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Please Email ALL Questions:

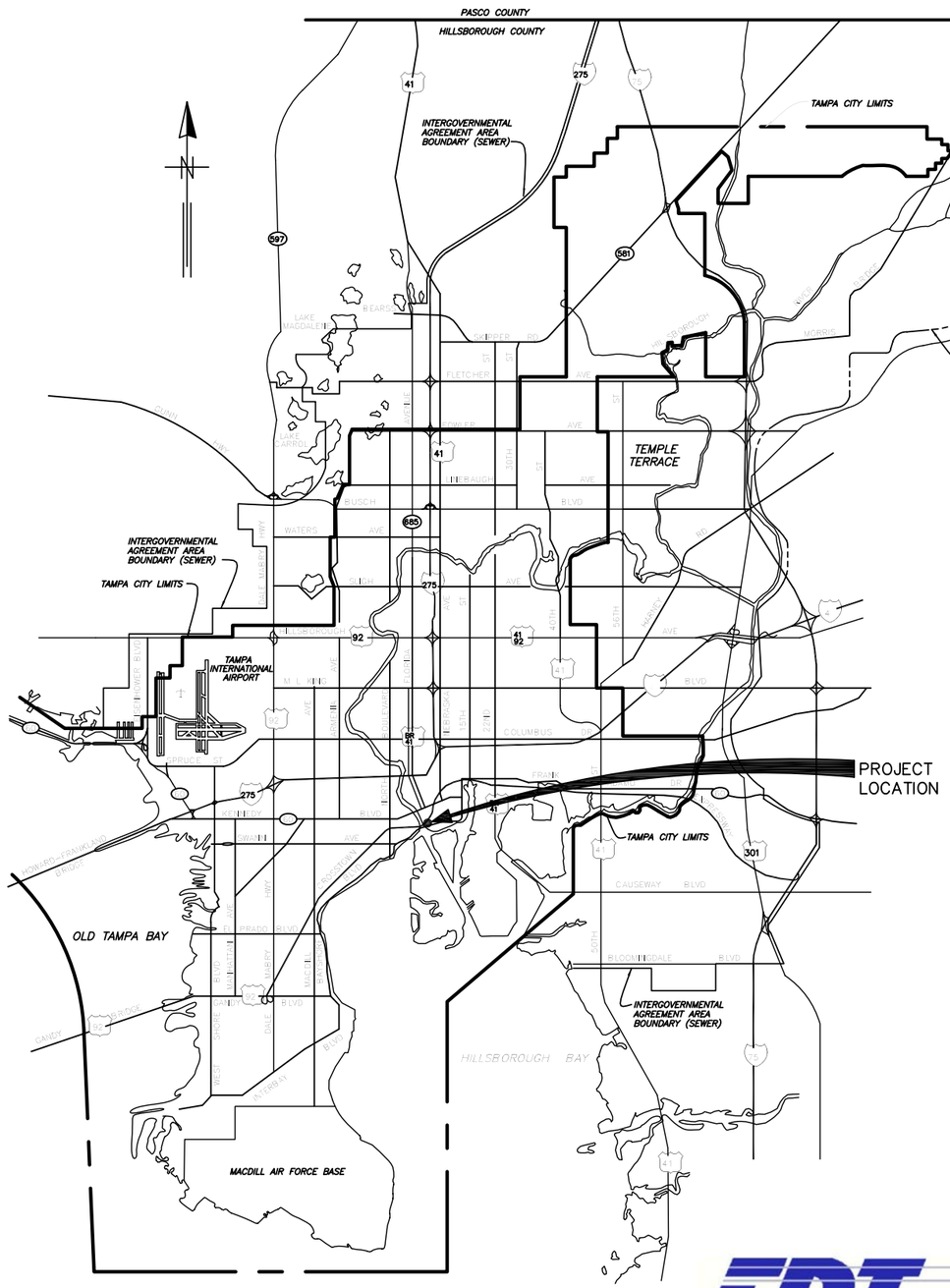
MailTo:ContractAdministration@TampaGov.net

Please Let Us Know If You Plan To Bid

City of Tampa
Contract Administration Department
306 E. Jackson St. #280A4N
Tampa, FL 33602
(813)274-8456

B080-001

LOCATION MAP



CITY of TAMPA

WASTEWATER DEPARTMENT

PLANS FOR

KRAUSE PS REHABILITATION

CONTRACT NUMBER 14-C-00009

ENGINEER OF RECORD:
BOB E. HALLMAN, P.E.
FLORIDA REGISTRATION NO. 20761

EDT

GREELEY AND HANSEN

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CITY of TAMPA
WASTEWATER DEPARTMENT

KRAUSE PS REHABILITATION

COVER SHEET

NO.	DATE	REVISIONS

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DATE: 06/03/14

COVER

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B080-002

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KRAUSE PS REHABILITATION

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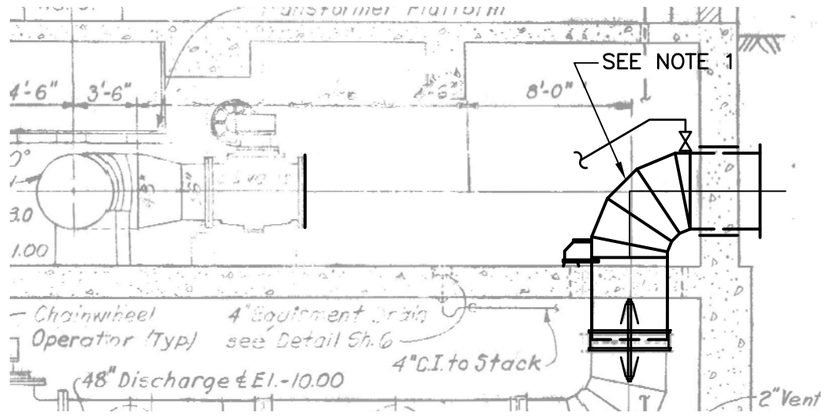
GENERAL NOTES:

1. CONTRACTOR SHALL COORDINATE ALL CONSTRUCTION ACTIVITIES WITH THE ENGINEER AND THE CITY OF TAMPA WASTEWATER DEPARTMENT PERSONNEL PRIOR TO COMMENCING CONSTRUCTION ACTIVITIES.
2. ALL ELEVATIONS SHOWN ARE BASED ON 1988 NAVD.
3. EXISTING DIMENSIONS AND ELEVATIONS ARE BASED ON THE BEST INFORMATION AVAILABLE. TRUE DIMENSIONS AND ELEVATIONS SHALL BE DETERMINED IN THE FIELD PRIOR TO LAYOUT AND SHOP DRAWING SUBMITTALS.
4. ALL SUBMITTALS AND SHOP DRAWINGS SHALL BE ORIGINALS OR HIGH QUALITY COPIES (EASILY READABLE). NO FAXED SHEETS OR POOR QUALITY COPIES WILL BE ACCEPTED FOR SUBMITTAL REVIEW.
5. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING, INSTALLING, LEVELING AND ALIGNING MOTOR AND PUMP. PROCEDURES FOR INSTALLATION, AS OUTLINED IN THE HYDRAULICS INSTITUTE STANDARDS, MOST CURRENT EDITION, SHALL BE ADHERED TO. SEE SPECIFIC PROVISIONS. IF THERE IS A CONFLICT BETWEEN THE REQUIREMENTS OF THE CONTRACT SPECIFICATIONS AND THE HYDRAULIC INSTITUTE STANDARDS, THE MOST STRINGENT STANDARD SHALL BE FOLLOWED.
6. REPLACE ALL AIR SUPPLY PIPING AND VACUUM PIPING. LAY–OUT NEW PIPING AS REQUIRED FOR THE NEW EQUIPMENT. ISOLATION BALL VALVES AND PIPE UNIONS SHALL BE PROVIDED TO ALLOW REMOVAL OF EQUIPMENT. PIPING SHALL BE TYPE K HARD DRAWN COPPER WITH CAST BRASS SOLDERED FITTINGS. ALL JOINTS SHALL BE THREADED OR SOLDERED. COPPER PIPE SHALL MEET THE REQUIREMENTS AND SHALL BE PAINTED IN ACCORDANCE WITH THE CONTRACT SPECIFICATIONS.
7. PUMP ANCHOR BOLTS SHALL BE PER PUMP MANUFACTURER'S RECOMMENDATIONS. ANCHOR BOLTS SHALL BE DOUBLE–NUTTED AND SHALL HAVE SUFFICIENT LENGTH SO THAT THE BOLTS EXTEND BEYOND THE FASTENING NUTS BY A MINIMUM OF ½ INCH.
8. ALL HARDWARE, UNLESS OTHERWISE NOTED, SHALL BE TYPE 316 STAINLESS STEEL.
9. PROPOSED STEEL SPOOL PIECES AND FITTINGS (INCLUDING PUMP DISCHARGE AND SUCTIONS REDUCERS) SHALL BE FABRICATED TO SUIT THE DIMENSIONS OF THE PROPOSED EQUIPMENT OR LAYOUT, AND SHALL BE ASTM A 36 STEEL WITH A MINIMUM WALL THICKNESS OF ½ INCH STEEL PIPE SHALL BE LINED WITH COAL TAR EPOXY (MINIMUM 3⁄32" THICK) IN ACCORDANCE WITH AWWA C203. FABRICATED STEEL FITTINGS SHALL BE MANUFACTURED BY AN AWWA CERTIFIED FABRICATOR.
10. ALL FIELD WELDS SHALL CONFORM TO PROCEDURES OUTLINED IN AWWA M 11 AND AWWA C 206.
11. CONTRACTOR SHALL PROCURE THE SERVICES OF AN INDEPENDENT CERTIFIED WELDING INSPECTOR TO TEST ALL FIELD WELDS. CERTIFIED WELD INSPECTOR SHALL PERFORM AS A MINIMUM A VISUAL INSPECTION AND EITHER A DYE PENETRATING TINT OR MAG PARTICLE TEST TO ASSERT QUALITY OF FIELD WELDS.
12. BURIED DUCTILE IRON PIPE SHALL BE MINIMUM PRESSURE CLASS 200 AND SHALL A HAVE CEMENT MORTAR LINING, EXCEPT WHERE REQUIRED TO HAVE CERAMIC EPOXY LINING. ALL FITTINGS, BENDS AND VALVES FOR THIS PIPELINE SHALL BE POLYETHYLENE ENCASED AND INSTALLED USING CLASS C BEDDING, UNLESS OTHERWISE SHOWN OR DIRECTED.
13. RESTRAIN ALL NEW DUCTILE IRON PIPE, VALVES AND FITTINGS. BURIED DUCTILE IRON PIPE SHALL BE MECHANICAL JOINT TYPE AND RESTRAINED BY EXTERNAL JOINT RESTRAINERS "MEGALUG SERIES 1100" AS MANUFACTURED BY EBBA IRON OR APPROVED EQUAL.
14. EXPOSED DUCTILE IRON PIPE SHALL BE FLANGED, MINIMUM CLASS 53 AND SHALL HAVE CERAMIC EPOXY LINER.
15. THE CONTRACTOR SHALL INSTALL THE FORCE MAIN TO THE ELEVATIONS AND SLOPES SHOWN ON THE DRAWINGS. THERE SHALL BE NO INTERMEDIATE HIGH OR LOW POINTS BETWEEN V.P.I.'S.
16. CONTRACTOR SHALL RESTORE ANY LANDSCAPING, SIDEWALK, CURBING, FENCING, SODDING AND SPRINKLER SYSTEM PIPING THAT MAY HAVE BEEN DAMAGED DURING CONSTRUCTION TO ITS ORIGINAL CONDITION OR BETTER.
17. THE CONTRACTOR SHALL REMOVE ALL DEBRIS FROM WETWELL, PRESSURE WASH ALL WETWELL CONCRETE SURFACES, PREPARE CONCRETE SURFACE AND APPLY 125 MILS OF AN APPROVED COATING SYSTEM IN ACCORDANCE WITH TECHNICAL SPECIFICATION NO. 52 – MANHOLE AND STRUCTURE REHABILITATION.
18. OSHA STANDARD SAFETY EQUIPMENT SUCH AS, BUT NOT LIMITED TO, SAFETY HARNESSES, GAS MONITORS, LOWER EXPLOSIVE LIMIT(LEL) DETECTORS, BREATHING APPARATUS, ETC. SHALL BE UTILIZED WHERE THE WORK DICTATES THEIR USE.

DEMOLITION NOTES:

1. ALL DIMENSIONS ARE APPROXIMATE. ACTUAL DIMENSIONS SHALL BE DETERMINED IN THE FIELD.
2. SALVAGEABLE MATERIALS AS DETERMINED BY THE WASTEWATER DEPARTMENT PERSONNEL SHALL BE DELIVERED TO THE CITY OF TAMPA'S HOWARD F. CURREN AWTP, LOCATED AT 2700 MARITIME BLVD., TAMPA, FL 33605. NON–SALVAGEABLE MATERIALS ARE TO BE REMOVED FROM SITE AND PROPERLY DISPOSED OF AT THE CONTRACTOR'S EXPENSE. IN GENERAL, ALL PUMP AND CONTROLS EQUIPMENT SHALL REMAIN PROPERTY OF THE CITY AND BE CONSIDERED SALVAGEABLE. REFER TO SPECIFIC PROVISIONS.
3. CONTRACTOR SHALL CUT ALL EXPOSED REINFORCING STEEL TO A DEPTH OF 1–INCH BELOW THE EXPOSED SURFACE AND THE OPENING SHALL BE SEALED WITH GROUT.

LEGEND



NOTES:

1. ALL WORK INCLUDED IN THIS CONTRACT IS SHOWN IN BOLD. LIGHT LINEWEIGHT DENOTES EQUIPMENT, STRUCTURES, PIPING, ETC. THAT WILL REMAIN AND BE REUSED AND IS ENTENDED AS BACKGROUND INFORMATION, EXCEPT WHERE NOTED OTHERWISE IN THESE PLANS BY BOLD ANNOTATION.

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CERTIFICATE OF AUTHORIZATION NO. 37

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CITY of TAMPA
WASTEWATER DEPARTMENT

KRAUSE PS REHABILITATION

GENERAL NOTES

NO.	DATE	REVISIONS

DRAWN: J. WHITE
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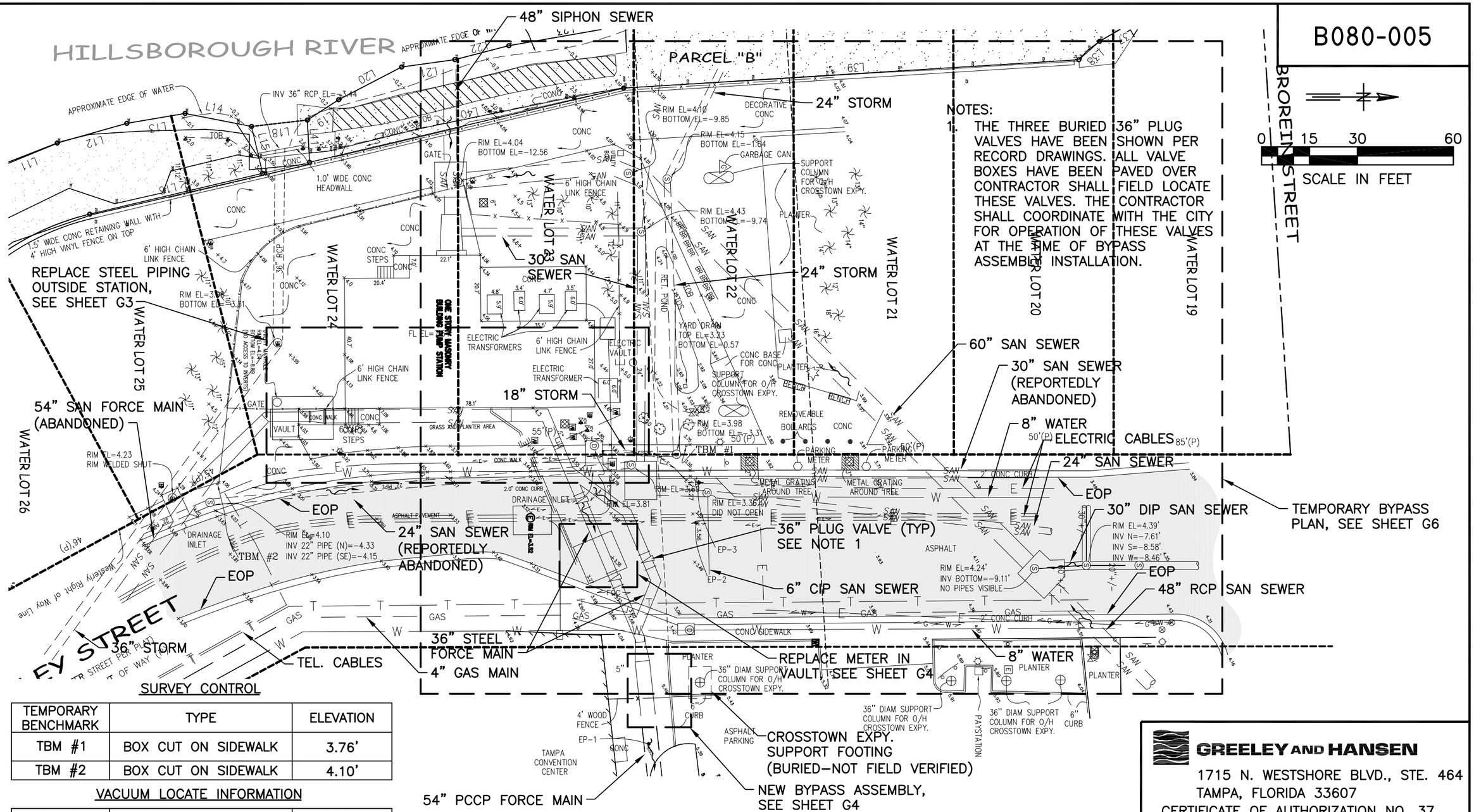
SHEET G-1

B080-005



SURVEY CONTROL

TEMPORARY BENCHMARK	TYPE	ELEVATION
TBM #1	BOX CUT ON SIDEWALK	3.76'
TBM #2	BOX CUT ON SIDEWALK	4.10'

VACUUM LOCATE INFORMATION

EP–1	54" PCCP FORCE MAIN	TOP EL 0.2
EP–2	ELECTRICAL CONDUITS	TOP EL 0.3
EP–3	ELECTRICAL CABLE	TOP EL –1.2

MECHANICAL SITE PLAN

SCALE: 1" = 30'

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MECHANICAL SITE PLAN

NO.	DATE	REVISIONS

DRAWN: J. WHITE
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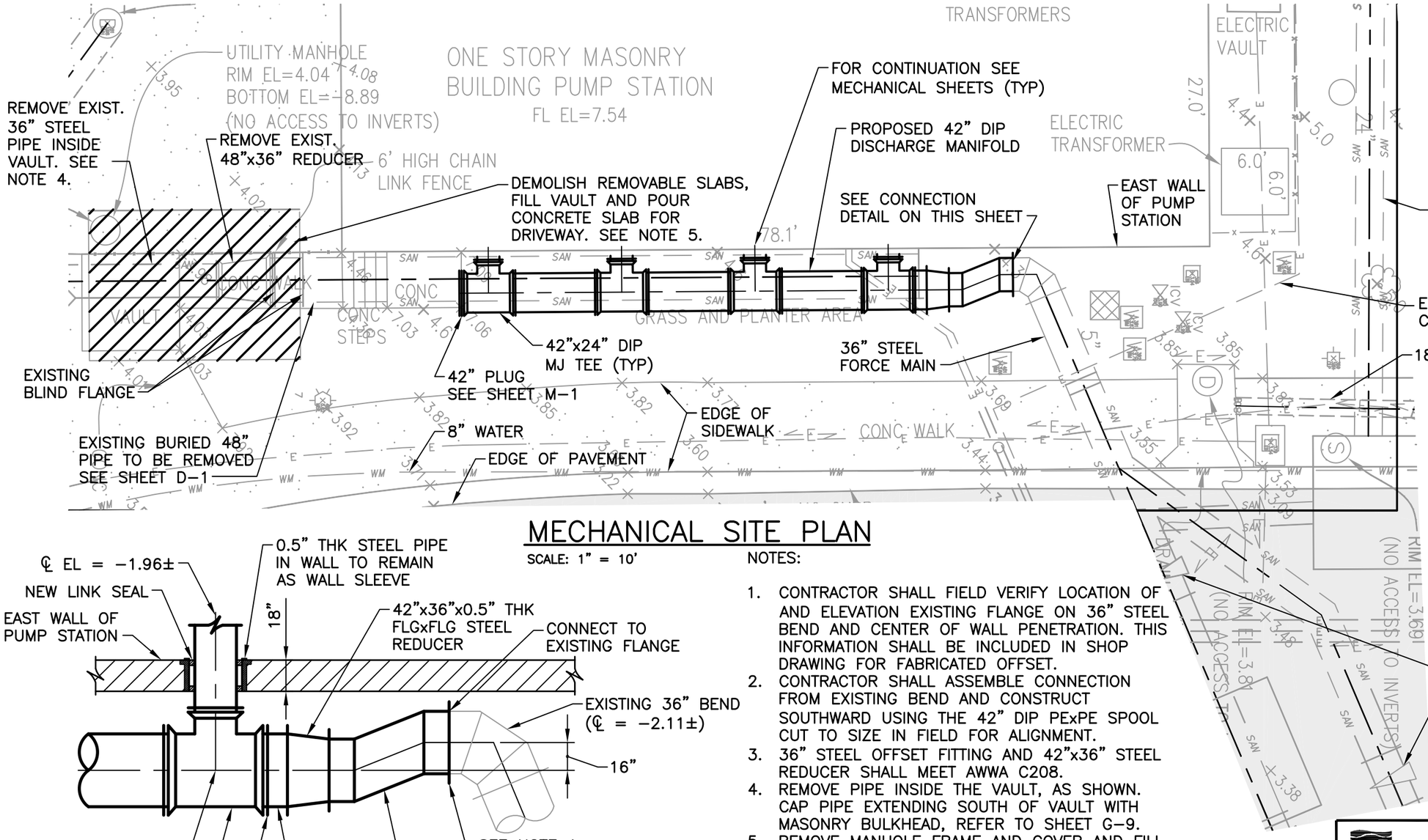
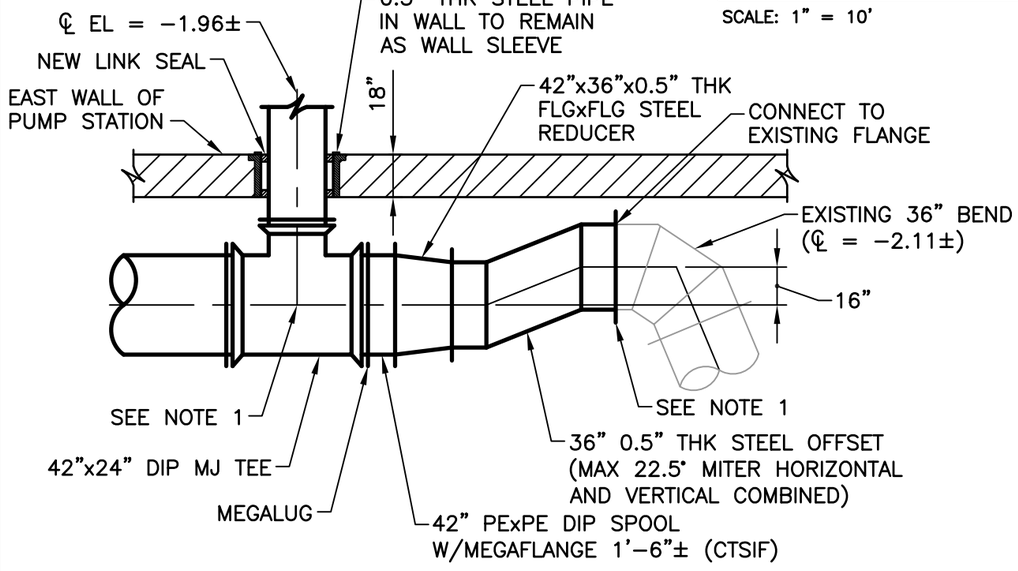
SHEET G-2

B080-006



MECHANICAL SITE PLAN

SCALE: 1" = 10'

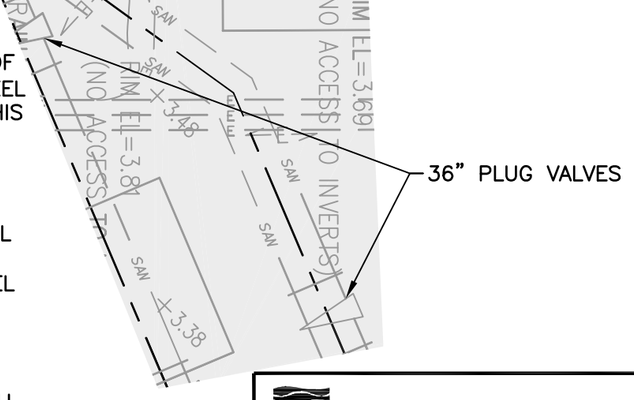


CONNECTION DETAIL

SCALE: 3/16" = 1'-0"

NOTES:

1. CONTRACTOR SHALL FIELD VERIFY LOCATION OF AND ELEVATION EXISTING FLANGE ON 36" STEEL BEND AND CENTER OF WALL PENETRATION. THIS INFORMATION SHALL BE INCLUDED IN SHOP DRAWING FOR FABRICATED OFFSET.
2. CONTRACTOR SHALL ASSEMBLE CONNECTION FROM EXISTING BEND AND CONSTRUCT SOUTHWARD USING THE 42" DIP PExPE SPOOL CUT TO SIZE IN FIELD FOR ALIGNMENT.
3. 36" STEEL OFFSET FITTING AND 42"x36" STEEL REDUCER SHALL MEET AWWA C208.
4. REMOVE PIPE INSIDE THE VAULT, AS SHOWN. CAP PIPE EXTENDING SOUTH OF VAULT WITH MASONRY BULKHEAD, REFER TO SHEET G-9.
5. REMOVE MANHOLE FRAME AND COVER AND FILL VAULT WITH EXCAVATABLE FLOWABLE FILL. SEE SHEET S-18 FOR FLOWABLE FILL SPECIFICATION. CUT 2 LF OF VERTICAL WALLS OF VAULT, COMPACT DIRT AND POUR 8" THK REINFORCED SLAB FOR DRIVEWAY. APPROXIMATE VAULT DIMENSIONS ARE 11' WIDE, 17' LONG AND AN AVERAGE OF 10' DEEP. REINFORCE 8-INCH SLAB WITH TWO MATS (TOP AND BOTTOM) OF #5 BARS @ 12 ON CENTER EACH WAY.



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MECHANICAL
YARD PIPING

NO.	DATE	REVISIONS

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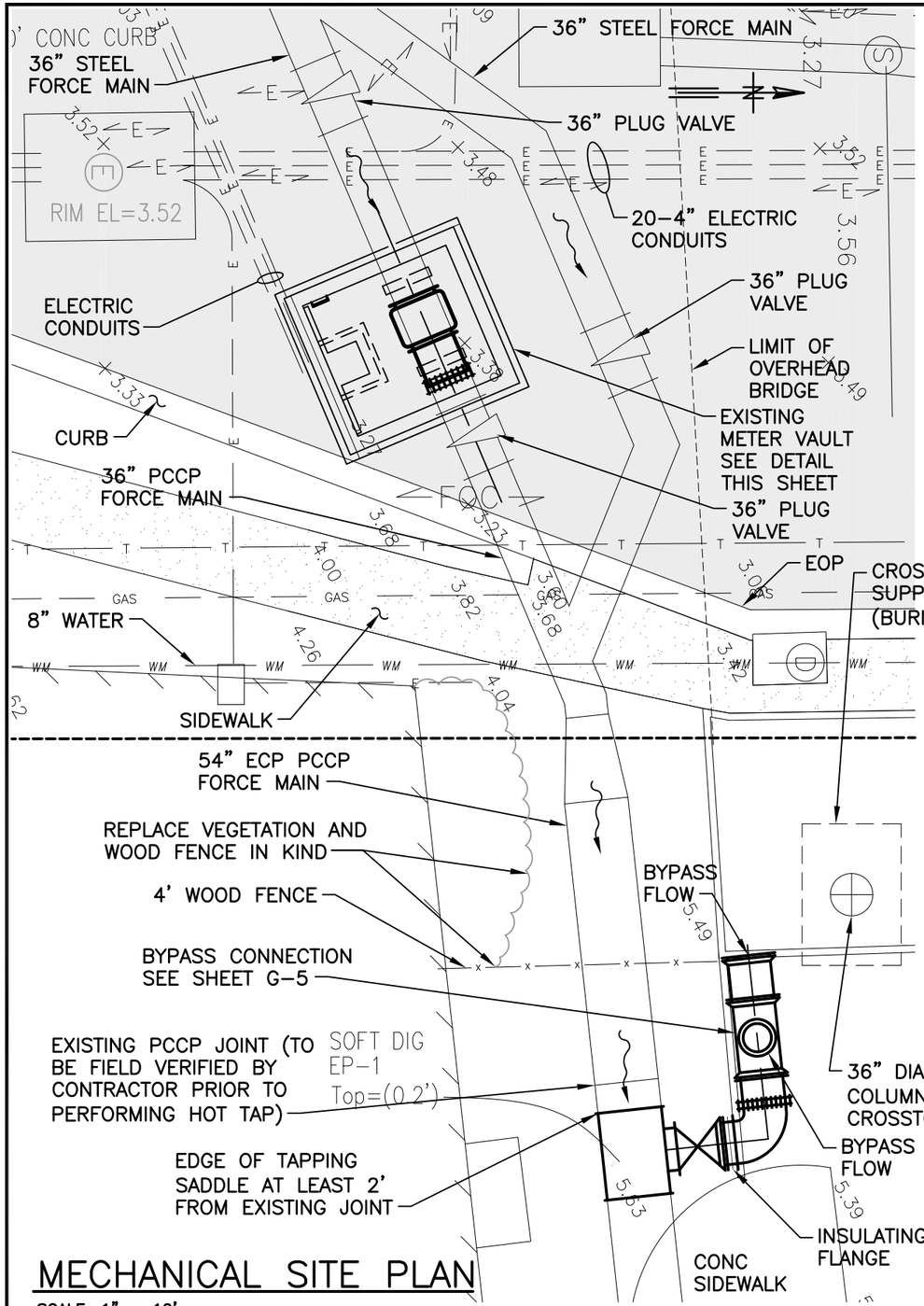
SHEET G-3



MECHANICAL SITE PLAN

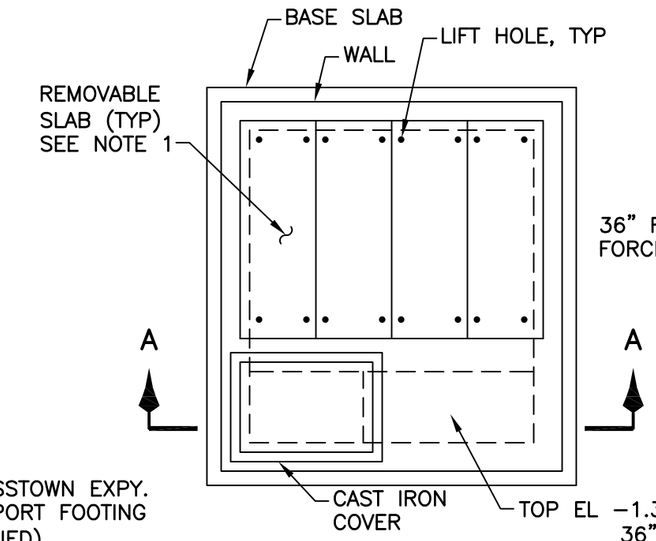
SCALE: 1" = 10'

0 5 10 20

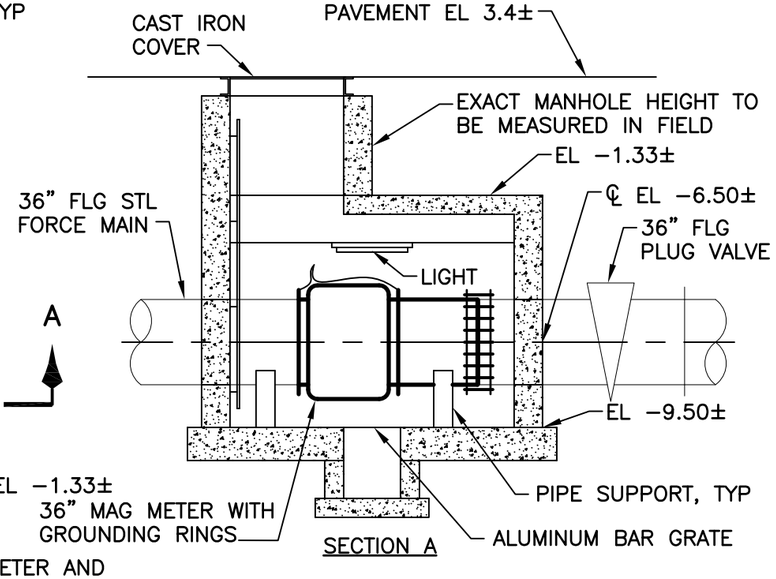
SCALE IN FEET

NOTES:
1. REMOVABLE SLABS COVERED BY ASPHALT ROAD SURFACE.

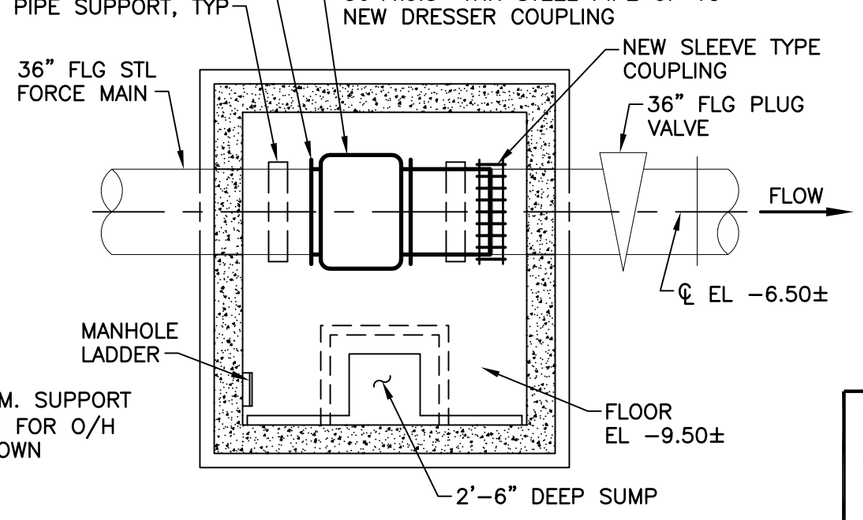
B080-007



TOP PLAN VIEW



SECTION A



SECTIONAL PLAN VIEW

EXISTING METER VAULT DETAIL

SCALE: 3/16" = 1'-0"

NOTES:
1. CAREFULLY EXCAVATE AND EXPOSE REMOVABLE TOP SLABS AS NEEDED TO ACCOMMODATE INSTALLATION OF NEW FLOW METER.
2. REPAIR ANY DAMAGE TO TOP SLAB. SLAB JOINTS SHALL BE PROPERLY SEALED DURING REINSTALLATION. SEAL JOINTS WITH RN-103 RAM-NEK PREFORMED JOINT SEALANT OR APPROVED EQUAL.

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METER REPLACEMENT

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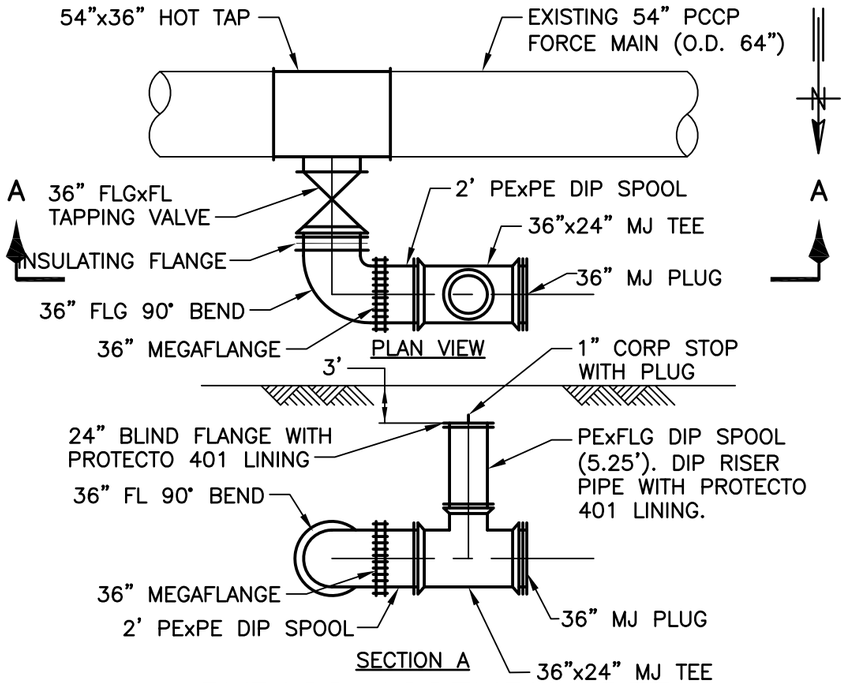
DESIGN: FJB
QC: DCH
DATE: 05/01/14

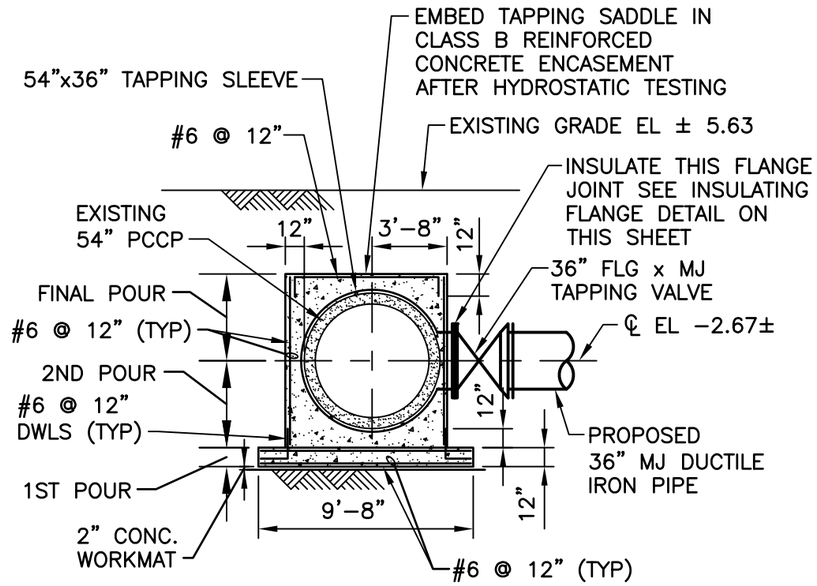
SHEET G-4

B080-008



BYPASS ASSEMBLY DETAIL

NOT TO SCALE

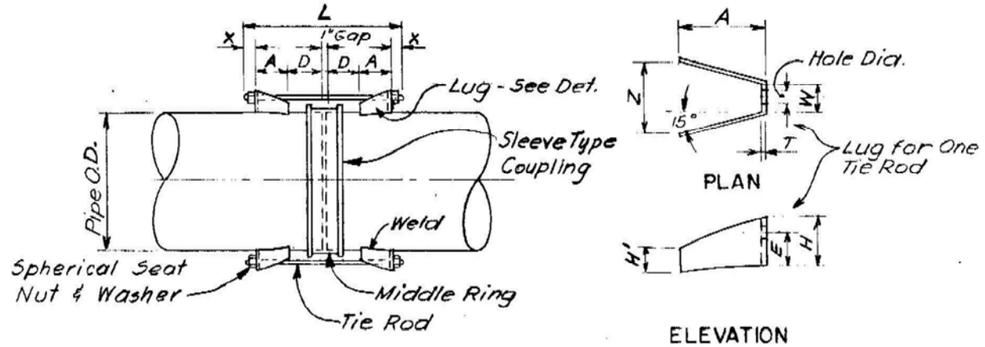


DETAIL OF PIPE CONNECTION TO EXISTING 54" PCCP

NOT TO SCALE

NOTES:

1. CONTRACTOR SHALL PROVIDE ADEQUATE TEMPORARY SUPPORT TO EXISTING PIPE WHILE THE NEW SUPPORT SLAB IS BEING CONSTRUCTED. CONTRACTOR SHALL SUBMIT SHOP DRAWING, INDICATING INSTALLATION PROCEDURES FOR APPROVAL PRIOR TO INITIATING THE WORK.
2. CONTRACTOR SHALL TAKE EXTREME CARE CONSTRUCTING NEW SUPPORT SLAB AND ENCASEMENT IN ORDER TO PREVENT ANY DAMAGE TO EXISTING PIPE. ALL THE ABOVE WORK SHALL BE DONE IN THE PRESENCE OF THE ENGINEER.
3. THE SUPPORT SLAB MAY BE CONSTRUCTED IN SECTIONS WITH KEYWAY JOINTS AND WITH REINFORCING LAPPED 2' MIN.
4. ALL CONCRETE SHALL BE CLASS B.
5. EXTEND CONCRETE ENCASEMENT A MINIMUM OF 12" AROUND TAPPING SADDLE, EXCEPT FOR NORTH FACE AS SHOWN TO PERMIT ASSEMBLY OF INSULATING FLANGE JOINT. CONCRETE ENCASEMENT SHALL EXTEND A MINIMUM OF 12" EAST AND WEST OF THE TAPPING SADDLE.



HARNESS ASSEMBLY

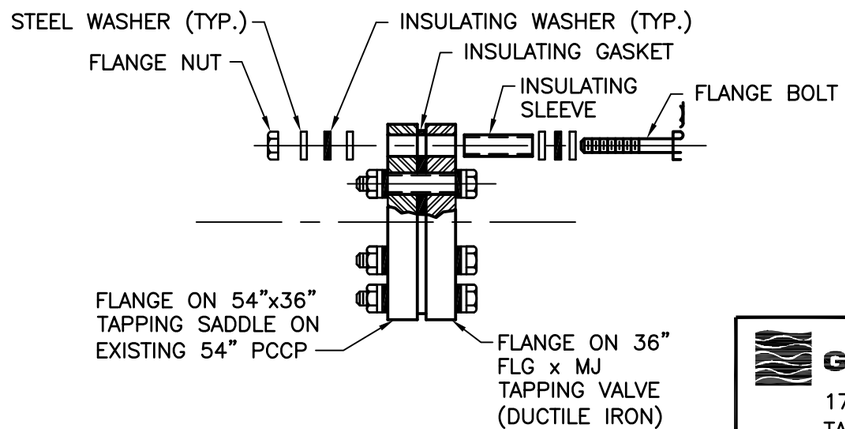
NOT TO SCALE

DETAIL OF LUG

NOT TO SCALE

PIPE SIZE	WALL THICKNESS	PIPE O.D.	MIDDLE RING COUPLING		HARNESS TIE ROD				HARNESS LUGS - MINIMUM DIMENSIONS									
			LENGTH	THICKNESS	NO.	DIA.	X	L	D	A	W	Z	T	E	H	H'	HOLE DIA.	WELD SIZE
36"	1/2"	37"	7"	3/8"	2	1 3/8"	1 7/8"	36 3/4"	8 1/2"	7 1/2"	2 13/16"	7"	1/2"	3 3/4"	5 3/8"	2 1/2"	1 1/2"	5/16"

DETAILS OF HARNESSED SLEEVE - TYPE COUPLING JOINT



INSULATING FLANGE

NOT TO SCALE

GREELEY AND HANSEN
1715 N. WESTSHORE BLVD., STE. 464
TAMPA, FLORIDA 33607
CERTIFICATE OF AUTHORIZATION NO. 37

P.E. NAME: FREDDY J. BETANCOURT P.E. NO. 68072

P.E. NAME: _____

DATE: _____

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Certificate of Authorization Number: 4795

CITY of TAMPA
WASTEWATER DEPARTMENT

KRAUSE PS REHABILITATION

BYPASS
DETAILS

NO.	DATE	REVISIONS

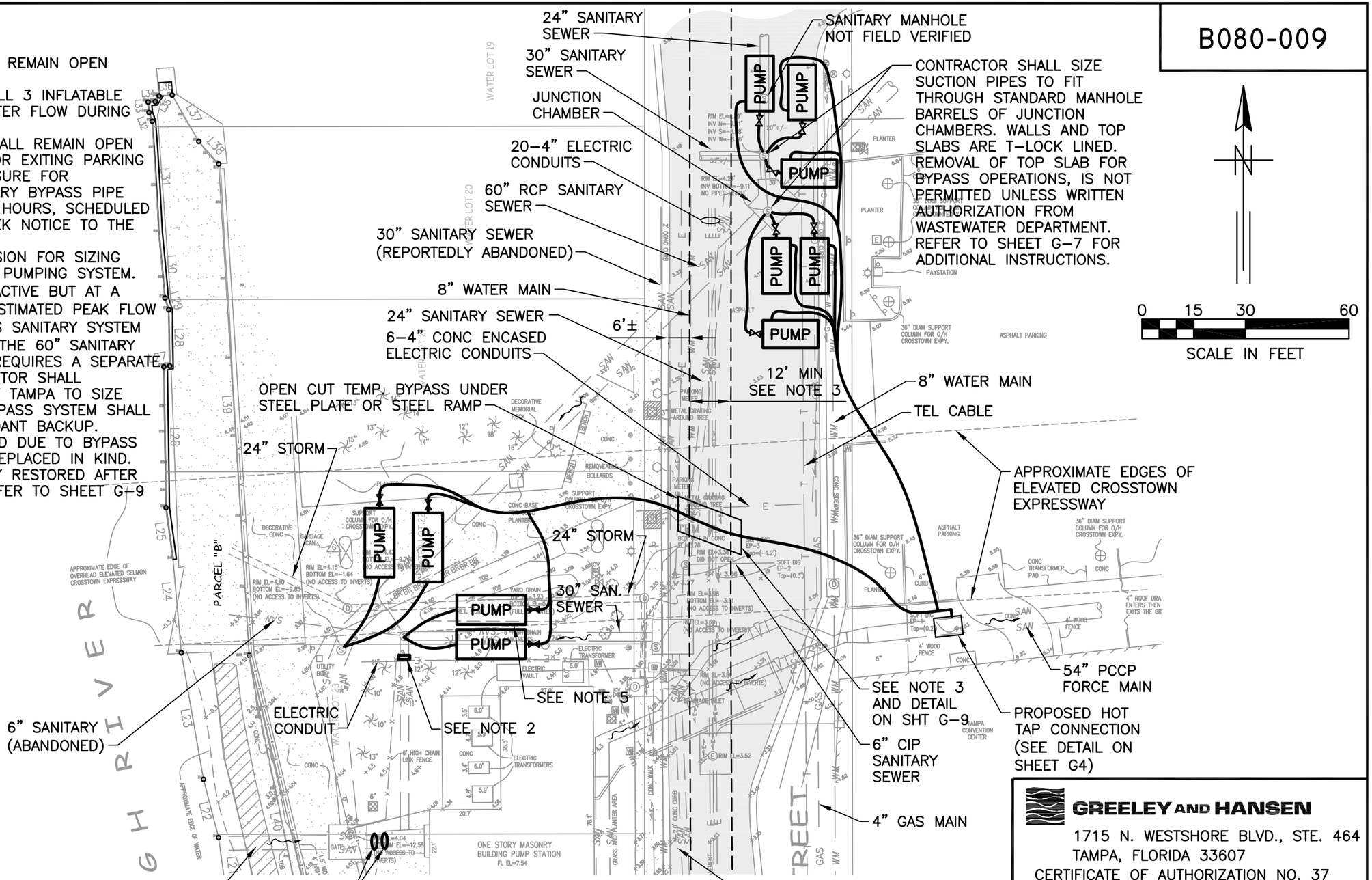
DRAWN: J. WHITE
DESIGN: FJB
QC: DCH
DATE: 05/01/14

SHEET G-5

B080-009

NOTES:

1. RIVERWALK ACCESS SHALL REMAIN OPEN DURING CONSTRUCTION.
2. CONTRACTOR SHALL INSTALL 3 INFLATABLE PLUGS TO SEAL WASTEWATER FLOW DURING CONSTRUCTION.
3. ONE LANE OF TRAFFIC SHALL REMAIN OPEN DURING CONSTRUCTION FOR EXITING PARKING GARAGE. TEMPORARY CLOSURE FOR INSTALLATION OF TEMPORARY BYPASS PIPE SHALL BE LIMITED TO 24 HOURS, SCHEDULED WITH A MINIMUM TWO WEEK NOTICE TO THE CITY.
4. REFER TO SPECIAL PROVISION FOR SIZING REQUIREMENT OF BYPASS PUMPING SYSTEM.
5. 30" SANITARY SEWER IS ACTIVE BUT AT A VERY REDUCED FLOW (ESTIMATED PEAK FLOW RATE IS 1,000 GPM). THIS SANITARY SYSTEM IS NOT CONNECTED WITH THE 60" SANITARY INTERCEPTOR AND THUS REQUIRES A SEPARATE BYPASS SYSTEM. CONTRACTOR SHALL COORDINATE WITH CITY OF TAMPA TO SIZE PUMP APPROPRIATELY. BYPASS SYSTEM SHALL INCLUDE A FULLY REDUNDANT BACKUP.
6. ALL LANDSCAPE DISTURBED DUE TO BYPASS INSTALLATION SHALL BE REPLACED IN KIND.
7. ROADWAY SHALL BE FULLY RESTORED AFTER BYPASS IS COMPLETE. REFER TO SHEET G-9 FOR RESTORATION DETAIL.



PLAN VIEW

SCALE: 1" = 30'

GREELEY AND HANSEN
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TAMPA, FLORIDA 33607
CERTIFICATE OF AUTHORIZATION NO. 37

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CITY of TAMPA
WASTEWATER DEPARTMENT

KRAUSE PS REHABILITATION

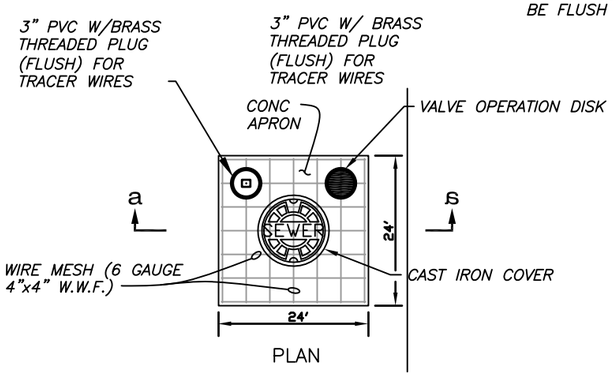
TEMPORARY BYPASS-
CONCEPTUAL PLAN

NO.	DATE	REVISIONS

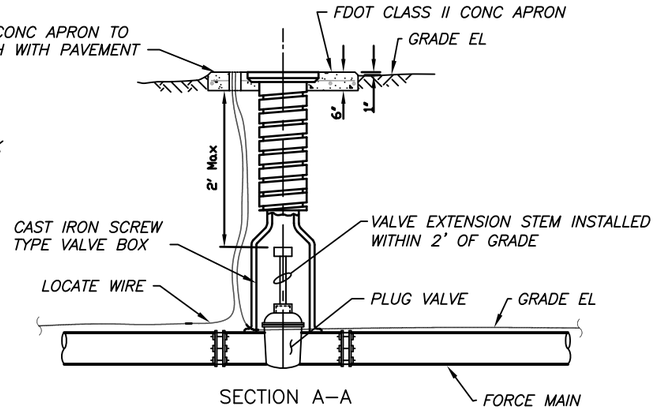
DRAWN: J. WHITE
DESIGN: FJB
QC: DCH
DATE: 05/01/14

SHEET G-6

B080-010



PLAN



SECTION A–A

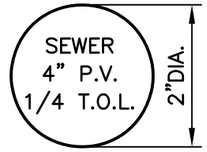
VALVE BOX DETAIL

NOT TO SCALE

IMPORTANT – FOR EACH OPERABLE VALVE

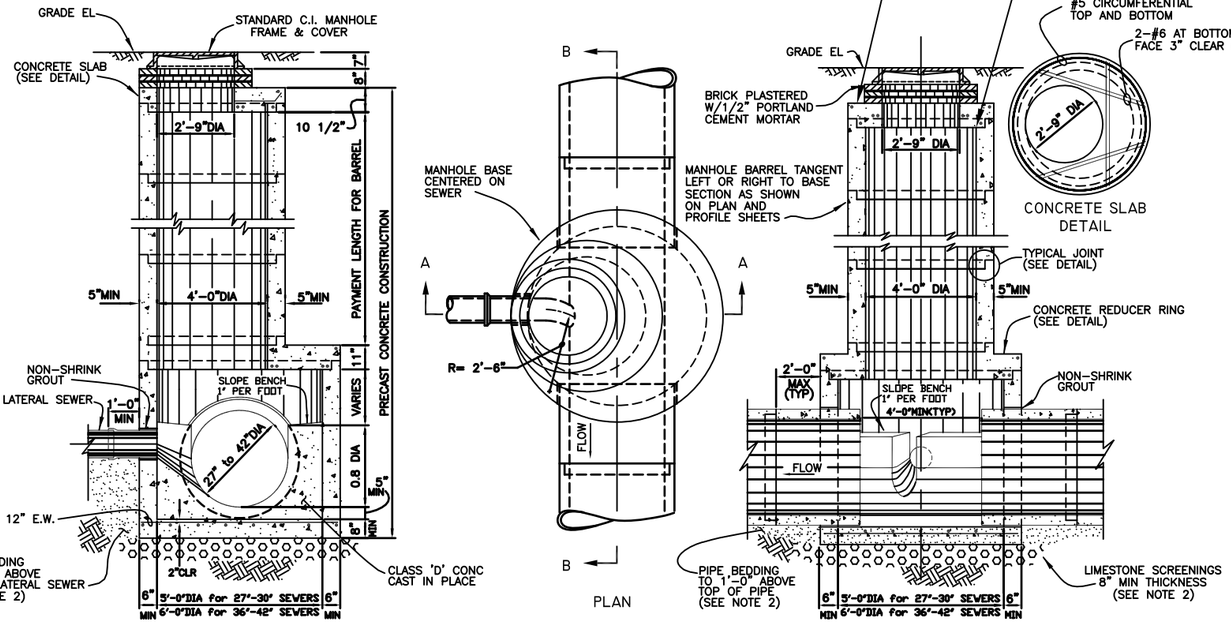
PROVIDE A BRASS IDENTIFICATION TAG ANCHORED TO THE CONCRETE APRON THAT IS A MINIMUM 2" IN DIAMETER AND 1/8–INCH THICK. THE TAG SHALL BE ENGRAVED WITH "SEWER", SIZE OF VALVE, TYPE OF VALVE, AND DIRECTION AND NUMBER OF TURNS TO OPEN.

FOR EXAMPLE, A 4–INCH PLUG VALVE ON A WASTEWATER FORCE MAIN THAT REQUIRES 1/4 TURNS TO THE LEFT (COUNTERCLOCKWISE) TO BE FULLY OPEN WOULD REQUIRE THE FOLLOWING IDENTIFICATION TAG.



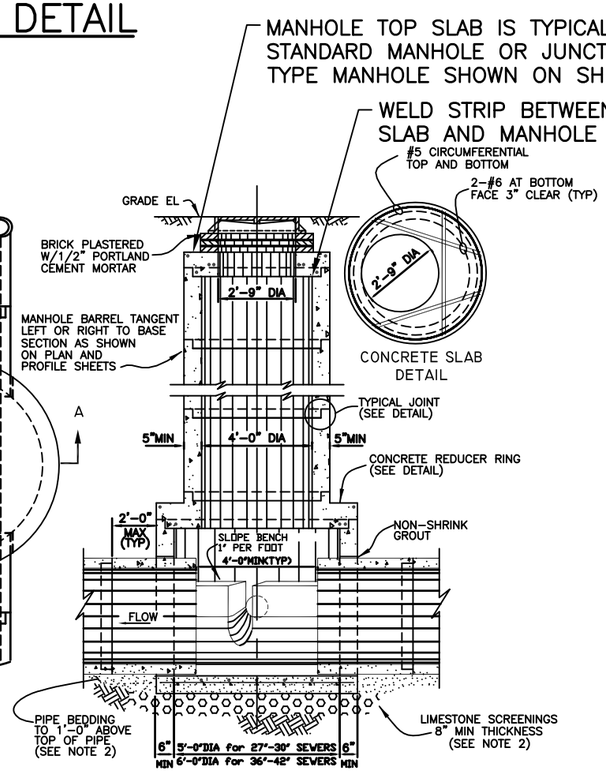
VALVE OPERATION DISK DETAIL

NOT TO SCALE



SECTION A-A

PLAN



SECTION B-B

STANDARD MANHOLE – DEEP TYPE FOR SEWERS 27" THROUGH 42" IN DIAMETER

NOT TO SCALE

NOTES:

1. CONTRACTOR SHALL ONLY PROCEED TO REMOVE TOP SLAB IF WRITTEN AUTHORIZATION HAS BEEN PROVIDED BY THE CITY.

2. CONTRACTOR SHALL PROVIDE A SAFE ENVIRONMENT AND TAKE ALL NECESSARY PRECAUTIONS FOR HIS WORKERS TO PERFORM ANY WORK INSIDE MANHOLES. OSHA STANDARD SAFETY EQUIPMENT SUCH AS, BUT NOT LIMITED TO, SAFETY HARNESSES, GAS MONITORS, LOWER EXPLOSIVE LIMITS (LEL) DETECTORS, BREATHING APPARATUS, ETC SHALL BE UTILIZED WHERE WORK DICTATES THEIR USE.

3. MANHOLE TOP SLABS AND BARRELS ARE PLASTIC SHEET LINED. IF TOP SLAB IS REQUIRED TO BE REMOVED FOR BYPASS PUMPING, CONTRACTOR SHALL CUT LINER JUST BELOW WELD STRIP JOINT BETWEEN TOP SLAB AND BARREL. REPLACEMENT TOP SLAB SHALL BE T–LOK LINED, AND T–LOK JOINT BETWEEN TOP SLAB AND BARREL SHALL BE COVERED WITH 275 MILS OF CPP GEL (MANUFACTURED BY EPOXYTEC) BY A CERTIFIED APPLICATOR OR APPROVED EQUAL.

GREELEY AND HANSEN
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TAMPA, FLORIDA 33607
CERTIFICATE OF AUTHORIZATION NO. 37

P.E. NAME: FREDDY J. BETANCOURT P.E. NO. 68072

P.E. NAME:_____
DATE:_____

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Certificate of Authorization Number: 4795

CITY of TAMPA
WASTEWATER DEPARTMENT

KRAUSE PS REHABILITATION

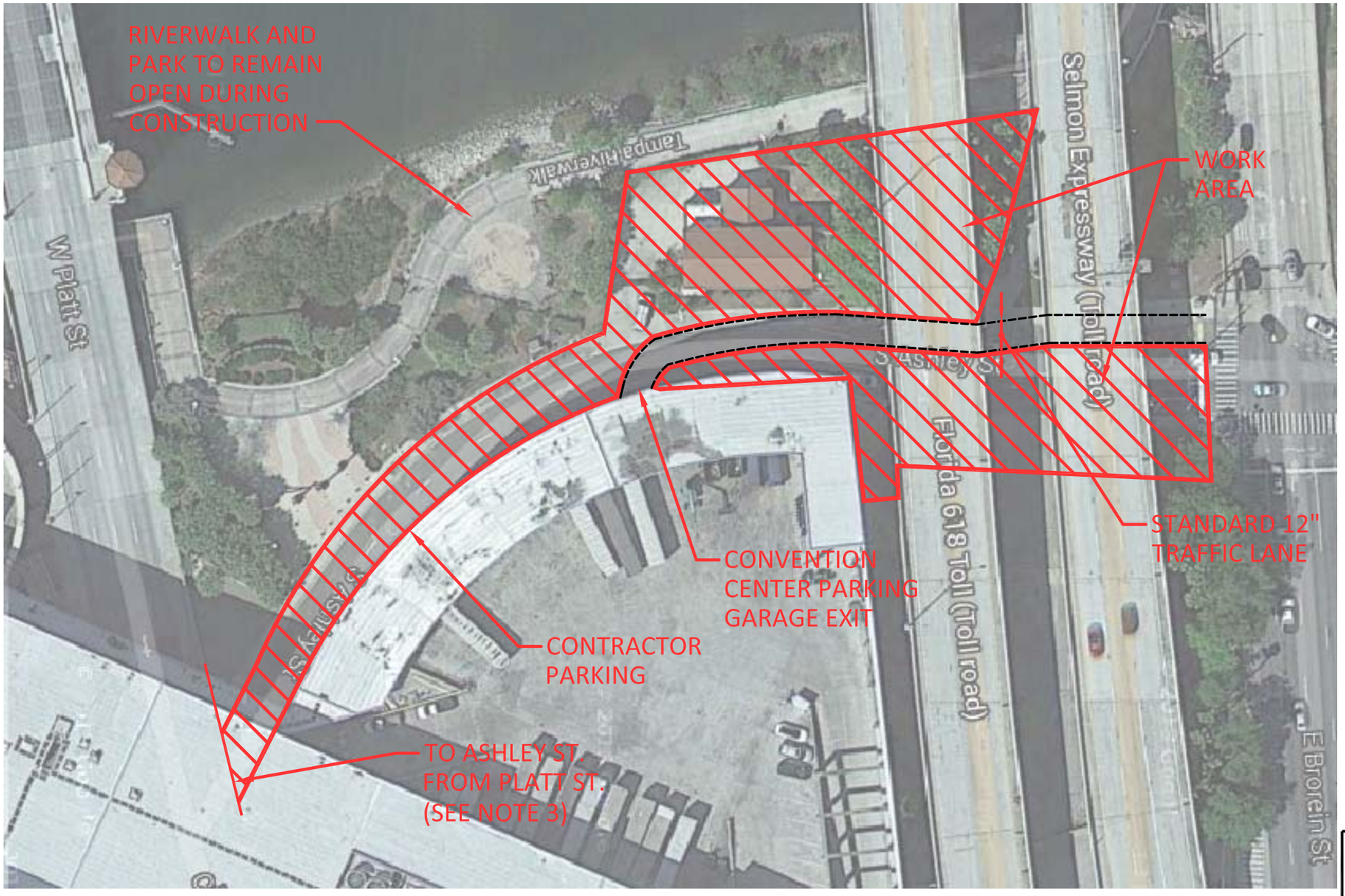
STANDARD DETAILS

NO.	DATE	REVISIONS

DRAWN: J.WHITE
DESIGN: FJB
QC: DCH
DATE: 05/01/14

SHEET G-7

B080-011



CONSTRUCTION AREA

NOT TO SCALE

NOTES:

1. CONTRACTOR SHALL ARRANGE A SECURE STAGING AREA NEAR THE SITE FOR ALL CONSTRUCTION EQUIPMENT AND REQUIRED MACHINERY.
2. CONTRACTOR SHALL PROVIDE DETAILED MOT PLAN TO BE SUBMITTED WITH ROW PERMIT APPLICATION TO THE CITY OF TAMPA.
3. ACCESS TO ASHLEY STREET FROM PLATT STREET SHALL BE CLOSED TO THE PUBLIC DURING CONSTRUCTION
4. CONTRACTOR SHALL SECURE THE PUMP STATION SITE, BYPASS PUMPING SYSTEM OR ANY TEMPORARY EQUIPMENT OR MATERIAL LAYOUT AREA WITH TEMPORARY PERIMETER SECURITY FENCES OF AT LEAST 6' OF HEIGHT.

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CITY of TAMPA
WASTEWATER DEPARTMENT

KRAUSE PS REHABILITATION

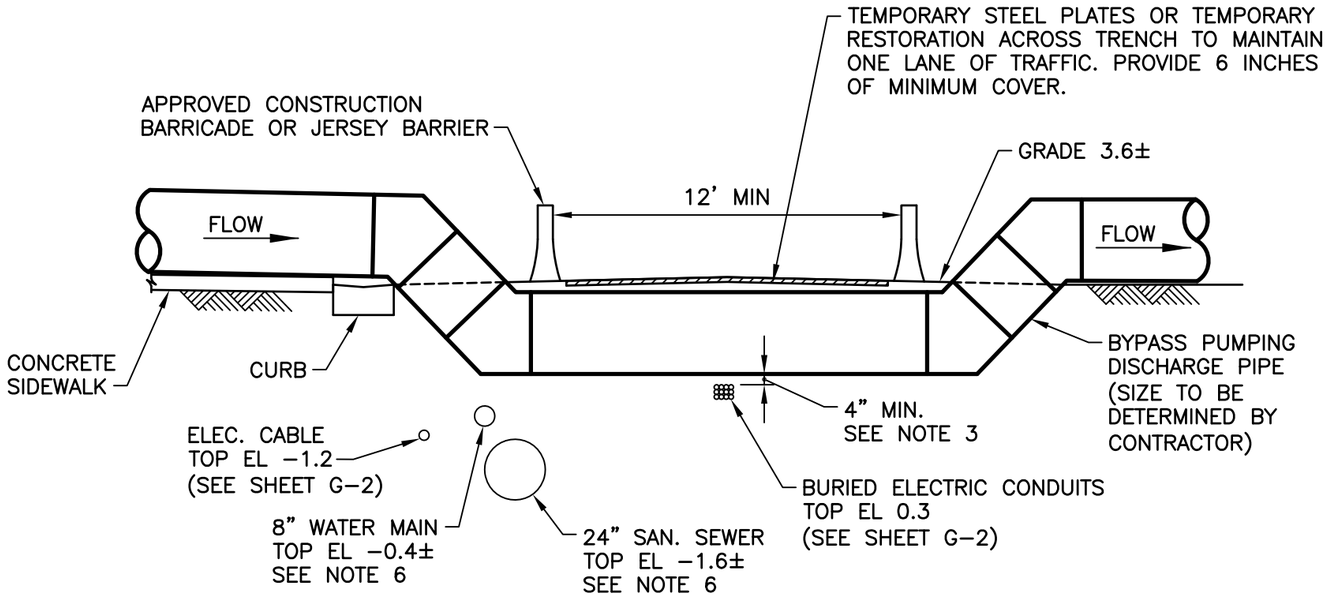
CONCEPTUAL MAINTENANCE OF TRAFFIC

NO.	DATE	REVISIONS

DRAWN: J.WHITE
DESIGN: FJB
QC: DCH
DATE: 05/01/14

SHEET G-8

B080-012

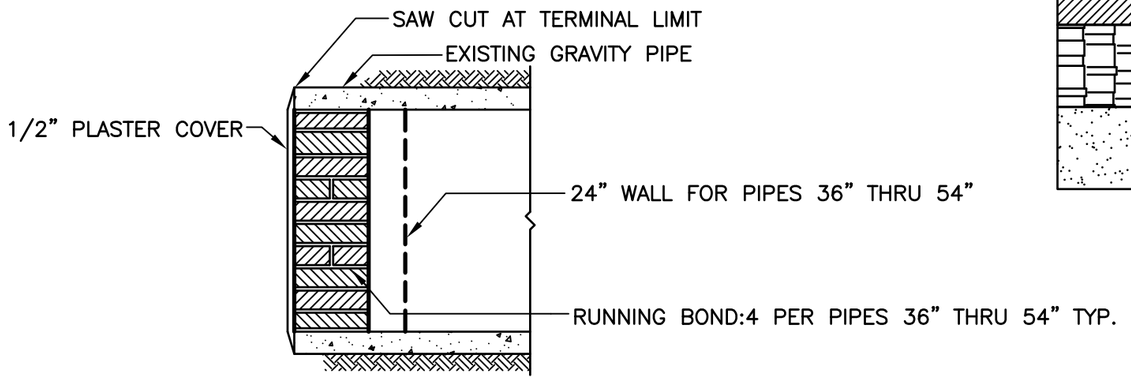


BURIED BYPASS PIPE DETAIL

NOT TO SCALE

NOTES:

1. CONTRACTOR SHALL PROVIDE THE CITY AT LEAST TWO WEEKS OF ADVANCED NOTICE PRIOR TO CLOSING LANES OF TRAFFIC FOR INSTALLATION OF BYPASS DISCHARGE PIPE ACROSS ASHLEY STREET.
2. CONTRACTOR SHALL INSTALL AT LEAST 18 FEET OF TEMPORARY PIPE UNDERGROUND AND SHALL EITHER PROVIDE TEMPORARY RESTORATION OR SECURE DRIVABLE STEEL PLATES SO THAT TRAFFIC CAN RESUME.
3. CONTRACTOR SHALL LOCATE IN ADVANCE THE CROSSING UTILITIES, AND SHALL EXERCISE CAUTION DURING INSTALLATION, PROVIDING PROTECTION TO OTHER UTILITIES AS NECESSARY. PROVIDE MIN. 4" CLEARANCE TO ALL UTILITIES.
4. BYPASS DISCHARGE PIPE SHALL BE DESIGNED TO MEET THE HYDRAULIC REQUIREMENTS OF THIS APPLICATION AND BE ABLE TO WITHSTAND THE TEMPORARY LOADINGS FROM TRAFFIC AND RESTORATION WITHOUT FAILING.
5. CONTRACTOR SHALL RESTORE PAVEMENT AS SHOWN ON DETAIL. CONTRACTOR SHALL ALSO RESTORE AND CURB, SIDEWALK OR OTHER INCIDENTAL ITEM DISTURBED IN KIND, TO ITS ORIGINAL CONDITION OR BETTER.
6. CONTRACTOR SHALL FIELD VERIFY ELEVATION OF THE CROSSING UTILITIES ALONG THE ALIGNMENT OF THE BYPASS PUMPING DISCHARGE PIPE.

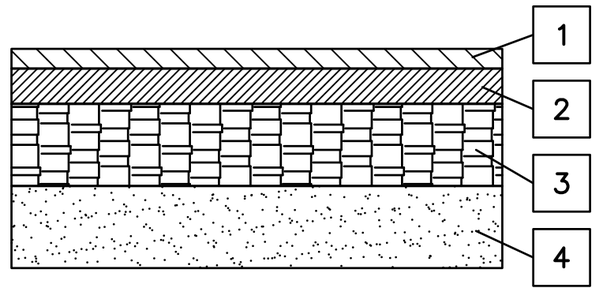


TYPICAL SECTION VIEW

NOTE:
1. BRICK SHALL CONFORM TO ASTM C32.
2. MASONRY CEMENT SHALL CONFORM TO ASTM C 91 AND C 270.

MASONRY BULKHEAD DETAIL

NOT TO SCALE



NOTES:

1. 1" MINIMUM THICKNESS, TYPE S−3 (FC−9.5) ASPHALTIC CONCRETE OVERLAY.
2. TYPE S−1 (SP−12.5) ASPHALTIC CONCRETE SURFACE COURSE 2" MIN. THICKNESS.
3. LIMEROCK OR CRUSHED CONCRETE BASE, 12" MIN. THICKNESS
4. 12" STABILIZED SUB−BASE (MINIMUM LAB−40) OR TRENCH BACKFILL COMPACTED TO AT LEAST 98 PERCENT MODIFIED PROCTOR MAXIMUM DRY DENSITY (ASTM D−1557).

TYPICAL PAVING SECTION

NOT TO SCALE

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P.E. NAME:_____
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CITY of TAMPA
WASTEWATER DEPARTMENT

KRAUSE PS REHABILITATION

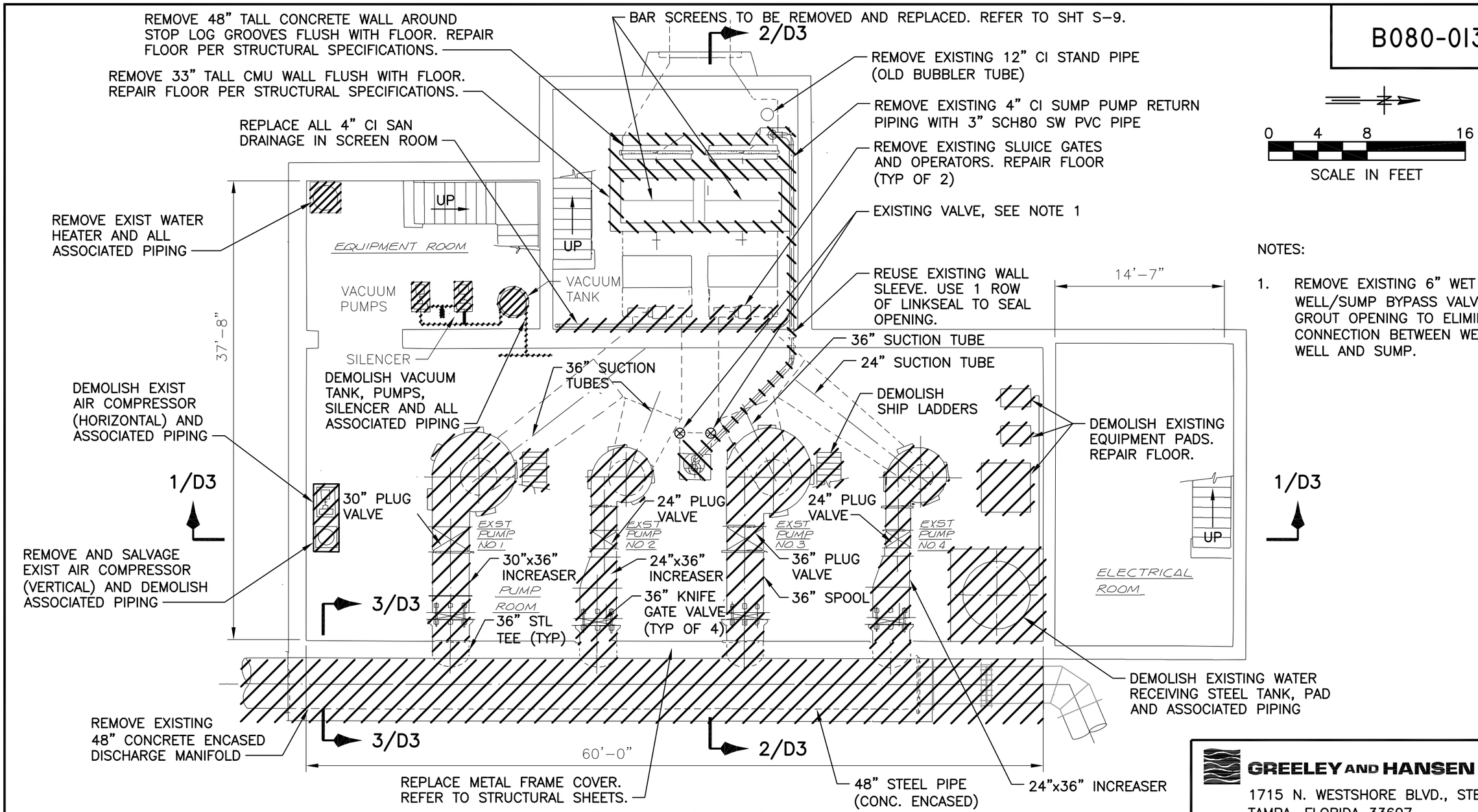
BYPASS AND MISCELLANEOUS DETAILS

NO.	DATE	REVISIONS

DRAWN: J.WHITE
DESIGN: FJB
QC: DCH
DATE: 05/01/14

SHEET G-9

B080-013



NOTES:

1. REMOVE EXISTING 6" WET WELL/SUMP BYPASS VALVES. GROUT OPENING TO ELIMINATE CONNECTION BETWEEN WET WELL AND SUMP.

LOWER LEVEL MECHANICAL DEMOLITION PLAN – FLR EL –5.99

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

LEGEND:

▨ DENOTES AREA TO BE DEMOLISHED

GREELEY AND HANSEN
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CITY of TAMPA
WASTEWATER DEPARTMENT

KRAUSE PS REHABILITATION

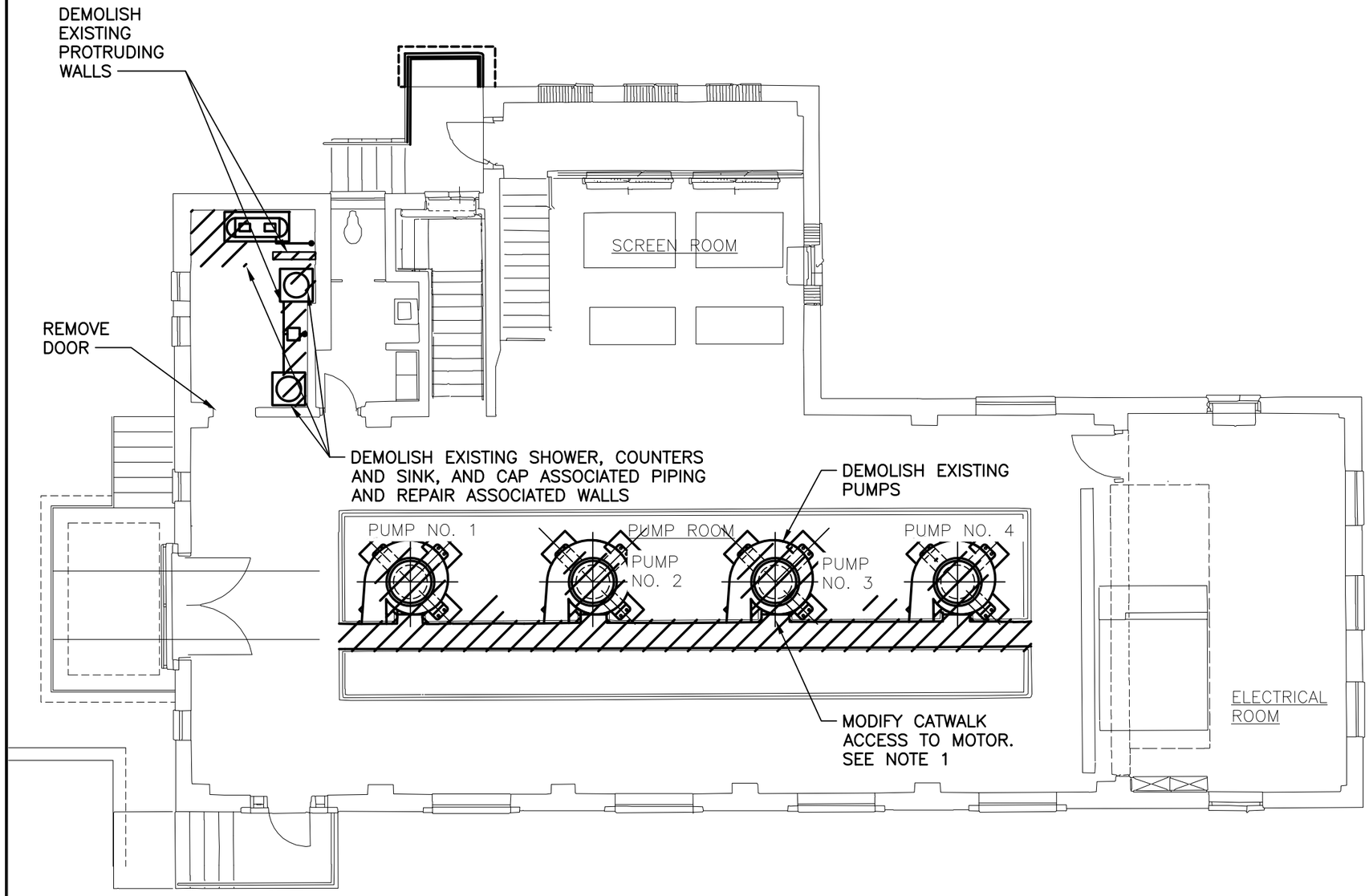
LOWER LEVEL MECHANICAL DEMOLITION PLAN

NO.	DATE	REVISIONS

DRAWN: J.WHITE
DESIGN: FJB
QC: DCH
DATE: 05/01/14

SHEET D-1

B080-014



0 4 8 16

SCALE IN FEET

NOTES:

1. COORDINATE THIS SHEET WITH SHEET M–2 AND STRUCTURAL SHEET FOR NEW MOTOR LOCATION AND CATWALK MODIFICATIONS.

UPPER LEVEL MECHANICAL DEMOLITION PLAN

SCALE: 1/8" = 1'–0"

LEGEND:

DENOTES AREA TO BE DEMOLISHED

GREELEY AND HANSEN
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CERTIFICATE OF AUTHORIZATION NO. 37

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CITY of TAMPA
WASTEWATER DEPARTMENT

KRAUSE PS REHABILITATION

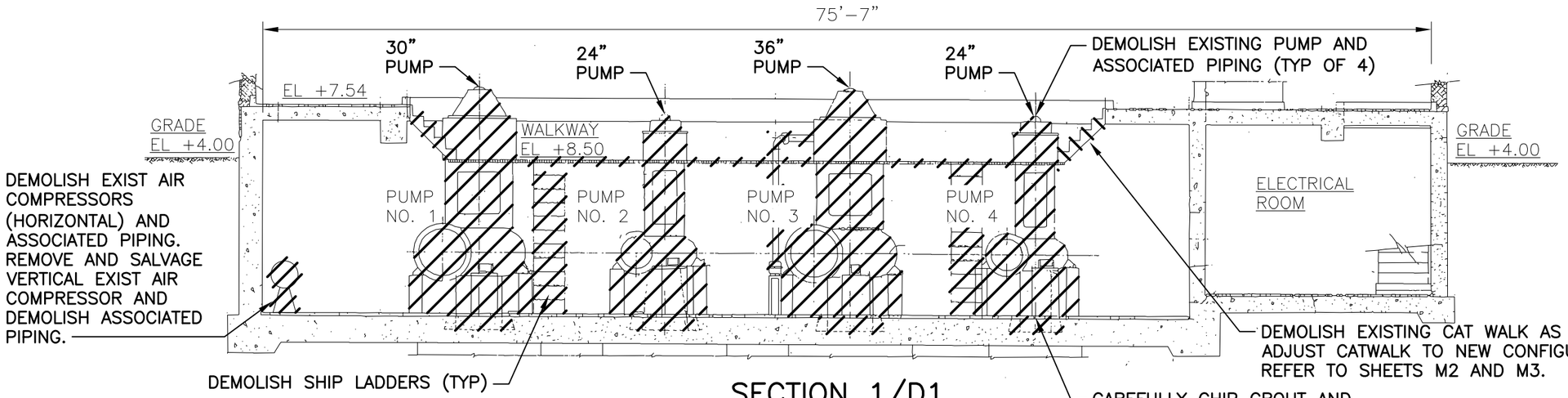
UPPER LEVEL MECHANICAL DEMOLITION PLAN

NO.	DATE	REVISIONS

DRAWN: J.WHITE
DESIGN: FJB
QC: DCH
DATE: 05/01/14

SHEET D-2

B080-015

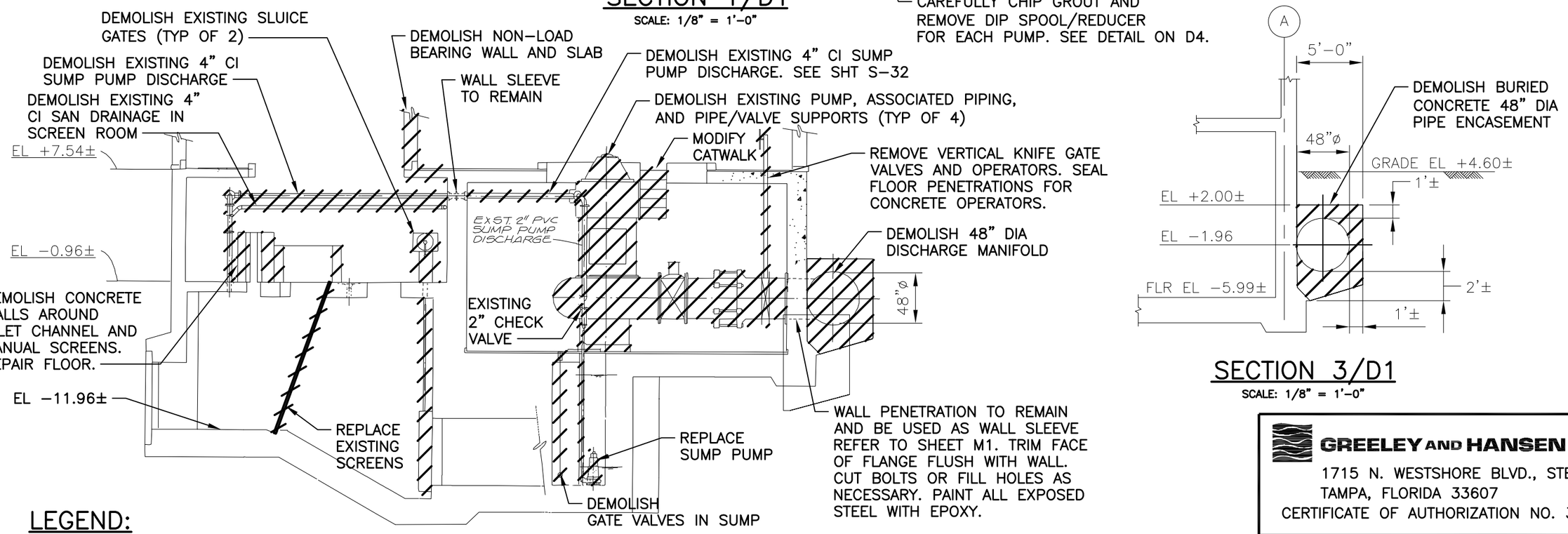


SECTION 1/D1

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

0 4 8 16

SCALE IN FEET



SECTION 2/D1

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

SECTION 3/D1

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

LEGEND:

DENOTES AREA TO BE DEMOLISHED

GREELEY AND HANSEN
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CITY of TAMPA
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KRAUSE PS REHABILITATION

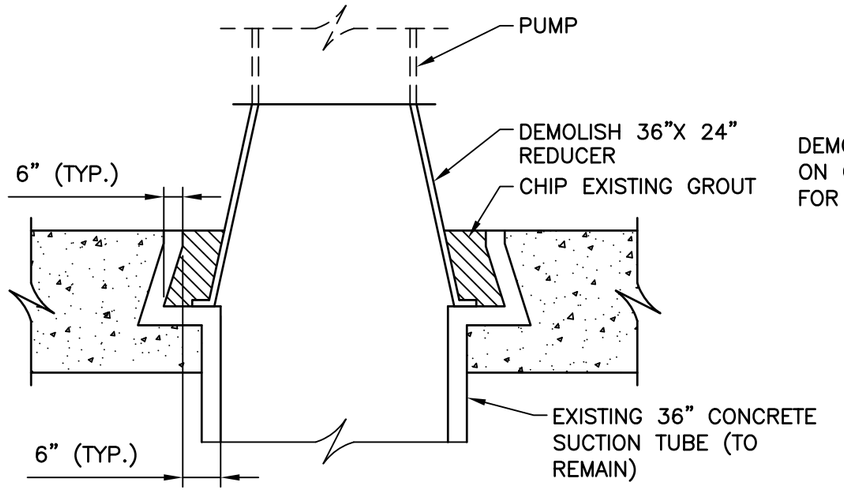
MECHANICAL DEMOLITION SECTIONS

NO.	DATE	REVISIONS

DRAWN: J.WHITE
DESIGN: FJB
QC: DCH
DATE: 05/01/14

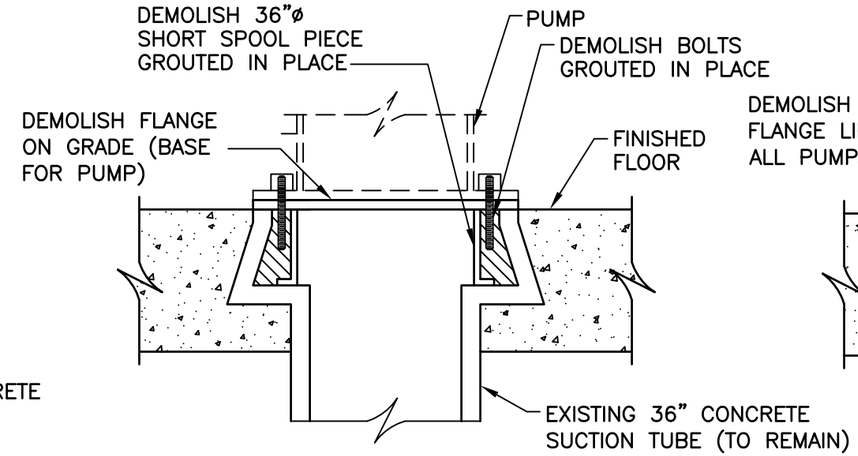
SHEET D-3

B080-016



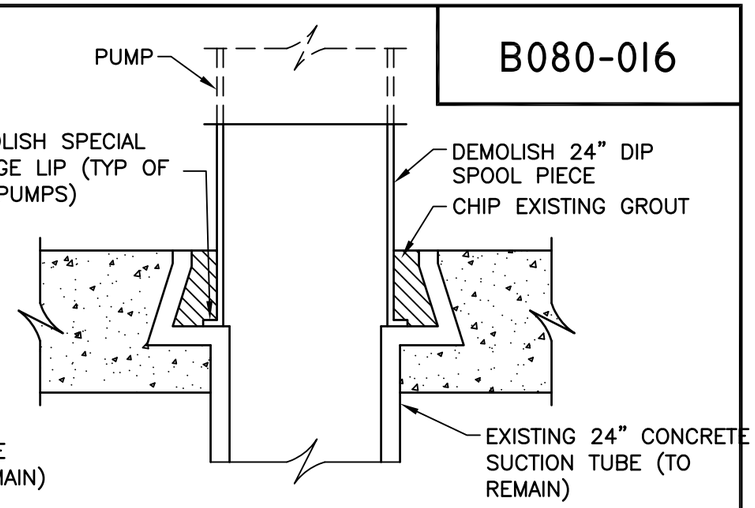
36" SUCTION TUBE DETAIL FOR PUMPS 1 & 2

NOT TO SCALE



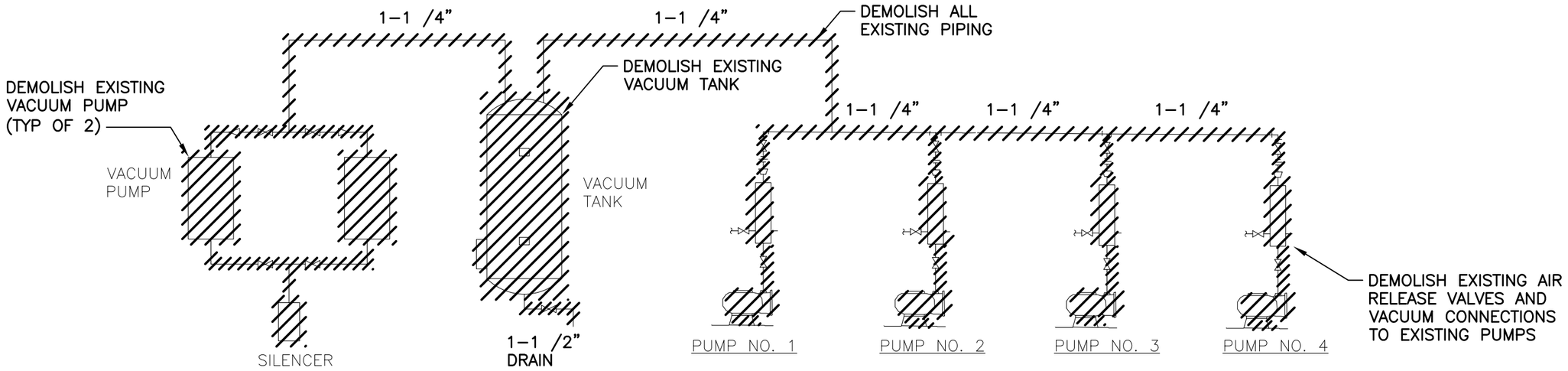
36" SUCTION TUBE DETAIL FOR PUMP NO. 3

NOT TO SCALE



24" SUCTION TUBE DETAIL FOR PUMP NO. 4

NOT TO SCALE



LEGEND:

DENOTES AREA TO BE DEMOLISHED

GREELEY AND HANSEN
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CERTIFICATE OF AUTHORIZATION NO. 37

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CITY of TAMPA
WASTEWATER DEPARTMENT

KRAUSE PS REHABILITATION

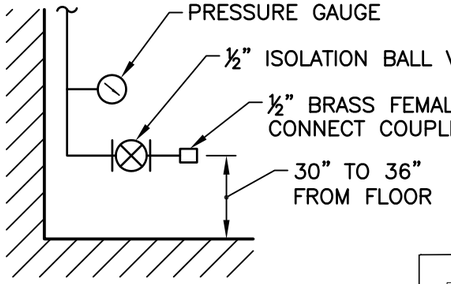
WATER, AIR AND PRIMING SYSTEM DIAGRAMS

NO.	DATE	REVISIONS

DRAWN: J.WHITE
DESIGN: FJB
QC: DCH
DATE: 05/01/14

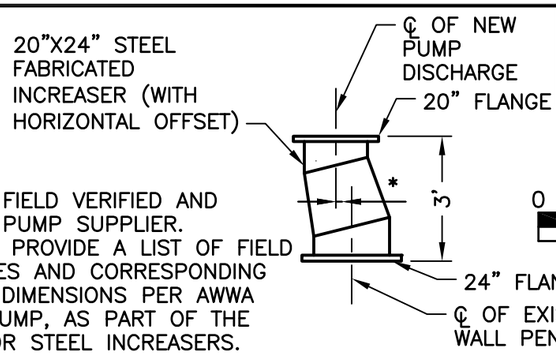
SHEET D-4

B080-017



AIR VALVE CONNECTION DETAIL

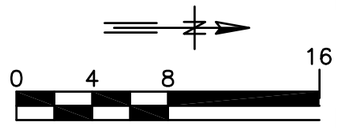
NOT TO SCALE

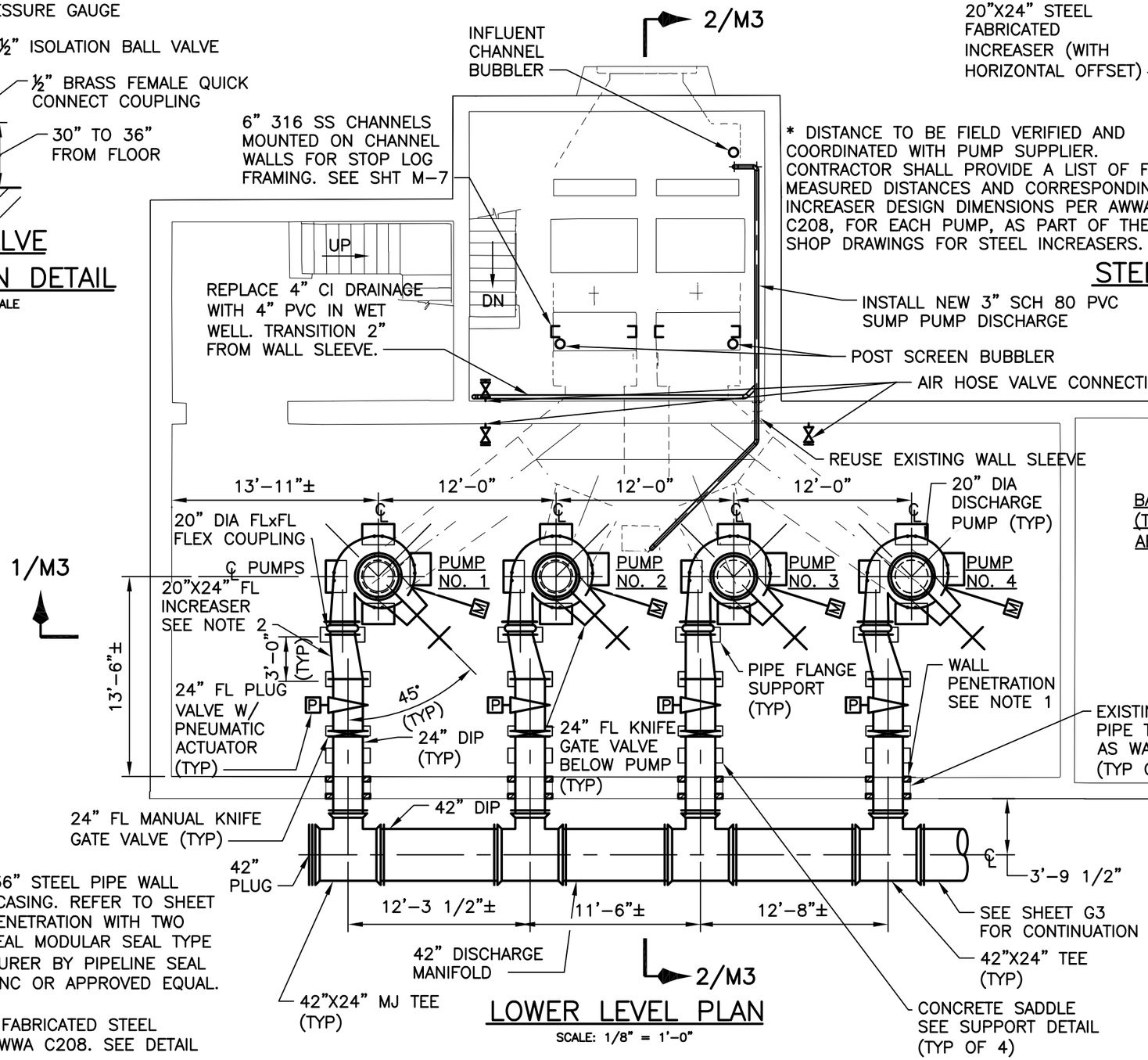


* DISTANCE TO BE FIELD VERIFIED AND COORDINATED WITH PUMP SUPPLIER. CONTRACTOR SHALL PROVIDE A LIST OF FIELD MEASURED DISTANCES AND CORRESPONDING INCREASER DESIGN DIMENSIONS PER AWWA C208, FOR EACH PUMP, AS PART OF THE SHOP DRAWINGS FOR STEEL INCREASERS.

