



PRATER ENGINEERING ASSOCIATES

6130 Wilcox Road
Dublin, Ohio 43016
Phone: (614) 766-4896 Fax: (614) 766-2354

ADDENDUM NO. 1

TO: ALL PLAN HOLDERS

**RE: City of Dublin
Dublin Community Recreation Center
Geothermal Project
Dublin, Ohio
PEA-13390**

Date: December 18, 2014

TO ALL BIDDERS:

This Addendum is a modification of the original Drawings and Specifications for the referenced Project, dated November 24, 2014, and is hereby incorporated into and becomes part of said Contract Documents. It is to be considered in the Bid Form and covers additions to, or changes in the Drawings and Project Manual. ALL Addenda must be acknowledged by the Bidders on the Bid Form. Failure to do so may subject bidder to disqualification.

PRE-BID MEETING and QUESTIONS

ITEM 1 Pre-bid meeting notes and supporting documentation are attached, including an updated list of plan holders.

CLAIRIFICATIONS

ITEM 2 No clarifications are included in the addendum at this time.

PEA 13390
ADDENDUM NO. 1

MODIFICATIONS TO SPECIFICATIONS

ITEM 3 Section 2, "Bidding Forms"

- A. Replace the Bid Form with the attached (two alternates were added).

ITEM 4 Section 01 10 00, Summary

- A. Article 1.3.A.5, add the following sentence, "Two alternates are included; see Section 01 23 00, "Alternates"."

ITEM 5 Section 01 23 00, Alternates

- A. Insert the attached specification section, which adds two alternates.

ITEM 6 Section 23 57 00, Heat Exchangers for HVAC

- A. Add Article 2.2.A.5., as follows, "5. APV (a division of SPX)."

ITEM 7 Section 25 00 00, Building Automation System

- A. Revise Article 1.02.A., first sentence, as follows, "A. The building automation system (BAS) is existing to remain, and shall be modified as needed for the new geothermal controls; existing control system is Automated Logic and shall be modified by Limbach Controls Group, Randy Rausch, 614.607.8076, Columbus, Ohio."
- B. Revise Article 2.01.A, to read, "A. Automated Logic. (Existing to remain)"

ITEM 8 Section 25 00 90, Sequence of Operation

- A. Add Article 4.02.A.9., as follows, "9. If make-up water to condenser loop(s) indicates a water leak, the cooling system shall be shut down."

ITEM 9 Section 33 21 00, Water Supply Wells

- A. Article 1.2.A.1, revise to read, “1. Submersible multi-stage well pumps, for use in an NPDES Non-contact cooling water/well water system. All well water will be untreated, and not directly in contact with the HVAC system water or refrigerant. Well water will discharge to the South Fork Indian Run stream, after flowing through the Recreation Center’s pond.”
- B. Article 1.8.A., revise to add additional approved well drillers as follows: “A. Well Driller Qualifications: Wells shall be drilled by Cal Eger & Sons Pump Company, Plain City, Ohio, Jamison Well Drilling, Inc., Mansfield, Ohio, Geothermal Solutions/Crabtree, LLC, Lawrensburg, TN, or another experienced water supply well driller licensed in the jurisdiction where Project is located. Well drillers shall be approved prior to bidding and included by addendum.
- C. Article 1.8.D., revise permits as follows: “Well Driller shall be responsible for filing ODNR drilling logs for all new wells drilled, and shall pay for City of Dublin well permit fees. The A/E shall obtain NPDES Non-contact cooling water permits, shall be responsible for submitting a Notice of Intent to the Ohio EPA, and shall register the extraction wells with the ODNR. The City shall conduct monthly monitoring of the wells as required by the State.”
- D. Article 3.4., add sub-paragraph 3.4.C.5.I, as follows, “I. Monitor existing Recreation Center pond well and the private well located at the Cline property during testing, to assure there is no detrimental effect on the local active wells. Copies of preliminary test information are attached.”
- E. Attach well information, ODNR permit, and OEPA permit for reference to this specification.

MODIFICATIONS TO DRAWINGS

HVAC DRAWINGS:

ITEM 10 Sheet H01, Site Mechanical Plan.

- A. Revise General Note “A.”, from, “A. Contractor shall cut and patch all piping, sidewalks, ..., to “A. Contractor shall cut and patch all **paving**, sidewalks, ... (remainder of note unchanged).
- B. Add coded note 8, as follows, “8. Base Bid: Provide a single, combined, well condenser supply pipe from WP-2 location to heat exchangers at ENC-1. Alternate 1: provide two separate pipe runs to heat exchangers at ENC-1.”
- C. Add Coded note 8 to the 6” pipe runs between WP-2 and ENC-1.

ITEM 11 Sheet H11, Partial Courtyard HVAC Plan.

- A. Replace the bid sheet with the attached. Base bid scope is defined as one run of 6" directional bore piping, with Alternate 1 scope to provide two runs of directional bore piping. Basket strainers were added to the inlet of the heat exchangers.
- B. Base bid scope is defined as one common run of condenser water piping between the heat exchangers and the chillers, with Alternate 2 scope to provide two separate condenser water loops.

ITEM 12 Sheet H12, Partial First Floor HVAC Plan.

- A. Base bid scope is defined as one common run of condenser water piping between the heat exchangers and the chillers, with Alternate 2 scope to provide two separate condenser water loops. Expansion tanks, shot feeders, and make-up water scope were clarified.

ITEM 13 Sheet H21, Mechanical Schedules.

- A. Replace the bid sheet with the attached. Base bid piping diagram is included, to reduce the amount of directional bore work required and add isolation valves to the well supply from each well pump.

ITEM 14 Sheet H22, Mechanical Schedules.

- A. Replace the bid sheet with the attached. Mechanical equipment specifications were added for EF-1, UH-1, shot feeders and expansion tanks, and alternate enclosure manufacturers were added.

ITEM 15 Sheet H23, Mechanical Schedules.

- A. Add the NEW attached sheet, which defines Alternate 1 and Alternate 2 piping scope of work, to be added to the Base Bid work shown on revised sheet H21.

ELECTRICAL DRAWINGS:

ITEM 16 Sheet E01, Site Electrical Plan

- A. For well pump WP-1, relocate the local disconnect switch and mount to the adjacent existing adjacent fence post, to the east of the WP-1 location. Final location to be approved by the City.
- B. For well pump WP-2, relocate the local disconnect switch and mount on the existing building to the west of the WP-2 location. Final location to be approved by the City.

ITEM 17 Sheet E11, Partial Courtyard Electrical Plan

- A. At ENC-1, heat exchanger enclosure: For UH-1, revise the voltage and electrical circuit. Relocate the disconnect switch. Add power wiring for EF-1. Add heat trace cables and associated power wiring.
- B. Add coded notes 4 to 8.
- C. Add existing panel schedule L1.

ITEM 18 Sheet E22, Electrical Schedules

- A. Revise existing panel schedule P1 (tub 2).

Attachments:

Pre-Bid meeting notes

Specifications:

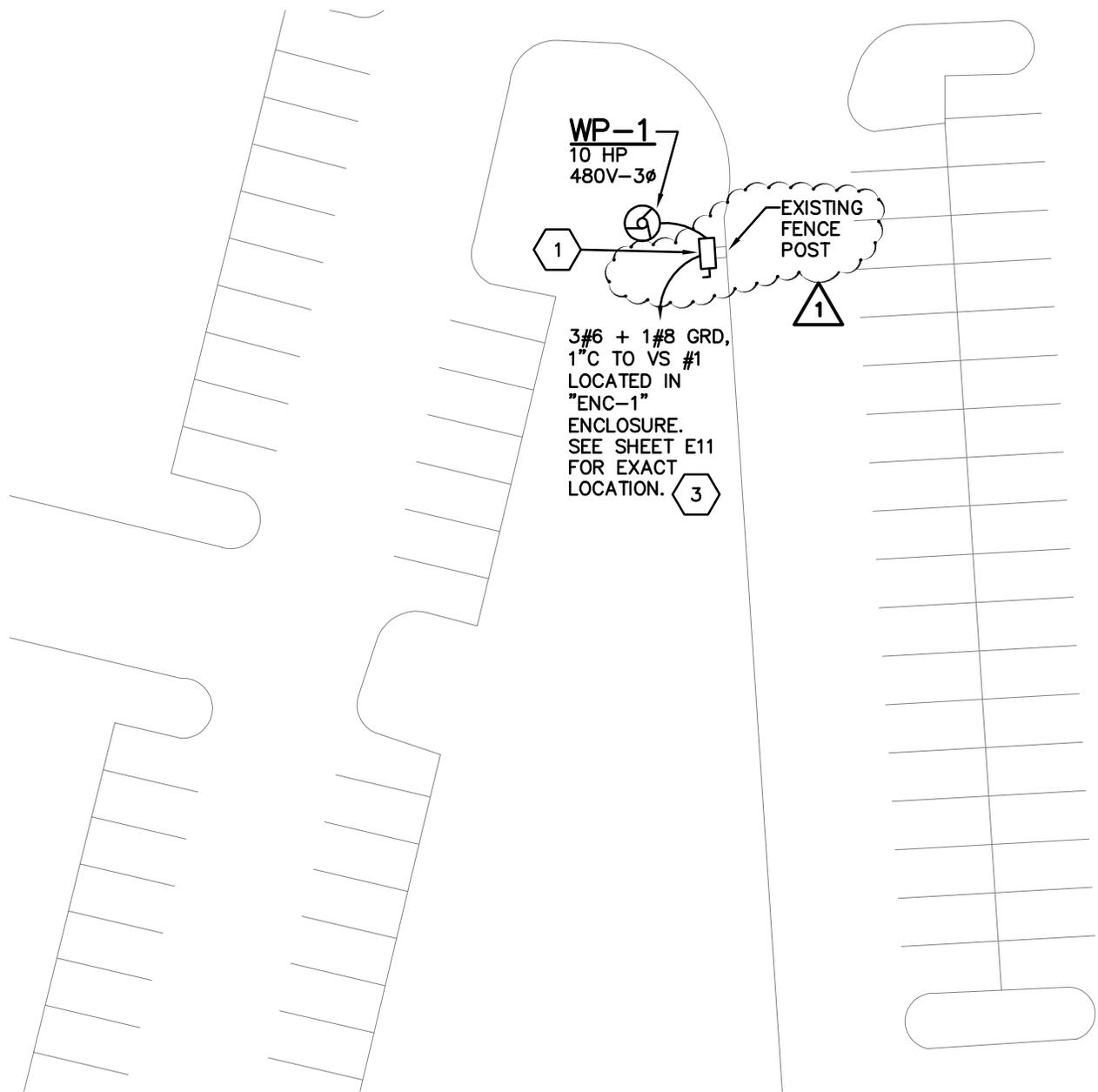
- 1. Bid Form
- 2. Section 01 23 00, "Alternates"
- 3. Section 33 21 00, "Water Supply Wells" – existing well information, test information, and State of Ohio permits.

Drawings, Full Size Sheets will be re-issued for the following Drawings:

- 1. Sheets H11, H12, H21, H22, H23

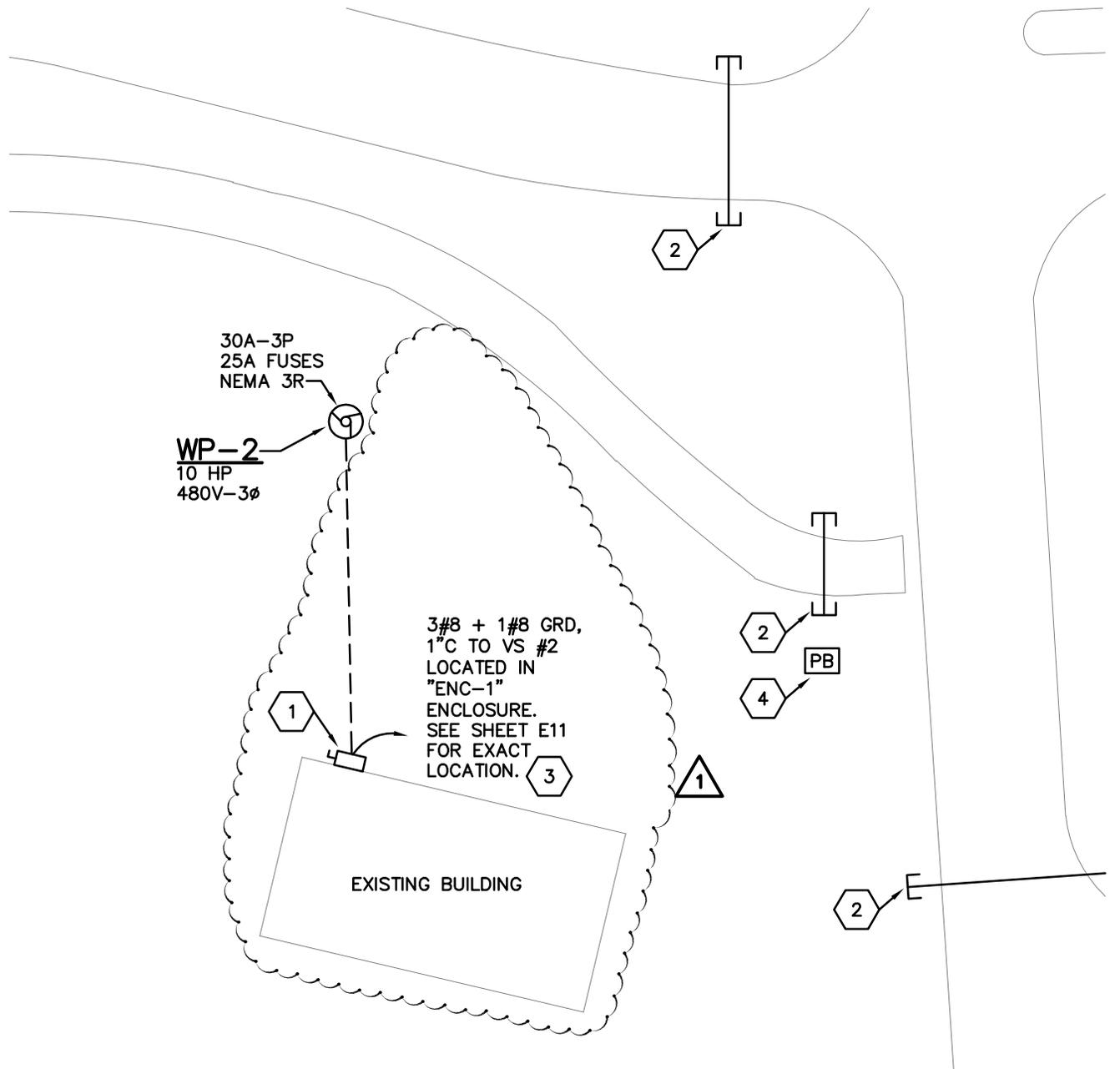
END OF ADDENDUM NO. 1

PEA-13390
ADDENDUM NO. 1



SITE
ELECTRICAL PLAN
SCALE: 1"=30'-0"

SK E01.1	DUBLIN RECREATION CENTER GEOHERMAL PROJECT	Job No. 13390
	PRATER Engineering Associates, Inc.	By: PEA 6130 Wilcox Road Dublin, Ohio 43016 (614) 766 4896 Date: 12/18/14



SITE
ELECTRICAL PLAN
SCALE: 1"=30'-0"

