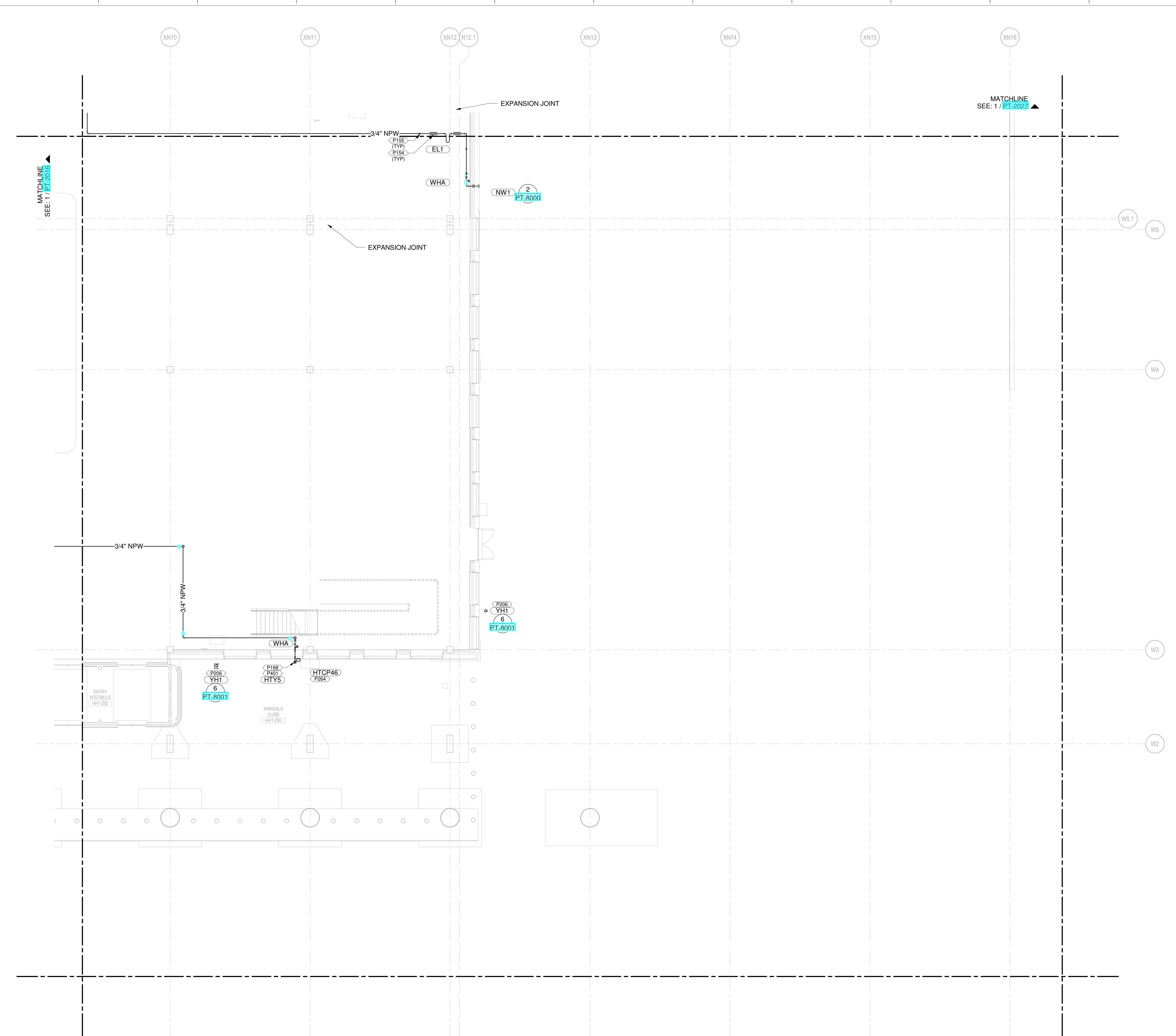


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SHANE M. LUTZ
LICENSE # PE-2003000011
MO. CORPORATE NO. E-5660
EXPIRES 12/31/2020

NO.	DATE	DESCRIPTION
1	AUGUST 27, 2020	ISSUED FOR FINAL DESIGN
2	JULY 28, 2020	CD - PROGRESS PRINT
3	JUNE 26, 2020	PERMIT SET - UNDERGROUND
4	JUNE 10, 2020	ISSUED FOR CD PROGRESS
5	MARCH 5, 2020	ISSUED FOR DESIGN DEVELOPMENT
6	JANUARY 23, 2020	CD PROGRESS
7	NOVEMBER 20, 2019	ISSUED FOR RFP, DD
8	AUGUST 11, 2019	ISSUED FOR SCHEMATIC DESIGN

DRAWING TITLE
LEVEL 1 - ARRIVALS WATER & GAS PART PLAN T17
DRAWING NUMBER
PT-2017

- CONDENSATE DRAIN
- CONDENSATE PUMP DISCHARGE
- DOMESTIC COLD WATER
- DOMESTIC HOT WATER
- DOMESTIC HOT WATER RECIRC.
- GREASE WASTE
- INDIRECT DRAIN
- MEDIUM PRESSURE NATURAL GAS
- NON-POTABLE WATER
- OVERFLOW STORM DRAIN
- SOIL
- STORM DRAIN
- SUMP PUMP DISCHARGE
- VENT
- ≡ REPRESENT EQUIPMENT
- ≡ REPRESENT VALVES



1 LEVEL 1 - ARRIVALS WATER & GAS PART PLAN T17
SCALE: 1/8" = 1'-0"

SHANE M. LUTZ

NEW SINGLE TERMINAL AND PARKING AT KCI

OWNER



601 Brasilia Avenue, Kansas City, MO 64153
PROJECT NUMBER - 62180497

OWNER'S REPRESENTATIVE



533 Mexico City Avenue, Kansas City, MO 64153



533 Mexico City Avenue, Kansas City, MO 64153

DESIGN-BUILDER



533 Mexico City Avenue, Kansas City, MO 64153

ARCHITECT & STRUCTURAL ENGINEER

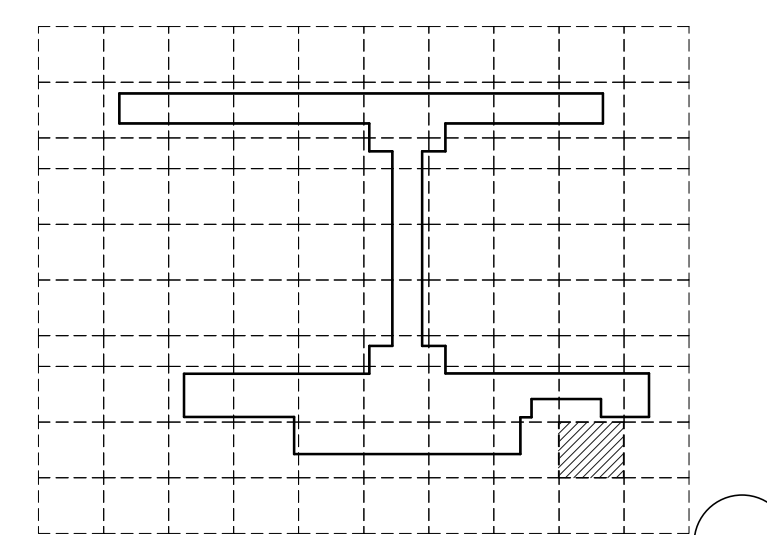


Skidmore, Owings & Merrill LLP
14 Wall Street, New York, NY 10005

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- Transsolutions - Terminal Planning
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- ICF - Concessions
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KEYPLAN



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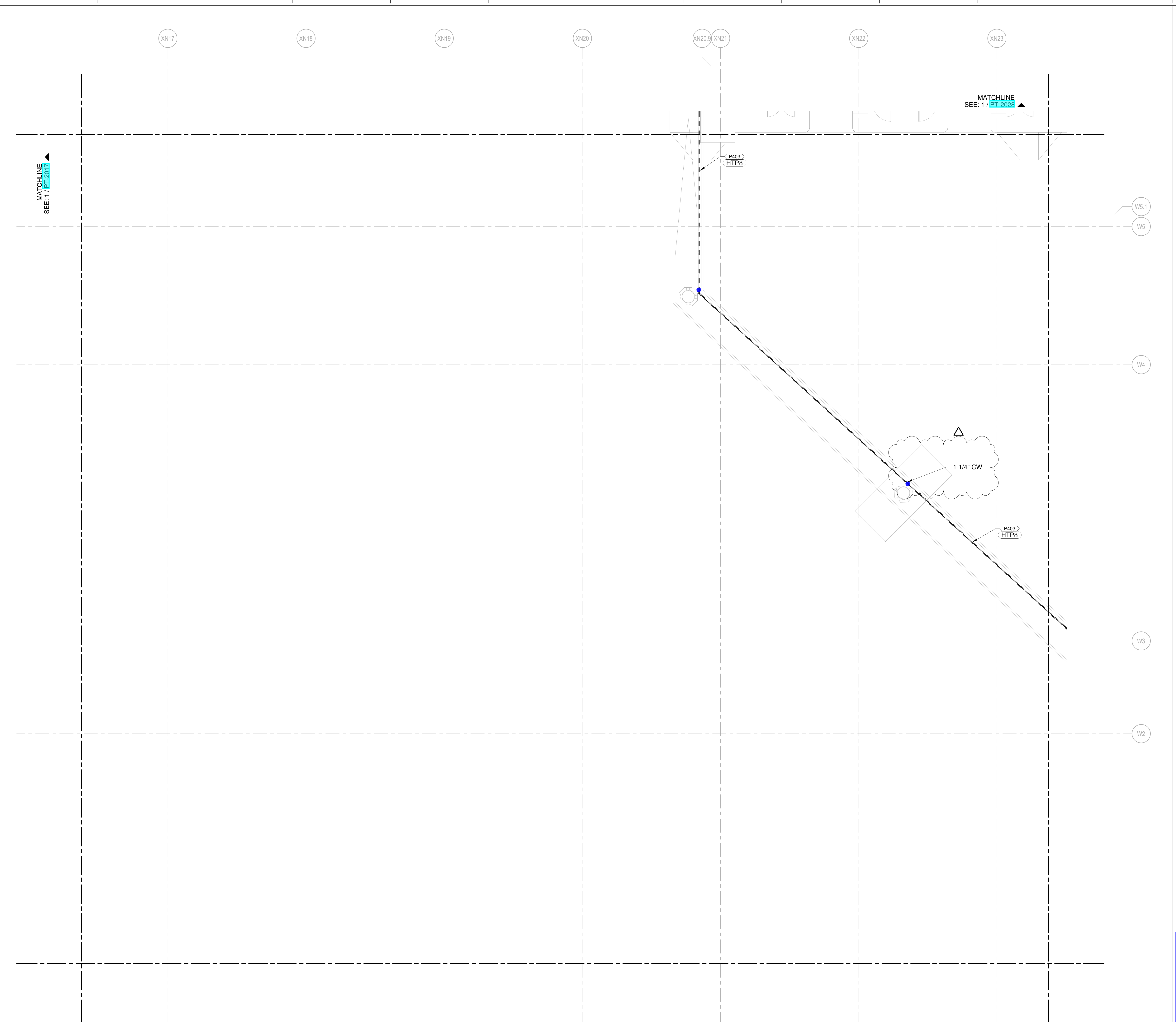
NO.	DATE	DESCRIPTION

DRAWING TITLE

LEVEL 1 - ARRIVALS WATER & GAS PART PLAN T18

DRAWING NUMBER

PT-2018



- CONDENSATE DRAIN
- CONDENSATE PUMP DISCHARGE
- DOMESTIC COLD WATER
- DOMESTIC HOT WATER
- DOMESTIC HOT WATER RECIRC.
- GREASE WASTE
- INDIRECT DRAIN
- MEDIUM PRESSURE NATURAL GAS
- NON-POTABLE WATER
- OVERFLOW STORM DRAIN
- SOIL
- STORM DRAIN
- SUMP PUMP DISCHARGE
- VENT
- ▲ REPRESENT EQUIPMENT
- ▼ REPRESENT VALVES

1 LEVEL 1 - ARRIVALS WATER & GAS PART PLAN T18
SCALE: 1/8" = 1'-0"

SHANE M. LUTZ

PLUMBING PLAN NOTES:
 P004 ROUTE 1 1/4" COLD WATER LINE TO AIRCRAFT HOSE CABINET (BY OTHERS). COORDINATE FINAL LOCATION WITH AIRSIDE CONTRACTOR AS REQUIRED. CABINET TO INCLUDE INTEGRAL BACKFLOW PREVENTER. POTABLE WATER CABINET INSTALLER TO PROVIDE DRAIN CONNECTION TO PBP/CA DRAIN.

NEW SINGLE TERMINAL AND PARKING AT KCI

OWNER
 KANSAS CITY INTERNATIONAL AIRPORT
 601 Brasilia Avenue, Kansas City, MO 64153
 PROJECT NUMBER - 62180497

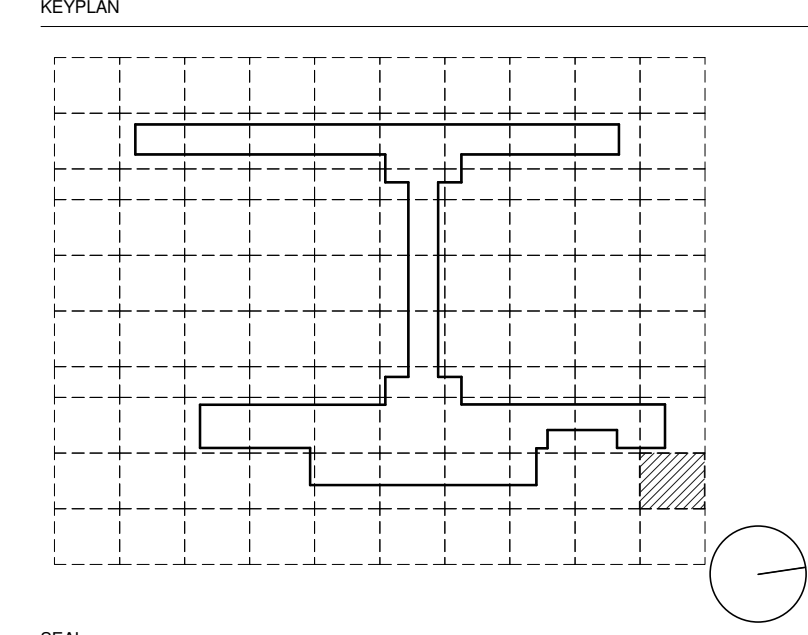
OWNER'S REPRESENTATIVE
 PMG Paslay Management Group
 533 Mexico City Avenue, Kansas City, MO 64153
 DEVELOPER

EDGEMOOR
 INFRASTRUCTURE & REAL ESTATE
 533 Mexico City Avenue, Kansas City, MO 64153

DESIGN-BUILDER
 CLARK WEITZ CLARKSON
 533 Mexico City Avenue, Kansas City, MO 64153

ARCHITECT & STRUCTURAL ENGINEER
 SOM
 Skidmore, Owings & Merrill LLP
 14 Wall Street, New York, NY 10005

CONSULTANT TEAM:
 Draw Architecture - Collaborating Architect
 Wellner Architects - Collaborating Architect
 HJM Architects Inc. - Collaborating Architect
 FSC Inc. - Fire Protection / Code / Life Safety
 Henderson - MEP / FA / PA / Sec Engineer of Record
 Land3 Studio - Landscape Architect
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 Vanderlande - Baggage Handling
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 Transsolutions - Terminal Planning
 Premier Engineering - Demolition
 ICF - Concessions
 Lerch Bates - VHT Consultants
 CityU - Smart Technology
 Priority Engineers - Traffic Engineering



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 Lenexa, KS 66214
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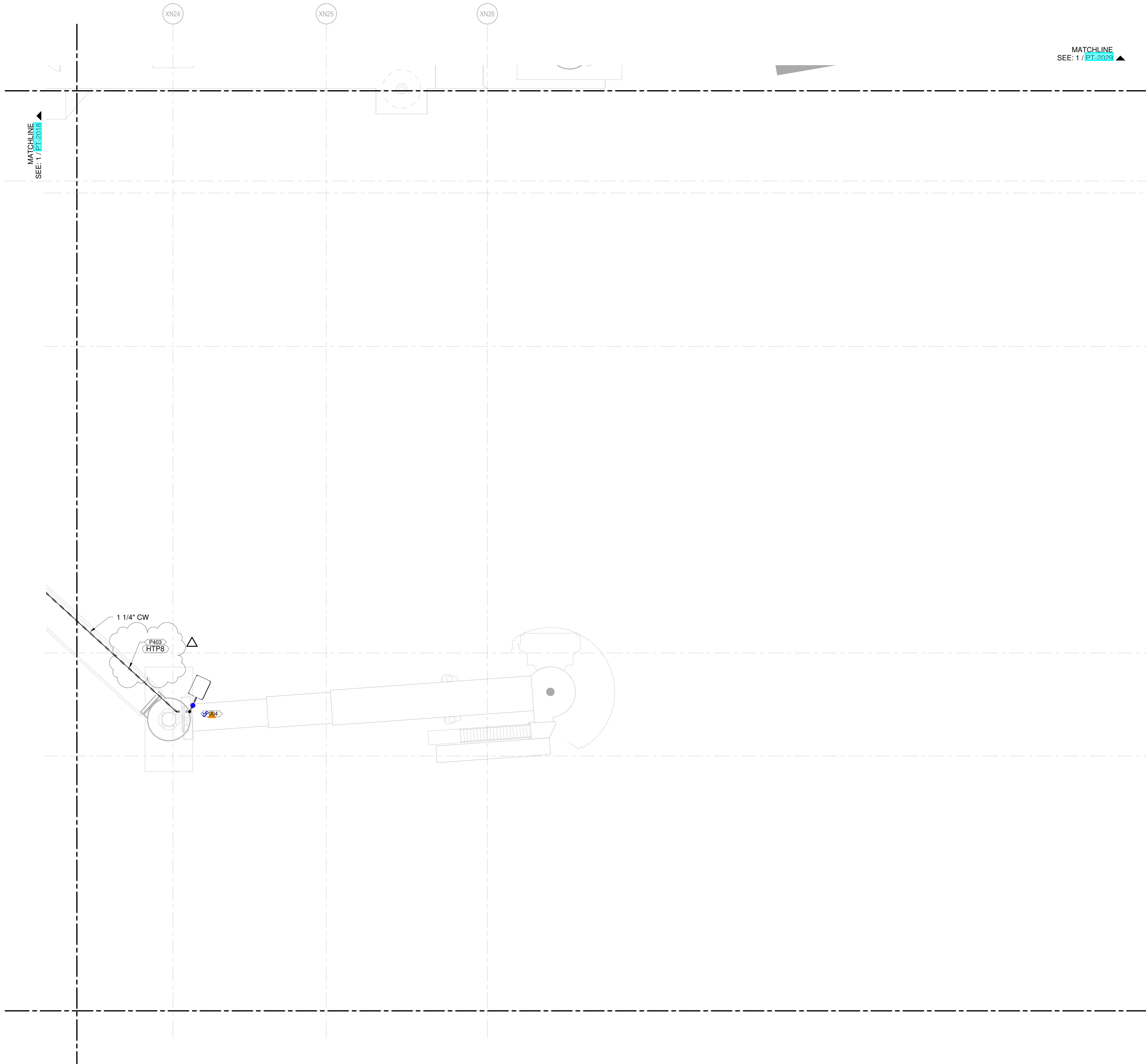
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 MO CORPORATE NO. E-5660
 EXPIRES 12/31/2020

NO.	DATE	DESCRIPTION

DRAWING TITLE
 LEVEL 1 - ARRIVALS
 WATER & GAS PART
 PLAN T19

DRAWING NUMBER
 PT-2019



- CONDENSATE DRAIN
- CONDENSATE PUMP DISCHARGE
- DOMESTIC COLD WATER
- DOMESTIC HOT WATER
- DOMESTIC HOT WATER RECIRC.
- GREASE WASTE
- INDIRECT DRAIN
- MEDIUM PRESSURE NATURAL GAS
- NON-POTABLE WATER
- OVERFLOW STORM DRAIN
- SOIL
- STORM DRAIN
- SUMP PUMP DISCHARGE
- VENT
- ▲ REPRESENT EQUIPMENT
- ▼ REPRESENT VALVES

1 LEVEL 1 - ARRIVALS WATER & GAS PART PLAN T19
 NTS

SHANE M. LUTZ

NEW SINGLE TERMINAL AND PARKING AT KCI

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KANSAS CITY INTERNATIONAL AIRPORT
 601 Brasilia Avenue, Kansas City, MO 64153
 PROJECT NUMBER - 62180497

OWNER'S REPRESENTATIVE
PMG Paslay Management Group
 533 Mexico City Avenue, Kansas City, MO 64153
 DEVELOPER

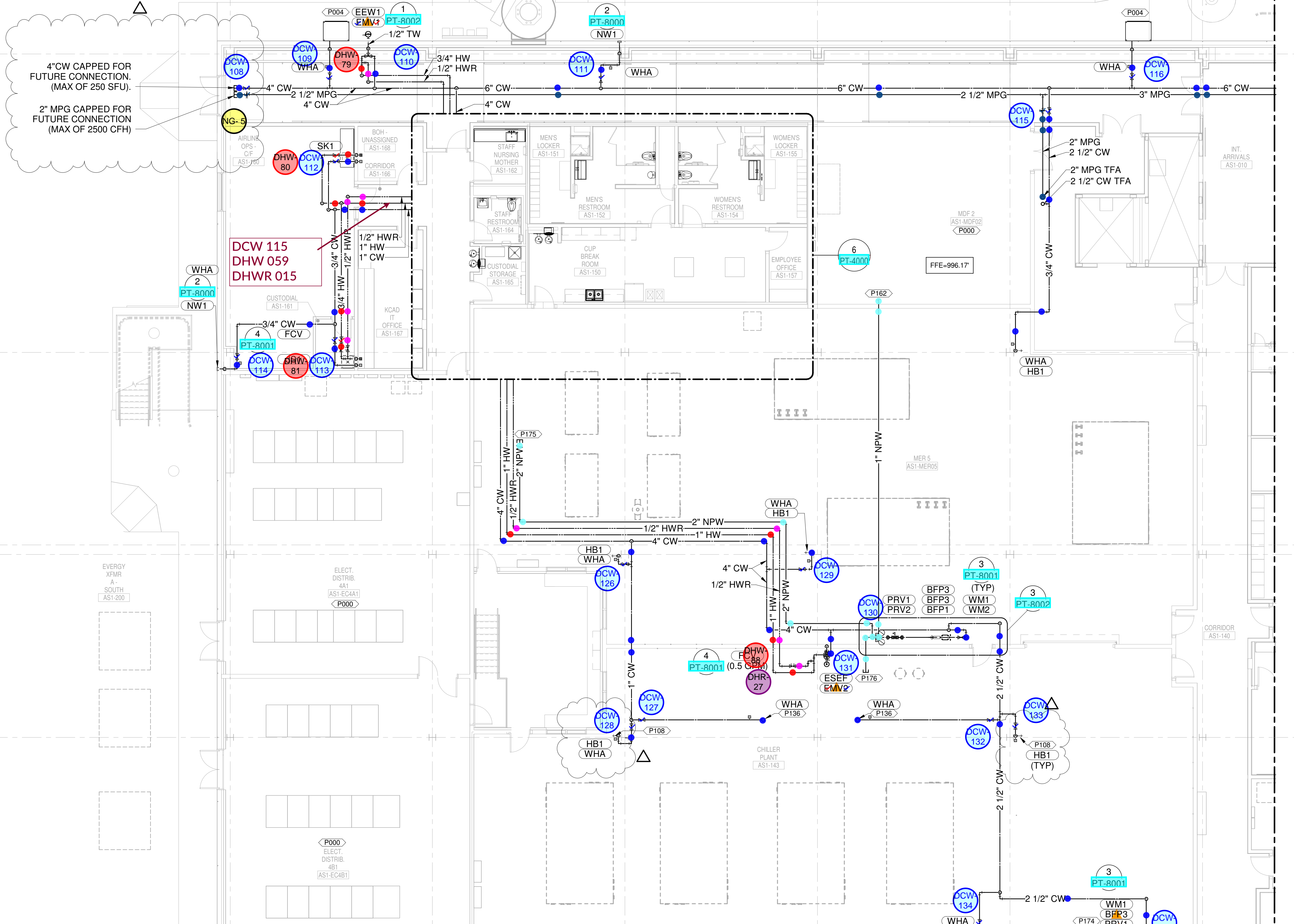
DESIGN-BUILDER
EDGEMOOR
 INFRASTRUCTURE & REAL ESTATE
 533 Mexico City Avenue, Kansas City, MO 64153

ARCHITECT & STRUCTURAL ENGINEER
CLARK WEITZ CLARKSON
 533 Mexico City Avenue, Kansas City, MO 64153

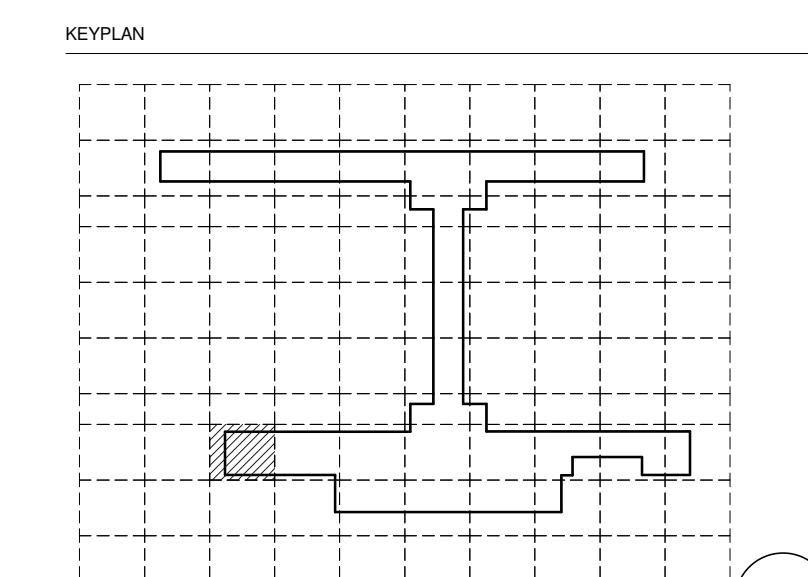
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 14 Wall Street, New York, NY 10005

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 - Transsolutions - Terminal Planning
 - Premier Engineering - Demolition
 - ICF - Concessions
 - Lerch Bates - VHT Consultants
 - Civili - Smart Technology
 - Priority Engineers - Traffic Engineering

- PLUMBING PLAN NOTES
- P000 COORDINATE PLUMBING PIPE ROUTING AWAY FROM ELECTRICAL PANELS. MAINTAIN CLEARANCES PER NEC.
 - P004 ROUTE 1 1/4" COLD WATER LINE TO AIRCRAFT HOSE CABINET BY OTHERS. COORDINATE FINAL LOCATION WITH AIRSIDE CONTRACTOR AS REQUIRED. CABINET TO INCLUDE INTEGRAL BACKFLOW PREVENTER. POTABLE WATER CABINET INSTALLER TO PROVIDE DRAIN CONNECTION TO PBP/CA DRAIN.
 - P108 SHUTOFF VALVE TO BE LOCATED WITHIN VERTICAL RISER AT APPROX. 6'-0" AFF.
 - P136 3/4" CW UP TO ROOF HYDRANT.
 - P162 3/4" NPW ON TO WATER CONNECTION FOR CRACK UNIT. REFER TO MANUFACTURER INSTRUCTIONS FOR CONNECTION POINT. AVOID ROUTING PIPING OVER PANELS.
 - P174 2" NPW EXTENDED AND CAPPED FOR CONNECTION TO MAKE-UP WATER FOR CHILLED WATER SYSTEM. SEE MECHANICAL PLANS FOR FINAL CONNECTION POINT.
 - P175 2" NPW EXTENDED AND CAPPED FOR CONNECTION TO MAKE-UP WATER FOR HEATING HOT WATER SYSTEM. SEE MECHANICAL PLANS FOR FINAL CONNECTION POINT.
 - P176 4" NPW EXTENDED AND CAPPED FOR CONNECTION TO MAKE-UP WATER FOR CONDENSER WATER SYSTEM. SEE MECHANICAL PLANS FOR FINAL CONNECTION POINT.



- CONDENSATE DRAIN
- CONDENSATE PUMP DISCHARGE
- DOMESTIC COLD WATER
- DOMESTIC HOT WATER
- DOMESTIC HOT WATER RECIRC.
- GREASE WASTE
- INDIRECT DRAIN
- MEDIUM PRESSURE NATURAL GAS
- NON-POTABLE WATER
- OVERFLOW STORM DRAIN
- SOIL
- STORM DRAIN
- SUMP PUMP DISCHARGE
- VENT
- ▲ REPRESENT EQUIPMENT
- ▼ REPRESENT VALVES



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 LICENSE # PE-2003000011
 MO. CORPORATE NO. E-5660
 EXPIRES 12/31/2020

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1	AUGUST 27, 2020	ISSUED FOR FINAL DESIGN
2	JULY 29, 2020	CD - PROGRESS PRINT
3	JUNE 16, 2020	PRINT SET - UNDERGROUND
4	JUNE 16, 2020	ISSUED FOR CD PROGRESS
5	MARCH 5, 2020	ISSUED FOR DESIGN DEVELOPMENT
6	JANUARY 29, 2020	CD PROGRESS
7	NOVEMBER 20, 2019	ISSUED FOR PERMITS
8	AUGUST 13, 2019	ISSUED FOR SCHEMATIC DESIGN
9	JUNE 13, 2019	80% SCHEMATIC DESIGN

DRAWING NUMBER
PT-2022

DRAWING TITLE
LEVEL 1 - ARRIVALS WATER & GAS PART PLAN T22

1 LEVEL 1 - ARRIVALS WATER & GAS PART PLAN T22

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

PLUMBING PLAN NOTES:
 P000 COORDINATE PLUMBING PIPE ROUTING AWAY FROM ELECTRICAL PANELS. MAINTAIN CLEARANCES PER NEC.
 P004 ROUTE 1 1/4" COLD WATER LINE TO AIRCRAFT HOSE CABINET (BY OTHERS). COORDINATE FINAL LOCATION WITH AIRSIDE CONTRACTOR AS REQUIRED. CABINET TO INCLUDE INTEGRAL BACKFLOW PREVENTER. POTABLE WATER CABINET INSTALLER TO PROVIDE DRAIN CONNECTION TO PBP/PCA DRAIN.
 P136 3/4" CW UP TO ROOF HYDRANT.
 P154 PROVIDE PIPE ALIGNMENT GUIDES.
 P155 PROVIDE PIPE ANCHORS.

NEW SINGLE TERMINAL AND PARKING AT KCI

OWNER
 KANSAS CITY INTERNATIONAL AIRPORT
 601 Brasilia Avenue, Kansas City, MO 64153
 PROJECT NUMBER - 62180497

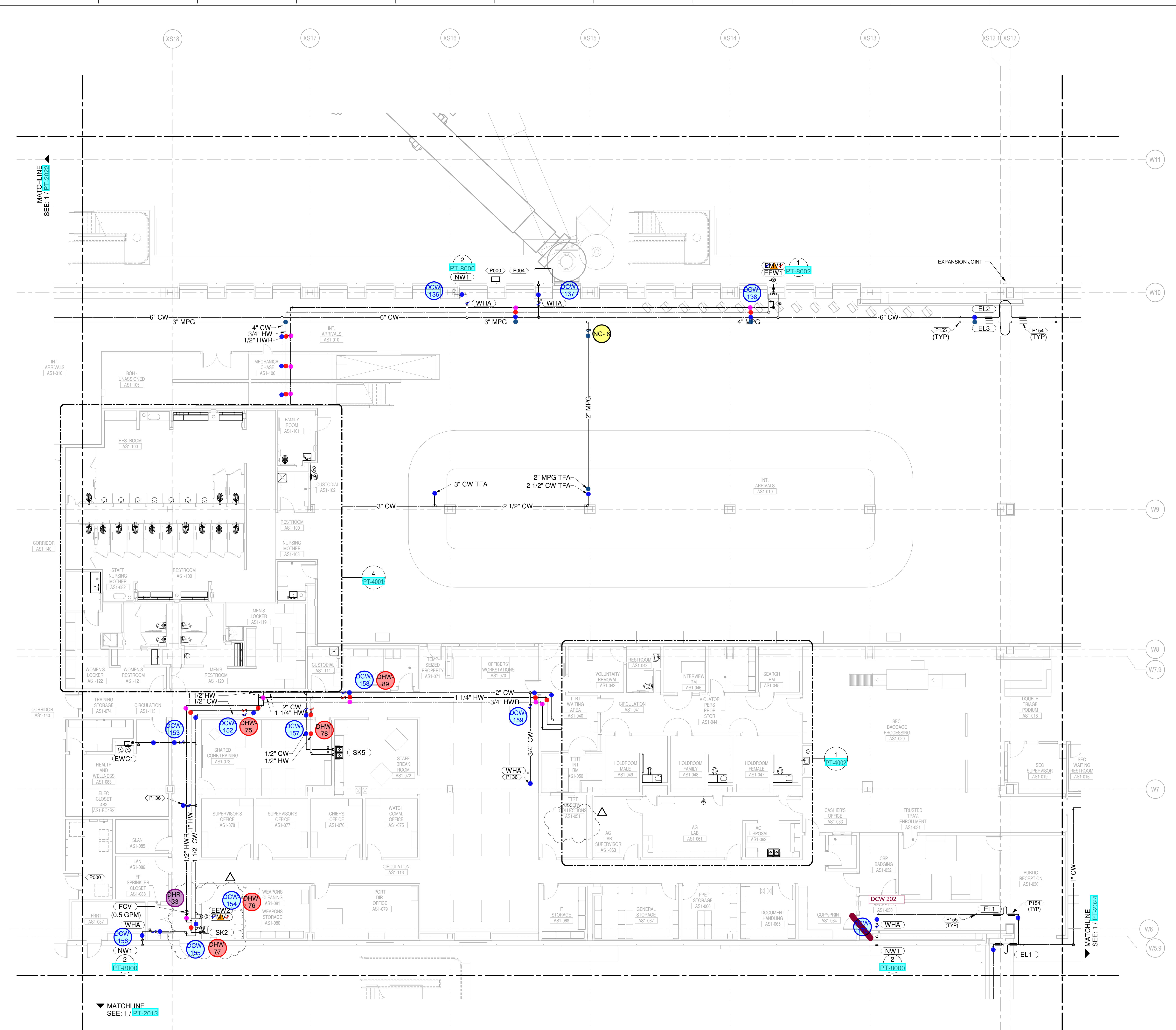
DEVELOPER
PMG Paslay Management Group
 533 Mexico City Avenue, Kansas City, MO 64153

DESIGN-BUILDER
EDGEMOOR
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 533 Mexico City Avenue, Kansas City, MO 64153

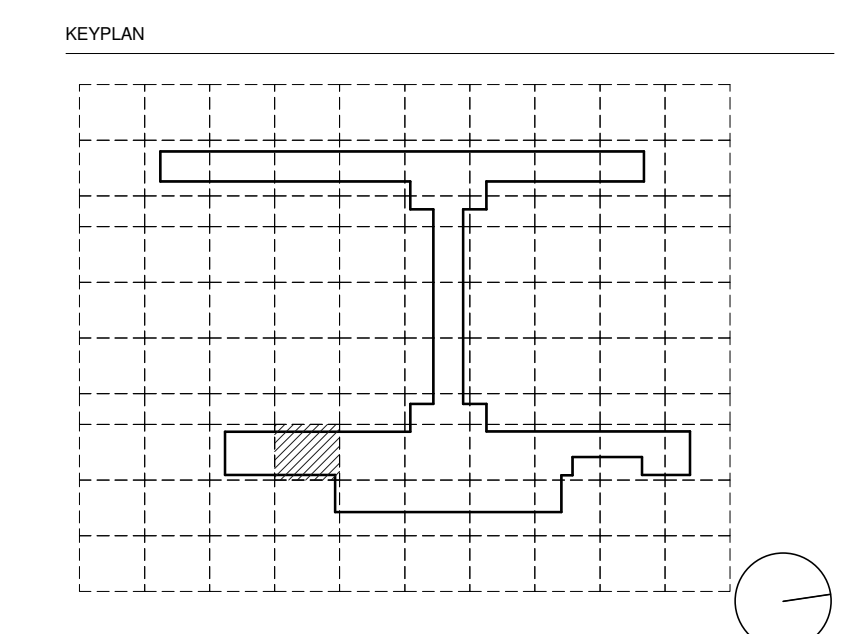
ARCHITECT & STRUCTURAL ENGINEER
CLARK WEITZ CLARKSON
 533 Mexico City Avenue, Kansas City, MO 64153

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

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- CONDENSATE DRAIN
- CONDENSATE PUMP DISCHARGE
- DOMESTIC COLD WATER
- DOMESTIC HOT WATER
- DOMESTIC HOT WATER RECIRC.
- GREASE WASTE
- INDIRECT DRAIN
- MEDIUM PRESSURE NATURAL GAS
- NON-POTABLE WATER
- OVERFLOW STORM DRAIN
- SOIL
- STORM DRAIN
- SUMP PUMP DISCHARGE
- VENT
- ≡ REPRESENT EQUIPMENT
- ≡ REPRESENT VALVES



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7	NOVEMBER 20, 2019	ISSUED FOR PERMITS
8	AUGUST 13, 2019	ISSUED FOR SCHEMATIC DESIGN
9	JUNE 12, 2019	ISSUED FOR SCHEMATIC DESIGN

DRAWING TITLE
LEVEL 1 - ARRIVALS WATER & GAS PART PLAN T23

DRAWING NUMBER
PT-2023

1 LEVEL 1 - ARRIVALS WATER & GAS PART PLAN T23
 SCALE: 1/8" = 1'-0"

NEW SINGLE TERMINAL AND PARKING AT KCI

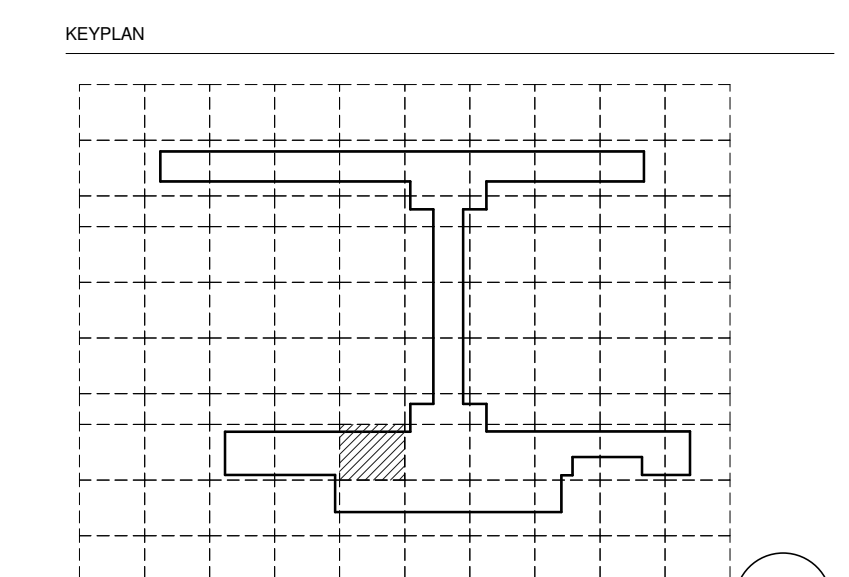
OWNER
KANSAS CITY INTERNATIONAL AIRPORT
 601 Brasilia Avenue, Kansas City, MO 64153
 PROJECT NUMBER - 62180497

OWNER'S REPRESENTATIVE
PMG Paslay Management Group
 533 Mexico City Avenue, Kansas City, MO 64153
 DEVELOPER

DESIGN-BUILDER
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Transolutions - Terminal Planning
Premier Engineering - Demolition
ICF - Concessions
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Cityll - Smart Technology
Priority Engineers - Traffic Engineering



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 Lenexa, KS 66157
 P: 913-742-9200

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 MO CORPORATE NO. E-5660
 EXPIRES 12/31/2020

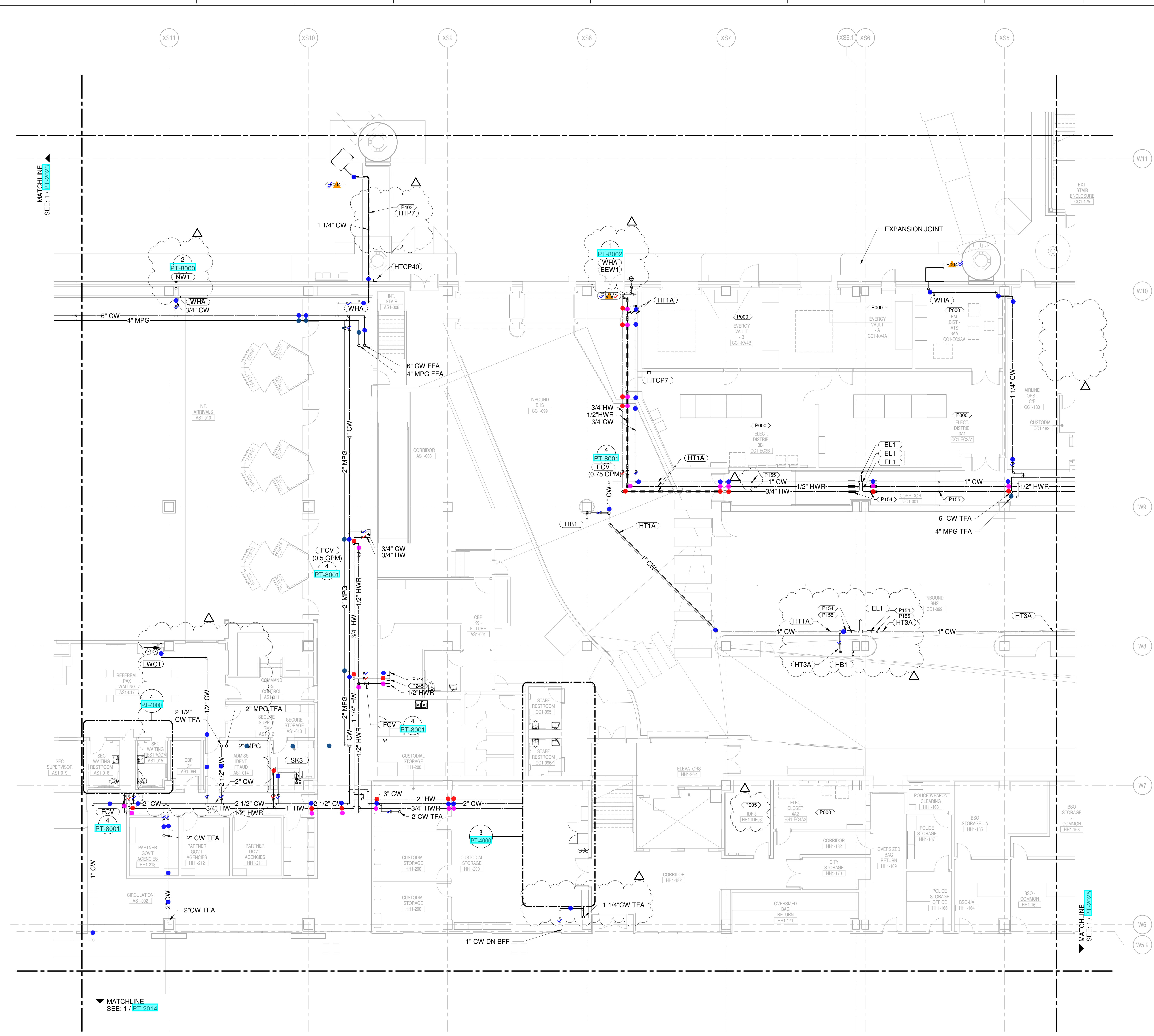
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NOVEMBER 20, 2019	ISSUED FOR PERMITS	
AUGUST 13, 2019	ISSUED FOR SCHEMATIC DESIGN	
JUNE 12, 2019	80% SCHEMATIC DESIGN	

DRAWING TITLE
LEVEL 1 - ARRIVALS WATER & GAS PART PLAN T24

DRAWING NUMBER
PT-2024

PLUMBING PLAN NOTES:
 P000 COORDINATE PLUMBING PIPE ROUTING AWAY FROM ELECTRICAL PANELS. MAINTAIN CLEARANCES PER NEC.
 P004 ROUTE 1 1/4" COLD WATER LINE TO AIRCRAFT HOSE CABINET (BY OTHERS). COORDINATE FINAL LOCATION WITH AIRSIDE CONTRACTOR AS REQUIRED. CABINET TO INCLUDE INTEGRAL BACKFLOW PREVENTER. POTABLE WATER CABINET INSTALLER TO PROVIDE DRAIN CONNECTION TO RFBPCA DRAIN.
 P005 DO NOT ROUTE ANY PLUMBING PIPING OVERHEAD IN THE IDF OR MDF ROOMS. ALL SANITARY AND VENT PIPING ABOVE THIS AREA SHALL BE PROTECTED WITH DOUBLE CONTAINMENT AS PER SPECIFICATIONS.
 P154 PROVIDE PIPE ALIGNMENT GUIDES.
 P155 PROVIDE PIPE ANCHORS.
 P244 1" CW (10 SFU MAX) FOR FUTURE TENANT CONNECTION
 P245 1" HW (10 SFU MAX) FOR FUTURE TENANT CONNECTION

- CONDENSATE DRAIN
- CONDENSATE PUMP DISCHARGE
- DOMESTIC COLD WATER
- DOMESTIC HOT WATER
- DOMESTIC HOT WATER RECIRC.
- GREASE WASTE
- INDIRECT DRAIN
- MEDIUM PRESSURE NATURAL GAS
- NON-POTABLE WATER
- OVERFLOW STORM DRAIN
- SOIL
- STORM DRAIN
- SLUMP PUMP DISCHARGE
- VENT
- ▲ REPRESENT EQUIPMENT
- ▼ REPRESENT VALVES



1 LEVEL 1 - ARRIVALS WATER & GAS PART PLAN T24
 SCALE: 1/8" = 1'-0"

PLUMBING PLAN NOTES:
 P000 COORDINATE PLUMBING PIPE ROUTING AWAY FROM ELECTRICAL PANELS. MAINTAIN CLEARANCES PER NEC.

NEW SINGLE TERMINAL AND PARKING AT KCI

OWNER
 KANSAS CITY INTERNATIONAL AIRPORT
 601 Brasilia Avenue, Kansas City, MO 64153
 PROJECT NUMBER - 62180497

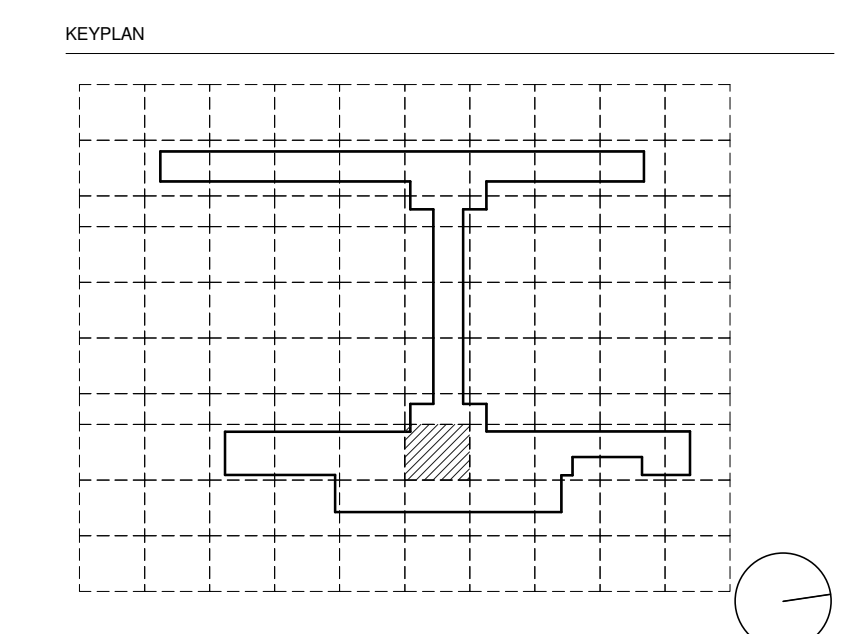
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 PMG Paslay Management Group
 533 Mexico City Avenue, Kansas City, MO 64153
 DEVELOPER

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 533 Mexico City Avenue, Kansas City, MO 64153

ARCHITECT & STRUCTURAL ENGINEER
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 14 Wall Street, New York, NY 10005

CONSULTANT TEAM

Draw Architecture - Collaborating Architect
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 Vanderlande - Baggage Handling
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 Thornton Tomasetti - Protective Design
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 Trekk Design Group - Airside Storm Drainage
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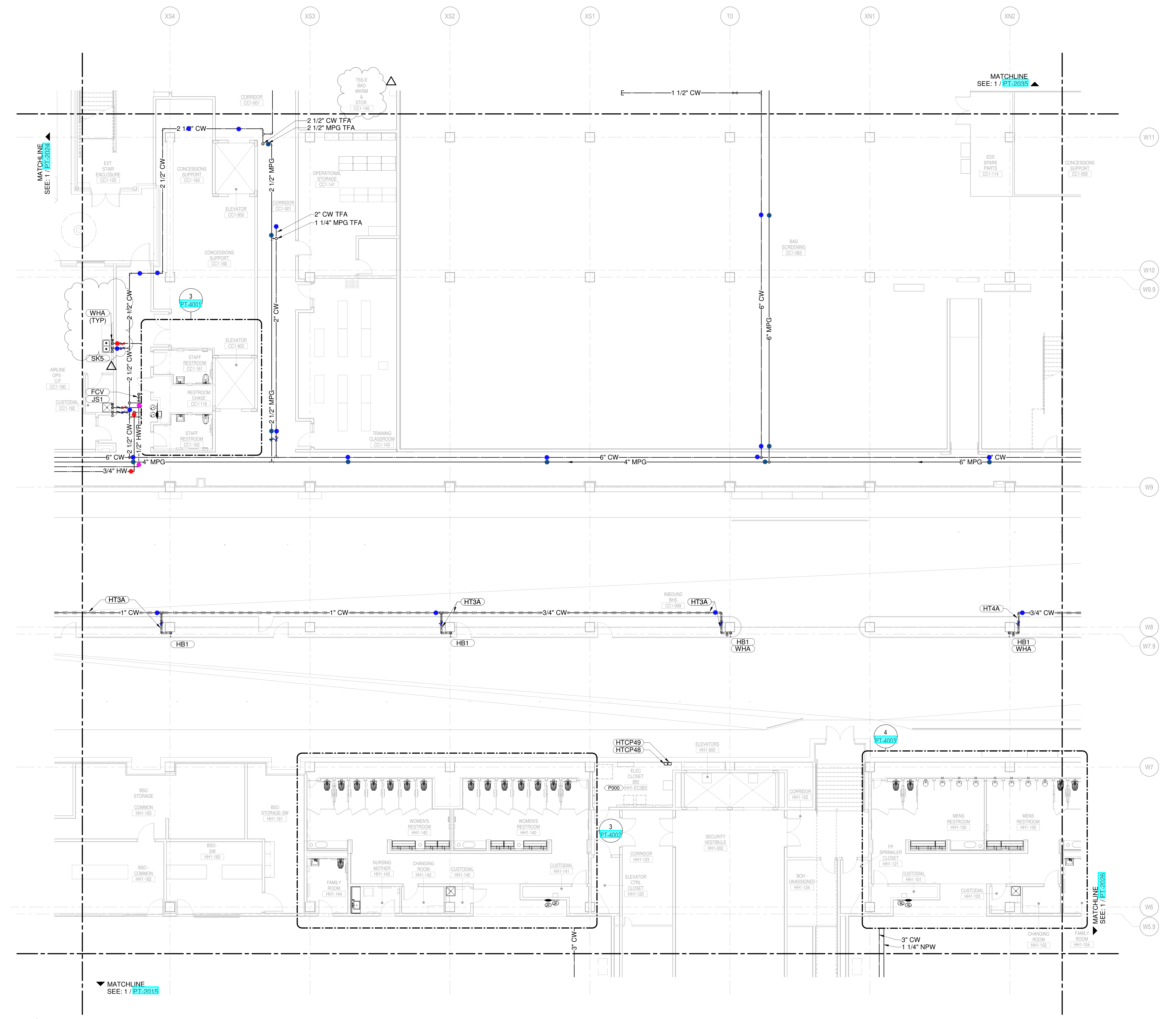
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6	JANUARY 29, 2020	CD PROGRESS
7	NOVEMBER 20, 2019	ISSUED FOR PERMITS
8	AUGUST 13, 2019	ISSUED FOR SCHEMATIC DESIGN
9	JUNE 13, 2019	80% SCHEMATIC DESIGN

DRAWING TITLE
LEVEL 1 - ARRIVALS WATER & GAS PART PLAN T25

DRAWING NUMBER
PT-2025



- CONDENSATE DRAIN
- CONDENSATE PUMP DISCHARGE
- DOMESTIC COLD WATER
- DOMESTIC HOT WATER
- DOMESTIC HOT WATER RECIRC.
- GREASE WASTE
- INDIRECT DRAIN
- MEDIUM PRESSURE NATURAL GAS
- NON-POTABLE WATER
- OVERFLOW STORM DRAIN
- SOIL
- STORM DRAIN
- SLUMP PUMP DISCHARGE
- VENT
- ▲ REPRESENT EQUIPMENT
- ▼ REPRESENT VALVES

1 LEVEL 1 - ARRIVALS WATER & GAS PART PLAN T25
 SCALE: 1/8" = 1'-0"

SHANE M. LUTZ

NEW SINGLE TERMINAL AND PARKING AT KCI

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 601 Brasilia Avenue, Kansas City, MO 64153
 PROJECT NUMBER - 62180497

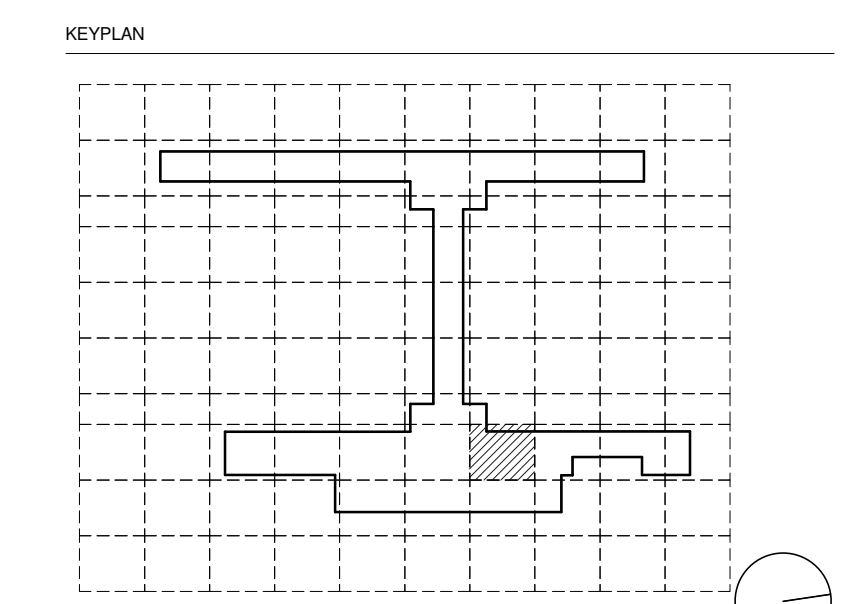
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- Lerch Bates - VHT Consultants
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- Priority Engineers - Traffic Engineering



SEAL
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 6345 Linnwood Drive, Suite 300
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 P: 913-742-9200

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10	JUNE 13, 2019	80% SCHEMATIC DESIGN

DRAWING TITLE
LEVEL 1 - ARRIVALS WATER & GAS PART PLAN T26

DRAWING NUMBER
PT-2026

9/18/2022 4:02:54 AM

- PLUMBING PLAN NOTES:
- P000 COORDINATE PLUMBING PIPE ROUTING AWAY FROM ELECTRICAL PANELS. MAINTAIN CLEARANCES PER NEC.
 - P004 ROUTE 1 1/4" COLD WATER LINE TO AIRCRAFT HOSE CABINET (BY OTHERS). COORDINATE FINAL LOCATION WITH AIRSIDE CONTRACTOR AS REQUIRED. CABINET TO INCLUDE INTEGRAL BACKFLOW PREVENTER. POTABLE WATER CABINET INSTALLER TO PROVIDE DRAIN CONNECTION TO RFBPCA DRAIN.
 - P005 DO NOT ROUTE ANY PLUMBING PIPING OVERHEAD IN THE IDF OR MDF ROOMS. ALL SANITARY AND VENT PIPING ABOVE THIS AREA SHALL BE PROTECTED WITH DOUBLE CONTAINMENT AS PER SPECIFICATIONS.
 - P150 1 1/4" CW (20 SFU MAX) FOR FUTURE TENANT CONNECTION
 - P154 PROVIDE PIPE ALIGNMENT GUIDES.
 - P155 PROVIDE PIPE ANCHORS.

- CONDENSATE DRAIN
- CONDENSATE PUMP DISCHARGE
- DOMESTIC COLD WATER
- DOMESTIC HOT WATER
- DOMESTIC HOT WATER RECIRC.
- GREASE WASTE
- INDIRECT DRAIN
- MEDIUM PRESSURE NATURAL GAS
- NON-POTABLE WATER
- OVERFLOW STORM DRAIN
- SOIL
- STORM DRAIN
- SLUMP PUMP DISCHARGE
- VENT
- REPRESENT EQUIPMENT
- REPRESENT VALVES



1 LEVEL 1 - ARRIVALS WATER & GAS PART PLAN T26
 SCALE: 1/8" = 1'-0"

SHANE M. LUTZ

NEW SINGLE TERMINAL AND PARKING AT KCI

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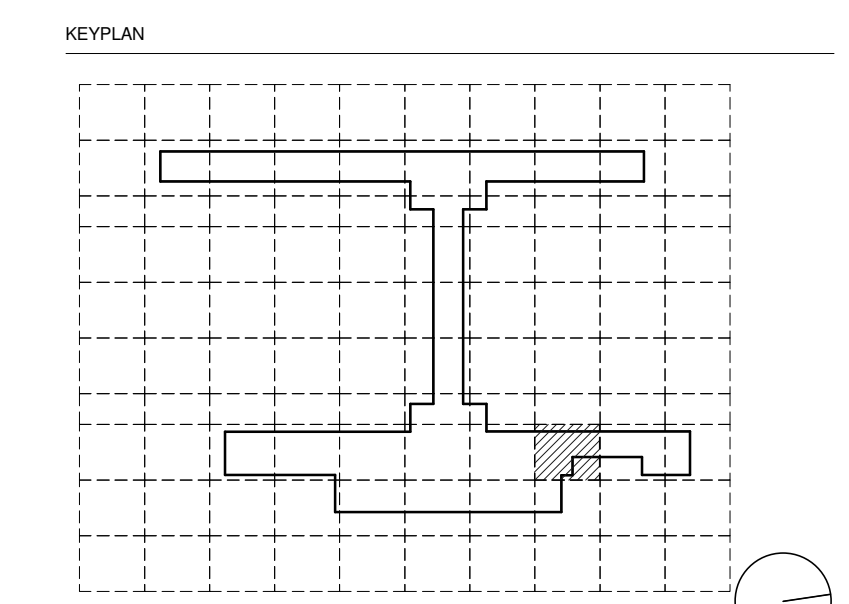
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 533 Mexico City Avenue, Kansas City, MO 64153
 DEVELOPER

DESIGN-BUILDER
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PLUMBING PLAN NOTES:
 P000 COORDINATE PLUMBING PIPE ROUTING AWAY FROM ELECTRICAL PANELS. MAINTAIN CLEARANCES PER NEC.
 P004 ROUTE 1 1/4" COLD WATER LINE TO AIRCRAFT HOSE CABINET (BY OTHERS). COORDINATE FINAL LOCATION WITH AIRSIDE CONTRACTOR AS REQUIRED. CABINET TO INCLUDE INTEGRAL BACKFLOW PREVENTER. POTABLE WATER CABINET INSTALLER TO PROVIDE DRAIN CONNECTION TO FBPCA DRAIN.
 P005 DO NOT ROUTE ANY PLUMBING PIPING OVERHEAD IN THE IDF OR MDF ROOMS. ALL SANITARY AND VENT PIPING ABOVE THIS AREA SHALL BE PROTECTED WITH DOUBLE CONTAINMENT AS PER SPECIFICATIONS.
 P146 1 1/2" CW (20 SFU MAX) CAPPED FOR FUTURE CONNECTION
 P154 PROVIDE PIPE ALIGNMENT GUIDES.
 P155 PROVIDE PIPE ANCHORS.
 P162 3/4" NPW ON TO WATER CONNECTION FOR CRACK UNIT. REFER TO MANUFACTURER INSTRUCTIONS FOR CONNECTION POINT. AVOID ROUTING PIPING OVER PANELS.
 P210 INSTALL BFP ON WALL IN ACCESSIBLE LOCATION AT 48" AFF.
 P261 MOUNT BACKFLOW PREVENTER FOR CHEMICAL STATION ON WALL AT 6' ABOVE FINISH FLOOR. CAP 1/2" OUTLET PIPE FOR FUTURE CONNECTION. COORDINATE LOCATION WITH MOP SINK FAUCET, CHEMICAL STATION AND WATER HEATER (IF INSTALLED ABOVE JANITOR SINK).