STEEL INCREASER DETAIL

NOT TO SCALE





LOWER LEVEL PLAN

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

NOTES:

1. REUSE EXISTING 36" STEEL PIPE WALL PENETRATION AS CASING. REFER TO SHEET D3. SEAL WALL PENETRATION WITH TWO ROWS OF LINK-SEAL MODULAR SEAL TYPE "C" AS MANUFACTURER BY PIPELINE SEAL AND INSULATOR, INC OR APPROVED EQUAL.
2. 20"X24" CUSTOM FABRICATED STEEL INCREASER PER AWWA C208. SEE DETAIL ON THIS SHEET.

GREELEY AND HANSEN
1715 N. WESTSHORE BLVD., STE. 464
TAMPA, FLORIDA 33607
CERTIFICATE OF AUTHORIZATION NO. 37

P.E. NAME: FREDDY J. BETANCOURT P.E. NO. 68072
P.E. NAME:
DATE:

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CITY of TAMPA
WASTEWATER DEPARTMENT

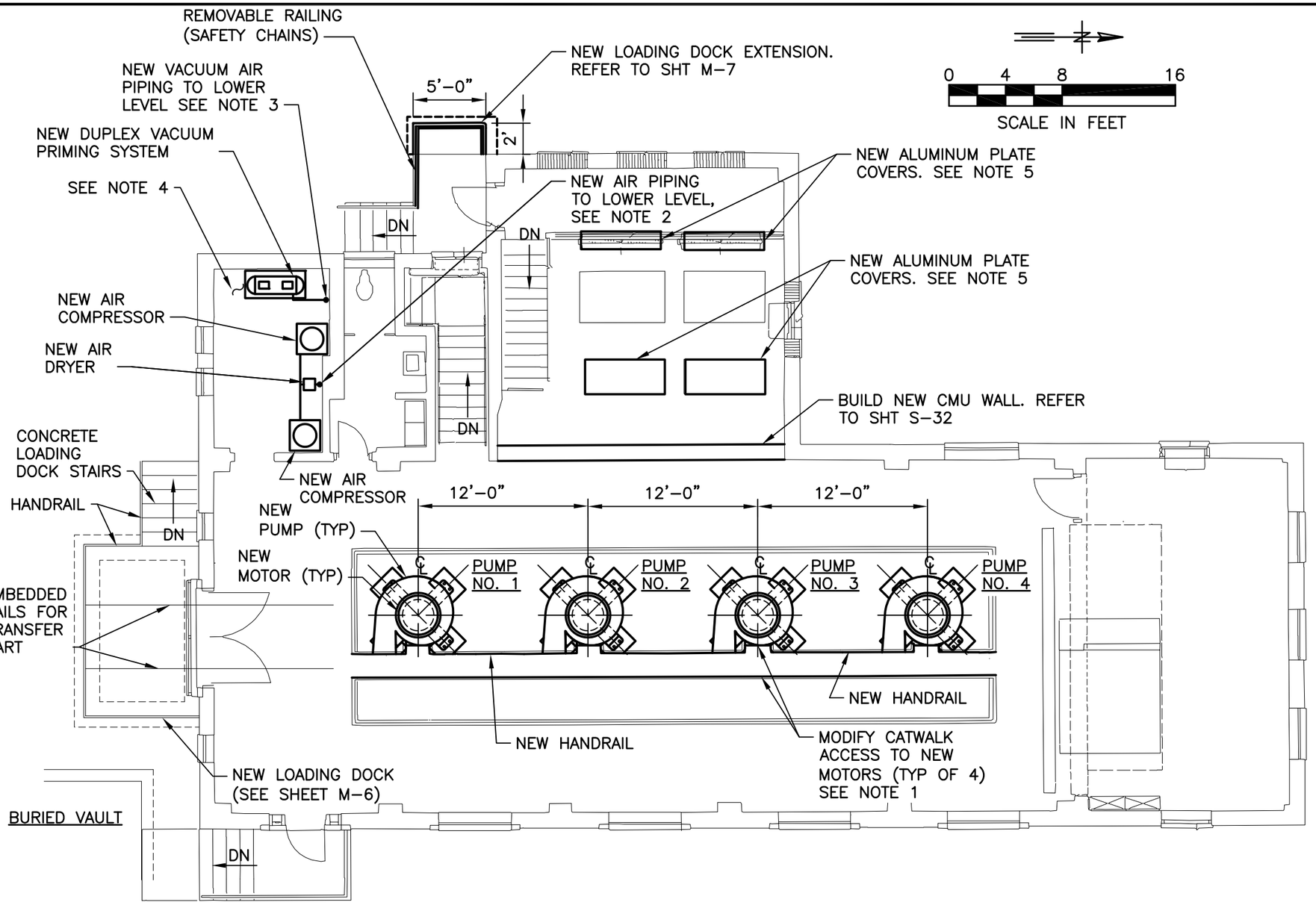
KRAUSE PS REHABILITATION

LOWER LEVEL PLAN

NO.	DATE	REVISIONS

DRAWN: J.WHITE
DESIGN: FJB
QC: DCH
DATE: 05/01/14

SHEET M-1



UPPER LEVEL PLAN

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

NOTES:

1. MODIFY CATWALK EXTENSIONS TO NEW MOTORS. CATWALK EDGE TO BE 9-INCHES CLEAR OF MOTOR FRAME. COORDINATE WITH MOTOR MANUFACTURER. PROPOSED CATWALK TO BE LEVEL AT ELEVATION 7.54 (TO MATCH EXISTING FLOOR ELEVATION). SUPPORT COLUMNS AND HANDRAILS TO BE REPLACED. SEE SHT S-34.

2. FIELD ROUTE NEW AIR PIPING TO EACH NEW PNEUMATIC PLUG VALVE ACTUATOR. PIPING SHALL PENETRATE FLOOR SLAB TO LOWER LEVEL AND SHALL BE ROUTED SUSPENDED FROM FLOOR SLAB WITH PIPE HANGERS.

3. FIELD ROUTE NEW VACUUM PIPING TO EACH NEW PUMP ASSEMBLY. PIPE SHALL PENETRATE FLOOR SLAB TO LOWER LEVEL AND SHALL BE ROUTED SUSPENDED FROM FLOOR SLAB WITH PIPE HANGERS.

4. NEW AIR COMPRESSORS, VACUUM PUMPS AND AIR DRYER SHALL HAVE ALL ELECTRICAL COMPONENTS ABOVE ELEVATION +10.0'. INSTALL MECHANICAL EQUIPMENT PADS AS SHOWN ON SHEET S-33. IF REQUIRED RAISE ELEVATION OF EQUIPMENT WITH STANDS.

5. CONSTRUCT NEW 1/2" ALUMINUM CHECKERED PLATE, ASTM B209 -07, NON-SLIP DIAMOND PATTERN, MINIMUM YIELD STRENGTH FY= 35 KSI. FOLLOW DETAIL PROVIDED FOR SUMP PUMP COVER ON SHEET S-33.

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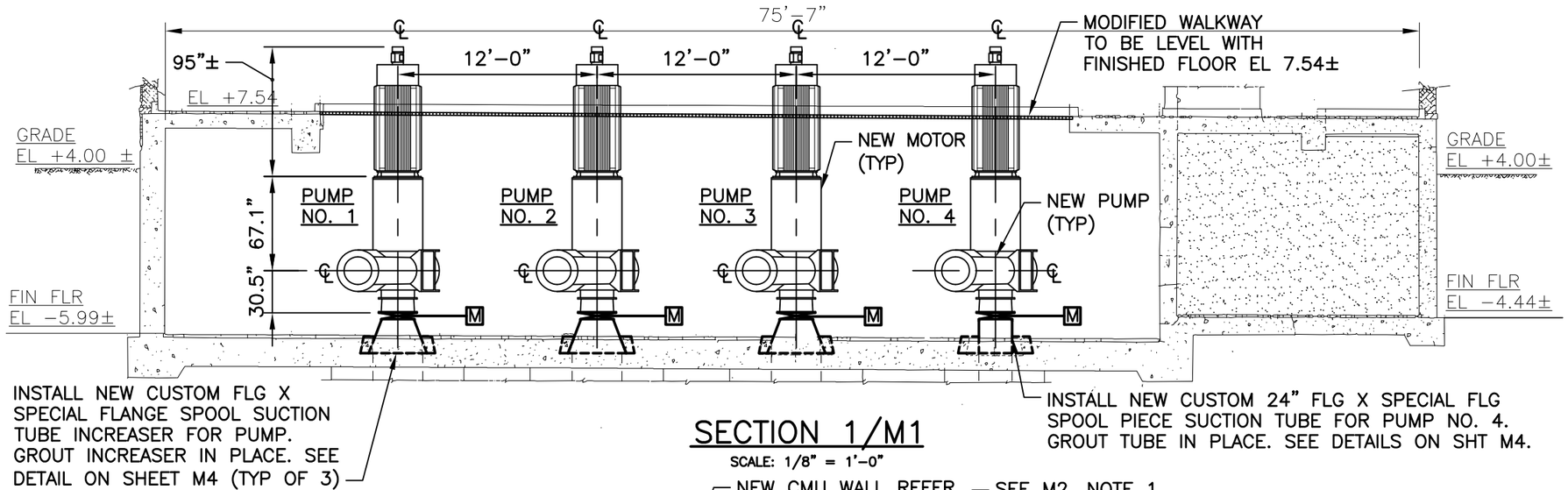
UPPER LEVEL PLAN

NO.	DATE	REVISIONS

DRAWN: J.WHITE
DESIGN: FJB
QC: DCH
DATE: 05/01/14

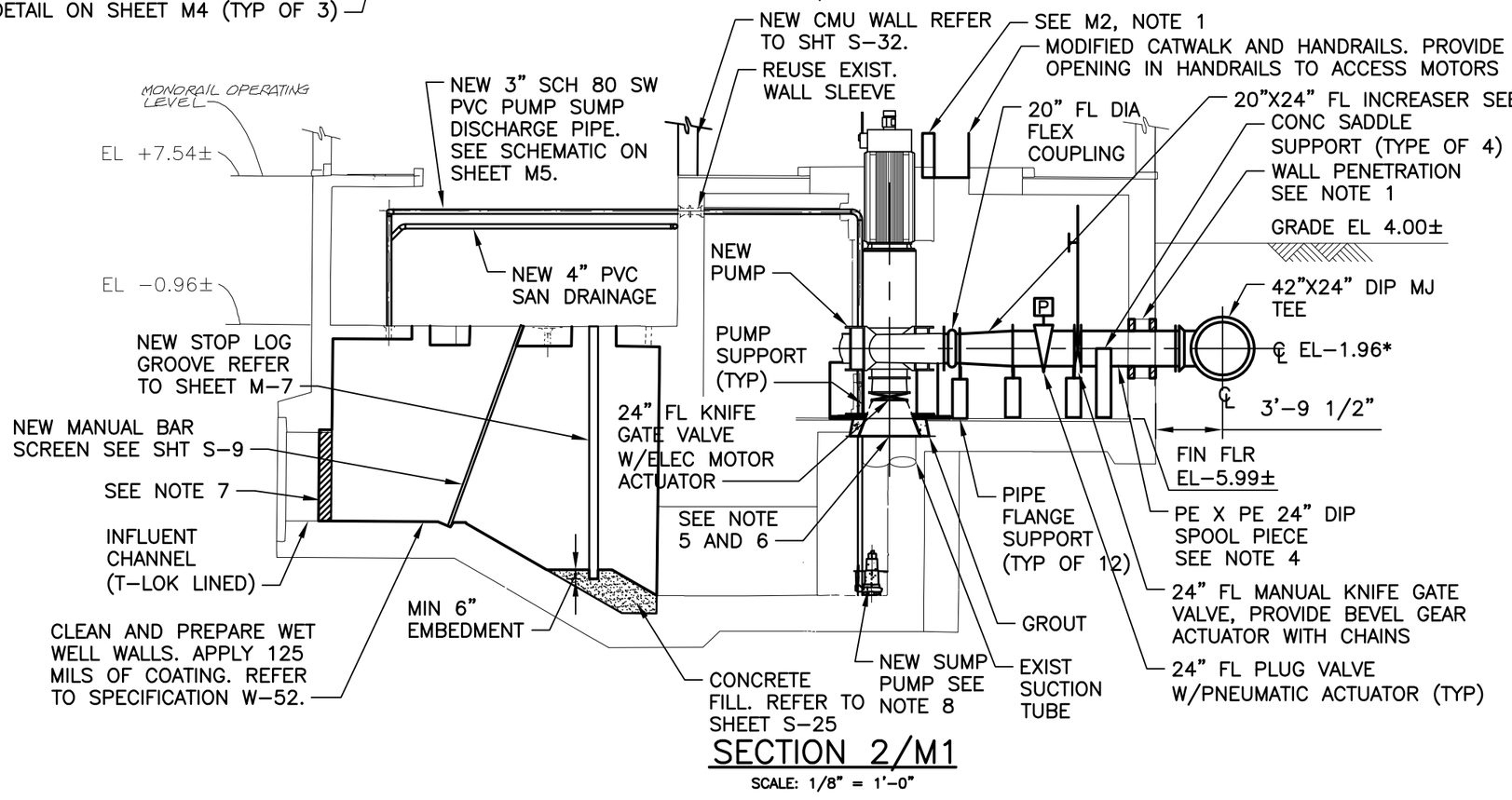
SHEET M-2

B080-019



SECTION 1/M1

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



SECTION 2/M1

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

NOTES:

1. REUSE EXISTING WALL PENETRATION. SEAL WALL PENETRATION WITH TWO NEW ROWS OF LINK-SEAL MODULAR SEAL TYPE "C" AS MANUFACTURER BY PIPELINE SEAL AND INSULATOR, INC OR APPROVED EQUAL.
2. 20"X24" CUSTOM FABRICATED STEEL INCREASER. SEE DETAIL ON SHEET M-1
3. *CL TO BE ADJUSTED BASED ON EXISTING WALL PENETRATIONS.
4. PE X PE DIP SPOOL PIECE TO BE CUT TO SUIT IN FIELD. LENGTH TO BE DETERMINED PER ACTUAL LAY LENGTH OF OTHER COMPONENTS SHOWN. CONNECT THE SPOOL PIECE WITH THE KNIFE GATE VALVE BY USING A RESTRAINED FLANGE ADAPTER, MEGA FLANGE AS MANUFACTURED BY EBAA IRON INC. OR APPROVED EQUAL.
5. REPLACE EXISTING SUMP PUMP COVER WITH 1/2" THICK CHECKERED PLATE. SEE SHT S-33.
6. PROVIDE NEW STAINLESS STEEL CONNECTION HARDWARE FOR REDUCER TO SUCTION PIPE ASSEMBLY.
7. COAT A MINIMUM OF 6-INCHES OF OVERLAP ON THE T-LOK LINED INFLUENT CHANNEL.
8. PROVIDE SUBMERSIBLE, SINGLE SEAL, FLOOR MOUNTED, 1/2 HP WASTEWATER SUMP PUMP MODEL NO. 1411, AS MANUFACTURED BY WEIL PUMP COMPANY OR APPROVED EQUAL.

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CITY of TAMPA
WASTEWATER DEPARTMENT

KRAUSE PS REHABILITATION

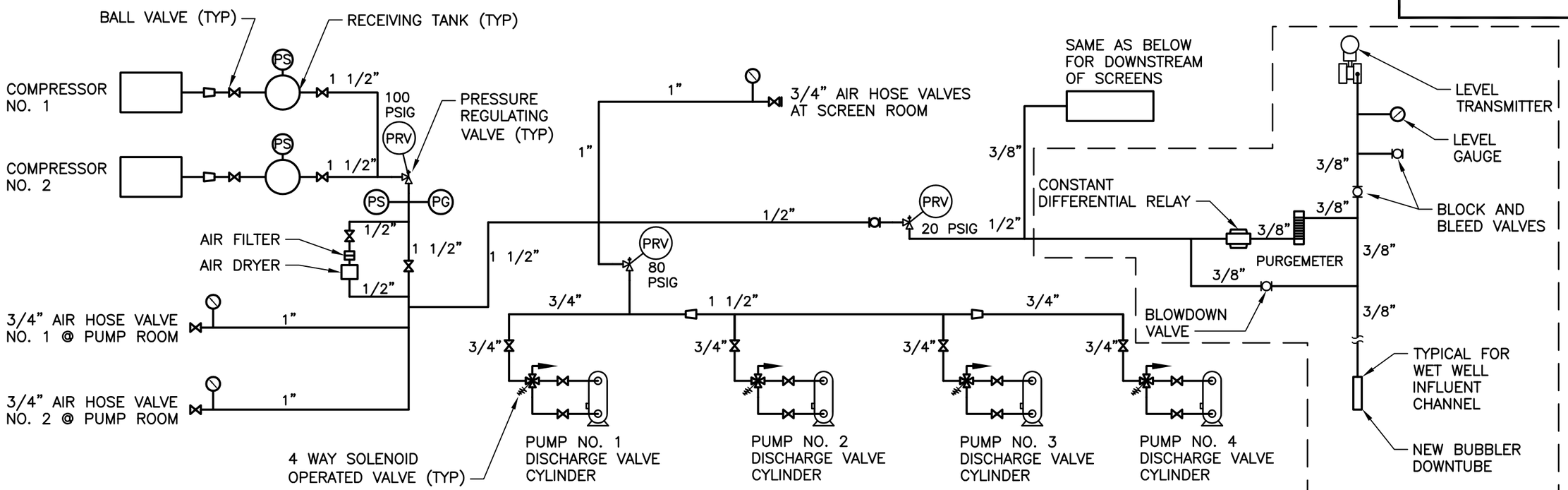
SECTIONS AND DETAILS

NO.	DATE	REVISIONS

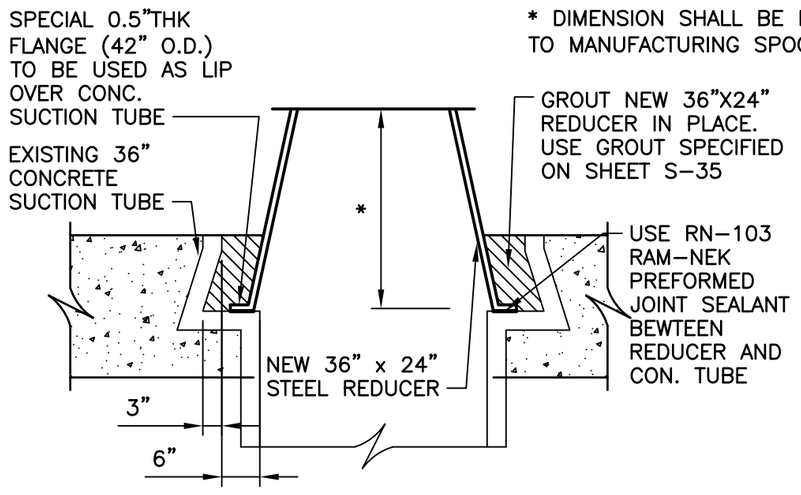
DRAWN: J.WHITE
DESIGN: FJB
QC: DCH
DATE: 05/01/14

SHEET M-3

B080-020

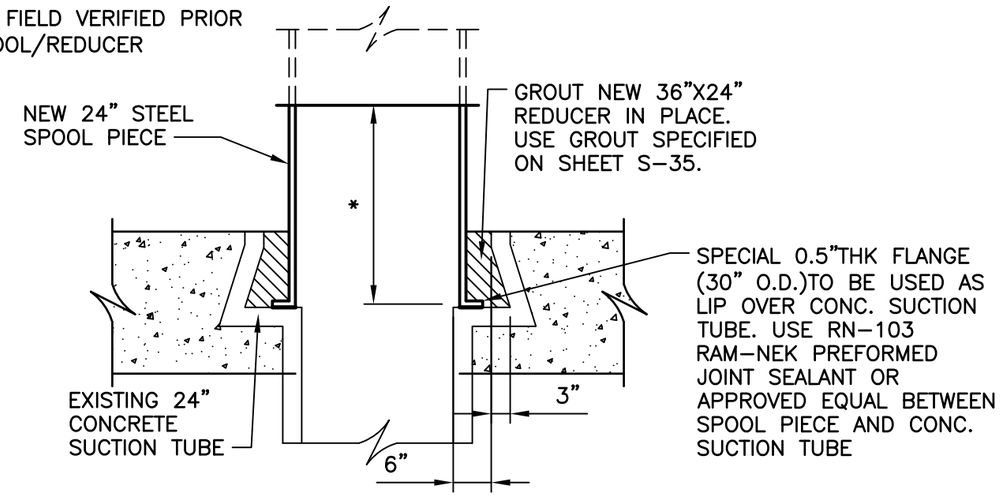


NEW AIR PIPING SCHEMATIC DIAGRAM



NEW SUCTION TUBE DETAIL FOR PUMPS 1, 2 & 3

NOT TO SCALE



NEW SUCTION TUBE DETAIL FOR PUMP 4

NOT TO SCALE

NOTES:

1. REFER TO SPECIFICATIONS FOR APPROVED PIPE HANGER SYSTEMS. INSTALL NUMBER OF PIPE HANGERS AS REQUIRED. QUANTITY AND SPACING OF HANGER SHALL BE AS RECOMMENDED BY MANUFACTURER.

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CITY of TAMPA
WASTEWATER DEPARTMENT

KRAUSE PS REHABILITATION

NEW AIR PIPING DIAGRAMS AND NEW SUCTION TUBE DETAILS

NO.	DATE	REVISIONS

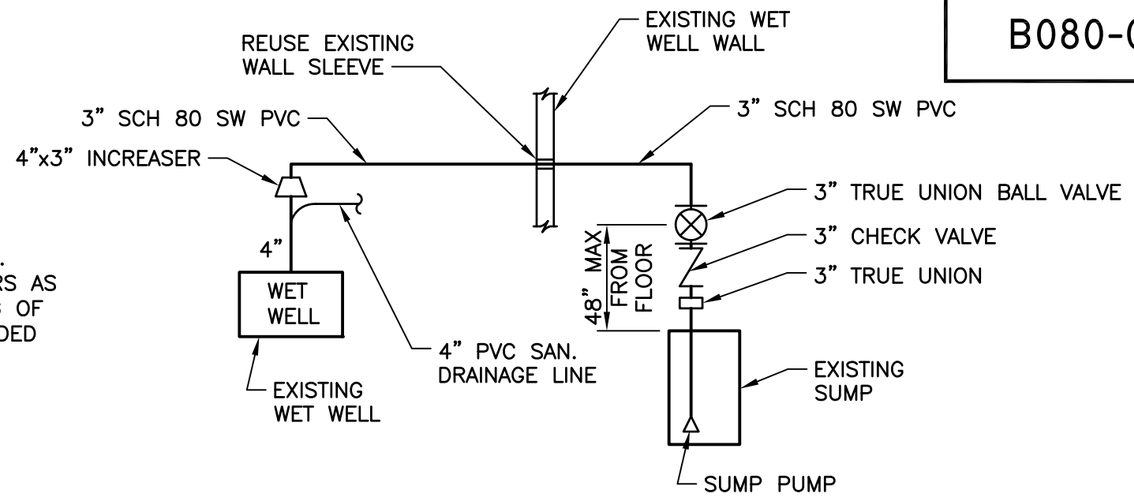
DRAWN: J. WHITE
DESIGN: FJB
QC: DCH
DATE: 05/01/14

SHEET M-4

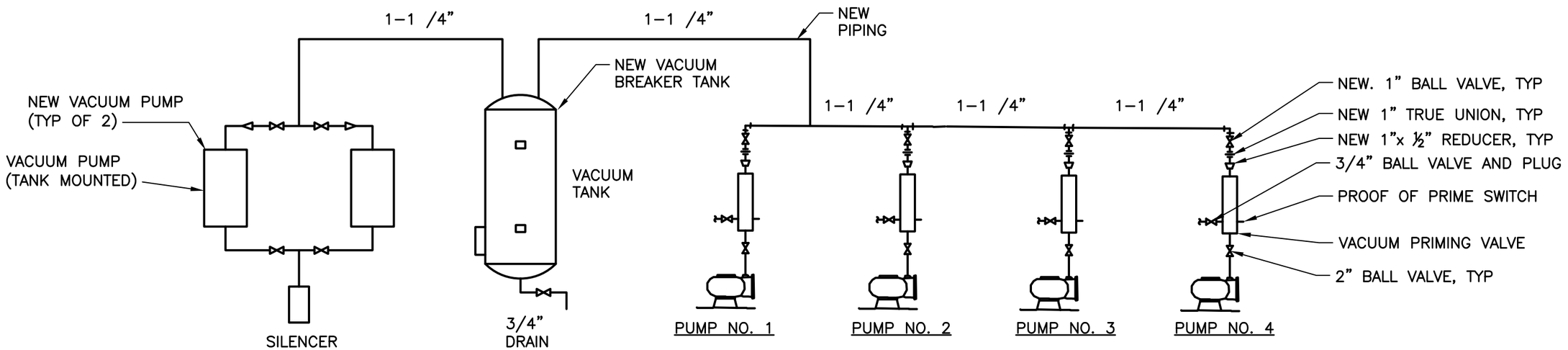
B080-021

NOTES:

1. REFER TO SPECIFICATIONS FOR APPROVED PIPE HANGER SYSTEMS. INSTALL NUMBER OF PIPE HANGERS AS REQUIRED. QUANTITY AND SPACING OF HANGER SHALL BE AS RECOMMENDED BY MANUFACTURER.



SUMP PUMP RETURN SCHEMATIC DIAGRAM



VACUUM SYSTEM SCHEMTAIC DIAGRAM

GREELEY AND HANSEN
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TAMPA, FLORIDA 33607
CERTIFICATE OF AUTHORIZATION NO. 37

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CITY of TAMPA
WASTEWATER DEPARTMENT

KRAUSE PS REHABILITATION

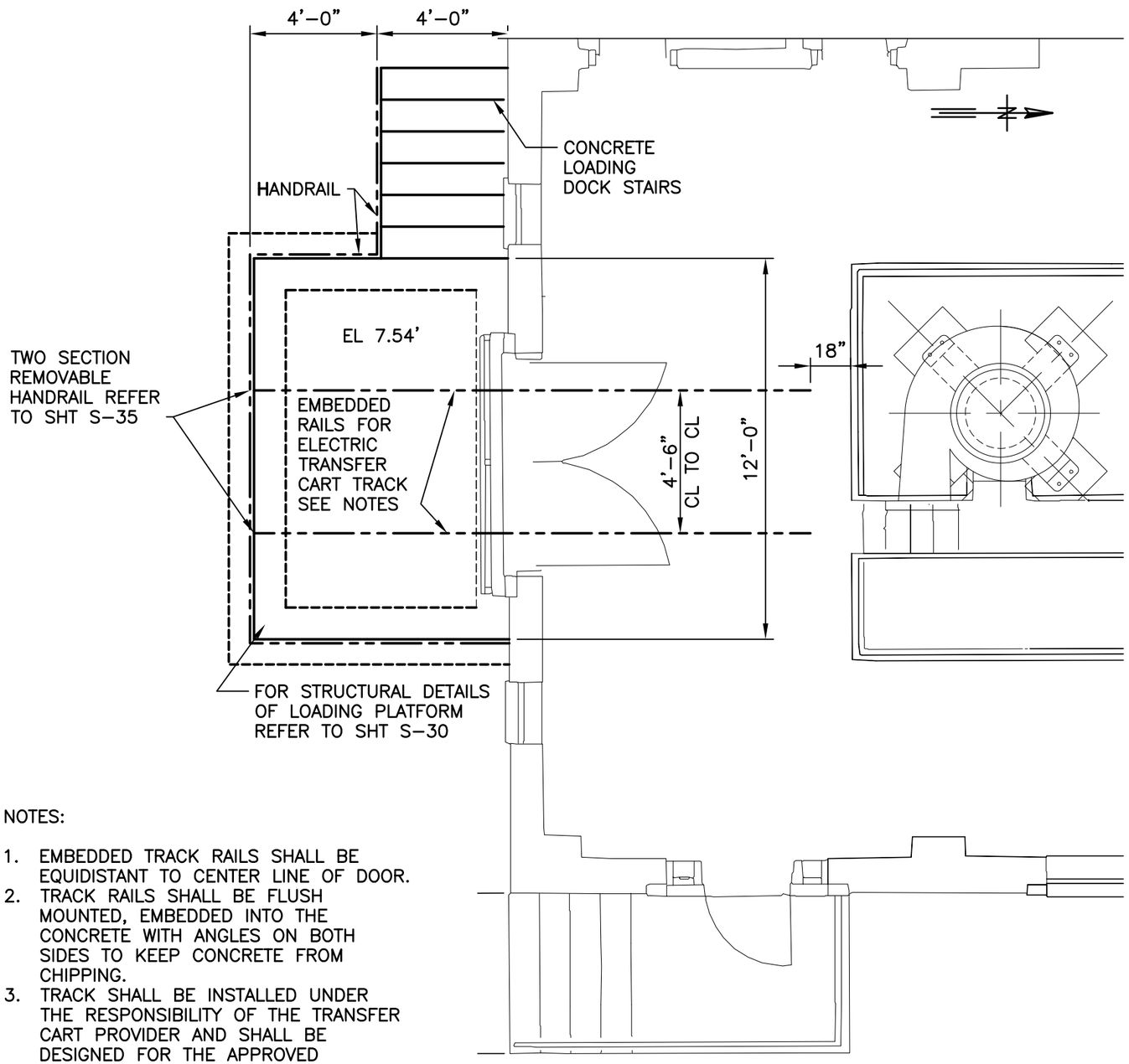
AIR VACUUM PRIMING
SYSTEM AND SUMP PUMP DIAGRAMS

NO.	DATE	REVISIONS

DRAWN: J. WHITE
DESIGN: FJB
QC: DCH
DATE: 05/01/14

SHEET M-5

B080-022

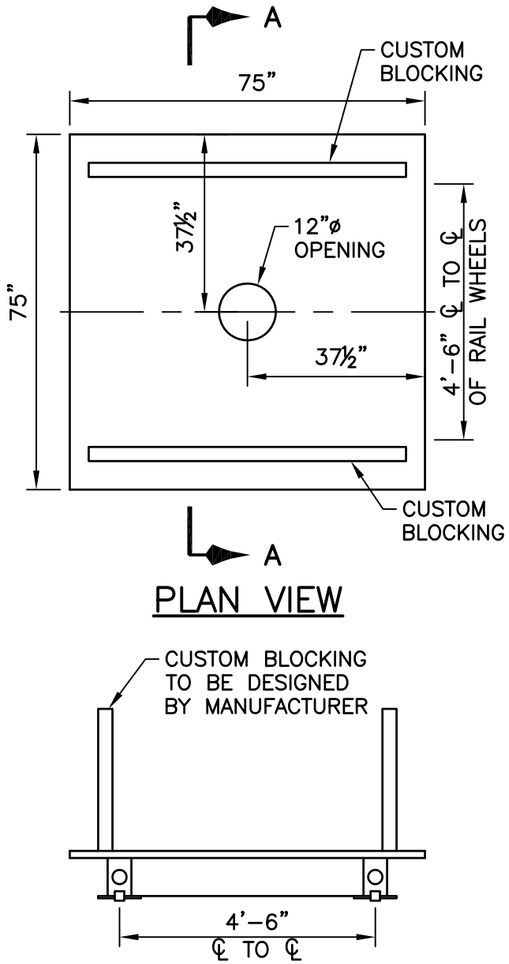


LOADING PLATFORM
UPPER LEVEL PLAN – FLR EL 7.54

SCALE: 1/4" = 1'–0"

NOTES:

1. EMBEDDED TRACK RAILS SHALL BE EQUIDISTANT TO CENTER LINE OF DOOR.
2. TRACK RAILS SHALL BE FLUSH MOUNTED, EMBEDDED INTO THE CONCRETE WITH ANGLES ON BOTH SIDES TO KEEP CONCRETE FROM CHIPPING.
3. TRACK SHALL BE INSTALLED UNDER THE RESPONSIBILITY OF THE TRANSFER CART PROVIDER AND SHALL BE DESIGNED FOR THE APPROVED TRANSFER CART AND EXPECTED LOADS. EQUIPMENT LOADING PLATFORM UPPER LEVEL PLAN.



PLAN VIEW

SECTION A
TRANSFER CART DETAILS

SCALE: 1/4" = 1'–0"

NOTES:

1. PROVIDE A SOLID TOP, ELECTRICALLY ASSISTED TRANSFER CART FOR A CAPACITY OF 6 TONS.
2. PROVIDE SUITABLE EMBEDDED TRACK RAIL SYSTEM DESIGNED FOR ELECTRICALLY ASSISTED TRANSFER CART. INSTALLATION OF TRACKS SHALL BE RESPONSIBILITY OF TRANSFER CART MANUFACTURER.
3. PROVIDE A 12" DIAMETER OPENING IN CENTER OF SOLID TOP. CART HEIGHT SHALL NOT EXCEED 12 INCHES. IF DESIGN REQUIRES CART HEIGHT HIGHER THAN 12 INCHES, THEN MANUFACTURER SHALL COORDINATE WITH PUMP SUPPLIER AND FIELD DIMENSIONS SO THAT IMMERSIBLE MOTORS CLEAR THE EXISTING DOORWAY.
4. PROVIDE CUSTOM BLOCKING DESIGNED BY TRANSFER CART MANUFACTURER IN COORDINATION WITH PUMP SUPPLIER. PROVIDE BLOCKING SUITABLE TO UPHOLD PROPOSED PUMPS AND IMMERSIBLE MOTORS.

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WASTEWATER DEPARTMENT

KRAUSE PS REHABILITATION

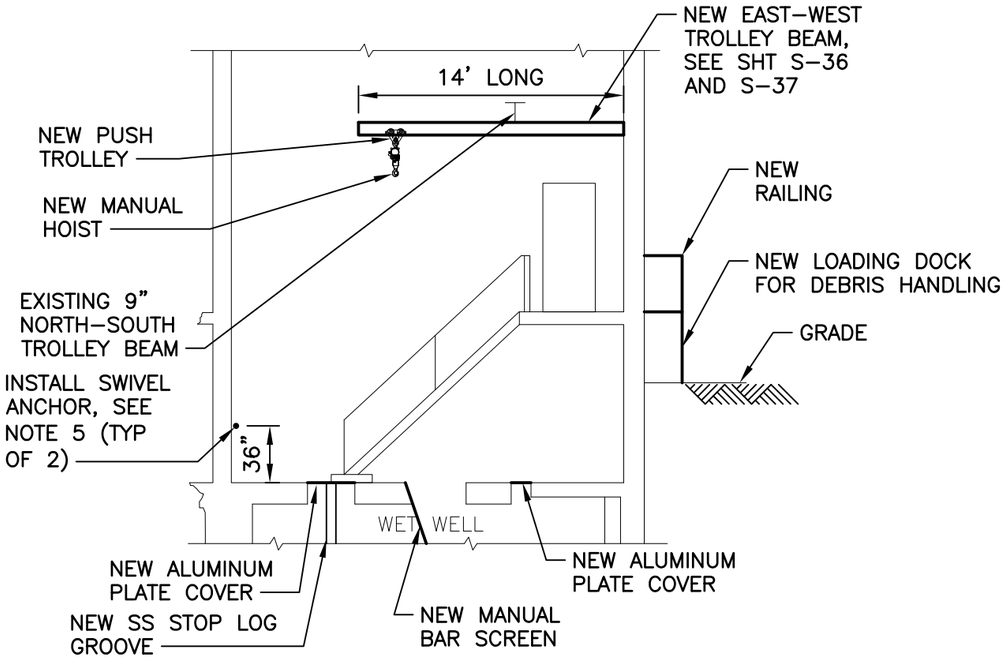
UPPER LEVEL PLAN

NO.	DATE	REVISIONS

DRAWN: J.WHITE
DESIGN: FJB
QC: DCH
DATE: 05/01/14

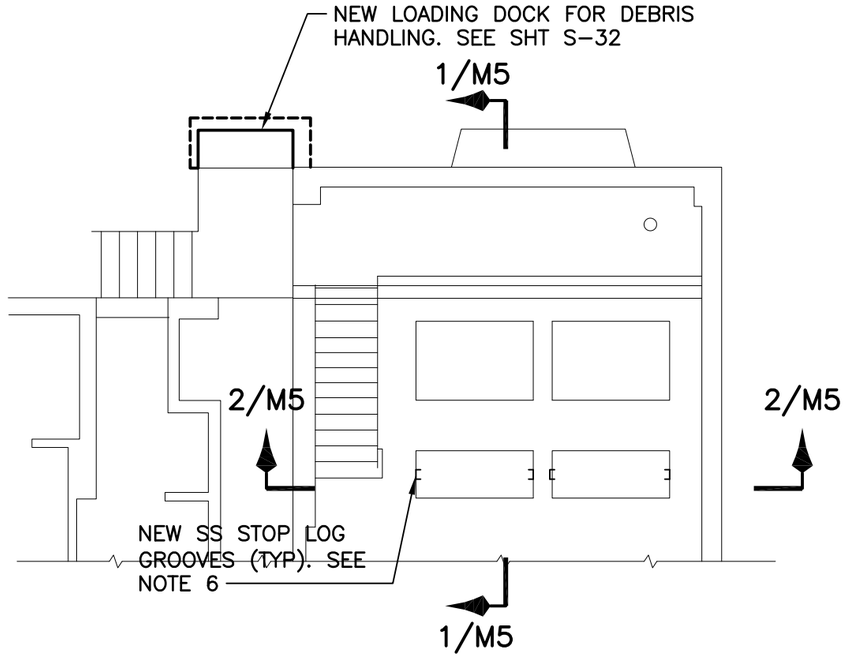
SHEET M-6

B080-023



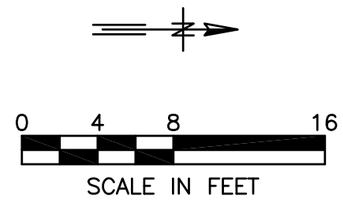
SECTION 1/M5

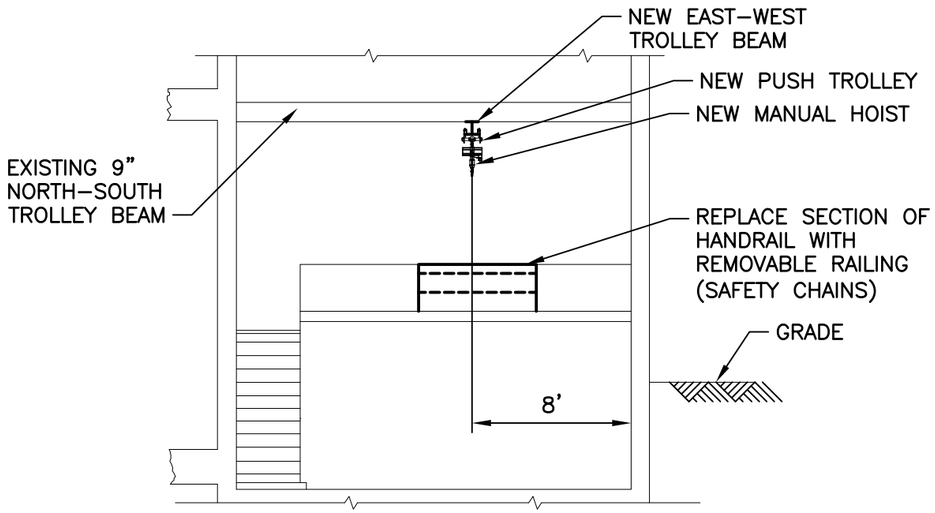
SCALE: 1/8" = 1'–0"



PLAN/SCREEN ROOM

SCALE: 1/8" = 1'–0"





SECTION 2/M5

SCALE: 1/8" = 1'–0"

NOTES:

1. MANUAL HOIST SHALL HAVE A RATED CAPACITY OF 1½ TONS AND SHALL BE EQUAL TO MODEL LH–030 AS MANUFACTURED BY ACI HOIST AND CRANE OR APPROVED EQUAL.
2. PUSH TROLLEY SHALL HAVE A RATED CAPACITY OF 2 TONS AND SHALL BE EQUAL TO MODEL PT–040–S AS MANUFACTURED BY ACI HOIST AND CRANE OR APPROVED EQUAL.
3. NEW TROLLEY I BEAM SHALL BE COMPATIBLE WITH PROPOSE PUSH TROLLEY SYSTEM.
4. IN ADDITION TO EQUIPMENT SHOWN, CONTRACTOR SHALL SUPPLY ONE 1,000 LBS CAPACITY SPILL–LESS OPEN DRUM TRUCK AS MANUFACTURED BY WESCO OR APPROVED EQUAL. CONTRACTOR SHALL ALSO SUPPLY TWO 1,000 LBS CAPACITY DRUM WEB LIFTERS, WITH RUBBER INTERIOR, ALUMINUM HANDLE AND RATCHET FASTENER, AS MANUFACTURED BY BAYTEC CONTAINERS OR APPROVED EQUAL.
5. INSTALL TO 5K HYBRID MEGA SWIVEL ANCHORS OR APPROVED EQUAL. INSTALL ANCHORS IN CONCRETE WALL FOR FALL PROTECTION. SWIVEL ANCHORS SHALL BE CAPABLE OF ROTATING 360° AND FLIPPING 180°. LOCATION OF ANCHORS TO BE COORDINATED WITH CITY PERSONNEL.
6. SECURE SS STOP LOG GROOVES TO EXISTING CHANNEL WALLS WITH HILTI COUNTERSUNK STAINLESS STEEL SS316L KWIK BOLT 3 ANCHORS (C3/8X4) SPACED AT 4 INCHES ON CENTER. INSTALL ANCHORS PER MANUFACTURER'S RECOMMENDATIONS. PRE–DRILL WALL SURFACE MOUNTED STAINLESS STEEL STOP LOG CHANNEL TO ACCOMMODATE COUNTERSUNK ANCHOR HEAD. ANCHORS ARE DESIGNED FOR WATER DEPTH OF 20 FEET MAXIMUM.

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CITY of TAMPA
WASTEWATER DEPARTMENT

KRAUSE PS REHABILITATION

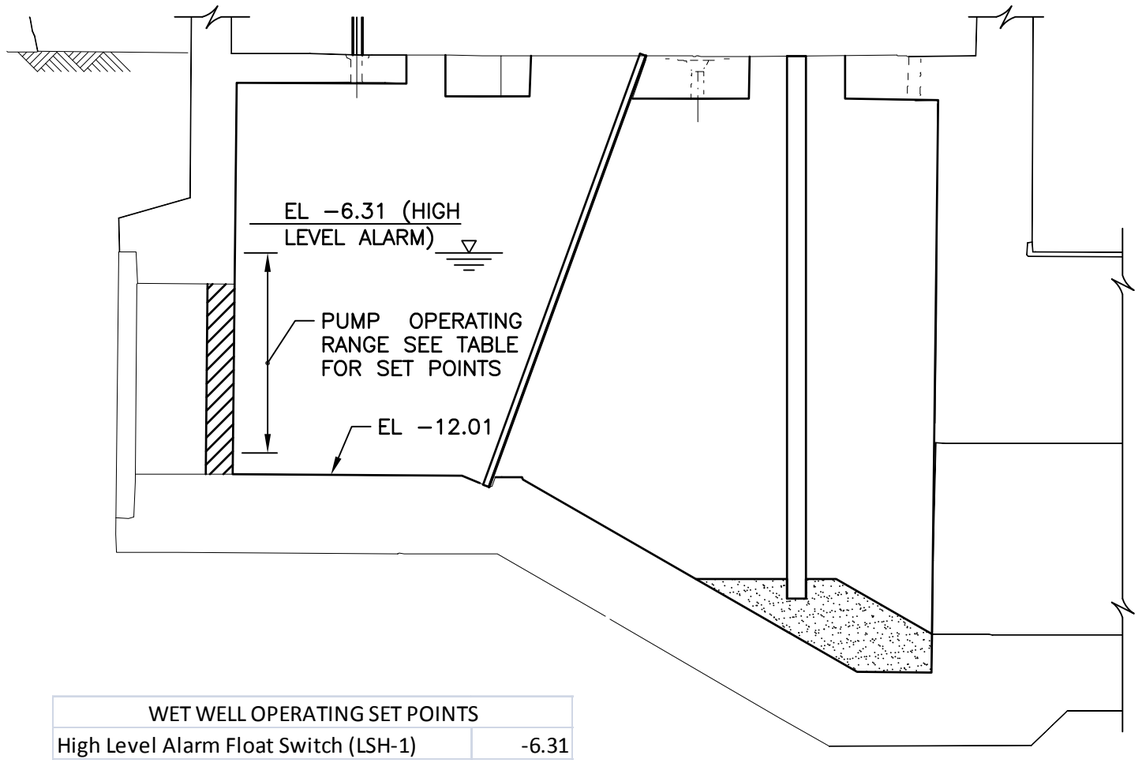
SCREEN AREA
SECTIONS AND DETAILS FOR
DEBRIS REMOVAL EQUIPMENT

NO.	DATE	REVISIONS

DRAWN: J.WHITE
DESIGN: FJB
QC: DCH
DATE: 05/01/14

SHEET M-7

B080-024



WET WELL OPERATING SET POINTS	
High Level Alarm Float Switch (LSH-1)	-6.31
Lag Pump No.2 Start - Set Point	-6.81
Lag Pump No.2 Off - Set Point	-7.31
Lag Pump No.1 Start - Set Point	-7.81
Lag Pump No.1 Off - Set Point	-8.31
Lead Pump Start - Set Point	-8.81
Lead Pump Off - Set Point	-9.81

WET WELL SECTION

SCALE: 1/4" = 1'-0"

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CITY of TAMPA
WASTEWATER DEPARTMENT

KRAUSE PS REHABILITATION

WET WELL LEVELS

NO.	DATE	REVISIONS

DRAWN: J.WHITE
DESIGN: FJB
QC: DCH
DATE: 05/01/14

SHEET M-8

GENERAL STRUCTURAL NOTES

B080-025

SCOPE OF WORK

1. WORK DETAILED ON THE DRAWINGS AND APPLICABLE ITEMS DESCRIBED IN THE GENERAL STRUCTURAL NOTES.
2. STRUCTURAL DESIGN AND CONSULTATION SERVICES FOR THE PUMP STATION REHABILITATION INCLUDE THE FOLLOWING:
   - A. IN-FILL OF THE EXISTING BASEMENT ELECTRICAL ROOM
   - B. COVERING OF STAIR OPENING TO THE EXISTING BASEMENT ELECTRICAL ROOM AND ADDRESS THE EXISTING CURBING AND SUBSEQUENT SLAB REPAIRS
   - C. PERFORMANCE SPECIFICATIONS AND SCHEMATIC DRAWINGS OF THE PLATFORM (STRUCTURAL STEEL, GRATING, GUARDRAILS AND STAIRS) FOR THE ELECTRICAL EQUIPMENT ON THE MAIN LEVEL THAT IS TO BE RAISED ABOVE THE 100-YEAR FLOOD ELEVATION (APPROXIMATELY 2'-6" ABOVE EXISTING FLOOR - CLEARANCE IS ADEQUATE FROM UNDERSIDE OF EXISTING ROOF STRUCTURE TO TOP OF NEW ELECTRICAL EQUIPMENT ON THE NEW PLATFORM
   - D. PROVIDE FOR NEW EXIT OPENING (INCLUDING DOOR AND FRAME SPECIFICATION) AND EXTERIOR STAIRS AT ELECTRICAL EQUIPMENT
   - E. STRUCTURAL RELATED DESIGN FOR SETTING NEW IMMERSIBLE PUMPS
   - F. STRUCTURAL RELATED DESIGN FOR EXTERIOR TRANSFORMER - DESIGN NEW PLATFORM FOR ACCESS AT PROPER LEVEL
   - G. THE EXISTING MANUAL SCREENS WILL BE ADDRESSED PER MECHANICAL DRAWINGS. CLEARANCE IS ADEQUATE FROM UNDERSIDE OF EXISTING ROOF STRUCTURE FOR BAR SCREENS TO BE ADDRESSED. NO MODIFICATION OF THE ROOF STRUCTURE IS PROPOSED AND/OR REQUIRED. 12" CMU PARTITION WALL TO BE REMOVED AND REPLACED AT NEW LOCATION.
   - H. THE EXISTING STEEL ROOF FRAMING IN THE SCREEN ROOM EXHIBITS CORROSION. THE STEEL IS TO BE CLEANED AND RECOATED PER S-7.
   - I. PROVIDE INSTALLATION DESIGN AND/OR PERFORMANCE SPECIFICATIONS FOR HOISTING EQUIPMENT AT SOUTH END OF PUMP ROOM TO TRANSPORT EQUIPMENT IN AND OUT OF THE BUILDING THROUGH THE EXISTING EXTERIOR WALL DOUBLE DOORS.

DRAWINGS AND SPECIFICATIONS

1. DO NOT SCALE DRAWINGS FOR DIMENSIONS NOT GIVEN.
2. ADVISE ENGINEER OF DIMENSIONAL DISCREPANCIES.
3. VERIFY ALL EXISTING FIELD CONDITIONS AND DIMENSIONS PRIOR TO COMMENCING CONSTRUCTION.
4. THE CONTRACTOR SHALL PERFORM NO PORTION OF THE WORK AT ANY TIME WITHOUT CONTRACT DOCUMENTS OR, WHERE REQUIRED, APPROVED SHOP DRAWINGS, PRODUCT DATA OR SAMPLES FOR SUCH PORTION OF THE WORK.

CONSTRUCTION SAFETY

1. THESE DRAWINGS DO NOT INCLUDE PROVISIONS TO SATISFY SAFETY REQUIREMENTS. CONTRACTOR IS SOLELY RESPONSIBLE FOR ENSURING SAFETY DURING CONSTRUCTION AND FOR CONFORMANCE TO ALL APPLICABLE OSHA STANDARDS AND OTHER APPLICABLE CODES. JOBSITE VISITS BY ENGINEER SHALL NOT CONSTITUTE APPROVAL, AWARENESS OR LIABILITY FOR ANY HAZARDOUS CONDITIONS.

SHORING AND SUPPORT

1. WHEN REMOVAL OF STRUCTURAL ELEMENTS FOR MODIFICATIONS MAY CAUSE TEMPORARY WEAKNESS, EXCESSIVE DEFLECTIONS OR STRUCTURAL INSTABILITY, SHORING OR OTHER SUITABLE SUPPORTS SHALL BE PROVIDED UNTIL COMPLETION AND ADEQUATE CURING OF MODIFICATIONS.
2. THE CONTRACTOR SHALL SUBMIT CUT SHEETS WITH CERTIFIED CAPACITIES FOR SHORING TO BE USED. SHORING PLANS SHALL BE PREPARED, SIGNED AND SEALED BY AN ENGINEER REGISTERED IN THE STATE OF FLORIDA.

VALUE ENGINEERING

1. ANY CHANGES TO THE STRUCTURE OR DESIGN SHALL HAVE BEEN REVIEWED AND APPROVED IN WRITING BY THE ENGINEER PRIOR TO COMMENCING WORK ON ITEMS AFFECTED.

FIELD MODIFICATIONS

1. ANY CHANGES TO THE STRUCTURE SHALL HAVE BEEN REVIEWED AND APPROVED IN WRITING BY THE ENGINEER PRIOR TO COMMENCING WORK ON ITEMS AFFECTED.
2. ANY CHANGES MADE WITHOUT PRIOR APPROVAL ARE SUBJECT TO REVIEW BY THE ENGINEER. CONTRACTOR SHALL PROVIDE SKETCHES, PHOTOGRAPHS AND WRITTEN DESCRIPTION OF EACH DEVIATION FROM THE PLANS FOR THE ENGINEER'S REVIEW.

BUILDING CODES AND SPECIFICATIONS

1. FLORIDA BUILDING CODE 2010 WITH LATEST UPDATES.
2. MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES ASCE 7-10.
3. BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES ACI 530-08 / ASCE 5-08 / TMS 402-08.
4. BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE ACI 318-08.
5. AISC MANUAL OF STEEL CONSTRUCTION, 13TH EDITION.
6. STRUCTURAL WELDING CODE D1-1.

DESIGN LOADS

1. DEAD LOADS
   - A. TABLE C3-1: MINIMUM DESIGN LOADS, ASCE 7-10
2. LIVE LOADS
   - A. ROOF .....20 PSF
   - B. WALKWAYS AND ELEVATED PLATFORMS.....60 PSF
   - C. STAIRS AND EXIT WAYS.....100 PSF
   - D. EQUIPMENT.....AFD'S = 5000 LBS EACH
   - E. TRANSFER CART AND MOTOR.....6 TONS (12 KIPS)
3. WIND LOAD
   - A. DESIGN WIND SPEED .....150 MPH (3 SECOND GUST)
   - B. EXPOSURE CATEGORY C
   - F. ASCE 7 BUILDING RISK CATEGORY IV
   - G. ENCLOSED BUILDING
4. COMPONENT AND CLADDING
   - A. SPECIALTY ENGINEER DESIGNING THE COMPONENTS AND CLADDING SHOULD DETERMINE THE TRIBUTARY AREA FOR SUCH COMPONENTS AND CLADDING AND USE THE TABLE FOR THE AREA EQUAL TO OR SMALLER THAN THE ACTUARIAL TRIBUTARY AREA.
   - B. COMPONENT AND CLADDING SUB-CONTRACTOR SHALL PROVIDE SIGNED AND SEALED DRAWINGS AND CALCULATIONS BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF FLORIDA INCLUDING THE DESIGN OF THE COMPONENTS AND CLADDING, CONNECTIONS TO THE MAIN STRUCTURE.

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TO THE BEST OF THE ENGINEER'S KNOWLEDGE THE PLANS AND SPECIFICATIONS COMPLY WITH THE APPLICABLE MINIMUM BUILDING CODES

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CITY of TAMPA
WASTEWATER DEPARTMENT

KRAUSE PS REHABILITATION

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GENERAL STRUCTURAL NOTES (CONT.)

B080-026

5. ROOF COMPONENTS AND CLADDING, PITCHED ROOF AREA (>10 TO 45 DEGREES)

PRESSURE

EFFECTIVE WIND AREA (SQ. FT.)	EXTERNAL PRESSURE COEFFICIENT GCp ZONE 1 FIELD	ZONE 2 EDGE	ZONE 3 CORNER	INTERNAL PRESSURE COEFFICIENT GCpi	P (psf) ZONE 1 FIELD	ZONE 2 EDGE	ZONE 3 CORNER
< 10	0.50	0.50	0.50	± 0.18	32.63	32.63	32.63
20	0.42	0.42	0.42	± 0.18	28.79	28.79	28.79
50	0.38	0.38	0.38	± 0.18	26.87	26.87	26.87
100 <	0.30	0.30	0.30	± 0.18	23.03	23.03	23.03

SUCTION

EFFECTIVE WIND AREA (SQ. FT.)	EXTERNAL PRESSURE COEFFICIENT GCp ZONE 1 FIELD	ZONE 2 EDGE	ZONE 3 CORNER	INTERNAL PRESSURE COEFFICIENT GCpi	P (psf) ZONE 1 FIELD	ZONE 2 EDGE	ZONE 3 CORNER
< 10	-0.90	-1.70	-2.60	± 0.18	-51.82	-90.20	-133.39
20	-0.86	-1.56	-2.40	± 0.18	-49.90	-83.49	-123.79
50	-0.82	-1.38	-2.20	± 0.18	-47.98	-74.85	-114.19
100 <	-0.80	-1.20	-2.00	± 0.18	-47.02	-66.21	-104.60

OVERHANG

EFFECTIVE WIND AREA (SQ. FT.)	EXTERNAL PRESSURE COEFFICIENT GCp ZONE 1 FIELD	ZONE 2 EDGE	ZONE 3 CORNER	INTERNAL PRESSURE COEFFICIENT GCpi	P (psf) ZONE 1 FIELD	ZONE 2 EDGE	ZONE 3 CORNER
< 10	-	-2.20	-3.70	± 0.18	-	-114.19	-186.17
20	-	-2.20	-3.38	± 0.18	-	-114.19	-170.81
50	-	-2.20	-2.82	± 0.18	-	-114.19	-143.94
100 <	-	-2.20	-2.50	± 0.18	-	-114.19	-128.59

ROOF CORNER ZONE WIDTH = 3'-0" | ROOF CORNER ZONE LENGTH = 3'-0" | ROOF EDGE ZONE WIDTH = 3'-0"

∗NOTE: WIND LOAD CALCULATIONS ARE BASED ON LRFD VALUES OF ASCE 7–10

6. WALL COMPONENTS AND CLADDING

PRESSURE

EFFECTIVE WIND AREA (SQ. FT.)	EXTERNAL PRESSURE COEFFICIENT GCp ZONE 4 FIELD	ZONE 5 EDGE		INTERNAL PRESSURE COEFFICIENT GCpi	P (psf) ZONE 4 FIELD	ZONE 5 EDGE	
< 10	1.0	1.0		± 0.18	56.62	56.62	
20	0.95	0.95		± 0.18	54.22	54.22	
50	0.87	0.87		± 0.18	50.38	50.38	
100	0.80	0.80		± 0.18	47.02	47.02	

SUCTION

EFFECTIVE WIND AREA (SQ. FT.)	EXTERNAL PRESSURE COEFFICIENT GCp ZONE 4 FIELD	ZONE 5 EDGE		INTERNAL PRESSURE COEFFICIENT GCpi	P (psf) ZONE 4 FIELD	ZONE 5 EDGE	
< 10	-1.10	-1.40		± 0.18	-61.42	-75.81	
20	-1.05	-1.30		± 0.18	-59.02	-71.01	
50	-0.99	-1.18		± 0.18	-56.14	-65.25	
100	-0.96	-1.03		± 0.18	-54.70	-58.06	

WALL EDGE ZONE WIDTH = 3'-0"

∗NOTE: WIND LOAD CALCULATIONS ARE BASED ON LRFD VALUES OF ASCE 7–10

SHALLOW SPREAD FOUNDATIONS

1. FOUNDATION DESIGN BASED ON 2000 PSF MINIMUM ALLOWABLE BEARING PRESSURE, TO BE VERIFIED BY CONTRACTOR.
2. NOTIFY ENGINEER IF FOOTING EXCAVATION REVEALS UNSUITABLE OR UNSTABLE SOILS OR MATERIALS OR CONDITIONS NOT PREVIOUSLY ANTICIPATED.
3. CONTRACTOR SHALL CONSIDER THE POSSIBLE IMPACT OF GROUNDWATER ON CONSTRUCTION TECHNIQUES, SEASONAL VARIATIONS, ANY OTHER SITE INDICATORS AND HIS OWN JUDGMENT.
4. SOIL DIRECTLY BELOW FOUNDATIONS AND SLAB ON GRADE SHALL BE COMPACTED TO 95% OF THE ASTM D 1557 (MODIFIED PROCTOR) MAXIMUM DRY DENSITY.

PORTLAND CEMENT CONCRETE - SPECIFICATION 033000

1. CONCRETE PROPERTIES
   - A. FOUNDATIONS: 4000 PSI, 3" TO 5" SLUMP
   - B. FILLED CELLS IN CMU: 3000 PSI, 8" TO 11" SLUMP, 3/8" PEA GRAVEL
   - C. SLABS ON GRADE: 4000 PSI, 3" TO 5" SLUMP
   - D. PUMP PEDESTALS AND PIPE SUPPORTS: 4000 PSI, 3" TO 5" SLUMP
   - E. EXTERIOR TRANSFORMER PLATFORM AND STAIRS: 4000 PSI, 3" TO 5" SLUMP
2. FLY ASH SHALL NOT EXCEED 20 PERCENT BY WEIGHT OF TOTAL CEMENT, IF USED.
3. CONTRACTOR SHALL STRICTLY ADHERE TO SLUMP LIMITS. SUPERPLASTICIZER MAY BE USED AT THE CONTRACTORS OPTION TO INCREASE WORKABILITY.
4. MAXIMUM MIXING TIME (FROM BATCHING TO PLACEMENT)
   - A. AIR TEMPERATURE LESS THAN 85° F: 90 MINUTES
   - B. AIR TEMPERATURE 85° F TO 90° F: 75 MINUTES
   - C. AIR TEMPERATURE OVER 90° F: 60 MINUTES
5. MINIMUM COVER FOR REINFORCEMENT
   - A. FOOTINGS, 3 INCHES TO BOTTOM AND UNFORMED SIDES, 2 INCHES TO FORMED SIDES.
   - B. OTHER, 2 INCHES TO MAIN REINFORCING, 1 ½" INCHES TO TIES AND STIRRUPS.
   - C. AS SPECIFICALLY NOTED.
6. ALL REINFORCEMENT SHALL BE SECURELY HELD IN PLACE BY STANDARD ACCESSORIES DURING CONCRETE PLACEMENT.
7. REINFORCEMENT SHALL BE GRADE 60 CONFORMING TO ASTM A615.
8. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185.
9. DETAIL AND FABRICATE REINFORCEMENT IN ACCORDANCE WITH "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES," ACI 315.
10. PROVIDE MINIMUM LAP SPLICES PER ACI 318-08 FOR ALL REINFORCING BARS, UNLESS OTHERWISE NOTED. STAGGER SPLICES IN ADJACENT BARS AT LEAST 24 INCHES, EXCEPT IN BEAMS AND COLUMNS.
11. IN WALL FOOTINGS, GRADE BEAMS AND BOND BEAMS, PROVIDE BENT BARS AT CORNERS AND INTERSECTIONS OF THE SAME NUMBER AND SIZE AS STRAIGHT BARS.
12. APPLY CURING COMPOUND TO SLAB WITHIN TWO HOURS OF COMPLETION OF FINISHING OPERATIONS. USE LIQUID MEMBRANE FORMING COMPOUND COMPLYING WITH ASTM C309 TYPE 1 CLASS A. APPLY IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
13. CHAMFER: 1-INCH TYPICAL ON ALL EXPOSED CORNERS AND EDGES UNLESS NOTED OTHERWISE.
14. NON-SLIP BROOM FINISH ON ALL EXTERIOR CONCRETE PLATFORMS AND STEPS.

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GENERAL STRUCTURAL NOTES (CONT.)

B080-027

CONCRETE MASONRY UNITS - GENERAL INFORMATION

1. BLOCKS SHALL BE HOLLOW LOAD-BEARING CONCRETE MASONRY UNITS SHALL CONFORM TO ASTM C 90 LATEST EDITION, TYPE II NON-MOISTURE CONTROLLED. THE MINIMUM NET AREA COMPRESSIVE STRENGTH SHALL BE 1500 PSI FOR AN AVERAGE OF THREE UNITS AND 1900 PSI FOR AN INDIVIDUAL UNIT. SAMPLE AND TEST MASONRY UNITS IN ACCORDANCE WITH ASTM C 140. SAMPLE AND TEST MASONRY GROUT FILL IN ACCORDANCE WITH ASTM C 39.
2. MORTAR SHALL CONFORM TO ASTM C 270 LATEST EDITION. MORTAR FOR ABOVE GRADE WORK SHALL BE TYPE S WITH A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 1800 PSI. MORTAR FOR BELOW GRADE WORK SHALL BE TYPE M MORTAR WITH A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 2500 PSI. SAMPLE AND TEST MORTAR IN ACCORDANCE WITH ASTM C 109.
3. PREFABRICATED HORIZONTAL JOINT REINFORCEMENT SHALL HAVE 9 GAGE SIDE RAILS FABRICATED FROM HIGH-STRENGTH COLD-DRAWN WIRE CONFORMING TO ASTM A 82 AND SHALL BE GALVANIZED AFTER FABRICATION. PLACE JOINT REINFORCEMENT IN ALTERNATE COURSES IN ALL WALLS. PLACE THREE ROWS AT 8 INCHES ON CENTER IMMEDIATELY ABOVE ALL WALL OPENINGS AND AT THE TOP OF ALL WALLS. LAP SIDE RAILS AT LEAST 6 INCHES AT SPLICES. JOINT REINFORCEMENT TO BE TRUSS-TYPE.
4. PROVIDE ALL SPECIAL, LINTEL, KNOCK-OUT, JAMB AND SASH BLOCK AS REQUIRED TO COMPLETE THE WALLS. MASONRY SAWS SHALL BE USED TO CUT THE BLOCK AS REQUIRED.
5. BRACE FOUNDATION WALLS BEFORE BACKFILLING AGAINST THEM TO PREVENT OVERSTRESSING, BUCKLING OR ROTATION OF THE WALLS. BRACE ALL WALLS AGAINST WIND, CONSTRUCTION LOADS OR OTHER TEMPORARY FORCES UNTIL SUCH PROTECTION IS NO LONGER REQUIRED FOR THE SAFE SUPPORT OF THE WALL. BRACING SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
6. IN ADDITION TO REQUIREMENTS ELSEWHERE IN THE DRAWINGS FOR FILLING MASONRY CELLS, FILL CELLS WITH CONCRETE AND ONE #5 BAR AT A MAXIMUM SPACING OF 48 INCHES UNLESS OTHERWISE NOTED. FILL FIRST CELL EACH SIDE OF ANY OPENING AND FILL FIRST CELL AT END OF WALL.
7. EXTEND AND HOOK VERTICAL BARS INTO FOOTING. EXTEND AND HOOK VERTICAL BARS INTO TOP OF WALL BOND BEAM OR TIE BEAM.
8. ALL VERTICAL BARS SHALL BE SECURELY TIED TO THE LOWER BAR AT ANY SPLICES, ESPECIALLY AT THE FOOTING DOWELS. BARS SHALL BE SECURED IN THEIR PROPER POSITIONS WITHIN THE CELLS BY TIE WIRES, REBAR POSITIONERS OR BY OTHER APPROVED METHODS.
9. PROVIDE CLEANOUTS AND/OR INSPECTION PORTS FOR FILLING CELLS IN LIFTS EXCEEDING 5 FEET. LIFTS SHALL NOT EXCEED 8 FEET.
10. CONTROL JOINT SPACING ALONG A STRAIGHT WALL SHALL NOT EXCEED 25 FEET, NOR 3 TIMES THE WALL HEIGHT. USE PREFORMED NEOPRENE JOINT STRIPS AND STANDARD SASH BLOCKS.
11. PROVIDE CONTROL JOINTS IN ACCORDANCE WITH DETAILS ON THE DRAWINGS AND IN ACCORDANCE WITH THESE GUIDELINES:
    - A. AT CHANGES IN WALL HEIGHT
    - B. AT CHANGES IN WALL THICKNESS
    - C. AT WALL OPENINGS LESS THAN 6'-0" WIDE, ONE SIDE
    - D. AT WALL OPENINGS 6'-0" OR WIDER, BOTH SIDES
    - E. AT CONTROL JOINTS IN APPLIED PLASTER OR MASONRY VENEER
    - F. AT CHASES AND RECESSES FOR PIPES, COLUMNS, ETC.
12. IN ADDITION TO REQUIREMENTS ELSEWHERE IN THE DRAWING, PROVIDE A CONTINUOUS HORIZONTAL #5 IN FULLY GROUTED KNOCK OUT BLOCK BELOW WINDOW OPENINGS EXTENDED 8" BEYOND EACH SIDE OF OPENING.

CONCRETE SLAB ON GRADE - SPECIFICATION 033000

1. THE INTENDED USE OF THE SLAB ON GRADE IS FOR PEDESTRIAN TRAFFIC ONLY.
2. MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS: 4000 PSI
3. MINIMUM THICKNESS: 5 INCHES
4. MAXIMUM SLUMP AT POINT OF DELIVERY: 5 INCHES
5. MAXIMUM AGGREGATE SIZE: 1 INCH
6. ENTRAINED AIR CONTENT: 4.5%
7. WELDED WIRE FABRIC SHALL BE WWF 6X6-W1.4XW1.4, UNLESS OTHERWISE NOTED, CONFORMING TO ASTM A 185.
8. THE WELDED WIRE FABRIC SHALL BE PLACED IN THE CENTER OF THE DEPTH OF SLAB ON GRADE UNLESS OTHERWISE NOTED. ALL MESH JOINTS SHALL BE LAPPED TWO FULL MESHES.
9. INTERRUPT TYPICAL SLAB REINFORCEMENT AT ALL CONSTRUCTION AND EXPANSION JOINTS.
10. CUT ALTERNATE WIRES ALONG THE LINE OF SAW CUT CONTROL JOINTS PRIOR TO PLACING CONCRETE. MAKE SAW CUTS WITHIN 12 HOURS OF CONCRETE PLACEMENT, OR AS SOON AS CUTTING CAN BE DONE SUCH THAT THE SAW BLADE DOES NOT DISLODGE AGGREGATE AND THE EDGES OF THE CUT DO NOT RAVEL.
11. PROVIDE ½" PREFORMED EXPANSION JOINT MATERIAL WHERE SLAB ABUTS VERTICAL SURFACES SUCH AS WALLS AND COLUMNS.
12. PROVIDE TERMITE PROTECTION TO SOIL PER FLORIDA BUILDING CODE 2010 BEFORE SLAB PLACEMENT.
13. PROVIDE VAPOR RETARDER UNDER ALL SLABS ON GRADE IN ENCLOSED SPACE.
14. APPLY CURING COMPOUND TO SLAB WITHIN TWO HOURS OF COMPLETION OF FINISHING OPERATIONS. USE LIQUID MEMBRANE FORMING COMPOUND COMPLYING WITH ASTM C 309 TYPE 1 CLASS A. THE COMPOUND SHALL BE APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
15. THE CONTRACTOR SHALL CONFIRM THAT THE CURING COMPOUND WILL NOT INTERFERE WITH THE BONDING OF ANY APPLIED FLOOR SURFACE. IF THE CURING COMPOUND IS FOUND TO INTERFERE WITH BONDING, THE USE OF WET BURLAP AND TRICKLE HOSES IS ACCEPTABLE.
16. FOR LARGE SLABS, IT IS RECOMMENDED THAT THE SLAB BE CAST IN ALTERNATING LONG STRIPS AND SAW CUT TRANSVERSELY TO MINIMIZE SHRINKAGE CRACKING.

WELDED STEEL GRATING

1. GRATING SHALL BE HOT DIPPED GALVANIZED WELDED STEEL GRATING WITH 1" x $\frac{3}{16}$" SERRATED BEARING BARS AT 1-$\frac{3}{16}$" CENTERS AND CROSS BARS AT 4" CENTERS (GW 19W4).
2. GRATING SHALL BE WELDED TO THE SUPPORT FRAMING EXCEPT THAT REMOVABLE GRATING SHALL BE FASTENED TO SUPPORT FRAMING WITH "GRATE-FAST" GRATING FASTENERS AS MANUFACTURED BY STRUCT-FAST INC., OR APPROVED EQUAL.
3. THE LOCATION'S OF GRATING CUT-OUTS LARGER THAN 6" DIAMETER ARE INDICATED ON DESIGN DRAWINGS. GRATING CUT-OUTS LESS THAN 6" DIAMETER MAY BE CUT IN THE FIELD.
4. HOLES THROUGH GRATING 6" IN DIAMETER AND LARGER SHALL BE BANDED, UNLESS TOE PLATE IS CALLED FOR ON THE DESIGN DRAWINGS.
5. GRATING SHALL BE SHOP-CUT AND BANDED AT ALL COLUMNS, BRACING, POSTS, GUSSET PLATES AND OTHER LOCATIONS INDICATED ON THE DESIGN DRAWINGS.

STEEL STAIRS

1. STAIR TREADS SHALL BE HOT DIPPED GALVANIZED WELDED STEEL GRATING WITH 1" x 3/16" SERRATED BEARING BARS AT 1-$\frac{3}{16}$" CENTERS AND CROSS BARS AT 4" CENTERS. STAIR TREADS SHALL BE HOT DIPPED GALVANIZED WITH STEEL END PLATES AND CHECKERED PLATE NOSING.
2. STAIR TREADS SHALL BE SHOP ASSEMBLED TO STRINGERS.
3. ALL RISERS MUST BE EQUAL ON A SET OF STAIRS.
4. STAIR STRINGERS SHALL BE C10 X 15.3, GALVANIZED AS PER ASTM A123.

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GENERAL STRUCTURAL NOTES (CONT.)

B080-028

STRUCTURAL STEEL - SPECIFICATION 051000

1. ALL W-SHAPED STEEL (BEAMS AND COLUMNS) SHALL CONFORM TO ASTM A992 GRADE 50.
2. STEEL CHANNELS, ANGLES, PLATES, AND BARS CONFORM TO ASTM A36.
3. RECTANGULAR HOLLOW STRUCTURAL SECTIONS (HSS) SHALL CONFORM TO ASTM A500 GRADE B, Fy = 46 KSI.
4. ROUND HOLLOW STRUCTURAL SECTIONS (HSS) SHALL CONFORM TO ASTM A500 GRADE B, Fy = 42 KSI.
5. STRUCTURAL STEEL PIPE SECTIONS SHALL CONFORM TO ASTM A53 GRADE B, Fy = 35 KSI.
6. ANCHOR BOLTS AND RODS SHALL CONFORM TO ASTM F1554 GRADE 36.
7. ALL BEAMS SHALL BE FABRICATED AND ERECTED WITH NATURAL CAMBER UP.
8. ALL WELDS SHALL BE MADE WITH E70 LOW HYDROGEN ELECTRODES, BY QUALIFIED WELDERS AS PER AWS D1.1 REQUIREMENTS.
9. ALL BOLTS, EXCEPT ANCHOR BOLTS, SHALL BE HIGH-STRENGTH ASTM A325, 3/4 IN. DIA., UNLESS NOTED OTHERWISE. USE HARDENED WASHERS UNDER TURNED ELEMENTS.
10. CONTRACTOR SHALL PROVIDE ADEQUATE TEMPORARY BRACING, SHORING AND GUYING OF THE FRAMING AGAINST WIND, CONSTRUCTION LOADS OR OTHER TEMPORARY FORCES UNTIL SUCH PROTECTION IS NO LONGER REQUIRED FOR THE SAFE SUPPORT OF THE STRUCTURE.
11. RETURN ALL WELDS AT CORNERS TWICE THE NOMINAL WELD SIZE MINIMUM.
12. ANCHOR BOLTS SHALL BE FURNISHED WITH HEAVY HEX NUTS AND FLAT WASHERS AND SHALL BE THREADED WITH A NUT AT THE EMBEDDED END. TAC WELD NUT TO BOLT OR STRIKE THREADS.
13. ALL COPES, BLOCKS, CUTOUTS AND OTHER CUTTING OF STRUCTURAL MEMBERS SHALL HAVE ALL REENTRANT CORNERS SHAPED NOTCH-FREE TO A RADIUS OF 1/2 IN. MINIMUM.
14. ENDS OF COLUMNS SHALL BE MILLED TO BEAR AT ALL SPLICES AND ATTACHMENT OF BASE PLATES.
15. WELDS NOT OTHERWISE DESIGNATED SHALL BE 1/4 IN. MINIMUM FILLET WELDS.
16. ADHESIVE ANCHORS SHALL BE THE HILTI HIT RE 500 ADHESIVE ANCHOR SYSTEM (OR APPROVED EQUAL) INSTALLED AS PER MANUFACTURER'S RECOMMENDATIONS.
17. EXPANSION ANCHORS SHALL BE HILTI KWIK BOLT III (OR APPROVED EQUAL) INSTALLED AS PER THE MANUFACTURERS RECOMMENDATIONS.
18. ALL STRUCTURAL STEEL SHALL BE GALVANIZED AS PER ASTM A123.
19. WHEN SPECIFICALLY NOT DETAILED ON THE DESIGN DRAWINGS PROVIDE THE GREATER OF ONE OF THE FOLLOWING BEAM END CONNECTIONS:
    A. MINIMUM 5/16 INCHES THICK DOUBLE ANGLE SHEAR CONNECTION, FULL DEPTH OF THE BEAM, WELDED OR BOLTED WITH VERTICAL BOLT SPACING = 3".
    B. WHERE BEAM REACTIONS ARE SHOWN, CONNECTIONS SHALL DEVELOP THE REACTION GIVEN.
    C. WHEN BEAM REACTIONS ARE NOT SHOWN, CONNECTIONS SHALL BE PROPORTIONED TO SUPPORT 60% OF THE TOTAL UNIFORM LOAD CAPACITY (ULC) SHOWN IN THE ALLOWABLE UNIFORM LOAD TABLES, PART 3 OF THE AISC STEEL CONSTRUCTION MANUAL, FOR THE GIVEN BEAM, SPAN, AND GRADE OF STEEL SPECIFIED. FOR COMPOSITE BEAMS, PROPORTION CONNECTIONS FOR 100 % OF THE ULC.
    D. CONNECTIONS SHALL BE PROPORTIONED FOR THE ECCENTRICITY BETWEEN THE CONNECTION CENTROID AND THE CENTROID OF THE SUPPORTING MEMBER.
20. SHOP DRAWINGS TO BE SUBMITTED PER PROJECT SPECIFICATION SECTION 051000 STRUCTURAL STEEL.

GUARD RAIL AND HANDRAIL DESIGN NOTES

1. THE CONTRACTOR SHALL SUBMIT MANUFACTURER'S PRODUCT TECHNICAL DATA, SPECIFICATION, AND LABORATORY TEST RESULTS THAT VALIDATE PRODUCT COMPLIANCE WITH THE REQUIREMENTS FOR THE PROJECT. SHOW COMPLETE LAYOUT; PLAN VIEWS, ELEVATIONS CONNECTIONS, DETAILS FOR FABRICATION AND ATTACHMENT TO OTHER ELEMENTS, AND OTHER INSTALLATION DETAILS.
2. INCLUDE CALCULATIONS AND MEASUREMENTS SIGNED AND SEALED BY A FLORIDA REGISTERED PE ENGINEER RESPONSIBLE FOR THE SYSTEM'S STRUCTURAL DESIGN.
3. THE CONTRACTOR SHALL ISSUE CERTIFICATES OF WARRANTY STATING THAT ALL MATERIALS HAVE BEEN INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S PUBLISHED INSTRUCTIONS. PROVIDE A 5 YEAR WARRANTY AGAINST WORKMANSHIP AND FINISH
4. ALL SUBMITTALS FOR SUBSTITUTIONS MUST BE MADE IN WRITING TO THE ENGINEER WITH SUPPORTING TECHNICAL DATA SHEETS AND TEST DATA SHOWING COMPLETE EQUIVALENT PERFORMANCE.
5. STRUCTURAL PERFORMANCE OF RAILING SYSTEM: ENGINEER, FABRICATE, AND INSTALL HAND RAILING SYSTEMS TO WITHSTAND ALL APPLICABLE STRUCTURAL LOADS AS INDICATED MEET OR EXCEED APPLICABLE BUILDING CODES.
6. ALL FASTENERS TO BE CORROSIVE RESISTANT GALVANIZED. FASTENER SIZE AND TYPE SHALL BE AS PER THE MANUFACTURER'S ENGINEERED DRAWINGS. FASTENERS SHALL BE COATED OR ISOLATED (NEOPRENE WASHERS), IF REQUIRED, TO INHIBIT GALVANIC ACTION.
7. GUARDRAIL/HANDRAIL SYSTEMS SHALL BE DESIGNED FOR A SINGLE CONCENTRATED LOAD OF 200 LBS. APPLIED IN ANY DIRECTION AT ANY POINT ON THE TOP OF THE GUARDRAIL AND TO TRANSFER THIS LOAD THROUGH THE SUPPORTS TO THE STRUCTURE. THIS LOAD NOT BE ASSUMED TO ACT CONCURRENTLY WITH THE LOADS SPECIFIED IN FBC §1607.7.1. (FBC §1607.7.1.1).
8. GUARDRAIL/HANDRAIL SYSTEMS SHALL BE DESIGNED FOR TO RESIST A LOAD OF 50 POUNDS PER LINEAL FOOT OR A CONCENTRATED LOAD OF 200 POUNDS APPLIED IN ANY DIRECTION AT THE TOP OF SUCH BARRIERS AT ANY LOCATION ON THE SAFEGUARD, WHICHEVER CONDITION PRODUCES THE MAXIMUM STRESSES. THE REACTIONS AND STRESSES CAUSED BY THE ABOVE REFERENCED UNIFORM AND CONCENTRATED LOADS SHALL BE CONSIDERED NOT BE ACTING SIMULTANEOUSLY (FBC HVHZ §1618.4.6.1).
9. COMPONENTS - INTERMEDIATE RAILS (ALL THOSE EXCEPT THE HANDRAIL), BALUSTERS AND PANEL FILLERS SHALL BE DESIGNED TO WITHSTAND A HORIZONTALLY APPLIED NORMAL LOAD OF 50 POUNDS ON AN AREA EQUAL TO 1 SQ. FT., INCLUDING OPENINGS AND SPACE BETWEEN RAILS. REACTIONS DUE TO THIS LOADING ARE NOT REQUIRED TO BE SUPERIMPOSED WITH THOSE OF FBC §1607.7.1 OR 1607.7.1.1. (FBC §1607.7.1.2).
10. IN HVHZ, INTERMEDIATE RAILS, BALUSTERS AND PANEL FILLERS ARE DESIGNED FOR A UNIFORM HORIZONTAL LOAD OF NOT LESS THAN 25 POUNDS PER SQUARE FOOT OVER THE GROSS AREA OF THE GUARD, INCLUDING THE AREA OF ANY OPENINGS IN THE GUARD, OF WHICH THEY ARE A PART WITHOUT RESTRICTION BY DEFLECTION. REACTIONS RESULTING FROM THIS LOADING NEED NOT BE ADDED TO THE LOADING SPECIFIED IN FBC

STRUCTURAL STAINLESS STEEL

1. PLATES, BARS, CHANNELS AND ANGLES SHALL CONFORM TO ASTM A276 STANDARD SPECIFICATION FOR STAINLESS STEEL BARS AND SHAPES, ALLOY TYPE 304. TUBES SHALL CONFORM TO ASTM A554, ALLOY TYPE 304. STAINLESS STEEL SHEETS SHALL CONFORM TO ASTM A240 (OR ASTM A666), ALLOY TYPE 304.
2. ALL WELDS SHALL BE MADE BY QUALIFIED WELDERS WITH ELECTRODES AS PER AWS REQUIREMENTS FOR STAINLESS STEEL (AWS D1.6 STRUCTURAL WELDING CODE STAINLESS STEEL, AWS E/ER 308 OR 312 FILLER METAL).
3. ALL FRAMING MEMBERS SHALL BE CONNECTED WITH FULL WELDS AT MEMBER INTERFACES. WELDS NOT OTHERWISE DESIGNATED SHALL BE 3/16 INCH MINIMUM FILLET.
4. RETURN ALL WELDS AT CORNERS TWICE THE NORMAL WELD SIZE MINIMUM.
5. ALL BOLTS SHALL CONFORM TO ASTM F593 STAINLESS STEEL SPECIFICATION, ALLOY TYPE 304, ¾ INCH DIAMETER, UNLESS NOTED OTHERWISE.
6. ALL NUTS SHALL CONFORM TO ASTM F594 STAINLESS STEEL SPECIFICATION, ALLOY TYPE 304, UNLESS NOTED OTHERWISE.
7. ALL COPES, BLOCKS, CUTOUTS AND OTHER CUTTING OF STRUCTURAL MEMBERS SHALL HAVE ALL RE-ENTRANT CORNERS SHAPED NOTCH-FREE TO A RADIUS OF ½ INCH MINIMUM.

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TO THE BEST OF THE ENGINEER'S KNOWLEDGE, THE PLANS AND SPECIFICATIONS COMPLY WITH THE APPLICABLE MINIMUM BUILDING CODES

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CITY of TAMPA
WASTEWATER DEPARTMENT

KRAUSE PS REHABILITATION

GENERAL STRUCTURAL NOTES

NO.	DATE	REVISIONS

DRAWN: RC, KC
DESIGN: RR
QC: RR
DATE: 06/03/14

SHEET S-4

B080-029

PLAN NOTES

N–1 STRUCTURAL RELATED DESIGN FOR EXTERIOR TRANSFORMER – DESIGN NEW PLATFORM FOR ACCESS AT PROPER LEVEL, SEE SHEETS S–10 AND S–11 FOR PLANS.

N–2 COVERING OF STAIR OPENING TO THE EXISTING BASEMENT ELECTRICAL ROOM AND ADDRESS THE EXISTING CURBING AND SUBSEQUENT SLAB REPAIRS, SEE 1/S–18

N–3 PERFORMANCE SPECIFICATIONS AND SCHEMATIC DRAWINGS OF THE PLATFORM (STRUCTURAL STEEL, GRATING, GUARDRAILS AND STAIRS) FOR THE ELECTRICAL EQUIPMENT ON THE MAIN LEVEL THAT IS TO BE RAISED ABOVE THE 100–YEAR FLOOD ELEVATION (APPROXIMATELY 2'–6" ABOVE EXISTING FLOOR – CLEARANCE IS ADEQUATE FROM UNDERSIDE OF EXISTING ROOF STRUCTURE TO TOP OF NEW ELECTRICAL EQUIPMENT ON THE NEW PLATFORM, SEE 1/S–12, 1/S–13, S–22, S–23 & 1/S–24. COORDINATE PLATFORM WITH E–6

N–4 PROVIDE FOR NEW EXIT OPENING (INCLUDING DOOR AND FRAME SPECIFICATION) AND EXTERIOR STAIRS AT ELECTRICAL EQUIPMENT. DOOR AND FRAME TO CLOSELY MATCH MAIN ENTRY ON EAST ELEVATION. SEE S–28.

N–5 TRANSFER CART AND RAILS THROUGH CENTER LINE OF EXISTING DOORS AND NEW CONCRETE PLATFORM AND STAIRS. SEE S–29.

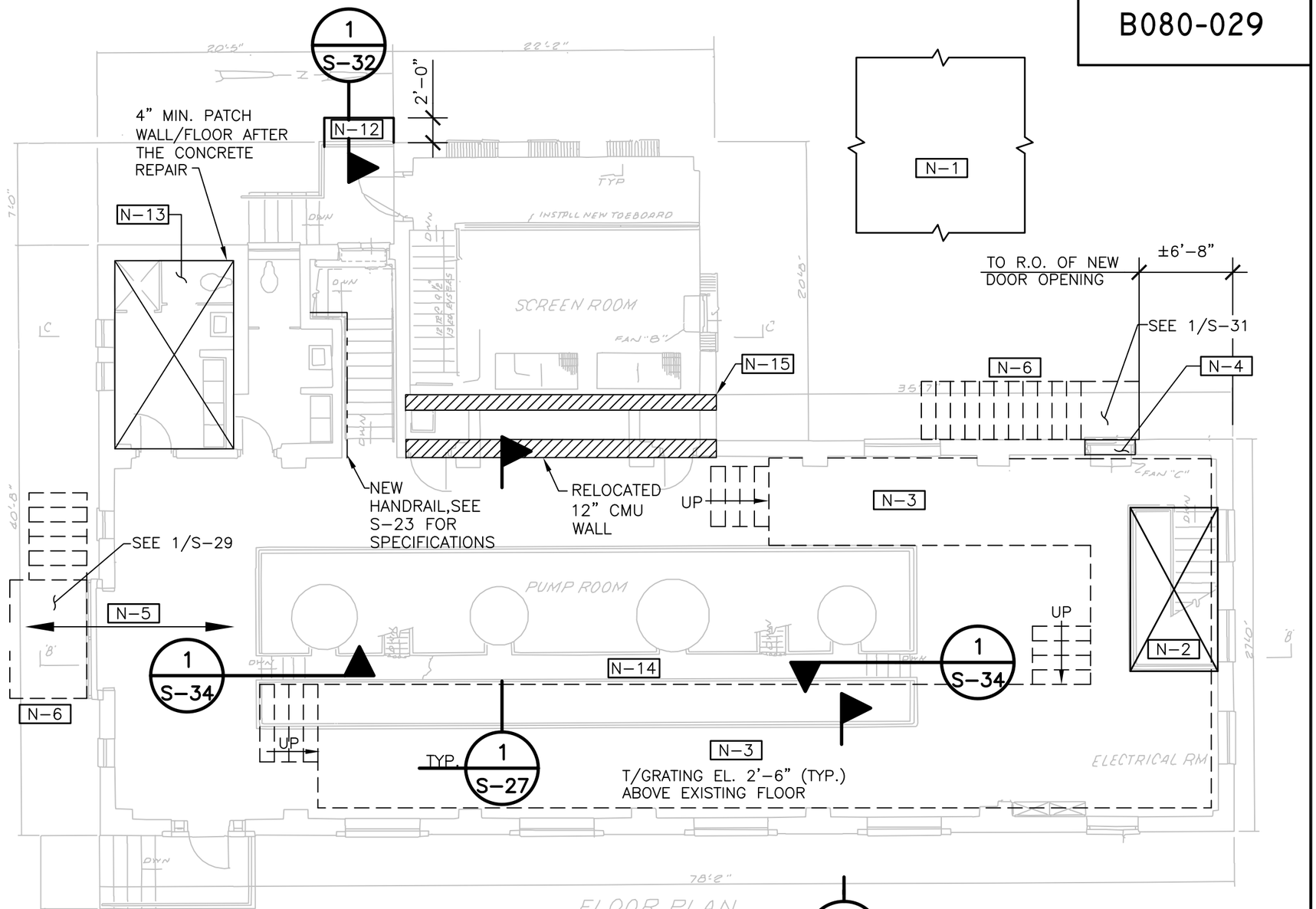
N–6 NEW EXTERIOR STAIR AND PLATFORM LANDINGS WITH HAND AND GUARDRAILS. SEE S–29.

N–12 LANDING EXTENSION. SEE 1/S–32.