SK
E01.2

**DUBLIN RECREATION CENTER
GEOTHERMAL PROJECT**

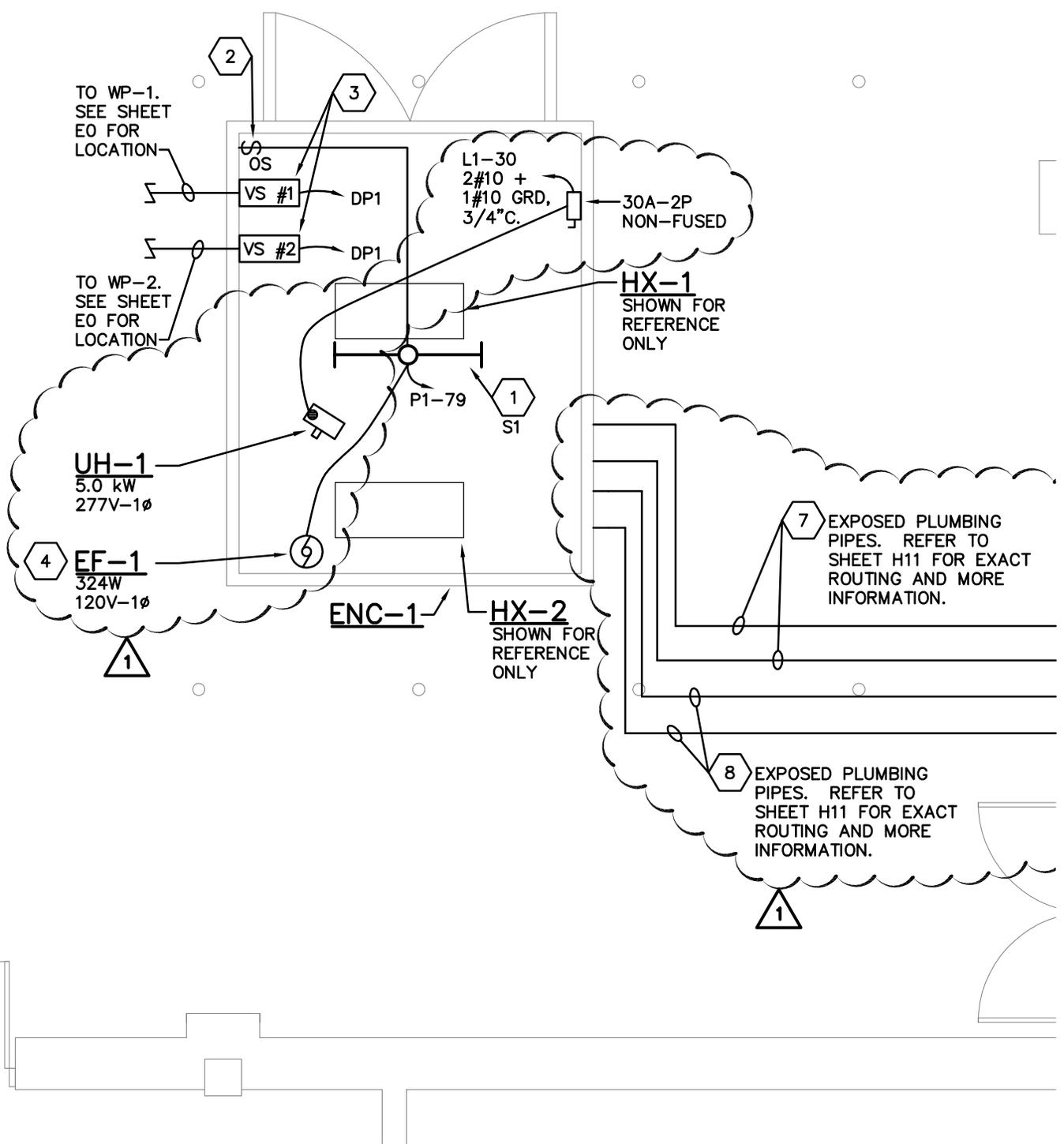
PRATER
Engineering Associates, Inc.

6130 Wilcox Road
Dublin, Ohio 43016
(614) 766 4896

Job No.
13390

By:
PEA

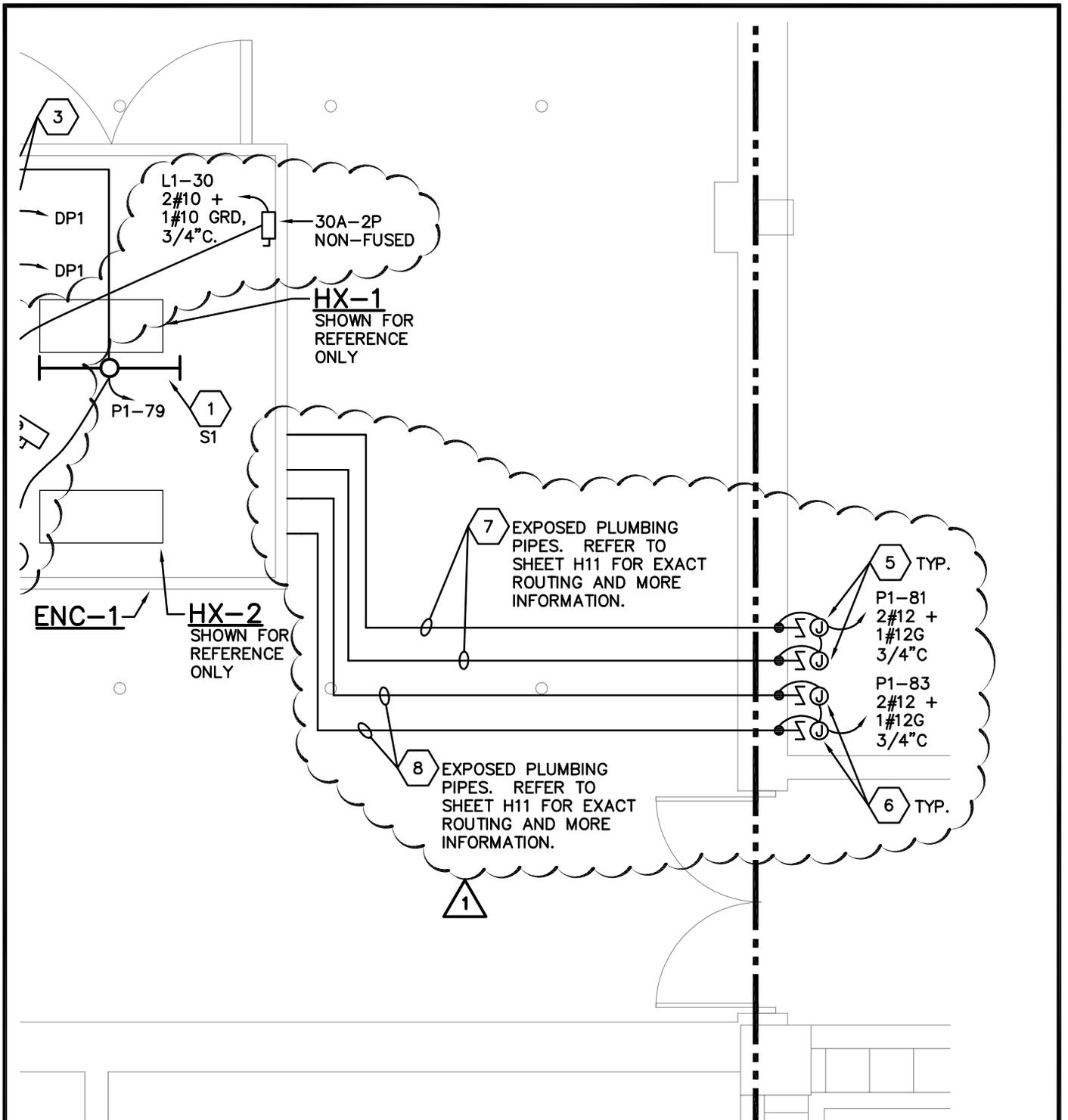
Date:
12/18/14



PARTIAL COURTYARD
ELECTRICAL PLAN
SCALE: 1/4" = 1'-0"

SK E11.1	DUBLIN RECREATION CENTER GEOHERMAL PROJECT	Job No. 13390
	PRATER Engineering Associates, Inc.	By: PEA Date: 12/18/14

6130 Wilcox Road
Dublin, Ohio 43016
(614) 766 4896



PARTIAL COURTYARD
ELECTRICAL PLAN
SCALE: 1/4"=1'-0"

SK
E11.2

**DUBLIN RECREATION CENTER
GEOTHERMAL PROJECT**

PRATER
Engineering Associates, Inc.

Job No.
13390
By:
PEA
Date:
12/18/14

6130 Wilcox Road
Dublin, Ohio 43016
(614) 766 4896

CODED NOTES

1

1. 4'-0" SHOP LIGHT. DAYBRITE #S-232-120-EB10R SERIES OR EQUAL.
2. LINE VOLTAGE LIGHT SENSOR AND COVERPLATE.. WATTSTOPPER ##PW-100-W (WHITE).
3. VS WILL BE FURNISHED BY OTHERS, BUT INSTALLED AND WIRED COMPLETE BY EC.
4. MAKE CONNECTION TO FACTORY MOUNTED DISCONNECT SWITCH. ON-OFF CONTROL IS BY OTHERS. CONNECT TO THE LIGHTING HOME-RUN CIRCUIT AHEAD OF THE LIGHT SWITCH.
5. UNDER BASE BID, PROVIDE 120V CONNECTION TO HEAT TRACE CABLING. CONNECTION WILL BE PROTECTED BY A NEW GFCI CIRCUIT BREAKER LOCATED IN EXISTING PANEL P1.
6. UNDER ALTERNATE NO. 2, PROVIDE 120V CONNECTION TO HEAT TRACE CABLING. CONNECTION WILL BE PROTECTED BY A NEW GFCI CIRCUIT BREAKER LOCATED IN EXISTING PANEL P1.
7. UNDER BASE BID, EC SHALL FURNISH AND INSTALL HEAT TRACE CABLING ON THE PIPING SHOWN. BASIS OF DESIGN IS RAYCHEM XL-TRACE SELF REGULATING SERIES, #8XL1-CR SERIES @ 120V. INCLUDE RAYCLIC-PC POWER CONNECTION KIT, GLASS TAPE, AND #EC-TS AMBIENT THERMOSTAT. CONTACT FOR RAYCHEM IS DANNY RETO @ RELCON, INC. (614) 205-3115. COORDINATE WITH MR. RETO FOR ALL REQUIRED EQUIPMENT AND INSTALLATION INSTRUCTIONS.
8. UNDER ALTERNATE NO. 2, EC SHALL FURNISH AND INSTALL HEAT TRACE CABLING ON THE PIPING SHOWN. BASIS OF DESIGN IS RAYCHEM XL-TRACE SELF REGULATING SERIES, #8XL1-CR SERIES @ 120V. INCLUDE RAYCLIC-PC POWER CONNECTION KIT, AND GLASS TAPE. UTILIZE THE BASE BID #EC-TS AMBIENT THERMOSTAT. CONTACT FOR RAYCHEM IS DANNY RETO @ RELCON, INC. (614) 205-3115. COORDINATE WITH MR. RETO FOR ALL REQUIRED EQUIPMENT AND INSTALLATION INSTRUCTIONS.

LINE TYPE LEGEND

-  LINETYPE INDICATES EXISTING ELECTRICAL EQUIPMENT/DEVICE TO REMAIN.
-  LINETYPE INDICATES EXISTING ELECTRICAL EQUIPMENT/DEVICE TO BE REMOVED.
-  LINETYPE INDICATES NEW ELECTRICAL EQUIPMENT/DEVICE TO BE FURNISHED AND INSTALLED.

SK

E11.3

DUBLIN RECREATION CENTER GEOTHERMAL PROJECT

PRATER
Engineering Associates, Inc.

6130 Wilcox Road
Dublin, Ohio 43016
(614) 766 4896

Job No.
13390

By:
PEA

Date:
12/18/14

1

EXISTING PANEL: L1

MAINS: 100A			VOLTAGE: 480Y/277V., 3 ϕ , 4W.					
MAIN LUGS ONLY			MOUNTING: SURFACE					
REMARKS	KVA	BKR.	CIRCUIT NO. AND PHASE			BKR.	KVA	REMARKS
EXTERIOR LTS	1.0-L	20/1	1	A	2	20/1	0.1-L	CONTACTOR
EXTERIOR LTS	1.0-L	20/1	3	B	4	20/1	2.0-L	GENERAL LTS
ACCENT LTS	1.0-L	20/1	5	C	6	20/1	2.0-L	GENERAL LTS
ACCENT LTS	1.0-L	20/1	7	A	8	20/1	1.0-L	MEN LOCKER LTS
GENERAL LTS	2.0-L	20/1	9	B	10	20/1	1.0-L	MEN LOCKER LTS
GENERAL LTS	2.0-L	20/1	11	C	12	20/1	1.0-L	W. LOCKER LTS
GENERAL LTS	2.0-L	20/1	13	A	14	20/1	1.0-L	W. LOCKER LTS
SITE LTS	2.5-L	20/1	15	B	16	20/1	1.0-L	COVE LTS
SITE LTS	2.5-L	20/1	17	C	18	20/1	1.0-L	COVE LTS
SITE LTS	2.5-L	20/1	19	A	20	20/1	0.6-L	LAKE FILTERS
SITE LTS	2.5-L	20/1	21	B	22	20/1	0.6-L	LAKE FILTERS
SITE LTS	2.5-L	20/1	23	C	24	20/1	0.4-L	TOWER LTS
SITE LTS	2.5-L	20/1	25	A	26	30/1	5.0-M	UH-1 *
BRIDGE LTS	2.5-L	20/1	27	B	28	-	-	SPACE
BRIDGE LTS	2.5-L	20/1	29	C	30	-	-	SPACE
SITE LTS	2.0-L	20/1	31	A	32	-	-	SPACE
SITE LTS	2.0-L	20/1	33	B	34	-	-	SPACE
SITE LTS	2.0-L	20/1	35	C	36	-	-	SPACE
SITE LTS	2.0-L	20/1	37	A	38	-	-	SPACE
SITE LTS	2.0-L	20/1	39	B	40	-	-	SPACE
SITE LTS	2.0-L	20/1	41	C	42	-	-	SPACE

LEGEND: L-LIGHTING, R-RECEPTACLES, M-MOTORS, H-HVAC REHEAT, MLO-MAIN LUGS ONLY, MB-MAIN BREAKER, GF-GROUND FAULT, AF-ARC FAULT, LC-LOCKING CLIP.

<u>CONNECTED LOADS</u>		<u>DEMAND LOADS:</u>		
LIGHTING:	53.7 KW	@ 100%	=	53.7 KW
RECEPTS:	0.0 KW	@ 100% TO 10 KW + 50% REMAIN	=	0.0 KW
MOTOR:	5.0 KW	@ 80%	=	4.0 KW
HVAC:	0.0 KW	@ 65%	=	0.0 KW
SUBTOTAL:	58.7 KW		SUBTOTAL: =	57.7 KW
		DEMAND TOTAL:	57.7 KW / (480V x $\sqrt{3}$) =	69.4 AMPS

PANEL HAS AN EXISTING ARC FLASH WARNING LABEL ON THE PANEL TRIM.

* INSTALL A NEW CIRCUIT BREAKER IN EXISTING SPACE. MATCH EXISTING SQUARE D PANEL.

