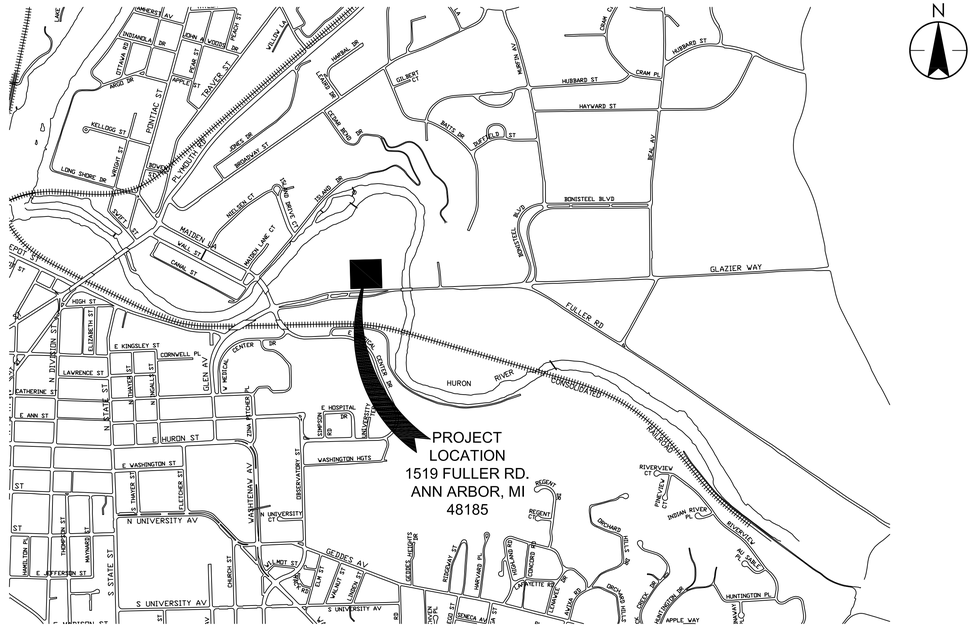
Stantec

# CITY OF ANN ARBOR, MICHIGAN




PROJECT LOCATION MAP

SCALE: 1"=1000'

# FULLER POOL BOILER REPLACEMENT

ITB #: 4315

DECEMBER, 2013

Project Number: 2075128409

BID SET

DRAWING INDEX:

## DEMOLITION NOTES

GENERAL

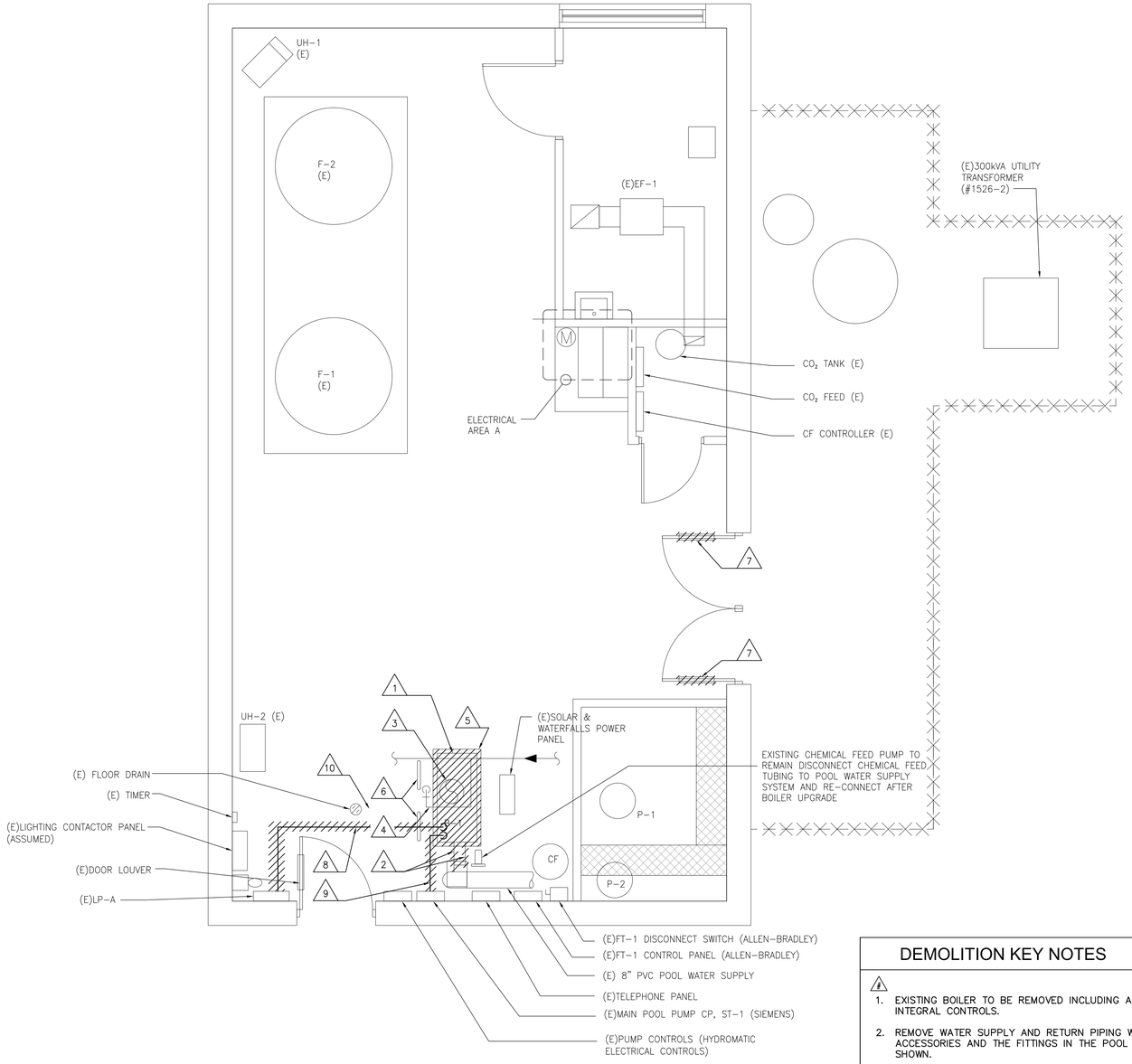
1. ALL WORK SHALL MEET AND BE PERFORMED IN ACCORDANCE WITH ALL APPLICABLE CITY, STATE AND FEDERAL CODES.
2. IF CONTRACTOR IS UNSURE IF AN ITEM IS TO BE REMOVED OR NOT, VERIFY WITH OWNER AND/OR ENGINEER BEFORE PROCEEDING. EQUIPMENT REMOVED THAT WAS NOT TO BE, WILL BE REINSTALLED BACK TO ITS ORIGINAL WORKING CONDITION AT THE CONTRACTOR'S OWN EXPENSE.
3. THE OWNER SHALL MARK WITH AN INDELIBLE AND VISIBLE MARKING ALL ITEMS/DEVICES TO BE REMOVED IN GOOD CONDITION AND RETAINED BY THE OWNER. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO:
   a. DELIVER THE SELECTED OR "MARKED" DEVICES TO THE ALLOCATED FACILITY FOR STORAGE. COORDINATE STORAGE LOCATION WITH OWNER.
   b. PROPERLY DISPOSE OF UNMARKED AND/OR REMAINING DEVICES TO BE REMOVED.
4. MAKE ALL TEMPORARY CONNECTIONS AS REQUIRED TO MAINTAIN OPERATION OF THE FACILITY DURING CONSTRUCTION AND EQUIPMENT REPLACEMENT OR MODIFICATION. SCHEDULE WORK FOR SHUTDOWN, AS REQUIRED, TO REDUCE THE DISRUPTION TO THE REST OF THE CIRCUITRY.
5. RELOCATE, MAKE TEMPORARY CONNECTIONS, REINSTALL AND RECONNECT ANY EQUIPMENT AS REQUIRED FOR THE CONSTRUCTION OF NEW PIPING AND SYSTEMS BEING MODIFIED AS PART OF THIS PROJECT.
6. CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE RESULTING FROM OPERATIONS TO EXISTING FACILITIES SUCH AS, BUT NOT LIMITED TO, UNDERGROUND CABLES, HARD SURFACE AREAS, PIPING AND OTHER UTILITIES. CONTRACTOR TO RESTORE, REPLACE OR REPAIR ANY SUCH DAMAGE TO THE SATISFACTION OF THE ENGINEER AND OWNER.
7. REFER TO THE SPECIFICATIONS FOR GUIDELINES REGARDING SITE CLEANLINESS.
8. ANY ITEM REQUIRED TO BE REMOVED IN THE CONTRACTOR'S JUDGEMENT BUT NOT SHOWN ON DRAWING SHALL BE VERIFIED AND REMOVED/RELOCATED AT NO ADDITIONAL COST.
9. EXAMINE THE DRAWINGS AND SPECIFICATIONS OF ALL DIVISIONS AND BECOME FULLY FAMILIAR THE ENTIRE WORK. BEFORE COMMENCING, OBTAIN A RULING FROM THE ENGINEER ON ANY CONFLICTING ISSUES SHOWN ON THE DRAWINGS OR BETWEEN DIVISIONS. NO COMPENSATION WILL BE MADE FOR ANY COSTS ARISING FROM CONFLICT NOT IDENTIFIED BEFORE WORK HAS COMMENCED.
10. DRAWINGS INDICATE GENERAL LOCATION AND ROUTING OF CONDUITS, CABLES, PIPING, ELECTRICAL AND MECHANICAL EQUIPMENT ARRANGEMENTS. THEY DO NOT SHOW ALL STRUCTURAL AND ARCHITECTURAL DETAILS. IN SOME CASES, ROUTING IS ONLY SHOWN DIAGRAMMATICALLY ON THE DRAWINGS AND MAY NOT DETAIL EXACT OR COMPLETE REQUIREMENTS.
11. COORDINATE THE WORK TO BE PERFORMED OF ALL DIVISIONS REMOVING EQUIPMENT TO ENSURE THAT THERE ARE NO CONFLICTS OR DELAYS.
12. PROSPECTIVE BIDDERS SHALL USE THE PRE-BID CONFERENCE TO VISIT THE SITE BEFORE SUBMITTING BIDS TO CAREFULLY EXAMINE ALL EXISTING CONDITIONS AND THOROUGHLY ASCERTAIN THAT THE WORK DESCRIBED ON THE DRAWINGS AND ALL SPECIFICATIONS HAVING A BEARING ON THE WORK CAN BE CARRIED OUT SATISFACTORILY WITHOUT ANY CHANGES TO THE DRAWINGS OR SPECIFICATIONS. NO EXTRAS WILL BE ALLOWED FOR ANYTHING THAT WOULD HAVE BEEN REVEALED IN THE COURSE OF SUCH AN EXAMINATION.
13. PROVIDE QUALIFIED PERSONNEL TO DO BOTH THE REMOVAL AND INSTALLATION OF ALL EQUIPMENT AS NOTED ON THE DRAWINGS OR STATED IN THE SPECIFICATIONS.