N–13 REPAIR CONCRETE SURFACES IN ACCORDANCE WITH SPECIFICATION 033000 AND ADD MECHANICAL PADS AS REQ'D. SEE 1/S–33.

N–14 SEE S–34 FOR CATWALK MODIFICATIONS.

N–15 12" CMU PARTITION WALL AND 8" CONCRETE SLAB SUPPORTING CMU WALL TO BE REMOVED AND RECONSTRUCTED AT NEW LOCATION. SEE 2/S–32.



EXISTING PLANS & SECTIONS WITH NEW STRUCTURAL MODIFICATIONS & ADDITIONS

1/S–5 SCALE: 1/8" = 1'–0" (NOTE EXISTING PLANS & SECTION UNDERLAY IS APPROXIMATE AND FOR LOCATION PURPOSES ONLY)

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EXISTING PLANS WITH NEW STRUCTURAL MODIFICATION & ADDITIONS

NO.	DATE	REVISIONS

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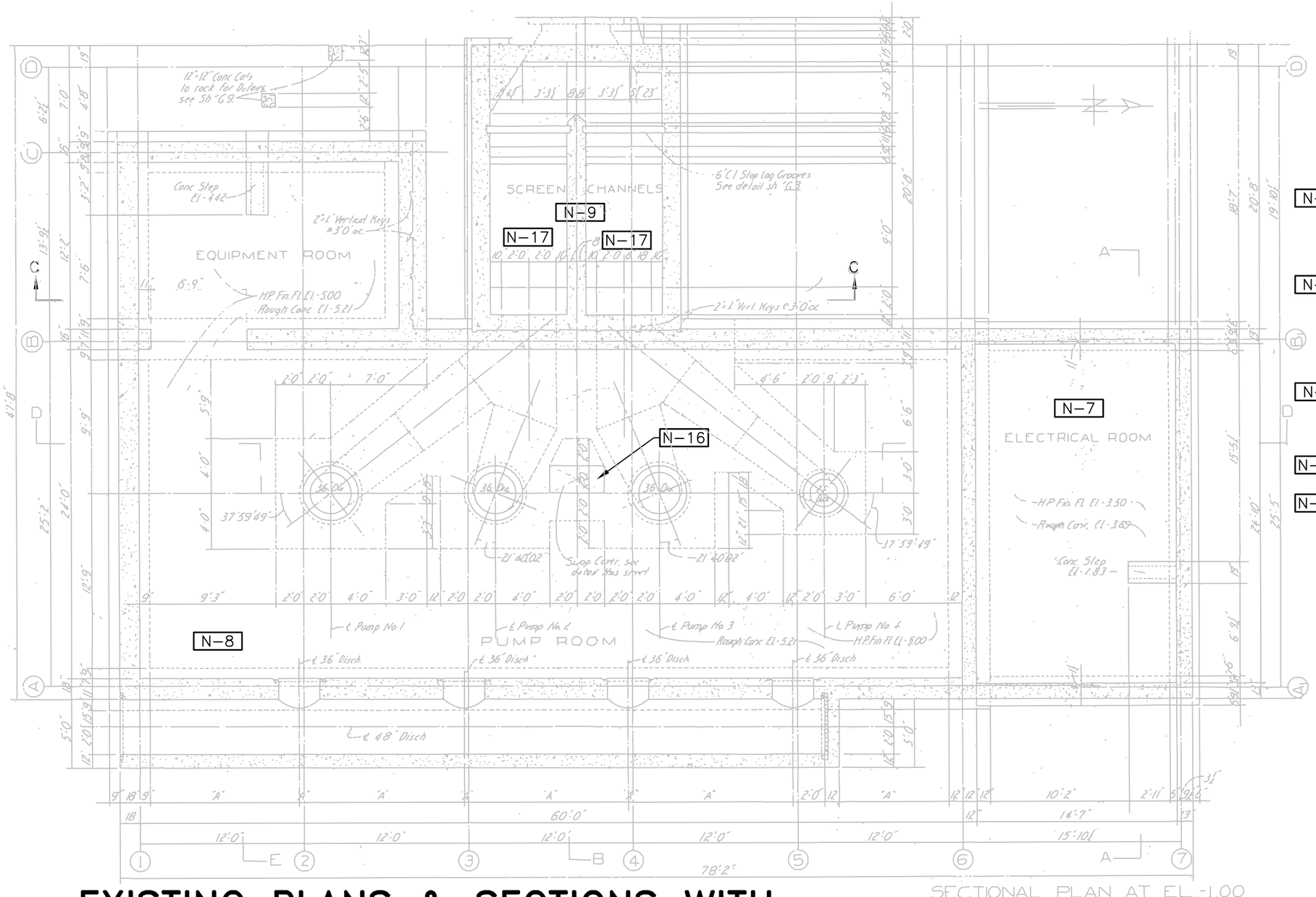
SHEET S-5

B080-030



PLAN NOTES

N-7 IN-FILL OF THE EXISTING BASEMENT ELECTRICAL ROOM, SEE 1/S-18.

N-8 STRUCTURAL RELATED DESIGN FOR SETTING NEW IMMERSIBLE PUMPS AND PIPES, SEE 1/S-14 THROUGH 1/S-17.

N-9 SEE S-9 FOR PROPOSED BAR SCREEN (NOTE 2" O.C. BAR SPACING)

N-16 SUMP PUMP COVER. SEE 2/S-33.

N-17 CHAMBER INLET MODIFICATIONS WITH NEW STOP LOG GROOVES SEE 1/S-25

EXISTING PLANS & SECTIONS WITH NEW STRUCTURAL MODIFICATIONS & ADDITIONS

1 / S-6

SCALE: 1/8" = 1'-0" (NOTE EXISTING PLANS & SECTION UNDERLAY IS APPROXIMATE AND FOR LOCATION PURPOSES ONLY)

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EXISTING PLANS WITH NEW STRUCTURAL MODIFICATION & ADDITIONS

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SHEET S-6

B080-031

PLAN NOTES

N–10 THE EXISTING MANUAL SCREENS WILL BE ADDRESSED PER MECHANICAL DRAWINGS. CLEARANCE IS ADEQUATE FROM UNDERSIDE OF EXISTING ROOF STRUCTURE FOR BAR SCREENS TO BE ADDRESSED. NO MODIFICATION OF THE ROOF STRUCTURE IS PROPOSED AND/OR REQUIRED

N–11 THE EXISTING STEEL ROOF FRAMING IN THE SCREEN ROOM EXHIBITS CORROSION.

A. CLEANING / SURFACE PREPARATION PROCESS OF THE EXISTING EXPOSED STEEL FRAMING: STEEL SURFACE PREPARATION: SSPC–SP10 IS PREFERABLE; HOWEVER, RECOGNIZING THE SPACE CONSTRICTIONS AND ACCESSIBILITY ABOVE SCREENS, SSPC–SP3 WOULD BE ACCEPTABLE FOR THE AREAS THAT ARE DIFFICULT TO ACCESS.

B. MINOR STRUCTURAL STEEL REPAIR (I.E., WELDMENTS, SUPPLEMENTAL PLATES) OF FRAMING ELEMENTS MAY BE REQUIRED. TYPICAL REPAIR SUPPLEMENTAL STEEL WOULD BE ASTM A36 ¼–INCH THICK PLATE.

C. APPLICATION OF A PROTECTIVE COATING SYSTEM TO THE EXISTING EXPOSED STEEL FRAMEWORK:

1. SURFACE PREPARATION

– REMOVE ALL GREASE, OIL, DIRT, DUST, MOLD, MILDEW, AND OTHER SOLUBLE CONTAMINANTS BY HIGH PRESSURE WATER CLEANING (MINIMUM 3000 PSI, 3–5 GALLONS PER MINUTE, POTABLE WATER).

– GRIND ALL SHARP EDGES AND SEAMS SMOOTH.

– REMOVE ALL AREAS OF RUST AND RUST STAIN BY NEAR WHITE BLAST CLEANING (SSPC–SP10).

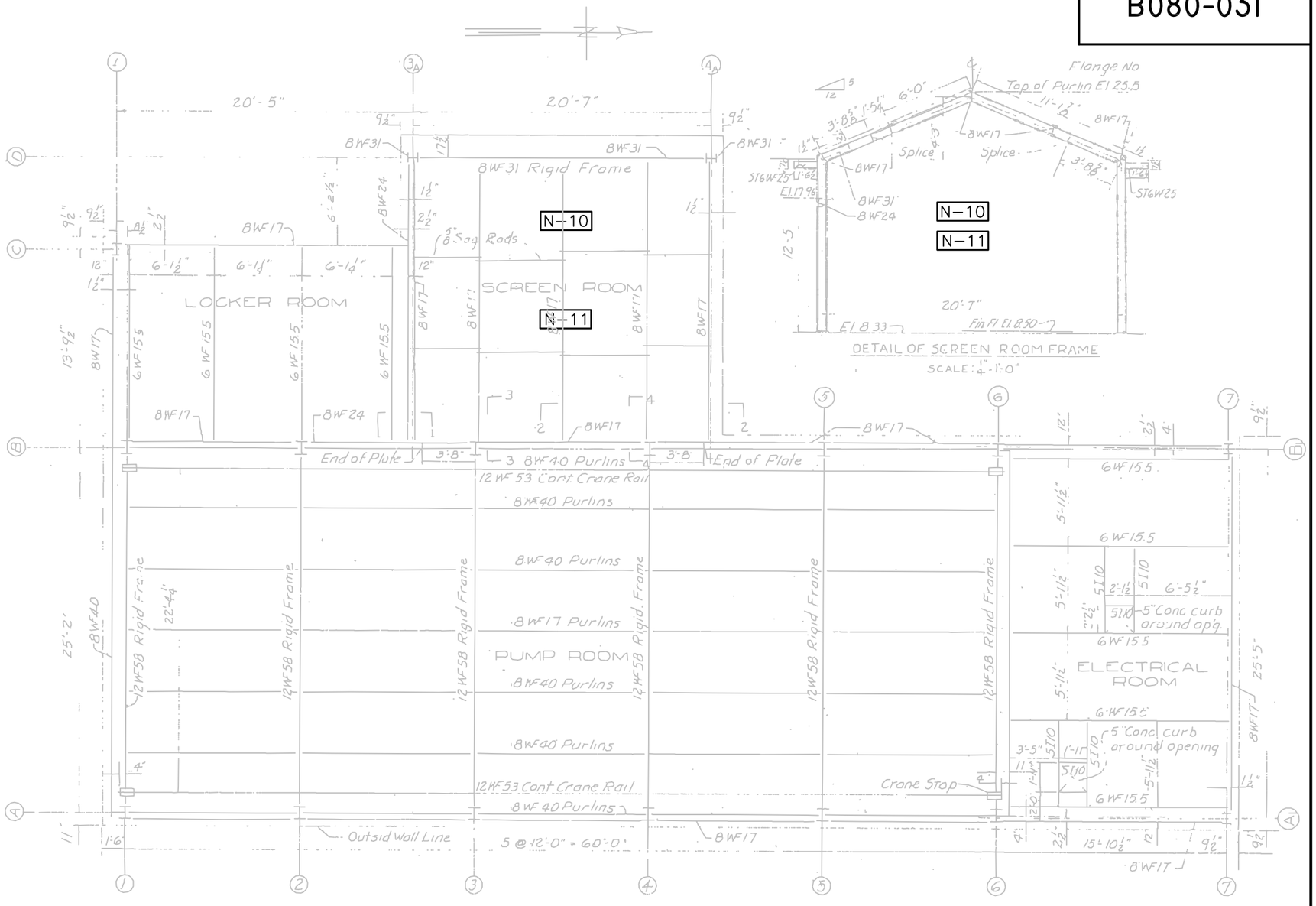
– ALL SURFACES MUST BE CLEAN AND DRY PRIOR TO THE APPLICATION OF ANY COATINGS. ALL BLASTED SURFACES MUST BE PRIMED AS SOON AS POSSIBLE THE SAME DAY TO PREVENT FLASH RUSTING OR RE–CONTAMINATION OF THE SURFACE.

2. COATING SYSTEM:

– PRIMER: TNEMEC SERIES 446 PERMA–SHIELD MCU @ 7.0–9.0 MILS DFT

– STRIPE COAT: (SPOT APPLY TO AREAS OF PITTING, WELDS, SEAMS, EDGES, AND PROTRUSIONS) TNEMEC SERIES 446 PERMA–SHIELD MCU @ 5.0–7.0 MILS DFT

– FINISH COAT: TNEMEC SERIES 446 PERMA–SHIELD MCU @ 7.0–9.0.0 MILS DFT



ROOF FRAMING PLAN

EXISTING PLANS & SECTIONS WITH NEW STRUCTURAL MODIFICATIONS & ADDITIONS

1 / S–7

SCALE: 1/8" = 1'–0" (NOTE EXISTING PLANS & SECTION UNDERLAY IS APPROXIMATE AND FOR LOCATION PURPOSES ONLY)

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SHEET S-7

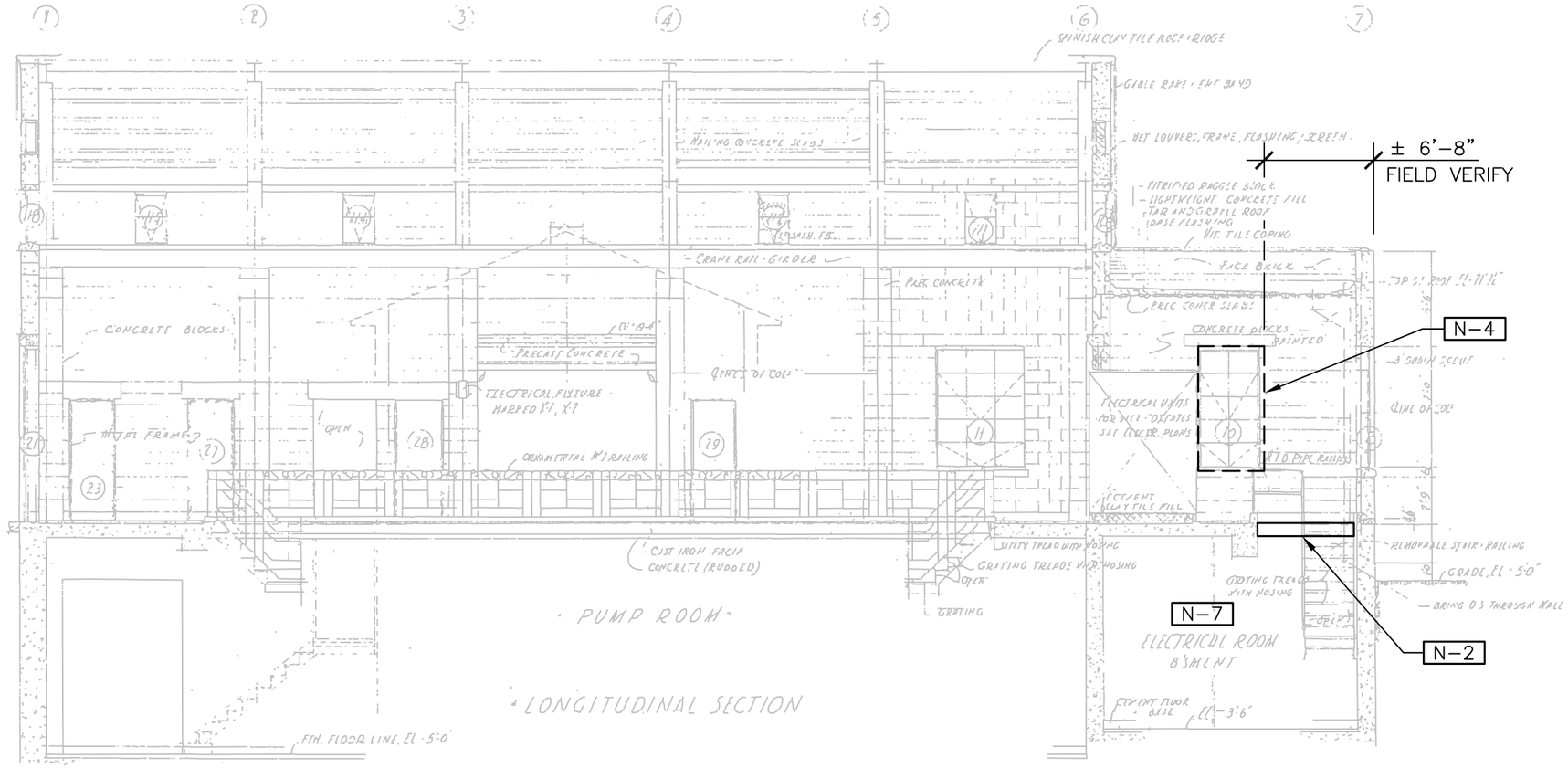
B080-032

PLAN NOTES

N–2 COVERING OF STAIR OPENING TO THE EXISTING BASEMENT ELECTRICAL ROOM AND ADDRESS THE EXISTING CURBING AND SUBSEQUENT SLAB REPAIRS, SEE 1/S–18

N–4 PROVIDE FOR NEW EXIT OPENING (INCLUDING DOOR AND FRAME SPECIFICATION) AND EXTERIOR STAIRS AT ELECTRICAL EQUIPMENT. DOOR AND FRAME TO CLOSELY MATCH MAIN ENTRY ON EAST ELEVATION. SEE S–28.

N–7 IN–FILL OF THE EXISTING BASEMENT ELECTRICAL ROOM, SEE 1/S–18



EXISTING PLANS & SECTIONS WITH NEW STRUCTURAL MODIFICATIONS & ADDITIONS

1 / S–8

SCALE: 1/8" = 1'–0" (NOTE EXISTING PLANS & SECTION UNDERLAY IS APPROXIMATE AND FOR LOCATION PURPOSES ONLY)

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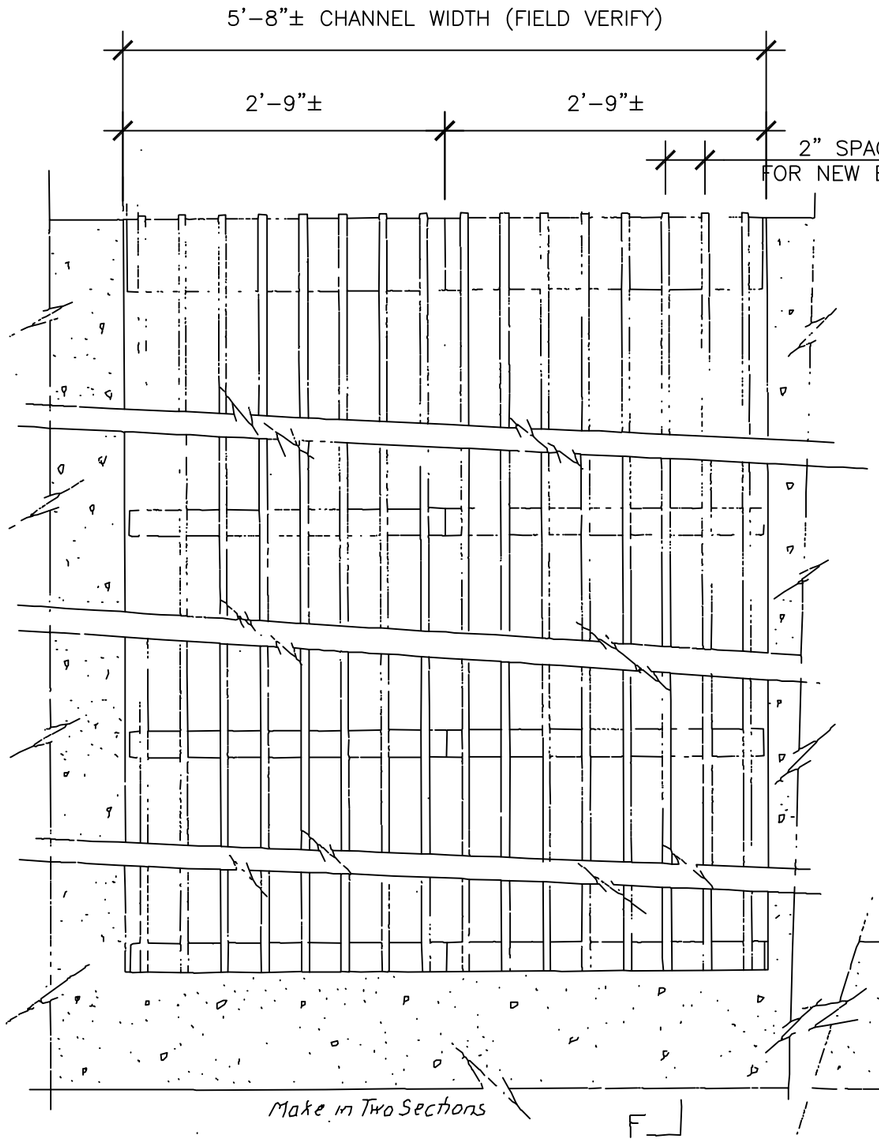
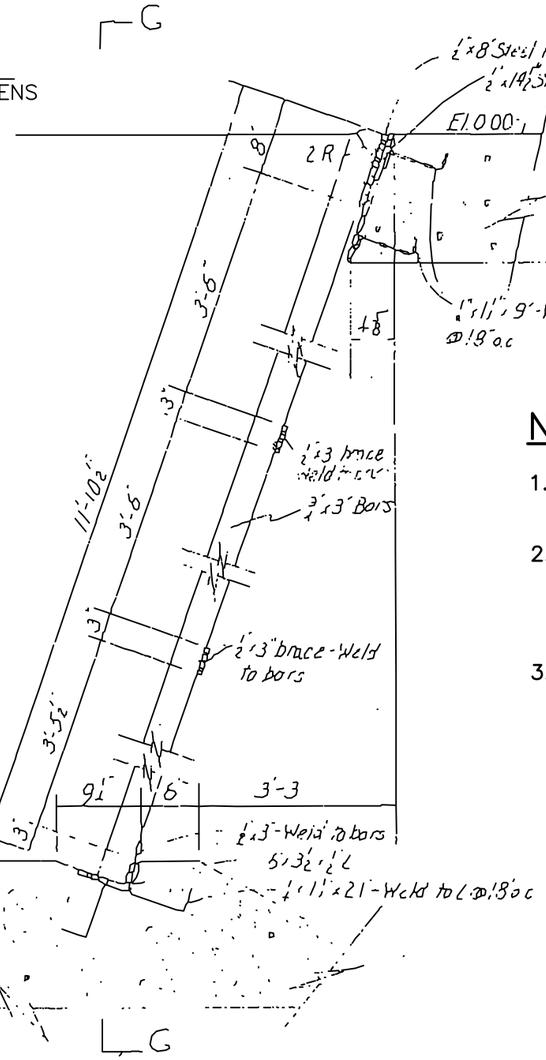
SHEET S-8

B080-033



SECTION G-C



SECTION F-F

BAR SCREEN DETAILS

1 / S-9 EXISTING BAR SCREEN DETAIL

SCALE: N.T.S.

NOTES:

1. SEE S-4 FOR STRUCTURAL STAINLESS STEEL TO BE USED FOR NEW BAR SCREENS.
2. BOTH BAR SCREENS ARE TO BE REMOVED AND REPLACED IN KIND UTILIZING STAINLESS STEEL, EXCEPT FOR VERTICAL BAR SPACING. NEW VERTICAL BAR SPACING TO BE 2 INCHES ON CENTER
3. CLEAN AND REUSE THE EXISTING CHANNELS, PLATES AND ANGLES SUPPORTING BAR SCREENS.

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EXISTING PLANS WITH NEW STRUCTURAL MODIFICATION & ADDITIONS

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DRAWN: RC, KC
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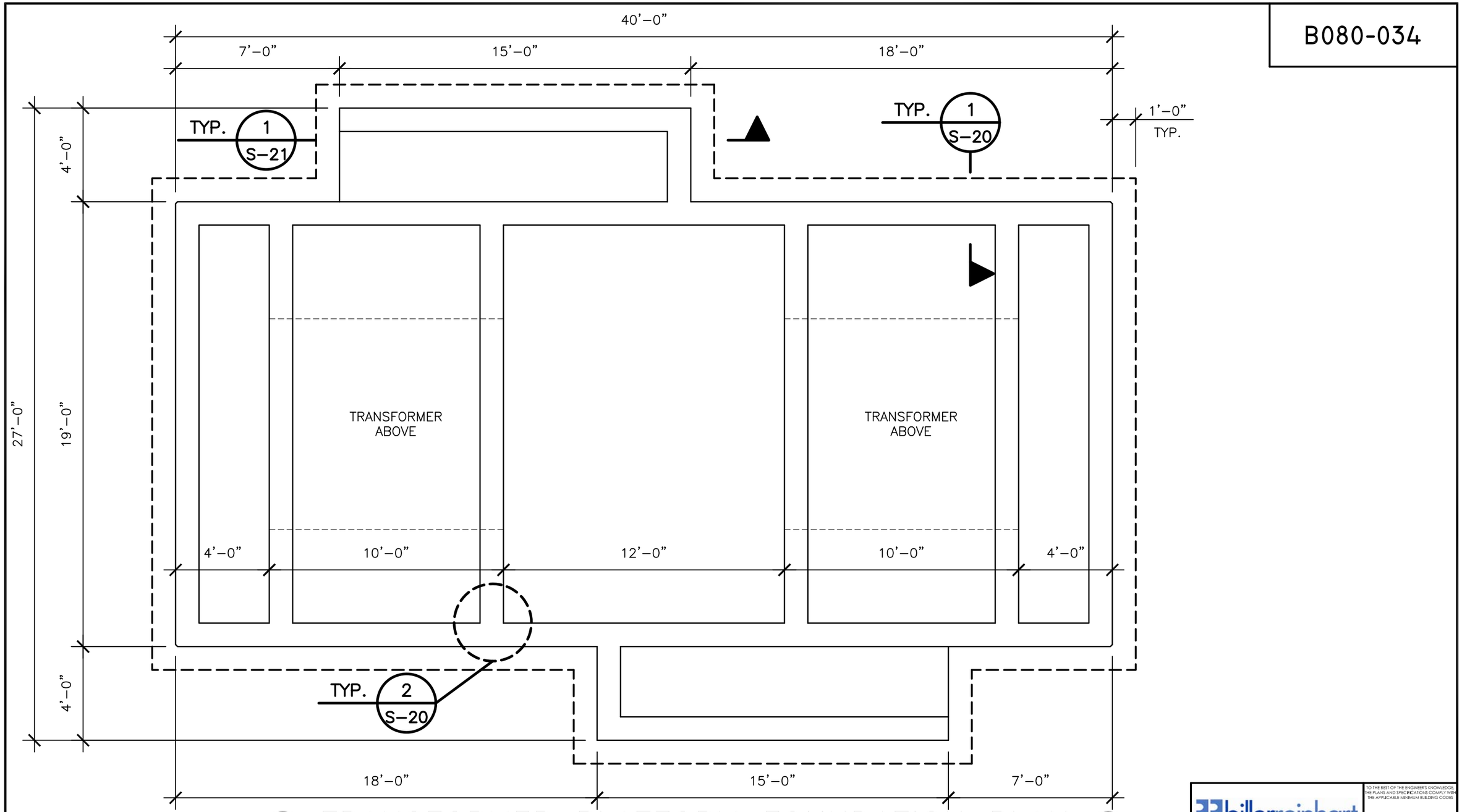
SHEET S-9

B080-034



TRANSFORMER PLATFORM FOUNDATION PLAN

1 / S–10 SCALE: 1/4" = 1'–0"

N

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TRANSFORMER FOUNDATION PLAN

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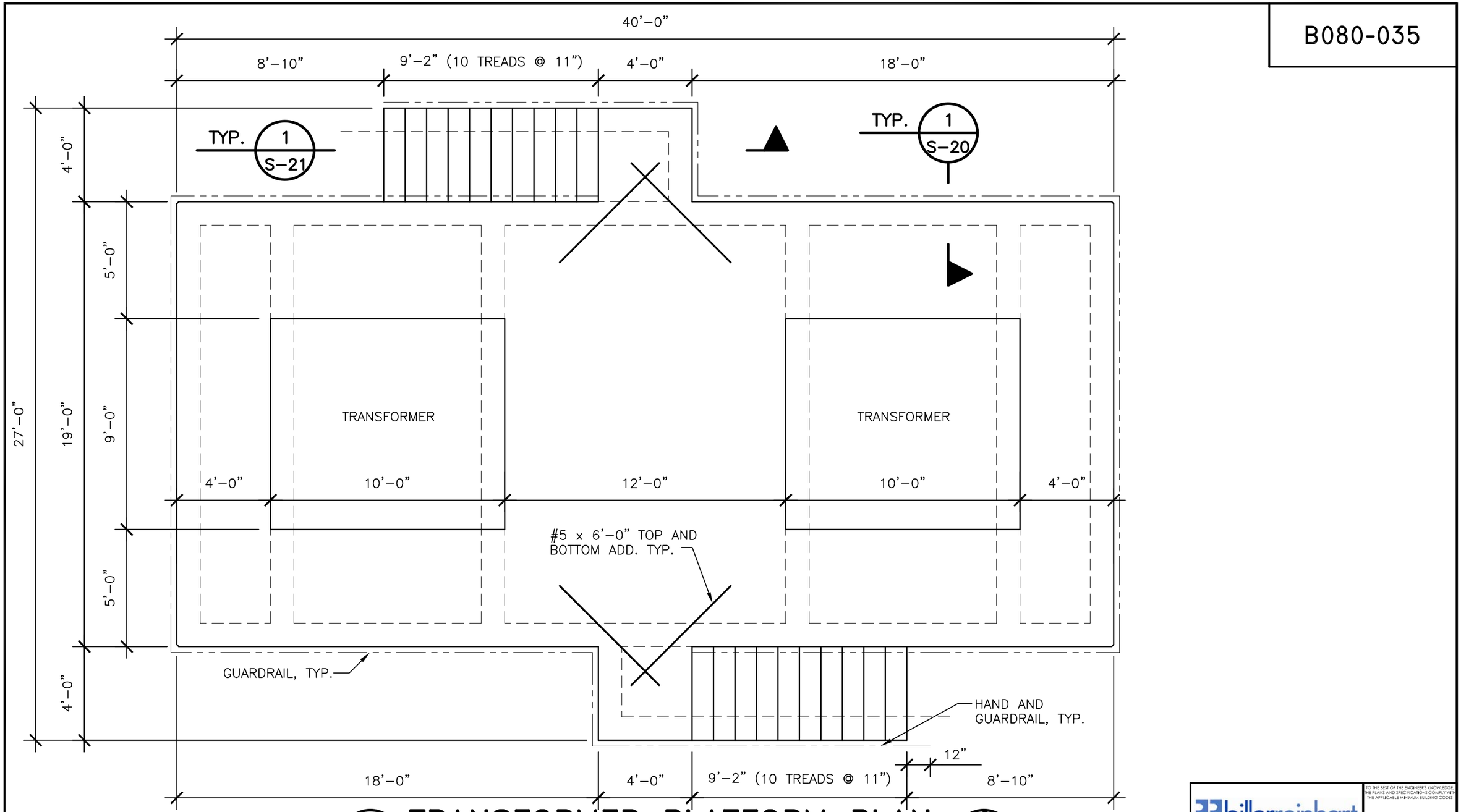
SHEET S-10

B080-035



1 / S–11 **TRANSFORMER PLATFORM PLAN**

SCALE: 1/4" = 1'–0"

N

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TRANSFORMER PLATFORM PLAN

NO.	DATE	REVISIONS

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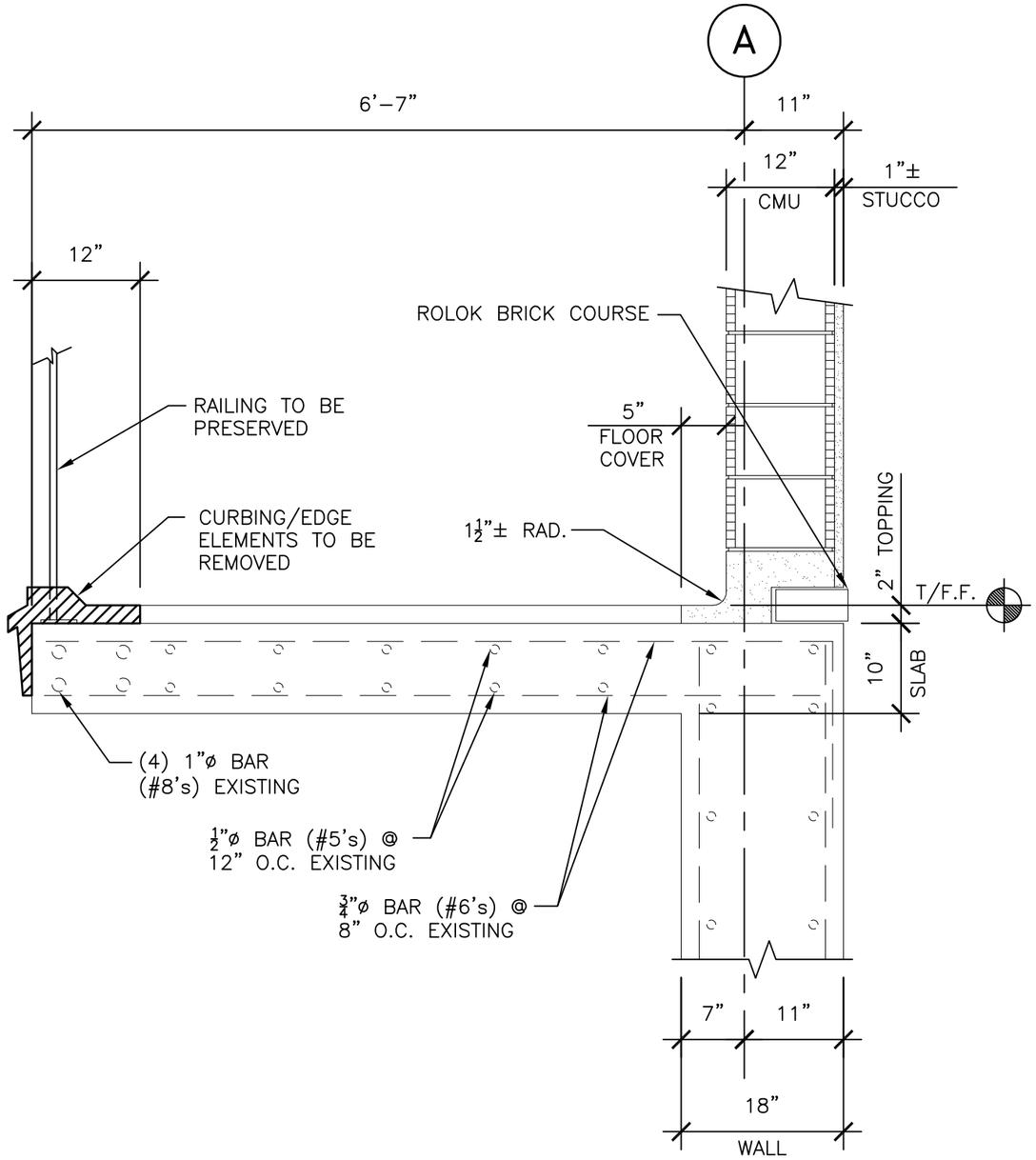
DESIGN: RR
QC: RR
DATE: 06/03/14

SHEET S-11

B080-036



1 / S-12 EXISTING PLATFORM DEMOLITION SECTION

SCALE: 3/4" = 1'–0"

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SECTIONS & DETAILS

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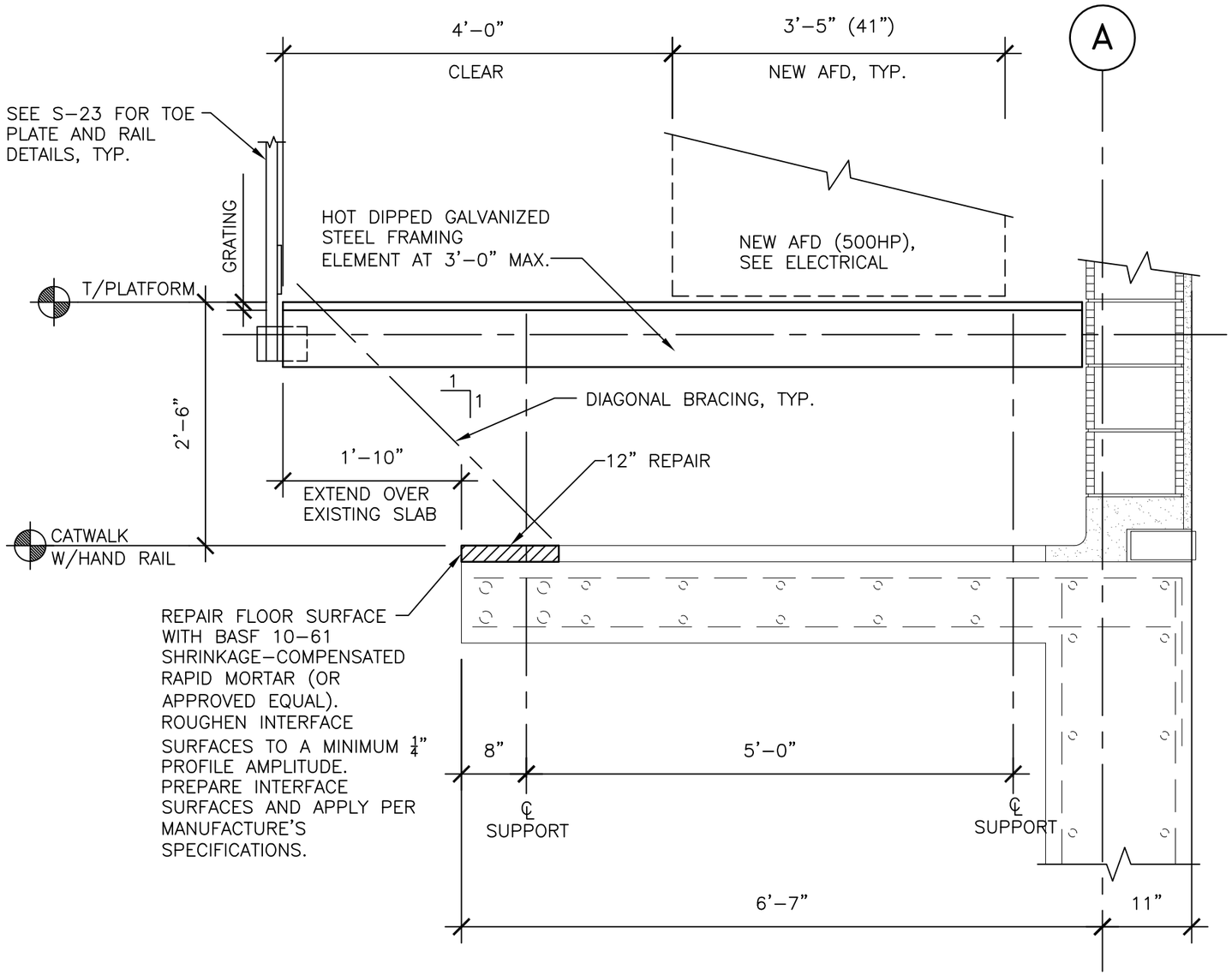
SHEET S-12

B080-037



INTERIOR ELEVATED ELECTRICAL PLATFORM

1. SEE DRAWING S-3 AND S-4 FOR HOT DIPPED GALVANIZED WELDED STEEL GRATING SPECIFICATIONS.
2. SEE DRAWING S-4 FOR STRUCTURAL STEEL SPECIFICATIONS.
3. SEE DRAWING S-22 FOR STEEL STAIRS
4. SEE DRAWING S-23 FOR PIPE HANDRAIL
5. MAXIMUM SPAN (SPACING OF SUPPORTING STEEL ELEMENTS) OF GRATING IS 3'-0". MAXIMUM SUPERIMPOSED LIVE LOAD IS 150 PSF (AREAS AROUND AFD'S).
6. AFD'S ARE APPROXIMATELY 5000 LBS EACH.
7. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR REVIEW AND APPROVAL PRIOR TO FABRICATION.
   SHOP DRAWINGS ARE TO SHOW COMPLETE LAYOUT; PLAN VIEWS, ELEVATIONS, CONNECTIONS, DETAILS FOR FABRICATION AND ATTACHMENT TO OTHER ELEMENTS, AND OTHER INSTALLATION DETAILS. INCLUDE CALCULATIONS AND MEASUREMENTS SIGNED AND SEALED BY A FLORIDA REGISTERED PROFESSIONAL ENGINEER RESPONSIBLE FOR THE SYSTEMS' STRUCTURAL DESIGN.
8. COORDINATE PLATFORM PLAN CONFIGURATION WITH DRAWING E-6. LOCATION OF STAIRS, FINAL DIMENSION REQUIREMENTS, ELECTRICAL COMPONENTS, ETC., SHALL BE COORDINATED WITH MECHANICAL AND ELECTRICAL DRAWINGS.

1/S-13 NEW PLATFORM SECTION

SCALE: 3/4" = 1'–0"

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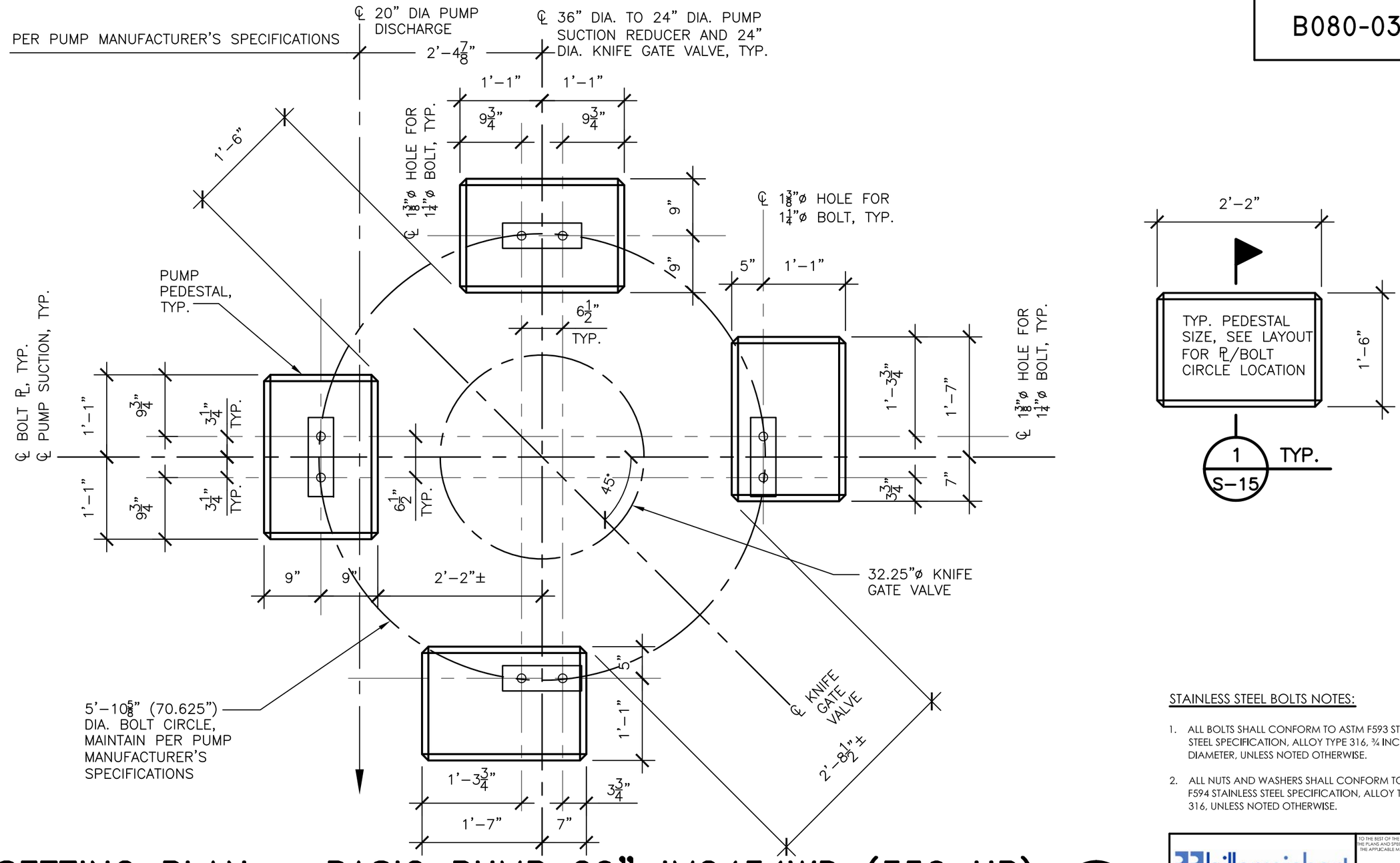
SHEET S-13

B080-038



STAINLESS STEEL BOLTS NOTES:

1. ALL BOLTS SHALL CONFORM TO ASTM F593 STAINLESS STEEL SPECIFICATION, ALLOY TYPE 316, ¾ INCH DIAMETER, UNLESS NOTED OTHERWISE.
2. ALL NUTS AND WASHERS SHALL CONFORM TO ASTM F594 STAINLESS STEEL SPECIFICATION, ALLOY TYPE 316, UNLESS NOTED OTHERWISE.

1 / S-14 SETTING PLAN – BASIC PUMP 20" IM2434WD (350 HP)

SCALE: 3/4" = 1'-0"

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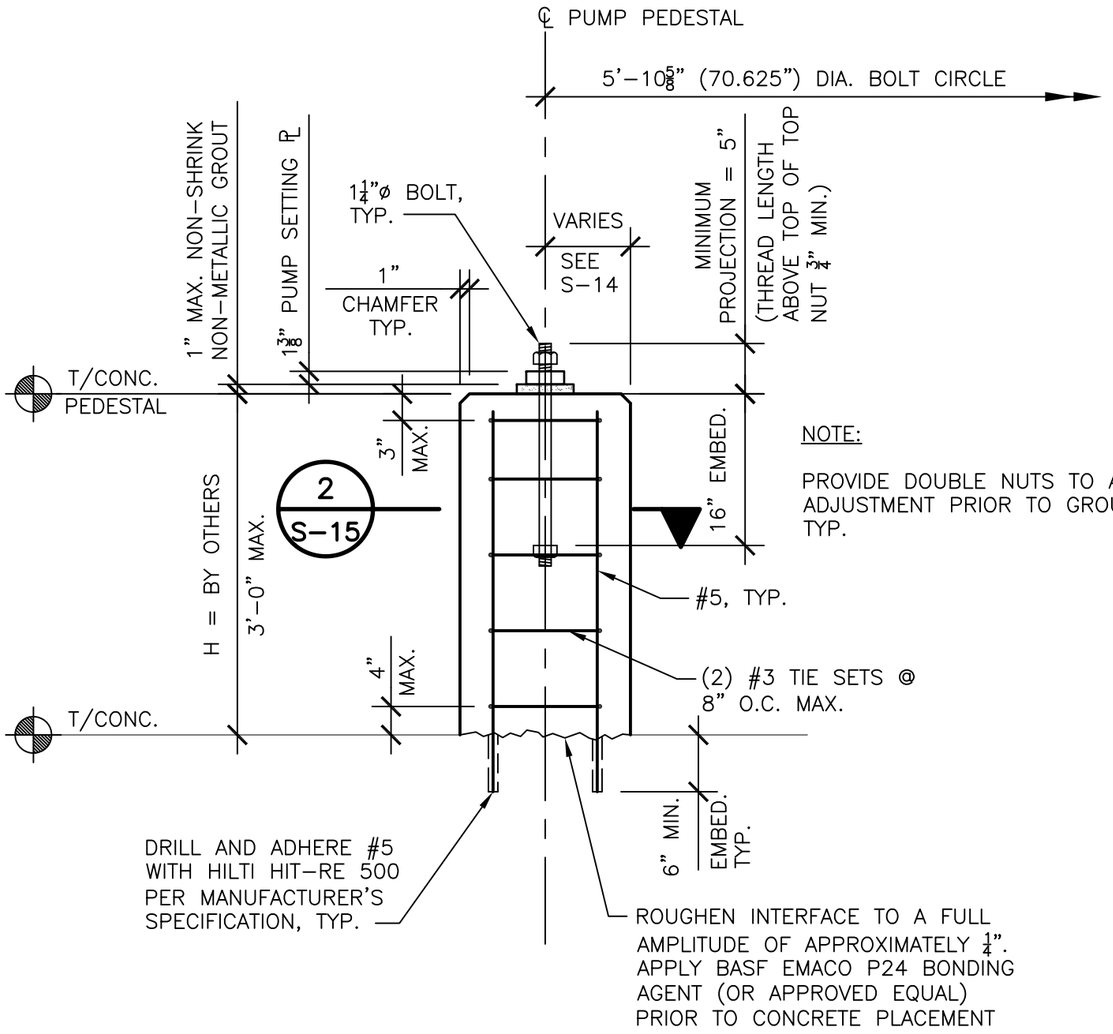
SHEET S-14

B080-039



NOTE:

PROVIDE DOUBLE NUTS TO ALLOW ADJUSTMENT PRIOR TO GROUTING, TYP.

1 S–15 SECTION – PUMP PEDESTAL

SCALE: 3/4" = 1'–0"

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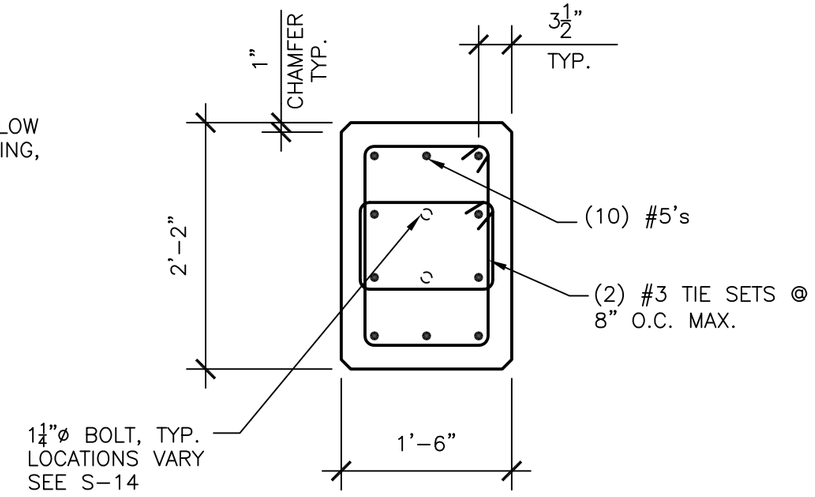

2 S–15 SECTION – PUMP PEDESTAL

SCALE: 3/4" = 1'–0"

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TO THE BEST OF THE ENGINEER'S KNOWLEDGE, THE PLANS AND SPECIFICATIONS COMPLY WITH THE APPLICABLE MINIMUM BUILDING CODES

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CITY of TAMPA
WASTEWATER DEPARTMENT

KRAUSE PS REHABILITATION

SECTIONS & DETAILS

NO.	DATE	REVISIONS

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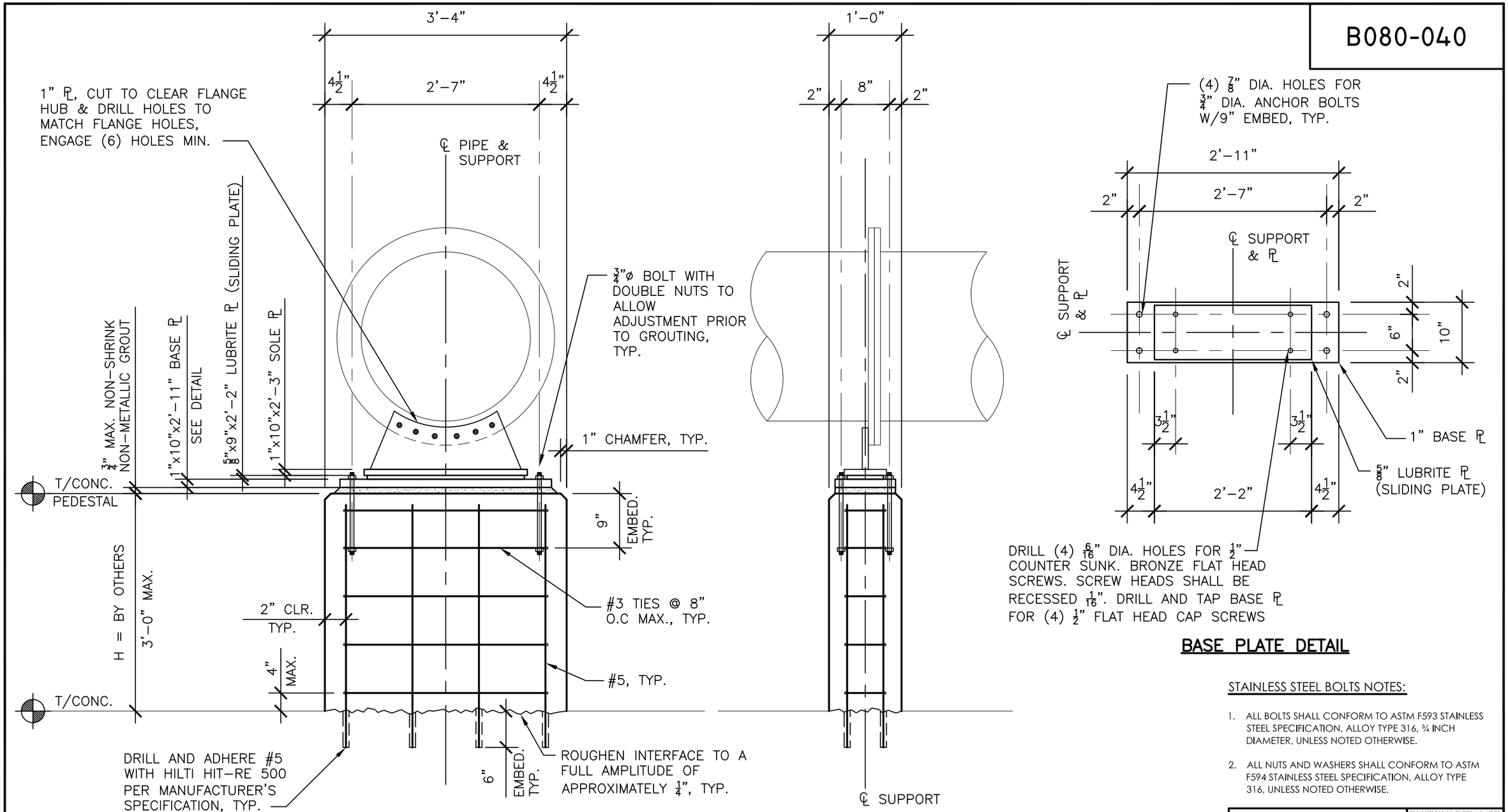
QC: RR
DATE: 05/01/14

SHEET S-15

B080-040



BASE PLATE DETAIL

STAINLESS STEEL BOLTS NOTES:

1. ALL BOLTS SHALL CONFORM TO ASTM F593 STAINLESS STEEL SPECIFICATION, ALLOY TYPE 316, ¾ INCH DIAMETER, UNLESS NOTED OTHERWISE.
2. ALL NUTS AND WASHERS SHALL CONFORM TO ASTM F594 STAINLESS STEEL SPECIFICATION, ALLOY TYPE 316, UNLESS NOTED OTHERWISE.

1 / S-16 **PIPE FLANGE SUPPORT DETAIL-SADDLE SUPPORT TYPE A**

SCALE: 3/4" = 1'-0"

NOTE: SEE M-3.

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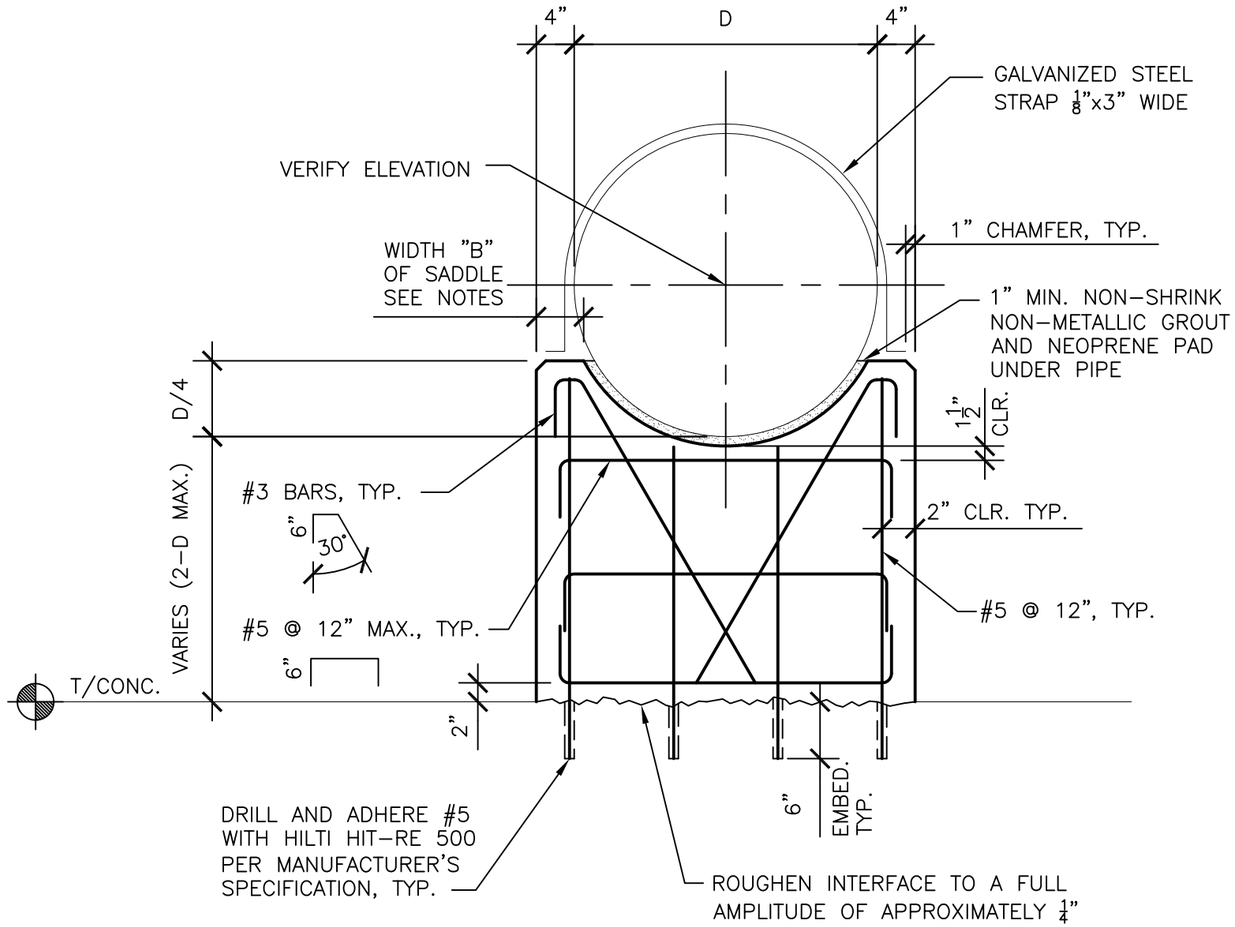

NOTES:

1. THICKNESS "B" OF SADDLE
   B = 6" WHEN: D < 12"
   B = 8" WHEN: 12" < D < 24"
   B = 10" WHEN: 24" < D < 36"
   B = 12" WHEN: 36" < D < 48"

2. FOR "B" = 10 OR THICKER, USE 2 LAYERS OF REINFORCING, TURN HORIZONTAL BARS 90° TO HOOK AROUND VERTICAL 1 1/2" CLEAR OF CONCRETE.

1 S-17 CONCRETE PIPE SADDLE DETAIL-SADDLE SUPPORT TYPE B

SCALE: N.T.S.

NOTE: SEE M-3.

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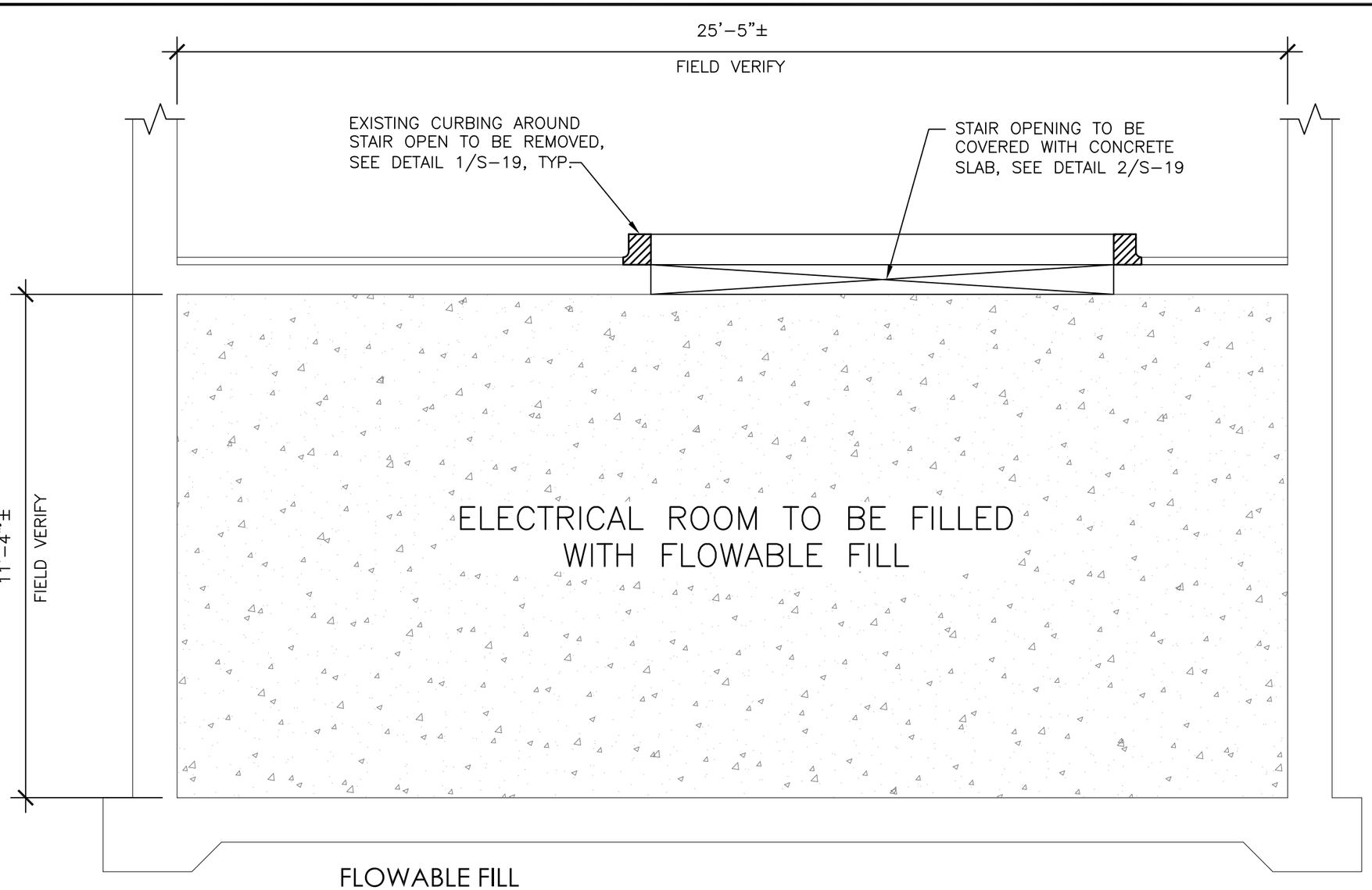

FLOWABLE FILL

1. THE 28-DAY COMPRESSIVE STRENGTH OF THE FLOWABLE FILL SHALL BE 50 TO 100 PSI.
2. THE FLOWABLE FILL IS A CONTROLLED LOW-STRENGTH MATERIAL (CLSM) AND SHALL MEET THE REQUIREMENTS OF ACI 229R (LATEST EDITION).

1/S-18 ELECTRICAL ROOM SECTION

SCALE: 3/8" = 1'-0"

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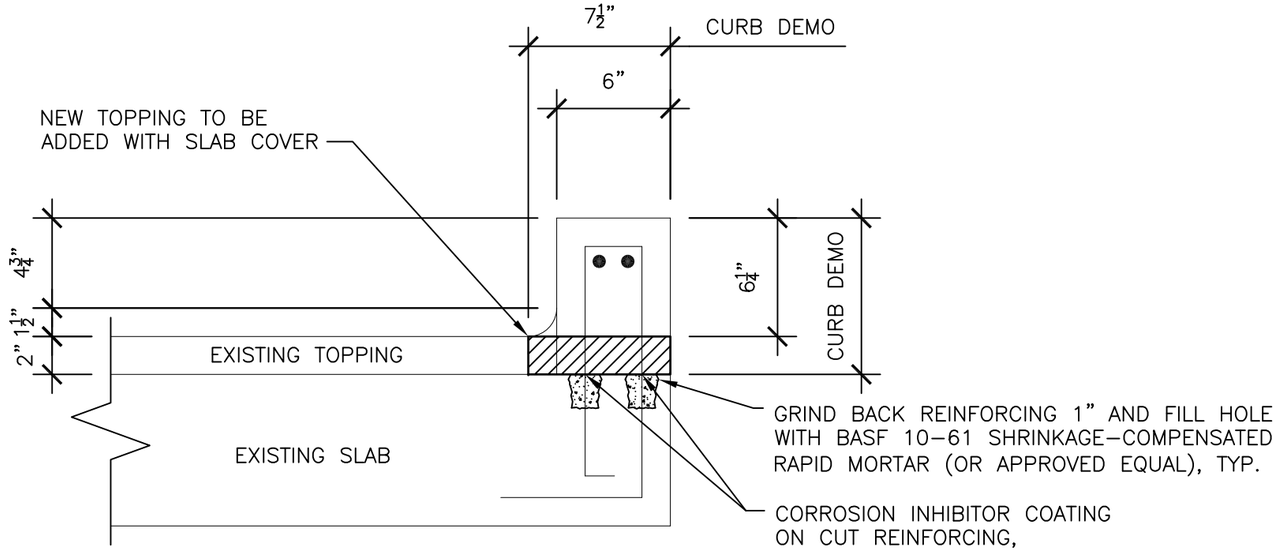
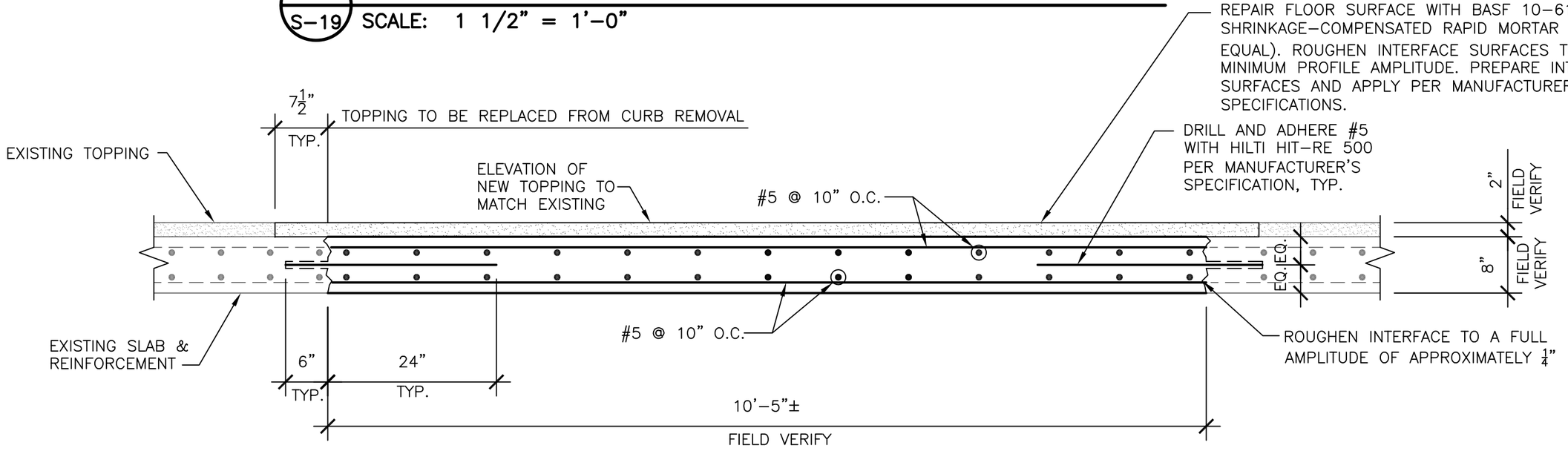


1 / S-19 CURBING DEMOLITION & REPAIR DETAIL

SCALE: 1 1/2" = 1'–0"



2 / S-19 SLAB COVER OVER STAIR OPENING DETAIL

SCALE: 3/4" = 1'–0"

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SHEET S-19

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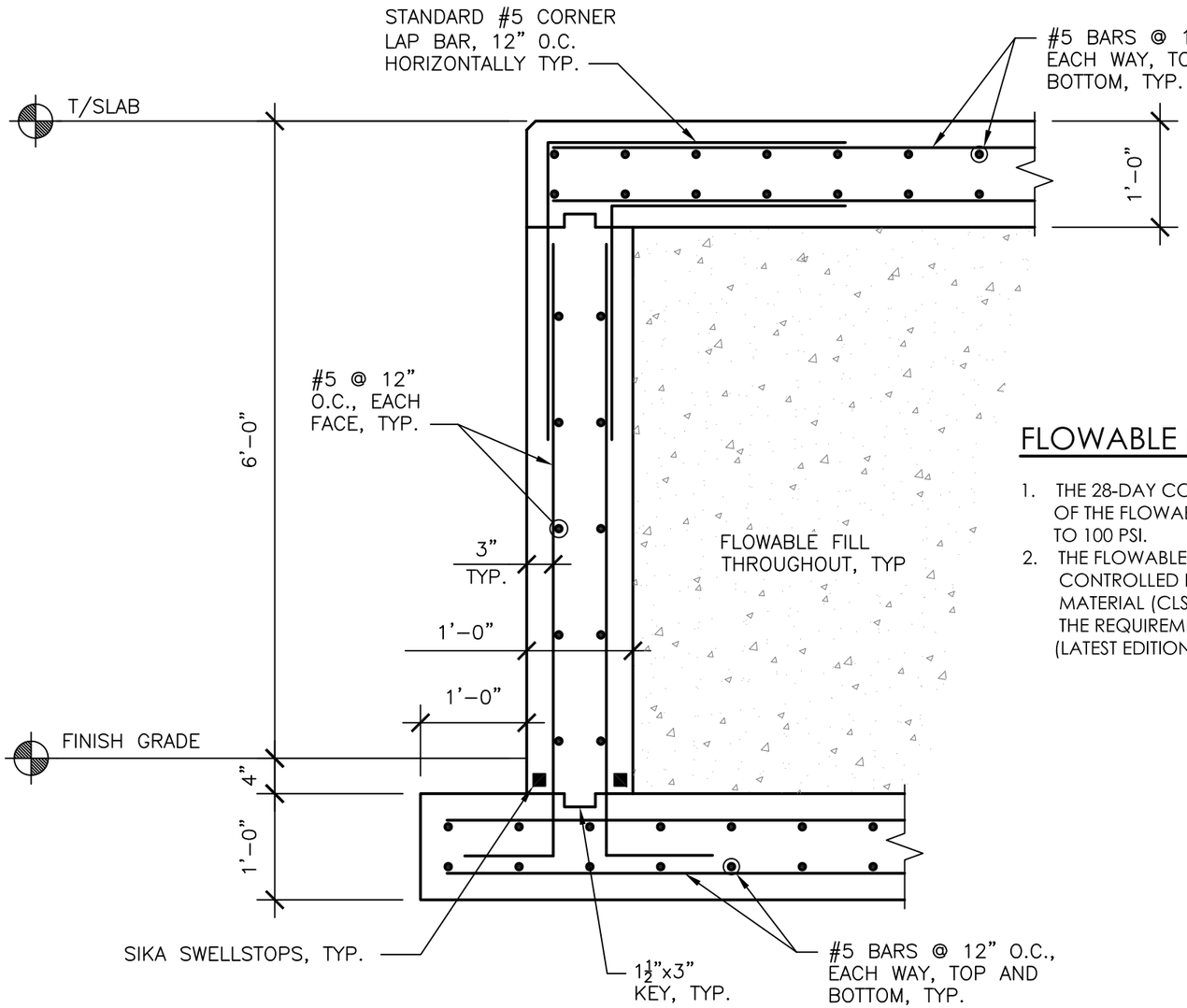

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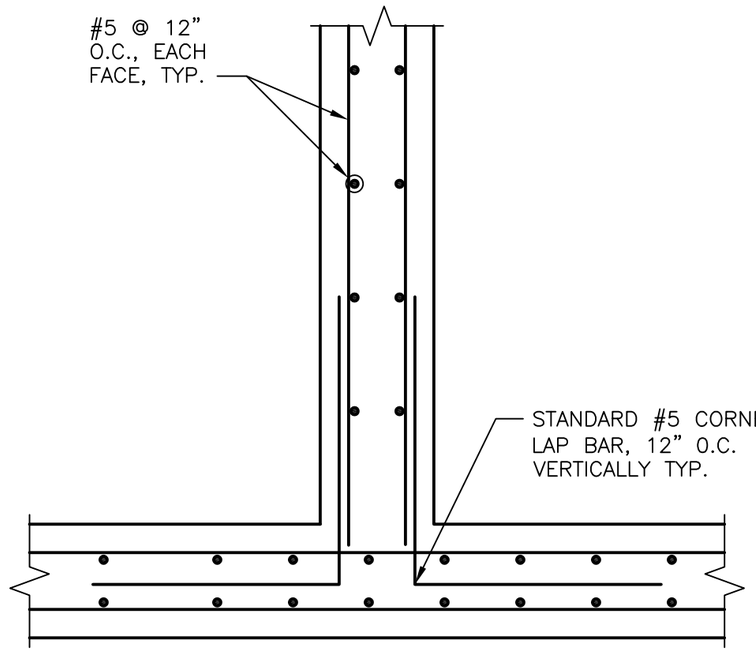
1 S-20 SECTION

SCALE: 3/4" = 1'-0"



2 S-20 WALL INTERSECTION DETAIL

SCALE: 3/4" = 1'-0"

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SHEET S-20

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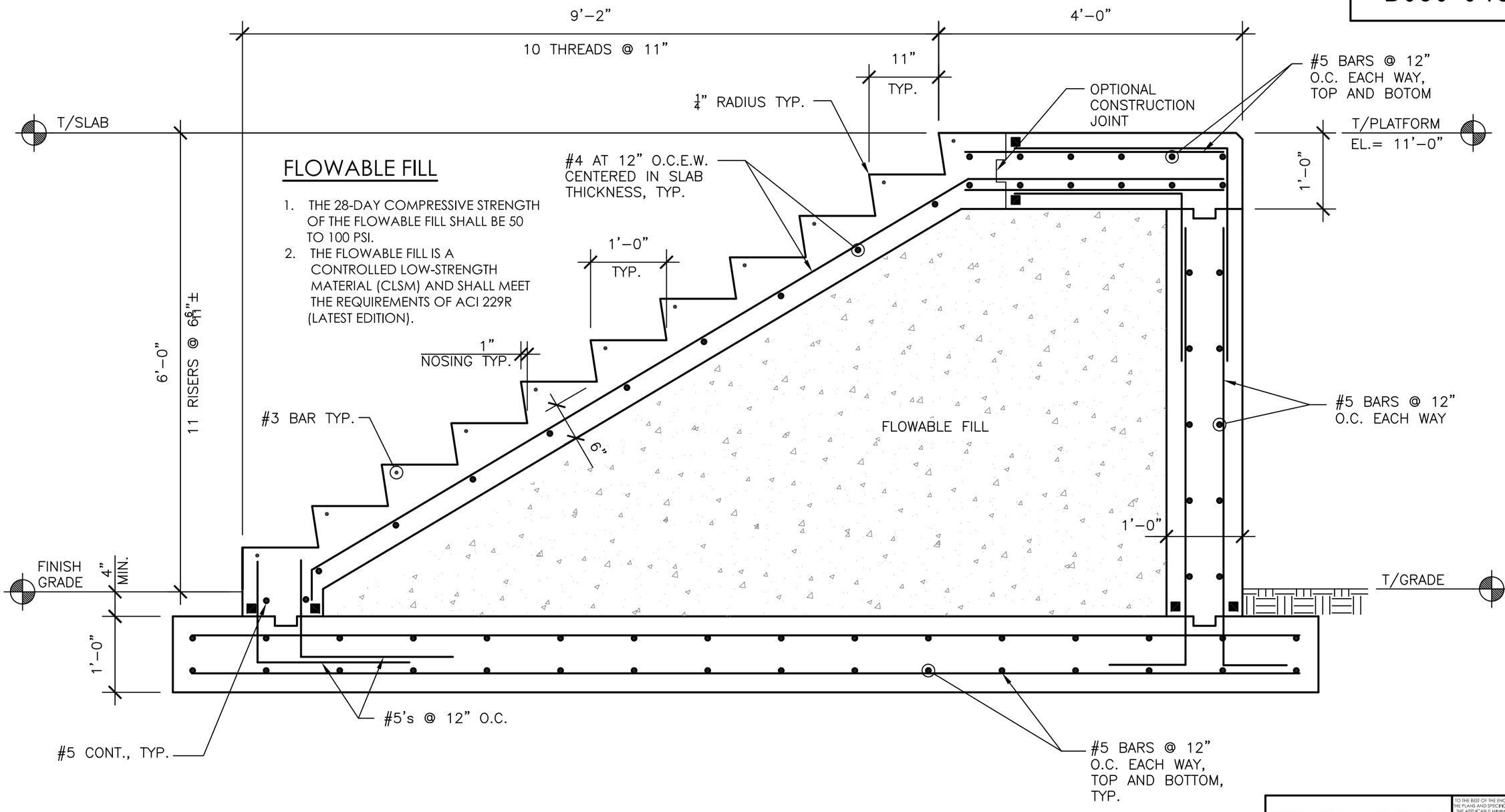

1 / S-21 STAIR SECTION
SCALE: 3/4" = 1'–0"

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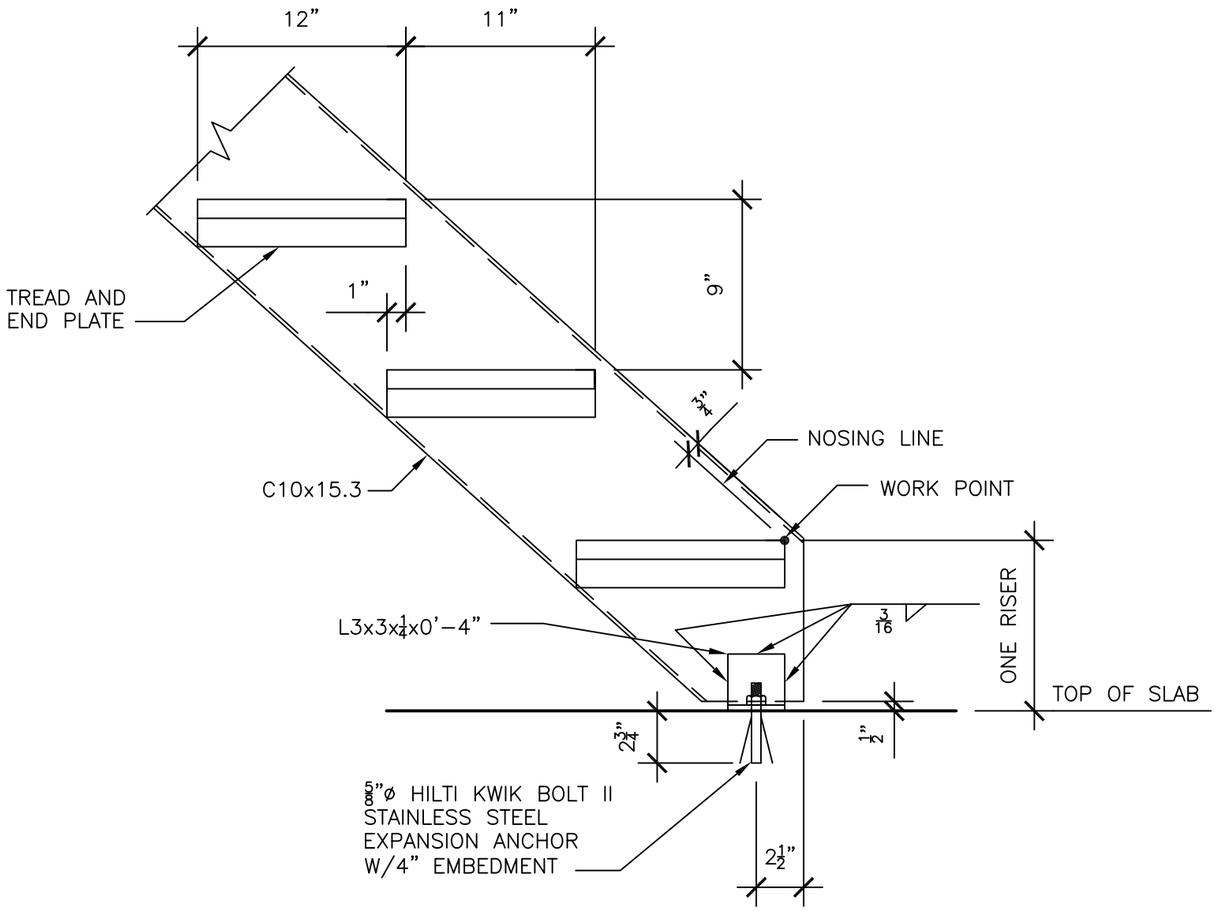
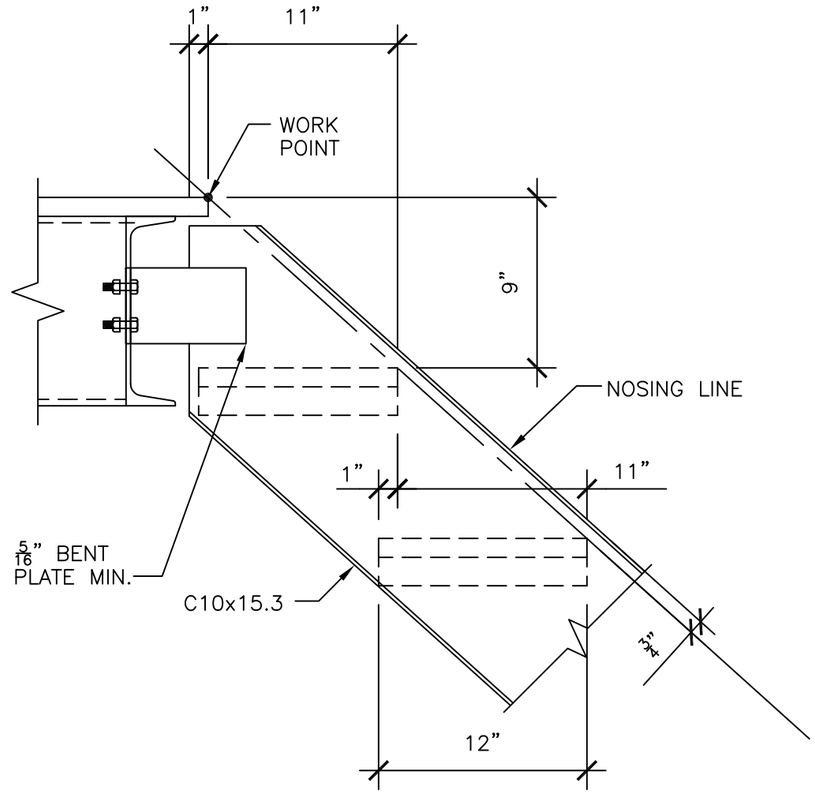


STAIR DETAIL



STAIR DETAIL

1 / S-22 TYPICAL STAIR SECTIONS AND DETAILS

SCALE: NTS

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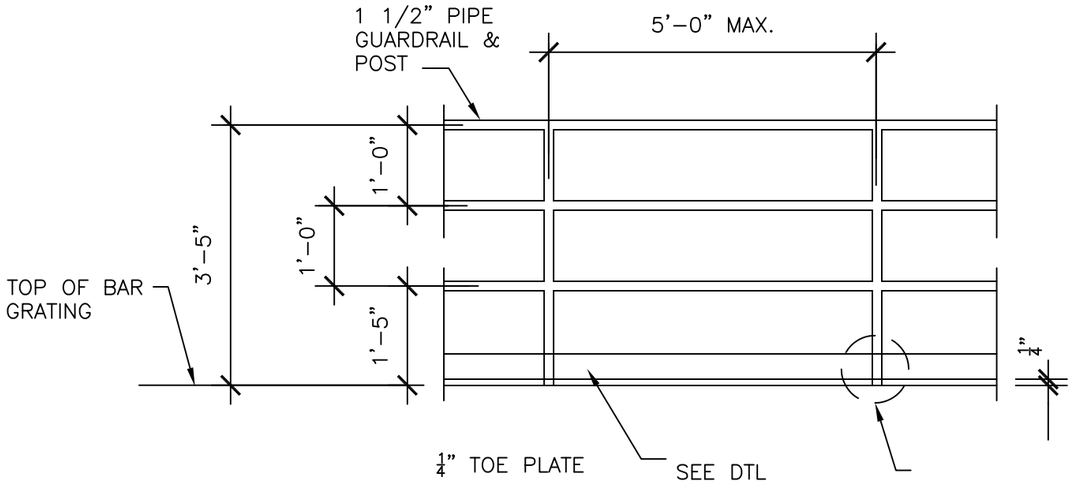
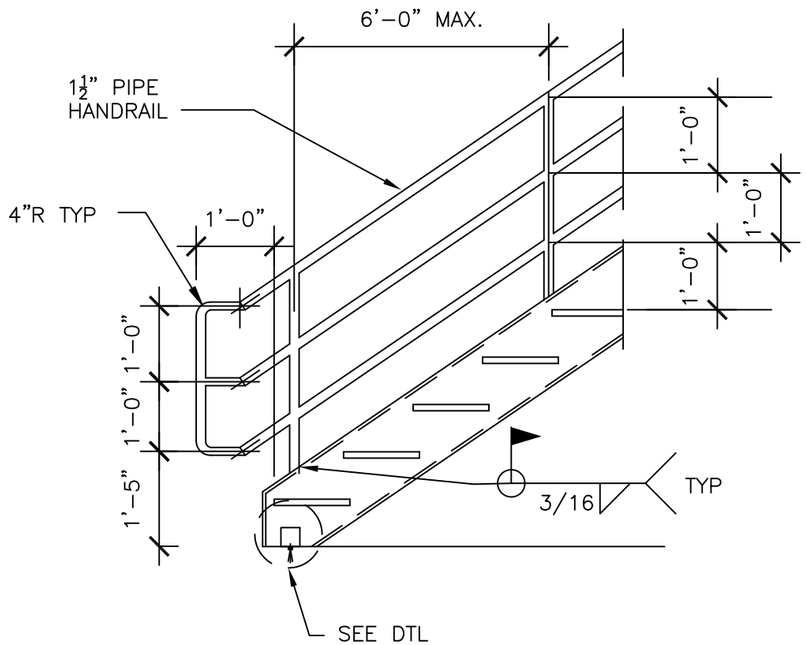
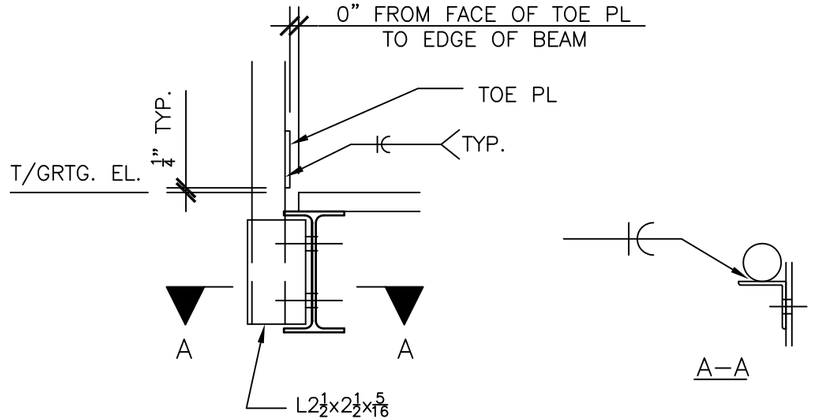




TYPICAL HANDRAIL



POST CONNECTION DETAIL

STRUCTURAL ALUMINUM FOR GUARD RAIL AND HANDRAIL ASSEMBLIES

1. ALL ANGLES ASTM B308/B308M – 02, "STANDARD SPECIFICATION FOR ALUMINUM–ALLOY 6061–T6 STANDARD STRUCTURAL PROFILES", WITH MINIUM YIELD STRENGTH Fy = 35 KSI.
2. ALL STRUCTURAL PIPE AND TUBE (NOT INTENDED FOR FLUID–CARRYING APPLICATIONS) SHALL CONFORM TO ASTM B429/B429M –06, "STANDARD SPECIFICATION FOR ALUMINUM–ALLOY EXTRUDED STRUCTURAL PIPE AND TUBE", WITH MINIMUM YIELD STRENGTH Fy = 35 KSI.
3. ALL PLATES SHALL CONFORM TO ASTM B209 – 07, "STANDARD SPECIFICATION FOR ALUMINUM AND ALUMINUM–ALLOY SHEET AND PLATE", WITH MINIMUM YIELD STRENGTH Fy = 35 KSI.
4. TOE PLATES SHALL BE 4" x 1/4 ".
5. HANDRAIL SHALL BE SHOP ASSEMBLED WITH TOE PLATE IN COMPLETE PANELS REQUIRING NO FIELD SPLICES.
6. EACH HANDRAIL PANEL SHALL HAVE A MINIMUM OF TWO POSTS.
7. MINIMUM WELD SHALL BE 3/16" FILLET.
8. ALL WELDED JOINTS SHALL BE COMPLETELY SEALED.
9. ALL JOINTS AND WELDS IN TOP RAIL SHALL BE GROUND SMOOTH.
10. BOLTED CONNECTIONS SHALL BE MADE WITH 3/4 " DIA. ASTM F 593 STAINLESS STEEL ALLOY 316 BOLTS.
11. ALL CORNERS SHALL BE MITER CUT OR MINIMUM RADIUS BEND.
12. OPEN END OF ALL POSTS SHALL BE PLUGGED AND WELDED.
13. WELDING PROCESSES FOR ALUMINUM SHALL BE GAS METAL ARC WELDING (GMAW), COMMONLY CALLED MIG, OR GAS TUNGSTEN ARC WELDING (GTAW), REFERED TO AS TIG.
14. ALL WELDS SHALL BE MADE BY QUALIFIED WELDERS AS PER AWS D1.2 "STRUCTURAL WELDING CODE – ALUMINUM" REQUIREMENTS. MIG AND TIG FILLER ALLOYS SHALL BE PER AWS A5.10/A5.10M "SPECIFICATION FOR BARE ALUMINUM AND ALUMINUM–ALLOY WELDING ELECTRODES AND RODS." ALUMINUM ALLOY FILLER MATERIALS SHALL BE PER TABLE 7.2–1 OF THE ALUMINUM DESIGN MANUAL 2005. ALLOY FILLER PREFERRED IS 5356; HOWEVER, ALLOYS 4043, 4047, 5183, OR 5556 MAY BE USED.
15. RETURN ALL WELDS AT CORNERS TWICE THE NOMINAL WELD SIZE MINIMUM.
16. WELDS NOT OTHERWISE DESIGNATED SHALL BE 1/4 IN. MINIMUM FILLET WELDS.
17. ALUMINUM FINISHES
    A. FINISH DESIGNATIONS PREFIXED BY AA COMPLY WITH THE SYSTEM ESTABLISHED BY THE ALUMINUM ASSOCIATION FOR DESIGNATING ALUMINUM FINISHES.
    B. AS–FABRICATED: AA–M10 (MECHANICAL FINISH: AS FABRICATED, UNSPECIFIED).
    C. CLASS I, CLEAR ANODIC FINISH; AA–M12C22A41 (MECANICAL FINISH: NONSPECULAR AS FABRICATED; CHEMICAL FINISH: ETCHED, MEDIUM MATTE; ANODIC COATING: ARCHITECTURAL CLASS I, CLEAR COATING 0.018 MM OR THICKER) COMPLYING WITH AAMA 607.1.
18. SHOP DRAWINGS: SUBMIT SHOP DRAWINGS PREPARED UNDER SUPERVISION OF A REGISTERED PROFESSIONAL ENGINEER, INCLUDING COMPLETE DETAILS AND SCHEDULES FOR FABRICATION AND ASSEMBLY OF STRUCTURAL ALUMINUM MEMBERS, PROCEDURES AND DIAGRAMS. INCLUDE DETAILS OF CUTS, CONNECTIONS, CAMBER, HOLES AND OTHER PERTINENT DATA. INDICATE WELDS BY STANDARD AWS SYMBOLS AND SHOW SIZE, LENGTH AND TYPE OF EACH WELD. STRUCTURAL ALUMINUM SHOP DRAWINGS SHALL BE SIGNED AND SEALED BY THE PROFESSIONAL ENGINEER WHO SUPERVISED THEIR PRODUCTION.

