

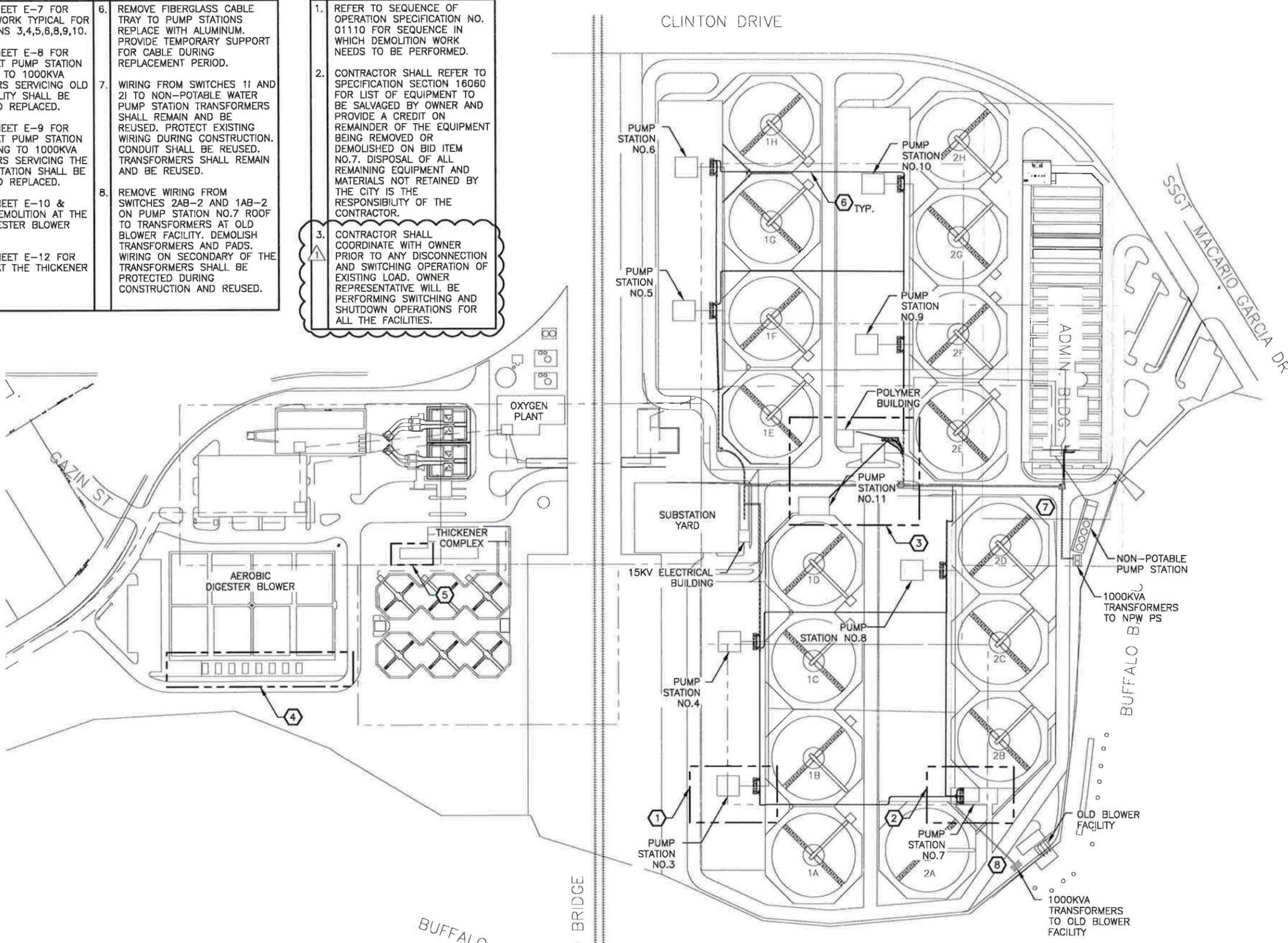
NOTES BY SYMBOL (X)

1. REFER TO SHEET E-7 FOR DEMOLITION WORK TYPICAL FOR PUMP STATIONS 3,4,5,6,8,9,10.
2. REFER TO SHEET E-8 FOR DEMOLITION AT PUMP STATION NO.7. WIRING TO 1000KVA TRANSFORMERS SERVICING OLD BLOWER FACILITY SHALL BE REMOVED AND REPLACED.
3. REFER TO SHEET E-9 FOR DEMOLITION AT PUMP STATION NO. 11. WIRING TO 1000KVA TRANSFORMERS SERVICING THE NPW PUMP STATION SHALL BE REMOVED AND REPLACED.
4. REFER TO SHEET E-10 & E-11 FOR DEMOLITION AT THE AEROBIC DIGESTER BLOWER AREA.
5. REFER TO SHEET E-12 FOR DEMOLITION AT THE THICKENER COMPLEX.

6. REMOVE FIBERGLASS CABLE TRAY TO PUMP STATIONS REPLACE WITH ALUMINUM. PROVIDE TEMPORARY SUPPORT FOR CABLE DURING REPLACEMENT PERIOD.
7. WIRING FROM SWITCHES 11 AND 21 TO NON-POTABLE WATER PUMP STATION TRANSFORMERS SHALL REMAIN AND BE REUSED. PROTECT EXISTING WIRING DURING CONSTRUCTION. CONDUIT SHALL BE REUSED. TRANSFORMERS SHALL REMAIN AND BE REUSED.
8. REMOVE WIRING FROM SWITCHES 2A8-2 AND 1A8-2 ON PUMP STATION NO.7 ROOF TO TRANSFORMERS AT OLD BLOWER FACILITY. DEMOLISH TRANSFORMERS AND PADS. WIRING ON SECONDARY OF THE TRANSFORMERS SHALL BE PROTECTED DURING CONSTRUCTION AND REUSED.

GENERAL NOTES:

1. REFER TO SEQUENCE OF OPERATION SPECIFICATION NO. 01110 FOR SEQUENCE IN WHICH DEMOLITION WORK NEEDS TO BE PERFORMED.
2. CONTRACTOR SHALL REFER TO SPECIFICATION SECTION 16060 FOR LIST OF EQUIPMENT TO BE SALVAGED BY OWNER AND PROVIDE A CREDIT ON REMAINDER OF THE EQUIPMENT BEING REMOVED OR DEMOLISHED ON BID ITEM NO.7. DISPOSAL OF ALL REMAINING EQUIPMENT AND MATERIALS NOT RETAINED BY THE CITY IS THE RESPONSIBILITY OF THE CONTRACTOR.
3. CONTRACTOR SHALL COORDINATE WITH OWNER PRIOR TO ANY DISCONNECTION AND SWITCHING OPERATION OF EXISTING LOAD. OWNER REPRESENTATIVE WILL BE PERFORMING SWITCHING AND SHUTDOWN OPERATIONS FOR ALL THE FACILITIES.



OVERALL SITE PLAN - DEMOLITION

C:\pwworking\kboornes\d0313066\ Project No.: CH007027 Dwg Name: E-002.dwg

CP&Y

2925 Briarpark Suite 850, Houston, TX, 77042
(713)532-1730, Fax (713)532-1734
TBE FIRM
No. 1741

CP&Y JOB NO.: HOUST001.02
DESIGNED BY: AAR DRAWN BY: KAB
DESIGN CHECK BY: TEC DRAWING CHECK BY: TEC

10/17/13



SURVEYED BY: SURVEY AND MAPPING, INC.
FB NO.:

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

**89TH STREET WWTP -
PUMP STATION, DIGESTER
& THICKENER BLOWER SWITCHGEARS,
SUB-STATION TRANSFORMER & STARTER
REPLACEMENT**

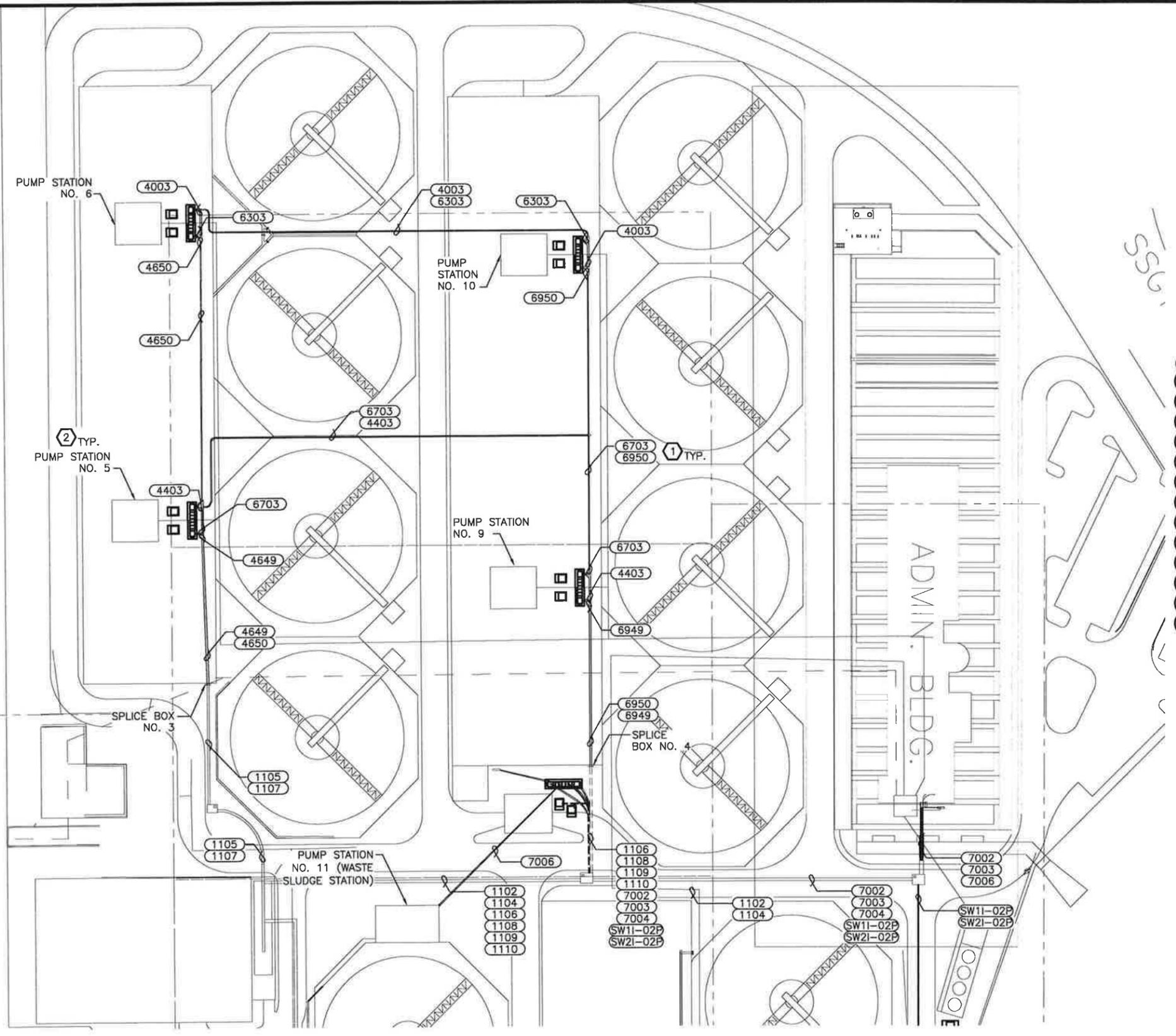
ELECTRICAL
OVERALL SITE PLAN - DEMOLITION

WBS NUMBER	
R-000509-0027-4	
DRAWING SCALE	
AS SHOWN	
CITY OF HOUSTON PM	
IRAJ RANJBAR, P.E.	
DATE	SHEET NO.
AUG 2013	10 OF 40

NO.	REVISION	BY	DATE
1	REVISED PER ADDENDUM NO 1	TEC	10-17-13



0 50 100
SCALE IN FEET



GENERAL NOTES:

- GROUND NEW CABLE TRAY EVERY 100 FEET WITH #2/0 INSULATED GREEN XHHW CONDUCTOR. TIE INTO EXISTING GROUND LOOP. GROUND EVERY EXPANSION JOINT.
- CONDUITS AND SUPPORTS HAVE BEEN ADDED TO THE SIDES OF THE EXISTING CABLE TRAY TO SUPPORT CONDUIT RUNS NOT SHOWN ON THE CONTRACT DOCUMENTS. CONTRACTOR SHALL IDENTIFY EXISTING CONDUITS TO BE SUPPORTED AND SUPPORT CONDUITS ON THE INSIDE OF THE CABLE TRAY. EXTEND ANY CONDUITS/CABLES AS NEEDED. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY WEIGHT CALCULATIONS TO ENSURE THE TRAY IS SIZED APPROPRIATELY TO SUPPORT THE EXISTING CONDUITS AND CABLES IN ADDITION TO THE NEW WIRING TO BE SUPPORTED UNDER THIS CONTRACT.

NOTES BY SYMBOL (X)

- PROVIDE NEW WIRING IN NEW CABLE TRAY. REFER TO ONE-LINE DIAGRAMS FOR DETAILS. NEW CABLE TRAY SHALL BE ALUMINUM, INSTALLED ON EXISTING SUPPORTS. WIDTH OF CABLE TRAY SHALL BE PER NEC AND MANUFACTURER'S RECOMMENDATIONS.
- REFER TO AREA PLANS ON SHEETS E-13, E-14 AND E-15 FOR WORK DONE AT EACH PUMP STATION.