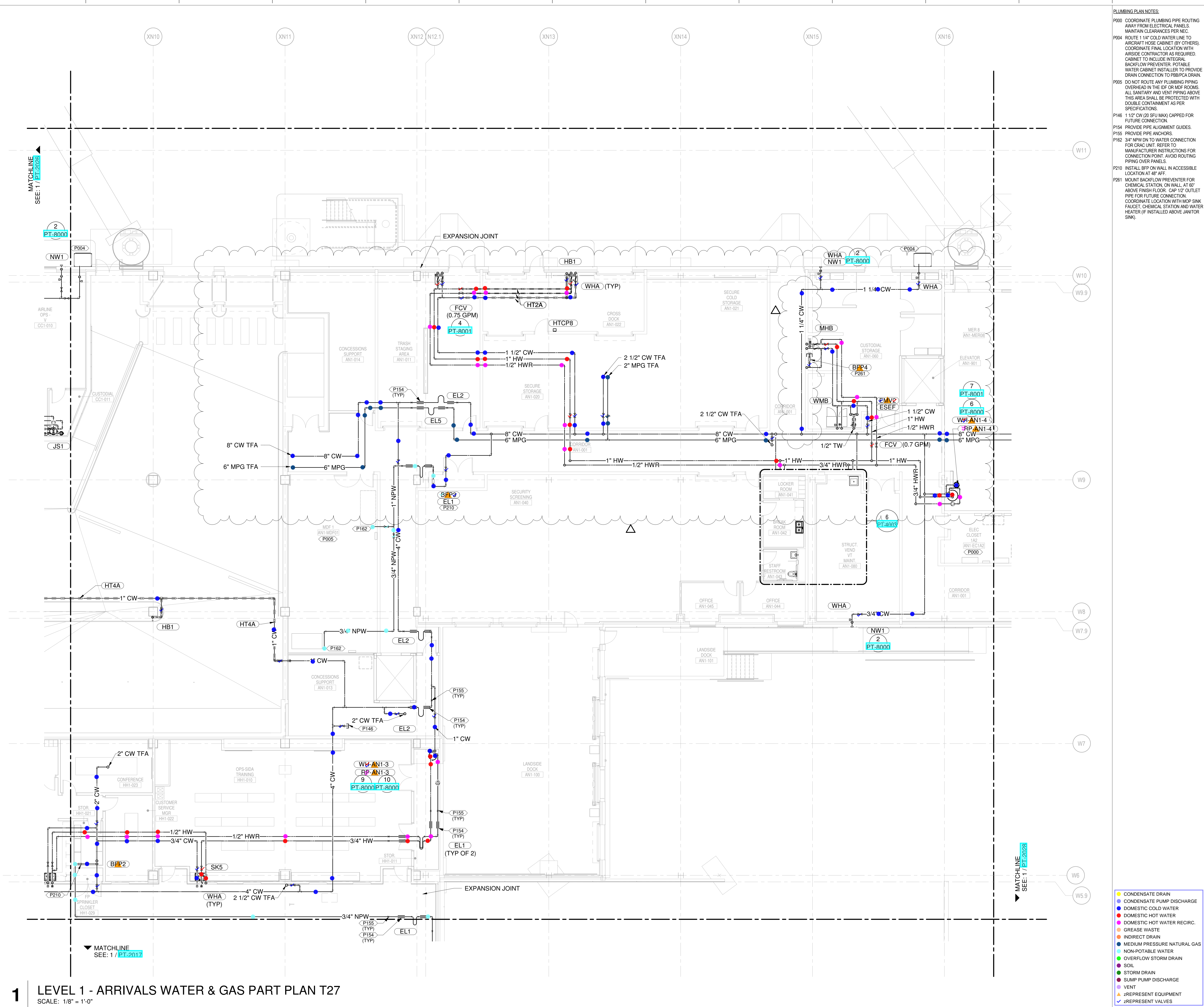
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5	MARCH 5, 2020	ISSUED FOR DESIGN DEVELOPMENT
6	JANUARY 23, 2020	CD PROGRESS
7	NOVEMBER 20, 2019	ISSUED FOR BIDDING
8	AUGUST 13, 2019	ISSUED FOR SCHEMATIC DESIGN
9	JUNE 13, 2019	80% SCHEMATIC DESIGN

DRAWING TITLE
LEVEL 1 - ARRIVALS WATER & GAS PART PLAN T27

DRAWING NUMBER
PT-2027



- CONDENSATE DRAIN
- CONDENSATE PUMP DISCHARGE
- DOMESTIC COLD WATER
- DOMESTIC HOT WATER
- DOMESTIC HOT WATER RECIRC.
- GREASE WASTE
- INDIRECT DRAIN
- MEDIUM PRESSURE NATURAL GAS
- NON-POTABLE WATER
- OVERFLOW STORM DRAIN
- SOIL
- STORM DRAIN
- SLUMP PUMP DISCHARGE
- VENT
- ▲ REPRESENT EQUIPMENT
- ▼ REPRESENT VALVES

1 LEVEL 1 - ARRIVALS WATER & GAS PART PLAN T27
 SCALE: 1/8" = 1'-0"

PLUMBING PLAN NOTES:

- P000 COORDINATE PLUMBING PIPE ROUTING AWAY FROM ELECTRICAL PANELS. MAINTAIN CLEARANCES PER NEC.
- P004 ROUTE 1 1/4" COLD WATER LINE TO AIRCRAFT HOSE CABINET BY OTHERS. COORDINATE FINAL LOCATION WITH AIRSIDE CONTRACTOR AS REQUIRED. CABINET TO INCLUDE INTEGRAL BACKFLOW PREVENTER. POTABLE WATER CABINET INSTALLER TO PROVIDE DRAIN CONNECTION TO PBP/CA DRAIN.
- P086 TEMPORARY WATER METER WILL NOT BE INSTALLED IF SITE WATER METERS ARE INSTALLED BEFORE BUILDING IS IN USE. IF SITE METERS ARE NOT INSTALLED, PROVIDE 4" TEMPORARY WATER METER TO BE PROVIDED BY CITY. PROVIDE FULL LINE SIZE BYPASS AND SHUT OFF VALVES.
- P100 INSTALL DOMESTIC SHUTOFF VALVES AT 6'-0" AFF FOR ACCESSIBILITY.
- P138 3/4" CW UP TO ROOF HYDRANT.
- P154 PROVIDE PIPE ALIGNMENT GUIDES.
- P155 PROVIDE PIPE ANCHORS.
- P230 1" CW (12 SFU MAX) FOR FUTURE TENANT CONNECTION.

NEW SINGLE TERMINAL AND PARKING AT KCI

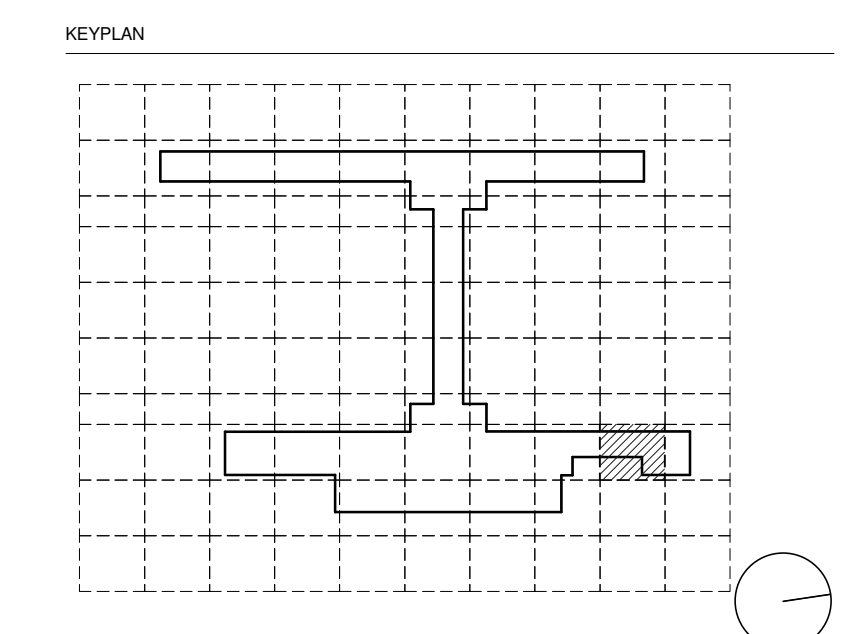
OWNER
 KANSAS CITY INTERNATIONAL AIRPORT
 601 Brasilia Avenue, Kansas City, MO 64153
 PROJECT NUMBER - 62180497

OWNER'S REPRESENTATIVE
PMG Paslay Management Group
 533 Mexico City Avenue, Kansas City, MO 64153
 DEVELOPER

DESIGN-BUILDER
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 14 Wall Street, New York, NY 10005
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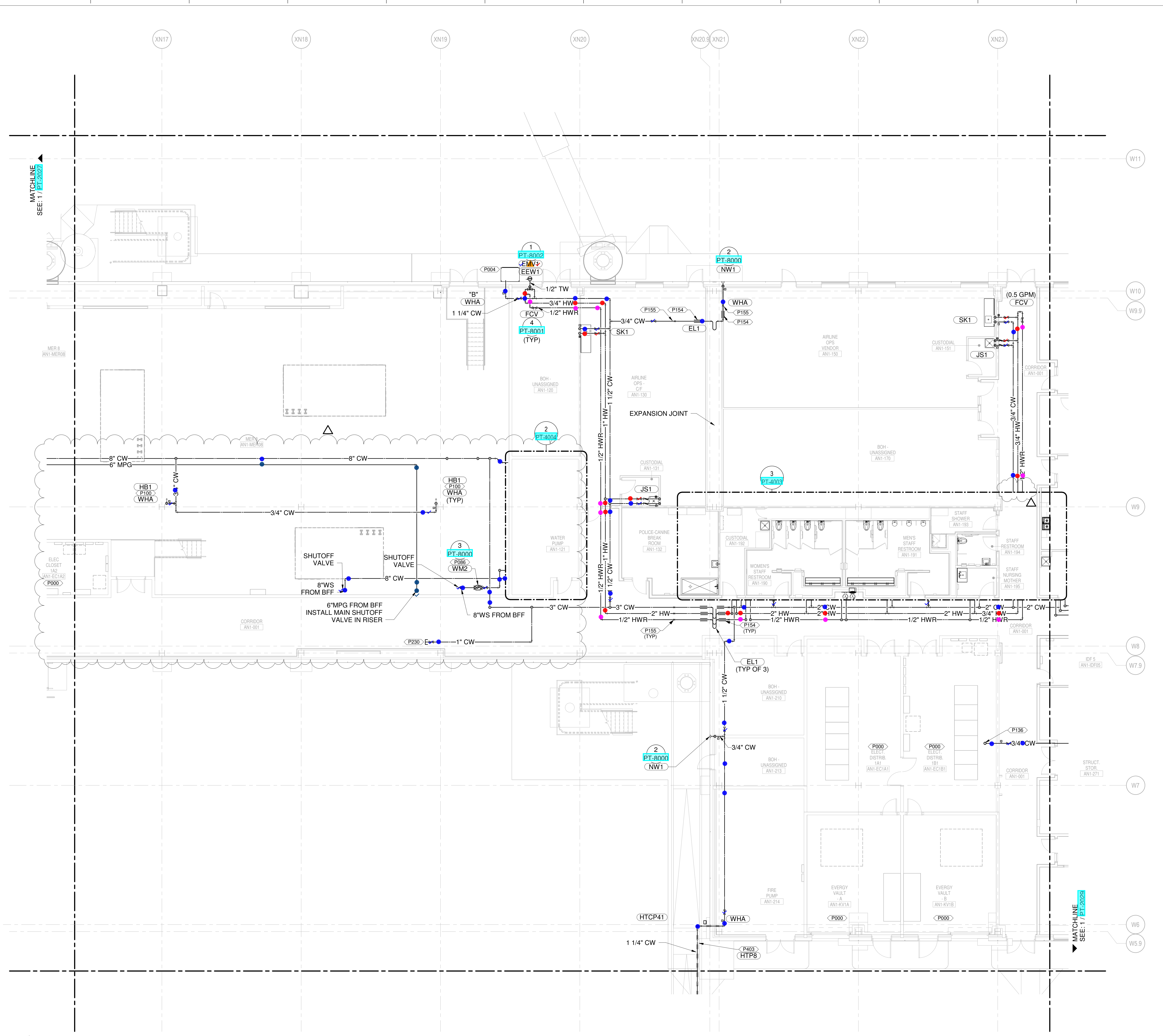
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	AUGUST 27, 2019	ISSUED FOR FINAL DESIGN
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	JUNE 18, 2019	ISSUED FOR CD PROGRESS
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	JANUARY 29, 2019	CD PROGRESS
	NOVEMBER 20, 2018	ISSUED FOR PERMITS
	AUGUST 13, 2018	ISSUED FOR SCHEMATIC DESIGN
	JUNE 13, 2018	80% SCHEMATIC DESIGN

DRAWING TITLE
LEVEL 1 - ARRIVALS WATER & GAS PART PLAN T28

DRAWING NUMBER
PT-2028



- CONDENSATE DRAIN
- CONDENSATE PUMP DISCHARGE
- DOMESTIC COLD WATER
- DOMESTIC HOT WATER
- DOMESTIC HOT WATER RECIRC.
- GREASE WASTE
- INDIRECT DRAIN
- MEDIUM PRESSURE NATURAL GAS
- NON-POTABLE WATER
- OVERFLOW STORM DRAIN
- SOIL
- STORM DRAIN
- SLUMP PUMP DISCHARGE
- VENT
- ≡ REPRESENT EQUIPMENT
- ≡ REPRESENT VALVES

1 LEVEL 1 - ARRIVALS WATER & GAS PART PLAN T28
 SCALE: 1/8" = 1'-0"

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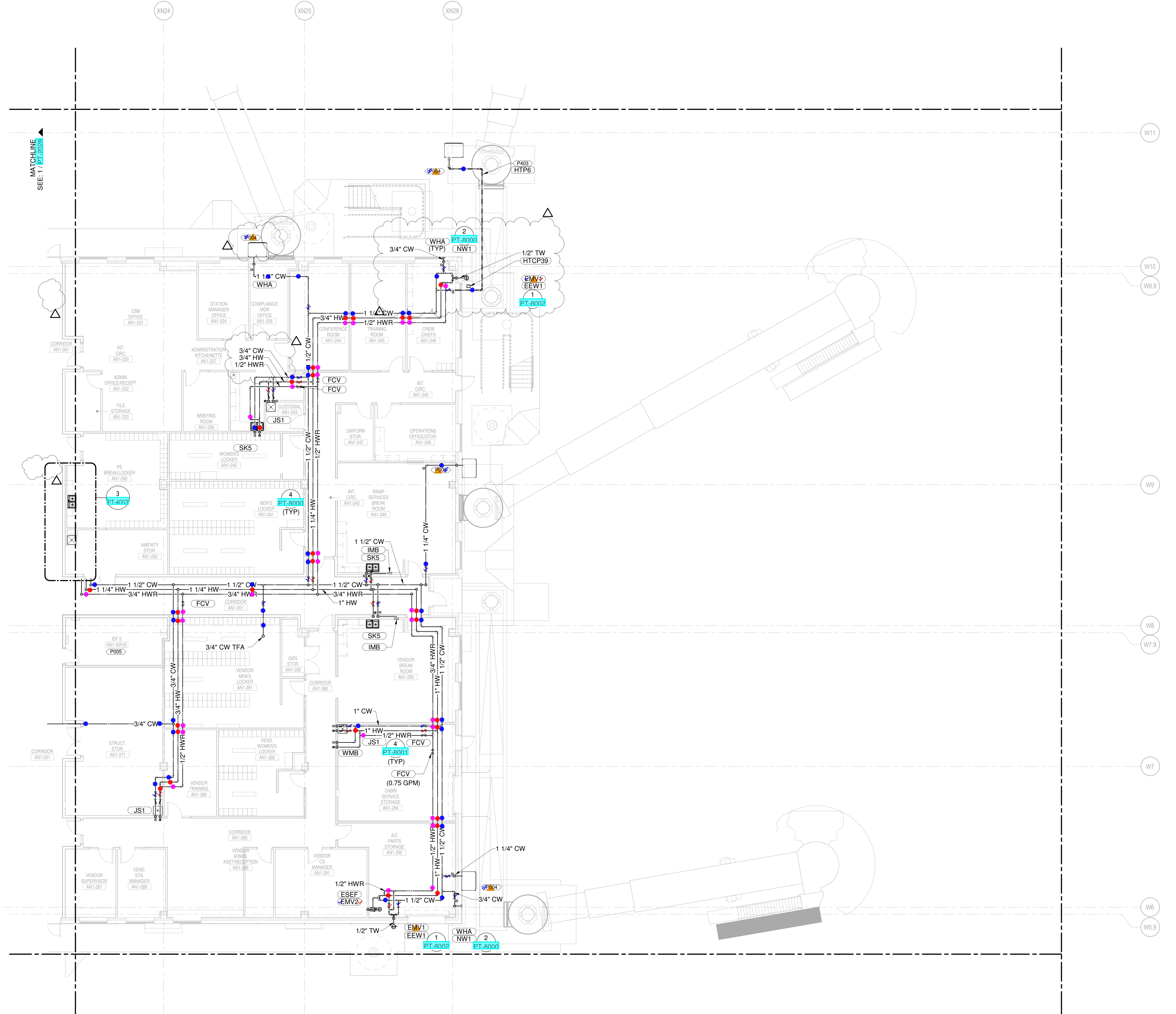
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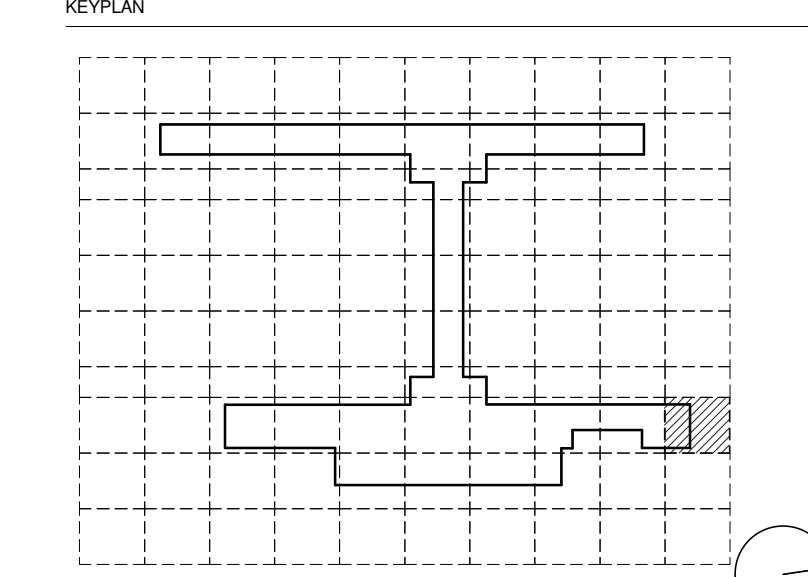
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PLUMBING PLAN NOTES:
 P004 ROUTE 1 1/4" COLD WATER LINE TO AIRCRAFT HOSE CABINET (BY OTHERS). COORDINATE FINAL LOCATION WITH AIRSIDE CONTRACTOR AS REQUIRED. CABINET TO INCLUDE INTEGRAL BACKFLOW PREVENTER. POTABLE WATER CABINET INSTALLER TO PROVIDE DRAIN CONNECTION TO PERPCA DRAIN.
 P005 DO NOT ROUTE ANY PLUMBING PIPING OVERHEAD IN THE IDF OR MDF ROOMS. ALL SANITARY AND VENT PIPING ABOVE THIS AREA SHALL BE PROTECTED WITH DOUBLE CONTAINMENT AS PER SPECIFICATIONS.



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- CONDENSATE PUMP DISCHARGE
- DOMESTIC HOT WATER
- DOMESTIC COLD WATER
- DOMESTIC HOT WATER RECIRC.
- GREASE WASTE
- INDIRECT DRAIN
- MEDIUM PRESSURE NATURAL GAS
- NON-POTABLE WATER
- OVERFLOW STORM DRAIN
- SOIL
- STORM DRAIN
- SLUMP PUMP DISCHARGE
- VENT
- ▲ REPRESENT EQUIPMENT
- ▼ REPRESENT VALVES



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7	NOVEMBER 20, 2019	ISSUED FOR PDS CD
8	AUGUST 13, 2019	ISSUED FOR SCHEMATIC DESIGN
9	JUNE 13, 2019	80% SCHEMATIC DESIGN

DRAWING TITLE
LEVEL 1 - ARRIVALS WATER & GAS PART PLAN T29

DRAWING NUMBER
PT-2029

1 LEVEL 1 - ARRIVALS WATER & GAS PART PLAN T29
 SCALE: 1/8" = 1'-0"

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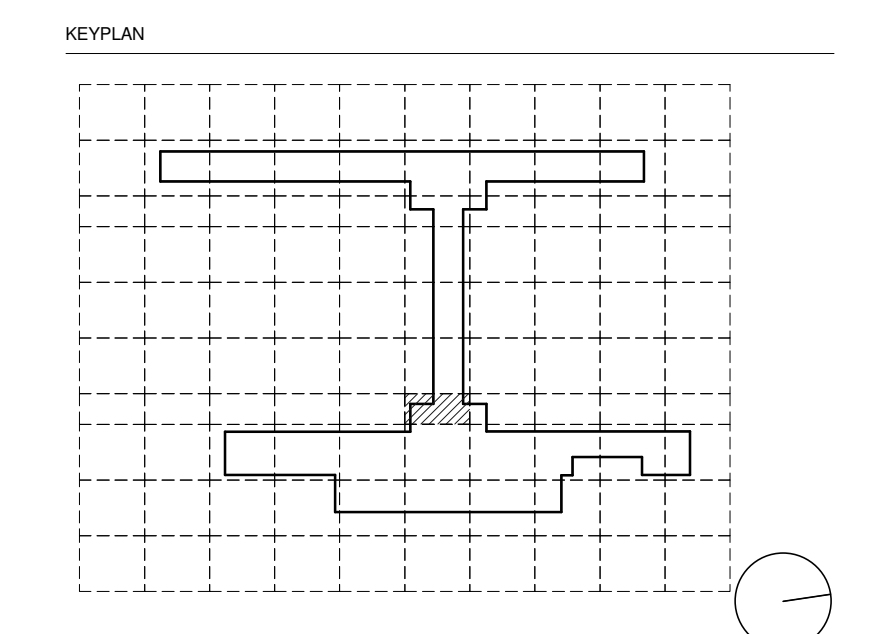
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 - Thornton Tomasetti - Protective Design
 - SK Design Group - Glycol / Landside Utilities
 - Trekk Design Group - Airside Storm Drainage
 - Arora Engineers, Inc. - AIS / ICT
 - ARUP - Aircraft Parking / Gate Eqp. / AIS / ICT / FA
 - Taliaferro & Browne Inc. - Landside Civil
 - 3T Design & Development - Landside Utilities
 - HC Consulting Group - Permitting
 - Lightworks - Lighting / Landside Lighting
 - Dubois Consultants - Struc. Terminal
 - Leigh & O'Kane - Roadway Structure
 - Argus Consulting - Hydrant Fuel System
 - Transolutions - Terminal Planning
 - Premier Engineering - Demolition
 - ICF - Concessions
 - Lerch Bates - VHT Consultants
 - Cityfi - Smart Technology
 - Priority Engineers - Traffic Engineering



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 LICENSE # PE-2003000011
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Henderson Engineers Inc.
 6345 Lenora Drive, Suite 300
 Lenexa, KS 66157
 P: 913-742-9200

SHANE M. LUTZ
 LICENSE # PE-2003000011
 MO. CORPORATE NO. E-5662
 EXPIRES 12/31/2020

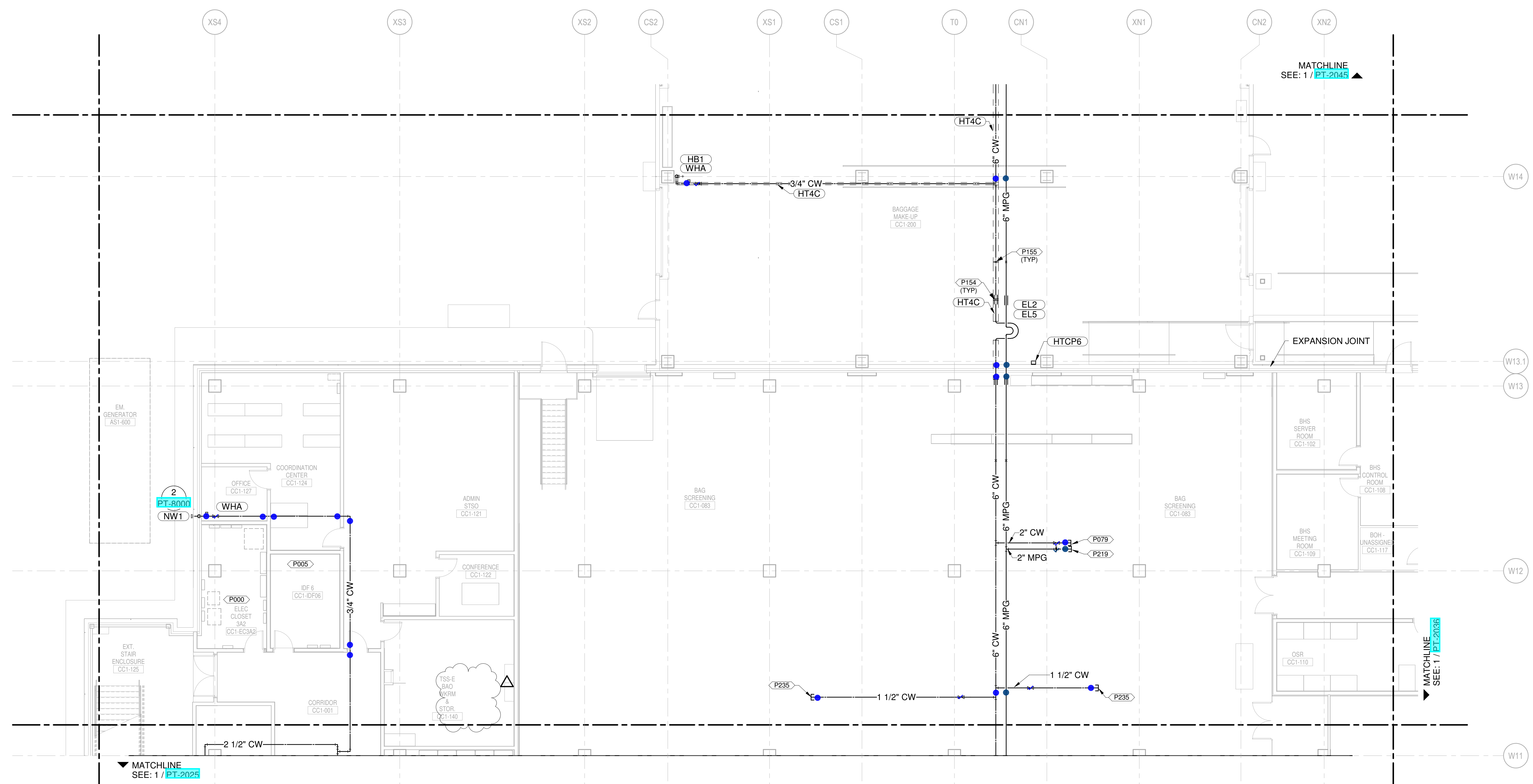
NO.	DATE	DESCRIPTION
1	AUGUST 27, 2019	ISSUED FOR FINAL DESIGN
2	JULY 19, 2019	02 - PROGRESS PRINT
3	JUNE 26, 2019	PERMIT SET - UNDERGROUND
4	JUNE 13, 2019	ISSUED FOR CONSTRUCTION
5	MARCH 5, 2019	ISSUED FOR DESIGN DEVELOPMENT
6	JANUARY 23, 2019	01 - PROGRESS
7	NOVEMBER 20, 2019	ISSUED FOR RFP, DD
8	AUGUST 13, 2019	ISSUED FOR SCHEMATIC DESIGN

DRAWING TITLE
LEVEL 1 - ARRIVALS WATER & GAS PART PLAN T35

DRAWING NUMBER
PT-2035

- PLUMBING PLAN NOTES
- P000 COORDINATE PLUMBING PIPE ROUTING AWAY FROM ELECTRICAL PANELS. MAINTAIN CLEARANCES PER NEC.
 - P005 DO NOT ROUTE ANY PLUMBING PIPING OVERHEAD IN THE IDF OR IDF ROOMS. ALL SANITARY AND VENT PIPING ABOVE THIS AREA SHALL BE PROTECTED WITH DOUBLE CONTAINMENT AS PER SPECIFICATIONS.
 - P079 2" CW (50 SFU MAX) FOR FUTURE TENANT CONNECTION.
 - P154 PROVIDE PIPE ALIGNMENT GUIDES.
 - P219 2"MPG (1500 CFM MAX) FOR FUTURE TENANT CONNECTION.
 - P235 1-1/2" CW (30 FU) CAPPED FOR FUTURE KIOSK CONNECTION.

- CONDENSATE DRAIN
- CONDENSATE PUMP DISCHARGE
- DOMESTIC COLD WATER
- DOMESTIC HOT WATER
- DOMESTIC HOT WATER RECIRC.
- GREASE WASTE
- INDIRECT DRAIN
- MEDIUM PRESSURE NATURAL GAS
- NON-POTABLE WATER
- OVERFLOW STORM DRAIN
- SOIL
- STORM DRAIN
- SUMP PUMP DISCHARGE
- VENT
- ▲ REPRESENT EQUIPMENT
- ▼ REPRESENT VALVES



1 LEVEL 1 - ARRIVALS WATER & GAS PART PLAN T35
 SCALE: 1/8" = 1'-0"

SHANE M. LUTZ

PLUMBING PLAN NOTES:
 P078 1 1/4" MPG (50 CFH MAX) FOR FUTURE TENANT CONNECTION
 P079 2" CW (50 SFU MAX) FOR FUTURE TENANT CONNECTION

NEW SINGLE TERMINAL AND RECORD AT KCI

OWNER
KANSAS CITY INTERNATIONAL AIRPORT
 601 Brasilia Avenue, Kansas City, MO 64153
 PROJECT NUMBER - 62180497

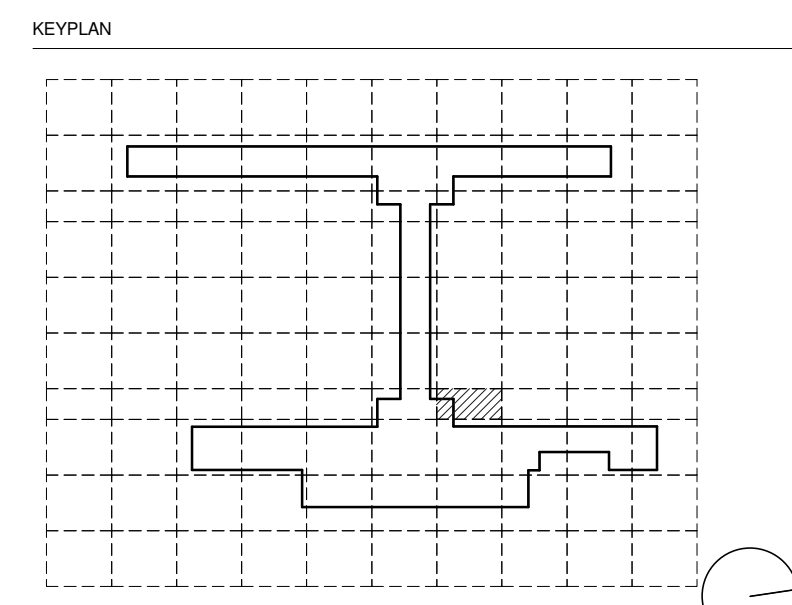
OWNER'S REPRESENTATIVE
PMG Paslay Management Group
 533 Mexico City Avenue, Kansas City, MO 64153
 DEVELOPER

DESIGN-BUILDER
EDGEMOOR
 INFRASTRUCTURE & REAL ESTATE
 533 Mexico City Avenue, Kansas City, MO 64153

ARCHITECT & STRUCTURAL ENGINEER
CLARK WEITZ CLARKSON
 533 Mexico City Avenue, Kansas City, MO 64153

ARCHITECT & STRUCTURAL ENGINEER
SOM
 Skidmore, Owings & Merrill LLP
 14 Wall Street, New York, NY 10005

CONSULTANT TEAM
Draw Architecture - Collaborating Architect
Wellner Architects - Collaborating Architect
HJM Architects Inc. - Collaborating Architect
FSC Inc. - Fire Protection / Code / Life Safety
Henderson - MEP / FA / PA / Sec Engineer of Record
LAND3 Studio - Landscape Architect
Garver - Airside Civil
Entro - Signage / Wayfinding
Olsson - Traffic Planning
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Vanderlande - Baggage Handling
Michele & Associates - ADA
Thornton Tomasetti - Protective Design
SK Design Group - Glycol / Landside Utilities
Trekk Design Group - Airside Storm Drainage
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ARUP - Aircraft Parking / Gate Eqp. / AIS / ICT / FA
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3T Design & Development - Landside Utilities
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Transsolutions - Terminal Planning
Premier Engineering - Demolition
ICF - Concessions
Lerch Bates - VHT Consultants
Cityfi - Smart Technology
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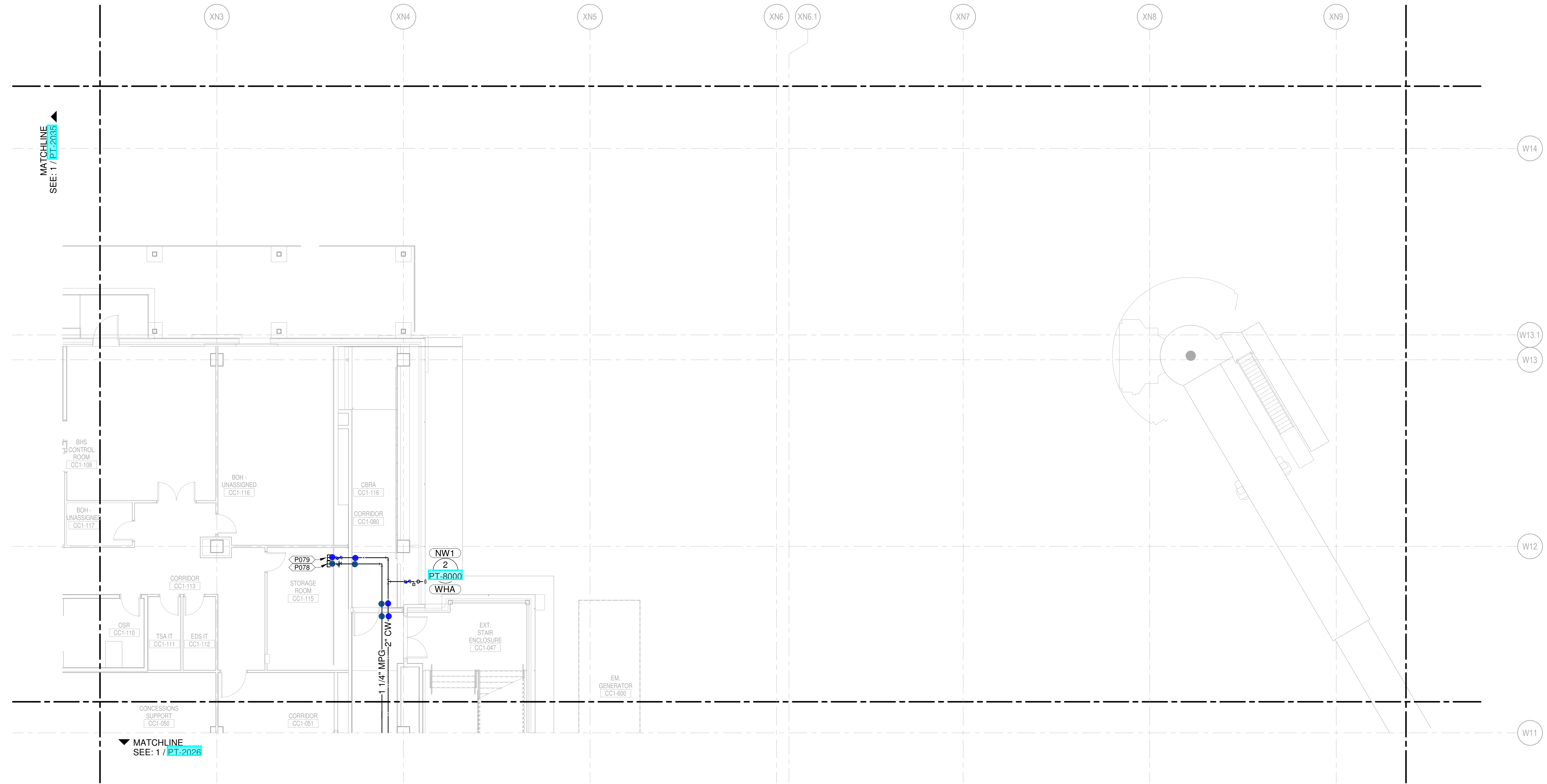


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 LICENSE # PE-2003000011
 MO CORPORATE NO. E-5660
 EXPIRES 12/31/2020

NO.	DATE	DESCRIPTION
1	NOVEMBER 03, 2019	ISSUED FOR PERMITS
2	JANUARY 23, 2020	ISSUED FOR PERMITS DEVELOPMENT
3	MARCH 9, 2020	ISSUED FOR PERMITS DEVELOPMENT
4	JUNE 18, 2020	ISSUED FOR PERMITS DEVELOPMENT
5	JUNE 26, 2020	ISSUED FOR PERMITS DEVELOPMENT
6	AUGUST 27, 2020	ISSUED FOR FINAL DESIGN

LEVEL 1 - ARRIVALS WATER & GAS PART PLAN T36

PT-2036



- CONDENSATE DRAIN
- CONDENSATE PUMP DISCHARGE
- DOMESTIC COLD WATER
- DOMESTIC HOT WATER
- DOMESTIC HOT WATER RECIRC.
- GREASE WASTE
- INDIRECT DRAIN
- MEDIUM PRESSURE NATURAL GAS
- NON-POTABLE WATER
- OVERFLOW STORM DRAIN
- SOIL
- STORM DRAIN
- SUMP PUMP DISCHARGE
- VENT
- ▲ REPRESENT EQUIPMENT
- ▼ REPRESENT VALVES

1 LEVEL 1 - ARRIVALS WATER & GAS PART PLAN T36
 SCALE: 1/8" = 1'-0"

PLUMBING PLAN NOTES:
P136 3/4" CW UP TO ROOF HYDRANT.

NEW SINGLE TERMINAL AND RECORD AT KCI

OWNER
KANSAS CITY INTERNATIONAL AIRPORT
601 Brasilia Avenue, Kansas City, MO 64153
PROJECT NUMBER - 62180497

OWNER'S REPRESENTATIVE
PMG Paslay Management Group
533 Mexico City Avenue, Kansas City, MO 64153
DEVELOPER

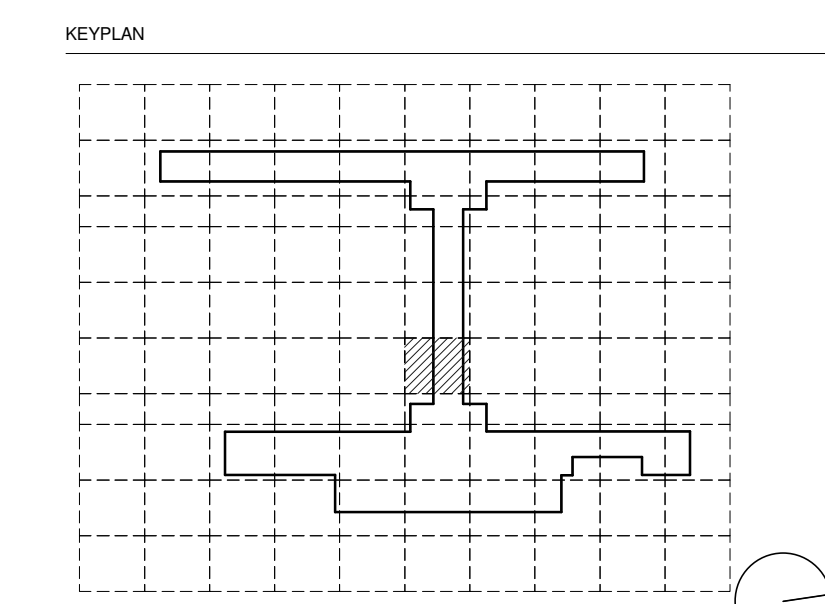
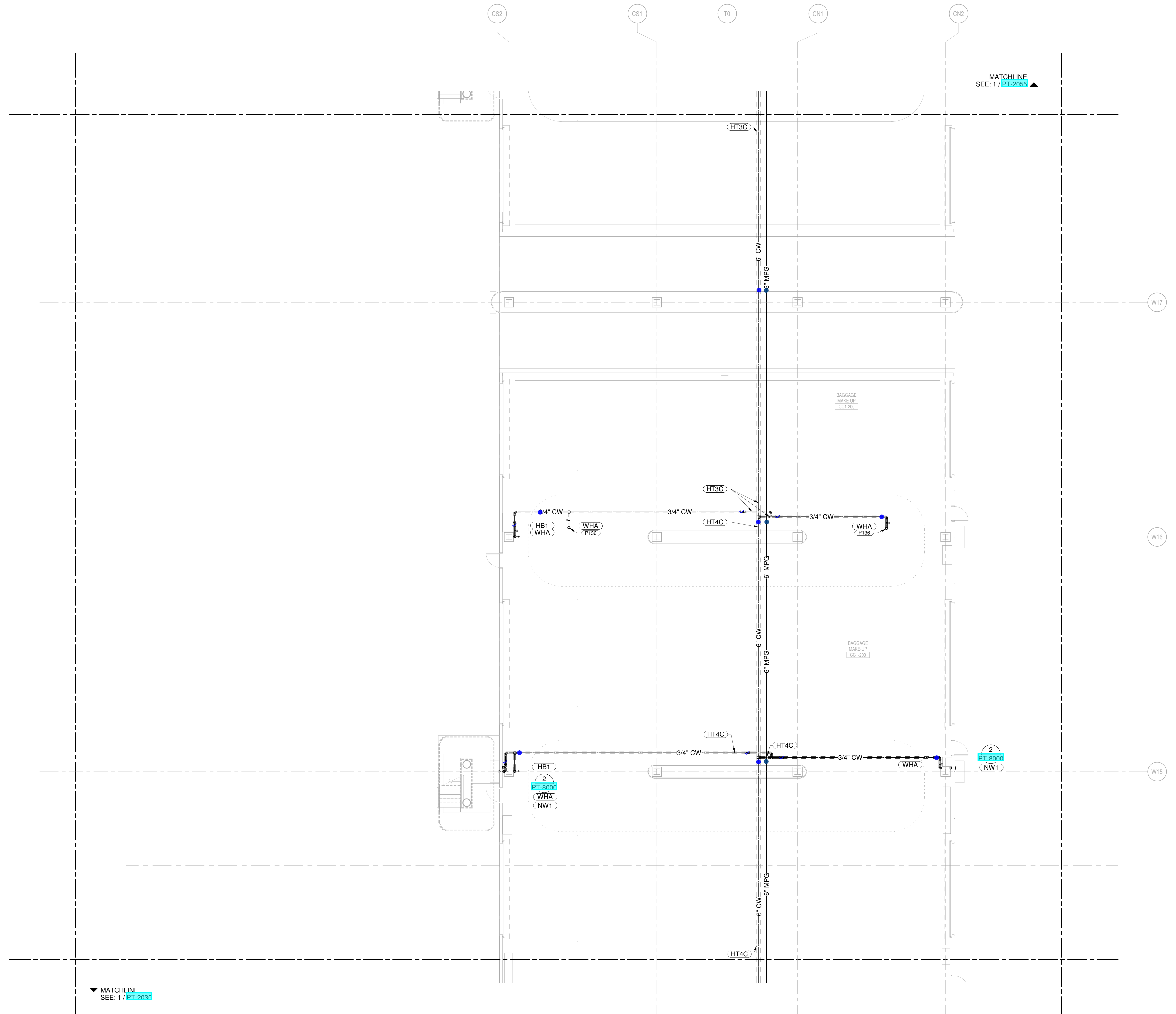
DESIGN-BUILDER
EDGEMOOR
INFRASTRUCTURE & REAL ESTATE
533 Mexico City Avenue, Kansas City, MO 64153

ARCHITECT & STRUCTURAL ENGINEER
CLARK WEITZ CLARKSON
533 Mexico City Avenue, Kansas City, MO 64153

ARCHITECT & STRUCTURAL ENGINEER
SOM
Skidmore, Owings & Merrill LLP
14 Wall Street, New York, NY 10005

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- Henderson - MEP / FA / PA / Sec Engineer of Record
- LAND3 Studio - Landscape Architect
- Garver - Airside Civil
- Entro - Signage / Wayfinding
- Olsson - Traffic Planning
- BNP - Baggage Handling
- Vanderlande - Baggage Handling
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- Trek Design Group - Airside Storm Drainage
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MO. CORPORATE NO. E-5660
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2	JULY 28, 2019	CD - PROGRESS PRINT
3	JUNE 26, 2019	PERMIT SET - UNDERGROUND
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5	MARCH 5, 2019	ISSUED FOR DESIGN DEVELOPMENT
6	JANUARY 23, 2019	CD PROGRESS
7	NOVEMBER 20, 2019	ISSUED FOR RFP, DD
8	AUGUST 11, 2019	ISSUED FOR SCHEMATIC DESIGN

- CONDENSATE DRAIN
- CONDENSATE PUMP DISCHARGE
- DOMESTIC COLD WATER
- DOMESTIC HOT WATER
- DOMESTIC HOT WATER RECIRC.
- GREASE WASTE
- INDIRECT DRAIN
- MEDIUM PRESSURE NATURAL GAS
- NON-POTABLE WATER
- OVERFLOW STORM DRAIN
- SOIL
- STORM DRAIN
- SUMP PUMP DISCHARGE
- VENT
- ▲ REPRESENT EQUIPMENT
- ▼ REPRESENT VALVES

1 LEVEL 1 - ARRIVALS WATER & GAS PART PLAN T45
SCALE: 1/8" = 1'-0"

DRAWING NUMBER
PT-2045

SHANE M. LUTZ

PLUMBING PLAN NOTES:
 P000 COORDINATE PLUMBING PIPE ROUTING AWAY FROM ELECTRICAL PANELS. MAINTAIN CLEARANCES PER NEC.
 P154 PROVIDE PIPE ALIGNMENT GUIDES.

NEW SINGLE TERMINAL AND PARKING AT KCI

OWNER
 KANSAS CITY INTERNATIONAL AIRPORT
 601 Brasilia Avenue, Kansas City, MO 64153
 PROJECT NUMBER - 62180497

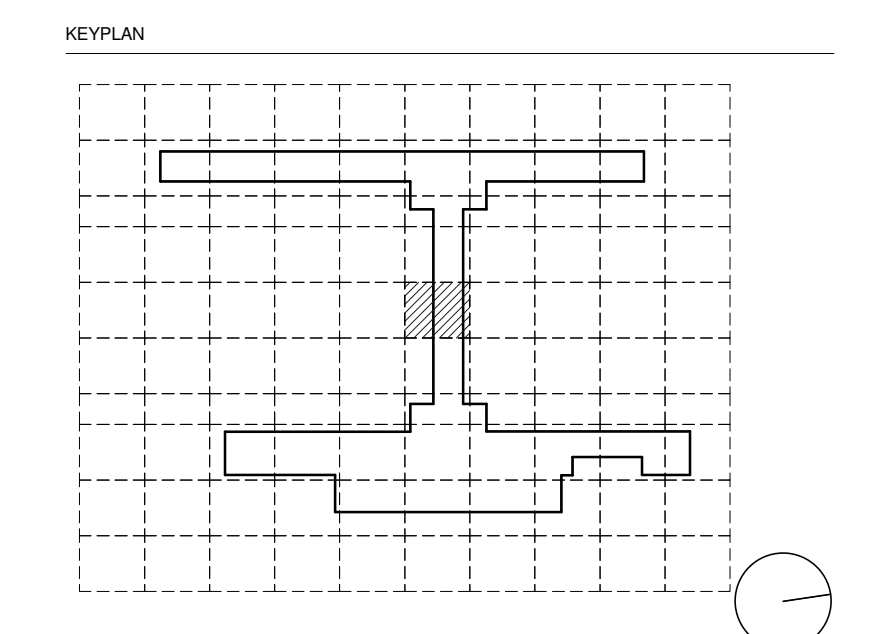
OWNER'S REPRESENTATIVE
 PMG Paslay Management Group
 533 Mexico City Avenue, Kansas City, MO 64153
 DEVELOPER

DESIGN-BUILDER
 EDGEMOOR INFRASTRUCTURE & REAL ESTATE
 533 Mexico City Avenue, Kansas City, MO 64153

ARCHITECT & STRUCTURAL ENGINEER
 SOM Skidmore, Owings & Merrill LLP
 14 Wall Street, New York, NY 10005

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- Trekk Design Group - Airside Storm Drainage
- Arora Engineers, Inc. - AIS / ICT
- ARUP - Aircraft Parking / Gate Eqp. / AIS / ICT / FA
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- Custom Eng. Inc. - Landside Utilities / Airside Utilities
- 3T Design & Development - Landside Utilities
- HC Consulting Group - Permitting
- Lightworks - Lighting / Landside Lighting
- Dubois Consultants - Struc. Terminal
- Leigh & O'Kane - Roadway Structure
- Argus Consulting - Hydrant Fuel System
- Transolutions - Terminal Planning
- Premier Engineering - Demolition
- ICF - Concessions
- Lerch Bates - VHT Consultants
- Cityfi - Smart Technology
- Priority Engineers - Traffic Engineering



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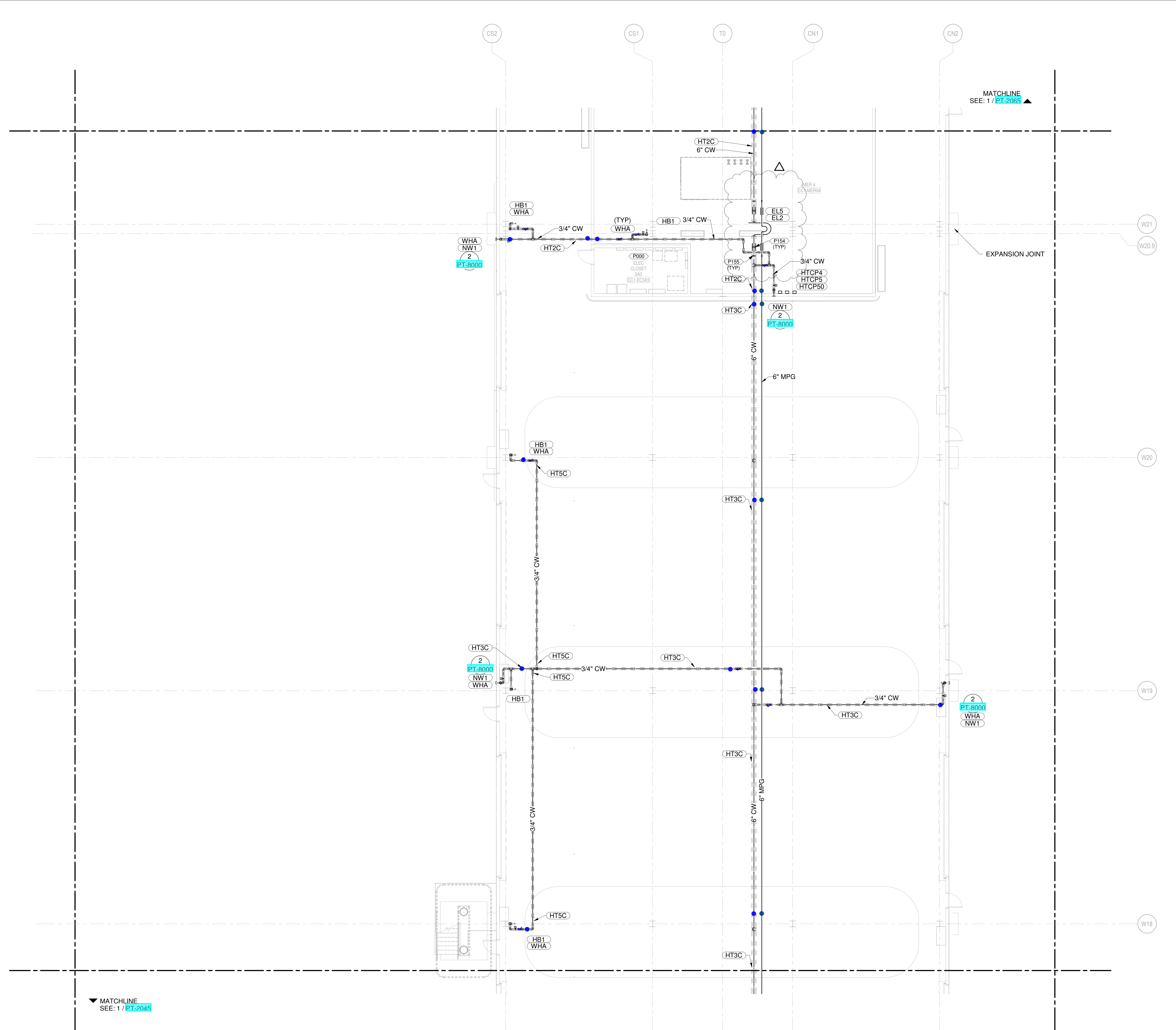
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SHANE M. LUTZ
 LICENSE # PE-2003000011
 MO CORPORATE NO. E-5662
 EXPIRES 12/31/2020

NO.	DATE	DESCRIPTION
1	AUGUST 11, 2019	ISSUED FOR SCHEMATIC DESIGN
2	NOVEMBER 20, 2019	ISSUED FOR RFP, DD
3	AUGUST 11, 2019	ISSUED FOR SCHEMATIC DESIGN
4	AUGUST 27, 2020	ISSUED FOR FINAL DESIGN
5	JULY 28, 2020	CD - PROGRESS PRINT
6	JUNE 26, 2020	PERMIT SET - UNDERGROUND
7	JUNE 10, 2020	ISSUED FOR CD PROGRESS
8	MARCH 5, 2020	ISSUED FOR DESIGN DEVELOPMENT
9	JANUARY 23, 2020	DD PROGRESS

DRAWING TITLE
LEVEL 1 - ARRIVALS WATER & GAS PART PLAN T55

DRAWING NUMBER
PT-2055



- CONDENSATE DRAIN
- CONDENSATE PUMP DISCHARGE
- DOMESTIC COLD WATER
- DOMESTIC HOT WATER
- DOMESTIC HOT WATER RECIRC.
- GREASE WASTE
- INDIRECT DRAIN
- MEDIUM PRESSURE NATURAL GAS
- NON-POTABLE WATER
- OVERFLOW STORM DRAIN
- SOIL
- STORM DRAIN
- SLUMP PUMP DISCHARGE
- VENT
- ▲ REPRESENT EQUIPMENT
- ▼ REPRESENT VALVES

1 LEVEL 1 - ARRIVALS WATER & GAS PART PLAN T55
 SCALE: 1/8" = 1'-0"

SHANE M. LUTZ

PLUMBING PLAN NOTES:
 P005 DO NOT ROUTE ANY PLUMBING PIPING OVERHEAD IN THE IDF OR IDF ROOMS. ALL SANITARY AND VENT PIPING ABOVE THIS AREA SHALL BE PROTECTED WITH DOUBLE CONTAINMENT AS PER SPECIFICATIONS.
 P136 3/4" CW UP TO ROOF HYDRANT.

NEW SINGLE TERMINAL AND SINGLE AT KCI

OWNER
 KANSAS CITY INTERNATIONAL AIRPORT
 601 Brasilia Avenue, Kansas City, MO 64153
 PROJECT NUMBER - 62180497

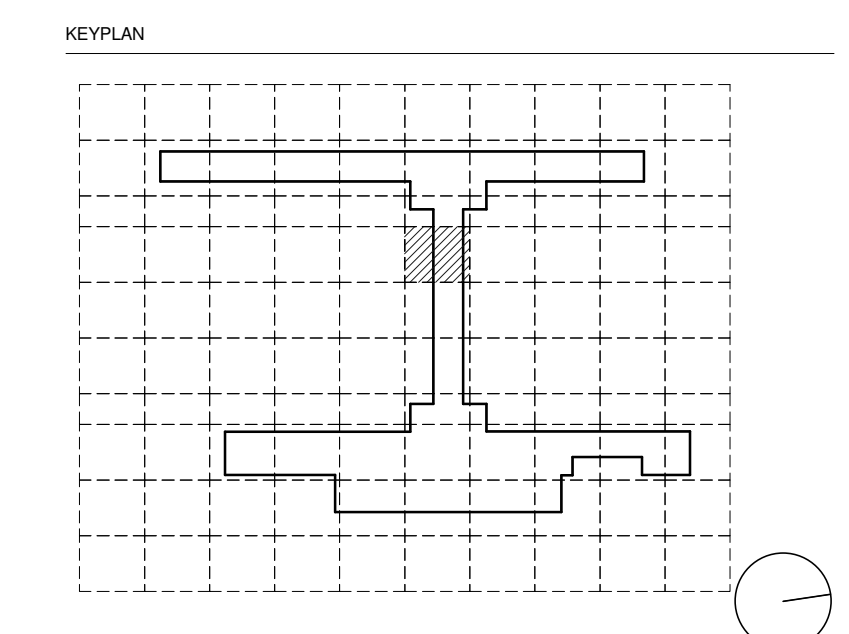
OWNER'S REPRESENTATIVE
 PMG Paslay Management Group
 533 Mexico City Avenue, Kansas City, MO 64153
 DEVELOPER

DESIGN-BUILDER
 EDGEMOOR
 INFRASTRUCTURE & REAL ESTATE
 533 Mexico City Avenue, Kansas City, MO 64153

ARCHITECT & STRUCTURAL ENGINEER
 SOM
 Skidmore, Owings & Merrill LLP
 14 Wall Street, New York, NY 10005

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- Vanderlande - Baggage Handling
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- Thornton Tomasetti - Protective Design
- SK Design Group - Glycol / Landside Utilities
- Trekk Design Group - Airside Storm Drainage
- Arora Engineers, Inc. - AIS / ICT
- ARUP - Aircraft Parking / Gate Eqp. / AIS / ICT / FA
- Taliaferro & Browne Inc. - Landside Civil
- Custom Eng. Inc. - Landside Utilities / Airside Utilities
- 3T Design & Development - Landside Utilities
- HC Consulting Group - Permitting
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- Dubois Consultants - Struc. Terminal
- Leigh & O'Kane - Roadway Structure
- Argus Consulting - Hydrant Fuel System
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- Lerch Bates - VHT Consultants
- Cityfi - Smart Technology
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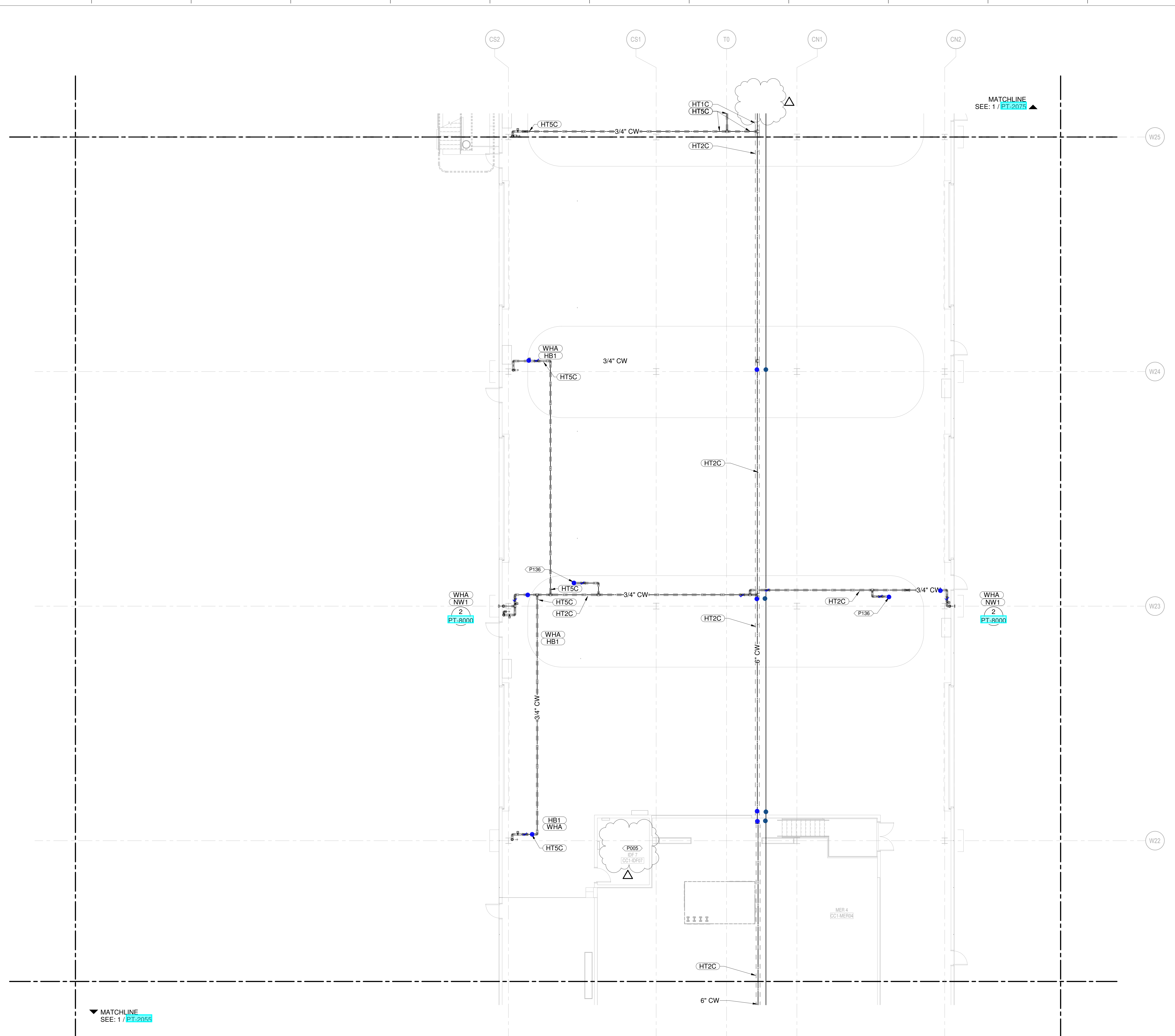
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SHANE M. LUTZ
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 MO. CORPORATE NO. E-5660
 EXPIRES 12/31/2020

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2	JULY 29, 2019	CD - PROGRESS PRINT
3	JUNE 26, 2019	PERMIT SET - UNDERGROUND
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5	MARCH 5, 2019	ISSUED FOR DESIGN DEVELOPMENT
6	JANUARY 23, 2019	DD PROGRESS
7	NOVEMBER 20, 2018	ISSUED FOR RFP, DD
8	AUGUST 11, 2018	ISSUED FOR SCHEMATIC DESIGN

DRAWING TITLE
LEVEL 1 - ARRIVALS WATER & GAS PART PLAN T65

DRAWING NUMBER
PT-2065



- CONDENSATE DRAIN
- CONDENSATE PUMP DISCHARGE
- DOMESTIC COLD WATER
- DOMESTIC HOT WATER
- DOMESTIC HOT WATER RECIRC.
- GREASE WASTE
- INDIRECT DRAIN
- MEDIUM PRESSURE NATURAL GAS
- NON-POTABLE WATER
- OVERFLOW STORM DRAIN
- SOIL
- STORM DRAIN
- SUMP PUMP DISCHARGE
- VENT
- ▲ REPRESENT EQUIPMENT
- ▼ REPRESENT VALVES

1 LEVEL 1 - ARRIVALS WATER & GAS PART PLAN T65
 SCALE: 1/8" = 1'-0"

SHANE M. LUTZ

PLUMBING PLAN NOTES
 P154 PROVIDE PIPE ALIGNMENT GUIDES.
 P155 PROVIDE PIPE ANCHORS.
 P216 3" MPG (2000 CFH MAX) FOR FUTURE TENANT CONNECTION.
 P258 DROP PIPING DOWN BELOW WING WALL TO COORDINATE WITH STORM SHELTER. REFER TO ARCHITECTURAL PLANS FOR ADDITIONAL STORM SHELTER REQUIREMENTS.

