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**Please Email ALL Questions:
[MailTo:ContractAdministration@TampaGov.net](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

DAVID L. TIPPIN WATER TREATMENT FACILITY CHLORINE PIPING AND CHEMICAL BUILDING IMPROVEMENTS

CONTRACT NO. 14-C-00052

PREPARED BY:

HAZEN AND SAWYER
Environmental Engineers & Scientists

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Tampa, Florida 33619
Certificate of Authorization Number: 2771

PREPARED FOR:

CITY OF TAMPA WATER DEPARTMENT
306 E. JACKSON STREET
TAMPA, FL 33602

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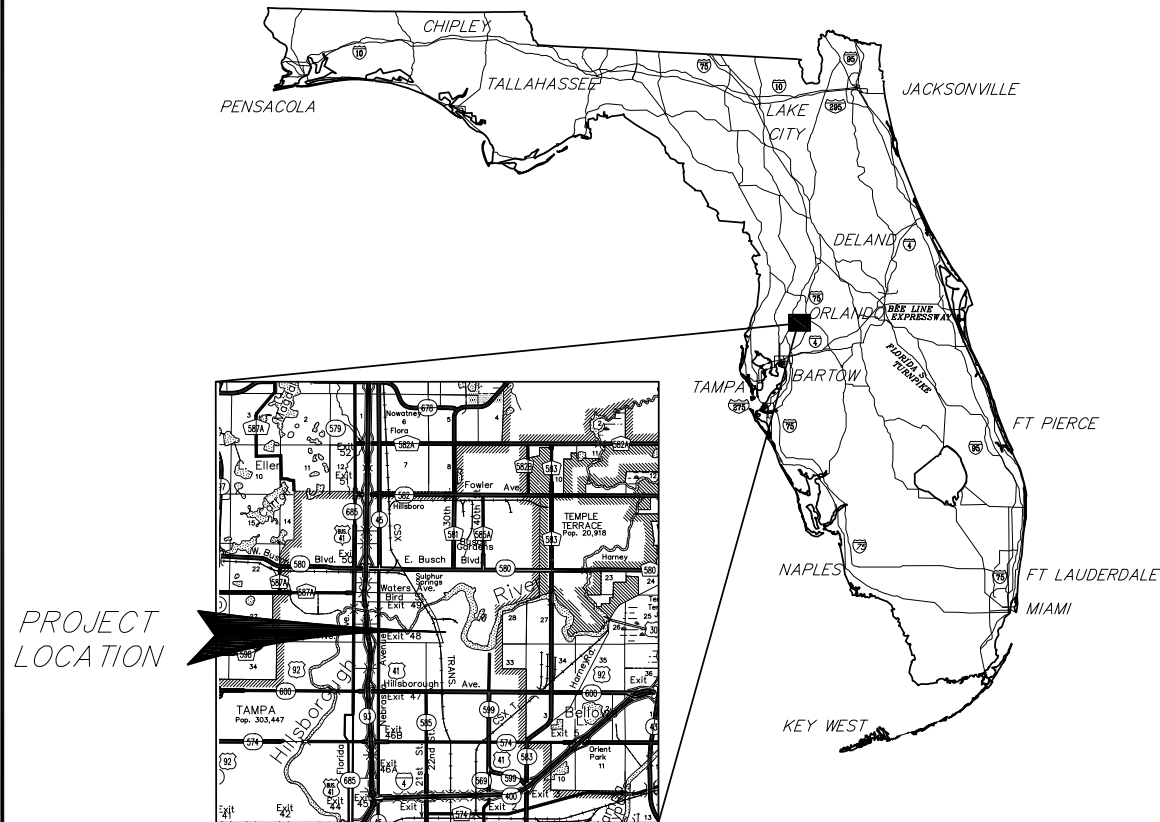
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PROJECT
LOCATION

LOCATION MAP

SEC. 29 TWN. 28 RNG. 19

PROJECT ADDRESS

7125 N. 30TH STREET
TAMPA, FL 33610

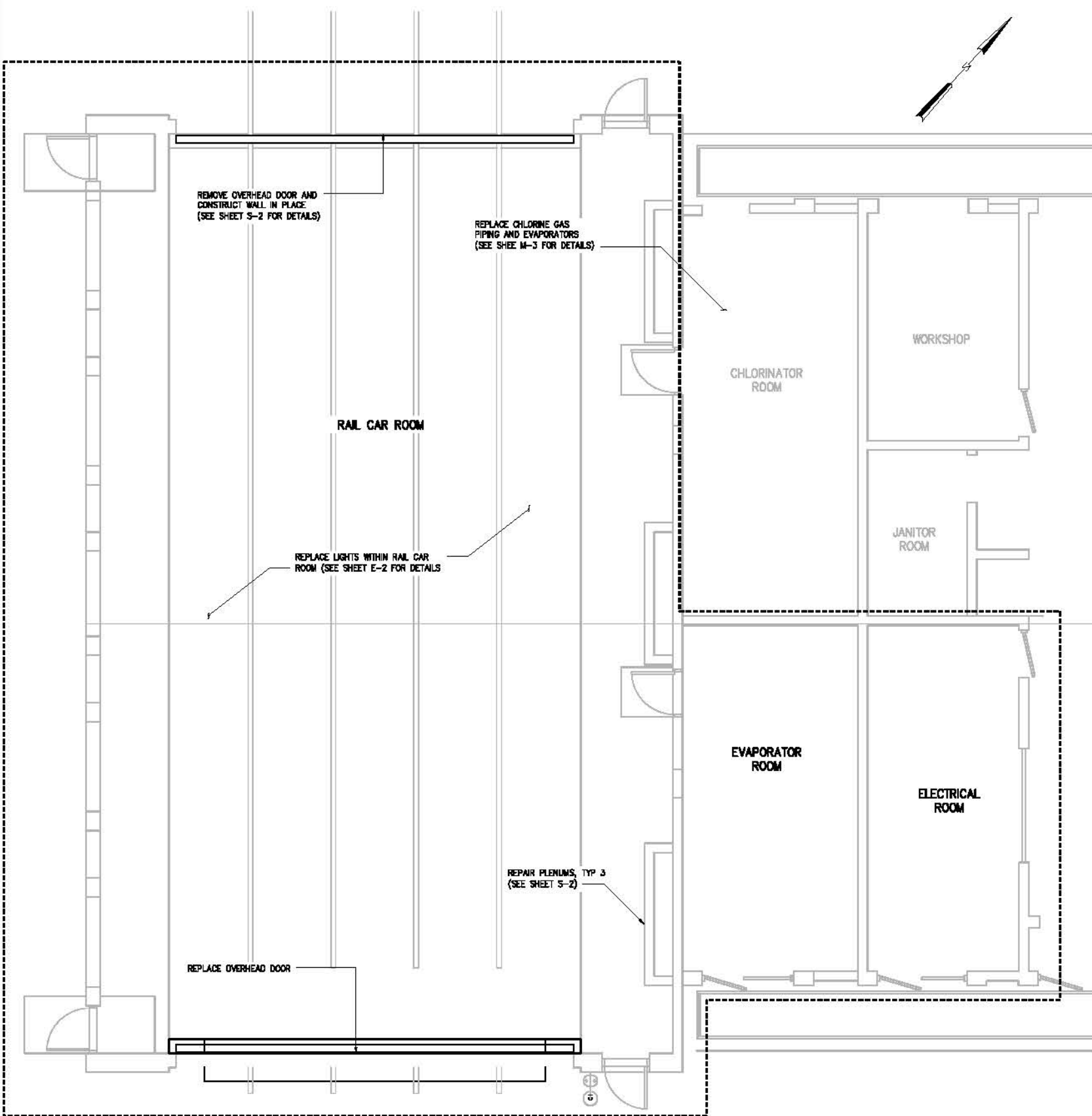


JUNE 2014
100% SUBMITTAL

NOTE: THE SCALE OF THESE PLANS MAY
HAVE CHANGED DUE TO REPRODUCTION.

NOTES:

1. CONTRACTOR SHALL BE RESPONSIBLE FOR PAINTING RAIL CAR ROOM. PREPARE ROOM IN ACCORDANCE WITH SPECIFICATION 09900.



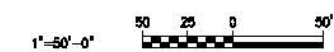
CHEMICAL BUILDING PLAN
1"=50'



LOCATION MAP
N.T.S.