2925 Briarpark Suite B50, Houston, TX, 77042
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TYPE FIRM
No. 1741

CP&Y JOB NO.: HOUS13001.02
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DESIGN CHECK BY: TEC DRAWING CHECK BY: TEC

10/17/13
Timothy E. Campbell

SURVEYED BY: SURVEY AND MAPPING, INC.
FB NO.:

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

**69TH STREET WWTP -
PUMP STATION, DIGESTER
& THICKENER BLOWER SWITCHGEARS,
SUB-STATION TRANSFORMER & STARTER
REPLACEMENT**

ELECTRICAL
ENLARGED SITE PLAN I

WBS NUMBER	
R-000509-0027-4	
DRAWING SCALE	
AS SHOWN	
CITY OF HOUSTON PM	
IRAJ RANJBAR, P.E.	
DATE	SHEET NO.
AUG 2013	12 OF 40

NO.	REVISION	BY	DATE
1	REVISED PER ADDENDUM NO 1	TEC	10-17-13

E-4

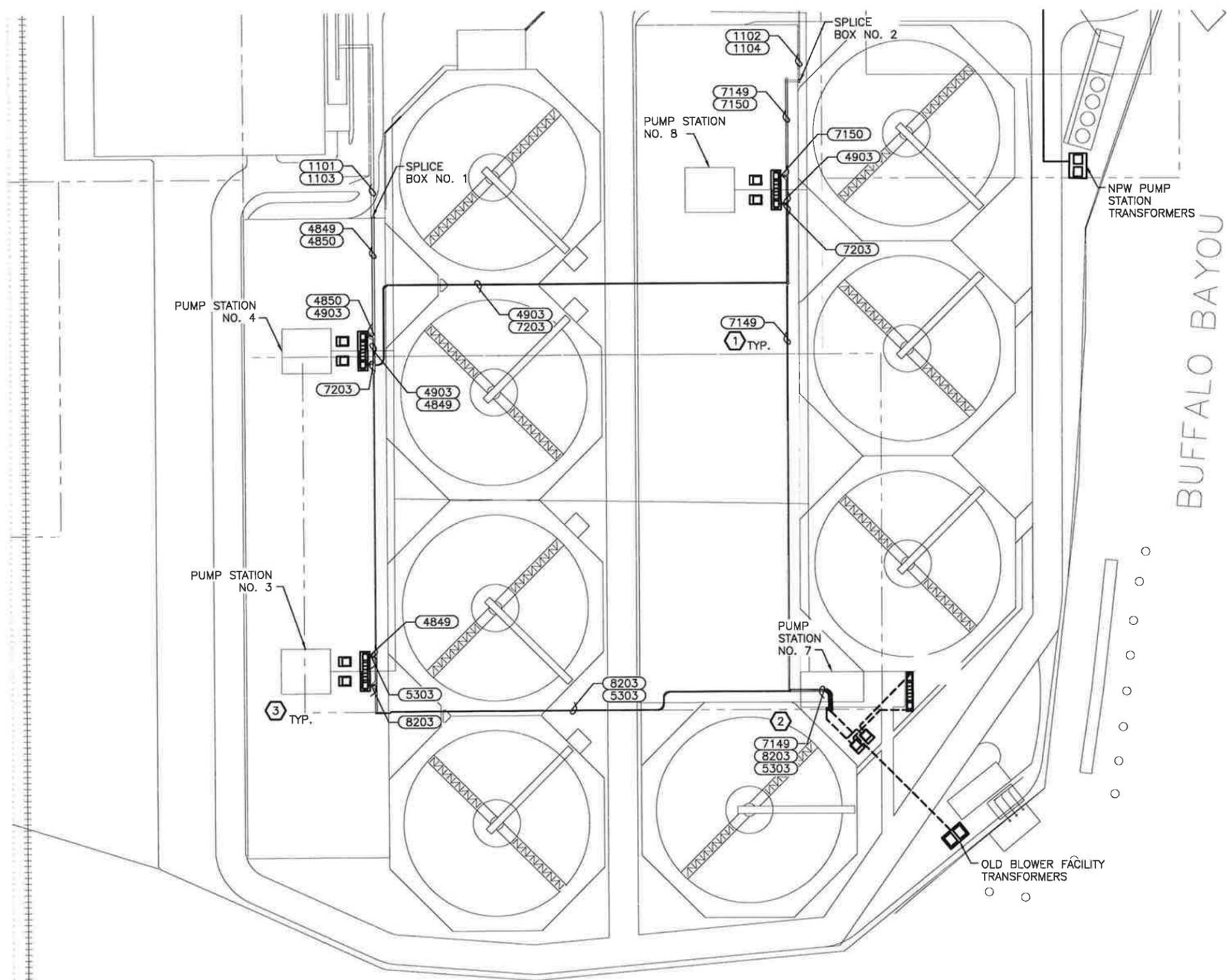
ENLARGED SITE PLAN I

C:\pwworking\karnes\0313066\ Project No.: CH007027 Dwg Name: E-004.dwg

ORIGINAL SCALE IN INCHES
FOR REDUCED PLANS



0 50 100
SCALE IN FEET



GENERAL NOTES:

- GROUND NEW CABLE TRAY EVERY 100 FEET WITH #2/0 INSULATED GREEN XHHW CONDUCTOR. TIE INTO EXISTING GROUND LOOP. GROUND EVERY EXPANSION JOINT.
- CONDUITS AND SUPPORTS HAVE BEEN ADDED TO THE SIDES OF THE EXISTING CABLE TRAY TO SUPPORT CONDUIT RUNS NOT SHOWN ON THE CONTRACT DOCUMENTS. CONTRACTOR SHALL IDENTIFY EXISTING CONDUITS TO BE SUPPORTED AND SUPPORT CONDUITS ON THE INSIDE OF THE CABLE TRAY. EXTEND ANY CONDUITS/CABLES AS NEEDED. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY WEIGHT CALCULATIONS TO ENSURE THE TRAY IS SIZED APPROPRIATELY TO SUPPORT THE EXISTING CONDUITS AND CABLES IN ADDITION TO THE NEW WIRING TO BE SUPPORTED UNDER THIS CONTRACT.

NOTES BY SYMBOL (X)

- PROVIDE NEW WIRING IN NEW CABLE TRAY. REFER TO ONE-LINE DIAGRAMS FOR DETAILS. NEW CABLE TRAY SHALL BE ALUMINUM, INSTALLED ON EXISTING SUPPORTS. WIDTH OF CABLE TRAY SHALL BE PER NEC AND MANUFACTURER'S RECOMMENDATIONS.
- EXTEND CABLE FROM ROOF OF PUMP STATION NO. 7 TO GROUND LEVEL. PROVIDE SPLICE BOX AT GROUND LEVEL FOR TRANSITION BETWEEN ARMORED CABLE AND MEDIUM VOLTAGE INSULATED CABLE.
- REFER TO AREA PLANS ON SHEETS E-13, E-14 AND E-15 FOR WORK DONE AT EACH PUMP STATION.



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TBE FIRM
No. 1741

CP&Y JOB NO.: HOU513001 02
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10/17/13
Timothy E. Campbell
SURVEYED BY: SURVEY AND MAPPING, INC.
FB NO.:

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

**69TH STREET WWTP -
PUMP STATION, DIGESTER
& THICKENER BLOWER SWITCHGEARS,
SUB-STATION TRANSFORMER & STARTER
REPLACEMENT**

ELECTRICAL
ENLARGED SITE PLAN II

WBS NUMBER	
R-000509-0027-4	
DRAWING SCALE	
AS SHOWN	
CITY OF HOUSTON PM	
IRAJ RANJBAR, P.E.	
DATE	SHEET NO.
AUG 2013	13 OF 40

NO.	REVISION	BY	DATE
1	REVISED PER ADDENDUM NO 1	TEC	10-17-13

E-5

ENLARGED SITE PLAN II

C:\pwworking\kcarries\d0313066\ Project No.: CH007027 Dwg Name: E-005.dwg

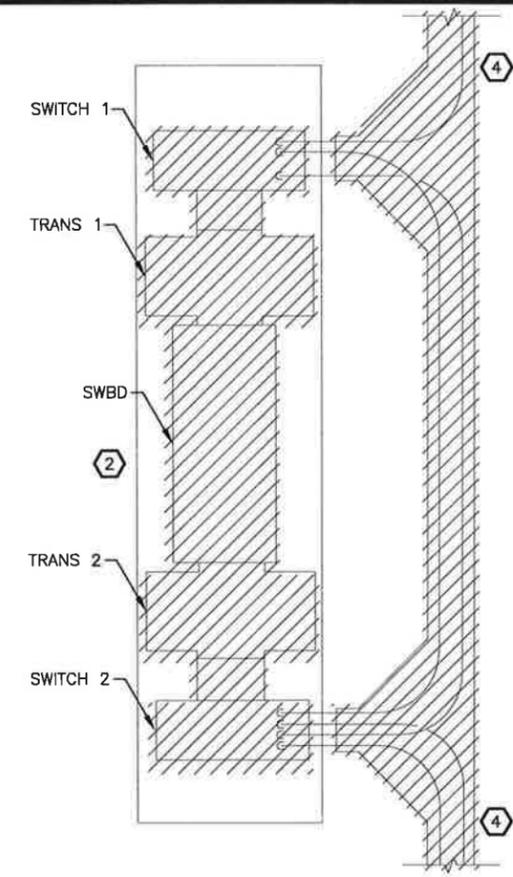
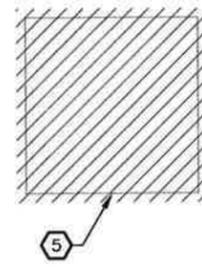
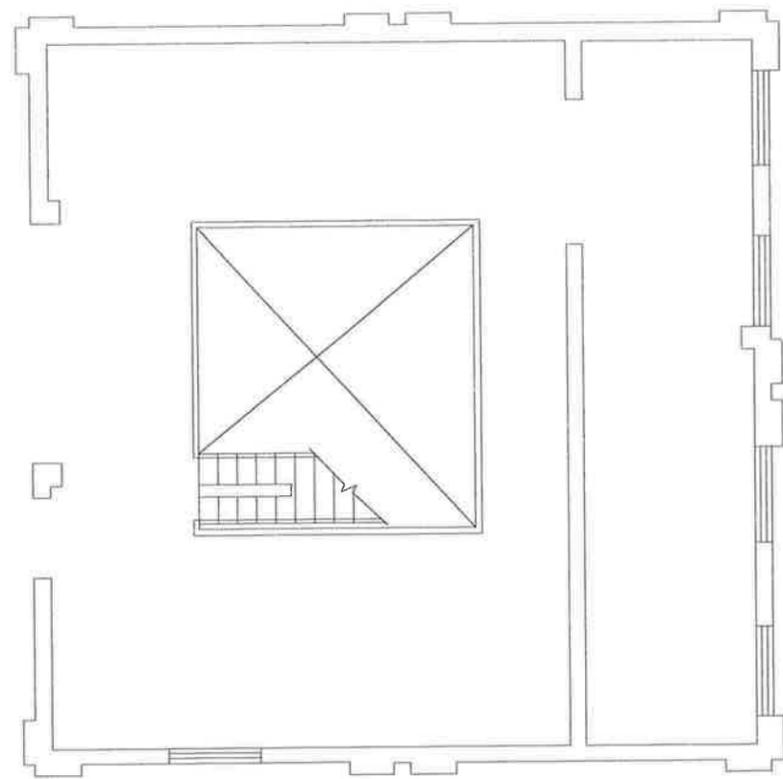
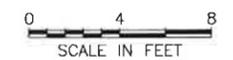
0 1 2 3 ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

GENERAL NOTES:

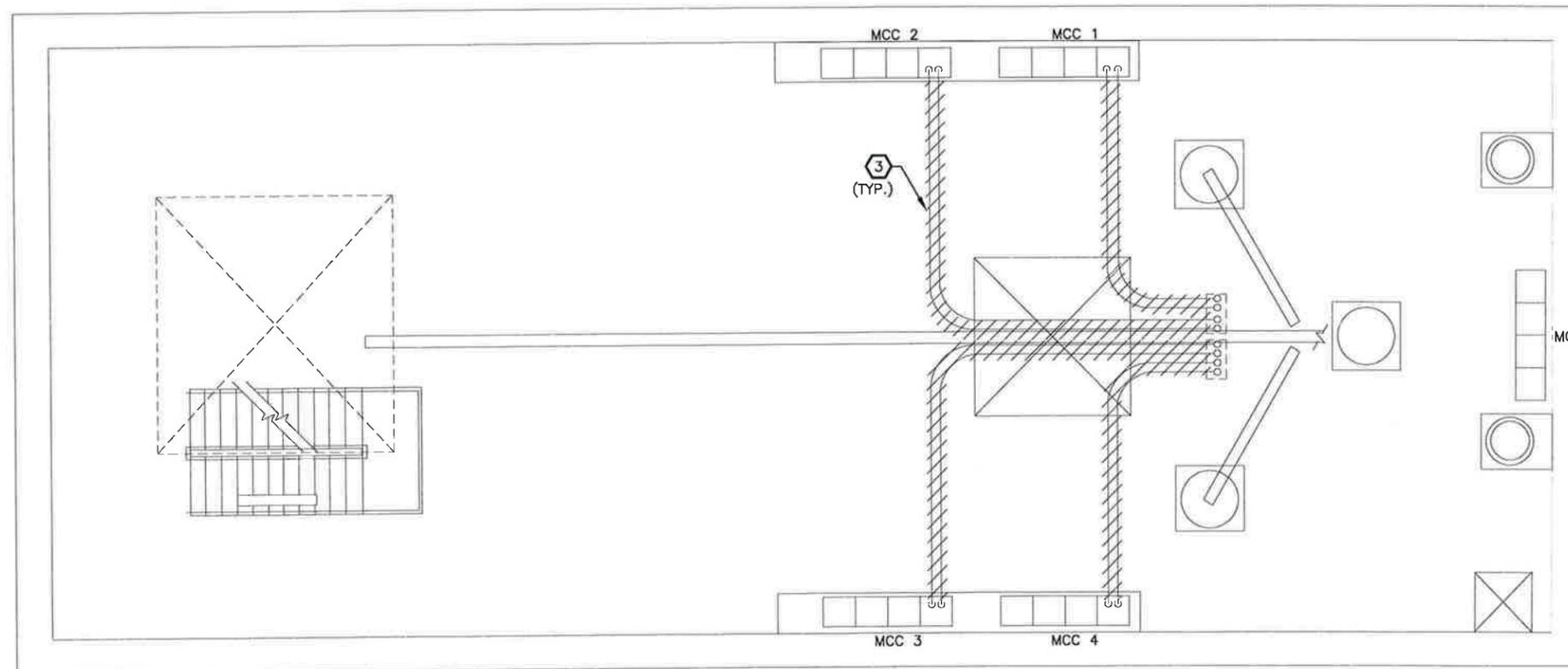
- CONTRACTOR SHALL REFER TO SPECIFICATION SECTION 16060 FOR LIST OF EQUIPMENT TO BE SALVAGED BY OWNER AND PROVIDE A CREDIT ON REMAINDER OF THE EQUIPMENT BEING REMOVED OR DEMOLISHED ON BID ITEM NO.7. DISPOSAL OF ALL REMAINING EQUIPMENT AND MATERIALS NOT RETAINED BY THE CITY IS THE RESPONSIBILITY OF THE CONTRACTOR.

NOTES BY SYMBOL (X)

- CONDUCTORS AND CONDUITS BETWEEN MCC-5 AND MCC-2 AND MCC-5 AND MCC-3 SHALL REMAIN AND BE REUSED.
- REMOVE SWITCHES, TRANSFORMERS AND SWITCHBOARD. DEMOLISH ASSOCIATED HOUSEKEEPING PAD.
- REMOVE CONDUCTORS AND CONDUITS FROM SWITCHBOARD TO MCC-1 THRU 4. REMOVE ALL ASSOCIATED SUPPORTS AND JUNCTION BOXES.
- REMOVE WIRING TO SWITCHES AND ASSOCIATED CABLE TRAY. REFER TO DEMOLITION ONE-LINE DIAGRAMS FOR DETAILS.
- REMOVE OLD AIR COMPRESSOR. REMOVE ALL ASSOCIATED CABLES, CONDUITS AND HOUSEKEEPING PAD. FILL IN ANY FLOOR PENETRATIONS. NOTE ONLY APPLICABLE TO PUMP STATIONS NO. 4 AND NO. 5.