NEW SINGLE TERMINAL AND PARKING AT KCI

OWNER
 KANSAS CITY INTERNATIONAL AIRPORT
 601 Brasilia Avenue, Kansas City, MO 64153
 PROJECT NUMBER - 62180497

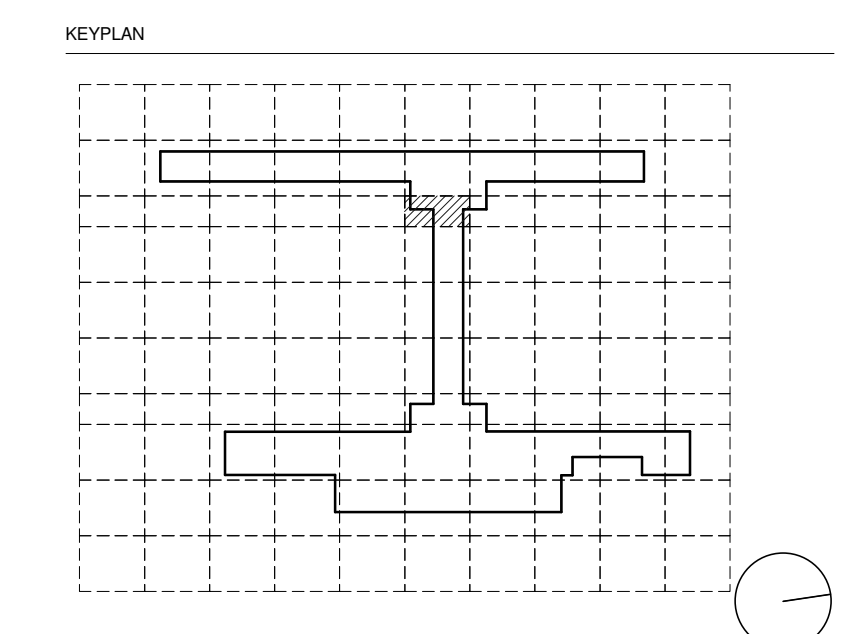
OWNER'S REPRESENTATIVE
 PMG Paslay Management Group
 533 Mexico City Avenue, Kansas City, MO 64153
 DEVELOPER

DESIGN-BUILDER
 CLARK WEITZ CLARKSON
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 CityVI - Smart Technology
 Priority Engineers - Traffic Engineering



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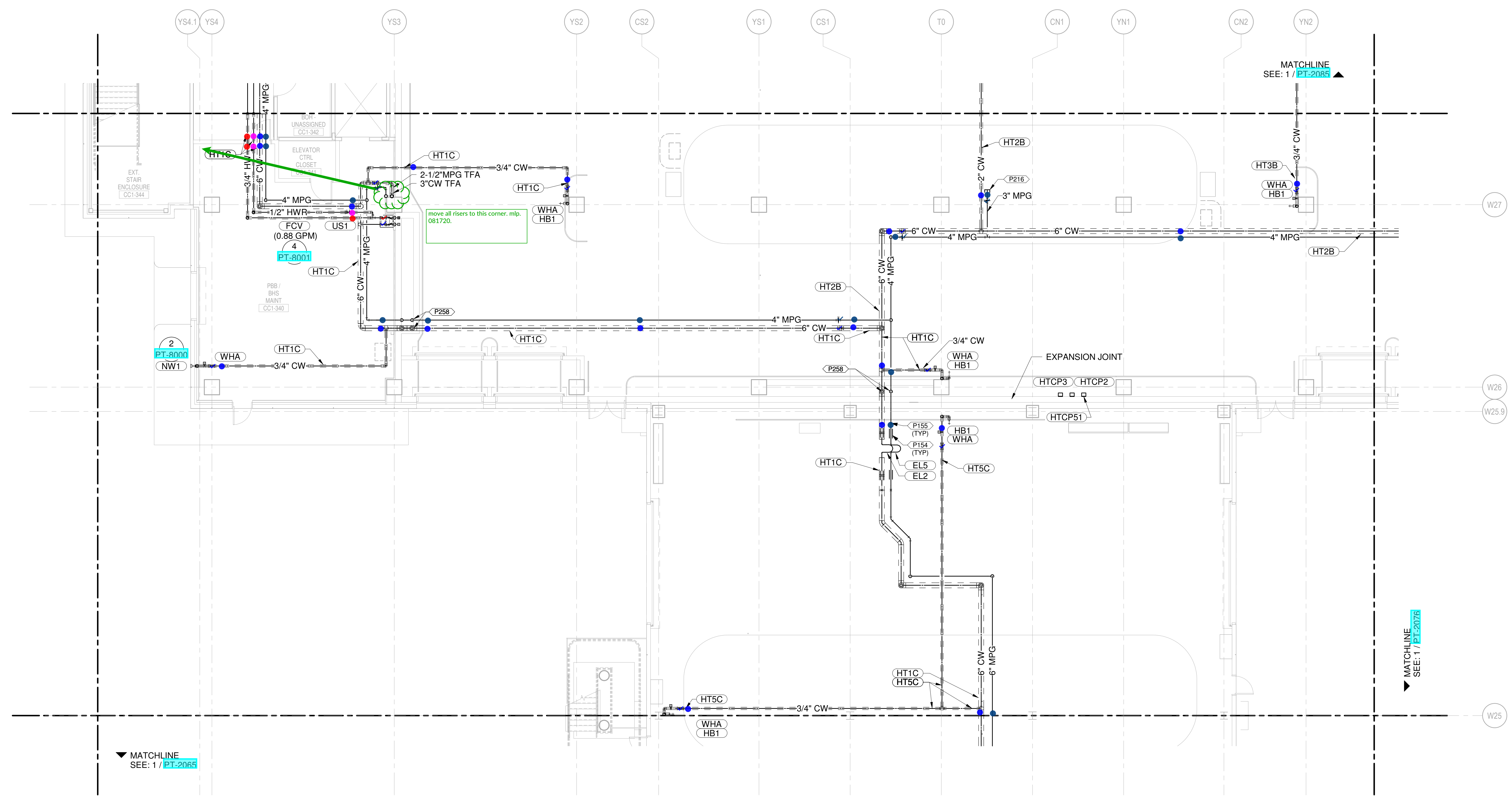
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6	JANUARY 23, 2019	DD - PROGRESS
7	NOVEMBER 20, 2019	ISSUED FOR RFP, DD
8	AUGUST 11, 2019	ISSUED FOR SCHEMATIC DESIGN

DRAWING NUMBER
PT-2075

DRAWING TITLE
LEVEL 1 - ARRIVALS WATER & GAS PART PLAN T75



- CONDENSATE DRAIN
- CONDENSATE PUMP DISCHARGE
- DOMESTIC COLD WATER
- DOMESTIC HOT WATER
- DOMESTIC HOT WATER RECIRC.
- GREASE WASTE
- INDIRECT DRAIN
- MEDIUM PRESSURE NATURAL GAS
- NON-POTABLE WATER
- OVERFLOW STORM DRAIN
- SOIL
- STORM DRAIN
- SUMP PUMP DISCHARGE
- VENT
- ▲ REPRESENT EQUIPMENT
- ▼ REPRESENT VALVES

1 LEVEL 1 - ARRIVALS WATER & GAS PART PLAN T75
 SCALE: 1/8" = 1'-0"

NEW SINGLE TERMINAL AND SINGLE AT KCI

OWNER
 KANSAS CITY INTERNATIONAL AIRPORT
 601 Brasilia Avenue, Kansas City, MO 64153
 PROJECT NUMBER - 62180497

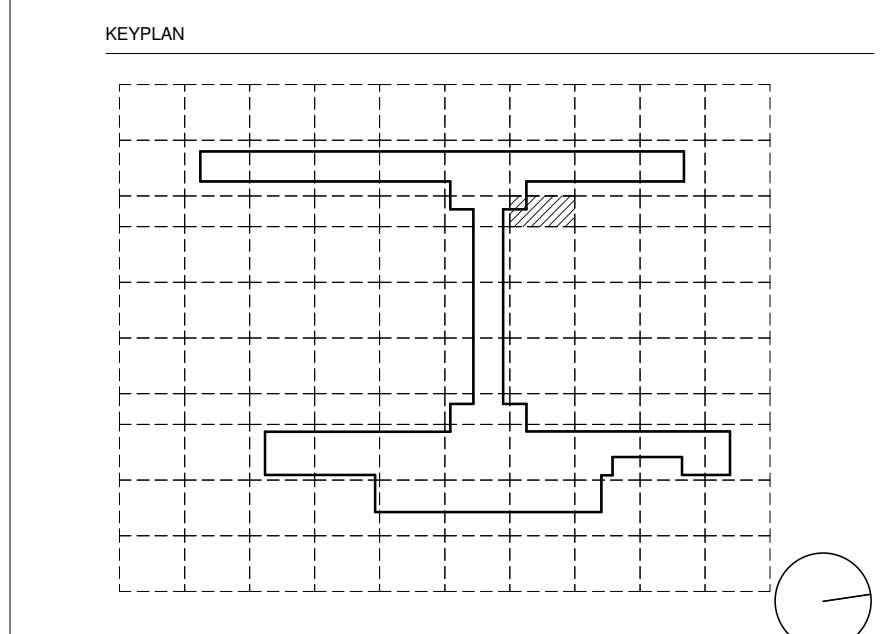
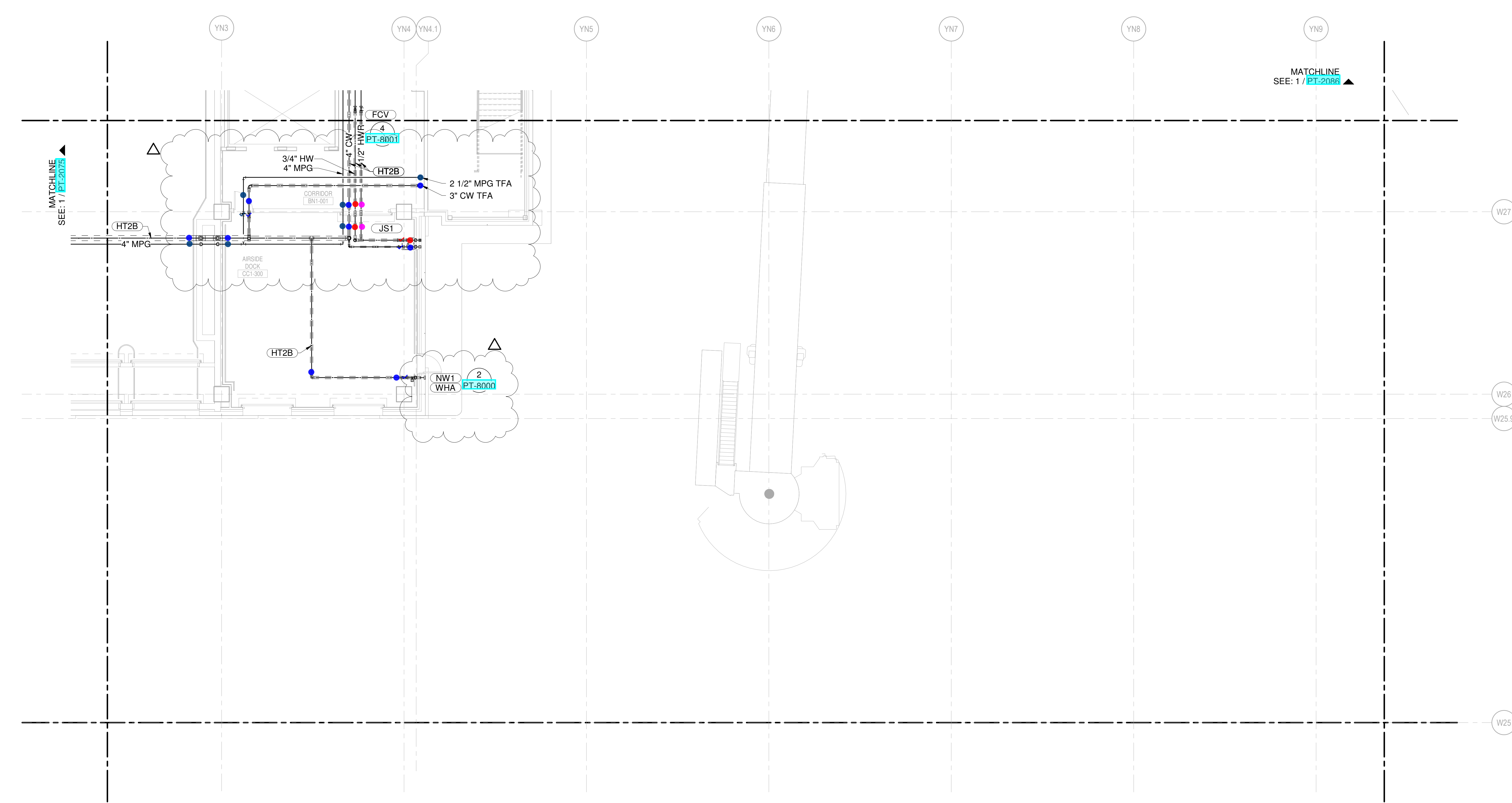
OWNER'S REPRESENTATIVE
PMG Paslay Management Group
 533 Mexico City Avenue, Kansas City, MO 64153
 DEVELOPER

DESIGN-BUILDER
CLARK **WEITZ** **CLARKSON**
 533 Mexico City Avenue, Kansas City, MO 64153

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- Transolutions - Terminal Planning
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- Priority Engineers - Traffic Engineering



SEAL

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 SHANE M. LUTZ
 LICENSE # PE-2003000011

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SHANE M. LUTZ
 LICENSE # PE-2003000011
 MO CORPORATE NO. E-5660
 EXPIRES 12/31/2020

NO.	DATE	DESCRIPTION
1	NOVEMBER 03, 2019	ISSUED FOR PERMITS
2	JANUARY 23, 2020	ISSUED FOR PERMITS DEVELOPMENT
3	MARCH 4, 2020	ISSUED FOR PERMITS DEVELOPMENT
4	JUNE 18, 2020	ISSUED FOR PERMITS DEVELOPMENT
5	JUNE 24, 2020	ISSUED FOR PERMITS DEVELOPMENT
6	AUGUST 27, 2020	ISSUED FOR FINAL DESIGN

DRAWING TITLE
LEVEL 1 - ARRIVALS WATER & GAS PART PLAN T76

DRAWING NUMBER
PT-2076

- CONDENSATE DRAIN
- CONDENSATE PUMP DISCHARGE
- DOMESTIC COLD WATER
- DOMESTIC HOT WATER
- DOMESTIC HOT WATER RECIRC.
- GREASE WASTE
- INDIRECT DRAIN
- MEDIUM PRESSURE NATURAL GAS
- NON-POTABLE WATER
- OVERFLOW STORM DRAIN
- SOIL
- STORM DRAIN
- SUMP PUMP DISCHARGE
- VENT
- ▲ REPRESENT EQUIPMENT
- ▼ REPRESENT VALVES

1 LEVEL 1 - ARRIVALS WATER & GAS PART PLAN T76
 SCALE: 1/8" = 1'-0"

PLUMBING PLAN NOTES:
 P000 COORDINATE PLUMBING PIPE ROUTING AWAY FROM ELECTRICAL PANELS. MAINTAIN CLEARANCES PER NEC.
 P004 ROUTE 1 1/4" COLD WATER LINE TO AIRCRAFT HOSE CABINET (BY OTHERS). COORDINATE FINAL LOCATION WITH AIRSIDE CONTRACTOR AS REQUIRED. CABINET TO INCLUDE INTEGRAL BACKFLOW PREVENTER. POTABLE WATER CABINET INSTALLER TO PROVIDE DRAIN CONNECTION TO FIBERGLASS DRAIN.
 P403 INSTALL HEAT TAPE ON COLD WATER PIPING INSTALLED ON THE UNDERSIDE OF THE BRIDGE SERVICE THE POTABLE WATER CABINET (PWC).

NEW SINGLE TERMINAL AND PARKING AT KCI

OWNER
 KANSAS CITY INTERNATIONAL AIRPORT
 601 Brasilia Avenue, Kansas City, MO 64153
 PROJECT NUMBER - 62180497

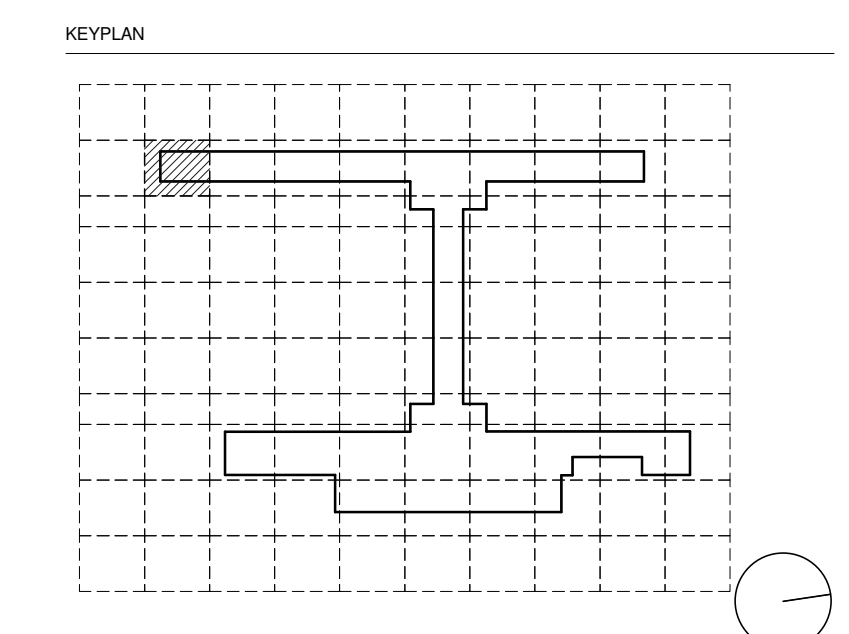
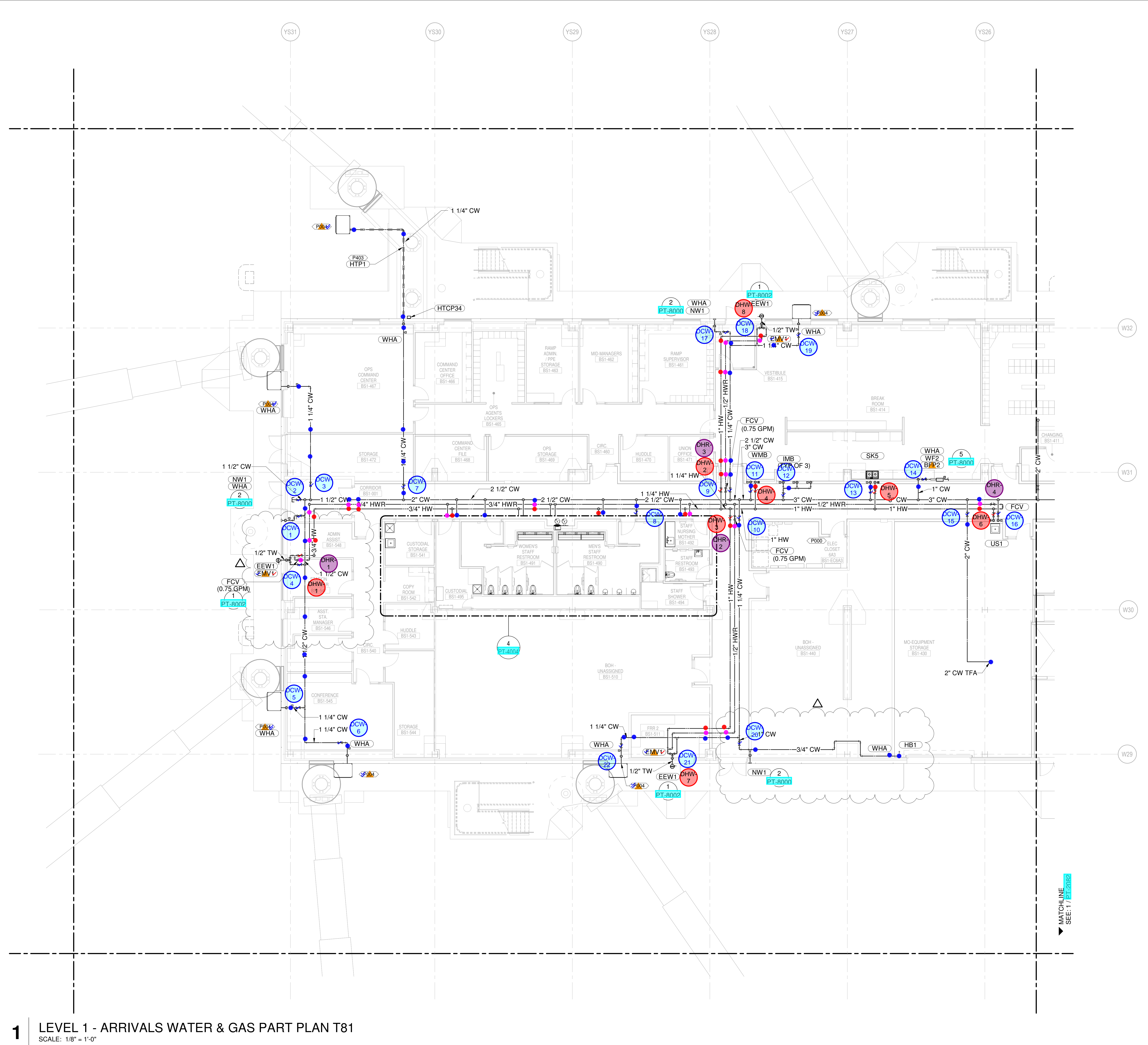
OWNER'S REPRESENTATIVE
 PMG Paslay Management Group
 533 Mexico City Avenue, Kansas City, MO 64153
 DEVELOPER

DESIGN-BUILDER
 EDGEMOOR
 INFRASTRUCTURE & REAL ESTATE
 533 Mexico City Avenue, Kansas City, MO 64153

ARCHITECT & STRUCTURAL ENGINEER
 CLARK WEITZ CLARKSON
 533 Mexico City Avenue, Kansas City, MO 64153

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

CONSULTANT TEAM
 Draw Architecture - Collaborating Architect
 Wallner Architects - Collaborating Architect
 HJM Architects Inc. - Collaborating Architect
 FSC Inc. - Fire Protection / Code / Life Safety
 Henderson - MEP / FA / PA / Sec Engineer of Record
 LAND3 Studio - Landscape Architect
 Garver - Airside Civil
 Entro - Signage / Wayfinding
 Olsson - Traffic Planning
 BNP - Baggage Handling
 Vanderveer - Baggage Handling
 Michele & Associates - ADA
 Thornton Tomasetti - Protective Design
 SK Design Group - Glycol / Landside Utilities
 Trekk Design Group - Airside Storm Drainage
 Arora Engineers, Inc. - AIS / ICT
 ARUP - Aircraft Parking / Gate Eq. / AIS / ICT / FA
 Tallafiero & Browne Inc. - Landside Civil
 Custom Eng. Inc. - Landside Utilities / Airside Utilities
 3T Design & Development - Landside Utilities
 HG Consulting Group - Permitting
 Lightworks - Lighting / Landside Lighting
 Dubois Consultants - Struc. Terminal
 Leigh & O'Kane - Roadway Structure
 Argus Consulting - Hydrant Fuel System
 Transolutions - Terminal Planning
 Premier Engineering - Demolition
 ICF - Concessions
 Lerch Bates - VHT Consultants
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2	JUNE 26, 2020	PRINT SET - UNDERGOING
3	JUNE 16, 2020	ISSUED FOR CD PROGRESS
4	MARCH 5, 2020	ISSUED FOR DESIGN DEVELOPMENT
5	JANUARY 29, 2020	CD PROGRESS
6	NOVEMBER 20, 2019	ISSUED FOR PERMITS
7	AUGUST 13, 2019	ISSUED FOR SCHEMATIC DESIGN
8	JUNE 13, 2019	80% SCHEMATIC DESIGN

DRAWING TITLE
LEVEL 1 - ARRIVALS WATER & GAS PART PLAN T81
 DRAWING NUMBER
PT-2081

- CONDENSATE DRAIN
- CONDENSATE PUMP DISCHARGE
- DOMESTIC COLD WATER
- DOMESTIC HOT WATER
- DOMESTIC HOT WATER RECIRC.
- GREASE WASTE
- INDIRECT DRAIN
- MEDIUM PRESSURE NATURAL GAS
- NON-POTABLE WATER
- OVERFLOW STORM DRAIN
- SOIL
- STORM DRAIN
- SLUMP PUMP DISCHARGE
- VENT
- ▲ REPRESENT EQUIPMENT
- ▼ REPRESENT VALVES

1 LEVEL 1 - ARRIVALS WATER & GAS PART PLAN T81
 SCALE: 1/8" = 1'-0"

PLUMBING PLAN NOTES:
 P000 COORDINATE PLUMBING PIPE ROUTING AWAY FROM ELECTRICAL PANELS. MAINTAIN CLEARANCES PER NEC.
 P004 ROUTE 1 1/4" COLD WATER LINE TO AIRCRAFT HOSE CABINET BY OTHERS. COORDINATE FINAL LOCATION WITH AIRSIDE CONTRACTOR AS REQUIRED. CABINET TO INCLUDE INTEGRAL BACKFLOW PREVENTER. POTABLE WATER CABINET INSTALLER TO PROVIDE DRAIN CONNECTION TO FIBERGLASS DRAIN.
 P154 PROVIDE PIPE ALIGNMENT GUIDES.
 P155 PROVIDE PIPE ANCHORS.

NEW SINGLE TERMINAL AND PARKING AT KCI

OWNER
 KANSAS CITY INTERNATIONAL AIRPORT
 601 Brasilia Avenue, Kansas City, MO 64153
 PROJECT NUMBER - 62180497

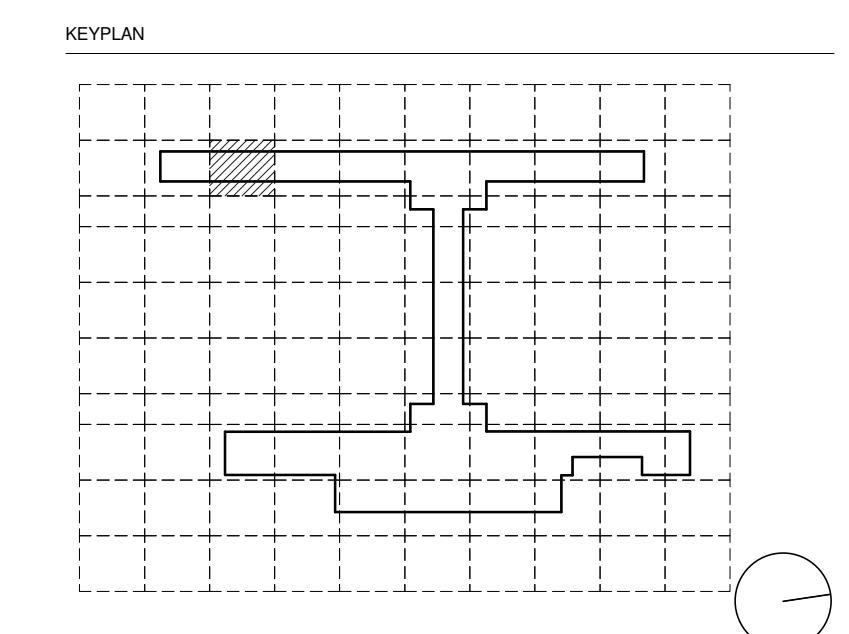
OWNER'S REPRESENTATIVE
PMG Paslay Management Group
 533 Mexico City Avenue, Kansas City, MO 64153
 DEVELOPER

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 Vanderlande - Baggage Handling
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 SK Design Group - Glycol / Landside Utilities
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 ARUP - Aircraft Parking / Gate Eqp. / AIS / ICT / FA
 Tallafiero & Browne Inc. - Landside Civil
 Custom Eng. Inc. - Landside Utilities / Airside Utilities
 3T Design & Development - Landside Utilities
 HG Consulting Group - Permitting
 Lightworks - Lighting / Landside Lighting
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5	MARCH 9, 2020	ISSUED FOR DESIGN DEVELOPMENT
6	JANUARY 29, 2020	CD PROGRESS
7	NOVEMBER 20, 2019	ISSUED FOR PERMITS
8	AUGUST 13, 2019	ISSUED FOR SCHEMATIC DESIGN
9	JUNE 13, 2019	80% SCHEMATIC DESIGN

DRAWING NUMBER
PT-2082

- CONDENSATE DRAIN
- CONDENSATE PUMP DISCHARGE
- DOMESTIC COLD WATER
- DOMESTIC HOT WATER
- DOMESTIC HOT WATER RECIRC.
- GREASE WASTE
- INDIRECT DRAIN
- MEDIUM PRESSURE NATURAL GAS
- NON-POTABLE WATER
- OVERFLOW STORM DRAIN
- SOIL
- STORM DRAIN
- SUMP PUMP DISCHARGE
- VENT
- REPRESENT EQUIPMENT
- REPRESENT VALVES



1 LEVEL 1 - ARRIVALS WATER & GAS PART PLAN T82
 SCALE: 1/8" = 1'-0"

SHANE M. LUTZ

PLUMBING PLAN NOTES:

P000 COORDINATE PLUMBING PIPE ROUTING AWAY FROM ELECTRICAL PANELS. MAINTAIN CLEARANCES PER NEC.

P004 ROUTE 1 1/4" COLD WATER LINE TO AIRCRAFT HOSE CABINET (BY OTHERS). COORDINATE FINAL LOCATION WITH AIRSIDE CONTRACTOR AS REQUIRED. CABINET TO INCLUDE INTEGRAL BACKFLOW PREVENTER. POTABLE WATER CABINET INSTALLER TO PROVIDE DRAIN CONNECTION TO PBPCA DRAIN.

P005 DO NOT ROUTE ANY PLUMBING PIPING OVERHEAD IN THE IDF OR MDF ROOMS. ALL SANITARY AND VENT PIPING ABOVE THIS AREA SHALL BE PROTECTED WITH DOUBLE CONTAINMENT AS PER SPECIFICATIONS.

P137 3/4" CW AND 3/4" HW EXTENDED, VALVED, AND CAPPED FOR FUTURE CONNECTION.

P154 PROVIDE PIPE ALIGNMENT GUIDES.

P155 PROVIDE PIPE ANCHORS.

NEW SINGLE TERMINAL AND SINGLE AT KCI

OWNER
KANSAS CITY INTERNATIONAL AIRPORT
 601 Brasilia Avenue, Kansas City, MO 64153
 PROJECT NUMBER - 62180497

OWNER'S REPRESENTATIVE
PMG Paslay Management Group
 533 Mexico City Avenue, Kansas City, MO 64153
 DEVELOPER

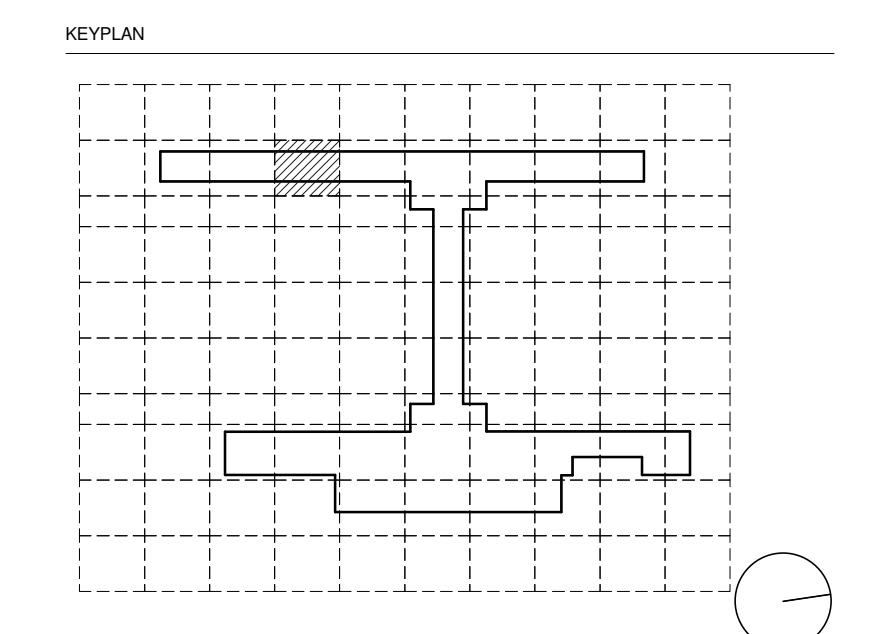
DESIGN-BUILDER
EDGE MOOR INFRASTRUCTURE & REAL ESTATE
 533 Mexico City Avenue, Kansas City, MO 64153

ARCHITECT & STRUCTURAL ENGINEER
CLARK WEITZ CLARKSON
 533 Mexico City Avenue, Kansas City, MO 64153

ARCHITECT & STRUCTURAL ENGINEER
SOM
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 14 Wall Street, New York, NY 10005

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- Olsson - Traffic Planning
- BNP - Baggage Handling
- Vanderlande - Baggage Handling
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- Thornton Tomasetti - Protective Design
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- Trekk Design Group - Airside Storm Drainage
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- ARUP - Aircraft Parking / Gate Eq. / AIS / ICT / FA
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9	JUNE 13, 2019	80% SCHEMATIC DESIGN

DRAWING TITLE
LEVEL 1 - ARRIVALS WATER & GAS PART PLAN T83

DRAWING NUMBER
PT-2083

1 LEVEL 1 - ARRIVALS WATER & GAS PART PLAN T83
 SCALE: 1/8" = 1'-0"

- CONDENSATE DRAIN
- CONDENSATE PUMP DISCHARGE
- DOMESTIC COLD WATER
- DOMESTIC HOT WATER
- DOMESTIC HOT WATER RECIRC.
- GREASE WASTE
- INDIRECT DRAIN
- MEDIUM PRESSURE NATURAL GAS
- NON-POTABLE WATER
- OVERFLOW STORM DRAIN
- SOIL
- STORM DRAIN
- SLUMP PUMP DISCHARGE
- VENT
- ▲ REPRESENT EQUIPMENT
- ▼ REPRESENT VALVES

PLUMBING PLAN NOTES:

P000 COORDINATE PLUMBING PIPE ROUTING AWAY FROM ELECTRICAL PANELS. MAINTAIN CLEARANCES PER NEC.

P004 ROUTE 1 1/4" COLD WATER LINE TO AIRCRAFT HOSE CABINET (BY OTHERS). COORDINATE FINAL LOCATION WITH AIRSIDE CONTRACTOR AS REQUIRED. CABINET TO INCLUDE INTEGRAL BACKFLOW PREVENTER. POTABLE WATER CABINET INSTALLER TO PROVIDE DRAIN CONNECTION TO PBP/CA DRAIN.

P005 DO NOT ROUTE ANY PLUMBING PIPING OVERHEAD IN THE IDF OR MDF ROOMS. ALL SANITARY AND VENT PIPING ABOVE THIS AREA SHALL BE PROTECTED WITH DOUBLE CONTAINMENT AS PER SPECIFICATIONS.

P243 PROVIDE ROUGH IN FOR FUTURE SWS.

P281 MOUNT BACKFLOW PREVENTER FOR CHEMICAL STATION, ON WALL, AT 60" ABOVE FINISH FLOOR. CAP 1/2" OUTLET PIPE FOR FUTURE CONNECTION. COORDINATE LOCATION WITH MOP SINK FAUCET, CHEMICAL STATION AND WATER HEATER (IF INSTALLED ABOVE JANITOR SINK).

NEW SINGLE TERMINAL AND PARKING AT KCI

OWNER
KANSAS CITY INTERNATIONAL AIRPORT
 601 Brasilia Avenue, Kansas City, MO 64153
 PROJECT NUMBER - 62180497

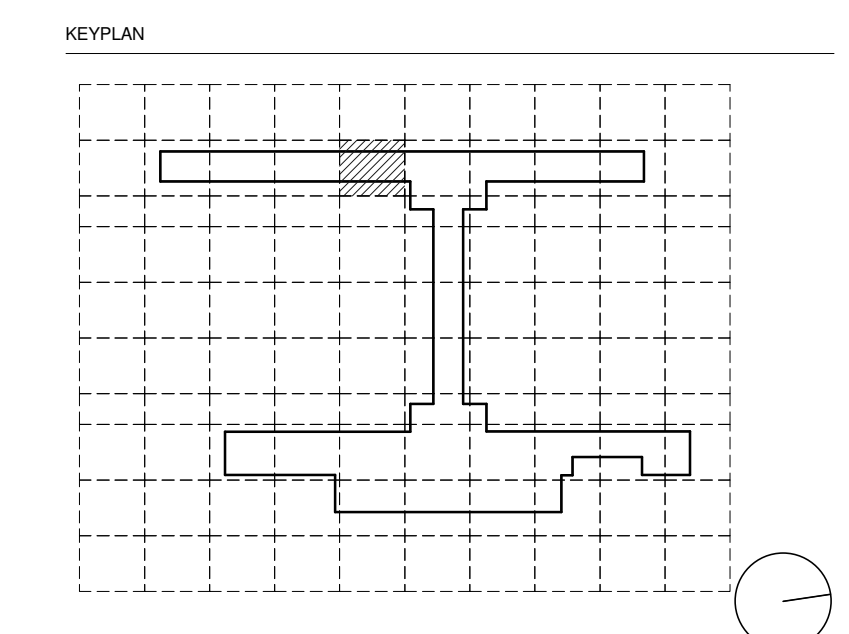
OWNER'S REPRESENTATIVE
PMG Paslay Management Group
 533 Mexico City Avenue, Kansas City, MO 64153
 DEVELOPER

DESIGN-BUILDER
CLARK WEITZ CLARKSON
 533 Mexico City Avenue, Kansas City, MO 64153

ARCHITECT & STRUCTURAL ENGINEER
SOM
 Skidmore, Owings & Merrill LLP
 14 Wall Street, New York, NY 10005

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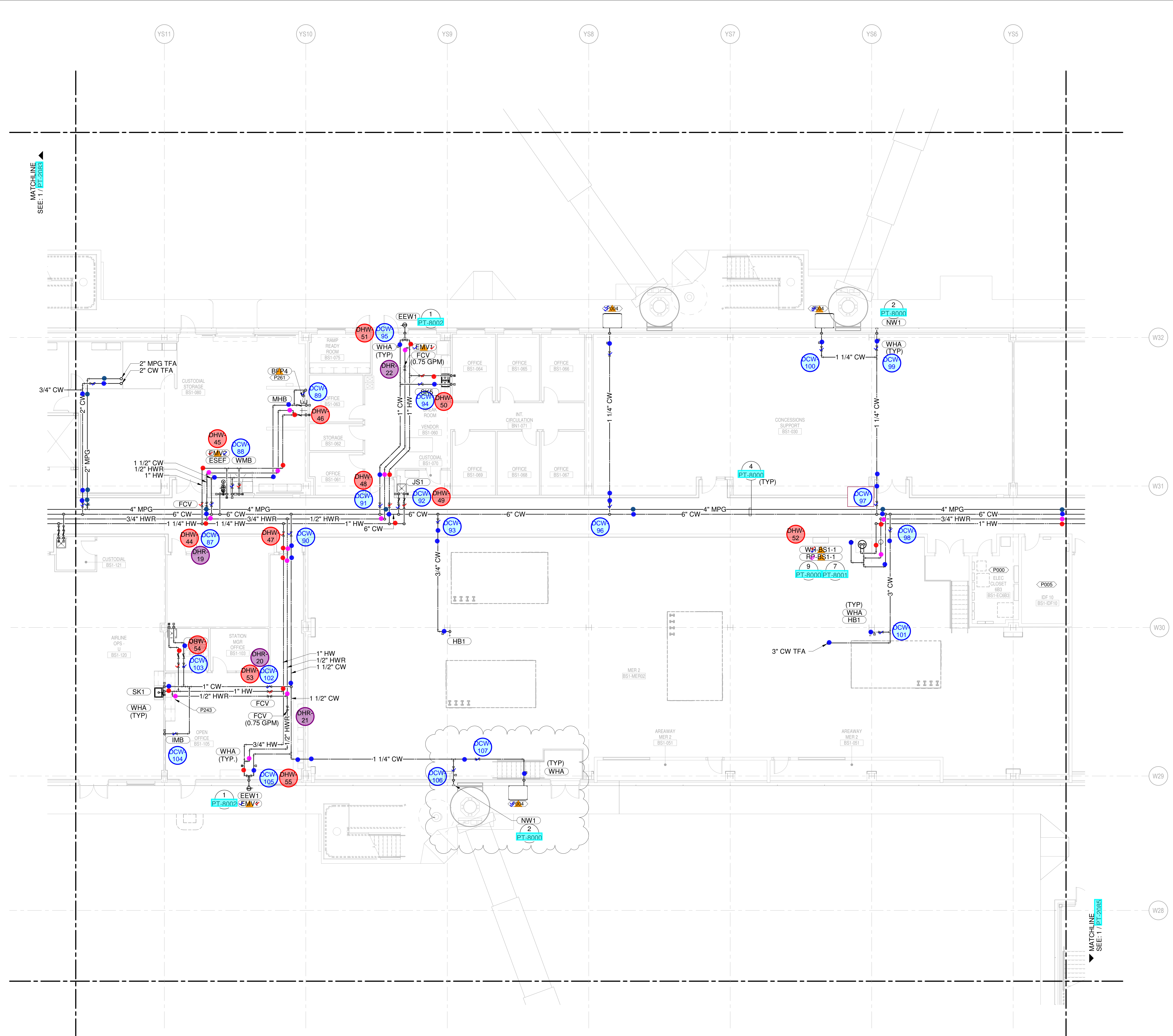
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7	NOVEMBER 20, 2019	ISSUED FOR PHS CD
8	AUGUST 13, 2019	ISSUED FOR SCHEMATIC DESIGN
9	JUNE 13, 2019	80% SCHEMATIC DESIGN

DRAWING TITLE
LEVEL 1 - ARRIVALS WATER & GAS PART PLAN T84

DRAWING NUMBER
PT-2084

- CONDENSATE DRAIN
- CONDENSATE PUMP DISCHARGE
- DOMESTIC COLD WATER
- DOMESTIC HOT WATER
- DOMESTIC HOT WATER RECIRC.
- GREASE WASTE
- INDIRECT DRAIN
- MEDIUM PRESSURE NATURAL GAS
- NON-POTABLE WATER
- OVERFLOW STORM DRAIN
- SOIL
- STORM DRAIN
- SLUMP PUMP DISCHARGE
- VENT
- ▲ REPRESENT EQUIPMENT
- ▼ REPRESENT VALVES



1 LEVEL 1 - ARRIVALS WATER & GAS PART PLAN T84
 SCALE: 1/8" = 1'-0"

PLUMBING PLAN NOTES:

P000 COORDINATE PLUMBING PIPE ROUTING AWAY FROM ELECTRICAL PANELS. MAINTAIN CLEARANCES PER NEC.

P004 ROUTE 1 1/4" COLD WATER LINE TO AIRCRAFT HOSE CABINET (BY OTHERS). COORDINATE FINAL LOCATION WITH AIRSIDE CONTRACTOR AS REQUIRED. CABINET TO INCLUDE INTEGRAL BACKFLOW PREVENTER. POTABLE WATER CABINET INSTALLER TO PROVIDE DRAIN CONNECTION TO PBIP/CA DRAIN.

P005 DO NOT ROUTE ANY PLUMBING PIPING OVERHEAD IN THE IDF OR MDF ROOMS. ALL SANITARY AND VENT PIPING ABOVE THIS AREA SHALL BE PROTECTED WITH DOUBLE CONTAINMENT AS PER SPECIFICATIONS.

P146 1 1/2" CW (20 SFU MAX) CAPPED FOR FUTURE CONNECTION.

P154 PROVIDE PIPE ALIGNMENT GUIDES.

P155 PROVIDE PIPE ANCHORS.

P235 1-1/2" CW (30 FU) CAPPED FOR FUTURE KIOSK CONNECTION.

P236 1-1/2" MPG (1000 CFH MAX) FOR FUTURE TENANT CONNECTION.

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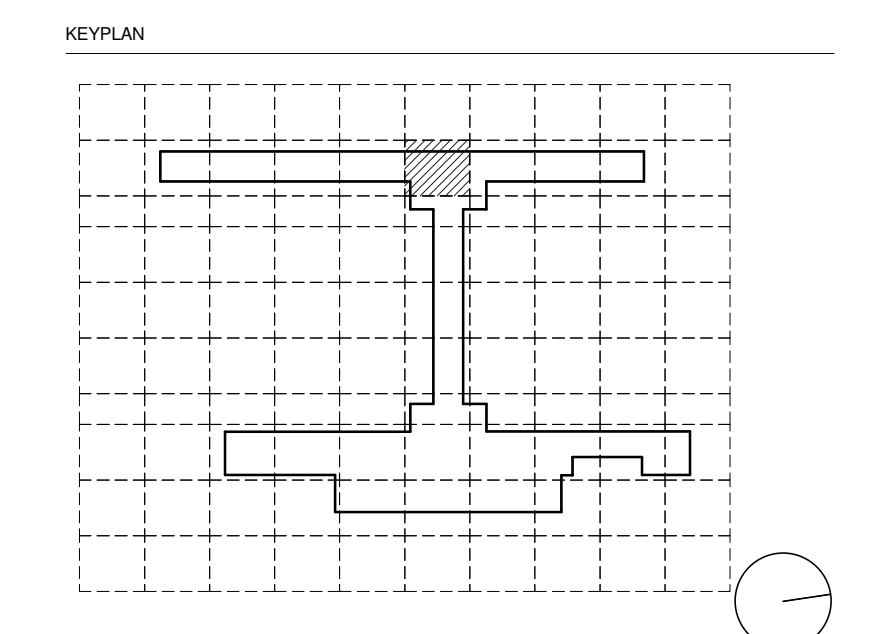
OWNER'S REPRESENTATIVE
PMG Paslay Management Group
 533 Mexico City Avenue, Kansas City, MO 64153
 DEVELOPER

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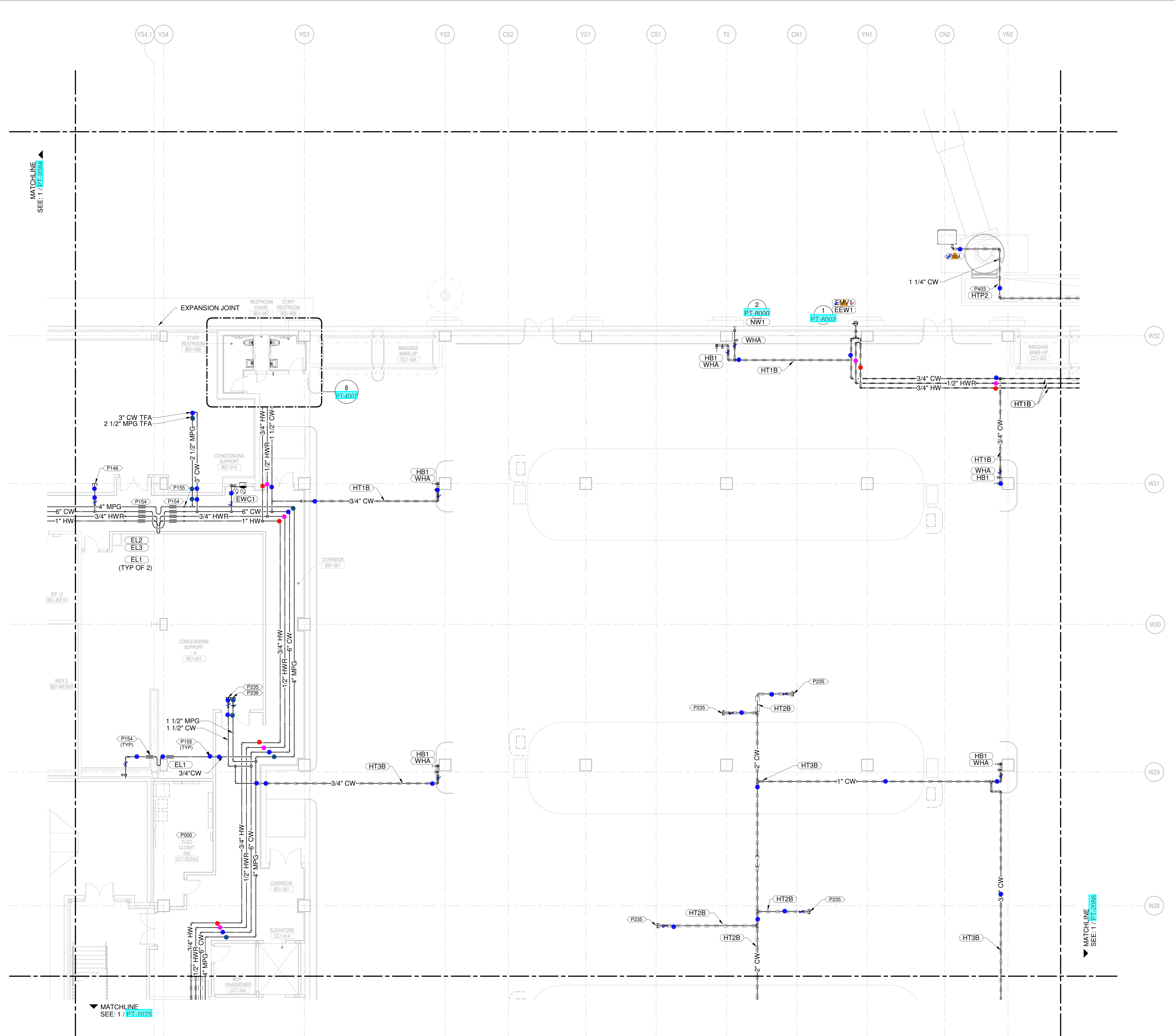
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9	JUNE 13, 2019	80% SCHEMATIC DESIGN

DRAWING TITLE
LEVEL 1 - ARRIVALS WATER & GAS PART PLAN T85

DRAWING NUMBER
PT-2085



- CONDENSATE DRAIN
- CONDENSATE PUMP DISCHARGE
- DOMESTIC COLD WATER
- DOMESTIC HOT WATER
- DOMESTIC HOT WATER RECIRC.
- GREASE WASTE
- INDIRECT DRAIN
- MEDIUM PRESSURE NATURAL GAS
- NON-POTABLE WATER
- OVERFLOW STORM DRAIN
- SOIL
- STORM DRAIN
- SUMP PUMP DISCHARGE
- VENT
- ▲ REPRESENT EQUIPMENT
- ▼ REPRESENT VALVES

1 LEVEL 1 - ARRIVALS WATER & GAS PART PLAN T85
 SCALE: 1/8" = 1'-0"

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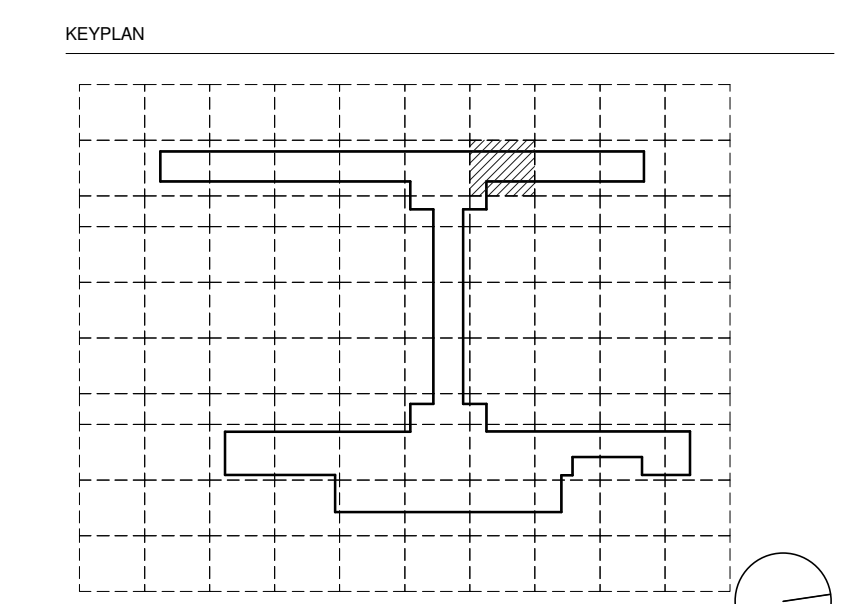
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Trekk Design Group - Airside Storm Drainage
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ARUP - Aircraft Parking / Gate Eq. / AIS / ICT / FA
Taliaferro & Browne Inc. - Landside Civil
Custom Eng. Inc. - Landside Utilities / Airside Utilities
3T Design & Development - Landside Utilities
HC Consulting Group - Permitting
Lightworks - Lighting / Landside Lighting
Dubois Consultants - Struc. Terminal
Leigh & O'Kane - Roadway Structure
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 MO CORPORATE NO. E-5660
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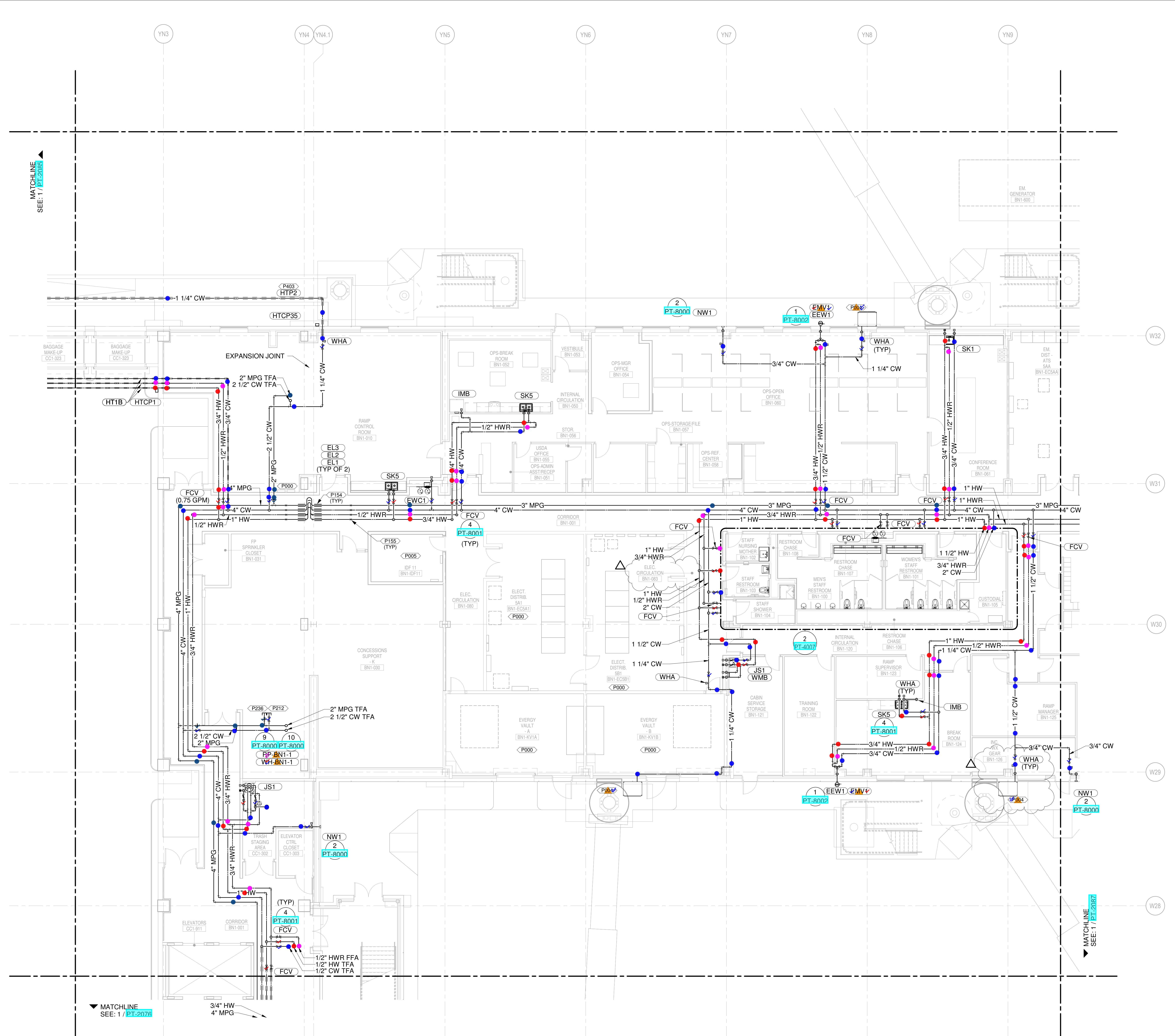
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1	AUGUST 27, 2020	ISSUED FOR FINAL DESIGN
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5	MARCH 5, 2020	ISSUED FOR DESIGN DEVELOPMENT
6	JANUARY 23, 2020	CD PROGRESS
7	NOVEMBER 20, 2019	ISSUED FOR PERMITS
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9	JUNE 13, 2019	ISSUED FOR SCHEMATIC DESIGN

DRAWING TITLE
LEVEL 1 - ARRIVALS WATER & GAS PART PLAN T86

DRAWING NUMBER
PT-2086

PLUMBING PLAN NOTES
 P000 COORDINATE PLUMBING PIPE ROUTING AWAY FROM ELECTRICAL PANELS. MAINTAIN CLEARANCES PER NEC.
 P004 ROUTE 1 1/4" COLD WATER LINE TO AIRCRAFT HOSE CABINET BY OTHERS. COORDINATE FINAL LOCATION WITH AIRSIDE CONTRACTOR AS REQUIRED. CABINET TO INCLUDE INTEGRAL BACKFLOW PREVENTER. POTABLE WATER CABINET INSTALLER TO PROVIDE DRAIN CONNECTION TO PBP/CA DRAIN.
 P005 DO NOT ROUTE ANY PLUMBING PIPING OVERHEAD IN THE IDF OR MDF ROOMS. ALL SANITARY AND VENT PIPING ABOVE THIS AREA SHALL BE PROTECTED WITH DOUBLE CONTAINMENT AS PER SPECIFICATIONS.
 P154 PROVIDE PIPE ALIGNMENT GUIDES.
 P155 PROVIDE PIPE ANCHORS.
 P212 2" CW (30 FU MAX) CAPPED FOR FUTURE TENANT CONNECTION.
 P236 1-1/2" MPG (1000 CFH MAX) FOR FUTURE TENANT CONNECTION.

- CONDENSATE DRAIN
- CONDENSATE PUMP DISCHARGE
- DOMESTIC COLD WATER
- DOMESTIC HOT WATER
- DOMESTIC HOT WATER RECIRC.
- GREASE WASTE
- INDIRECT DRAIN
- MEDIUM PRESSURE NATURAL GAS
- NON-POTABLE WATER
- OVERFLOW STORM DRAIN
- SOIL
- STORM DRAIN
- SLUMP PUMP DISCHARGE
- VENT
- ▲ REPRESENT EQUIPMENT
- ▼ REPRESENT VALVES



1 LEVEL 1 - ARRIVALS WATER & GAS PART PLAN T86
 SCALE: 1/8" = 1'-0"

9/18/2022 4:02:30 AM

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PLUMBING PLAN NOTES:

P000 COORDINATE PLUMBING PIPE ROUTING AWAY FROM ELECTRICAL PANELS. MAINTAIN CLEARANCES PER NEC.

P004 ROUTE 1 1/4" COLD WATER LINE TO AIRCRAFT HOSE CABINET BY OTHERS. COORDINATE FINAL LOCATION WITH AIRSIDE CONTRACTOR AS REQUIRED. CABINET TO INCLUDE INTEGRAL BACKFLOW PREVENTER. POTABLE WATER CABINET INSTALLER TO PROVIDE DRAIN CONNECTION TO FB/PCA DRAIN.

P154 PROVIDE PIPE ALIGNMENT GUIDES.

P155 PROVIDE PIPE ANCHORS.

P230 1" CW (12 SFU MAX) FOR FUTURE TENANT CONNECTION.

P261 MOUNT BACKFLOW PREVENTER FOR CHEMICAL STATION ON WALL AT 8' ABOVE FINISH FLOOR. CAP 1/2" OUTLET PIPE FOR FUTURE CONNECTION. COORDINATE LOCATION WITH MOP SINK FAUCET, CHEMICAL STATION AND WATER HEATER (IF INSTALLED ABOVE JANITOR SINK).

NEW SINGLE TERMINAL AND PARKING AT KCI

OWNER
KANSAS CITY INTERNATIONAL AIRPORT
 601 Brasilia Avenue, Kansas City, MO 64153
 PROJECT NUMBER - 62180497

OWNER'S REPRESENTATIVE
PMG Paslay Management Group
 533 Mexico City Avenue, Kansas City, MO 64153
 DEVELOPER

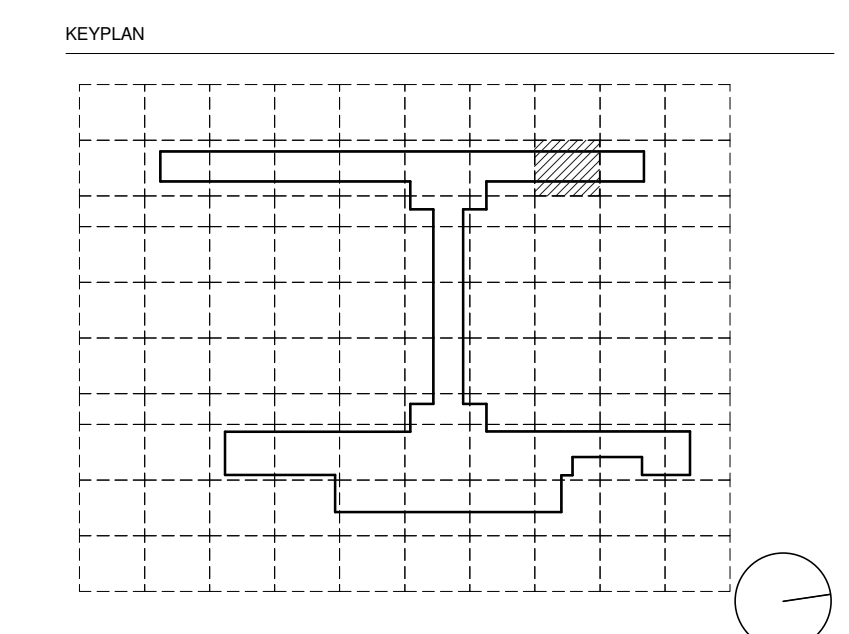
DESIGN-BUILDER
EDGEMOOR
 INFRASTRUCTURE & REAL ESTATE
 533 Mexico City Avenue, Kansas City, MO 64153

ARCHITECT & STRUCTURAL ENGINEER
CLARK WEITZ CLARKSON
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 14 Wall Street, New York, NY 10005

CONSULTANT TEAM

- Draw Architecture - Collaborating Architect
- Wellner Architects - Collaborating Architect
- HJM Architects Inc. - Collaborating Architect
- FSC Inc. - Fire Protection / Code / Life Safety
- Henderson - MEP / FA / PA / Sec Engineer of Record
- LAND3 Studio - Landscape Architect
- Garver - Airside Civil
- Entro - Signage / Wayfinding
- Olsson - Traffic Planning
- BNP - Baggage Handling
- Vanderlande - Baggage Handling
- Michele & Associates - ADA
- Thornton Tomasetti - Protective Design
- SK Design Group - Glycol / Landside Utilities
- Trekk Design Group - Airside Storm Drainage
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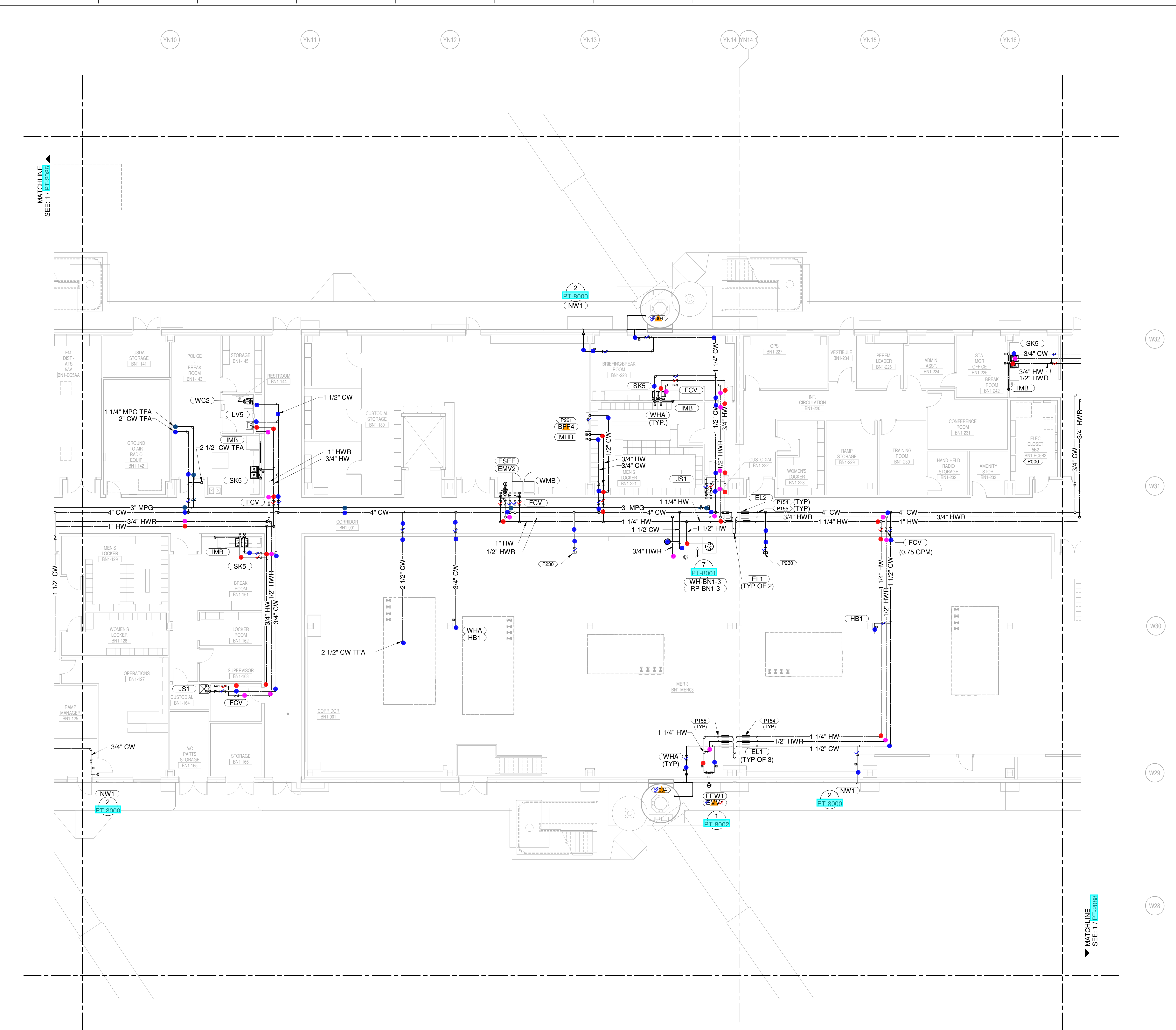
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6	JANUARY 29, 2020	CD PROGRESS
7	NOVEMBER 20, 2019	ISSUED FOR PHS CD
8	AUGUST 13, 2019	ISSUED FOR SCHEMATIC DESIGN
9	JUNE 13, 2019	ISSUED FOR SCHEMATIC DESIGN

DRAWING TITLE
LEVEL 1 - ARRIVALS WATER & GAS PART PLAN T87

DRAWING NUMBER
PT-2087

- CONDENSATE DRAIN
- CONDENSATE PUMP DISCHARGE
- DOMESTIC COLD WATER
- DOMESTIC HOT WATER
- DOMESTIC HOT WATER RECIRC.
- GREASE WASTE
- INDIRECT DRAIN
- MEDIUM PRESSURE NATURAL GAS
- NON-POTABLE WATER
- OVERFLOW STORM DRAIN
- SOIL
- STORM DRAIN
- SLUMP PUMP DISCHARGE
- VENT
- ▲ REPRESENT EQUIPMENT
- ▼ REPRESENT VALVES



1 LEVEL 1 - ARRIVALS WATER & GAS PART PLAN T87
 SCALE: 1/8" = 1'-0"

PLUMBING PLAN NOTES:
 P004 ROUTE 1 1/4" COLD WATER LINE TO AIRCRAFT HOSE CABINET (BY OTHERS). COORDINATE FINAL LOCATION WITH AIRSIDE CONTRACTOR AS REQUIRED. CABINET TO INCLUDE INTEGRAL BACKFLOW PREVENTER. POTABLE WATER CABINET INSTALLER TO PROVIDE DRAIN CONNECTION TO PERPCA DRAIN.
 P403 INSTALL HEAT TAPE ON COLD WATER PIPING INSTALLED ON THE UNDERSIDE OF THE BRIDGE SERVICE THE POTABLE WATER CABINET (PWC).