<h1 style="margin: 0;">SK</h1> <h2 style="margin: 0;">E11.4</h2>	<h3 style="margin: 0;">DUBLIN RECREATION CENTER GEOTHERMAL PROJECT</h3>	Job No. 13390 By: PEA Date: 12/18/14
	<h1 style="margin: 0;">PRATER</h1> <p style="margin: 0;">Engineering Associates, Inc.</p>	6130 Wilcox Road Dublin, Ohio 43016 (614) 766 4896

EXISTING PANEL: P1 (TUB 2)

MAINS: 225A			VOLTAGE: 208Y/120V., 3Ø, 4W.					
200A MAIN CB			MOUNTING: SURFACE					
REMARKS	KVA	BKR.	CIRCUIT NO. AND PHASE			BKR.	KVA	REMARKS
EF-8	1.1-M	20/1	43	A	44	20/1	0.4-L	POND LIGHTS
COMB. AIR UNIT	1.1-M	20/1	45	B	46	20/1	0.4-L	POND LIGHTS
RCP-1	0.6-M	20/1	47	C	48	20/1	0.4-L	POND LIGHTS
GWH-1	0.6-M	20/1	49	A	50	20/1	0.4-L	POND LIGHTS
CUH-1	1.5-M	20/1	51	B	52	20/1	-	SPARE
CUH-2 / EF-11	1.2-M	20/1	53	C	54	90/2	12.0-R	CAR CHARGING
EF-10	0.6-M	20/1	55	A	56			
EF-12	0.6-M	20/1	57	B	58			
UH-1	1.5-M	20/1	59	C	60	20/1	2.0-R	JACKET HEATER
COMB. AH-2	1.1-M	20/1	61	A	62	20/1	1.2-R	BATTERY HEATER
GEN BATT CHRGR	1.2-L	20/1	63	B	64	20/1	0.8-R	RECEPTS
FREON MONITOR	0.2-L	20/1	65	C	66	20/1	0.8-R	RECEPTS
MEN'S LOCKER	0.6-L	20/1	67	A	68	20/1	0.8-R	RECEPTS
MEN'S LOCKER	0.6-L	20/1	69	B	70	20/1	0.8-R	RECEPTS
CHEMICAL FEED	0.2-R	20/1	71	C	72	20/1	0.8-R	RECEPTS
MICROWAVE	1.4-R	20/1	73	A	74	20/1	0.8-R	RECEPTS
VENDING	0.2-R	20/1	75	B	76	20/1	0.8-R	RECEPTS
NON KNOWN	1.0-R	20/1	77	C	78	20/1	0.8-R	RECEPTS
* SHED LIGHTS	0.06-L	20/1	79	A	80	20/1	0.8-R	RECEPTS
* HEAT TRACE	1.0-R	20/1GF	81	B	82	20/1	0.8-R	RECEPTS
* HEAT TRACE	1.0-R	20/1GF	83	C	84	20/1	0.2-R	VENDING

3P

1

LEGEND: L-LIGHTING, R-RECEPTACLES, M-MOTORS, H-HVAC REHEAT, MLO-MAIN LUGS ONLY, MB-MAIN BREAKER, GF-GROUND FAULT, AF-ARC FAULT, LC-LOCKING CLIP.

<u>CONNECTED LOADS</u>	<u>DEMAND LOADS:</u>
LIGHTING: 4.26 KW	@ 100% = 4.26 KW
RECEPTS: 27.0 KW	@ 100% TO 10 KW + 50% REMAIN = 18.5 KW
MOTOR: 9.9 KW	@ 80% = 8.0 KW
HVAC: 0.0 KW	@ 65% = 0.0 KW
SUBTOTAL: 41.16 KW	SUBTOTAL: = 30.76 KW
	DEMAND TOTAL: 30.76 KW / (208V x $\sqrt{3}$) = 85.5 AMPS

1 * INSTALL NEW CIRCUIT BREAKER IN EXISTING SPACE.
 NEW GF BREAKERS SHALL BE 30 mA.

<h1 style="margin: 0;">SK</h1> <h2 style="margin: 0;">E22.1</h2>	<h2 style="margin: 0;">DUBLIN RECREATION CENTER</h2> <h3 style="margin: 0;">GEOTHERMAL PROJECT</h3>	Job No. 13390 By: PEA Date: 12/18/14
	<h1 style="margin: 0;">PRATER</h1> <p style="margin: 0;">Engineering Associates, Inc.</p>	6130 Wilcox Road Dublin, Ohio 43016 (614) 766 4896

Project: City of Dublin, Community Recreation Center Geothermal Project

PRE-BID MEETING

Date: December 9, 2014

Location: Dublin Community Recreation Center, 5600 Post Road, Dublin, Ohio

ATTENDING:

<u>Name</u>	<u>Company</u>	<u>Phone</u>	<u>Email</u>
Brian Ashford	City of Dublin	614.410.4790	
Roy Dotson	City of Dublin	614.410.4790	
John Kerr	Prater Engineering Associates	614.766.4896	jkerr@praterengr.com
Tom Smock	Skyworks Rental	614.406.5598	tsmock@skyworksllc.com
Steve Kinney	Jamison Drilling	800.606.8560	jamisonwelldrilling@yahoo.com

ITEMS DISCUSSED

1.1. Section 1, Bidding Requirements

a) Invitation to Bid Review

- i) Bids are due 1:00 PM, December 23, 2014, and shall be sealed in an envelope and delivered to the Facilities Manager at 6555 Shier Rings Road, Dublin, Ohio 43016.
- ii) Documents are available from the City, can be reviewed at F.W. Dodge, and can be downloaded for free from the City's web site.
- iii) This is a prevailing wage project, single prime.
- iv) Contact John Kerr, Prater Engineering, with any technical questions.
- v) See Invitation for submittal details.

1.2. Section 2, Bidding Forms are included in Section 2, including:

- a) City of Dublin Proposal
- b) Performance Bond
- c) Delinquent Personal Property Tax Affidavit and other Forms
- d) Submit forms as described in the Invitation to bid.
- e) Contact the City with any questions regarding submittals.
- f) Contractors were reminded that the project is to be completed in 120 days, and that liquidated damages will apply if the contract exceeds the contract time. If an extension is to be considered, Contractors are advised to request this during the bid stage as part of an addendum.

1.3. Section 3, Contract Forms were reviewed, including:

- a) Notice of Intent to Award
- b) Standard Agreement – contains the basis of the contract including
 - i) Contract price, bond requirements
 - ii) Schedule and contract duration

- iii) Basic submittal requirements and warranty items
- iv) Cleaning and safety requirements – contractors were reminded that the site is occupied and systems must be maintained 24/7/365. Proper barricades and cleaning are essential.
- v) Change Orders – are only official with final City of Dublin signatures.
- vi) Pay request and arbitration procedures are outlined in this section.
- c) Certificate of Funds
- d) Notice to Proceed
- e) Notice of Commencement of Public Improvement
- f) Change Order Form

1.4. Section 4, Geothermal Specifications

- a) Section 01 10 00, Summary – Single Prime Prevailing Wage Contract is being bid. The summary contains a general description of the work, which is primarily HVAC contract and site well/piping work. General Trades work consists of cutting/patching and a small enclosure for the new heat exchangers. Electrical work powers the HVAC equipment and provides lights for the enclosure. Minor Plumbing and Fire suppression work are also expected.
- b) Division 23, HVAC, includes specifications for piping, controls, two 300 gpm wells, and site work to remove the existing building cooling towers and replace with two geothermal wells, individually piped to each chiller (one per chiller). See the contract documents.
- c) Division 26, Electrical, includes power wiring for the well pump VFDs, lighting, and associated work for the renovation.
- d) Division 33, Site and Permits, includes well drilling of two 300 gpm wells, six inch piping from the wells to the heat exchanger enclosure, and associated work to cut/patch soil, road, and walkways to match existing conditions.

1.5. Contract Documents Review took place following the meeting, to walk the site and review:

- a) Site Work and Phasing of Cooling Tower
- b) CHP unit installed already in the mechanical courtyard.
- c) HVAC Work, including routing of the site piping and directional bore of 6” piping.
- d) Electrical Work

1.6. Questions/Addendum No. 1 Items – those in attendance did not have questions.

- a) Well drillers are to submit qualifications to the A/E if not already listed in section 33 21 00, paragraph 1.8.A. Include resume, representative experience, and references.
- b) Submit questions before December 17, 2014, to the A/E.

Bids Due: 1:00 PM, December 23, 2014, to City of Dublin, 6555 Shier Rings Road.

Upon failure to have all work completed within the project time, the City of Dublin, Ohio shall be entitled to retain or recover from the Bidder, as liquidated damages, and not as a penalty, the amounts set forth in the following table for each and every calendar day until completion. The right of the City of Dublin, Ohio to recover liquidated damages shall not substitute for any recovery for additional costs in the event the Bidder fails to complete the Agreement for construction according to the contract documents.

Liquidated Damages:

<u>Contract Amount</u>	<u>Dollars Per Day</u>
\$0-25,000	\$ 100.00
25,001-50,000	150.00
50,001-100,000	200.00
100,001-500,000	300.00
500,001-1,000,000	500.00
1,000,001-2,000,000	750.00
2,000,001-5,000,000	1,000.00
5,000,001-10,000,000	1,500.00
Over \$10,000,001	2,000.00

REPRESENTATIONS OF THE BIDDER

The Bidder represents the following:

1. The Bidder has read and understands the contract documents and understands that it must comply with all requirements of the contract documents, regardless of whether the Bidder has actual knowledge of the requirements and regardless of any statement or omission made by the Bidder which might indicate a contrary intention.
2. The Proposal is based upon the items specified by the contract documents.
3. The Bidder has visited the site, become familiar with local conditions, and has correlated personal observations about the requirements of the contract documents. The Bidder has no outstanding questions regarding the interpretation of the contract documents.
4. The Bidder has submitted the following in connection with this Proposal and the information contained therein is complete and accurate:
 - a. Non-collusion Affidavit.

City of Dublin
Dublin Community Recreation Center Geothermal Project

- b. Bid/Performance Bond.
- c. List of Subcontractors.
- d. Delinquent Personal Property Tax Affidavit.
- e. Affidavit of Authority (if Bidder is a corporation).
- g. Experience Record/References.
- h. Power of Attorney (if Bidder is an out-of-state corporation).

6. The Bidder understands that the Agreement for the **Dublin Community Recreation Center Geothermal Project** is subject to all of the provisions, duties, obligations, remedies and penalties of the Ohio Revised Code.

7. Within ten (10) business days from the date of receipt the Notice of Intent to Award, the Bidder understands that it must enter into and execute an Agreement for the **Dublin Community Recreation Center Geothermal Project** with the City of Dublin, Ohio if awarded on the basis of this Proposal. If the Bidder does not execute an Agreement for the **Dublin Community Recreation Center Geothermal Project** for any reason, the Bidder and the Bidder's surety shall be liable to the City of Dublin, Ohio as provided in Ohio Revised Code Section 153.54(G).

8. Within ten (10) business days of the date of receipt of the Notice of Intent to Award, the Bidder understands that it must submit the following:

- a. Performance Bond.
- b. Certificate of Insurance and a copy of Additional Insured Endorsement.
- c. Certificate of Compliance with Affirmative Action.

9. The Bidder understands that it must furnish any other information requested by the **Brian Ashford, Facilities Manager**.

The Bidder hereby signs this Proposal on the ___ day of _____, **2014**.

City of Dublin
Dublin Community Recreation Center Geothermal Project

If Bidder is an individual, complete the following:

Signature: _____

Print Name: _____

Name of Business: _____
(if different than above)

Federal Identification Number: _____

Address: _____

Telephone: () _____

Fax: () _____

If Bidder is a partnership, complete the following:

Name of Partnership: _____

By: _____
(Signature)

Print Name: _____

Federal Identification Number: _____

Address: _____

Telephone: () _____

Fax: () _____

City of Dublin
Dublin Community Recreation Center Geothermal Project

Names and Addresses of all general partners:

If Bidder is a joint venture, complete the following:

Name of Joint Venture: _____

By: _____
(Signature)

Print Name: _____

Address: _____

Telephone: () _____

Fax: () _____

Complete the following for each firm represented by the joint venture:

1. Name: _____

Federal Identification Number: _____

Address: _____

Telephone: () _____

Fax: () _____

City of Dublin
Dublin Community Recreation Center Geothermal Project

2. Name: _____

Federal Identification Number: _____

Address: _____

Telephone: () _____

Fax: () _____

If Bidder is a corporation, complete the following:

Name of Corporation: _____

By: _____
(Signature)

Print Name: _____

Title: _____

Federal Identification Number: _____

Address: _____

Telephone: () _____

Fax: () _____

State of Incorporation: _____

Names and addresses of Corporate Officers:

If Bidder is an entity other than those described above, complete the following:

Name of Bidder:

By: _____
(Signature)

Print Name: _____

Title: _____

Federal Identification Number: _____

Address: _____

Telephone: () _____

Fax: () _____

Type of Business Entity: _____

Names and addresses of all Principals:

SECTION 012300 - ALTERNATES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

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

1.3 DEFINITIONS

- A. Alternate: An amount proposed by bidders and stated on the Bid Form for certain work defined in the bidding requirements that may be added to or deducted from the base bid amount if Owner decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.
 - 1. Alternates described in this Section are part of the Work only if enumerated in the Agreement.
 - 2. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate alternate into the Work. No other adjustments are made to the Contract Sum.

1.4 PROCEDURES

- A. Coordination: Revise or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.
 - 1. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.
- B. Notification: Immediately following award of the Contract, notify each party involved, in writing, of the status of each alternate. Indicate if alternates have been accepted, rejected, or deferred for later consideration. Include a complete description of negotiated revisions to alternates.
- C. Execute accepted alternates under the same conditions as other work of the Contract.
- D. Schedule: A schedule of alternates is included at the end of this Section. Specification Sections referenced in schedule contain requirements for materials necessary to achieve the work described under each alternate.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 SCHEDULE OF ALTERNATES

- A. Alternate No. 1: Provide two direct-bore well water supplies.
 - 1. Base Bid: Under base bid, provide direct-bore well supply pipe main from the WP-2 location to the heat exchanger enclosure, with appropriate isolation valves.
 - 2. Alternate: Under this alternate, provide two completely separate runs of well supply pipe, one for WP-1 and a second for WP-2. Two direct-bore well pipe mains shall be run to the heat exchanger enclosure. See the construction drawings.

- B. Alternate No. 2: Provide two condenser water loops.
 - 1. Base Bid: Under base bid, provide a single combined condenser water loop, with single heat trace, single shot feeder, single expansion tank, and associated controls.
 - 2. Alternate: Under this alternate, provide two completely separate condenser water loops, one for each existing chiller, with dedicated expansion tank, shot feeder, make-up water connection and controls for each chiller. See the construction drawings.

END OF SECTION 0 123 00

CAL EGER & SONS PUMP CO.

Quotation

10121 Hyland Croy Rd.
 Plain City, OH. 43064
 Phone (614) 873-4068 Fax (614) 873-6681

DATE September 6, 2013
 Quotation # _____
 Customer ID _____

Quotation valid until: October 6, 2013
 Prepared by: Ron Eger

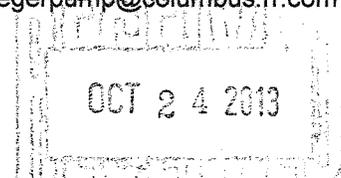
Bill To: City Of Dublin
 Address: _____
 City: _____ State: Ohio Zip: _____
 Office: _____
 Cell: _____

Comments or special instructions: Project Geothermal Dublin Recreation Center

Description	AMOUNT
After running a 24 hour pump test on existing 8" well at Rec. Center	
The pump test was at 200 gpm with a draw down of 37 ft.	
Static water level 18 ' at startup	
I did not try to pump well at 300 gpm because water level was below the casing .	
The limestone was broken and muddy.	
I recommend setting a min. of 100 ' of casing in new well if you are pumping	
300 gpm.	
This allows you to keep pump and water level in casing .	
The well at 6060 Post Road Chis Cline was tested before pump startup.	
Static water level 17.4 '	
At the end of 24 hour pump test static level 18 '	
ATTN. John Kerr	
TOTAL	\$ -

If you have any questions concerning this quotation, contact Ron Eger, (614) 296-4896, egerpump@columbus.rr.com

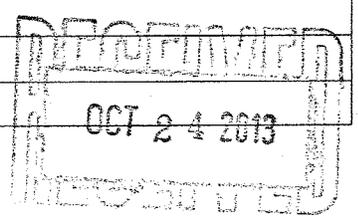
THANK YOU FOR YOUR BUSINESS!