LEGEND

----- PROJECT LIMITS



PLOT DATE: 5/29/2014 11:42 AM BY: RKA

DESIGNED	RKA			
DRAWN	ESM			
CHECKED	AAD			
PROJ. ENGR.	RKA			
NO.	ISSUED FOR	DATE	BY	APPROVED
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CITY OF TAMPA
WATER DEPARTMENT
ENGINEERING DIVISION
DL TIPPIN WTF
CHLORINE PIPING AND
CHEMICAL BUILDING IMPROVEMENTS

CIVIL
OVERALL SITE PLAN

THE SCALE BAR SHOWN BELOW MEASURES ONE INCH LONG ON THE ORIGINAL DRAWING.	DATE	JUNE 2014
	H & S JOB NUMBER	41077-004
	DRAWING NUMBER	C1
	SHEET	2 OF 14

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GENERAL STRUCTURAL NOTES

- G-1 THESE NOTES ARE GENERAL AND SUPPLEMENT THE SPECIFICATIONS. THESE NOTES APPLY TO THE ENTIRE PROJECT UNLESS MODIFIED OR NOTED OTHERWISE IN THE CONTRACT DOCUMENTS.
- G-2 STANDARD DETAILS SHALL BE USED WHEN REFERRED TO OR WHEN NO MORE RESTRICTIVE OR DIFFERENT DETAILS ARE SHOWN ON THE DRAWINGS.
- G-3 DESIGN IS IN ACCORDANCE WITH AND CONSTRUCTION SHALL COMPLY WITH THE PROVISIONS OF THE FLORIDA BUILDING CODE 2010. THE DESIGN LOADS AND OTHER DESIGN VALUES GIVEN IN NOTE G-4 WERE USED FOR DESIGN OF STRUCTURES UNLESS NOTED OTHERWISE ON THE DRAWINGS. SCOPE OF WORK IS CONSIDERED A LEVEL 2 ALTERATION IN COMPLIANCE WITH THE PRESCRIPTIVE COMPLIANCE METHOD OF THE FLORIDA BUILDING CODE - EXISTING BUILDING.
- G-4 WIND DESIGN CRITERIA:

WIND LOADS ARE IN ACCORDANCE WITH ASCE 7 AS REFERENCED IN FLORIDA BUILDING CODE:

- 1. ADMINISTRATION BUILDING:
- RISK CATEGORY = III
- ULTIMATE WIND SPEED = 160 MPH
- EXPOSURE CATEGORY = C

STRUCTURE	PRESSURE COEFFICIENTS	LATERAL LOAD RESISTING SYSTEM
CHEMICAL BUILDING	+/-0.18	EXISTING CONC. FRAME

BUILDING COMPONENTS AND CLADDING SHALL BE DESIGNED FOR THE CONDITIONS SPECIFIED IN ASCE 7 IN COMPLIANCE WITH THE DESIGN PARAMETERS SPECIFIED ABOVE. EQUIPMENT AND PRODUCT VENDORS SHALL COMPLY WITH THE DESIGN PARAMETERS SPECIFIED ABOVE FOR OUTDOOR EQUIPMENT.

- G-5 ALL DIMENSIONS INDICATED (d) SHALL BE VERIFIED EITHER BY FIELD MEASUREMENTS FOR EXISTING STRUCTURES OR BY SHOP DRAWINGS FOR EQUIPMENT FURNISHED. STRUCTURAL DIMENSIONS NOT SHOWN BUT CONTROLLED BY OR RELATED TO EQUIPMENT SHALL BE VERIFIED BY THE CONTRACTOR WITH THE MANUFACTURER PRIOR TO CONSTRUCTION.
- G-6 THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL EXISTING INFORMATION IN THE FIELD AS REQUIRED FOR NEW WORK
- G-7 IF A CONFLICT IS FOUND BETWEEN DIFFERENT PORTIONS OF THE CONTRACT DOCUMENTS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY. CONTINUED CONSTRUCTION OF THE AREA IN CONFLICT SHALL BE AT THE CONTRACTOR'S OWN RISK UNTIL THE CONFLICT IS RESOLVED.
- G-8 EQUIPMENT ANCHOR BOLT SIZES, TYPES, EMBEDMENT AND PATTERNS SHALL BE VERIFIED WITH THE MANUFACTURER. ALL BOLT PATTERNS SHALL BE TEMPLATED TO INSURE ACCURACY OF PLACEMENT.
- G-9 STRUCTURAL DRAWINGS SHALL BE USED IN COORDINATION WITH THE DRAWINGS OF ALL OTHER DISCIPLINES AND MANUFACTURER'S SHOP DRAWINGS.
- G-10 STRUCTURES HAVE BEEN DESIGNED FOR OPERATIONAL LOADS ON THE COMPLETED STRUCTURE. DURING CONSTRUCTION, THE STRUCTURES SHALL BE PROTECTED BY BRACING AND TEMPORARY SUPPORTS WHEREVER EXCESSIVE CONSTRUCTION LOADS MAY OCCUR. OVERSTRESSING OF ANY STRUCTURAL ELEMENT IS PROHIBITED.
- G-11 NO BACKFILL SHALL BE PLACED AGAINST ANY SUBSTRUCTURE WALLS UNLESS ALL ADJACENT SUPPORTING ELEMENTS HAVE ACHIEVED DESIGN STRENGTH, OR WALLS HAVE BEEN PROPERLY BRACED, AND IN ANY CASE NOT SOONER THAN 28 DAYS AFTER THE PLACING OF CONCRETE UNLESS APPROVED BY THE ENGINEER. SUPPORTING ELEMENTS SHALL INCLUDE ADJACENT WALLS, SLABS, BEAMS AND COLUMNS.

FOUNDATIONS

- F-1 CONCRETE (CAST-IN-PLACE) NOTES APPLY TO FOUNDATIONS.
- F-2 ALLOWABLE SOIL BEARING PRESSURE

STRUCTURE	ALLOWABLE SOIL BEARING PRESSURE
CHEMICAL BUILDING	2000 PSF

- F-3 SET BOTTOM OF FOUNDATIONS AT ELEVATIONS SHOWN ON DRAWINGS
- F-4 SOFT OR LOOSE SOILS MAY BE ENCOUNTERED DURING EARTHWORK OPERATIONS, REQUIRING ADDITIONAL UNDERCUTTING AND FILL
- F-5 GROUNDWATER CONTROL MAY BE REQUIRED DURING CONSTRUCTION.
- F-6 ALLOWABLE SOIL BEARING PRESSURE INDICATED IS BASED ON RECORD DRAWINGS FOR THE EXISTING CHEMICAL BUILDING. CONTRACTOR SHALL RETAIN THE SERVICES OF A STATE OF FLORIDA LICENSED SOIL TESTING SERVICE TO CONDUCT CONFIRMATORY TESTING, AND SUBMIT SIGNED AND SEALED STATEMENT.

CONCRETE (CAST-IN-PLACE)

- C-1 DESIGN OF CONCRETE ELEMENTS INCLUDING WALLS, FORMED SLABS, BEAMS, AND COLUMNS IS IN ACCORDANCE WITH ACI 318 (CODE REQUIREMENTS FOR STRUCTURAL CONCRETE) AND 350 (CODE REQUIREMENTS FOR ENVIRONMENTAL ENGINEERING CONCRETE STRUCTURES).
- C-2 FOR CONCRETE MIX DESIGN SEE SPECIFICATION SECTION 03305.
- C-3 CONCRETE STRENGTH CLASSES (28-DAY COMPRESSIVE STRENGTH):
 - A) CLASS A1 - (4,000 PSI) CLASS A1 STRUCTURAL CONCRETE SHALL BE USED IN ALL STRUCTURES UNLESS NOTED OTHERWISE.
 - B) CLASS A2 - (4,500 PSI) CLASS A2 STRUCTURAL CONCRETE SHALL BE USED IN WASTEWATER STRUCTURES, BURIED, STRUCTURES, AND RETAINING WALLS AT LIFT STATION 10.
 - C) CLASS B - (4,000 PSI) CLASS B STRUCTURAL CONCRETE SHALL BE USED AT LOCATIONS SHOWN OR APPROVED ON A CASE BY CASE BASIS.
 - D) CLASS C - (3,000 PSI) CLASS C CONCRETE SHALL BE USED IN ALL CURBS, GUTTERS, CATCH BASINS, FENCE AND GUARD POST EMBEDMENTS, ENCASUREMENTS, AND ALL OTHER CONCRETE APPURTENANT TO ELECTRICAL FACILITIES UNLESS NOTED OTHERWISE. CLASS C CONCRETE SHALL ALSO BE USED FOR THRUST BLOCKS, PIPE TRENCH CUT-OFF BLOCKS AND CRADLES, MUDMATS AND CONCRETE FILLS WHERE THEY ARE UNREINFORCED.
- C-4 ALL BAR REINFORCING SHALL CONFORM TO ASTM A615, GRADE 60, OR ASTM A706, GRADE 60 WHERE REINFORCEMENT IS TO BE WELDED IN ACCORDANCE WITH AWS D1.4. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185.
- C-5 CONCRETE COVER FOR REINFORCING (UNLESS NOTED OTHERWISE ON THE DRAWINGS):
 - A) CONCRETE DEPOSITED DIRECTLY AGAINST SOIL: 3"
 - B) FORMED CONCRETE EXPOSED TO EARTH OR WEATHER:
 - 1. SLABS (#5 OR SMALLER) 1 1/2"
 - 2. SLABS (#6 OR LARGER) 2"
 - 3. WALLS 12" OR MORE 2"
 - 4. WALLS LESS THAN 12" (#5 OR SMALLER) 1 1/2"
 - 5. WALLS LESS THAN 12" (#6 OR LARGER) 2"
 - 6. BEAMS AND COLUMNS (TO MAIN REINFORCEMENT) 2"
 - 7. BEAMS AND COLUMNS (TO TIES OR STIRRUPS) 1 1/2"
 - 8. FOR SURFACES EXPOSED TO WATER OR SEWAGE, ADD 1/2" TO ABOVE