ELECTRICAL

1. THE REMOVAL OF EQUIPMENT SHALL INCLUDE ALL ASSOCIATED WIRING, RACEWAYS, ETC. UNLESS OTHERWISE NOTED.
2. PATCH ALL HOLES IN EXISTING INTERIOR AND EXTERIOR WALLS, STRUCTURES, BASES, CEILINGS, ETC. RESULTING FROM THE REMOVAL OF RACEWAYS. PATCHING SHALL MATCH EXISTING MATERIALS OF CONSTRUCTION (I.E. BRICK, BLOCK, CONCRETE, ETC.)
3. ENSURE SERVICE CONTINUITY TO EXISTING CIRCUITS NOT AFFECTED BY THE CONSTRUCTION WORK. MAKE TEMPORARY CONNECTIONS IF NECESSARY.
4. DISCONNECT AND MAKE SAFE ALL EXISTING POWER AND CONTROL WIRING AS NOTED TO BE REMOVED. ASSOCIATED LOW VOLTAGE WIRING TO BE REMOVED.
5. CONDUIT AND EQUIPMENT TO BE REMOVED ARE INDICATED ON THIS SHEET. REMOVE ITEMS AS INDICATED AND AS REQUIRED TO ACCOMMODATE THE NEW WORK.

MECHANICAL

1. PIPING AND EQUIPMENT TO BE REMOVED ARE INDICATED ON SHEET D1.01 & D1.02. REMOVE ITEMS AS INDICATED AND AS REQUIRED TO ACCOMMODATE THE NEW WORK.
2. REMOVE BOILER IN THE BOILER ROOM, ALL ASSOCIATED PIPING, AND FLUE AS SHOWN ON SHEET D1.01.
3. VERIFY EXACT SIZES, LOCATIONS AND QUANTITIES OF ALL ITEMS IN FIELD PRIOR TO PREPARING SHOP DRAWINGS.
4. CHECK WITH ENGINEER FOR ITEMS TO BE SALVAGED AND RETURN SUCH ITEMS TO THE OWNER. ALL OTHER ITEMS SHALL BE HAULED AWAY FROM SITE.
5. ALL PIPING WHICH ARE DISCONNECTED, SHALL BE TEMPORARILY VALVED & CAPPED TILL NEW CONNECTIONS ARE MADE.
6. ALL DUCTWORK WHICH IS DISCONNECTED, SHALL BE TEMPORARILY CAPPED UNTIL NEW CONNECTIONS ARE MADE.
7. ALL OPENINGS REMAINING IN WALLS/FLOOR/ROOF, AFTER DEMOLITION WORK IS DONE, SHALL BE PATCHED BY THE CONTRACTOR WITH MATERIALS SO AS TO MATCH EXISTING FINISHES, UNLESS OTHERWISE SHOWN.
8. INSULATION ON MATERIALS TO BE REMOVED SHALL BE IDENTIFIED BEFORE ATTEMPTING DEMOLITION AND EPA REGULATION SHALL BE COMPLIED WITH.
9. CONTRACTOR SHALL REMOVE PIPE OR DUCT HANGERS AND SUPPORTS.
10. CAP PIPING BELOW FLOOR/BEHIND WALL AS REQUIRED.
11. DEMOLITION TO BE CARRIED OUT IN A MANNER TO PREVENT DAMAGE TO ANY EXISTING SERVICE OR STRUCTURE.
12. CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING ANY DAMAGE THAT MAY OCCUR.
13. REMOVE EXISTING CONCRETE PADS USED FOR THE EXISTING BOILER AND REPAIR FLOOR. REPAIR THE FLOOR WITH A THIN SET PATCHING MATERIAL BY SIKA. PROVIDE SATURATED SURFACE DRY CONDITION AND APPLY BONDING AGENT PRIOR TO THE THIN SET MATERIAL.