PLAN AT EL 37.40'



PLAN AT EL 20.50'

PUMP STATION NO. 3,4,5,6,8,9,10 DEMOLITION



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IBPC FIRM
No. 1741

CP&Y JOB NO.: HOUS13001.02
DESIGNED BY: AAR DRAWN BY: KAB
DESIGN CHECK BY: TEC DRAWING CHECK BY: AAR



10/17/13
Timothy E. Campbell

SURVEYED BY: SURVEY AND MAPPING, INC.
FB NO.:

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

**69TH STREET WWTP -
PUMP STATION, DIGESTER
& THICKENER BLOWER SWITCHGEARS,
SUB-STATION TRANSFORMER & STARTER
REPLACEMENT**

ELECTRICAL
PUMP STATION
NO. 3,4,5,6,8,9,10
DEMOLITION

WBS NUMBER	
R-000509-0027-4	
DRAWING SCALE	
AS SHOWN	
CITY OF HOUSTON PM	
IRAJ RANJBAR, P.E.	
DATE	SHEET NO.
AUG 2013	15 OF 40

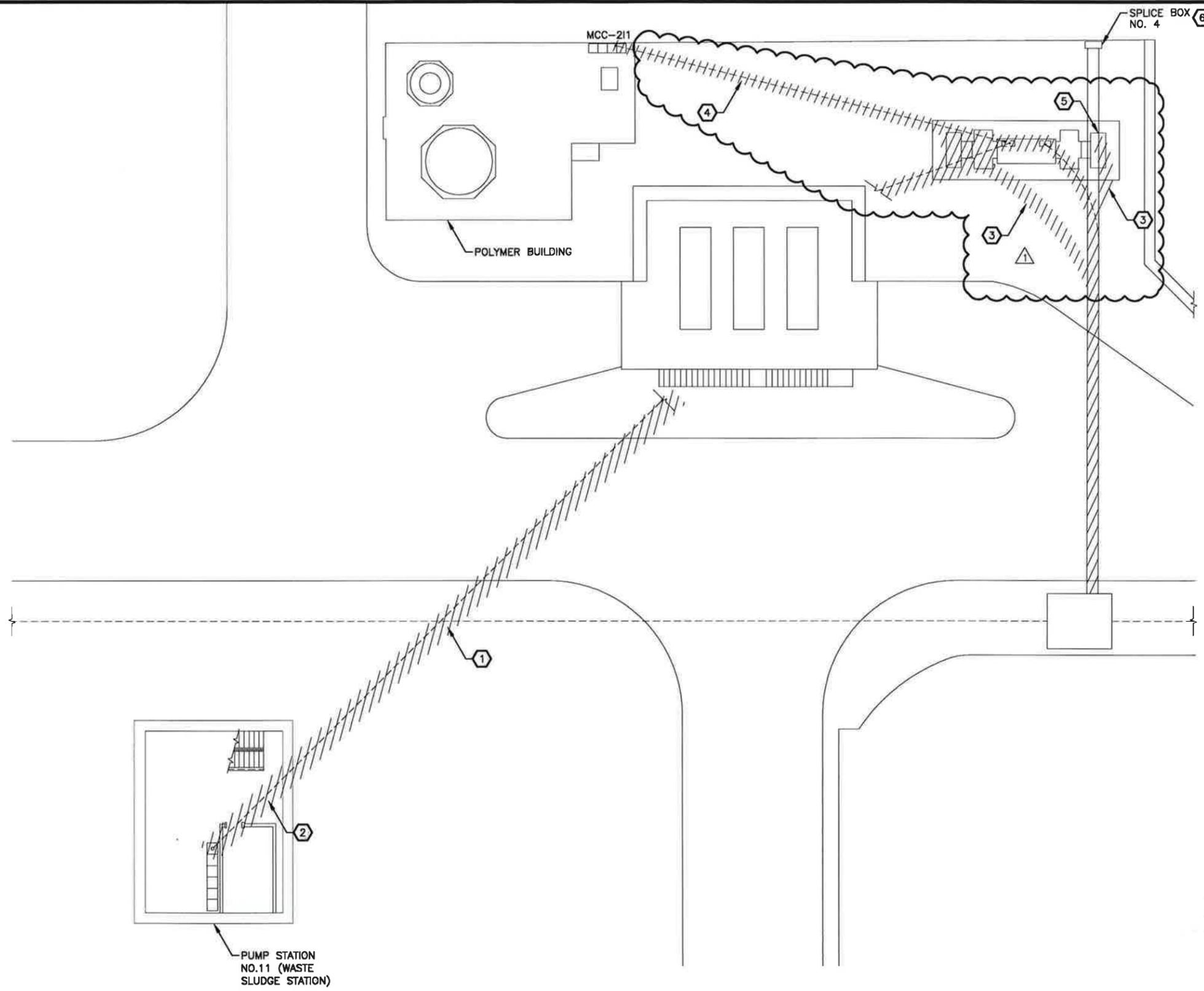
NO.	REVISION	BY	DATE
1	REVISED PER ADDENDUM NO 1	TEC	10-17-13

E-7

C:\pwworking\kbarne\d0313066\ Project No.: CH007027 Dwg Name: E-007.dwg

0 1 2 3 ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

C:\pwworking\kbernes\d0313066\ Project No.: CH007027 Dwg Name: E-008.dwg



PUMP STATION NO.11 DEMOLITION

GENERAL NOTES:

1. CONTRACTOR SHALL REFER TO SPECIFICATION SECTION 18060 FOR LIST OF EQUIPMENT TO BE SALVAGED BY OWNER AND PROVIDE A CREDIT ON REMAINDER OF THE EQUIPMENT BEING REMOVED OR DEMOLISHED ON BID ITEM NO.7. DISPOSAL OF ALL REMAINING EQUIPMENT AND MATERIALS NOT RETAINED BY THE CITY IS THE RESPONSIBILITY OF THE CONTRACTOR.
2. REFER TO SPECIFICATION SECTION 01110 FOR DEMOLITION AND REPLACEMENT SEQUENCE OF EQUIPMENT SHOWN ON THIS SHEET. TEMPORARY POWER SHALL BE PROVIDED TO MAINTAIN FACILITIES FED FROM PS11 SWITCHBOARD LINE-UP (ADMIN BUILDING, NPW STATION, WASTE SLUDGE STATION, POLYMER BUILDING, ETC...) AT ALL TIMES.

NOTES BY SYMBOL

1. REMOVE WIRING FROM EXISTING SWITCHBOARD LINE-UP TO PUMP STATION NO.11 MCC. CONDUITS IN CONCRETE SHALL REMAIN AND BE EXTENDED AS NEEDED FOR CONNECTION TO NEW GEAR.
2. REMOVE CONDUITS FROM PUMP STATION NO.11 WALL TO MCC. REMOVE WATER COLLECTION PAN.
3. WIRING TO NON-POTABLE WATER STATION SHALL REMAIN AND BE REUSED. PULL EXISTING WIRING INTO MANHOLE AND PROTECT DURING CONSTRUCTION.
4. REMOVE WIRING FROM EXISTING SWITCHBOARD LINE-UP TO POLYMER BUILDING MCC. CONDUITS IN CONCRETE SHALL REMAIN AND BE EXTENDED AS NEEDED FOR CONNECTION TO NEW GEAR.
5. REMOVE LIS SWITCHES, 1500KVA TRANSFORMERS AND SWITCHBOARD. DEMOLISH ASSOCIATED EQUIPMENT PAD.
6. REFER TO SHEET E-19 15KV DEMOLITION ONE-LINE DIAGRAM FOR CLEAN UP OF SPLICE BOXES AND EXTENSION OF CONDUITS FROM DUCTBANK TO SPLICE BOX.



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TYPE FIRM
No. 1741

CP&Y JOB NO.: HOUS13001.02
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DESIGN CHECK BY: TEC DRAWING CHECK BY: TEC

Timothy E. Campbell
10/17/13



SURVEYED BY: SURVEY AND MAPPING, INC.
FB NO.:

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

**80TH STREET WWTP -
PUMP STATION, DIGESTER
& THICKENER BLOWER SWITCHGEARS,
SUB-STATION TRANSFORMER & STARTER
REPLACEMENT**

ELECTRICAL
PUMP STATION NO.11 DEMOLITION

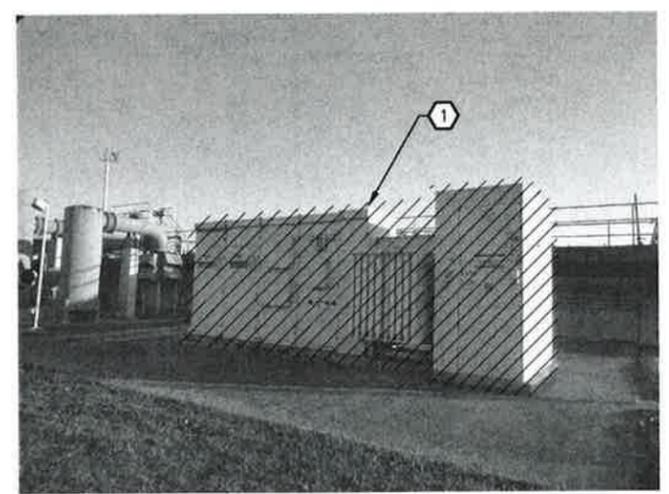
WBS NUMBER	
R-000509-0027-4	
DRAWING SCALE	
AS SHOWN	
CITY OF HOUSTON PM	
IRAJ RANJBAR, P.E.	
DATE	SHEET NO.
AUG 2013	17 OF 40

NO.	REVISION	BY	DATE	
1	REVISED PER ADDENDUM NO 1	TEC	10-17-13	E-9

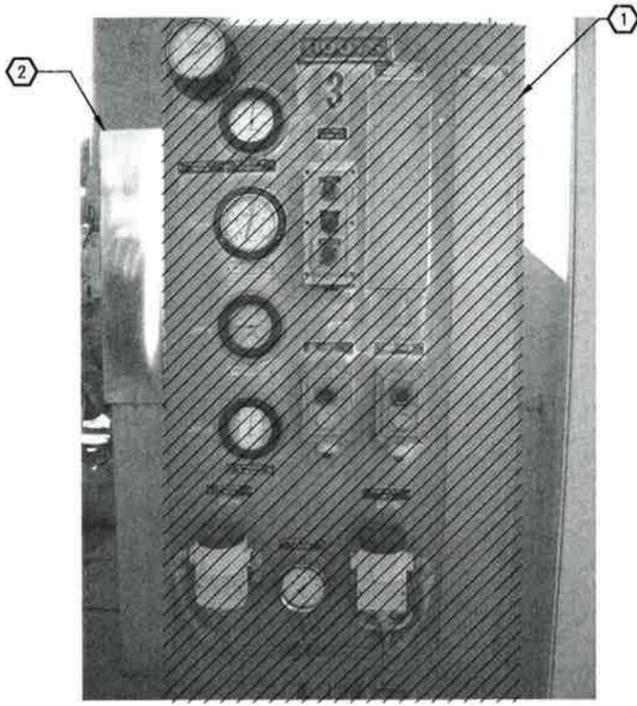
ORIGINAL SCALE IN INCHES
FOR REDUCED PLANS

GENERAL NOTES:

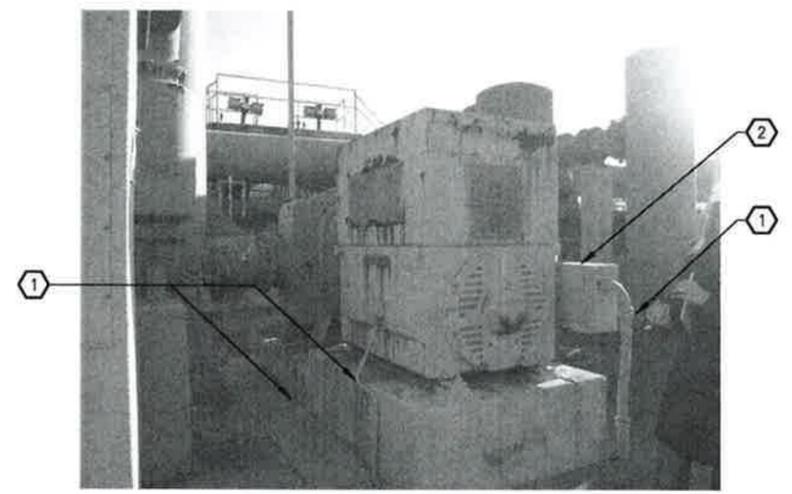
- CONTRACTOR SHALL REFER TO SPECIFICATION SECTION 16060 FOR LIST OF EQUIPMENT TO BE SALVAGED BY OWNER AND PROVIDE A CREDIT ON REMAINDER OF THE EQUIPMENT BEING REMOVED OR DEMOLISHED ON BID ITEM NO.7. DISPOSAL OF ALL REMAINING EQUIPMENT AND MATERIALS NOT RETAINED BY THE CITY IS THE RESPONSIBILITY OF THE CONTRACTOR



1 POWER CENTER NO. 2A
NTS



2 BLOWER INSTRUMENTATION PANEL
NTS TYP. OF 7



3 AIR BLOWER MOTOR
NTS TYP. OF 8

NOTES BY SYMBOL (X)

- DEMOLISH POWER CENTER, TYPICAL OF TWO POWER CENTERS TO BE DEMOLISHED (2A & 2B). REMOVE ALL ASSOCIATED FEEDERS AND CONTROL CABLES FROM POWER CENTERS ALL THE WAY TO THEIR TERMINATION POINTS.

NOTES BY SYMBOL (X)

1. EXISTING INSTRUMENTATION PANEL ENCLOSURES FOR AIR BLOWERS 1 THRU 7 SHALL BE DEMOLISHED AND REPLACED WITH TWO SEPARATE PANELS: BLOWER CONTROL PANEL AND INSTRUMENTATION PANEL. BLOWER CONTROL PANEL SHALL BE NEMA 4X 316 SS INSTRUMENTATION PANEL SHALL BE A 3/8" SS PLATE WITH 6" BACK LIP LOCATED ON THE TOP OF THE PLATE TO PREVENT WATER FROM DAMAGING THE BACK OF THE INSTRUMENTS. THE INSTRUMENTS SHALL BE MOUNTED ON THE FRONT OF THE PLATE AND THE TUBING'S AND WIRINGS SHALL BE MOUNTED IN THE BACK. PROVIDE 316 SS UNISTRUT MOUNTING RACK WITH 316SS BASE PLATES ANCHORED WITH 316SS HARDWARE TO CONCRETE. RACK SHALL ALSO ACCOMMODATE EXISTING FAN OIL COOLER STARTER, IF REQUIRED MOUNT THE FAN COOLER ON THE BACK SIDE OF THE BLOWER CONTROL PANEL. PROVIDE A 316 SS SUN SHIELD THAT EXTEND 2 FEET OUT ON THE FRONT OF THE RACK. SUN SHIELD SHALL BE MOUNTED AT 6" MINIMUM AND SHALL EXTEND THE ENTIRE LENGTH OF THE RACK. FOR BLOWER NO.8 DEMOLITION ONLY IS REQUIRED FOR THE INSTRUMENTATION PANEL.

A. INSTRUMENT PANEL (316SS ENCLOSURE) SHALL INCLUDE NEW STAINLESS STEEL INDUSTRIAL RATED INSTRUMENT GAUGES AND SWITCHES MANUFACTURED BY ASHCROFT OR MERCROID TO REPLACE EXISTING. PROVIDE ALL NEW S.S. TUBING LINES, S.S. FITTINGS, SENSORS, AND ANY ASSOCIATED WIRE FOR THE GAUGES. GAUGES AND SWITCHES TO BE REPLACED ARE LISTED BELOW:

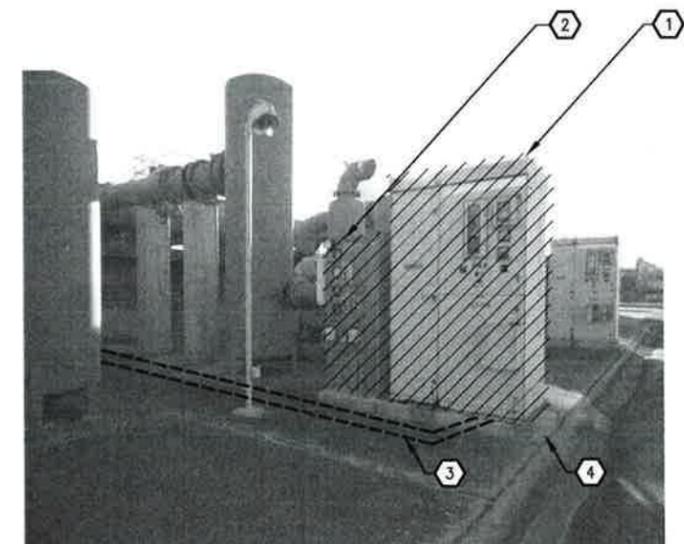
- DISCHARGE AIR PRESSURE (0-30 PSI)
- OIL TEMPERATURE - AFTER COOLER (0-240°)
- OIL PRESSURE (0-30 PSI)
- DISCHARGE AIR TEMP (32-400°F)
- OIL TEMPERATURE - BEFORE COOLER (0-240°F)
- OIL PRESSURE SWITCH
- AIR FILTER DIFFERENTIAL INDICATOR (25-0)
- INTAKE AIR FILTER SWITCH

B. BLOWER CONTROL PANEL SHALL BE PER CONTROL SCHEMATICS ON SHEET E-29. PROVIDE CONDUIT AND WIRE AS NEEDED BETWEEN BLOWER CONTROL PANEL AND THE NEW BLOWER STARTER LOCATED ADJACENT TO PANEL RACK.