NEW SINGLE TERMINAL AND PARKING AT KCI

OWNER
 KANSAS CITY INTERNATIONAL AIRPORT
 601 Brasilia Avenue, Kansas City, MO 64153
 PROJECT NUMBER - 62180497

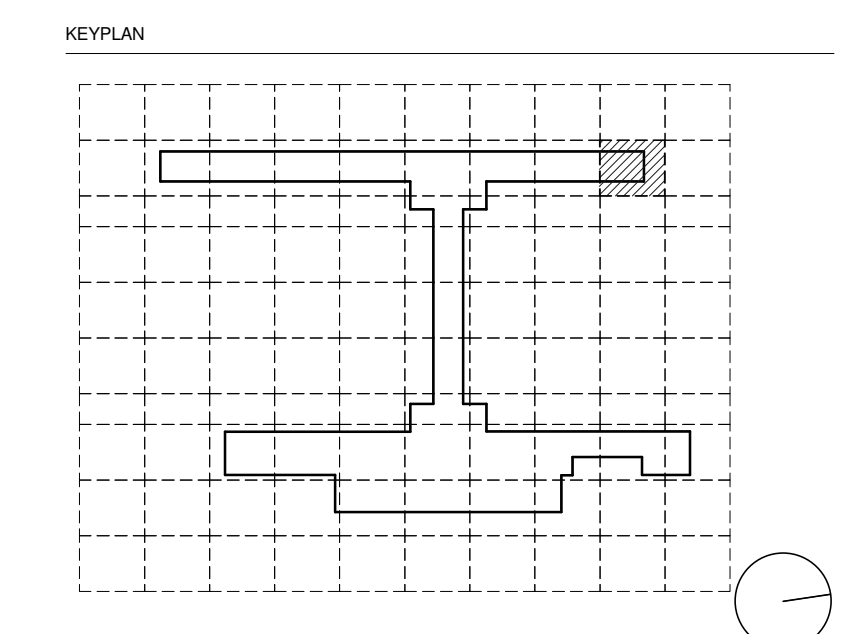
DEVELOPER
PMG Paslay Management Group
 533 Mexico City Avenue, Kansas City, MO 64153

DESIGN-BUILDER
EDGEMOOR
 INFRASTRUCTURE & REAL ESTATE
 533 Mexico City Avenue, Kansas City, MO 64153

ARCHITECT & STRUCTURAL ENGINEER
CLARK WEITZ CLARKSON
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ARCHITECT & STRUCTURAL ENGINEER
SOM
 Skidmore, Owings & Merrill LLP
 14 Wall Street, New York, NY 10005

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 HJM Architects Inc. - Collaborating Architect
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 Vanderlande - Baggage Handling
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 Transolutions - Terminal Planning
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 ICF - Concessions
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5	JANUARY 29, 2020	CD PROGRESS
6	NOVEMBER 20, 2019	ISSUED FOR PERMITS
7	AUGUST 13, 2019	ISSUED FOR SCHEMATIC DESIGN
8	JUNE 13, 2019	80% SCHEMATIC DESIGN

DRAWING TITLE
LEVEL 1 - ARRIVALS WATER & GAS PART PLAN T88

DRAWING NUMBER
PT-2088

- CONDENSATE DRAIN
- CONDENSATE PUMP DISCHARGE
- DOMESTIC COLD WATER
- DOMESTIC HOT WATER
- DOMESTIC HOT WATER RECIRC.
- GREASE WASTE
- INDIRECT DRAIN
- MEDIUM PRESSURE NATURAL GAS
- NON-POTABLE WATER
- OVERFLOW STORM DRAIN
- SOIL
- STORM DRAIN
- SLUMP PUMP DISCHARGE
- VENT
- ▲ REPRESENT EQUIPMENT
- ▼ REPRESENT VALVES



1 LEVEL 1 - ARRIVALS WATER & GAS PART PLAN T88
 SCALE: 1/8" = 1'-0"

PLUMBING PLAN NOTES:
 P000 COORDINATE PLUMBING PIPE ROUTING
 AWAY FROM ELECTRICAL PANELS.
 MAINTAIN CLEARANCES PER NEC.

NEW SINGLE TERMINAL AND GROUND AT KCI

OWNER
 KANSAS CITY INTERNATIONAL AIRPORT
 601 Brasilia Avenue, Kansas City, MO 64153
 PROJECT NUMBER - 62180497

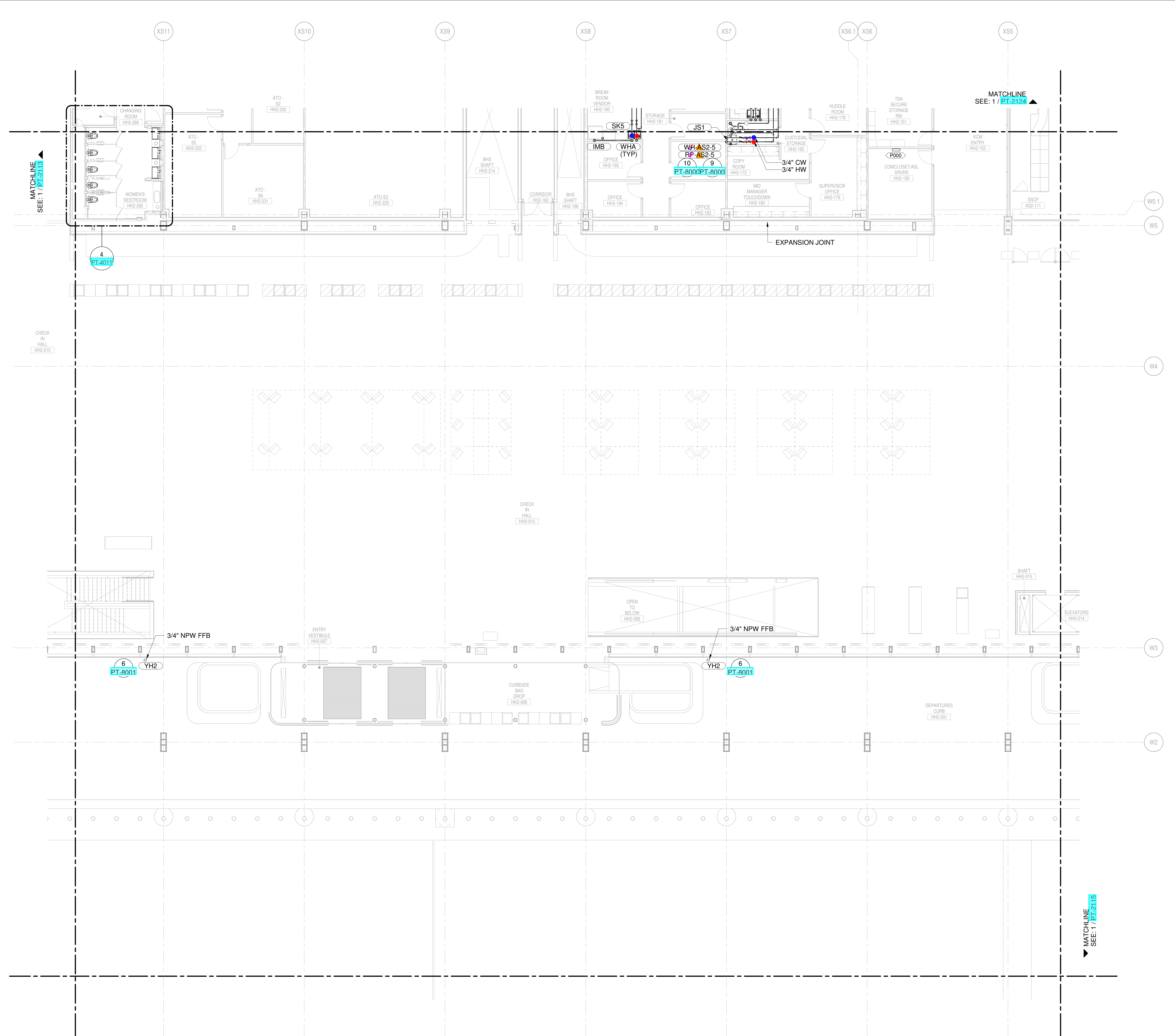
OWNER'S REPRESENTATIVE
 PMG Paslay Management Group
 533 Mexico City Avenue, Kansas City, MO 64153
 DEVELOPER

DESIGN-BUILDER
 CLARK WEITZ CLARKSON
 533 Mexico City Avenue, Kansas City, MO 64153

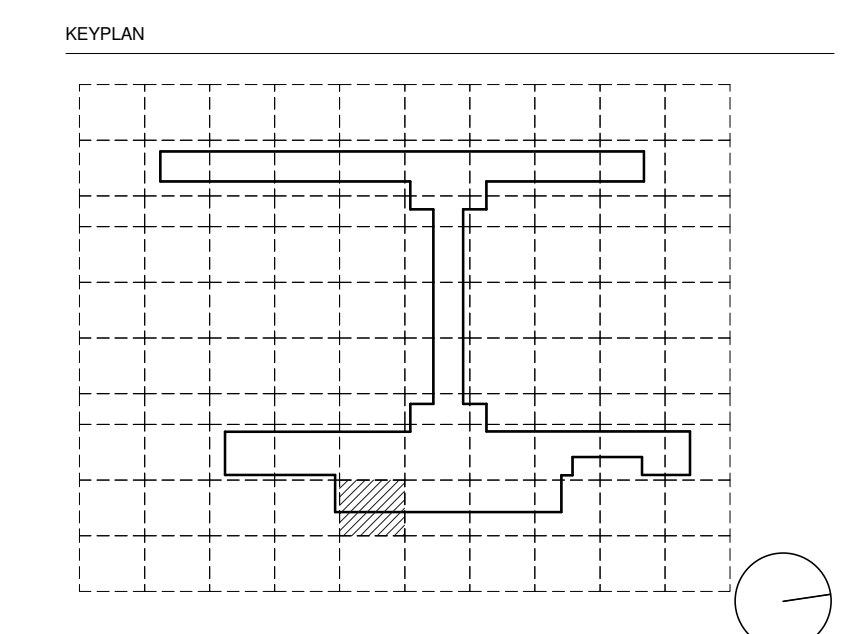
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 14 Wall Street, New York, NY 10005

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- Cityfi - Smart Technology
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- CONDENSATE DRAIN
- CONDENSATE PUMP DISCHARGE
- DOMESTIC COLD WATER
- DOMESTIC HOT WATER
- DOMESTIC HOT WATER RECIRC.
- GREASE WASTE
- INDIRECT DRAIN
- MEDIUM PRESSURE NATURAL GAS
- NON-POTABLE WATER
- OVERFLOW STORM DRAIN
- SOIL
- STORM DRAIN
- SUMP PUMP DISCHARGE
- VENT
- REPRESENT EQUIPMENT
- REPRESENT VALVES



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5	JANUARY 21, 2020	GCP PROGRESS
6	NOVEMBER 20, 2019	ISSUED FOR GCP, G.D.

DRAWING TITLE
LEVEL 2 - DEPARTURES WATER & GAS PART PLAN T14

DRAWING NUMBER
PT-2114

1 LEVEL 2 - DEPARTURES WATER & GAS PART PLAN T14
 SCALE: 1/8" = 1'-0"

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OWNER
KANSAS CITY INTERNATIONAL AIRPORT
601 Brasilia Avenue, Kansas City, MO 64153
PROJECT NUMBER - 62180497

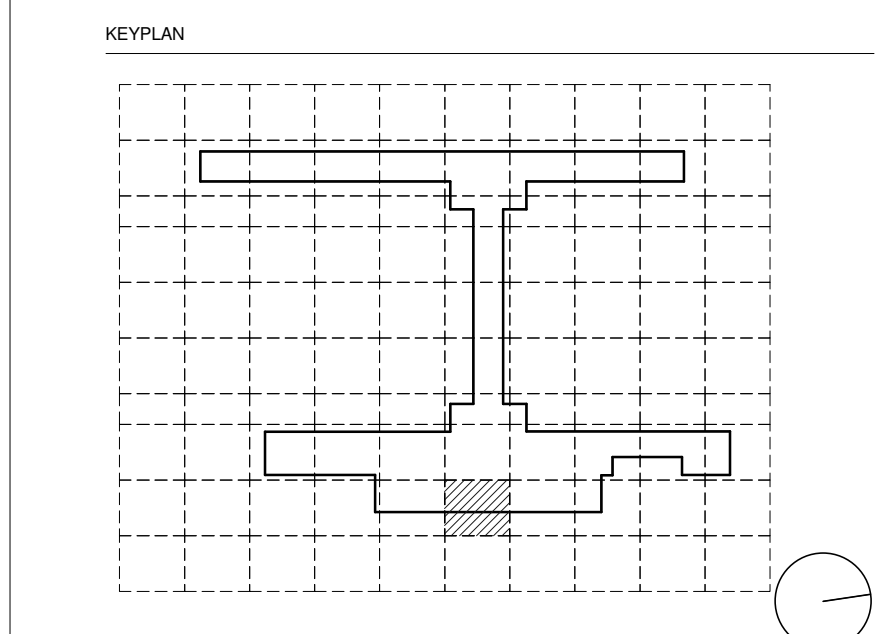
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533 Mexico City Avenue, Kansas City, MO 64153
DEVELOPER

DESIGN-BUILDER
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533 Mexico City Avenue, Kansas City, MO 64153

ARCHITECT & STRUCTURAL ENGINEER
CLARK **WEITZ** **CLARKSON**
533 Mexico City Avenue, Kansas City, MO 64153

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14 Wall Street, New York, NY 10005
CONSULTANT TEAM

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Cityfi - Smart Technology
Priority Engineers - Traffic Engineering

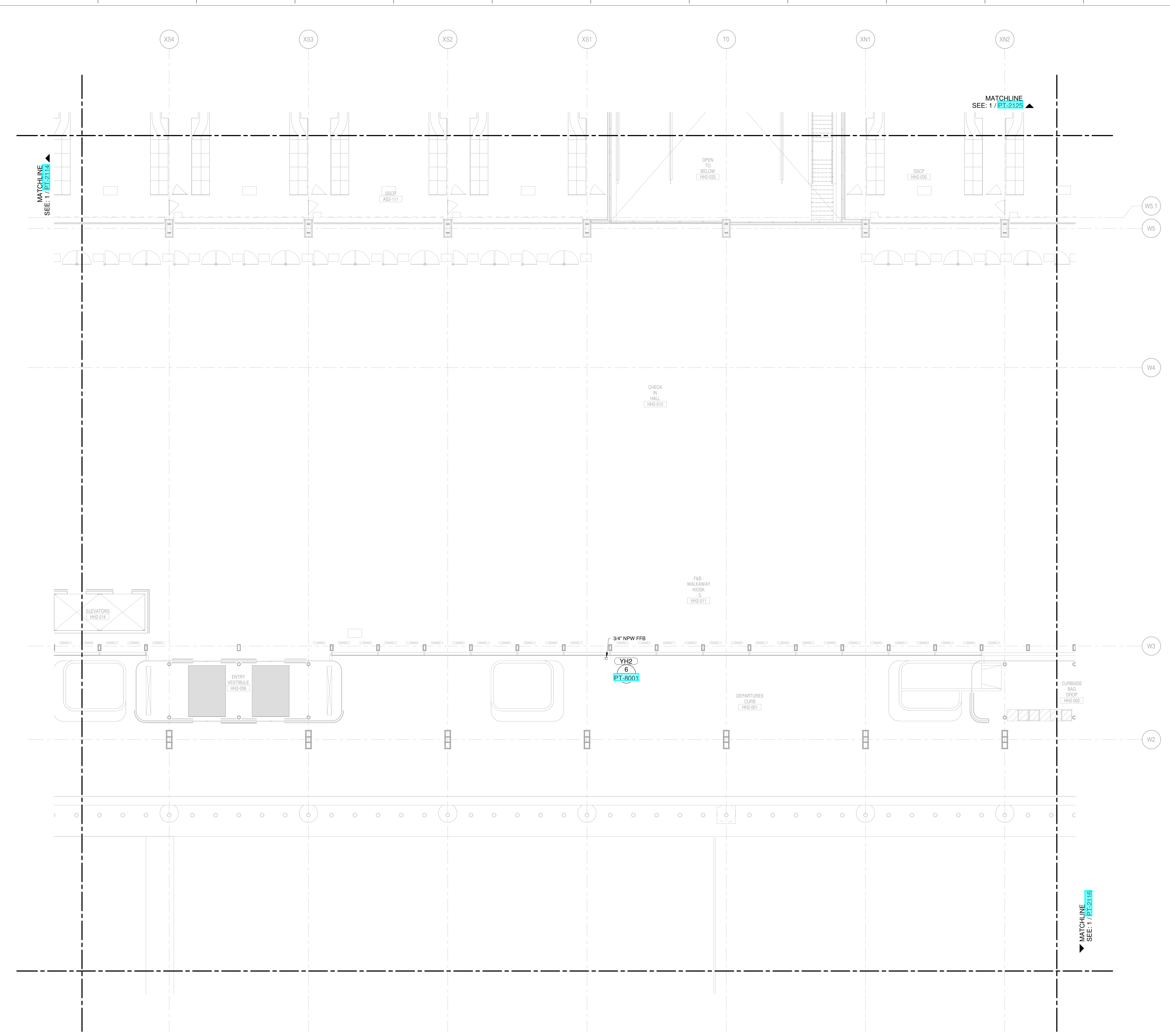


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4	MARCH 4, 2020	ISSUED FOR DESIGN DEVELOPMENT
5	JANUARY 23, 2020	CD PROGRESS
6	NOVEMBER 03, 2019	ISSUED FOR GCP CD

DRAWING TITLE
LEVEL 2 - DEPARTURES WATER & GAS PART PLAN T15

DRAWING NUMBER
PT-2115



1 LEVEL 2 - DEPARTURES WATER & GAS PART PLAN T15
SCALE: 1/8" = 1'-0"

NEW SINGLE TERMINAL AND KCI

OWNER
 KANSAS CITY INTERNATIONAL AIRPORT
 601 Brasilia Avenue, Kansas City, MO 64153
 PROJECT NUMBER - 62180497

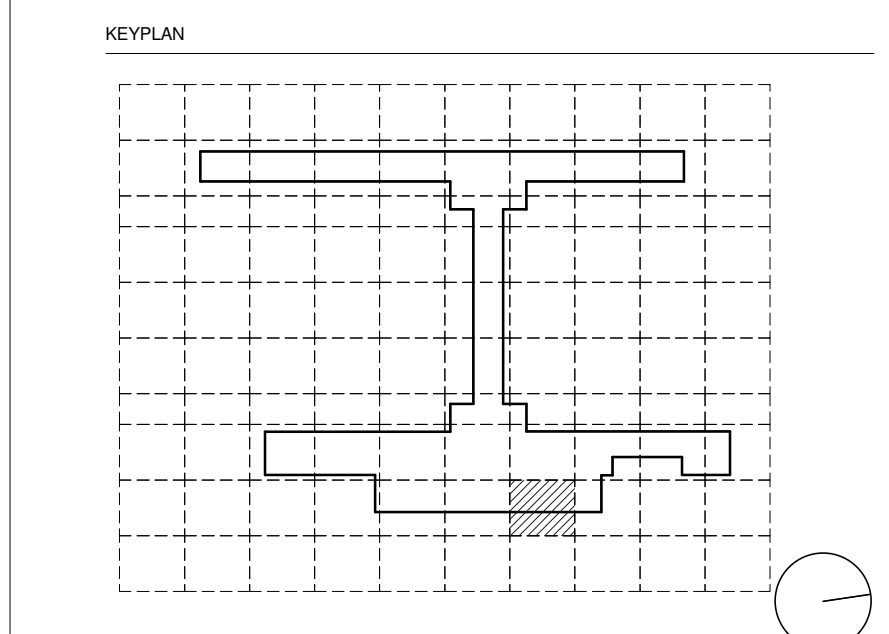
OWNER'S REPRESENTATIVE
 PMG Paslay Management Group
 533 Mexico City Avenue, Kansas City, MO 64153
 DEVELOPER

DESIGN-BUILDER
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 INFRASTRUCTURE & REAL ESTATE
 533 Mexico City Avenue, Kansas City, MO 64153

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 14 Wall Street, New York, NY 10005

CONSULTANT TEAM

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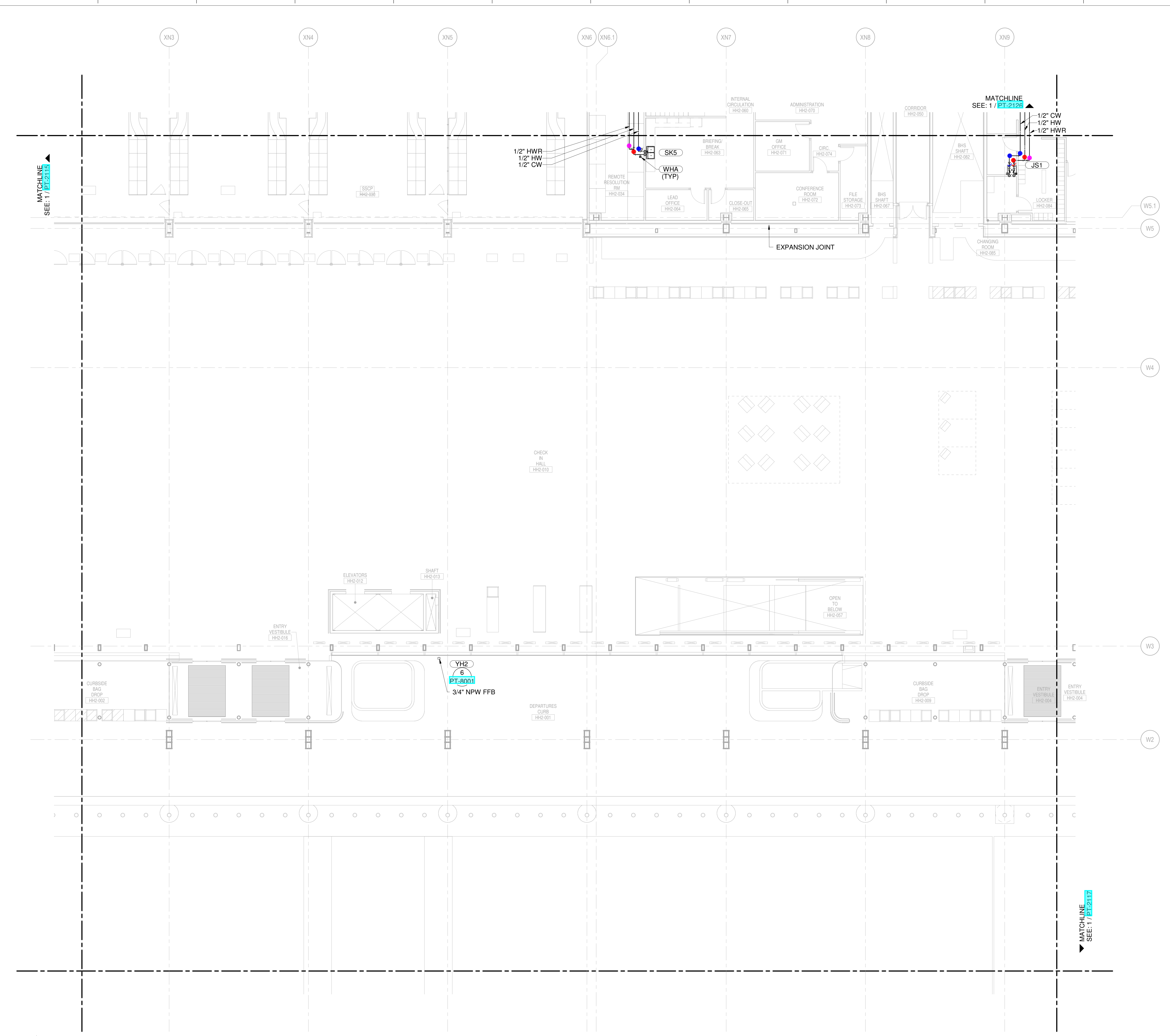
Henderson Engineers Inc.
 6345 Lenora Drive, Suite 300
 Lenora, MO 64514
 P: 913-742-9200

SHANE M. LUTZ
 LICENSE # PE-2003000011
 MO CORPORATE NO. E-5660
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4	MARCH 4, 2020	ISSUED FOR PERSON DEVELOPMENT
5	JANUARY 23, 2020	CD PROGRESS
6	NOVEMBER 03, 2019	ISSUED FOR GCP CD

DRAWING TITLE
LEVEL 2 - DEPARTURES WATER & GAS PART PLAN T16

DRAWING NUMBER
PT-2116



- CONDENSATE DRAIN
- CONDENSATE PUMP DISCHARGE
- DOMESTIC COLD WATER
- DOMESTIC HOT WATER
- DOMESTIC HOT WATER RECIRC.
- GREASE WASTE
- INDIRECT DRAIN
- MEDIUM PRESSURE NATURAL GAS
- NON-POTABLE WATER
- OVERFLOW STORM DRAIN
- SOIL
- STORM DRAIN
- SLUMP PUMP DISCHARGE
- VENT
- ▲ REPRESENT EQUIPMENT
- ▼ REPRESENT VALVES

1 LEVEL 2 - DEPARTURES WATER & GAS PART PLAN T16
 SCALE: 1/8" = 1'-0"

NEW SINGLE TERMINAL AND SINGLE AT KCI

OWNER
KANSAS CITY INTERNATIONAL AIRPORT
 601 Brasilia Avenue, Kansas City, MO 64153
 PROJECT NUMBER - 62180497

OWNER'S REPRESENTATIVE
PMG Paslay Management Group
 533 Mexico City Avenue, Kansas City, MO 64153
 DEVELOPER

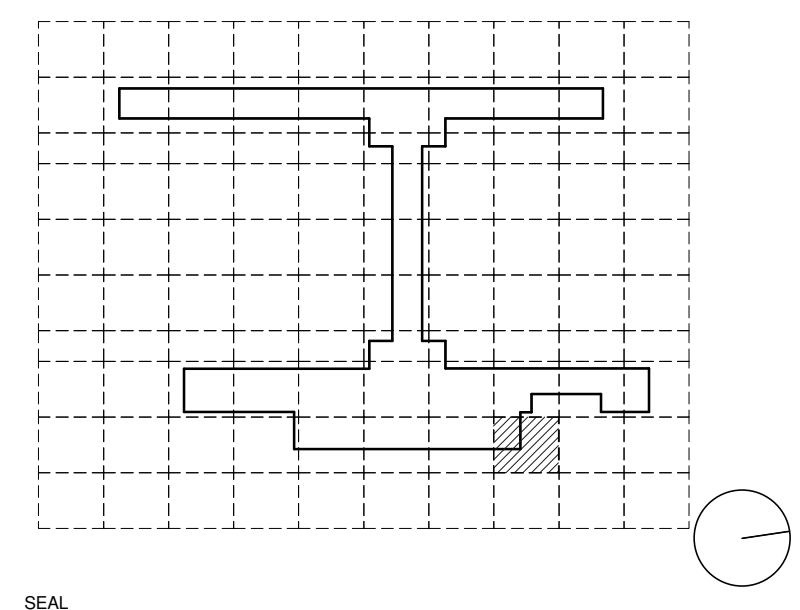
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 14 Wall Street, New York, NY 10005

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Transsolutions - Terminal Planning
Premier Engineering - Demolition
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Lerch Bates - VHT Consultants
Cityfi - Smart Technology
Priority Engineers - Traffic Engineering

KEYPLAN



SEAL
 Henderson Engineers Inc.
 6345 Linnson Drive, Suite 300
 Lenexa, KS 66154
 P: 913-742-9200

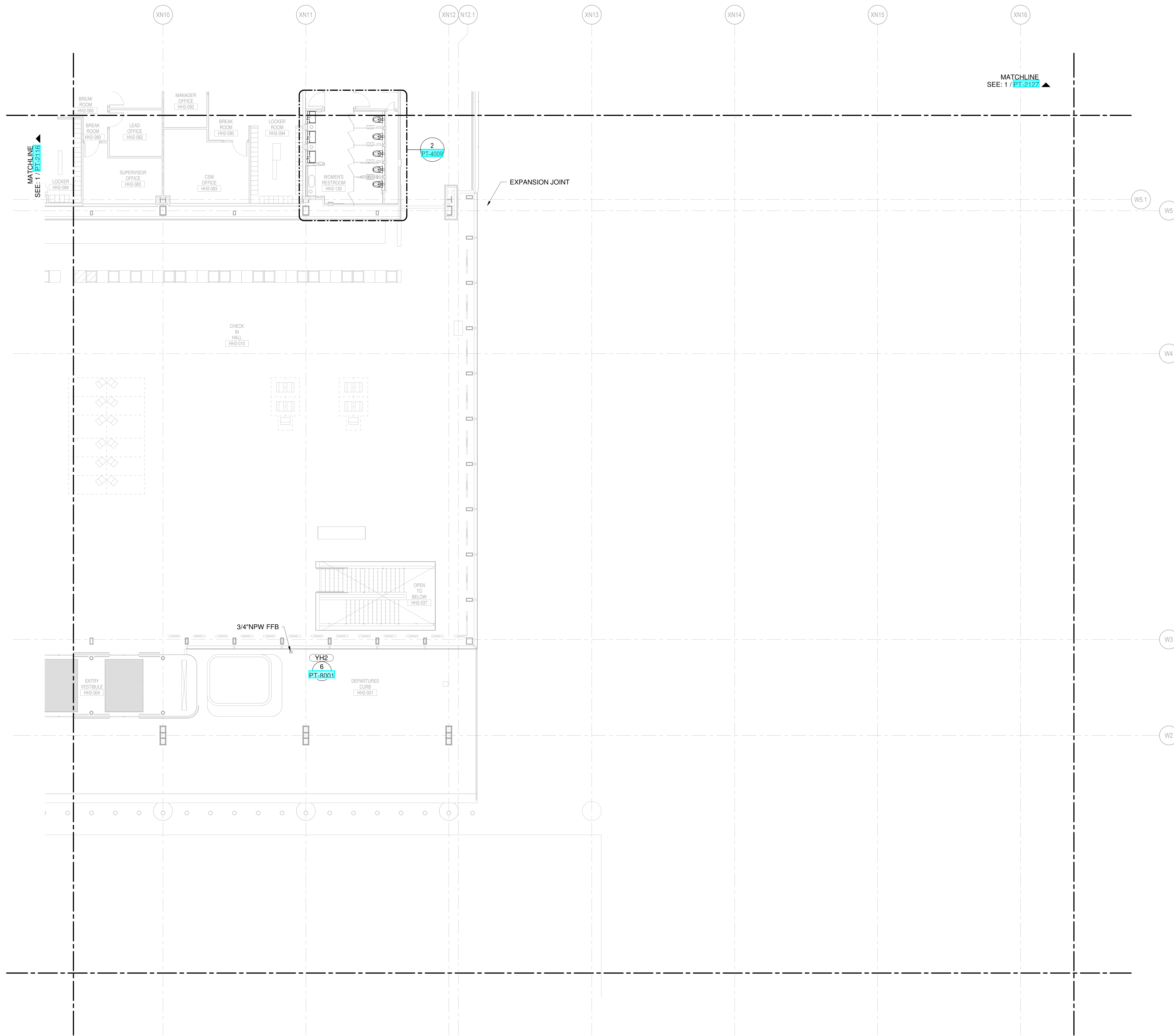
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 MO CORPORATE NO. E-5666
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1	AUGUST 27, 2020	ISSUED FOR FINAL DESIGN
2	JUNE 26, 2020	PRINT SET - UNDERGROUND
3	JUNE 16, 2020	ISSUED FOR GCP PROGRESS
4	MARCH 4, 2020	ISSUED FOR DESIGN DEVELOPMENT
5	JANUARY 21, 2020	OO PROGRESS
6	NOVEMBER 03, 2019	ISSUED FOR GCP OO

DRAWING TITLE
LEVEL 2 - DEPARTURES WATER & GAS PART PLAN T17

DRAWING NUMBER
PT-2117



1 LEVEL 2 - DEPARTURES WATER & GAS PART PLAN T17
 SCALE: 1/8" = 1'-0"

PLUMBING PLAN NOTES:
 P080 2" MPG (1500 GPM MAX) FOR FUTURE TENANT CONNECTION
 P081 2 1/2" CW (75 SFU MAX) FOR FUTURE TENANT CONNECTION
 P136 3/4" CW UP TO ROOF HYDRANT.

NEW SINGLE TERMINAL AND GAS AT KCI

OWNER
 KANSAS CITY INTERNATIONAL AIRPORT
 601 Brasilia Avenue, Kansas City, MO 64153
 PROJECT NUMBER - 62180497

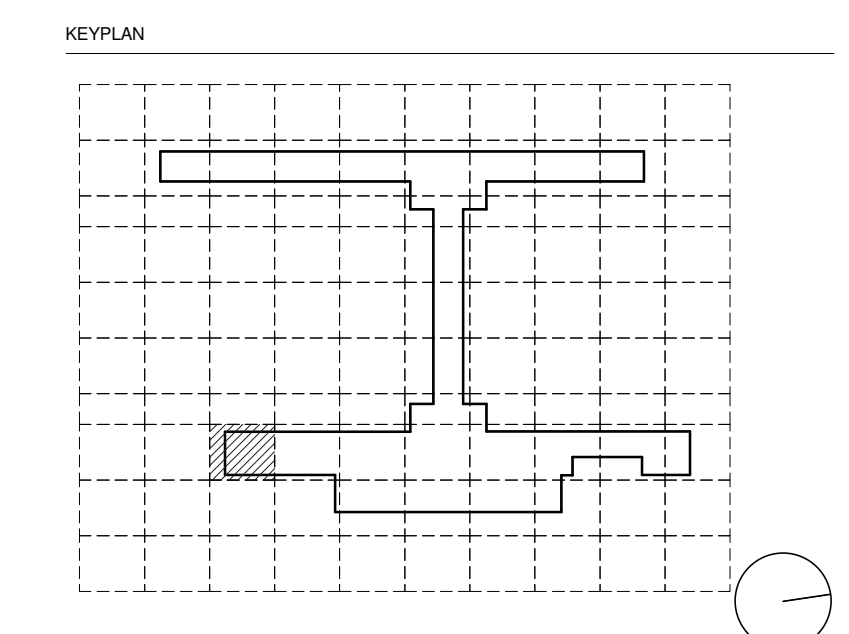
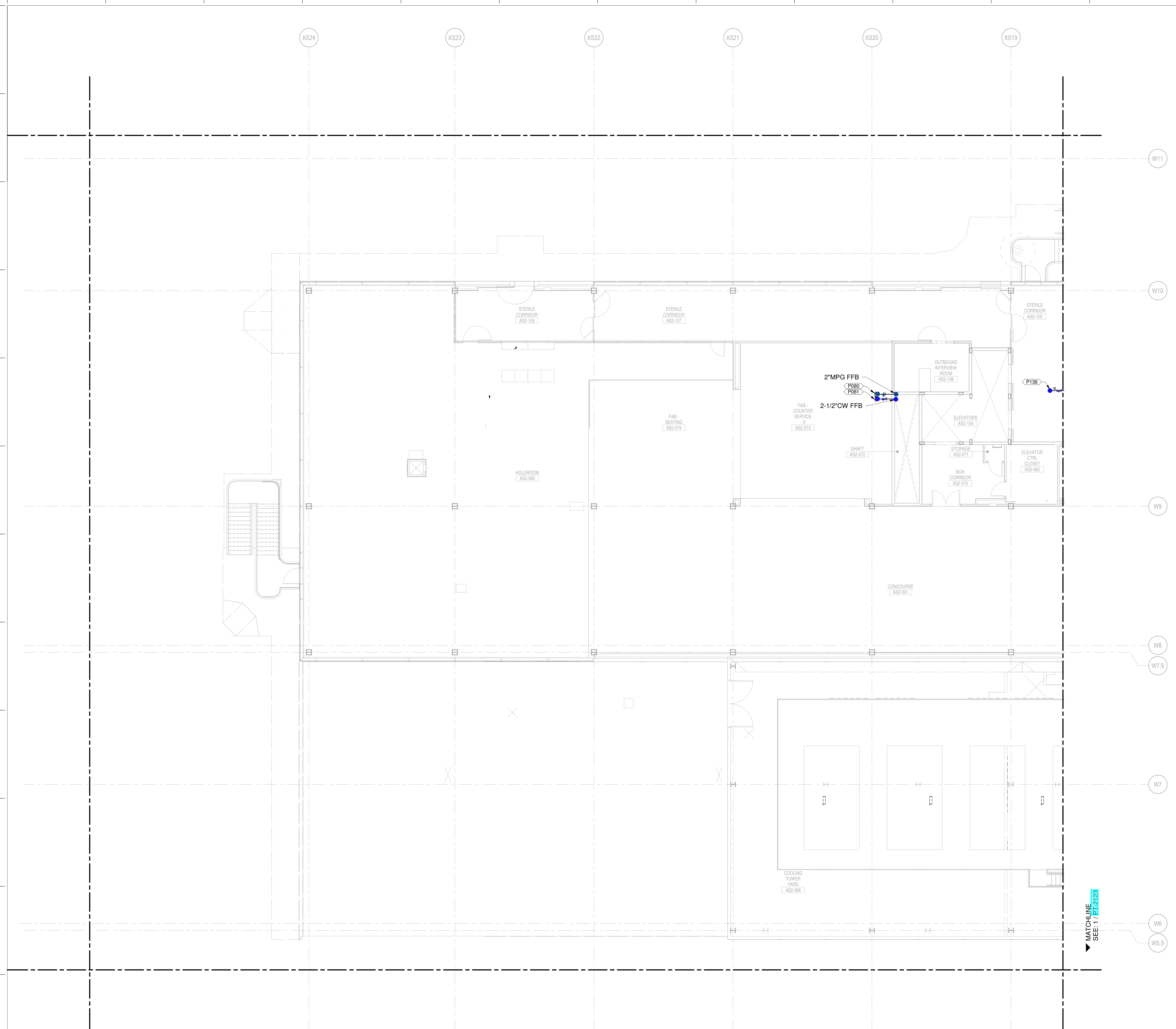
OWNER'S REPRESENTATIVE
 PMG Paslay Management Group
 533 Mexico City Avenue, Kansas City, MO 64153
 DEVELOPER

DESIGN-BUILDER
 CLARK WEITZ CLARKSON
 533 Mexico City Avenue, Kansas City, MO 64153

ARCHITECT & STRUCTURAL ENGINEER
 SOM
 Skidmore, Owings & Merrill LLP
 14 Wall Street, New York, NY 10005

CONSULTANT TEAM

- Draw Architecture - Collaborating Architect
- Wallner Architects - Collaborating Architect
- HJM Architects Inc. - Collaborating Architect
- FSC Inc. - Fire Protection / Code / Life Safety
- Henderson - MEP / FA / PA / Sec Engineer of Record
- LAND3 Studio - Landscape Architect
- Garver - Airside Civil
- Entro - Signage / Wayfinding
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- BNP - Baggage Handling
- Vanderlande - Baggage Handling
- Michele & Associates - ADA
- Thornton Tomasetti - Protective Design
- SK Design Group - Glycol / Landside Utilities
- Trekk Design Group - Airside Storm Drainage
- Arora Engineers, Inc. - AIS / ICT
- ARUP - Aircraft Parking / Gate Eq. / AIS / ICT / FA
- Taliaferro & Browne Inc. - Landside Civil
- Custom Eng. Inc. - Landside Utilities / Airside Utilities
- 3T Design & Development - Landside Utilities
- HC Consulting Group - Permitting
- Lightworks - Lighting / Landside Lighting
- Dubois Consultants - Struc. Terminal
- Leigh & O'Kane - Roadway Structure
- Argus Consulting - Hydrant Fuel System
- Transolutions - Terminal Planning
- Premier Engineering - Demolition
- ICF - Concessions
- Lerch Bates - VHT Consultants
- Cityfi - Smart Technology
- Priority Engineers - Traffic Engineering



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 LICENSE # PE-2003000011

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 MO CORPORATE NO. E-5660
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2	JULY 28, 2020	CD - PROGRESS PRINT
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4	JUNE 18, 2020	ISSUED FOR CD PROGRESS
5	MARCH 6, 2020	ISSUED FOR DESIGN DEVELOPMENT
6	JANUARY 21, 2020	CD PROGRESS
7	NOVEMBER 20, 2019	ISSUED FOR CD, CD

DRAWING TITLE
LEVEL 2 - DEPARTURES WATER & GAS PART PLAN T22

DRAWING NUMBER
PT-2122

- CONDENSATE DRAIN
- CONDENSATE PUMP DISCHARGE
- DOMESTIC COLD WATER
- DOMESTIC HOT WATER
- DOMESTIC HOT WATER RECIRC.
- GREASE WASTE
- INDIRECT DRAIN
- MEDIUM PRESSURE NATURAL GAS
- NON-POTABLE WATER
- OVERFLOW STORM DRAIN
- SOIL
- STORM DRAIN
- SLUMP PUMP DISCHARGE
- VENT
- ▲ REPRESENT EQUIPMENT
- ▼ REPRESENT VALVES

1 LEVEL 2 - DEPARTURES WATER & GAS PART PLAN T22
 SCALE: 1/8" = 1'-0"

SHANE M. LUTZ

PLUMBING PLAN NOTES:
 P079 2" CW (50 SFU MAX) FOR FUTURE TENANT CONNECTION
 P081 2 1/2" CW (75 SFU MAX) FOR FUTURE TENANT CONNECTION
 P132 2" MFG (CPH MAX 1500) FOR FUTURE TENANT CONNECTION
 P136 3/4" CW UP TO ROOF HYDRANT.

NEW SINGLE TERMINAL AND PARKING AT KCI

OWNER
 KANSAS CITY INTERNATIONAL AIRPORT
 601 Brasilia Avenue, Kansas City, MO 64153
 PROJECT NUMBER - 62180497

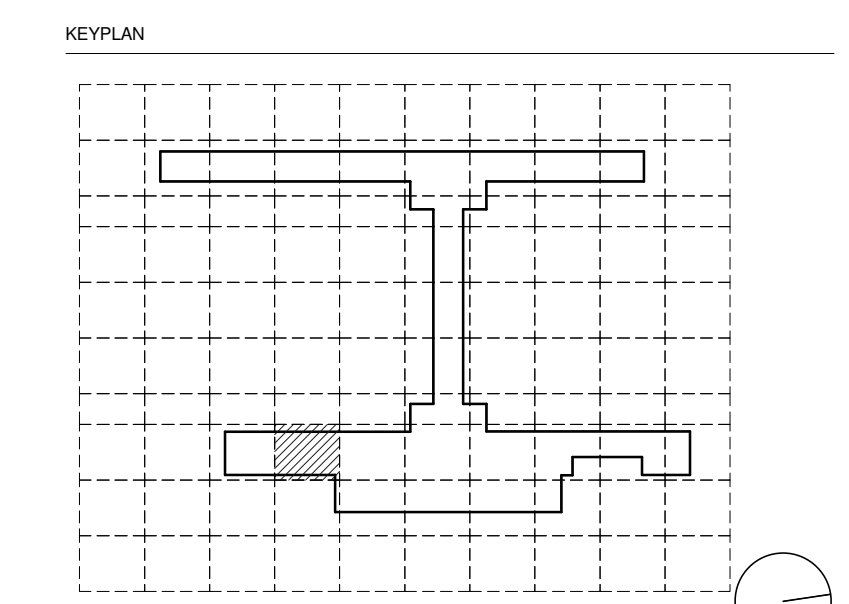
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 PMG Paslay Management Group
 533 Mexico City Avenue, Kansas City, MO 64153
 DEVELOPER

DESIGN-BUILDER
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- Tallafiero & Browne Inc. - Landside Civil
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- HC Consulting Group - Permitting
- Lightworks - Lighting / Landside Lighting
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- ICF - Concessions
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- Cityfi - Smart Technology
- Priority Engineers - Traffic Engineering



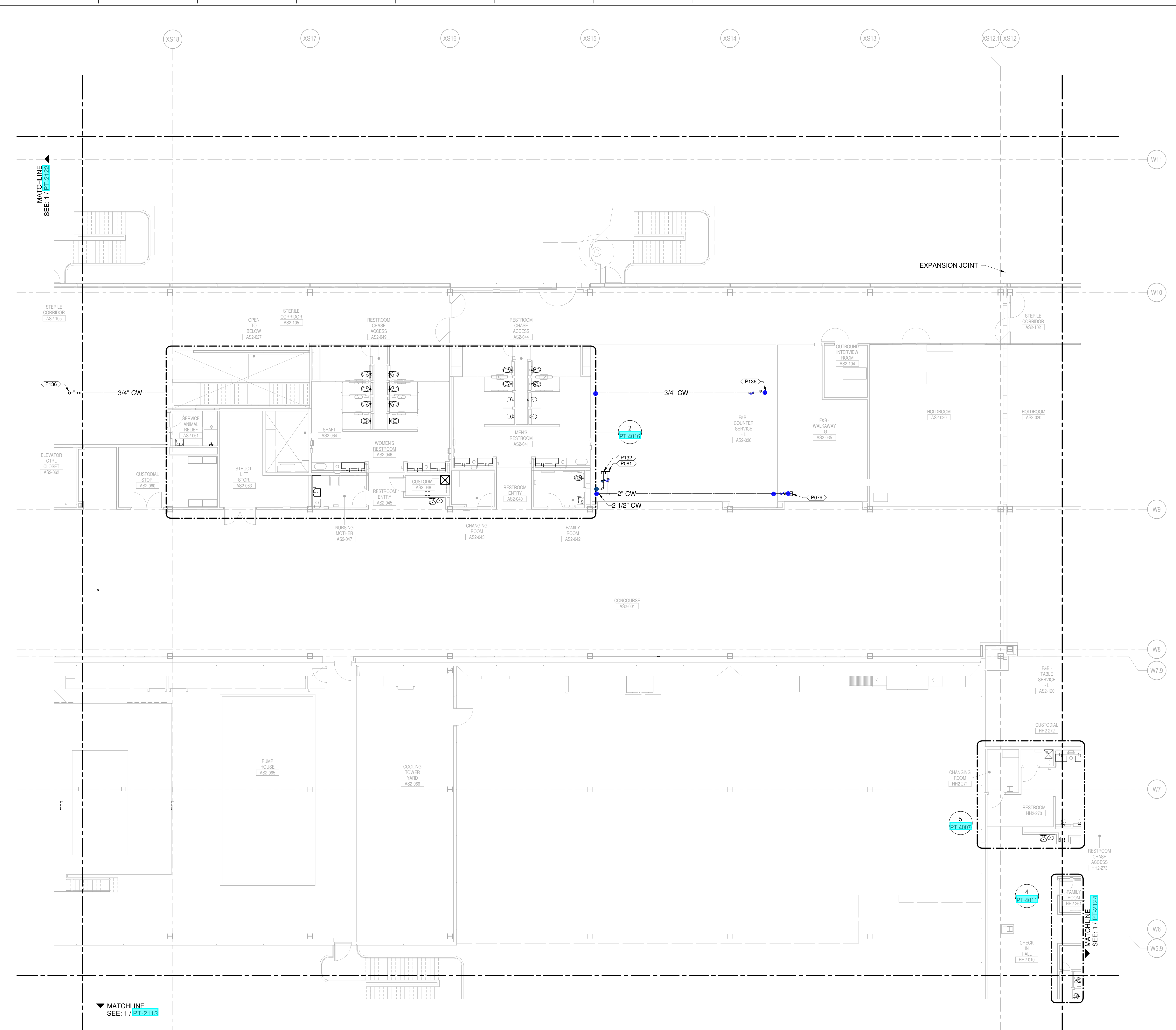
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3	JUNE 26, 2019	PERMIT SET - UNDERGROUND
4	JUNE 13, 2019	ISSUED FOR CP PROGRESS
5	MARCH 5, 2019	ISSUED FOR DESIGN DEVELOPMENT
6	JANUARY 23, 2019	CP PROGRESS
7	NOVEMBER 20, 2019	ISSUED FOR RFP, DD
8	AUGUST 13, 2019	ISSUED FOR SCHEMATIC DESIGN

DRAWING TITLE
LEVEL 2 - DEPARTURES WATER & GAS PART PLAN T23

DRAWING NUMBER
PT-2123



- CONDENSATE DRAIN
- CONDENSATE PUMP DISCHARGE
- DOMESTIC COLD WATER
- DOMESTIC HOT WATER
- DOMESTIC HOT WATER RECIRC.
- GREASE WASTE
- INDIRECT DRAIN
- MEDIUM PRESSURE NATURAL GAS
- NON-POTABLE WATER
- OVERFLOW STORM DRAIN
- SOIL
- STORM DRAIN
- SLUMP PUMP DISCHARGE
- VENT
- ▲ REPRESENT EQUIPMENT
- ▼ REPRESENT VALVES

1 LEVEL 2 - DEPARTURES WATER & GAS PART PLAN T23
 SCALE: 1/8" = 1'-0"

SHANE M. LUTZ

PLUMBING PLAN NOTES:
 P000 COORDINATE PLUMBING PIPE ROUTING AWAY FROM ELECTRICAL PANELS. MAINTAIN CLEARANCES PER NEC.
 P080 2" MPG (1500 CFM MAX) FOR FUTURE TENANT CONNECTION
 P081 2 1/2" CW (75 SFU MAX) FOR FUTURE TENANT CONNECTION
 P136 3/4" CW UP TO ROOF HYDRANT.
 P154 PROVIDE PIPE ALIGNMENT GUIDES.
 P155 PROVIDE PIPE ANCHORS.

NEW SINGLE TERMINAL AND SINGLE AT KCI

OWNER
 KANSAS CITY INTERNATIONAL AIRPORT
 601 Brasilia Avenue, Kansas City, MO 64153
 PROJECT NUMBER - 62180497

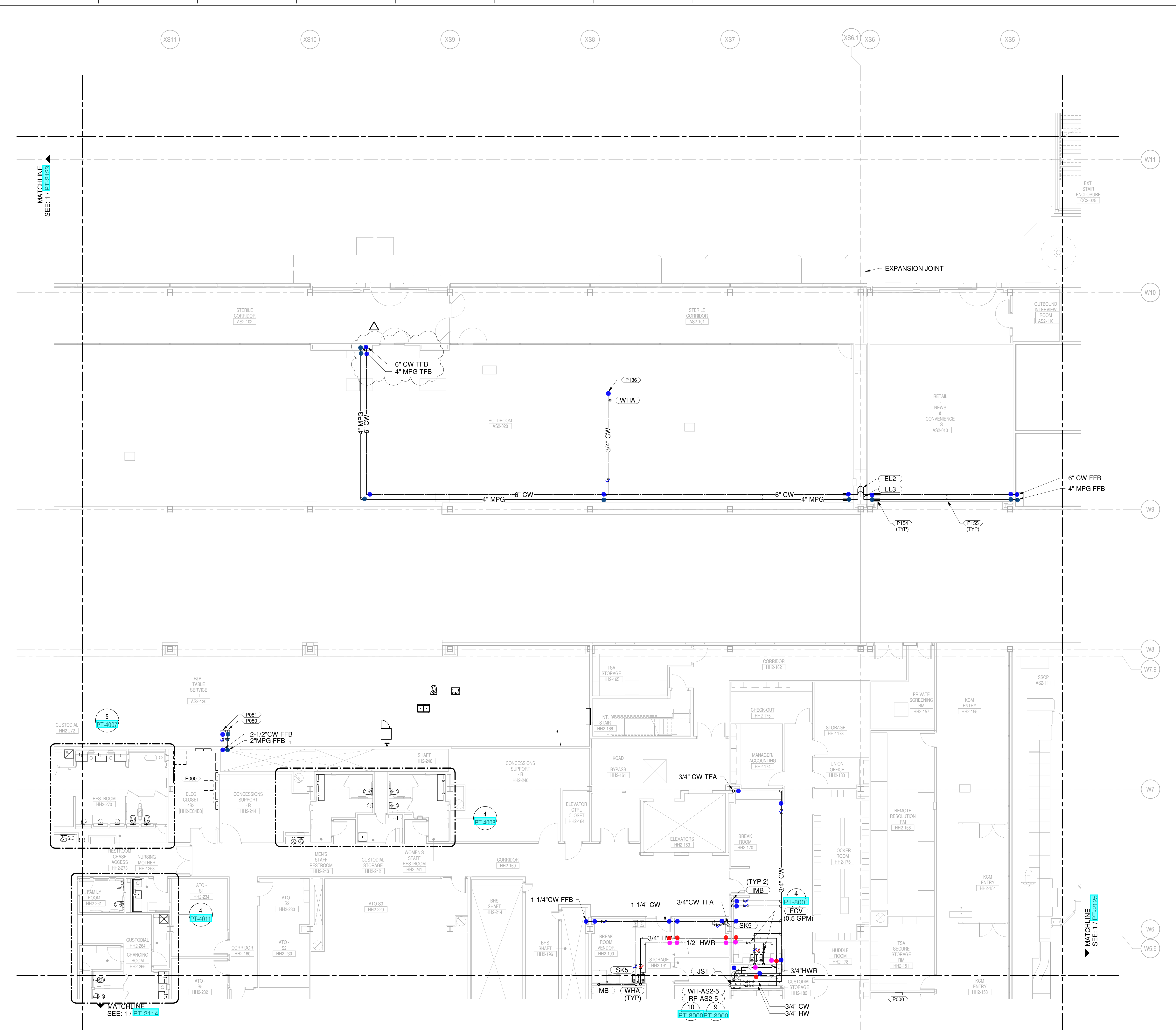
DEVELOPER
PMG Paslay Management Group
 533 Mexico City Avenue, Kansas City, MO 64153

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EDGEMOOR
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 533 Mexico City Avenue, Kansas City, MO 64153

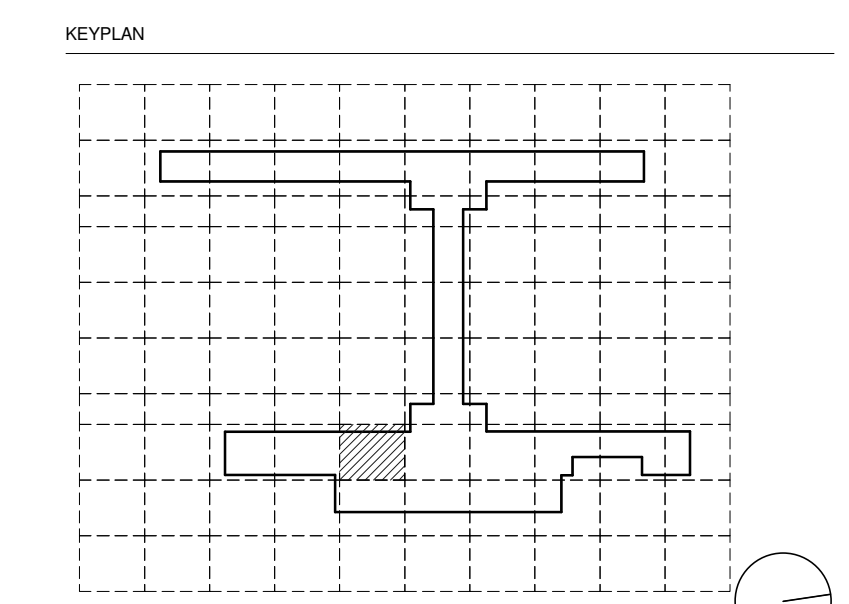
ARCHITECT & STRUCTURAL ENGINEER
CLARK WEITZ CLARKSON
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ARCHITECT & STRUCTURAL ENGINEER
SOM
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 14 Wall Street, New York, NY 10005

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 Vanderlande - Baggage Handling
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 ICF - Concessions
 Lerch Bates - VHT Consultants
 Cityfi - Smart Technology
 Priority Engineers - Traffic Engineering



- CONDENSATE DRAIN
- CONDENSATE PUMP DISCHARGE
- DOMESTIC COLD WATER
- DOMESTIC HOT WATER
- DOMESTIC HOT WATER RECIRC.
- GREASE WASTE
- INDIRECT DRAIN
- MEDIUM PRESSURE NATURAL GAS
- NON-POTABLE WATER
- OVERFLOW STORM DRAIN
- SOIL
- STORM DRAIN
- SLUMP PUMP DISCHARGE
- VENT
- ▲ REPRESENT EQUIPMENT
- ▼ REPRESENT VALVES



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2	JULY 29, 2020	CD - PROGRESS PRINT
3	JUNE 24, 2020	PRINT SET 1 - UNDERGROUND
4	JUNE 18, 2020	ISSUED FOR CD PROGRESS
5	MARCH 4, 2020	ISSUED FOR CD PROGRESS DEVELOPMENT
6	JANUARY 21, 2020	CD PROGRESS
7	NOVEMBER 20, 2019	ISSUED FOR CD PROGRESS

LEVEL 2 - DEPARTURES WATER & GAS PART PLAN T24

DRAWING NUMBER
PT-2124

1 LEVEL 2 - DEPARTURES WATER & GAS PART PLAN T24
 SCALE: 1/8" = 1'-0"

PLUMBING PLAN NOTES:
 P078 1 1/4" MPG (500 CFH MAX) FOR FUTURE TENANT CONNECTION
 P079 2" CW (50 SFU MAX) FOR FUTURE TENANT CONNECTION
 P190 2-1/2" CW (75 SFU MAX) CAPPED FOR LOUNGE TENANT CONNECTION
 P191 2" MPG (1500 CFH MAX) CAPPED FOR LOUNGE TENANT CONNECTION

NEW SINGLE TERMINAL AND RIG AT KCI

OWNER
 KANSAS CITY INTERNATIONAL AIRPORT
 601 Brasilia Avenue, Kansas City, MO 64153
 PROJECT NUMBER - 62180497

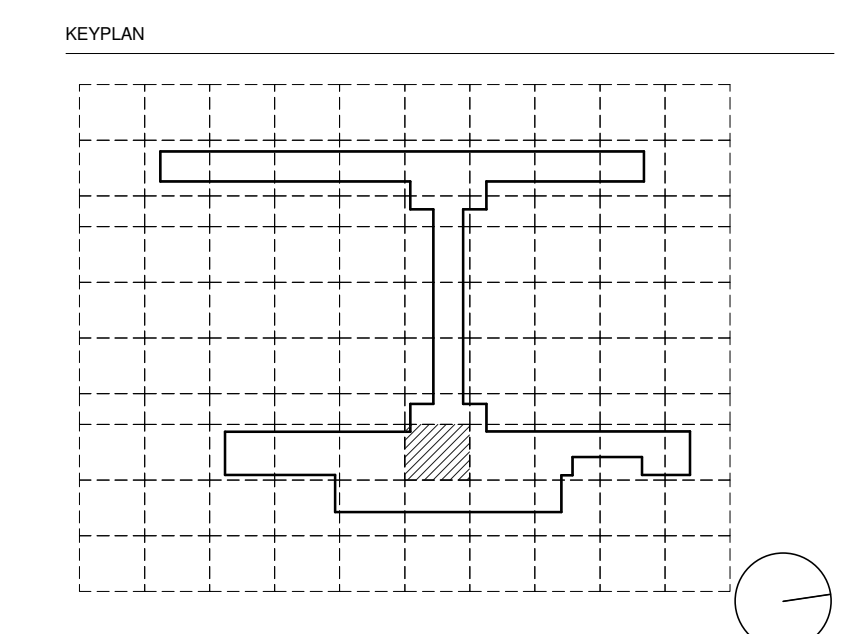
OWNER'S REPRESENTATIVE
 PMG Paslay Management Group
 533 Mexico City Avenue, Kansas City, MO 64153
 DEVELOPER

DESIGN-BUILDER
 EDGEMOOR
 INFRASTRUCTURE & REAL ESTATE
 533 Mexico City Avenue, Kansas City, MO 64153

ARCHITECT & STRUCTURAL ENGINEER
 SOM
 Skidmore, Owings & Merrill LLP
 14 Wall Street, New York, NY 10005