PUMPING TEST RECORD
ODNR-Division of Water
Water Resources Section

Owner City of Dublin Address Rec. Center
 County Franklin Township Washington
 Date 9-5-2013 | 9-6-13 ODNR Log# 888277 Other Well ID _____
(Test Started) (Test Ended)
 Company Conducting Test Cal Eger and Sons Pump Individual Making Measurements Ron Eger
 Type of Test Drawdown Distance From Pumping Well _____
 Measuring Equipment Used _____
 Static Water Level (S₀) _____ Measuring Point _____ Elevation Above Ground _____

Date	Clock Time	Time Since Pumping Started	Depth to Water (S)	Change in Water Level (S - S ₀)	Discharge Rate (GPM)	Comments (Include Weather Conditions)
9-5-13	1:50 PM	0	18'		200	
9-5-13	1:55 PM	1 5 min	44'8"	26'8"	200	
9-5-13	2:00 PM	2 5 min	48'6"	3'10"	200	
9-5-13	2:05 PM	3 5 min	49'6"	1'	200	
9-5-13	2:10 PM	4 5 min	50'4"	10"	200	
9-5-13	2:15 PM	5 5 min	51'	8"	200	
	2:20 PM	6 5 min	51'5"	5"	200	
	2:25 PM	7 5 min	51'9"	4"	200	
	2:30 PM	8 5 min	52'1"	4"	200	
	2:35 PM	9 5 min	52'5"	4"	200	
	2:40 PM	10 5 min	52'7"	2"	200	
	2:45 PM	11 5 min	52'8"	1"	200	
	2:50 PM	12 5 min	52'8"	0"	200	
	3:20 PM	13 30 min	53'9"	11"	200	
	4:00 PM	14 40 min	54'1"	4"	200	
	4:30 PM	15 30 min	54'3"	2"	200	
9-6-13	5:30 AM	20 13 Hour	55'2"	11"	200	
9-6-13	3:00 PM	25 9 1/2 Hour	55'5"	3"	200	
		30				
		35				
		40				
		45				
		50				
		55				
		60 (1hr)				
		90				
		120 (2hr)				
		150				
		180 (3hr)				
		240 (4hr)				

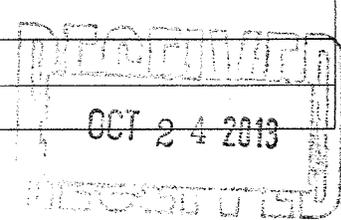


PUMPING TEST RECORD

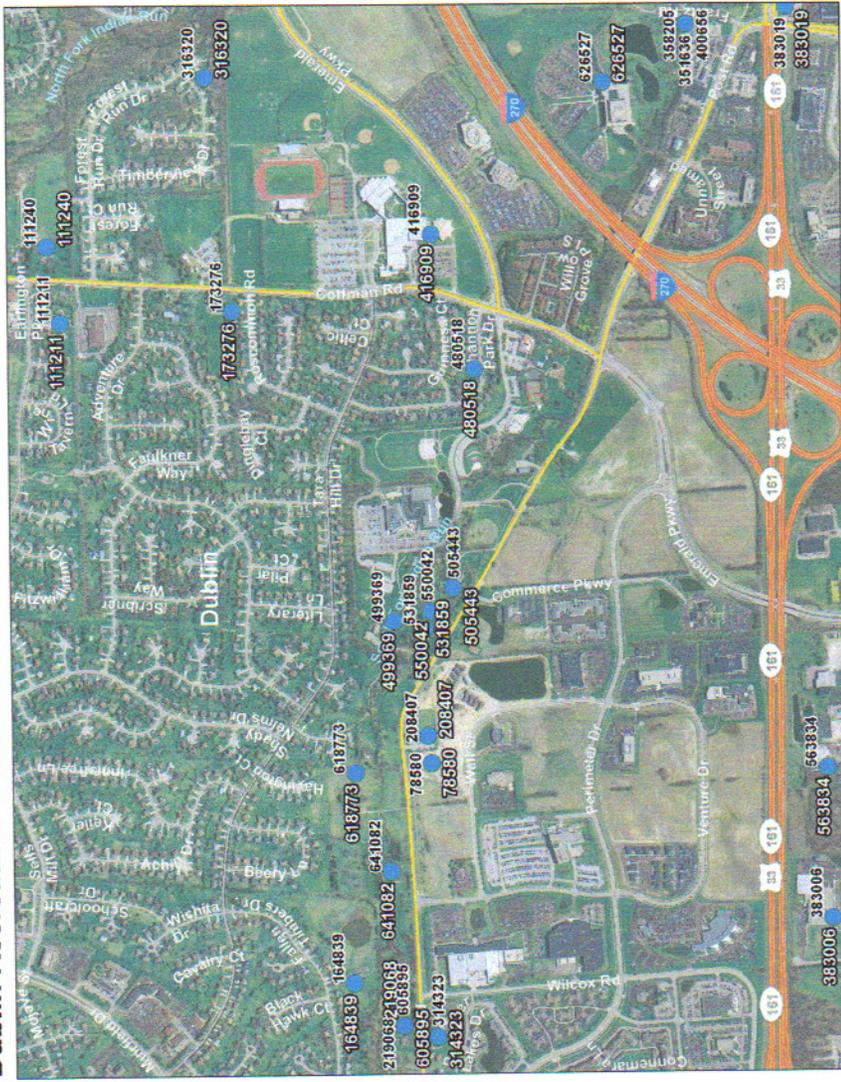
ODNR-Division of Water
Water Resources Section

Owner Chris Clise Address 6060 Post Rd.
 County Franklin Township Washington
 Date 9-5-13 (Test Started) / 1 (Test Ended) ODNR Log# 618773 Other Well ID _____
 Company Conducting Test Cal Eyer and Sons Individual Making Measurements Ron Eyer
 Type of Test Drawdown Distance From Pumping Well 1/4 mile
 Measuring Equipment Used _____
 Static Water Level (S₀) _____ Measuring Point _____ Elevation Above Ground _____

Date	Clock Time	Time Since Pumping Started	Depth to Water (S)	Change in Water Level (S - S ₀)	Discharge Rate (GPM)	Comments (Include Weather Conditions)
9-5-13	8:40 AM	0	17'4"			
9-6-13	3:00 PM	1 24 Hours	18'	8"		
		2				
		3				
		4				
		5				
		6				
		7				
		8				
		9				
		10				
		11				
		12				
		13				
		14				
		15				
		20				
		25				
		30				
		35				
		40				
		45				
		50				
		55				
		60 (1hr)				
		90				
		120 (2hr)				
		150				
		180 (3hr)				
		240 (4hr)				


 OCT 24 2013
 RECEIVED

Dublin Recreation Center area wells



Notes:



Note: These locations represent records that have coordinates in the ODNR Well Log Database. Please go to <http://ohodnr.com/water/maptechs/welllogs/appNew/Default.aspx> to search additional records.



Water Well Log and Drilling Report

Ohio Department of Natural Resources
Division of Water
Phone: 614-265-6740 Fax: 614-265-6767

Well Log Number: **888277**

[View Image of Original Well Log](#)

ORIGINAL OWNER AND LOCATION

Original Owner Name: *DUBLIN REC CENTER*

County: *FRANKLIN*

Address: *POST*

City: *DUBLIN*

Location Number:

Latitude:

Township: *WASHINGTON*

State: *OH*

Location Map Year:

Longitude:

Section Number:

Lot Number:

Zip Code: *43017*

Location Area:

CONSTRUCTION DETAILS

Borehole Diameter: 1: *12.75 in.*

2:

Borehole Depth: 1: *46 ft.*

2:

Casing Diameter: 1: *8 in.*

2:

Casing Length: 1: *46 ft.*

2:

Casing Height Above Ground:

Date of Completion: *11/18/1998*

Driller's Name: *EATON PUMP*

Screen Diameter:

Type:

Set Between:

Gravel Pack Material/Size:

Method of Installation:

Grout Material/Size:

Method of Installation:

WELL TEST DETAILS

Static Water Level: *29 ft.*

Draw down:

COMMENTS: *NONE*

Aquifer Type: *LIMESTONE*

Total Depth: *185 ft.*

Slot Size:

Material:

Vol/Wt Used:

Placed:

Vol/Wt Used:

Placed

Test Rate: *100 gpm*

Test Duration: *1 hrs.*

Depth to Bedrock:

Casing Thickness: 1: *0.17 in.*

2:

Well Use: *AGRIC/IRRIG*

Screen Length:

Associated Reports

NONE

WELL LOG

Formations

RED CLAY

BLUE CLAY

BROKEN LIMESTONE

LIMESTONE

From	To
0	7
7	35
35	42
42	185

[Printing Tips](#) (opens in new window)

[Print This Page](#)

[Return to County Search](#)

[Well log questions](#) - [Web site questions](#) - [Web policies](#)



Water Well Log and Drilling Report

Ohio Department of Natural Resources
 Division of Soil and Water
 Phone: 614-265-6740 Fax: 614-265-6767

Well Log Number: 618773

[View Image of Original Well Log](#)

ORIGINAL OWNER AND LOCATION

Original Owner Name: CHRIS CLINE

County: FRANKLIN

Address: 6060 POST RD

City:

Location Number: 138

Latitude: 40.108425

Township: WASHINGTON

State: OH

Location Map Year: 1986

Longitude: -83.146377

Section Number:

Lot Number:

Zip Code:

Location Area:

CONSTRUCTION DETAILS

Borehole Diameter: 1:
2:

Borehole Depth: 1: 125 ft.
2:

Depth to Bedrock:

Casing Diameter: 1: 5 in.
2:

Casing Length: 1: 125 ft.
2:

Casing Thickness: 1:
2:

Casing Height Above Ground:

Date of Completion: 10/25/1982

Driller's Name:

Screen Diameter:

Type:

Set Between:

Gravel Pack Material/Size:

Method of Installation:

Grout Material/Size:

Method of Installation:

Aquifer Type: LIMESTONE

Total Depth: 125 ft.

Well Use:

Slot Size:

Material:

Screen Length:

Vol/Wt Used:

Placed:

Vol/Wt Used:

Placed

WELL TEST DETAILS

Static Water Level: 15 ft.

Drawdown:

Test Rate: 25 gpm

Test Duration: 1 hrs.

Associated Reports

COMMENTS:

WELL LOG

Formations	From	To
CLAY	0	17
GRAVEL	17	19
CLAY	19	52
SAND & GRAVEL	52	120
LIMESTONE	120	125

[Printing Tips](#) (opens in new window)

[Print This Page](#)

[Close](#)

[Well log questions](#) - [Web site questions](#) - [Web policies](#)



**Division of Surface Water - Notice of Intent (NOI) For Coverage Under Ohio
Environmental Protection Agency General NPDES Permit**

(Read accompanying instructions carefully before completing this form.)

Submission of this NOI constitutes notice that the party identified in Section I of this form intends to be authorized to discharge into state surface waters under Ohio EPA's NPDES general permit program. Becoming a permittee obligates a discharger to comply with the terms and conditions of the permit. Complete all required information as indicated by the instructions. Do not use correction fluid on this form. Forms transmitted by fax will not be accepted. A check for the proper amount must accompany this form and be made payable to "Treasurer, State of Ohio." (See the fee table in Attachment C of the NOI instructions for the appropriate processing fee.)

I. Applicant Information/Mailing Address

Company (Applicant) Name: City of Dublin
Mailing (Applicant) Address: 6555 Shier Rings Rd
City: Dublin **State:** Ohio **Zip Code:** 43016
Contact Person: Brian K. Ashford, Facilities Manager **Phone:** 614 410 4790 **Fax:** 614 761 6512
Contact E-mail Address: BAshford@dublin.oh.us

II. Facility/Site Location Information

Facility Name: Dublin Community Recreation Center
Facility Address/Location: 5600 Post Road
City: Dublin **State:** Ohio **Zip Code:** 43016
County(ies): Franklin **Township(s):** Washington
Facility Contact Person: Roy T. Dotson **Phone:** 614 410 4790 **Fax:** 614 761 6512
Facility Contact E-mail Address: rdotson@dublin.oh.us

(For Construction & Coal, must complete Latitude: [Click here to enter text.](#) Longitude: [Click here to enter text.](#) lat/long & attach map)

Receiving Stream or MS4: to on-site retention pond, then to unnamed tributary, then to South Fork Indian Run

III. General Permit Information

General Permit Number: OHN000004 Non-contact Cooling Water **Initial Coverage:** **Renewal Coverage:**
Type of Activity: Non-contact Cooling Water Fee = \$200 **SIC Code(s):** [Click here to enter text.](#)
Existing NPDES Permit Number: None, per City of Dublin **ODNR Coal Mining Application Number:** _____
If Household Sewage Treatment System, is system for: **new home construction** or **replacement of failed**

Outfall #	Design Flow (MGD): <u>Flow.</u>	Associated Permit Effluent Table: <u>Choose an item.</u>	Latitude: <u>Click here.</u>	Longitude: <u>Click here.</u>

Are These Permits Required? **PTI** [Choose item.](#) **Individual 401 Water Quality Certification** [Choose item.](#)
Isolated Wetland [Choose item.](#) **USACE Nationwide Permit** [Choose item.](#) **Individual NPDES** [Choose item.](#)
Proposed Project Start Date: 3/02/2015 **Estimated Completion Date:** 7/31/2015
Total Land Disturbance (Acres): _____ **MS4 Drainage Area (Sq. Miles):** _____

IV. Payment Information

Check #: Click here to enter text.	For Ohio EPA Use Only	
Check Amount: <u>200.00</u>	Check ID (OFA): _____	ORG #: _____
Date of Check: Click here to enter a date.	Rev ID: _____	DOC #: _____

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Applicant Name: Brian K. Ashford **Title:** Facilities Manager
Applicant Signature:  **Date:** 12/16/2014



STATE OF OHIO WATER WITHDRAWAL FACILITY REGISTRATION

**SEND TO: OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF SOIL and WATER RESOURCES
WATER RESOURCES SECTION
2045 MORSE ROAD, BLDG. B-2
COLUMBUS, OHIO 43229-6693
614-265-6739**

AUTHORITY: Ohio Revised Code Section 1521.16 requires that any owner of a facility, or combination of facilities, with the capacity to withdraw more than 100,000 gallons of water daily, register such facilities with the Ohio Department of Natural Resources, Division of Soil and Water Resources.