1 / S-23 TYPICAL STAIR SECTIONS AND DETAILS

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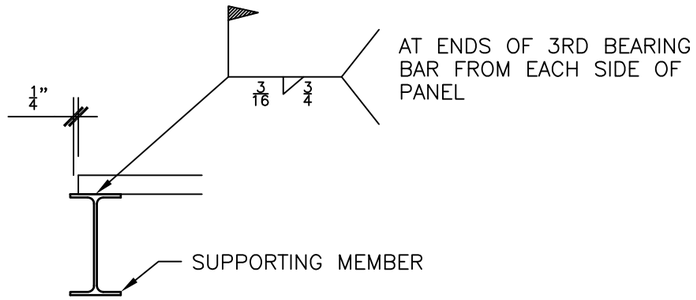
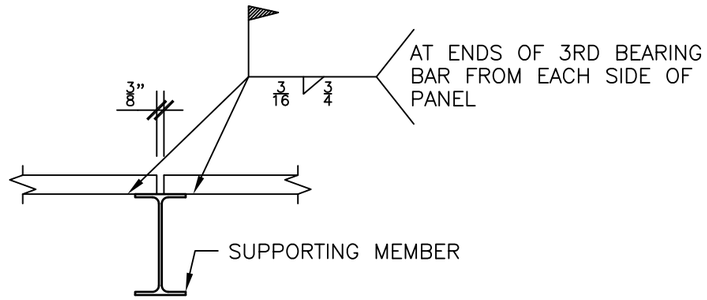
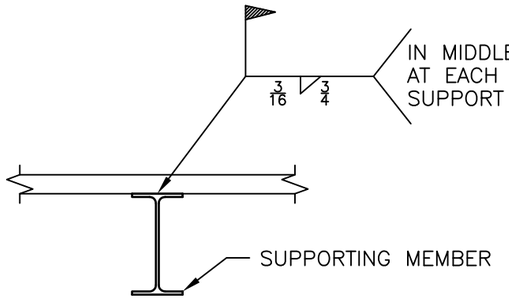


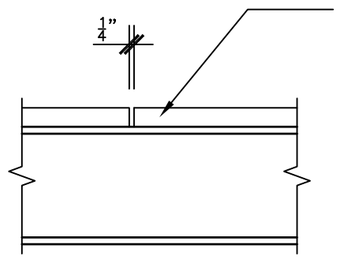
PERIMETER SUPPORTS DETAIL



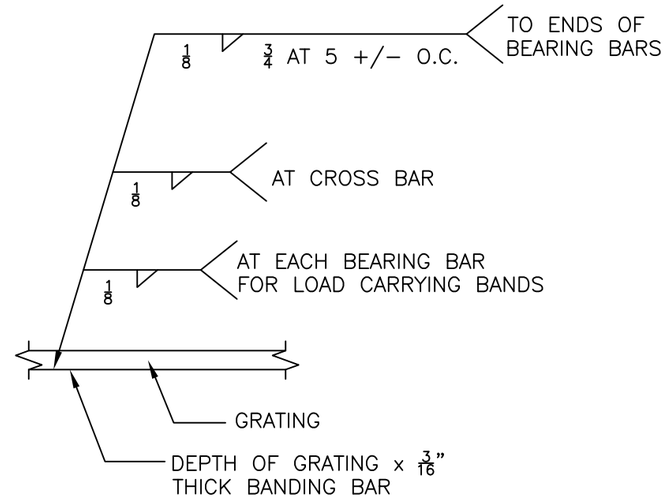
SPLICE AT SUPPORT DETAIL



INTERMEDIATE SUPPORT DETAIL



PANEL SIDES DETAIL



BANDING BAR DETAIL

TYPICAL GRATING DETAILS

1 S-24 TYPICAL STAIR SECTIONS AND DETAILS

SCALE: NTS

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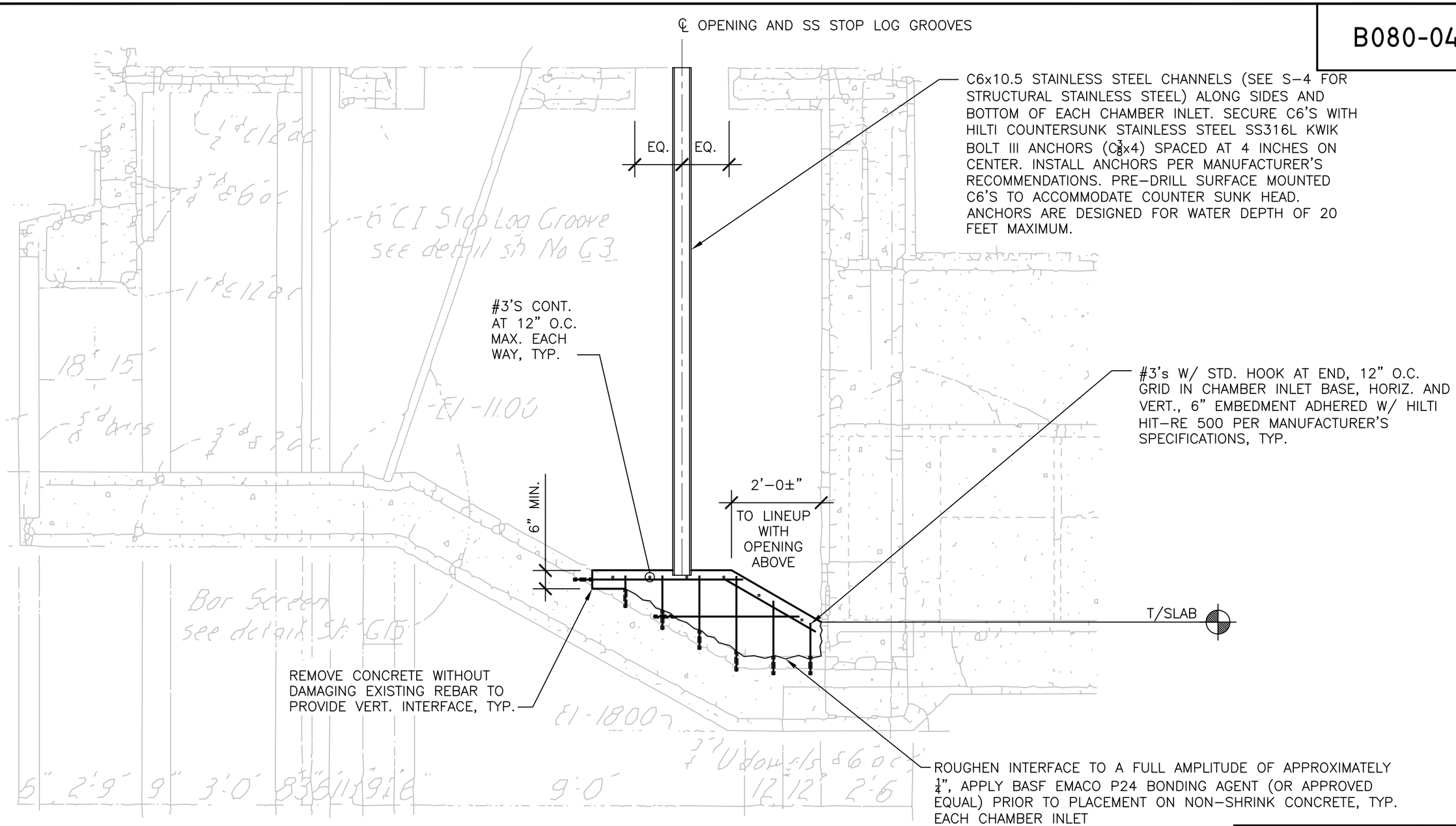

1 / S–25 CHAMBER INLET SECTION

SCALE: 3/8" = 1'–0" (NOTE EXISTING SECTION UNDERLAY IS APPROXIMATE AND FOR LOCATION PURPOSES ONLY)

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SHEET S-26

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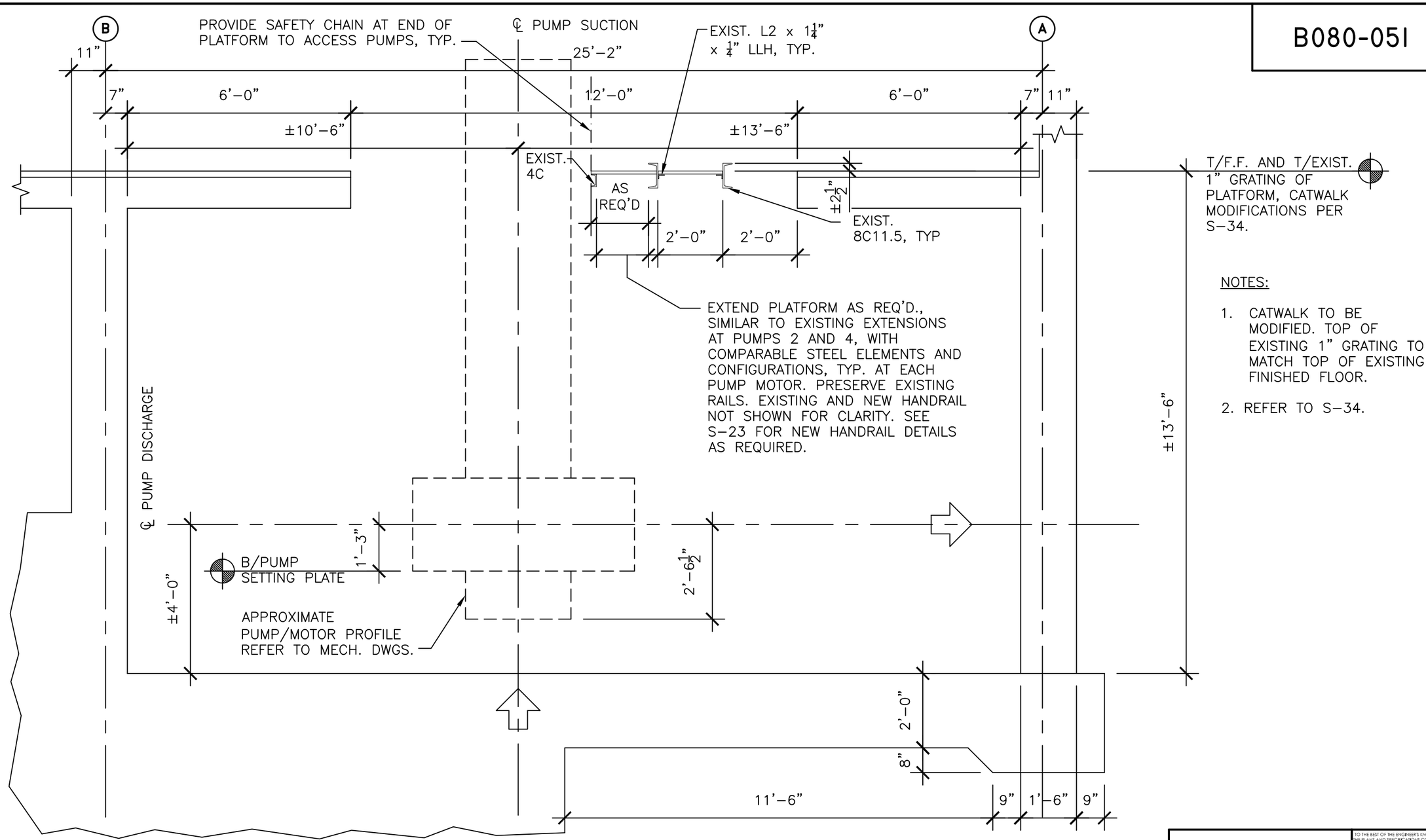

NOTES:

1. CATWALK TO BE MODIFIED. TOP OF EXISTING 1" GRATING TO MATCH TOP OF EXISTING FINISHED FLOOR.
2. REFER TO S–34.

1 / S–27 PUMP DETAIL

SCALE: 3/8" = 1'–0"

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TO THE BEST OF THE ENGINEER'S KNOWLEDGE, THE PLANS AND SPECIFICATIONS COMPLY WITH THE APPLICABLE MINIMUM BUILDING CODES

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CITY of TAMPA
WASTEWATER DEPARTMENT

KRAUSE PS REHABILITATION

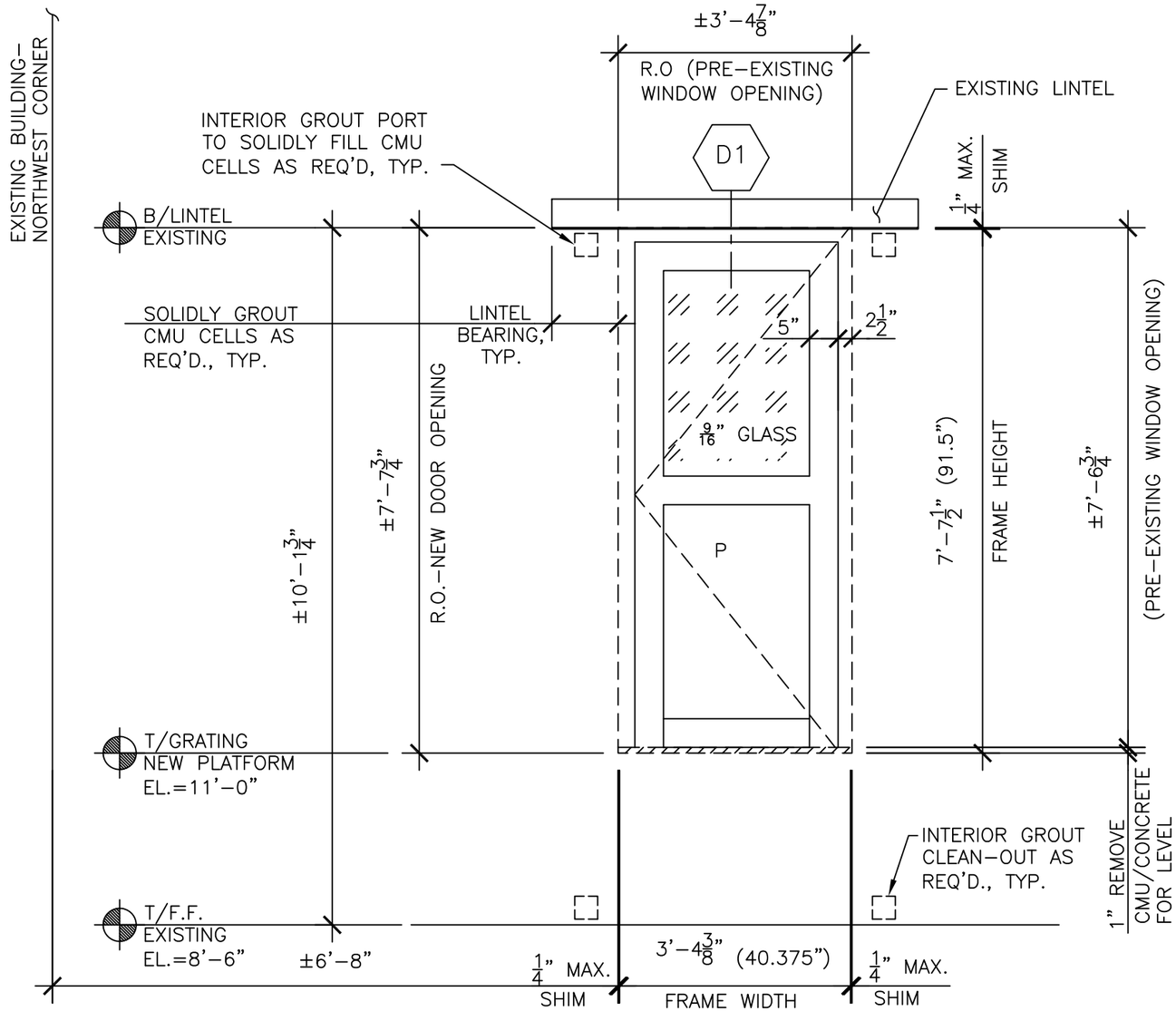
STRUCTURAL DETAIL

NO.	DATE	REVISIONS

DRAWN: RC, KC
DESIGN: RR
QC: RR
DATE: 06/03/14

SHEET S-27

B080-052



1 / S-28 PARTIAL WEST EXTERIOR ELEVATION

SCALE: 1/2" = 1'–0"

NOTE: SEE S–8 FOR INTERIOR ELEVATION

DOOR DETAILS AND FINISH HARDWARE SCHEDULE

SET #1 ELECTRICAL ROOM DOOR - ALL HARDWARE STANDARD CLEAR

2 PR (4)	IMPACT BUTT HINGES	PER DOOR AND FRAME MANUFACTURER (EFCO CORPORATION)
1 SET	STANDARD PUSH/PULL	PER DOOR AND FRAME MANUFACTURER (EFCO CORPORATION)
1	LOCKSET	3 POINT IMPACT LOCK (MK DR16) AND 1490 IMPACT PANIC BAR (MK DR 21) PER DOOR AND FRAME MANUFACTURER (EFCO CORPORATION)
1	DOOR CLOSER	LCN 4041 SURFACE MOUNT
1	THRESHOLD	8924 IMPACT WITH SEAL PER DOOR AND FRAME MANUFACTURER (EFCO CORPORATION)
1	SWEEP	9960/9961 IMPACT PER DOOR AND FRAME MANUFACTURER (EFCO CORPORATION)
1	BOTTOM RAIL	PER DOOR AND FRAME MANUFACTURER (EFCO CORPORATION)
1	CROSS RAILS	PER DOOR AND FRAME MANUFACTURER (EFCO CORPORATION)
1	BOTTOM PANEL	PER DOOR AND FRAME MANUFACTURER (EFCO CORPORATION)
1 SET	WEATHERSTRIPPING	PER DOOR AND FRAME MANUFACTURER (EFCO CORPORATION)
	OTHER	ALL ITEMS TO BE INCLUDED FOR A COMPLETE ENTRY DOOR AND FRAME SYSTEM
	FASTENERS/ANCHORS	PER FLORIDA PRODUCT APPORVAL DOCUMENTS AND DOOR AND FRAME MANUFACTURER (EFCO CORPORATION)

NOTE: LOCKSET TO BE KEYED TO EXISTING PUMP STATION DOOR LOCKS.

DOOR SCHEDULE

DOORS						FRAMES								FIN. HDW. SET	FLORIDA PRODUCT APPROVAL	HAND OF DOOR	NOTES
MARK	UNIT	TYPE	MATERIAL	ROUGH OPENING WIDTH	ROUGH OPENING HEIGHT	UNIT	MATERIAL	TYPE	NOMINAL SIZE WIDTH	NOMINAL SIZE HEIGHT	NOMINAL SIZE DEPTH	DETAILS HEAD	DETAILS JAMB				
D1	EA.	G	ALUMINUM	3'- 4-7/8"	7'- 7-1/2"	EA.	ALUMINUM	6063-T6	3'- 4-7/8"	7'- 7-1/2"	5"	2-1/2"	2-1/2"	1	FL # 16398	LHR	EFCO SERIES D500 WIDE STILE DOOR WITH 5525 FABRICATED FRAME; GLASS - 9/16" LAMINATED GLASS (1/4" GREY HEAT STRENGTHENED x 0.090 CLR SAFLEX INTERLAYER x 1/4" CLR HEAT STRENGTHENED); LARGE MISSILE IMPACT LEVEL D; MATERIAL FINISH ULTRAPON™ COAT 70% PVDF COLOR TO MATCH EXISTING DOORS; WARRANTY 5 YEAR MATERIAL & 5 YEAR FINISH

G HALF GLASS TOP, PANEL BOTTOM

LH LEFT HAND
RH RIGHT HAND
LHR LEFT HAND REVERSE
RHR RIGHT HAND REVERSE

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CITY of TAMPA
WASTEWATER DEPARTMENT

KRAUSE PS REHABILITATION

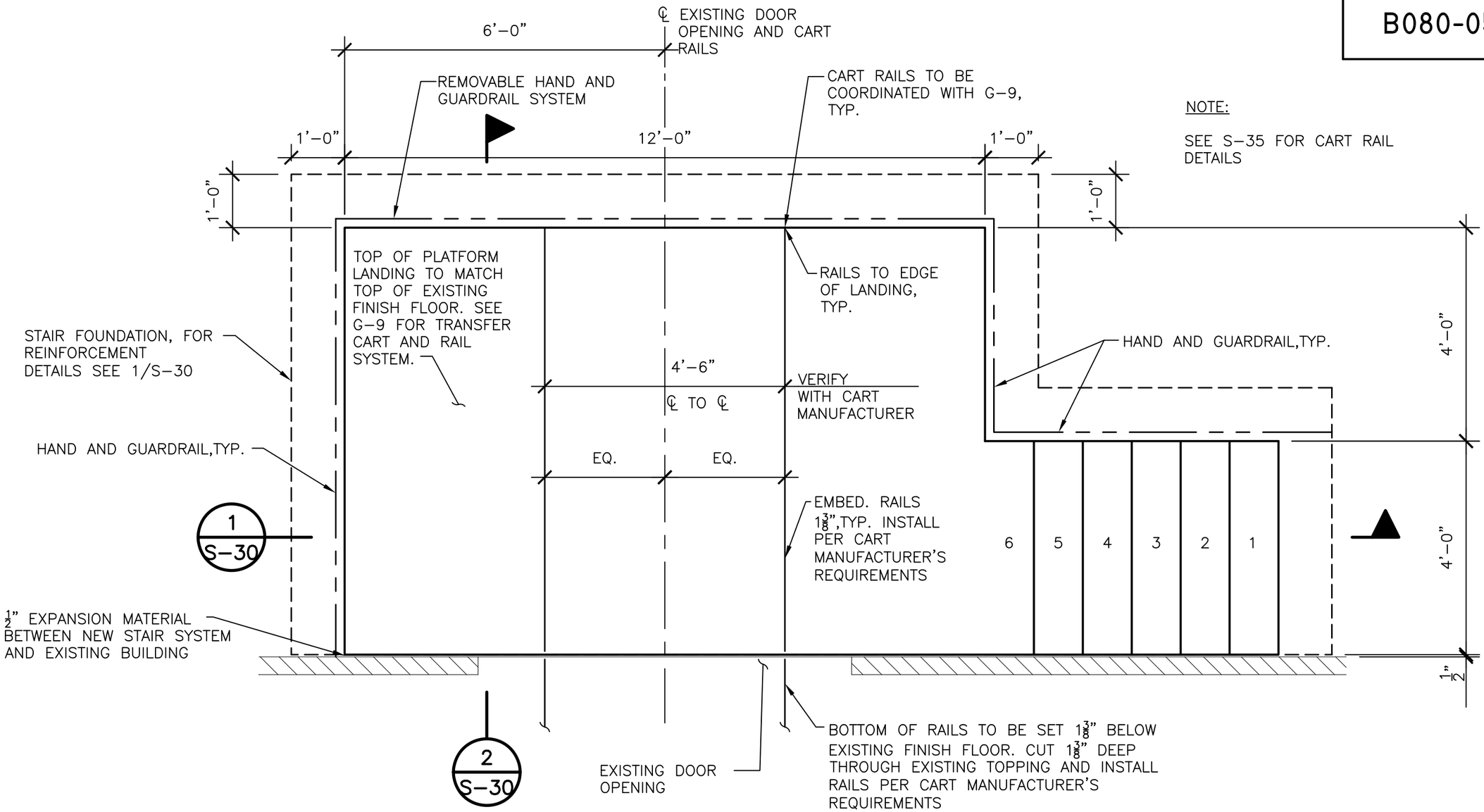
ELEVATION

NO.	DATE	REVISIONS

DRAWN: RC, KC
DESIGN: RR
QC: RR
DATE: 05/01/14

SHEET S-28

B080-053



1/S–29 LIFTED ACCESS STAIR & PLATFORM PLAN

SCALE: 1/2" = 1'–0"

N

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KRAUSE PS REHABILITATION

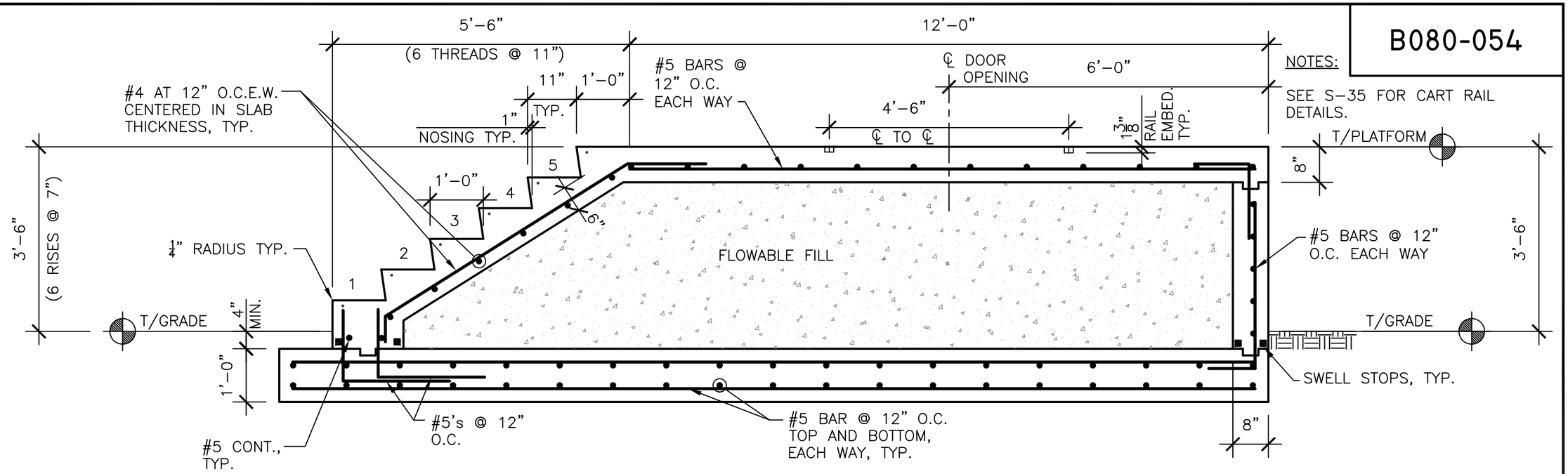
PLAN

NO.	DATE	REVISIONS

DRAWN: RC, KC
DESIGN: RR
QC: RR
DATE: 05/01/14

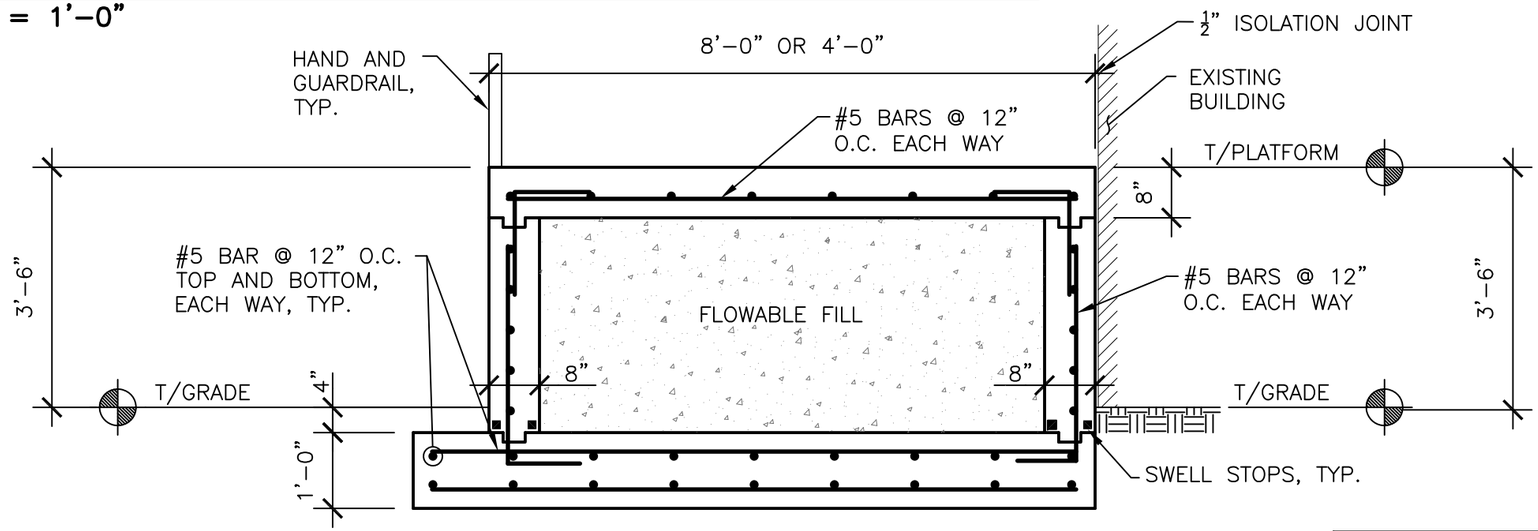
SHEET S-29

B080-054



1 S–30 LIFTED ACCESS STAIR & PLATFORM SECTION

SCALE: 1/2" = 1'–0"



2 S–30 TYPICAL STAIR SECTION

SCALE: 1/2" = 1'–0"

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KRAUSE PS REHABILITATION

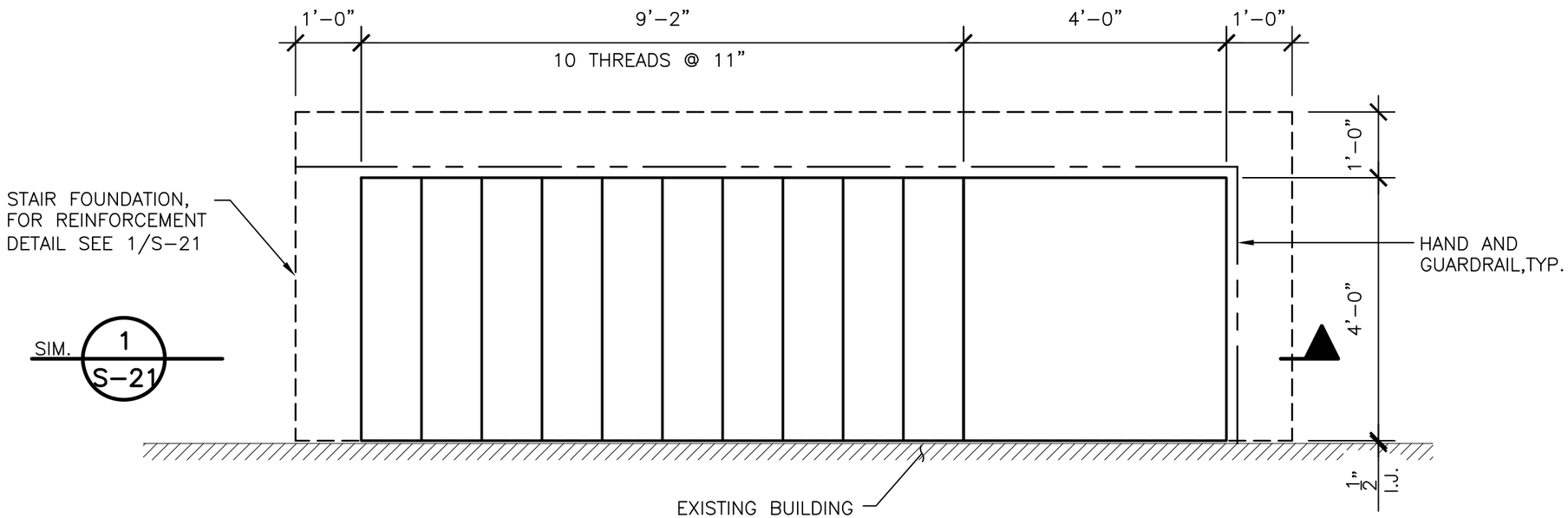
SECTION

NO.	DATE	REVISIONS

DRAWN: RC, KC
DESIGN: RR
QC: RR
DATE: 05/01/14

SHEET S-30

B080-055



1/S–31 EXTERIOR STAIR PLAN

SCALE: 1/2" = 1'–0"

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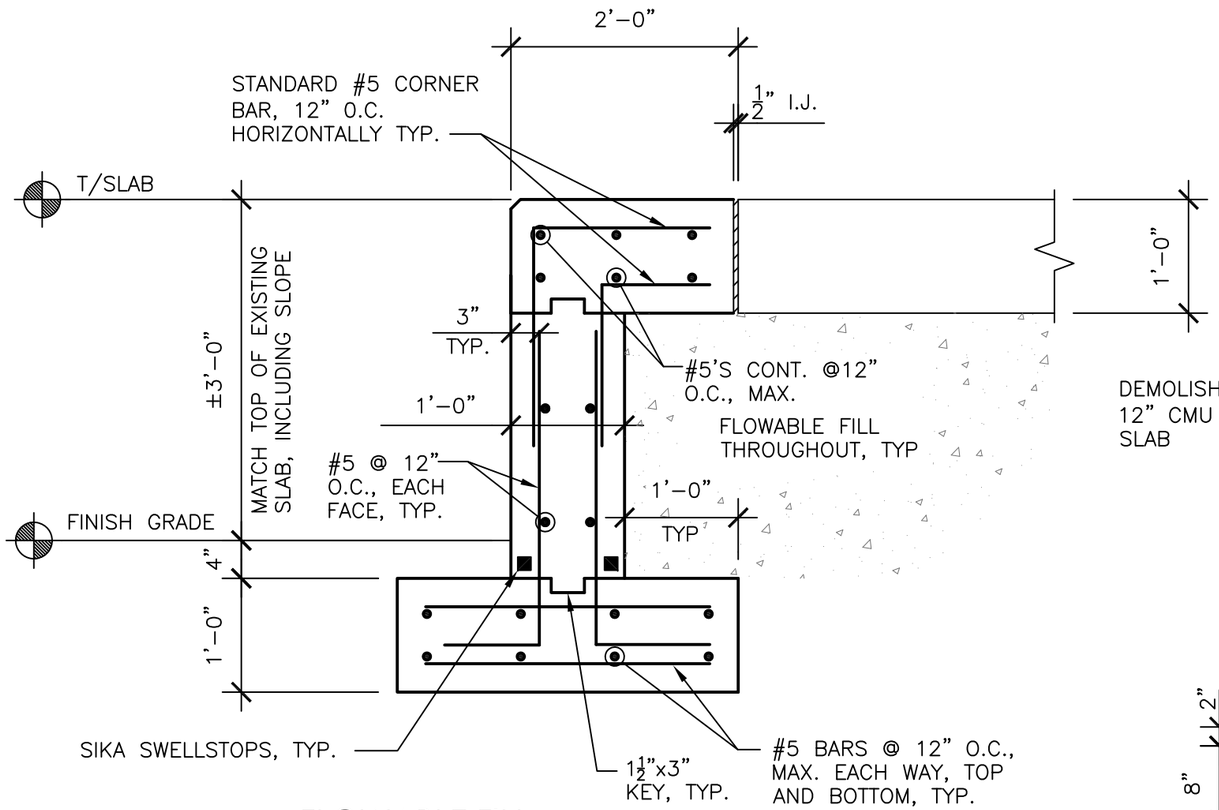
PLAN

NO.	DATE	REVISIONS

DRAWN: RC, KC
DESIGN: RR
QC: RR
DATE: 05/01/14

SHEET S-31

B080-056

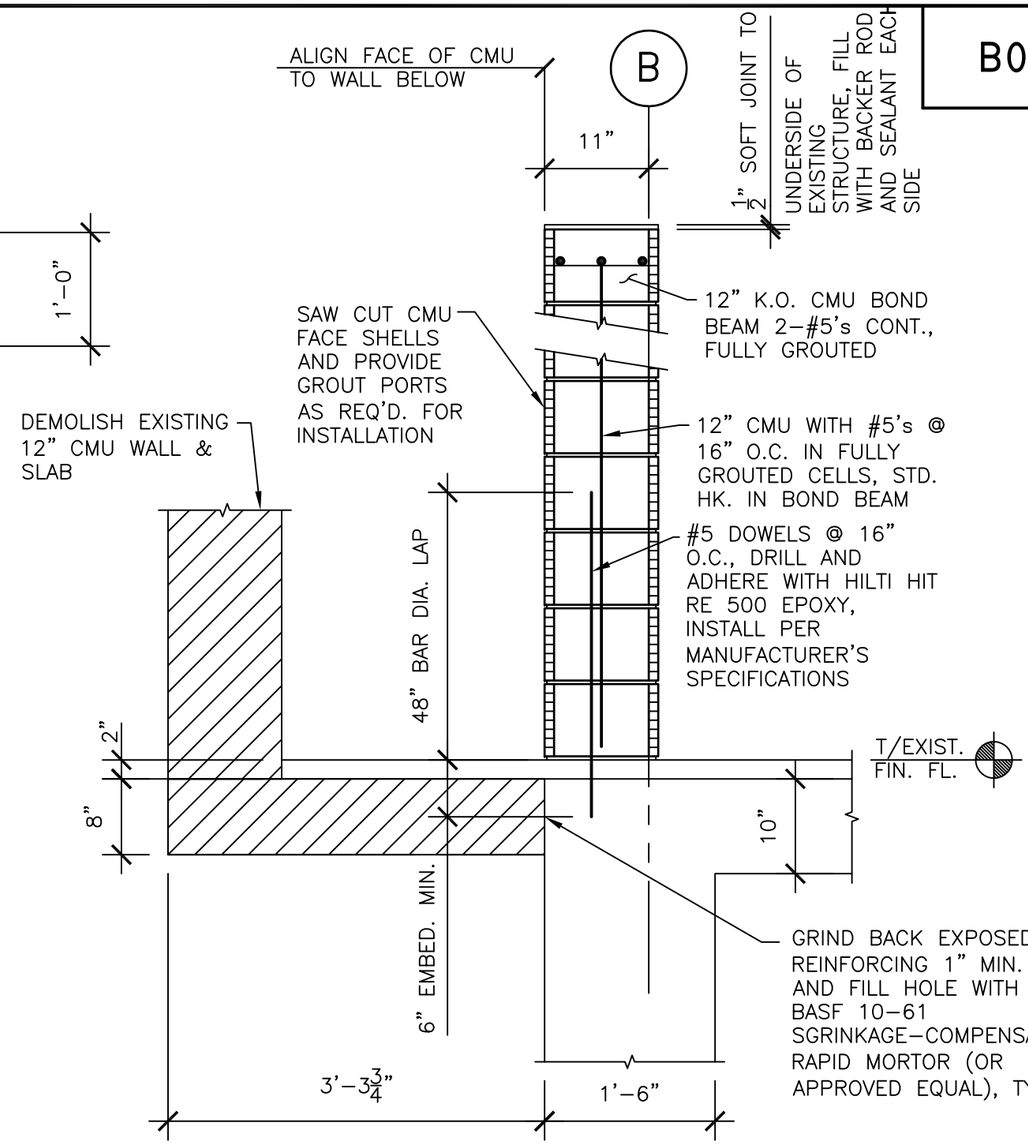


FLOWABLE FILL

1. THE 28-DAY COMPRESSIVE STRENGTH OF THE FLOWABLE FILL SHALL BE 50 TO 100 PSI.
2. THE FLOWABLE FILL IS A CONTROLLED LOW-STRENGTH MATERIAL (CLSM) AND SHALL MEET THE REQUIREMENTS OF ACI 229R (LATEST EDITION).

1 S-32 SECTION

SCALE: 3/4" = 1'–0"



2 S-32 WALL SECTION

SCALE: 3/4" = 1'–0"

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SECTIONS & DETAILS

NO.	DATE	REVISIONS

DRAWN: RC, KC
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QC: RR
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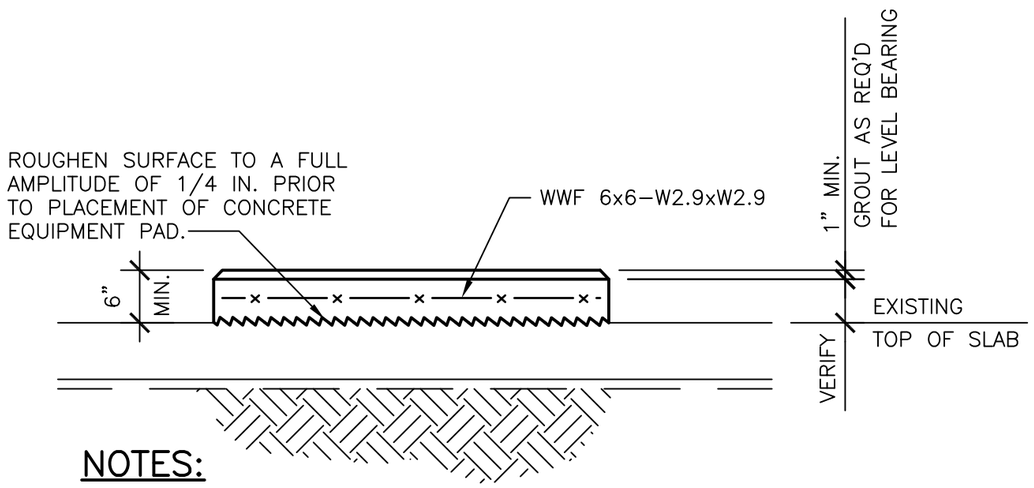
SHEET S-32

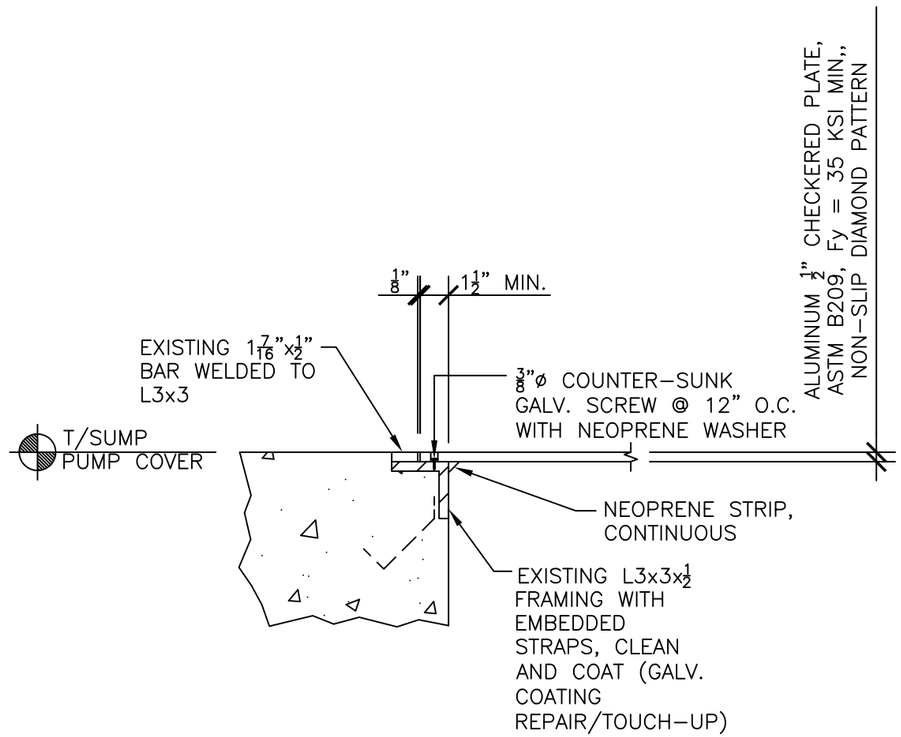
B080-057



NOTES:

1. PAD SIZE IN PLAN SHALL BE AS REQUIRED BY MECHANICAL SPECIFICATIONS OR AS REQUIRED TO FULLY SUPPORT EQUIPMENT.
2. CONTRACTOR SHALL VERIFY EQUIPMENT PAD LOCATIONS WITH FINAL MECH. DRAWINGS AND SPECIFICATIONS PRIOR TO CONSTRUCTION. EQUIPMENT SHALL BE INSTALLED AS PER THE MANUFACTURER'S INSTRUCTIONS.

1 / S-33 **MECHANICAL PAD**
SCALE: 3/4" = 1'-0"



2 / S-33 **SUMP PUMP COVER**
SCALE: 1-1/2" = 1'-0"

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NO.	DATE	REVISIONS

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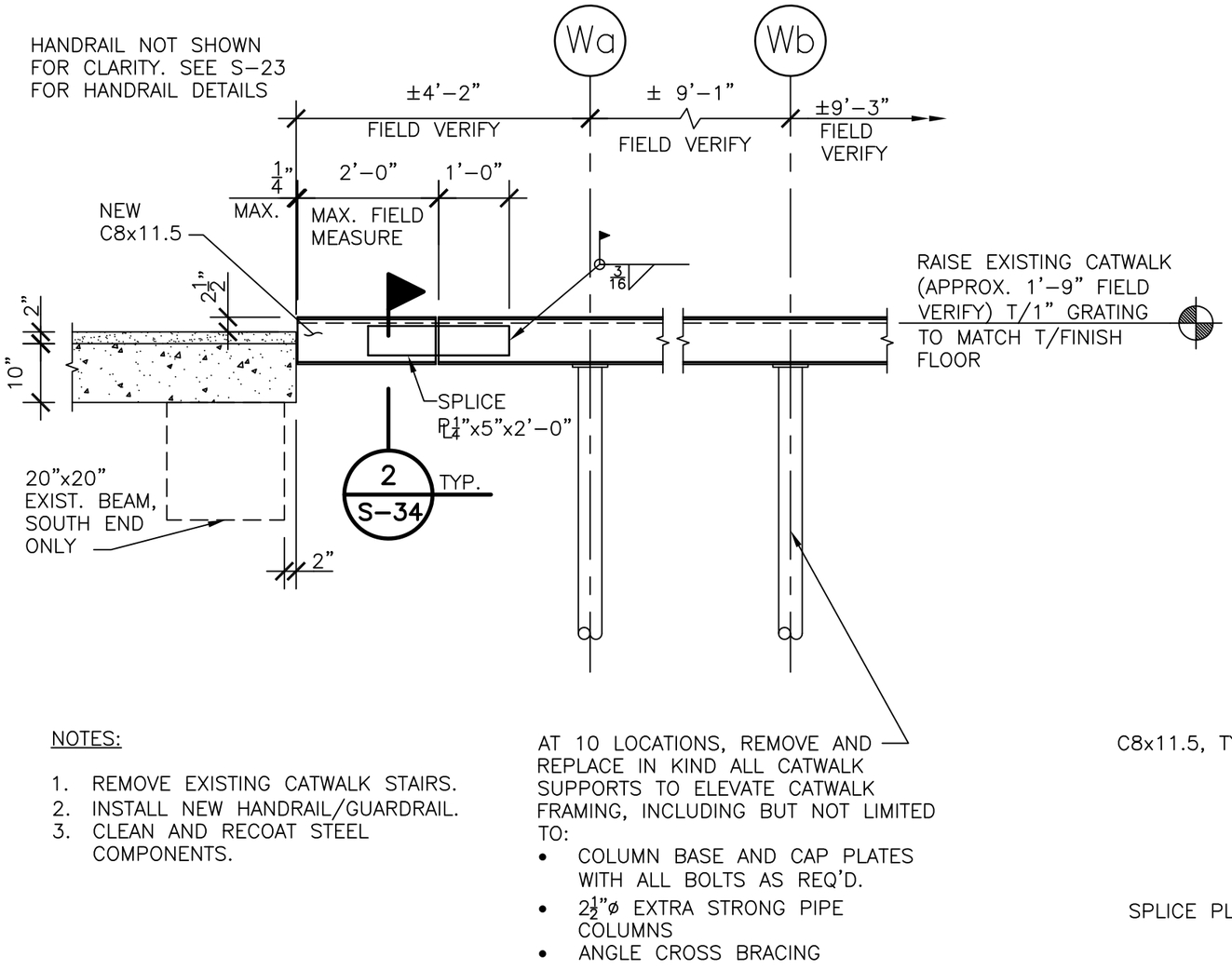
QC: RR
DATE: 05/01/14

SHEET S-33

B080-058

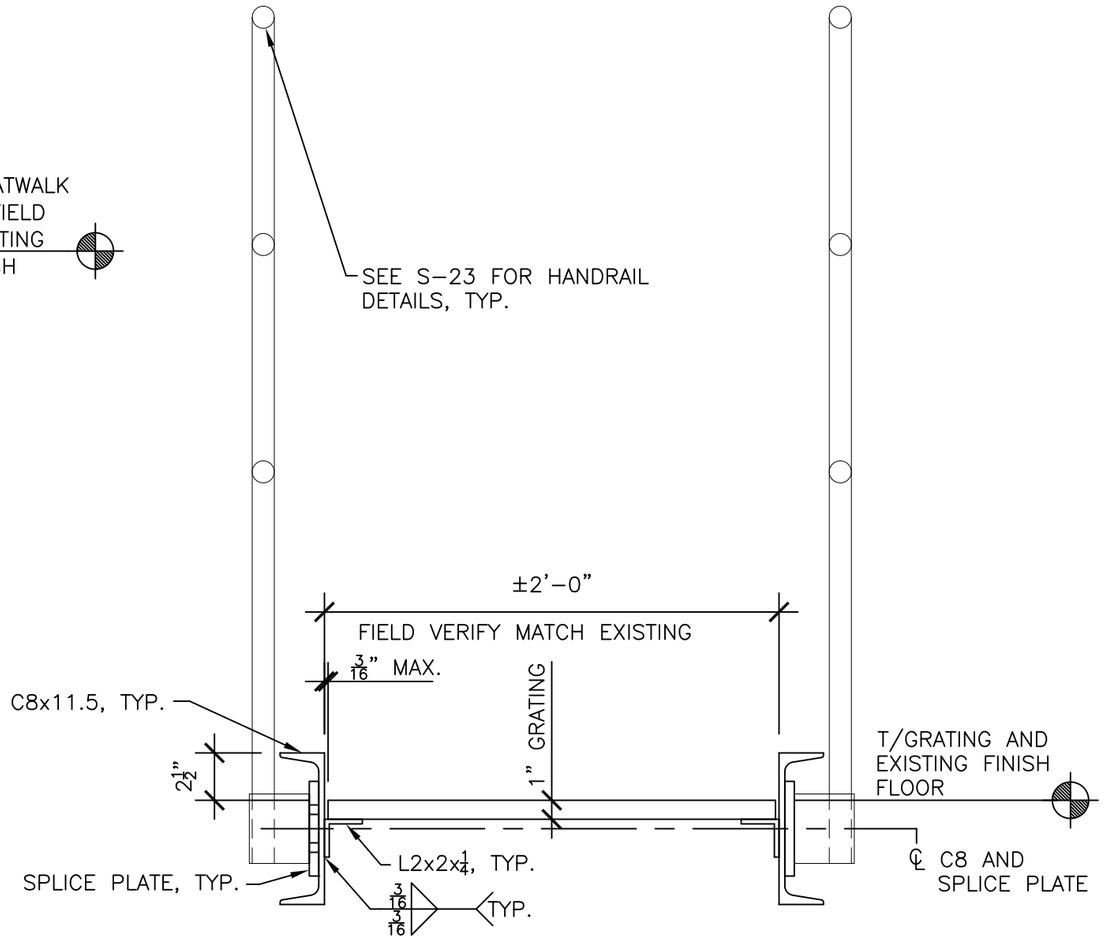


NOTES:

1. REMOVE EXISTING CATWALK STAIRS.
2. INSTALL NEW HANDRAIL/GUARDRAIL.
3. CLEAN AND RECOAT STEEL COMPONENTS.

1 S-34 CATWALK SECTION

SCALE: 1/2" = 1'-0"



2 S-34 CATWALK SECTION

SCALE: 1-1/2" = 1'-0"

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KRAUSE PS REHABILITATION

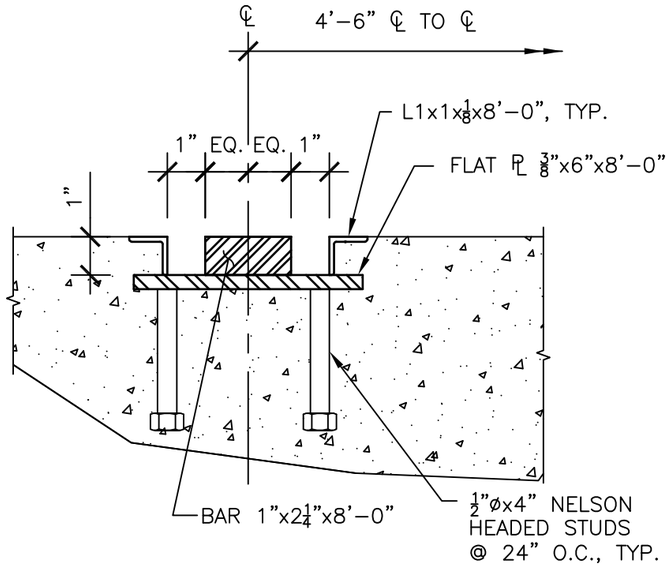
SECTIONS AND DETAILS

NO.	DATE	REVISIONS

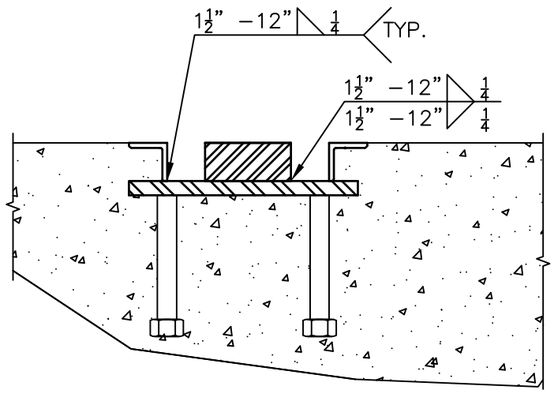
DRAWN: RC, KC
DESIGN: RR
QC: RR
DATE: 06/03/14

SHEET S-34

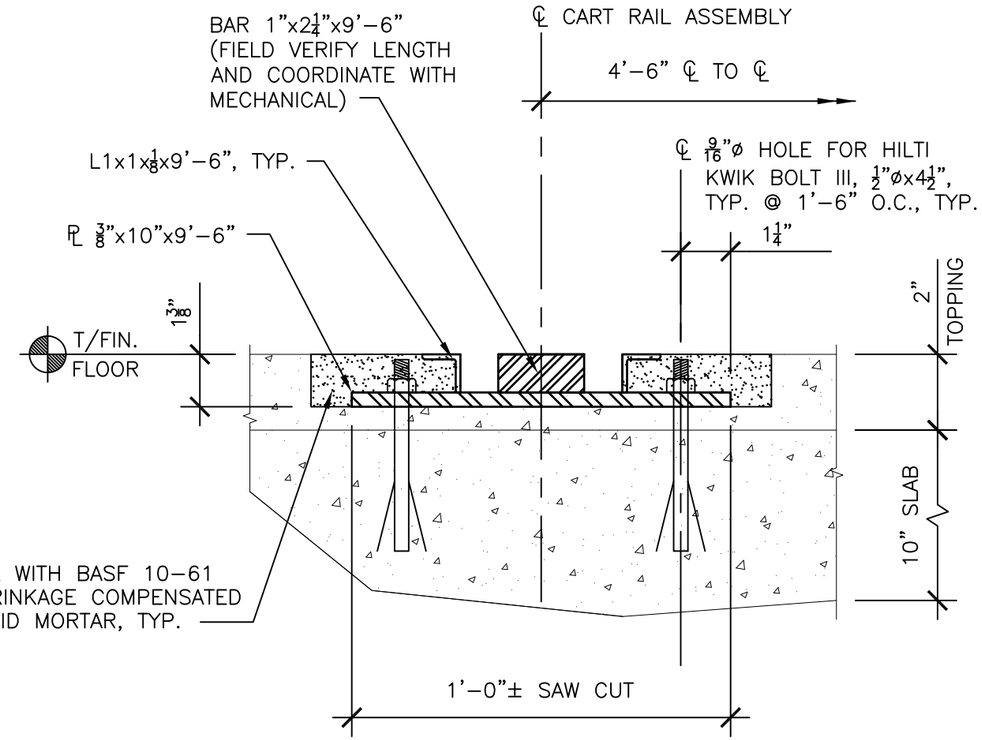
B080-059



TYPICAL RAIL



TYPICAL WELD



ALTERNATE @ INTERIOR EXISTING SLAB

NOTE: VERIFY CART RAIL ASSEMBLIES WITH CART MANUFACTURER

1 / S–35 RAIL DETAILS

SCALE: N.T.S.

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NO.	DATE	REVISIONS

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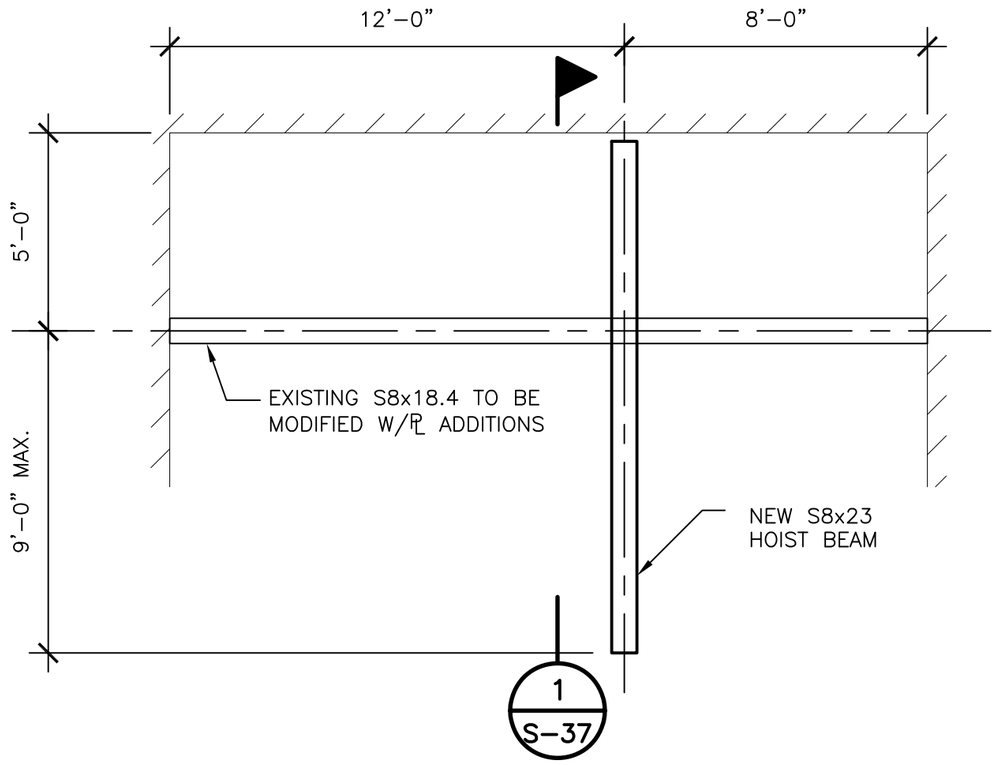
SHEET S-35

B080-060



1/S–36 HOIST BEAM PLAN

SCALE: N.T.S.

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CITY of TAMPA
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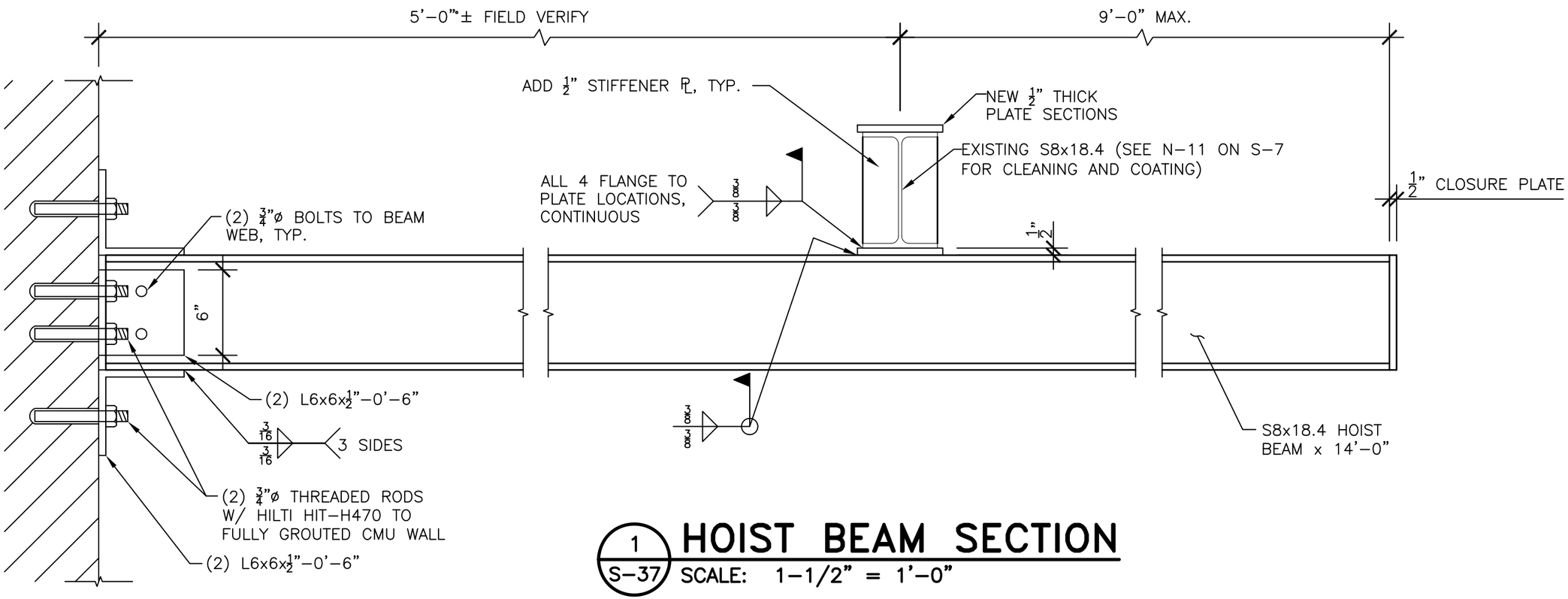
KRAUSE PS REHABILITATION

HOIST BEAM PLAN

NO.	DATE	REVISIONS

DRAWN: RC, KC
DESIGN: RR
QC: RR
DATE: 06/03/14

SHEET S-36



1 / S-37 **HOIST BEAM SECTION**

SCALE: 1-1/2" = 1'-0"

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CITY of TAMPA
WASTEWATER DEPARTMENT

KRAUSE PS REHABILITATION

SECTIONS AND DETAILS

NO.	DATE	REVISIONS

DRAWN: RC, KC
DESIGN: RR
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DATE: 06/03/14

SHEET S-37

LEGEND

SYMBOL	DESCRIPTION
	HEAVY DUTY SAFETY SWITCH
	TRANSFORMER
	FLUORESCENT OR LED FIXTURE – CEILING MTD.
	INCAND., HID OR LED FIXTURE – CEILING MTD.
	INCAND., FLUORESCENT OR LED FIXTURE – STANCHION MTD.
	INCAND., HID OR LED FIXTURE – WALL MTD.
	EMERGENCY EXIT LIGHT
	EMERGENCY LIGHT
	20A, 125V, 3–WIRE DUPLEX RECEPT. CTR. @ 18" AFF.
	20A, 125V, 3–WIRE GROUNDING DUPLEX RECEPT. CTR. @ 50" AFF.
	20A, 125V, 3–WIRE DUPLEX RECEPT. FED FROM DEDICATED CIRCUIT.
	BRANCH CIRCUIT PANELBOARD
	120V, 1ø CIRCUIT HOMERUN TO 1–POLE BRKR.
	SLASH MARKS DENOTE NO. OF WIRES; LONG – NEUTRAL, X – GROUND.
	240V OR 480V, 1ø CIRCUIT HOMERUN TO 2–POLE BRKR.
	208V OR 480V, 3ø CIRCUIT HOMERUN TO 3–POLE BRKR.
75	MOTOR, 75 HP
	LIMIT SWITCH – NORMALLY OPEN
MOV	MOTOR OPERATED VALVE
MSH	MOTOR SPACE HEATER
RTD	RESISTANCE TEMPERATURE DETECTOR
VIB	VIBRATION SENSOR

SYMBOL	DESCRIPTION
	DOWN CONDUCTOR TO GROUND ROD
3 600AF/600AT	CIRCUIT BREAKER, 600 AMPERE FRAME, 600 AMPERE TRIP
	OUTPUT REACTOR
50/51/51G	SOLID STATE TRIP UNIT w/ FUNCTIONS NOTED, 50 INSTANTANEOUS TRIP, 51 TIME DELAY TRIP, 51 GROUND FAULT TRIP
	CUSTOMER METERING
	LIMIT SWITCH – NORMALLY CLOSED
LS	LEVEL SWITCH
	LIQUID LEVEL SWITCH – NORMALLY OPEN
	LIQUID LEVEL SWITCH – NORMALLY CLOSED
	PRESSURE SWITCH – NORMALLY OPEN
	PRESSURE SWITCH – NORMALLY CLOSED
J	JUNCTION BOX, PULL BOX – SIZED PER NEC
	CONDUIT – DOWN
	CONDUIT – UP
	SELECTOR SWITCH – NORMALLY OPEN
xM	MOTOR STARTER COIL, x DESIGNATES MOTOR ID. NO.
Rx	RELAY COIL, x DESIGNATES ID. NO.
xxR–y	RELAY CONTACT – NORMALLY OPEN, xx DESIGNATES RELAY ID. NO. & y DESIGNATES CONTACT NO.
xxR–y	RELAY CONTACT – NORMALLY CLOSED, xx DESIGNATES RELAY ID. NO. & y DESIGNATES CONTACT NO.
xMOL	MOTOR OVERLOAD RELAY – x DESIGNATES MOTOR I.D. NO.
	SOLENOID VALVE
	FUSE
	KEYED NOTE
x	LED PILOT LIGHT, x INDICATES COLOR, G=GREEN, R=RED, B=BLUE, A=AMBER
M	TEC METER, RATING AS INDICATED ON DRAWINGS. CENTER METER 4'–6" ABOVE TOP OF PLATFORM. (METER, PLAN VIEW)

SYMBOL	DESCRIPTION
SPD	SURGE PROTECTIVE DEVICE
PM	PHASE MONITOR
PB	PUSH BUTTON
K1	KIRK KEY INTERLOCK
M100	CONDUIT BUBBLE – REFERENCE CONDUIT SCHEDULE

ABBREVIATIONS

ø	PHASE
A	AMPERES
AF	AMPERE FRAME
AFD	ADJUSTABLE FREQUENCY DRIVE
AFF	ABOVE FINISHED FLOOR
AT	AMPERE TRIP
ATS	AUTOMATIC TRANSFER SWITCH
C	CONDUIT
CAT	CATALOG
CLG	CEILING
CKT	CIRCUIT
CTR	CENTER
DISC	DISCONNECT
DT	DOUBLE THROW
DV	PUMP DISCHARGE VALVE
DWG	DRAWING
ELEC	ELECTRICAL, ELECTRIC
E.O.	ELECTRICALLY OPERATED
ESD	EMERGENCY SHUTDOWN
EXH	EXHAUST
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
HP	HORSEPOWER
JB, JBOX	JUNCTION BOX
KW	KILOWATTS
KVA	KILOVOLT–AMPERE
LPX	LIGHTING PANEL X
MIN.	MINIMUM
MCC	MOTOR CONTROL CENTER
MLO	MAIN LUGS ONLY
MNTD	MOUNTED
MOV	MOTOR OPERATED VALVE
MSH	MOTOR SPACE HEATER
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
PB	PUSH BUTTON
PSV	PUMP SUCTION VALVE
PT	PRESSURE TRANSMITTER
PWR	POWER
RCBP	REMOTE CIRCUIT BREAKER PANEL
RECEPT	RECEPTACLE
RTD	RESISTANCE TEMPERATURE DETECTOR
SPD	SURGE PROTECTIVE DEVICE
SW	SWITCH
SWBD	SWITCHBOARD
TEC	TAMPA ELECTRIC COMPANY
THRU	THROUGH
TR	TRIP
TT	TEMPERATURE TRANSMITTER
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
TYP	TYPICAL
UON	UNLESS OTHERWISE NOTED
V	VOLT
VIB	VIBRATION
W	WIRE
w/	WITH
XFMR	TRANSFORMER
XFR	TRANSFER
XMTR	TRANSMITTER

B080-062

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CITY of TAMPA
WASTEWATER DEPARTMENT

KRAUSE PS REHABILITATION

ELECTRICAL LEGEND & ABBREVIATIONS

NO.	DATE	REVISIONS

DRAWN: RWB
DESIGN: STK
QC: BEH
DATE: 05/01/14

SHEET E-1

B080-063

GENERAL NOTES:

1. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR APPROVAL AND SHALL RECEIVE SAID APPROVAL PRIOR TO PURCHASING EQUIPMENT OR COMMENCING CONSTRUCTION.

2. ALL SHOP DRAWINGS SUBMITTED TO ENGINEER FOR APPROVAL SHALL BE ORIGINAL COPIES. COPIES OF SHOP DRAWINGS OR DATA SHEETS TRANSMITTED BY FACSIMILE (FAX) WILL NOT BE REVIEWED.

3. AFTER CORE DRILLING HOLES THROUGH REINFORCED CONCRETE WALLS AND FLOORS, COAT EXPOSED REINFORCING STEEL CONCRETE SURFACES WITH EMACO P24 BY BASF. AFTER ROUTING CONDUIT THROUGH HOLE, FILL AND FINISH CONCRETE WITH A SHRINKAGE COMPENSATING REPAIR MORTAR WITH CORROSION INHIBITING PROPERTIES, EMACO S66 C1 BY BASF. REFERENCE STRUCTURAL DRAWINGS.

4. SHIELD AND DRAIN WIRE FOR EACH ANALOG SIGNAL (4–20 mA) CABLE SHALL BE GROUNDED AT THE PLC ONLY. THE SHIELD AND DRAIN WIRE AT EACH FIELD DEVICE SHALL BE NEATLY TRIMMED & TAPED w/ (2) LAYERS OF VINYL ELECTRICAL TAPE (SCOTCH 33+).

5. ALL CONDUCTORS SHALL BE STRANDED COPPER, #12 AWG MIN. w/ THHN INSULATION, UNLESS OTHERWISE NOTED.

6. THE WET WELL CLASSIFICATION IS CLASS I, GROUPS C & D, DIVISION 1 (HAZARDOUS AREA). NEC ARTICLES 500 & 501 ARE APPLICABLE FOR WIRING METHODS USED IN THE WET WELL.

7. ALL WIRING SHALL BE IDENTIFIED w/ NUMBERS AT ALL TERMINALS AND ON WIRING DIAGRAMS. MARKERS SHALL BE THOMAS & BETTS INSTA–CODE CLIP–ON MARKERS OR APPROVED EQUAL.

8. ALL CIRCUITS SHALL HAVE GROUNDING CONDUCTORS ROUTED INSIDE THE CONDUIT w/ POWER CONDUCTORS.

9. ALL POWER CONDUCTORS AND MOTOR WINDINGS SHALL BE TESTED WITH A 600 VOLT INSULATION RESISTANCE TESTER "MEGGER". INSULATION READINGS SHALL BE A MINIMUM OF 20 MEGOHMS TO GROUND (DO NOT TEST LOW–VOLTAGE CONTROLS). INSULATION READINGS THAT ARE LESS THAN 20 MEGOHMS SHALL REQUIRE THE REPLACEMENT OF THE CONDUCTOR OR MOTOR AS APPLICABLE.

10. NEATLY COIL & TAPE SPARE CONDUCTORS w/ VINYL ELECTRICAL TAPE (SCOTCH 33+) U.O.N.

11. ALL CONDUCTOR LENGTHS SHALL BE CONTINUOUS. NO SPLICES OR CONDUCTOR TERMINATIONS SHALL BE PERMITTED UNLESS SPECIFICALLY DESIGNATED IN THE DRAWINGS.

12. LIQUIDTIGHT FLEXIBLE NON–METALLIC CONDUIT CONNECTIONS TO EACH MOTOR SHALL NOT EXCEED A LENGTH OF 36".

13. ALL THREADED CONNECTIONS SHALL BE COATED w/ COPPER SHIELD ANTI–SEIZE COMPOUND MANUFACTURED BY THOMAS & BETTS (T & B).

14. ALL UNDERGROUND CONDUITS SHALL BE BURIED w/ A MINIMUM OF 24" COVER UNLESS OTHERWISE NOTED.

15. CONDUIT ROUTING SHOWN IS DIAGRAMMATIC UNLESS OTHERWISE NOTED. CONTRACTOR SHALL OPTIMIZE THE CONDUIT ROUTING, TAKING INTO ACCOUNT THE FIELD CONDITIONS AND THE FINAL EQUIPMENT SELECTED AND APPROVED IN THE SUBMITTALS.

16. PULL BOXES SHALL BE INSTALLED AS NECESSARY TO FACILITATE WIRE PULLS AND TO AVOID EXCESSIVE PULLING TENSION ON WIRING. IN NO CASE SHALL CONDUIT LENGTHS EXCEED 150' OR THE EQUIVALENT OF FOUR QUARTER BENDS (360 DEGREES TOTAL) WITHOUT A PULL BOX. PULL BOXES SHALL BE SIZED IN ACCORDANCE WITH ARTICLE 314 OF THE NEC.

17. PROVIDE PVC SLEEVES FOR ALL METALLIC CONDUIT PENETRATIONS THROUGH CONCRETE. WHERE ALUMINUM SURFACES SUCH AS BOXES, CONDUIT OR STRUCTURAL SUPPORTS COME IN CONTACT WITH INCOMPATIBLE METALS, LIME, MORTAR, CONCRETE OR OTHER MASONRY MATERIALS, THE CONTACT AREA SHALL BE GIVEN ONE FIELD COAT OF KOPPERS METAL PASSIVATOR NO. 40 AND ONE COAT OF KOPPERS BITUMASTIC SUPER SERVICE BLACK OR TWO COATS OF ASPHALT VARNISH CONFORMING TO FED. SPEC. TT–V–51.

18. ALL CONDUIT TRENCHES SHALL BE DUG BY HAND TO AVOID DAMAGING UNDERGROUND PIPING AND UTILITIES.

19. ALL UNDERGROUND CONDUITS SHALL BE ENCASED IN STEEL REINFORCED CONCRETE. CONCRETE ENCASEMENT SHALL BE IN ACCORDANCE w/ THE DUCT BANK DETAIL.

20. THE CONTRACTOR SHALL REPLACE ALL EXISTING PAVING, STABILIZED EARTH, CURBS, DRIVEWAYS, FENCES & OTHER IMPROVEMENTS WITH THE SAME TYPE OF MATERIAL THAT WAS REMOVED DURING CONSTRUCTION OR AS DIRECTED BY THE ENGINEER.

21. CONTRACTOR SHALL MAINTAIN A CLEAR PATH FOR ALL SURFACE WATER DRAINAGE STRUCTURES & DITCHES DURING ALL PHASES OF CONSTRUCTION.

22. ALL CONDUIT SHALL BE SUPPORTED AT MAXIMUM 5'–0" INTERVALS.

23. ALL FASTENING AND MOUNTING HARDWARE SHALL BE 316 SS. CAD PLATED HARDWARE WILL NOT BE ACCEPTED.

24. ALL UNISTRUT SHALL BE 1 5/8" x 1 5/8" x 12 GA. 316 STAINLESS STEEL.

25. CONTRACTOR SHALL FIELD VERIFY ALL MECHANICAL EQUIPMENT SIZES AND RATINGS PRIOR TO CONNECTING.

26. CONTRACTOR SHALL FIELD VERIFY ALL EQUIPMENT LOCATIONS AND CONNECTIONS PRIOR TO COMMENCING CONSTRUCTION.

27. ALL PANELS, PANEL COMPONENTS, DISCONNECTS, SWITCHES & EQUIPMENT COVERPLATES SHALL BE LABELED w/ NAMEPLATES. NAMEPLATES SHALL BE THREE PLY PHENOLIC BLACK–WHITE–BLACK ENGRAVED THROUGH THE FIRST BLACK LAYER. LETTERING SHALL BE 0.5 CM (3/16") MIN. EDGES OF NAMEPLATES SHALL BE BEVELED 45°. THE NAMEPLATES SHALL BE SECURED TO EQUIPMENT WITH STAINLESS STEEL SCREWS OR RIVETS. THE USE OF GLUE IS NOT PERMITTED.

28. ALL INSTALLED COMPONENTS SHALL BE LISTED BY UNDERWRITERS LABORATORY (UL), OR SIMILAR NATIONALLY RECOGNIZED TESTING LABORATORY.

29. ALL EQUIPMENT SHALL BE INSTALLED AT AN ELEVATION ABOVE THE 100 YEAR FLOOD ELEVATION ESTABLISHED BY FEMA AND/OR LOCAL AUTHORITIES.

    ALL INSTALLATIONS SHALL BE IN ACCORDANCE WITH CITY OF TAMPA CODE 5–111.6.1.5 CITY OF TAMPA CODE CHAPTER 5 ISSUED 10/01/2005.

30. REFERENCE PLAN & SECTION DRAWINGS FOR EQUIPMENT LOCATIONS.

31. COORDINATE ALL INSTALLATIONS w/ ALL OTHER TRADES.

32. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY WHEN CONFLICTS BETWEEN DRAWINGS & ACTUAL CONDITIONS ARE DISCOVERED.

33. ALL "AS BUILT" DRAWINGS PROVIDED BY THE CONTRACTOR SHALL BE SIGNED AND DATED WITH CHANGES CLEARLY NOTED IN RED. ADDITIONALLY, THE PRINTED NAME OF THE INDIVIDUAL SIGNING THE "AS BUILT" DRAWINGS ALONG WITH THAT PERSON'S COMPANY AFFILIATION SHALL BE INCLUDED. IF NO CHANGES WERE MADE DURING CONSTRUCTION, A NOTE DESIGNATING "NO CHANGES" SHALL BE INCLUDED ON THE "AS BUILT" DRAWINGS.

34. ALL EXISTING INSTALLATIONS DENOTED ON THE DRAWINGS ARE FOR CONTRACTOR'S REFERENCE ONLY. ALL EXISTING INSTALLATIONS SHALL BE FIELD VERIFIED PRIOR TO SUBMITTING A BID & PRIOR TO COMMENCING CONSTRUCTION.

35. PROVIDE A MINIMUM OF 3'–0" CLEARANCE IN FRONT OF ALL ELECTRICAL EQUIPMENT IN ACCORDANCE w/ ARTICLE 110 OF THE NEC.

36. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE w/ THE LATEST EDITION OF THE NEC AND APPLICABLE LOCAL ORDINANCES.

37. ALL CONDUITS ROUTED IN CONCRETE SHALL BE INSTALLED WITH A SEPARATION BETWEEN CONDUITS OF NOT LESS THAN 3 DIAMETERS (CENTER–TO–CENTER) & IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE STANDARD NO. 318–89.

38. ALL CONDUIT EXPOSED ABOVE GRADE SHALL BE RIGID HEAVY WALL ALUMINUM, UNLESS OTHERWISE NOTED. CONDUITS EXTENDING BELOW GRADE SHALL BE RIGID HEAVY WALL ALUMINUM CONDUIT THROUGH AND INCLUDING THE FIRST 90 DEGREE ELBOW (OR EQUIVALENT SET OF FITTINGS) INSTALLED BELOW GRADE. ALL PVC CONDUIT SHALL BE SCHEDULE 80. CONNECTIONS TO PVC CONDUIT SHALL BE MADE w/ A RIGID ALUMINUM TO PVC CONDUIT ADAPTER.

    ALL CONDUIT ROUTED IN THE WET WELL SHALL BE RIGID HEAVY WALL ALUMINUM w/ 40 MIL PVC EXTERIOR COATING & 2 MIL BLUE URETHANE INTERIOR COATING. OCAL–BLUE SERIES CONDUIT MANUFACTURED BY THOMAS & BETTS OR EQUAL.

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CITY of TAMPA
WASTEWATER DEPARTMENT

KRAUSE PS REHABILITATION

ELECTRICAL GENERAL NOTES

NO.	DATE	REVISIONS

DRAWN: RWB
DESIGN: STK
QC: BEH
DATE: 05/01/14

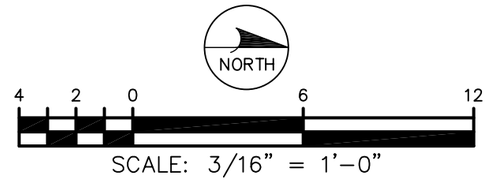
SHEET E-2

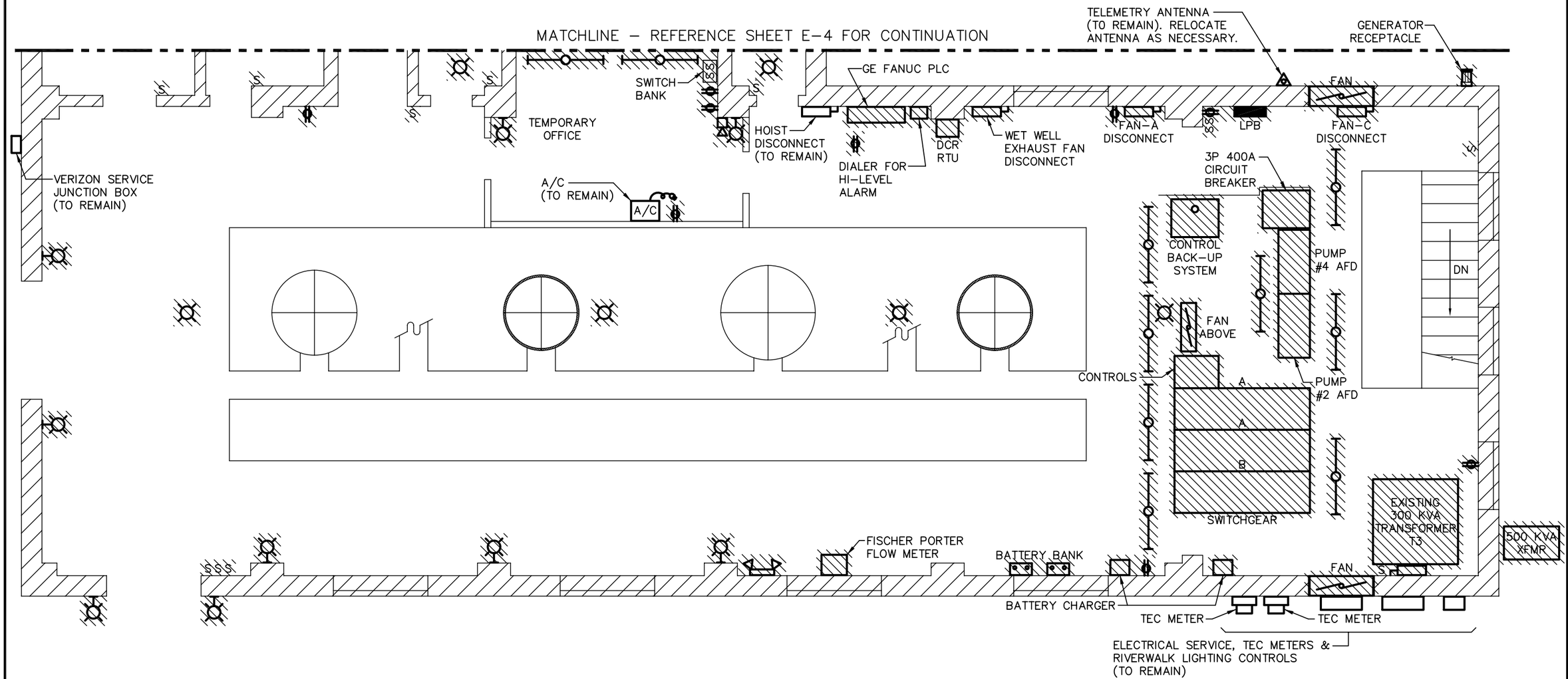
B080-064

NOTES:

– DENOTES EXISTING EQUIPMENT TO BE REMOVED. ITEM SHALL BE REMOVED FROM PREMISES AND DISPOSED OF PROPERLY. UNLESS OTHERWISE NOTED, REMOVE ALL ASSOCIATED CONDUIT & WIRING CONNECTED TO EQUIPMENT TO BE REMOVED, INCLUDING ABANDONED CONDUIT & WIRING.

1. ALL EQUIPMENT, CONDUIT & WIRING INCLUDED ON THIS DRAWING ARE EXISTING. CONTRACTOR SHALL VISIT THE SITE & FAMILIARIZE HIMSELF WITH THE EXISTING CONDITIONS BEFORE SUBMITTING A BID OR COMMENCING CONSTRUCTION.
2. COORDINATE ALL DEMOLITION ACTIVITIES WITH THE CITY AND ALL TRADES.
3. ALL EXISTING INSTALLATIONS DENOTED ON THE DRAWINGS ARE FOR CONTRACTORS REFERENCE ONLY. ALL EXISTING INSTALLATIONS SHALL BE FIELD VERIFIED PRIOR TO SUBMITTING A BID AND PRIOR TO COMMENCING CONSTRUCTION.
4. COORDINATE WITH THE CITY FOR A LIST OF EQUIPMENT TO BE SALVAGED.





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CITY of TAMPA
WASTEWATER DEPARTMENT

KRAUSE PS REHABILITATION

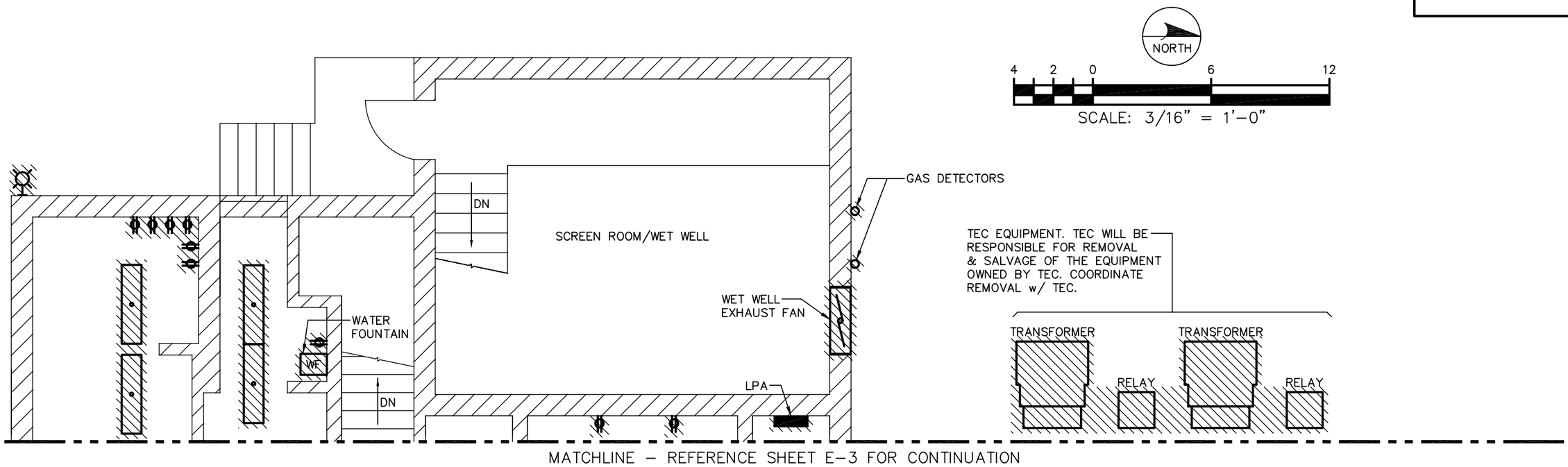
ELECTRICAL DEMOLITION PLAN (UPPER LEVEL) (SHEET 1 OF 2)

NO.	DATE	REVISIONS

DRAWN: RWB
DESIGN: STK
QC: BEH
DATE: 05/01/14

SHEET E-3

B080-065



NOTES:

– DENOTES EXISTING EQUIPMENT TO BE REMOVED. ITEM SHALL BE REMOVED FROM PREMISES AND DISPOSED OF PROPERLY. UNLESS OTHERWISE NOTED, REMOVE ALL ASSOCIATED CONDUIT & WIRING CONNECTED TO EQUIPMENT TO BE REMOVED, INCLUDING ABANDONED CONDUIT & WIRING.

1. ALL EQUIPMENT, CONDUIT & WIRING INCLUDED ON THIS DRAWING ARE EXISTING. CONTRACTOR SHALL VISIT THE SITE & FAMILIARIZE HIMSELF WITH THE EXISTING CONDITIONS BEFORE SUBMITTING A BID OR COMMENCING CONSTRUCTION.
2. COORDINATE ALL DEMOLITION ACTIVITIES WITH THE CITY AND ALL TRADES.
3. ALL EXISTING INSTALLATIONS DENOTED ON THE DRAWINGS ARE FOR CONTRACTORS REFERENCE ONLY. ALL EXISTING INSTALLATIONS SHALL BE FIELD VERIFIED PRIOR TO SUBMITTING A BID AND PRIOR TO COMMENCING CONSTRUCTION.
4. COORDINATE WITH THE CITY FOR A LIST OF EQUIPMENT TO BE SALVAGED.

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CITY of TAMPA
WASTEWATER DEPARTMENT

KRAUSE PS REHABILITATION

ELECTRICAL DEMOLITION PLAN
(UPPER LEVEL)
(SHEET 2 OF 2)

NO.	DATE	REVISIONS

DRAWN: RWB
DESIGN: STK
QC: BEH
DATE: 05/01/14

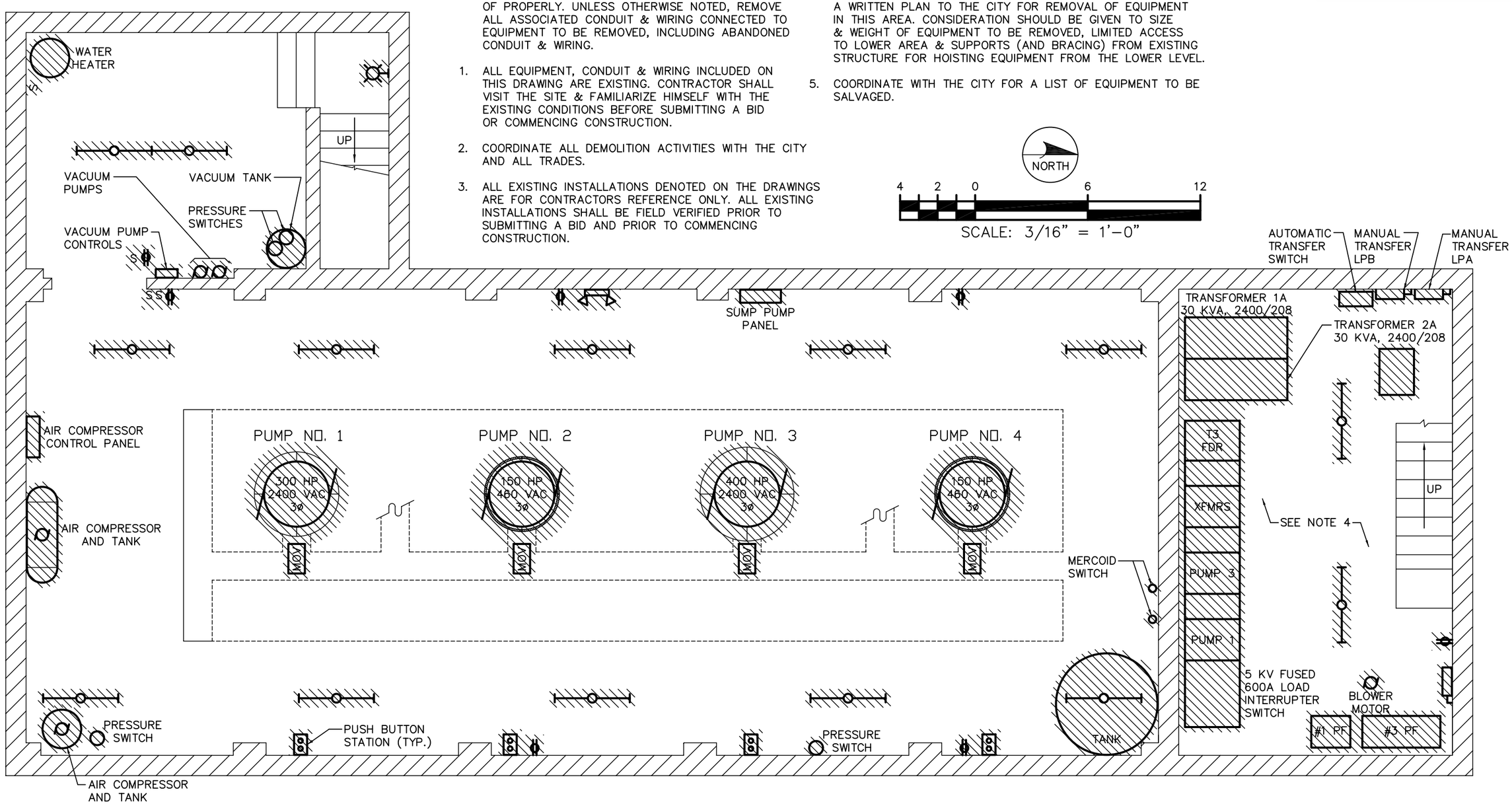
SHEET E-4

B080-066

NOTES:

– DENOTES EXISTING EQUIPMENT TO BE REMOVED. ITEM SHALL BE REMOVED FROM PREMISES AND DISPOSED OF PROPERLY. UNLESS OTHERWISE NOTED, REMOVE ALL ASSOCIATED CONDUIT & WIRING CONNECTED TO EQUIPMENT TO BE REMOVED, INCLUDING ABANDONED CONDUIT & WIRING.

1. ALL EQUIPMENT, CONDUIT & WIRING INCLUDED ON THIS DRAWING ARE EXISTING. CONTRACTOR SHALL VISIT THE SITE & FAMILIARIZE HIMSELF WITH THE EXISTING CONDITIONS BEFORE SUBMITTING A BID OR COMMENCING CONSTRUCTION.
2. COORDINATE ALL DEMOLITION ACTIVITIES WITH THE CITY AND ALL TRADES.
3. ALL EXISTING INSTALLATIONS DENOTED ON THE DRAWINGS ARE FOR CONTRACTORS REFERENCE ONLY. ALL EXISTING INSTALLATIONS SHALL BE FIELD VERIFIED PRIOR TO SUBMITTING A BID AND PRIOR TO COMMENCING CONSTRUCTION.
4. FIELD EVALUATE EXISTING CONDITIONS IN THE LOWER LEVEL ELECTRICAL ROOM. CONTRACTOR SHALL PROVIDE A WRITTEN PLAN TO THE CITY FOR REMOVAL OF EQUIPMENT IN THIS AREA. CONSIDERATION SHOULD BE GIVEN TO SIZE & WEIGHT OF EQUIPMENT TO BE REMOVED, LIMITED ACCESS TO LOWER AREA & SUPPORTS (AND BRACING) FROM EXISTING STRUCTURE FOR HOISTING EQUIPMENT FROM THE LOWER LEVEL.
5. COORDINATE WITH THE CITY FOR A LIST OF EQUIPMENT TO BE SALVAGED.