2. REMOVE AND RELOCATE EXISTING OIL COOLER STARTER TO NEW PANEL RACK. PROVIDE WIRE AND CONDUIT AS REQUIRED TO RELOCATE. ADD CT SWITCH INSIDE OIL COOLER STARTER (TYPICAL OF 7) AND SEND SIGNAL TO BLOWER STARTER, REFER TO CONTROL SCHEMATIC. FOR BLOWER NO.8 REMOVE OIL COOLER STARTER AND TURN OVER TO THE OWNER.

NOTES BY SYMBOL (X)

- FOR BLOWER MOTORS NO 1 THRU NO.7, REMOVE AND REPLACE ALL EXPOSED CONDUIT AND CABLES FROM THE AIR BLOWERS TO THEIR CORRESPONDING INSTRUMENTATION PANEL OR MOTOR STARTER. FOR BLOWER NO.8 REMOVE CABLES ONLY.
- EXISTING MOTOR TERMINATION BOXES SHALL BE REMOVED AND REPLACED WITH OVERSIZED MOTOR TERMINATION BOXES FOR ALL 8 BLOWERS.



4 AIR BLOWER MOTOR STARTER
NTS

NOTES BY SYMBOL (X)

- REMOVE AND REPLACE AIR BLOWER MOTOR STARTERS FOR BLOWER NO.1 THRU NO.7. FOR BLOWER NO.8 DEMOLISH MOTOR STARTER ONLY, SEAL ALL OPENINGS AND PENETRATIONS.
- REMOVE AND REPLACE AIR BLOWER INSTRUMENTATION PANEL FOR BLOWER NO.1 THRU NO.7, REFERENCE DETAIL 2 ON THIS SHEET. FOR BLOWER NO. 8 DEMOLISH INSTRUMENTATION PANEL ONLY. SEAL ALL OPENINGS AND PENETRATIONS.
- SAWCUT EXISTING BLOWER AREA PAD AND INSTALL NEW CONDUIT FROM EACH BLOWER STARTER PANEL TO THEIR CORRESPONDING PAD MOUNTED SWITCH, TYPICAL OF B. BLOWER NO. 8 STARTER CONDUITS SHALL BE PROVIDED FOR FUTURE, CAP CONDUITS.
- MODIFY, EXTEND AND REPAIR BLOWER STARTER PANEL AND INSTRUMENT PANEL HOUSEKEEPING PADS AS REQUIRED FOR THE NEW STARTER AND PANEL RACK. TYPICAL OF B. HOUSEKEEPING PADS FOR BLOWER NO.8 SHALL BE MODIFIED AS REQUIRED FOR FUTURE STARTER AND PANEL RACK.

CP&Y
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IBFE FIRM No. 1741

CP&Y JOB NO.: HOUS13001.02
DESIGNED BY: CMC DRAWN BY: KAB
DESIGN CHECK BY: TEC DRAWING CHECK BY: TEC

10/17/13
Timothy E. Campbell
TIMOTHY E. CAMPBELL
81011
LICENSED PROFESSIONAL ENGINEER

SURVEYED BY: SURVEY AND MAPPING, INC.
FB NO.:

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

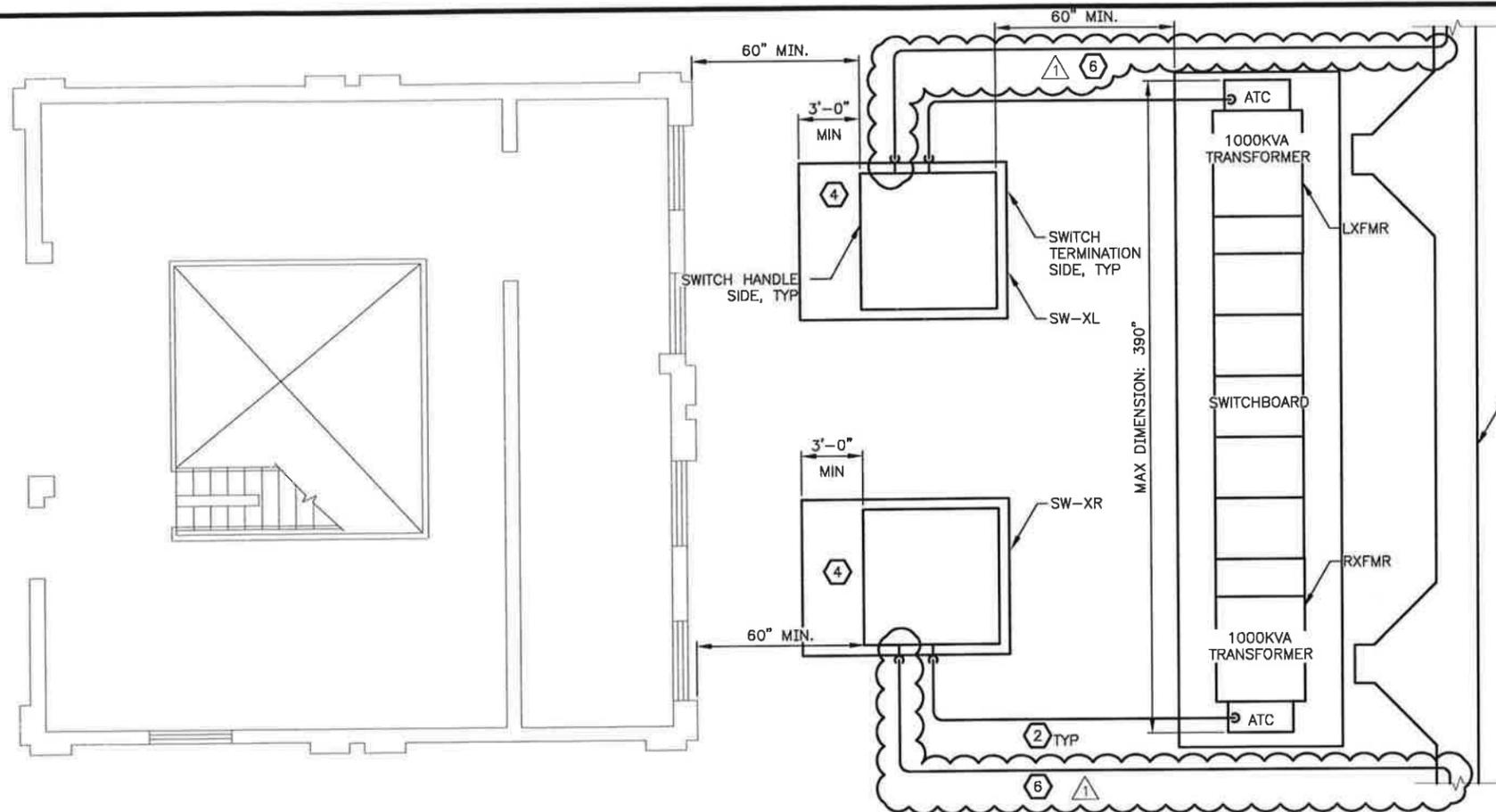
89TH STREET WWTP - PUMP STATION, DIGESTER & THICKENER BLOWER SWITCHGEARS, SUB-STATION TRANSFORMER & STARTER REPLACEMENT

ELECTRICAL AEROBIC DIGESTER BLOWER AREA ELECTRICAL DEMOLITION DETAILS & PHOTOGRAPHS

WBS NUMBER	R-000509-0027-4
DRAWING SCALE	NTS
CITY OF HOUSTON PM	IRAJ RANJBAR, P.E.
DATE	10-17-13
SHEET NO.	19 OF 40

NO.	REVISION	BY	DATE
1	REVISED PER ADDENDUM NO 1	TEC	10-17-13

C:\pwworking\abornes\2013\3066\ Project No.: CH007027 Dwg Name: E-011.dwg



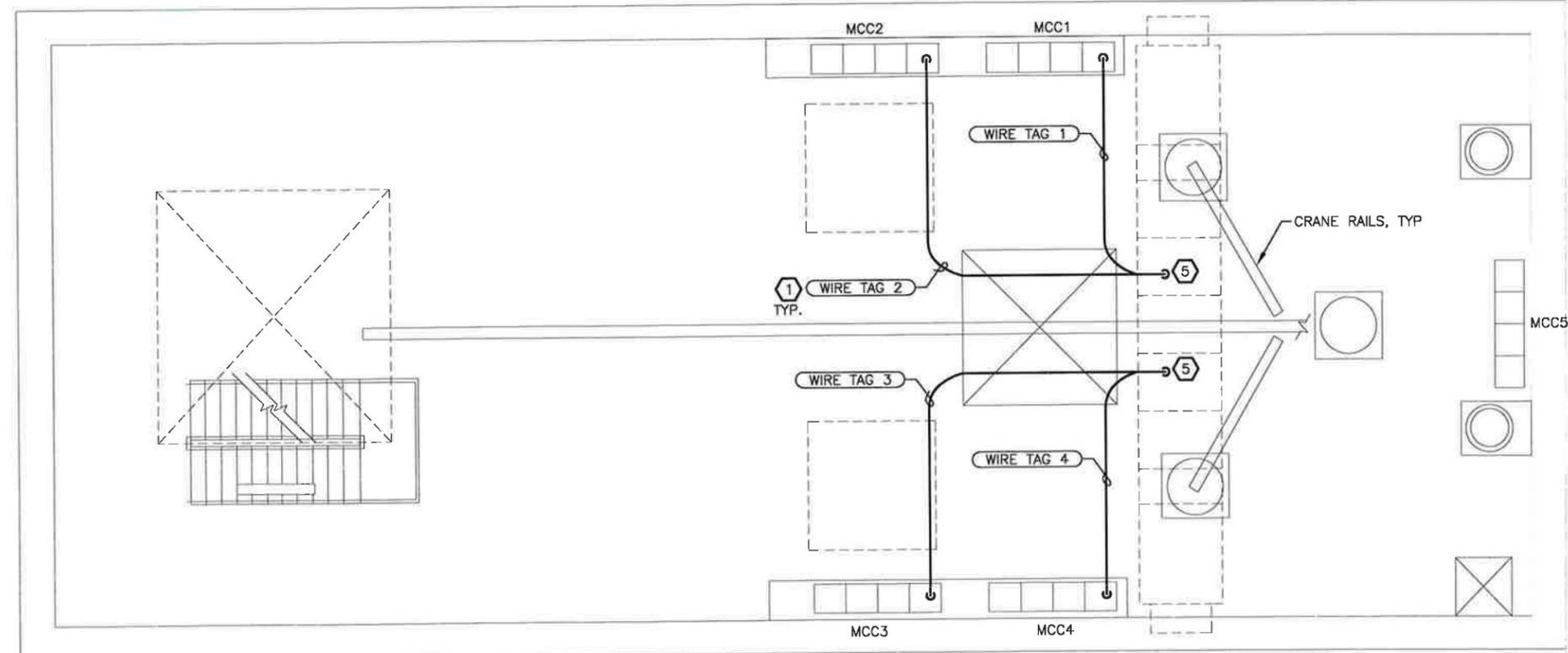
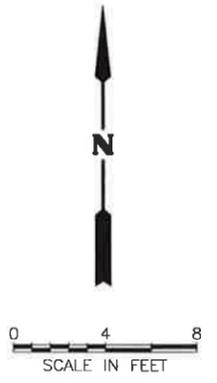
PLAN AT EL. 37.60'

PUMP STATION	SW-XR	SW-XL	LXFMR	RXFMR
3	SW-2AB-1	SW-1AB-1	XFMR-1AB-1	XFMR-2AB-1
4	SW-2CD-1	SW-1CD-1	XFMR-1CD-1	XFMR-2CD-1
5	SW-1EF-1	SW-2EF-1	XFMR-2EF-1	XFMR-1EF-1
6	SW-1GH-1	SW-2GH-1	XFMR-2GH-1	XFMR-1GH-1
8	SW-1CD-2	SW-2CD-2	XFMR-2CD-2	XFMR-1CD-2
9	SW-2EF-2	SW-1EF-2	XFMR-1EF-2	XFMR-2EF-2
10	SW-2GH-2	SW-1GH-2	XFMR-1GH-2	XFMR-2GH-2

TRANSFORMER AND SWITCHES TAG NAMES

- GENERAL NOTES:**
- FOOTPRINT OF EQUIPMENT SHOWN IS TO SCALE. EQUIPMENT SHALL NOT EXCEED DIMENSIONS SHOWN.
 - REFER TO STRUCTURAL SHEETS FOR NEW EQUIPMENT PADS CURING TIMES.
 - PROVIDE GROUNDING AND BONDING TO ALL NEW ELECTRICAL EQUIPMENT PER SPECIFICATION 16170. ALL GROUNDING ELECTRODES THAT ARE PRESENT AT EACH BUILDING OR STRUCTURE SHALL BE BONDED TOGETHER TO FORM THE GROUNDING ELECTRODE SYSTEM. WHERE NONE OF THESE GROUNDING ELECTRODES EXIST, ONE OR MORE OF THE GROUNDING ELECTRODES SPECIFIED IN 250.52(A)(4) THROUGH (A)(7) SHALL BE INSTALLED AND USED

- NOTES BY SYMBOL (X)**
- REFER TO ONE-LINE DIAGRAM ON SHEET E-25 FOR WIRE TAG NAMES.
 - EXTEND CABLE TRAY AS NEEDED TO SUPPORT NEW WIRING TO PAD MOUNT SWITCHGEARS.
 - PROVIDE NEW CABLE TRAY. MATCH EXISTING LAYOUT AND CABLE TRAY WIDTHS.
 - EXTEND HOUSEKEEPING PAD ON SWITCH SIDE OF THE PAD MOUNT SWITCHGEAR 3' IN FRONT OF THE GEAR. PAD MOUNT SWITCHGEAR PAD SHALL BE 1' THICK. WIRING TO PAD MOUNT SWITCHGEAR SHALL BE RUN THROUGH PAD INTO BOTTOM OF ENCLOSURE.
 - COORDINATE WITH GEAR MANUFACTURER FOR EXACT LOCATION OF PENETRATIONS. PENETRATIONS FOR CONDUIT GOING TO MCC-1, 2, 3 AND 4 SHALL NOT INTERFERE WITH THE CRANE RAILS.
 - PROVIDE ADDITIONAL CABLE TRAY SUPPORTS AS NEEDED. MAINTAIN ALL ELECTRICAL CLEARANCES PER NEC. CABLE TRAY SHALL BE ROUTED OUTSIDE THE PERIMETER OF THE SWITCHBOARD AND TRANSFORMER LINE-UP. ROUTING AND ADDITIONAL SUPPORTS SHALL BE PER CONTRACTOR.