100,000 Gallons Per Day (GPD) = 0.1 Million Gallons Per Day (MGD) = 4200 Gallons Per Hour (GPH) = 70 Gallons Per Minute (GPM)

Detailed directions are on a separate instruction sheet. Please type or print the following information:

1. OWNER OF WATER WITHDRAWAL FACILITY

Owner's Name BRIAN K. ASHFORD, FACILITIES MGR.	Contact Person (If other than owner)
Company Name CITY OF DUBLIN	Company Name
Mailing Address 6555 SHIER RINGS RD	Mailing Address
City, State, Zip DUBLIN, OH 43016	City, State, Zip
SIC (Standard Industrial Classification)-4 digit	Phone (614) 410-4790
Owner's E-mail BAshford@dublin.oh.us	Contact's E-mail

The annual withdrawal report form should be sent to : Owner Contact person (Check one)

2. WATER USE

Estimate percentage of the total water use from all sources for each type of use for both ground water and surface water.
Total water use for both ground and surface water = 100%; GW = Ground water; SW = Surface water

WATER USE	GW%	SW%	WATER USE	GW%	SW%
Public Water Supply			Mineral Extraction		
Community	_____	_____	Coal	_____	_____
Non-community	_____	_____	Oil & Gas (Hydraulic Fracturing)	_____	_____
(OEPA # _____)			(Non Hydraulic Fracturing)	_____	_____
Agricultural			Salt	_____	_____
Livestock Watering	_____	_____	Sand and Gravel	_____	_____
Crop Irrigation	_____	_____	Limestone	_____	_____
Nursery/Turf/Landscaping	_____	_____	Other	_____	_____
Industrial			(Please specify)		
Process Water	_____	_____	Miscellaneous		
Cooling Water (Non-contact)	<u>100%</u>	_____	Recreation/Amusement	_____	_____
Power Generation			Water Quality Remediation	_____	_____
Nuclear	_____	_____	Heating/Cooling	_____	_____
Thermoelectric	_____	_____	Domestic	_____	_____
Hydroelectric	_____	_____	Fish Hatchery	_____	_____
			Dewatering	_____	_____
			Golf Course Irrigation	_____	_____
			Other	_____	_____
			(Please specify)		

3. WATER WITHDRAWAL FACILITY CAPACITY

Total withdrawal capacity of the facility: 864,000 GPD or MGD (Circle one)

NOTE: Total withdrawal capacity is the sum of the withdrawal capacity for all wells and surface water intakes combined.

Name of facility DUBLIN COMMUNITY RECREATION CENTER, 5600 POST RD, DUBLIN, OH

4. SUPPLY SOURCES

GROUND-WATER SOURCES

Total number of wells 2
Total withdrawal capacity of all wells 864,000
GPD or MGD (Circle one)

SURFACE-WATER SOURCES

Total number of surface-water intakes 0
Total withdrawal capacity of all intakes 0
GPD or MGD (Circle one)

FOR EACH WELL
PROVIDE THE FOLLOWING:

FOR EACH SURFACE-WATER INTAKE
PROVIDE THE FOLLOWING:

A. Owner's well number G001
Well capacity 932,000 GPD or MGD (Circle one)
Well log number (or copy of well log) TBD
Well depth 300 (ft) Well diameter 10 (in)

A. Owner's intake number _____
Intake capacity _____ GPD or MGD (Circle one)
Name of body of water _____

AQUIFER UTILIZED (Check one)

- | | |
|--|---|
| <input type="checkbox"/> Sand | <input type="checkbox"/> Shale (Sh) |
| <input type="checkbox"/> Sandstone (SS) | <input type="checkbox"/> Interbedded SS, LS, Sh |
| <input type="checkbox"/> Sand and gravel | <input type="checkbox"/> Underground mine |
| <input checked="" type="checkbox"/> Limestone (LS) /Dolomite | <input type="checkbox"/> Other _____ |

SOURCE UTILIZED (Check one)

- | |
|---|
| <input type="checkbox"/> River, stream, or drainage ditch |
| <input type="checkbox"/> Lake, pond, quarry, or reservoir |
| <input type="checkbox"/> Other _____ |

LOCATION OF WELL

County FRANKLIN
Township WASHINGTON Section _____
Nearest City or Town DUBLIN
Provide written description of well location.

LOCATION OF INTAKE

County _____
Township _____ Section _____
Nearest City or Town _____
Provide written description of intake location.

B. Owner's well number G002
Well capacity 932,000 GPD or MGD (Circle one)
Well log number (or copy of well log) TBD
Well depth 300 (ft) Well diameter 10 (in)

B. Owner's intake number _____
Intake capacity _____ GPD or MGD (Circle one)
Name of body of water _____

AQUIFER UTILIZED (Check one)

- | | |
|--|---|
| <input type="checkbox"/> Sand | <input type="checkbox"/> Shale (Sh) |
| <input type="checkbox"/> Sandstone (SS) | <input type="checkbox"/> Interbedded SS, LS, Sh |
| <input type="checkbox"/> Sand and gravel | <input type="checkbox"/> Underground mine |
| <input checked="" type="checkbox"/> Limestone (LS) /Dolomite | <input type="checkbox"/> Other _____ |

SOURCE UTILIZED (Check one)

- | |
|---|
| <input type="checkbox"/> River, stream, or drainage ditch |
| <input type="checkbox"/> Lake, pond, quarry, or reservoir |
| <input type="checkbox"/> Other _____ |

LOCATION OF WELL

County FRANKLIN
Township WASHINGTON Section _____
Nearest City or Town DUBLIN
Provide written description of well location.

LOCATION OF INTAKE

County _____
Township _____ Section _____
Nearest City or Town _____
Provide written description of intake location.

C. Owner's well number _____
Well capacity _____ GPD or MGD (Circle one)
Well log number (or copy of well log) _____
Well depth _____ (ft) Well diameter _____ (in)

C. Owner's intake number _____
Intake capacity _____ GPD or MGD (Circle one)
Name of body of water _____

AQUIFER UTILIZED (Check one)

- | | |
|---|---|
| <input type="checkbox"/> Sand | <input type="checkbox"/> Shale (Sh) |
| <input type="checkbox"/> Sandstone (SS) | <input type="checkbox"/> Interbedded SS, LS, Sh |
| <input type="checkbox"/> Sand and gravel | <input type="checkbox"/> Underground mine |
| <input type="checkbox"/> Limestone (LS) /Dolomite | <input type="checkbox"/> Other _____ |

SOURCE UTILIZED (Check one)

- | |
|---|
| <input type="checkbox"/> River, stream, or drainage ditch |
| <input type="checkbox"/> Lake, pond, quarry, or reservoir |
| <input type="checkbox"/> Other _____ |

LOCATION OF WELL

County _____
Township _____ Section _____
Nearest City or Town _____
Provide written description of well location.

LOCATION OF INTAKE

County _____
Township _____ Section _____
Nearest City or Town _____
Provide written description of intake location.

Supply Sources Continued:

D. Owner's well number _____
Well capacity _____ GPD or MGD (Circle one)
Well log number (or copy of well log) _____
Well depth _____ (ft) Well diameter _____ (in)

AQUIFER UTILIZED (Check one)

- Sand
- Sandstone (SS)
- Sand and gravel
- Limestone (LS) /Dolomite
- Shale (Sh)
- Interbedded SS, LS, Sh
- Underground mine
- Other _____

LOCATION OF WELL

County _____
Township _____ Section _____
Nearest City or Town _____
Provide written description of well location.

D. Owner's intake number _____
Intake capacity _____ GPD or MGD (Circle one)
Name of body of water _____

SOURCE UTILIZED (Check one)

- River, stream, or drainage ditch
- Lake, pond, quarry, or reservoir
- Other _____

LOCATION OF INTAKE

County _____
Township _____ Section _____
Nearest City or Town _____
Provide written description of intake location.

5. LOCATION OF WATER USE

State OHIO County FRANKLIN Township WASHINGTON Section _____

Provide written description of location of water use. If more than one water use location exists, attach separate sheets providing the above information for each.

6. TYPE AND LOCATION OF DISCHARGE POINTS

Estimate percentage of water discharged to the following:

- ___ Recharge Well
- ___ On Site Sewage Disposal
- ___ Ground-water Recharge Basin
- ___ Land Application
- ___ Recycling Basin
- ___ Wetland
- ___ Pond, Lake, or Reservoir Name _____
- River, Stream, or Drainage Ditch Name SOUTH FORK INDIAN RUN
- ___ Other _____ (Please specify)

Location of Discharge Facility

State OHIO County FRANKLIN Township WASHINGTON Section _____

Provide written description of location of discharge facility. If more than one point of discharge exists, attach separate sheets providing the above information for each.

Please complete a water withdrawal facility location sketch on page 4.

7. STATEMENT OF AFFIRMATION

I hereby certify that to the best of my knowledge the information submitted herein, is true, accurate and complete.

Owner or authorized representative's signature John B. Kow, PE

Date 15DEC14

WATER WITHDRAWAL FACILITY LOCATION MAP:

Include a printed copy or sketch of facility location(s). Label all wells, intake pipes, places of use, and discharge points with reference to water sources, named roads, highways, buildings, streams, or other distinctive landmarks.

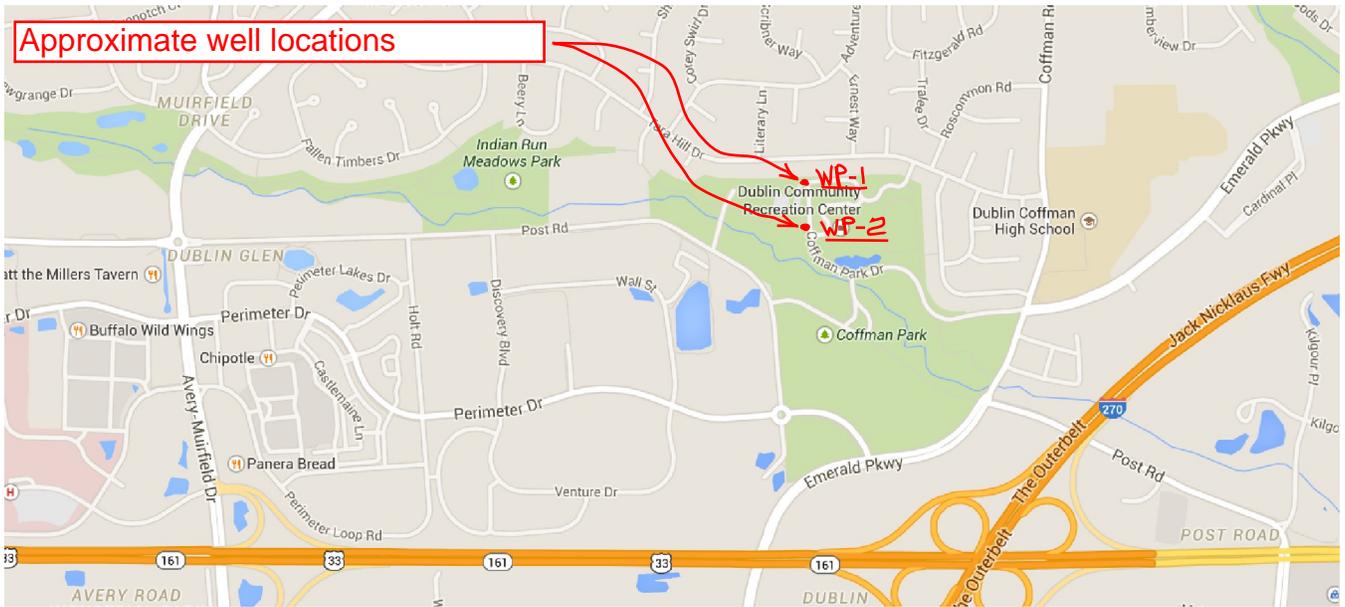
Latitude: N=768498.0239 Longitude: E=1789449.1686 WP-1

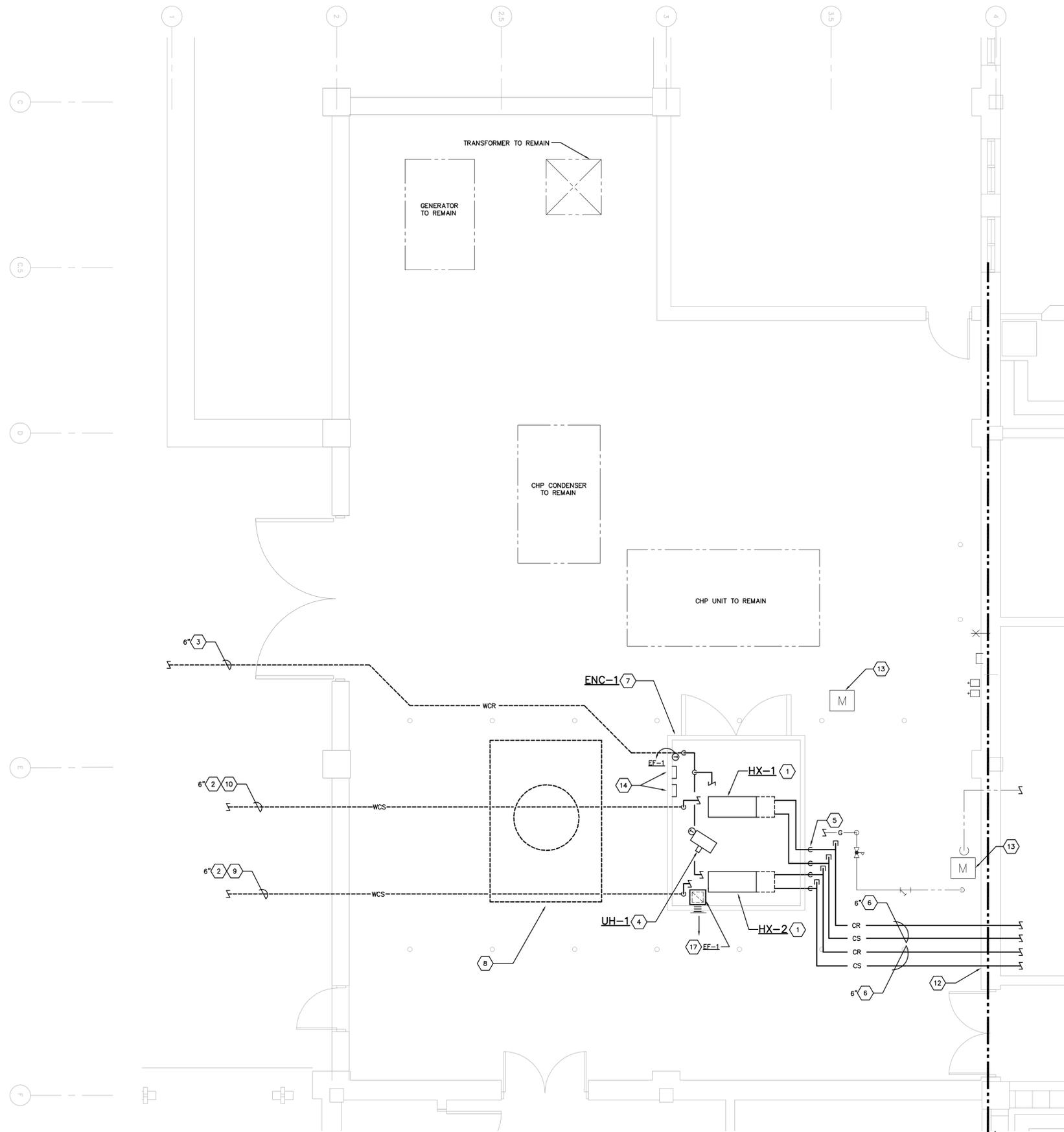
N=768129.8389

↑
N

E=1789475.8229

WP-2






**PARTIAL COURTYARD
HVAC PLAN**
 SCALE: 1/4" = 1'-0"

MATCHLINE
 SEE SH. H12 FOR CONT.