DEMOLITION PLAN
N.T.S.

## DEMOLITION KEY NOTES

1. EXISTING BOILER TO BE REMOVED INCLUDING ASSOCIATED INTEGRAL CONTROLS.
2. REMOVE WATER SUPPLY AND RETURN PIPING WITH ACCESSORIES AND THE FITTINGS IN THE POOL WATER MAIN AS SHOWN.
3. REMOVE BOILER STACK AND REUSE THE OPENING FOR NEW BOILER STACK.
4. REMOVE THE PORTION OF THE NATURAL GAS PIPING AS REQUIRED.
5. REMOVE EXISTING CONCRETE HOUSEKEEPING PAD. ENCAPSULATED THE DEMOLITION WORK WITH PLASTIC SHEETING TO CONTROL DUST.
6. REMOVE EXISTING MAINTENANCE BARRIER AND RE-INSTALL AFTER THE BOILER UPGRADE (TYP. 2). REINSTALL WITH S.S. HARDWARE.
7. REMOVE EXISTING DOOR LOUVER IN PREPARATION FOR NEW DOOR LOUVER. (TYP. 2).
8. DISCONNECT AND REMOVE EXISTING POWER FEEDER FROM PANEL LP-A TO THE BOILER COMPLETE INCLUDING EXISTING RIGID AND FLEXIBLE CONDUIT AND BREAKER. PROVIDE NEW BREAKER AS PER THE NEW WORKS. RE-USE EXISTING CIRCUIT #14 SPACE FOR NEW BOILER POWER. NOTE: CONDUIT ROUTING IS DIAGRAMMATIC. VERIFY ON SITE.
9. DISCONNECT AND REMOVE EXISTING STARTER CONTROL CONDUCTOR TO EXISTING PUMP PANEL.
10. SAW CUT EXISTING CONCRETE FLOOR TO EXTEND THE FLOOR DRAIN.

Stantec

Stantec Consulting Michigan Inc.
3754 Ranchero Drive
Ann Arbor MI U.S.A.
48108
734.761.1010
734.761.1200



Consultants

Legend

ITEMS TO BE DEMOLISHED

Notes

| Revision | By | Appd. | YY.MM.DD |
|---|---|---|---|
| B BID SET | SA | SA | 2013.12.03 |
| A OWNER REVIEW | SA | SA | 2013.11.22 |
| Issued | By | Appd. | YY.MM.DD |
| File Name: 2075128409_D1.01 | Q.K. Dwn. | WMJ/SA Chkd. | WMJ/ZM Dsgn. | 2013.12.10 YY.MM.DD |

Permit-Seal

Client/Project
CITY OF ANN ARBOR

FULLER POOL BOILER REPLACEMENT
ANN ARBOR, MI

Title
DEMOLITION PLAN AND NOTES

Project No. 2075128409
Scale AS NOTED
Drawing No. D1.01
Sheet 2 of 7 -

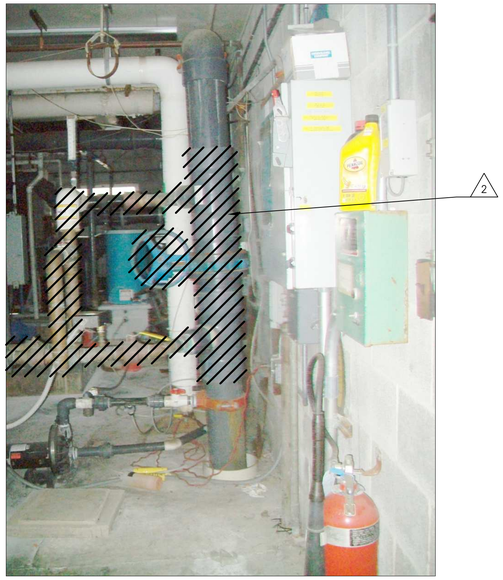



PHOTO No.1 - WATER SUPPLY AND PUMP CONTROL PANELS


PHOTO No.2 - BOILER

## DEMOLITION KEY NOTES

1. EXISTING BOILER TO BE REMOVED INCLUDING ASSOCIATED CONTROLS, CONCRETE PAD, AND ALL RELATED EQUIPMENT AND ACCESSORIES.
2. REMOVE WATER SUPPLY AND RETURN PIPING INCLUDING ACCESSORIES AND THE FITTINGS, AND VALVE IN THE POOL WATER MAIN AS SHOWN.
3. REMOVE BOILER STACK AND REUSE THE OPENING FOR NEW BOILER STACK.
4. REMOVE THE PORTION OF THE NATURAL GAS PIPING AS SHOWN AND AS REQUIRED.
5. REMOVE EXISTING CONCRETE HOUSEKEEPING PAD AND PATCH FLOOR.
6. REMOVE EXISTING MAINTENANCE BARRIER AND RE-INSTALLED AFTER THE BOILER UPGRADE.
7. REMOVE EXISTING DOOR LOUVER IN PREPARATION FOR NEW DOOR LOUVER.
8. DISCONNECT AND REMOVE EXISTING POWER FEEDER FROM PANEL LP-A TO THE BOILER COMPLETE INCLUDING EXISTING RIGID AND FLEXIBLE CONDUIT.
9. DISCONNECT AND REMOVE EXISTING CONTROL CONDUCTOR TO EXISTING PUMP PANEL.

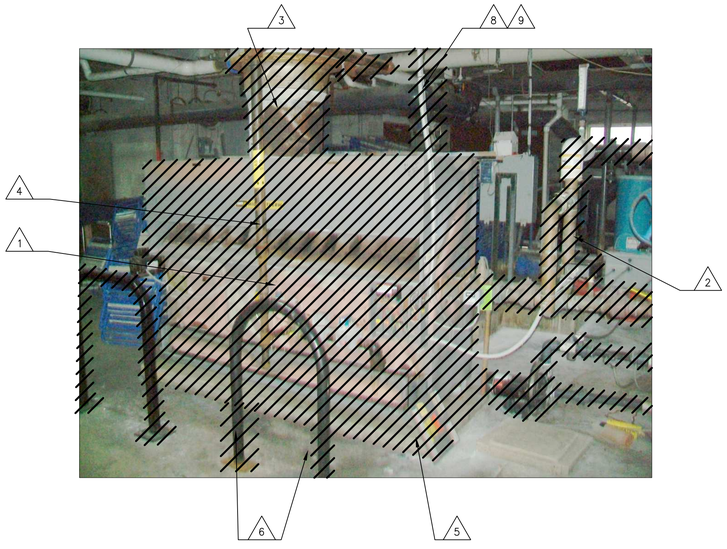



PHOTO No.3 - BOILER


PHOTO No.4 - BOILER STACK

Stantec

Stantec Consulting Michigan Inc.
3754 Ranchero Drive
Ann Arbor MI U.S.A.
48108
734.761.1010
734.761.1200