PUMP STATION NO. 3,4,5,6,8,9,10 AREA PLAN

PLAN AT EL. 20.50'

CP&Y
 2925 Briarpark Suite 850, Houston, TX, 77042
 (713)532-1730, Fax (713)532-1734
 TEPF FIRM
 No. 1741

CP&Y JOB NO.: HOUS13001.02
 DESIGNED BY: AAR DRAWN BY: KAB
 DESIGN CHECK BY: TEC DRAWING CHECK BY: TEC

10/17/13
Timothy E. Campbell
 STATE OF TEXAS
 TIMOTHY E. CAMPBELL
 81011
 LICENSED PROFESSIONAL ENGINEER

SURVEYED BY: SURVEY AND MAPPING, INC.
 FB NO.:

CITY OF HOUSTON
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

**69TH STREET WWTP -
 PUMP STATION, DIGESTER
 & THICKENER BLOWER SWITCHGEARS,
 SUB-STATION TRANSFORMER & STARTER
 REPLACEMENT**

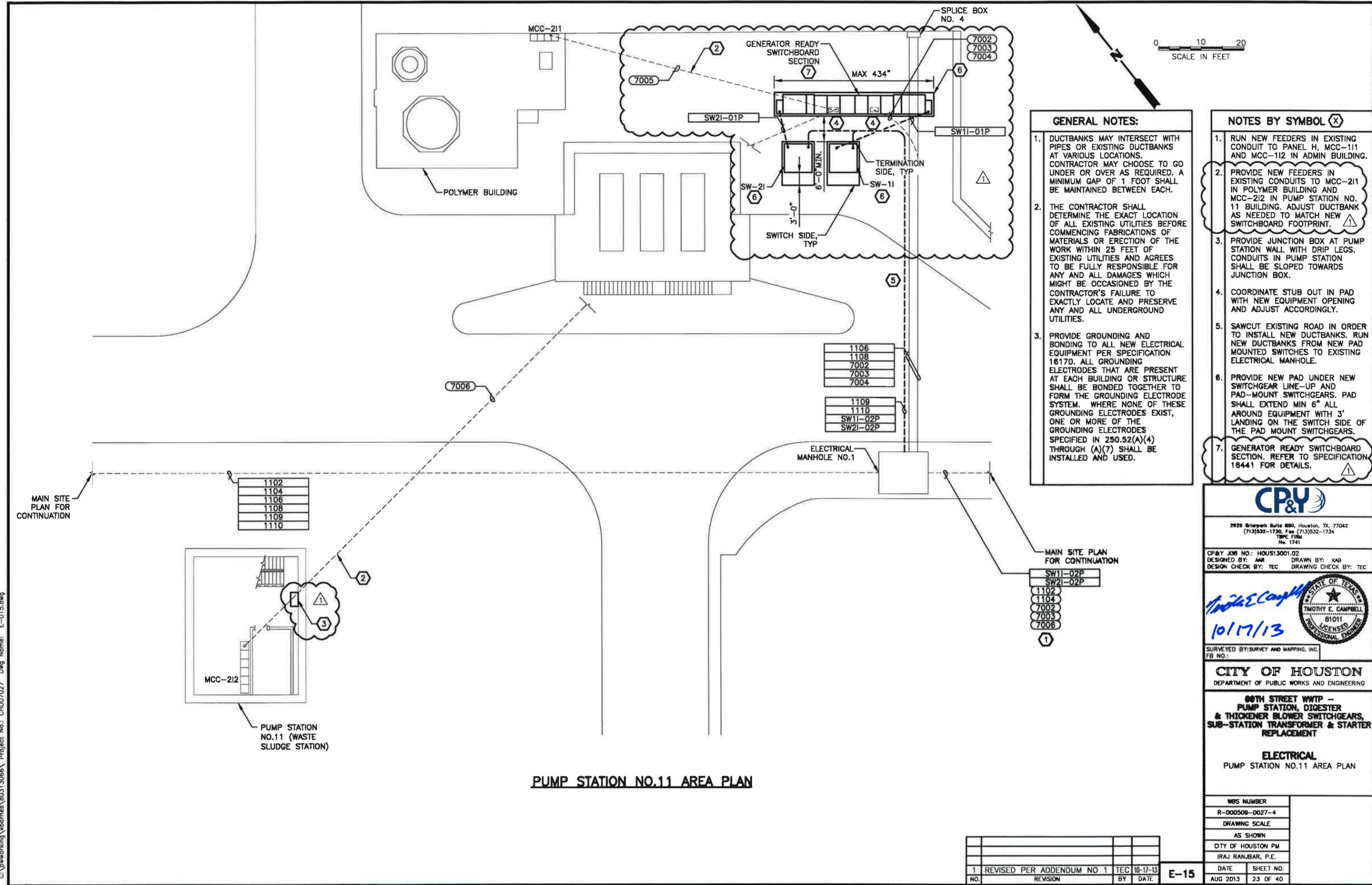
ELECTRICAL
 PUMP STATION
 NO.3,4,5,6,8,9,10 AREA
 PLAN

WBS NUMBER	R-000509-0027-4
DRAWING SCALE	AS SHOWN
CITY OF HOUSTON PM	IRAJ RANJBAR, P.E.
DATE	SHEET NO.
AUG 2013	21 OF 40

NO.	REVISION	BY	DATE
1	REVISED PER ADDENDUM NO 1	TEC	10-17-13

C:\pwworking\kbarnes\00313066\Project No.: CH007027 Dwg Name: E-013.dwg

C:\pwworking\lbornera\0313066\Project No.: CH007027 Dwg Name: E-015.dwg



- GENERAL NOTES:**
- DUCTBANKS MAY INTERSECT WITH PIPES OR EXISTING DUCTBANKS AT VARIOUS LOCATIONS. CONTRACTOR MAY CHOOSE TO GO UNDER OR OVER AS REQUIRED. A MINIMUM GAP OF 1 FOOT SHALL BE MAINTAINED BETWEEN EACH.
 - THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING FABRICATIONS OF MATERIALS OR ERECTION OF THE WORK WITHIN 25 FEET OF EXISTING UTILITIES AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.
 - PROVIDE GROUNDING AND BONDING TO ALL NEW ELECTRICAL EQUIPMENT PER SPECIFICATION 18170. ALL GROUNDING ELECTRODES THAT ARE PRESENT AT EACH BUILDING OR STRUCTURE SHALL BE BONDED TOGETHER TO FORM THE GROUNDING ELECTRODE SYSTEM. WHERE NONE OF THESE GROUNDING ELECTRODES EXIST, ONE OR MORE OF THE GROUNDING ELECTRODES SPECIFIED IN 250.52(A)(4) THROUGH (A)(7) SHALL BE INSTALLED AND USED.

- NOTES BY SYMBOL (X)**
- RUN NEW FEEDERS IN EXISTING CONDUIT TO PANEL H, MCC-111 AND MCC-112 IN ADMIN BUILDING.
 - PROVIDE NEW FEEDERS IN EXISTING CONDUITS TO MCC-211 IN POLYMER BUILDING AND MCC-212 IN PUMP STATION NO. 11 BUILDING. ADJUST DUCTBANK AS NEEDED TO MATCH NEW SWITCHBOARD FOOTPRINT.
 - PROVIDE JUNCTION BOX AT PUMP STATION WALL WITH DRIP LEGS. CONDUITS IN PUMP STATION SHALL BE SLOPED TOWARDS JUNCTION BOX.
 - COORDINATE STUB OUT IN PAD WITH NEW EQUIPMENT OPENING AND ADJUST ACCORDINGLY.
 - SAWCUT EXISTING ROAD IN ORDER TO INSTALL NEW DUCTBANKS. RUN NEW DUCTBANKS FROM NEW PAD MOUNTED SWITCHES TO EXISTING ELECTRICAL MANHOLE.
 - PROVIDE NEW PAD UNDER NEW SWITCHGEAR LINE-UP AND PAD-MOUNT SWITCHGEARS. PAD SHALL EXTEND MIN 6" ALL AROUND EQUIPMENT WITH 3' LANDING ON THE SWITCH SIDE OF THE PAD MOUNT SWITCHGEARS.
 - GENERATOR READY SWITCHBOARD SECTION. REFER TO SPECIFICATION 18441 FOR DETAILS.

PUMP STATION NO.11 AREA PLAN



2925 Briarpark Suite 880, Houston, TX, 77042
 (713)532-1730, Fax (713)532-1734
 TYPE FIRM
 No. 1741

CP&Y JOB NO: HOUS13001.02
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 DESIGN CHECK BY: TEC DRAWING CHECK BY: TEC

Timothy E. Campbell
 10/17/13
 STATE OF TEXAS
 TIMOTHY E. CAMPBELL
 81011
 LICENSED PROFESSIONAL ENGINEER

SURVEYED BY: SURVEY AND MAPPING, INC.
 FB NO.:

CITY OF HOUSTON
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

80TH STREET WWTP - PUMP STATION, DIGESTER & THICKENER BLOWER SWITCHGEARS, SUB-STATION TRANSFORMER & STARTER REPLACEMENT

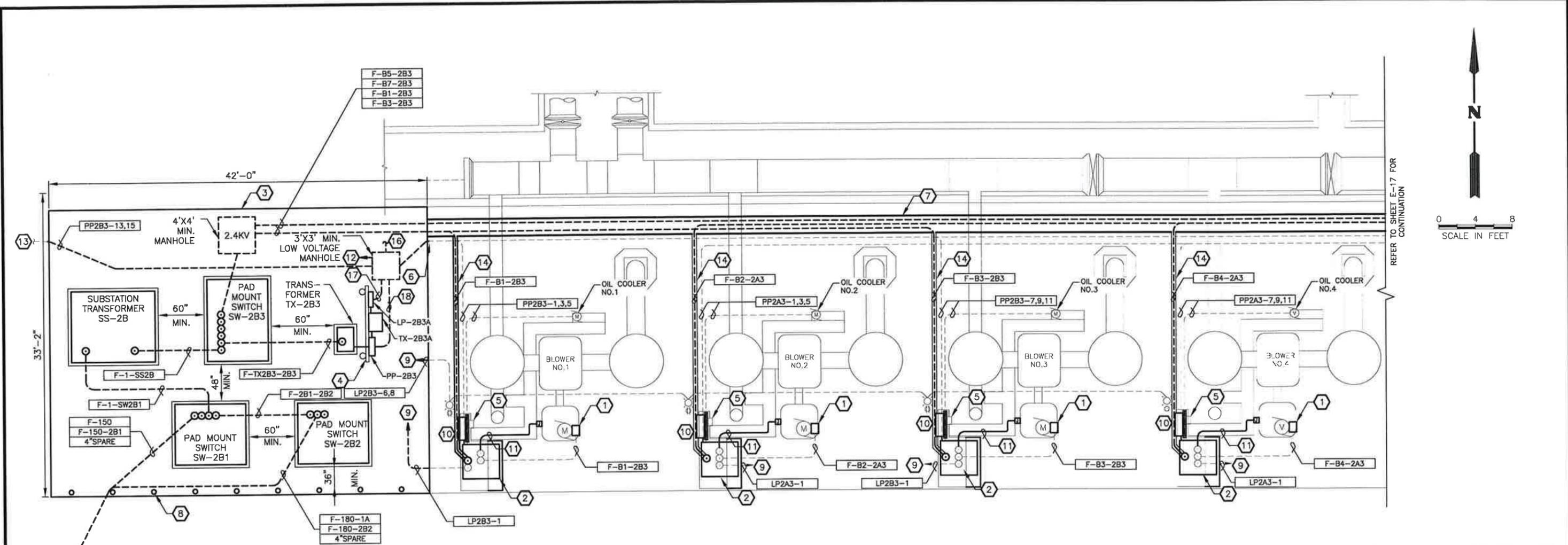
ELECTRICAL
 PUMP STATION NO.11 AREA PLAN

WBS NUMBER	
R-000508-0027-4	
DRAWING SCALE	
AS SHOWN	
CITY OF HOUSTON PM	
IRAJ RANJBAR, P.E.	
DATE	SHEET NO.
AUG 2013	23 OF 40

NO.	REVISION	BY	DATE
1	REVISED PER ADDENDUM NO 1	TEC	10-17-13

E-15

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS



AEROBIC DIGESTER BLOWER AREA PLAN I

- GENERAL NOTES**
- PROVIDE GROUNDING AND BONDING TO ALL NEW ELECTRICAL EQUIPMENT PER SPECIFICATION 16170. ALL GROUNDING ELECTRODES THAT ARE PRESENT AT THE AREAS OF THE NEW EQUIPMENT SHALL BE BONDED TOGETHER TO FORM THE GROUNDING ELECTRODE SYSTEM. WHERE NONE OF THESE GROUNDING ELECTRODES EXIST, ONE OR MORE OF THE GROUNDING ELECTRODES SPECIFIED IN NEC ARTICLE 250.52(A)(4) THROUGH (A)(7) SHALL BE INSTALLED.
 - THE SWITCH SIDE OF THE PAD MOUNT SWITCH SHALL FACE SOUTH FOR SWITCHES SW-2B1 AND SW-2B2. FOR SWITCH SW-2B3 SWITCH SIDE SHALL FACE THE EAST.
 - REFER TO SHEET E-30 FOR CONDUIT AND WIRE SCHEDULE.
 - WIRING FROM PANELBOARD LP-2B3 TO SPACE HEATER IN SUBSTATION TRANSFORMER SS-2B NOT SHOWN. WIRING SHALL BE ROUTED UNDERGROUND IN A 1 1/2" C.

- NOTES BY SYMBOL (X)**
- PROVIDE NEW MOTOR TERMINATION BOXES FOR BLOWER MOTORS. NEW TERMINATION BOXES SHALL BE MANUFACTURED OUT OF PAINTED GALVANIZED STEEL. THE TERMINAL BOX SHALL HAVE A VOLUME GREATER THAN OR EQUAL TO THE NEXT STANDARD NEMA SIZE BOX.
 - PROVIDE 2400V BLOWER MOTOR STARTER. MODIFY CONCRETE PAD AND HOUSEKEEPING PAD AS REQUIRED.
 - PROVIDE NEW ELECTRICAL EQUIPMENT, REFERENCE ONE-LINE, SHEET E-27. EQUIPMENT PAD TO BE REPLACED AND RECONFIGURED TO ACCOMMODATE ALL NEW EQUIPMENT. EQUIPMENT MAY VARY IN SIZE DEPENDING ON THE MANUFACTURER. COORDINATE AND ADJUST EQUIPMENT LOCATIONS AS REQUIRED TO MAINTAIN CLEARANCES AROUND EQUIPMENT. PROVIDE 6" HOUSEKEEPING PADS FOR ALL EQUIPMENT. IF REQUIRED CONTRACTOR CAN EXTEND THE OVERALL EQUIPMENT PAD TO THE WEST TO ADJUST FOR LARGER EQUIPMENT AT NO ADDITIONAL COST TO THE OWNER.
 - PROVIDE 316 SS UNISTRUT EQUIPMENT RACK FOR 480V PANEL, 480V TO 120/240V TRANSFORMER AND 120/240V

- PANEL. PROVIDE 316SS SUNSHIELD THAT EXTENDS 3FT OUT FROM THE RACK.
- PROVIDE POWER FROM NEW 480V PANELS TO EXISTING BLOWER OIL COOLER USING EXISTING CONDUIT. EXISTING CONDUITS TO THE STARTER FROM THE EQUIPMENT PAD AND FROM THE OIL COOLER MOTOR APPEAR TO ROUTE TO AND UP UNDER THE 2400V STARTER ENCLOSURE. PROVIDE CONDUIT TO ROUTE OUT OF ENCLOSURE AND TO NEW LOCATION ON THE PANEL RACK.
- FIELD VERIFY WHERE THE 480V OIL COOLER FAN UNDERGROUND CONDUITS/DUCTBANKS ENTER THE EQUIPMENT PAD AREA. EXTEND CONDUITS/DUCTBANK AND ROUTE TO NEW LOW VOLTAGE MANHOLE.
- SAW CUT A MINIMUM 36" TRENCH AT EXISTING SLAB IN ORDER TO INSTALL NEW CONDUIT DUCTBANK FROM BLOWER STARTER PANELS TO THEIR CORRESPONDING PAD MOUNTED SWITCH. DEMO EXISTING 2400V DUCTBANK AS REQUIRED TO INSTALL NEW 2400V DUCTBANK. IF ANY OTHER CONDUITS ARE ROUTED WITHIN THE DUCTBANK REQUIRED TO BE DEMOLISHED, REPLACE