CODED NOTES 

1. NEW GEOTHERMAL WELL WATER TO CONDENSER WATER HEAT EXCHANGER IN HEATED ENCLOSURE. PROVIDE BASKET STRAINER ON INLET TO HEAT EXCHANGER FROM WELL SYSTEM. SEE SCHEMATIC PIPING DIAGRAMS.
2. WELL WATER SUPPLY LINE. SEE SITE PLAN FOR CONTINUATION.
3. WELL WATER DISCHARGE LINE. SEE SITE PLAN FOR CONTINUATION. TRENCH AND BACKFILL PER SPECIFICATIONS.
4. UNIT HEATER IN NEW HEAT EXCHANGER ENCLOSURE.
5. DROP CONDENSER PIPING TO 1 FT ABOVE GRADE. ROUTE ALONG BOLLARDS TO BUILDING.
6. HEAT TRACE NEW CONDENSER WATER PIPING.
7. **ENC-1:** PROVIDE ENCLOSURE FOR NEW HEAT EXCHANGERS.
8. EXISTING COOLING TOWER AND PUMP TO REMAIN ACTIVE UNTIL WELL SYSTEM HEAT EXCHANGERS ARE OPERATIONAL. PROVIDE TEMPORARY PIPING AS NEEDED TO KEEP TOWER OPERATIONAL.
9. **BASE BID:** PROVIDE SINGLE RUN OF DIRECTIONAL BORE PIPE FROM **WP-2** LOCATION TO HEAT EXCHANGERS AT **ENC-1**.
10. **ALTERNATE 1:** PROVIDE SEPERATE RUN OF DIRECTIONAL BORE PIPE FROM **WP-1** AND **WP-2** LOCATION TO EACH HEAT EXCHANGER AT **ENC-1**.
11. PROVIDE ENCLOSURE EXHAUST FAN AND REMOTE THERMOSTAT. FAN SHALL RUN WHENEVER INSIDE TEMPERATURE EXCEEDS 80°F.
12. PIPE PENETRATIONS THROUGH WALL AT HEIGHT OF EXISTING PIPING. (9FT. +/-). ROUTE PIPE AT 9FT. +/- TO ENCLOSURE, THEN DROP, TO ALLOW ACCESS TO GAS METER.
13. GAS METER AND PIPING TO REMAIN.
14. COORDINATE **WP-1** AND **WP-2** VARIABLE FREQUENCY DRIVE LOCATIONS IN ENCLOSURE WITH OTHER EQUIPMENT.
15. **BASE BID:** PROVIDE SINGLE RUN OF CONDENSER WATER SUPPLY AND RETURN PIPING BETWEEN HEAT EXCHANGERS AND CHILLERS, AND CONNECT TO HEAT EXCHANGER USING A COMMON HEADER. SEE PIPING DETAILS.
16. **ALTERNATE 2:** PROVIDE SEPERATE CONDENSER PIPE LOOPS FROM EACH CHILLER TO EACH HEAT EXCHANGER. SEE PIPING DETAILS.

**PRAATER ENGINEERING
ASSOCIATES, INC**
 CONSULTING ENGINEERS
 6190 Wilcox Road
 Suite 100
 Columbus, OH 43229
 PHONE: (614) 766-4896
 FAX: (614) 766-2354

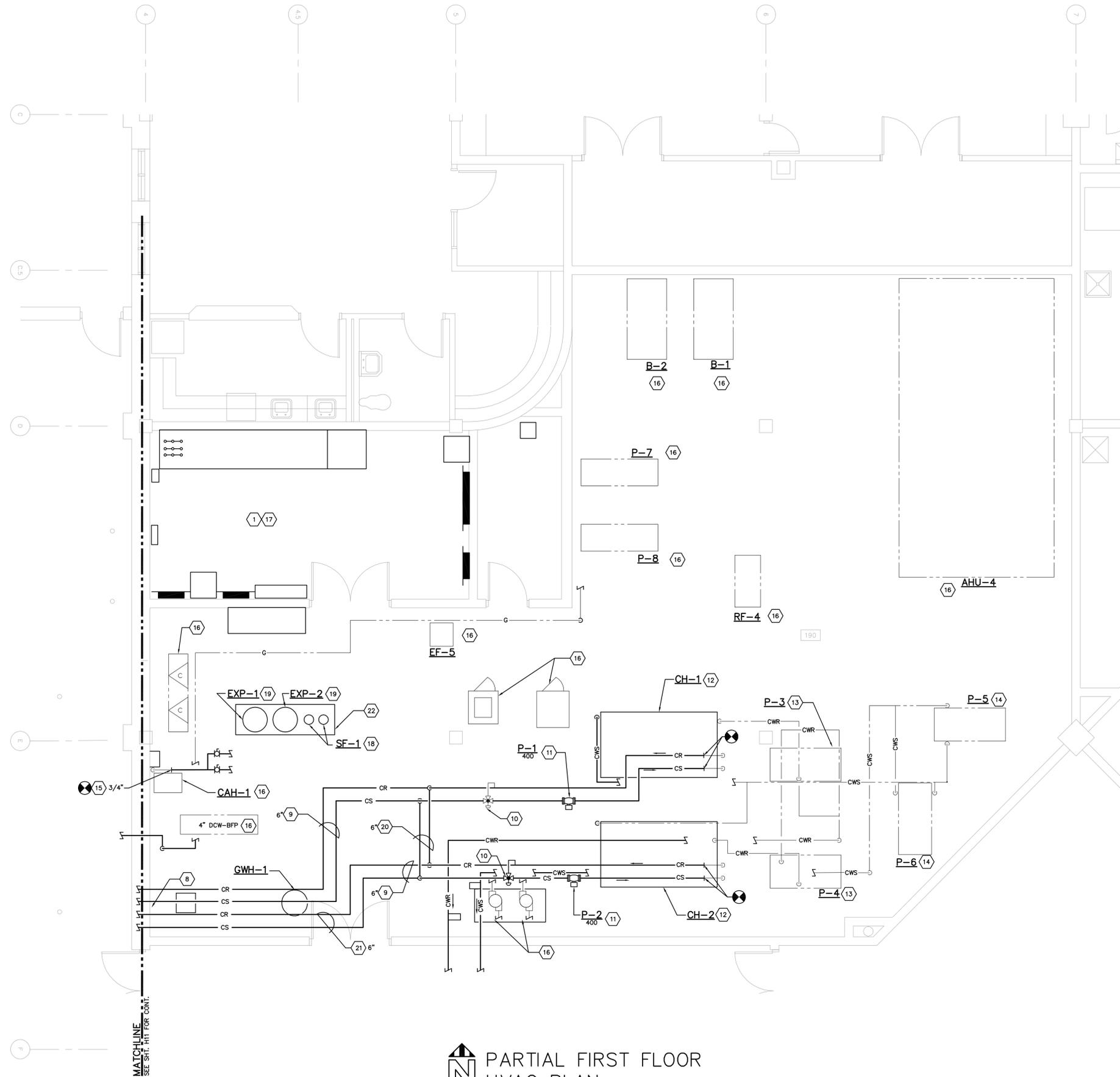
project title
**GEOTHERMAL PROJECT
DUBLIN RECREATION CENTER**
 5600 POST ROAD
 DUBLIN, OH 43017

sheet title
**PARTIAL COURTYARD
HVAC PLAN**
 CADD#: H12-13390.DWG

project number
13390

 drawn 10/8/14 **JBK**
 design **JBK**
 checked **JBK**
 issued for _____ date
 BID 11/24/14
 ADD. 1 12/18/14

sheet
H11



MATCHLINE
SEE SH. HIT FOR CONT.

**PARTIAL FIRST FLOOR
HVAC PLAN**
SCALE: 1/4"=1'-0"

CODED NOTES

1. NO WORK IN THIS ROOM/AREA. DO NOT ROUTE NEW PIPING IN ELECTRICAL ROOM OR DIRECTLY ABOVE ANY ELECTRICAL EQUIPMENT.
2. NOT USED.
3. NOT USED.
4. NOT USED.
5. NOT USED.
6. NOT USED.
7. NOT USED.
8. REUSE WALL OPENINGS FOR NEW CONDENSER PIPING. (ONE NEW WALL PENETRATION IS REQUIRED).
9. COORDINATE FINAL ROUTE OF PIPING WITH EXISTING PIPING AND EQUIPMENT.
10. 3-WAY BYPASS VALVE ON CONDENSER WATER LOOP, CONTROLLED BY A DIFFERENTIAL PRESSURE SIGNAL CONNECTED BETWEEN THE CONDENSER AND EVAPORATOR REFRIGERANT LINES. CONTROL INTERFACE SHALL BE CAREFULLY COORDINATED WITH THE CHILLER MANUFACTURER.
11. CONDENSER WATER PUMP SHALL PROVIDE A CONSTANT VOLUME OF WATER FLOW THROUGH THE CHILLERS CONDENSER BARREL.
12. EXISTING CHILLER TO REMAIN, PIPING AND CONTROLS ON THE CHILLED WATER SIDE OF THE CHILLER WILL NOT BE CHANGED AS PART OF THIS PROJECT. PROVIDE NEW CONDENSER WATER PIPING AND CONTROLS AS NEED TO CONNECT THE CHILLER TO THE NEW GEOTHERMAL WELL WATER TO CONDENSER WATER HEAT EXCHANGER AS SHOWN. AT LEAST ONE CHILLER SHALL REMAIN IN OPERATION AT ALL TIMES.
13. PRIMARY CHILLED WATER PUMP AND PIPING TO REMAIN.
14. SECONDARY CHILLED WATER PUMP AND PIPING TO REMAIN.
15. EXTEND AND CONNECT MAKE-UP WATER SUPPLY TO EACH CONDENSER WATER PIPING SYSTEM.
16. EXISTING EQUIPMENT AND PIPING IN MECHANICAL ROOM TO REMAIN UNLESS OTHERWISE NOTED.
17. ELECTRICAL SERVICE TO REMAIN. SEE ELECTRICAL DRAWINGS.
18. PROVIDE SHOT FEEDER FOR PIPE LOOP. SEE PIPING DIAGRAM. UNDER BASE BID, ONE SHOT FEEDER IS REQUIRED. UNDER ALTERNATE 2, PROVIDE TWO SHOT FEEDERS.
19. PROVIDE EXPANSION TANK FOR PIPE LOOP. SEE PIPING DIAGRAM. UNDER BASE BID, ONE EXPANSION TANK IS REQUIRED. UNDER ALTERNATE 2, PROVIDE TWO EXPANSION TANKS.
20. BASE BID: PROVIDE SINGLE RUN OF CONDENSER PIPE FROM CHILLERS TO HEAT EXCHANGERS, WITH SINGLE EXPANSION TANK, SINGLE SHOT FEEDER AND SINGLE MAKE-UP WATER CONNECTION.
21. ALTERNATE 2: PROVIDE SEPARATE PIPE RUNS BETWEEN CHILLER AND HEAT EXCHANGERS, WITH SEPARATE EXPANSION TANKS, SEPARATE SHOT FEEDERS, AND SEPARATE MAKE-UP CONNECTIONS FOR EACH PIPE LOOP.
22. PROVIDE 4" HOUSEKEEPING PAD FOR ALL NEW FLOOR-MOUNTED EQUIPMENT.

**PRAATER ENGINEERING
ASSOCIATES, INC**
CONSULTING ENGINEERS

6190 Wilcox Road
Dublin, OH 43017
PHONE: (614) 766-4896
FAX: (614) 766-2354

project title
**GEOTHERMAL PROJECT
DUBLIN RECREATION CENTER
5600 POST ROAD
DUBLIN, OH 43017**

sheet title
**PARTIAL FIRST FLOOR
HVAC PLAN**

CADD#: H11-13390.DWG

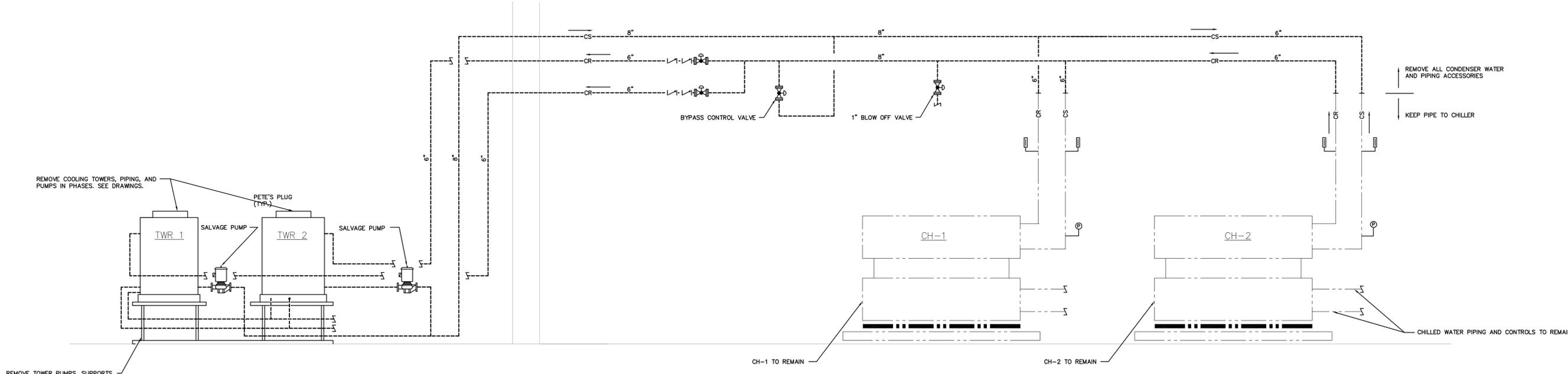
project number
13390



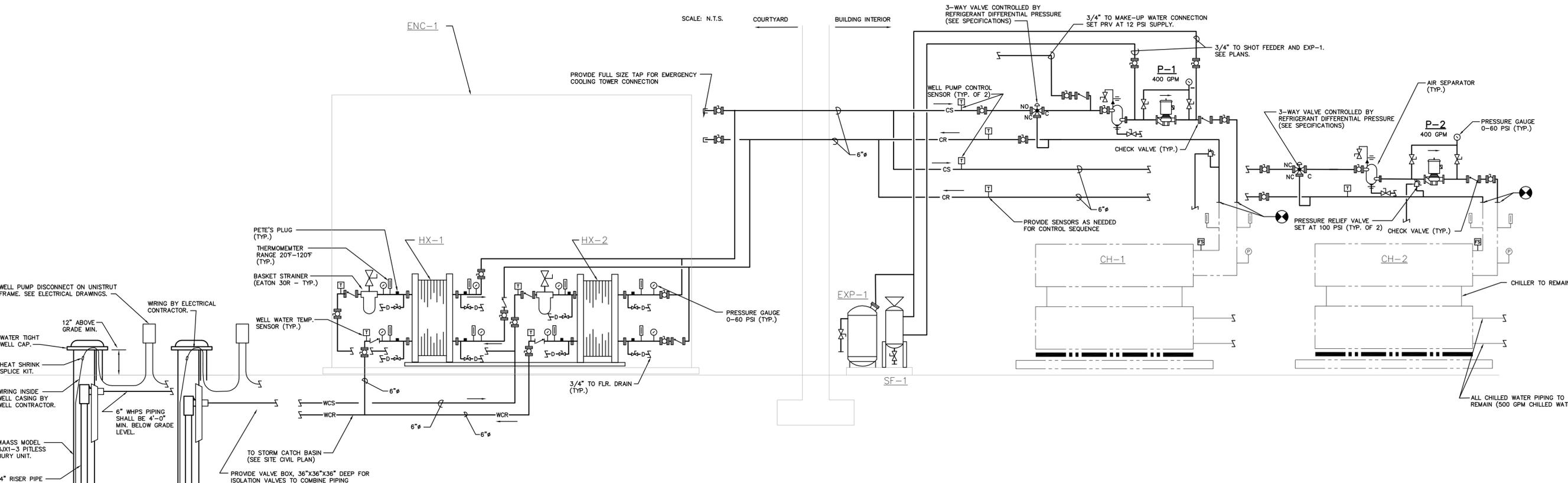
drawn 10/8/14 **JBK**
design **JBK**
checked **JBK**