Consultants

Legend

ITEMS TO BE DEMOLISHED

Notes

| Revision | By | Appd. | YY.MM.DD |
|---|---|---|---|
| B BID SET | SA | SA | 2013.12.03 |
| A OWNER REVIEW | SA | SA | 2013.11.22 |
| Issued | By | Appd. | YY.MM.DD |

| File Name: 2075128409_D1.02 | Q.K. | WMJ/SA | WMJ/ZM | 2013.12.10 |
|---|---|---|---|---|
| | Dwn. | Chkd. | Dsgn. | YY.MM.DD |

Permit-Seal

Client/Project
CITY OF ANN ARBOR

FULLER POOL BOILER REPLACEMENT
ANN ARBOR, MI

Title
DEMOLITION PHOTOS

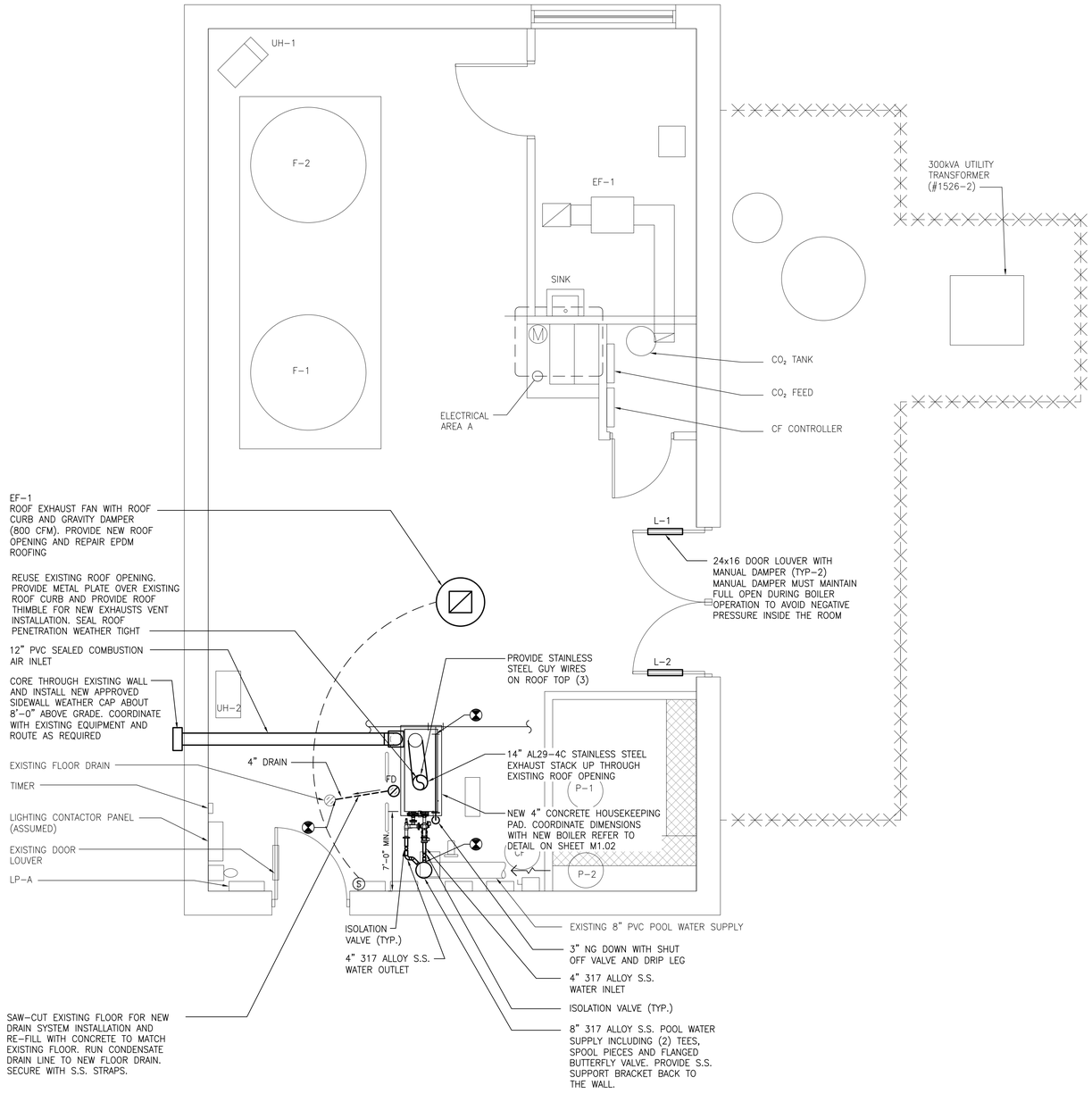
Project No. 2075128409
Scale AS NOTED
Drawing No. D1.02
Sheet 3 of 7 -

## NEW WORK GENERAL NOTES

1. ALL NEW WORK SHALL MEET AND BE PERFORMED IN ACCORDANCE WITH ALL APPLICABLE CITY, STATE AND FEDERAL CODES.
2. ALL NEW MATERIALS INCLUDING FASTENERS, HARDWARE, STRAPS, SUPPORTS, BOLTS, NUTS, INSERTS, HANGERS, ETC. SHALL BE 304 STAINLESS STEEL.
3. ALL NEW ROOF AND WALL PENETRATIONS SHALL BE SEALED WATER TIGHT.

## GENERAL MECHANICAL NOTES

1. CONTRACTOR SHALL RECORD ON AS–BUILT DRAWINGS ALL SIZES, MATERIALS, ELEVATIONS AND LOCATIONS OF ALL EQUIPMENT AND DUCTWORK THAT DEVIATES FROM THE DESIGN CONTRACT DRAWINGS.
2. ALL WORK AND MATERIALS SHALL CONFORM TO THE LATEST EDITION OF THE BUILDING AND MECHANICAL CODES AND ALL OTHER AUTHORITIES HAVING JURISDICTION.
3. PRIOR TO START OF CONSTRUCTION COORDINATE INSTALLATION OF MECHANICAL WORK TO AVOID UNNECESSARY JOB DELAYS OR INTERFERENCE WITH ALL OTHER TRADES.
4. OBTAIN ALL FIELD APPROVALS ON MECHANICAL WORK FROM REGULATING AGENCIES WHERE REQUIRED.
5. ALL EQUIPMENT SHALL BE U.L. LISTED.
6. PROVIDE MINIMUM ONE YEAR GUARANTEE ON ALL LABOR AND MATERIALS UNLESS NOTED OTHERWISE ON CONTRACT DOCUMENTS OR SPECIFICATION.
7. INSTALLATION OF VENTILATION OR HEAT PRODUCING EQUIPMENT SHALL BE IN ACCORDANCE WITH NFPA 211, NFPA 31 AND PAMPHLET 91, NFPA 54 AS APPLICABLE.
8. ALL HVAC WORK SHALL BE IN COMPLIANCE WITH NFPA 90A AND 90B AS APPLICABLE AND IN STRICT ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS.
9. MECHANICAL DRAWINGS ARE SCHEMATIC IN NATURE AND ARE TO CONVEY DESIGN INTENT ONLY. REQUIRED OFFSETS, FITTINGS AND GENERAL INSTALLATION REQUIREMENTS ARE THE RESPONSIBILITY OF THE CONTRACTOR.