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CITY of TAMPA
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KRAUSE PS REHABILITATION

ELECTRICAL DEMOLITION PLAN (LOWER LEVEL)

NO.	DATE	REVISIONS

DRAWN: RWB
DESIGN: STK
QC: BEH
DATE: 05/01/14

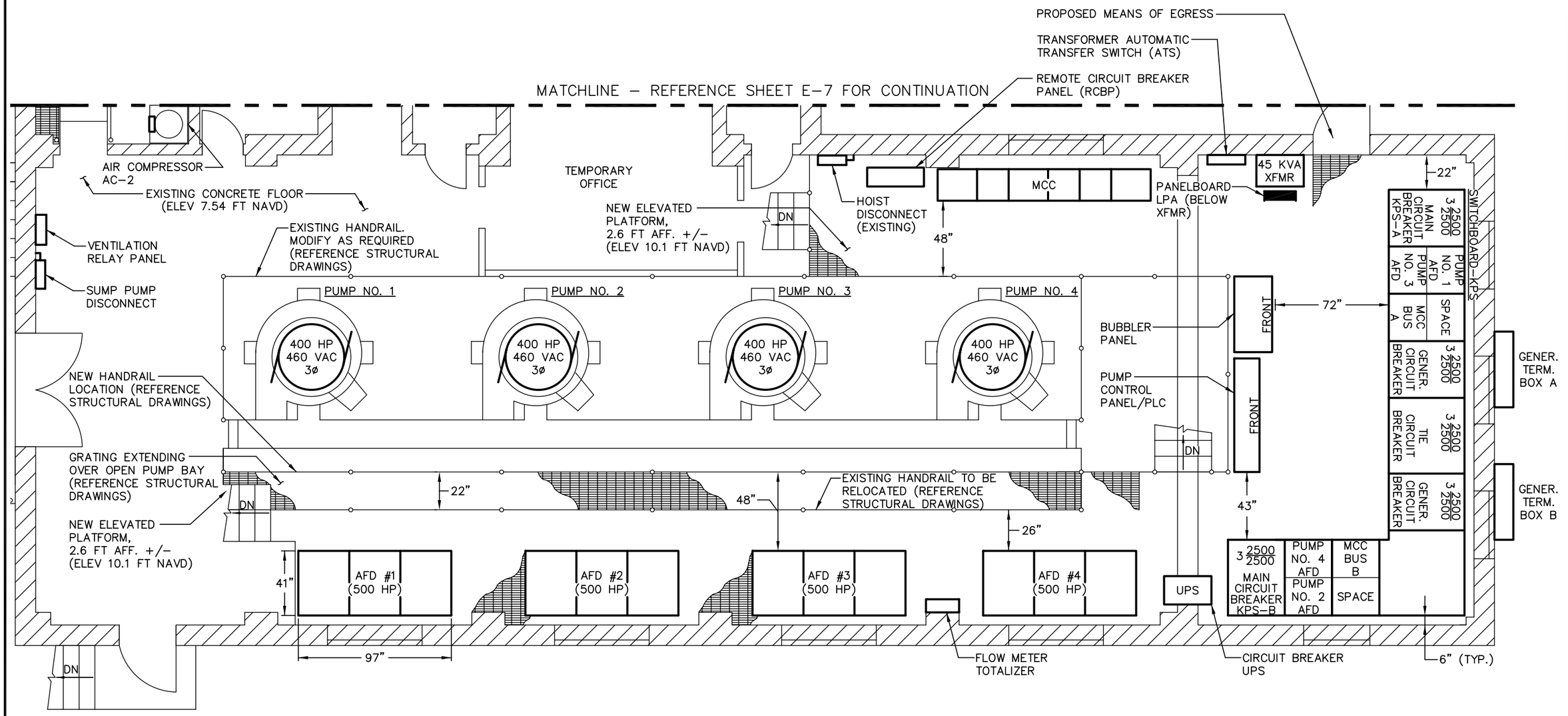
SHEET E-5

B080-067

NORTH

4 2 0 6 12

SCALE: 3/16" = 1'-0"



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CITY of TAMPA
WASTEWATER DEPARTMENT

KRAUSE PS REHABILITATION

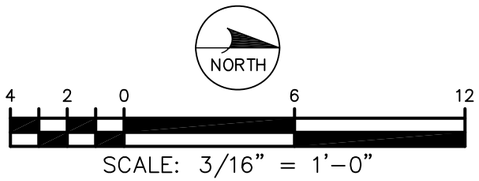
ELECTRICAL EQUIPMENT LAYOUT (UPPER LEVEL – FLOOR ELEV. 7.54' NAVD) (SHEET 1 OF 2)

NO.	DATE	REVISIONS

DRAWN: RWB
DESIGN: STK
QC: BEH
DATE: 05/01/14

SHEET E-6

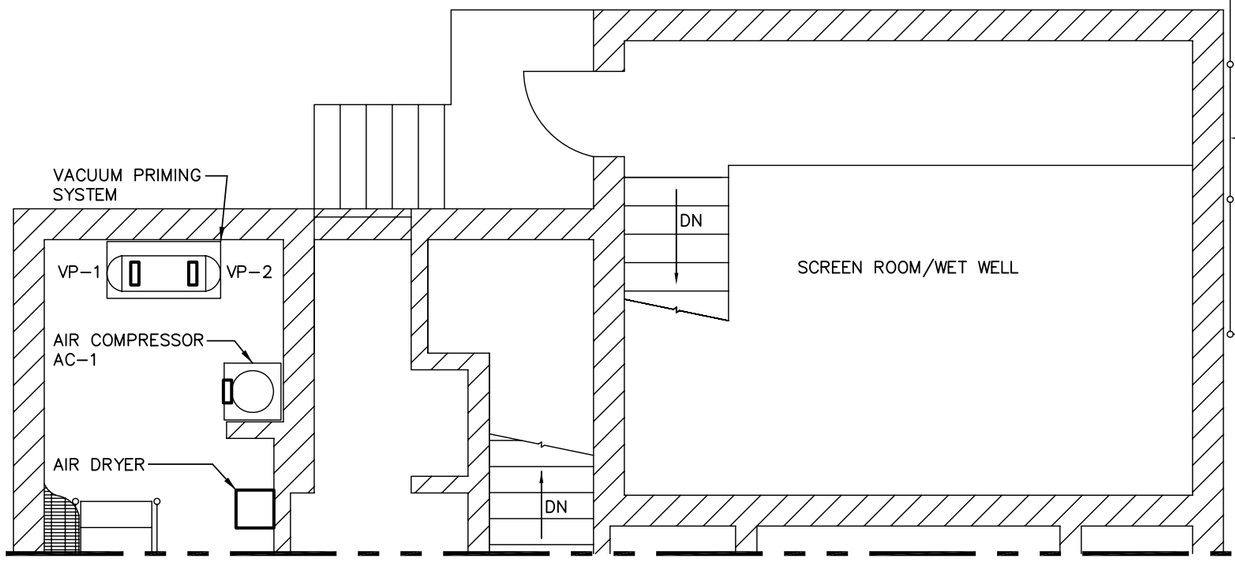
B080-068

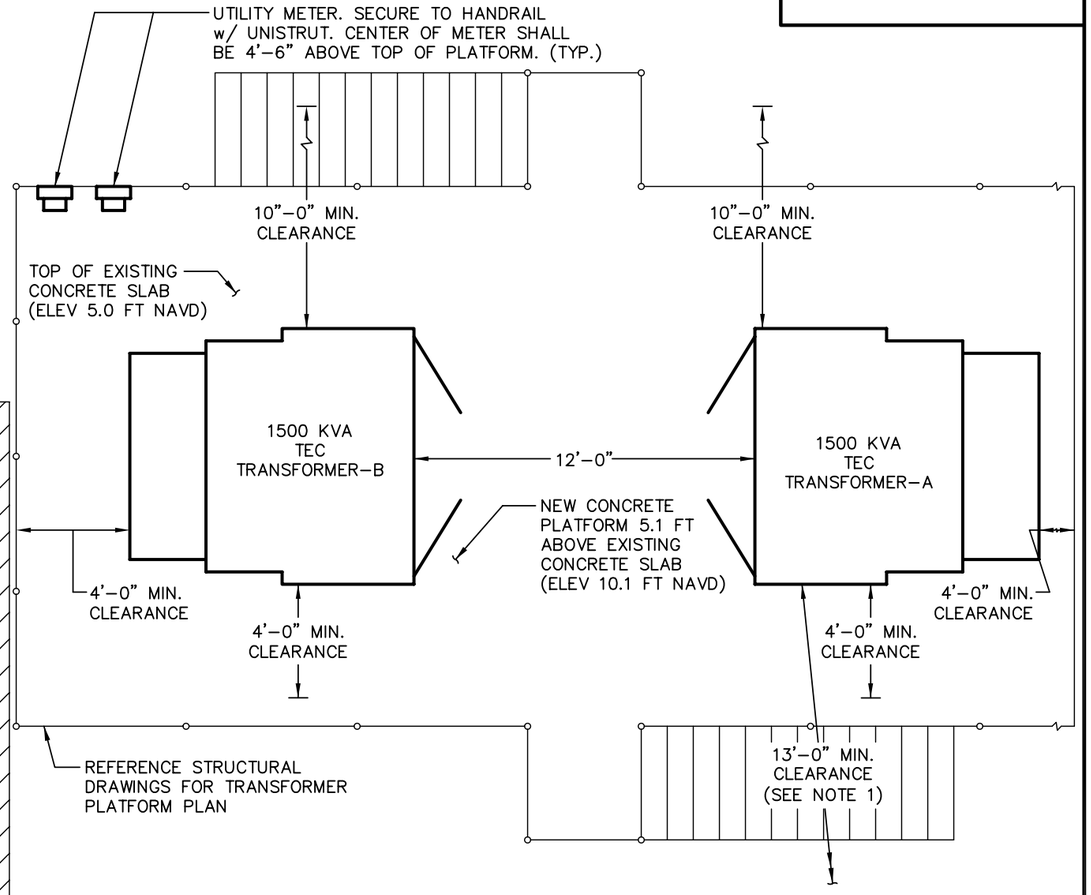


SCALE: 3/16" = 1'–0"

NOTES:

1. MAINTAIN MINIMUM CLEARANCE BETWEEN TRANSFORMERS AND BUILDING DOOR OPENING. COORDINATE MINIMUM CLEARANCE REQUIREMENTS WITH TEC.





MATCHLINE – REFERENCE SHEET E–6 FOR CONTINUATION

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CITY of TAMPA
WASTEWATER DEPARTMENT

KRAUSE PS REHABILITATION

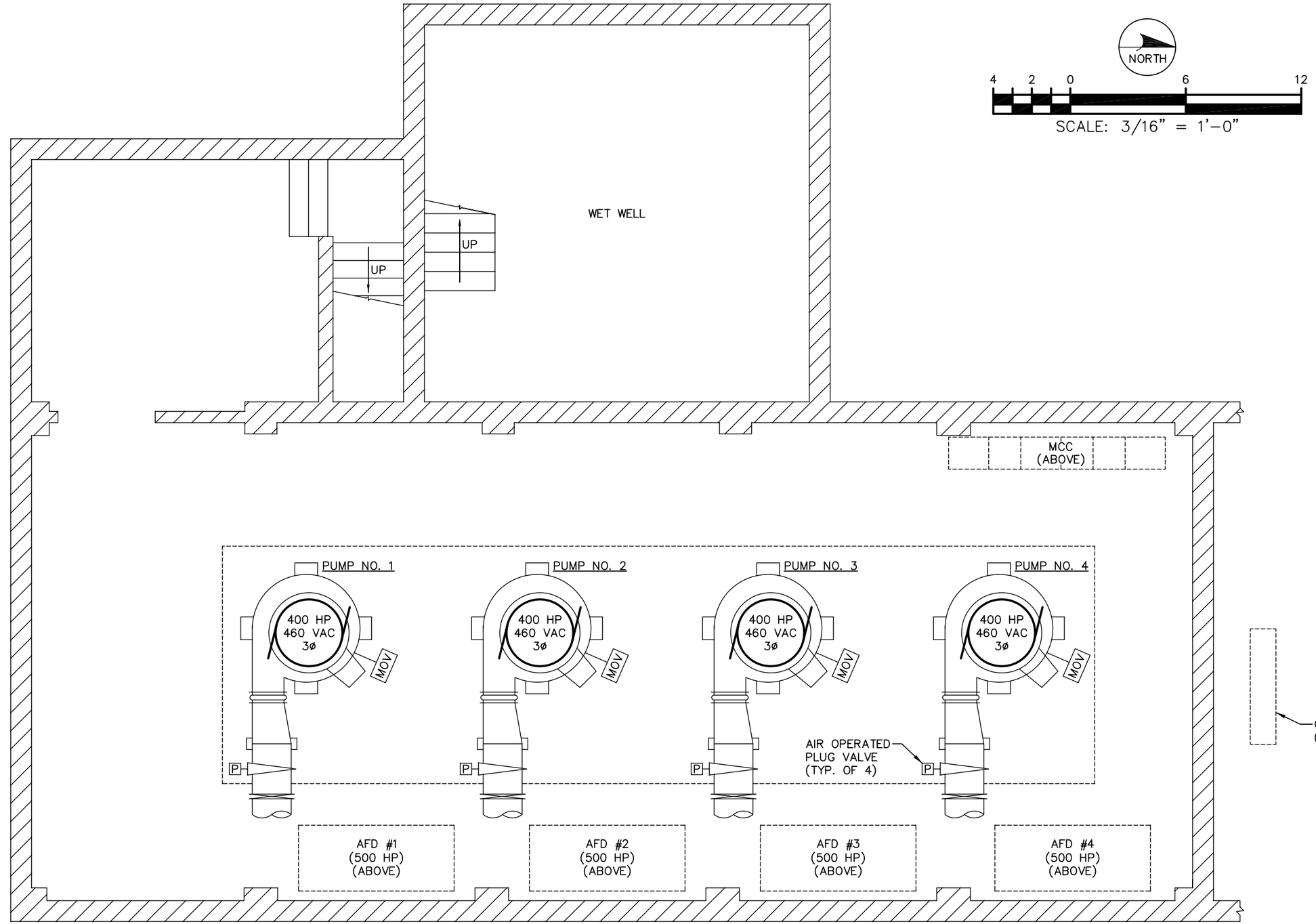
ELECTRICAL EQUIPMENT LAYOUT
(UPPER LEVEL – FLOOR ELEV. 7.54' NAVD)
(SHEET 2 OF 2)

NO.	DATE	REVISIONS

DRAWN: RWB
DESIGN: STK
QC: BEH
DATE: 05/01/14

SHEET E-7

B080-069



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CITY of TAMPA
WASTEWATER DEPARTMENT

KRAUSE PS REHABILITATION

ELECTRICAL EQUIPMENT LAYOUT (LOWER LEVEL – FLOOR ELEV. –5.99' NAVD)

NO.	DATE	REVISIONS

DRAWN: RWB
DESIGN: STK
QC: BEH
DATE: 05/01/14

SHEET E-8

B080-070

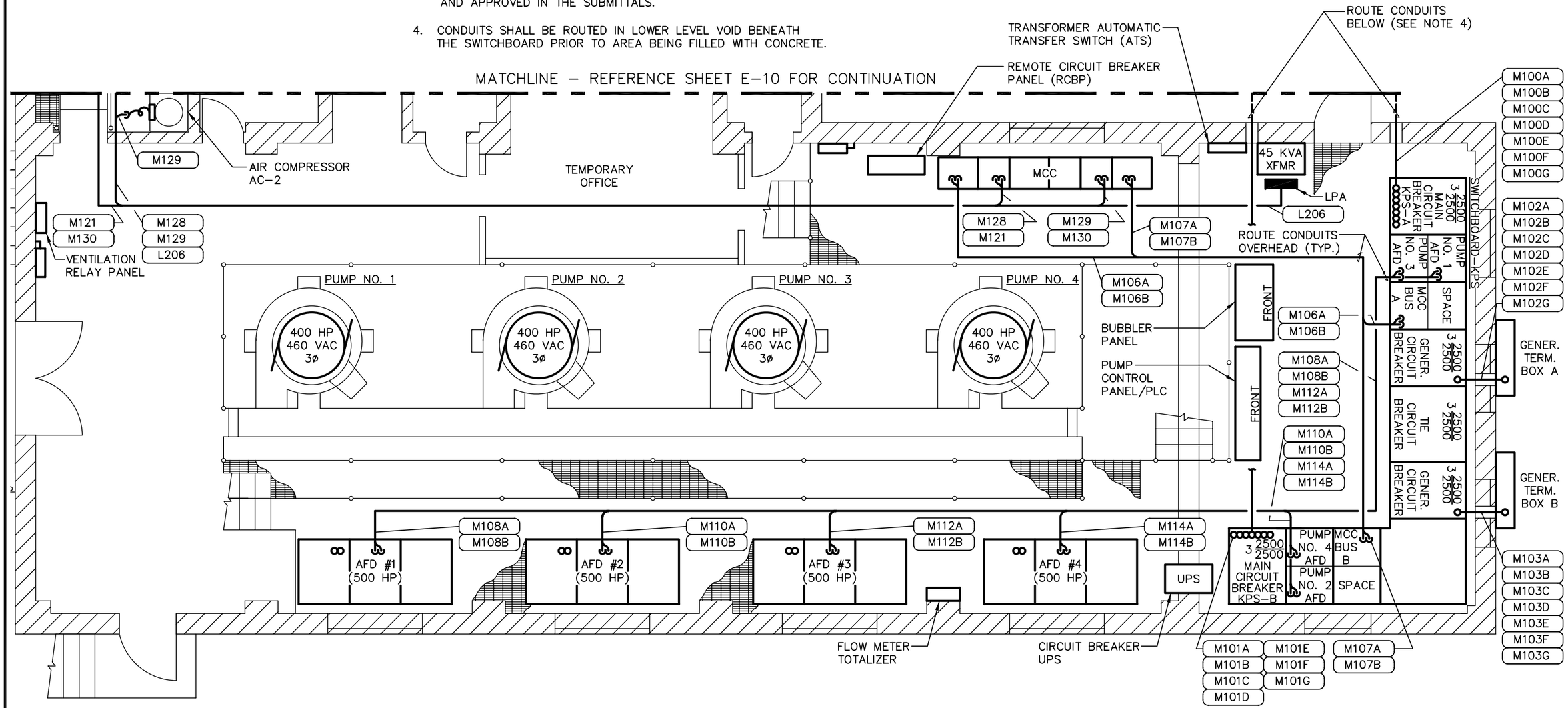
NORTH

4 2 0 6 12

SCALE: 3/16" = 1'-0"

NOTES:

1. REFERENCE OVERHEAD CONDUIT SECURING DETAIL.
2. CONDUITS SHALL BE ROUTED SO AS NOT TO INTERFERE WITH THE TRAVELING BRIDGE CRANE.
3. CONDUIT ROUTING SHOWN IS DIAGRAMMATIC UNLESS OTHERWISE NOTED. CONTRACTOR SHALL OPTIMIZE THE CONDUIT ROUTING, TAKING INTO ACCOUNT THE FIELD CONDITIONS AND THE FINAL EQUIPMENT SELECTED AND APPROVED IN THE SUBMITTALS.
4. CONDUITS SHALL BE ROUTED IN LOWER LEVEL VOID BENEATH THE SWITCHBOARD PRIOR TO AREA BEING FILLED WITH CONCRETE.



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CITY of TAMPA
WASTEWATER DEPARTMENT

KRAUSE PS REHABILITATION

CONDUIT ROUTING PLAN – POWER
(UPPER LEVEL – FLOOR ELEV. 7.54' NAVD)
(SHEET 1 OF 2)

NO.	DATE	REVISIONS

DRAWN: RWB
DESIGN: STK
QC: BEH
DATE: 05/01/14

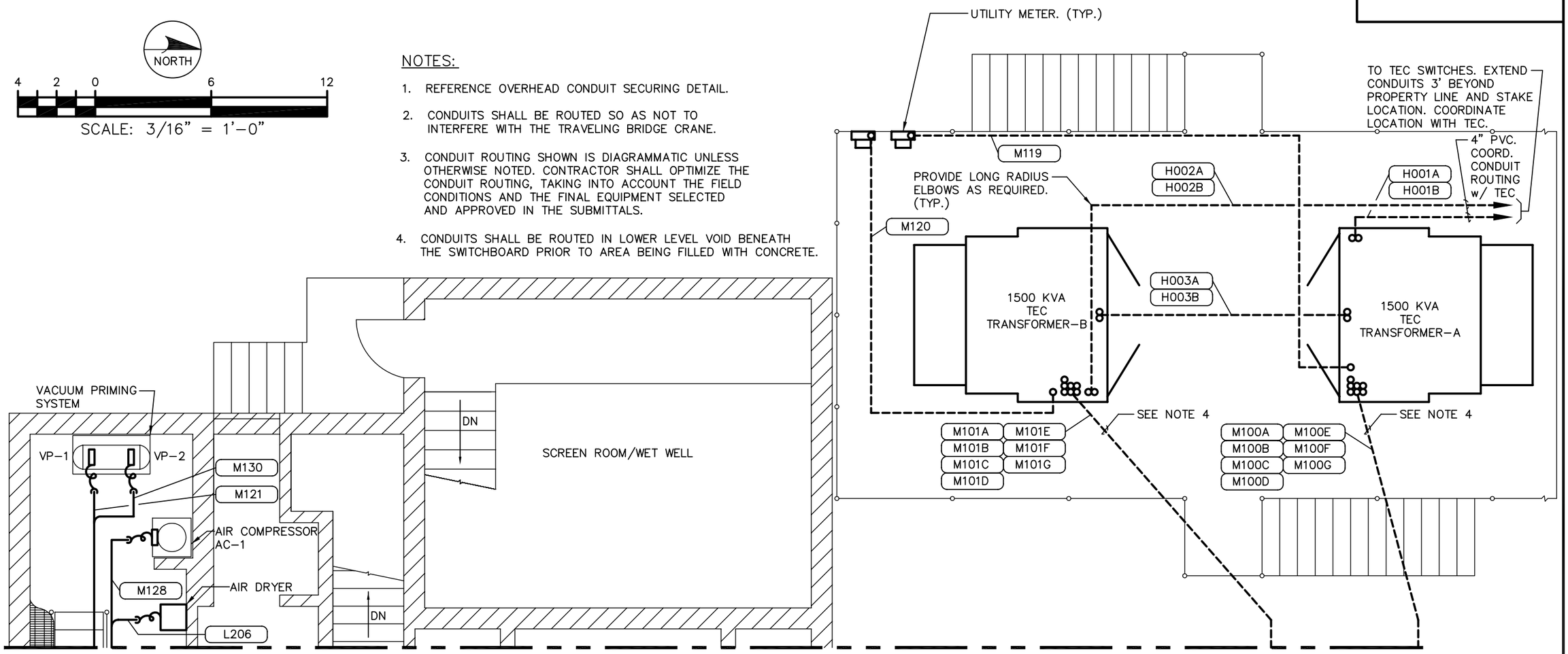
SHEET E-9

B080-071

SCALE: 3/16" = 1'-0"

NOTES:

1. REFERENCE OVERHEAD CONDUIT SECURING DETAIL.
2. CONDUITS SHALL BE ROUTED SO AS NOT TO INTERFERE WITH THE TRAVELING BRIDGE CRANE.
3. CONDUIT ROUTING SHOWN IS DIAGRAMMATIC UNLESS OTHERWISE NOTED. CONTRACTOR SHALL OPTIMIZE THE CONDUIT ROUTING, TAKING INTO ACCOUNT THE FIELD CONDITIONS AND THE FINAL EQUIPMENT SELECTED AND APPROVED IN THE SUBMITTALS.
4. CONDUITS SHALL BE ROUTED IN LOWER LEVEL VOID BENEATH THE SWITCHBOARD PRIOR TO AREA BEING FILLED WITH CONCRETE.



MATCHLINE – REFERENCE SHEET E-9 FOR CONTINUATION

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CITY of TAMPA
WASTEWATER DEPARTMENT

KRAUSE PS REHABILITATION

CONDUIT ROUTING PLAN – POWER
(UPPER LEVEL – FLOOR ELEV. 7.54' NAVD)
(SHEET 2 OF 2)

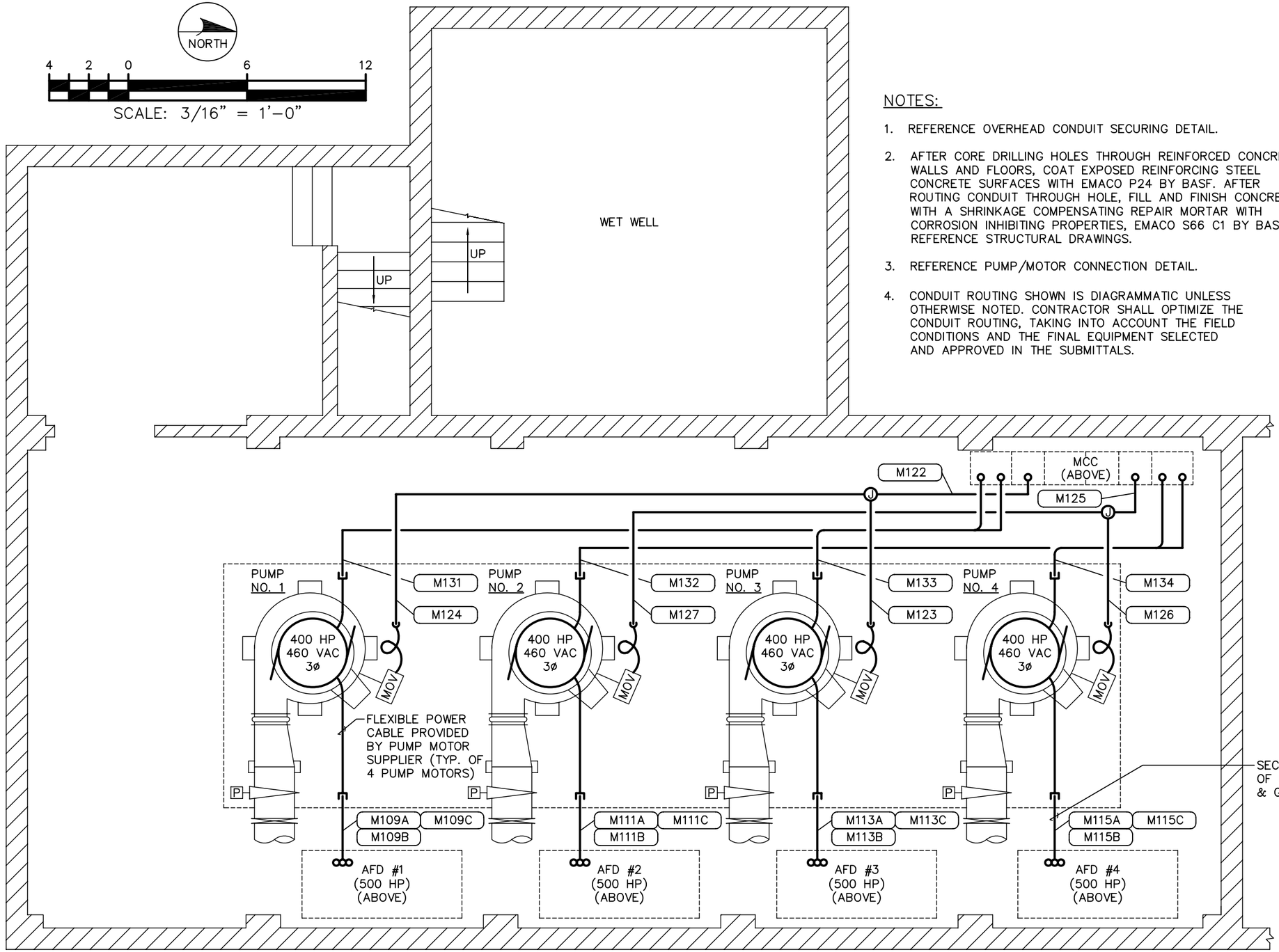
NO.	DATE	REVISIONS

DRAWN: RWB
DESIGN: STK
QC: BEH
DATE: 05/01/14

SHEET E-10

B080-072

SCALE: 3/16" = 1'-0"



NOTES:

1. REFERENCE OVERHEAD CONDUIT SECURING DETAIL.
2. AFTER CORE DRILLING HOLES THROUGH REINFORCED CONCRETE WALLS AND FLOORS, COAT EXPOSED REINFORCING STEEL CONCRETE SURFACES WITH EMACO P24 BY BASF. AFTER ROUTING CONDUIT THROUGH HOLE, FILL AND FINISH CONCRETE WITH A SHRINKAGE COMPENSATING REPAIR MORTAR WITH CORROSION INHIBITING PROPERTIES, EMACO S66 C1 BY BASF. REFERENCE STRUCTURAL DRAWINGS.
3. REFERENCE PUMP/MOTOR CONNECTION DETAIL.
4. CONDUIT ROUTING SHOWN IS DIAGRAMMATIC UNLESS OTHERWISE NOTED. CONTRACTOR SHALL OPTIMIZE THE CONDUIT ROUTING, TAKING INTO ACCOUNT THE FIELD CONDITIONS AND THE FINAL EQUIPMENT SELECTED AND APPROVED IN THE SUBMITTALS.

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CITY of TAMPA
WASTEWATER DEPARTMENT

KRAUSE PS REHABILITATION

CONDUIT ROUTING PLAN – POWER (LOWER LEVEL – FLOOR ELEV. –5.99' NAVD)

NO.	DATE	REVISIONS

DRAWN: RWB
DESIGN: STK
QC: BEH
DATE: 05/01/14

SHEET E-11

B080-073

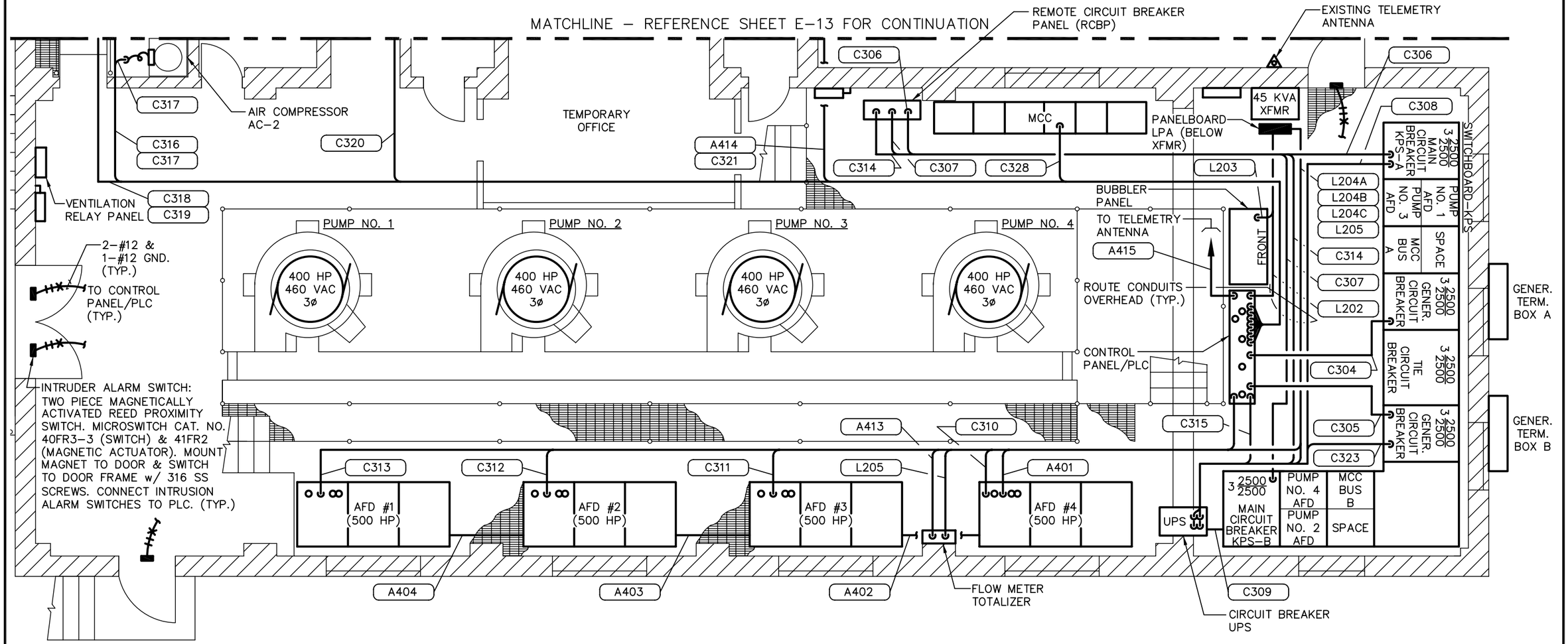
NORTH

4 2 0 6 12

SCALE: 3/16" = 1'-0"

NOTES:

1. REFERENCE OVERHEAD CONDUIT SECURING DETAIL.
2. CONDUITS SHALL BE ROUTED SO AS NOT TO INTERFERE WITH THE TRAVELING BRIDGE CRANE.
3. CONDUIT ROUTING SHOWN IS DIAGRAMMATIC UNLESS OTHERWISE NOTED. CONTRACTOR SHALL OPTIMIZE THE CONDUIT ROUTING, TAKING INTO ACCOUNT THE FIELD CONDITIONS AND THE FINAL EQUIPMENT SELECTED AND APPROVED IN THE SUBMITTALS.



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KRAUSE PS REHABILITATION

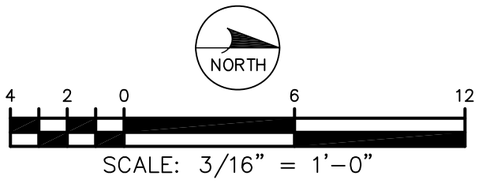
CONDUIT ROUTING PLAN – CONTROLS (UPPER LEVEL – FLOOR ELEV. 7.54' NAVD) (SHEET 1 OF 2)

NO.	DATE	REVISIONS

DRAWN: RWB
DESIGN: STK
QC: BEH
DATE: 05/01/14

SHEET E-12

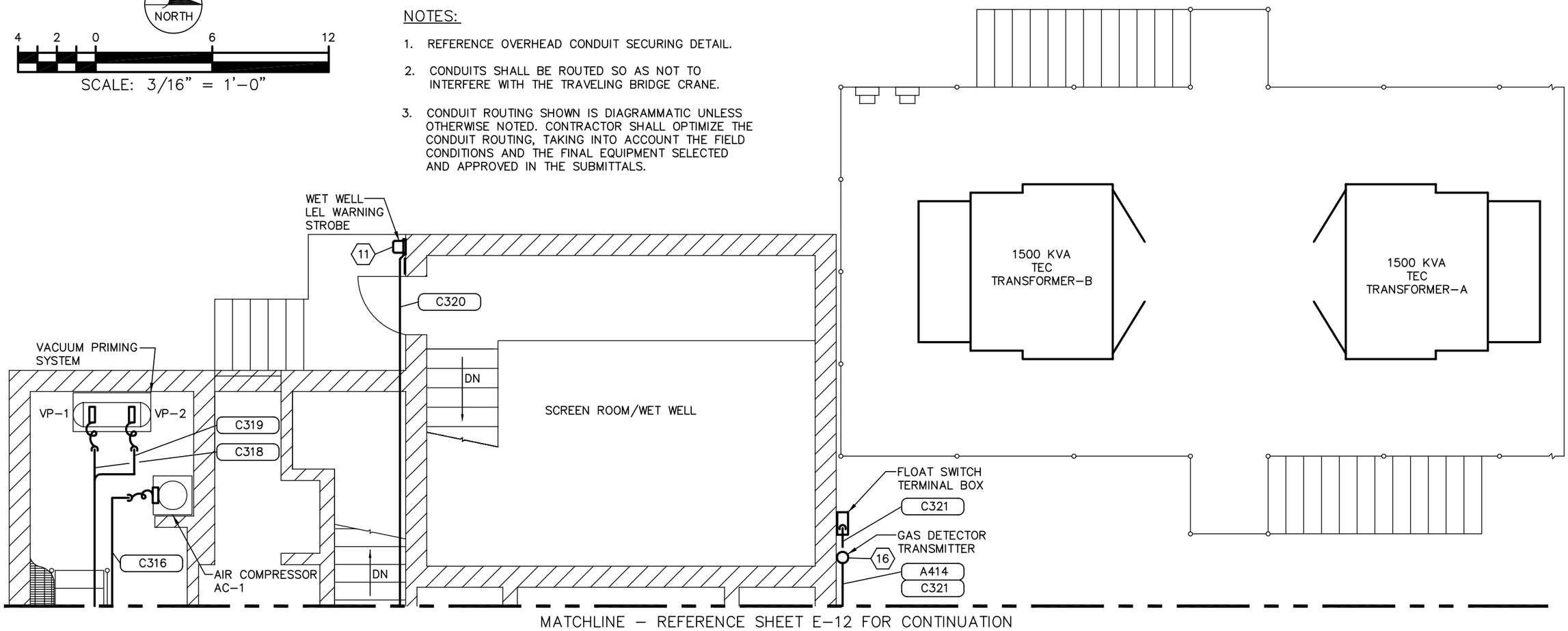
B080-074



SCALE: 3/16" = 1'-0"

NOTES:

1. REFERENCE OVERHEAD CONDUIT SECURING DETAIL.
2. CONDUITS SHALL BE ROUTED SO AS NOT TO INTERFERE WITH THE TRAVELING BRIDGE CRANE.
3. CONDUIT ROUTING SHOWN IS DIAGRAMMATIC UNLESS OTHERWISE NOTED. CONTRACTOR SHALL OPTIMIZE THE CONDUIT ROUTING, TAKING INTO ACCOUNT THE FIELD CONDITIONS AND THE FINAL EQUIPMENT SELECTED AND APPROVED IN THE SUBMITTALS.



MATCHLINE – REFERENCE SHEET E-12 FOR CONTINUATION

SEE KEYED NOTES ON SHEET E-23

ENGINEER OF RECORD:
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KRAUSE PS REHABILITATION

CONDUIT ROUTING PLAN – CONTROLS
(UPPER LEVEL – FLOOR ELEV. 7.54' NAVD)
(SHEET 2 OF 2)

NO.	DATE	REVISIONS

DRAWN: RWB
DESIGN: STK
QC: BEH
DATE: 05/01/14

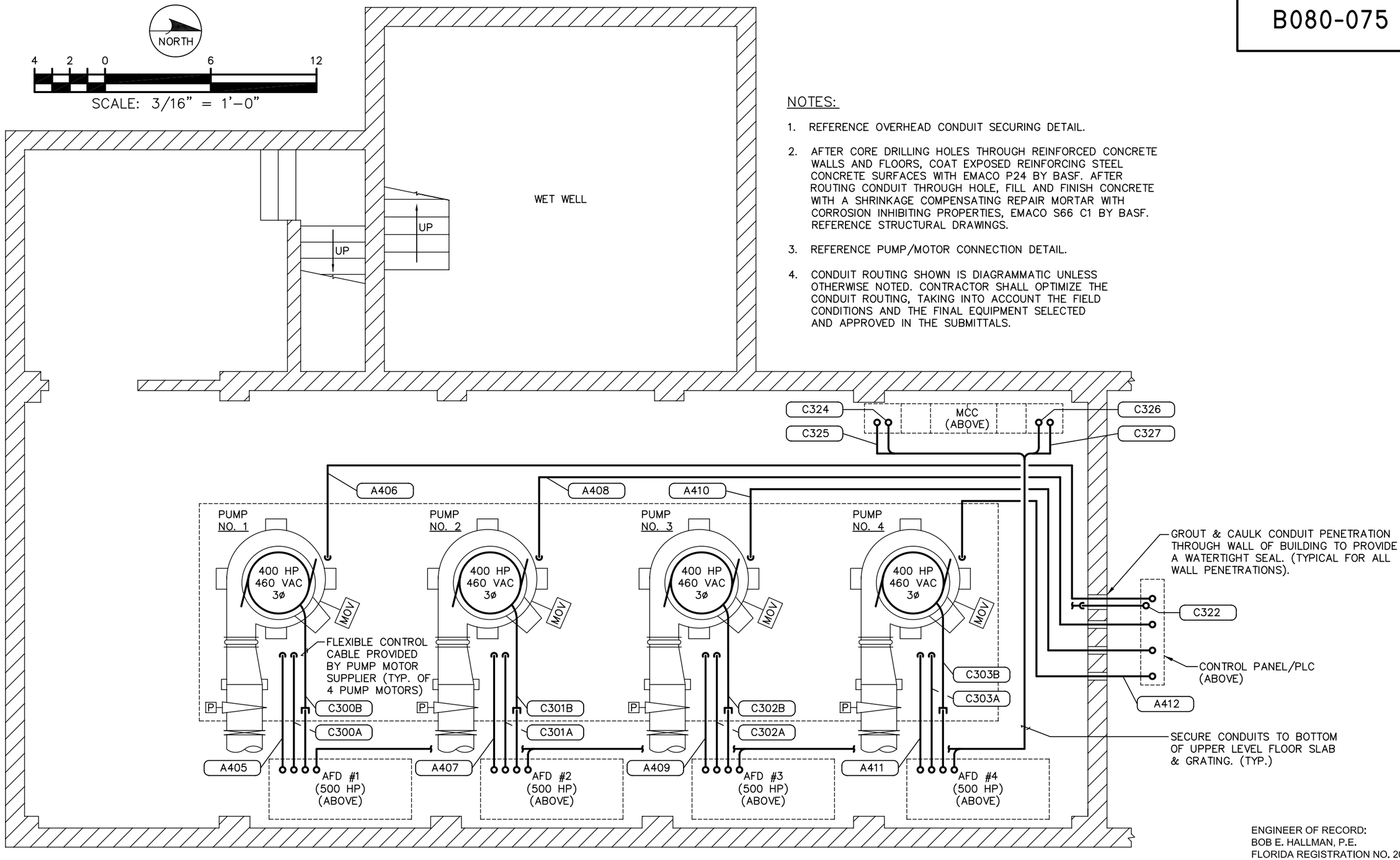
SHEET E-13

B080-075

SCALE: 3/16" = 1'-0"

NOTES:

1. REFERENCE OVERHEAD CONDUIT SECURING DETAIL.
2. AFTER CORE DRILLING HOLES THROUGH REINFORCED CONCRETE WALLS AND FLOORS, COAT EXPOSED REINFORCING STEEL CONCRETE SURFACES WITH EMACO P24 BY BASF. AFTER ROUTING CONDUIT THROUGH HOLE, FILL AND FINISH CONCRETE WITH A SHRINKAGE COMPENSATING REPAIR MORTAR WITH CORROSION INHIBITING PROPERTIES, EMACO S66 C1 BY BASF. REFERENCE STRUCTURAL DRAWINGS.
3. REFERENCE PUMP/MOTOR CONNECTION DETAIL.
4. CONDUIT ROUTING SHOWN IS DIAGRAMMATIC UNLESS OTHERWISE NOTED. CONTRACTOR SHALL OPTIMIZE THE CONDUIT ROUTING, TAKING INTO ACCOUNT THE FIELD CONDITIONS AND THE FINAL EQUIPMENT SELECTED AND APPROVED IN THE SUBMITTALS.



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KRAUSE PS REHABILITATION

CONDUIT ROUTING PLAN – CONTROLS (LOWER LEVEL – FLOOR ELEV. –5.99' NAVD)

NO.	DATE	REVISIONS

DRAWN: RWB
DESIGN: STK
QC: BEH
DATE: 05/01/14

SHEET E-14

B080-076

TEC 13.2 KV PRIMARY DISTRIBUTION FEEDER (NORMAL, HARBOUR ISLAND – CKT. 14064)

CONDUIT & WIRING BY TEC

CONDUIT & WIRING BY TEC

NC NO NC

TRAYOR SUBMERSIBLE SWITCH PROVIDED AND INSTALLED BY TEC.

H001A H001B

H003A H003B

TEC 13.2 KV PRIMARY DISTRIBUTION FEEDER (ALTERNATE, PLANT – CKT. 13381)

CONDUIT & WIRING BY TEC

NO NC NC

TRAYOR SUBMERSIBLE SWITCH PROVIDED AND INSTALLED BY TEC.

H002A H002B

NOT CONNECTED AT TRANSFORMER BUSHING

7.62 KV/13.2 KV// 277/480 VAC 3ø, 4W

TEC PAD–MOUNTED TRANSFORMER–A

AWG #4

BOND TO STATION GROUND SYSTEM

AWG #4/0

M119

7.62 KV/13.2 KV// 277/480 VAC 3ø, 4W

TEC PAD–MOUNTED TRANSFORMER–B

AWG #4

M120

BOND TO STATION GROUND SYSTEM

AWG #4/0

FUTURE EMERGENCY GENERATOR A

2000 KVA

TERMINAL BOX

M100A M100E
M100B M100F
M100C M100G
M100D

Isc = 38,504A$_{SYM}$

AIC = 65,000A

M102A M102E
M102B M102F
M102C M102G
M102D

M103A M103E
M103B M103F
M103C M103G
M103D

M101A M101E
M101B M101F
M101C M101G
M101D

Isc = 38,504A$_{SYM}$

AIC = 65,000A

2000 KVA

TERMINAL BOX

FUTURE EMERGENCY GENERATOR B

CB–KPS–A

GENERATOR BUS A CIRCUIT BREAKER

GENERATOR BUS B CIRCUIT BREAKER

CB–KPS–B

SOLID STATE TRIP UNIT. SEE NOTE 1.

PM

3 2500AF 2500AT

50/51/51G

CS G R

E.O. (w/ CHARGING MOTOR)

CUSTOMER METERING. SEE NOTE 2.

(3) 2500:5 CT'S

3P, 40A

#8

PT 47/27

SPD

R

VOLTAGE INDICATOR (TYP.)

N G

AUTOMATIC THROWOVER SYSTEM

SURGE PROTECTIVE DEVICE

M104

M105

10'–0" MIN.

10'–0" MIN.

E.O. (w/ CHARGING MOTOR)

50/51

SOLID STATE TRIP UNIT. SEE NOTE 1.

BUS A: 480 VAC, 3ø, 3W, 2500A AIC=65,000A

BUS B: 480 VAC, 3ø, 3W, 2500A AIC=65,000A

3 600AF 600AT

3 800AF 800AT

PREPARED SPACE

SWITCHBOARD–KPS

M106A M106B

M108A M108B

M112A M112B

M110A M110B

M114A M114B

M107A M107B

TO MOTOR CONTROL CENTER (MCC–KPS) BUS A

TO MOTOR CONTROL CENTER (MCC–KPS) BUS B

MATCHLINE – REFERENCE SHEET E-16 FOR CONTINUATION

SEE NOTES ON SHEET E-18

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CITY of TAMPA
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KRAUSE PS REHABILITATION

SWITCHBOARD–KPS ELECTRICAL ONE–LINE DIAGRAM (SHEET 1 OF 2)

NO.	DATE	REVISIONS

DRAWN: RWB
DESIGN: STK
QC: BEH
DATE: 05/01/14

SHEET E-15

B080-077

MATCHLINE – REFERENCE SHEET E–15 FOR CONTINUATION

M108A M108B | M112A M112B | M110A M110B | M114A M114B

480 VAC / 480 VAC

500 HP 12 PULSE AFD (590 FLA) (TYP.)

AFD

OUTPUT REACTOR

SWITCHBOARD-KPS LOAD SUMMARY

277/480 VAC, 3ø, 4W

LOAD	BUS A CONNECTED	BUS A DEMAND	BUS B CONNECTED	BUS B DEMAND	TOTAL DEMAND
MCC–KPS	73.1 KVA	59.8 KVA	84.4 KVA	33.3 KVA	93.1 KVA
PUMP NO. 1	433.4 KVA	433.4 KVA	---- KVA	---- KVA	433.4 KVA
PUMP NO. 2	---- KVA	---- KVA	433.4 KVA	433.4 KVA	433.4 KVA
PUMP NO. 3	433.4 KVA	433.4 KVA	---- KVA	---- KVA	433.4 KVA
PUMP NO. 4	---- KVA	---- KVA	433.4 KVA	---- KVA	---- KVA
TOTAL	939.9 KVA	926.6 KVA	951.2 KVA	466.7 KVA	1393.3 KVA

PUMP NO. 1 (FLA=544)

C300A

M109A M109B M109C C300B

A405 A406

VIB RTD MSH

400 HP 460 VAC 3ø

- VIB SWITCH
- DISCHARGE VALVE LIMIT SWITCH LS1–1–1
- DISCHARGE VALVE LIMIT SWITCH LS1–2–1
- DISCHARGE VALVE LIMIT SWITCH LS1–3–1
- DISCHARGE VALVE LIMIT SWITCH LS2–1–1
- SOLENOID VALVE PV1–1
- SOLENOID VALVE PV2–1
- RESUME/RESET E–STOP/L
- PROOF OF PRIME SWITCH
- PUMP SUCTION VALVE LIMIT SWITCH LS/15–1
- PUMP SUCTION VALVE LIMIT SWITCH LS/14–1
- PUMP SUCTION VALVE LIMIT SWITCH LS/10–1

PUMP NO. 3 (FLA=544)

C302A

M113A M113B M113C C302B

A407 A408

VIB RTD MSH

400 HP 460 VAC 3ø

- VIB SWITCH
- DISCHARGE VALVE LIMIT SWITCH LS1–1–3
- DISCHARGE VALVE LIMIT SWITCH LS1–2–3
- DISCHARGE VALVE LIMIT SWITCH LS1–3–3
- DISCHARGE VALVE LIMIT SWITCH LS2–1–3
- SOLENOID VALVE PV1–3
- SOLENOID VALVE PV2–3
- RESUME/RESET E–STOP/L
- PROOF OF PRIME SWITCH
- PUMP SUCTION VALVE LIMIT SWITCH LS/15–3
- PUMP SUCTION VALVE LIMIT SWITCH LS/14–3
- PUMP SUCTION VALVE LIMIT SWITCH LS/10–3

PUMP NO. 2 (FLA=544)

C301A

M111A M111B M111C C301B

A409 A410

VIB RTD MSH

400 HP 460 VAC 3ø

- VIB SWITCH
- DISCHARGE VALVE LIMIT SWITCH LS1–1–2
- DISCHARGE VALVE LIMIT SWITCH LS1–2–2
- DISCHARGE VALVE LIMIT SWITCH LS1–3–2
- DISCHARGE VALVE LIMIT SWITCH LS2–1–2
- SOLENOID VALVE PV1–2
- SOLENOID VALVE PV2–2
- RESUME/RESET E–STOP/L
- PROOF OF PRIME SWITCH
- PUMP SUCTION VALVE LIMIT SWITCH LS/15–2
- PUMP SUCTION VALVE LIMIT SWITCH LS/14–2
- PUMP SUCTION VALVE LIMIT SWITCH LS/10–2

PUMP NO. 4 (FLA=544)

C303A

M115A M115B M115C C303B

A411 A412

VIB RTD MSH

400 HP 460 VAC 3ø

- VIB SWITCH
- DISCHARGE VALVE LIMIT SWITCH LS1–1–4
- DISCHARGE VALVE LIMIT SWITCH LS1–2–4
- DISCHARGE VALVE LIMIT SWITCH LS1–3–4
- DISCHARGE VALVE LIMIT SWITCH LS2–1–4
- SOLENOID VALVE PV1–4
- SOLENOID VALVE PV2–4
- RESUME/RESET E–STOP/L
- PROOF OF PRIME SWITCH
- PUMP SUCTION VALVE LIMIT SWITCH LS/15–4
- PUMP SUCTION VALVE LIMIT SWITCH LS/14–4
- PUMP SUCTION VALVE LIMIT SWITCH LS/10–4

ENGINEER OF RECORD:
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ELECTRICAL ONE-LINE DIAGRAM

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CITY of TAMPA
WASTEWATER DEPARTMENT

KRAUSE PS REHABILITATION

SWITCHBOARD–KPS
ELECTRICAL ONE–LINE DIAGRAM
(SHEET 2 OF 2)

NO.	DATE	REVISIONS

DRAWN: RWB
DESIGN: STK
QC: BEH
DATE: 05/01/14

SHEET E-16

B080-078

TO SWITCHBOARD–KPS, BUS A

M106A
M106B

MCC–KPS

3 600AF/600AT

50/51/51G

K1

SOLID STATE TRIP UNIT. SEE NOTE 1.

SEE NOTE 3.

R

BUS A 480V, 3ø, 3W, 600A

AIC=42,000

SEE NOTE 3.

K1

3 600AF/600AT

50/51

BUS B 480V, 3ø, 3W, 600A

TO SWITCHBOARD–KPS, BUS B

M107A
M107B

SOLID STATE TRIP UNIT. SEE NOTE 1.

3 600AF/600AT

50/51/51G

K1

SEE NOTE 3.

R

AIC=42,000

3P, 20A R
3P, 20A R
3P, 15A R
3P, 15A NEMA SIZE 1 SSOLR R
3P, 15A NEMA SIZE 1 SSOLR R
3P, 70A R
3P, 15A NEMA SIZE 1 SSOLR R
3P, 15A NEMA SIZE 1 SSOLR R
3P, 15A NEMA SIZE 1 SSOLR R

SOLID STATE OVERLOAD RELAY (TYP.)

3P, 15A NEMA SIZE 1 SSOLR R
3P, 15A NEMA SIZE 1 SSOLR R
3P, 70A R
3P, 15A R
3P, 20A R
3P, 20A R
3P, 20A R VOLTAGE INDICATOR (TYP.)
3P, 15A NEMA SIZE 1 SSOLR R
3P, 15A NEMA SIZE 1 SSOLR R

M128
M121
M133
M131
M116
M116
M117
M130
M129
M134
M132
M117

TO AIR COMPRESSOR AC–1 CONTROL PANEL

TO VACUUM PUMP VP–1 CONTROL PANEL

3–#10 & 1–#10 GND., 3/4" C.

BUS A

BUS B

3P, 100A POWER SEEKING AUTOMATIC TRANSFER SWITCH (ATS)

M118

T1
480 VAC// 120/208 VAC, 3ø, 4W

45 KVA

L200

L201

LPA
3P, 175A MAIN CIRCUIT BREAKER

3–#10 & 1–#10 GND., 3/4" C.

3–#10 & 1–#10 GND., 3/4" C.

3–#10 & 1–#10 GND., 3/4" C.

M125

20A TRANSFER CART RECEPTACLE

M122
M123
M124

PUMP 3 MOTOR OPERATED KNIFE GATE PUMP SUCTION VALVE (PSV)

PUMP 1 MOTOR OPERATED KNIFE GATE PUMP SUCTION VALVE (PSV)

TO PUMP NO. 1 BLOWER (5 HP, 3ø)

TO PUMP NO. 3 BLOWER (5 HP, 3ø)

TO PUMP NO. 2 BLOWER (5 HP, 3ø)

TO PUMP NO. 4 BLOWER (5 HP, 3ø)

M126
M127

PUMP 4 MOTOR OPERATED KNIFE GATE PUMP SUCTION VALVE (PSV)

PUMP 2 MOTOR OPERATED KNIFE GATE PUMP SUCTION VALVE (PSV)

TO AIR COMPRESSOR AC–2 CONTROL PANEL

TO VACUUM PUMP VP–2 CONTROL PANEL

3 HP 460 VAC 3ø EXHAUST FAN EF–1

0.33 HP 460 VAC 3ø EXHAUST FAN EF–3

0.75 HP 460 VAC 3ø SUPPLY FAN SF–1

3 HP 460 VAC 3ø EXHAUST FAN EF–2

0.75 HP 460 VAC 3ø SUPPLY FAN SF–2

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MCC-KPS ELECTRICAL ONE-LINE DIAGRAM

SEE NOTES ON SHEET E-18

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KRAUSE PS REHABILITATION

MCC–KPS ELECTRICAL ONE–LINE DIAGRAM (SHEET 1 OF 2)

NO.	DATE	REVISIONS

DRAWN: RWB
DESIGN: STK
QC: BEH
DATE: 06/03/14

SHEET E-17

B080-079

MCC-KPS LOAD SUMMARY

277/480 VAC, 3ø, 4W

LOAD	BUS A CONNECTED	BUS A DEMAND	BUS B CONNECTED	BUS B DEMAND	TOTAL DEMAND
TRANSFORMER T1	45.0 KVA	31.7 KVA	45.0 KVA	---- KVA	31.7 KVA
AIR COMPRESSOR AC-1 CONTROL PANEL	6.1 KVA	6.1 KVA	---- KVA	---- KVA	6.1 KVA
AIR COMPRESSOR AC-2 CONTROL PANEL	---- KVA	---- KVA	6.1 KVA	6.1 KVA	6.1 KVA
VACUUM PUMP VP-1 CONTROL PANEL	1.5 KVA	1.5 KVA	---- KVA	---- KVA	1.5 KVA
VACUUM PUMP VP-2 CONTROL PANEL	---- KVA	---- KVA	1.5 KVA	1.5 KVA	1.5 KVA
PUMP 3 & PUMP 1 MOTOR OPERATED KNIFE GATE PUMP SUCTION VALVE (PSV)	1.5 KVA	1.5 KVA	---- KVA	---- KVA	1.5 KVA
PUMP 4 & PUMP 2 MOTOR OPERATED KNIFE GATE PUMP SUCTION VALVE (PSV)	---- KVA	---- KVA	1.5 KVA	1.5 KVA	1.5 KVA
EXHAUST FAN EF-1	3.8 KVA	3.8 KVA	---- KVA	---- KVA	3.8 KVA
EXHAUST FAN EF-2	---- KVA	---- KVA	3.8 KVA	3.8 KVA	3.8 KVA
EXHAUST FAN EF-3	1.5 KVA	1.5 KVA	---- KVA	---- KVA	1.5 KVA
SUPPLY FAN SF-1	1.5 KVA	1.5 KVA	---- KVA	---- KVA	1.5 KVA
SUPPLY FAN SF-2	---- KVA	---- KVA	1.5 KVA	1.5 KVA	1.5 KVA
PUMP NO. 1 BLOWER	6.1 KVA	6.1 KVA	---- KVA	---- KVA	6.1 KVA
PUMP NO. 2 BLOWER	---- KVA	---- KVA	6.1 KVA	6.1 KVA	6.1 KVA
PUMP NO. 3 BLOWER	6.1 KVA	6.1 KVA	---- KVA	---- KVA	6.1 KVA
PUMP NO. 4 BLOWER	---- KVA	---- KVA	6.1 KVA	---- KVA	---- KVA
TRANSFER CART RECEPTACLE	---- KVA	---- KVA	12.8 KVA	12.8 KVA	12.8 KVA
TOTAL	73.1 KVA	59.8 KVA	84.4 KVA	33.3 KVA	93.1 KVA

NOTES:

1. THE SOLID STATE TRIP UNIT SHALL PROVIDE THE FOLLOWING CURRENT SENSING & TRIP FUNCTIONS:
   - LONG TIME PICK-UP & DELAY
   - SHORT TIME PICK-UP & DELAY
   - INSTANTANEOUS PICK-UP
   - GROUND FAULT PICK-UP & DELAY
2. CUSTOMER METERING SHALL PROVIDE AS A MINIMUM THE READINGS FOR:
   - VOLTAGE (V)
   - AMPERAGE (A)
   - POWER FACTOR (PF)
   - KILOWATT USAGE (KW)
   - KILOWATT DEMAND (KWD)
   - WATTS (W)
   - VARS (VR)
   - VAR DEMAND (VRD)
   - VAR HOURS (VRH)
   - FREQUENCY (FRQ)
   - THD CURRENT (THC)
   - THD VOLTAGE (THV)
3. CONTRACTOR SHALL INSTALL KIRK KEY INTERLOCKS ON THE TWO (2) MAIN CIRCUIT BREAKERS AND ON THE TIE BREAKER IN MCC-KPS. THE KIRK KEY INTERLOCKS SHOWN AS K1 ON THE MAIN CIRCUIT BREAKERS SHALL BE KEYED THE SAME AS THE KIRK KEY INTERLOCK ON THE TIE BREAKER. EACH KIRK KEY LOCK SHALL BE CONFIGURED IN A L-O-R LOCKING POSITION (DEVICE LOCKED OPEN WITH KEY REMOVED) PROVIDE (2) KEYS ONLY.

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WASTEWATER DEPARTMENT

KRAUSE PS REHABILITATION

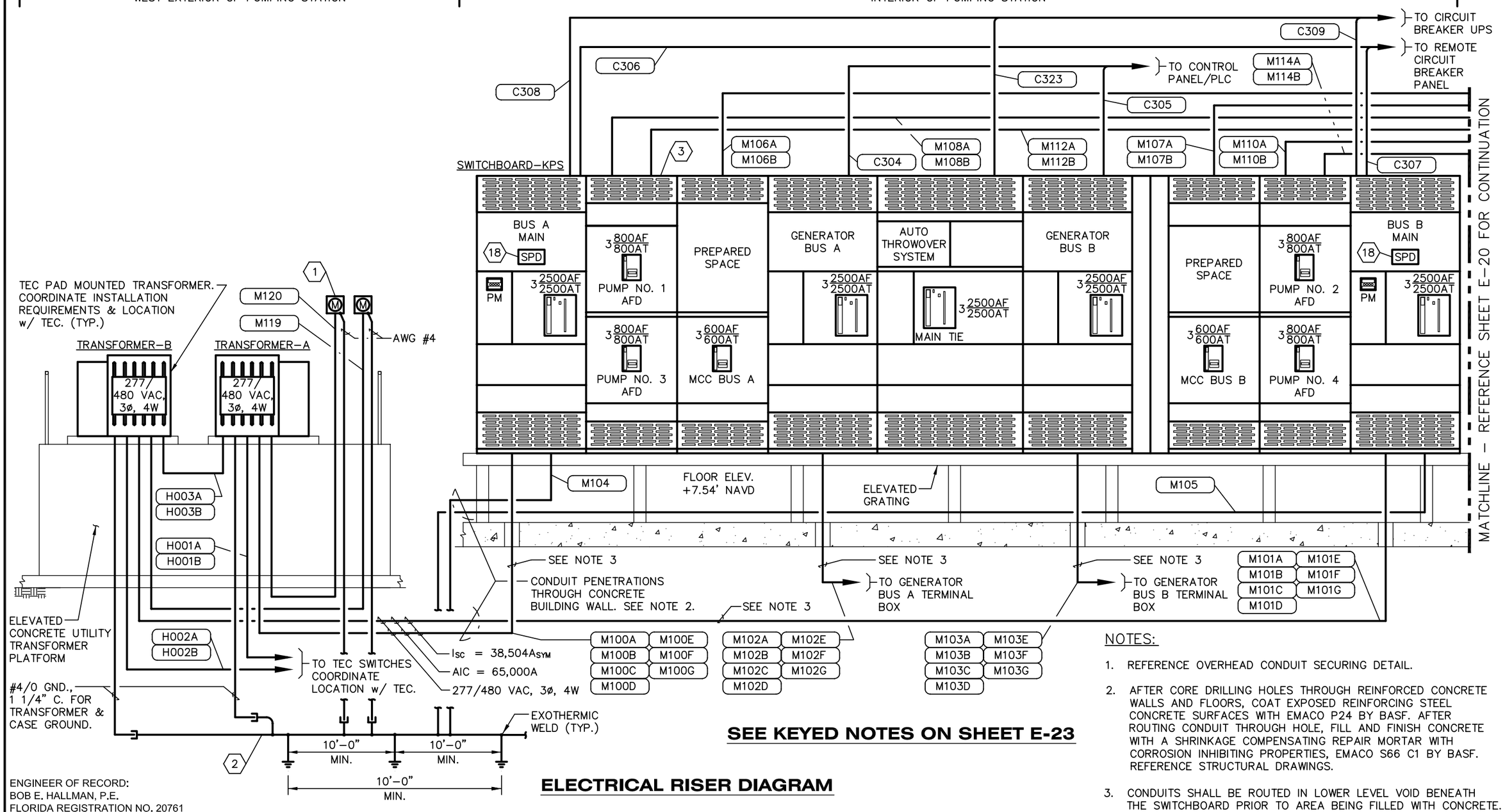
MCC-KPS ELECTRICAL ONE-LINE DIAGRAM (SHEET 2 OF 2)

NO.	DATE	REVISIONS

DRAWN: RWB
DESIGN: STK
QC: BEH
DATE: 05/01/14

SHEET E-18

B080-080



NOTES:

1. REFERENCE OVERHEAD CONDUIT SECURING DETAIL.
2. AFTER CORE DRILLING HOLES THROUGH REINFORCED CONCRETE WALLS AND FLOORS, COAT EXPOSED REINFORCING STEEL CONCRETE SURFACES WITH EMACO P24 BY BASF. AFTER ROUTING CONDUIT THROUGH HOLE, FILL AND FINISH CONCRETE WITH A SHRINKAGE COMPENSATING REPAIR MORTAR WITH CORROSION INHIBITING PROPERTIES, EMACO S66 C1 BY BASF. REFERENCE STRUCTURAL DRAWINGS.
3. CONDUITS SHALL BE ROUTED IN LOWER LEVEL VOID BENEATH THE SWITCHBOARD PRIOR TO AREA BEING FILLED WITH CONCRETE.

SEE KEYED NOTES ON SHEET E-23

ELECTRICAL RISER DIAGRAM

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CITY of TAMPA
WASTEWATER DEPARTMENT

KRAUSE PS REHABILITATION

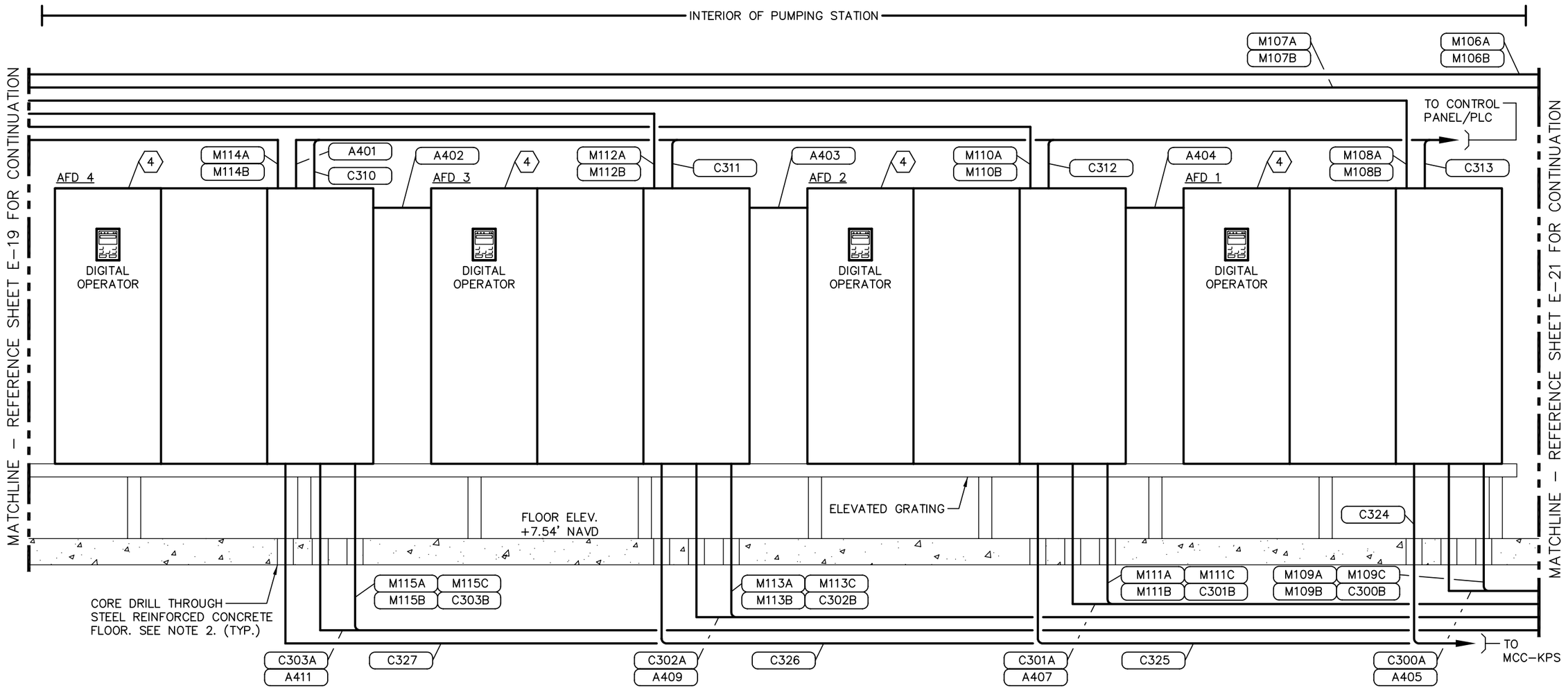
ELECTRICAL RISER DIAGRAM
(SHEET 1 OF 4)

NO.	DATE	REVISIONS

DRAWN: RWB
DESIGN: STK
QC: BEH
DATE: 05/01/14

SHEET E-19

B080-081



ELECTRICAL RISER DIAGRAM

SEE KEYED NOTES ON SHEET E-23

NOTES:

1. REFERENCE OVERHEAD CONDUIT SECURING DETAIL.
2. AFTER CORE DRILLING HOLES THROUGH REINFORCED CONCRETE WALLS AND FLOORS, COAT EXPOSED REINFORCING STEEL CONCRETE SURFACES WITH EMACO P24 BY BASF. AFTER ROUTING CONDUIT THROUGH HOLE, FILL AND FINISH CONCRETE WITH A SHRINKAGE COMPENSATING REPAIR MORTAR WITH CORROSION INHIBITING PROPERTIES, EMACO S66 C1 BY BASF. REFERENCE STRUCTURAL DRAWINGS.

ENGINEER OF RECORD:
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KRAUSE PS REHABILITATION

ELECTRICAL RISER DIAGRAM
(SHEET 2 OF 4)

NO.	DATE	REVISIONS

DRAWN: RWB
DESIGN: STK
QC: BEH
DATE: 05/01/14

SHEET E-20

B080-082

INTERIOR OF PUMPING STATION

MATCHLINE – REFERENCE SHEET E-20 FOR CONTINUATION

MATCHLINE – REFERENCE SHEET E-22 FOR CONTINUATION

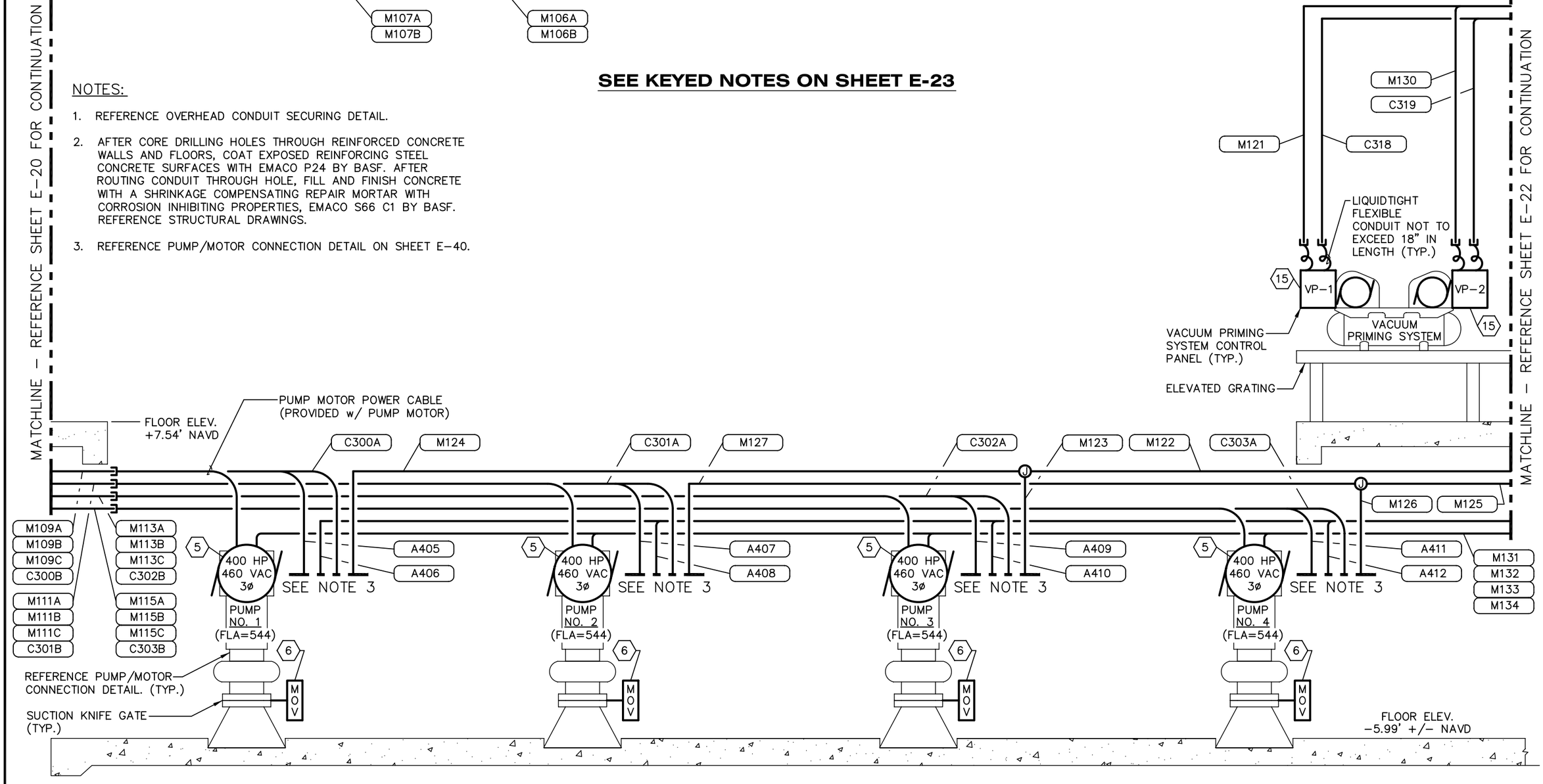
M107A
M107B

M106A
M106B

SEE KEYED NOTES ON SHEET E-23

NOTES:

1. REFERENCE OVERHEAD CONDUIT SECURING DETAIL.
2. AFTER CORE DRILLING HOLES THROUGH REINFORCED CONCRETE WALLS AND FLOORS, COAT EXPOSED REINFORCING STEEL CONCRETE SURFACES WITH EMACO P24 BY BASF. AFTER ROUTING CONDUIT THROUGH HOLE, FILL AND FINISH CONCRETE WITH A SHRINKAGE COMPENSATING REPAIR MORTAR WITH CORROSION INHIBITING PROPERTIES, EMACO S66 C1 BY BASF. REFERENCE STRUCTURAL DRAWINGS.
3. REFERENCE PUMP/MOTOR CONNECTION DETAIL ON SHEET E-40.



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ELECTRICAL RISER DIAGRAM

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KRAUSE PS REHABILITATION

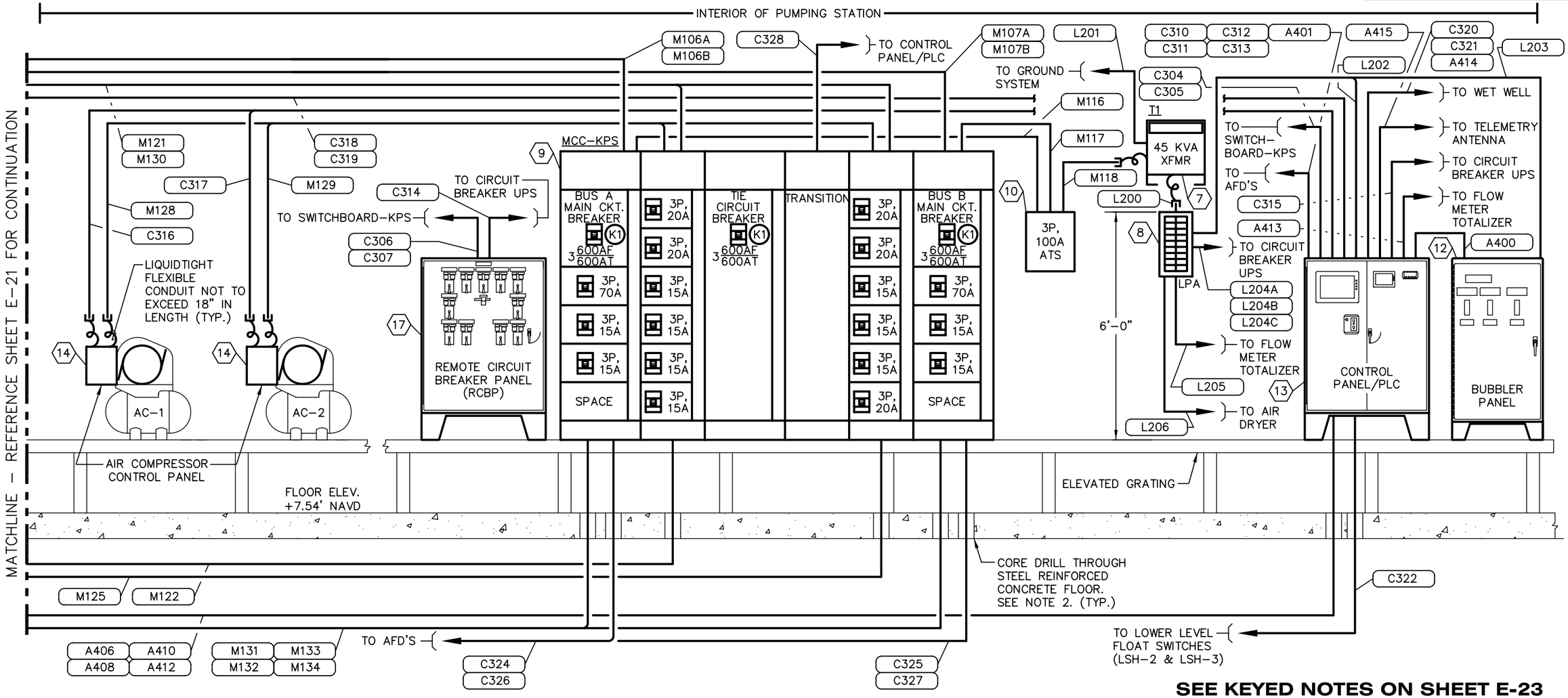
ELECTRICAL RISER DIAGRAM
(SHEET 3 OF 4)

NO.	DATE	REVISIONS

DRAWN: RWB
DESIGN: STK
QC: BEH
DATE: 05/01/14

SHEET E-21

B080-083



ELECTRICAL RISER DIAGRAM

SEE KEYED NOTES ON SHEET E-23

NOTES:

1. REFERENCE OVERHEAD CONDUIT SECURING DETAIL.
2. AFTER CORE DRILLING HOLES THROUGH REINFORCED CONCRETE WALLS AND FLOORS, COAT EXPOSED REINFORCING STEEL CONCRETE SURFACES WITH EMACO P24 BY BASF. AFTER ROUTING CONDUIT THROUGH HOLE, FILL AND FINISH CONCRETE WITH A SHRINKAGE COMPENSATING REPAIR MORTAR WITH CORROSION INHIBITING PROPERTIES, EMACO S66 C1 BY BASF. REFERENCE STRUCTURAL DRAWINGS.

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KRAUSE PS REHABILITATION

ELECTRICAL RISER DIAGRAM
(SHEET 4 OF 4)

NO.	DATE	REVISIONS

DRAWN: RWB
DESIGN: STK
QC: BEH
DATE: 05/01/14

SHEET E-22

B080-084

KEYED NOTES:

1. TRANSFORMER RATED METER SOCKET PROVIDED & INSTALLED BY CONTRACTOR. CENTER METER 4'–6" ABOVE TOP OF PLATFORM. COORD. REQUIREMENTS WITH TEC.

2. GROUND SYSTEM – MIN. (3) 3/4" DIA. x 10'–0" STAINLESS STEEL GND. RODS, MIN. 10'–0" APART, MIN. 10'–0" LENGTH STEEL PIPING (ATTACH w/ GROUNDING CLAMPS) & GROUNDING ELECTRODE AT THE BOTTOM OF CONCRETE UTILITY TRANSFORMER PLATFORM (ATTACH w/ EXOTHERMIC WELD). BOND TO EXISTING SERVICE GROUND SYSTEM w/ #4/0 BARE COPPER GROUND CONDUCTOR (ATTACH w/ EXOTHERMIC WELD). REFERENCE GROUND WELL DETAIL.

3. SWITCHBOARD–KPS w/ 2500AF/2500AT 100% RATED MAIN CIRCUIT BREAKERS, 100% RATED TIE CIRCUIT BREAKER, AUTO THROWOVER SYSTEM AND DISTRIBUTION SECTIONS. REFERENCE SPECIFICATIONS.

4. YASKAWA 500 HP, 590 FLA, 12–PULSE ADJUSTABLE FREQUENCY DRIVE (AFD) w/ OUTPUT REACTOR, DIGITAL OPERATOR & INTEGRAL DISCONNECT. REFERENCE SPECIFICATIONS.

5. IMMERSIBLE PUMP MOTOR: 400 HP, 460 VAC, 3ø, 544 FLA. PUMP MOTOR SHALL INCLUDE A MOTOR SPACE HEATER (MSH), RESISTANCE TEMPERATURE DETECTORS (RTD) AND VIBRATION SENSORS. REFERENCE PUMP/MOTOR CONNECTION DETAIL.

6. MOTOR OPERATED VALVE (MOV): 3ø, 460 VAC, LIMITORQUE MX20 SERIES. REFERENCE MECHANICAL DRAWINGS FOR ADDITIONAL DETAILS. COORDINATE ADDITIONAL REQUIREMENTS w/ VALVE SUPPLIER.

7. TRANSFORMER T1: 480 VAC PRIMARY, 120/208 VAC SECONDARY, 3ø, 60 HZ, 80 DEG. C RISE, 45 KVA TRANSFORMER w/ WALL MOUNT BRACKET & COPPER WINDINGS. SQUARE D CAT. NO. EE45T3HBCU (XFMR) & WMB363364 (WALL MOUNT BRACKET). REFERENCE TRANSFORMER NEUTRAL GROUNDING DETAIL.

8. PANELBOARD LPA: 120/208 VAC, 3ø, 4W, 225A, 20" WIDE, 42 CIRCUIT PANELBOARD w/ 3P, 175A MAIN CIRCUIT BREAKER, COPPER BUS & GROUND BAR KIT MOUNTED IN A NEMA 1 ENCLOSURE. SQUARE D CAT. NO. NQ442L2C (INTERIOR), NQMB2HJ (MAIN BREAKER ADAPTER KIT), MH50 (ENCLOSURE), NC50SHR (HINGED FRONT). PROVIDE 3P, 175A JDL36175 FACTORY INSTALLED MAIN CIRCUIT BREAKER. MOUNT TOP OF ENCLOSURE 6'–0" ABOVE ELEVATED GRATING. PROVIDE BOLT–ON CIRCUIT BREAKERS PER PANELBOARD SCHEDULE.

9. MOTOR CONTROL CENTER (MCC–KPS) w/ 600AF/600AT 100% RATED MAIN CIRCUIT BREAKERS, 100% RATED TIE CIRCUIT BREAKER & KIRK KEY INTERLOCKS. REFERENCE SPECIFICATIONS.

10. 3P, 100A POWER SEEKING AUTOMATIC TRANSFER SWITCH (ATS) w/ AUXILIARY CONTACTS, TIME DELAYS & PILOT LIGHTS MOUNTED IN A NEMA 3R ENCLOSURE. MOUNT TOP OF ENCLOSURE 6'–0" ABOVE ELEVATED GRATING. REFERENCE SPECIFICATIONS.

11. VISUAL ALARM STROBE, UL LISTED, 120 VAC, SINGLE FLASH STROBE w/ ANODIZED ALUMINUM BASE AND RED POLYCARBONATE FRESNEL LENS. FEDERAL SIGNAL MODEL 131ST. MOUNT 9'–0" ABOVE FINISHED GRADE.

    PROVIDE SIGN ON WALL BELOW VISUAL ALARM. SIGN SHALL BE THREE PLY PHENOLIC RED–WHITE–RED ENGRAVED THROUGH THE FIRST RED LAYER. LETTERING SHALL BE 1/2" MIN. EDGES OF SIGN SHALL BE BEVELED 45 DEG. SIGN SHALL READ AS FOLLOWS: "COMBUSTIBLE GAS WARNING – COMBUSTIBLE GAS IS PRESENT IN BUILDING WHEN LIGHT IS FLASHING – DO NOT ENTER BUILDING –".

12. WET WELL BUBBLER PANEL: FREE STANDING TYPE 12 ENCLOSURE. REFERENCE BUBBLER PANEL DETAILS.

13. CONTROL PANEL/PLC: MINIMUM 72" x 72" x 16" NEMA 12 ENCLOSURE. CONTROL PANEL ENCLOSURE TO CONTAIN CONTROL COMPONENTS, HMI SCREEN & PROGRAMMABLE LOGIC CONTROLLER (PLC). REFERENCE SPECIFICATIONS.

14. AIR COMPRESSOR CONTROL PANEL. CONTROL PANEL SHALL BE SHOCK MOUNTED AND SHALL CONTAIN 480V/120V CONTROL TRANSFORMER, MOTOR CIRCUIT PROTECTORS (MCP), MOTOR STARTERS, PRESSURE CONTROL, THERMAL OVERLOAD ELEMENTS & COMPRESSOR/MOTOR SAFETY SHUTDOWNS FOR EACH COMPRESSOR. ALL WIRING, CONDUITS, WIRING CONNECTIONS & END DEVICES ASSOCIATED WITH THE AIR COMPRESSOR SYSTEM SHALL BE PROVIDED & INSTALLED BY THE AIR COMPRESSOR SYSTEM SUPPLIER. COORDINATE ADDITIONAL REQUIREMENTS w/ AIR COMPRESSOR SYSTEM SUPPLIER. A DUPLEX CONTROLLER/ALTERNATOR SHALL BE PROVIDED TO ALTERNATE BETWEEN THE TWO (2) COMPRESSORS AND ASSOCIATED CONTROLS.

15. VACUUM PUMP CONTROL PANEL. CONTROL PANEL SHALL BE SHOCK MOUNTED AND SHALL CONTAIN 480V/120V CONTROL TRANSFORMER, MOTOR CIRCUIT PROTECTORS (MCP), MOTOR STARTERS, THERMAL OVERLOAD ELEMENTS & SAFETY SHUTDOWNS FOR VACUUM PUMP. ALL WIRING, CONDUITS, WIRING CONNECTIONS & END DEVICES ASSOCIATED WITH THE VACUUM PUMP SYSTEM SHALL BE PROVIDED & INSTALLED BY THE SYSTEM SUPPLIER. COORDINATE ADDITIONAL REQUIREMENTS w/ SYSTEM SUPPLIER. A DUPLEX CONTROLLER/ALTERNATOR SHALL BE PROVIDED TO ALTERNATE BETWEEN THE TWO (2) VACUUM PUMPS AND ASSOCIATED CONTROLS.

16. WET WELL GAS DETECTOR: DET–TRONICS PIR9400 GAS SENSOR & TERMINATION BOX.

17. REMOTE CIRCUIT BREAKER CONTROL PANEL (RCBP). REFERENCE REMOTE CIRCUIT BREAKER PANEL DETAILS.

18. SURGE PROTECTIVE DEVICE (SPD): 277/480 VAC, 3ø, 4W. ADVANCED PROTECTION TECHNOLOGIES CAT. NO. TE04XDS204XA, OR EQUAL.

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CITY of TAMPA
WASTEWATER DEPARTMENT

KRAUSE PS REHABILITATION

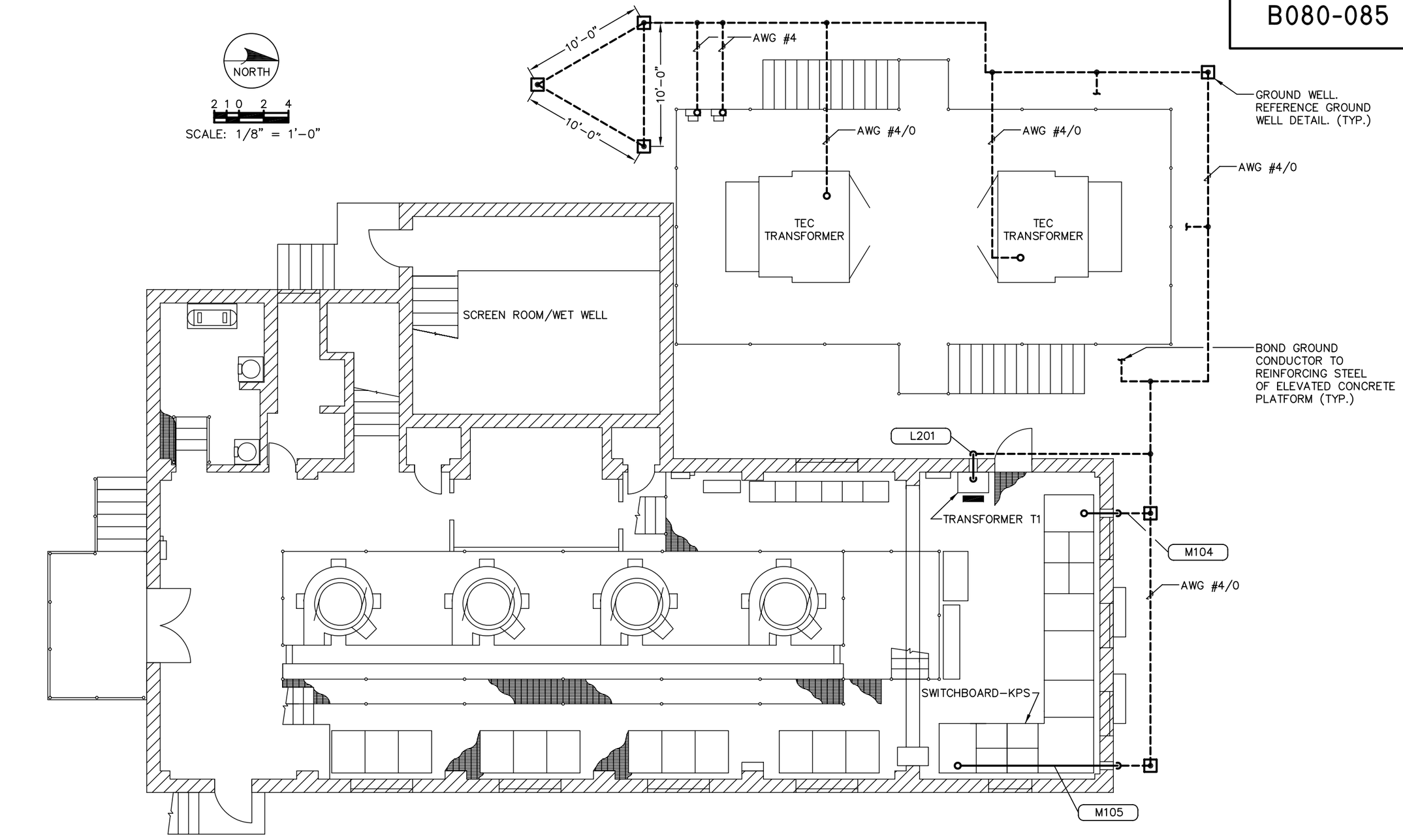
KEYED NOTES

NO.	DATE	REVISIONS

DRAWN: RWB
DESIGN: STK
QC: BEH
DATE: 05/01/14

SHEET E-23

B080-085



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CITY of TAMPA
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KRAUSE PS REHABILITATION

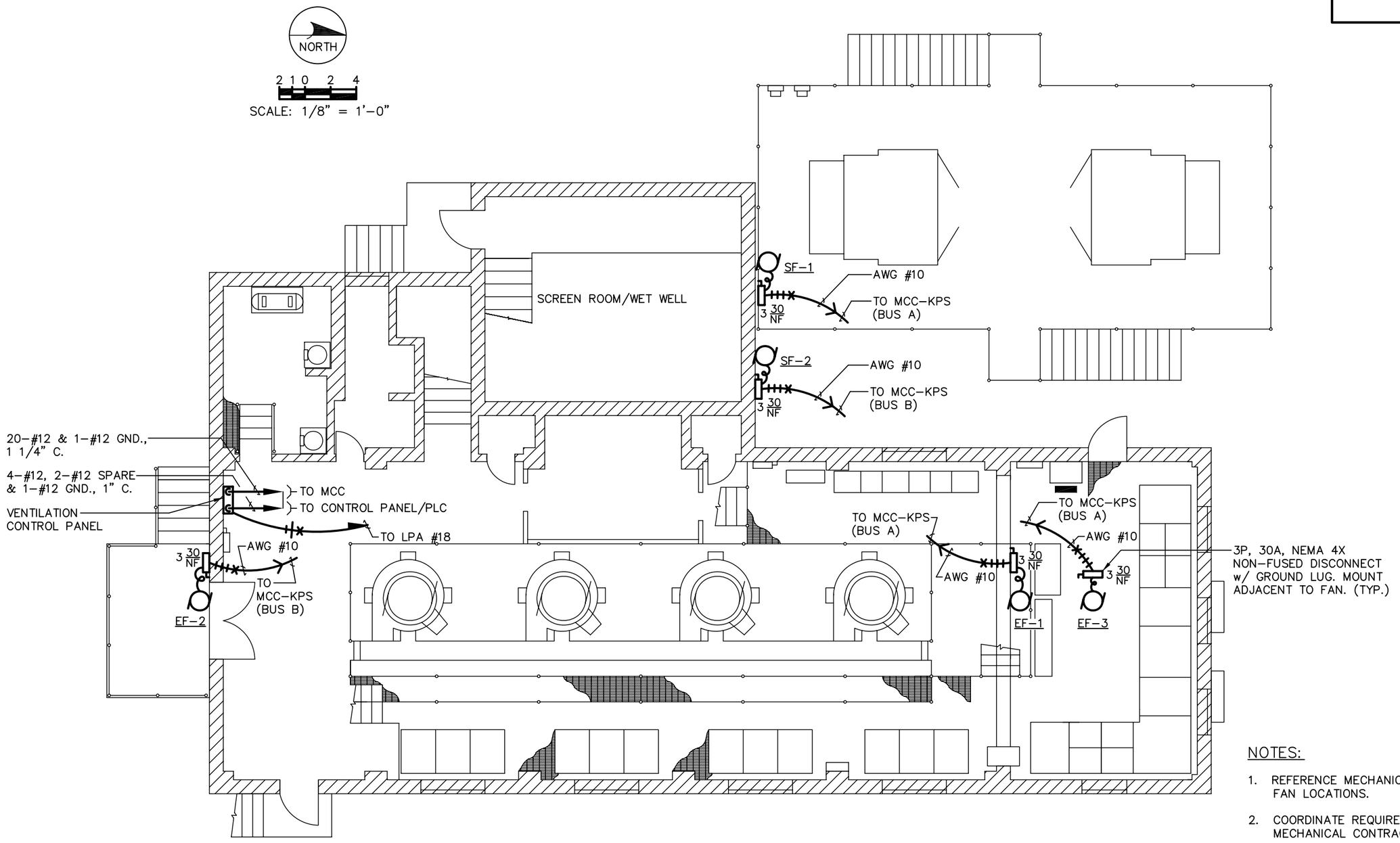
GROUNDING GRID DETAILS

NO.	DATE	REVISIONS

DRAWN: RWB
DESIGN: STK
QC: BEH
DATE: 05/01/14

SHEET E-24

B080-086



NOTES:

1. REFERENCE MECHANICAL DRAWINGS FOR FAN LOCATIONS.
2. COORDINATE REQUIREMENTS WITH MECHANICAL CONTRACTOR.
3. A WET WELL HIGH LEL LEVEL SHALL TURN ON SUPPLY FAN SF-1 AND SUPPLY FAN SF-2.