- C-6 SPLICES SHALL BE CLASS 'B' CONFORMING TO THE PROVISIONS OF ACI 318 UNLESS NOTED OTHERWISE.
- C-7 CONSTRUCTION JOINTS SHALL BE LOCATED AS SHOWN ON THE DRAWINGS. CONSTRUCTION JOINTS NOT SHOWN SHALL BE SUBMITTED BY THE CONTRACTOR FOR THE APPROVAL OF THE ENGINEER PRIOR TO SUBMITTING REBAR SHOP DRAWINGS. VERTICAL CONSTRUCTION JOINTS IN WALLS AND HORIZONTAL JOINTS IN SLABS SHALL BE PROVIDED AT A SPACING NOT GREATER THAN 45 FEET ON CENTER. FOR EXPOSED WALLS WITH FLUID OR EARTH ON THE OPPOSITE SIDE, THE SPACING BETWEEN VERTICAL JOINTS SHALL BE A MAXIMUM OF 25 FEET.
- C-8 WHERE HORIZONTAL CONSTRUCTION JOINTS, LOCATED ABOVE THE FOUNDATION SLAB, EXTEND BEYOND WHERE NEEDED, THEY SHALL BE TERMINATED AT A VERTICAL CONSTRUCTION JOINT APPROVED BY THE ENGINEER.
- C-9 SLABS WITH SLOPING SURFACES SHALL HAVE THE INDICATED SLAB THICKNESS MAINTAINED AS THE MINIMUM. SLAB BOTTOMS CAN EITHER SLOPE WITH THE TOP SURFACE OR BE LEVEL. REINFORCEMENT IN SLABS WITH SLOPING SURFACES SHALL BE PLACED AT THE REQUIRED CLEARANCE FROM THE SLAB SURFACE.
- C-10 ALL EXPOSED CORNERS SHALL HAVE A 3/4" CHAMFER OR A 1/2" RADIUS TOOLED CORNER.
- C-11 EQUIPMENT SUPPORTS, ANCHORAGES, OPENINGS, RECESSES AND REVEALS NOT SHOWN ON THE STRUCTURAL DRAWINGS BUT REQUIRED BY OTHER CONTRACT DOCUMENTS, SHALL BE PROVIDED FOR PRIOR TO PLACING CONCRETE.
- C-12 REINFORCING BARS AND ACCESSORIES SHALL NOT BE IN CONTACT WITH ANY METAL PIPE, PIPE FLANGE, METAL CONDUIT, OR OTHER METAL PARTS EMBEDDED IN CONCRETE. A MINIMUM CLEARANCE OF 2" SHALL BE PROVIDED.
- C-13 DOWELS, ANCHOR BOLTS, PIPES, WATERSTOPS AND OTHER EMBEDDED ITEMS SHALL BE HELD SECURELY IN POSITION WHILE CONCRETE IS BEING PLACED.
- C-14 CONDUITS AND OTHER SIMILAR ITEMS EMBEDDED IN OR PENETRATING THROUGH CONCRETE SHALL BE SPACED ON CENTER NOT LESS THAN 3 TIMES THEIR OUTSIDE DIMENSION, BUT NOT LESS THAN 2 1/2" CLEAR. WHEN SUCH ITEMS ARE EMBEDDED IN WALLS OR SLABS, THEY SHALL NOT OCCUPY MORE THAN 1/3 OF THE MEMBER THICKNESS.
- C-15 AT ALL TYPICAL CURBS, EQUIPMENT PADS, AND PIPE SUPPORT PIERS, REINFORCING DOWELS SHOWN MAY BE REPLACED WITH MATCHING DOWELS SET IN EPOXY IN DRILLED HOLES AS SPECIFIED. DOWELS LOCATED CLOSER THAN 3" FROM ANY EDGE OF CONCRETE SHALL NOT BE REPLACED WITH DRILLED DOWELS.
- C-16 DRILLED ADHESIVE DOWELS (WHERE DOWELS ARE SHOWN TO BE PLACED INTO HARDENED CONCRETE):
 - A) THE HOLE DIAMETER SHALL BE NO LARGER THAN 1/8" GREATER THAN THE DIAMETER OF THE REINFORCING BAR AT THE DEFORMATIONS.
 - B) THE DEPTH OF EMBEDMENT SHALL BE 12 BAR DIAMETERS, UNLESS NOTED OTHERWISE.
 - C) ADJUST THE DOWEL LOCATIONS AS NEEDED TO AVOID DRILLING THROUGH ANY REINFORCING BARS. IF THE LOCATION NEEDS TO BE MODIFIED, CONTACT THE ENGINEER.
- C-17 CLEAR DISTANCE FROM ANCHOR BOLTS TO ANY CONCRETE EDGE SHALL BE 4" MINIMUM UNLESS NOTED OTHERWISE.

CONCRETE BLOCK MASONRY WALLS:

- M-1 MASONRY MORTAR SHALL BE ASTM C 270 TYPE "M" AND MASONRY GROUT SHALL CONFORM TO REQUIREMENTS OF ASTM C 476.
- M-2 CONCRETE MASONRY UNIT NET AREA COMPRESSIVE STRENGTH SHALL BE 1900 PSI WHEN TESTED IN ACCORDANCE WITH ASTM C 140.
- M-3 MASONRY TRUSS TYPE REINFORCEMENT SHALL CONFORM TO ASTM A 951 AND REINFORCEMENT STEEL SHALL CONFORM TO REQUIREMENTS OF ASTM A 615 FOR GRADE 60 BILLET STEEL.
- M-4 MASONRY REINFORCEMENT BAR SPLICES SHALL BE CONTACT SPLICES. UNLESS NOTED OTHERWISE, LENGTH OF SPICE FOR SINGLE BARS IN CENTER OF CELLS OF 8" OR LARGER CMU SHALL BE A MINIMUM OF 32 INCHES FOR #5 BARS. LENGTH OF SPICE FOR OTHER CONDITIONS SHALL BE AS SHOWN ON THE DRAWINGS.
- M-5 BOND BEAM REINFORCEMENT SHALL BE PROVIDED WITH STD 90° HOOKS AT ALL WALL INTERSECTIONS. WHERE BOND BEAM REINFORCEMENT IS INTERRUPTED BY OPENINGS REINFORCEMENT SHALL BE PROVIDED WITH STD 180° HOOKS AT ENDS. SEE ARCHITECTURAL DRAWINGS FOR DETAILS.
- M-6 DOWELS SHALL BE EITHER CAST INTO WALL OR INSTALLED WITH A DOWEL ADHESIVE SYSTEM. IF CAST, DOWELS SHALL BE EMBEDDED IN STEM WALL OR FOUNDATION SLAB A MINIMUM 9" AND SHALL HAVE A STD 90° HOOK. IF INSTALLED WITH A DOWEL ADHESIVE SYSTEM DOWELS SHALL BE STRAIGHT BARS EMBEDDED A MINIMUM OF 10" INTO STEM WALL. DOWEL ADHESIVE SHALL BE QUALIFIED FOR USE IN BOTH CRACKED AND UNCRACKED CONDITIONS INSTALLATION OF ALL DOWELS SHALL BE PER MANUFACTURERS RECOMMENDATIONS. AS A MINIMUM THE FOLLOWING INSTALLATION REQUIREMENTS SHALL BE MET:
 - A) HOLES SHOULD BE DRILLED WITH CARBIDE BIT UNLESS OTHERWISE RECOMMENDED BY THE MANUFACTURER.
 - B) ALL HOLES SHALL BE CLEANED USING COMPRESSED AIR AND A PROPERLY SIZED NYLON OR WIRE BRUSH.
 - C) ADHESIVE SHALL BE INJECTED USING A DISPENSER, STATIC MIXING NOZZLE AND A PISTON PLUG TO MINIMIZE THE FORMATION OF AIR POCKETS PROVIDED BY THE MANUFACTURER. IF DEPTH OF HOLE IS DEEPER THAN THE STATIC MIXING NOZZLE A PLASTIC EXTENSION TUBE SUPPLIED BY THE MANUFACTURER SHALL BE USED FOR PLACING ADHESIVE.