CONSULTANT TEAM

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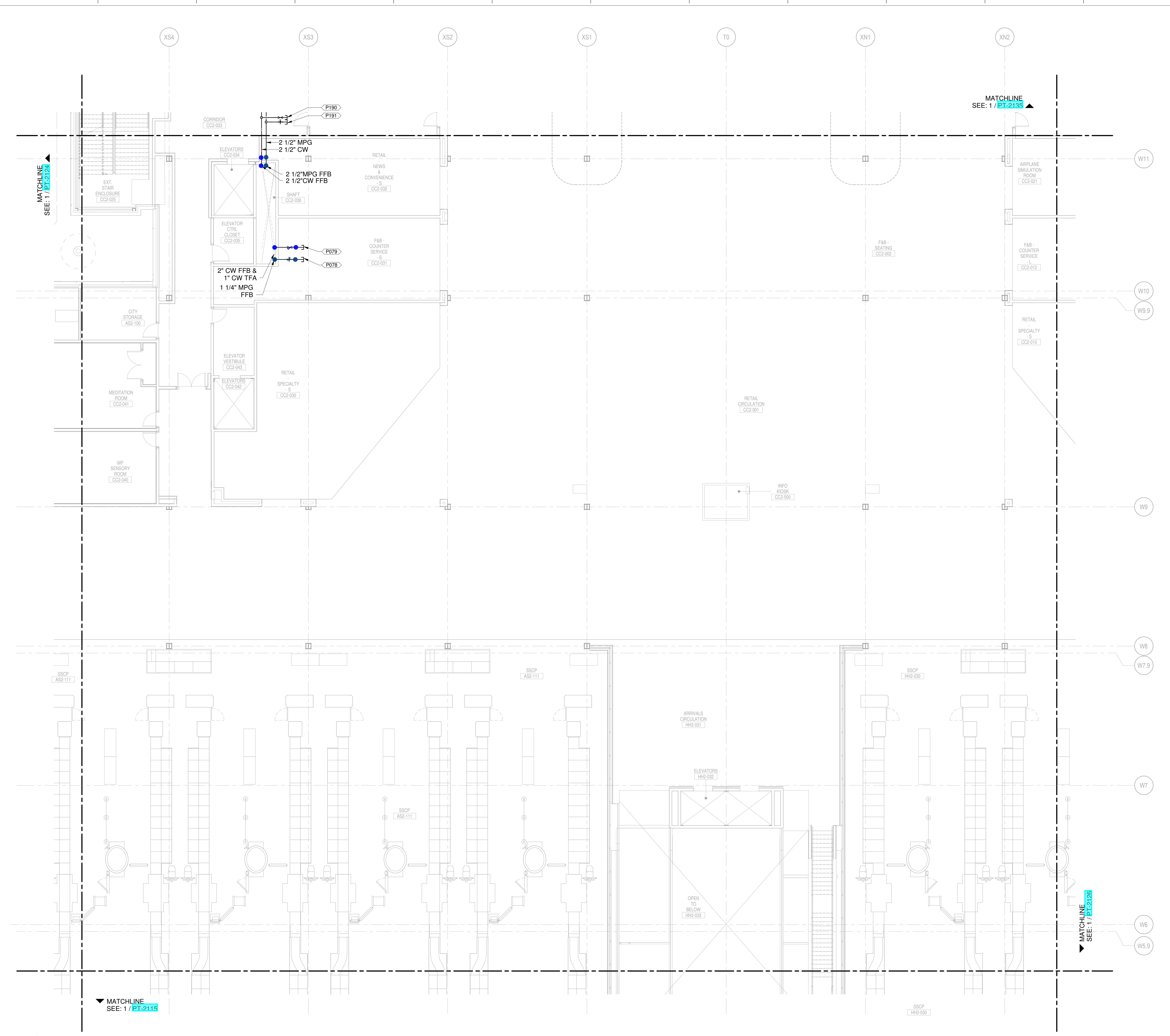
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SHANE M. LUTZ
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 MO. CORPORATE NO. E-5660
 EXPIRES 12/31/2020

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2	JUNE 24, 2020	PRINT SET - UNDERGROUND
3	JUNE 18, 2020	ISSUED FOR CD PROGRESS
4	MARCH 9, 2020	ISSUED FOR DESIGN DEVELOPMENT
5	JANUARY 21, 2020	CD PROGRESS
6	NOVEMBER 20, 2019	ISSUED FOR PERMITS

DRAWING TITLE
LEVEL 2 - DEPARTURES WATER & GAS PART PLAN T25

DRAWING NUMBER
PT-2125



- CONDENSATE DRAIN
- CONDENSATE PUMP DISCHARGE
- DOMESTIC COLD WATER
- DOMESTIC HOT WATER
- DOMESTIC HOT WATER RECIRC.
- GREASE WASTE
- INDIRECT DRAIN
- MEDIUM PRESSURE NATURAL GAS
- NON-POTABLE WATER
- OVERFLOW STORM DRAIN
- SOIL
- STORM DRAIN
- SLUMP PUMP DISCHARGE
- VENT
- ▲ REPRESENT EQUIPMENT
- ▼ REPRESENT VALVES

1 LEVEL 2 - DEPARTURES WATER & GAS PART PLAN T25
 SCALE: 1/8" = 1'-0"

NEW SINGLE TERMINAL AND GAS AT KCI

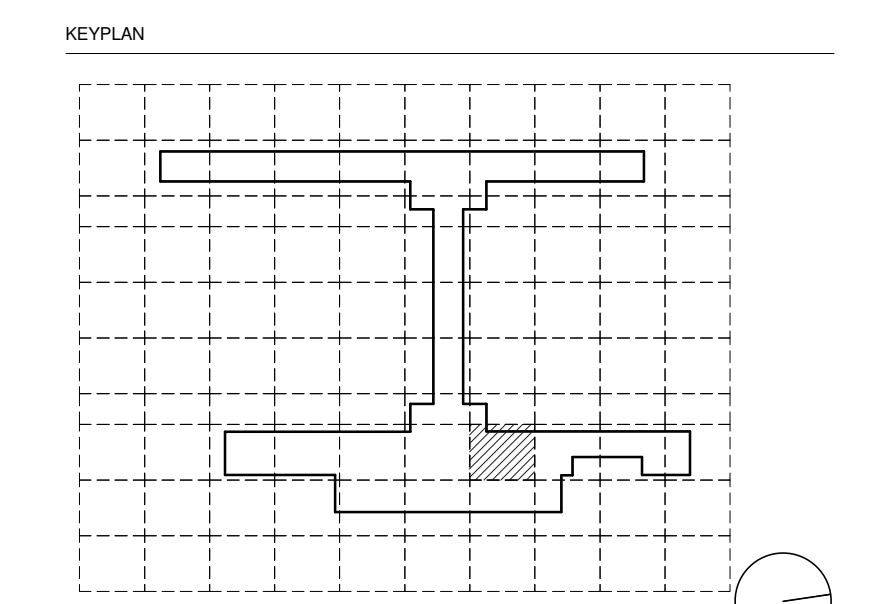
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KANSAS CITY INTERNATIONAL AIRPORT
 601 Brasilia Avenue, Kansas City, MO 64153
 PROJECT NUMBER - 62180497

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PMG Paslay Management Group
 533 Mexico City Avenue, Kansas City, MO 64153
 DEVELOPER

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- ICF - Concessions
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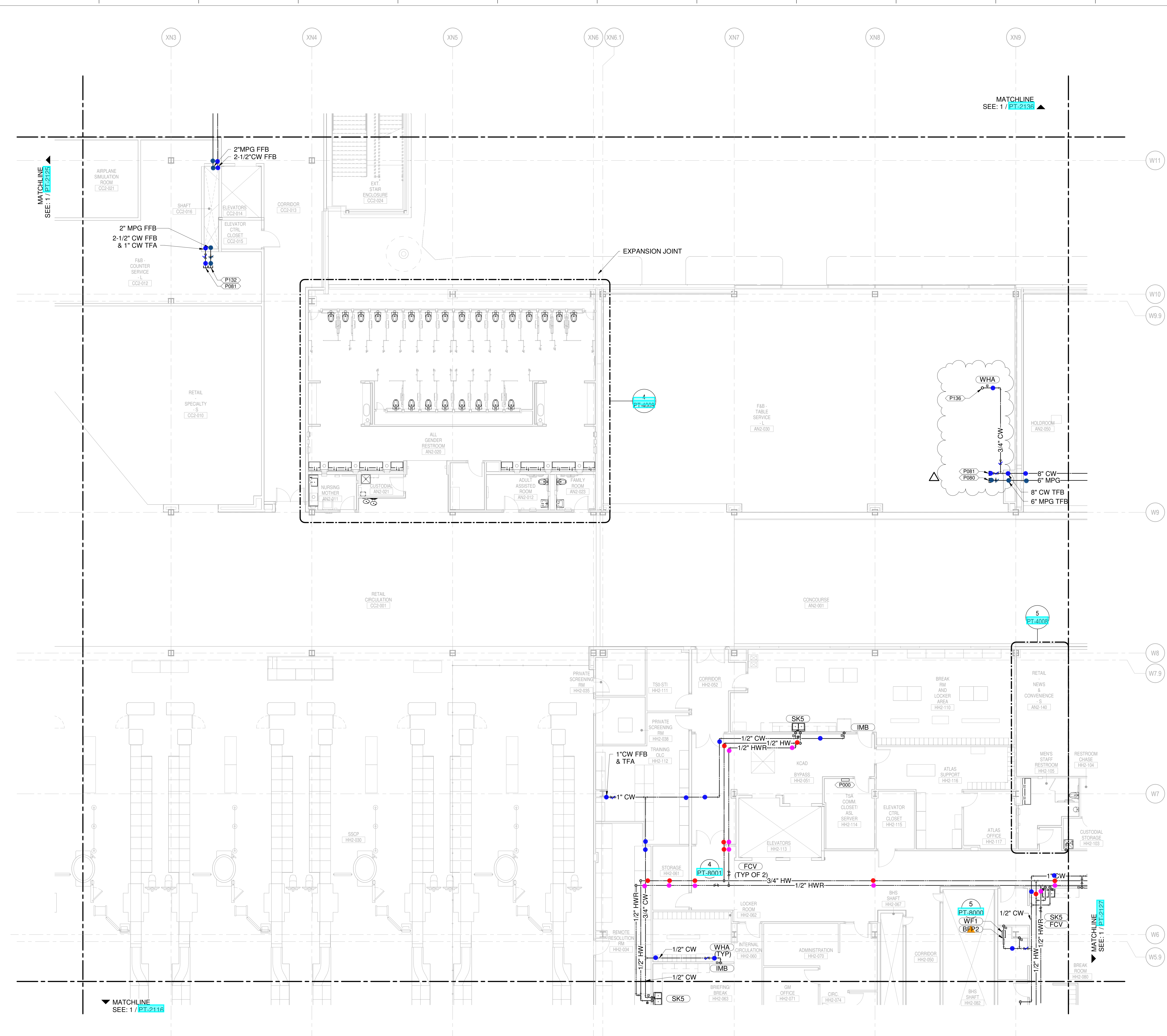
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JUNE 26, 2020	PRINT SET - UNDERGROUND	
JUNE 18, 2020	ISSUED FOR GC PROGRESS	
MARCH 9, 2020	ISSUED FOR PERSON DEVELOPMENT	
JANUARY 23, 2020	GD PROGRESS	
NOVEMBER 20, 2019	ISSUED FOR GSA, DD	

DRAWING TITLE
LEVEL 2 - DEPARTURES WATER & GAS PART PLAN T26

DRAWING NUMBER
PT-2126

PLUMBING PLAN NOTES
 P000 COORDINATE PLUMBING PIPE ROUTING AWAY FROM ELECTRICAL PANELS. MAINTAIN CLEARANCES PER NEC.
 P080 2" MPG (1500 CFH MAX) FOR FUTURE TENANT CONNECTION.
 P081 2 1/2" CW (75 SFU MAX) FOR FUTURE TENANT CONNECTION.
 P132 2" MPG (CFH MAX 1500) FOR FUTURE TENANT CONNECTION.
 P136 3/4" CW UP TO ROOF HYDRANT.

- CONDENSATE DRAIN
- CONDENSATE PUMP DISCHARGE
- DOMESTIC COLD WATER
- DOMESTIC HOT WATER
- DOMESTIC HOT WATER RECIRC.
- GREASE WASTE
- INDIRECT DRAIN
- MEDIUM PRESSURE NATURAL GAS
- NON-POTABLE WATER
- OVERFLOW STORM DRAIN
- SOIL
- STORM DRAIN
- SUMP PUMP DISCHARGE
- VENT
- ≡ REPRESENT EQUIPMENT
- ≡ REPRESENT VALVES



1 LEVEL 2 - DEPARTURES WATER & GAS PART PLAN T26
 SCALE: 1/8" = 1'-0"

SHANE M. LUTZ

PLUMBING PLAN NOTES:
 P000 COORDINATE PLUMBING PIPE ROUTING AWAY FROM ELECTRICAL PANELS. MAINTAIN CLEARANCES PER NEC.
 P080 2" MPG (1500 CFM MAX) FOR FUTURE TENANT CONNECTION.
 P081 2 1/2" CW (75 SFU MAX) FOR FUTURE TENANT CONNECTION.

NEW SINGLE TERMINAL AND PARKING AT KCI

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 KANSAS CITY INTERNATIONAL AIRPORT
 601 Brasilia Avenue, Kansas City, MO 64153
 PROJECT NUMBER - 62180497

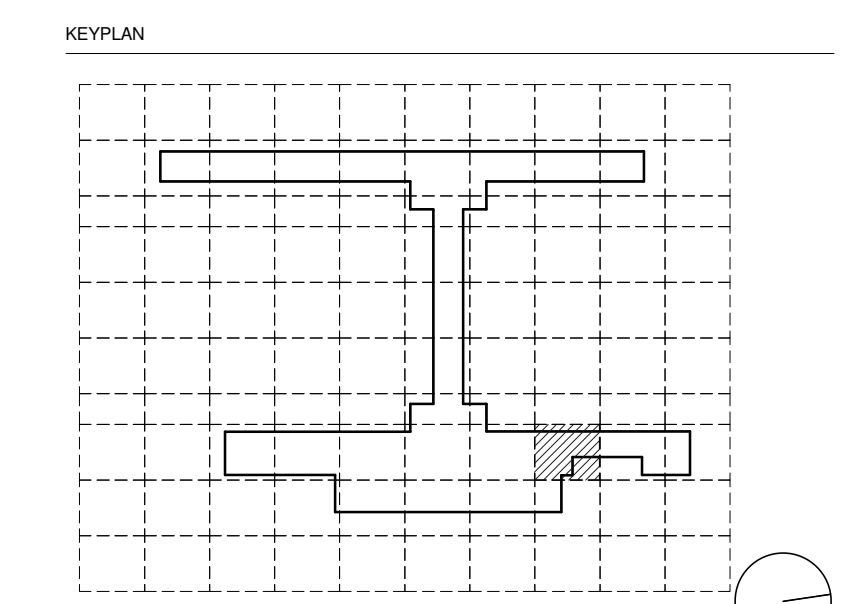
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 533 Mexico City Avenue, Kansas City, MO 64153
 DEVELOPER

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Henderson Engineers Inc.
 6345 Lenora Drive, Suite 300
 Lenora, MO 64114
 P: 913-742-9200

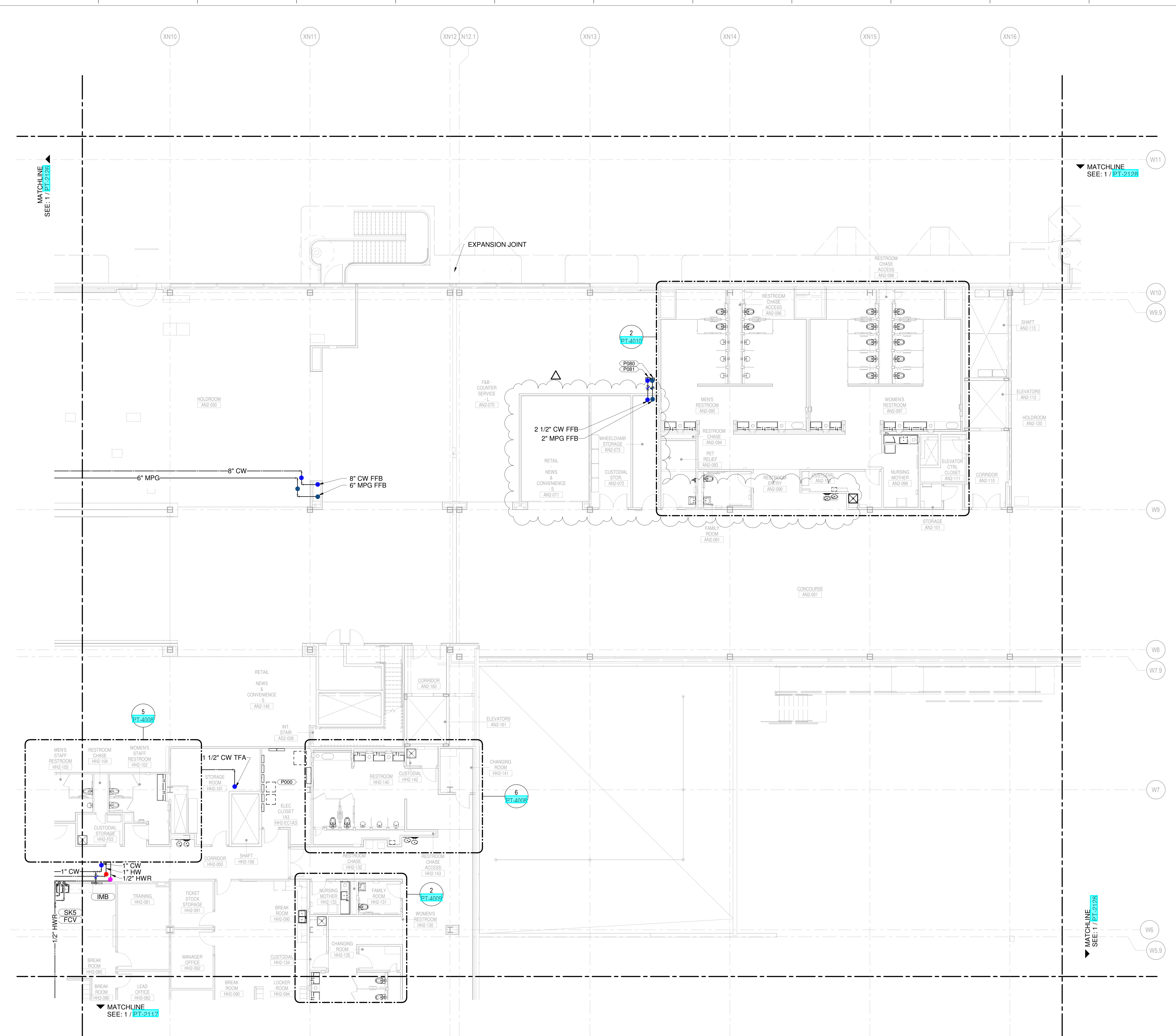
SHANE M. LUTZ
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 MO CORPORATE NO. E-5662
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5	MARCH 4, 2020	ISSUED FOR PERSON DEVELOPMENT
6	JANUARY 21, 2020	CD PROGRESS
7	NOVEMBER 20, 2019	ISSUED FOR CD, CD

DRAWING TITLE
 LEVEL 2 - DEPARTURES WATER & GAS PART PLAN T27

DRAWING NUMBER
 PT-2127

- CONDENSATE DRAIN
- CONDENSATE PUMP DISCHARGE
- DOMESTIC COLD WATER
- DOMESTIC HOT WATER
- DOMESTIC HOT WATER RECIRC.
- GREASE WASTE
- INDIRECT DRAIN
- MEDIUM PRESSURE NATURAL GAS
- NON-POTABLE WATER
- OVERFLOW STORM DRAIN
- SOIL
- STORM DRAIN
- SLUMP PUMP DISCHARGE
- VENT
- ▲ REPRESENT EQUIPMENT
- ▼ REPRESENT VALVES



1 LEVEL 2 - DEPARTURES WATER & GAS PART PLAN T27
 SCALE: 1/8" = 1'-0"

SHANE M. LUTZ

NEW SINGLE TERMINAL AND PARKING AT KCI

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KANSAS CITY INTERNATIONAL AIRPORT
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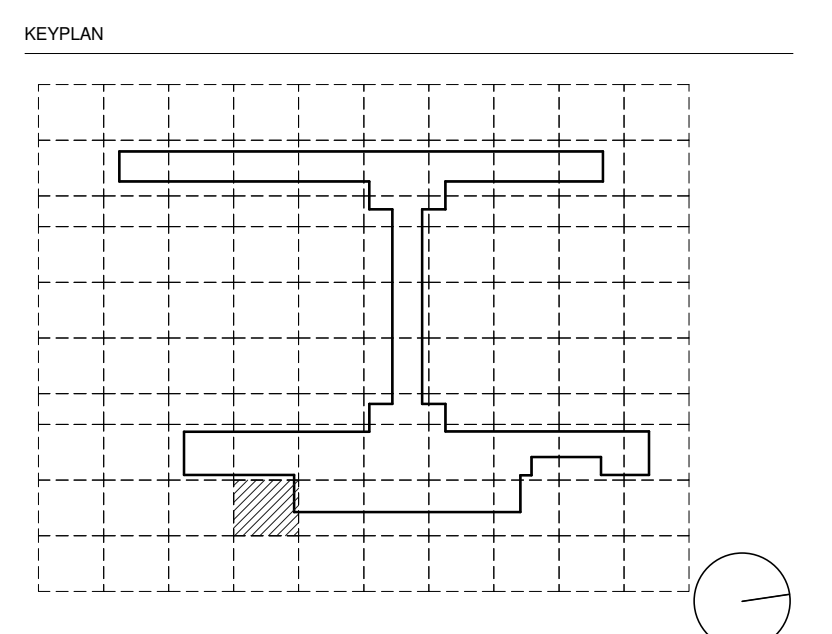
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 14 Wall Street, New York, NY 10005

- CONSULTANT TEAM**
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 - Wellner Architects** - Collaborating Architect
 - HJM Architects Inc.** - Collaborating Architect
 - FSC Inc.** - Fire Protection / Code / Life Safety
 - Henderson** - MEP / FA / PA / Sec Engineer of Record
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 - Vanderlande** - Baggage Handling
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 - Leigh & O'Kane** - Roadway Structure
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 - ICF** - Concessions
 - Lerch Bates** - VHT Consultants
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 MO CORPORATE NO. E-5568
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Henderson Engineers Inc.
 8345 Linnwood Drive, Suite 300
 Springfield, MO 65814
 P: 913-742-9200

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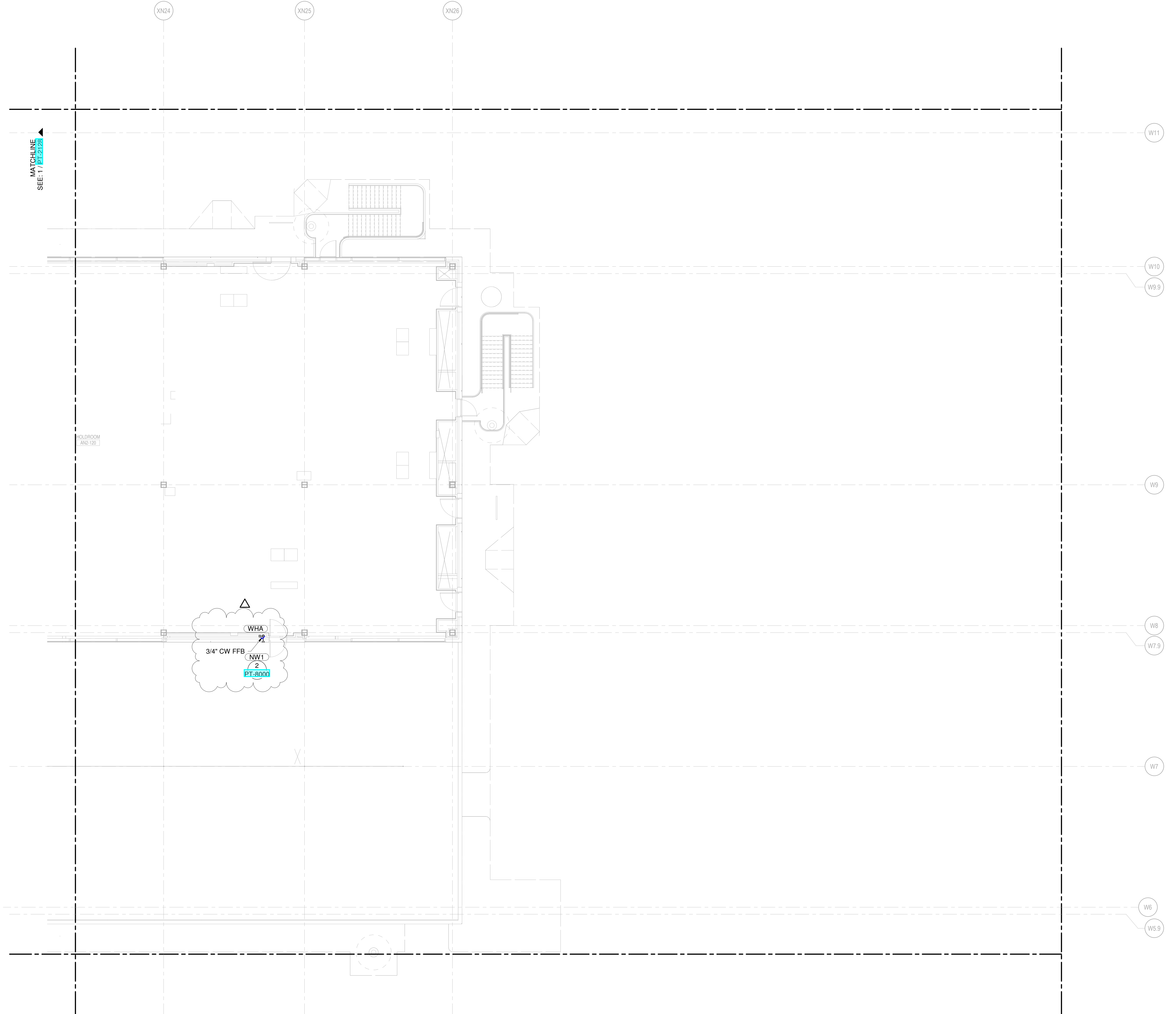
DRAWING TITLE

LEVEL 2 - DEPARTURES WATER & GAS PART PLAN T29

DRAWING NUMBER

PT-2129

- CONDENSATE DRAIN
- CONDENSATE PUMP DISCHARGE
- DOMESTIC COLD WATER
- DOMESTIC HOT WATER
- DOMESTIC HOT WATER RECIRC.
- GREASE WASTE
- INDIRECT DRAIN
- MEDIUM PRESSURE NATURAL GAS
- NON-POTABLE WATER
- OVERFLOW STORM DRAIN
- SOIL
- STORM DRAIN
- SUMP PUMP DISCHARGE
- VENT
- ▲ REPRESENT EQUIPMENT
- ▼ REPRESENT VALVES



MATCHLINE SEE: 1 / PT-2128

HOLDROOM ANZ-100

1 LEVEL 2 - DEPARTURES WATER & GAS PART PLAN T29
 SCALE: 1/8" = 1'-0"

PLUMBING PLAN NOTES:
 P080 2" MPG (1500 CFM MAX) FOR FUTURE TENANT CONNECTION
 P081 2 1/2" CW (75 SFU MAX) FOR FUTURE TENANT CONNECTION
 P190 2-1/2" CW (75 SFU MAX) CAPPED FOR LOUNGE TENANT CONNECTION
 P191 2" MPG (1500 CFM MAX) CAPPED FOR LOUNGE TENANT CONNECTION

NEW SINGLE TERMINAL AND RAMP AT KCI

OWNER
 KANSAS CITY INTERNATIONAL AIRPORT
 601 Brasilia Avenue, Kansas City, MO 64153
 PROJECT NUMBER - 62180497

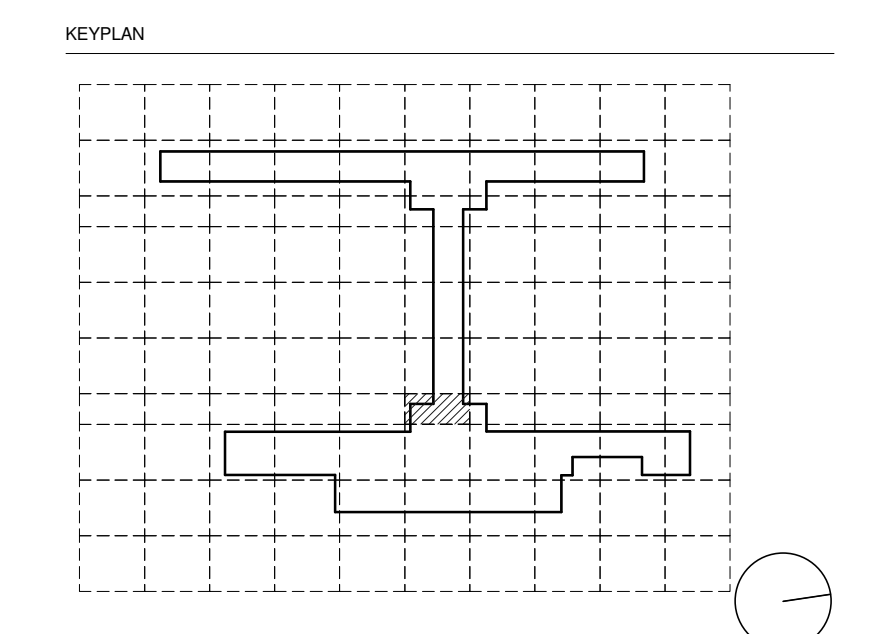
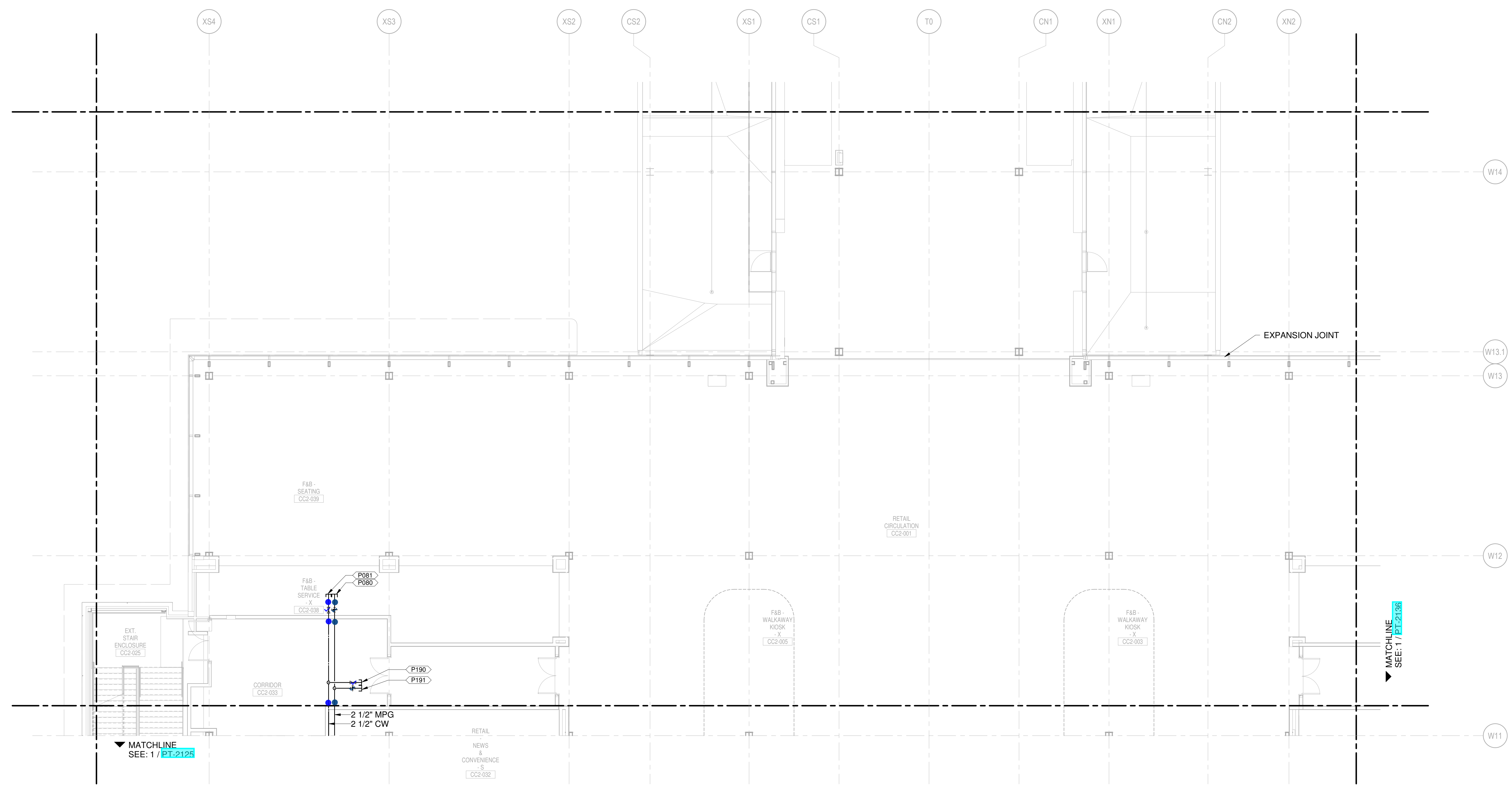
OWNER'S REPRESENTATIVE
 PMG Paslay Management Group
 533 Mexico City Avenue, Kansas City, MO 64153
 DEVELOPER

DESIGN-BUILDER
 CLARK WEITZ CLARKSON
 533 Mexico City Avenue, Kansas City, MO 64153

ARCHITECT & STRUCTURAL ENGINEER
 SOM
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1	AUGUST 27, 2020	ISSUED FOR FINAL DESIGN
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3	JUNE 18, 2020	ISSUED FOR GCP PROGRESS
4	MARCH 9, 2020	ISSUED FOR DESIGN DEVELOPMENT
5	JANUARY 23, 2020	CD PROGRESS
6	NOVEMBER 03, 2019	ISSUED FOR GCP CD

DRAWING TITLE
 LEVEL 2 - DEPARTURES WATER & GAS PART PLAN T35

DRAWING NUMBER
 PT-2135

- CONDENSATE DRAIN
- CONDENSATE PUMP DISCHARGE
- DOMESTIC COLD WATER
- DOMESTIC HOT WATER
- DOMESTIC HOT WATER RECIRC.
- GREASE WASTE
- INDIRECT DRAIN
- MEDIUM PRESSURE NATURAL GAS
- OVERFLOW STORM DRAIN
- SOIL
- STORM DRAIN
- SLUMP PUMP DISCHARGE
- VENT
- ▲ REPRESENT EQUIPMENT
- ▼ REPRESENT VALVES

PLUMBING PLAN NOTES:
 P080 2" MPG (1500 GPM MAX) FOR FUTURE TENANT CONNECTION
 P081 2 1/2" CW (75 SFU MAX) FOR FUTURE TENANT CONNECTION

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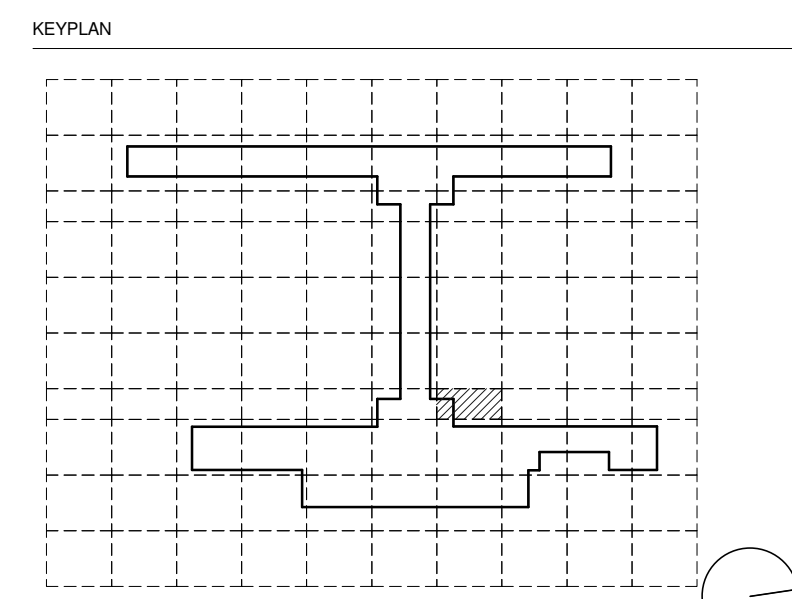
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 PMG Paslay Management Group
 533 Mexico City Avenue, Kansas City, MO 64153
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DESIGN-BUILDER
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 INFRASTRUCTURE & REAL ESTATE
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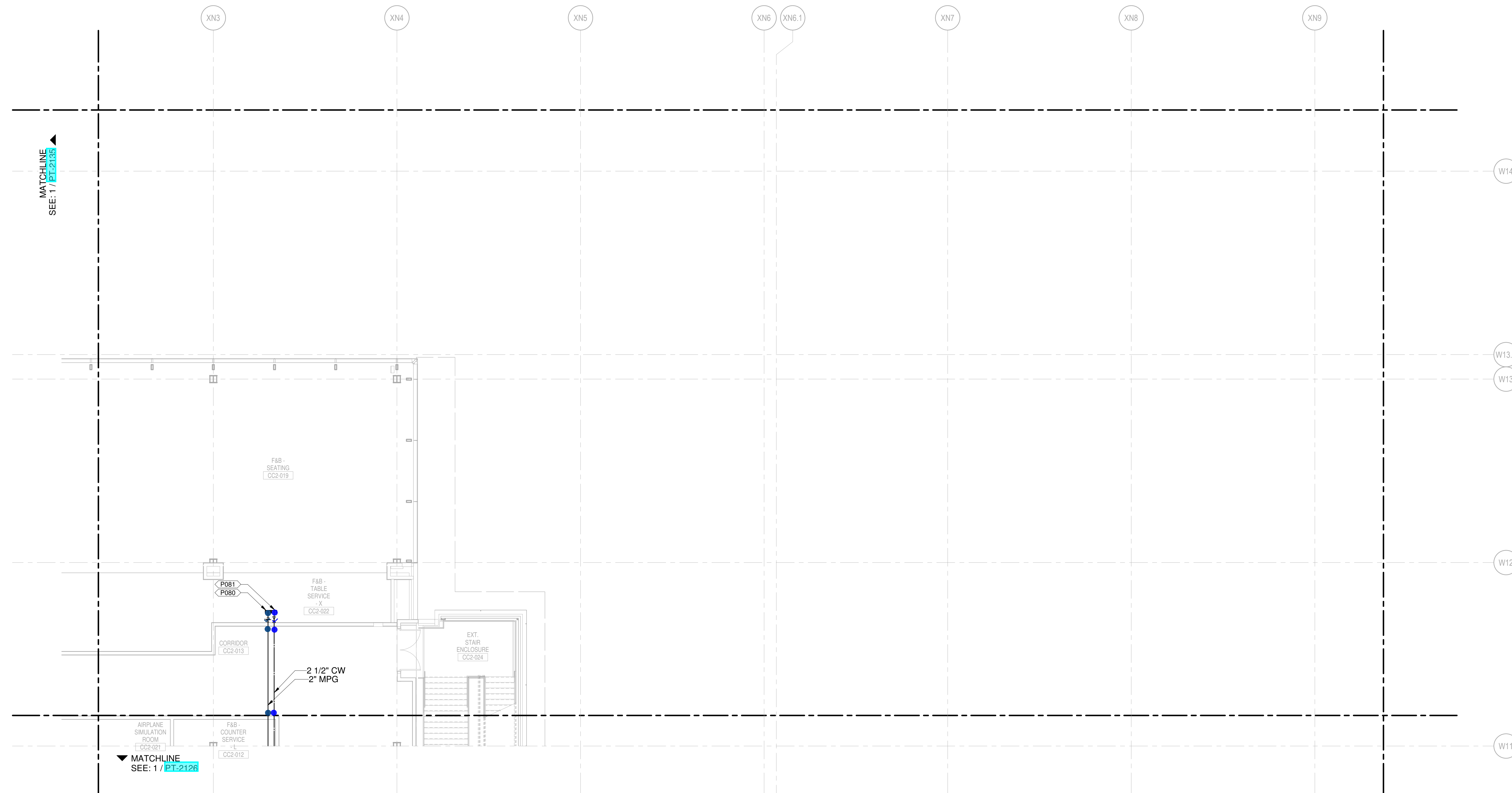
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1	NOVEMBER 03, 2019	ISSUED FOR PERMITS DEVELOPMENT
2	JANUARY 23, 2020	CD PROGRESS
3	JANUARY 23, 2020	CD PROGRESS
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5	JUNE 26, 2020	PRINT SET - UNDERGROUND
6	JUNE 16, 2020	ISSUED FOR CD PROGRESS
7	MARCH 6, 2020	ISSUED FOR PERMITS DEVELOPMENT

NO.	DATE	DESCRIPTION
1		

LEVEL 2 - DEPARTURES WATER & GAS PART PLAN T36

DRAWING NUMBER
PT-2136

- CONDENSATE DRAIN
- CONDENSATE PUMP DISCHARGE
- DOMESTIC COLD WATER
- DOMESTIC HOT WATER
- DOMESTIC HOT WATER RECIRC.
- GREASE WASTE
- INDIRECT DRAIN
- MEDIUM PRESSURE NATURAL GAS
- NON-POTABLE WATER
- OVERFLOW STORM DRAIN
- SOIL
- STORM DRAIN
- SUMP PUMP DISCHARGE
- VENT
- ▲ REPRESENT EQUIPMENT
- ▼ REPRESENT VALVES



1 LEVEL 2 - DEPARTURES WATER & GAS PART PLAN T36

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

SHANE M. LUTZ

PLUMBING PLAN NOTES:
 P080 2" MPG (1500 GPM MAX) FOR FUTURE TENANT CONNECTION
 P081 2 1/2" CW (75 SFU MAX) FOR FUTURE TENANT CONNECTION

NEW SINGLE TERMINAL AND GAS AT KCI

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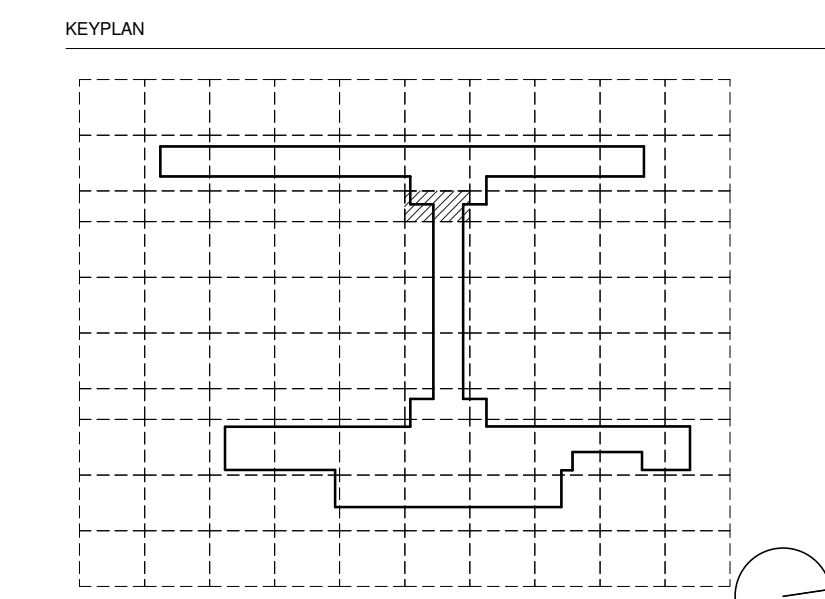
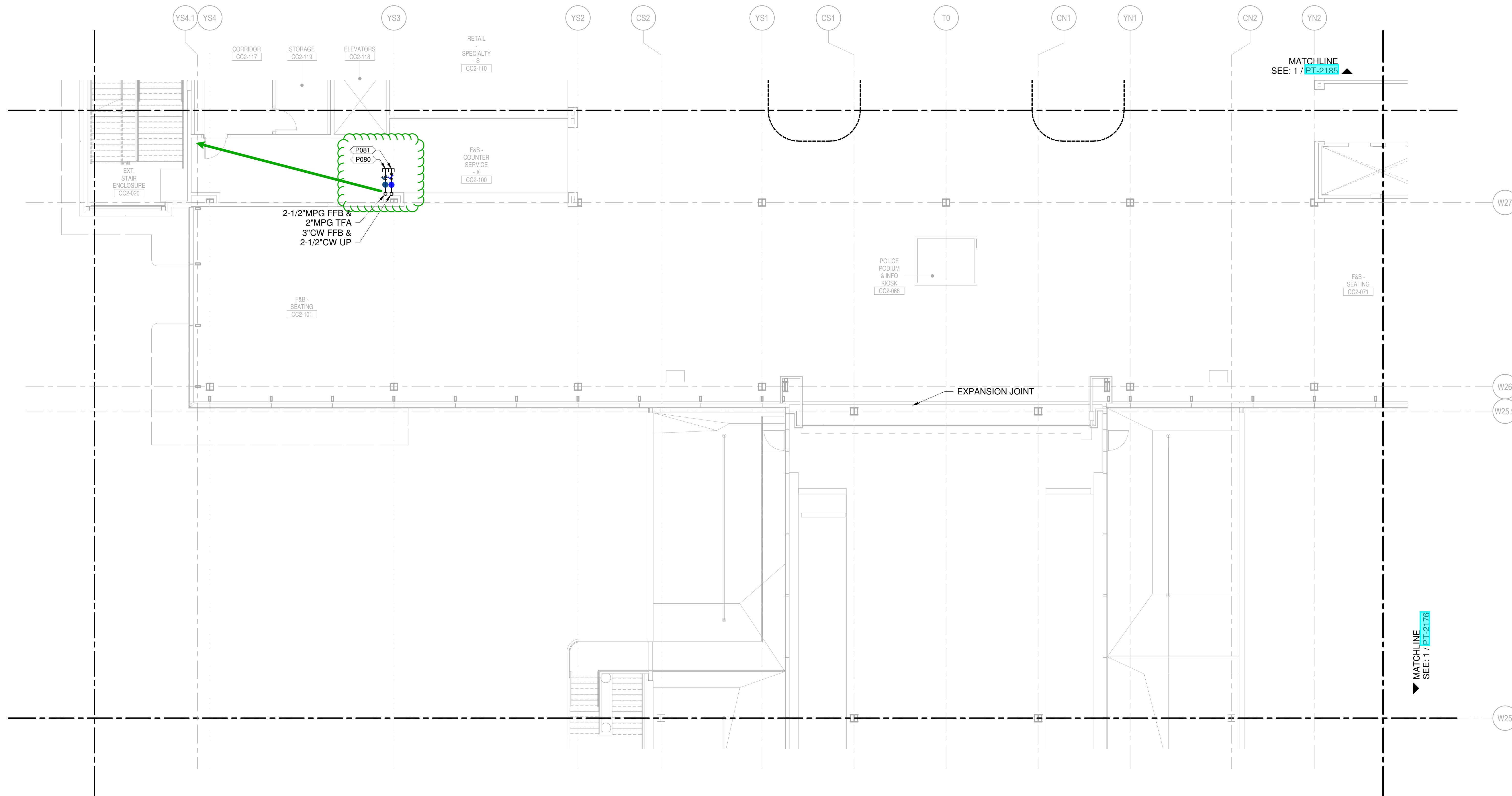
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5	JANUARY 23, 2020	CD PROGRESS
6	NOVEMBER 03, 2019	ISSUED FOR GCP CD

DRAWING TITLE
LEVEL 2 - DEPARTURES WATER & GAS PART PLAN T75

DRAWING NUMBER
PT-2175

- CONDENSATE DRAIN
- CONDENSATE PUMP DISCHARGE
- DOMESTIC COLD WATER
- DOMESTIC HOT WATER
- DOMESTIC HOT WATER RECIRC.
- GREASE WASTE
- INDIRECT DRAIN
- MEDIUM PRESSURE NATURAL GAS
- NON-POTABLE WATER
- OVERFLOW STORM DRAIN
- SOIL
- STORM DRAIN
- SUMP PUMP DISCHARGE
- VENT
- ▲ REPRESENT EQUIPMENT
- ▼ REPRESENT VALVES

1 LEVEL 2 - DEPARTURES WATER & GAS PART PLAN T75
 SCALE: 1/8" = 1'-0"

SHANE M. LUTZ

PLUMBING PLAN NOTES:
 P080 2" MPG (1500 GPM MAX) FOR FUTURE TENANT CONNECTION
 P081 2 1/2" CW (75 SFU MAX) FOR FUTURE TENANT CONNECTION

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 PROJECT NUMBER - 62180497

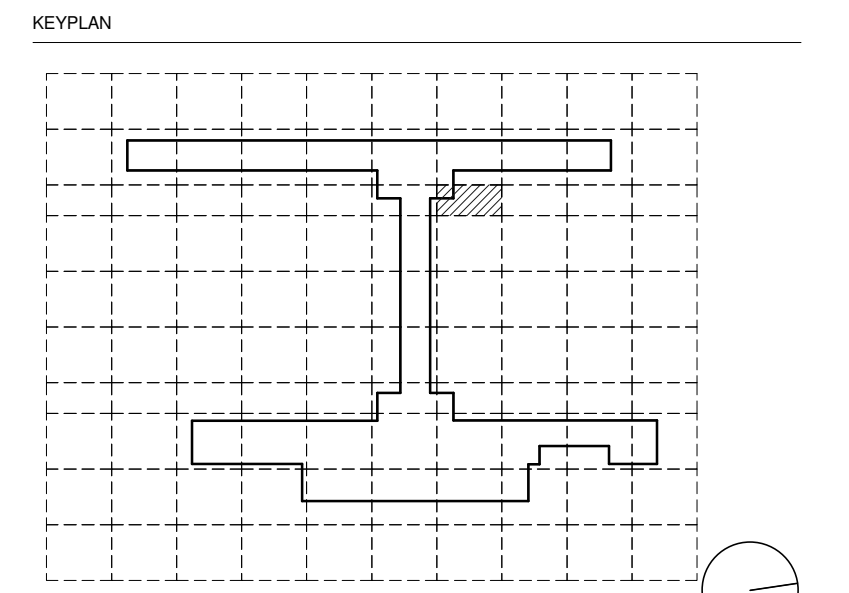
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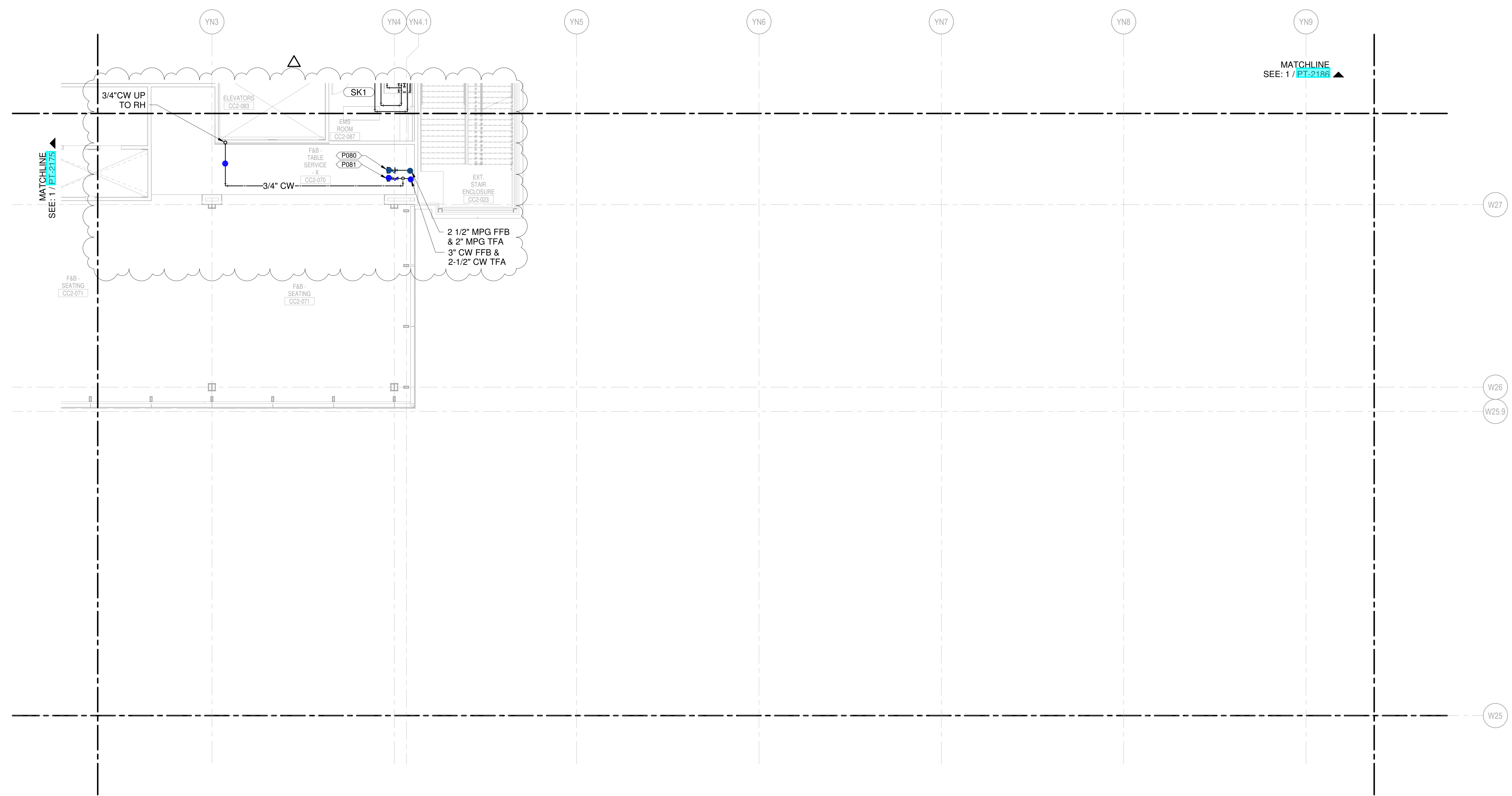
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 Springfield, MO 65814
 P: 913-742-9200

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2	JANUARY 23, 2020	ISSUED FOR PERMITS
3	JUNE 16, 2020	ISSUED FOR PERMITS
4	AUGUST 27, 2020	ISSUED FOR PERMITS

DRAWING TITLE
LEVEL 2 - DEPARTURES WATER & GAS PART PLAN T76

DRAWING NUMBER
PT-2176

- CONDENSATE DRAIN
- CONDENSATE PUMP DISCHARGE
- DOMESTIC COLD WATER
- DOMESTIC HOT WATER
- DOMESTIC HOT WATER RECIRC.
- GREASE WASTE
- INDIRECT DRAIN
- MEDIUM PRESSURE NATURAL GAS
- NON-POTABLE WATER
- OVERFLOW STORM DRAIN
- SOIL
- STORM DRAIN
- SUMP PUMP DISCHARGE
- VENT
- ▲ REPRESENT EQUIPMENT
- ▼ REPRESENT VALVES



1 LEVEL 2 - DEPARTURES WATER & GAS PART PLAN T76
 SCALE: 1/8" = 1'-0"

SHANE M. LUTZ

PLUMBING PLAN NOTES:
 P079 2" CW (50 SFU MAX) FOR FUTURE TENANT CONNECTION
 P136 3/4" CW UP TO ROOF HYDRANT.

NEW SINGLE TERMINAL AND GAS AT KCI

OWNER
KANSAS CITY INTERNATIONAL AIRPORT
 601 Brasilia Avenue, Kansas City, MO 64153
 PROJECT NUMBER - 62180497

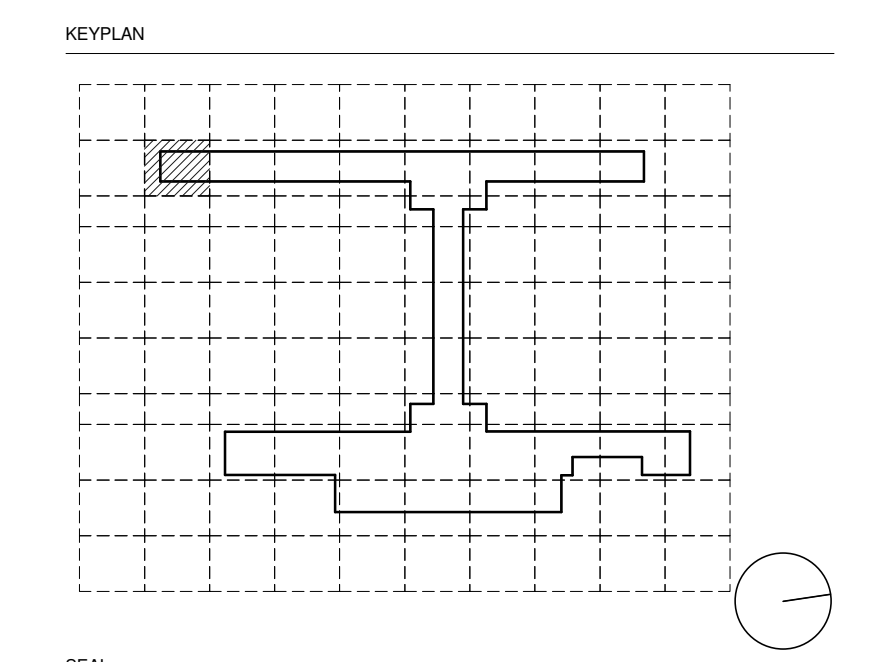
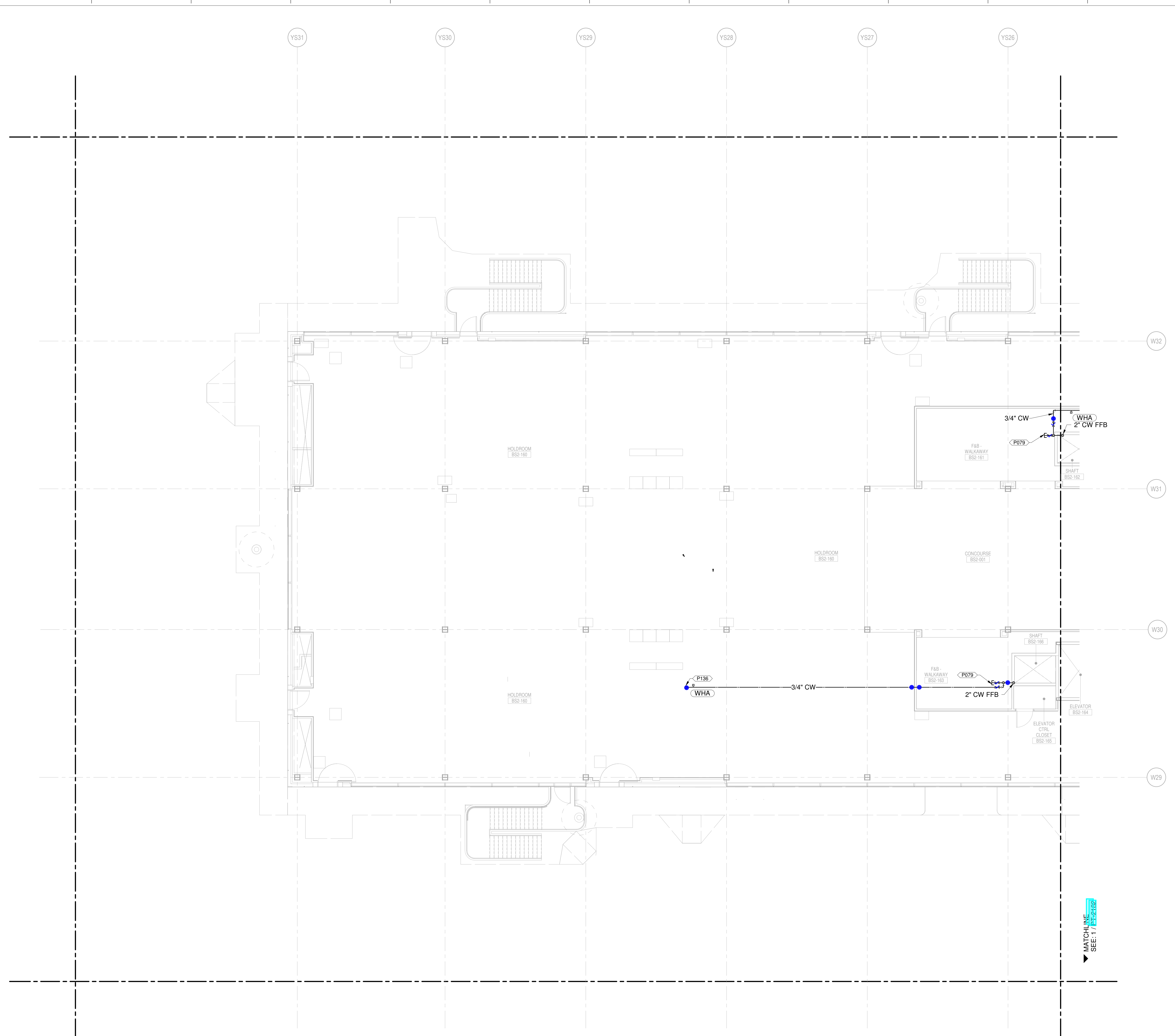
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PMG Paslay Management Group
 533 Mexico City Avenue, Kansas City, MO 64153
 DEVELOPER

DESIGN-BUILDER
CLARK **WEITZ** **CLARKSON**
 A GREAT TOGETHER
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6	NOVEMBER 03, 2019	ISSUED FOR GCP CD

DRAWING TITLE
LEVEL 2 - DEPARTURES WATER & GAS PART PLAN T81

DRAWING NUMBER
PT-2181

- CONDENSATE DRAIN
- CONDENSATE PUMP DISCHARGE
- DOMESTIC COLD WATER
- DOMESTIC HOT WATER
- DOMESTIC HOT WATER RECIRC.
- GREASE WASTE
- INDIRECT DRAIN
- MEDIUM PRESSURE NATURAL GAS
- NON-POTABLE WATER
- OVERFLOW STORM DRAIN
- SOIL
- STORM DRAIN
- SUMP PUMP DISCHARGE
- VENT
- ▲ REPRESENT EQUIPMENT
- ▼ REPRESENT VALVES

1 LEVEL 2 - DEPARTURES WATER & GAS PART PLAN T81
 SCALE: 1/8" = 1'-0"

SHANE M. LUTZ

PLUMBING PLAN NOTES:
 P079 2" CW (50 SFU MAX) FOR FUTURE TENANT CONNECTION
 P136 3/4" CW UP TO ROOF HYDRANT.