issued for _____ date
BID 11/24/14
ADD. 1 12/18/14

sheet
H12

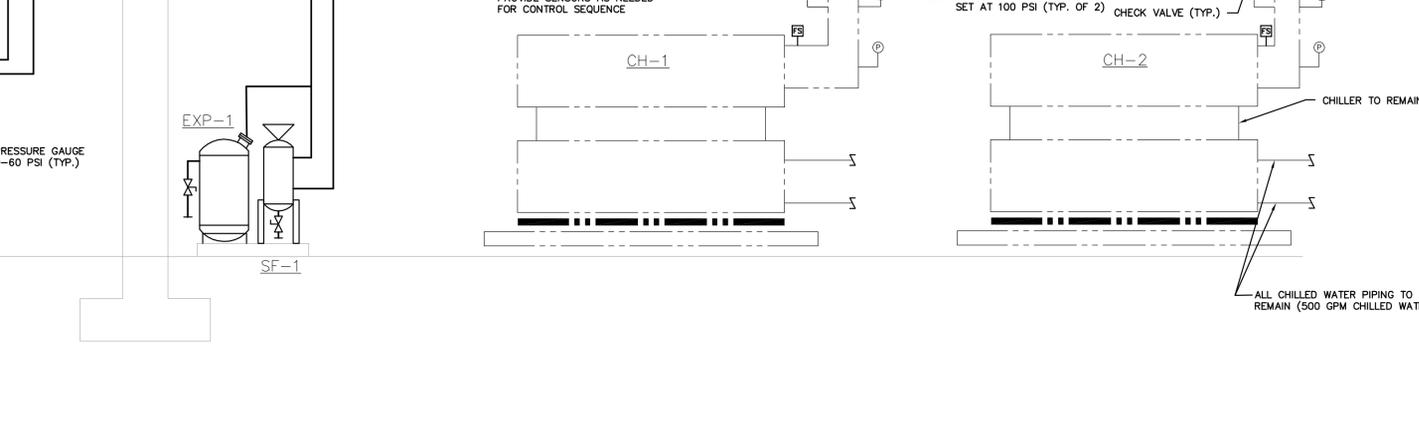
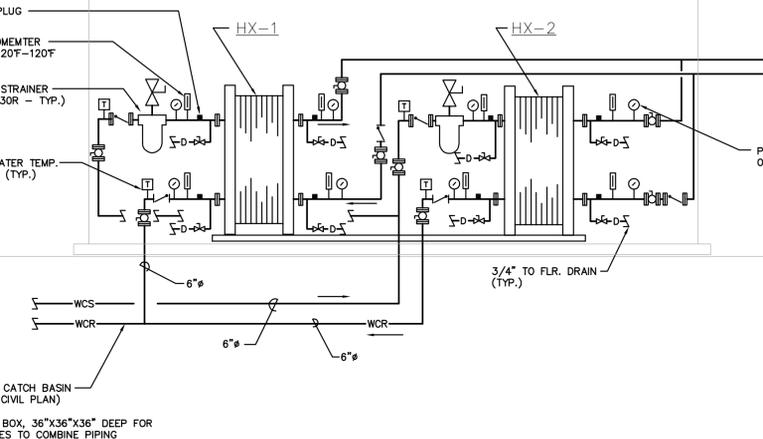
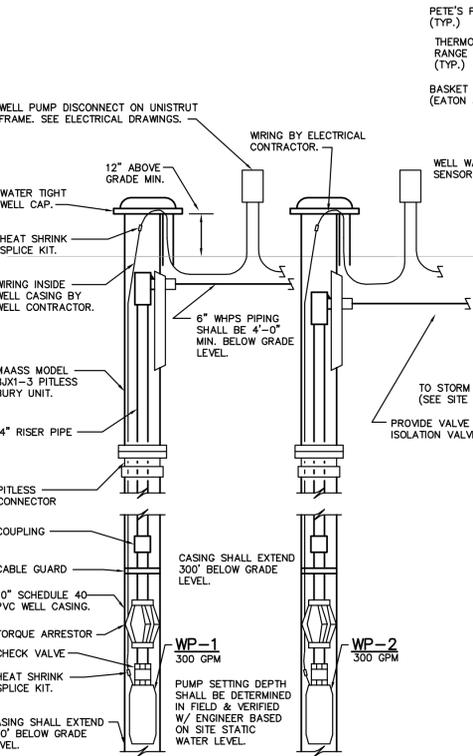


EXISTING CONDENSER WATER SCHEMATIC



GEOHERMAL CONDENSER WATER PIPING SCHEMATIC - BASE BID

SCALE: N.T.S.



HVAC GENERAL NOTES

- THE HVAC CONTRACTOR SHALL COORDINATE WITH PLUMBING, FIRE PROTECTION, ELECTRICAL, STRUCTURE AND OTHER TRADES TO ACHIEVE THE CEILING HEIGHTS INDICATED ON THE ARCHITECTURAL DRAWINGS. CAREFUL COORDINATION BETWEEN ALL TRADES WILL BE REQUIRED ON THE JOB SITE TO ATTAIN THESE CEILING HEIGHTS. PROVIDE ADDITIONAL OFFSETS WHERE REQUIRED DUE TO FIELD CONDITIONS.
- INSTALL BALANCING DAMPERS AS SHOWN AND AS REQ'D FOR PROPER BALANCING OF AIR HANDLING SYSTEMS. REFER TO THE SPECIFICATIONS FOR AIR BALANCING REQUIREMENTS.
- MOUNT ALL THERMOSTATS 48" ABOVE FINISH FLOOR UNLESS OTHERWISE NOTED ON THE PLANS.
- REFER TO ARCHITECTURAL DRAWINGS FOR ELEVATIONS OF ALL LOUVERS AND EQUIPMENT MOUNTED IN EXTERIOR WALLS.
- DUCT DIMENSIONS SHOWN ARE ACTUAL INSIDE OPENING SIZES AND SHALL NOT BE SMALLER WHERE DUCTS ARE LINED. THE OUTSIDE SHEETMETAL DIMENSION MUST BE INCREASED TO COMPENSATE FOR THE DUCT LINER.
- NO DUCTWORK OR PIPING IS TO RUN AB. ELEC. OR TELE. EQUIP.
- RUN ALL WATER SUPPLY AND RETURN MAINS LEVEL UNLESS OTHERWISE NOTED.
- COORD. EXACT LOCATION OF DUCT RISERS W/ BLDG. STRUCTURE.
- ALL DUCTS AND PIPES AB. CLG. UNLESS OTHERWISE NOTED.
- RUN ALL DRAIN LINES INDIRECT TO NEAREST FLOOR DRAIN OR HUB DRAIN.
- REFER TO ARCH. REFLECTED CLG. PLAN FOR EXACT LOCATION OF DIFFUSERS, GRILLES, ETC.
- FLEXIBLE DUCTWORK MAY BE USED AS TERMINAL DUCT ONLY, WITH LENGTHS NOT TO EXCEED 5 FT.
- INSTALL AIR VENTS AT HIGH POINTS OF SYSTEM, AS SHOWN ON DRAWINGS AND AS REQ'D. FOR PROPER AIR VENTING OF SYSTEM.
- ALL PIPING PENETRATIONS THROUGH RATED STRUCTURES SHALL BE FIRESTOPPED. REFER TO SHEET H2.02 FOR FIRESTOPPING DETAILS. REFER TO ARCH. DRAWINGS FOR LOCATIONS OF FIRE RATED STRUCTURES.
- THE LOCATIONS OF ALL FIRE OR FIRE/SMOKE DAMPERS SHALL BE IDENTIFIED W/ 1/2" HIGH LETTERS ON THE BOTTOM OF THE CEILING GRID.
- OPNGS. THROUGH ROOF BY GEN. CONTR. FURN. AND SETTING OF PREFABRICATED CURBS AND FANS BY HVAC CONTR.
- NOTIFY GEN. CONTR. OF SIZE AND LOCATION OF ALL RECESSES AND OPNGS. REQ'D FOR HVAC WORK.
- THE HVAC CONTR. IS RESPONSIBLE FOR FIRESTOPPING AT ALL HVAC RELATED PENETRATIONS OF FIRE AND SMOKE RATED STRUCTURES, FLOORS AND PARTITIONS. REFER TO ARCHITECTURAL FLR. PLANS FOR LOCATIONS OF ALL RATED STRUCTURES.
- PIPING RUNOUTS TO UNITS BELOW MAINS TO BE TAKEN FROM BOTTOM OF MAINS AT 45° PITCH DN. TO UNITS. RUNOUTS TO UNITS AB. MAINS TO BE TAKEN FROM TOP OF MAINS AT 45° PITCH UP TO UNITS. PITCH 1" IN 10'-0".
- ALL DUCT & PIPE RISERS SHALL BE SUPPORTED AT EACH FLOOR. HVAC CONTR. SHALL PROVIDE ALL SUPPORT STEEL REQUIRED.
- SUPPORT ALL PIPE AT INTERVALS AS NOTED IN SPECIFICATIONS.
- PROVIDE AIRTIGHT A.D. IN DUCTS ADJACENT TO ALL AUTOMATIC DAMPERS FIRE/SMOKE DAMPERS AND ELSEWHERE AS REQUIRED TO ACCESS DUCT ACCESSORIES.
- ALL FIRE DAMPERS, SMOKE DAMPERS & COMBINATION DAMPERS SHALL BE INSTALLED PER THE MANUFACTURER'S INSTALLATION DETAILS.
- ALL TRANSFER DUCTS & ALL EXHAUST DUCTS FOR IN-LINE CABINET VENTILATION DUCTS SHALL BE LINED.
- CALL BEFORE YOU DIG: CONTACT THE OHIO UTILITIES PROTECTION SERVICE, OUPS, AT 800-362-2764. A MINIMUM OF FIVE BUSINESS DAYS BEFORE START OF ANY UNDERGROUND WORK. EXISTING SITE CIVIL DRAWINGS ARE AVAILABLE FOR CONTRACTOR'S REVIEW.
- CONTRACTOR SHALL COORDINATE ALL WORK TO AVOID INTERRUPTION OF CHILLED WATER SUPPLY TO THE DUBLIN RECREATION CENTER. ALL INTERRUPTIONS SHALL BE SCHEDULED AT LEAST 10 BUSINESS DAYS IN ADVANCE WITH THE A/E AND THE CITY, AND SHALL OCCUR DURING NON-BUSINESS HOURS. CONTRACTOR SHALL MAINTAIN THE EXISTING COOLING TOWERS IN OPERATION UNTIL THE NEW WELL PUMPS AND ASSOCIATED DIRECT-BORE SUPPLY PIPING ARE INSTALLED. FOR ALL INTERRUPTIONS TO THE CHILLED WATER SUPPLY, CONTRACTOR SHALL WORK CONTINUOUSLY UNTIL CHILLED WATER SUPPLY IS RESTORED.
- COORDINATE NEW CONDENSER WATER SYSTEM AND ASSOCIATED PIPING WITH EXISTING MECHANICAL AND ELECTRICAL SYSTEMS, EQUIPMENT, PIPING, CONDUITS, ETC., LOCATED IN THE MECHANICAL COURTYARD AND MECHANICAL ROOM. INTERRUPTION TO ANY MECHANICAL OR ELECTRICAL SERVICE REQUIRES A MINIMUM OF 10 BUSINESS DAYS OF ADVANCE NOTICE TO THE A/E AND THE CITY.
- SEE CIVIL DRAWINGS FOR ADDITIONAL SITE PIPING SCOPE AND WORK REQUIREMENTS.
- ALL SITE PIPING SHALL BE RUN A MINIMUM OF 5 FT BELOW GRADE. FINAL ROUTE OF PIPING SHALL BE CAREFULLY COORDINATED WITH THE EXISTING UTILITIES ON SITE. PRESSURE TEST PIPING BEFORE AND AFTER INSTALLATION UNDERGROUND.
- DOCUMENT ALL EXISTING CONDITIONS PRIOR TO THE START OF WORK. EXISTING CHILLERS AND PUMPS TO REMAIN ARE IN OPERATING CONDITION. CONTRACTOR SHALL NOTE ANY REQUIRED REPAIRS TO EQUIPMENT PRIOR TO THE START OF WORK, AND SHALL BE RESPONSIBLE FOR ALL REPAIRS REQUIRED FOR THE RESTORATION OF PROPER OPERATION OF EXISTING EQUIPMENT AT THE COMPLETION OF THE PROJECT, UNLESS NOTED OTHERWISE PRIOR TO THE START OF WORK.
- SYSTEM START-UP: CONTRACTOR SHALL CONTACT THE CHILLER MANUFACTURER (TRANE) TO COORDINATE CHILLER START-UP AND COMMISSIONING. INCLUDE TWO DAYS OF TRANE ON-SITE SERVICES IN THE SCOPE OF WORK.
- PHASED DEMOLITION: CONTRACTOR SHALL COORDINATE DEMOLITION OF COOLING TOWERS AND PIPING TO MAINTAIN AT LEAST ONE CHILLER IN OPERATION AT ALL TIMES. COOLING TOWER "CT-1" IS TO REMAIN IN OPERATION UNTIL THE WELLS AND UNDERGROUND PIPING ARE INSTALLED, AND NEW HEAT EXCHANGERS ARE IN PLACE IN THE NEW HEAT EXCHANGER ENCLOSURE. ONCE WELL OPERATION IS DEMONSTRATED, THE REMAINING COOLING TOWER CAN BE REMOVED, WITH TEMPORARY PIPING CONNECTIONS BETWEEN THE HEAT EXCHANGERS AND CONDENSING PIPING OF THE CHILLERS. CONTRACTOR MAY PROPOSE ALTERNATIVE PIPING/CONSTRUCTION PROVISIONS THAT ACHIEVE MINIMAL INTERRUPTION OF THE CHILLED WATER SERVICE.
- EXISTING BUILDING DRAWINGS ARE AVAILABLE FOR CONTRACTOR REVIEW.