DEMOLITION

- D-1 CONCRETE DEMOLITION WITHIN STRUCTURES BEING MODIFIED SHALL BE SELECTIVE DEMOLITION BY CORE DRILLING OR SAWCUTTING AND CAREFUL REMOVAL OF CONCRETE SHOWN TO BE REMOVED. NO OVER CUTTING OF AREAS TO BE DEMOLISHED SHALL BE PERMITTED. CONTRACTOR SHALL CORE DRILL CORNERS OF OPENING PRIOR TO SAWCUTTING. EXPLOSIVES AND VIBRATORY HAMMERS SHALL NOT BE USED FOR DEMOLITION WORK.
- D-2 UNLESS ANCHORING DEVICES AND/OR REINFORCEMENT IS NOTED TO REMAIN FOLLOWING DEMOLITION, REMOVE AND/OR BURN BACK ANCHORS AND REINFORCEMENT STEEL 1/2" MIN BELOW SURFACE. VOIDS CREATED SHALL BE FILLED WITH EPOXY RESIN BINDER.
- D-3 WHERE DRAWINGS INDICATE A CONCRETE EQUIPMENT PAD TO BE DEMOLISHED, THE FLOOR SLAB SURFACE SHALL BE REPAIRED AS APPROVED BY ENGINEER. FOLLOWING SELECT DEMOLITION AND REMOVAL OF THE EQUIPMENT PAD REMOVAL THE REPAIR SHALL BE:
 - A. SAWCUT THE FLOOR AROUND THE EQUIPMENT PAD PERIMETER TO A DEPTH OF 1/4".
 - B. SCABBY AND REMOVE SLAB CONCRETE WITHIN THE PERIMETER TO A NOMINAL 1/4" DEPTH CLEAN AND REMOVE ALL CONCRETE LANTAGE.
 - C. RESURFACE THE AREA BY APPLYING A POLYMER MODIFIED OR SILICA FUME ENHANCED CEMENTITIOUS REPAIR MORTAR, APPROVED BY THE ENGINEER, FOLLOWING THE MANUFACTURER'S SURFACE PREPARATION AND APPLICATION RECOMMENDATIONS. LEVEL AND FINISH THE SURFACE TO MATCH THE FLOOR SLAB SURROUNDING AREA.
- D-4 CONCRETE SURFACES LEFT EXPOSED FOLLOWING DEMOLITION SHALL BE SEALED WITH EPOXY RESIN COATING SUCH AS "SKAGARD" BY SICA CORPORATION, "DURACOTE 240" BY TAMMS INDUSTRIES, OR APPROVED EQUAL.
- D-5 A DETAILED CONSTRUCTION AND DEMOLITION PLAN SHALL BE SUBMITTED TO THE ENGINEER AND APPROVED BY THE ENGINEER AND CITY PRIOR TO BEGINNING CONSTRUCTION.

EXISTING INFORMATION

- X-1 ALL EXISTING INFORMATION SHOWN ON THESE DRAWINGS INCLUDING LOCATION, DIMENSIONS, ELEVATIONS, AND CONFIGURATIONS IS DERIVED FROM RECORD DRAWINGS "HILLSBOROUGH RIVER WATER TREATMENT PLANT NEW CHEMICAL BUILDING", JULY 1988 BY CAMP DRESSER AND McKEE INC. AND IS NOT GUARANTEED TO BE COMPLETE OR CORRECT.

ABBREVIATIONS

- ADDL - ADDITIONAL
- ALT - ALTERNATE
- BM - BEAM
- BOTT - BOTTOM
- BUR - BUILT UP ROOF
- CHK - CHECKED
- CJ - CONSTRUCTION JOINT
- CLR - CLEAR
- CMU - CONCRETE MASONRY UNIT
- CONC - CONCRETE
- CONN - CONNECTION
- CONSTR - CONSTRUCTION
- COL - COLUMN
- CTR - CENTER
- DBL - DOUBLE
- DET - DETAIL
- DIA - DIAMETER
- DIAG - DIAGONAL
- DN - DOWN
- DWLS - DOWELS
- DWGS - DRAWINGS
- EA - EACH
- EW - EACH WAY
- EF - EACH FACE
- EJ - EXPANSION JOINT
- EL - ELEVATION
- EQ - EQUAL
- FDN - FOUNDATION
- FLR - FLOOR
- GA - GAUGE
- HND - HAND
- H - HORIZONTAL
- HORIZ - HORIZONTAL
- INT - INTERSECTION OR INTERNAL
- JT - JOINT
- LE - LEFT END
- LH - LEFT HAND
- LHR - LEFT HAND REVERSE
- LG - LONG
- LN - LINE
- LW - LONG WAY
- MFR - MANUFACTURE
- MIN - MINIMUM
- MRK - MARK
- MTD - MOUNTED
- NTS - NOT TO SCALE
- OC - ON CENTER
- OPP - OPPOSITE
- PLCS - PLACES
- PROP - PROPOSED
- PSI - POUNDS PER SQUARE INCH
- PSF - POUNDS PER SQUARE FOOT
- RB - ROOF BEAM
- RE - RIGHT END
- REINF - REINFORCE
- REQD - REQUIRED
- RH - RIGHT HAND
- RHR - RIGHT HAND REVERSE
- SCH - SCHEDULE
- SM - SIMILAR
- SPA - SPACE
- SPCD - SPACED
- SW - SHORT WAY
- T&B - TOP AND BOTTOM

ABBREVIATIONS

- STL - STEEL
- SST - STAINLESS STEEL
- SQ - SQUARE
- STRUCT - STRUCTURAL
- TB - TIE BEAM
- THK - THICK
- TOC - TOP OF CONCRETE
- TOG - TOP OF GRATING
- TOS - TOP OF STEEL
- TYP - TYPICAL
- UNO - UNLESS NOTED OTHERWISE
- V - VERTICAL
- VERT - VERTICAL
- W/ - WITH
- W/O - WITHOUT
- WWF - WELDED WIRE FABRIC
- WWM - WELDED WIRE MESH
- WS - WATER STOP

PLT DATE: 04/29/2014 11:42 AM BY: JMS

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CHECKED	JPS
PROJ. ENGR.	RKA
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ISSUED FOR	100% SUBMITTAL
DATE	-
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APPROVED	-

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STRUCTURAL
GENERAL STRUCTURAL NOTES

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	DRAWING NUMBER	S-1
	SHEET	3 OF 14

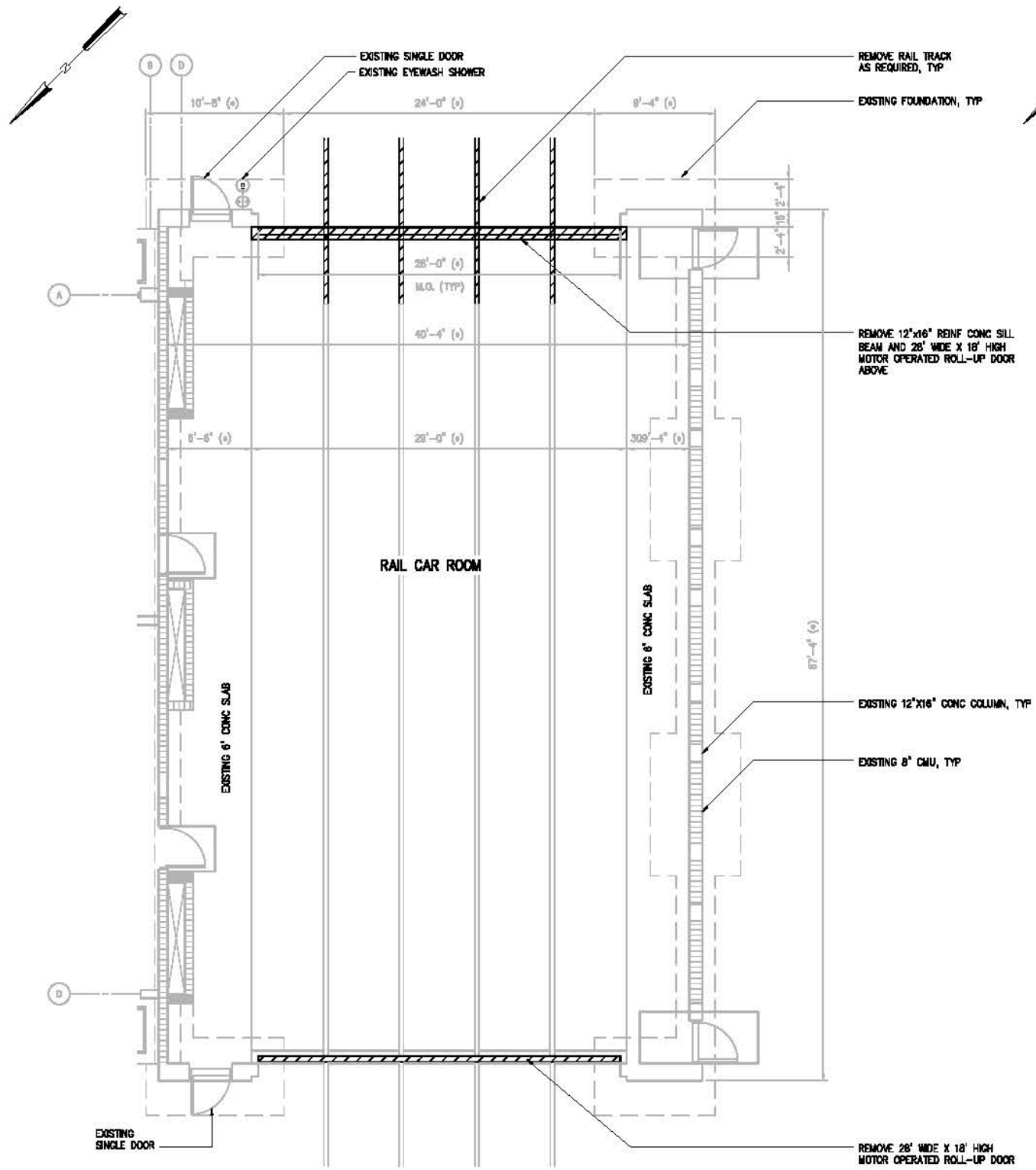
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NOTES:

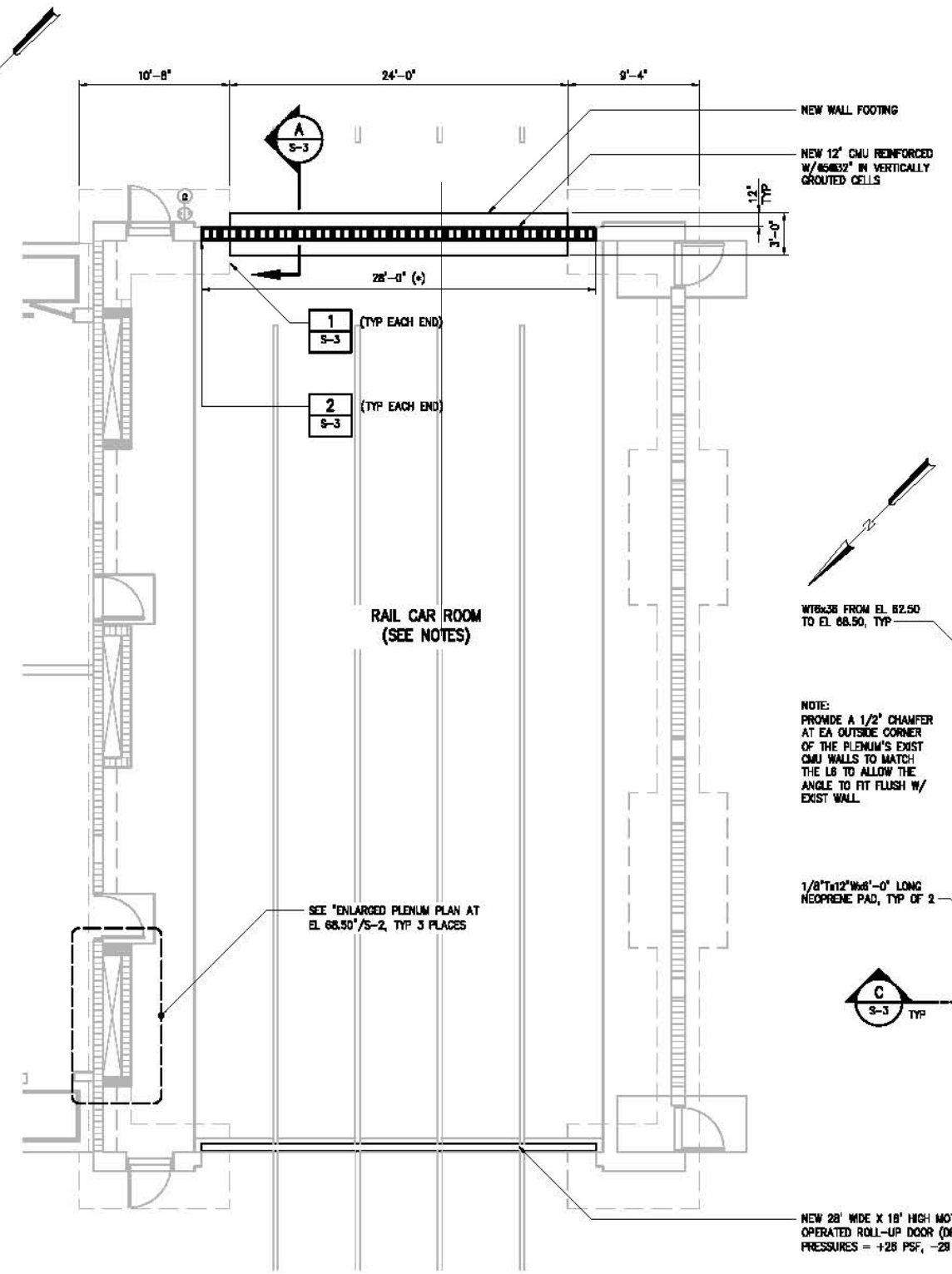
- CONTRACTOR SHALL REPAIR CRACKS AND SPALLING WITHIN RAIL CAR ROOM. REPLACE ALL VENT SCREENS WITHIN ROOM. PRESSURE WASH AND PAINT WALLS AND CEILING WITHIN ROOM.
- PROTECT RAIL CAR, SECURITY SYSTEM, CAMERAS AND ALL ACCESSORIES DURING PAINTING.
- MAINTAIN ACCESS TO RAILCAR CONNECTIONS AT ALL TIMES.
- PROTECT MOTION SENSORS, CONNECTION PIPING, AND HOSES AT ALL TIMES.
- RAILROAD CREW HAS PRIORITY TO MOVE CARS AT ANY TIME.
- TEMPORARILY DISCONNECT AND RE-INSTALL EYEWASH AS NECESSARY.

SEQUENCE OF CONSTRUCTION/CONSTRAINTS

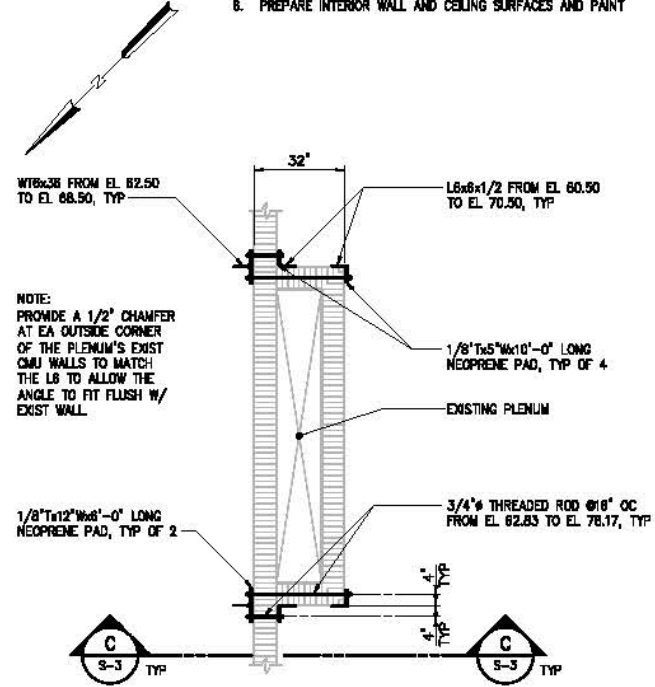
- REMOVE SOUTH ROLL-UP DOOR
 - ONLY ONE ROLL-UP DOOR SHALL BE REMOVED AT A TIME
 - PROTECT DOOR OPENING WITH TARP OR OTHER MEANS ACCEPTABLE TO THE ENGINEER/OWNER.
 - RAILROAD TRACKS SHALL REMAIN CLEAR AT ALL TIMES
 - ALL MATERIALS REQUIRED FOR WALL CONSTRUCTION SHALL BE ON-SITE PRIOR TO DOOR REMOVAL
- CONSTRUCT CLOSURE WALL AT DOOR OPENING
- REMOVE NORTH ROLL-UP DOOR
- INSTALL NORTH REPLACEMENT ROLL-UP DOOR
- REPAIR CRACKS AND SPALLS WITHIN ROOM
- PREPARE INTERIOR WALL AND CEILING SURFACES AND PAINT



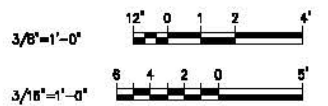
DEMOLITION FLOOR PLAN
3/16" = 1'-0"



PROPOSED FLOOR PLAN
3/16" = 1'-0"



ENLARGED PLENUM PLAN AT EL. 68.50
3/8" = 1'-0"