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EXHAUST FAN & SUPPLY FAN LAYOUT

NO.	DATE	REVISIONS

DRAWN: RWB
DESIGN: STK
QC: BEH
DATE: 05/01/14

SHEET E-25

B080-087

NORTH

4 2 0 6 12

SCALE: 3/16" = 1'-0"

NOTES:

1. LIGHTING FIXTURE F5 & X1 SHALL NOT BE SWITCHED.
2. ALL CONDUITS SHALL BE SURFACE MOUNTED, U.O.N.
3. CONDUITS ROUTED TO EXTERIOR LIGHTING FIXTURES SHALL BE ROUTED ON THE INTERIOR OF THE PUMPING STATION.

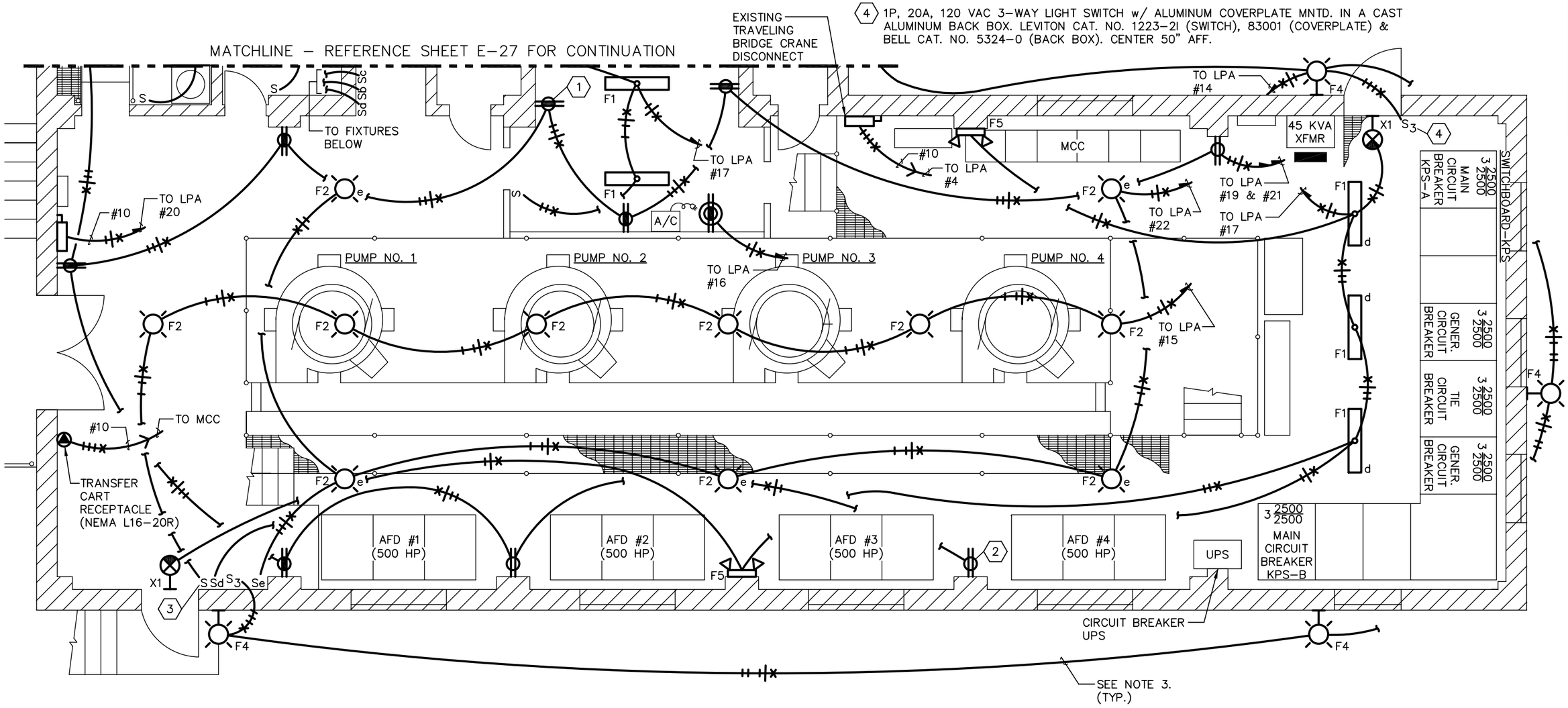
KEYED NOTES:

(1) 20A, 125V, DUPLEX RECEPTACLE w/ ALUMINUM COVERPLATE MNTD. IN A CAST ALUMINUM BACK BOX. LEVITON CAT. NO. 5362-I (DUPLEX RECEPTACLE), 83003 (COVERPLATE) & BELL CAT. NO. 5324-0 (BACK BOX). CENTER 50" AFF.

(2) 20A, 125V, DUPLEX RECEPTACLE w/ ALUMINUM COVERPLATE MNTD. IN A CAST ALUMINUM BACK BOX. LEVITON CAT. NO. 5362-I (DUPLEX RECEPTACLE), 83003 (COVERPLATE) & BELL CAT. NO. 5324-0 (BACK BOX). CENTER 18" ABOVE GRATING.

(3) 1P, 20A, 120 VAC LIGHT SWITCH w/ ALUMINUM COVERPLATE MNTD. IN A CAST ALUMINUM BACK BOX. LEVITON CAT. NO. 1221-2I (SWITCH), 83001 (COVERPLATE) & BELL CAT. NO. 5324-0 (BACK BOX). CENTER 50" AFF.

(4) 1P, 20A, 120 VAC 3-WAY LIGHT SWITCH w/ ALUMINUM COVERPLATE MNTD. IN A CAST ALUMINUM BACK BOX. LEVITON CAT. NO. 1223-2I (SWITCH), 83001 (COVERPLATE) & BELL CAT. NO. 5324-0 (BACK BOX). CENTER 50" AFF.



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CITY of TAMPA
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KRAUSE PS REHABILITATION

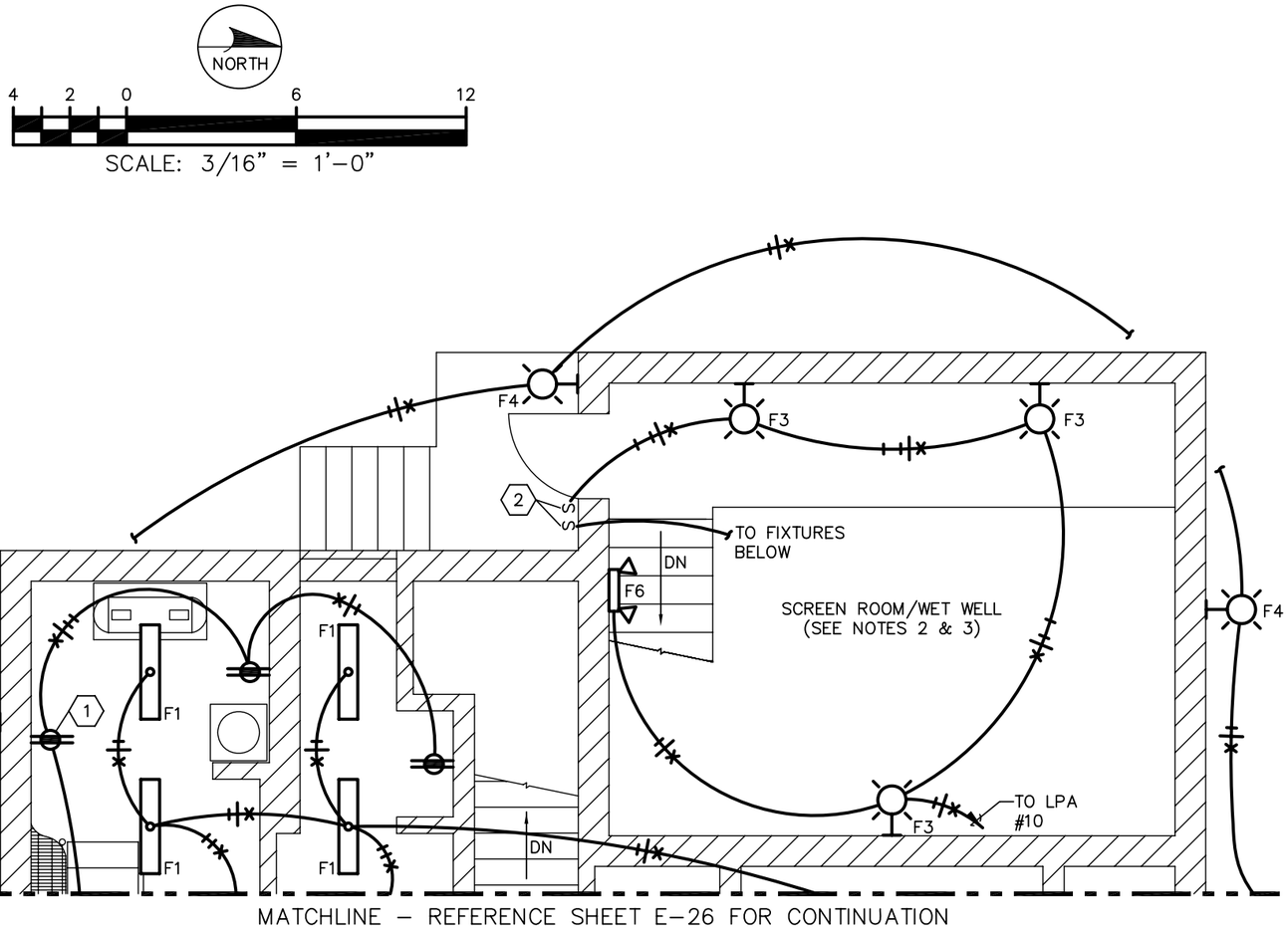
ELECTRICAL LIGHTING & POWER PLAN
(UPPER LEVEL - FLOOR ELEV. 7.54' NAVD)
(SHEET 1 OF 2)

NO.	DATE	REVISIONS

DRAWN: RWB
DESIGN: STK
QC: BEH
DATE: 05/01/14

SHEET E-26

B080-088



KEYED NOTES:

1. 20A, 125V, DUPLEX RECEPTACLE w/ ALUMINUM COVERPLATE MNTD. IN A CAST ALUMINUM BACK BOX. LEVITON CAT. NO. 5362-I (DUPLEX RECEPTACLE), 83003 (COVERPLATE) & BELL CAT. NO. 5324-0 (BACK BOX). CENTER 50" AFF.
2. 2P, 20A, SINGLE GANG, FACTORY SEALED LIGHT SWITCH. CROUSE-HINDS CAT. NO. EDSC318. CENTER 50" AFF.

NOTES:

1. LIGHTING FIXTURE F6 SHALL NOT BE SWITCHED.
2. ALL CONDUITS ROUTED IN THE WET WELL SHALL BE RIGID HEAVY WALL ALUMINUM w/ 40 MIL PVC EXTERIOR COATING & 2 MIL BLUE URETHANE INTERIOR COATING. OCAL-BLUE SERIES MANUFACTURED BY THOMAS & BETTS OR EQUAL.
3. THE WET WELL CLASSIFICATION IS CLASS I, GROUPS C & D, DIVISION 1 (HAZARDOUS AREA). NEC ARTICLES 500 & 501 ARE APPLICABLE FOR WIRING METHODS USED IN THE WET WELL.
4. ALL CONDUITS EXTENDING FROM THE SCREEN ROOM/WET WELL SHALL BE SEALED WITH A CONDUIT SEALING FITTING AND SEALING COMPOUND. THE SEALING FITTING SHALL BE INSTALLED IMMEDIATELY AS THE CONDUIT EXITS THE SCREEN ROOM/WET WELL. NO OTHER FITTING SHALL BE INSTALLED BETWEEN THE WALL AND THE SEALING FITTING.

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ELECTRICAL LIGHTING & POWER PLAN
(UPPER LEVEL – FLOOR ELEV. 7.54' NAVD)
(SHEET 2 OF 2)

NO.	DATE	REVISIONS

DRAWN: RWB
DESIGN: STK
QC: BEH
DATE: 05/01/14

SHEET E-27

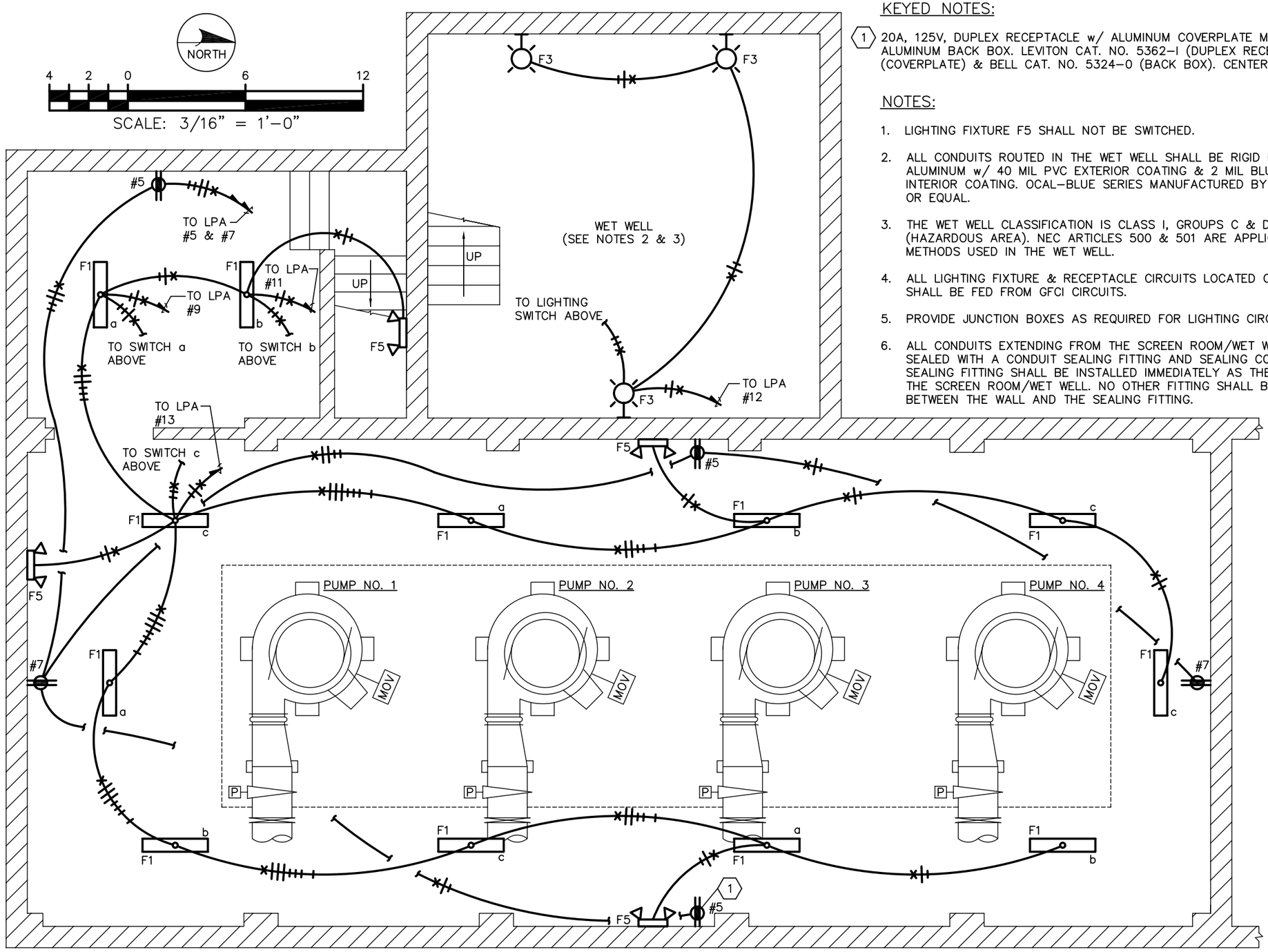
B080-089

KEYED NOTES:

(1) 20A, 125V, DUPLEX RECEPTACLE w/ ALUMINUM COVERPLATE MNTD. IN A CAST ALUMINUM BACK BOX. LEVITON CAT. NO. 5362-I (DUPLEX RECEPTACLE), 83003 (COVERPLATE) & BELL CAT. NO. 5324-0 (BACK BOX). CENTER 50" AFF.

NOTES:

1. LIGHTING FIXTURE F5 SHALL NOT BE SWITCHED.
2. ALL CONDUITS ROUTED IN THE WET WELL SHALL BE RIGID HEAVY WALL ALUMINUM w/ 40 MIL PVC EXTERIOR COATING & 2 MIL BLUE URETHANE INTERIOR COATING. OCAL-BLUE SERIES MANUFACTURED BY THOMAS & BETTS OR EQUAL.
3. THE WET WELL CLASSIFICATION IS CLASS I, GROUPS C & D, DIVISION 1 (HAZARDOUS AREA). NEC ARTICLES 500 & 501 ARE APPLICABLE FOR WIRING METHODS USED IN THE WET WELL.
4. ALL LIGHTING FIXTURE & RECEPTACLE CIRCUITS LOCATED ON THE LOWER LEVEL SHALL BE FED FROM GFCI CIRCUITS.
5. PROVIDE JUNCTION BOXES AS REQUIRED FOR LIGHTING CIRCUITS.
6. ALL CONDUITS EXTENDING FROM THE SCREEN ROOM/WET WELL SHALL BE SEALED WITH A CONDUIT SEALING FITTING AND SEALING COMPOUND. THE SEALING FITTING SHALL BE INSTALLED IMMEDIATELY AS THE CONDUIT EXITS THE SCREEN ROOM/WET WELL. NO OTHER FITTING SHALL BE INSTALLED BETWEEN THE WALL AND THE SEALING FITTING.



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CITY of TAMPA
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KRAUSE PS REHABILITATION

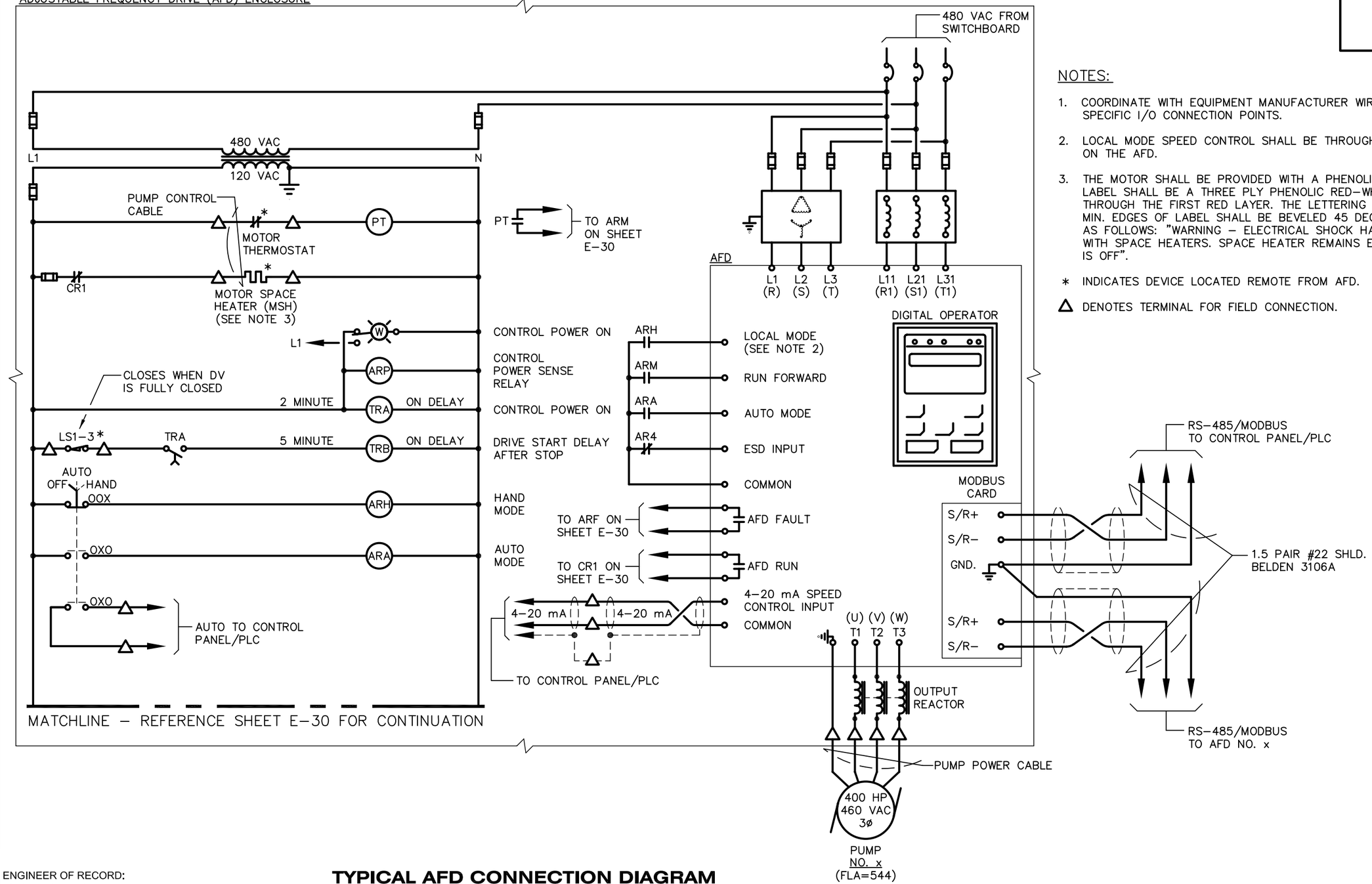
ELECTRICAL LIGHTING & POWER PLAN
(LOWER LEVEL – FLOOR ELEV. -5.99' NAVD)

NO.	DATE	REVISIONS

DRAWN: RWB
DESIGN: STK
QC: BEH
DATE: 05/01/14

SHEET E-28

ADJUSTABLE FREQUENCY DRIVE (AFD) ENCLOSURE



NOTES:

1. COORDINATE WITH EQUIPMENT MANUFACTURER WIRING DETAILS & SPECIFIC I/O CONNECTION POINTS.
2. LOCAL MODE SPEED CONTROL SHALL BE THROUGH THE DIGITAL OPERATOR ON THE AFD.
3. THE MOTOR SHALL BE PROVIDED WITH A PHENOLIC WARNING LABEL. THE LABEL SHALL BE A THREE PLY PHENOLIC RED–WHITE–RED ENGRAVED THROUGH THE FIRST RED LAYER. THE LETTERING SHALL BE 0.5 CM (3/16") MIN. EDGES OF LABEL SHALL BE BEVELED 45 DEG. LABEL SHALL READ AS FOLLOWS: "WARNING – ELECTRICAL SHOCK HAZARD, MOTOR IS EQUIPPED WITH SPACE HEATERS. SPACE HEATER REMAINS ENERGIZED WHEN MOTOR IS OFF".

* INDICATES DEVICE LOCATED REMOTE FROM AFD.

△ DENOTES TERMINAL FOR FIELD CONNECTION.

TYPICAL AFD CONNECTION DIAGRAM

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KRAUSE PS REHABILITATION

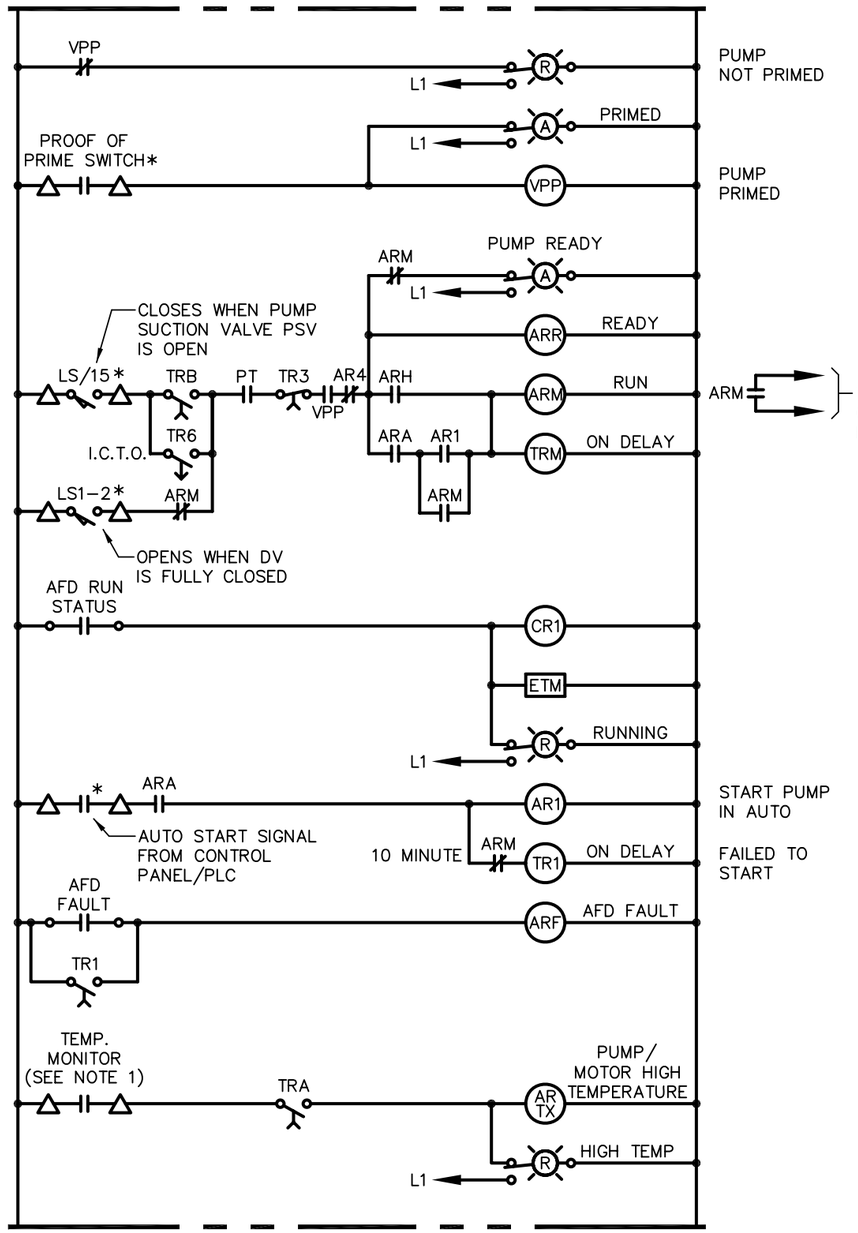
TYPICAL AFD CONNECTION DIAGRAM
(SHEET 1 OF 2)

NO.	DATE	REVISIONS

DRAWN: RWB
DESIGN: STK
QC: BEH
DATE: 05/01/14

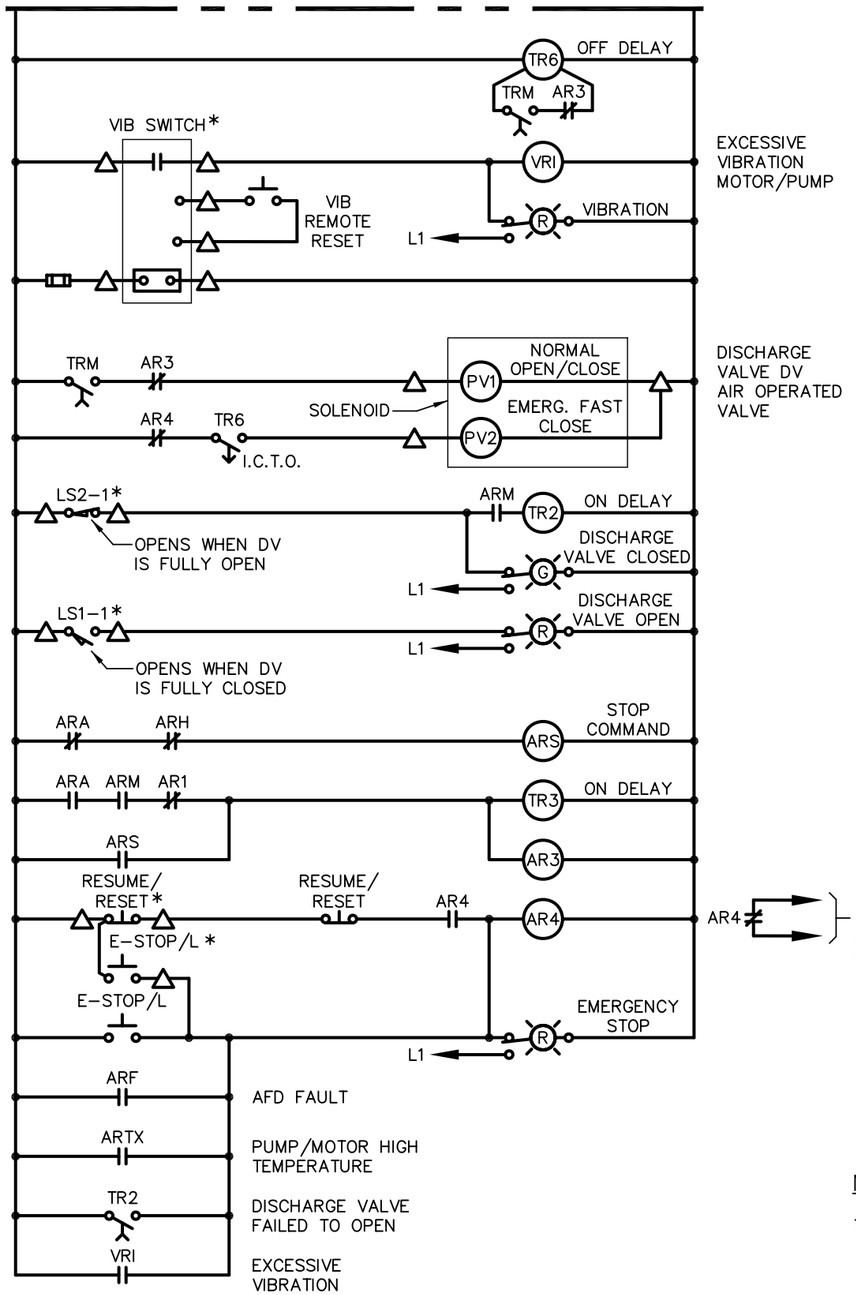
SHEET E-29

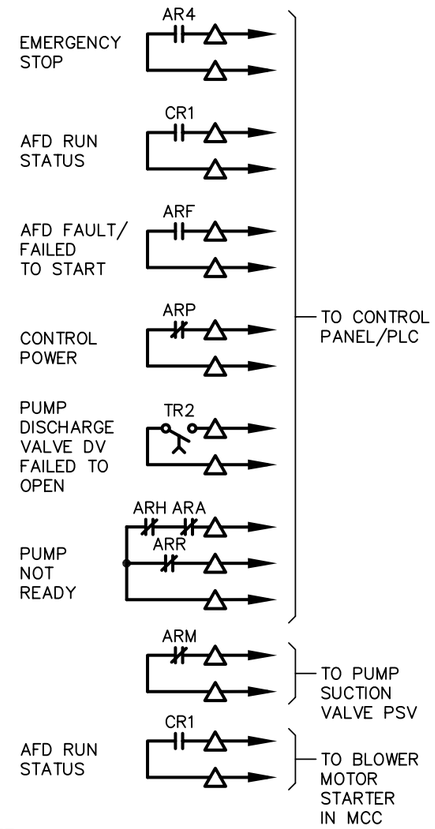
MATCHLINE – REFERENCE SHEET E-29 FOR CONTINUATION



MATCHLINE – REFERENCE ABOVE RIGHT FOR CONTINUATION

MATCHLINE – REFERENCE BELOW LEFT FOR CONTINUATION





NOTES:

1. REFERENCE TEMPERATURE ALARM/MONITOR DETAILS ON SHEET I-8.

* INDICATES DEVICE LOCATED REMOTE FROM AFD.

△ DENOTES TERMINAL FOR FIELD CONNECTION.

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KRAUSE PS REHABILITATION

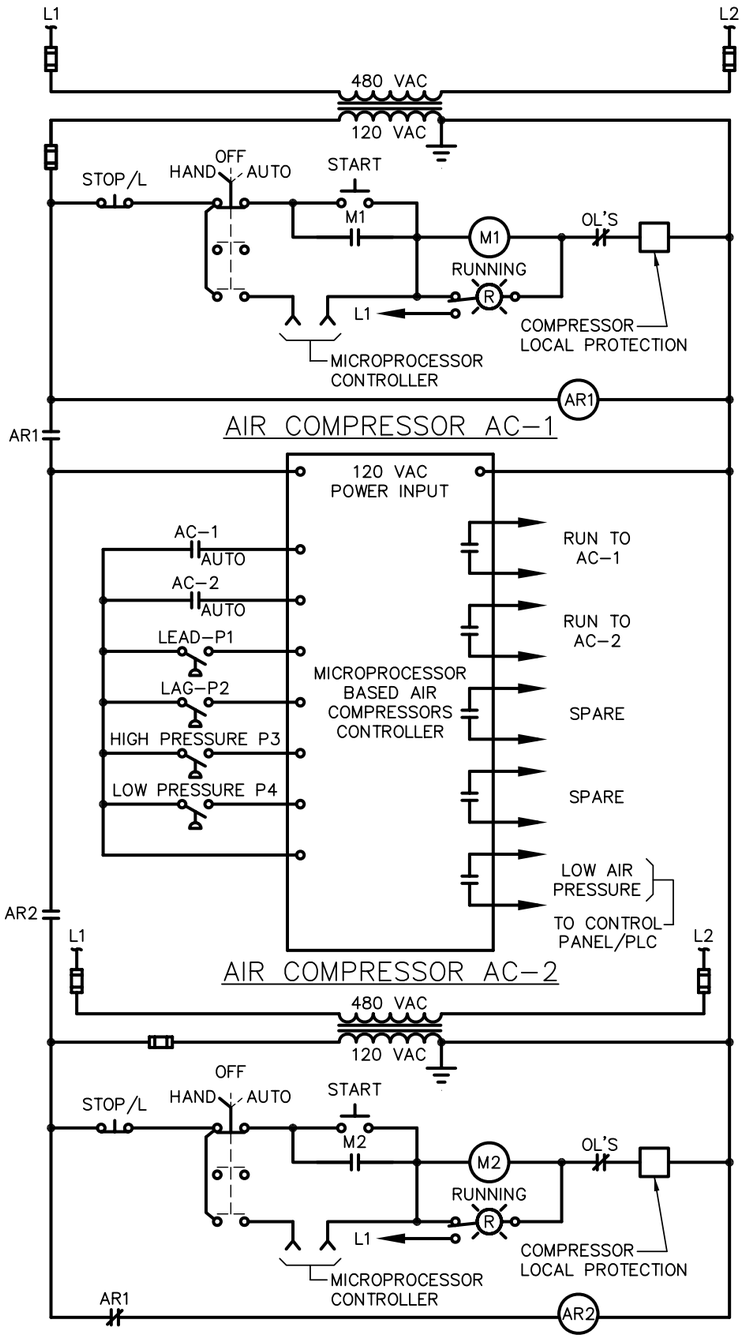
TYPICAL AFD CONNECTION DIAGRAM
(SHEET 2 OF 2)

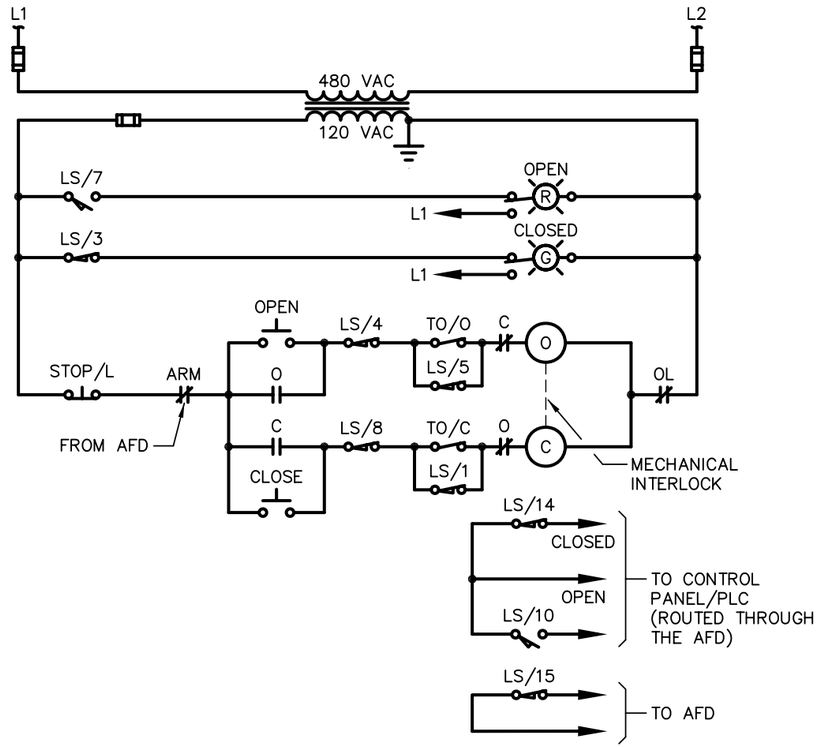
NO.	DATE	REVISIONS

DRAWN: RWB
DESIGN: STK
QC: BEH
DATE: 05/01/14

SHEET E-30

B080-092





MOTOR OPERATED KNIFE GATE
PUMP SUCTION VALVE (PSV)

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CITY of TAMPA
WASTEWATER DEPARTMENT

KRAUSE PS REHABILITATION

AIR COMPRESSOR &
PUMP SUCTION VALVE
CONTROL DIAGRAMS

NO.	DATE	REVISIONS

DRAWN: RWB
DESIGN: STK
QC: BEH
DATE: 05/01/14

SHEET E-31

B080-093

LIMIT SWITCH CONTACT DEVELOPMENT FOR PNEUMATIC DISCHARGE VALVE OPERATORS					
ROTOR NO.	CONTACT NO.	OPERATOR POSITION			CONTACT FUNCTION
		FULL OPEN	INTER–MEDIATE	FULL CLOSED	
LS1	1		X	X	VA. OPEN IND. LT
	2	X			START DELAY CKT.
	3		X	X	RUN CKT.
	4	X			SPARE
LS2	1	X	X		VA. CLOSED IND. LT
	2			X	SPARE
	3	X	X		SPARE
	4			X	SPARE

LIMIT SWITCH CONTACT DEVELOPMENT FOR MOTORIZED PUMP SUCTION VALVE OPERATORS (KNIFE GATE)					
ROTOR NO.	CONTACT NO.	OPERATOR POSITION			CONTACT FUNCTION
		FULL OPEN	INTER–MEDIATE	FULL CLOSED	
1	1	X			BYPASS CKT.
	2	X			PUMP PERMISSIVE
	3		X	X	INDICATOR LIGHT
	4		X	X	FORWARD (OPEN) LIMIT
2	5			X	BYPASS CKT.
	6			X	SPARE
	7	X	X		INDICATOR LIGHT
	8	X	X		REVERSE (CLOSED) LIMIT
3	9	X	X		AUXILIARY
	10	X	X		CONTROL PANEL/PLC
	11			X	AUXILIARY
	12			X	AUXILIARY
4	13		X	X	AUXILIARY
	14		X	X	CONTROL PANEL/PLC
	15	X			PUMP START CKT.
	16	X			AUXILIARY

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KRAUSE PS REHABILITATION

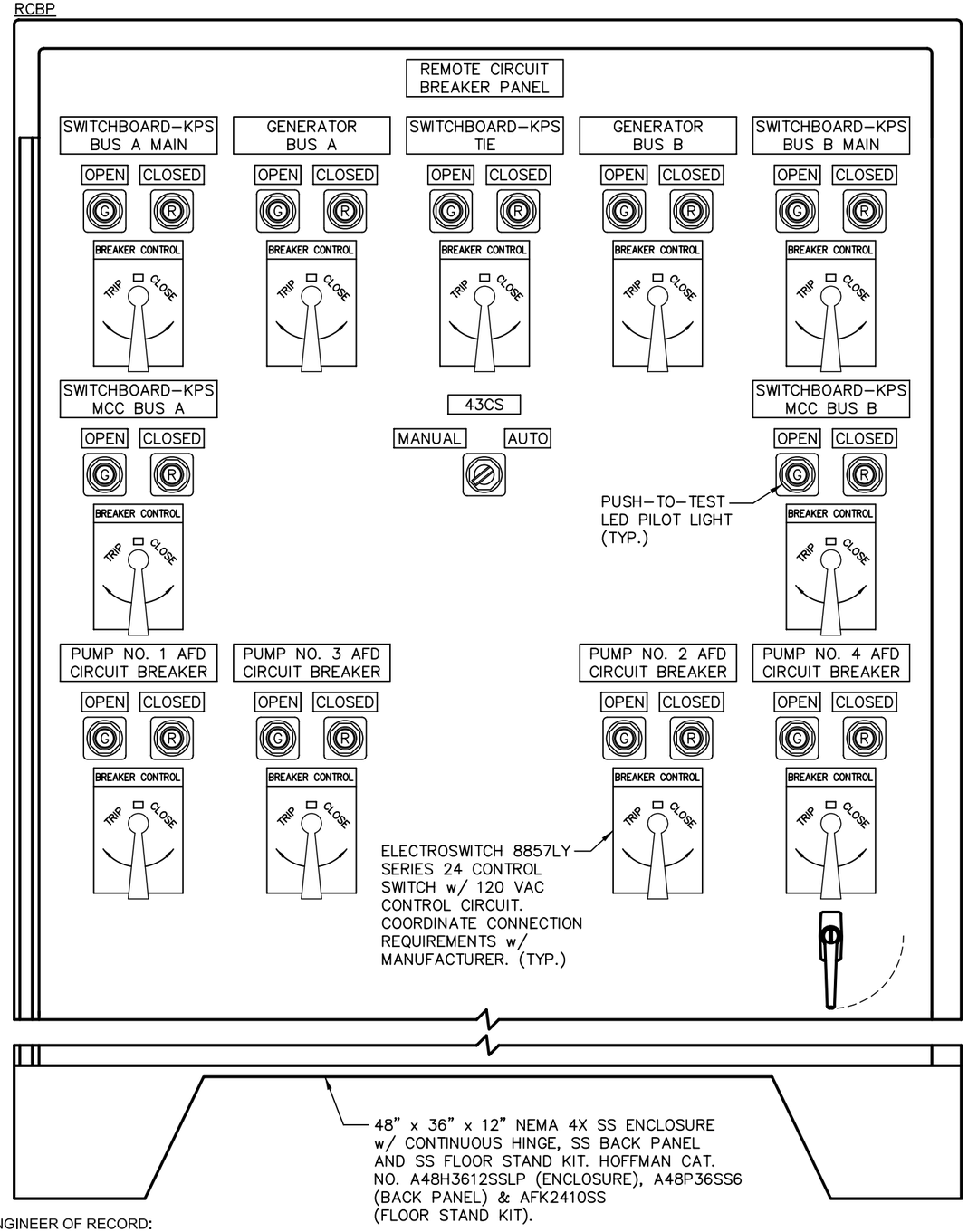
VALVE CONTACT DEVELOPMENT CHARTS

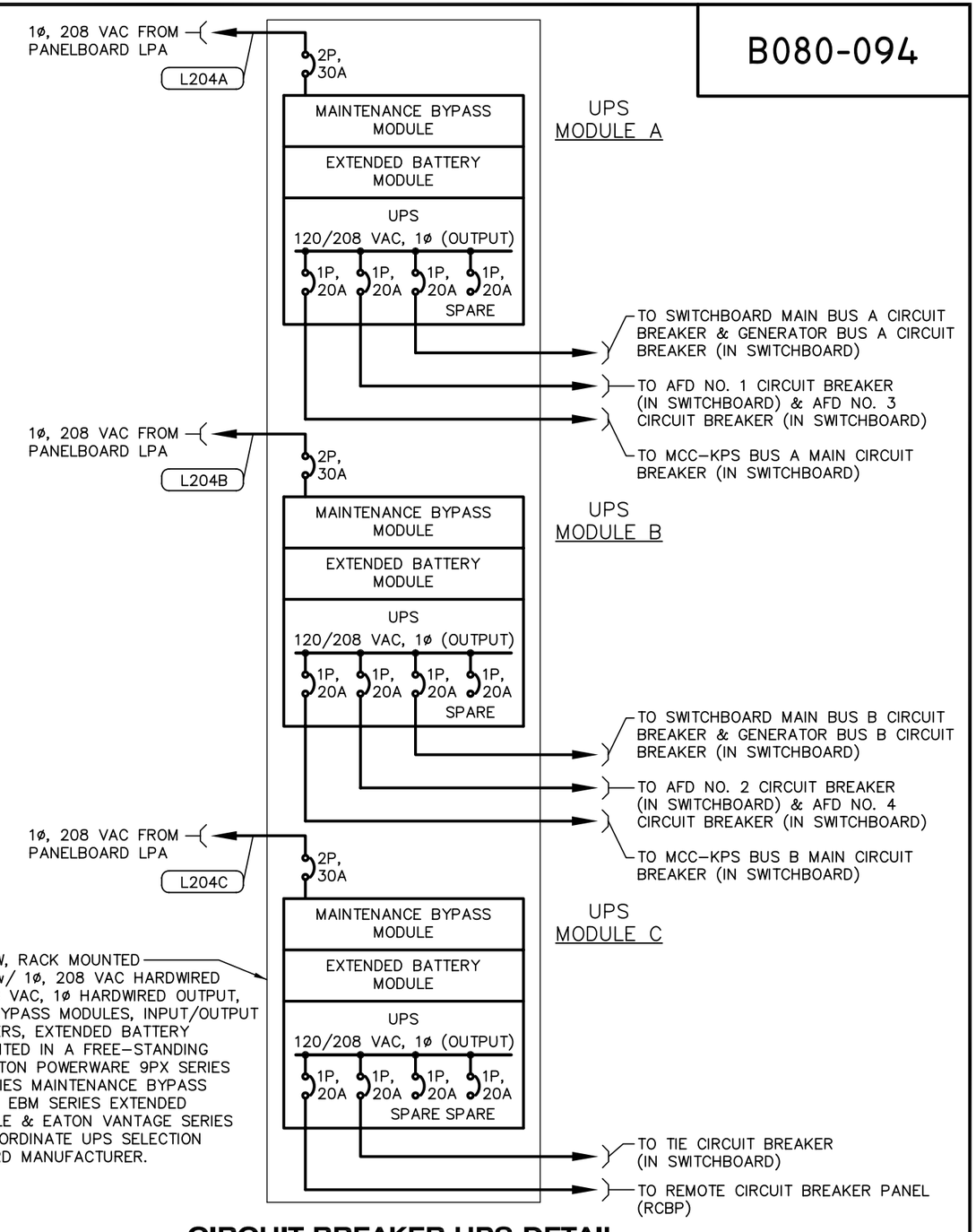
NO.	DATE	REVISIONS

DRAWN: RWB
DESIGN: STK
QC: BEH
DATE: 05/01/14

SHEET E-32

RCBP





B080-094

CIRCUIT BREAKER UPS DETAIL

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KRAUSE PS REHABILITATION

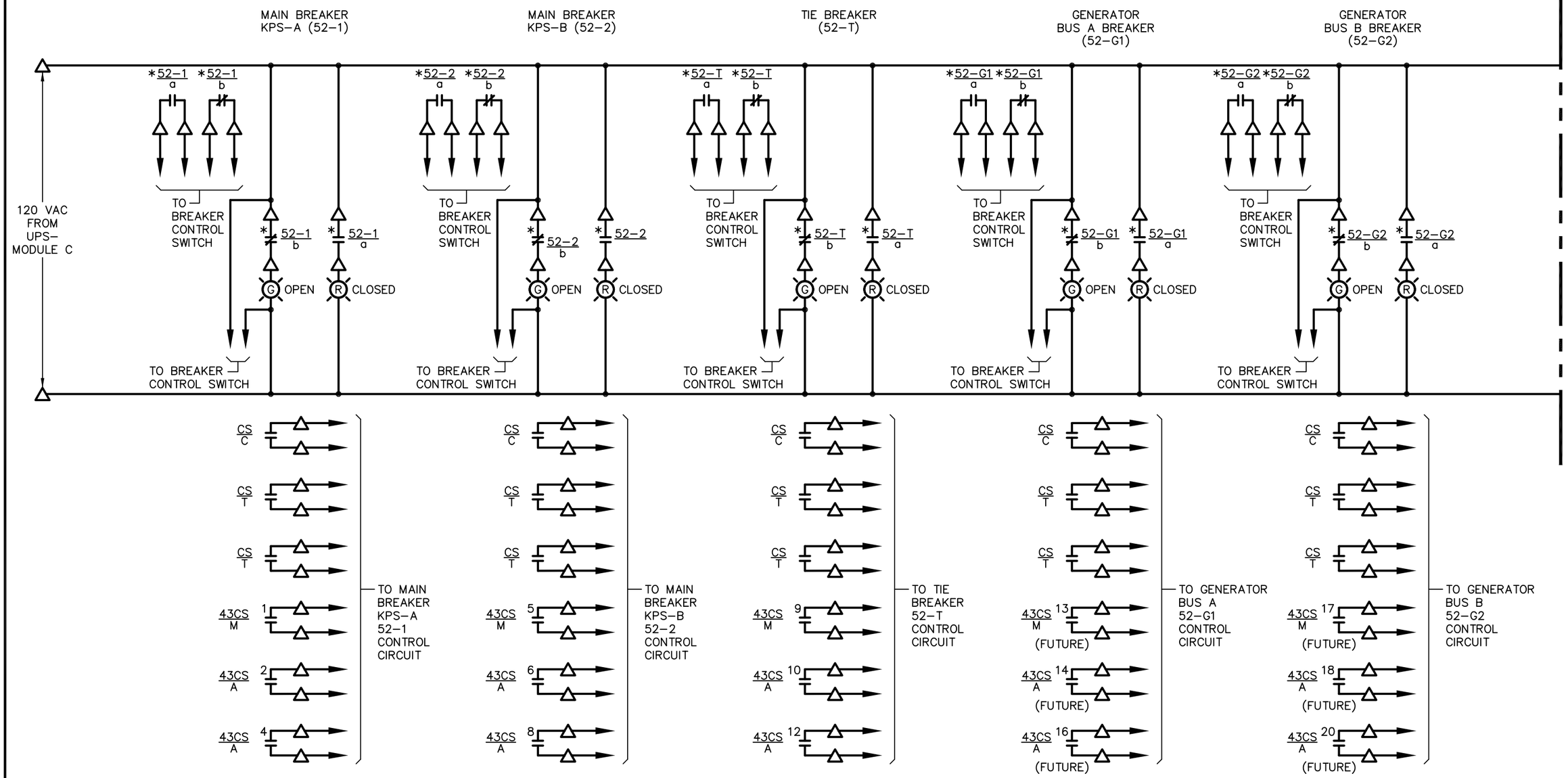
REMOTE CIRCUIT BREAKER PANEL (RCBP) DETAILS (SHEET 1 OF 3)

NO.	DATE	REVISIONS

DRAWN: RWB
DESIGN: STK
QC: BEH
DATE: 05/01/14

SHEET E-33

B080-095



NOTES:

* INDICATES DEVICE LOCATED REMOTE FROM REMOTE CIRCUIT BREAKER PANEL.

△ DENOTES TERMINAL FOR FIELD CONNECTION.

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KRAUSE PS REHABILITATION

REMOTE CIRCUIT BREAKER PANEL (RCBP) DETAILS (SHEET 2 OF 3)

NO.	DATE	REVISIONS

DRAWN: RWB
DESIGN: STK
QC: BEH
DATE: 05/01/14

SHEET E-34

B080-096

MATCHLINE – REFERENCE SHEET E-34 FOR CONTINUATION

MCC BUS A FEEDER BREAKER (52–A1)

MCC BUS B FEEDER BREAKER (52–A1)

PUMP NO. 1 AFD FEEDER BREAKER (52–A1)

PUMP NO. 2 AFD FEEDER BREAKER (52–A1)

PUMP NO. 3 AFD FEEDER BREAKER (52–A1)

PUMP NO. 4 AFD FEEDER BREAKER (52–A1)

*52–A1 a *52–A1 b

TO BREAKER CONTROL SWITCH

120 VAC FROM UPS–MODULE C

*52–A1 b

52–A1 a

G OPEN

R CLOSED

TO BREAKER CONTROL SWITCH

CS C

CS T

TO MCC BUS A 52–A1 CONTROL CIRCUIT

TO MCC BUS B 52–A1 CONTROL CIRCUIT

TO PUMP NO. 1 AFD 52–A1 CONTROL CIRCUIT

TO PUMP NO. 2 AFD 52–A1 CONTROL CIRCUIT

TO PUMP NO. 3 AFD 52–A1 CONTROL CIRCUIT

TO PUMP NO. 4 AFD 52–A1 CONTROL CIRCUIT

43CS M 21

43CS A 22

TO AUTO THROWOVER SYSTEM

NOTES:

* INDICATES DEVICE LOCATED REMOTE FROM REMOTE CIRCUIT BREAKER PANEL.

△ DENOTES TERMINAL FOR FIELD CONNECTION.

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KRAUSE PS REHABILITATION

REMOTE CIRCUIT BREAKER PANEL (RCBP) DETAILS (SHEET 3 OF 3)

NO.	DATE	REVISIONS

DRAWN: RWB
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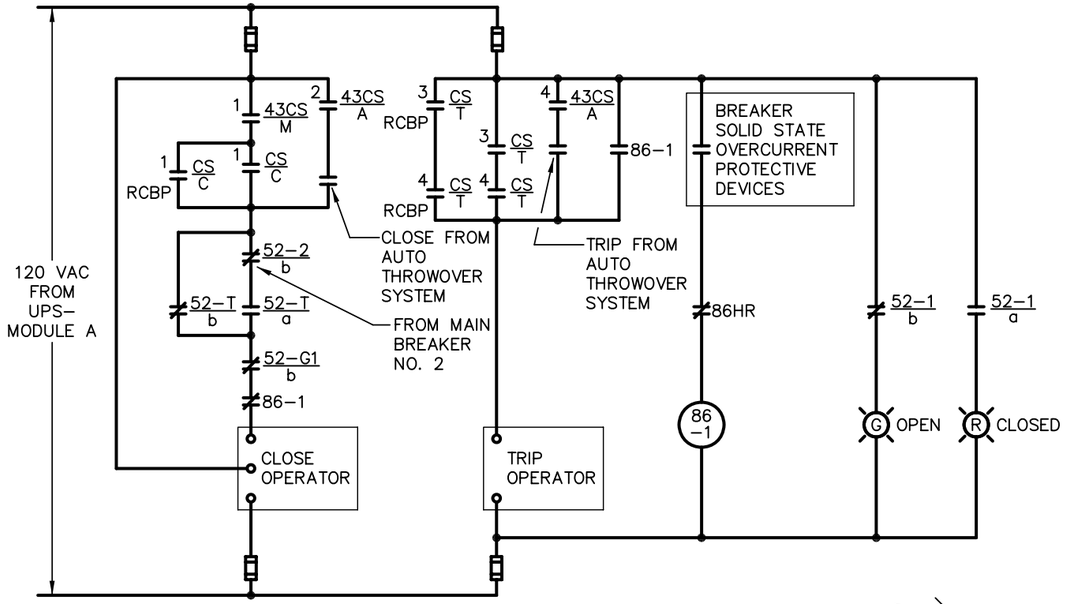
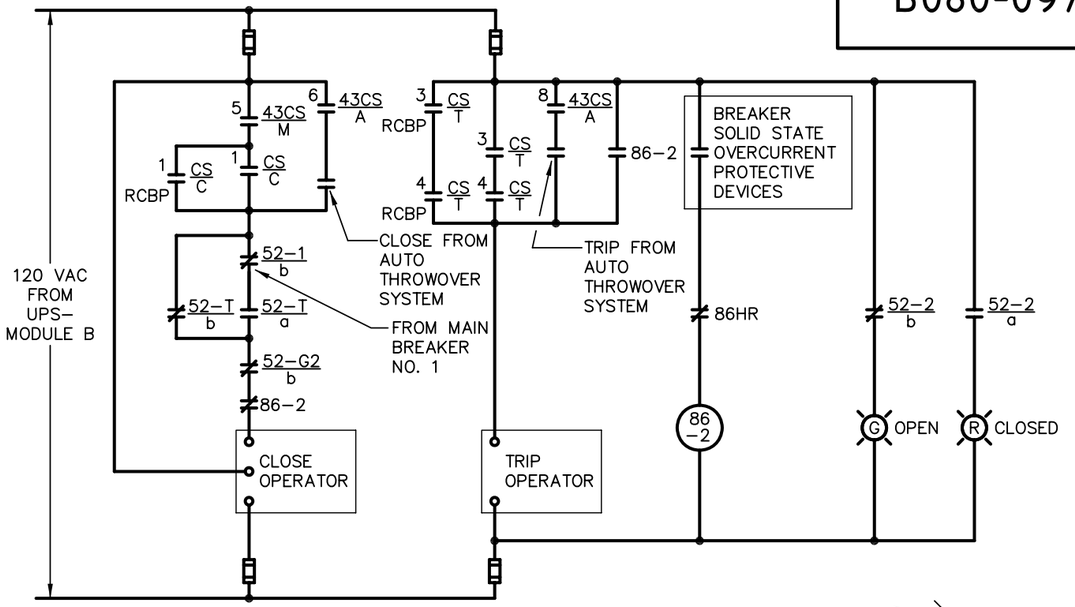
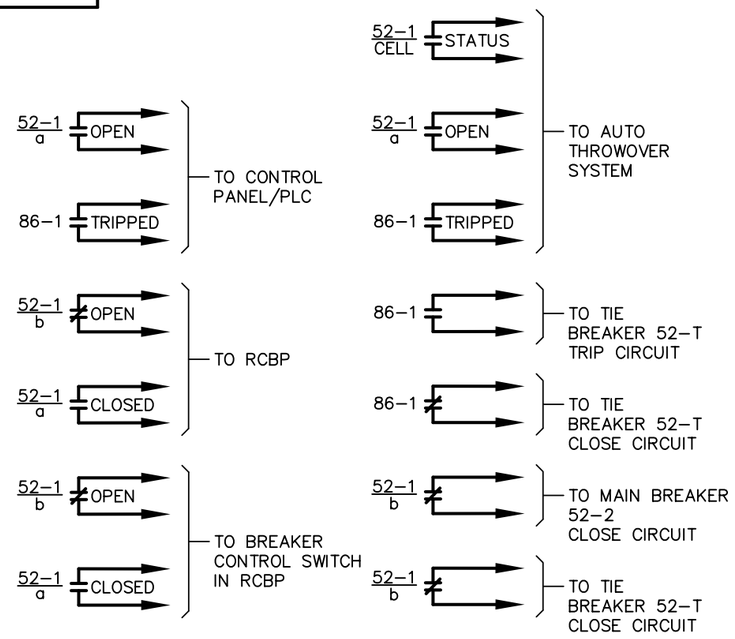
QC: BEH
DATE: 05/01/14

SHEET E-35

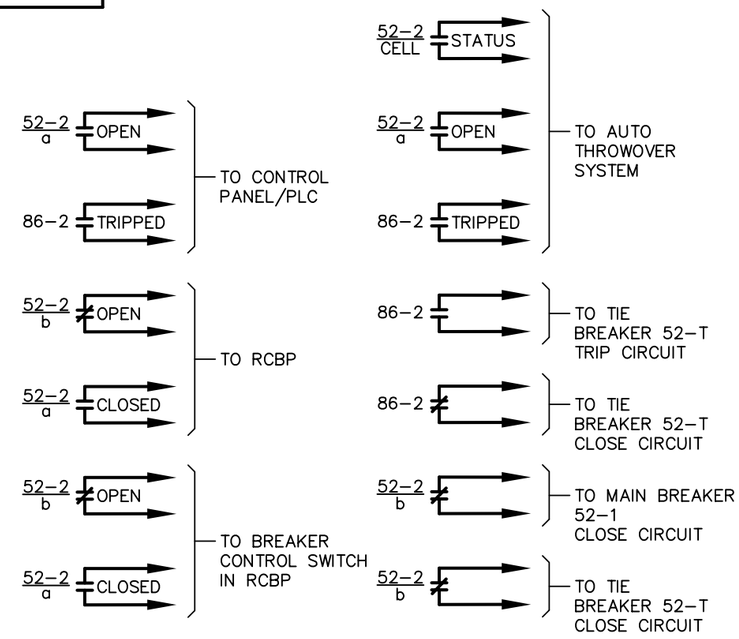
B080-097







MAIN BREAKER KPS-A (52-1) CONTROL CIRCUIT



MAIN BREAKER KPS-B (52-2) CONTROL CIRCUIT

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KRAUSE PS REHABILITATION

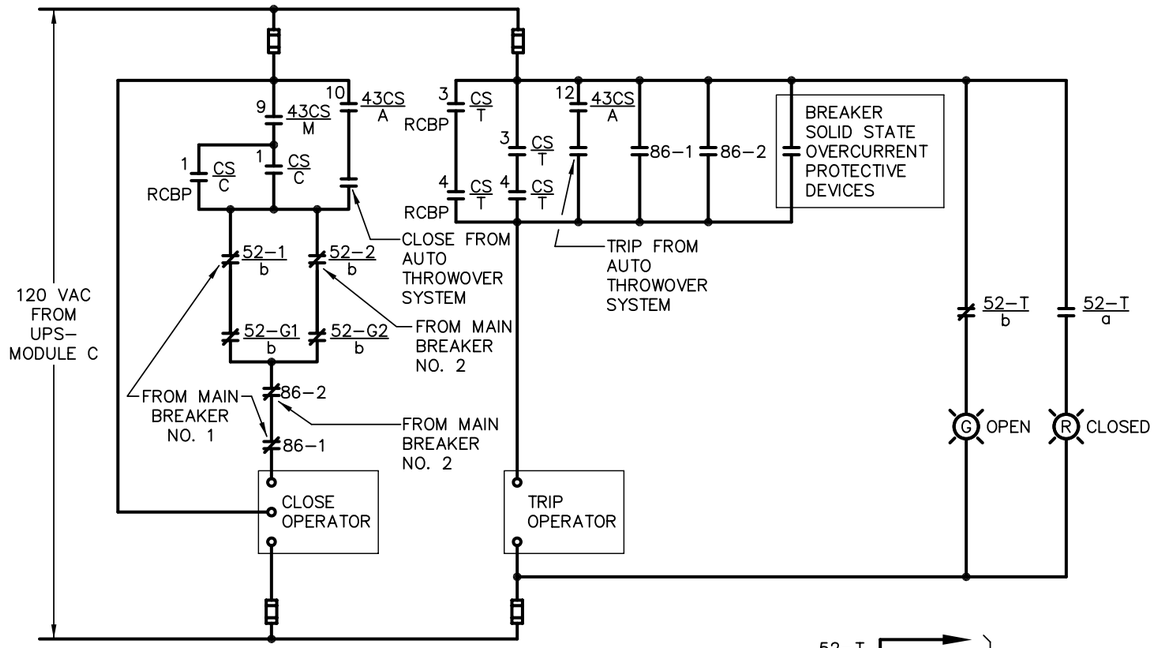
CIRCUIT BREAKER CONTROL DIAGRAM
(SHEET 1 OF 4)

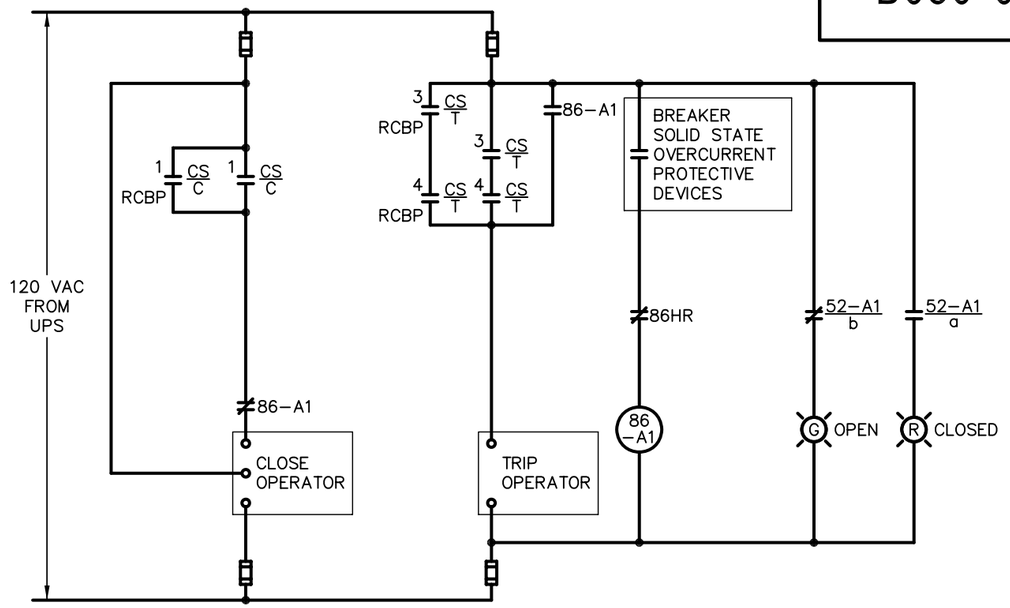
NO.	DATE	REVISIONS

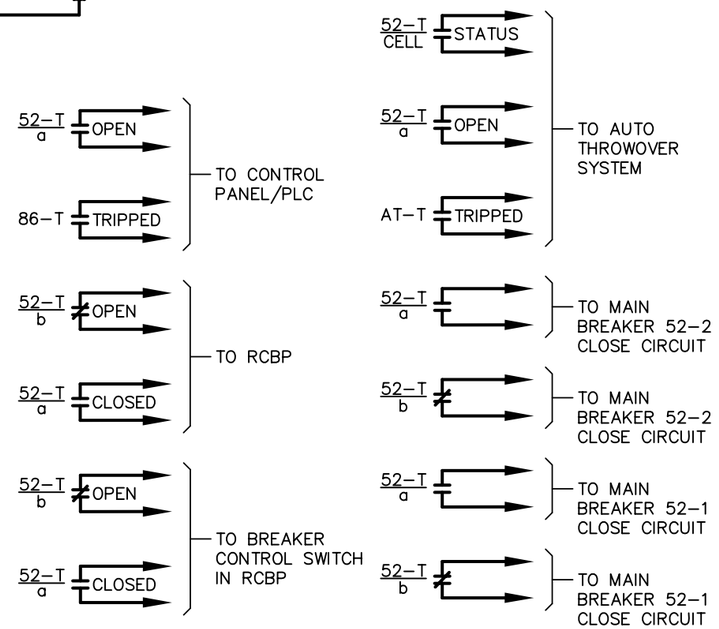
DRAWN: RWB
DESIGN: STK
QC: BEH
DATE: 05/01/14

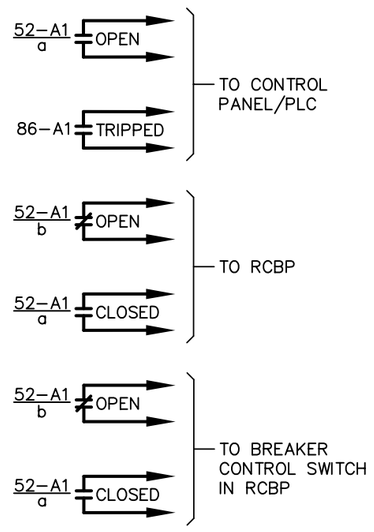
SHEET E-36

B080-098









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TIE BREAKER CONTROL CIRCUIT

TYPICAL FEEDER BREAKER CONTROL CIRCUIT

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KRAUSE PS REHABILITATION

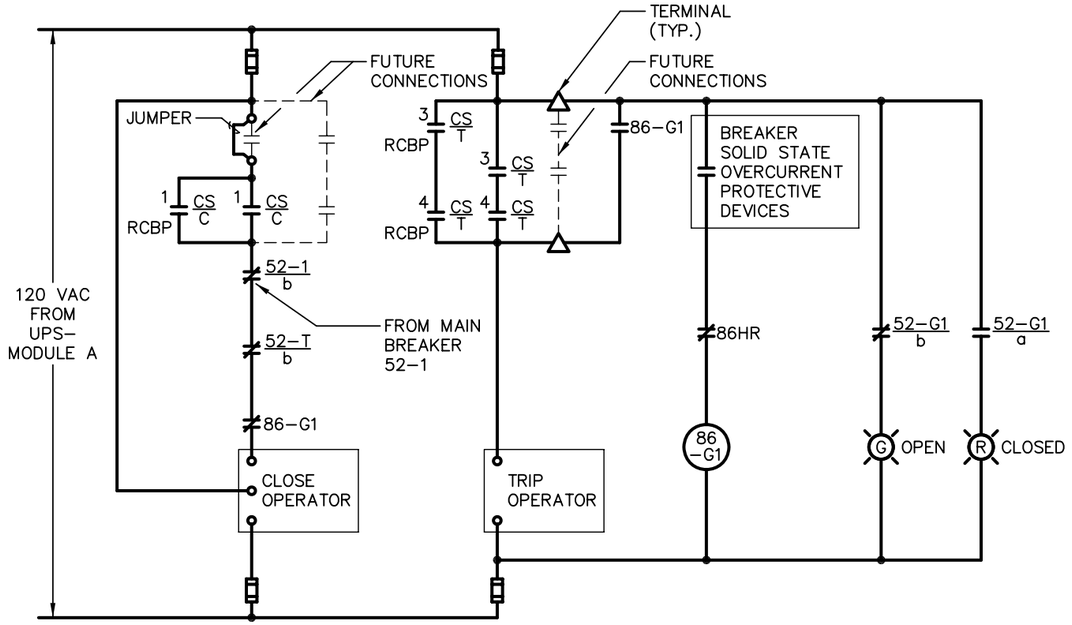
CIRCUIT BREAKER CONTROL DIAGRAM
(SHEET 2 OF 4)

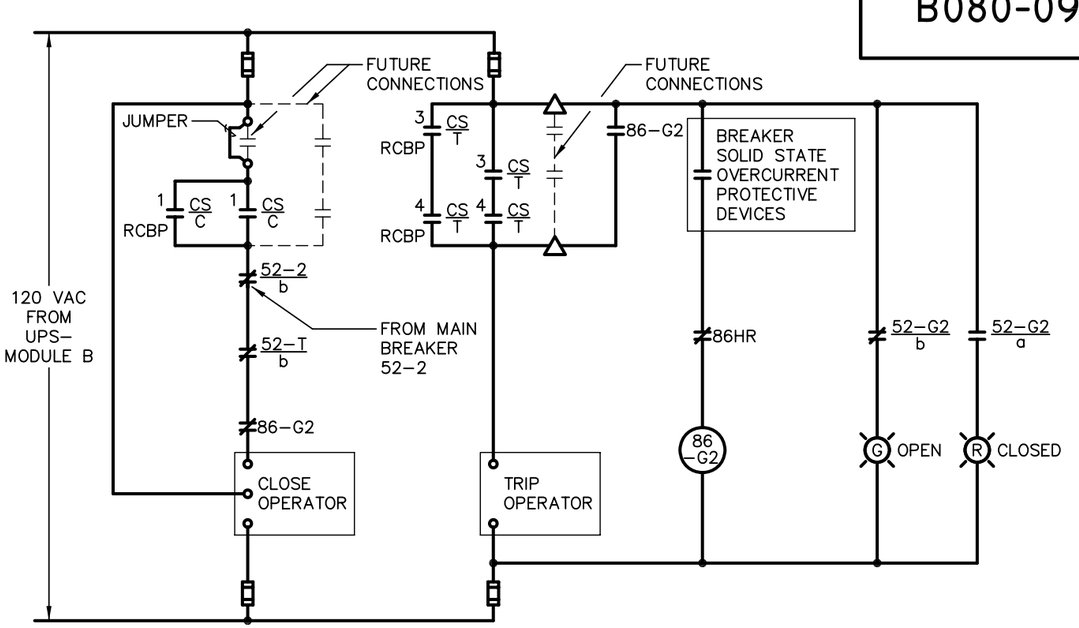
NO.	DATE	REVISIONS

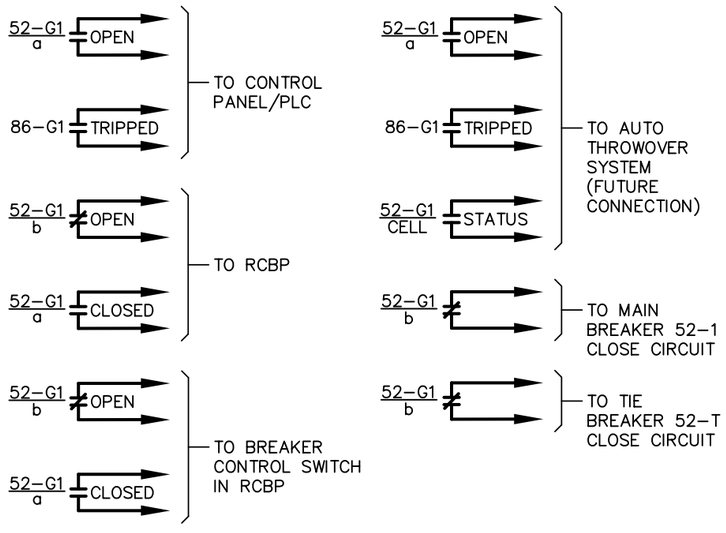
DRAWN: RWB
DESIGN: STK
QC: BEH
DATE: 05/01/14

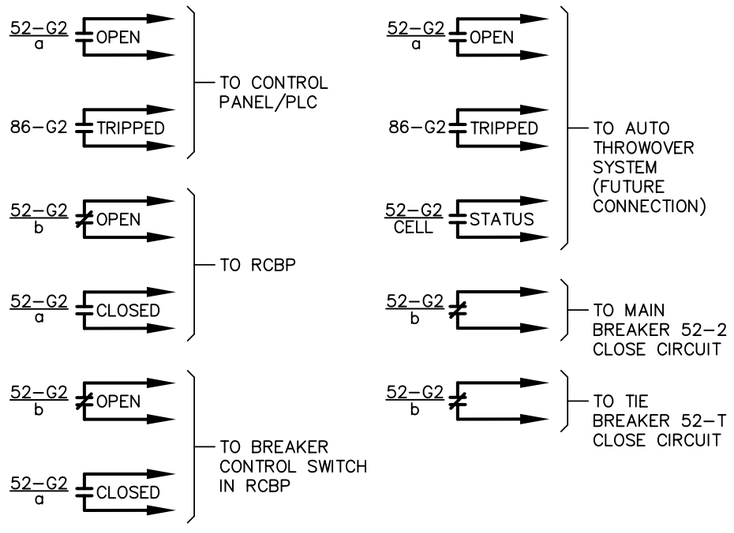
SHEET E-37

B080-099









GENERATOR BREAKER 52-G1 CONTROL CIRCUIT

GENERATOR BREAKER 52-G2 CONTROL CIRCUIT

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KRAUSE PS REHABILITATION

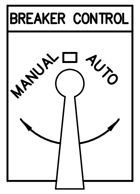
CIRCUIT BREAKER CONTROL DIAGRAM
(SHEET 3 OF 4)

NO.	DATE	REVISIONS

DRAWN: RWB
DESIGN: STK
QC: BEH
DATE: 05/01/14

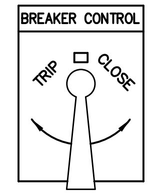
SHEET E-38

B080-100



MAIN–TIE–MAIN BREAKERS MANUAL/AUTO TRANSFER SELECTOR SWITCH 43CS				
CONTACTS HANDLE END		POSITION		FUNCTION
		MANUAL	AUTO	
1 2	1	X		MAIN BREAKER NO. 1 CLOSE CIRCUIT
	2		X	MAIN BREAKER NO. 1 CLOSE CIRCUIT
3 4	3	X		SPARE
	4		X	MAIN BREAKER NO. 1 TRIP CIRCUIT
5 6	5	X		MAIN BREAKER NO. 2 CLOSE CIRCUIT
	6		X	MAIN BREAKER NO. 2 CLOSE CIRCUIT
7 8	7	X		SPARE
	8		X	MAIN BREAKER NO. 2 TRIP CIRCUIT
9 10	9	X		TIE BREAKER CLOSE CIRCUIT
	10		X	TIE BREAKER CLOSE CIRCUIT
11 12	11	X		SPARE
	12		X	TIE BREAKER TRIP CIRCUIT
13 14	13	X		GENERATOR BREAKER NO. 1 CLOSE CIRCUIT (FUTURE)
	14		X	
15 16	15	X		GENERATOR BREAKER NO. 1 TRIP CIRCUIT (FUTURE)
	16		X	
17 18	17	X		GENERATOR BREAKER NO. 2 CLOSE CIRCUIT (FUTURE)
	18		X	
19 20	19	X		GENERATOR BREAKER NO. 2 TRIP CIRCUIT (FUTURE)
	20		X	
21 22	21	X		TO AUTO THROWOVER SYSTEM
	22		X	

X – INDICATES CONTACT CLOSED (MAINTAINED CONTACT)



TYPICAL BREAKER CONTROL SWITCH CS AT SWITCHBOARD AND RCBP					
CONTACTS HANDLE END		POSITION			FUNCTION
		CLOSE	NORMAL	TRIP	
1 2	1	X			CLOSE CIRCUIT
	2	X			SPARE
3 4	3			X	TRIP CIRCUIT
	4			X	
5 6	5	X	X		SPARE
	6		X	X	

X – INDICATES CONTACT CLOSED (SPRING RETURN FROM CLOSE AND TRIP TO NORMAL)

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KRAUSE PS REHABILITATION

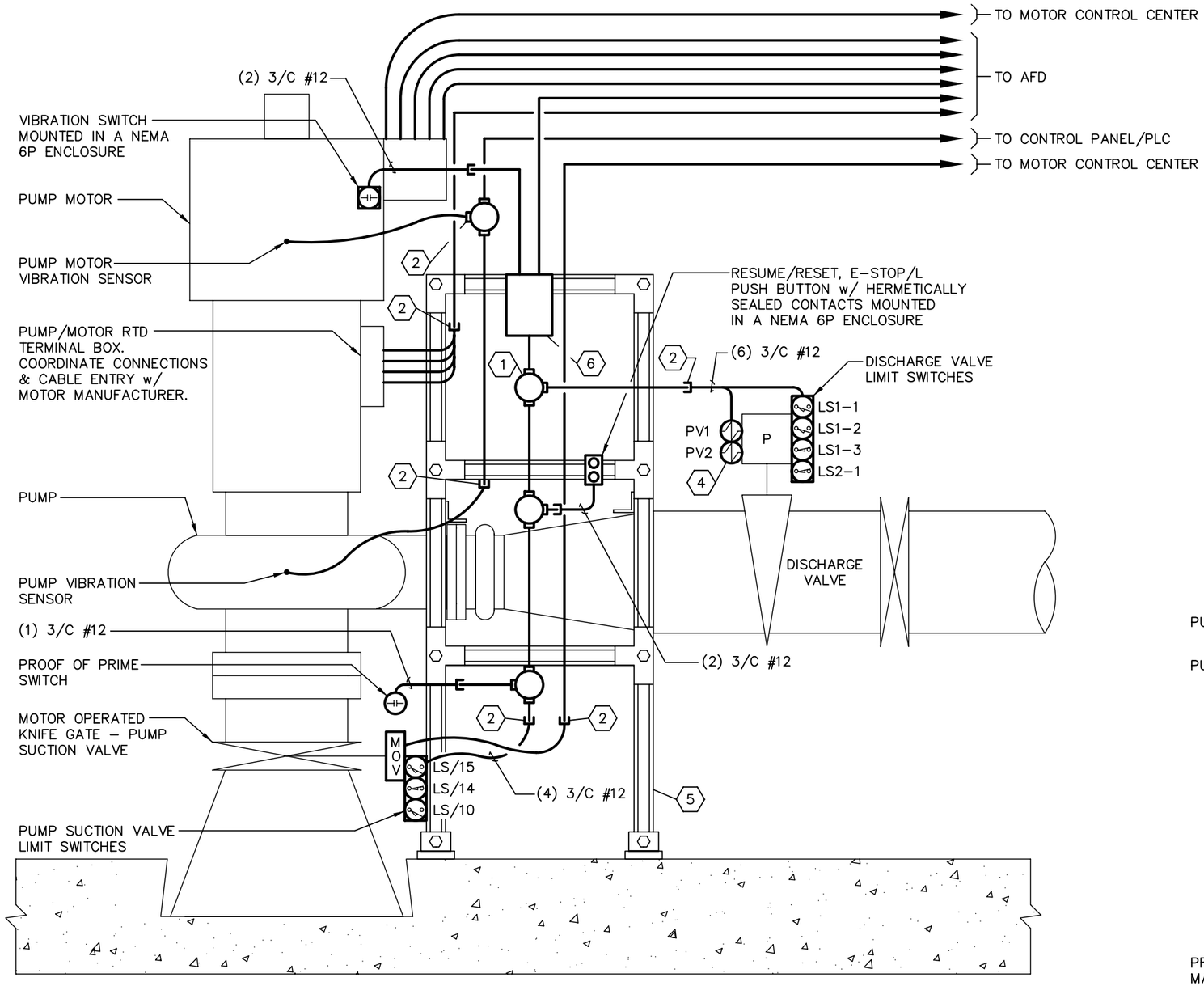
CIRCUIT BREAKER CONTROL DIAGRAM
(SHEET 4 OF 4)

NO.	DATE	REVISIONS

DRAWN: RWB
DESIGN: STK
QC: BEH
DATE: 05/01/14

SHEET E-39

B080-101



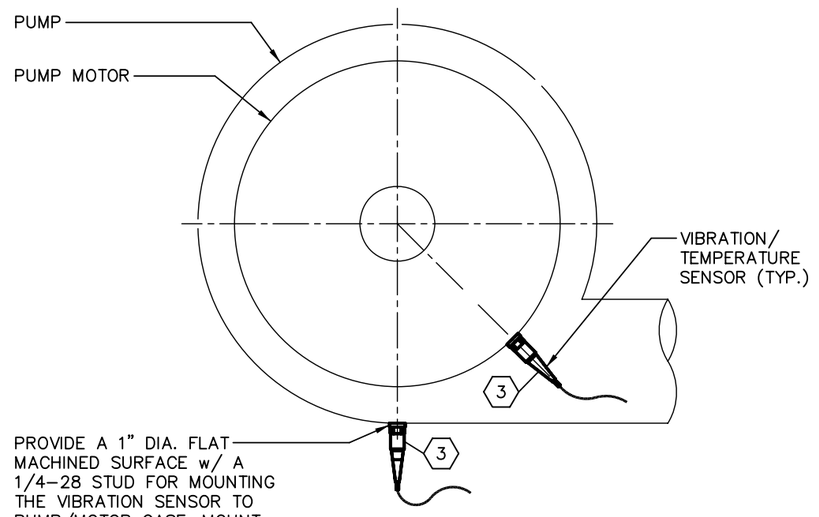
ELEVATION
(NOT TO SCALE)

KEYED NOTES:

1. CROUSE-HINDS GUFX SERIES JUNCTION BOX. SIZE AS REQUIRED. (TYP.)
2. CORD/CABLE FITTING c/w NEOPRENE BUSHING & GLAND NUT SIZED FOR CABLE(S). CROUSE-HINDS CGB SERIES. (TYP.)
3. VIBRATION/TEMPERATURE SENSOR w/ INTEGRAL CABLE. CTC TA104 SERIES. COORDINATE MOUNTING AND LOCATION w/ VIBRATION/TEMPERATURE MONITORING SUPPLIER AND MOTOR MANUFACTURER. COORDINATE MOUNTING & LOCATION w/ VIBRATION/TEMPERATURE MONITORING SUPPLIER AND MOTOR MANUFACTURER.
4. 4-WAY, N.C., FULLY PORTED, ELECTRICALLY OPERATED SOLENOID VALVE w/ WATERTIGHT, HI-SHOCK ENCLOSURE, FORGED BRASS OR BRONZE BODY, RESILIANT BUNA "N" VALVE SEAT. COORDINATE SOLENOID SELECTION AND INSTALLATION w/ VALVE SUPPLIER. (TYP. OF 2)
5. SS CONDUIT SUPPORT RACK CONSTRUCTED OF B-LINE 1 5/8" x 1 5/8" B22SS4 UNISTRUT, B-LINE B143SS4 CORNER PLATES, B-LINE B280SQSS4 POST BASES & B-LINE B133SS4 TEE PLATES. SECURE SUPPORT RACK TO PIPING FLANGE w/ 3" x 3" x 1/2" ANGLE. PROVIDE B-LINE B2000SS4 CONDUIT CLAMPS AS REQUIRED.
6. 16" x 12" x 8" NEMA 4X SS ENCLOSURE w/ CONTINUOUS HINGE.

NOTES:

1. ALL ELECTRICAL CONNECTIONS SHALL BE WATERTIGHT AND SUITABLE FOR SUBMERSIBLE APPLICATIONS TO A DEPTH OF 15'. THE CABLE ENTRY INTO ALL END DEVICES SHALL BE SUITABLE TO ENSURE A WATERTIGHT AND SUBMERSIBLE SEAL.
2. ALL CABLES ROUTED TO END DEVICES SHALL BE OF A TYPE FOR EXTRA-HARD USAGE & SUITABLE FOR SUBMERSIBLE APPLICATIONS.
3. REFERENCE PUMP CABLE SUPPORT DETAIL.



PLAN VIEW
(NOT TO SCALE)

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KRAUSE PS REHABILITATION

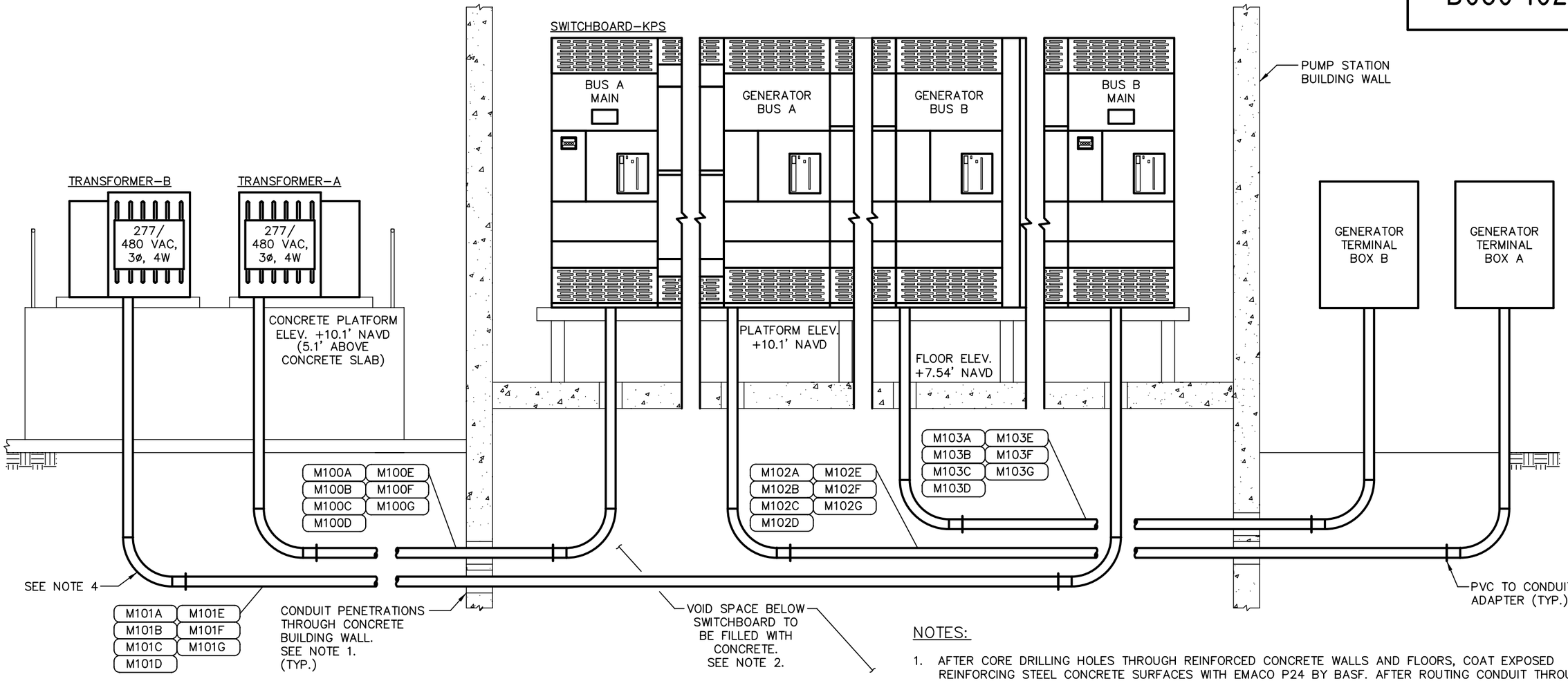
PUMP/MOTOR CONNECTION DETAIL

NO.	DATE	REVISIONS

DRAWN: RWB
DESIGN: STK
QC: BEH
DATE: 05/01/14

SHEET E-40

B080-I02



NOTES:

1. AFTER CORE DRILLING HOLES THROUGH REINFORCED CONCRETE WALLS AND FLOORS, COAT EXPOSED REINFORCING STEEL CONCRETE SURFACES WITH EMACO P24 BY BASF. AFTER ROUTING CONDUIT THROUGH HOLE, FILL AND FINISH CONCRETE WITH A SHRINKAGE COMPENSATING REPAIR MORTAR WITH CORROSION INHIBITING PROPERTIES, EMACO S66 C1 BY BASF. REFERENCE STRUCTURAL DRAWINGS.

2. CONDUITS SHALL BE ROUTED IN LOWER LEVEL VOID BENEATH THE SWITCHBOARD PRIOR TO AREA BEING FILLED WITH CONCRETE.

3. PROVIDE PVC SLEEVES FOR ALL METALLIC CONDUIT PENETRATIONS THROUGH CONCRETE. WHERE ALUMINUM SURFACES SUCH AS BOXES, CONDUIT OR STRUCTURAL SUPPORTS COME IN CONTACT WITH INCOMPATIBLE METALS, LIME, MORTAR, CONCRETE OR OTHER MASONRY MATERIALS, THE CONTACT AREA SHALL BE GIVEN ONE FIELD COAT OF KOPPERS METAL PASSIVATOR NO. 40 AND ONE COAT OF KOPPERS BITUMASTIC SUPER SERVICE BLACK OR TWO COATS OF ASPHALT VARNISH CONFORMING TO FED. SPEC. TT–V–51.

4. ALL CONDUIT EXPOSED ABOVE GRADE SHALL BE RIGID HEAVY WALL ALUMINUM, UNLESS OTHERWISE NOTED. CONDUITS EXTENDING BELOW GRADE SHALL BE RIGID HEAVY WALL ALUMINUM CONDUIT THROUGH AND INCLUDING THE FIRST 90 DEGREE ELBOW (OR EQUIVALENT SET OF FITTINGS) INSTALLED BELOW GRADE. ALL PVC CONDUIT SHALL BE SCHEDULE 80. CONNECTIONS TO PVC CONDUIT SHALL BE MADE w/ A RIGID ALUMINUM TO PVC CONDUIT ADAPTER.