NEW WORK PLAN
N.T.S.

NOTES:

ALL PIPE MATERIAL INLET AND OUTLET CONNECTIONS TO BOILER SHALL BE PER THE BOILER SUPPLIER RECOMMENDATION.


Stantec

Stantec Consulting Michigan Inc.
3754 Ranchero Drive
Ann Arbor MI U.S.A.
48108
734.761.1010
734.761.1200




Consultants

Legend

POINT OF CONNECTION

Notes

| Revision | By | Appd. | YY.MM.DD |
|---|---|---|---|
| B BID SET | SA | SA | 2013.12.03 |
| A OWNER REVIEW | SA | SA | 2013.11.22 |

Issued

| File Name: 2075128409_M1.01 | Q.K. | W.M.J. | W.M.J. | 2013.12.10 |
|---|---|---|---|---|
| | Dwn. | Chkd. | Dsgn. | YY.MM.DD |

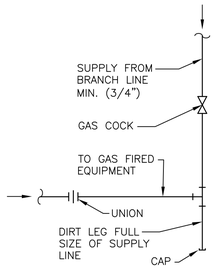
Permit-Seal

Client/Project
CITY OF ANN ARBOR

FULLER POOL BOILER REPLACEMENT
ANN ARBOR, MI

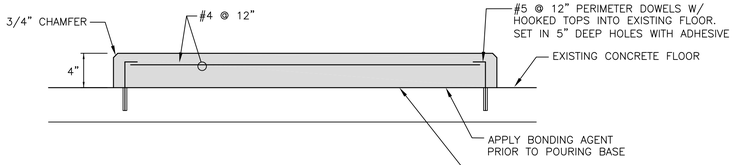
Title
MECHANICAL
NEW WORK PLAN

Project No. 2075128409
Scale AS NOTED
Drawing No. M1.01
Sheet 4 of 7 -



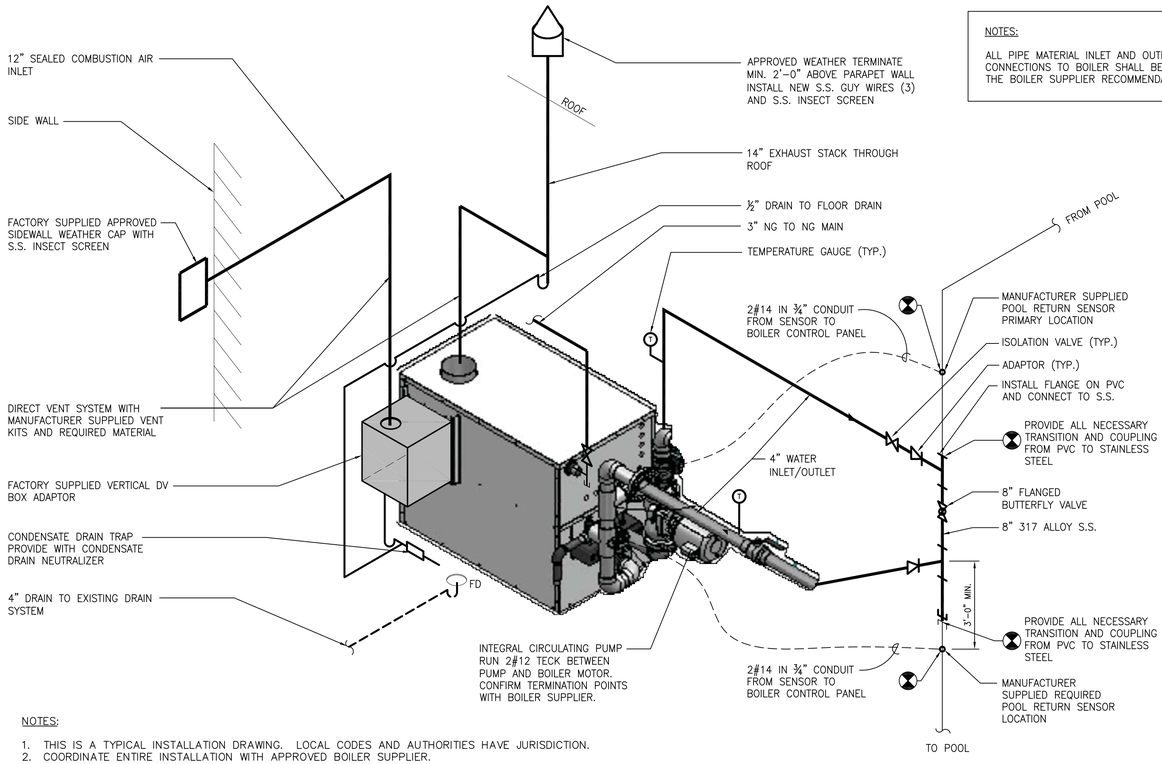

## DIRT LEG AT ALL GAS PIPE DROPS

SCALE: NONE




## BOILER BASE DETAIL

SCALE: NONE




NOTES:

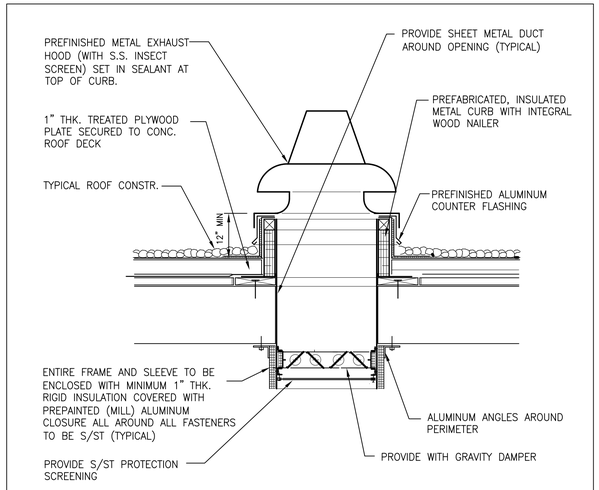
ALL PIPE MATERIAL INLET AND OUTLET CONNECTIONS TO BOILER SHALL BE PER THE BOILER SUPPLIER RECOMMENDATION.

NOTES:

1. THIS IS A TYPICAL INSTALLATION DRAWING. LOCAL CODES AND AUTHORITIES HAVE JURISDICTION.
2. COORDINATE ENTIRE INSTALLATION WITH APPROVED BOILER SUPPLIER.

## GAS FIRED BOILER INSTALLATION DIAGRAM

SCALE: NONE




## TYPICAL ROOF EXHAUST FAN DETAIL

N.T.S.

NOTES:

1. ALL FASTENERS TO BE MIN. 304 STAINLESS STEEL.
2. ALL ALUMINUM IN CONTACT WITH CONCRETE SHALL RECEIVE A PROTECTIVE COATING.
3. PROVIDE ONE WEATHERPROOF GFI RECEPTACLE WITH IN-USE RAIN COVER. PROVIDE A STAINLESS STEEL UNISTRUT SUPPORT STRUCTURE AS REQUIRED FOR SECURE INSTALLATION OF RECEPTACLE.