- CONDUITS INTO THE NEW DUCTBANK AND ROUTE AS REQUIRED. WHEN REPAIRING CONCRETE SLAB PROVIDE ISOLATION JOINTS, REFER TO STRUCTURAL SHEETS FOR DETAILS.
- PROVIDE BOLLARDS.
- TIE INTO EXISTING CONDUIT ONCE IT ENTERS THE ELECTRICAL EQUIPMENT PAD AREA AND EXTEND TO CORRESPONDING 120/240V PANEL THROUGH THE LOW VOLTAGE MANHOLE. REFERENCE NOTE BY SYMBOL NO. 12.
- PROVIDE PANEL RACK FOR MOUNTING OF THE BLOWER CONTROL PANEL AND THE INSTRUMENT PANEL. REFER TO DETAIL 2 ON SHEET E-11 FOR ADDITIONAL DETAILS.
- REFERENCE SHEET E-28 FOR CONDUIT REQUIREMENTS BETWEEN BLOWER CONTROL PANEL AND INSTRUMENTS.
- FIELD VERIFY WHERE UNDERGROUND CONDUITS FOR EXISTING 120V CIRCUITS ARE LOCATED DURING DEMOLITION OF OLD ELECTRICAL PANEL, ROUTE NEW CONDUITS FROM MANHOLE TO EXISTING CONDUITS. TIE IN NEW TO EXISTING CONDUITS PRIOR TO LEAVING NEW ELECTRICAL EQUIPMENT PAD. TOTAL OF

- 8 EXISTING CIRCUITS. ALSO PROVIDE A SPARE 1 1/2" CONDUIT FROM THE MANHOLE TO EACH SWITCH (SW2B1, SW2B2, SW2B3).
- FIELD VERIFY WHERE CONDUIT/ DUCTBANK FOR 480V WEST FLOOD LIGHTS ENTER EQUIPMENT PAD LOCATION AND TIE INTO DUCTBANK.
- SAW CUT A MINIMUM 8" TRENCH AT EXISTING SLAB IN ORDER TO INSTALL NEW CONDUIT/DUCTBANK TO BLOWER STARTER ALL THE WAY TO UNDERNEATH STARTER EQUIPMENT PAD. FOR BLOWERS NO.1 AND 4, EXISTING CONDUIT/DUCTBANK TO BLOWER STARTER WILL BE REQUIRED TO BE DEMOLISHED TO INSTALL NEW DUCTBANK. IF ANY OTHER CONDUITS ARE ROUTED WITHIN THE DUCTBANK REQUIRED TO BE DEMOLISHED, REPLACE CONDUITS INTO THE NEW DUCTBANK AND ROUTE AS REQUIRED.
- PROVIDE NEW DUCTBANK TO EXISTING 15KV ELECTRICAL MANHOLE ACROSS THE STREET, REFER TO SITE PLAN SHEET E-6.
- PROVIDE 4-1 1/2" SPARE CONDUITS FROM LOW VOLTAGE MANHOLE TO THE

- AEROBIC DIGESTER WALL. STUB UP AND CAP SPARE CONDUITS.
- PROVIDE TWELVE(12) 1 1/2" CONDUITS FROM LP-2A3 TO MANHOLE. COMBINE 2 CIRCUITS IN EACH CONDUIT FROM PANEL TO MANHOLE AND MARK REST AS SPARE.
- PROVIDE NINE(9) 1 1/2" CONDUITS FROM PANEL PP-2A3 TO MANHOLE. ROUTE CIRCUITS IN THEIR OWN SEPERATE CONDUIT AND MARK THE REST AS SPARE.

NO.	REVISION	BY	DATE
1	REVISED PER ADDENDUM NO 1	TEC	10-17-13

E-16

CP&Y
 2925 Briarpark Suite 850, Houston, TX, 77042
 (713)532-1730, Fax (713)532-1734
 TBPPE FIRM
 No. 1741

CP&Y JOB NO.: HOUS13001.02
 DESIGNED BY: CMC DRAWN BY: KAB
 DESIGN CHECK BY: TEC DRAWING CHECK BY: TEC

10/17/13
Timothy E. Campbell
 SURVEYED BY: SURVEY AND MAPPING, INC.
 FB NO.:

CITY OF HOUSTON
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

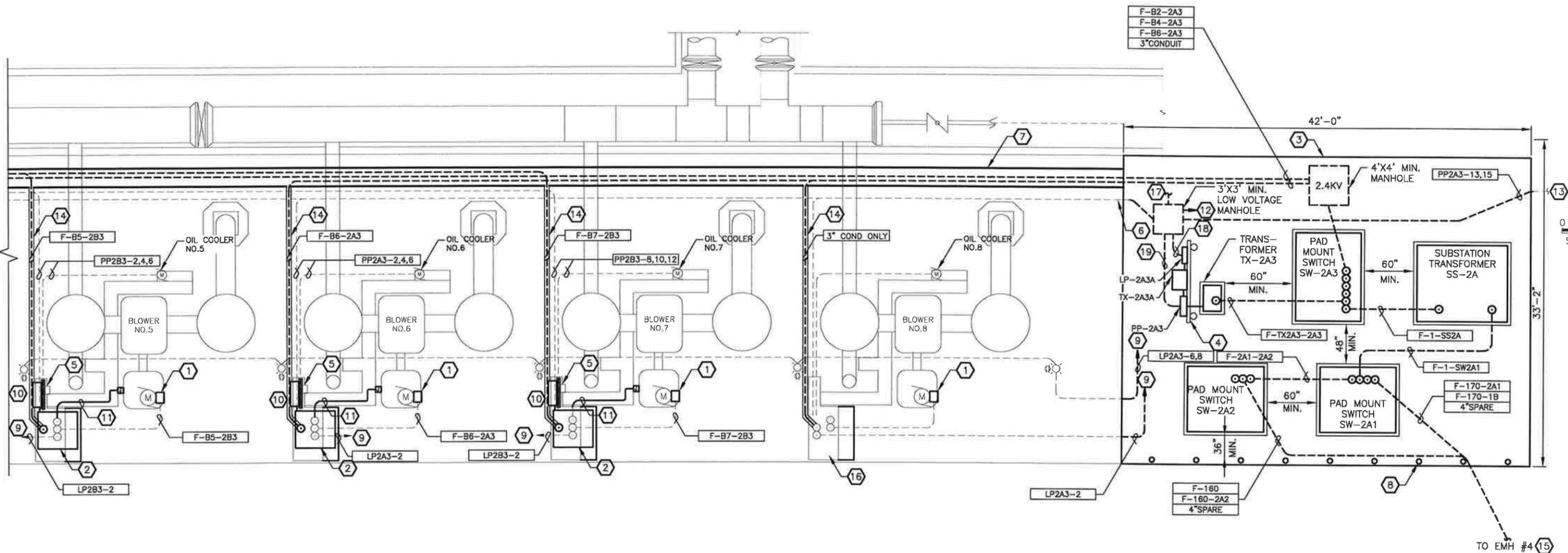
**69TH STREET WWTP -
 PUMP STATION, DIGESTER
 & THICKENER BLOWER SWITCHGEARS,
 SUB-STATION TRANSFORMER & STARTER
 REPLACEMENT**

**ELECTRICAL
 AEROBIC DIGESTER BLOWER
 AREA PLAN**

WBS NUMBER	R-000509-0027-4
DRAWING SCALE	AS SHOWN
CITY OF HOUSTON PM	IRAJ RANJAN, P.E.
DATE	SHEET NO.
AUG 2013	24 OF 40

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REFER TO SHEET E-16 FOR CONTINUATION



AEROBIC DIGESTER BLOWER AREA PLAN II

GENERAL NOTES

1. PROVIDE GROUNDING AND BONDING TO ALL NEW ELECTRICAL EQUIPMENT PER SPECIFICATION 16170. ALL GROUNDING ELECTRODES THAT ARE PRESENT AT THE AREAS OF THE NEW EQUIPMENT SHALL BE BONDED TOGETHER TO FORM THE GROUNDING ELECTRODE SYSTEM. WHERE NONE OF THESE GROUNDING ELECTRODES EXIST, ONE OR MORE OF THE GROUNDING ELECTRODES SPECIFIED IN NEC ARTICLE 250.52(A)(4) THROUGH (A)(7) SHALL BE INSTALLED.
2. MOUNT SWITCH SHALL FACE SOUTH FOR SWITCHES SW-2A1 AND SW-2A2. FOR SWITCH SW-2A3 SWITCH SIDE SHALL FACE THE WEST.
3. REFER TO SHEET E-30 FOR CONDUIT AND WIRE SCHEDULE.
4. WIRING FROM PANELBOARD LP-2B3 TO SPACE HEATER IN SUBSTATION TRANSFORMER SS-2B NOT SHOWN. WIRING SHALL BE ROUTED UNDERGROUND IN A 1 1/2" CONDUIT.

NOTES BY SYMBOL (X)

1. PROVIDE NEW MOTOR TERMINATION BOXES FOR BLOWER MOTORS. NEW TERMINATION BOXES SHALL BE MANUFACTURED OUT OF PAINTED GALVANIZED STEEL. THE TERMINAL BOX SHALL HAVE A VOLUME GREATER THAN OR EQUAL TO THE NEXT STANDARD NEMA SIZE BOX.
2. PROVIDE 2400V BLOWER MOTOR STARTER. MODIFY CONCRETE PAD AND HOUSEKEEPING PAD AS REQUIRED.
3. PROVIDE NEW ELECTRICAL EQUIPMENT, REFERENCE ONE-LINE, SHEET E-27. EQUIPMENT PAD TO BE REPLACED AND RECONFIGURED TO ACCOMMODATE ALL NEW EQUIPMENT. EQUIPMENT MAY VARY IN SIZE DEPENDING ON THE MANUFACTURER. COORDINATE AND ADJUST EQUIPMENT LOCATIONS AS REQUIRED TO MAINTAIN CLEARANCES AROUND EQUIPMENT. PROVIDE 6" HOUSEKEEPING PADS FOR ALL EQUIPMENT. IF REQUIRED CONTRACTOR CAN EXTEND THE OVERALL EQUIPMENT PAD TO THE EAST TO ADJUST FOR LARGER EQUIPMENT AT NO ADDITIONAL COST TO THE OWNER.
4. PROVIDE 316 SS UNISTRUT EQUIPMENT RACK FOR 480V PANEL, 480V TO 120/240V TRANSFORMER AND 120/240V PANEL. PROVIDE 316SS SUNSHIELD THAT EXTENDS 3FT OUT FROM THE RACK.
5. PROVIDE POWER FROM NEW 480V PANELS TO EXISTING BLOWER OIL COOLER USING EXISTING CONDUIT. EXISTING CONDUITS TO THE STARTER FROM THE EQUIPMENT PAD AND FROM THE OIL COOLER MOTOR APPEAR TO ROUTE TO AND UP UNDER THE 2400V STARTER ENCLOSURE. PROVIDE CONDUIT TO ROUTE OUT OF ENCLOSURE AND TO NEW LOCATION ON THE PANEL RACK.
6. FIELD VERIFY WHERE THE 480V OIL COOLER FAN UNDERGROUND CONDUITS/DUCTBANKS ENTER THE EQUIPMENT PAD AREA. EXTEND CONDUITS/DUCTBANK AND ROUTE TO NEW LOW VOLTAGE MANHOLE.
7. SAW CUT A MINIMUM 36" TRENCH AT EXISTING SLAB IN ORDER TO INSTALL NEW CONDUIT DUCTBANK FROM BLOWER STARTER PANELS TO THEIR CORRESPONDING PAD MOUNTED SWITCH. DEMO EXISTING 2400V DUCTBANK AS REQUIRED TO INSTALL NEW 2400V DUCTBANK. IF ANY OTHER CONDUITS ARE ROUTED WITHIN THE DUCTBANK REQUIRED TO BE DEMOLISHED, REPLACE CONDUITS INTO THE NEW DUCTBANK AND ROUTE AS REQUIRED. WHEN REPAIRING CONCRETE SLAB PROVIDE ISOLATION JOINTS, REFER TO STRUCTURAL SHEETS FOR DETAILS.
8. PROVIDE BOLLARDS.
9. TIE INTO EXISTING CONDUIT ONCE IT ENTERS THE ELECTRICAL EQUIPMENT PAD AREA AND EXTEND TO CORRESPONDING 120/240V PANEL THROUGH THE LOW VOLTAGE MANHOLE. REFERENCE NOTE BY SYMBOL NO. 12
10. PROVIDE PANEL RACK FOR MOUNTING OF THE BLOWER CONTROL PANEL AND THE INSTRUMENT PANEL. REFER TO DETAIL 2 ON SHEET E-11 FOR ADDITIONAL DETAILS.
11. REFERENCE SHEET E-28 FOR CONDUIT REQUIREMENTS BETWEEN BLOWER CONTROL PANEL AND INSTRUMENTS.
12. FIELD VERIFY WHERE UNDERGROUND CONDUITS FOR EXISTING 120V CIRCUITS ARE LOCATED DURING DEMOLITION OF OLD ELECTRICAL PANEL, ROUTE NEW CONDUITS FROM MANHOLE TO EXISTING CONDUITS. TIE IN NEW TO EXISTING CONDUITS PRIOR TO LEAVING NEW ELECTRICAL EQUIPMENT PAD, TOTAL OF 8 EXISTING CIRCUITS. ALSO PROVIDE A SPARE 1 1/2" CONDUIT FROM THE MANHOLE TO EACH SWITCH (SW2A1, SW2A2, SW2A3).
13. FIELD VERIFY WHERE CONDUIT/DUCTBANK FOR 480V EAST FLOOD LIGHTS ENTER EQUIPMENT PAD LOCATION AND TIE INTO DUCTBANK.
14. SAW CUT A MINIMUM 8" TRENCH AT EXISTING SLAB IN ORDER TO INSTALL NEW CONDUIT/DUCTBANK TO BLOWER STARTER ALL THE WAY TO UNDERNEATH STARTER EQUIPMENT PAD. FOR BLOWERS NO.5 AND 8, EXISTING CONDUIT/DUCTBANK TO BLOWER STARTER WILL BE REQUIRED TO BE DEMOLISHED TO INSTALL NEW DUCTBANK. IF ANY OTHER CONDUITS WERE ROUTED WITHIN THE DUCTBANK BEING DEMOLISHED, REPLACE CONDUITS INTO THE NEW DUCTBANK AND ROUTE AS REQUIRED.
15. PROVIDE NEW DUCTBANK TO EXISTING 15KV ELECTRICAL MANHOLE ACROSS THE STREET, REFER TO SITE PLAN SHEET E-6.
16. PROVIDE CONDUIT FOR FUTURE 2400V BLOWER MOTOR STARTER. MODIFY CONCRETE PAD AND HOUSEKEEPING PAD AS REQUIRED, MATCH TO THE REST OF THE BLOWERS.
17. PROVIDE 4-1 1/2" SPARE CONDUITS FROM LOW VOLTAGE MANHOLE TO THE AEROBIC DIGESTER WALL. STUB UP AND CAP SPARE CONDUITS.
18. PROVIDE TWELVE(12) 1 1/2" CONDUITS FROM LP-2A3 TO MANHOLE. COMBINE 2 CIRCUITS IN EACH CONDUIT FROM PANEL TO MANHOLE AND MARK REST AS SPARE.
19. PROVIDE NINE(9) 1 1/2" CONDUITS FROM PANEL PP-2A3 TO MANHOLE. ROUTE CIRCUITS IN THEIR OWN SEPARATE CONDUIT AND MARK THE REST AS SPARE.