NEW SINGLE TERMINAL AND GAS AT KCI

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 601 Brasilia Avenue, Kansas City, MO 64153
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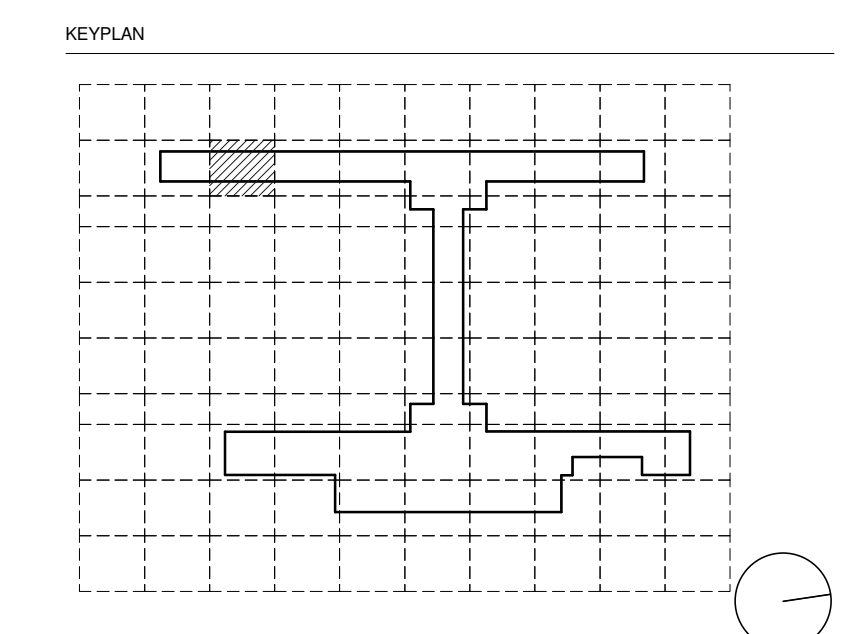
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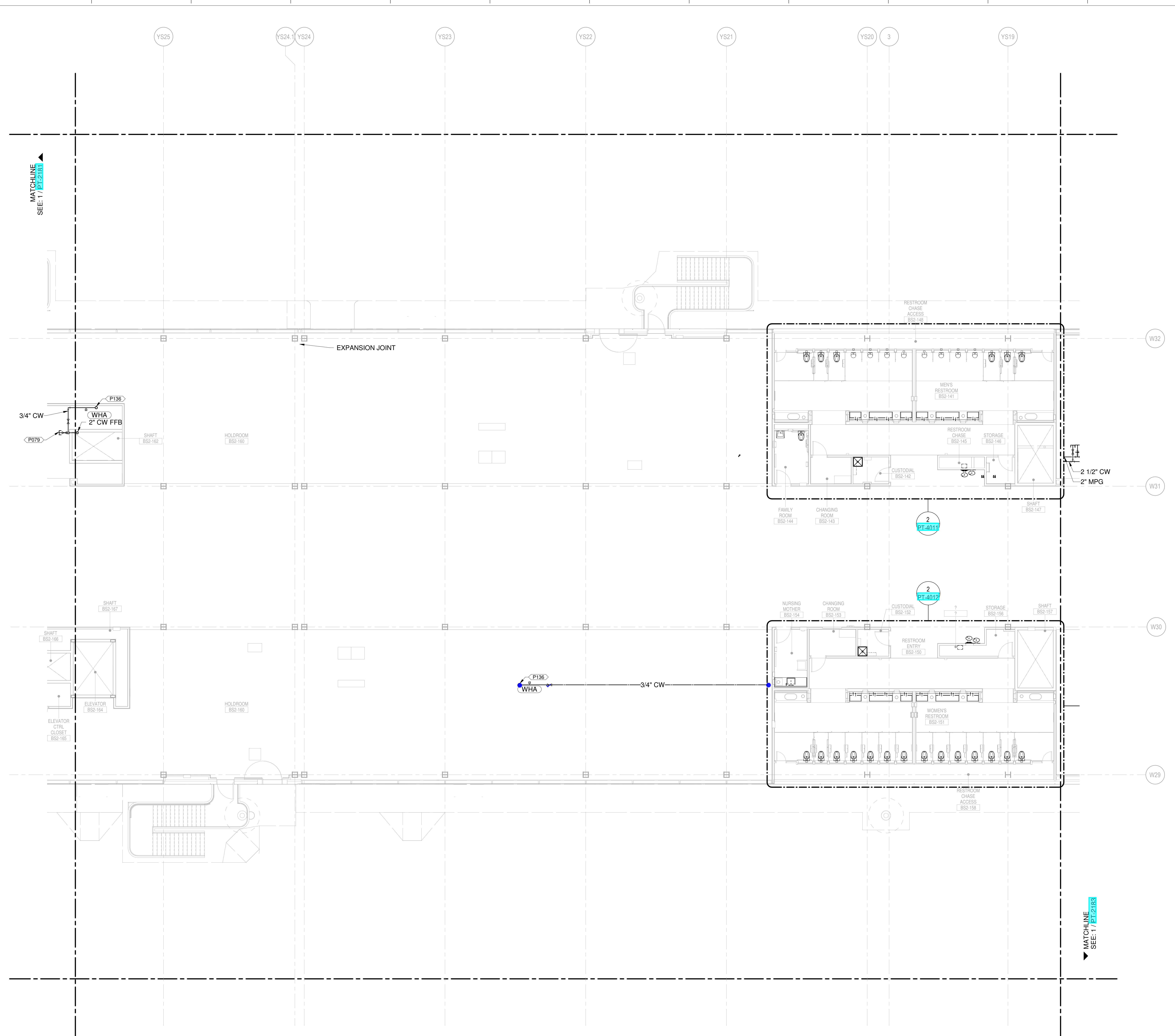
Henderson Engineers Inc.
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 P: 913-742-9200

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3	JUNE 18, 2020	ISSUED FOR GCP PROGRESS
4	MARCH 4, 2020	ISSUED FOR PERSON DEVELOPMENT
5	JANUARY 23, 2020	CD PROGRESS
6	NOVEMBER 20, 2019	ISSUED FOR GCP CD

DRAWING TITLE
LEVEL 2 - DEPARTURES WATER & GAS PART PLAN T82

DRAWING NUMBER
PT-2182



- CONDENSATE DRAIN
- CONDENSATE PUMP DISCHARGE
- DOMESTIC COLD WATER
- DOMESTIC HOT WATER
- DOMESTIC HOT WATER RECIRC.
- GREASE WASTE
- INDIRECT DRAIN
- MEDIUM PRESSURE NATURAL GAS
- OVERFLOW STORM DRAIN
- SOIL
- STORM DRAIN
- SUMP PUMP DISCHARGE
- VENT
- ▲ REPRESENT EQUIPMENT
- ▼ REPRESENT VALVES

1 LEVEL 2 - DEPARTURES WATER & GAS PART PLAN T82
 SCALE: 1/8" = 1'-0"

SHANE M. LUTZ

PLUMBING PLAN NOTES:
 P078 1 1/4" MPG (500 CFH MAX) FOR FUTURE TENANT CONNECTION
 P079 2" CW (50 SFU MAX) FOR FUTURE TENANT CONNECTION
 P081 2 1/2" CW (75 SFU MAX) FOR FUTURE TENANT CONNECTION
 P132 2" MPG (CFH MAX 1500) FOR FUTURE TENANT CONNECTION
 P136 3/4" CW UP TO ROOF HYDRANT.

NEW SINGLE TERMINAL AND PARKING AT KCI

OWNER
 KANSAS CITY INTERNATIONAL AIRPORT
 601 Brasilia Avenue, Kansas City, MO 64153
 PROJECT NUMBER - 62180497

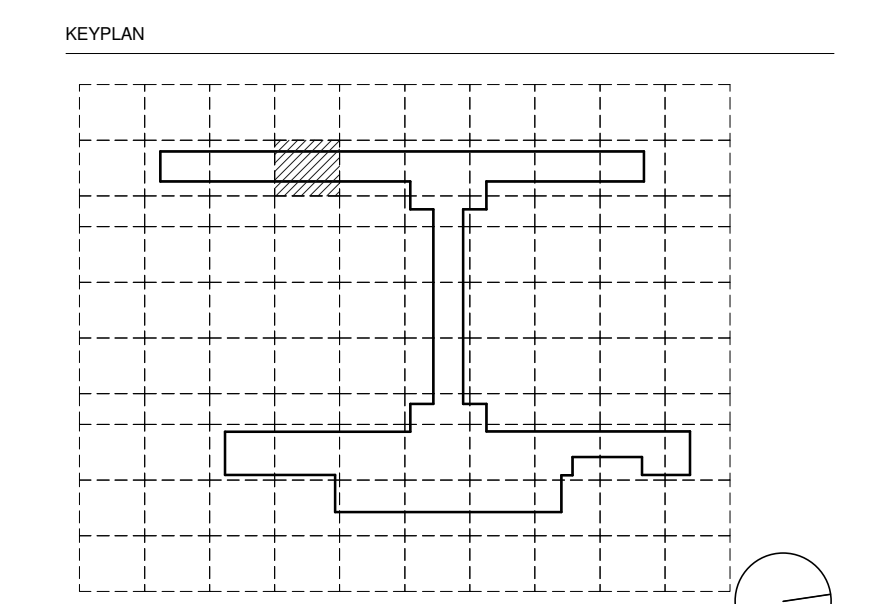
OWNER'S REPRESENTATIVE
 PMG Paslay Management Group
 533 Mexico City Avenue, Kansas City, MO 64153
 DEVELOPER

DESIGN-BUILDER
 CLARK WEITZ CLARKSON
 533 Mexico City Avenue, Kansas City, MO 64153

ARCHITECT & STRUCTURAL ENGINEER
 SOM
 Skidmore, Owings & Merrill LLP
 14 Wall Street, New York, NY 10005

CONSULTANT TEAM

- Draw Architecture - Collaborating Architect
- Wellner Architects - Collaborating Architect
- HJM Architects Inc. - Collaborating Architect
- FSC Inc. - Fire Protection / Code / Life Safety
- Henderson - MEP / FA / PA / Sec Engineer of Record
- LAND3 Studio - Landscape Architect
- Garver - Airside Civil
- Entro - Signage / Wayfinding
- Olsson - Traffic Planning
- BNP - Baggage Handling
- Vanderlande - Baggage Handling
- Michele & Associates - ADA
- Thornton Tomasetti - Protective Design
- SK Design Group - Glycol / Landside Utilities
- Trekk Design Group - Airside Storm Drainage
- Arora Engineers, Inc. - AIS / ICT
- ARUP - Aircraft Parking / Gate Eq. / AIS / ICT / FA
- Taliaferro & Browne Inc. - Landside Civil
- Custom Eng. Inc. - Landside Utilities / Airside Utilities
- 3T Design & Development - Landside Utilities
- HC Consulting Group - Permitting
- Lightworks - Lighting / Landside Lighting
- Dubois Consultants - Struc. Terminal
- Leigh & O'Kane - Roadway Structure
- Argus Consulting - Hydrant Fuel System
- Transolutions - Terminal Planning
- Premier Engineering - Demolition
- ICF - Concessions
- Lerch Bates - VHT Consultants
- Cityfi - Smart Technology
- Priority Engineers - Traffic Engineering



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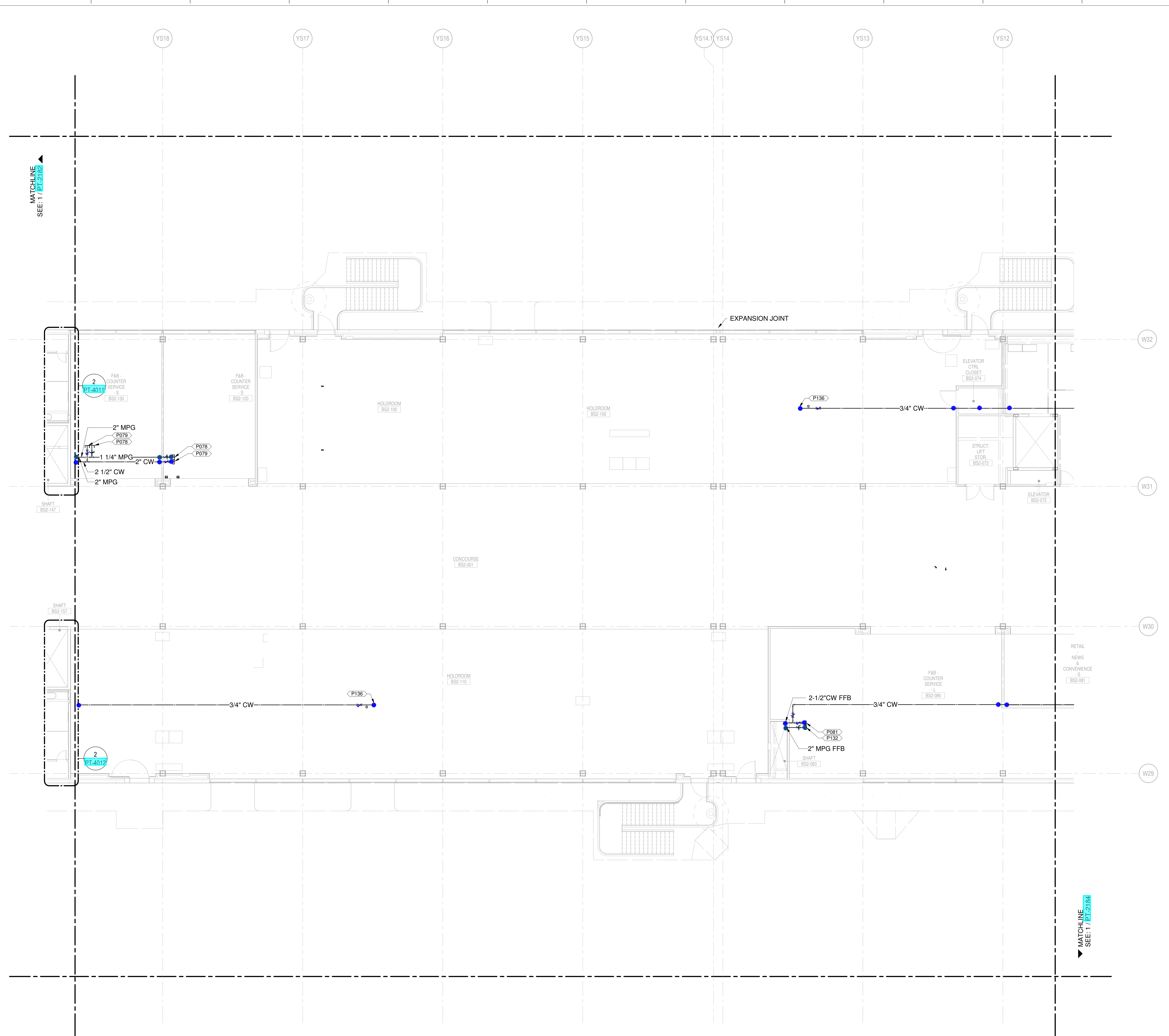
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SHANE M. LUTZ
 LICENSE # PE-2003000011
 MO. CORPORATE NO. E-5660
 EXPIRES 12/31/2020

NO.	DATE	DESCRIPTION
1	AUGUST 27, 2020	ISSUED FOR FINAL DESIGN
2	JULY 28, 2020	CD - PROGRESS PRINT
3	JUNE 26, 2020	PRINT SET 1 - UNDERGROUND
4	JUNE 18, 2020	ISSUED FOR CD PROGRESS
5	MARCH 4, 2020	ISSUED FOR DESIGN DEVELOPMENT
6	JANUARY 21, 2020	CD PROGRESS
7	NOVEMBER 03, 2019	ISSUED FOR CD, CD

DRAWING TITLE
LEVEL 2 - DEPARTURES WATER & GAS PART PLAN T83

DRAWING NUMBER
PT-2183



- CONDENSATE DRAIN
- CONDENSATE PUMP DISCHARGE
- DOMESTIC COLD WATER
- DOMESTIC HOT WATER
- DOMESTIC HOT WATER RECIRC.
- GREASE WASTE
- INDIRECT DRAIN
- MEDIUM PRESSURE NATURAL GAS
- NON-POTABLE WATER
- OVERFLOW STORM DRAIN
- SOIL
- STORM DRAIN
- SUMP PUMP DISCHARGE
- VENT
- ▲ REPRESENT EQUIPMENT
- ▼ REPRESENT VALVES

1 LEVEL 2 - DEPARTURES WATER & GAS PART PLAN T83
 SCALE: 1/8" = 1'-0"

SHANE M. LUTZ

PLUMBING PLAN NOTES:
 P081 2 1/2" CW (75 SFU MAX) FOR FUTURE TENANT CONNECTION
 P132 2" MPG (CFH MAX 1500) FOR FUTURE TENANT CONNECTION
 P136 3/4" CW UP TO ROOF HYDRANT.

NEW SINGLE TERMINAL AND GAS AT KCI

OWNER
KANSAS CITY INTERNATIONAL AIRPORT
 601 Brasilia Avenue, Kansas City, MO 64153
 PROJECT NUMBER - 62180497

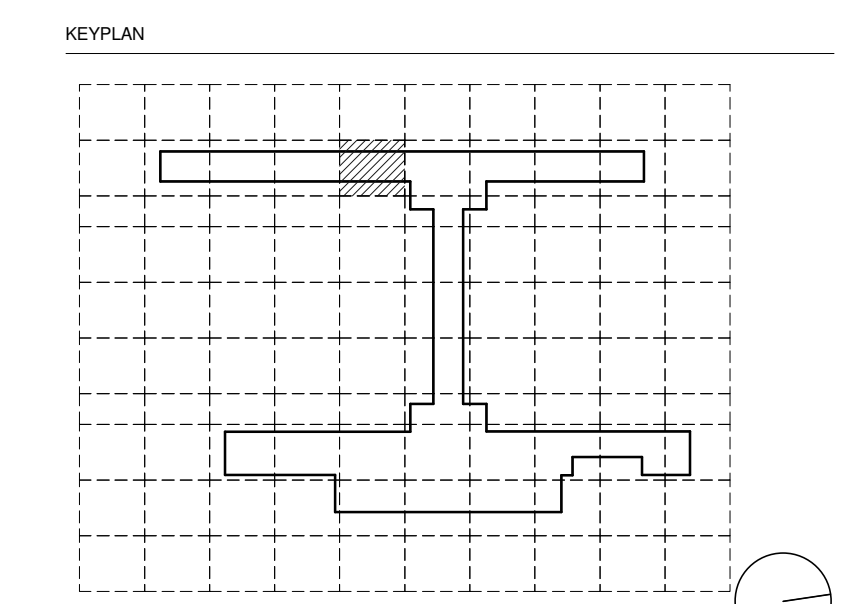
OWNER'S REPRESENTATIVE
PMG Paslay Management Group
 533 Mexico City Avenue, Kansas City, MO 64153
 DEVELOPER

DESIGN-BUILDER
CLARK WEITZ CLARKSON
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 14 Wall Street, New York, NY 10005

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- Garver - Airside Civil
- Entro - Signage / Wayfinding
- Olsson - Traffic Planning
- BNP - Baggage Handling
- Vanderlande - Baggage Handling
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- SK Design Group - Glycol / Landside Utilities
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- ARUP - Aircraft Parking / Gate Eqp. / AIS / ICT / FA
- Tallafiero & Browne Inc. - Landside Civil
- Custom Eng. Inc. - Landside Utilities / Airside Utilities
- 3T Design & Development - Landside Utilities
- HG Consulting Group - Permitting
- Lightworks - Lighting / Landside Lighting
- Dubois Consultants - Struc. Terminal
- Leigh & O'Kane - Roadway Structure
- Argus Consulting - Hydrant Fuel System
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- Priority Engineers - Traffic Engineering



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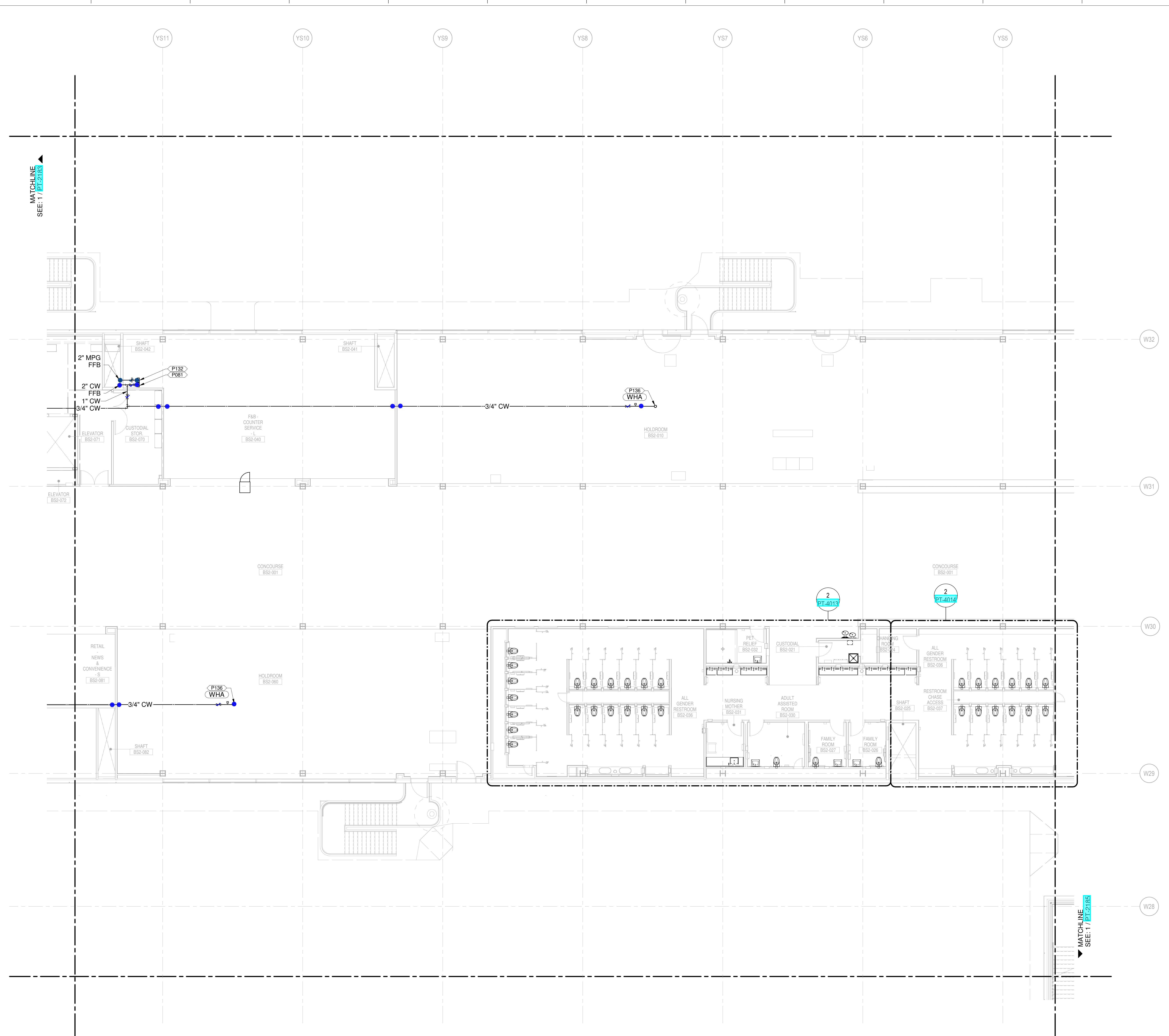
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1	AUGUST 27, 2020	ISSUED FOR FINAL DESIGN
2	JUNE 26, 2020	PRINT SET - UNDERGROUND
3	JUNE 16, 2020	ISSUED FOR CD PROGRESS
4	MARCH 6, 2020	ISSUED FOR PERSON DEVELOPMENT
5	JANUARY 23, 2020	CD PROGRESS
6	NOVEMBER 03, 2019	ISSUED FOR CD PROGRESS

DRAWING TITLE
LEVEL 2 - DEPARTURES WATER & GAS PART PLAN T84

DRAWING NUMBER
PT-2184



- CONDENSATE DRAIN
- CONDENSATE PUMP DISCHARGE
- DOMESTIC COLD WATER
- DOMESTIC HOT WATER
- DOMESTIC HOT WATER RECIRC.
- GREASE WASTE
- INDIRECT DRAIN
- MEDIUM PRESSURE NATURAL GAS
- NON-POTABLE WATER
- OVERFLOW STORM DRAIN
- SOIL
- STORM DRAIN
- SUMP PUMP DISCHARGE
- VENT
- ▲ REPRESENT EQUIPMENT
- ▼ REPRESENT VALVES

1 LEVEL 2 - DEPARTURES WATER & GAS PART PLAN T84
 SCALE: 1/8" = 1'-0"

PLUMBING PLAN NOTES:
 P080 2" MPG (1500 GPM MAX) FOR FUTURE TENANT CONNECTION
 P081 2 1/2" CW (75 SFU MAX) FOR FUTURE TENANT CONNECTION
 P136 3/4" CW UP TO ROOF HYDRANT.

NEW SINGLE TERMINAL AND GAS AT KCI

OWNER
KANSAS CITY INTERNATIONAL AIRPORT
 601 Brasilia Avenue, Kansas City, MO 64153
 PROJECT NUMBER - 62180497

OWNER'S REPRESENTATIVE
PMG Paslay Management Group
 533 Mexico City Avenue, Kansas City, MO 64153
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 A LEAN COMPANY
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Vanderlande - Baggage Handling
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Thornton Tomasetti - Protective Design
SK Design Group - Glycol / Landside Utilities
Arora Engineers, Inc. - AIS / ICT
ARUP - Aircraft Parking / Gate Eq. / AIS / ICT / FA
Tallafiero & Browne Inc. - Landside Civil
Custom Eng. Inc. - Landside Utilities / Airside Utilities
3T Design & Development - Landside Utilities
HC Consulting Group - Permitting
Lightworks - Lighting / Landside Lighting
Dubois Consultants - Struc. Terminal
Leigh & O'Kane - Roadway Structure
Argus Consulting - Hydrant Fuel System
Transolutions - Terminal Planning
Premier Engineering - Demolition
ICF - Concessions
Lerch Bates - VHT Consultants
CityH - Smart Technology
Priority Engineers - Traffic Engineering

KEY PLAN

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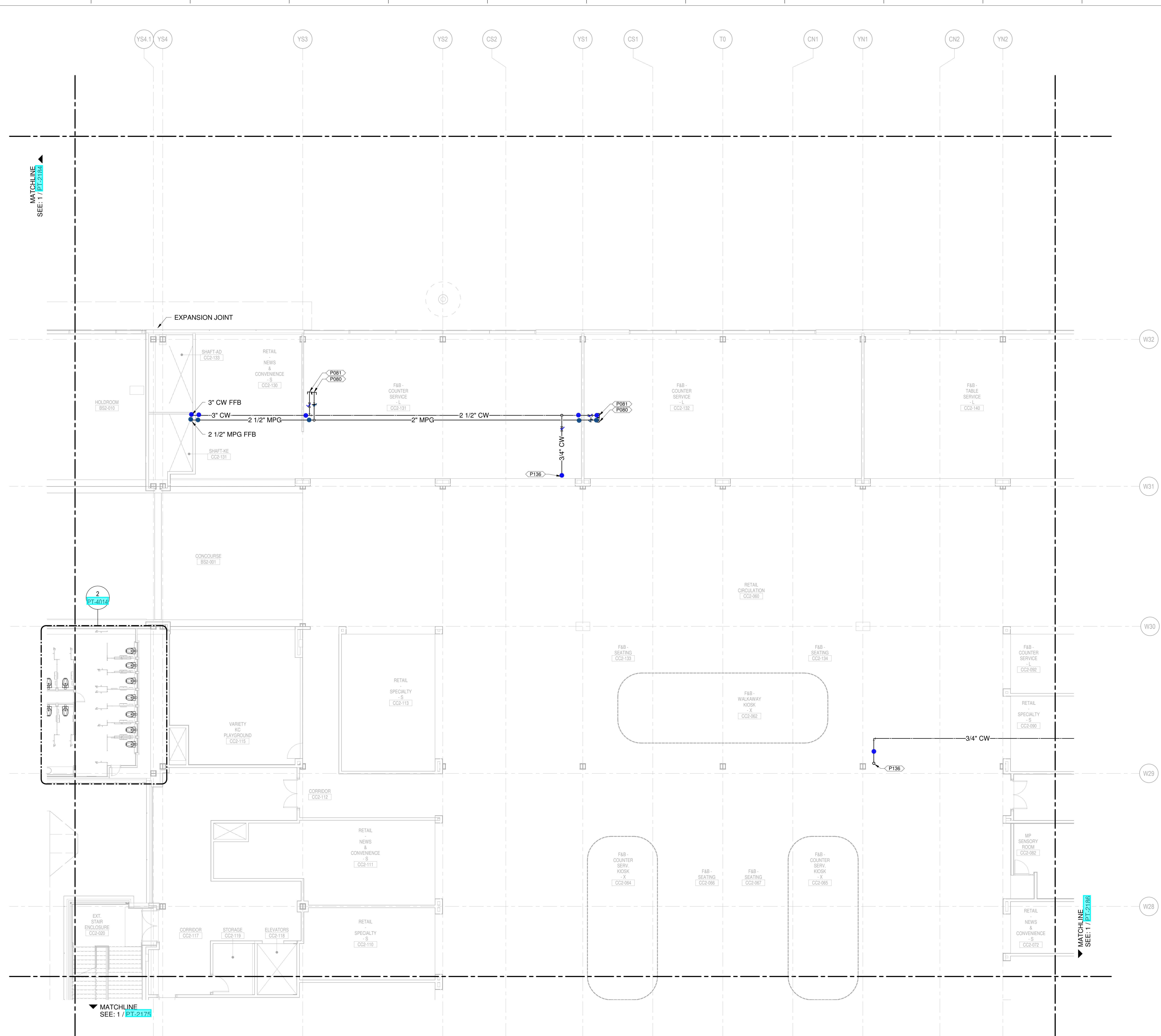
SHANE M. LUTZ
 LICENSE # PE-2003000011
 MO CORPORATE NO. E-5666
 EXPIRES 12/31/2020

NO.	DATE	DESCRIPTION
1	AUGUST 27, 2020	ISSUED FOR FINAL DESIGN
2	JUNE 26, 2020	PRINT SET - UNDERGROUND
3	JUNE 16, 2020	ISSUED FOR CD PROGRESS
4	MARCH 16, 2020	ISSUED FOR PRELIMINARY DEVELOPMENT
5	JANUARY 23, 2020	CD PROGRESS
6	NOVEMBER 03, 2019	ISSUED FOR CD PROGRESS

- CONDENSATE DRAIN
- CONDENSATE PUMP DISCHARGE
- DOMESTIC COLD WATER
- DOMESTIC HOT WATER
- DOMESTIC HOT WATER RECIRC.
- GREASE WASTE
- INDIRECT DRAIN
- MEDIUM PRESSURE NATURAL GAS
- NON-POTABLE WATER
- OVERFLOW STORM DRAIN
- SOIL
- STORM DRAIN
- SLUMP PUMP DISCHARGE
- VENT
- ▲ REPRESENT EQUIPMENT
- ▼ REPRESENT VALVES

LEVEL 2 - DEPARTURES WATER & GAS PART PLAN T85

DRAWING NUMBER
PT-2185



1 LEVEL 2 - DEPARTURES WATER & GAS PART PLAN T85
 SCALE: 1/8" = 1'-0"

SHANE M. LUTZ

PLUMBING PLAN NOTES:
 P081 2 1/2" CW (75 SFU MAX) FOR FUTURE TENANT CONNECTION
 P132 2" MPG (CFH MAX 1500) FOR FUTURE TENANT CONNECTION
 P136 3/4" CW UP TO ROOF HYDRANT
 P154 PROVIDE PIPE ALIGNMENT GUIDES.
 P155 PROVIDE PIPE ANCHORS.

NEW SINGLE TERMINAL AND GAS AT KCI

OWNER
KANSAS CITY INTERNATIONAL AIRPORT
 601 Brasilia Avenue, Kansas City, MO 64153
 PROJECT NUMBER - 62180497

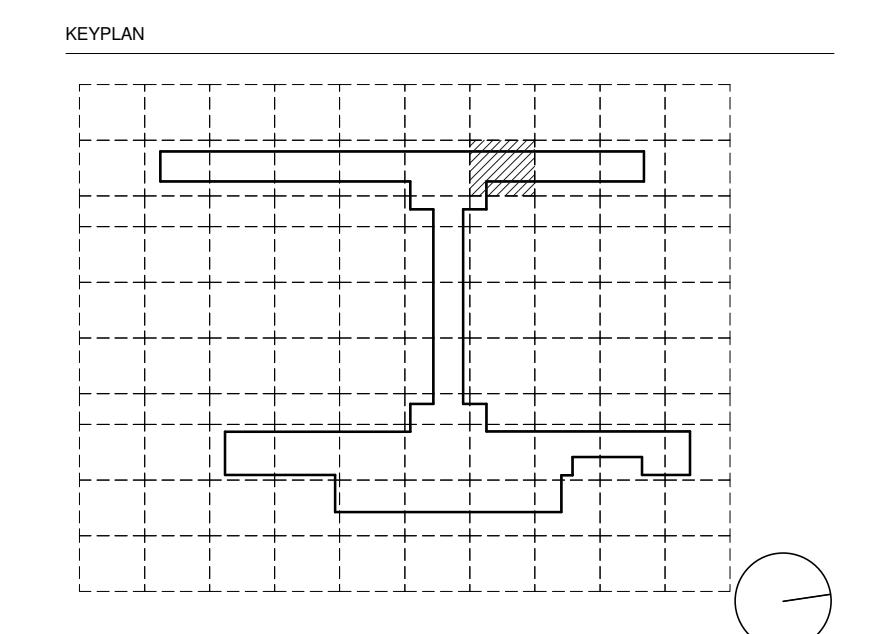
OWNER'S REPRESENTATIVE
PMG Paslay Management Group
 533 Mexico City Avenue, Kansas City, MO 64153
 DEVELOPER

DESIGN-BUILDER
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Vanderlande - Baggage Handling
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Thornton Tomasetti - Protective Design
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ARUP - Aircraft Parking / Gate Eq. / AIS / ICT / FA
Tallafiero & Browne Inc. - Landside Civil
Custom Eng. Inc. - Landside Utilities / Airside Utilities
3T Design & Development - Landside Utilities
HC Consulting Group - Permitting
Lightworks - Lighting / Landside Lighting
Dubois Consultants - Struc. Terminal
Leigh & O'Kane - Roadway Structure
Argus Consulting - Hydrant Fuel System
Transolutions - Terminal Planning
Premier Engineering - Demolition
ICF - Concessions
Lerch Bates - VHT Consultants
Cityfi - Smart Technology
Priority Engineers - Traffic Engineering



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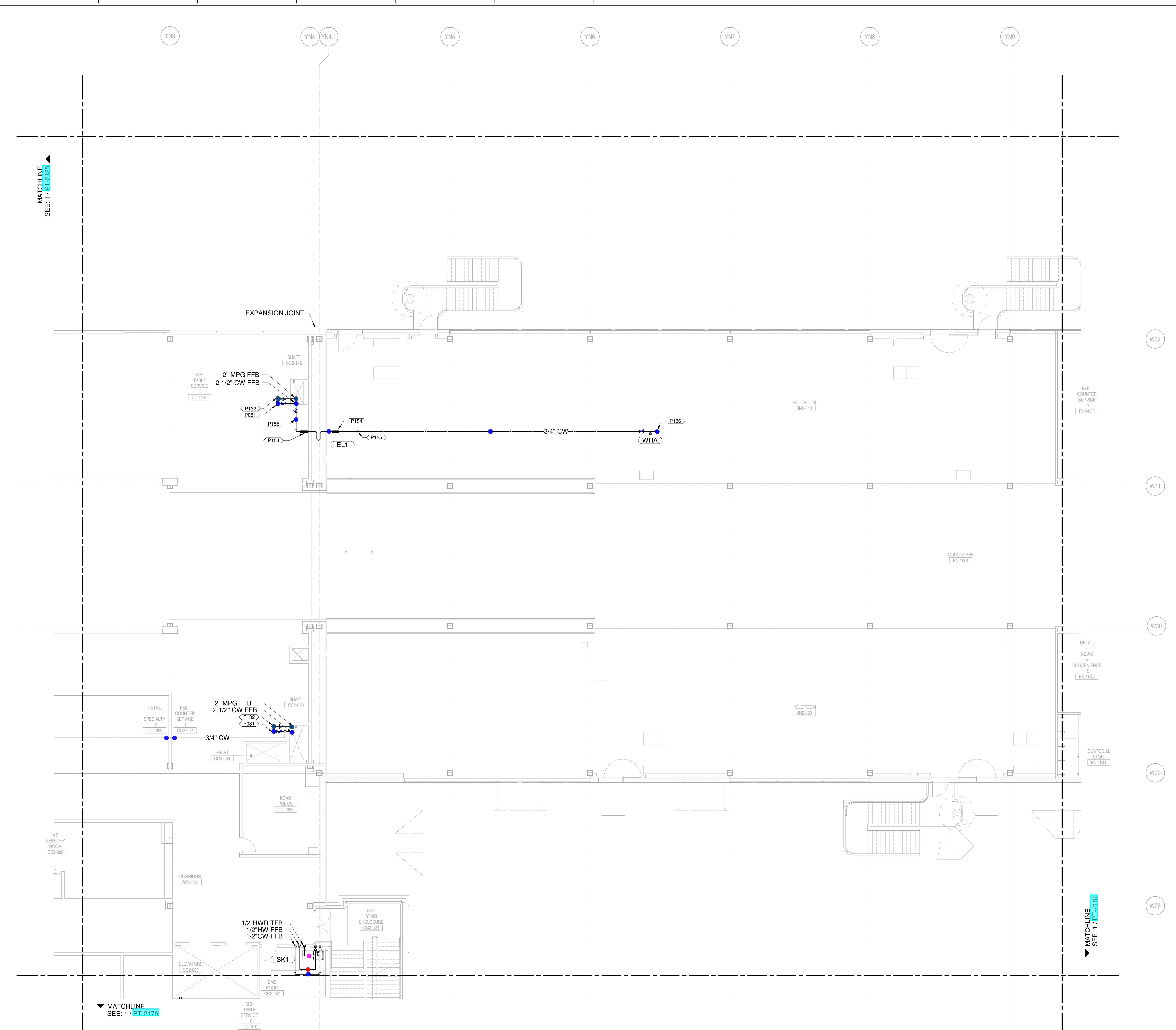
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SHANE M. LUTZ
 LICENSE # PE-2003000011
 MO CORPORATE NO. E-5660
 EXPIRES 12/31/2020

NO.	DATE	DESCRIPTION
1	AUGUST 27, 2020	ISSUED FOR FINAL DESIGN
2	JUNE 24, 2020	PRINT SET - UNDERGROUND
3	JUNE 16, 2020	ISSUED FOR CD PROGRESS
4	MARCH 16, 2020	ISSUED FOR PERSON DEVELOPMENT
5	JANUARY 21, 2020	CD PROGRESS
6	NOVEMBER 03, 2019	ISSUED FOR CD PROGRESS

DRAWING NUMBER
PT-2186

DRAWING TITLE
LEVEL 2 - DEPARTURES WATER & GAS PART PLAN T86



- CONDENSATE DRAIN
- CONDENSATE PUMP DISCHARGE
- DOMESTIC COLD WATER
- DOMESTIC HOT WATER
- DOMESTIC HOT WATER RECIRC.
- GREASE WASTE
- INDIRECT DRAIN
- MEDIUM PRESSURE NATURAL GAS
- OVERFLOW STORM DRAIN
- SOIL
- STORM DRAIN
- SUMP PUMP DISCHARGE
- VENT
- ▲ REPRESENT EQUIPMENT
- ▼ REPRESENT VALVES

1 LEVEL 2 - DEPARTURES WATER & GAS PART PLAN T86
 SCALE: 1/8" = 1'-0"

PLUMBING PLAN NOTES:
 P078 1 1/4" MFG (500 CFM MAX) FOR FUTURE TENANT CONNECTION
 P079 2" CW (50 SFU MAX) FOR FUTURE TENANT CONNECTION
 P136 3/4" CW UP TO ROOF HYDRANT.

NEW SINGLE TERMINAL AND GAS AT KCI

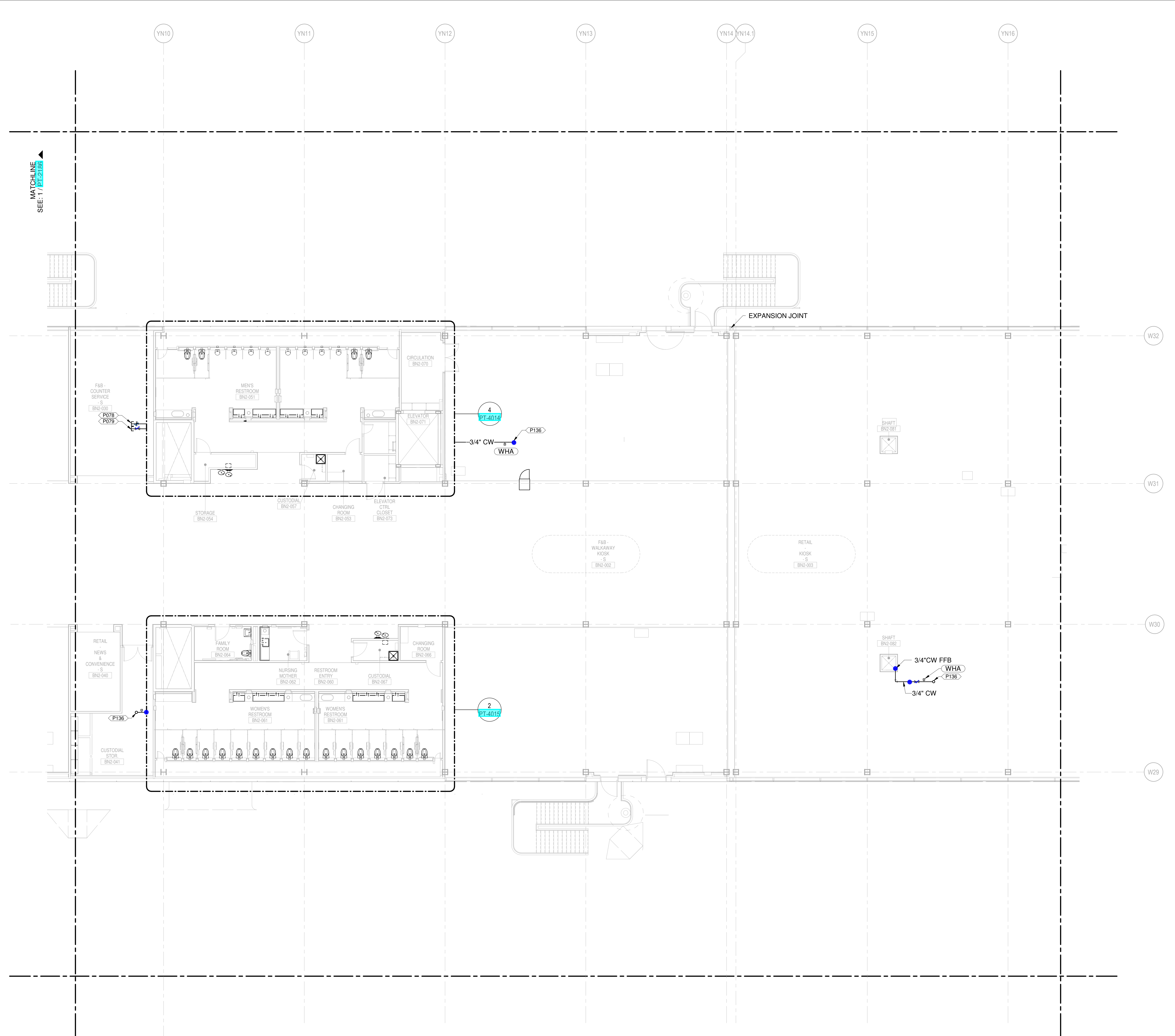
OWNER
 KANSAS CITY INTERNATIONAL AIRPORT
 601 Brasilia Avenue, Kansas City, MO 64153
 PROJECT NUMBER - 62180497

OWNER'S REPRESENTATIVE
 PMG Paslay Management Group
 533 Mexico City Avenue, Kansas City, MO 64153
 DEVELOPER

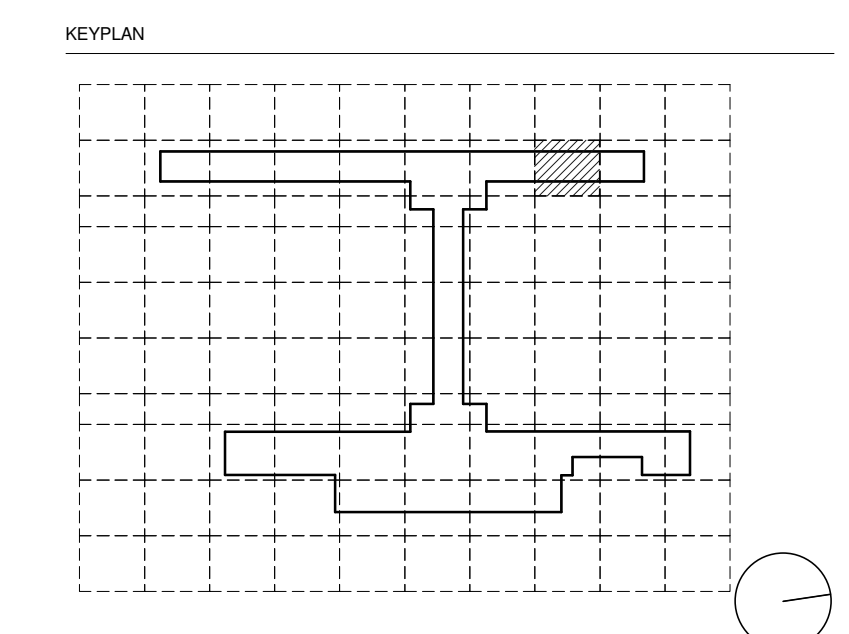
DESIGN-BUILDER
 CLARK WEITZ CLARKSON
 533 Mexico City Avenue, Kansas City, MO 64153

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

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 Transolutions - Terminal Planning
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 Priority Engineers - Traffic Engineering



- CONDENSATE DRAIN
- CONDENSATE PUMP DISCHARGE
- DOMESTIC COLD WATER
- DOMESTIC HOT WATER
- DOMESTIC HOT WATER RECIRC.
- GREASE WASTE
- INDIRECT DRAIN
- MEDIUM PRESSURE NATURAL GAS
- NON-POTABLE WATER
- OVERFLOW STORM DRAIN
- SOIL
- STORM DRAIN
- SUMP PUMP DISCHARGE
- VENT
- ▲ REPRESENT EQUIPMENT
- ▼ REPRESENT VALVES



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 MO CORPORATE NO. E-5660
 EXPIRES 12/31/2020

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2	JUNE 26, 2020	PRINT SET - UNDERGROUND
3	JUNE 18, 2020	ISSUED FOR GCP PROGRESS
4	MARCH 4, 2020	ISSUED FOR PERSON DEVELOPMENT
5	JANUARY 21, 2020	CD PROGRESS
6	NOVEMBER 03, 2019	ISSUED FOR GCP CD

LEVEL 2 - DEPARTURES WATER & GAS PART PLAN T87

PT-2187

1 LEVEL 2 - DEPARTURES WATER & GAS PART PLAN T87
 SCALE: 1/8" = 1'-0"

PLUMBING PLAN NOTES
P136 3/4" CW UP TO ROOF HYDRANT.

NEW SINGLE TERMINAL AND PARKING AT KCI

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KANSAS CITY INTERNATIONAL AIRPORT
601 Brasilia Avenue, Kansas City, MO 64153
PROJECT NUMBER - 62180497

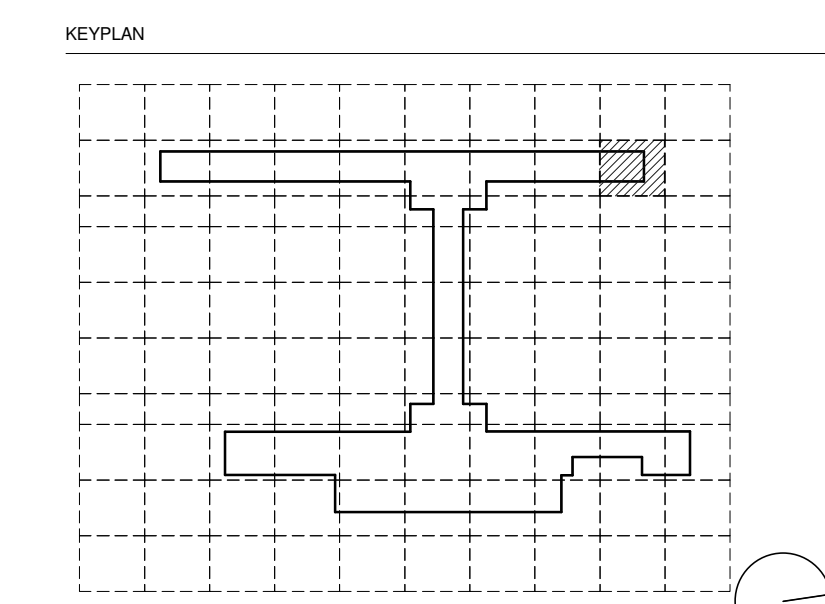
OWNER'S REPRESENTATIVE
PMG Paslay Management Group
533 Mexico City Avenue, Kansas City, MO 64153
DEVELOPER

DESIGN-BUILDER
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INFRASTRUCTURE & REAL ESTATE
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CLARK WEITZ CLARKSON
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SOM
Skidmore, Owings & Merrill LLP
14 Wall Street, New York, NY 10005

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ARUP - Aircraft Parking / Gate Eqp. / AIS / ICT / FA
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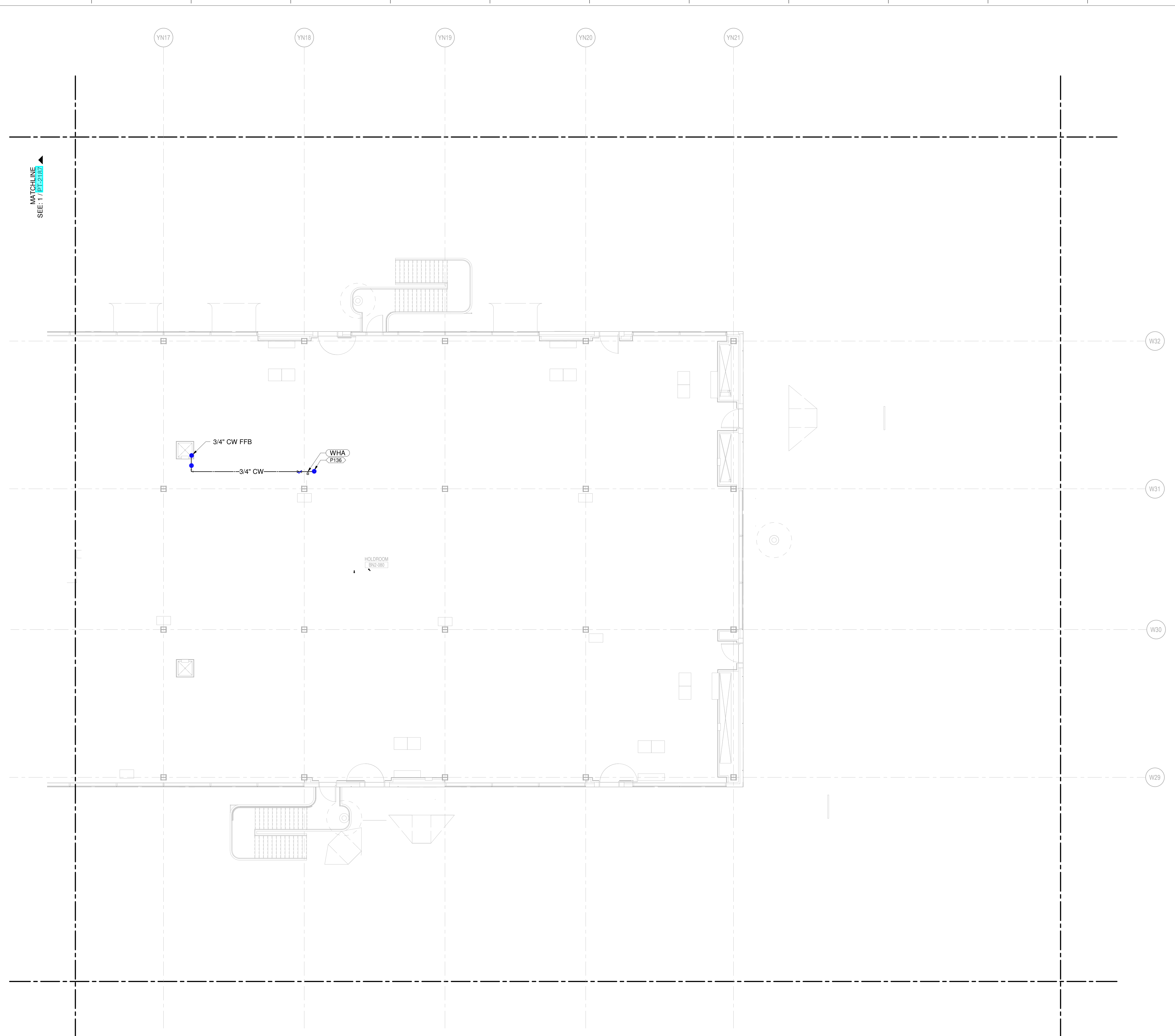


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LICENSE # PE-2003000011
MO. CORPORATE NO. E-5660
EXPIRES 12/31/2020

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2	JULY 28, 2020	CD - PROGRESS PRINT
3	JUNE 26, 2020	PERMIT SET - UNDERGROUND
4	JUNE 18, 2020	ISSUED FOR CD PROGRESS
5	MARCH 19, 2020	ISSUED FOR DESIGN DEVELOPMENT

DRAWING TITLE
LEVEL 2 - DEPARTURES WATER & GAS PART PLAN T88
DRAWING NUMBER
PT-2188

- CONDENSATE DRAIN
- CONDENSATE PUMP DISCHARGE
- DOMESTIC COLD WATER
- DOMESTIC HOT WATER
- DOMESTIC HOT WATER RECIRC.
- GREASE WASTE
- INDIRECT DRAIN
- MEDIUM PRESSURE NATURAL GAS
- NON-POTABLE WATER
- OVERFLOW STORM DRAIN
- SOIL
- STORM DRAIN
- SUMP PUMP DISCHARGE
- VENT
- ▲ REPRESENT EQUIPMENT
- ▼ REPRESENT VALVES



1 LEVEL 2 - DEPARTURES WATER & GAS PART PLAN T88
SCALE: 1/8" = 1'-0"

SHANE M. LUTZ

PLUMBING PLAN NOTES
 P136 3/4" CW UP TO ROOF HYDRANT
 P171 INSTALL DOMESTIC SHUTOFF VALVES AT 18" AFF FOR ACCESSIBILITY.

NEW SINGLE TERMINAL AND SINGLE AT KCI

OWNER
 KANSAS CITY INTERNATIONAL AIRPORT
 601 Brasilia Avenue, Kansas City, MO 64153
 PROJECT NUMBER - 62180497

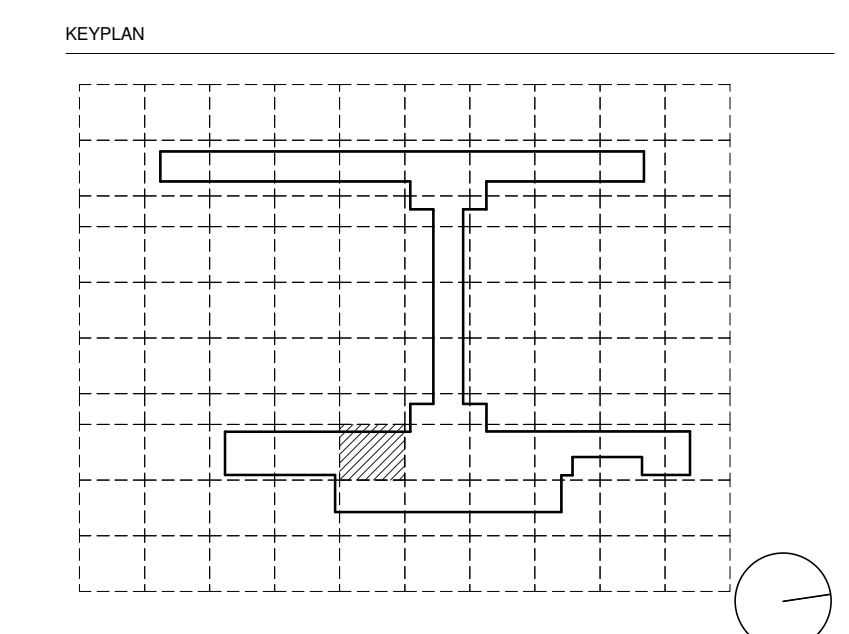
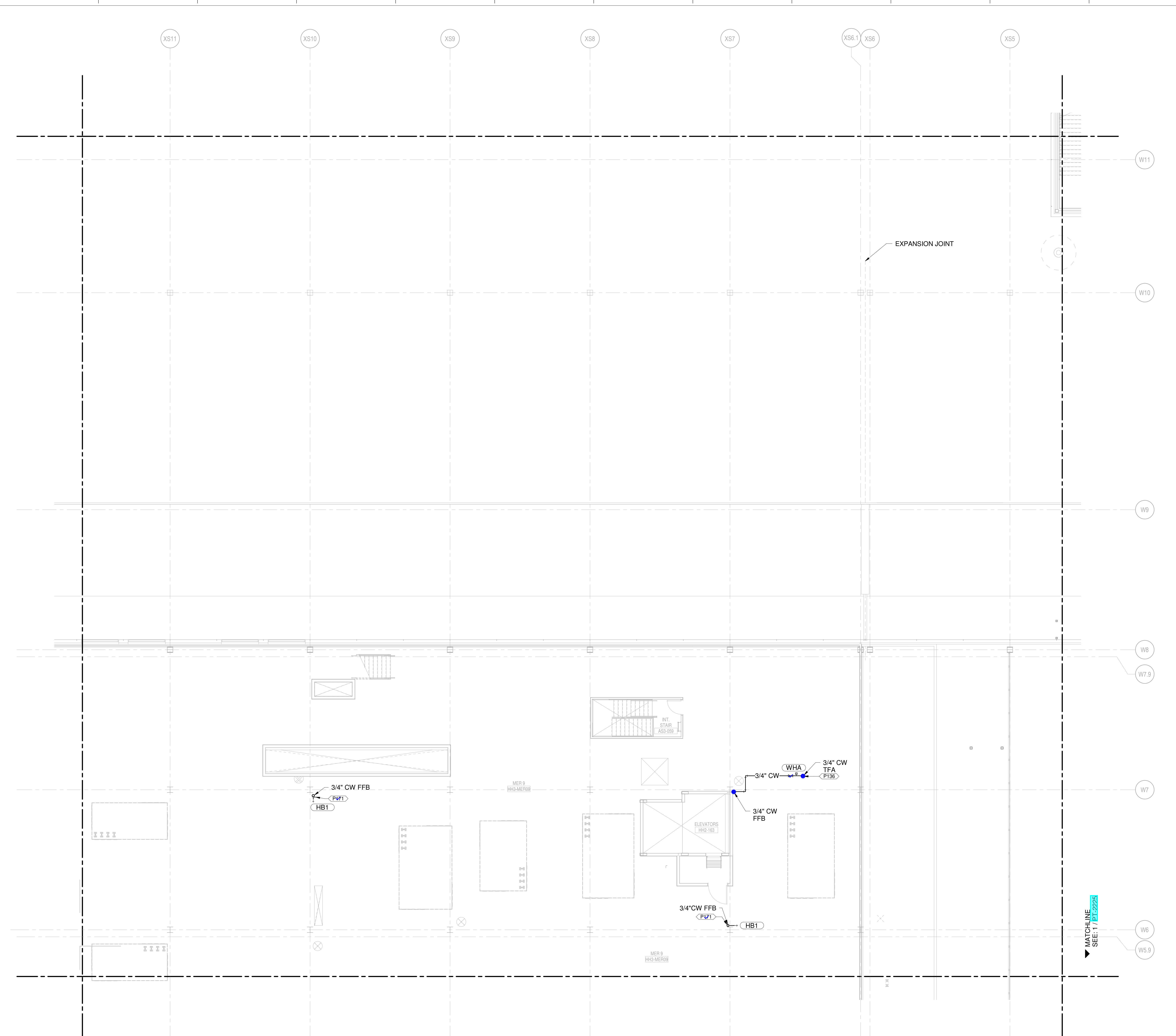
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 533 Mexico City Avenue, Kansas City, MO 64153
 DEVELOPER

DESIGN-BUILDER
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- Trekk Design Group - Airside Storm Drainage
- Arora Engineers, Inc. - AIS / ICT
- ARUP - Aircraft Parking / Gate Eqp. / AIS / ICT / FA
- Taliaferro & Browne Inc. - Landside Civil
- Custom Eng. Inc. - Landside Utilities / Airside Utilities
- 3T Design & Development - Landside Utilities
- HG Consulting Group - Permitting
- Lightworks - Lighting / Landside Lighting
- Dubois Consultants - Struc. Terminal
- Leigh & O'Kane - Roadway Structure
- Argus Consulting - Hydrant Fuel System
- Transolutions - Terminal Planning
- Premier Engineering - Demolition
- ICF - Concessions
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3	JUNE 18, 2020	ISSUED FOR CGP PROGRESS
4	MARCH 9, 2020	ISSUED FOR PERSON DEVELOPMENT
5	JANUARY 21, 2020	CD PROGRESS
6	NOVEMBER 20, 2019	ISSUED FOR CD PROGRESS

DRAWING TITLE
LEVEL 3 - MER MEZZANINE WATER & GAS PART PLAN T24

DRAWING NUMBER
PT-2224

- CONDENSATE DRAIN
- CONDENSATE PUMP DISCHARGE
- DOMESTIC COLD WATER
- DOMESTIC HOT WATER
- DOMESTIC HOT WATER RECIRC.
- GREASE WASTE
- INDIRECT DRAIN
- MEDIUM PRESSURE NATURAL GAS
- NON-POTABLE WATER
- OVERFLOW STORM DRAIN
- SOIL
- STORM DRAIN
- SUMP PUMP DISCHARGE
- VENT
- ▲ REPRESENT EQUIPMENT
- ▼ REPRESENT VALVES

1 LEVEL 3 - MER MEZZANINE WATER & GAS PART PLAN T24
 SCALE: 1/8" = 1'-0"

SHANE M. LUTZ

PLUMBING PLAN NOTES:
P136 3/4" CW UP TO ROOF HYDRANT
P154 PROVIDE PIPE ALIGNMENT GUIDES.
P155 PROVIDE PIPE ANCHORS.

NEW SINGLE TERMINAL AND GAS AT KCI

OWNER
KANSAS CITY INTERNATIONAL AIRPORT
601 Brasilia Avenue, Kansas City, MO 64153
PROJECT NUMBER - 62180497

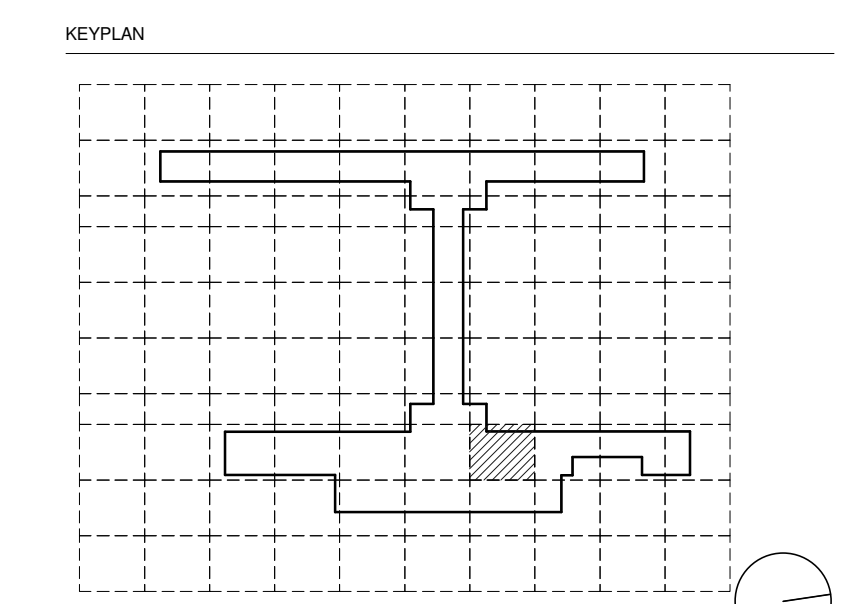
OWNER'S REPRESENTATIVE
PMG Paslay Management Group
533 Mexico City Avenue, Kansas City, MO 64153
DEVELOPER

DESIGN-BUILDER
CLARK WEITZ CLARKSON
533 Mexico City Avenue, Kansas City, MO 64153

ARCHITECT & STRUCTURAL ENGINEER
SOM
Skidmore, Owings & Merrill LLP
14 Wall Street, New York, NY 10005

CONSULTANT TEAM

- Draw Architecture** - Collaborating Architect
- Wellner Architects** - Collaborating Architect
- HJM Architects Inc.** - Collaborating Architect
- FSC Inc.** - Fire Protection / Code / Life Safety
- Henderson** - MEP / FA / PA / Sec Engineer of Record
- LAND3 Studio** - Landscape Architect
- Garver** - Airside Civil
- Entro** - Signage / Wayfinding
- Olsson** - Traffic Planning
- BNP** - Baggage Handling
- Vanderlande** - Baggage Handling
- Michele & Associates** - ADA
- Thornton Tomasetti** - Protective Design
- SK Design Group** - Glycol / Landside Utilities
- Trekk Design Group** - Airside Storm Drainage
- Arora Engineers, Inc.** - AIS / ICT
- ARUP** - Aircraft Parking / Gate Eqp. / AIS / ICT / FA
- Taliaferro & Browne Inc.** - Landside Civil
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- Leigh & O'Kane** - Roadway Structure
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- Transolutions** - Terminal Planning
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- ICF** - Concessions
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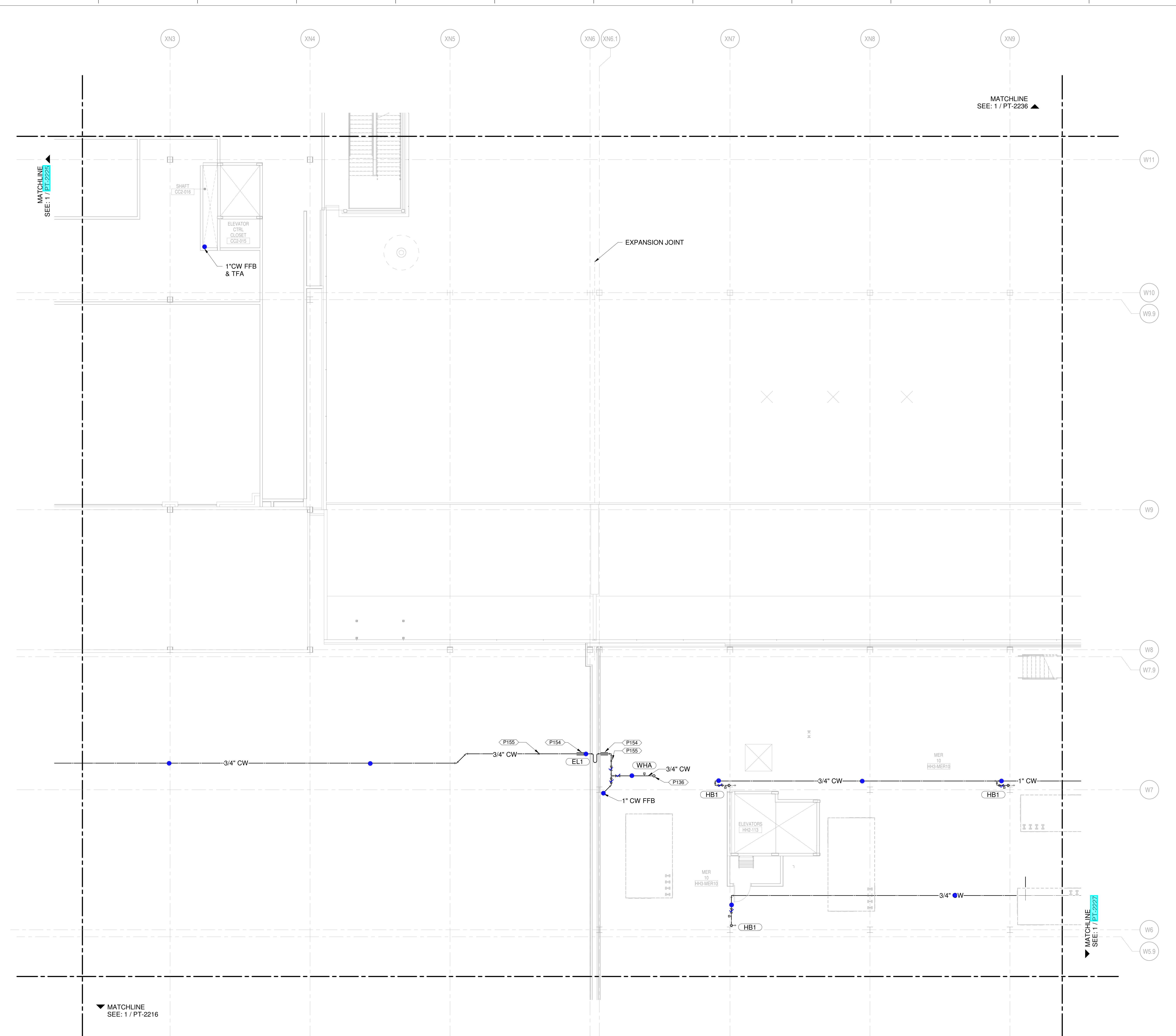
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2	JULY 28, 2020	CD - PROGRESS PRINT
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6	JANUARY 21, 2020	CD PROGRESS
7	NOVEMBER 20, 2019	ISSUED FOR CD, CD

DRAWING TITLE
LEVEL 3 - MER MEZZANINE WATER & GAS PART PLAN T26

DRAWING NUMBER
PT-2226



- CONDENSATE DRAIN
- CONDENSATE PUMP DISCHARGE
- DOMESTIC COLD WATER
- DOMESTIC HOT WATER
- DOMESTIC HOT WATER RECIRC.
- GREASE WASTE
- INDIRECT DRAIN
- MEDIUM PRESSURE NATURAL GAS
- NON-POTABLE WATER
- OVERFLOW STORM DRAIN
- SOIL
- STORM DRAIN
- SLUMP PUMP DISCHARGE
- VENT
- ▲ REPRESENT EQUIPMENT
- ▼ REPRESENT VALVES

1 LEVEL 3 - MER MEZZANINE WATER & GAS PART PLAN T26
SCALE: 1/8" = 1'-0"

SHANE M. LUTZ

PLUMBING PLAN NOTES:
P136 3/4" CW UP TO ROOF HYDRANT.