## HOT WATER BOILER SCHEDULE

| SYMBOL | DESCRIPTION | MANUFACTURE | MODEL NO. | INPUT (MBH) | OUTPUT (MBH) | EFFICIENCY | WATER CONNECTIONS | | GAS CONNECTION | VENT (INCH) | DIRECT COMBUSTION | ELECTRICAL | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | SUPPLY | RETURN | | | | | |
| B-1 | POOL WATER BOILER | LOCHINVAR | CPN1802-M9 | 1820 | 1620 | 89% | 3" | 3" | 3" | 14" | 12" | 120/1/60 | SEE NOTE 1,2,3,4,5,6,7,8,9 |

NOTES:

1. STRUCTURAL CONCRETE PAD PER DETAIL SHEET M1.02.
2. INTERLOCK BOILER W/ BOILER CONTROL PANEL AND MANUFACTURER SUPPLIED POOL RETURN SENSOR.
3. PROVIDE FACTORY SUPPLIED DIRECT COMBUSTION AIR KIT AND SIDEWALL WEATHER CAP.
4. INSTALLATION CLEARANCES PER MANUFACTURER RECOMMENDATIONS AND CODE REQUIREMENTS.
5. PROVIDE CONDENSATE DRAIN NEUTRALIZER. LOCHINVAR MODEL UIT 3087.
6. EFFICIENCY VARIES DEPENDING ON FIRING RATE AND RETURN WATER TEMPERATURE.
7. PROVIDE BOILER WITH MANUFACTURER SUPPLIED CIRCULATING PUMP WITH MINIMUM 115 GPM @ 18 FT.HD. CAPACITY. REFER TO MANUFACTURER'S RECOMMENDATIONS.
8. MANUFACTURER/CONTRACOR TO PROVIDE START UP, COMMISSIONING, TRAINING AND O&M MANUALS.
9. PROVIDE NG PRESSURE REGULATOR AS NEEDED.

## EXHAUST FAN SCHEDULE

| MARK | DESCRIPTION | MANUFACTURER | MODEL No | (CFM) | S.P. (In. $H_2O$) | FRPM | MOTOR (HP) | ELECTRICAL V/PH/Hz | REMARK |
|---|---|---|---|---|---|---|---|---|---|
| EF-1 | ROOF EXHAUST FAN | GREENHECK | CWB-099 | 800 | 0.5 | 1150 | ¼ | 115/1/60 | SEE NOTE 1,2,3,4,5 |

NOTES:

1. PROVIDE FACTORY DISCONNECT SWITCH, FACTORY MOUNTED & WIRED, NEMA-3R
2. PROVIDE ALL ALUMINUM CONSTRUCTION MOTORIZED DAMPER. DAMPER BASIS OF DESIGN TAMCO.
3. PROVIDE MOTOR WITH THERMAL OVERLOADS.
4. PROVIDE EXHAUST FAN AND DAMPER WITH CHEMICAL RESISTANT COATING. ALL FASTENERS AND MOUNTING ACCESSORIES SHALL STAINLESS STEEL.
5. PROVIDE FACTORY ROOF CURB.

## LOUVER AND DAMPER SCHEDULE

| LOUVER No. | (CFM) | LOUVER SIZE | LOUVER MODEL | DAMPER No. | DAMPER SIZE | SERVES | TYPE OF DAMPER | REMARK |
|---|---|---|---|---|---|---|---|---|
| L-1 | 350 | 24x16 | DE 635 | D-1 | 24x16 | INTAKE | PARALLEL BLADE MANUAL | SEE NOTE 1,2,3,4 |

NOTES:

1. LOUVER BASIS OF DESIGN E.H. PRICE.
2. DAMPER BASIS OF DESIGN TAMCO.
3. C/W PREPAINTED ALUMINUM FORMED METAL SILL.
4. PROVIDE CHEMICAL RESISTANT COATING. ALL FASTENERS AND MOUNTING ACCESSORIES SHALL BE STAINLESS STEEL.

Stantec

Stantec Consulting Michigan Inc.
3754 Ranchero Drive
Ann Arbor MI U.S.A.
48108
734.761.1010
734.761.1200



Consultants

Legend

POINT OF CONNECTION

Notes

| Revision | By | Appd. | YY.MM.DD |
|---|---|---|---|
| B BID SET | SA | SA | 2013.12.03 |
| A OWNER REVIEW | SA | SA | 2013.11.22 |
| Issued | By | Appd. | YY.MM.DD |
| File Name: 2075128409_M1.02 | Q.K. Dwn. | W.M.J. Chkd. | W.M.J. 2013.12.10 Dsgn. YY.MM.DD |

Permit-Seal

Client/Project
CITY OF ANN ARBOR

FULLER POOL BOILER REPLACEMENT
ANN ARBOR, MI

Title
MECHANICAL DETAILS, SCHEDULES AND GENERAL NOTES

Project No. 2075128409
Scale AS NOTED
Drawing No. M1.02
Sheet 5 of 7 -

## LEGEND

| SYMBOL | DESCRIPTION |
|---|---|
| | DUPLEX RECEPTACLE, 20A, 125V, SPECIFICATION GRADE |
| WP | DUPLEX RECEPTACLE G.F.I. 20A, 125V, SPEC. GRADE |
| | 208V RECEPTACLE, NEMA TYPE AS NOTED |
| | CONTROLLER |
| T | DRY TYPE TRANSFORMER, AS INDICATED |
| | COMBINATION MAGNETIC MOTOR STARTER |
| | DISCONNECT SWITCH – UNFUSED (DS) |
| | DISCONNECT SWITCH – FUSED |
| J | JUNCTION BOX |
| LP | LIGHTING AND RECEPTACLE PANEL |
| PP | POWER PANEL |
| A | LUMINAIRE TYPE – SEE LUMINAIRE SCHEDULE |
| -------- | CONDUIT BELOW GRADE, CONCRETE SLAB OR AS NOTED |
| | CONDUIT TURNS UP OR TOWARDS |
| | CONDUIT TURNS DOWN OR AWAY |
| MMS | MANUAL MOTOR STARTER |
| | HOMERUN, 3/4"C(2#12,1#12G) UNO. |
| TC | TIME CLOCK |
| $S_3$ | THREE–WAY, 20A, 277V SPECIFICATION GRADE SWITCH |
| $S_4$ | FOUR–WAY, 20A, 277V SPECIFICATION GRADE SWITCH |
| S | SPST 20A, 277V SPEC. GRADE TOGGLE SWITCH |
| $S_D$ | DIMMER SWITCH – WATTAGE AS INDICATED |
| $S_P$ | SPST 20A, 277V SPEC. GRADE SW. W/ PILOT LIGHT |
| $S_{XP}$ | EXPLOSION PROOF SPST 20A, 277V SPEC. GRADE SW. |
| FCP | FIRE ALARM CONTROL PANEL |
| $F_P$ | FIRE ALARM PULLSTATION |
| | A.D.A. HORN/STROBE ALARM AT 80" AFF. OR AS REQUIRED |
| $H_{R/F}$ | CEILING MOUNTED RATE–OF–RISE HEAT DETECTOR |
| $S_P$ | CEILING MOUNTED PHOTOELECTRIC SMOKE DETECTOR |
| S | DUCT MOUNTED SMOKE DETECTOR |
| | FLOW DETECTOR SWITCH |
| S | CEILING MOUNTED SPEAKER |
| S | WALL MOUNTED SPEAKER |
| | TELEPHONE OUTLET |
| | PUSHBUTTON CONTROL STATION |
| | ALARM HORN |
| | ROTATING RED ALARM LIGHT |
| 52 | CIRCUIT BREAKER (OVER 600V.) |
| RTD | RESISTANCE TEMPERATURE DETECTOR |