MECHANICAL ABBREVIATIONS

AB.	ABOVE	H.B.	HOSE BIBB
A.D.	ACCESS DOOR	HTR.	HEATER
A.F.F.	ABOVE FINISHED FLOOR	HTG.	HEATING
APPROX.	APPROXIMATELY	H & A/C	HEATING & AIR CONDITIONING
AUTO. CONT.	AUTOMATIC CONTROL	INV. ELEV.	INVERT ELEVATION
BTM.	BOTTOM	J. R.	JANITOR RECEPTOR
BLDG.	BUILDING	LAV.	LAVATORY
CAB.	CABINET	MAN. DPR.	MANUAL DAMPER
CAP.	CAPACITY	M. H.	MANHOLE
C.B.	CATCH BASIN	MFR.	MANUFACTURER
C.I.	CAST IRON	MECH.	MECHANICAL
CLG.	CEILING	M. A.	MIXED AIR
CONC.	CONCRETE	M.T.D.	MOUNTED
C.O.	CLEAN OUT	NOM.	NOMINAL
CONN.	CONNECT	OPNG.	OPENING
CONTR.	CONTRACTOR	O.A.	OUTSIDE AIR
CONT.	CONTINUATION	PLBG.	PLUMBING
CONV.	CONVECTOR	PRESS.	PRESSURE
COORD.	COORDINATE	P.R.V.	PRESSURE REDUCING VALVE
DTL.	DETAIL	PROP.	PROPELLER
DIA.	DIAMETER	REG.	REGISTER
DIFF.	DIFFUSER	RHC.	REHEAT COIL
DISCH.	DISCHARGE	REQD.	REQUIRED
DN.	DOWN	REL.	RELIEF
D.S.	DOWNSPOUT	R.A.	RETURN AIR
ELEC.	ELECTRICAL	R.D.	ROOF DRAIN
E.W.C.	ELECTRIC WATER COOLER	RM.	ROOM
ELEM.	ELEMENT	SCHED.	SCHEDULE
ELEV.	ELEVATION	S.D.	SHOWER DRAIN
EXH	EXHAUST	SHT.MTL.	SHEET METAL
EXIST.	EXISTING	SH.	SHOWER
FT. HD.	FEET OF HEAD	S.I.	SURFACE INLET
FIN. RAD.	FINNED RADIATION	S.S.	SERVICE SINK
F. DPR.	FIRE DAMPER	STAT.	THERMOSTAT
F. E.	FIRE EXTINGUISHER	S.A.	SUPPLY AIR
F.E.C.	FIRE EXTINGUISHER CABINET	S & R	SUPPLY & RETURN
F.H.C.	FIRE HOSE CABINET	TEMP.	TEMPERATURE
FLEX.	FLEXIBLE	THERM.	THERMOMETER
F & T	FLOAT & THERMOSTATIC	TYP.	TYPICAL
FLR.	FLOOR	T.C.C.	TEMP. CONTROL CONTRACTOR
F.D.	FLOOR DRAIN	UR.	URNAL
FURN.	FURNISH	V.S.P.	VITRIFIED SEWER PIPE
GA.	GAGE	VB. ISOL.	VIBRATION ISOLATOR
GEN.	GENERAL	V.T.R.	VENT THRU ROOF
GRAV.	GRAVITY	W.	WASTE
GR.	GRILLE	W/	WITH
		W.C.	WATER CLOSET

MECHANICAL LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
—A—	AIR LINE	— — —	PIPE UNION
—COMB—	COMBINED SEWER	— — —	PIPE GUIDE
—CW—	DOMESTIC COLD WATER LINE	— — —	FLEXIBLE PIPE CONNECTION
—CWR—	CHILLED WATER RETURN	— — —	FLEXIBLE DUCT
—CWS—	CHILLED WATER SUPPLY	— — —	ECCENTRIC REDUCER
—CR—	CONDENSER WATER RETURN	— — —	ECCENTRIC REDUCER
—CS—	CONDENSER WATER SUPPLY	— — —	TEE WITH NIPPLE & CAP
—D—	DRAIN LINE	— — —	PLUGGED TEE
—F—	FIRE PROTECTION LINE	— — —	Y-TYPE STRAINER
—G—	GAS LINE	— — —	PETE'S PLUG
—HPR—	HEAT PUMP RETURN	— — —	COMB. BALANCE & STOP VALVE
—HPS—	HEAT PUMP SUPPLY	— — —	BALL VALVE
—HG—	HOT GAS LINE	— — —	BALL VALVE W/MEMORY STOP
—HWR—	HEATING WATER RETURN	— — —	GATE VALVE (SCREWED BODY)
—HWS—	HEATING WATER SUPPLY	— — —	DRAIN VALVE WITH HOSE END
—LIQ—	LIQUID LINE	— — —	GLOBE VALVE
—LPS—	LOW PRESSURE STEAM	— — —	GATE VALVE (FLANGED BODY)
—PHPR—	POND LOOP HEAT PUMP RETURN	— — —	AUTO CONTROL VALVE
—PHPS—	POND LOOP HEAT PUMP SUPPLY	— — —	SOLENOID VALVE
—SAN—	SANITARY LINE	— — —	CHECK VALVE
—SMR—	SNOW MELT SUPPLY	— — —	BUTTERFLY VALVE
—SMS—	SNOW MELT RETURN	— — —	BUTTERFLY VALVE W/MEMORY STOP
—STM—	STORM LINE	— — —	FLOOR OR AREA DRAIN
—SUCT—	SUCTION LINE	— — —	THERMOSTAT
—TW—	DOMESTIC TEMPERED WATER	— — —	TEMPERATURE SENSOR
—V—	VENT LINE	— — —	FLOW SWITCH
—W—	WATER SERVICE LINE	— — —	FLUID SWITCH
—WCS—	WELL CONDENSER WATER SUPPLY	— — —	THERMOMETER
—WCR—	WELL CONDENSER WATER RETURN	— — —	CURB BOX & VALVE
—180°—	DOMESTIC 180° WATER	— — —	CONNECT TO EXISTING
—R—	RETURN RISER	— — —	THRU FLOOR AS SHOWN
—O—	SUPPLY RISER	— — —	JANITOR OR SHOWER TRIM
—P—	PENDANT TYPE SPRINKLER HEAD	— — —	SUPPLY DUCT UP
—U—	UPRIGHT TYPE SPRINKLER HEAD	— — —	SUPPLY DUCT DOWN
—P-T—	P-TRAP (PLAN VIEW)	— — —	R.A., O.A., OR EXH. DUCT UP
—X—	AIR VENT - PLAN VIEW	— — —	R.A., O.A., OR EXH. DUCT DOWN
—C—	CAPPED LINE	— — —	ROUND DUCT
—H—	HOSE BIBB	— — —	FLAT OVAL DUCT
—E—	EXISTING WORK TO REMAIN	— — —	SPIN-IN FITTING WITH BALANCE DAMPER
—R—	EXISTING WORK TO BE REMOVED	— — —	ELBOW WITH TURNING VANES
—C—	RISE OR DROP	— — —	FIRE DAMPER
—G—	PIPE BRANCH TOP CONNECTION	— — —	MAN. DAMPER
—B—	PIPE BRANCH BOTTOM CONNECTION	— — —	ACCESS DOOR
—W—	WASTE	— — —	45° BOOT BRANCH TAKEOFF

EQUIPMENT NOTES

- HX-1, HX-2**
PLATE HEAT EXCHANGER - TACO MODEL PF 205-109-4-NH WITH CARBON STEEL FRAME AND TYPE 304 STAINLESS STEEL PLATES. CONDENSER SIDE: 400 GPM WATER FROM 85.0°F ENTERING TO 70.0°F LEAVING, 9.8 FT. HD. PRESSURE DROP; WELL WATER SIDE: 500 GPM WATER FROM 55.0°F ENTERING TO 74.9°F LEAVING, 5.8 FT. HD. PRESSURE DROP, 3,000,000 BTUH HEAT EXCHANGED, 276.5 SQ. FT. HEAT TRANSFER AREA, 108 PLATES, 110 MAX. PLATE CAPACITY, OVERALL DIMENSIONS 37.3" L x 18.5" W x 46.2" H.
- ENC-1**
EQUIPMENT ENCLOSURE - TUFF SHED "INDUSTRIAL PRO" EXTERIOR STORAGE SHED, OR EQUAL BY ARMSTRONG OR T.M. PROVIDE CUSTOM ENCLOSURE, BUILD AROUND THE HEAT EXCHANGERS AND PIPING, NOMINAL 10 FT. x 13 FT. x 9 FT. HIGH ENCLOSURE SHALL BE COMPLETE WITH GALVANIZED STEEL INSULATED FLOOR, INSULATED WALLS (R-13) WITH INTERIOR WEATHER PROOF FINISH, WOOD FRAMED WALLS 16" ON CENTER, 7/16" ROOF DECK WITH 2x4 RAFTERS AT 24" ON CENTER, 6" EAVE, 5/12 PITCHED ROOF, 96" CLEAR INSIDE HEIGHT, ENTRY DOOR SHALL BE 6 FT WIDE DOUBLE DOORS TO ALLOW MAINTENANCE ACCESS TO ALL INSIDE EQUIPMENT, 5 YEAR WARRANTY ON ALL MATERIALS, 50 YEAR WARRANTY ON SIDING AND TRIM, AND LIFETIME WARRANTY ON SHINGLES. UNIT SHALL BE DESIGNED FOR 40 LBS OF SNOW LOAD AND 90 MPH WINDS, WITH DESIGN SEALED BY AN OHIO-REGISTERED PROFESSIONAL ENGINEER. UNIT SHALL ANCHOR TO THE EXISTING CONCRETE, OR SHALL BE PROVIDED WITH PIER FOUNDATIONS. LOCATION OF FOUNDATIONS SHALL BE COORDINATED WITH ALL UNDERGROUND UTILITIES, HEAT, LIGHTS, AND POWER SHALL BE PROVIDED BY ON-SITE CONTRACTORS AS PART OF THIS PROJECT. REFER TO THE ELECTRICAL DRAWINGS FOR LIGHT FIXTURE AND POWER INFORMATION.
- EXP-1, EXP-2**
EXPANSION TANK FOR CLOSED LOOP CONDENSER WATER, BELL & GOSSETT MODEL D40-V, 21.7 GALLONS, 11 GALLON ACCEPTANCE.
- SF-1**
SHUT FEEDER FOR CLOSED LOOP CONDENSER J.L. WINGERT CO. DOME BOTTOM FILTER FEEDER, F-DB-50, 6.3 GALLONS, WITH ONE YEAR SUPPLY OF FILTER BAGS.
- UH-1**
UNIT HEATER OMARK MODEL "MUH", 5.0KW, 277V, 1PH, 18.0 AMPS, WITH UNIT MOUNTED THERMOSTAT.
- EF-1**
EXHAUST FAN GREENHECK MODEL NO. "SP-A510", 325 CFM AT 0.5" ESP, 4.0 SONES, 1070 RPM, 120V, 1PH, 3.3 AMPS, 324 WATTS, PROVIDE WITH WC-18x8 HOODED WALL CAP AND THERMOSTAT WITH ON/OFF/AUTO SUB-BASE.

PUMP SCHEDULE

* ALL PUMPS 1750 RPM UNLESS NOTED OTHERWISE

KEY: CC-CLOSE COUPLED END SUCTION; F.C.-FLEXIBLE COUPLED END SUCTION; A.T.L.-ACROSS THE LINE SUB-SUBMERSIBLE; I.L.-IN LINE; V.F.D.-VARIABLE FREQUENCY DRIVE

PUMP NO.	FUNCTION	LOCATION	MFR. MODEL NUMBER	TYPE	GPM	FT. HD.	EFF. %	SUCT. SIZE	DISCH. SIZE	MOTOR H.P.	VOLT REQ'D.	PHASE	TYPE MOTOR STARTING	REMARKS
P-1 P-2	CONDENSER WATER	MECH. ROOM	SERIES 80 4x4x9.5	I.L.	400	55	72	4"	4"	7.5	7.4	460	3	A.T.L. (1) (3)
P-3 P-4	PRIMARY CHILLED WATER	MECH. ROOM	1510 4AC	F.C.	503	35	70.9	4"	4"	7.5	6.5	460	3	A.T.L. (4)
P-5 P-6	SECONDARY CHILLED WATER	MECH. ROOM	1510 SE	F.C.	1005	55	62.4	2.5"	2.5"	5	2.9	460	3	A.T.L. (4)
WP-1 WP-2	WELL WATER SUPPLY	SUPPLY WELL	GRUNDFOS 8005100-3A	SUB	300	95	66	-	3"	10.0	-	460	3	V.F.D. (1) (2) (5)

(1) PUMP MOTOR SHALL BE PREMIUM EFFICIENCY TYPE. (2) FURNISH 3 STAGE, 3450 RPM PUMP (3) CONSTANT SPEED PUMP (4) EXISTING TO REMAIN (5) FURNISH WITH GRUNDFOS CUE3X380 VFD

PRAATER ENGINEERING ASSOCIATES, INC.
CONSULTING ENGINEERS

6100 Wilcox Road
Dublin, Ohio 43017
PHONE: (614) 766-4896
FAX: (614) 766-2354

project title
**GEOHERMAL PROJECT
DUBLIN RECREATION CENTER**
5600 POST ROAD
DUBLIN, OH 43017

sheet title
**MECHANICAL
SCHEDULES**

CADD#: H22-13390.DWG

project number
13390

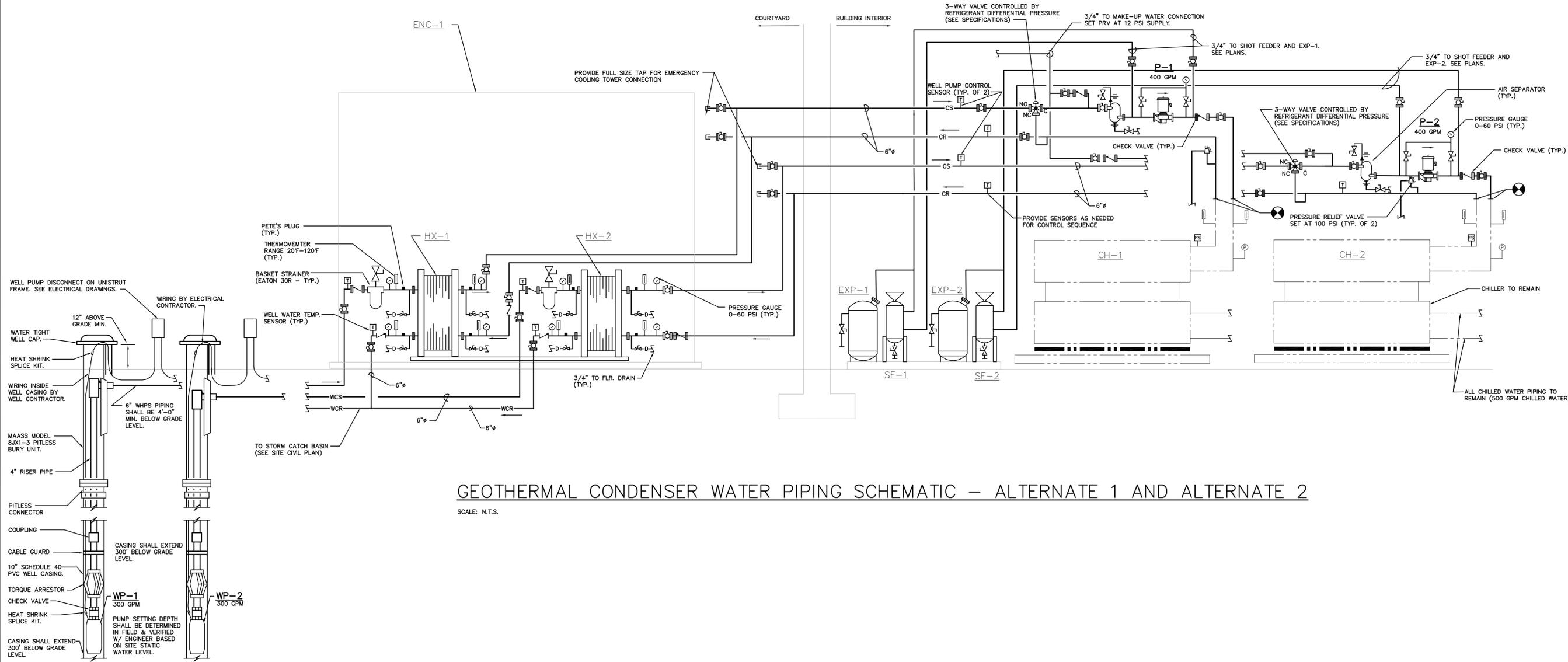


drawn **JBK**
design **JBK**
checked **JBK**

issued for _____ date
BID **11/24/14**
ADD. 1 **12/18/14**

sheet

H22



GEOHERMAL CONDENSER WATER PIPING SCHEMATIC – ALTERNATE 1 AND ALTERNATE 2

SCALE: N.T.S.