NEW SINGLE TERMINAL AND PARKING AT KCI

OWNER



601 Brasilia Avenue, Kansas City, MO 64153
PROJECT NUMBER - 62180497

OWNER'S REPRESENTATIVE



533 Mexico City Avenue, Kansas City, MO 64153
DEVELOPER



533 Mexico City Avenue, Kansas City, MO 64153

DESIGN-BUILDER



533 Mexico City Avenue, Kansas City, MO 64153

ARCHITECT & STRUCTURAL ENGINEER

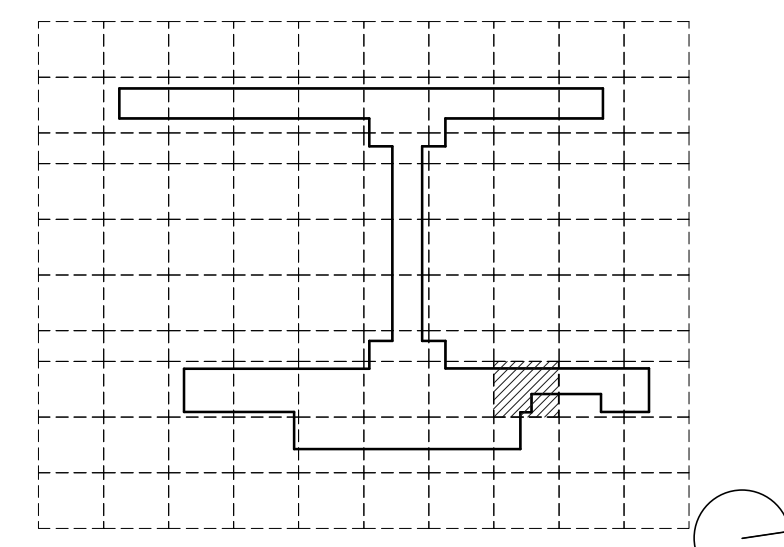


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CONSULTANT TEAM

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- Vanderlande - Baggage Handling
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- Thornton Tomasetti - Protective Design
- SK Design Group - Glycol / Landside Utilities
- Trekk Design Group - Airside Storm Drainage
- Arora Engineers, Inc. - AIS / ICT
- ARUP - Aircraft Parking / Gate Eqp. / AIS / ICT / FA
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- Transolutions - Terminal Planning
- Premier Engineering - Demolition
- ICF - Concessions
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- Cityfi - Smart Technology
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KEYPLAN



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7	NOVEMBER 20, 2019	ISSUED FOR CD, CD

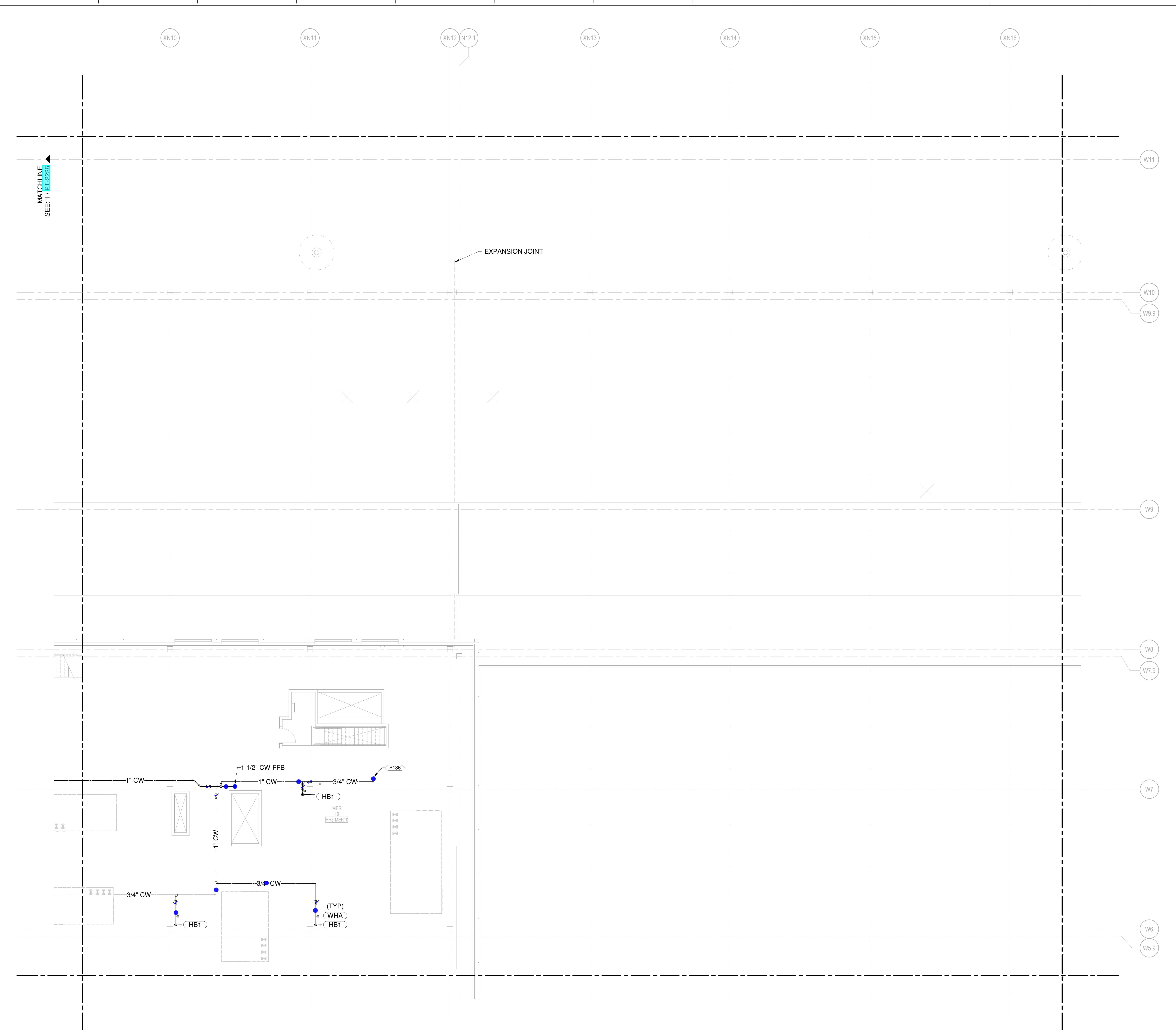
DRAWING TITLE

LEVEL 3 - MER MEZZANINE WATER & GAS PART PLAN T27

DRAWING NUMBER

PT-2227

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- CONDENSATE DRAIN
- CONDENSATE PUMP DISCHARGE
- DOMESTIC COLD WATER
- DOMESTIC HOT WATER
- DOMESTIC HOT WATER RECIRC.
- GREASE WASTE
- INDIRECT DRAIN
- MEDIUM PRESSURE NATURAL GAS
- NON-POTABLE WATER
- OVERFLOW STORM DRAIN
- SOIL
- STORM DRAIN
- SUMP PUMP DISCHARGE
- VENT
- REPRESENT EQUIPMENT
- REPRESENT VALVES

1 LEVEL 3 - MER MEZZANINE WATER & GAS PART PLAN T27 SCALE: 1/8" = 1'-0"

SHANE M. LUTZ

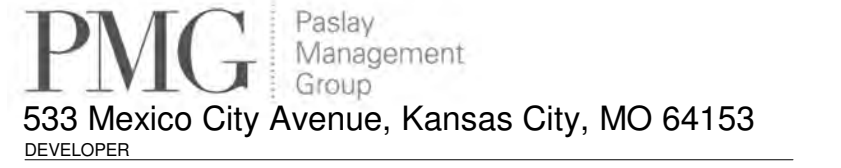
NEW SINGLE TERMINAL AND PARKING AT KCI

OWNER



601 Brasilia Avenue, Kansas City, MO 64153
PROJECT NUMBER - 62180497

OWNER'S REPRESENTATIVE



533 Mexico City Avenue, Kansas City, MO 64153

DESIGN-BUILDER



533 Mexico City Avenue, Kansas City, MO 64153

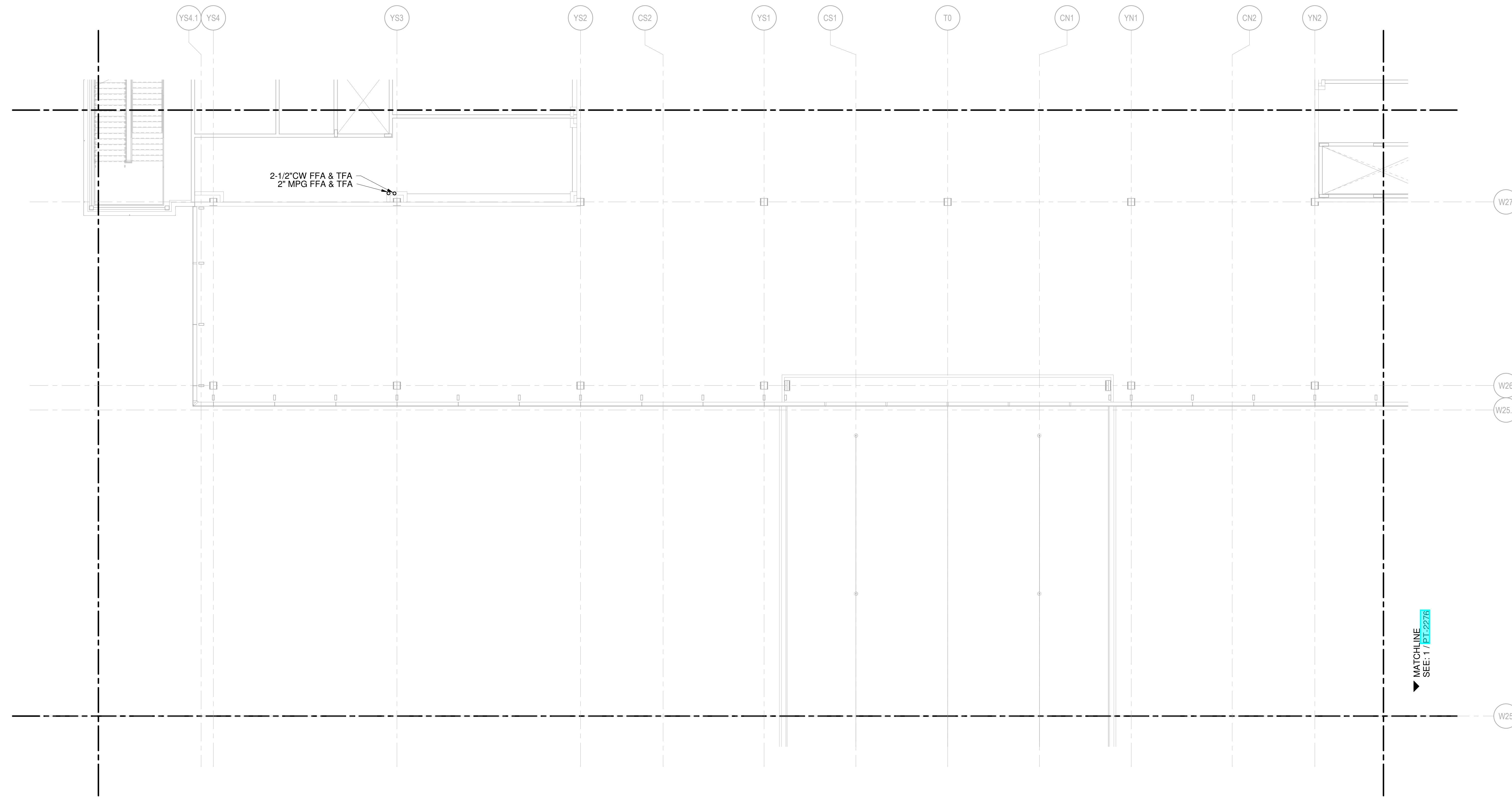
ARCHITECT & STRUCTURAL ENGINEER



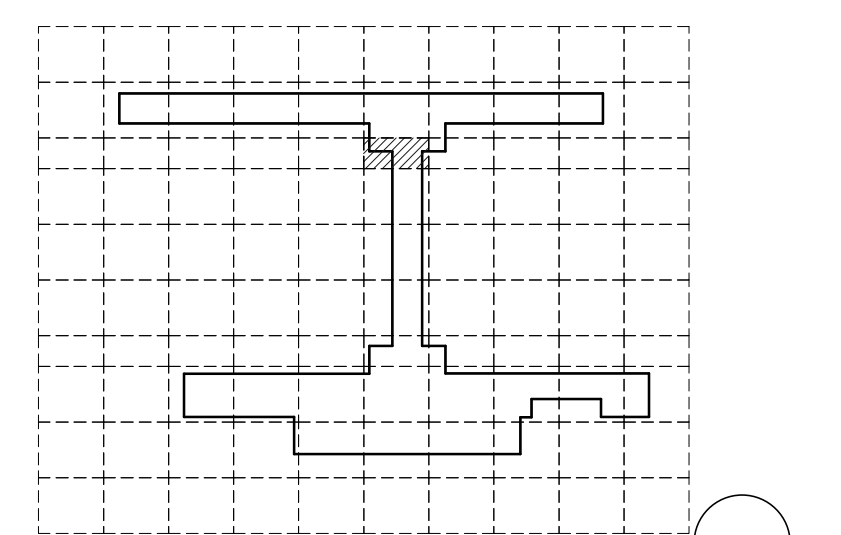
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14 Wall Street, New York, NY 10005

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- Trekk Design Group - Airside Storm Drainage
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- Custom Eng. Inc. - Landside Utilities / Airside Utilities
- 3T Design & Development - Landside Utilities
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- Lightworks - Lighting / Landside Lighting
- Dubois Consultants - Struc. Terminal
- Leigh & O'Kane - Roadway Structure
- Argus Consulting - Hydrant Fuel System
- Transsolutions - Terminal Planning
- Premier Engineering - Demolition
- ICF - Concessions
- Lerch Bates - VHT Consultants
- Cityfi - Smart Technology
- Priority Engineers - Traffic Engineering



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P: 913-742-5000

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LICENSE # PE-2003000011
MO CORPORATE NO. E-5660
EXPIRES 12/31/2020

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JUNE 24, 2020	PERMIT SET - UNDERGROUND	
JUNE 18, 2020	ISSUED FOR CD PROGRESS	

DRAWING TITLE

LEVEL 3 - MER MEZZANINE WATER & GAS PART PLAN T75

DRAWING NUMBER

PT-2275

1 LEVEL 3 - MER MEZZANINE WATER & GAS PART PLAN T75
SCALE: 1/8" = 1'-0"

SHANE M. LUTZ

NEW SINGLE TERMINAL AND PARKING AT KCI

OWNER



601 Brasilia Avenue, Kansas City, MO 64153
PROJECT NUMBER - 62180497

OWNER'S REPRESENTATIVE



533 Mexico City Avenue, Kansas City, MO 64153
DEVELOPER



533 Mexico City Avenue, Kansas City, MO 64153

DESIGN-BUILDER



533 Mexico City Avenue, Kansas City, MO 64153

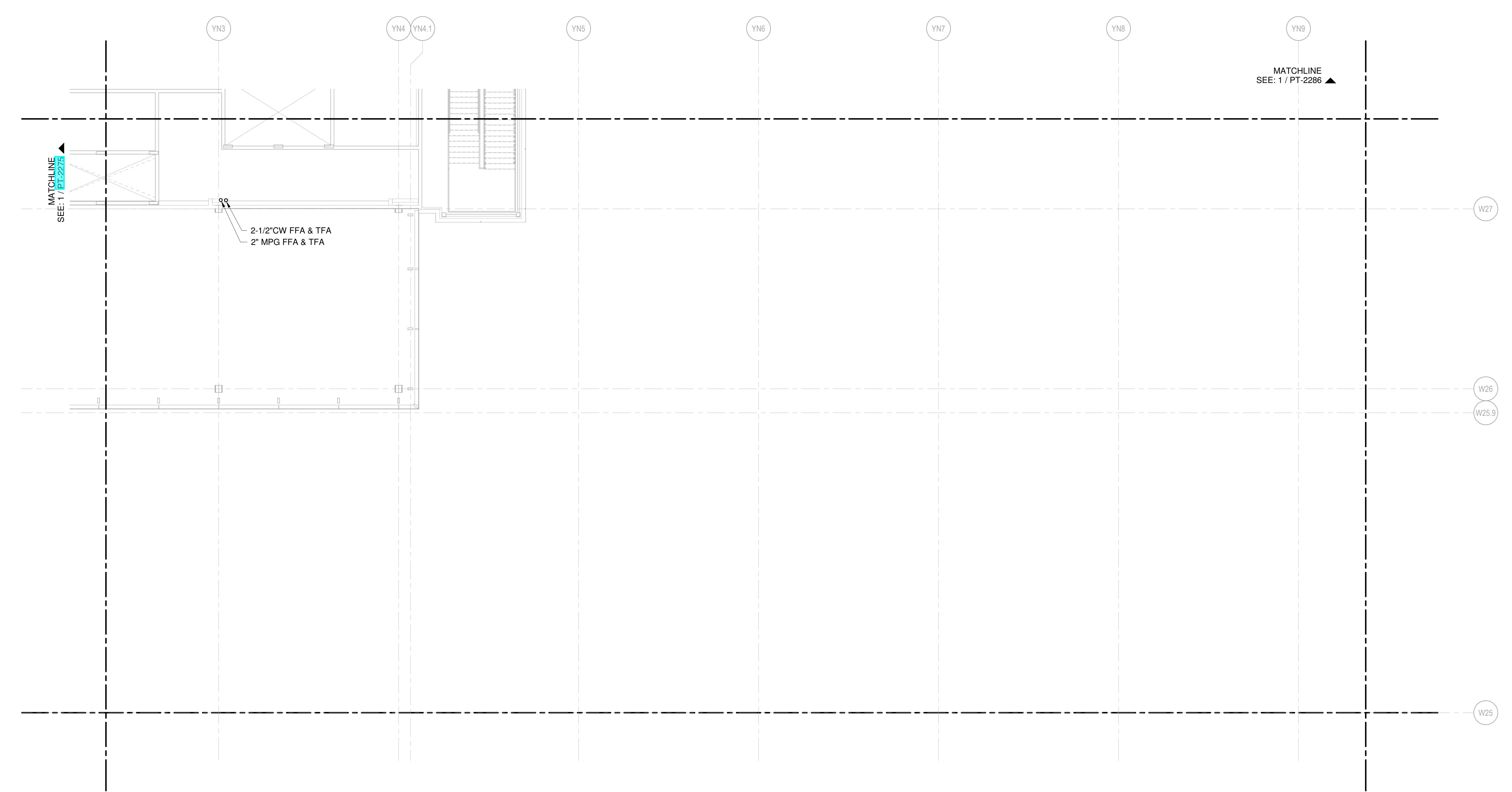
ARCHITECT & STRUCTURAL ENGINEER



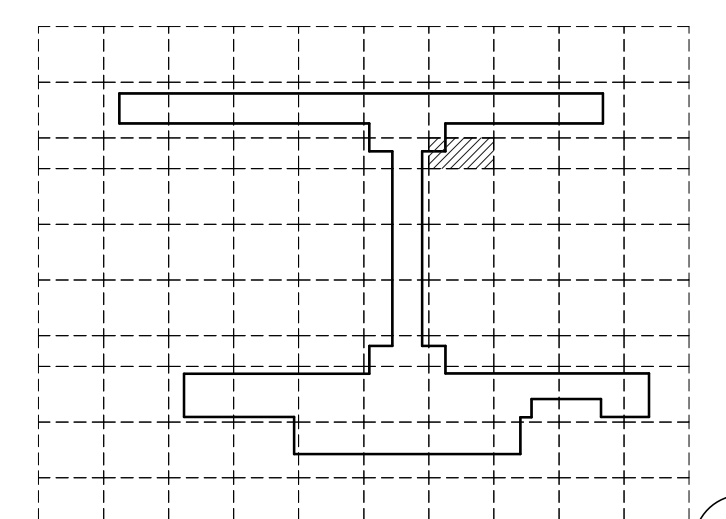
Skidmore, Owings & Merrill LLP
14 Wall Street, New York, NY 10005

CONSULTANT TEAM

- Draw Architects - Collaborating Architect
- Wallner Architects - Collaborating Architect
- HJM Architects Inc. - Collaborating Architect
- FSC Inc. - Fire Protection / Code / Life Safety
- Henderson - MEP / FA / PA / Sec Engineer of Record
- LAND3 Studio - Landscape Architect
- Garver - Airside Civil
- Entro - Signage / Wayfinding
- Olsson - Traffic Planning
- BNP - Baggage Handling
- Vanderlande - Baggage Handling
- Michele & Associates - ADA
- Thornton Tomasetti - Protective Design
- SK Design Group - Glycol / Landside Utilities
- Trekk Design Group - Airside Storm Drainage
- Arora Engineers, Inc. - AIS / ICT
- ARUP - Aircraft Parking / Gate Eq. / AIS / ICT / FA
- Tallafiero & Browne Inc. - Landside Civil
- 3T Design & Development - Landside Utilities
- HC Consulting Group - Permitting
- Lightworks - Lighting / Landside Lighting
- Dubois Consultants - Struc. Terminal
- Leigh & O'Kane - Roadway Structure
- Argus Consulting - Hydrant Fuel System
- Transsolutions - Terminal Planning
- Premier Engineering - Demolition
- ICF - Concessions
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Kansas City, MO 64124
P: 913.742.5000

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JUNE 26, 2020 PERMIT SET - UNDERGROUND
JUNE 18, 2020 ISSUED FOR CD PROGRESS

DRAWING TITLE

LEVEL 3 - MER MEZZANINE WATER & GAS PART PLAN T76

DRAWING NUMBER

PT-2276

1 LEVEL 3 - MER MEZZANINE WATER & GAS PART PLAN T76
SCALE: 1/8" = 1'-0"

NEW SINGLE TERMINAL
AND GROUND AT KCI

OWNER
KANSAS CITY INTERNATIONAL AIRPORT
601 Brasilia Avenue, Kansas City, MO 64153
PROJECT NUMBER - 62180497

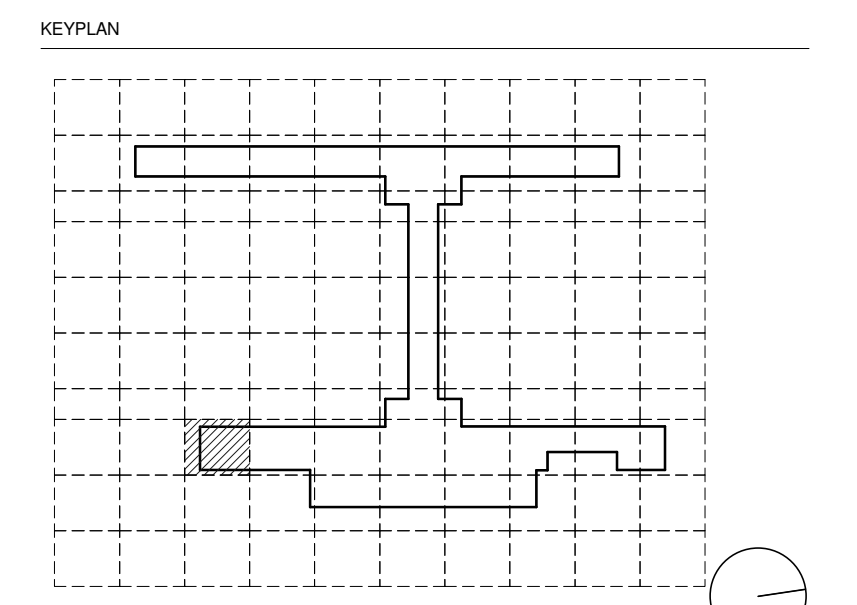
OWNER'S REPRESENTATIVE
PMG Paslay Management Group
533 Mexico City Avenue, Kansas City, MO 64153
DEVELOPER

DESIGN-BUILDER
EDGEMOOR
INFRASTRUCTURE & REAL ESTATE
533 Mexico City Avenue, Kansas City, MO 64153

ARCHITECT & STRUCTURAL ENGINEER
CLARK WEITZ CLARKSON
A GREAT TEAM
533 Mexico City Avenue, Kansas City, MO 64153

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

- Draw Architecture - Collaborating Architect
- Wellner Architects - Collaborating Architect
- HJM Architects Inc. - Collaborating Architect
- FSC Inc. - Fire Protection / Code / Life Safety
- Henderson - MEP / FA / PA / Sec Engineer of Record
- LAND3 Studio - Landscape Architect
- Garver - Airside Civil
- Entro - Signage / Wayfinding
- Olsson - Traffic Planning
- BNP - Baggage Handling
- Vanderlande - Baggage Handling
- Michela & Associates - ADA
- Thornton Tomasetti - Protective Design
- SK Design Group - Glycol / Landside Utilities
- Trekk Design Group - Airside Storm Drainage
- Arupa - Aircraft Parking / Gate Eq. / AIS / ICT / FA
- Taliaferro & Browne Inc. - Landside Civil
- Custom Eng. Inc. - Landside Utilities / Airside Utilities
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- Argus Consulting - Hydrant Fuel System
- Transolutions - Terminal Planning
- Premier Engineering - Demolition
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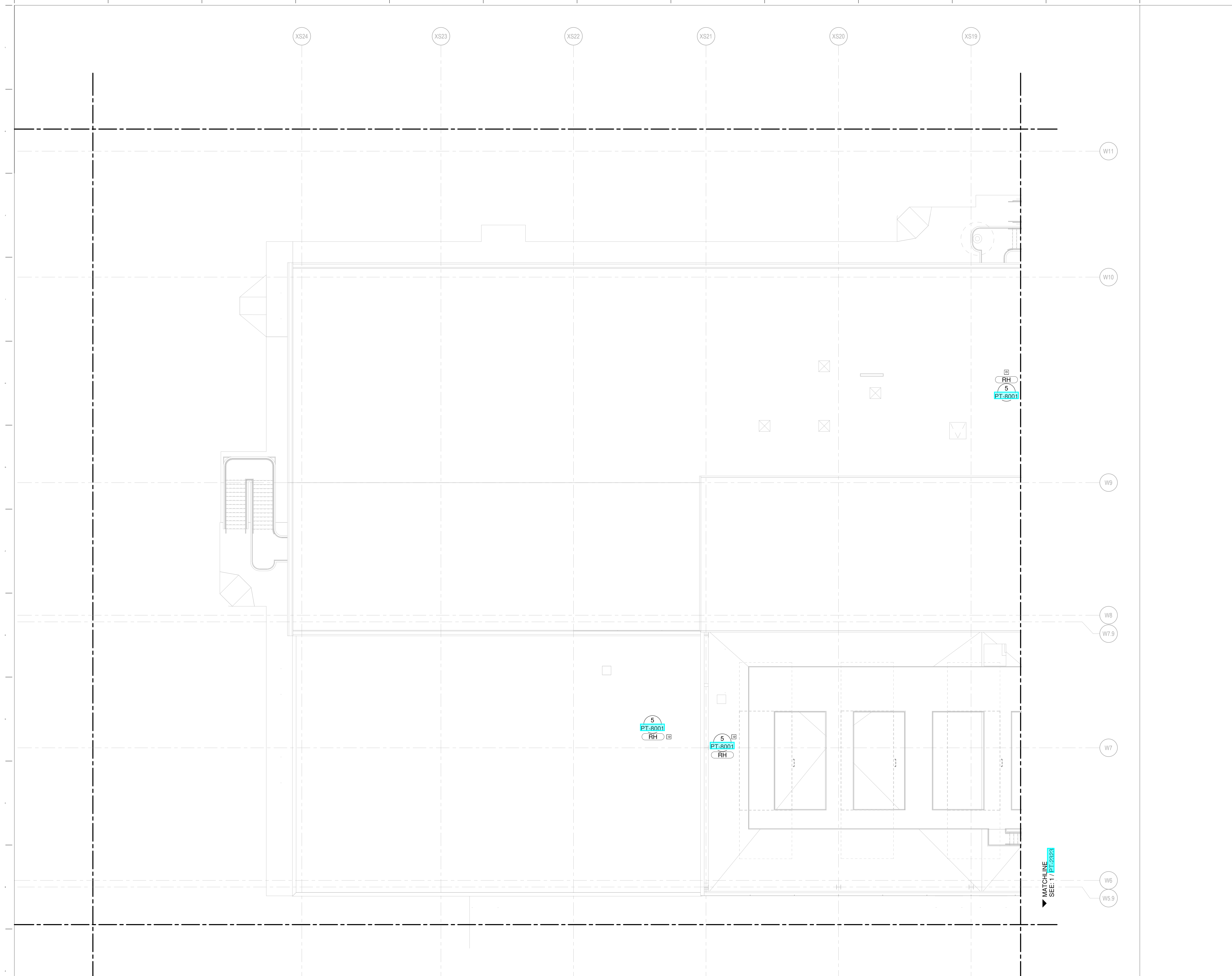
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3	JUNE 18, 2020	ISSUED FOR CDD PROGRESS
4	MARCH 12, 2020	ISSUED FOR DESIGN DEVELOPMENT

DRAWING TITLE
**LEVEL 4 - LOW ROOF
WATER & GAS PART
PLAN T22**

DRAWING NUMBER
PT-2322



1 LEVEL 4 - LOW ROOF WATER & GAS PART PLAN T22
SCALE: 1/8" = 1'-0"

NEW SINGLE TERMINAL AND PARKING AT KCI

OWNER



601 Brasilia Avenue, Kansas City, MO 64153
PROJECT NUMBER - 62180497

OWNER'S REPRESENTATIVE



533 Mexico City Avenue, Kansas City, MO 64153
DEVELOPER



533 Mexico City Avenue, Kansas City, MO 64153

DESIGN-BUILDER



533 Mexico City Avenue, Kansas City, MO 64153

ARCHITECT & STRUCTURAL ENGINEER

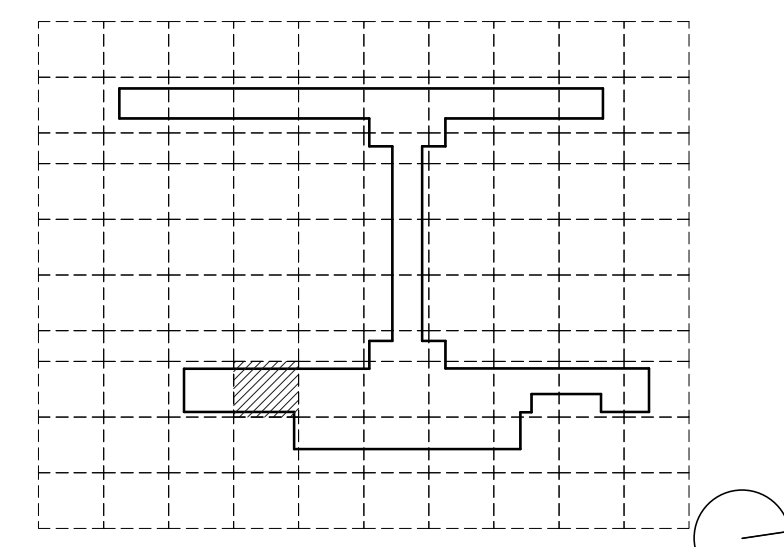


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14 Wall Street, New York, NY 10005

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- Henderson - MEP / FA / PA / Sec Engineer of Record
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KEYPLAN



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5	MARCH 12, 2020	ISSUED FOR DESIGN DEVELOPMENT

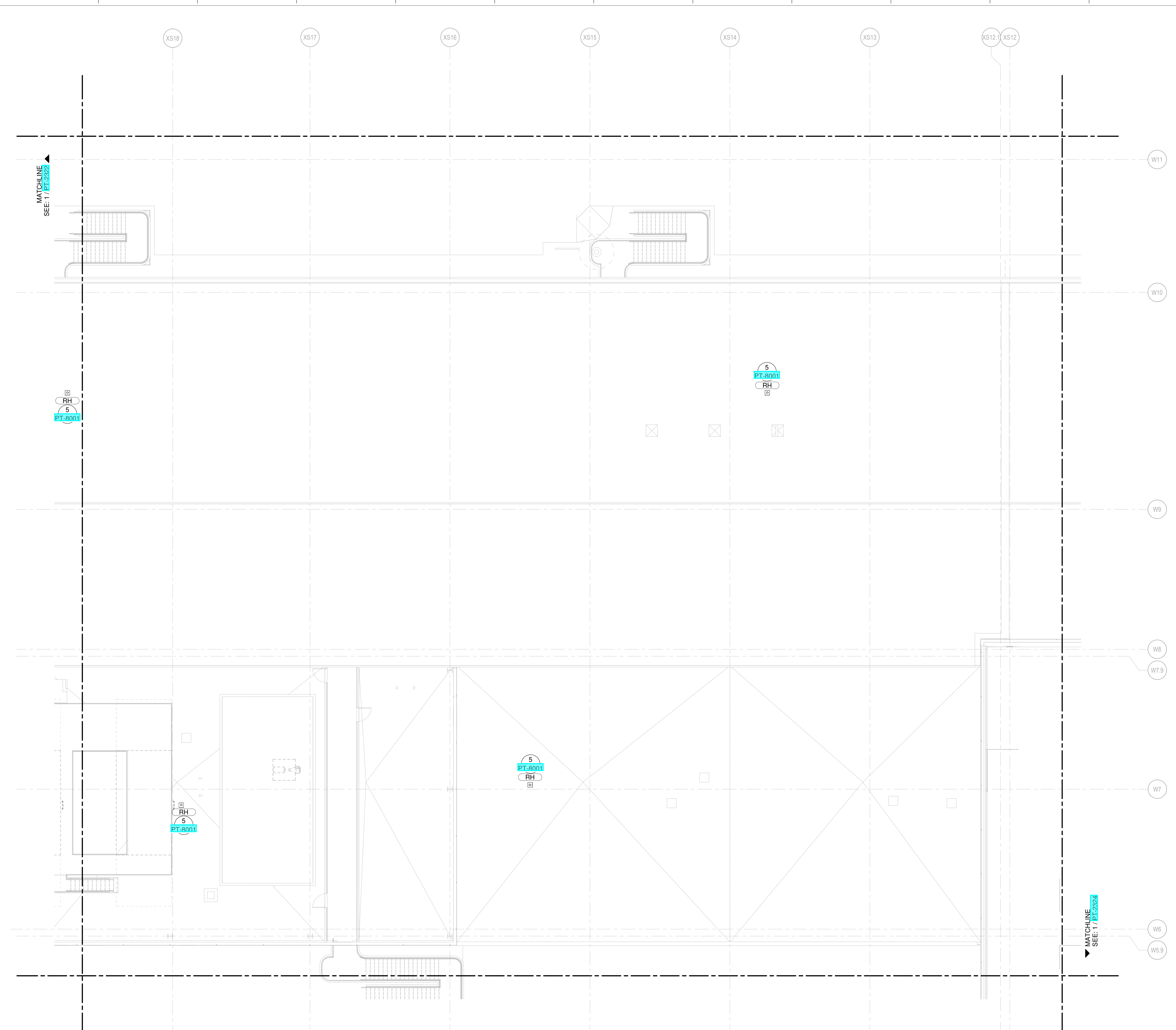
PACKAGE

DRAWING TITLE

LEVEL 4 - LOW ROOF WATER & GAS PART PLAN T23

DRAWING NUMBER

PT-2323



1 LEVEL 4 - LOW ROOF WATER & GAS PART PLAN T23
SCALE: 1/8" = 1'-0"

9/18/2022 4:58:24 AM

SHANE M. LUTZ

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NEW SINGLE TERMINAL AND SINGLE AT KCI

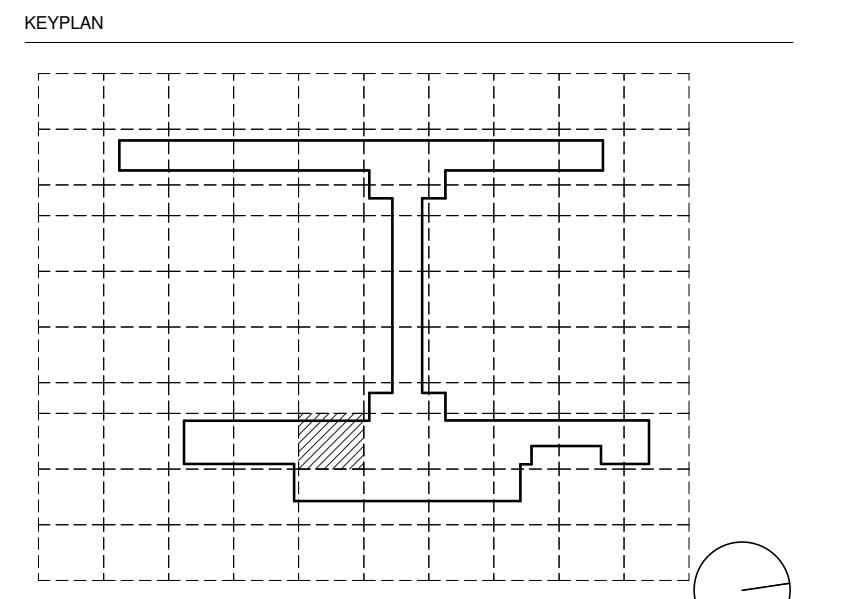
OWNER
KANSAS CITY INTERNATIONAL AIRPORT
 601 Brasilia Avenue, Kansas City, MO 64153
 PROJECT NUMBER - 62180497

OWNER'S REPRESENTATIVE
PMG Paslay Management Group
 533 Mexico City Avenue, Kansas City, MO 64153
 DEVELOPER

DESIGN-BUILDER
EDGEMOOR
 INFRASTRUCTURE & REAL ESTATE
 533 Mexico City Avenue, Kansas City, MO 64153

ARCHITECT & STRUCTURAL ENGINEER
SOM
 Skidmore, Owings & Merrill LLP
 14 Wall Street, New York, NY 10005

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 Lenora, MO 64114
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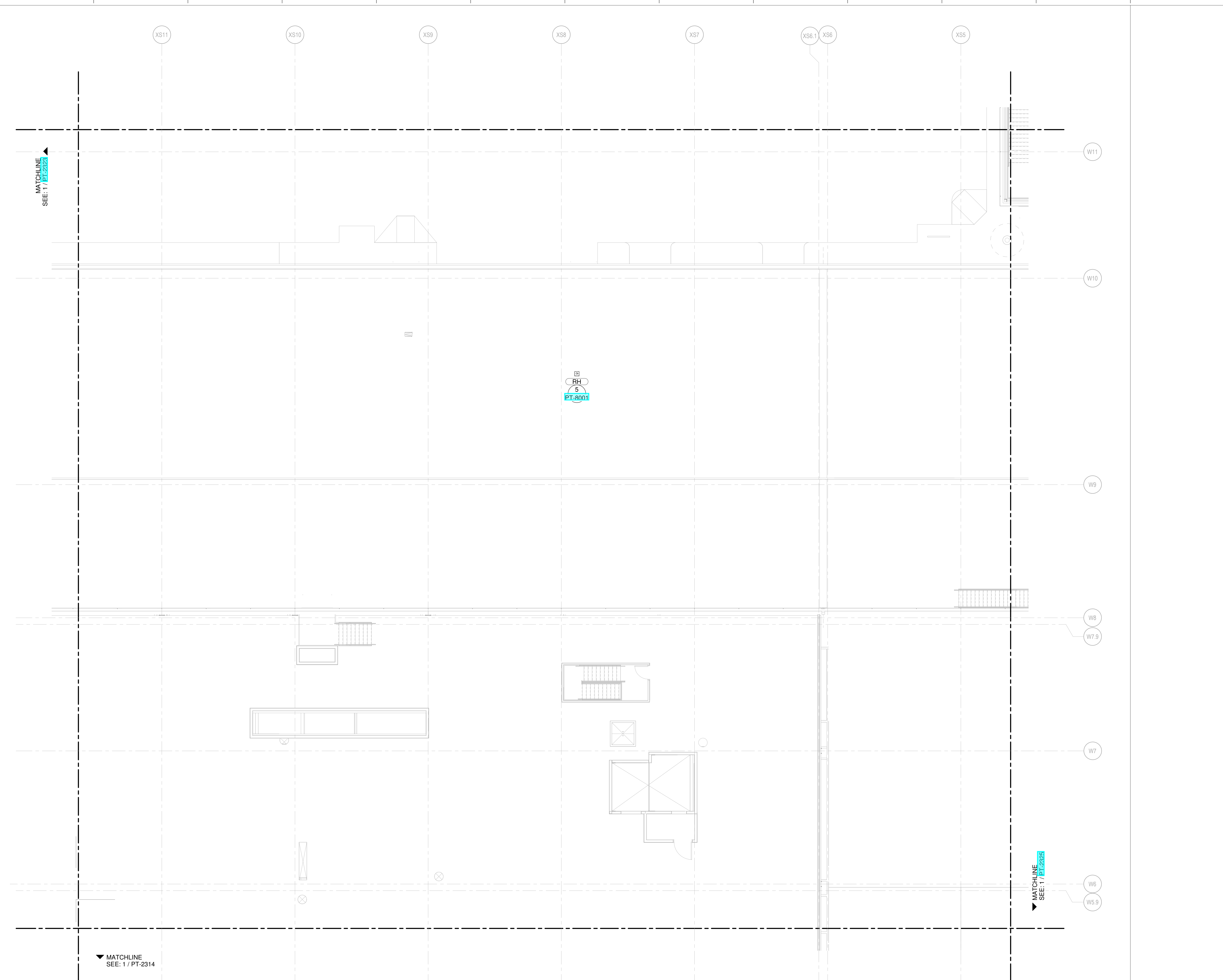
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1	AUGUST 27, 2020	ISSUED FOR FINAL DESIGN
2	JUNE 26, 2020	PERMIT SET - UNDERGOING
3	JUNE 16, 2020	ISSUED FOR CDD PROGRESS
4	MARCH 16, 2020	ISSUED FOR DESIGN DEVELOPMENT

LEVEL 4 - LOW ROOF WATER & GAS PART PLAN T24

DRAWING NUMBER
PT-2324



1 LEVEL 4 - LOW ROOF WATER & GAS PART PLAN T24

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

PLUMBING PLAN NOTES
 P000 COORDINATE PLUMBING PIPE ROUTING
 AWAY FROM ELECTRICAL PANELS.
 MAINTAIN CLEARANCES PER NEC.

NEW SINGLE TERMINAL AND SINGLE AT KCI

OWNER
 KANSAS CITY INTERNATIONAL AIRPORT
 601 Brasilia Avenue, Kansas City, MO 64153
 PROJECT NUMBER - 62180497

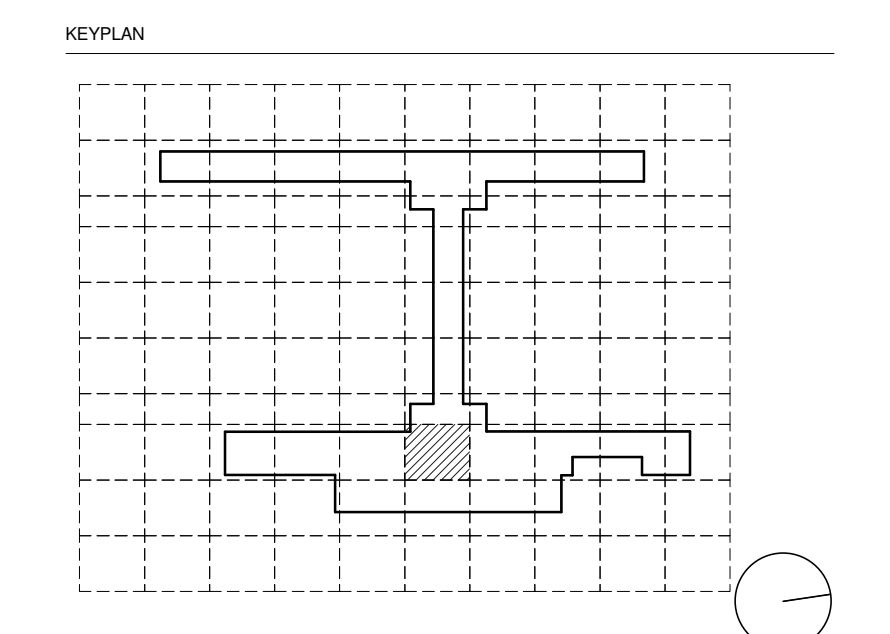
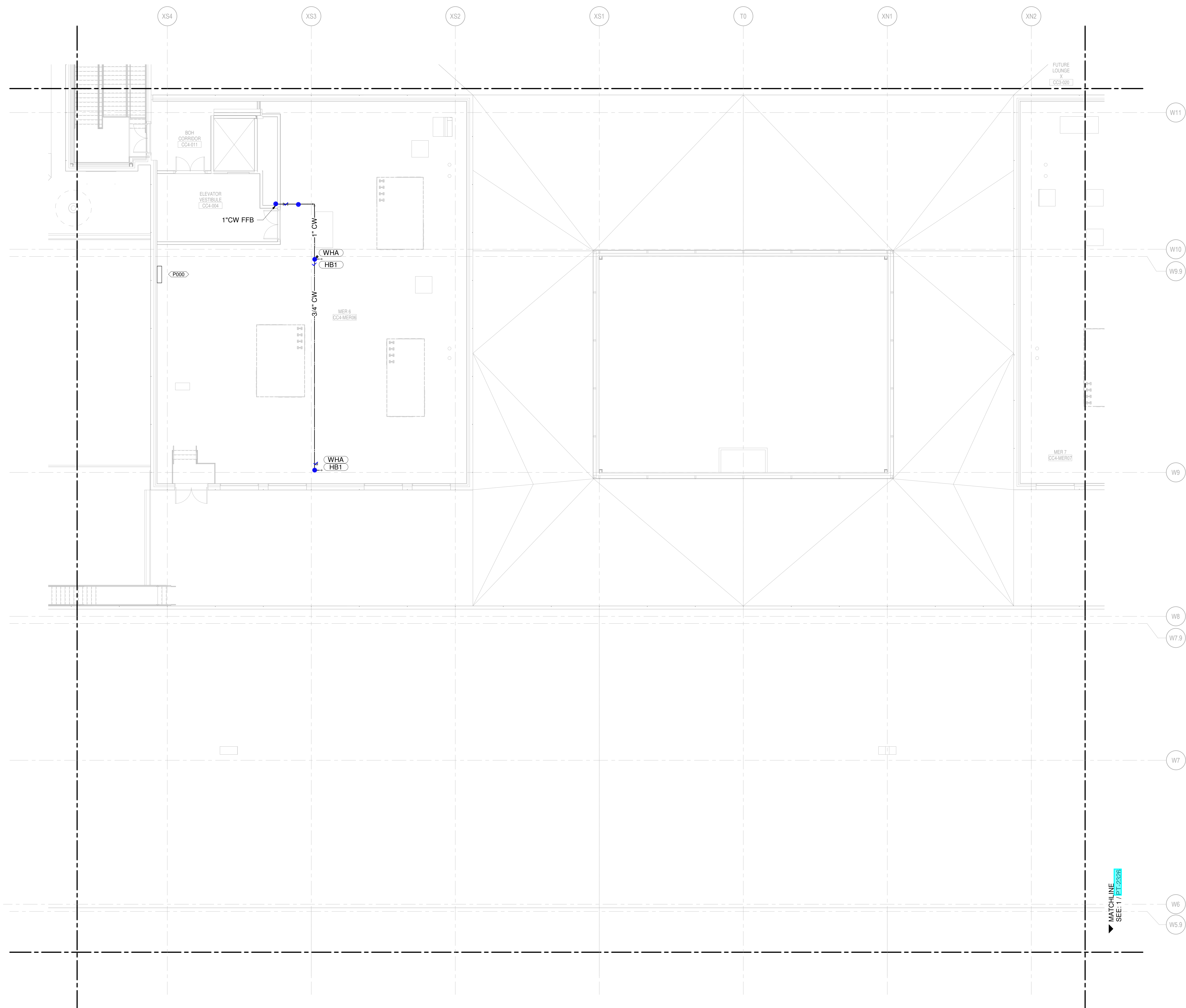
OWNER'S REPRESENTATIVE
 PMG Paslay Management Group
 533 Mexico City Avenue, Kansas City, MO 64153
 DEVELOPER

DESIGN-BUILDER
 EDGEMOOR
 INFRASTRUCTURE & REAL ESTATE
 533 Mexico City Avenue, Kansas City, MO 64153

ARCHITECT & STRUCTURAL ENGINEER
 CLARK WEITZ CLARKSON
 533 Mexico City Avenue, Kansas City, MO 64153

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

- Draw Architecture - Collaborating Architect
- Wellner Architects - Collaborating Architect
- HJM Architects Inc. - Collaborating Architect
- FSC Inc. - Fire Protection / Code / Life Safety
- Henderson - MEP / FA / PA / Sec Engineer of Record
- LAND3 Studio - Landscape Architect
- Garver - Airside Civil
- Entro - Signage / Wayfinding
- Olsson - Traffic Planning
- BNP - Baggage Handling
- Vanderlande - Baggage Handling
- Michele & Associates - ADA
- Thornton Tomasetti - Protective Design
- SK Design Group - Glycol / Landside Utilities
- Trekk Design Group - Airside Storm Drainage
- Arora Engineers, Inc. - AIS / ICT
- ARUP - Aircraft Parking / Gate Eqp. / AIS / ICT / FA
- Tallafiero & Browne Inc. - Landside Civil
- Custom Eng. Inc. - Landside Utilities / Airside Utilities
- 3T Design & Development - Landside Utilities
- HG Consulting Group - Permitting
- Lightworks - Lighting / Landside Lighting
- Dubois Consultants - Struc. Terminal
- Leigh & O'Kane - Roadway Structure
- Argus Consulting - Hydrant Fuel System
- Transolutions - Terminal Planning
- Premier Engineering - Demolition
- ICF - Concessions
- Lerch Bates - VHT Consultants
- Cityfi - Smart Technology
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 Henderson Engineers Inc.
 6345 Linnwood Drive, Suite 300
 Lenexa, KS 66214
 P: 913-742-9200

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 LICENSE # PE-2003000011
 MO CORPORATE NO. E-5660
 EXPIRES 12/31/2020

NO.	DATE	DESCRIPTION
1	NOVEMBER 02, 2019	ISSUED FOR PERMITS DEVELOPMENT
2	JANUARY 21, 2020	CD PROGRESS
3	MARCH 4, 2020	ISSUED FOR CD PROGRESS
4	JUNE 18, 2020	ISSUED FOR CD PROGRESS
5	JUNE 25, 2020	PRINT SET 1 - UNDERGROUND
6	JULY 29, 2020	CD PROGRESS PRINT
7	AUGUST 27, 2020	ISSUED FOR FINAL DESIGN

- CONDENSATE DRAIN
- CONDENSATE PUMP DISCHARGE
- DOMESTIC COLD WATER
- DOMESTIC HOT WATER
- DOMESTIC HOT WATER RECIRC.
- GREASE WASTE
- INDIRECT DRAIN
- MEDIUM PRESSURE NATURAL GAS
- NON-POTABLE WATER
- OVERFLOW STORM DRAIN
- SOIL
- STORM DRAIN
- SUMP PUMP DISCHARGE
- VENT
- REPRESENT EQUIPMENT
- REPRESENT VALVES

MATCHLINE
 SEE: T7
 PT-2325R

1 LEVEL 4 - LOW ROOF WATER & GAS PART PLAN T25
 SCALE: 1/8" = 1'-0"

LEVEL 4 - LOW ROOF WATER & GAS PART PLAN T25

PT-2325

PLUMBING PLAN NOTES
 P000 COORDINATE PLUMBING PIPE ROUTING AWAY FROM ELECTRICAL PANELS. MAINTAIN CLEARANCES PER NEC.