## SCHEMATIC WIRING DIAGRAMS

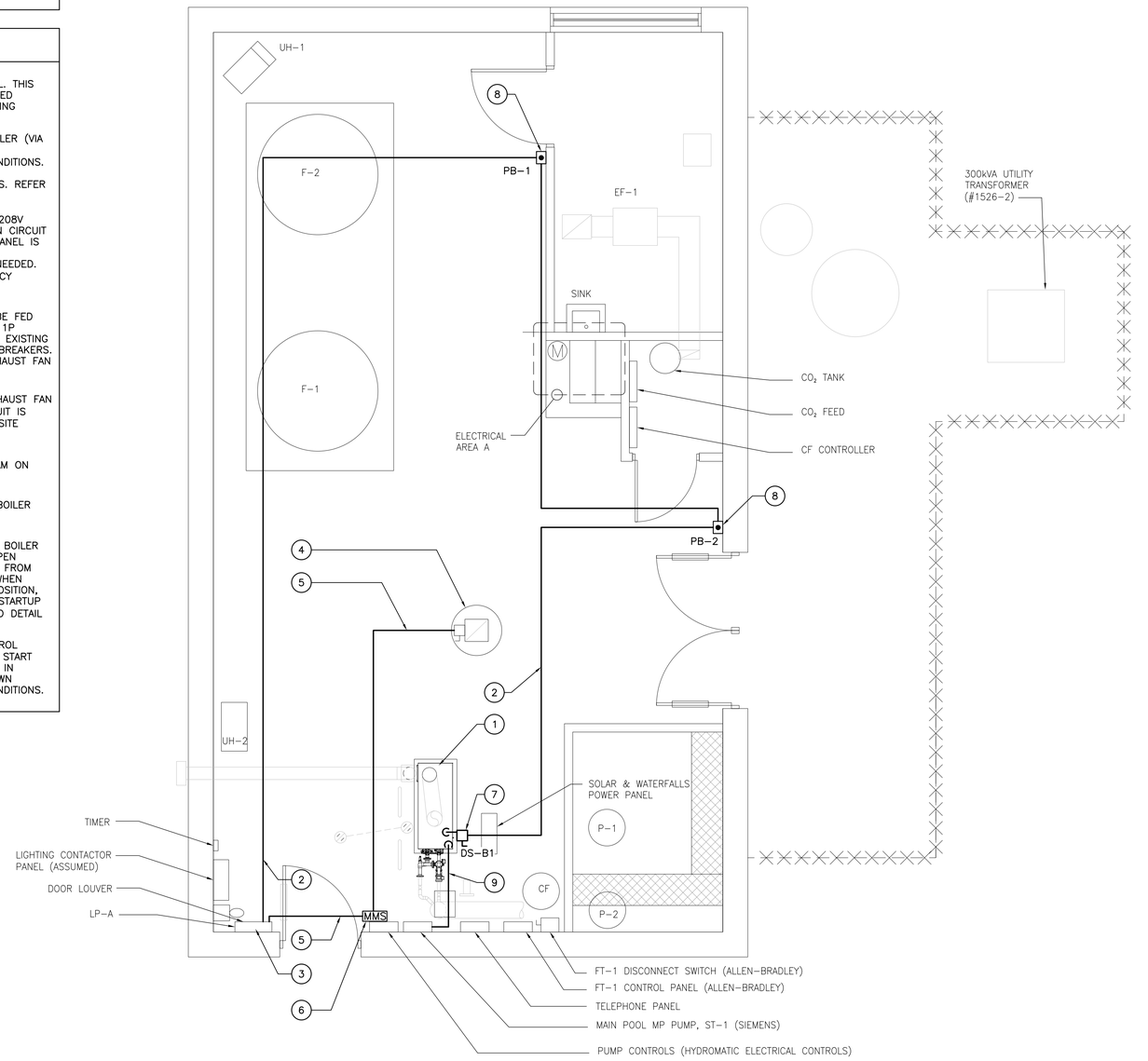
| SYMBOLS | DESCRIPTION |
|---|---|
| | CONTACT, NORMALLY OPEN |
| | CONTACT, NORMALLY CLOSED |
| | PUSHBUTTON, NORMALLY CLOSED |
| | PUSHBUTTON, NORMALLY OPEN |
| | SELECTOR SWITCH – "HAND–OFF–AUTO", UNLESS OTHERWISE NOTED. |
| | PUSHBUTTON, MAINTAINED CONTACT, DOUBLE CIRCUIT |
| OL'S | OVERLOADS |
| | FUSE |
| | SWITCH |
| G | PILOT LIGHT |
| | MANUAL MOTOR STARTER |
| M | AUXILIARY STARTER CONTACTS |
| | OVERLOAD |
| * | LOCATED REMOTE |
| ● | LOCATED AT MOTOR |
| ○ | NEW DEVICE TO BE PROVIDED |
| △ | LOCATED IN CONTROL PANEL |
| □ | LOCATED AT UNITIZED CONTROL PANEL (UCP) |

## GENERAL NEW WORKS NOTES

1. COORDINATE THE ELECTRICAL WORK TO BE PERFORMED WITH THE WORK OF OTHER TRADES TO ENSURE THAT THERE ARE NO CONFLICTS OR DELAYS.
2. ENTIRE INSTALLATION SHALL BE COORDINATED WITH THE APPROVED BOILER MANUFACTURER.
3. DRAWINGS ARE BASED ON INFORMATION GATHERED ON SITE AS NO AS–BUILT DRAWINGS WERE AVAILABLE. VERIFY ALL NEW WORKS PRIOR TO COMMENCEMENT.
4. ALL GROUNDING SHALL BE DONE IN ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE ANSI/NFPA NO. 70.