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KRAUSE PS REHABILITATION

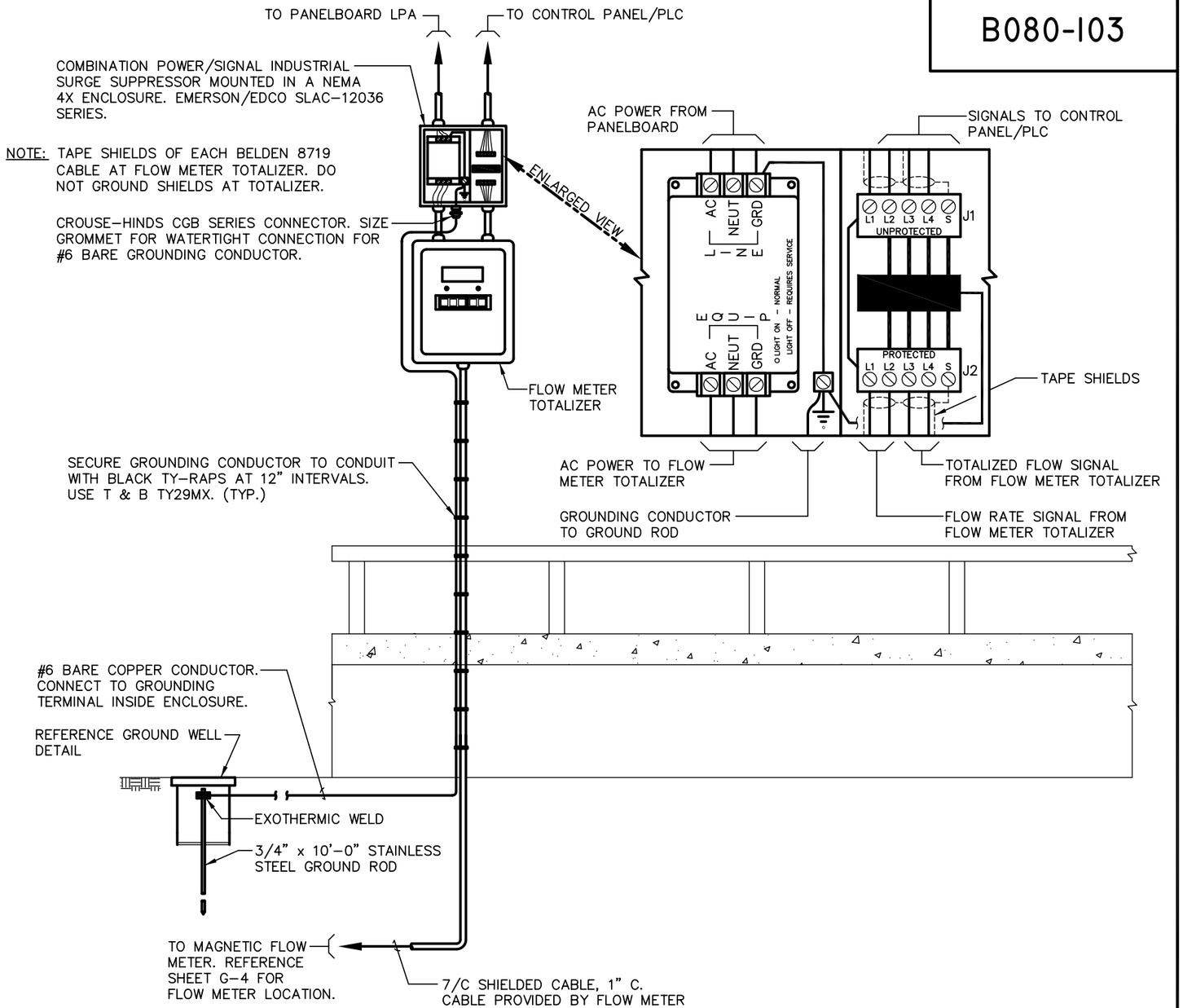
SWITCHBOARD CONDUIT DETAILS

NO.	DATE	REVISIONS

DRAWN: RWB
DESIGN: STK
QC: BEH
DATE: 05/01/14

SHEET E-41

B080-103



MAGNETIC FLOW METER CONNECTION DETAIL

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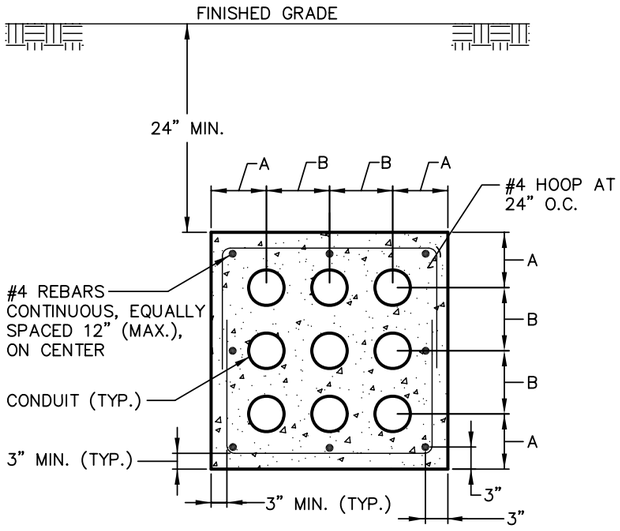
KRAUSE PS REHABILITATION

MAGNETIC FLOW METER CONNECTION DETAIL

NO.	DATE	REVISIONS

DRAWN: RWB
DESIGN: STK
QC: BEH
DATE: 05/01/14

SHEET E-42

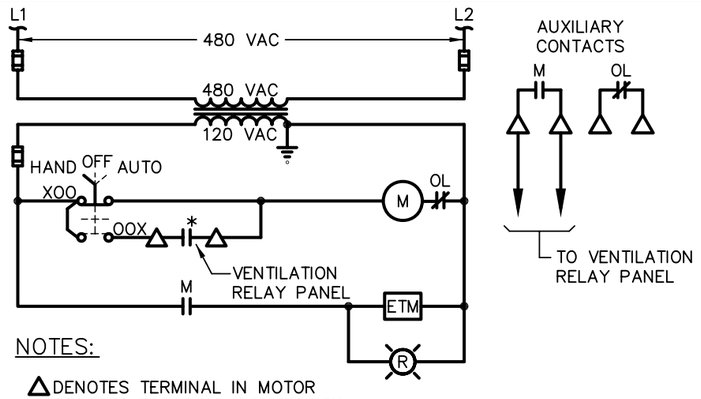


DUCT BANK CONDUIT SPACING DIMENSIONS									
CONDUIT SIZE	DIMENSION A	CONDUIT SIZE							
		3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	3 1/2"	4"
		DIMENSION B								
3/4"	3 5/8"	3 1/8"	3 1/4"	3 3/8"	3 1/2"	3 3/4"	4"	4 3/8"	4 5/8"	4 7/8"
1"	3 3/4"	3 1/4"	3 3/8"	3 1/2"	3 5/8"	3 7/8"	4 1/4"	4 1/2"	4 3/4"	5"
1 1/4"	3 7/8"	3 3/8"	3 1/2"	3 3/4"	3 7/8"	4 1/8"	4 3/8"	4 5/8"	4 7/8"	5 1/8"
1 1/2"	4"	3 1/2"	3 5/8"	3 7/8"	4"	4 1/4"	4 1/2"	4 3/4"	5"	5 1/4"
2"	4 1/4"	3 3/4"	3 7/8"	4 1/8"	4 1/4"	4 3/8"	4 5/8"	5"	5 1/4"	5 1/2"
2 1/2"	4 1/2"	4"	4 1/8"	4 3/8"	4 1/2"	4 5/8"	4 7/8"	5 1/4"	5 1/2"	5 3/4"
3"	4 3/4"	4 3/8"	4 1/2"	4 5/8"	4 3/4"	5"	5 1/4"	5 1/2"	5 3/4"	6"
3 1/2"	5"	4 5/8"	4 3/4"	4 7/8"	5"	5 1/4"	5 1/2"	5 3/4"	6"	6 1/4"
4"	5 1/4"	4 7/8"	5"	5 1/8"	5 1/4"	5 1/2"	5 3/4"	6"	6 1/4"	6 1/2"

NOTES:

1. CONCRETE SHALL BE 3000 PSI. MINIMUM COMPRESSION STRENGTH.
2. TOP OF DUCT BANK SHALL BE DYED RED.
3. TOP OF DUCT BANK SHALL BE 24" BELOW FINISHED GRADE.
4. 4" CONDUIT BEND RADIUS SHALL BE A MINIMUM OF 48".
5. ALL EMPTY CONDUITS SHALL INCLUDE A PULL WIRE AND SHALL BE CAPPED.
6. DUCT BANKS MAY BE RE-ARRANGED FOR CONVENIENCE OF EGRESS.
7. REFERENCE ELECTRICAL DRAWINGS FOR CONDUIT SIZE.
8. THIS DETAIL IS FOR LAYOUT PURPOSES ONLY. FOR THE ACTUAL NUMBER OF CONDUITS & FEEDERS SEE PLAN DRAWINGS.

1 DUCT BANK DETAIL



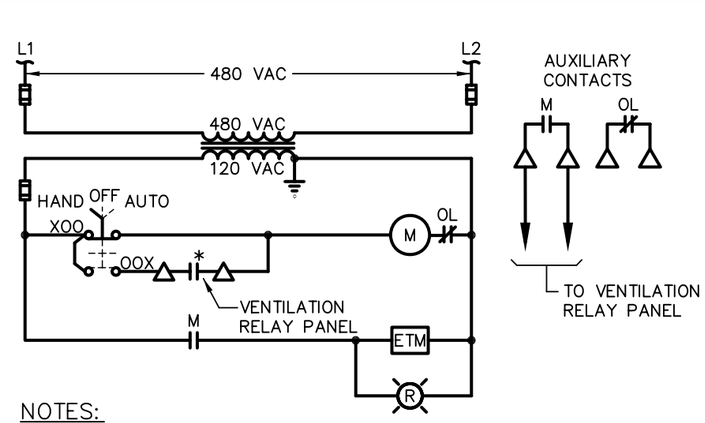
NOTES:

△ DENOTES TERMINAL IN MOTOR STARTER FOR FIELD CONNECTION.

* DEVICE LOCATED REMOTE FROM STARTER

4 SUPPLY FAN - MOTOR CONTROL CIRCUIT DIAGRAM

(TYPICAL FOR SF-1 & SF-2)



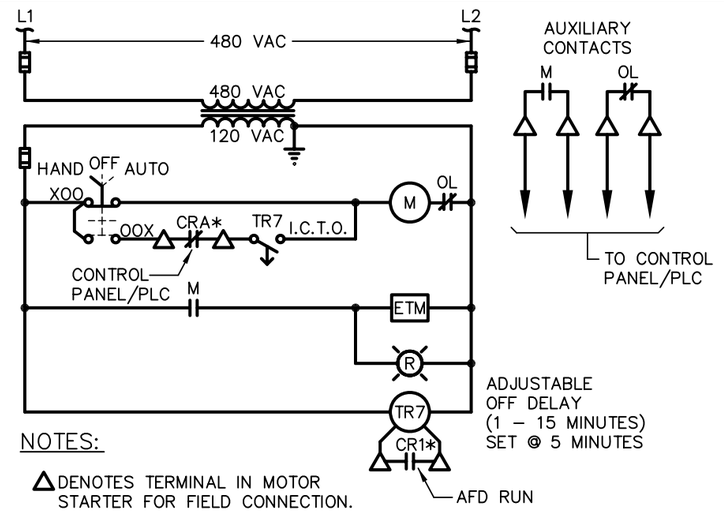
NOTES:

△ DENOTES TERMINAL IN MOTOR STARTER FOR FIELD CONNECTION.

* DEVICE LOCATED REMOTE FROM STARTER

5 EXHAUST FAN - MOTOR CONTROL CIRCUIT DIAGRAM

(TYPICAL FOR EF-1, EF-2 & EF-3)



NOTES:

△ DENOTES TERMINAL IN MOTOR STARTER FOR FIELD CONNECTION.

* DEVICE LOCATED REMOTE FROM STARTER

6 PUMP BLOWER - MOTOR CONTROL CIRCUIT DIAGRAM

(TYPICAL FOR PUMP NO. 1 - PUMP NO.4 BLOWERS)

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CITY of TAMPA
WASTEWATER DEPARTMENT

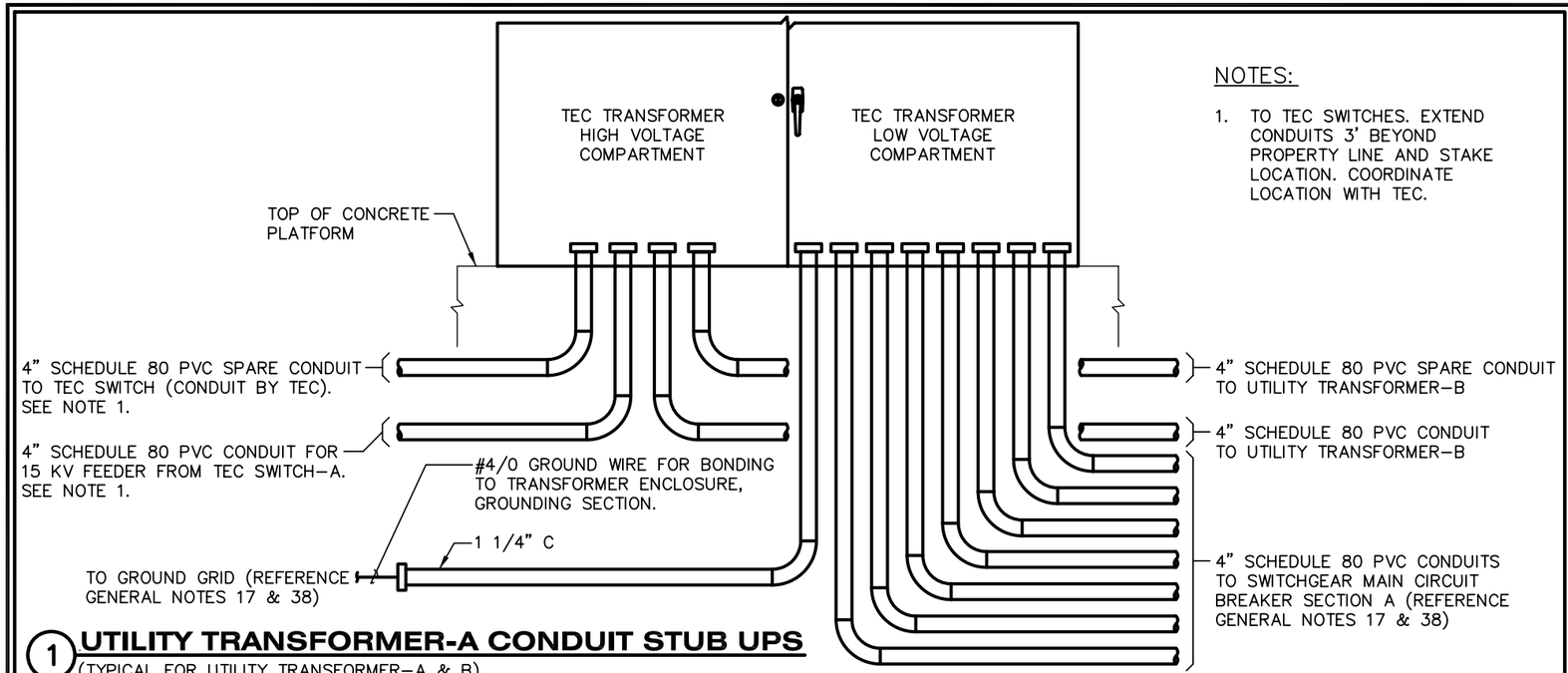
KRAUSE PS REHABILITATION

ELECTRICAL DETAILS

NO.	DATE	REVISIONS

DRAWN: RWB
DESIGN: STK
QC: BEH
DATE: 05/01/14

SHEET E-43

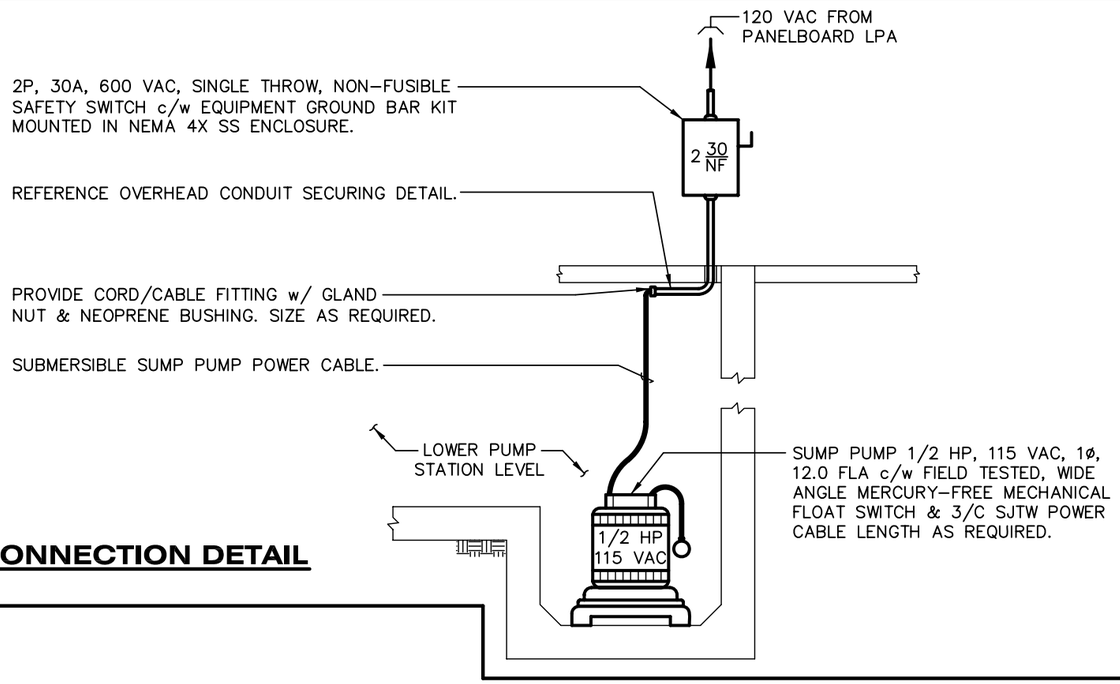


NOTES:

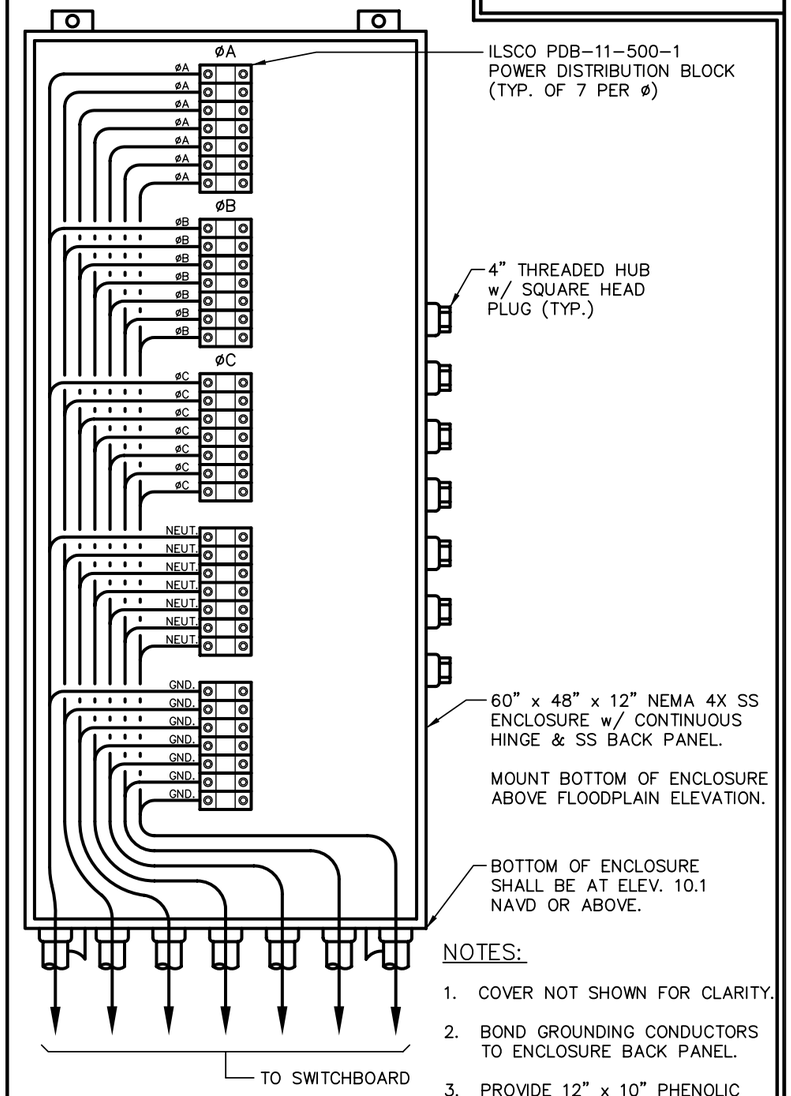
1. TO TEC SWITCHES. EXTEND CONDUITS 3' BEYOND PROPERTY LINE AND STAKE LOCATION. COORDINATE LOCATION WITH TEC.

1 UTILITY TRANSFORMER-A CONDUIT STUB UPS

(TYPICAL FOR UTILITY TRANSFORMER-A & B)



4 SUMP PUMP CONNECTION DETAIL



NOTES:

1. COVER NOT SHOWN FOR CLARITY.
2. BOND GROUNDING CONDUCTORS TO ENCLOSURE BACK PANEL.
3. PROVIDE 12" x 10" PHENOLIC SIGN ON ENCLOSURE COVER TO READ "GENERATOR CONNECTION" SIGN SHALL HAVE A BLACK BACKGROUND w/ WHITE LETTERS 3/8" HIGH.

6 TYPICAL GENERATOR TERMINAL BOX DETAIL

TYPICAL FOR BUS A AND BUS B GENERATORS

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ELECTRICAL DETAILS

NO.	DATE	REVISIONS

DRAWN: RWB
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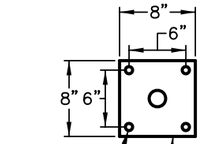
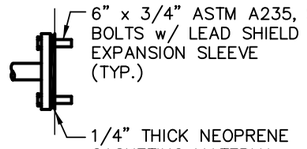
SHEET E-44

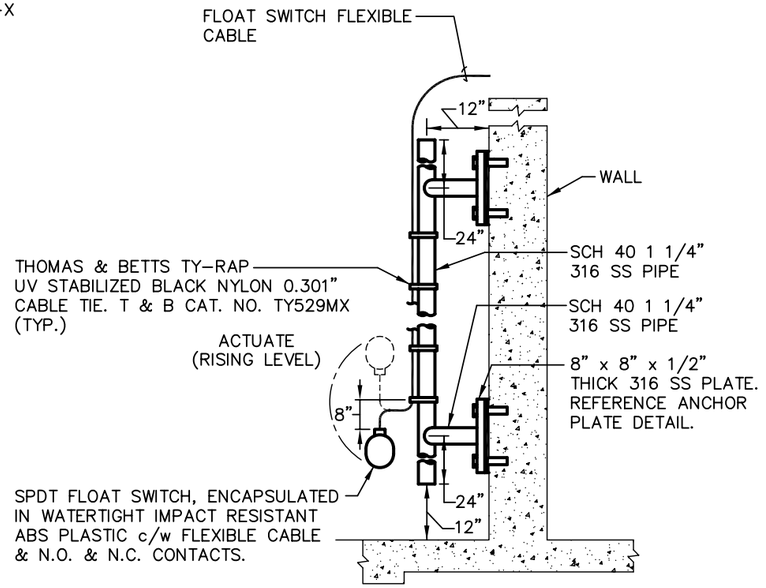




ANCHOR PLATE DETAIL

NOTES:

1. ALL SHAPES SHALL BE FABRICATED OF 316 STAINLESS STEEL.
2. ALL JOINTS SHALL BE WELDED.
3. COORDINATE FLOAT ACTIVATION ELEVATIONS WITH CITY.



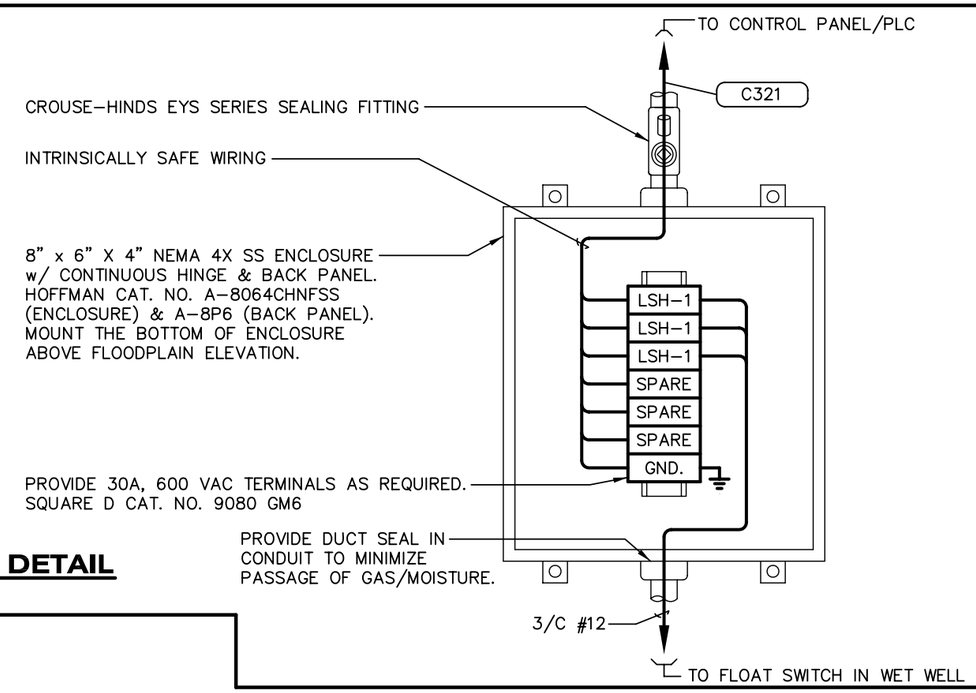
1 FLOAT SWITCH MOUNTING DETAIL

(TYP. FOR PUMP STATION LOWER LEVEL FLOAT SWITCHES & WET WELL FLOAT SWITCH)

3

NOTES:

1. COVER NOT SHOWN FOR CLARITY.
2. BOND GROUNDING CONDUCTORS TO ENCLOSURE BACK PANEL.
3. ALL CONDUCTORS AND ASSOCIATED TERMINALS THAT ARE PART OF THE INTRINSICALLY SAFE CIRCUIT SHALL BE CLEARLY IDENTIFIED WITH PERMANENTLY AFFIXED LABELS READING "INTRINSIC SAFETY WIRING".
4. LIGHT BLUE COLORED WIRING INSULATION SHALL BE RESERVED FOR INTRINSICALLY SAFE WIRING.
5. INTRINSICALLY SAFE WIRING AND TERMINALS SHALL BE SEPARATED FROM OTHER WIRING BY NOT LESS THAN 2".



4 FLOAT SWITCH TERMINAL BOX DETAIL

6

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KRAUSE PS REHABILITATION

ELECTRICAL DETAILS

NO.	DATE	REVISIONS

DRAWN: RWB
DESIGN: STK
QC: BEH
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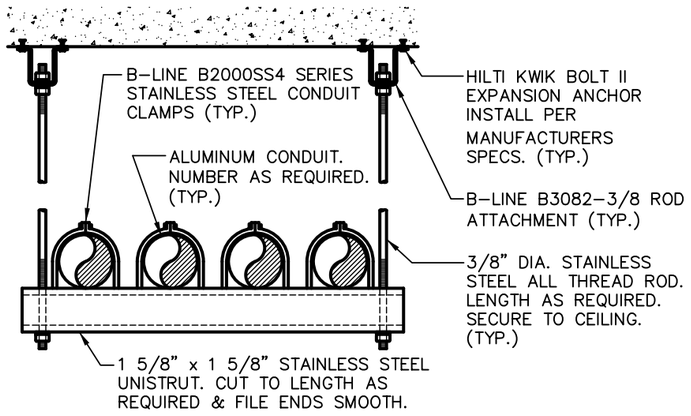
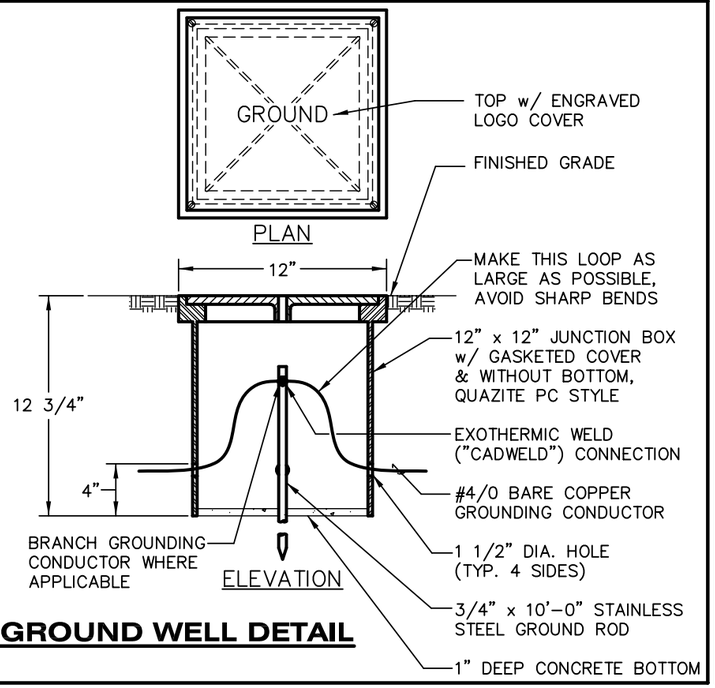
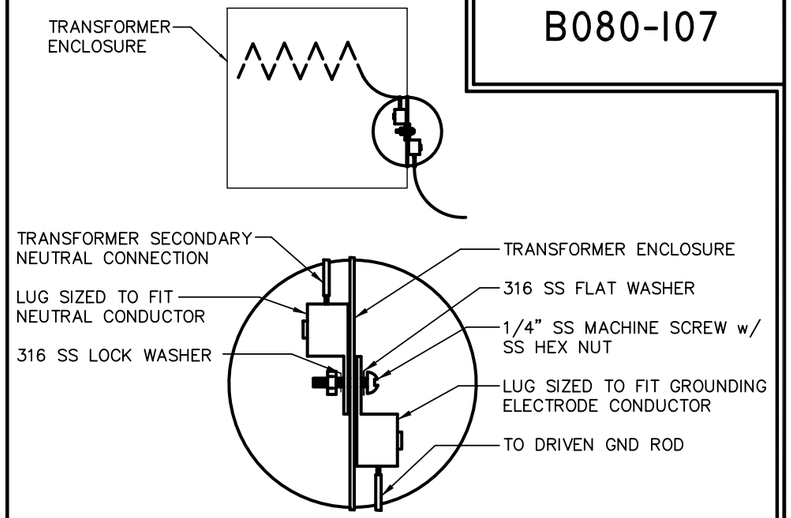
SHEET E-45



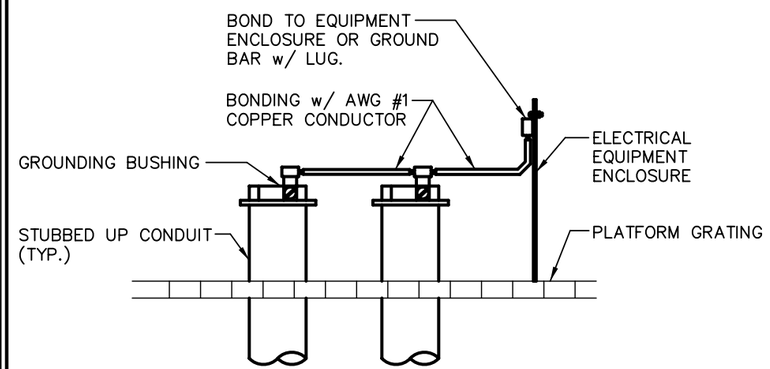
1 OVERHEAD CONDUIT SECURING DETAIL



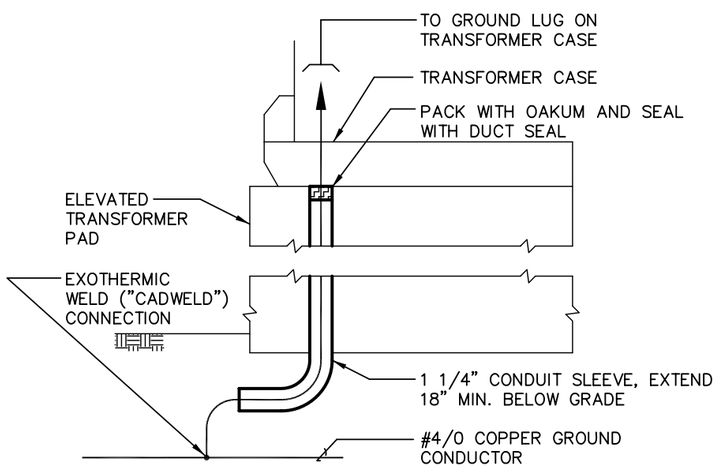
2 GROUND WELL DETAIL



3 45 KVA TRANSFORMER NEUTRAL GROUNDING DETAIL

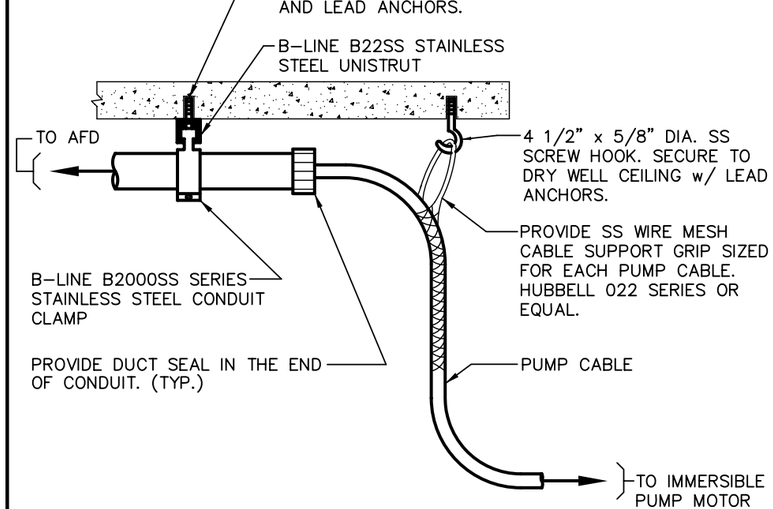


4 CONDUIT BONDING CONNECTIONS ON STUBBED UP CONDUITS BELOW EQUIPMENT



5 GROUND LOOP CONNECTION TO UTILITY TRANSFORMER CASE

(TYPICAL FOR UTILITY TRANSFORMER – A & B)



6 PUMP CABLE SUPPORT DETAIL

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CITY of TAMPA
WASTEWATER DEPARTMENT

KRAUSE PS REHABILITATION

ELECTRICAL DETAILS

NO.	DATE	REVISIONS

DRAWN: RWB
DESIGN: STK
QC: BEH
DATE: 05/01/14

SHEET E-46

PANELBOARD SCHEDULE PANEL "LPA"

B080-108

bus amps A	bus amps B	bus amps C	LOAD	poles	amps		bus ABC		poles	amps	LOAD	bus amps A	bus amps B	bus amps C
7			CONTROL PANEL/PLC	1	20	1		2	1	15	FLOW METER TOTALIZER	5		
	4		BUBBLER PANEL	1	15	3		4	3	20	TRAVELING BRIDGE CRANE		12	
		5	LOWER LEVEL RECEPTACLES*	1	20	5								12
3			LOWER LEVEL RECEPTACLES*	1	20	7						12		
	2		LOWER LEVEL LIGHTING*	1	20	9		10	1	20	WET WELL UPPER LEVEL LIGHTING		1	
		2	LOWER LEVEL LIGHTING*	1	20	11		12	1	20	WET WELL LOWER LEVEL LIGHTING*			1
2			LOWER LEVEL LIGHTING*	1	20	13		14	1	20	EXTERIOR LIGHTING	4		
	9		HIGH BAY PUMP LIGHTING	1	20	15		16	1	20	OFFICE A/C RECEPTACLE		10	
		5	UPPER LEVEL LIGHTING	1	20	17		18	1	15	VENTILATION RELAY PANEL			2
9			UPPER LEVEL RECEPTACLES	1	20	19		20	1	20	SUMP PUMP	12		
	9		UPPER LEVEL RECEPTACLES	1	20	21		22	1	20	HIGH BAY LIGHTING		8	
		2	AIR DRYER	1	15	23		24	2	30	CIRCUIT BREAKER UPS–MODULE A			21
												21		
								28	2	30	CIRCUIT BREAKER UPS–MODULE B		21	
														21
								32	2	30	CIRCUIT BREAKER UPS–MODULE C	21		
													21	
			SPARE	1	20				1	20	SPARE			
			SPARE	1	20				1	20	SPARE			

RATED VOLTAGE: 120/208 VAC, 3ø, 4W	BRANCH POLES: 42
RATED AMPS: 225	CABINET: SURFACE
FULL NEUTRAL BUS / GROUND BUS / HINGED DOOR / KEYED DOOR LATCH / 3P, 175A MAIN BREAKER	
CIRCUIT BREAKER (BOLT–ON) BRANCH DEVICES	FEED IS TO BE TOP
ALL BRKRS. MUST BE RATED TO INTERRUPT A SHORT CIRCUIT I_{sc} OF 22,000 AMPS SYMMETRICAL	
APPROVED MANUFACTURERS: SIEMENS, SQUARE D	MAIN LUGS: 1 SET; SIZE: #2/0 AWG/CU
TOTAL AMPS: BUS A 96, BUS B 97, BUS C 71, CONNECTED KVA 31.7, DEMAND KVA 31.7	

* PROVIDE GFCI CIRCUIT BREAKER FOR LIGHTING & RECEPTACLE CIRCUITS LOCATED BELOW THE FLOODPLAIN.

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CITY of TAMPA
WASTEWATER DEPARTMENT

KRAUSE PS REHABILITATION

ELECTRICAL PANELBOARD SCHEDULE

NO.	DATE	REVISIONS

DRAWN: RWB
DESIGN: STK
QC: BEH
DATE: 05/01/14

SHEET E-47

B080-109

LUMINAIRE SCHEDULE

MARK	WATTS	LAMP	VOLTS	DESCRIPTION	MOUNTING	REMARKS
F1	56	LED	120	40" LED IN AN EPOXY COATED COPPER–FREE ALUMINUM HOUSING w/ DIFFUSED LENS. CROUSE–HINDS CAT. NO. LL48–60W–765/–F–IN	CEILING MOUNT	
F2	169	LED	120	18", HIGH BAY LED FIXTURE w/ 72 HIGH OUTPUT LEDS MOUNTED IN A RUGGED CAST ALUMINUM GREY HOUSING w/ HINGE AND LATCH MOUNTING SYSTEM. HUBBELL CAT. NO. HBL–72–1–A–2–5K–W–070–ND–GR	MOUNT ON 3' PENDANT. BOTTOM OF FIXTURE SHALL NOT INTERFERE w/ TRAVELING BRIDGE CRANE	
F3	36	LED	120	LED LIGHTING FIXTURE MOUNTED IN AN EPOXY POWDER COATED, COPPER–FREE, ALUMINUM HOUSING w/ GLOBE & GUARD, SUITABLE FOR USE IN CLASS I, DIVISION 1 ENVIRONMENTS. CROUSE–HINDS CAT. NO. EVLEDBX2C701	WALL MOUNT 8'–0" AFF	PROVIDE GLOBE & GUARD
F4	60	LED	120	9", LED FIXTURE, IDA COMPLIANT, BRONZE, DIE CAST ALUMINUM HOUSING w/ POLYCARBONATE SHIELD & PHOTO CONTROL BUTTON. HUBBELL CAT. NO. LMC–18LU–5K–1–PC1–LMC–SPC	BUILDING EXTERIOR. BOTTOM OF FIXTURE SHALL BE 10'–0" ABOVE FINISHED GRADE	IDA (DARK–SKY) COMPLIANT
F5	4	LED	120	EMERGENCY LIGHTING FIXTURE w/ 2 LED LAMP HEADS & MAINTENANCE FREE NIMH BATTERY, 90 MINUTE RATED OUTPUT. DUAL–LIGHT CAT. NO. EV4D–I–02L	WALL MOUNT 8'–0" AFF OR 8'–0" ABOVE STRUCTURAL PLATFORM	
F6	9	LED	120	EMERGENCY LIGHTING FIXTURE w/ 2 LED LAMP HEADS, STAINLESS STEEL HOUSING & NICAD BATTERY, SUITABLE FOR USE IN A CLASS I, DIVISION 1 ENVIRONMENT. CROUSE–HINDS CAT. NO. N2LPS12222SS	WALL MOUNT 8'–0" AFF	
X1	15	LED	120	EXIT LIGHTING FIXTURE w/ LED LAMPS, RED FACE, UNIVERSAL MOUNT & MAINTENANCE FREE NICKEL CADMIUM BATTERY. COMPASS LIGHTING. CAT. NO. CER.	ABOVE DOOR	

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CITY of TAMPA
WASTEWATER DEPARTMENT

KRAUSE PS REHABILITATION

LUMINAIRE SCHEDULE

NO.	DATE	REVISIONS

DRAWN: RWB
DESIGN: STK
QC: BEH
DATE: 05/01/14

SHEET E-48

B080-110

PROPOSED CONDUIT / CONDUCTOR SCHEDULE

CONDUIT NO.	COND. SIZE	NO. WIRES	NO. SEALS	WIRE SIZE	FROM	TO	REMARKS
H001A	6"	1		PULL WIRE	TEC SWITCH–A	TEC TRANSFORMER–A	EXTEND CONDUIT 3' BEYOND PROPERTY LINE AND STUB UP. COORDINATE REQUIREMENTS w/ TEC.
H001B	6"	1		PULL WIRE	TEC SWITCH–A	TEC TRANSFORMER–A	EXTEND CONDUIT 3' BEYOND PROPERTY LINE AND STUB UP. COORDINATE REQUIREMENTS w/ TEC.
H002A	6"	1		PULL WIRE	TEC SWITCH–B	TEC TRANSFORMER–B	EXTEND CONDUIT 3' BEYOND PROPERTY LINE AND STUB UP. COORDINATE REQUIREMENTS w/ TEC.
H002B	6"	1		PULL WIRE	TEC SWITCH–B	TEC TRANSFORMER–B	EXTEND CONDUIT 3' BEYOND PROPERTY LINE AND STUB UP. COORDINATE REQUIREMENTS w/ TEC.
H003A	4"	1		PULL WIRE	TEC TRANSFORMER–A	TEC TRANSFORMER–B	COORDINATE REQUIREMENTS w/ TEC
H003B	4"	1		PULL WIRE	TEC TRANSFORMER–A	TEC TRANSFORMER–B	COORDINATE REQUIREMENTS w/ TEC
M100A	4"	3		500 KCMIL	TEC TRANSFORMER–A	SWITCHBOARD–KPS (BUS A)	COORDINATE TRANSFORMER CONNECTIONS w/ TEC
		1		250 KCMIL NEUT.			
M100B	4"	3		500 KCMIL	TEC TRANSFORMER–A	SWITCHBOARD–KPS (BUS A)	COORDINATE TRANSFORMER CONNECTIONS w/ TEC
		1		250 KCMIL NEUT.			
M100C	4"	3		500 KCMIL	TEC TRANSFORMER–A	SWITCHBOARD–KPS (BUS A)	COORDINATE TRANSFORMER CONNECTIONS w/ TEC
		1		250 KCMIL NEUT.			
M100D	4"	3		500 KCMIL	TEC TRANSFORMER–A	SWITCHBOARD–KPS (BUS A)	COORDINATE TRANSFORMER CONNECTIONS w/ TEC
		1		250 KCMIL NEUT.			
M100E	4"	3		500 KCMIL	TEC TRANSFORMER–A	SWITCHBOARD–KPS (BUS A)	COORDINATE TRANSFORMER CONNECTIONS w/ TEC
		1		250 KCMIL NEUT.			
M100F	4"	3		500 KCMIL	TEC TRANSFORMER–A	SWITCHBOARD–KPS (BUS A)	COORDINATE TRANSFORMER CONNECTIONS w/ TEC
		1		250 KCMIL NEUT.			
M100G	4"	3		500 KCMIL	TEC TRANSFORMER–A	SWITCHBOARD–KPS (BUS A)	COORDINATE TRANSFORMER CONNECTIONS w/ TEC
		1		250 KCMIL NEUT.			
M101A	4"	3		500 KCMIL	TEC TRANSFORMER–B	SWITCHBOARD–KPS (BUS B)	COORDINATE TRANSFORMER CONNECTIONS w/ TEC
		1		250 KCMIL NEUT.			
M101B	4"	3		500 KCMIL	TEC TRANSFORMER–B	SWITCHBOARD–KPS (BUS B)	COORDINATE TRANSFORMER CONNECTIONS w/ TEC
		1		250 KCMIL NEUT.			
M101C	4"	3		500 KCMIL	TEC TRANSFORMER–B	SWITCHBOARD–KPS (BUS B)	COORDINATE TRANSFORMER CONNECTIONS w/ TEC
		1		250 KCMIL NEUT.			
M101D	4"	3		500 KCMIL	TEC TRANSFORMER–B	SWITCHBOARD–KPS (BUS B)	COORDINATE TRANSFORMER CONNECTIONS w/ TEC
		1		250 KCMIL NEUT.			

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KRAUSE PS REHABILITATION

CONDUIT SCHEDULE

NO.	DATE	REVISIONS

DRAWN: RWB
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DATE: 05/01/14

SHEET E-49

B080-III

PROPOSED CONDUIT / CONDUCTOR SCHEDULE

CONDUIT NO.	COND. SIZE	NO. WIRES	NO. SEALS	WIRE SIZE	FROM	TO	REMARKS
M101E	4"	3		500 KCMIL	TEC TRANSFORMER–B	SWITCHBOARD–KPS (BUS B)	COORDINATE TRANSFORMER CONNECTIONS w/ TEC
		1		250 KCMIL NEUT.			
M101F	4"	3		500 KCMIL	TEC TRANSFORMER–B	SWITCHBOARD–KPS (BUS B)	COORDINATE TRANSFORMER CONNECTIONS w/ TEC
		1		250 KCMIL NEUT.			
M101G	4"	3		500 KCMIL	TEC TRANSFORMER–B	SWITCHBOARD–KPS (BUS B)	COORDINATE TRANSFORMER CONNECTIONS w/ TEC
		1		250 KCMIL NEUT.			
M102A	4"	3		500 KCMIL	GENERATOR BUS A TERMINAL BOX	SWITCHBOARD–KPS (BUS A)	FUTURE EMERGENCY GENERATOR A
		1		250 KCMIL NEUT.			
		1		400 KCMIL GND.			
M102B	4"	3		500 KCMIL	GENERATOR BUS A TERMINAL BOX	SWITCHBOARD–KPS (BUS A)	FUTURE EMERGENCY GENERATOR A
		1		250 KCMIL NEUT.			
		1		400 KCMIL GND.			
M102C	4"	3		500 KCMIL	GENERATOR BUS A TERMINAL BOX	SWITCHBOARD–KPS (BUS A)	FUTURE EMERGENCY GENERATOR A
		1		250 KCMIL NEUT.			
		1		400 KCMIL GND.			
M102D	4"	3		500 KCMIL	GENERATOR BUS A TERMINAL BOX	SWITCHBOARD–KPS (BUS A)	FUTURE EMERGENCY GENERATOR A
		1		250 KCMIL NEUT.			
		1		400 KCMIL GND.			
M102E	4"	3		500 KCMIL	GENERATOR BUS A TERMINAL BOX	SWITCHBOARD–KPS (BUS A)	FUTURE EMERGENCY GENERATOR A
		1		250 KCMIL NEUT.			
		1		400 KCMIL GND.			
M102F	4"	3		500 KCMIL	GENERATOR BUS A TERMINAL BOX	SWITCHBOARD–KPS (BUS A)	FUTURE EMERGENCY GENERATOR A
		1		250 KCMIL NEUT.			
		1		400 KCMIL GND.			
M102G	4"	3		500 KCMIL	GENERATOR BUS A TERMINAL BOX	SWITCHBOARD–KPS (BUS A)	FUTURE EMERGENCY GENERATOR A
		1		250 KCMIL NEUT.			
		1		400 KCMIL GND.			
M103A	4"	3		500 KCMIL	GENERATOR BUS B TERMINAL BOX	SWITCHBOARD–KPS (BUS B)	FUTURE EMERGENCY GENERATOR B
		1		250 KCMIL NEUT.			
		1		400 KCMIL GND.			
M103B	4"	3		500 KCMIL	GENERATOR BUS B TERMINAL BOX	SWITCHBOARD–KPS (BUS B)	FUTURE EMERGENCY GENERATOR B
		1		250 KCMIL NEUT.			
		1		400 KCMIL GND.			
M103C	4"	3		500 KCMIL	GENERATOR BUS B TERMINAL BOX	SWITCHBOARD–KPS (BUS B)	FUTURE EMERGENCY GENERATOR B
		1		250 KCMIL NEUT.			
		1		400 KCMIL GND.			
M103D	4"	3		500 KCMIL	GENERATOR BUS B TERMINAL BOX	SWITCHBOARD–KPS (BUS B)	FUTURE EMERGENCY GENERATOR B
		1		250 KCMIL NEUT.			
		1		400 KCMIL GND.			
M103E	4"	3		500 KCMIL	GENERATOR BUS B TERMINAL BOX	SWITCHBOARD–KPS (BUS B)	FUTURE EMERGENCY GENERATOR B
		1		250 KCMIL NEUT.			
		1		400 KCMIL GND.			
M103F	4"	3		500 KCMIL	GENERATOR BUS B TERMINAL BOX	SWITCHBOARD–KPS (BUS B)	FUTURE EMERGENCY GENERATOR B
		1		250 KCMIL NEUT.			
		1		400 KCMIL GND.			
M103G	4"	3		500 KCMIL	GENERATOR BUS B TERMINAL BOX	SWITCHBOARD–KPS (BUS B)	FUTURE EMERGENCY GENERATOR B
		1		250 KCMIL NEUT.			
		1		400 KCMIL GND.			
M104	1 1/4"	1		250 KCMIL	CB–KPS–A (SWITCHBOARD–KPS)	SERVICE GROUND SYSTEM	GROUNDING ELECTRODE CONDUCTOR

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CITY of TAMPA
WASTEWATER DEPARTMENT

KRAUSE PS REHABILITATION

CONDUIT SCHEDULE

NO.	DATE	REVISIONS

DRAWN: RWB
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SHEET E-50

B080-112

PROPOSED CONDUIT / CONDUCTOR SCHEDULE

CONDUIT NO.	COND. SIZE	NO. WIRES	NO. SEALS	WIRE SIZE	FROM	TO	REMARKS
M105	1 1/4"	1		250 KCMIL	CB-KPS-B (SWITCHBOARD-KPS)	SERVICE GROUND SYSTEM	GROUNDING ELECTRODE CONDUCTOR
M106A	4"	3		350 KCMIL	SWITCHBOARD-KPS (BUS A)	MCC-KPS (BUS A)	MCC BUS A POWER
		1		#1/0 GND.			
M106B	4"	3		350 KCMIL	SWITCHBOARD-KPS (BUS A)	MCC-KPS (BUS A)	MCC BUS A POWER
		1		#1/0 GND.			
M107A	4"	3		350 KCMIL	SWITCHBOARD-KPS (BUS B)	MCC-KPS (BUS B)	MCC BUS B POWER
		1		#1/0 GND.			
M107B	4"	3		350 KCMIL	SWITCHBOARD-KPS (BUS B)	MCC-KPS (BUS B)	MCC BUS B POWER
		1		#1/0 GND.			
M108A	4"	3		500 KCMIL	SWITCHBOARD-KPS (BUS A)	PUMP NO. 1 AFD	PUMP NO. 1 AFD POWER
		1		#2/0 GND.			
M108B	4"	3		500 KCMIL	SWITCHBOARD-KPS (BUS A)	PUMP NO. 1 AFD	PUMP NO. 1 AFD POWER
		1		#2/0 GND.			
M109A	4"	1		4/C 250 KCMIL	PUMP NO. 1 AFD	PUMP NO. 1	PUMP NO. 1 POWER. CABLE PROVIDED BY PUMP SUPPLIER.
M109B	4"	1		4/C 250 KCMIL	PUMP NO. 1 AFD	PUMP NO. 1	PUMP NO. 1 POWER. CABLE PROVIDED BY PUMP SUPPLIER.
M109C	4"	1		4/C 250 KCMIL	PUMP NO. 1 AFD	PUMP NO. 1	PUMP NO. 1 POWER. CABLE PROVIDED BY PUMP SUPPLIER.
M110A	4"	3		500 KCMIL	SWITCHBOARD-KPS (BUS A)	PUMP NO. 2 AFD	PUMP NO. 2 AFD POWER
		1		#2/0 GND.			
M110B	4"	3		500 KCMIL	SWITCHBOARD-KPS (BUS A)	PUMP NO. 2 AFD	PUMP NO. 2 AFD POWER
		1		#2/0 GND.			
M111A	4"	1		4/C 250 KCMIL	PUMP NO. 2 AFD	PUMP NO. 2	PUMP NO. 2 POWER. CABLE PROVIDED BY PUMP SUPPLIER.
M111B	4"	1		4/C 250 KCMIL	PUMP NO. 2 AFD	PUMP NO. 2	PUMP NO. 2 POWER. CABLE PROVIDED BY PUMP SUPPLIER.
M111C	4"	1		4/C 250 KCMIL	PUMP NO. 2 AFD	PUMP NO. 2	PUMP NO. 2 POWER. CABLE PROVIDED BY PUMP SUPPLIER.
M112A	4"	3		500 KCMIL	SWITCHBOARD-KPS (BUS B)	PUMP NO. 3 AFD	PUMP NO. 3 AFD POWER
		1		#2/0 GND.			
M112B	4"	3		500 KCMIL	SWITCHBOARD-KPS (BUS B)	PUMP NO. 3 AFD	PUMP NO. 3 AFD POWER
		1		#2/0 GND.			
M113A	4"	1		4/C 250 KCMIL	PUMP NO. 3 AFD	PUMP NO. 3	PUMP NO. 3 POWER. CABLE PROVIDED BY PUMP SUPPLIER.

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KRAUSE PS REHABILITATION

CONDUIT SCHEDULE

NO.	DATE	REVISIONS

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SHEET E-51

B080-113

PROPOSED CONDUIT / CONDUCTOR SCHEDULE

CONDUIT NO.	COND. SIZE	NO. WIRES	NO. SEALS	WIRE SIZE	FROM	TO	REMARKS
M113B	4"	1		4/C 250 KCMIL	PUMP NO. 3 AFD	PUMP NO. 3	PUMP NO. 3 POWER. CABLE PROVIDED BY PUMP SUPPLIER.
M113C	4"	1		4/C 250 KCMIL	PUMP NO. 3 AFD	PUMP NO. 3	PUMP NO. 3 POWER. CABLE PROVIDED BY PUMP SUPPLIER.
M114A	4"	3		500 KCMIL	SWITCHBOARD-KPS (BUS B)	PUMP NO. 4 AFD	PUMP NO. 4 AFD POWER
		1		#2/0 GND.			
M114B	4"	3		500 KCMIL	SWITCHBOARD-KPS (BUS B)	PUMP NO. 4 AFD	PUMP NO. 4 AFD POWER
		1		#2/0 GND.			
M115A	4"	1		4/C 250 KCMIL	PUMP NO. 4 AFD	PUMP NO. 4	PUMP NO. 4 POWER. CABLE PROVIDED BY PUMP SUPPLIER.
M115B	4"	1		4/C 250 KCMIL	PUMP NO. 4 AFD	PUMP NO. 4	PUMP NO. 4 POWER. CABLE PROVIDED BY PUMP SUPPLIER.
M115C	4"	1		4/C 250 KCMIL	PUMP NO. 4 AFD	PUMP NO. 4	PUMP NO. 4 POWER. CABLE PROVIDED BY PUMP SUPPLIER.
M116	1"	3		#6	MCC-KPS (BUS A)	AUTOMATIC TRANSFER SWITCH (NORMAL)	TRANSFORMER T1 POWER
		1		#8 GND.			
M117	1"	3		#6	MCC-KPS (BUS B)	AUTOMATIC TRANSFER SWITCH (ALTERNATE)	TRANSFORMER T1 POWER
		1		#8 GND.			
M118	1"	3		#6	AUTOMATIC TRANSFER SWITCH	TRANSFORMER T1	TRANSFORMER T1 POWER
		1		#8 GND.			
M119	2"	1		PULL WIRE	TEC TRANSFORMER-A	TEC METER (TRANSFORMER-A)	COORDINATE REQUIREMENTS w/ TEC
M120	2"	1		PULL WIRE	TEC TRANSFORMER-B	TEC METER (TRANSFORMER-B)	COORDINATE REQUIREMENTS w/ TEC
M121	3/4"	3		#10	MCC-KPS	VACUUM PUMP VP-1 CONTROL PANEL	VACUUM PUMP VP-1 POWER
		1		#10 GND.			
M122	1 1/4"	2		4/C #10	MCC-KPS	JUNCTION BOX	PUMP NO. 1 MOV & PUMP NO. 3 MOV POWER. SUBMERSIBLE CABLES.
M123	1"	1		4/C #10	JUNCTION BOX	PUMP 3 MOV	PUMP NO. 3 MOV POWER. SUBMERSIBLE CABLE.
M124	1"	1		4/C #10	JUNCTION BOX	PUMP 1 MOV	PUMP NO. 1 MOV POWER. SUBMERSIBLE CABLE.
M125	1 1/4"	2		4/C #10	MCC-KPS	JUNCTION BOX	PUMP NO. 2 MOV & PUMP NO. 4 MOV POWER. SUBMERSIBLE CABLES.
M126	1"	1		4/C #10	JUNCTION BOX	PUMP 4 MOV	PUMP NO. 4 MOV POWER. SUBMERSIBLE CABLE.

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CONDUIT SCHEDULE

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SHEET E-52

B080-114

PROPOSED CONDUIT / CONDUCTOR SCHEDULE

CONDUIT NO.	COND. SIZE	NO. WIRES	NO. SEALS	WIRE SIZE	FROM	TO	REMARKS
M127	1"	1		4/C #10	JUNCTION BOX	PUMP 2 MOV	PUMP NO. 2 MOV POWER. SUBMERSIBLE CABLE.
M128	3/4"	3		#10	MCC-KPS	AIR COMPRESSOR AC-1 CONTROL PANEL	AIR COMPRESSOR AC-1 POWER
		1		#10 GND.			
M129	3/4"	3		#10	MCC-KPS	AIR COMPRESSOR AC-2 CONTROL PANEL	AIR COMPRESSOR AC-2 POWER
		1		#10 GND.			
M130	3/4"	3		#10	MCC-KPS	VACUUM PUMP VP-2 CONTROL PANEL	VACUUM PUMP VP-2 POWER
		1		#10 GND.			
M131	1"	1		4/C #10	MCC-KPS	PUMP NO. 1 BLOWER	PUMP NO. 1 BLOWER. CABLE PROVIDED BY PUMP SUPPLIER.
M132	1"	1		4/C #10	MCC-KPS	PUMP NO. 2 BLOWER	PUMP NO. 2 BLOWER. CABLE PROVIDED BY PUMP SUPPLIER.
M133	1"	1		4/C #10	MCC-KPS	PUMP NO. 3 BLOWER	PUMP NO. 3 BLOWER. CABLE PROVIDED BY PUMP SUPPLIER.
M134	1"	1		4/C #10	MCC-KPS	PUMP NO. 4 BLOWER	PUMP NO. 4 BLOWER. CABLE PROVIDED BY PUMP SUPPLIER.
L200	2"	3		#2/0	TRANSFORMER T1	PANELBOARD LPA	PANELBOARD LPA POWER
		1		#2/0 NEUT.			
		1		#4 GND.			
L201	3/4"	1		#1	TRANSFORMER T1	GROUND SYSTEM	GROUNDING ELECTRODE CONDUCTOR
L202	3/4"	1		#12	PANELBOARD LPA	CONTROL PANEL/PLC	CONTROL PANEL/PLC POWER
		1		#12 NEUT.			
		1		#12 GND.			
L203	3/4"	1		#12	PANELBOARD LPA	WET WELL BUBBLER PANEL	WET WELL BUBBLER PANEL POWER
		1		#12 NEUT.			
		1		#12 GND.			
L204A	3/4"	2		#10	PANELBOARD LPA	CIRCUIT BREAKER UPS	CIRCUIT BREAKER UPS-MODULE A POWER
		1		#10 NEUT.			
		1		#10 GND.			
L204B	3/4"	2		#10	PANELBOARD LPA	CIRCUIT BREAKER UPS	CIRCUIT BREAKER UPS-MODULE B POWER
		1		#10 NEUT.			
		1		#10 GND.			
L204C	3/4"	2		#10	PANELBOARD LPA	CIRCUIT BREAKER UPS	CIRCUIT BREAKER UPS-MODULE C POWER
		1		#10 NEUT.			
		1		#10 GND.			
L205	3/4"	1		#12	PANELBOARD LPA	FLOW METER TOTALIZER	FLOW METER TOTALIZER POWER
		1		#12 NEUT.			
		1		#12 GND.			
L206	3/4"	1		#12	PANELBOARD LPA	AIR DRYER	AIR DRYER POWER
		1		#12 NEUT.			
		1		#12 GND.			

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KRAUSE PS REHABILITATION

CONDUIT SCHEDULE

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SHEET E-53

B080-115

PROPOSED CONDUIT / CONDUCTOR SCHEDULE

CONDUIT NO.	COND. SIZE	NO. WIRES	NO. SEALS	WIRE SIZE	FROM	TO	REMARKS
C300A	3"	15		3/C #12	PUMP NO. 1 AFD	PUMP NO. 1 CONTROLS	CONTROL & STATUS. SUBMERSIBLE CABLES.
C300B	1"	1		4/C #12	PUMP NO. 1 AFD	PUMP NO. 1	PUMP NO. 1 SPACE HEATER & THERMOSTAT. CABLE PROVIDED BY PUMP SUPPLIER.
C301A	3"	15		3/C #12	PUMP NO. 2 AFD	PUMP NO. 2 CONTROLS	CONTROL & STATUS. SUBMERSIBLE CABLES.
C301B	1"	1		4/C #12	PUMP NO. 2 AFD	PUMP NO. 2	PUMP NO. 2 SPACE HEATER & THERMOSTAT. CABLE PROVIDED BY PUMP SUPPLIER.
C302A	3"	15		3/C #12	PUMP NO. 3 AFD	PUMP NO. 3 CONTROLS	CONTROL & STATUS. SUBMERSIBLE CABLES.
C302B	1"	1		4/C #12	PUMP NO. 3 AFD	PUMP NO. 3	PUMP NO. 3 SPACE HEATER & THERMOSTAT. CABLE PROVIDED BY PUMP SUPPLIER.
C303A	3"	15		3/C #12	PUMP NO. 4 AFD	PUMP NO. 4 CONTROLS	CONTROL & STATUS. SUBMERSIBLE CABLES.
C303B	1"	1		4/C #12	PUMP NO. 4 AFD	PUMP NO. 4	PUMP NO. 4 SPACE HEATER & THERMOSTAT. CABLE PROVIDED BY PUMP SUPPLIER.
C304	1 1/2"	24		#12	CONTROL PANEL/PLC	SWITCHBOARD–KPS (BUS A)	CIRCUIT BREAKER STATUS
		6		#12 SPARE			
		1		#12 GND.			
C305	1 1/2"	20		#12	CONTROL PANEL/PLC	SWITCHBOARD–KPS (BUS B)	CIRCUIT BREAKER STATUS
		6		#12 SPARE			
		1		#12 GND.			
C306	3 1/2"	102		#12	SWITCHBOARD–KPS (BUS A)	REMOTE CIRCUIT BREAKER PANEL (RCBP)	CIRCUIT BREAKER CONTROL & STATUS
		12		#12 SPARE			
		1		#12 GND.			
C307	3 1/2"	100		#12	SWITCHBOARD–KPS (BUS B)	REMOTE CIRCUIT BREAKER PANEL (RCBP)	CIRCUIT BREAKER CONTROL & STATUS
		12		#12 SPARE			
		1		#12 GND.			
C308	1 1/4"	3		#10	SWITCHBOARD–KPS (BUS A)	CIRCUIT BREAKER UPS–MODULE A	BUS A CIRCUIT BREAKER POWER
		3		#10 NEUT.			
		1		#10 GND.			
C309	1 1/4"	3		#10	SWITCHBOARD–KPS (BUS B)	CIRCUIT BREAKER UPS–MODULE B	BUS B CIRCUIT BREAKER POWER
		3		#10 NEUT.			
		1		#10 GND.			
C310	1 1/2"	22		#12	CONTROL PANEL/PLC	PUMP NO. 4 AFD	CONTROL & STATUS
		6		#12 SPARE			
		1		#12 GND.			
C311	1 1/2"	22		#12	CONTROL PANEL/PLC	PUMP NO. 3 AFD	CONTROL & STATUS
		6		#12 SPARE			
		1		#12 GND.			
C312	1 1/2"	22		#12	CONTROL PANEL/PLC	PUMP NO. 2 AFD	CONTROL & STATUS
		6		#12 SPARE			
		1		#12 GND.			
C313	1 1/2"	22		#12	CONTROL PANEL/PLC	PUMP NO. 1 AFD	CONTROL & STATUS
		6		#12 SPARE			
		1		#12 GND.			

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KRAUSE PS REHABILITATION

CONDUIT SCHEDULE

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SHEET E-54

B080-116

PROPOSED CONDUIT / CONDUCTOR SCHEDULE

CONDUIT NO.	COND. SIZE	NO. WIRES	NO. SEALS	WIRE SIZE	FROM	TO	REMARKS
C314	3/4"	1		#10	REMOTE CIRCUIT BREAKER PANEL (RCBP)	CIRCUIT BREAKER UPS–MODULE C	RCBP POWER
		1		#10 NEUT.			
		1		#10 GND.			
C315	3/4"	6		#12	CONTROL PANEL/PLC	CIRCUIT BREAKER UPS	STATUS
		1		#12 GND.			
C316	3/4"	4		#12	CONTROL PANEL/PLC	AIR COMPRESSOR AC–1 CONTROL PANEL	STATUS
		1		#12 GND.			
C317	3/4"	4		#12	CONTROL PANEL/PLC	AIR COMPRESSOR AC–2 CONTROL PANEL	STATUS
		1		#12 GND.			
C318	3/4"	2		#12	CONTROL PANEL/PLC	VACUUM PUMP VP–1 CONTROL PANEL	STATUS
		1		#12 GND.			
C319	3/4"	2		#12	CONTROL PANEL/PLC	VACUUM PUMP VP–2 CONTROL PANEL	STATUS
		1		#12 GND.			
C320	3/4"	2		#12	CONTROL PANEL/PLC	WET WELL LEL WARNING STROBE	WARNING INDICATION
		1		#12 GND.			
C321	3/4"	6	1	#12	CONTROL PANEL/PLC	FLOAT SWITCH TERMINAL BOX	FLOAT SWITCH LSH–1
		1		#12 GND.			
C322	3/4"	2		3/C #12	CONTROL PANEL/PLC	FLOAT SWITCH LSH–2 & LSH–3 (LOWER LEVEL)	FLOAT SWITCH LSH–2 & FLOAT SWITCH LSH–3
C323	3/4"	1		#10	SWITCHBOARD–KPS	CIRCUIT BREAKER UPS–MODULE C	TIE BREAKER POWER
		1		#10 NEUT.			
		1		#10 GND.			
C324	3/4"	4		#12	PUMP NO. 1 AFD	MCC–KPS	PUMP NO. 1 BLOWER CONTROL
		1		#12 GND.			
C325	3/4"	4		#12	PUMP NO. 2 AFD	MCC–KPS	PUMP NO. 2 BLOWER CONTROL
		1		#12 GND.			
C326	3/4"	4		#12	PUMP NO. 3 AFD	MCC–KPS	PUMP NO. 3 BLOWER CONTROL
		1		#12 GND.			
C327	3/4"	4		#12	PUMP NO. 4 AFD	MCC–KPS	PUMP NO. 4 BLOWER CONTROL
		1		#12 GND.			
C328	1 1/2"	24		#12	CONTROL PANEL/PLC	MCC–KPS	BLOWER CONTROL & STATUS
		1		#12 GND.			

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SHEET E-55

B080-117

PROPOSED CONDUIT / CONDUCTOR SCHEDULE

CONDUIT NO.	COND. SIZE	NO. WIRES	NO. SEALS	WIRE SIZE	FROM	TO	REMARKS
A400	3/4"	2		2/C #16 SHLD.	CONTROL PANEL/PLC	WET WELL BUBBLER PANEL	WET WELL LEVEL. BELDEN 8719.
A401	1 1/4"	2		1.5 PR. #22 SHLD.	CONTROL PANEL/PLC	PUMP NO. 4 AFD	ANALOG & RS-485. BELDEN 3106A, BELDEN 8719.
		4		2/C #16 SHLD.			
A402	1 1/4"	2		1.5 PR. #22 SHLD.	PUMP NO. 4 AFD	PUMP NO. 3 AFD	ANALOG & RS-485. BELDEN 3106A, BELDEN 8719.
		3		2/C #16 SHLD.			
A403	1"	2		1.5 PR. #22 SHLD.	PUMP NO. 3 AFD	PUMP NO. 2 AFD	ANALOG & RS-485. BELDEN 3106A, BELDEN 8719.
		2		2/C #16 SHLD.			
A404	1"	2		1.5 PR. #22 SHLD.	PUMP NO. 2 AFD	PUMP NO. 1 AFD	ANALOG & RS-485. BELDEN 3106A, BELDEN 8719.
		1		2/C #16 SHLD.			
A405	1 1/2"	9		3/C #16 SHLD.	PUMP NO. 1 AFD	PUMP NO. 1 RTD'S	PUMP TEMPERATURE. BELDEN 8618.
A406	3/4"	2		2/C #16 SHLD.	CONTROL PANEL/PLC	PUMP NO. 1 VIBRATION SENSORS	PUMP VIBRATION. BELDEN 8719.
A407	1 1/2"	9		3/C #16 SHLD.	PUMP NO. 2 AFD	PUMP NO. 2 RTD'S	PUMP TEMPERATURE. BELDEN 8618.
A408	3/4"	2		2/C #16 SHLD.	CONTROL PANEL/PLC	PUMP NO. 2 VIBRATION SENSORS	PUMP VIBRATION. BELDEN 8719.
A409	1 1/2"	9		3/C #16 SHLD.	PUMP NO. 3 AFD	PUMP NO. 3 RTD'S	PUMP TEMPERATURE. BELDEN 8618.
A410	3/4"	2		2/C #16 SHLD.	CONTROL PANEL/PLC	PUMP NO. 3 VIBRATION SENSORS	PUMP VIBRATION. BELDEN 8719.
A411	1 1/2"	9		3/C #16 SHLD.	PUMP NO. 4 AFD	PUMP NO. 4 RTD'S	PUMP TEMPERATURE. BELDEN 8618.
A412	3/4"	2		2/C #16 SHLD.	CONTROL PANEL/PLC	PUMP NO. 4 VIBRATION SENSORS	PUMP VIBRATION. BELDEN 8719.
A413	3/4"	2		2/C #16 SHLD.	CONTROL PANEL/PLC	FLOW METER TOTALIZER	FLOW RATE & SCALED PULSE. BELDEN 8719.
A414	3/4"	1		2/C #16 SHLD.	CONTROL PANEL/PLC	GAS DETECTOR TRANSMITTER	WET WELL GAS PERCENTAGE. BELDEN 8719.
A415	2"	1		0.625 OHM HELIAX CABLE	CONTROL PANEL/PLC	TELEMETRY ANTENNA	COMMUNICATION – HELIAX 2DF 4.5 – 50A. PROVIDE CONNECTORS AS REQUIRED.

NOTES:

1. THE SHIELD & DRAIN WIRES FOR ANALOG CABLES SHALL BE GROUNDED AT THE PLC ONLY. THE SHIELD & DRAIN WIRE AT THE END DEVICE SHALL BE NEATLY TRIMMED & TAPED w/ 2 LAYERS OF VINYL ELECTRICAL TAPE (SCOTCH 33+).

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CITY of TAMPA
WASTEWATER DEPARTMENT

KRAUSE PS REHABILITATION

CONDUIT SCHEDULE

NO.	DATE	REVISIONS

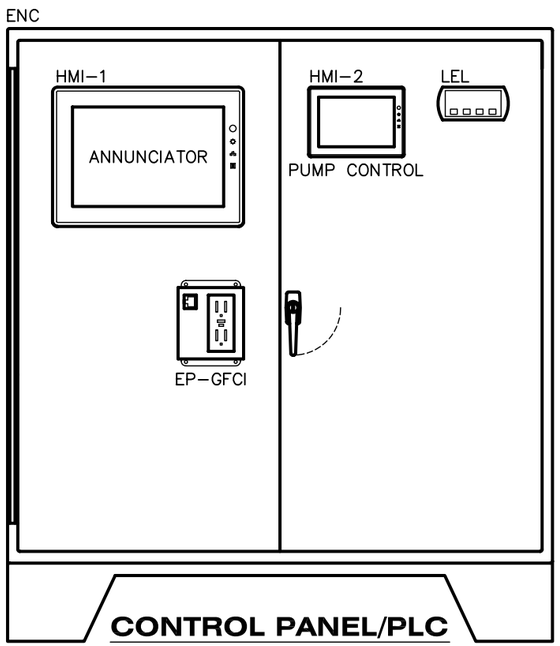
DRAWN: RWB
DESIGN: STK
QC: BEH
DATE: 05/01/14

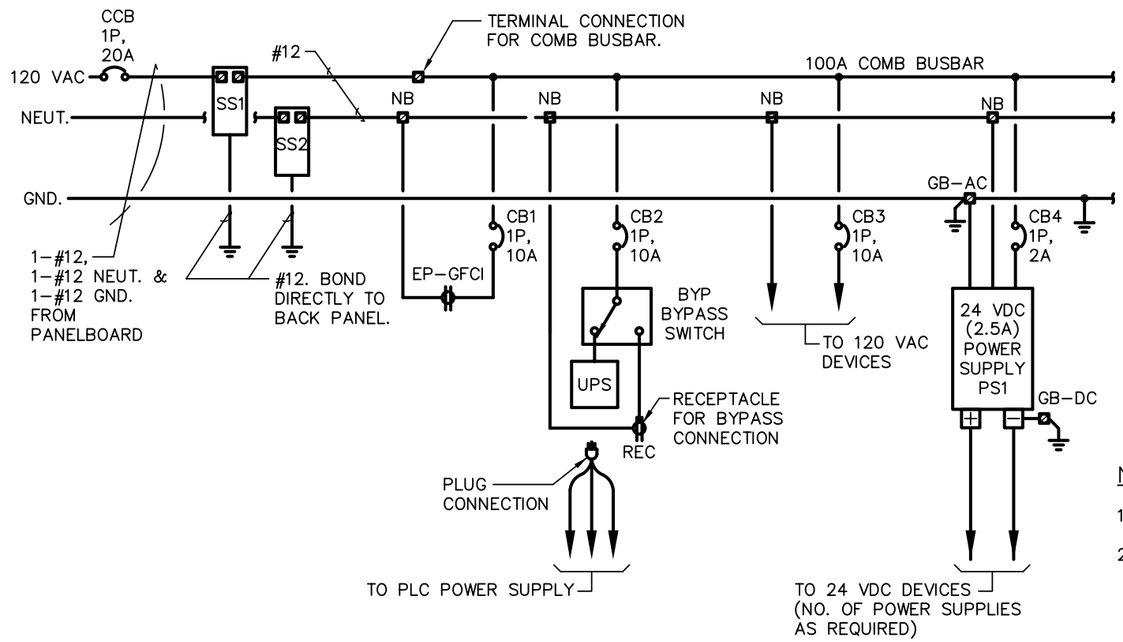
SHEET E-56

B080-118

BILL OF MATERIALS

MARK	DESCRIPTION	RATING	MANUFACTURER	CATALOG NUMBER	REMARKS
BYP	UPS BYPASS SWITCH	2P, 16A, 120 VAC	ENTRELEC	VY AR 16 SC SERIES	DIN RAIL MOUNTED
CB1 – CB3	DIN RAIL MOUNT SUPPLEMENTARY PROTECTOR	1P, 10A, 120 VAC	SIEMENS	5SY4110–7	PROVIDE 1–POLE COMB BUSBAR ON LINE SIDE.
CB4	DIN RAIL MOUNT SUPPLEMENTARY PROTECTOR	1P, 2A, 120 VAC	SIEMENS	5SY4102–7	PROVIDE 1–POLE COMB BUSBAR ON LINE SIDE.
CCB	CONTROL CIRCUIT BREAKER	1P, 20A, 120 VAC	SIEMENS	BQXD SERIES	INSULATE UNUSED CONNECTION POSITIONS.
ENC	CONTROL PANEL ENCLOSURE	72" x 72" x 16"	HOFFMAN	A727216ULP	w/ A72P72SS6 BACK PANEL
EP–GFCI	ETHERNET PORT/GFCI	120 VAC, 5A	GRACE ENGINEERING	P–R2–K3RF0	PROVIDE ETHERNET CONNECTION TO PLC.
GB–AC	AC GROUND BLOCK	240 VAC, 225A	SIEMENS	EGK	PROVIDE MOUNTING HARDWARE.
GB–DC	DC GROUND BLOCK	240 VAC, 225A	SIEMENS	EGK	PROVIDE MOUNTING HARDWARE.
HMI–1	HUMAN MACHINE INTERFACE – ANNUNCIATOR	24 VDC, 15"	MAPLE SYSTEMS	HMI5150X	ANNUNCIATOR
HMI–2	HUMAN MACHINE INTERFACE – PUMP CONTROL	24 VDC, 7"	MAPLE SYSTEMS	HMI5070NH	PUMP CONTROL
ISR–1	INTRINSICALLY SAFE RELAY	120 VAC	DIVERSIFIED ELECTRONICS	ISO–120–AAE	DUAL CHANNEL
LEL	WET WELL LEL DISPLAY	120 VAC	PRECISION DIGITAL	PD765–6R2–10	w/ 2 PROGRAMMABLE RELAYS & 24 VDC POWER SUPPLY
NB	NEUTRAL BLOCK	240 VAC, 225A	SIEMENS	CNLK18	PROVIDE MOUNTING HARDWARE.
PCSR	PUMP CONTROLLER/SCADA/RADIO	––––	MOTOROLA	ACE 3600 SERIES	REFERENCE SPECIFICATIONS.
PS1	24 VDC POWER SUPPLY	INPUT 1ø, 120 VAC, 1.3A OUTPUT 24 VDC, 2.5A	SOLA	SDN 2.5–24–100	PROVIDE MOUNTING TRACK AND ACCESSORIES.
REC	DUPLEX RECEPTACLE	20A, 125 VAC	LEVITON	5362–I	PROVIDE ALUMINUM BACK BOX & ALUMINUM COVERPLATE.
SS1 – SS2	DIN RAIL MOUNT SURGE SUPPRESSOR	1ø, 120 VAC, 60 HZ	PHOENIX CONTACT	2807586	PROVIDE MOUNTING TRACK & BASE. (2817741)
UPS	UNINTERRUPTIBLE POWER SUPPLY	120 VAC, 500 VA/300W	SOLA	SDU500	DIN RAIL MOUNTED





CONTROL PANEL/PLC POWER CONNECTIONS

NOTES:

1. REFERENCE PLC INTERCONNECTION DIAGRAMS.
2. THE SHIELD AND DRAIN WIRE FOR EACH SHIELDED CABLE SHALL BE GROUNDED AT THE CONTROL PANEL/PLC ONLY. THE SHIELD AND DRAIN WIRE AT THE PUMP CONTROL JUNCTION BOX SHALL BE NEATLY TRIMMED & TAPED w/ (2) LAYERS OF VINYL ELECTRICAL TAPE (SCOTCH 33+).

△ DENOTES TERMINAL FOR FIELD CONNECTION.

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CITY of TAMPA
WASTEWATER DEPARTMENT

KRAUSE PS REHABILITATION

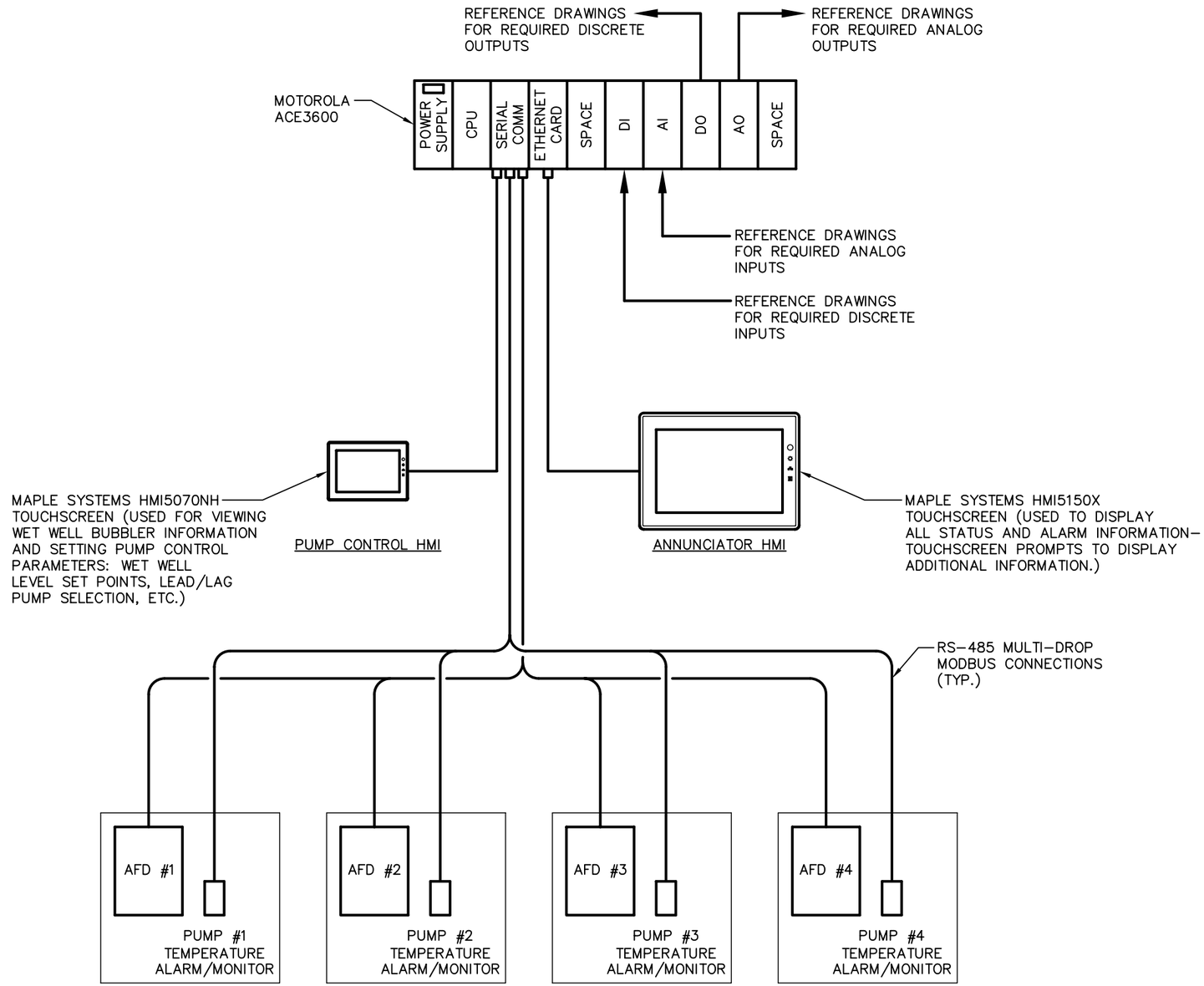
CONTROL PANEL/PLC
POWER CONNECTIONS

NO.	DATE	REVISIONS

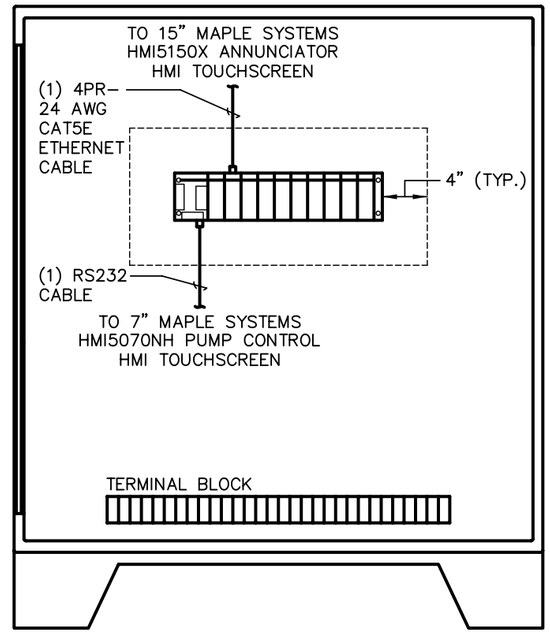
DRAWN: RWB
DESIGN: STK
QC: BEH
DATE: 05/01/14

SHEET I-1

B080-119



PROPOSED ANNUNCIATOR RISER DIAGRAM



PARTIAL EQUIPMENT BACK PANEL LAYOUT

ENGINEER OF RECORD:
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CITY of TAMPA
WASTEWATER DEPARTMENT

KRAUSE PS REHABILITATION

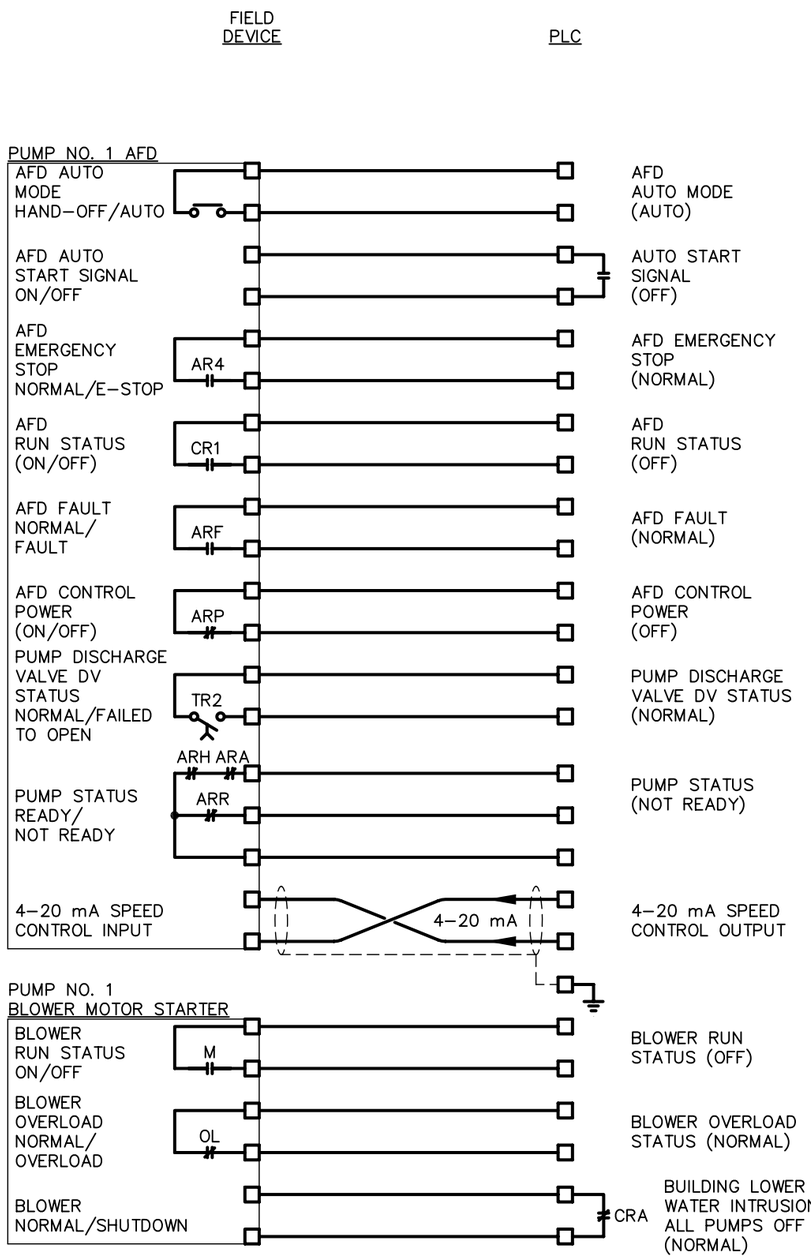
PROPOSED ANNUNCIATOR RISER DIAGRAM & PARTIAL EQUIPMENT BACK PANEL LAYOUT

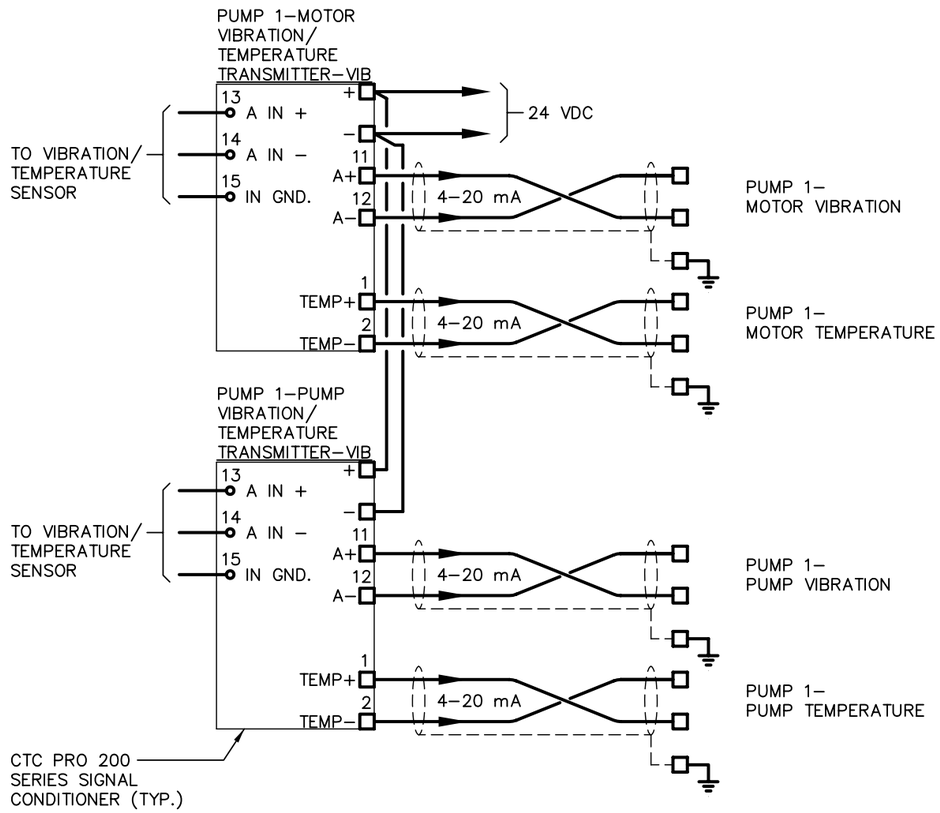
NO.	DATE	REVISIONS

DRAWN: RWB
DESIGN: STK
QC: BEH
DATE: 05/01/14

SHEET I-2

B080-I20





NOTES:

1. CONTACTS ARE SHOWN IN DE–ENERGIZED STATE.
2. THE STATUS FOR FIELD CONTACT POSITIONS ARE DENOTED IN PARENTHESIS.
3. THE SHIELD & DRAIN WIRES FOR ANALOG CABLES SHALL BE GROUNDED AT THE PLC ONLY. THE SHIELD & DRAIN WIRE AT THE END DEVICE SHALL BE NEATLY TRIMMED & TAPED w/ 2 LAYERS OF VINYL ELECTRICAL TAPE (SCOTCH 33+).
4. A TIME DELAY OF 20 SECONDS SHALL BE PROVIDED BEFORE THE STARTING OF ANY MOTOR AFTER A LOSS OF UTILITY POWER.