NEW SINGLE TERMINAL AND RECORD AT KCI

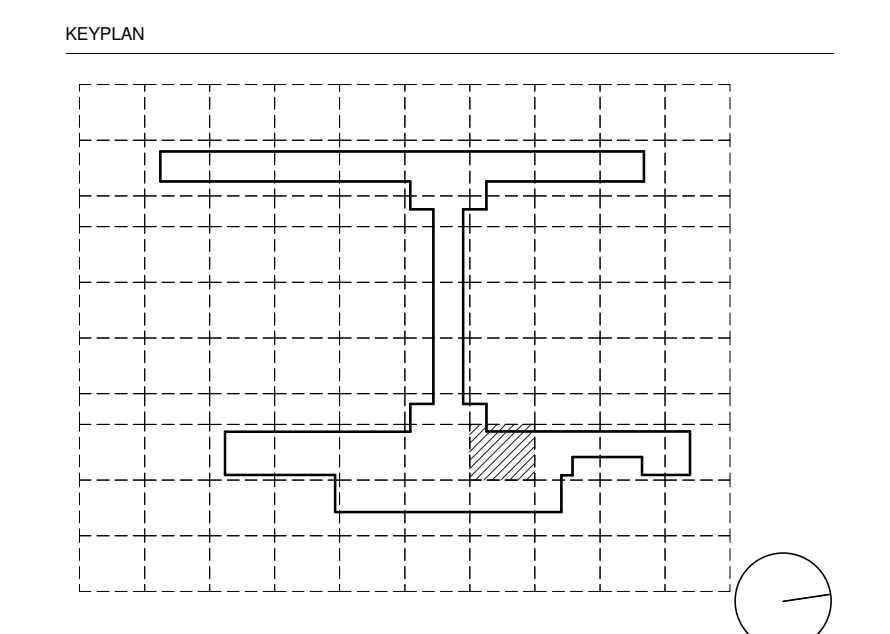
OWNER
 KANSAS CITY INTERNATIONAL AIRPORT
 601 Brasilia Avenue, Kansas City, MO 64153
 PROJECT NUMBER - 62180497

OWNER'S REPRESENTATIVE
 PMG Paslay Management Group
 533 Mexico City Avenue, Kansas City, MO 64153
 DEVELOPER

DESIGN-BUILDER
 EDGEMOOR
 INFRASTRUCTURE & REAL ESTATE
 533 Mexico City Avenue, Kansas City, MO 64153

ARCHITECT & STRUCTURAL ENGINEER
 SOM
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 14 Wall Street, New York, NY 10005

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 - Premier Engineering - Demolition
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NO.	DATE	DESCRIPTION
1	AUGUST 27, 2020	ISSUED FOR FINAL DESIGN
2	JUNE 26, 2020	PRINT SET - UNDERGROUND
3	JUNE 16, 2020	ISSUED FOR GCP PROGRESS
4	MARCH 4, 2020	ISSUED FOR PERSON DEVELOPMENT
5	JANUARY 21, 2020	CD PROGRESS
6	NOVEMBER 20, 2019	ISSUED FOR GCP CD

- CONDENSATE DRAIN
- CONDENSATE PUMP DISCHARGE
- DOMESTIC COLD WATER
- DOMESTIC HOT WATER
- DOMESTIC HOT WATER RECIRC.
- GREASE WASTE
- INDIRECT DRAIN
- MEDIUM PRESSURE NATURAL GAS
- NON-POTABLE WATER
- OVERFLOW STORM DRAIN
- SOIL
- STORM DRAIN
- SUMP PUMP DISCHARGE
- VENT
- ▲ REPRESENT EQUIPMENT
- ▼ REPRESENT VALVES

1 LEVEL 4 - LOW ROOF WATER & GAS PART PLAN T26
 SCALE: 1/8" = 1'-0"

LEVEL 4 - LOW ROOF WATER & GAS PART PLAN T26

PT-2326

NEW SINGLE TERMINAL AND PARKING AT KCI

OWNER



601 Brasilia Avenue, Kansas City, MO 64153
PROJECT NUMBER - 62180497

OWNER'S REPRESENTATIVE



533 Mexico City Avenue, Kansas City, MO 64153
DEVELOPER

DESIGN-BUILDER



533 Mexico City Avenue, Kansas City, MO 64153

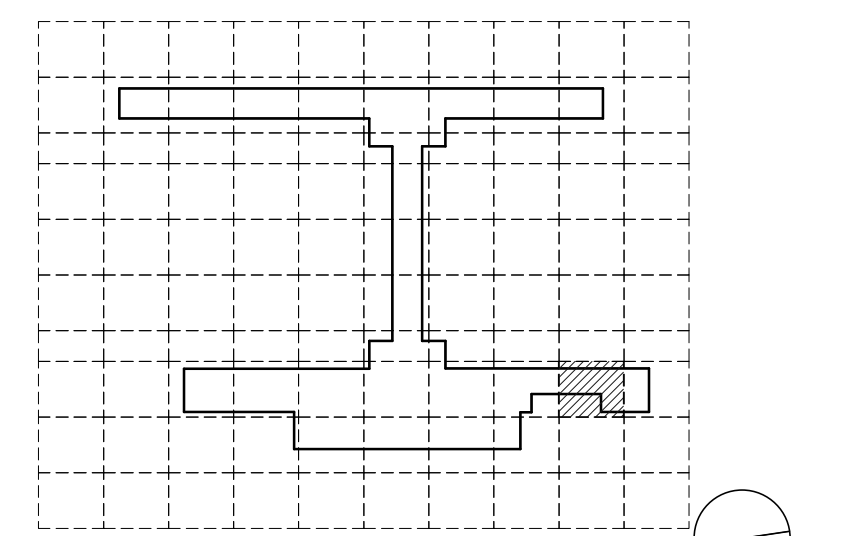
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- Trekk Design Group - Airside Storm Drainage
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- ARUP - Aircraft Parking / Gate Eq. / AIS / ICT / FA
- Taliaferro & Browne Inc. - Landside Civil
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- Lightworks - Lighting / Landside Lighting
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- Argus Consulting - Hydrant Fuel System
- Transolutions - Terminal Planning
- Premier Engineering - Demolition
- ICF - Concessions
- Lerch Bates - VHT Consultants
- Cityfi - Smart Technology
- Priority Engineers - Traffic Engineering

KEYPLAN



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SHANE M. LUTZ
LICENSE # PE-2003000011
MO CORPORATE NO. E-5660
EXPIRES 12/31/2020

Henderson Engineers Inc.
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Springfield, MO 65814
P: 913-742-9200

NO.	DATE	DESCRIPTION
1	AUGUST 27, 2020	ISSUED FOR FINAL DESIGN
2	JULY 28, 2020	CD - PROGRESS PRINT
3	JUNE 26, 2020	PRINT SET - UNDERGROUND
4	JUNE 18, 2020	ISSUED FOR CD PROGRESS
5	MARCH 10, 2020	ISSUED FOR DESIGN DEVELOPMENT

DRAWING TITLE

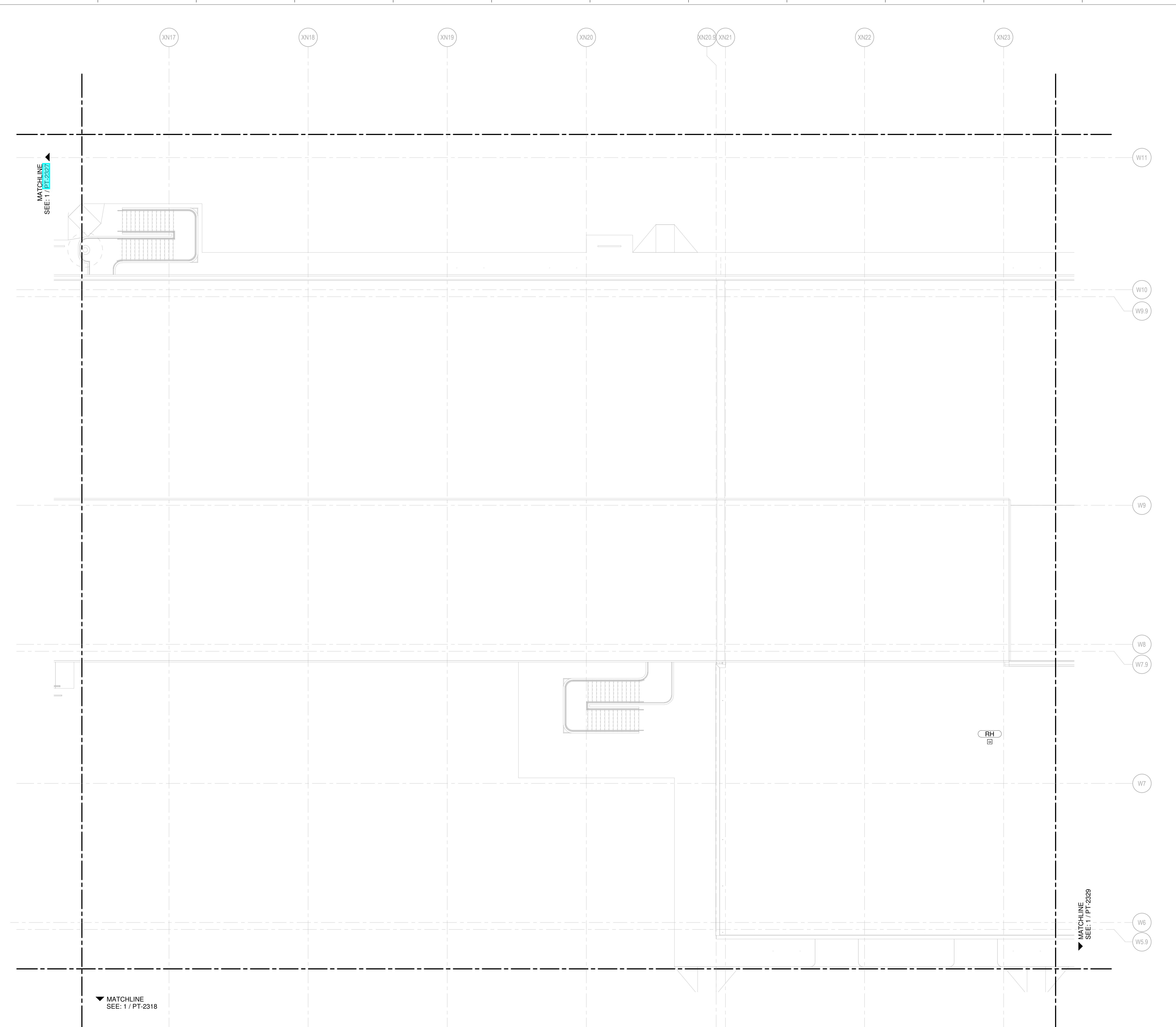
LEVEL 4 - LOW ROOF WATER & GAS PART PLAN T28

DRAWING NUMBER

PT-2328

9/18/2022 4:51:03 AM

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1 LEVEL 4 - LOW ROOF WATER & GAS PART PLAN T28
SCALE: 1/8" = 1'-0"

SHANE M. LUTZ

NEW SINGLE TERMINAL AND SINGLE AT KCI

OWNER



601 Brasilia Avenue, Kansas City, MO 64153
PROJECT NUMBER - 62180497

OWNER'S REPRESENTATIVE



533 Mexico City Avenue, Kansas City, MO 64153



533 Mexico City Avenue, Kansas City, MO 64153

DESIGN-BUILDER



533 Mexico City Avenue, Kansas City, MO 64153

ARCHITECT & STRUCTURAL ENGINEER

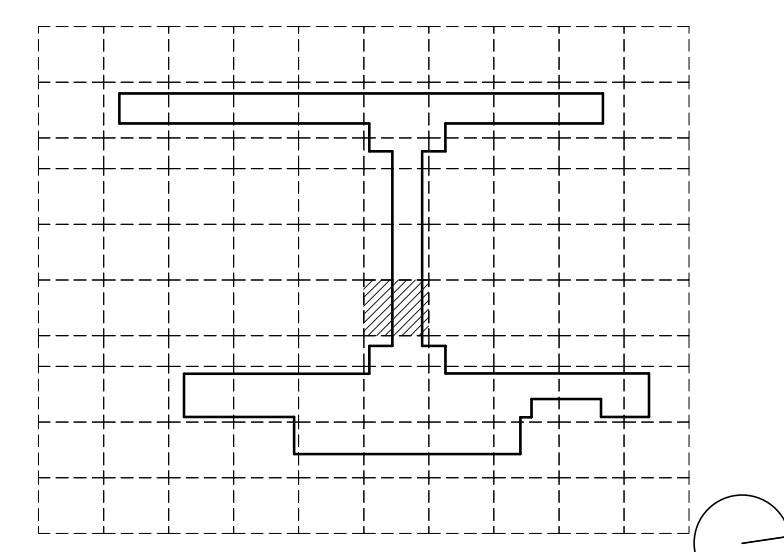


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14 Wall Street, New York, NY 10005

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- Transsolutions - Terminal Planning
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- ICF - Concessions
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- Priority Engineers - Traffic Engineering

KEYPLAN



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SHANE M. LUTZ LICENSE # PE-2003000011 MO CORPORATE NO. E-5660 EXPIRES 12/31/2020

NO.	DATE	DESCRIPTION
AUGUST 27, 2020	ISSUED FOR FINAL DESIGN	
JUNE 26, 2020	PERMIT SET UNDERGOING	
JUNE 18, 2020	ISSUED FOR CD PROGRESS	
MARCH 18, 2020	ISSUED FOR DESIGN DEVELOPMENT	

NO.	DATE	DESCRIPTION
PACKAGE		

DRAWING TITLE

LEVEL 4 - LOW ROOF WATER & GAS PART PLAN T45

DRAWING NUMBER

PT-2345

MATCHLINE
SEE: 1 / PT-2355

MATCHLINE
SEE: 1 / PT-2335

1 LEVEL 4 - LOW ROOF WATER & GAS PART PLAN T45
SCALE: 1/8" = 1'-0"

NEW SINGLE TERMINAL AND GATE AT KCI

OWNER



601 Brasilia Avenue, Kansas City, MO 64153
PROJECT NUMBER - 62180497

OWNER'S REPRESENTATIVE



533 Mexico City Avenue, Kansas City, MO 64153
DEVELOPER



533 Mexico City Avenue, Kansas City, MO 64153

DESIGN-BUILDER



533 Mexico City Avenue, Kansas City, MO 64153

ARCHITECT & STRUCTURAL ENGINEER

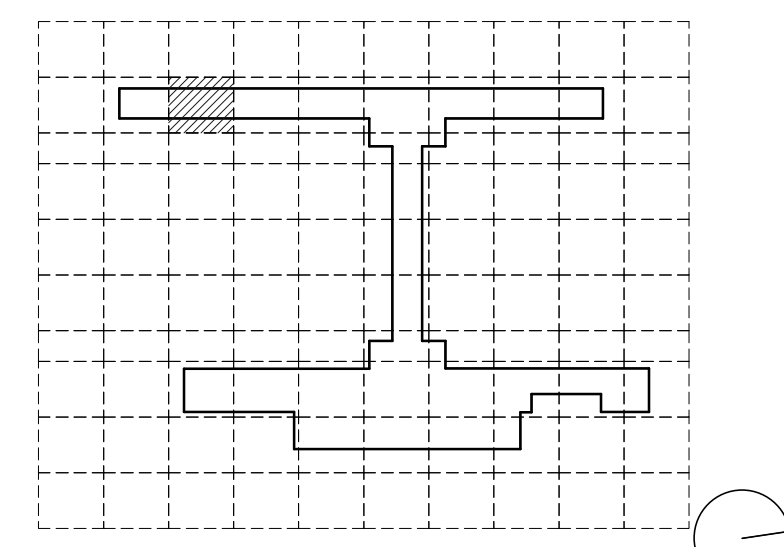


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14 Wall Street, New York, NY 10005

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KEYPLAN



SEAL

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EXPIRES 12/31/2020

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AUGUST 27, 2020	ISSUED FOR FINAL DESIGN	
JUNE 26, 2020	PROJECT SET - UNDERGROUND	
JUNE 18, 2020	ISSUED FOR CDD PROGRESS	
MARCH 12, 2020	ISSUED FOR DESIGN DEVELOPMENT	

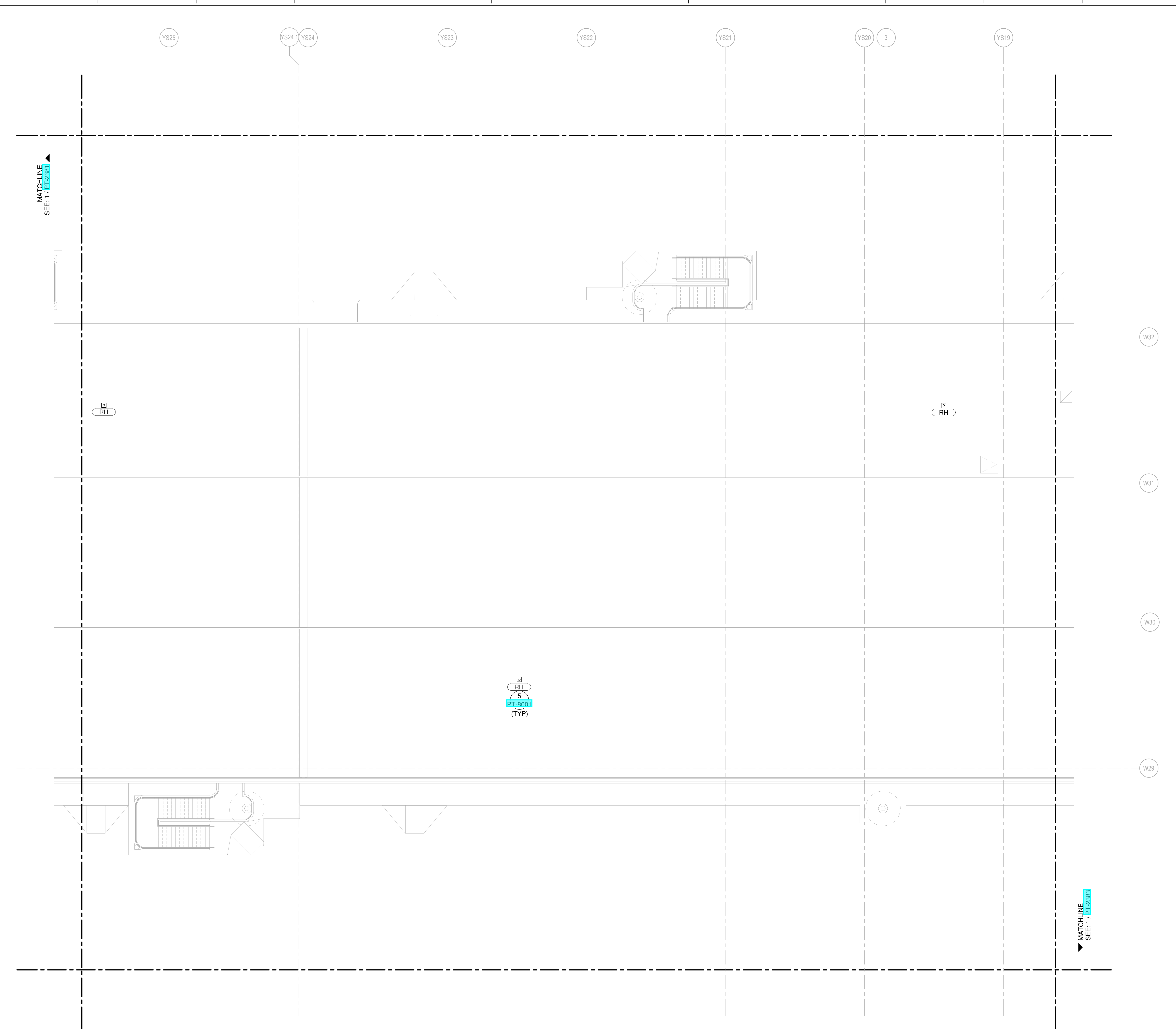
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DRAWING TITLE

LEVEL 4 - LOW ROOF WATER & GAS PART PLAN T82

DRAWING NUMBER

PT-2382



1 LEVEL 4 - LOW ROOF WATER & GAS PART PLAN T82
SCALE: 1/8" = 1'-0"

9/12/2022 4:58:42 AM

NEW SINGLE TERMINAL AND SINGLE AT KCI

OWNER
KANSAS CITY INTERNATIONAL AIRPORT
 601 Brasilia Avenue, Kansas City, MO 64153
 PROJECT NUMBER - 62180497

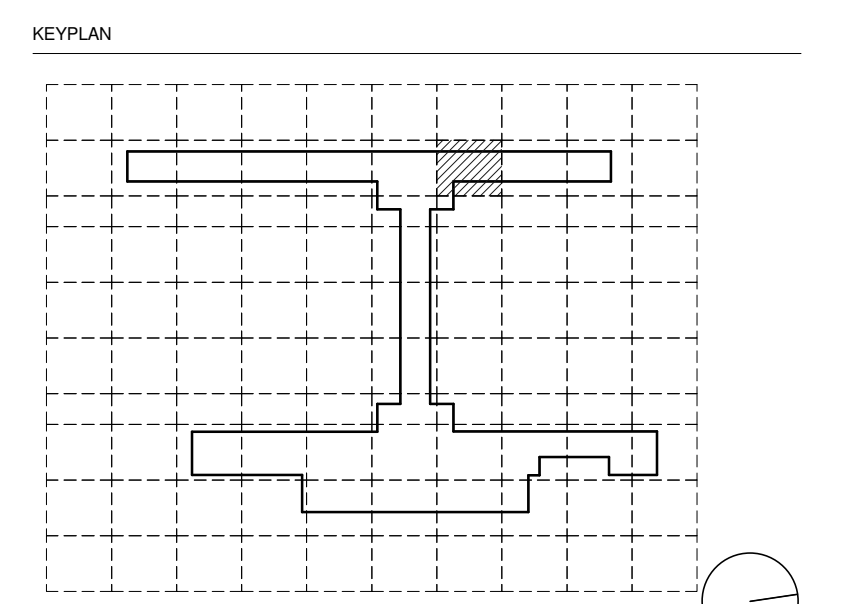
OWNER'S REPRESENTATIVE
PMG Paslay Management Group
 533 Mexico City Avenue, Kansas City, MO 64153
 DEVELOPER

DESIGN-BUILDER
EDGEMOOR
 INFRASTRUCTURE & REAL ESTATE
 533 Mexico City Avenue, Kansas City, MO 64153

ARCHITECT & STRUCTURAL ENGINEER
CLARK **WEITZ** **CLARKSON**
 533 Mexico City Avenue, Kansas City, MO 64153

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 14 Wall Street, New York, NY 10005

- CONSULTANT TEAM
- Draw Architecture** - Collaborating Architect
 - Wellner Architects** - Collaborating Architect
 - HJM Architects Inc.** - Collaborating Architect
 - FSC Inc.** - Fire Protection / Code / Life Safety
 - Henderson** - MEP / FA / PA / Sec Engineer of Record
 - LAND3 Studio** - Landscape Architect
 - Garver** - Airside Civil
 - Entro** - Signage / Wayfinding
 - Olsson** - Traffic Planning
 - BNP** - Baggage Handling
 - Vanderlande** - Baggage Handling
 - Michele & Associates** - ADA
 - Thornton Tomasetti** - Protective Design
 - SK Design Group** - Glycol / Landside Utilities
 - Trekk Design Group** - Airside Storm Drainage
 - Arora Engineers, Inc.** - AIS / ICT
 - ARUP** - Aircraft Parking / Gate Eqp. / AIS / ICT / FA
 - Tallafiero & Browne Inc.** - Landside Civil
 - Custom Eng. Inc.** - Landside Utilities / Airside Utilities
 - 3T Design & Development** - Landside Utilities
 - HC Consulting Group** - Permitting
 - Lightworks** - Lighting / Landside Lighting
 - Dubois Consultants** - Struc. Terminal
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 - Transolutions** - Terminal Planning
 - Premier Engineering** - Demolition
 - ICF** - Concessions
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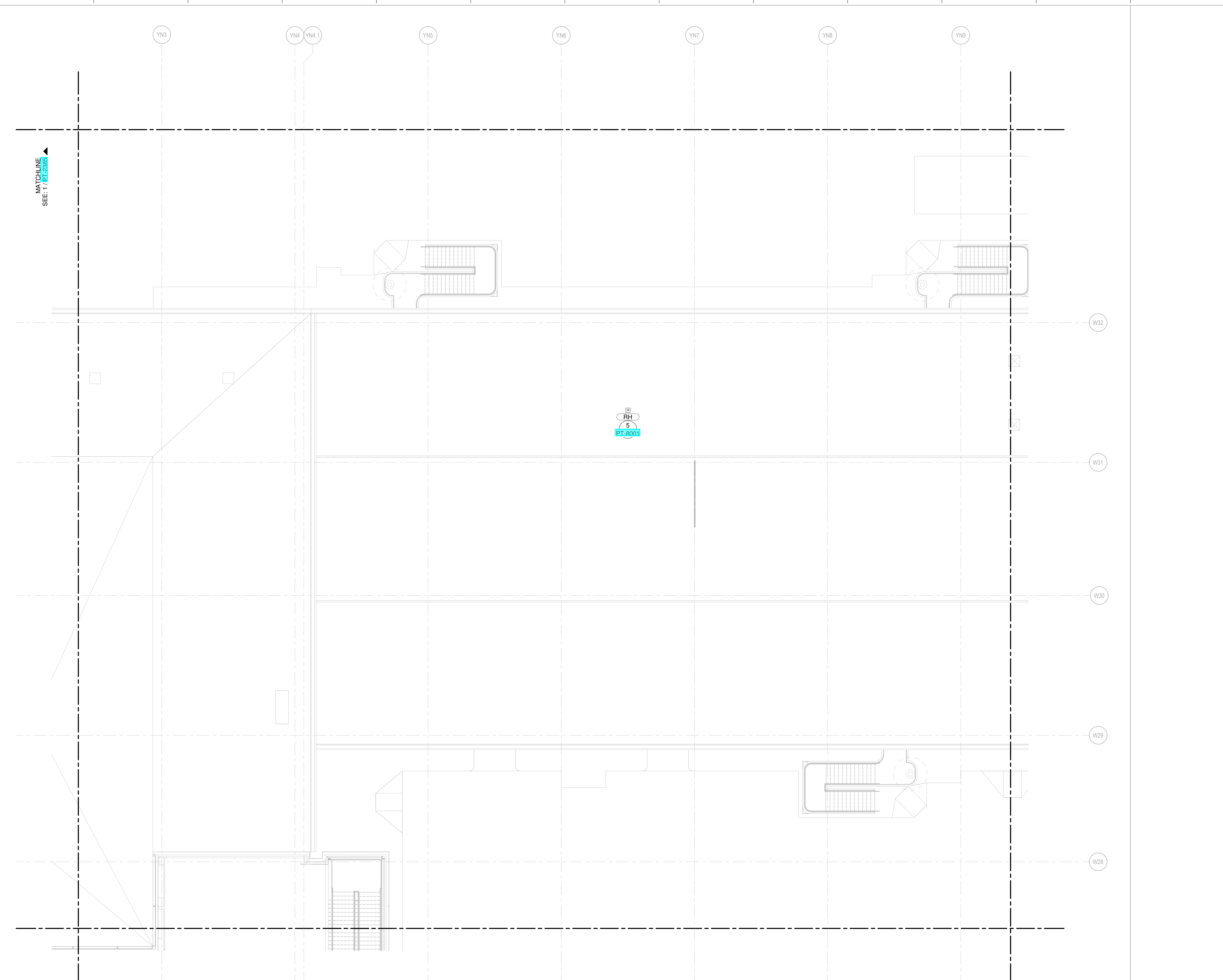
SHANE M. LUTZ
 LICENSE # PE-2003000011
 MO CORPORATE NO. E-5690
 EXPIRES 12/31/2020

NO.	DATE	DESCRIPTION
AUGUST 27, 2020	ISSUED FOR FINAL DESIGN	
JUNE 26, 2020	PRINT SET - UNDERGROUND	
JUNE 16, 2020	ISSUED FOR CD PROGRESS	
MARCH 16, 2020	ISSUED FOR DESIGN DEVELOPMENT	

DRAWING NUMBER

LEVEL 4 - LOW ROOF WATER & GAS PART PLAN T86

PT-2386



1 LEVEL 4 - LOW ROOF WATER & GAS PART PLAN T86
 SCALE: 1/8" = 1'-0"

**NEW SINGLE TERMINAL
AND SINGLE AT KCI**

OWNER



601 Brasilia Avenue, Kansas City, MO 64153
PROJECT NUMBER - 62180497

OWNER'S REPRESENTATIVE



533 Mexico City Avenue, Kansas City, MO 64153
DEVELOPER



533 Mexico City Avenue, Kansas City, MO 64153

DESIGN-BUILDER



533 Mexico City Avenue, Kansas City, MO 64153

ARCHITECT & STRUCTURAL ENGINEER

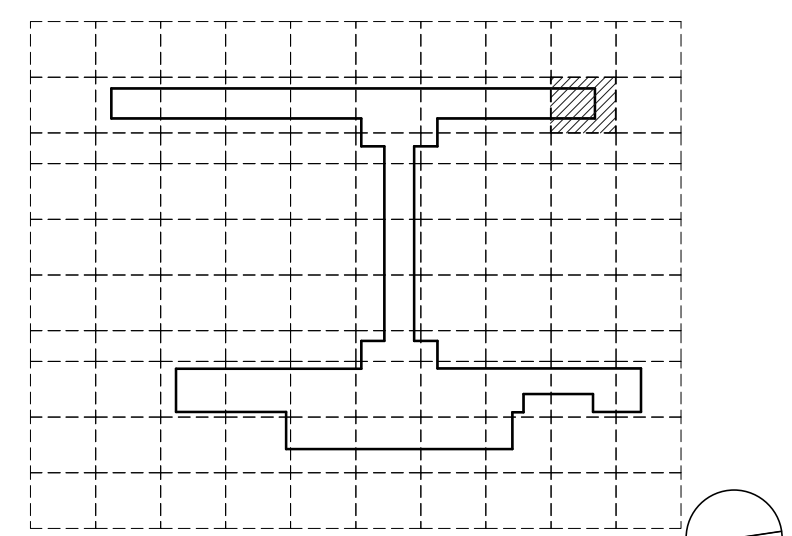


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14 Wall Street, New York, NY 10005

CONSULTANT TEAM

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- ICF - Concessions
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- Cityfi - Smart Technology
- Priority Engineers - Traffic Engineering

KEY PLAN



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LICENSE # PE-2003000011
MO CORPORATE NO. E-5660
EXPIRES 12/31/2020

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P: 913-742-9000

NO.	DATE	DESCRIPTION
1	AUGUST 27, 2020	ISSUED FOR FINAL DESIGN
2	JUNE 26, 2020	PERMIT SET UNDERGOING
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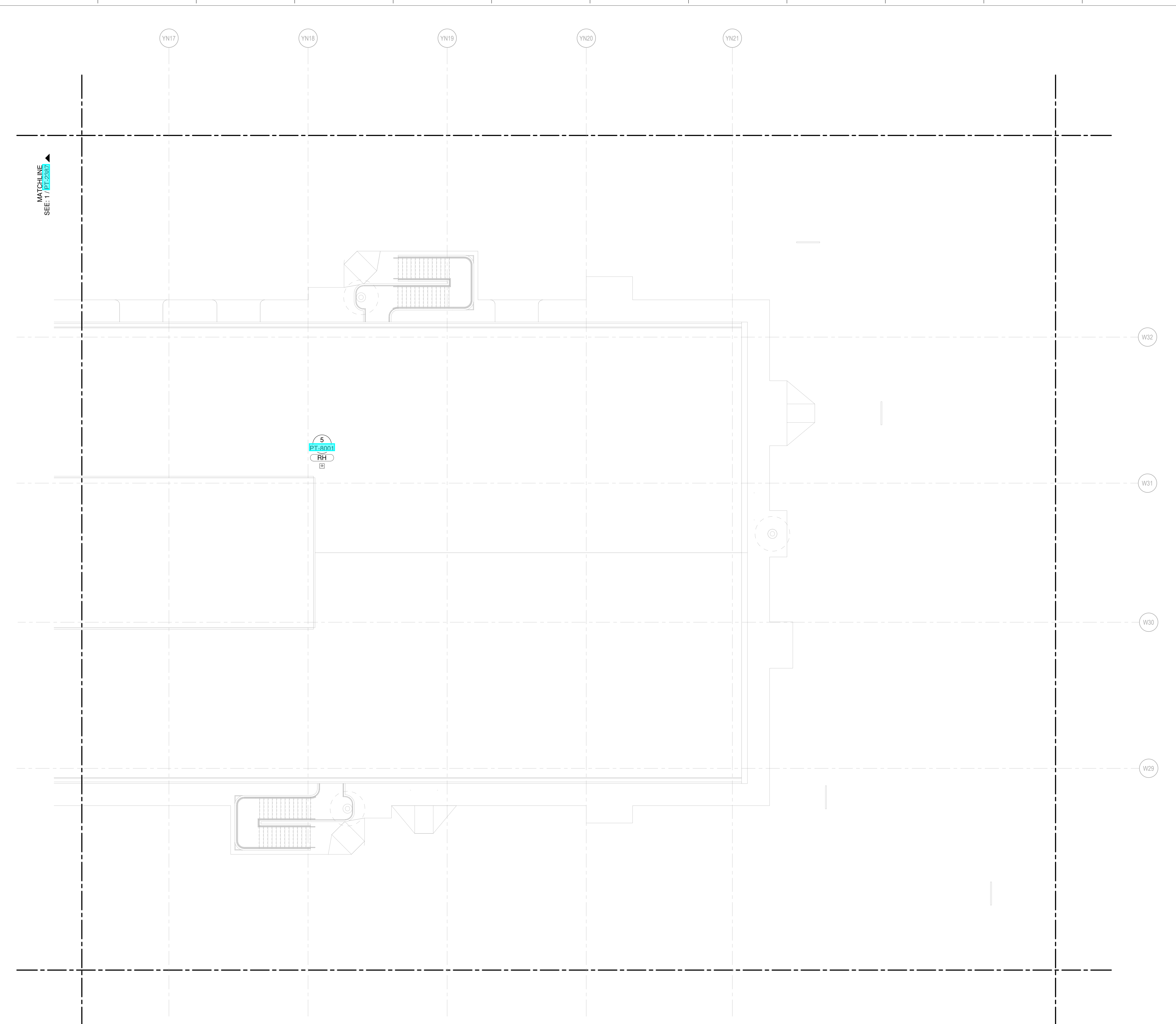
NO.	DATE	DESCRIPTION
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DRAWING TITLE

**LEVEL 4 - LOW ROOF
WATER & GAS PART
PLAN T88**

DRAWING NUMBER

PT-2388



MATCHLINE
SEE: 1 / PT-2387

5
PT-8001
RH

1 LEVEL 4 - LOW ROOF WATER & GAS PART PLAN T88
SCALE: 1/8" = 1'-0"

SHANE M. LUTZ

NEW SINGLE TERMINAL AND PARKING AT KCI

OWNER



601 Brasilia Avenue, Kansas City, MO 64153
PROJECT NUMBER - 62180497

OWNER'S REPRESENTATIVE



533 Mexico City Avenue, Kansas City, MO 64153



533 Mexico City Avenue, Kansas City, MO 64153

DESIGN-BUILDER



533 Mexico City Avenue, Kansas City, MO 64153

ARCHITECT & STRUCTURAL ENGINEER

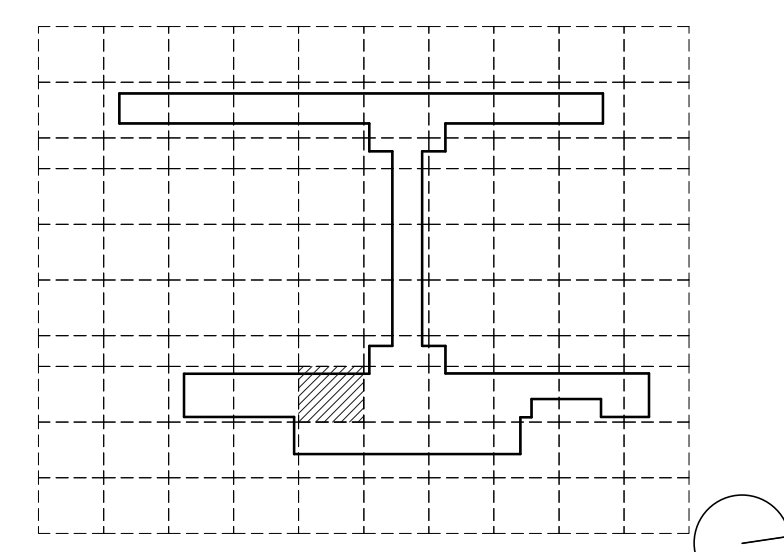


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14 Wall Street, New York, NY 10005

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- Dubois Consultants - Struc. Terminal
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- Argus Consulting - Hydrant Fuel System
- Transolutions - Terminal Planning
- Premier Engineering - Demolition
- ICF - Concessions
- Lerch Bates - VHT Consultants
- Cityfi - Smart Technology
- Priority Engineers - Traffic Engineering

KEYPLAN



SEAL

Henderson Engineers Inc.
6345 Linnwood Drive, Suite 300
Overland, MO 64114
P: 913-742-9200

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LICENSE # PE-2003000011
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SHANE M. LUTZ
LICENSE # PE-2003000011
MO CORPORATE NO. E-5660
EXPIRES 12/31/2020

NO.	DATE	DESCRIPTION
1	AUGUST 27, 2020	ISSUED FOR FINAL DESIGN
2	JULY 29, 2020	ISSUED FOR PERMITTING
3	JUNE 24, 2020	PERMIT SET - UNDERGROUND
4	JUNE 16, 2020	ISSUED FOR CD PROGRESS

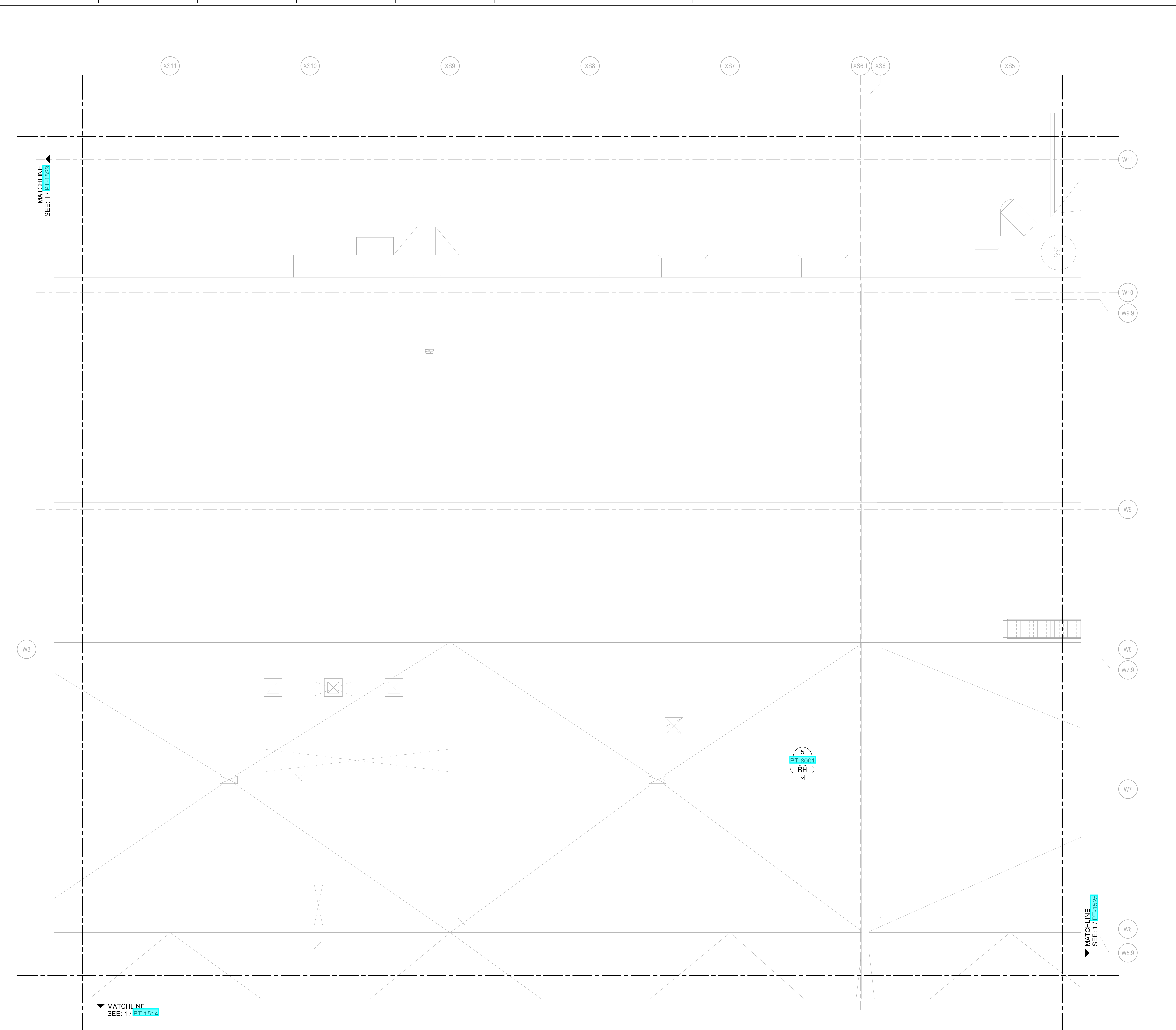
PACKAGE

DRAWING TITLE

LEVEL 5 - HIGH ROOF WATER & GAS PART PLAN T24

DRAWING NUMBER

PT-2524



1 LEVEL 5 - HIGH ROOF WATER & GAS PART PLAN T24
SCALE: 1/8" = 1'-0"

SHANE M. LUTZ

NEW SINGLE TERMINAL AND PARKING AT KCI

OWNER



601 Brasilia Avenue, Kansas City, MO 64153
PROJECT NUMBER - 62180497

OWNER'S REPRESENTATIVE



533 Mexico City Avenue, Kansas City, MO 64153
DEVELOPER



533 Mexico City Avenue, Kansas City, MO 64153

DESIGN-BUILDER



533 Mexico City Avenue, Kansas City, MO 64153

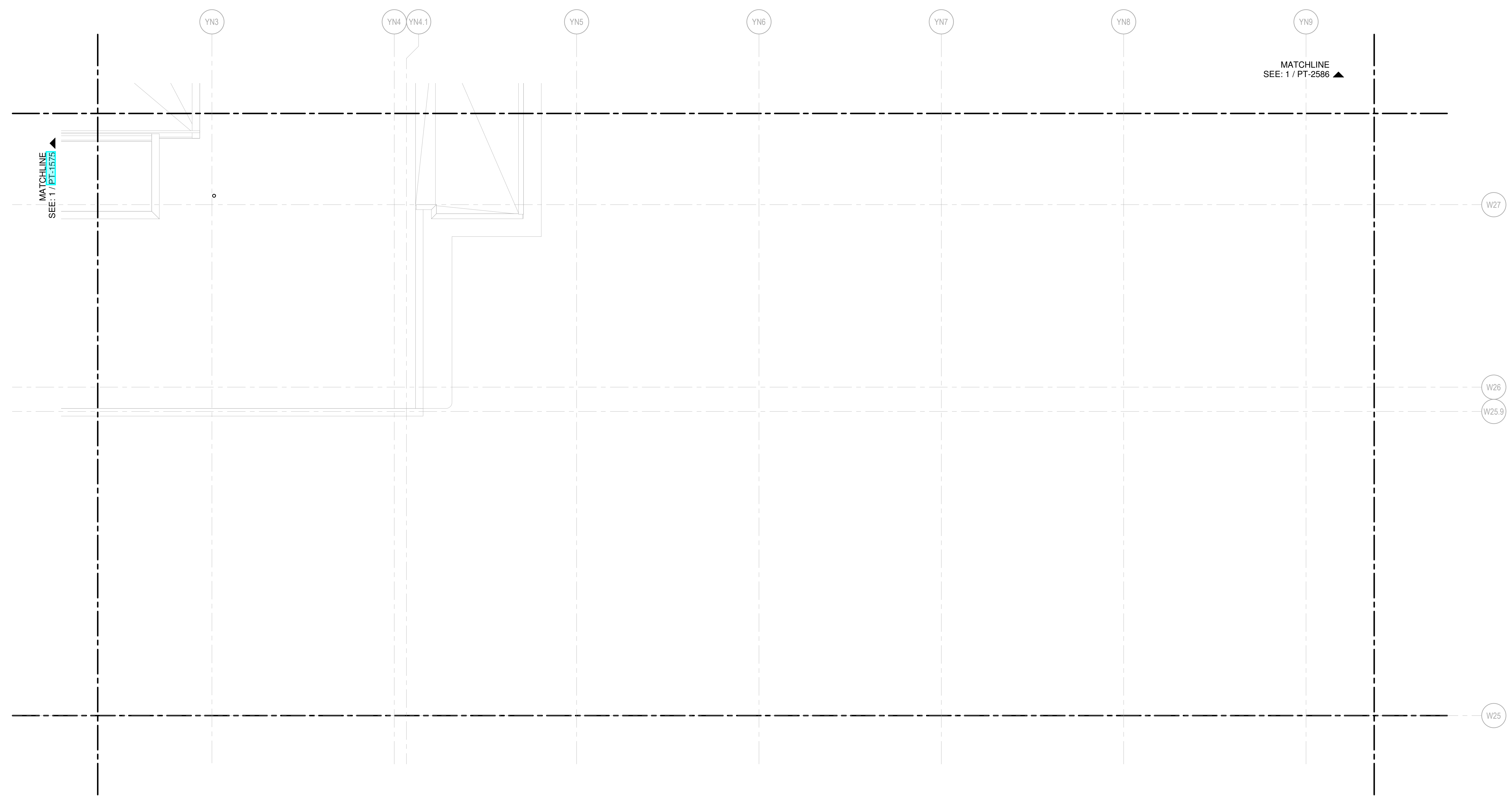
ARCHITECT & STRUCTURAL ENGINEER



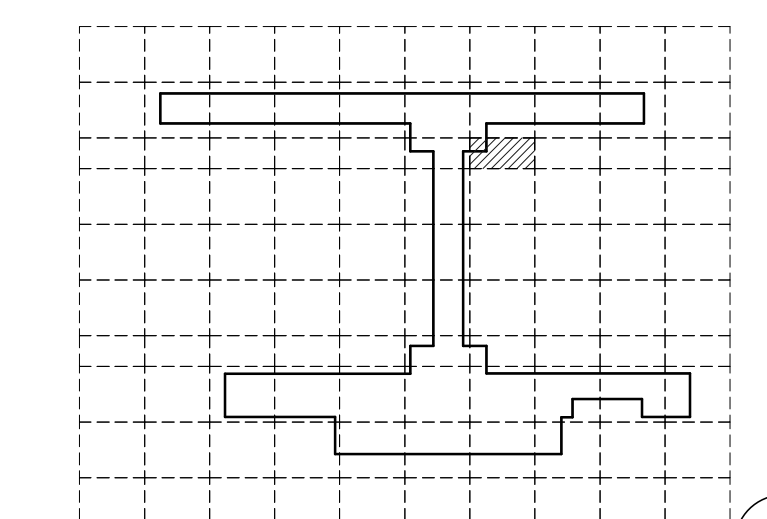
Skidmore, Owings & Merrill LLP
14 Wall Street, New York, NY 10005

CONSULTANT TEAM

- Draw Architecture - Collaborating Architect
- Wellner Architects - Collaborating Architect
- HJM Architects Inc. - Collaborating Architect
- FSC Inc. - Fire Protection / Code / Life Safety
- Henderson - MEP / FA / PA / Sec Engineer of Record
- LAND3 Studio - Landscape Architect
- Garver - Airside Civil
- Entro - Signage / Wayfinding
- Olsson - Traffic Planning
- BNP - Baggage Handling
- Vanderlande - Baggage Handling
- Michele & Associates - ADA
- Thornton Tomasetti - Protective Design
- SK Design Group - Glycol / Landside Utilities
- Trekk Design Group - Airside Storm Drainage
- Arora Engineers, Inc. - AIS / ICT
- ARUP - Aircraft Parking / Gate Eqp. / AIS / ICT / FA
- Tallafiero & Browne Inc. - Landside Civil
- Custom Eng. Inc. - Landside Utilities / Airside Utilities
- 3T Design & Development - Landside Utilities
- HC Consulting Group - Permitting
- Lightworks - Lighting / Landside Lighting
- Dubois Consultants - Struc. Terminal
- Leigh & O'Kane - Roadway Structure
- Argus Consulting - Hydrant Fuel System
- Transsolutions - Terminal Planning
- Premier Engineering - Demolition
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KEY PLAN



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Henderson Engineers Inc.
6345 Larned Drive, Suite 300
Kansas City, MO 64124
P: 913-742-9000

NO.	DATE	DESCRIPTION
1	AUGUST 27, 2020	ISSUED FOR FINAL DESIGN
2	JULY 29, 2020	ISSUED FOR PERMIT SET - UNDERGROUND
3	JUNE 24, 2020	PERMIT SET - UNDERGROUND
4	JUNE 18, 2020	ISSUED FOR CD PROGRESS

DRAWING TITLE

LEVEL 5 - HIGH ROOF WATER & GAS PART PLAN T76

DRAWING NUMBER

PT-2576

1 LEVEL 5 - HIGH ROOF WATER & GAS PART PLAN T76
SCALE: 1/8" = 1'-0"

SECTION 22 70 00
NATURAL GAS SYSTEMS

PART 1 - GENERAL REQUIREMENTS

1.1 SUMMARY

- A. This Section includes distribution piping systems for natural gas, liquid petroleum-gas and manufactured gas within the building and extending from the point of delivery to the connections with gas utilization devices. Piping materials and equipment specified in this Section include:
1. Pipes, fittings, and specialties.
 2. Special duty valves.
 3. Pressure regulators.
 4. Service meters.
- B. Contractors Option:
1. The Division 22 contractor may provide mechanically joined joints for natural gas systems to connect couplings, fittings, valves and related components as an option in lieu of, in whole or in part, welded, threaded or flanged piping methods. Mechanically joined natural gas systems where used shall be provided in compliance with specification Section 227011 "Mechanically Joined Natural Gas Systems".
- C. This Section does not apply to liquid petroleum piping; industrial gas applications using such gases as acetylene and acetylenic compounds, hydrogen, ammonia, carbon monoxide, oxygen and nitrogen; gas piping, meters, gas pressure regulators and other appurtenances used by the serving gas supplier in distribution of gas.
- D. Related Sections: The following sections contain requirements that relate to this Section:
1. Division 22 Section "General plumbing Requirements," for trenching, excavation, backfill and compaction materials and methods for underground piping installations.
 2. Division 7 Section "Joint Sealers," for materials and methods for sealing pipe penetrations through basement and foundation walls.
 3. Division 9 Section "Painting," for materials and methods for painting pipe.
 4. Division 22 Section "Common Work Results for Plumbing," for materials and methods for fire barrier penetrations and wall and floor penetrations.
 5. Division 22 Section "Basic Piping Material and Methods," for materials and methods for strainers, unions, dielectric flanges and mechanical sleeve seals.
 6. Division 22 Section "Hangers and Supports for Plumbing Piping," for materials and methods for hanging and supporting gas distribution piping.
 7. Division 26 Section "Common Work Results for Electrical" required electrical devices.
- E. Gas pressures for systems specified in this Section are limited to 5 psig.

1.2 DEFINITIONS

- A. Pipe sizes used in this Specification are Nominal Pipe Size (NPS).
- B. Gas Distribution Piping: A pipe within the building which conveys gas from the point of delivery to the points of usage.
- C. Gas Service Piping: The pipe from the gas main or other source of supply including the meter, regulating valve, or service valve to the gas distribution system of the building served.
- D. Point of Delivery: The outlet of the service meter assembly, or the outlet of the service regulator (service shutoff valve when no meter is provided).

1.3 SUBMITTALS

- A. Product data for each gas piping specialty and special duty valves. Include rated capacities of selected models, furnished specialties and accessories, and installation instructions.
- B. Shop drawings detailing dimensions, required clearances, for connections to gas meter.
- C. Coordination drawings for gas distribution piping systems in accordance with Division 22 Section "General Plumbing Requirements."
- D. Maintenance data for gas specialties and special duty valves, for inclusion in operating and maintenance manual specified in Division 1 and Division 22 Section "General Plumbing Requirements."
- E. Test reports specified in Part 3 below.

1.4 QUALITY ASSURANCE

- A. Installer Qualifications: Installation and replacement of gas piping, gas utilization equipment or accessories, and repair and servicing of equipment shall be performed only by a qualified installer. The term qualified is defined as experienced in such work (experienced shall mean having a minimum of 5 previous projects similar in size and scope to this project), familiar with precautions required, and has complied with the requirements of the authority having jurisdiction. Upon request, submit evidence of such qualifications to the Architect.
- B. Qualifications for Welding Processes and Operators: Comply with the requirements of ASME Boiler and Pressure Vessel Code, "Welding and Brazing Qualification."
- C. Regulatory Requirements: Comply with the requirements of the following codes:
 - 1. NFPA 54 - National Fuel Gas Code, for gas piping materials and components, gas piping installation and inspections, testing, and purging of gas piping systems.
- D. Local Gas Utility Requirements: Comply with local gas utility installation rules and regulations.
- E. Pipe, pipe fittings and pipe specialties shall be manufactured in plants located in the United States or certified to meet the specified ASTM and ANSI standards.

PART 2 - PRODUCTS AND MATERIALS

2.1 MANUFACTURERS

- A. Manufacturer: Subject to compliance with requirements, provide gas piping system products from one of the following:
1. Gas Ball Valves – 2” and Smaller:
 - a. Apollo Valves # 77F-1XX-01
 - b. Hammond Valve # 8901
 - c. Milwaukee Valve # BA-475B
 - d. Nibco Inc. # T-FP 600A
 - e. Watts # FBV-3C
 2. Gas Cocks – 2-1/2” and Larger:
 - a. Homestead # 602
 - b. Milliken #200MF
 - c. RM Energy Systems “Hercules” # D126
 3. CSA Listed Gas Pressure Regulators
 - a. Karl Dungs, Inc.
 - b. Maxitrol
 - c. Pietro-Fiorentini
 4. Polyethylene Pipe and Pipe Fittings:
 - a. Cresline Plastic Pipe Co. #PE2406
 - b. Charter Plastics PE2406
 - c. Chevron Phillips DriscoPlex Series 6500
 5. Polyethylene to Steel Pipe Transition Fittings:
 - a. Perfection Corporation
 - b. R.W. Lyall
 - c. Central Plastics
 6. Gas Meters:
 - a. American Meter Company
 - b. Schlumberger / Acteris

- c. Roots
- 7. Insect Screens
 - a. Northtown Pipe Protection Products "BUGSCRN Series"
- 8. Gas Relief Vents
 - a. Richards "GV Series"

2.2 PIPE AND TUBING MATERIALS

- A. General: Refer to Part 3, Article "PIPE APPLICATIONS" for identification of systems where the specified pipe and fitting materials listed below are used.
- B. Steel Pipe: ASTM A 53, Grade B, Schedule 40, Type E electric-resistance welded or Type S seamless, black steel pipe, beveled ends.
- C. Plastic Pipe: High Density, SDR-11 iron pipe size polyethylene pipe, meeting ASTM D 2513, with heat fusion connections. Pipe shall meet Plastic Pipe Institute Material Designation of PE 2406.
- D. PVC DWV Pipe: Schedule 40 pipe meeting ASTM D1785 and ASTM D2665 with "solid wall" PVC meeting ASTM D1784 with cell class 12454-B.
 - 1. Solvent: ASTM D2564.
 - a. PVC solvent cement shall have a VOC content of 510 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

2.3 FITTINGS

- A. Malleable-Iron Threaded Fittings: ANSI B16.3, Class 150, standard pattern, for threaded joints. Threads shall conform to ANSI B1.20.1.
- B. Steel Fittings: ASTM A 234, seamless or welded, for welded joints.
 - 1. 1-1/4" and smaller shall be socket type
 - 2. 1-1/2" and larger shall be butt weld type.
- C. Forged Steel Flanges and Flanged Fittings: ASME B16.5, Class 150, butt weld ends, standard pattern with bolts, nuts and gaskets of material group 1.1.
- D. Plastic Fittings: Polyethylene socket fusion fittings, meeting ASTM D 2683 compatible with the piping system.
- E. Transition Fittings – Steel to Polyethylene: Factory assembled and pressure tested one piece design, with steel half of Schedule 40 steel pipe with beveled edge for welding and polyethylene half shall be of ample length for making welds. Steel pipe shall have epoxy protective coating.
- F. Insect screens: Black steel body with 20 mesh stainless steel screen and MNPT end.
- G. Gas Relief Vents: Galvanized steel body with 90 degree inlet to screened outlet, 20 mesh stainless steel screen and FNPT end.

- H. PVC DWV Fittings: DWV pattern meeting ASTM D2665 with solvent cement socket joints.
 - 1. Solvent: ASTM D2564.
 - a. PVC solvent cement shall have a VOC content of 510 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

2.4 JOINING MATERIALS

- A. Joint Compound: Suitable for the gas being handled.
- B. Gasket Material: Thickness, material, and type suitable for gas to be handled, and for design temperatures and pressures.

2.5 PIPING SPECIALTIES

- A. Protective Coating: When piping will be in contact with material or atmosphere exerting a corrosive action, pipe and fittings shall be factory-coated with polyethylene tape, having the following properties:
 - 1. overall thickness: 20 mils
 - 2. synthetic adhesive
 - 3. water vapor transmission rate, gallons per 100 square inch: 0.10 or less.
 - 4. water absorption, percent: 0.02 or less.
- B. Prime pipe and fittings with a compatible primer prior to application of tape.
- C. Strike Plates: 16 gauge carbon steel, tested and listed by CSA International.
- D. In wall Strike Protection Hose: UL listed spiral wound interlocking galvanized steel reduced wall flexible conduit.
- E. Non metallic Water Tight Conduit: Schedule 80 rigid PVC, UL 651, with fittings to match to conduit type and material.

2.6 VALVES

- A. Gas Ball Valves – 2” and Smaller: Full port brass body with brass ball, PTFE seats, threaded ends 150psi steam, 600 WOG, UL listed for natural gas service.
- B. Gas Cocks 2-1/2 Inch and Larger: 175 psi, lubricated plug type, ASTM A126 Grade B semi-steel body and plug with full area rectangular port, straightaway pattern, single gland, wrench operated, flanged ends.
- C. Solenoid Valves: Aluminum body, 120 volts AC, 60 Hz, Class B continuous duty molded coil, NEMA 4 coil enclosure; electrically opened/normally closed with visual indication to indicate whether valve is open or closed; UL listed and labeled, FM approved for natural gas service.
- D. Gas Line Pressure Regulators: Single stage, steel jacketed, corrosion-resistant gas pressure regulators; with atmospheric vent, elevation compensator; internal relief vent, vent limiter for indoor installation, with threaded ends for 2 inch and smaller, flanged ends for 2-1/2 inch and

larger; for inlet and outlet gas pressures, specific gravity, and volume flow as indicated on the drawings.

1. CSA listed for 5 PSI gas systems with factory overpressure protection device.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install in accordance with manufacturer's installation instructions.

3.2 PREPARATION

- A. Precautions: Before turning off the gas to the premises, or section of piping, turn off all equipment valves. Perform a leakage test as specified in "FIELD QUALITY CONTROL" below, to determine that all equipment is turned off in the piping section to be affected.
- B. Conform with the requirements in NFPA 54, for the prevention of accidental ignition.

3.3 PREPARATION FOUNDATION FOR UNDERGROUND GAS SERVICE PIPING

- A. Pipe Beds for Pre-sleeved Vent Capable Semi-rigid Corrugated Stainless Steel Tubing, PE Pipe and PVC Pipe Conduit: Support pipe in trench with sand bags level and true to prevent sand, gravel or debris from interfering with the solvent cement or fusion process. After pressure testing is complete, gradually install bedding to maintain continuous pipe slope and prevent pipe deflection and then install subbase. Refer to Division 22 Section "General Plumbing Requirements" for bedding and subbase materials, excavation, trenching, backfill and compaction requirements and refer to ASTM D2321 "Underground Installation of Thermoplastic Pipe for Sewers and Gravity-flow Applications" for additional requirements.

3.4 PIPE APPLICATIONS

- A. Install steel pipe with threaded joints and fittings for 2 inch and smaller, and with welded joints for 2-1/2 inch and larger.
- B. Install PE plastic pipe with fusion bond plastic fittings below grade outside the building slab.
- C. Install steel pipe in PVC DWV pipe below grade and below floor. Provide conduit at 2 pipe sizes larger than steel pipe. Provide 2" vent to the atmosphere. Turn down with gooseneck and insect screen.

3.5 PIPING INSTALLATION

- A. General: Conform to the requirements of NFPA 54 - National Fuel Gas Code.
- B. Locations and Arrangements: Drawings (plans, schematics, and diagrams) indicate the general location and arrangement of piping systems. Design locations and arrangements of piping take into consideration pipe sizing, flow direction, slope of pipe, expansion, and other design considerations. So far as practical, install piping as indicated.
- C. Concealed Locations: As specified below:

1. Inaccessible Above-Ceiling Locations: Install concealed gas piping in inaccessible above-ceiling spaces without valves or unions.
 2. Accessible Above-Ceiling Locations: Gas piping may be installed in accessible above-ceiling spaces (subject to the approval of the authority having jurisdiction), whether or not such spaces are used as a plenum. Valves and unions shall not be located in such spaces used as a plenum.
 3. In Floors: Install concealed gas piping in concrete floor slabs in an air-tight conduit constructed of Schedule 40 PVC with socket weld joints two pipe sizes larger than the gas pipe served. Extend conduit a minimum of 12" above finish floor and cap air tight at both ends. Vent conduit to the outside with a minimum 2" pipe and terminate with a screened vent cap.
 4. Piping In Partitions: Install concealed gas piping in hollow partitions with welded joint (subject to the approval of the authority having jurisdiction) and protect gas piping against physical damage. Install gas piping passing through partitions with no joints or unions inside the partition.
 5. Concrete or Masonry Walls: Do not install gas piping in masonry or concrete walls.
 6. Prohibited Locations: Do not install gas piping in or through a circulating air duct, clothes chute, chimney or gas vent, ventilating duct, dumbwaiter or elevator shaft. This does not apply to accessible above-ceiling space specified above.
- D. Fire Barrier Penetrations: Where pipes pass through fire-rated walls, partitions, ceilings, and floors, maintain the fire-rated integrity. Refer to Division 22 Section "Common Work Results for Plumbing" for special sealers and materials.
- E. Elevated Floor Penetrations of Waterproof Membrane, Interior Penetrations of No-Fire Rated Walls and Concrete Slab on Grade Penetrations: Provide sleeves and seal pipes that pass through waterproof floors, non-fire rated walls, partitions and ceilings or concrete slab on grade. Refer to Division 22 Section "Basic Piping Materials and Methods" for special sealers and materials.
- F. Exterior Wall Penetrations: Seal pipe penetrations through exterior wall constructions with sleeves, packing, and sealant. Refer to Division 22 Section "Common Work Results for Plumbing" for additional information.
- G. Underground Exterior Wall Penetrations: Seal pipe penetrations through underground exterior walls with sleeves and mechanical sleeve seals. Refer to Division 22 Section "Basic Piping Material and Methods" for additional information.
- H. Dirt legs and Sediment Traps: Install a dirt leg at points where condensate and impurities may collect, at the outlet of the gas meter, as close to the inlet of each gas appliance or equipment as possible, and in a location readily accessible to permit cleaning and emptying.
1. Construct dirt legs and sediment traps using a tee fitting with the bottom outlet plugged or capped. Provide a 3" length of pipe and screwed cap for the dirt leg. Use line size pipe for dirt leg, refer to the drawings for sizes. Enter the tee with flow from the top and exit the tee from the side outlet. Install the dirt leg a minimum of 3-1/2" above the roof or floor readily accessible to permit cleaning and emptying.
 2. Install line size gas cock, union and dirt leg at each equipment connection; refer to the drawings for sizes. Provide reducers at the equipment connection as required. Unions are specified in Division 22 section "Basic Piping Materials and Methods".

- I. Use fittings for all changes in direction and all branch connections.
- J. Install exposed piping at right angles or parallel to building walls. Diagonal runs are not permitted, unless expressly indicated.
- K. Install piping free of sags or bends and with ample space between piping to permit proper insulation applications.
- L. Conceal all pipe installations in walls, pipe chases, utility spaces, above ceilings, below grade or floors, unless indicated to be exposed to view.
- M. Install horizontal piping as high as possible allowing for specified slope and coordination with other components. Install vertical piping tight to columns or walls. Allow sufficient space above removable ceiling panels to allow for panel removal.
- N. Locate groups of pipes parallel to each other, spaced to permit applying insulation and servicing of valves.
- O. Install gas piping at a uniform grade of 1/4 inch in 15 feet, upward to risers, and from the risers to the meter, or service regulator when meter is not provided, or the equipment.
- P. Make reductions in pipe sizes using eccentric reducer fittings installed with the level side down.
- Q. Connect branch outlet pipes from the top or sides of horizontal lines, not from the bottom.
- R. Install unions in pipes 2 inch and smaller, adjacent to each valve, and elsewhere as indicated. Unions are not required on flanged devices. Unions are specified in Section "Basic Piping Materials and Methods".
- S. Joints Containing Dissimilar Metals: Provide dielectric unions for 2" and smaller and dielectric flanges for piping 2-1/2" and larger. Dielectric unions and flanges are specified in Section "Basic Piping Materials and Methods".
- T. Install flanges on valves, apparatus, and equipment having 2-1/2 inch and larger connections.
- U. Install strainers on the supply side of each control valve, pressure reducing valve, pressure regulating valve, solenoid valve, and elsewhere as indicated.
- V. Anchor piping to ensure proper direction of expansion and contraction. Install expansion loops and joints as indicated on the Drawings and specified in Division 22 Section "Expansion Fittings and Loops for Plumbing Piping."
- W. Paint Exposed Outdoor Gas Piping: Cleaning and painting of exposed outdoor gas piping shall be provided by Division 9 Section "Painting".
 - 1. Final color per the architect.
- X. Install plastic pipe underground with socket weld plastic joints. Use transition fittings for joining steel to plastic pipe. Installation and pipe bedding shall be per the manufacturer's published installation recommendations.

3.6 HANGERS AND SUPPORTS

- A. General: Hanger, support, and anchor components and installation procedures conforming to MSS SP-58 and SP-69 are specified in Division 22 Section "Hangers and Supports for Plumbing Piping". Conform to the table below for maximum spacing of supports.

- B. Pipe Attachments: Install the following:
1. Adjustable clevis hangers, MSS SP-69 Type 1, for steel pipe 2-1/2" and larger for individual horizontal runs.
 2. Riser clamps, MSS SP-69 Type 8, for individual vertical runs.
 3. Extension split ring pipe clamp, MSS SP-69 Type 12, for individual exposed runs on walls.
 4. Engineered strut support system may be provided, at the contractor's option, in lieu of individual hangers for horizontal pipes as specified in Division 22 "Hangers and Supports for Plumbing Piping". Provide two piece straps for uninsulated pipe secured to the bare pipe and provide plastic galvanic isolators for bare copper tube.
 5. Install hangers for horizontal steel piping with the following maximum spacing and minimum rod sizes:

SIZE (NPS)	SPACING IN FEET	MIN. ROD SIZE IN INCHES
1/2" to 1"	7	3/8
1-1/4"	8	3/8
1-1/2"	9	3/8
2"	10	3/8
2-1/2"	10	1/2
3"	10	1/2
4"	10	5/8
6"	10	3/4

- C. Support vertical piping at every floor.
- D. Support gas piping within 12" of each elbow or tee and for gas piping 2-1/2" and larger at each valve or pressure regulator.

3.7 PIPE JOINT CONSTRUCTION

- A. Welded Joints: Comply with the requirements in ASME Boiler and Pressure Vessel Code, Section IX.
- B. Threaded Joints: Conform to ANSI B1.20.1, tapered pipe threads for field cut threads. Join pipe, fittings, and valves as follows:
1. Note the internal length of threads in fittings or valve ends, and proximity of internal seat or wall, to determine how far pipe should be threaded into joint. Refer to NFPA 54, for guide for number and length of threads for field threading steel pipe.
 2. Align threads at point of assembly.
 3. Apply thread compound for use with gas systems to the external pipe threads. Pipe thread tape is not accepted.
 4. Assemble joint to appropriate thread depth. When using a wrench on valves place the wrench on the valve end into which the pipe is being threaded.

- 5. Damaged Threads: Do not use pipe with threads which are corroded, or damaged. If a weld opens during cutting or threading operations, that portion of pipe shall not be used.
- C. Flanged Joints: Align flanges surfaces parallel. Assemble joints by sequencing bolt tightening to make initial contact of flanges and gaskets as flat and parallel as possible. Use suitable lubricants on bolt threads. Tighten bolts gradually and uniformly to appropriate torque specified by the bolt manufacturer.
- D. Fusion Welded: Joints shall be made by a qualified and approved operator in accordance with Title 49, CFR, Part 192.283 and be made in accordance with pipe manufacturer's recommendations.

3.8 VALVE APPLICATIONS

- A. General: The Drawings indicate valve types, locations, and arrangements.
- B. Shut-off duty: Use gas cocks specified in Part 2 above.

3.9 VALVE INSTALLATIONS

- A. Install valves in accessible locations, protected from physical damage. Tag valves with a metal tag attached with a metal chain indicating the piping systems supplied.
- B. Install line size gas cock at the outlet of the gas meter set or gas riser and install a line size union downstream of the gas cock outside of the building.
- C. Installation of Gas Pressure Regulators:
 - 1. Install a gas cock 10 pipe diameters upstream of each gas pressure regulator. Where two gas pressure regulators are installed in series in a single gas line, a manual valve is not required at the second regulator.
 - 2. Install line pressure regulators a minimum of 10 pipe diameters upstream of each atmospheric or power burner equipment connection.
 - 3. Install line pressure regulators a minimum of 10'-0" upstream of each condensing boiler or water heater connection.
 - 4. Install gas pressure regulator relief devices so they can be readily operated to determine if the valve is free; so they can be tested to determine the pressure at which they will operate; and examined for leakage when in the closed position.
 - 5. Install gas pressure regulators with listed vent limiters indoors where allowed by the AHJ. Install with regulator dome vertically upright and level.
 - 6. Install gas pressure regulators located outside the building with the relief port facing down to prevent the entry of moisture with the relief port a minimum of 18" above the roof or finish grade. Remove vent limiter and provide with line size (same size as gas vent relief port) insect screen or gas relief vent and 1" long schedule 40 black steel nipple.
 - a. Where manufacturer does not allow the gas pressure regulator to be installed upside down, install gas pressure regulator with regulator dome in the horizontal or vertically upright with factory breather plug.

7. Gas Pressure Regulator Relief Vents: Provide for gas pressure regulators that require them or for vent less regulators where the AHJ requires them. Install steel pipe with threaded joints and fittings for 2 inch and smaller, and with welded joints for 2-1/2 inch and larger. Route vent to the outdoors thru building side wall and turn down or thru the roof and turn down minimum 18" above the roof or grade. Provide with line size (same size as gas relief) insect screen or gas relief vent. Provide vent sizes per the following developed length and include 3 feet of length for each elbow:
 - a. 10 feet developed length = size vent one pipe size larger than relief vent outlet size
 - b. 20 feet developed length = size vent two pipe size larger than relief vent outlet size
 - c. 30 feet developed length = size vent three pipe size larger than relief vent outlet size
 - d. 40 feet developed length = size vent four pipe size larger than relief vent outlet size

D.

3.10 TERMINAL EQUIPMENT CONNECTIONS

- A. Install line size gas cock upstream and within 6 feet of gas appliance. Install a line size union or flanged connection downstream from the gas cock to permit removal of controls. Install reducer at the gas appliance connection, if required.
- B. Install stainless steel flexible gas pipe connector, of size and length as required to complete equipment hook-up of foodservice equipment. Verify appropriate length of flexible gas pipe connector for movement of the foodservice equipment for cleaning.

3.11 ELECTRICAL BONDING AND GROUNDING

- A. Install above ground portions of gas piping systems, upstream from equipment shutoff valves electrically continuous and bonded to a grounding electrode in accordance with NFPA 70 - "National Electrical Code."
- B. Do not use gas piping as a grounding electrode.
- C. Conform to NFPA 70 - "National Electrical Code," for electrical connections between wiring and electrically operated control devices.

3.12 FIELD QUALITY CONTROL

- A. Piping Tests: Inspect, test, and purge natural gas systems in accordance with NFPA 54, and local utility requirements.

END OF SECTION