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS



2925 Briarpark Suite 850, Houston, TX, 77042
(713)532-1730, Fax (713)532-1734
TBE FIRM
No. 1741

CP&Y JOB NO.: HOU513001.02
DESIGNED BY: CMC DRAWN BY: KAB
DESIGN CHECK BY: TEC DRAWING CHECK BY: TEC

10/17/13
TIMOTHY E. CAMPBELL
81011
PROFESSIONAL ENGINEER
SURVEYED BY: SURVEY AND MAPPING, INC.
FB NO.:

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

69TH STREET WWTP -
PUMP STATION, DIGESTER
& THICKENER BLOWER SWITCHGEARS,
SUB-STATION TRANSFORMER & STARTER
REPLACEMENT

ELECTRICAL
AEROBIC DIGESTER BLOWER
AREA PLAN II

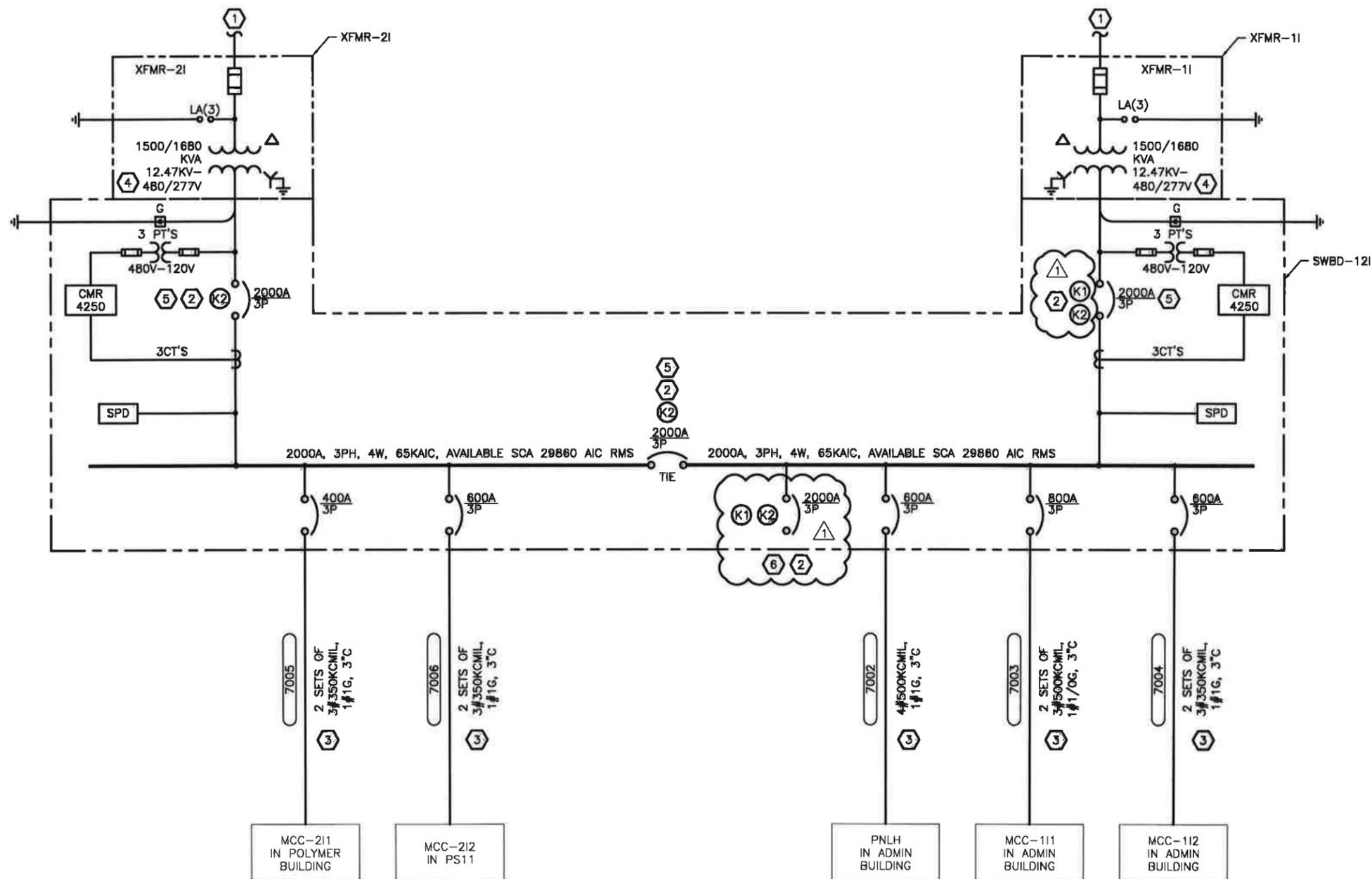
WBS NUMBER	R-000509-0027-4
DRAWING SCALE	AS SHOWN
CITY OF HOUSTON PM	IRAJ RANJBAR, P.E.
DATE	AUG 2013
SHEET NO.	25 OF 40

NO.	1	REVISOR	TEC	DATE	10-17-13
DESCRIPTION	REVISED PER ADDENDUM NO 1				

E-17

C:\pwworking\cbornes\00313066\ Project No.: CH007027 Dwg Name: E-017.dwg

C:\pwworking\hbarnea\0313066\Project No.: CH007027 Dwg Name: E-026.dwg



PUMP STATION NO. 11 ONE-LINE DIAGRAM

GENERAL NOTES:

1. AVAILABLE SHORT CIRCUIT VALUES ARE GIVEN AS AN INDICATION ONLY. AFTER COMPLETION OF THE POWER SYSTEM STUDY, PROVIDE AVAILABLE SHORT CIRCUIT ON PERMANENT TAG FOR EACH PIECE OF EQUIPMENT. TAGGING SHALL BE IN COMPLIANCE WITH LATEST EDITION OF CITY OF HOUSTON ELECTRICAL CODE.

NOTES BY SYMBOL (X)

1. REFER TO 15KV OVERALL ONE-LINE DIAGRAM ON SHEET E-23 AND E-24 FOR DETAILS.
2. PROVIDE QTY 1-K1 AND QTY 3-K2 KEYS FOR KIRK KEY INTERLOCK SCHEME.
3. REUSE EXISTING CONDUITS AS SHOWN ON SITE PLANS AND AREA PLANS.
4. SECONDARY OF TRANSFORMER SHALL BE BUS CONNECTED TO SWITCHBOARD.
5. REFER TO SPECIFICATION SECTION 16441. MAIN AND TIE BREAKERS SHALL BE PROVIDED WITH LSIG TRIP UNITS PER NEC ARTICLE 240.13.
6. GENERATOR READY SWITCHBOARD SECTION. REFER TO SPECIFICATION 16441 FOR DETAILS.



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TYPE: FIRM
No. 1741

CP&Y JOB NO.: HOUS13001.02
DESIGNED BY: AMR DRAWN BY: KAB
DESIGN CHECK BY: TEC DRAWING CHECK BY: TEC



SURVEYED BY: SURVEY AND MAPPING, INC.
FB NO.:

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

60TH STREET WWTP - PUMP STATION, DIGESTER & THICKENER BLOWER SWITCHGEARS, SUB-STATION TRANSFORMER & STARTER REPLACEMENT

ELECTRICAL
PUMP STATION NO.11
ONE-LINE DIAGRAM

WBS NUMBER	
R-000509-0027-4	
DRAWING SCALE	
NTS	
CITY OF HOUSTON PM	
IRAJ RANJBAR, P.E.	

NO.	REVISION	BY	DATE
1	REVISED PER ADDENDUM NO 1	TEC	10-17-13

E-26

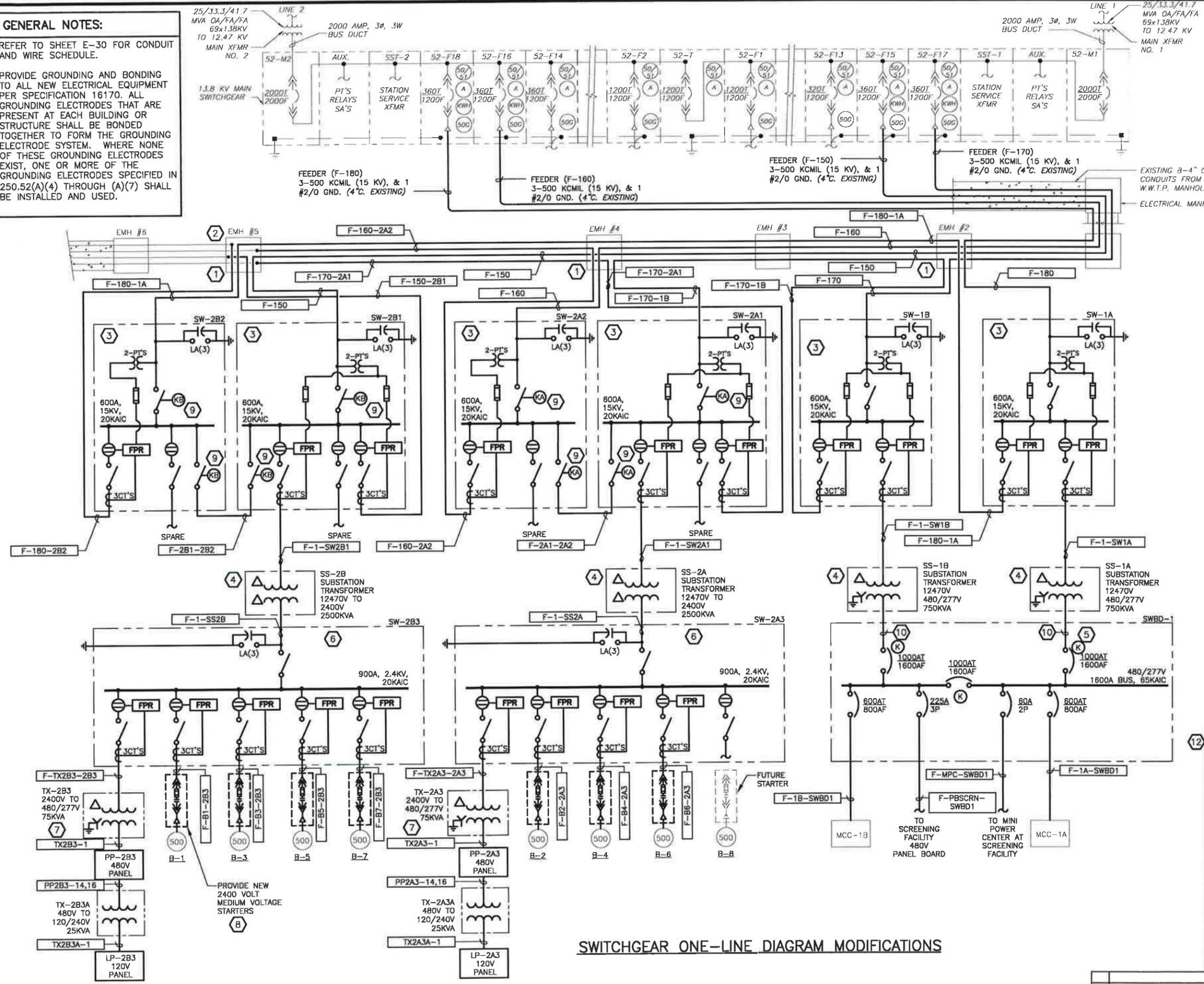
DATE	SHEET NO.
AUG 2013	34 OF 40

GENERAL NOTES:

- REFER TO SHEET E-30 FOR CONDUIT AND WIRE SCHEDULE.
- PROVIDE GROUNDING AND BONDING TO ALL NEW ELECTRICAL EQUIPMENT PER SPECIFICATION 16170. ALL GROUNDING ELECTRODES THAT ARE PRESENT AT EACH BUILDING OR STRUCTURE SHALL BE BONDED TOGETHER TO FORM THE GROUNDING ELECTRODE SYSTEM. WHERE NONE OF THESE GROUNDING ELECTRODES EXIST, ONE OR MORE OF THE GROUNDING ELECTRODES SPECIFIED IN 250.52(A)(4) THROUGH (A)(7) SHALL BE INSTALLED AND USED.

NOTES BY SYMBOL (X)

- PROVIDE NEW DUCTBANK FROM NEW PAD MOUNTED SWITCHES TO EXISTING MANHOLE.
- SPlice FEEDERS INSIDE EMH-5. PROVIDE SPlice KITS AS REQUIRED.
- PROVIDE 15KV PAD MOUNTED OUTDOOR SWITCHGEAR IN GALVANIZED STEEL ENCLOSURE. FPR SHALL BE SEL 501-2. PROVIDE PROVISION FOR FUTURE RELAY ON SPARE WAY. CT'S AND PT'S SHALL BE DERIVED FROM PAD MOUNT SWITCHGEAR TANK.
- PROVIDE SECONDARY SUBSTATION TRANSFORMER.
- PROVIDE 480V SWITCHBOARD IN NEMA 3R ENCLOSURE. MAIN AND TIE BREAKERS SHALL BE PROVIDED WITH LSIG TRIP UNITS PER NEC ARTICLE 240.13. REFER TO SPEC 16441.
- PROVIDE 15KV CLASS PAD MOUNTED OUTDOOR SWITCHGEAR IN GALVANIZED STEEL ENCLOSURE TO BE USED FOR 2.4KV DISTRIBUTION. FPR SHALL BE THE STANDARD RELAY PROVIDED BY THE PAD MOUNT SWITCHGEAR MANUFACTURER. CT'S SHALL BE DERIVED FROM PAD MOUNT SWITCHGEAR TANK.
- PROVIDE 480V STEPDOWN TRANSFORMER, 480V PANELBOARD, 120/240V STEPDOWN TRANSFORMER, AND 120/240V PANELBOARD.
- PROVIDE 2400V STARTER PANEL FOR BLOWERS, TYPICAL OF SEVEN (7).
- PROVIDE KIRK KEY INTERLOCKS TO PREVENT ACCIDENTAL DOUBLE FEEDING SWITCHES SIMULTANEOUSLY.
- PROVIDE BUS CONNECTION BETWEEN SUBSTATION TRANSFORMER AND SWITCHBOARD.
- PROVIDE PROVISION FOR FUTURE RELAY ON FUTURE BLOWER NO. 8.
- AVAILABLE SHORT CIRCUIT VALUES ARE GIVEN AS AN INDICATION ONLY. AFTER COMPLETION OF THE POWER SYSTEM STUDY, PROVIDE AVAILABLE SHORT CIRCUIT ON PERMANENT TAG FOR EACH PIECE OF EQUIPMENT. TAGGING SHALL BE IN COMPLIANCE WITH LATEST EDITION OF CITY OF HOUSTON ELECTRICAL CODE.