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KRAUSE PS REHABILITATION

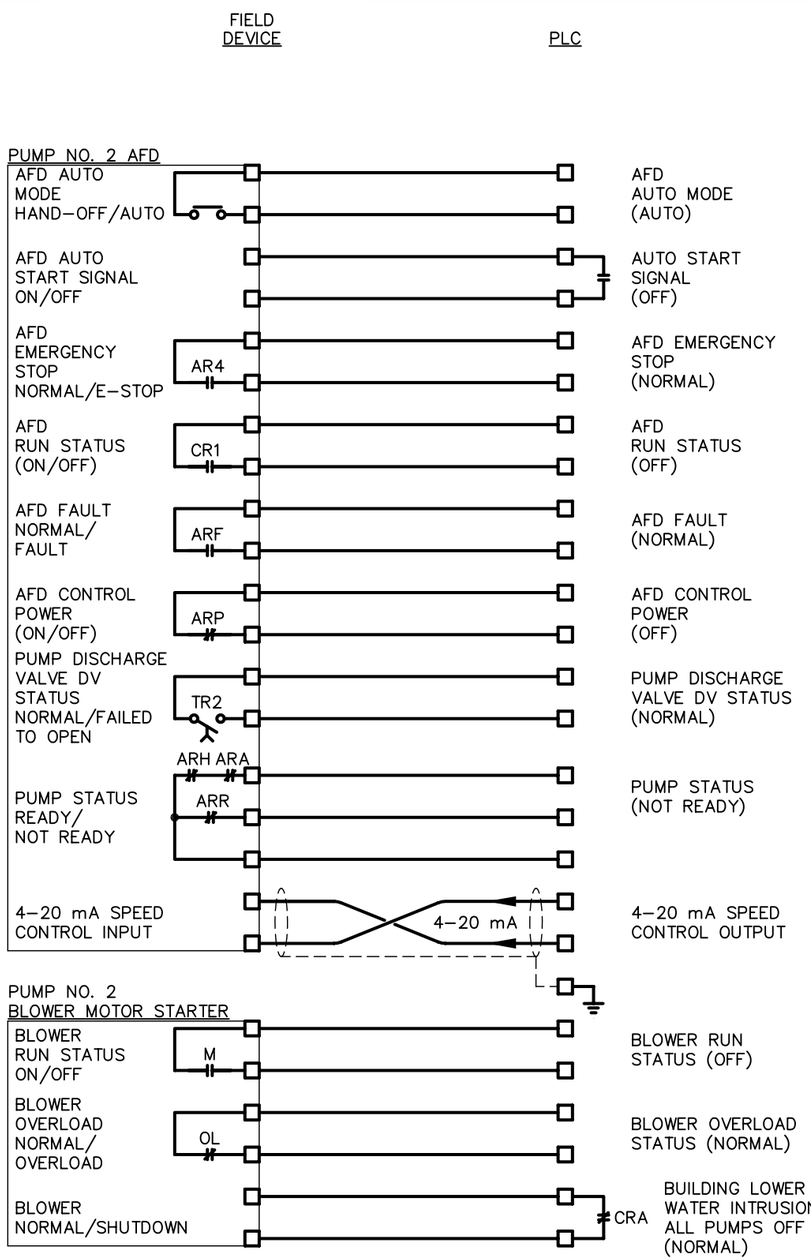
PLC INTERCONNECTION DIAGRAM
(SHEET 1 OF 6)

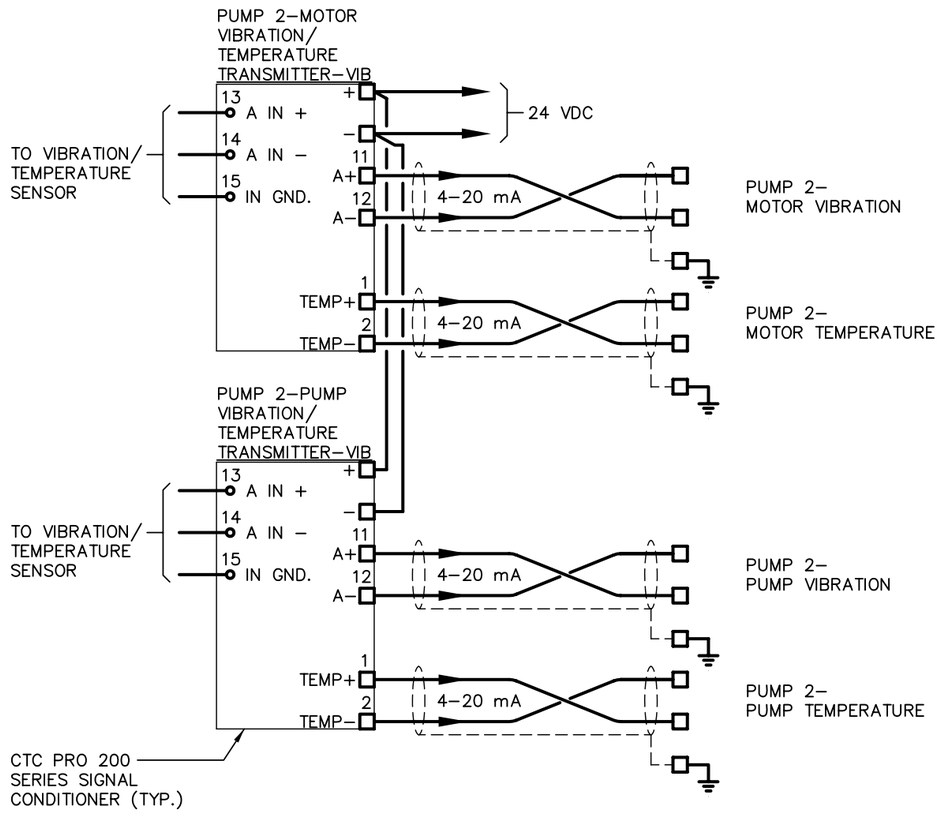
NO.	DATE	REVISIONS

DRAWN: RWB
DESIGN: STK
QC: BEH
DATE: 05/01/14

SHEET I-3

B080-121





NOTES:

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KRAUSE PS REHABILITATION

PLC INTERCONNECTION DIAGRAM
(SHEET 2 OF 6)

NO.	DATE	REVISIONS

DRAWN: RWB
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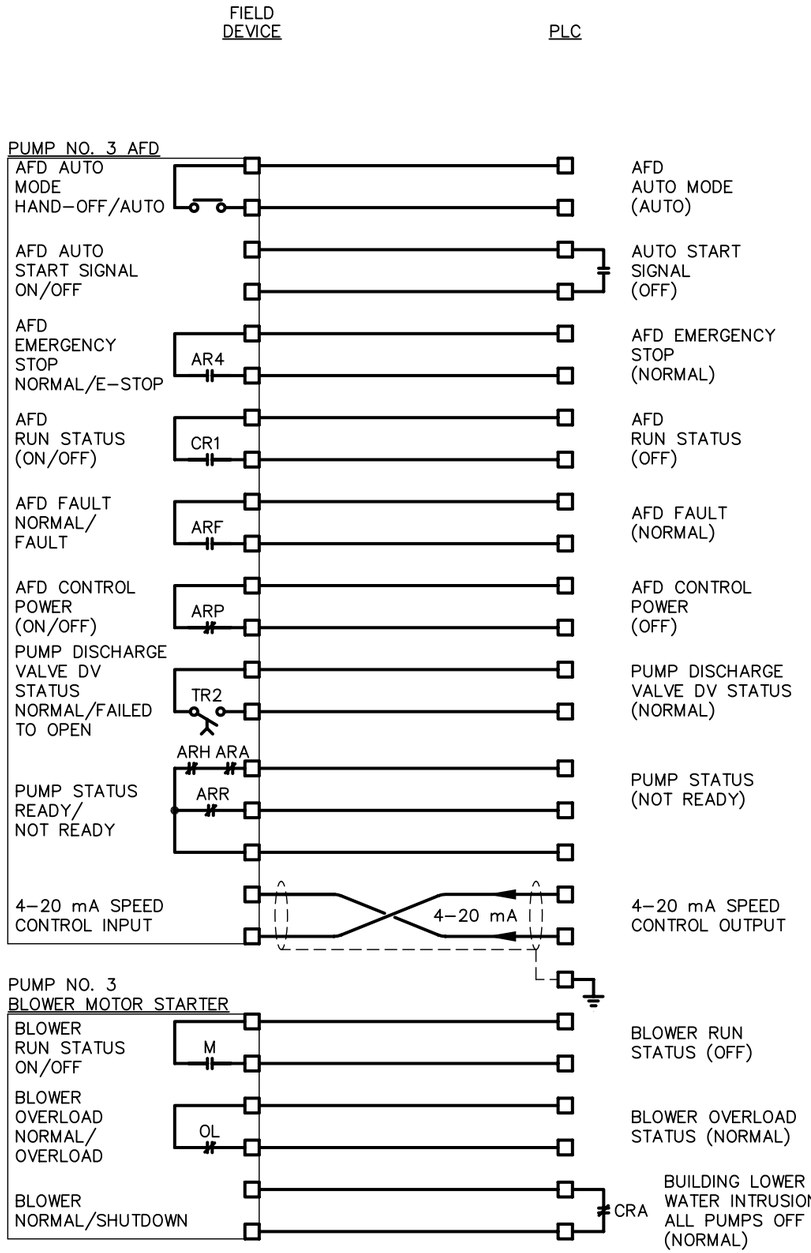
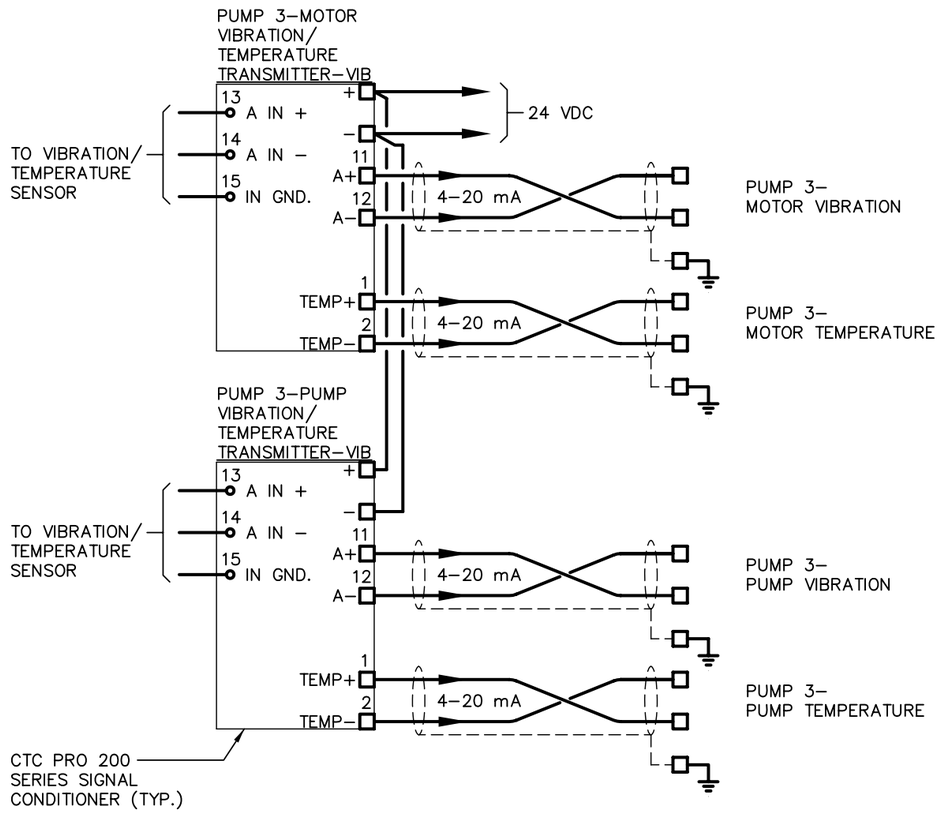
QC: BEH
DATE: 05/01/14

SHEET I-4

B080-I22





NOTES:

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KRAUSE PS REHABILITATION

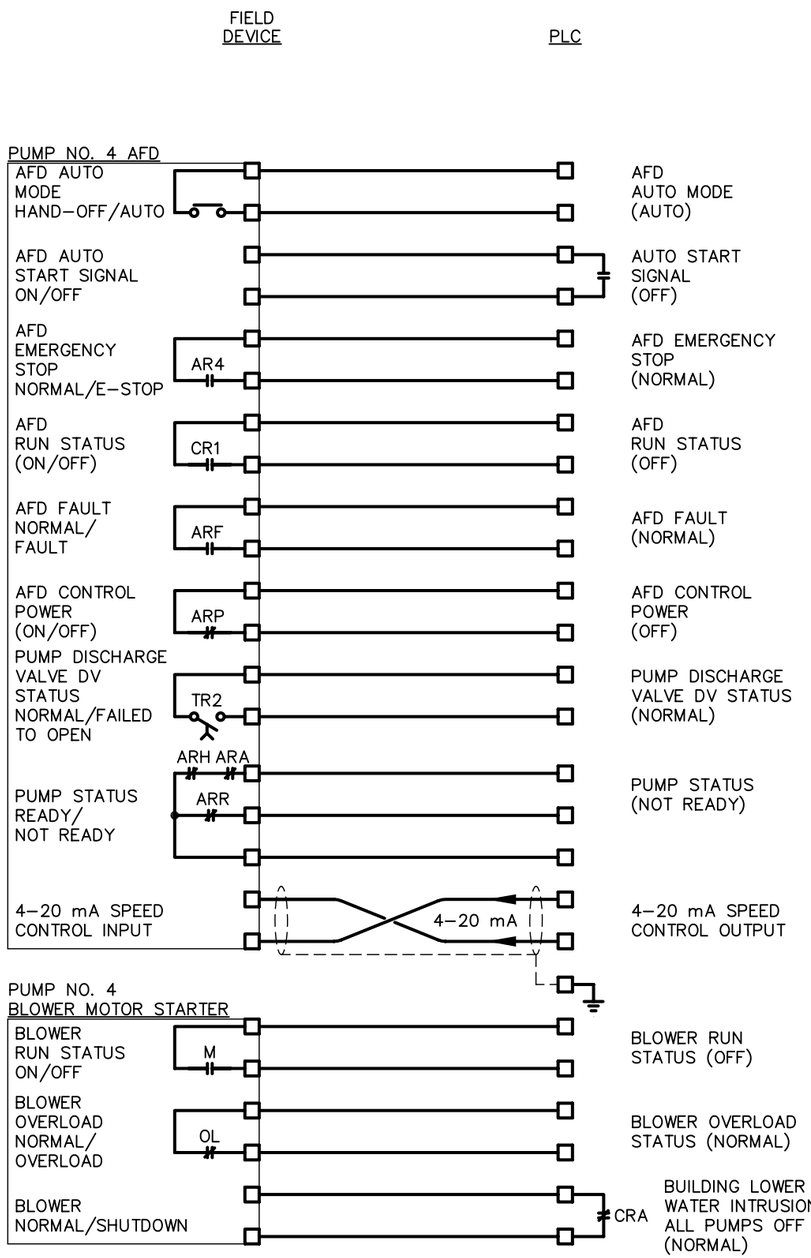
PLC INTERCONNECTION DIAGRAM
(SHEET 3 OF 6)

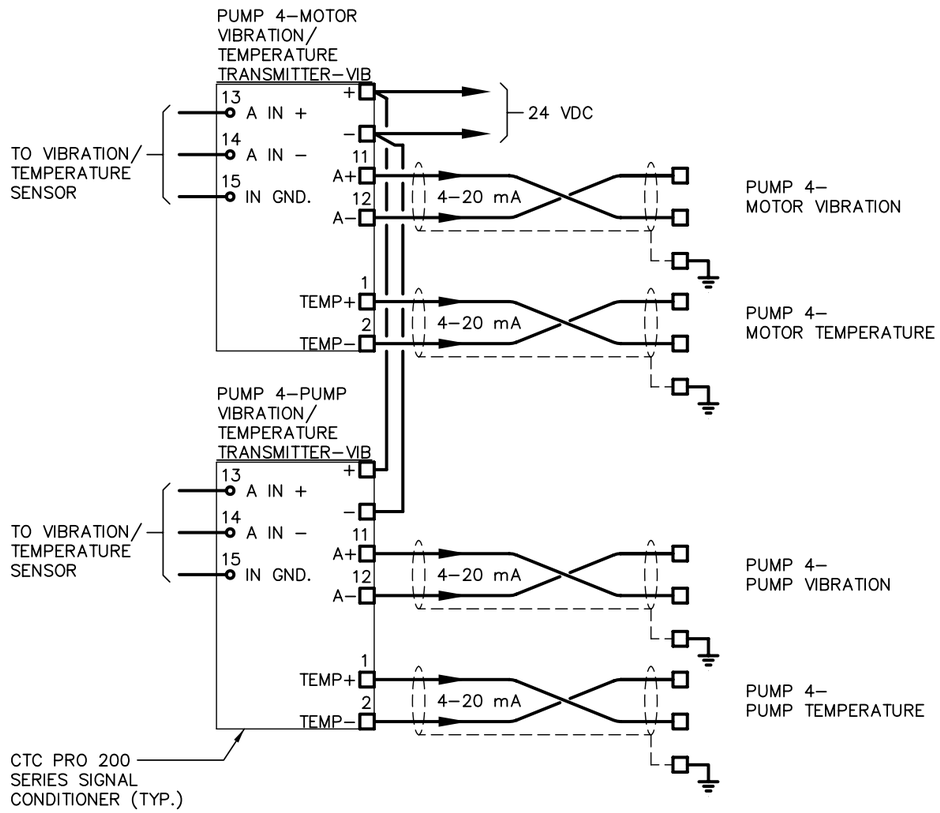
NO.	DATE	REVISIONS

DRAWN: RWB
DESIGN: STK
QC: BEH
DATE: 05/01/14

SHEET I-5

B080-123





NOTES:

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KRAUSE PS REHABILITATION

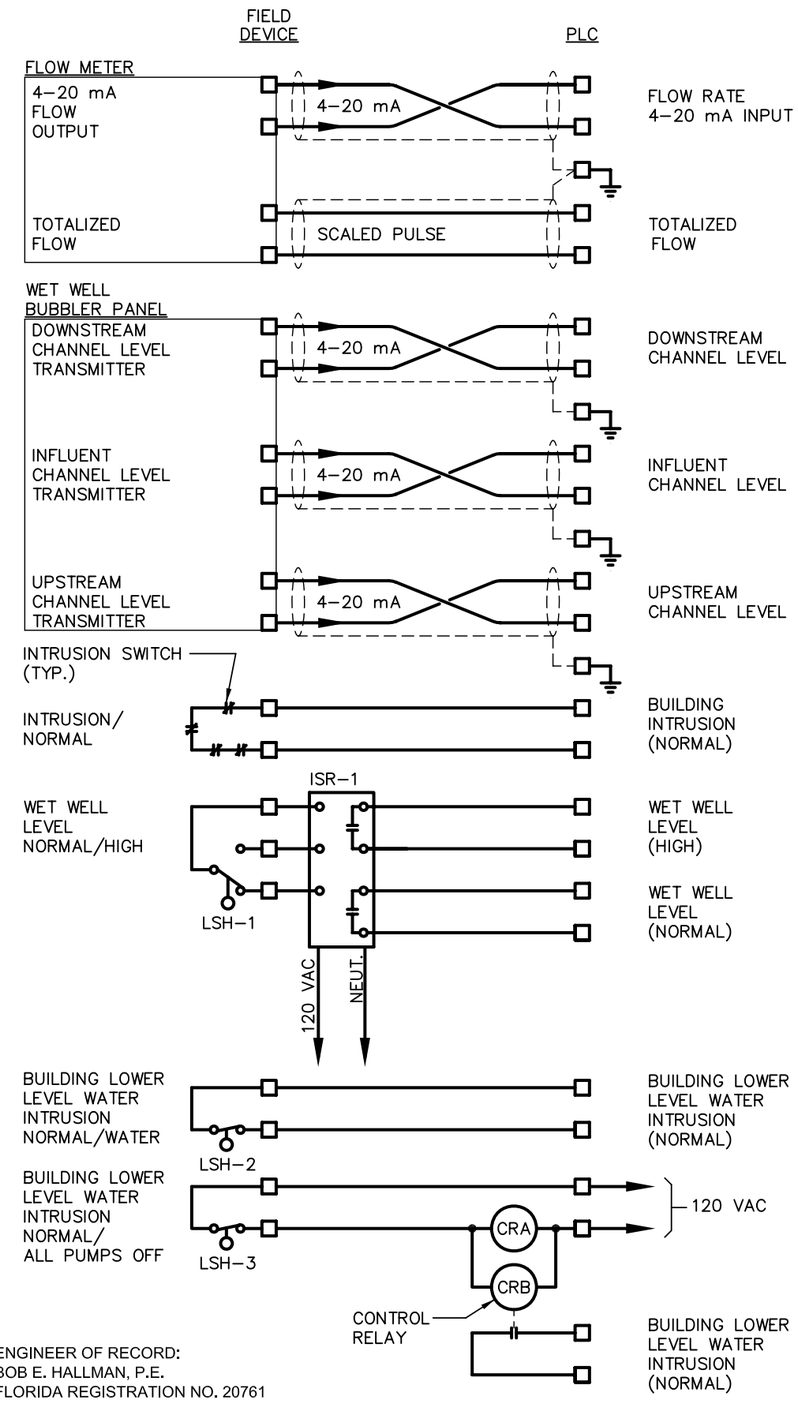
PLC INTERCONNECTION DIAGRAM
(SHEET 4 OF 6)

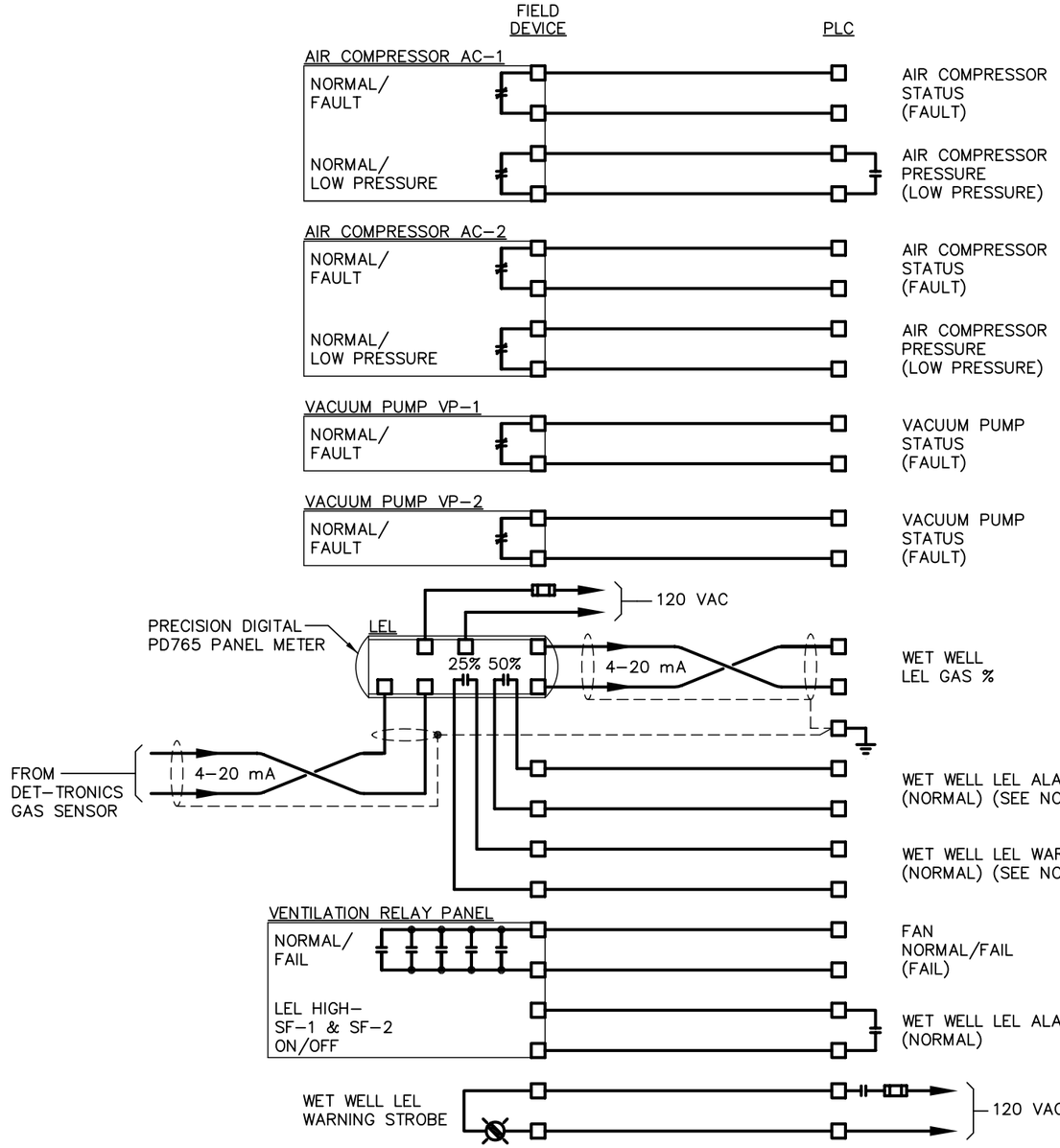
NO.	DATE	REVISIONS

DRAWN: RWB
DESIGN: STK
QC: BEH
DATE: 05/01/14

SHEET I-6

B080-124





NOTES:

1. CONTACTS ARE SHOWN IN DE–ENERGIZED STATE.
2. THE STATUS FOR FIELD CONTACT POSITIONS ARE DENOTED IN PARENTHESIS.
3. LEL WARN SHALL BE SET AT 25% OR GREATER LEL. LEL ALARM SHALL BE SET AT 50% OR GREATER LEL.
4. THE SHIELD & DRAIN WIRES FOR ANALOG CABLES SHALL BE GROUNDED AT THE PLC ONLY. THE SHIELD & DRAIN WIRE AT THE END DEVICE SHALL BE NEATLY TRIMMED & TAPED w/ 2 LAYERS OF VINYL ELECTRICAL TAPE (SCOTCH 33+).
5. A TIME DELAY OF 20 SECONDS SHALL BE PROVIDED BEFORE THE STARTING OF ANY MOTOR AFTER A LOSS OF UTILITY POWER.

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KRAUSE PS REHABILITATION

PLC INTERCONNECTION DIAGRAM (SHEET 5 OF 6)

NO.	DATE	REVISIONS

DRAWN: RWB
DESIGN: STK
QC: BEH
DATE: 05/01/14

SHEET I-7

B080-I25

FIELD DEVICE		PLC
MAIN BREAKER KPS–A 52–1 STATUS OPEN/CLOSED	52–1 a	MAIN BREAKER KPS–A 52–1 STATUS (OPEN)
MAIN BREAKER KPS–A 52–1 STATUS NORMAL/TRIPPED	86–1	MAIN BREAKER KPS–A 52–1 STATUS (TRIPPED)
MAIN BREAKER KPS–B 52–2 STATUS OPEN/CLOSED	52–2 a	MAIN BREAKER KPS–B 52–2 STATUS (OPEN)
MAIN BREAKER KPS–B 52–2 STATUS NORMAL/TRIPPED	86–2	MAIN BREAKER KPS–B 52–2 STATUS (TRIPPED)
TIE BREAKER 52–T STATUS OPEN/CLOSED	52–T a	TIE BREAKER 52–T STATUS (OPEN)
TIE BREAKER 52–T STATUS NORMAL/TRIPPED	86–T	TIE BREAKER 52–T STATUS (TRIPPED)
GENERATOR BREAKER 52–G1 STATUS OPEN/CLOSED	52–G1 a	GENERATOR BREAKER 52–G1 STATUS (OPEN)
GENERATOR BREAKER 52–G1 STATUS NORMAL/TRIPPED	86–G1	GENERATOR BREAKER 52–G1 STATUS (TRIPPED)
GENERATOR BREAKER 52–G2 STATUS OPEN/CLOSED	52–G2 a	GENERATOR BREAKER 52–G2 STATUS (OPEN)
GENERATOR BREAKER 52–G2 STATUS NORMAL/TRIPPED	86–G2	GENERATOR BREAKER 52–G2 STATUS (TRIPPED)
MCC BUS A BREAKER 52–A1 STATUS OPEN/CLOSED	52–A1 a	MCC BUS A BREAKER 52–A1 STATUS (OPEN)
MCC BUS A BREAKER 52–A1 STATUS NORMAL/TRIPPED	86–A1	MCC BUS A BREAKER 52–A1 STATUS (TRIPPED)

FIELD DEVICE		PLC
MCC BUS B BREAKER 52–A1 STATUS OPEN/CLOSED	52–A1 a	MCC BUS B BREAKER 52–A1 STATUS (OPEN)
MCC BUS B BREAKER 52–A1 STATUS NORMAL/TRIPPED	86–A1	MCC BUS B BREAKER 52–A1 STATUS (TRIPPED)
PUMP NO. 1 AFD BREAKER 52–A1 STATUS OPEN/CLOSED	52–A1 a	PUMP NO. 1 AFD BREAKER 52–A1 STATUS (OPEN)
PUMP NO. 1 AFD BREAKER 52–A1 STATUS NORMAL/TRIPPED	86–A1	PUMP NO. 1 AFD BREAKER 52–A1 STATUS (TRIPPED)
PUMP NO. 2 AFD BREAKER 52–A1 STATUS OPEN/CLOSED	52–A1 a	PUMP NO. 2 AFD BREAKER 52–A1 STATUS (OPEN)
PUMP NO. 2 AFD BREAKER 52–A1 STATUS NORMAL/TRIPPED	86–A1	PUMP NO. 2 AFD BREAKER 52–A1 STATUS (TRIPPED)
PUMP NO. 3 AFD BREAKER 52–A1 STATUS OPEN/CLOSED	52–A1 a	PUMP NO. 3 AFD BREAKER 52–A1 STATUS (OPEN)
PUMP NO. 3 AFD BREAKER 52–A1 STATUS NORMAL/TRIPPED	86–A1	PUMP NO. 3 AFD BREAKER 52–A1 STATUS (TRIPPED)
PUMP NO. 4 AFD BREAKER 52–A1 STATUS OPEN/CLOSED	52–A1 a	PUMP NO. 4 AFD BREAKER 52–A1 STATUS (OPEN)
PUMP NO. 4 AFD BREAKER 52–A1 STATUS NORMAL/TRIPPED	86–A1	PUMP NO. 4 AFD BREAKER 52–A1 STATUS (TRIPPED)
CIRCUIT BREAKER UPS–MODULE A NORMAL/FAILED	≠	CIRCUIT BREAKER UPS–MODULE A (FAILED)
CIRCUIT BREAKER UPS–MODULE B NORMAL/FAILED	≠	CIRCUIT BREAKER UPS–MODULE B (FAILED)
CIRCUIT BREAKER UPS–MODULE C NORMAL/FAILED	≠	CIRCUIT BREAKER UPS–MODULE C (FAILED)
CONTROL PANEL/ PLC UPS NORMAL/FAILED	≠	CONTROL PANEL/ PLC UPS (FAILED)

FIELD DEVICE		PLC
PUMP NO. 1 KNIFE GATE– PUMP SUCTION VALVE	LS/14 CLOSED LS/10 OPEN	KNIFE GATE– PUMP SUCTION VALVE POSITION OPEN/CLOSED (CLOSED)
PUMP NO. 2 KNIFE GATE– PUMP SUCTION VALVE	LS/14 CLOSED LS/10 OPEN	KNIFE GATE– PUMP SUCTION VALVE POSITION OPEN/CLOSED (CLOSED)
PUMP NO. 3 KNIFE GATE– PUMP SUCTION VALVE	LS/14 CLOSED LS/10 OPEN	KNIFE GATE– PUMP SUCTION VALVE POSITION OPEN/CLOSED (CLOSED)
PUMP NO. 4 KNIFE GATE– PUMP SUCTION VALVE	LS/14 CLOSED LS/10 OPEN	KNIFE GATE– PUMP SUCTION VALVE POSITION OPEN/CLOSED (CLOSED)

NOTES:

1. CONTACTS ARE SHOWN IN DE–ENERGIZED STATE.
2. THE STATUS FOR FIELD CONTACT POSITIONS ARE DENOTED IN PARENTHESIS.
3. THE SHIELD & DRAIN WIRES FOR ANALOG CABLES SHALL BE GROUNDED AT THE PLC ONLY. THE SHIELD & DRAIN WIRE AT THE END DEVICE SHALL BE NEATLY TRIMMED & TAPED w/ 2 LAYERS OF VINYL ELECTRICAL TAPE (SCOTCH 33+).
4. A TIME DELAY OF 20 SECONDS SHALL BE PROVIDED BEFORE THE STARTING OF ANY MOTOR AFTER A LOSS OF UTILITY POWER.

ENGINEER OF RECORD:
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CITY of TAMPA
WASTEWATER DEPARTMENT

KRAUSE PS REHABILITATION

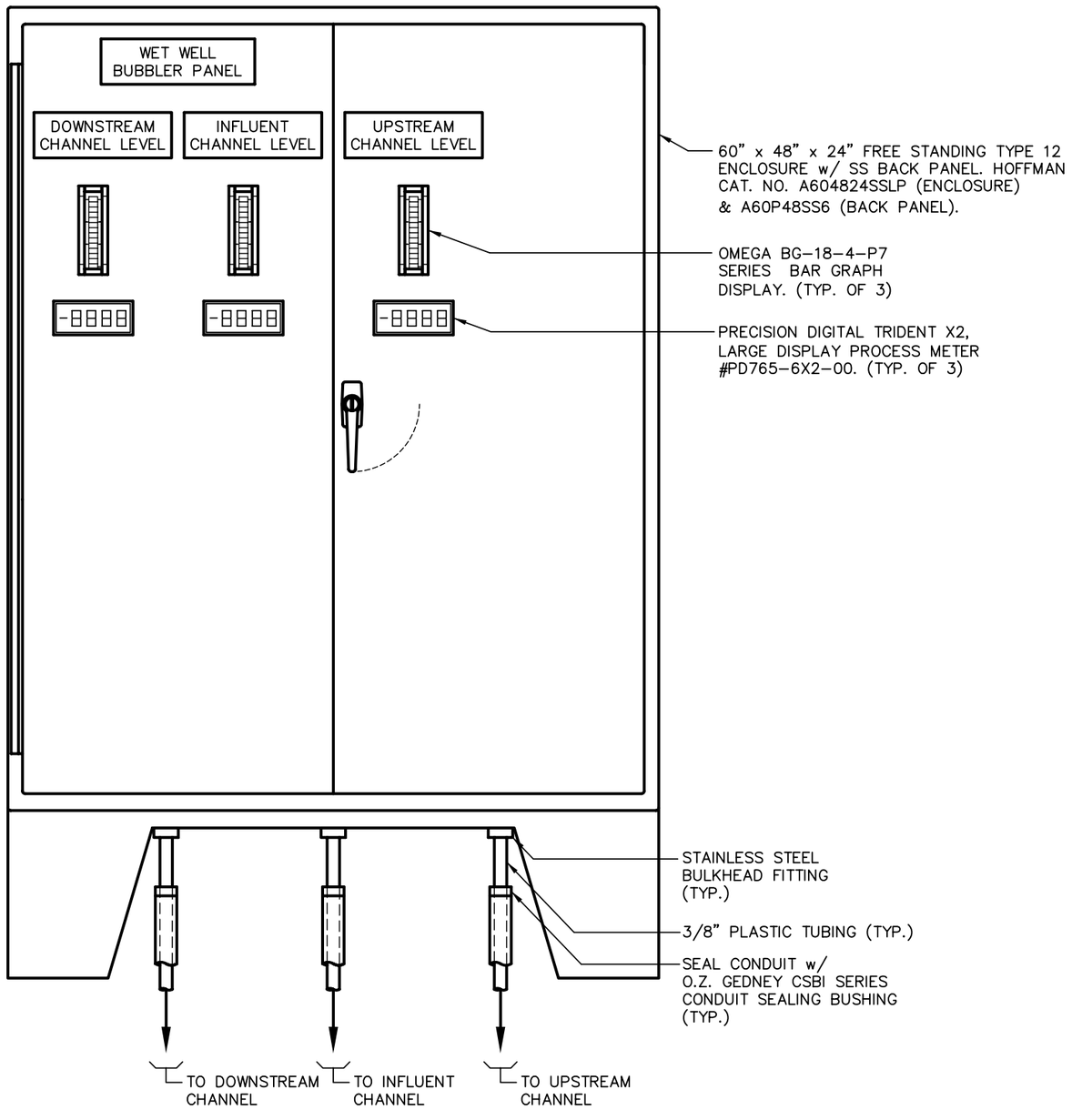
PLC INTERCONNECTION DIAGRAM
(SHEET 6 OF 6)

NO.	DATE	REVISIONS

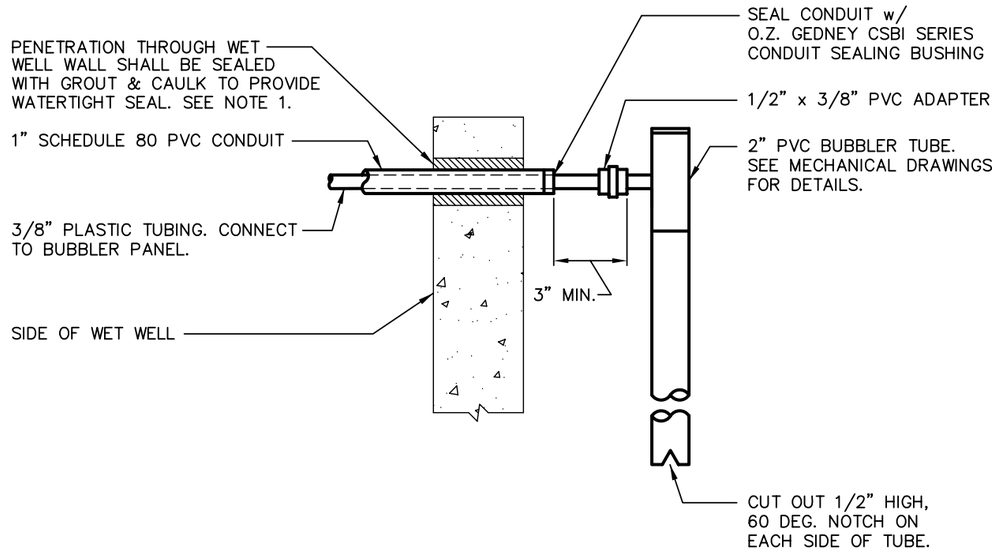
DRAWN: RWB
DESIGN: STK
QC: BEH
DATE: 05/01/14

SHEET I-8

B080-126



BUBBLER PANEL
NOT TO SCALE



BUBBLER TUBE CONNECTION DETAIL
(TYP.)

NOTES:

1. AFTER CORE DRILLING HOLES THROUGH REINFORCED CONCRETE WALLS AND FLOORS, COAT EXPOSED REINFORCING STEEL CONCRETE SURFACES WITH EMACO P24 BY BASF. AFTER ROUTING CONDUIT THROUGH HOLE, FILL AND FINISH CONCRETE WITH A SHRINKAGE COMPENSATING REPAIR MORTAR WITH CORROSION INHIBITING PROPERTIES, EMACO S66 C1 BY BASF. REFERENCE STRUCTURAL DRAWINGS.

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CITY of TAMPA
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KRAUSE PS REHABILITATION

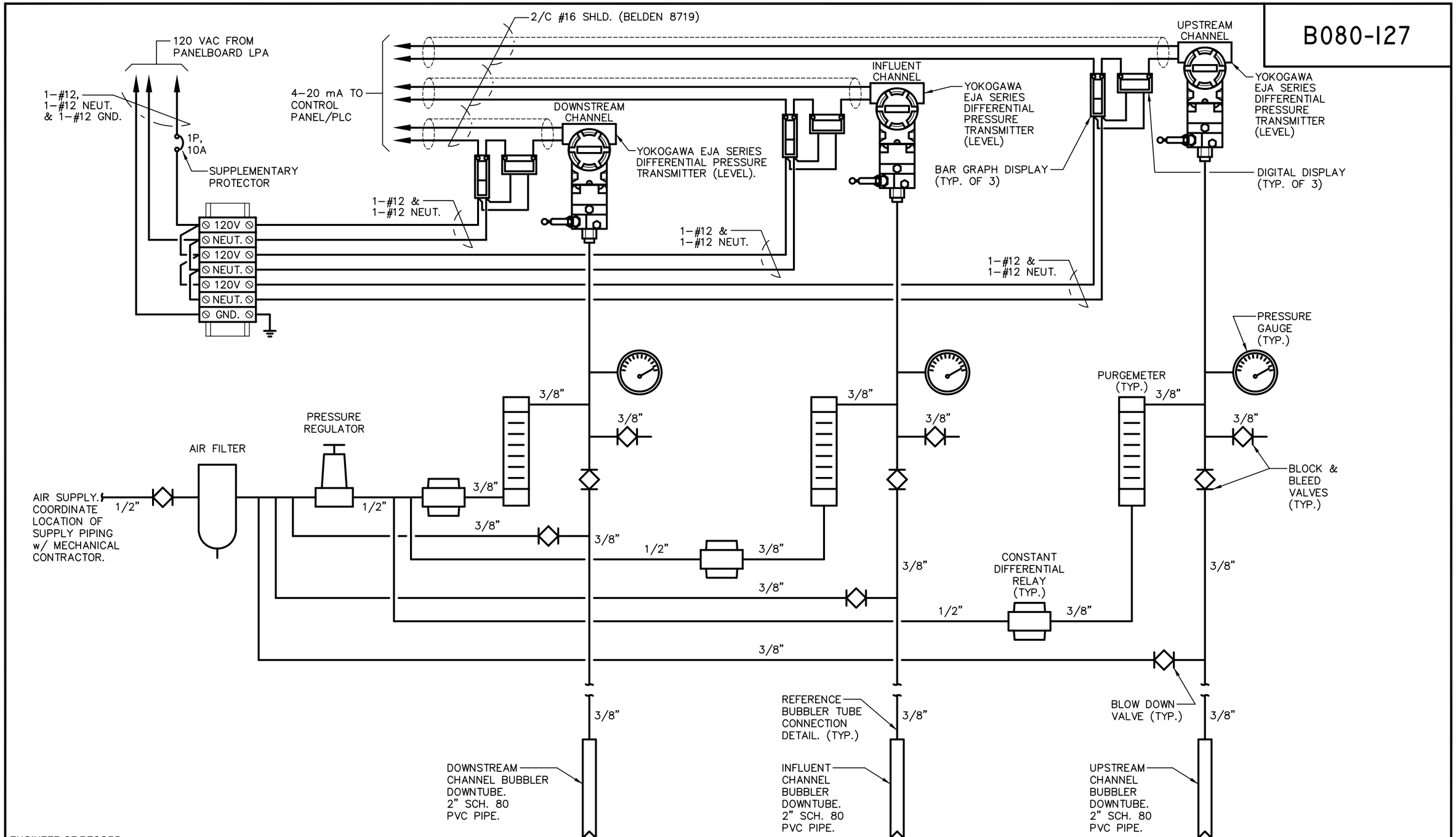
BUBBLER PANEL DETAILS
(SHEET 1 OF 2)

NO.	DATE	REVISIONS

DRAWN: RWB
DESIGN: STK
QC: BEH
DATE: 05/01/14

SHEET I-9

B080-127



ENGINEER OF RECORD:
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CITY of TAMPA
WASTEWATER DEPARTMENT

KRAUSE PS REHABILITATION

BUBBLER PANEL DETAILS
(SHEET 2 OF 2)

NO.	DATE	REVISIONS

DRAWN: RWB
DESIGN: STK
QC: BEH
DATE: 05/01/14

SHEET I-10

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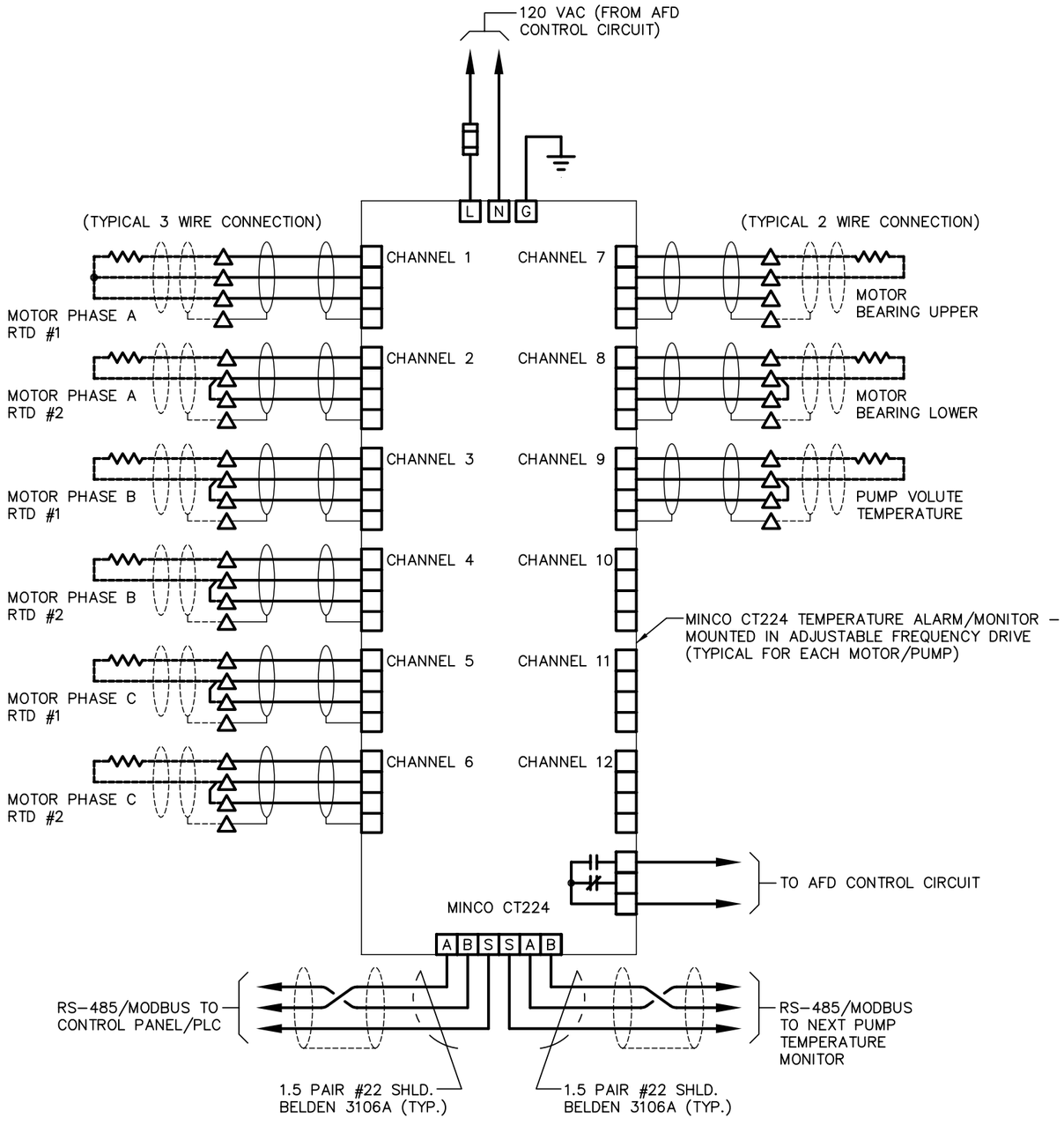

NOTES:

△ DENOTES TERMINAL FOR FIELD CONNECTION.

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CITY of TAMPA
WASTEWATER DEPARTMENT

KRAUSE PS REHABILITATION

TEMPERATURE ALARM/MONITOR DETAILS

NO.	DATE	REVISIONS

DRAWN: RWB
DESIGN: STK
QC: BEH
DATE: 05/01/14

SHEET I-11

B080-129

MECHANICAL GENERAL NOTES:

1 – PLANS INDICATE THE GENERAL LAYOUT AND LOCATION OF THE MECHANICAL SYSTEM COMPONENTS. UNLESS SPECIFIC DIMENSIONS ARE NOTED, THE ACTUAL LOCATION OF THESE COMPONENTS SHALL BE DETERMINED IN THE FIELD IN COORDINATION WITH THE WORK OF OTHER TRADES, THE USE OF MANUFACTURER'S SHOP DRAWINGS AND SIMILAR CERTIFIED DATA. THESE PLANS SHALL NOT BE SCALED.

2 – NO EXCLUSIONS FROM OR LIMITATIONS IN THE LANGUAGE USED IN THE CONTRACT DOCUMENTS SHALL BE INTERPRETED AS MEANING THAT THE EQUIPMENT, APPURTENANCES, AND/OR ACCESSORIES NECESSARY FOR A COMPLETE AND OPERATIONAL SYSTEM ARE NOT TO BE PROVIDED AS REQUIRED.

3 – THE SEPARATE DIVISIONS SHOWN ON THE CONTRACT DOCUMENTS ARE COMPLEMENTARY OF EACH OTHER AND DO NOT RELIEVE THE CONTRACTOR AND THIS INSTALLER FROM THE RESPONSIBILITY TO PROVIDE THE WORK WHICH IS INDICATED ON ANY OF THE CONTRACT DOCUMENTS. THIS INSTALLER SHALL REVIEW AND COORDINATE THE SCOPE OF HIS WORK WITH THOSE DOCUMENTS TO ASSURE THAT COMPLETE AND FUNCTIONAL SYSTEMS ARE PROVIDED.

4 – THE DIMENSIONS AND CONDITIONS SHOWN ON THE CONTRACT DOCUMENTS ARE BASED ON AVAILABLE EXISTING INFORMATION. THE CONTRACTOR SHALL VISIT THE SITE TO VERIFY EXISTING CONDITIONS AND DIMENSIONS. NOTIFY THE ENGINEER OF ANY DEVIATIONS FROM THE CONTRACT DOCUMENTS.

5 – NO INSTALLATION WORK SHALL PROCEED UNTIL A COMPLETE COORDINATION HAS BEEN DONE WITH ALL TRADES INVOLVED IN THIS PROJECT.

6 – CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY DAMAGE TO THE EXISTING INSTALLATION BEFORE PROCEEDING WITH HIS WORK. DAMAGE CAUSED BY THE CONTRACTOR SHALL BE REPAIRED AT NO COST TO THE CONTRACT AND TO THE OWNER'S SATISFACTION.

7 – CONSTRUCTION WORK SHALL COMPLY WITH FLORIDA BUILDING CODE 2010.

8 – SUBMIT SHOP DRAWINGS OF ALL EQUIPMENT AND MATERIALS FOR REVIEW. INSTALL AND TEST ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS.

9 – DRAWINGS INDICATE THE APPROXIMATE LOCATION OF THE EXISTING AIR MOVING EQUIPMENT BASED ON INFORMATION SHOWN ON AS–BUILT RECORD DOCUMENTS. CONTRACTOR SHALL VERIFY THIS INFORMATION BEFORE PROCEEDING WITH WORK. ALL DEVIATIONS PLUS NEW WORK SHALL BE NOTED ON A NEW SET OF AS–BUILT RECORD DRAWINGS TO BE KEPT AT THE JOB SITE. THESE AS–BUILTS RECORD DRAWINGS TO BE INCLUDED WITH THE PROJECT CLOSE OUT DOCUMENTS.

10 – COORDINATE ROOF PENETRATIONS AND OTHER ROOFING WORK WITH ROOFING CONTRACTOR HOLDING BOND TO ROOF. CONTACT CITY OF TAMPA PROJECT MANAGER FOR THAT INFORMATION.

SCOPE OF PROJECT:

1 – UPGRADE VENTILATION SYSTEM TO CURRENT CODE REQUIREMENTS.
2 – SYSTEM TO FACILITATE REMOVAL OF HEAT GENERATED BY NEW PUMPS AND ASSOCIATED CONTROL EQUIPMENT.
3 – PROVIDE FANS, DUCTS, CONTROLS AND AIR INTAKE AND EXHAUST LOUVERS AS SHOWN ON CONTRACT DOCUMENTS.
4 – COORDINATE WORK WITH EDT AND CITY OF TAMPA PROJECT MANAGERS.

MECHANICAL DRAWING LIST

M0.1 - MECHANICAL LEGEND, GENERAL NOTES, DRAWING LIST, SCOPE OF WORK
M2.1 - MECHANICAL LOWER LEVEL DEMOLITION PLAN
M2.2 - MECHANICAL UPPER LEVEL DEMOLITION PLAN
M4.1 - MECHANICAL LOWER LEVEL RENOVATION PLAN
M4.2 - MECHANICAL UPPER LEVEL (LOW) RENOVATION PLAN
M4.3 - MECHANICAL UPPER LEVEL (HIGH) RENOVATION PLAN
M8.1 - MECHANICAL SECTIONS
M9.1 - MECHANICAL DETAILS
M10.1 - MECHANICAL CONTROLS / SEQUENCE OF OPERATIONS
M11.1 - MECHANICAL FAN SCHEDULE

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CITY of TAMPA
WASTEWATER DEPARTMENT

KRAUSE PS REHABILITATION

MECHANICAL LOWER LEVEL DEMOLITION PLAN

NO.	DATE	REVISIONS

DRAWN: MH
DESIGN: MS
QC: MS
DATE: 05/01/14

M0.1

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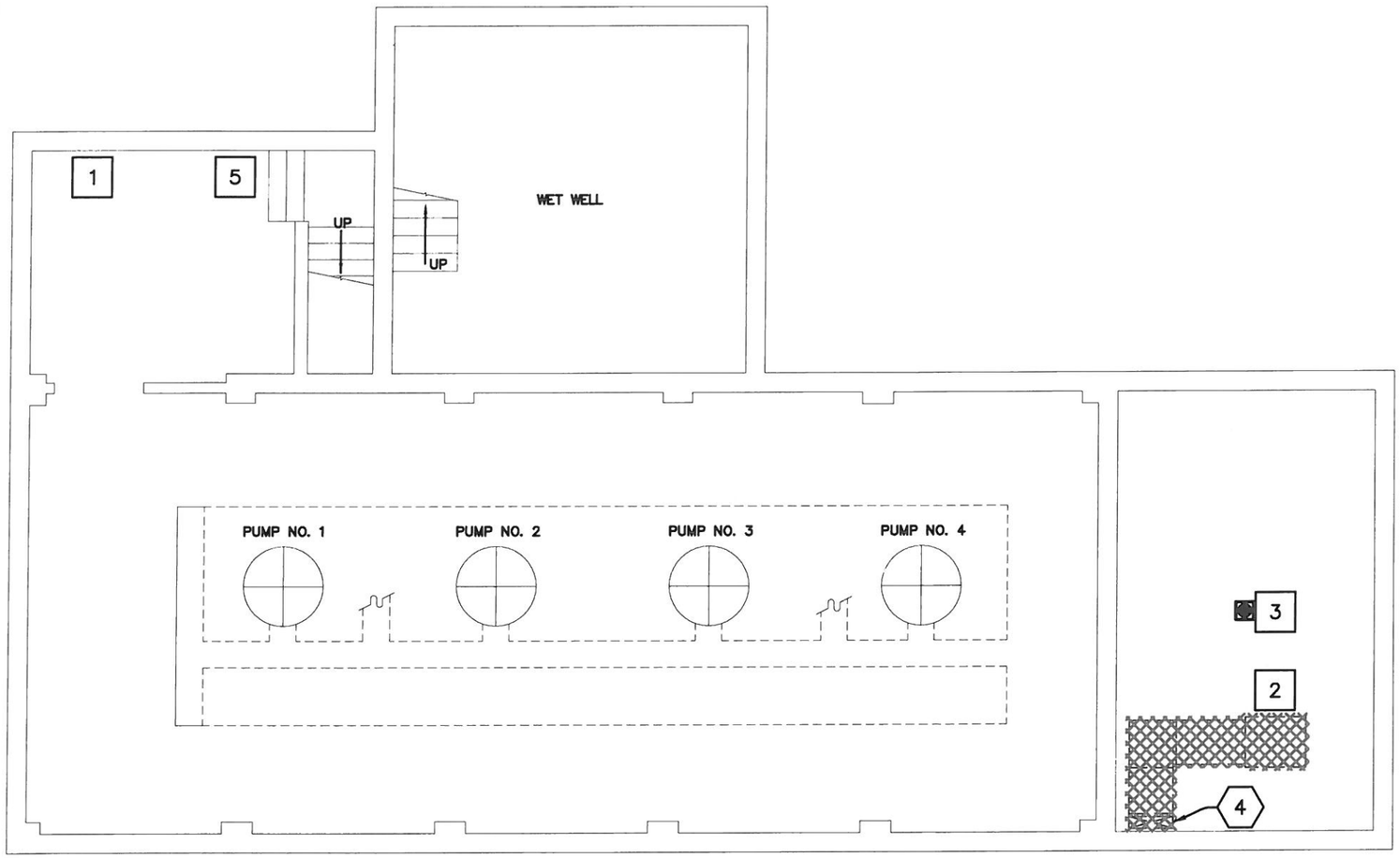
MECHANICAL DEMOLITION NOTES:

1 – REMOVE SANITARY PIPING EXPOSED IN THIS AREA FROM RESTROOM ABOVE AND CAP. REFER TO DRAWING M2.2 FOR ADDITIONAL INFORMATION.
2 – REMOVE AND DISPOSE OF EXISTING FAN AND ASSOCIATED DUCTWORK UP TO FLOOR ABOVE. REFER TO DRAWING M2.2 FOR ADDITIONAL INFORMATION.
3 – EXISTING FLOOR DRAIN TO BE SEALED.
4 – COORDINATE WITH EDT PLANS FOR SEALING OF FLOOR OPENING AFTER DUCT IS REMOVED.
5 – PIPING FROM RESTROOM ABOVE TO REMAIN. DO NOT DISTURB.



MECHANICAL LOWER LEVEL DEMOLITION PLAN

0 4' 8' 16'

SCALE: 1/8" = 1'–0"

N

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MECHANICAL LOWER LEVEL DEMOLITION PLAN

NO.	DATE	REVISIONS

DRAWN: MH
DESIGN: MS
QC: MS
DATE: 05/01/14

M2.1

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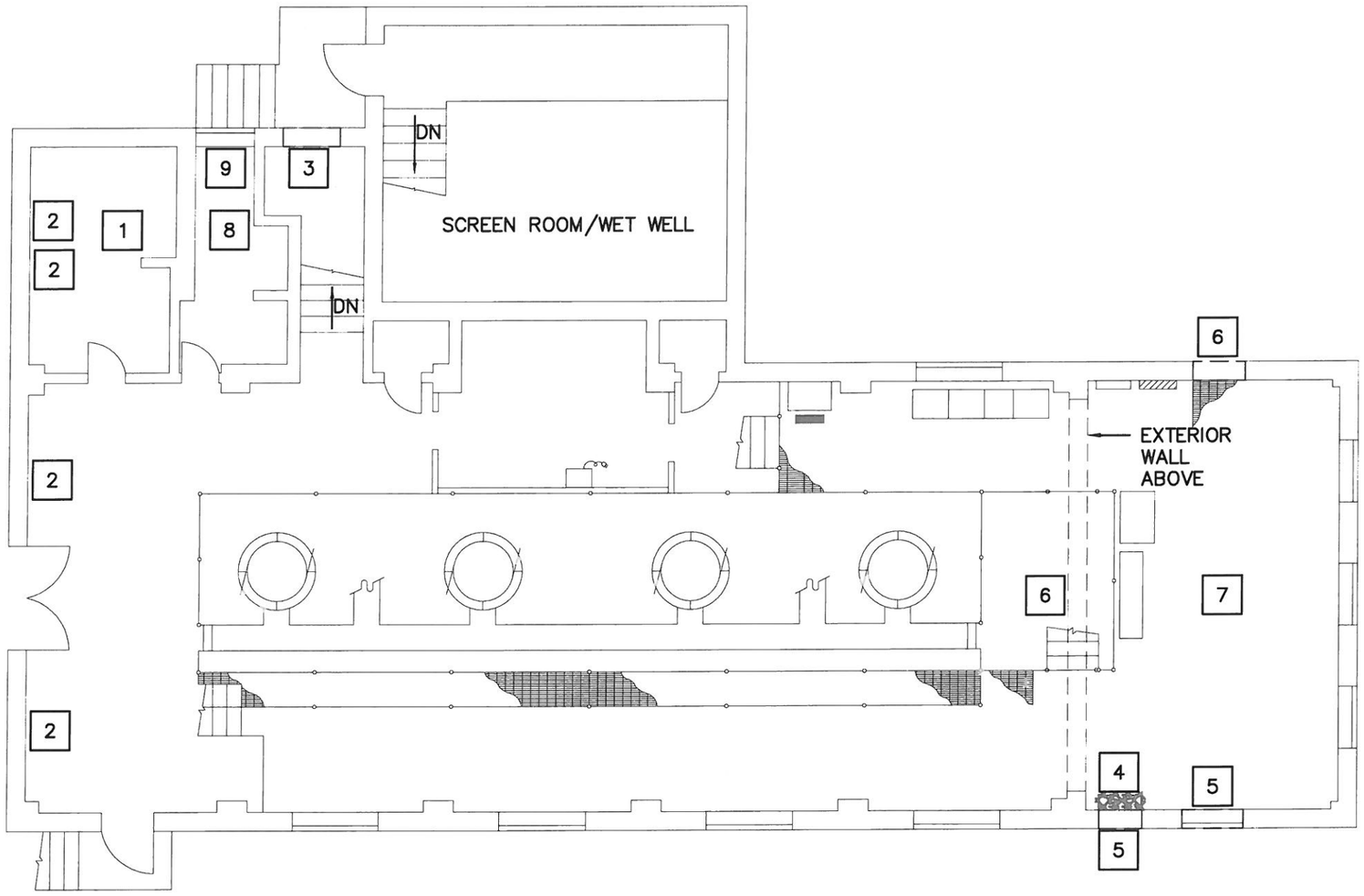

MECHANICAL DEMOLITION NOTES:

1 – REMOVE AND DISPOSE OF EXISTING PLUMBING FIXTURES, FLOOR DRAINS AND ASSOCIATED PIPING IN THIS ROOM. SEAL FLOOR PENETRATIONS. REFER TO DRAWING M2.1 FOR ADDITIONAL INFORMATION REGARDING REMOVAL OF PIPING AT LOWER LEVEL BELOW.

2 – REMOVE EXISTING WINDOWS AND REPLACE WITH NEW LOUVER. REFER TO DRAWING M4.2 FOR ADDITIONAL INFORMATION. WINDOWS SHALL REMAIN CITY OF TAMPA PROPERTY. COORDINATE WITH CITY OF TAMPA PROJECT MANAGER.

3 – REMOVE AND DISPOSE OF EXISTING LOUVER AND DUCTWORK AND REPLACE WITH NEW LOUVER. REFER TO DRAWING M4.2 FOR ADDITIONAL INFORMATION.

4 – REMOVE AND DISPOSE OF EXISTING DUCTWORK DOWN THROUGH FLOOR. PATCH HOLE IN FLOOR TO MATCH EXISTING. REMOVE DUCT UP THROUGH ROOF AND SEAL ROOF OPENING. REFER TO DRAWING M2.1 FOR ADDITIONAL INFORMATION.

5 – REMOVE AND DISPOSE OF EXISTING LOUVERS. PATCH AND PAINT WALL TO MATCH EXISTING.

6 – EXISTING SIDEWALL PROPELLER FAN TO BE REMOVED AND DISPOSED OF.

7 – EXISTING FAN ON ROOF TO BE REMOVED AND REPLACED WITH NEW FAN. REFER TO DRAWING M4.2 FOR ADDITIONAL INFORMATION.

8 – EXISTING RESTROOM TO REMAIN. DO NOT DISTURB.

9 – EXISTING WINDOW TO REMAIN. DO NOT DISTURB.

MECHANICAL UPPER LEVEL DEMOLITION PLAN

N

0 4' 8' 16'

SCALE: 1/8" = 1'–0"

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CITY of TAMPA
WASTEWATER DEPARTMENT

KRAUSE PS REHABILITATION

MECHANICAL UPPER LEVEL DEMOLITION PLAN

NO.	DATE	REVISIONS

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M2.2

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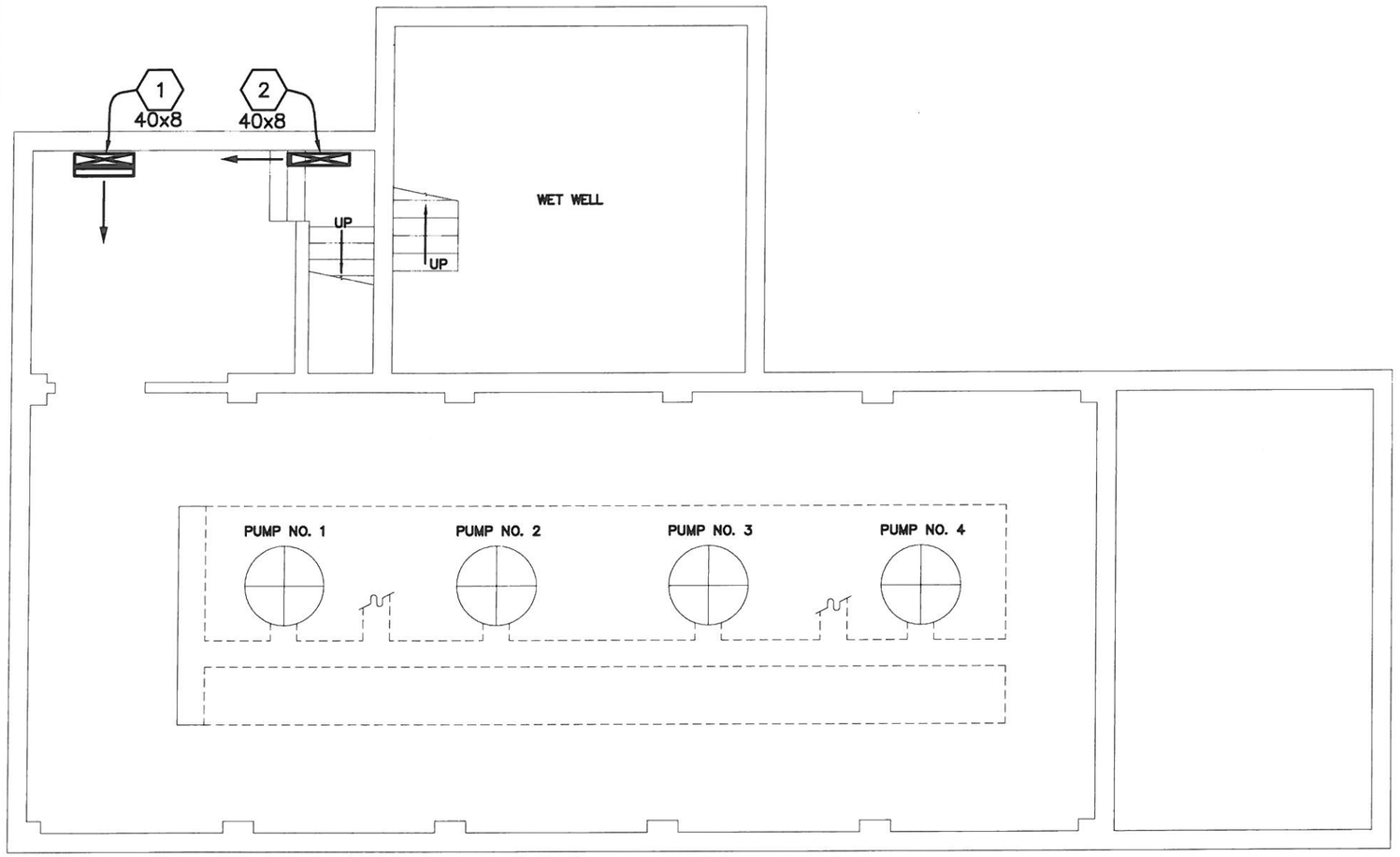

MECHANICAL RENOVATION NOTES:

1 – NEW OUTSIDE AIR INTAKE DUCT FROM FLOOR ABOVE. REFER TO DRAWING M4.2 FOR CONTINUATION. COORDINATE EXACT LOCATION IN FIELD TO AVOID CONFLICT WITH EXISTING PIPING, CONDUITS, ETC. SUPPORT DUCTWORK FROM WALL AND/OR STRUCTURE ABOVE. CUT FLOOR OPENING. PROVIDE STAINLESS STEEL SCREEN TO COVER OPEN END OF DUCT.

2 – NEW OUTSIDE AIR INTAKE DUCT FROM ABOVE. REFER TO DRAWING M4.2 FOR CONTINUATION. RUN TIGHT AGAINST WALL. PROVIDE STAINLESS STEEL SCREEN TO COVER OPEN END OF DUCT. SUPPORT DUCT FROM WALL.

DUCT CONSTRUCTION:

A – DUCTS TO BE ALUMINUM. SUPPORTING STRAPS TO BE ALUMINUM.

B – HANGERS, BOLTS, SCREWS AND ASSOCIATED APPURTENANCES TO BE 316 STAINLESS STEEL.

MECHANICAL LOWER LEVEL RENOVATION PLAN

0 4' 8' 16'

SCALE: 1/8" = 1'–0"

N

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CITY of TAMPA
WASTEWATER DEPARTMENT

KRAUSE PS REHABILITATION

MECHANICAL LOWER LEVEL RENOVATION PLAN

NO.	DATE	REVISIONS

DRAWN: MH
DESIGN: MS
QC: MS
DATE: 05/01/14

M4.1

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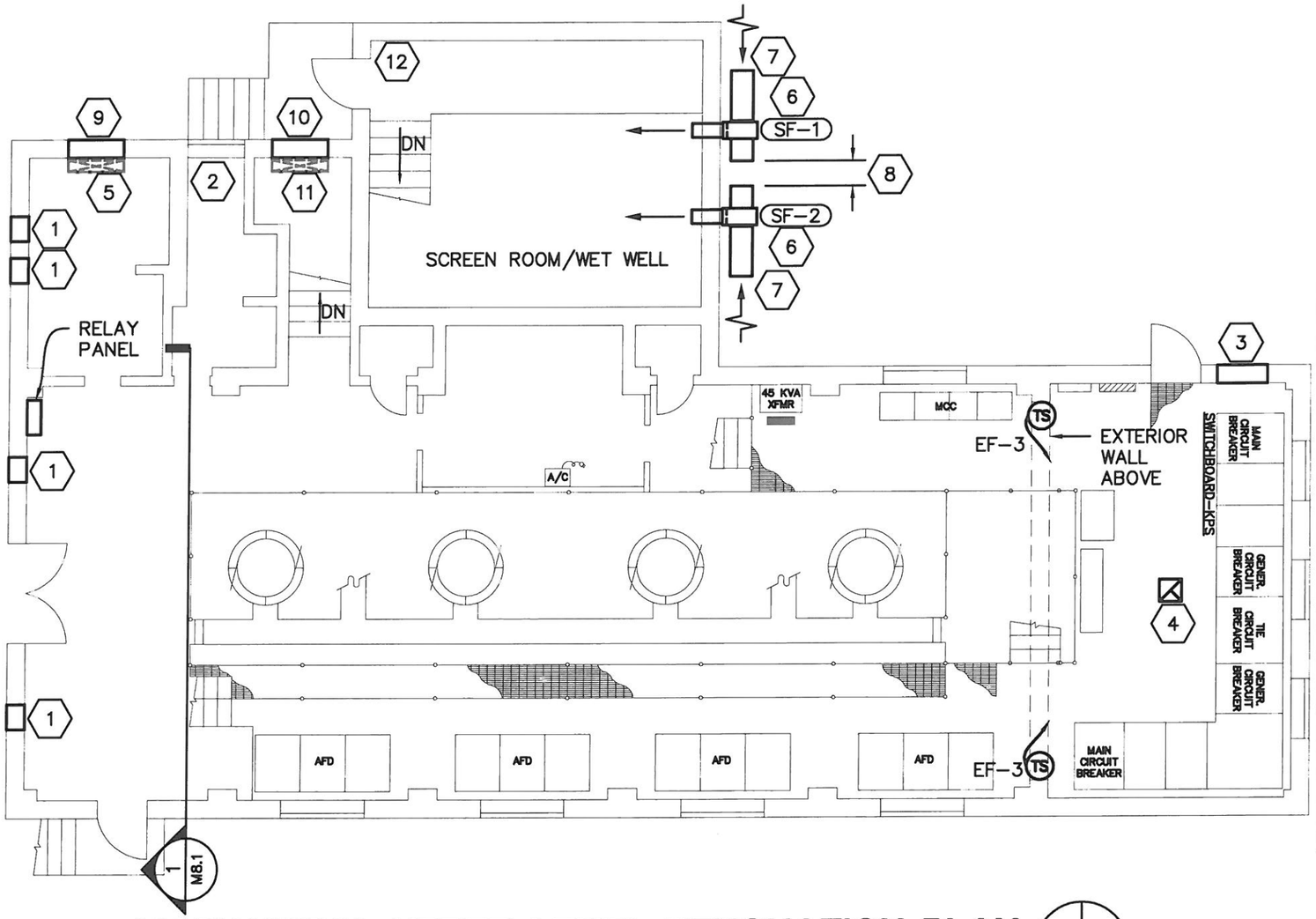

MECHANICAL UPPER LEVEL RENOVATION PLAN

0 4' 8' 16'

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

MECHANICAL RENOVATION NOTES:

1 – NEW 18"x48" INTAKE LOUVER EQUAL TO RUSKIN MODEL EME6325D LOCATED IN EXISTING WINDOW OPENING. LOUVER TO HAVE A MINIMUM OF 2.29 SQ. FT. FREE AREA. CONTRACTOR SHALL FIELD VERIFY EXACT OPENING DIMENSIONS AND MODIFY OPENING AS REQUIRED. IF OPENING IS LARGER THAN NOTED PROVIDE THE LARGEST SIZE LOUVER AVAILABLE.

2 – EXISTING WINDOW. REFER TO NOTE 9 ON DRAWING M2.2.

3 – NEW 36"x36" INTAKE LOUVER EQUAL TO RUSKIN MODEL EME6325D LOCATED IN NEW WALL OPENING. LOUVER TO HAVE A MINIMUM OF 3 SQ. FT. FREE AREA. CONTRACTOR SHALL FIELD VERIFY EXACT LOCATION.

4 – ROOF OPENING FOR NEW EXHAUST FAN ABOVE. REFER TO DRAWING M4.3 FOR ADDITIONAL INFORMATION.

5 – NEW OUTSIDE AIR INTAKE DUCT DOWN TO FLOOR BELOW. CUT HOLE IN CONCRETE FLOOR TO ACCOMMODATE DUCTWORK AND SEAL SPACE BETWEEN OPENING AND DUCTWORK. REFER TO DRAWING M4.1 FOR CONTINUATION.

6 – NEW SUPPLY FAN MOUNTED ON EXTERIOR WALL. SUPPORT FROM WALL USING DUCTMATE "HURRICANE AIRBRACE" OR SIMILAR. RUN DUCT THROUGH WALL INTO SCREEN ROOM. DUCT DIMENSIONS SHALL MATCH FAN OUTLET DIMENSIONS. SEAL AROUND DUCT PENETRATIONS OF WALL. REFER TO FAN SCHEDULE ON DRAWING M11.1 FOR ADDITIONAL INFORMATION.

7 – PROVIDE 36" LONG SECTION OF DUCT CONNECTED TO FAN INLET. DUCT DIMENSIONS SHALL MATCH FAN INLET DIMENSIONS. END OF DUCT TO TERMINATE AT A 45° ANGLE TO PREVENT WATER INTRUSION. PROVIDE STAINLESS STEEL BIRD SCREEN SECURED TO END OF DUCT. SUPPORT DUCT FROM WALL WITH GALVANIZED STEEL ANGLES.

8 – LEAVE MINIMUM 18" CLEAR BETWEEN FAN MOTORS FOR SERVICE / MAINTENANCE OF BELTS, ETC.

9 – NEW 36"x48" INTAKE LOUVER EQUAL TO RUSKIN MODEL EME6325D. LOUVER TO HAVE A MINIMUM OF 4.91 SQ. FT. FREE AREA. CUT OPENING IN WALL AS REQUIRED TO ACCOMMODATE LOUVER.

10 – NEW 36"x48" INTAKE LOUVER EQUAL TO RUSKIN MODEL EME6325D LOCATED IN EXISTING LOUVER OPENING. LOUVER TO HAVE A MINIMUM OF 4.91 SQ. FT. FREE AREA. CONTRACTOR SHALL FIELD VERIFY EXACT OPENING DIMENSIONS AND MODIFY OPENING AS REQUIRED. IF OPENING IS LARGER THAN NOTED PROVIDE THE LARGEST SIZE LOUVER AVAILABLE.

11 – NEW OUTSIDE AIR INTAKE DUCT DOWN IN EXISTING OPENING TO FLOOR BELOW. SEAL SPACE BETWEEN OPENING AND DUCTWORK. REFER TO DRAWING M4.1 FOR CONTINUATION.

12 – MANUAL HAND/OFF/AUTO SWITCHES FOR SF-1 AND SF-2. PROVIDE GREEN PILOT LIGHT FOR FAN "ON".

DUCT CONSTRUCTION:

A – DUCTS TO BE ALUMINUM. SUPPORTING STRAPS TO BE ALUMINUM.
B – HANGERS, BOLTS, SCREWS AND ASSOCIATED APPURTENANCES TO BE MARINE GRADE STAINLESS STEEL.

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CITY of TAMPA
WASTEWATER DEPARTMENT

KRAUSE PS REHABILITATION

MECHANICAL UPPER LEVEL (LOW) RENOVATION PLAN

NO.	DATE	REVISIONS

DRAWN: MH
DESIGN: MS
QC: MS
DATE: 05/01/14

M4.2

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MECHANICAL RENOVATION NOTES:

1 – NEW EXHAUST FAN SUPPORTED FROM WALL. CONNECT TO ALUMINUM PLENUM. REFER TO DRAWING M8.1 AND FAN SCHEDULE ON DRAWING M11.1 FOR ADDITIONAL INFORMATION.

2 – NEW ROOF MOUNTED EXHAUST FAN ABOVE. MODIFY EXISTING ROOF OPENING AS REQUIRED TO ACCOMMODATE NEW FAN. SECURE CURB AS PER 2010 FBC. REFER TO FAN SCHEDULE ON DRAWING M11.1 FOR ADDITIONAL INFORMATION.

3 – NEW 18"x10" EXHAUST AIR GRILLE EQUAL TO TITUS MODEL 350ZFL, 0° DEFLECTIONS, 3/4" SPACING. BALANCE TO 800 CFM EACH. TYPICAL. GRILLES SHALL BE MOUNTED AT 45° ANGLE DOWN ON DUCT. REFER TO DETAIL #011, SECTION 15400 ON DRAWING M9.1 FOR ADDITIONAL INFORMATION.

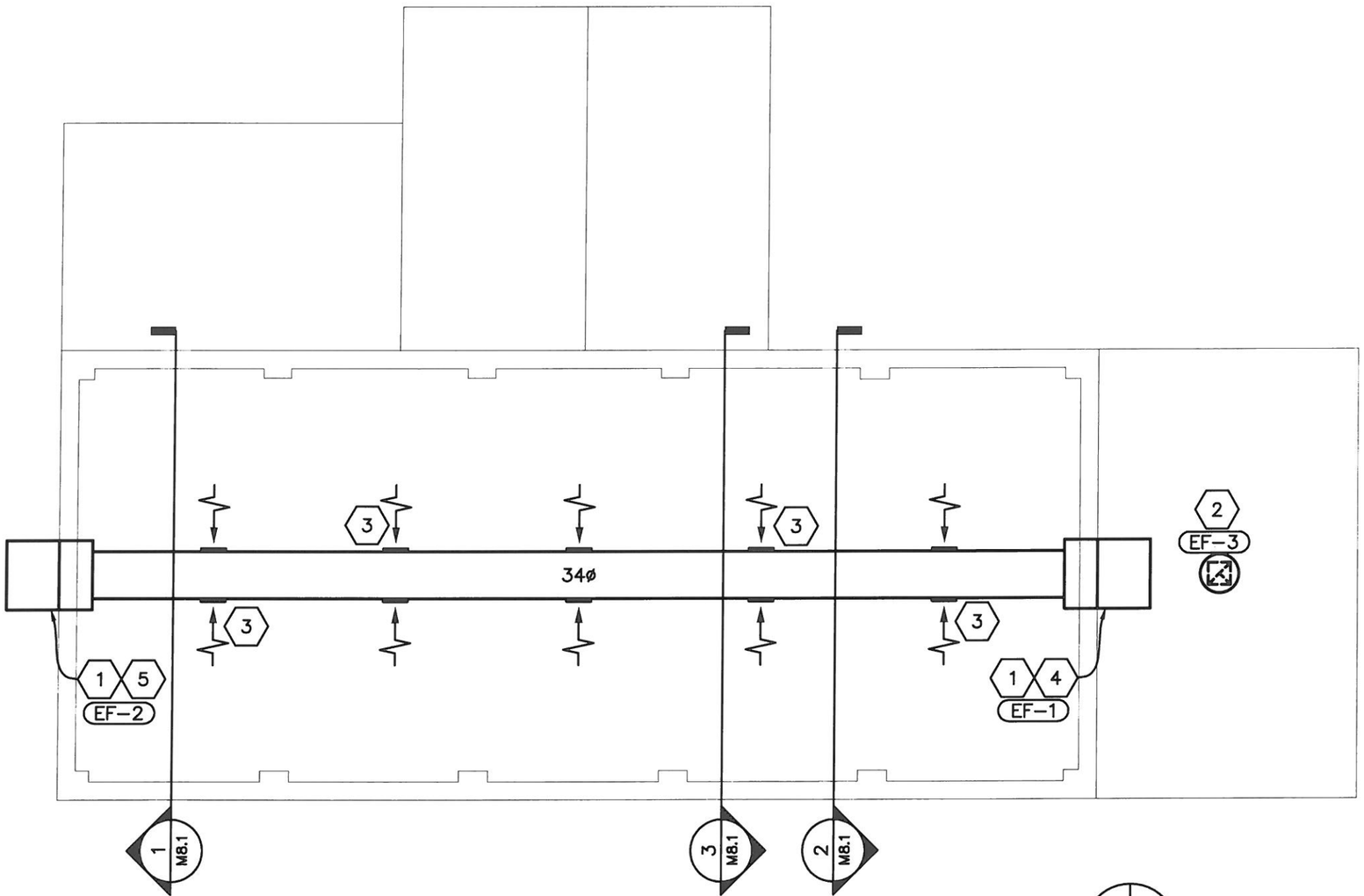
4 – MODIFY EXISTING OPENING AS REQUIRED TO ACCOMMODATE NEW EXHAUST FAN AND PLENUM.

5 – CUT OPENING IN WALL AS REQUIRED TO ACCOMMODATE NEW EXHAUST FAN AND PLENUM.

DUCT CONSTRUCTION:

A – DUCTS TO BE ALUMINUM. SUPPORTING STRAPS TO BE ALUMINUM.

B – HANGERS, BOLTS, SCREWS AND ASSOCIATED APPURTENANCES TO BE MARINE GRADE STAINLESS STEEL.



MECHANICAL UPPER LEVEL (HIGH) RENOVATION PLAN

N

0 4' 8' 16'

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

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CITY of TAMPA
WASTEWATER DEPARTMENT

KRAUSE PS REHABILITATION

MECHANICAL UPPER LEVEL (HIGH) RENOVATION PLAN

NO.	DATE	REVISIONS

DRAWN: MH
DESIGN: MS
QC: MS
DATE: 05/01/14

M4.3

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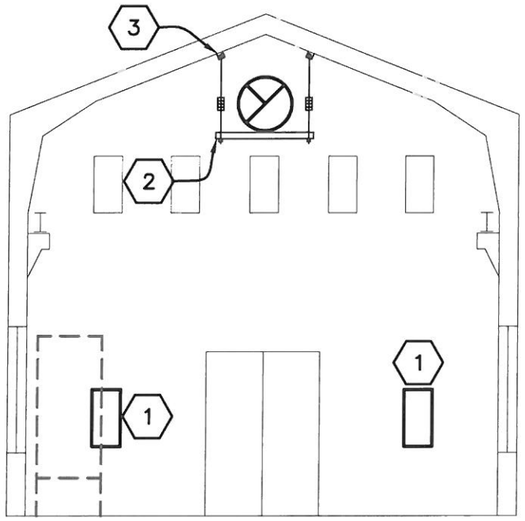
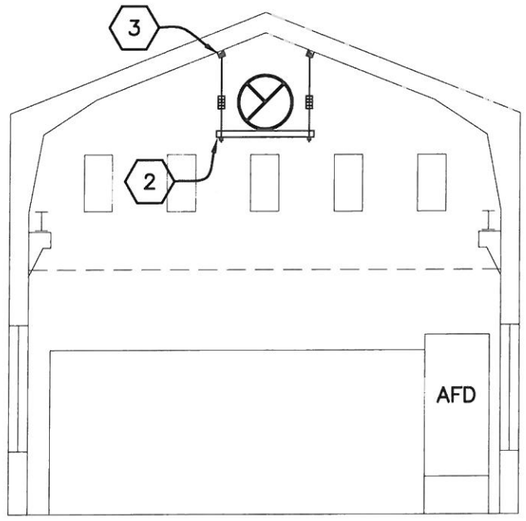


1 / M8.1 **MECHANICAL SECTION**

0 4' 8' 16'

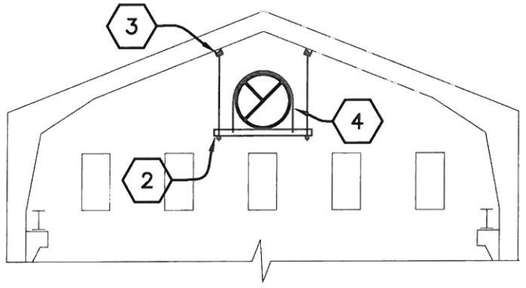
SCALE: 1/8" = 1'-0"



2 / M8.1 **MECHANICAL SECTION**

0 4' 8' 16'

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



3 / M8.1 **MECHANICAL SECTION**

0 4' 8' 16'

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

MECHANICAL NOTES:

1 – NEW AIR INTAKE LOUVERS. REFER TO NOTE 1 ON DRAWING M4.2.

2 – DUCT SUPPORT. PROVIDE 1-1/2" S.S. UNISTRUT ANGLE WITH 3/8" ALL THREADED RODS. PROVIDE DOUBLE NUTS AT BOTH ENDS.

3 – 24" LONG 1-1/2" S.S. UNISTRUT CHANNELS SECURED TO ROOF FRAME USING TAPCONS AT 8" O.C.

4 – 2" WIDE ALUMINUM STRAP TO TIE DOWN DUCT TO SUPPORT CHANNEL.

FANS / DUCT SUPPORTS FROM ROOF:

CONTRACTOR SHALL REVIEW EXISTING CONDITIONS AND PROVIDE SHOP DRAWINGS OF PROPOSED SUPPORTS. PROVIDE ADDITIONAL STRUCTURAL ELEMENTS SUCH AS ANGLES, CHANNELS, SUPPORT RODS, ETC. FOR WEIGHT OF FANS BEING PROVIDED AND TO MEET WIND LOADS AS PER FLORIDA BUILDING CODE, 2010.

DUCT CONSTRUCTION:

A – DUCTS TO BE ALUMINUM. SUPPORTING STRAPS TO BE ALUMINUM.

B – HANGERS, BOLTS, SCREWS AND ASSOCIATED APPURTENANCES TO BE MARINE GRADE STAINLESS STEEL.

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WASTEWATER DEPARTMENT

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MECHANICAL SECTION

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M8.1

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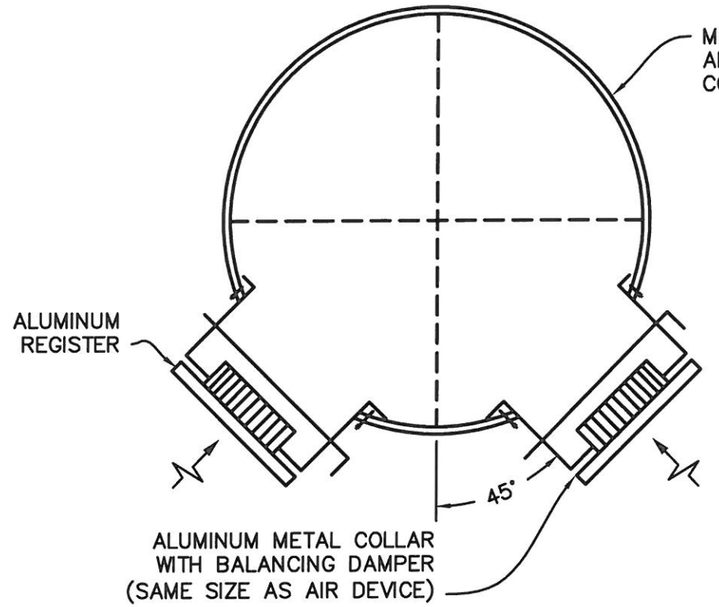

SIDEWALL GRILLE OR REGISTER DUCT CONNECTION

NOT TO SCALE

GSI –	08–06
SECTION –	15400
DETAIL # –	011

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Certificate of Authorization Number: 4795

CITY of TAMPA
WASTEWATER DEPARTMENT

KRAUSE PS REHABILITATION
MECHANICAL DETAILS

NO.	DATE	REVISIONS

DRAWN: MH
DESIGN: MS
QC: MS
DATE: 05/01/14

M9.1

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B080-137

FAN CONTROLS / SEQUENCE OF OPERATIONS:

EF-1 / EF-2:

- EF-1 FAN RUNS CONTINUOUSLY AND EF-2 IS STAND-BY.
- PROVIDE FLOW SWITCH AT EACH FAN DISCHARGE.
- IF A LOSS OF FLOW IS DETECTED, STAND-BY FAN IS ENERGIZED AND A RED PILOT LIGHT SHOWS AT THE REMOTE FAN CONTROLLER.
- PROVIDE A 30 DAY FAN CHANGE-OVER ROTATION WHERE EF-2 IS ACTIVATED AND RUNS CONTINUOUSLY AND EF-1 GOES TO STAND-BY MODE.
- REVERSE MODE OCCURS AT END OF 30 DAYS.

EF-3:

- FAN EF-3 IS CONTROLLED THRU TWO (2) SPACE TEMPERATURE SENSORS AND AN H-O-A SELECTOR SWITCH IN THE CONTROL PANEL.
  - IN THE H (HAND) POSITION FAN RUNS CONTINUOUSLY.
  - IN THE O (OFF) POSITION FAN IS DE-ENERGIZED.
  - IN THE A (AUTO) POSITION THE FAN IS CONTROLLED BY THE TEMPERATURE SENSORS SET-POINT AND CYCLES ON/OFF. CONTROL TEMPERATURE IS AN AVERAGE OF THE READINGS AT THE TWO SENSORS.

SF-1 / SF-2:

- SF-1 FAN RUNS CONTINUOUSLY AND SF-2 IS STAND-BY.
- PROVIDE FLOW SWITCH AT EACH FAN DISCHARGE.
- IF A LOSS OF FLOW IS DETECTED, STAND-BY FAN IS ENERGIZED AND A RED PILOT LIGHT SHOWS AT THE REMOTE FAN CONTROLLER.
- PROVIDE A 30 DAY FAN CHANGE-OVER ROTATION WHERE SF-2 IS ACTIVATED AND RUNS CONTINUOUSLY AND SF-1 GOES TO STAND-BY MODE.
- REVERSE MODE OCCURS AT END OF 30 DAYS.
- AT THE ENTRANCE DOOR TO THE SCREEN ROOM PROVIDE A H-O-A SWITCH THAT WILL ACTIVATE THE STAND-BY FAN (SF-1 OR SF-2) SO BOTH FANS RUN CONTINUOUSLY WHILE ROOM IS OCCUPIED.

REMOTE MONITORING:

- RELAY PANEL SHALL BE MONITORED FROM A CENTRAL LOCATION SELECTED BY THE CITY OF TAMPA. OUTPUT FROM THE PANEL SHALL INDICATE FAN RUNNING AND ALARM FROM FAN FAILURE. COORDINATE WITH EDT FOR INTEGRATION INTO THE MONITORING SYSTEMS AT PUMPING STATION.

PANEL DESIGN:

- PANEL SHALL BE DESIGNED USING RELAY LOGIC AND CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING DETAILED SHOP DRAWINGS.
- COORDINATE ELECTRICAL POWER AND INTERLOCKS WITH EDT ELECTRICAL ENGINEER AND ELECTRICAL CONTRACTOR.

SEAL

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FL PE 71454

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FAN SCHEDULE

UNIT NO.	–	EF–1	EF–2	EF–3	SF–1	SF–2
LOCATION	–	SEE PLANS	SEE PLANS	SEE PLANS	SEE PLANS	SEE PLANS
AIR QUANTITY	CFM	8000	8000	1000	1600	1600
EXT. STATIC PRESS.	IN. H_2O	0.5	0.5	0.25	0.25	0.25
FAN TYPE	–	UPBLAST CENTRIFUGAL	UPBLAST CENTRIFUGAL	DOWNBLAST	UTILITY	UTILITY
DRIVE	–	BD	BD	DD	BD	BD
SONES	–	29	29	6.8	51 DBA	51 DBA
MOTOR	HP	3	3	1/3	0.75	0.75
FAN	RPM	1190	1190	1109	782	782
ELECTRICAL	V/ϕ/HZ	460/3/60	460/3/60	460/3/60	460/3/60	460/3/60
CONTROLS	NOTE #	4	4	4	4	4
MANUFACTURER	–	COOK	COOK	COOK	COOK	COOK
MODEL	–	ACRU–HP 245RH10B	ACRU–HP 245RH10B	ACE–B	165CPS	165CPS
NOTES	NOTE #	1,5,6	1,5,6	2,5,6	3,5,7	3,5,7

NOTES:

1 – FAN TO BE HORIZONTAL DISCHARGE – WALL MOUNTED.
2 – PROVIDE 12" HIGH ROOF CURB. PROVIDE ROOF ANCHORING DETAILS.
3 – PROVIDE WALL MOUNTED SELECTOR SWITCH BY DOOR TO SCREEN ROOM.
4 – INTERLOCK AS PER CONTROLS / SEQUENCE OF OPERATIONS ON DRAWING M10.1.
5 – PROVIDE DISCONNECT SWITCH. OUTDOOR DISCONNECTS SHALL BE NEMA 3 RATED.
6 – PROVIDE BACKDRAFT DAMPER AND S.S. BIRD SCREEN.
7 – PHENOLIC EPOXY FINISH – U.V. RESISTANT.

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