PLT DATE: 5/24/2014 11:42 AM BY: JPS

DESIGNED	JPS
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PROJ. ENGR.	RKA
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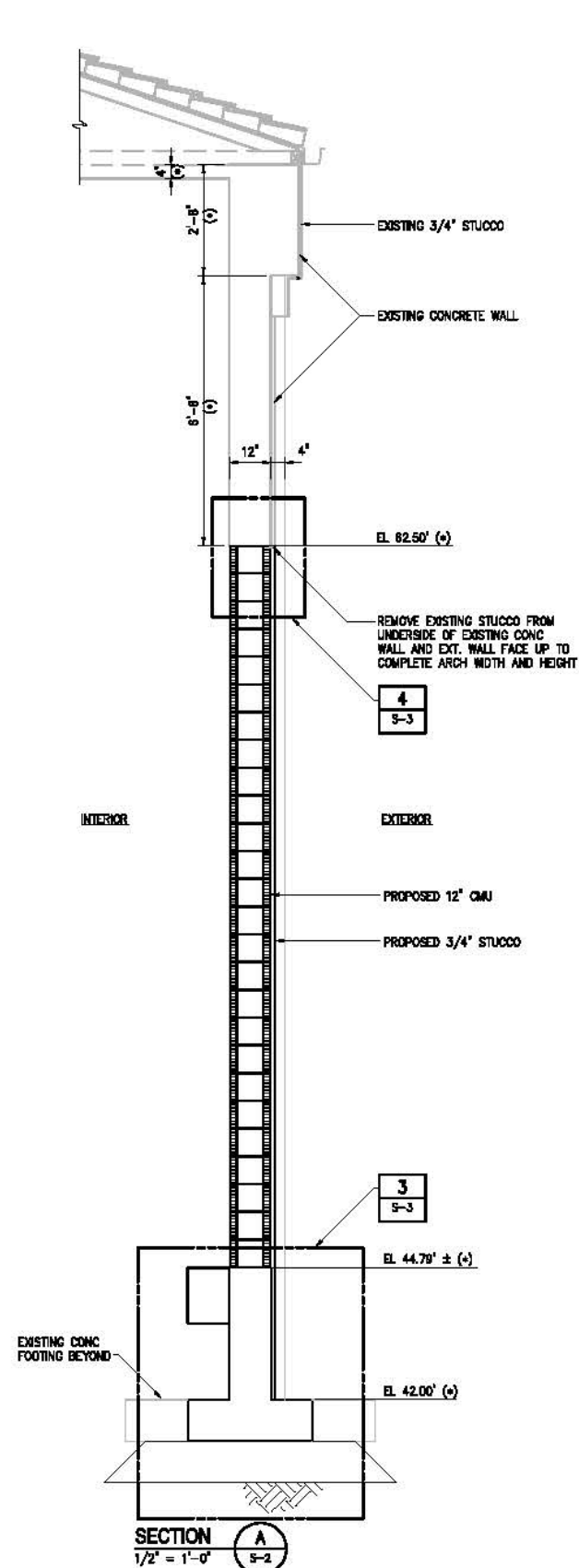
STRUCTURAL PLANS

THE SCALE BAR SHOWN BELOW MEASURES ONE INCH LONG ON THE ORIGINAL DRAWING.	DATE	JUNE 2014
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	SHEET	4 OF 14

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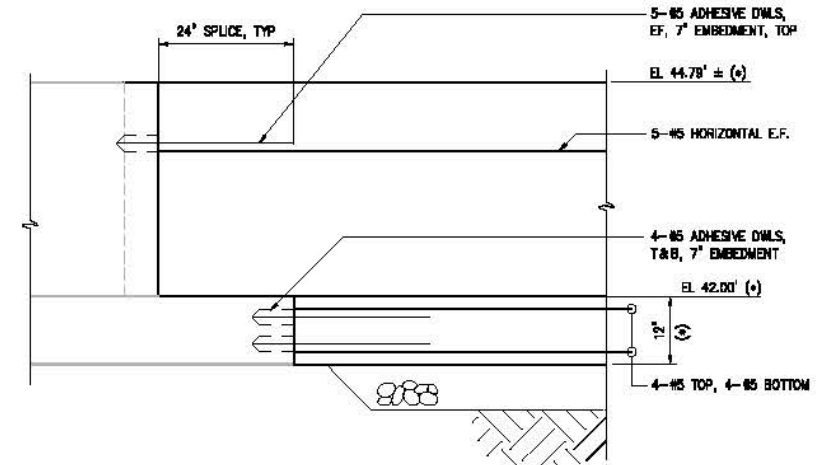
NOTES:

- CONTRACTOR SHALL EXCAVATE TO ELEVATION SHOWN TO EXPOSE SUBGRADE. UPON COMPLETION OF EXCAVATION, SUBGRADE SHALL BE INSPECTED BY GEOTECHNICAL ENGINEER TO DETERMINE SUITABILITY OF SUBGRADE. FOR AREAS DEEMED UNSUITABLE FOR SUPPORT OF STRUCTURE, CONTRACTOR SHALL CONTINUE EXCAVATION UNTIL SUITABLE MATERIAL IS EXPOSED. RESULTING VOIDS SHALL BE BACKFILLED WITH #57 STONE. PAYMENT FOR ADDITIONAL EXCAVATION AND STONE BACKFILL BEYOND EXTENTS SHOWN ON DRAWINGS SHALL BE PAID FOR VIA THE TERMS OF A NEGOTIATED CHANGE ORDER.