SWITCHGEAR ONE-LINE DIAGRAM MODIFICATIONS

EQUIPMENT	AVAILABLE SCA (RMS SYM)
SW-1A	16929
SW-1B	15895
SW-2A1	16896
SW-2A2	16896
SW-2B1	16730
SW-2B2	16730
SW-2B3	12104
SWBD-1	15539
PP-2A3	13835
PP-2B3	13835
LP-2A3	7055
LP-2B3	7055

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 TBPE FIRM No. 1741

CP&Y JOB NO: HOUS13001.02
 DESIGNED BY: CMC DRAWN BY: KAB
 DESIGN CHECK BY: TEC DRAWING CHECK BY: TEC

10/17/13
Timothy E. Campbell

CITY OF HOUSTON
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

69TH STREET WWTP - PUMP STATION, DIGESTER & THICKENER BLOWER SWITCHGEARS, SUB-STATION TRANSFORMER & STARTER REPLACEMENT

ELECTRICAL
 THICKENER/DIGESTER ONE-LINE DIAGRAM MODIFICATIONS

WBS NUMBER: R-000509-0027-4
 DRAWING SCALE: NTS
 CITY OF HOUSTON PM: IRAJ RANJBAR, P.E.
 DATE: 10-17-13
 SHEET NO: E-27
 35 OF 40

NO.	REVISION	BY	DATE
1	REVISED PER ADDENDUM NO 1	TEC	10-17-13

C:\pwworking\kbrnmes\d0313066\Project No.: CH007027 Dwg Name: E-027.dwg

LIGHTING PANEL PP-2A3 (NEMA 4X 316 SS ENCLOSURE)

LOCATION AEROBIC DIGESTER BLOWER ELECT PAD NO.1
MOUNTING RACK MOUNTED

480/277 VOLTS 3 PH 4 WIRE 100 AMP MAIN
SHORTCKT 42000 RMS SYM AMPS

CKT	LOAD SERVED	BRKR	VOLT AMPS			A	B	C	VOLT AMPS			BRKR	LOAD SERVED	CKT
			A	B	C				A	B	C			
1	BLOWER OIL COOLER NO.2	20/3	305						305			20/3	BLOWER OIL COOLER NO.6	2
3			305						305					4
5					305						305			6
7	BLOWER OIL COOLER NO.4	20/3	305						305			20/3	BLOWER OIL COOLER NO.8	8
9			305						305					10
11					305						305			12
13	EAST FLOOD LIGHTS	20/2	2100						7500			35/2	15KVA 480V TO 120/240V TRANSFORMER FOR PANEL LP-2A3	14
15			2100						7500					16
17	SPARE	20/1									20/1	SPARE	18	
19	SPARE	20/3									20/3	SPARE	20	
21														22
23														24
25	SPARE	20/3									20/3	SPARE	26	
27														28
29														30
TOTAL			2710	2710	610				8110	8110	610	TOTAL		

CONNECTED BUS A 10820 VA
CONNECTED BUS B 10820 VA
CONNECTED BUS C 1220 VA
CONNECTED TOTAL VA 22860 VA

LIGHTING PANEL PP-2B3 (NEMA 4X 316 SS ENCLOSURE)

LOCATION AEROBIC DIGESTER BLOWER ELECT PAD NO.2
MOUNTING RACK MOUNTED

480/277 VOLTS 3 PH 4 WIRE 100 AMP MAIN
SHORTCKT 42000 RMS SYM AMPS

CKT	LOAD SERVED	BRKR	VOLT AMPS			A	B	C	VOLT AMPS			BRKR	LOAD SERVED	CKT
			A	B	C				A	B	C			
1	BLOWER OIL COOLER NO.1	20/3	305						305			20/3	BLOWER OIL COOLER NO.5	2
3			305						305					4
5					305						305			6
7	BLOWER OIL COOLER NO.3	20/3	305						305			20/3	BLOWER OIL COOLER NO.7	8
9			305						305					10
11					305						305			12
13	WEST FLOOD LIGHTS	20/2	2100						7500			35/2	15KVA 480V TO 120/240V TRANSFORMER FOR PANEL LP-2B3	14
15			2100						7500					16
17	SPARE	20/1									20/1	SPARE	18	
19	SPARE	20/3									20/3	SPARE	20	
21														22
23														24
25	SPARE	20/3									20/3	SPARE	26	
27														28
29														30
TOTAL			2710	2710	610				8110	8110	610	TOTAL		

CONNECTED BUS A 10820 VA
CONNECTED BUS B 10820 VA
CONNECTED BUS C 1220 VA
CONNECTED TOTAL VA 22860 VA

- GENERAL NOTES
- ALL BRANCH CIRCUITS WIRING FOR PANELS LP-2A3 AND LP-2B3 SHALL BE 2 #12, 1# 12G, IN A 1 1/2" CONDUIT UNLESS NOTED OTHERWISE ON THE DRAWINGS.
 - DO NOT COMBINE CIRCUITS INTO SINGLE CONDUITS UNLESS SPECIFICALLY MENTIONED IN THE DRAWINGS.
 - LOADS SHALL BE BALANCED ON PANELBOARD. CHANGE LOAD CIRCUITS AS NECESSARY.

- NOTES BY SYMBOL (X)
- EXISTING UNDERGROUND CONDUITS ARE TO BE USED EXCEPT WHERE NEW CONDUITS ARE INSTALLED AT THE NEW EQUIPMENT PADS OR WHERE SHOWN ON THE DRAWINGS. PROVIDE NEW CONDUITS FOR THOSE AREAS AND ANYWHERE EXPOSED CONDUITS MAY BE REQUIRED IN THE CIRCUIT RUN.

LIGHTING PANEL LP-2A3 (NEMA 4X 316 SS ENCLOSURE)

LOCATION AEROBIC DIGESTER BLOWER ELECT PAD NO.1
MOUNTING RACK MOUNTED

120/240 VOLTS 1 PH 3 WIRE 100 AMP MAIN
SHORTCKT 22000 RMS SYM AMPS

CKT	LOAD SERVED	BRKR	VOLT AMPS		A	B	VOLT AMPS		BRKR	LOAD SERVED	CKT	
			A	B			A	B				
1	BLOWER STARTER 2&4 (TEST)	20/1	200					200	20/1	BLOWER STARTER 6&8 (TEST)	2	
3	SPARE (ROUTE CONDUIT TO SW2A1)	20/1							20/1	SPARE (ROUTE CONDUIT TO SW2A2)	4	
5	SPARE (ROUTE CONDUIT TO SW2A3)	20/1						800	20/1	EAST HALF BLOWER PAD LIGHTS	6	
7	EAST HALF DIGESTER WALKWAY LIGHTS	20/1		600				800	20/1	EAST HALF BLOWER PAD RECEPTACLES	8	
9	EAST HALF DIGESTER WALKWAY LIGHTS	20/1	600					300	20/1	DO PROBES - EAST	10	
11	EAST HALF DIGESTER EMER. LIGHTS	20/1		300				600	20/1	SS-2A SPACE HEATER CIRCUIT	12	
13	SPARE	20/1							20/1	SPARE	14	
15	SPARE	20/1							20/1	SPARE	16	
17	SPARE	20/1							20/1	SPARE	18	
19	SPARE	20/1							20/1	SPARE	20	
21	SPARE	20/1							20/1	SPARE	22	
23	SPARE	20/1							20/1	SPARE	24	
TOTAL			800	900				1300	1400	TOTAL		

CONNECTED BUS A 2100 VA
CONNECTED BUS B 2300 VA
CONNECTED TOTAL VA 4400 VA

LIGHTING PANEL LP-2B3 (NEMA 4X 316 SS ENCLOSURE)

LOCATION AEROBIC DIGESTER BLOWER ELECT PAD NO.2
MOUNTING RACK MOUNTED

120/240 VOLTS 1 PH 3 WIRE 100 AMP MAIN
SHORTCKT 22000 RMS SYM AMPS

CKT	LOAD SERVED	BRKR	VOLT AMPS		A	B	VOLT AMPS		BRKR	LOAD SERVED	CKT	
			A	B			A	B				
1	BLOWER STARTER 1&3 (TEST)	20/1	200					200	20/1	BLOWER STARTER 5&7 (TEST)	2	
3	SPARE (ROUTE CONDUIT TO SW2B1)	20/1							20/1	SPARE (ROUTE CONDUIT TO SW2B2)	4	
5	SPARE (ROUTE CONDUIT TO SW2B3)	20/1						800	20/1	WEST HALF BLOWER PAD LIGHTS	6	
7	WEST HALF DIGESTER WALKWAY LIGHTS	20/1		600				800	20/1	WEST HALF BLOWER PAD RECEPTACLES	8	
9	WEST HALF DIGESTER WALKWAY LIGHTS	20/1	600					300	20/1	DO PROBES - WEST	10	
11	WEST HALF DIGESTER EMER. LIGHTS	20/1		300				600	20/1	SS-2B SPACE HEATER CIRCUIT	12	
13	SPARE	20/1							20/1	SPARE	14	
15	SPARE	20/1							20/1	SPARE	16	
17	SPARE	20/1							20/1	SPARE	18	
19	SPARE	20/1							20/1	SPARE	20	
21	SPARE	20/1							20/1	SPARE	22	
23	SPARE	20/1							20/1	SPARE	24	
TOTAL			800	900				1300	1400	TOTAL		

CONNECTED BUS A 2100 VA
CONNECTED BUS B 2300 VA
CONNECTED TOTAL VA 4400 VA

CONDUIT AND WIRE SCHEDULE

CIRCUIT ID	WIRE	CONDUIT	FROM	TO
F-180-1A	3#500KCMIL(15KV), 1#2/0G (600V)	(1)	SW-1A	SW-2B2
F-180-2B2	3#500KCMIL(15KV), 1#2/0G (600V)	4"C	SPLICE AT EXISTING EMH#5	SW-2B2
F-150	3#500KCMIL(15KV), 1#2/0G (600V)	(1)	13.8 KV MAIN EXISTING SWITCHGEAR	SW-2B1
F-150-2B1	3#500KCMIL(15KV), 1#2/0G (600V)	4"C	SPLICE AT EXISTING EMH#5	SW-2B1
F-1-SW2B1	3#2/0(15KV), 1#2/0G(600V)	4"C	SW-2B1	SS-2B
F-1-SS2B	2 SETS OF 3#500KCMIL(5KV), 1#2/0G (600V)	2-4"C	SS-2B	SW-2B3
F-TX2B3-2B3	3#6(5KV), 1#6G (600V)	2"C	SW-2B3	TX-2B3
F-2B1-2B2	3#500KCMIL(15KV), 1#2/0G (600V)	4"C	SW-2B2	SW-2B1
TX2B3-1	4#1/0, 1#6G	2 1/2"C	TX-2B3	PP-2B3
PP2B3-14,16	2#4, 1#8G	2"C	PP-2B3	TX-2B3A
TX2B3A-1	4#1/0, 1#8G	2 1/2"C	TX-2B3A	LP-2B3
F-MPC-SWBD1	3#4, 1#10G	2"C	SWBD-1	MINI POWER CENTER AT SCREENING FACILITY
F-B1-2B3	3#3/0(5KV), 1#1G (600V)	3"C	SW-2B3	BLOWER B-1
F-B3-2B3	3#3/0(5KV), 1#1G (600V)	3"C	SW-2B3	BLOWER B-3
F-B5-2B3	3#3/0(5KV), 1#1G (600V)	3"C	SW-2B3	BLOWER B-5
F-B7-2B3	3#3/0(5KV), 1#1G (600V)	3"C	SW-2B3	BLOWER B-7
PP2B3-1,3,5	3#12, 1#12G	1 1/12"C	PP-2B3	BLOWER OIL COOLER NO. 1
PP2B3-7,9,11	3#12, 1#12G	1 1/12"C	PP-2B3	BLOWER OIL COOLER NO. 3
PP2B3-2,4,6	3#12, 1#12G	1 1/12"C	PP-2B3	BLOWER OIL COOLER NO. 5
PP2B3-8,10,12	3#12, 1#12G	1 1/12"C	PP-2B3	BLOWER OIL COOLER NO. 7
F-160	3#500KCMIL(15KV), 1#2/0G (600V)	(1)	13.8 KV MAIN EXISTING SWITCHGEAR	SW-2A2
F-160-2A2	3#500KCMIL(15KV), 1#2/0G (600V)	4"C	SPLICE AT EXISTING EMH#5	SW-2A2
F-170-2A1	3#500KCMIL(15KV), 1#2/0G (600V)	4"C	SPLICE AT EXISTING EMH#5	SW-2A1
F-170-1B	3#500KCMIL(15KV), 1#2/0G (600V)	(1)	SW-1B	SW-2A1
F-2A1-2A2	3#500KCMIL(15KV), 1#2/0G (600V)	4"C	SW-2A2	SW-2A1
F-1-SW2A1	3#2/0(15KV), 1#2/0G(600V)	4"C	SW-2A1	SS-2A
F-1-SS2A	2 SETS OF 3#500KCMIL(5KV) 1#2/0G (600V)	2-4"C	SS-2A	SW-2A3

CONDUIT AND WIRE SCHEDULE

CIRCUIT ID	WIRE	CONDUIT	FROM	TO
F-TX2A3-2A3	3#6(5KV), 1#6G (600V)	2"C	SW-2A3	TX-2A3
TX2A3-1	4#1/0, 1#8G	2 1/2"C	TX-2A3	PP-2A3
PP2A3-14,16	2#4, 1#8G	2"C	PP-2A3	TX-2A3A
TX2A3A-1	4#1/0, 1#8G	2 1/2"C	TX-2A3A	LP-2A3
F-B2-2A3	3#3/0(5KV), 1#1G (600V)	3"C	SW-2A3	BLOWER B-2
F-B4-2A3	3#3/0(5KV), 1#1G (600V)	3"C	SW-2A3	BLOWER B-4
F-B6-2A3	3#3/0(5KV), 1#1G (600V)	3"C	SW-2A3	BLOWER B-6
PP2A3-1,3,5	3#12, 1#12G	1 1/12"C	PP-2A3	BLOWER OIL COOLER NO. 2
PP2A3-7,9,11	3#12, 1#12G	1 1/12"C	PP-2A3	BLOWER OIL COOLER NO. 4
PP2A3-2,4,6	3#12, 1#12G	1 1/12"C	PP-2A3	BLOWER OIL COOLER NO. 6
PP2A3-8,10,12	CONDUIT ONLY	1 1/12"C	PP-2A3	BLOWER OIL COOLER NO. 8
F-170	3#500KCMIL(15KV), 1#2/0G (600V)	(1)	13.8 KV MAIN EXISTING SWITCHGEAR	SW-1B
F-180	3#500KCMIL(15KV), 1#2/0G (600V)	(1)	13.8 KV MAIN EXISTING SWITCHGEAR	SW-1A
F-1-SW1B	3#1(15KV), 1#2G (600V)	3"C	SW-1B	SS-1B
F-1-SW1A	3#1(15KV), 1#2G (600V)	3"C	SW-1A	SS-1A
F-1-SS1B	3 SETS OF 3#500KCMIL, 1#4/0G	4"C	SS-1B	SWBD-1
F-1-SS1A	3 SETS OF 3#500KCMIL, 1#4/0G	4"C	SS-1A	SWBD-1
F-1B-SWBD1	2 SETS OF 3#350KCMIL, 1#2/0G	3 1/2"C	SWBD-1	MCC-1B
F-1A-SWBD1	2 SETS OF 3#350KCMIL, 1#2/0G	3 1/2"C	SWBD-1	MCC-1A
PP2A3-13,15	2#10, 1#10G	1 1/12"C	PP-2A3	EAST FLOOD LIGHTS
PP2B3-13,15	3#10, 1#10G	1 1/12"C	PP-2B3	WEST FLOOD LIGHTS

CP&Y
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TYPE FIRM
No. 1741

CP&Y JOB NO.: HOUST001.02
DESIGNED BY: CMC DRAWN BY: KAS
DESIGN CHECK BY: TEC DRAWING CHECK BY: TEC

10/17/2013

STATE OF TEXAS
ANNIE LEVESQUE
94943
LICENSED PROFESSIONAL ENGINEER

SURVEYED BY: SURVEY AND MAPPING, INC.
FB NO.:

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

69TH STREET WWTP -
PUMP STATION, DIGESTER
& THICKENER BLOWER SWITCHGEARS,
SUB-STATION TRANSFORMER & STARTER
REPLACEMENT

**AEROBIC DIGESTER BLOWER
PANEL SCHEDULES**

WBS NUMBER	R-000509-0027-4
DRAWING SCALE	NTS
CITY OF HOUSTON PM	IRAJ RANJBAR, P.E.
DATE	10-17-13
SHEET NO.	38 OF 40

1	REVISED PER ADDENDUM NO 1	TEC	10-17-13	E-30
NO.	REVISION	BY	DATE	

C:\pwworking\kbarnes\d0313066\Project No.: CH007027 Dwg Name: E-030.dwg