## SHEET NOTES (THIS SHEET ONLY)

1. NEW BOILER ASSEMBLY WITH INTEGRAL CONTROL PANEL. THIS CONTRACTOR IS RESPONSIBLE TO REVIEW THE GAS FIRED BOILER INSTALLATION DIAGRAM ON M1.02 FOR ALL WIRING REQUIREMENTS.
2. RUN 2#10 IN 3/4" CONDUIT FOR POWER TO NEW BOILER (VIA PB AND DS). ROUTING OF CONDUIT IS SHOWN DIAGRAMMATICALLY. INSTALL TO SUIT EXISTING SITE CONDITIONS. BOILER TERMINATION POINTS TO BE CONFIRMED AND COORDINATED WITH VENDOR APPROVED SHOP DRAWINGS. REFER TO DETAIL ON E1.02.
3. NEW BOILER SHALL BE FED FROM THE EXISTING 120/208V PANEL, LP–A. PROVIDE ONE NEW 30A, 1P BREAKER IN CIRCUIT 14 POSITION FOR PROTECTION OF SYSTEM. EXISTING PANEL IS A GE TYPE NL10 STYLE 3 PANEL WITH IQL BREAKERS. RE–BALANCE ELECTRICAL LOAD BETWEEN PHASES AS NEEDED. PROVIDE A LABEL FOR BREAKER 14 SAYING "EMERGENCY SHUTDOWN BOILER BREAKER".
4. NEW EXHAUST FAN AND ASSOCIATED RECEPTACLE TO BE FED FROM EXISTING PANEL LP–A. PROVIDE ONE NEW 15A, 1P BREAKER IN LP–A FOR PROTECTION OF EXHAUST FAN. EXISTING PANEL IS A GE TYPE NL10 STYLE 3 PANEL WITH IQL BREAKERS. PROVIDE AND INSTALL RECEPTACLE AS PER M1.02 EXHAUST FAN DETAIL.
5. RUN 2#12 IN 3/4" CONDUIT FOR POWER TO NEW EXHAUST FAN AND RECEPTACLE. (VIA MMS–EF1). ROUTING OF CONDUIT IS SHOWN DIAGRAMMATICALLY. INSTALL TO SUIT EXISTING SITE CONDITIONS.
6. PROVIDE AND INSTALL ONE MANUAL MOTOR STARTER CONTROLLING EF–1 AS PER SCHEMATIC WIRING DIAGRAM ON SHEET E1.02.
7. PROVIDE AND INSTALL DISCONNECT SWITCH FOR NEW BOILER MOUNTED TO BOILER.
8. EMERGENCY SHUT–OFF PUSHBUTTON TO BE TIED INTO BOILER OPERATION. PUSHBUTTONS SHALL BE A MAINTAINED–OPEN MUSHROOM TYPE AND SHALL DISCONNECT THE BOILER FROM ALL SOURCES OF POWER TO THE BOILER CONTROLS WHEN PRESSED. WHEN PUSHBUTTONS RETURN TO CLOSED POSITION, THE BOILERS WILL NEED TO BE MANUALLY RESET TO STARTUP AGAIN. MOUNT PUSHBUTTION AT 4'–0" A.F.F. REFER TO DETAIL ON E1.02.
9. RUN 2#14 IN 3/4" CONDUIT FROM NEW BOILER CONTROL PANEL TO EXISTING POOL PUMP CONTROL PANEL FOR START COMMAND. THE INTENT IS TO MATCH EXISTING SYSTEM IN OPERATION AND WIRING. ROUTING OF CONDUIT IS SHOWN DIAGRAMMATICALLY. INSTALL TO SUIT EXISTING SITE CONDITIONS.




## NEW WORK ELECTRICAL PLAN

N.T.S.


Stantec

Stantec Consulting Michigan Inc.
3754 Ranchero Drive
Ann Arbor MI U.S.A.
48108
734.761.1010
734.761.1200




Consultants

Legend

Notes

| Revision | By | Appd. | YY.MM.DD |
|---|---|---|---|
| B BID SET | SA | SA | 2013.12.03 |
| A OWNER REVIEW | SA | SA | 2013.11.22 |

| Issued | By | Appd. | YY.MM.DD |
|---|---|---|---|
| File Name: 2075128409_E1.01 | Q.K. Dwn. | W.M.J. Chkd. | W.M.J. Dsgn. 2013.12.10 YY.MM.DD |

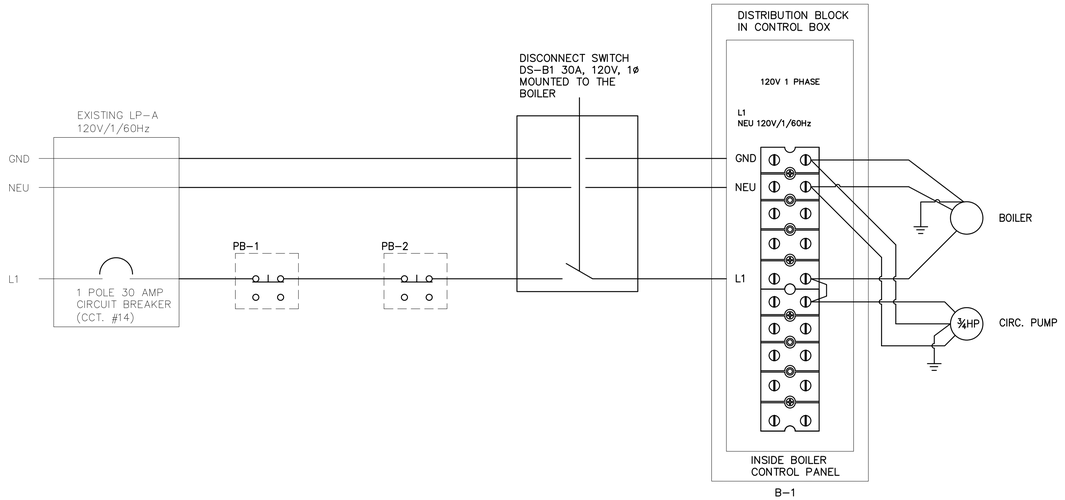
Permit-Seal

Client/Project
CITY OF ANN ARBOR

FULLER POOL BOILER REPLACEMENT
ANN ARBOR, MI

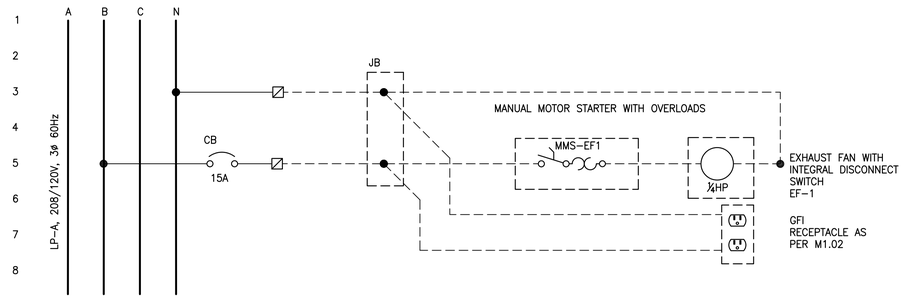
Title
ELECTRICAL
LEGEND AND NEW WORK PLAN

| Project No. | Scale |
|---|---|
| 2075128409 | AS NOTED |
| Drawing No. | Sheet |
| E1.01 | 6 of 7 - |




BOILER WIRING BLOCK DIAGRAM

SCALE: NONE




SCHEMATIC WIRING DIAGRAM FOR EXHAUST FAN EF-1

Stantec

Stantec Consulting Michigan Inc.
3754 Ranchero Drive
Ann Arbor MI U.S.A.
48108
734.761.1010
734.761.1200



Consultants

Legend

Notes

| Revision | By | Appd. | YY.MM.DD |
|---|---|---|---|
| B BID SET | SA | SA | 2013.12.03 |
| A OWNER REVIEW | SA | SA | 2013.11.22 |
| Issued | By | Appd. | YY.MM.DD |
| File Name: 2075128409_E1.02 | Q.K. Dwn. | W.M.J. Chkd. | W.M.J. 2013.12.10 Dsgn. YY.MM.DD |

Permit-Seal

Client/Project
CITY OF ANN ARBOR

FULLER POOL BOILER
REPLACEMENT
ANN ARBOR, MI

Title
ELECTRICAL
WIRING BLOCK DIAGRAM

Project No. 2075128409
Scale AS NOTED
Drawing No. E1.02
Sheet 7 of 7 -