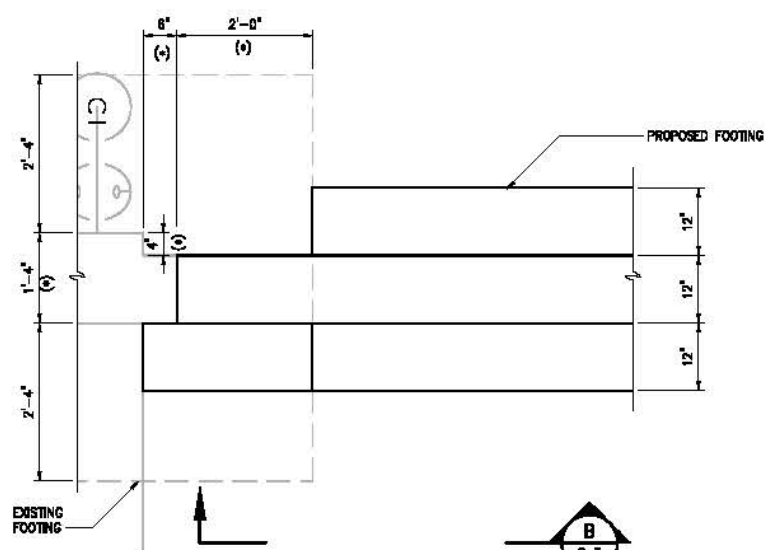


SECTION A
1/2" = 1'-0" S-2

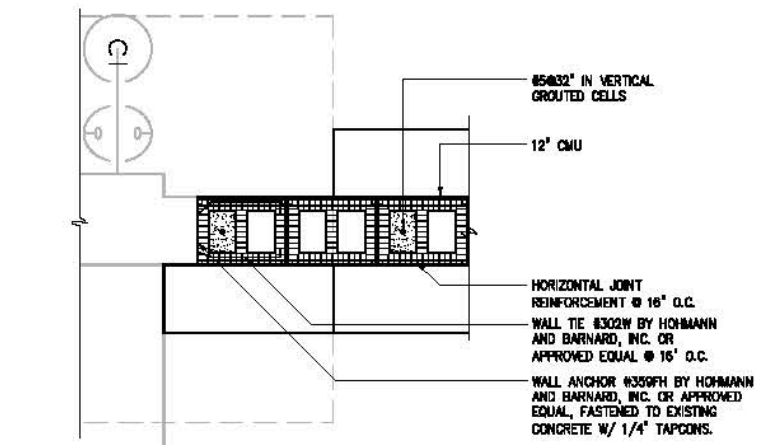
* - CONTRACTOR TO VERIFY ELEVATION



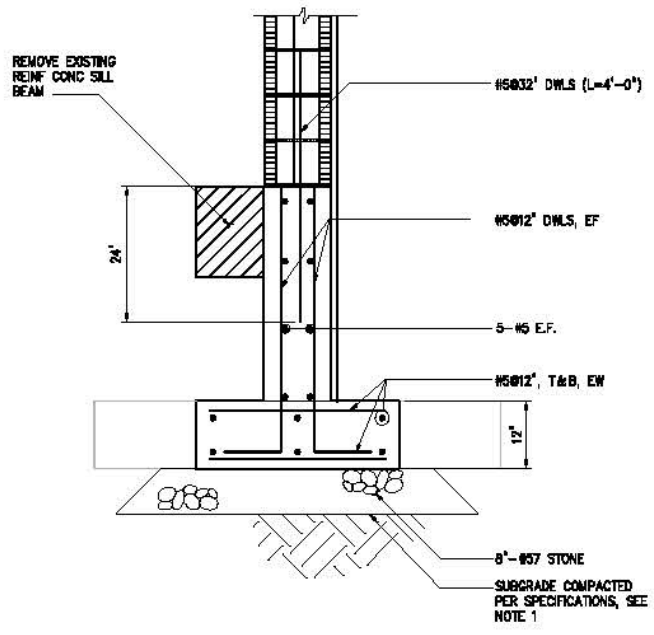
SECTION B
3/4" = 1'-0" S-3



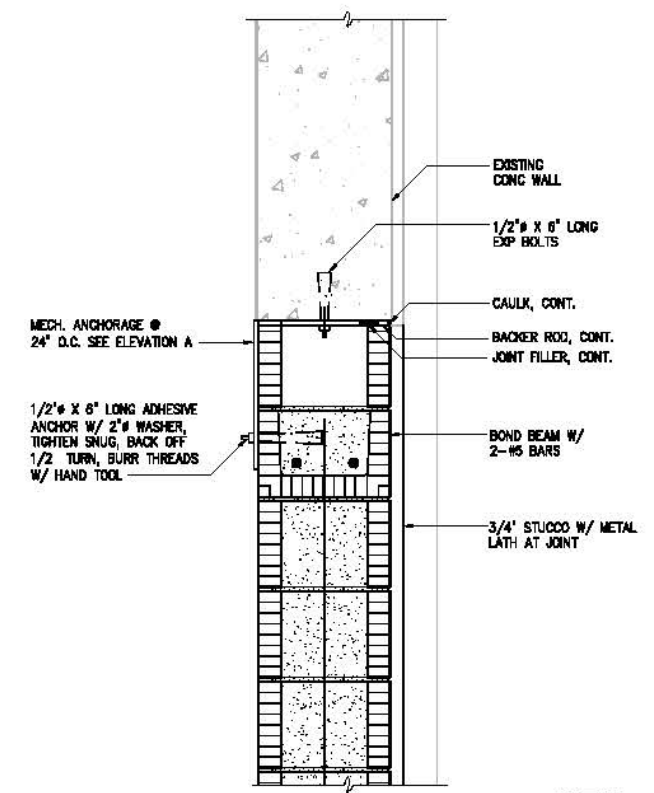
DETAIL 1
3/4" = 1'-0" S-2



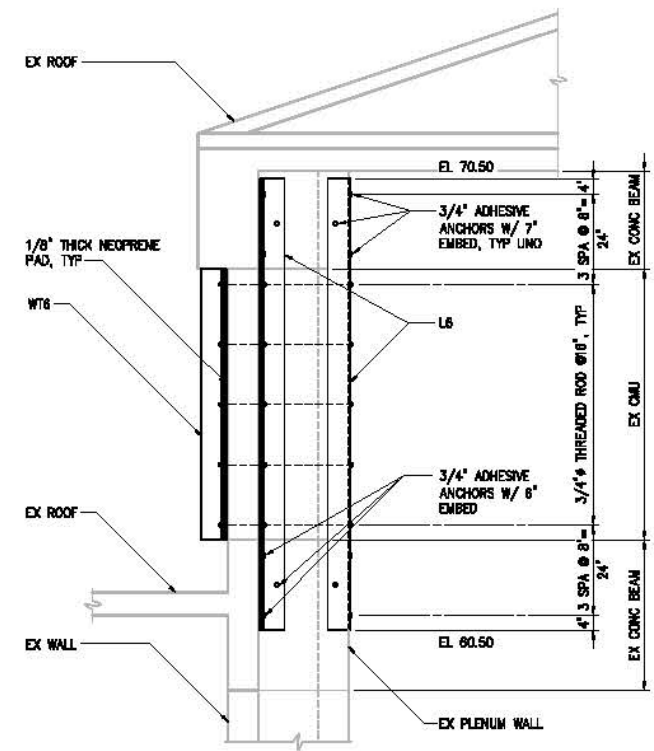
DETAIL 2
3/4" = 1'-0" S-3



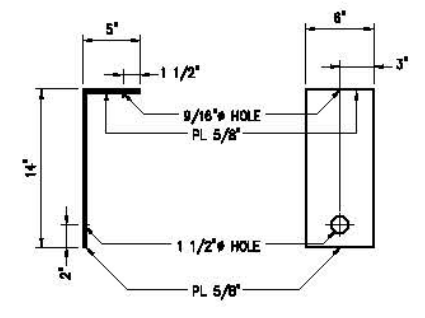
DETAIL 3
3/4" = 1'-0" S-3



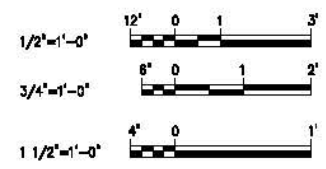
DETAIL 4
1 1/2" = 1'-0" S-3



SECTION C
1/2" = 1'-0" S-2



ELEVATION A
1 1/2" = 1'-0"



PLT DATE: 5/24/2014 11:42 AM DWT: JMS

DESIGNED	JPS
DRAWN	ESM
CHECKED	JPS
PROJ. ENGR.	RKA
NO.	1
ISSUED FOR	100% SUBMITTAL
DATE	-
BY	-
APPROVED	-

JEAN PAUL SILVA P.E.
No. 66522



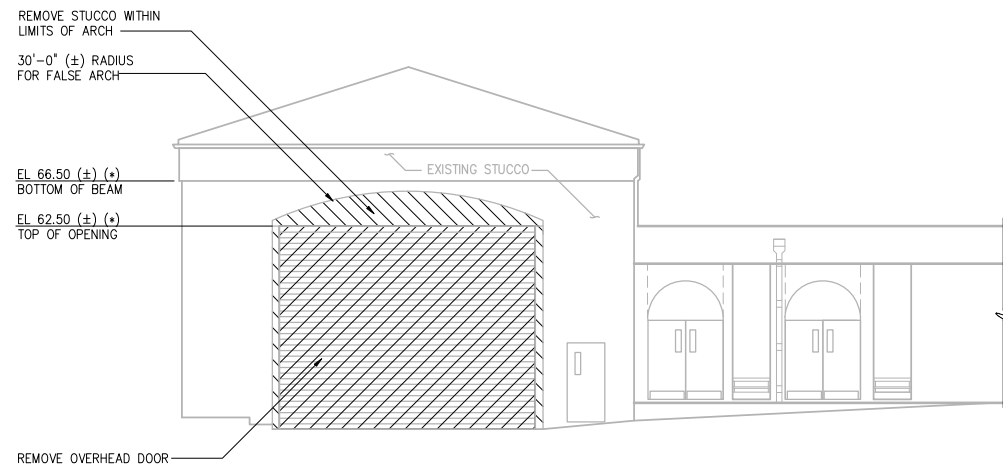
HAZEN AND SAWYER
Environmental Engineers & Scientists
10002 PRINCESS PALM AVE., SUITE 200
TAMPA, FLORIDA 33619
Certificate of Authorization No. 2771

CITY OF TAMPA
WATER DEPARTMENT
ENGINEERING DIVISION
DL TIPPIN WTF
CHLORINE PIPING AND
CHEMICAL BUILDING IMPROVEMENTS

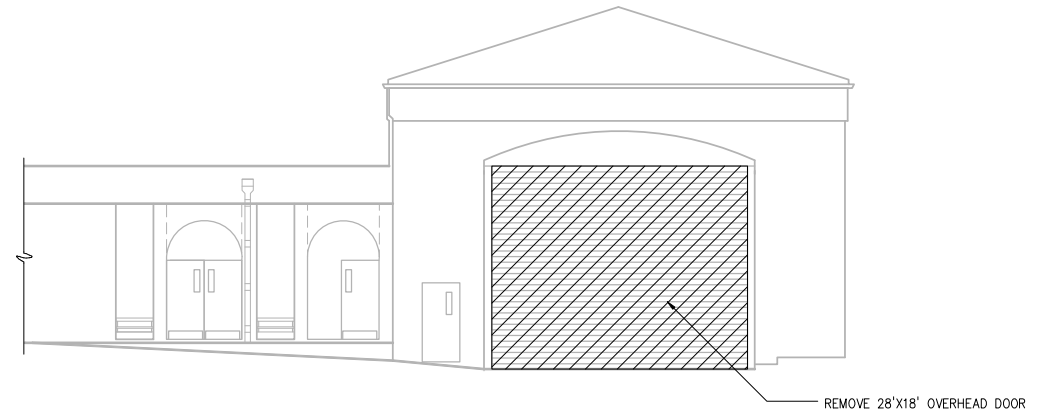
STRUCTURAL
SECTIONS AND DETAILS

THE SCALE BAR SHOWN BELOW MEASURES ONE INCH LONG ON THE ORIGINAL DRAWING.	DATE	JUNE 2014
	H & S JOB NUMBER	41077-004
	DRAWING NUMBER	S-3
	SHEET	5 OF 14

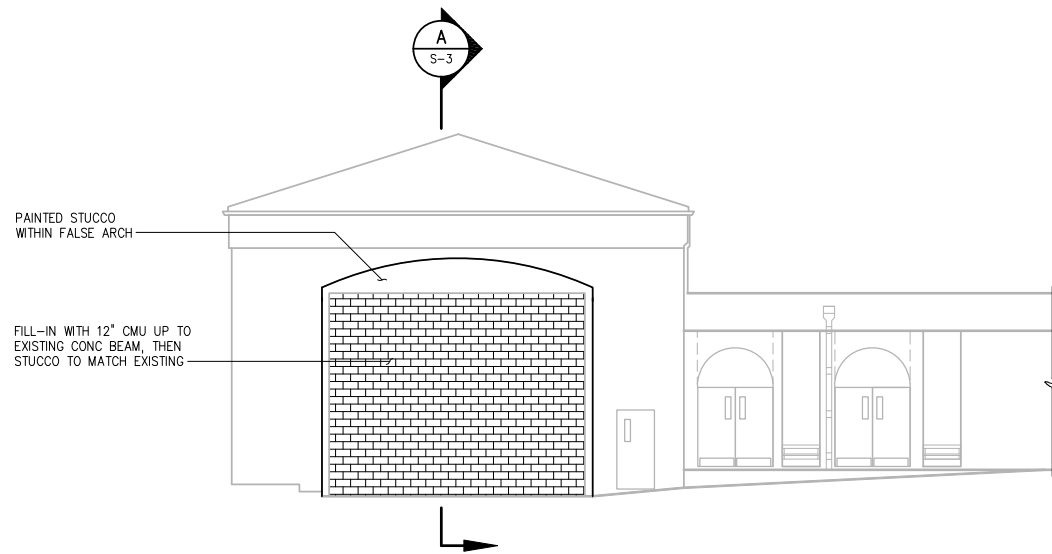
100% DESIGN SUBMITTAL - NOT FOR CONSTRUCTION



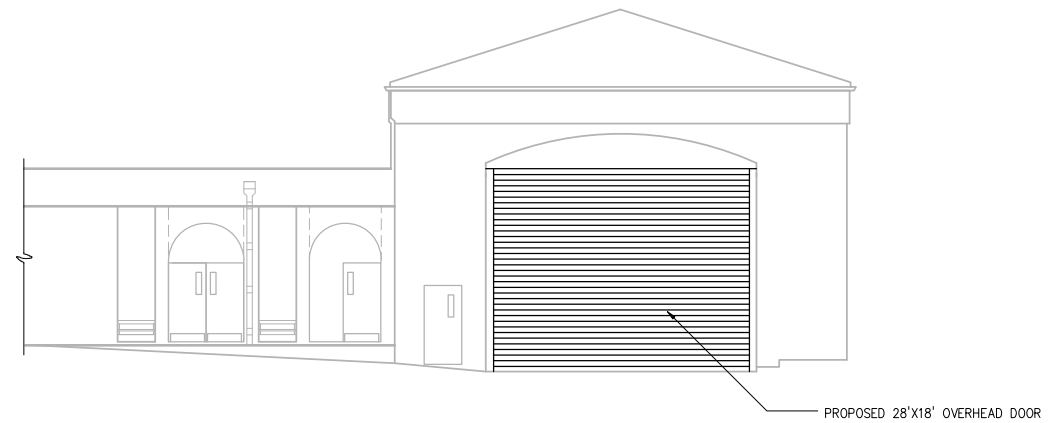
SOUTH ELEVATION - DEMOLITION
NTS



NORTH ELEVATION - DEMOLITION
NTS



SOUTH ELEVATION - PROPOSED
NTS



NORTH ELEVATION - PROPOSED
NTS

* - CONTRACTOR TO VERIFY ELEVATION

PLOT DATE: 6/24/2014 11:42 AM BY: JENISEL

NO.	ISSUED FOR	DATE	BY	APPROVED
1	100% SUBMITTAL	-	-	

DESIGNED	JPS
DRAWN	ESM
CHECKED	JPS
PROJ. ENGR.	RKA

DESIGNED	JPS
DRAWN	ESM
CHECKED	JPS
PROJ. ENGR.	RKA
JEAN PAUL SILVA P.E. No. 66522	



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TAMPA, FLORIDA 33619
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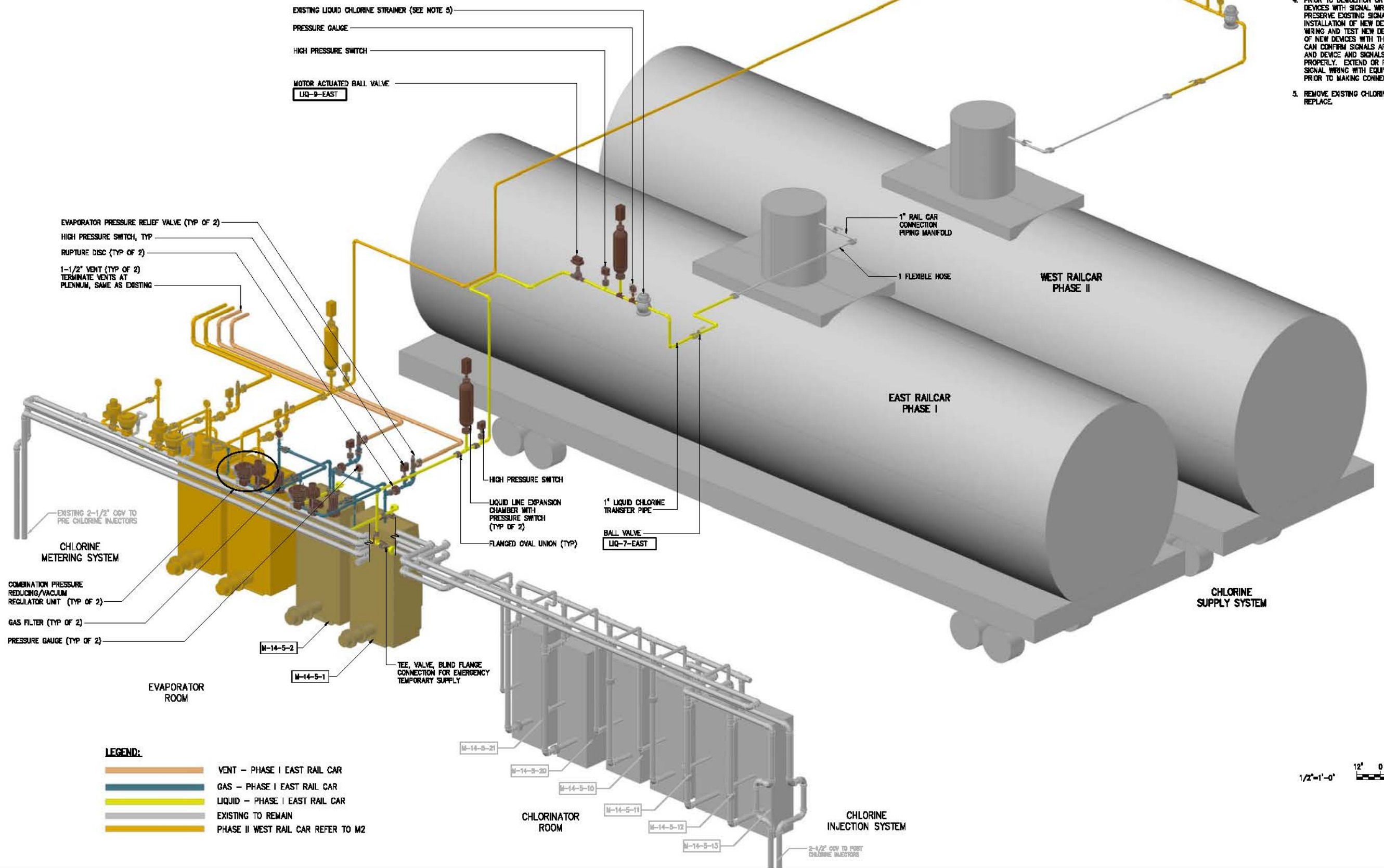
CITY OF TAMPA
WATER DEPARTMENT
ENGINEERING DIVISION
DL TIPPIN WTF
CHLORINE PIPING AND
CHEMICAL BUILDING IMPROVEMENTS

STRUCTURAL ELEVATIONS

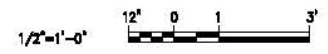
THE SCALE BAR SHOWN BELOW MEASURES ONE INCH LONG ON THE ORIGINAL DRAWING.	DATE	JUNE 2014
	H & S JOB NUMBER	41077-004
	DRAWING NUMBER	S-4
	SHEET	6 OF 14

NOTES

1. ALL PIPING, VALVES, EVAPORATORS ASSOCIATED WITH EAST RAIL CAR IN PHASE 1 TO BE REPLACED, SEE SHEET M3 FOR DETAILS.
2. SEE SUPPLEMENTARY GENERAL PROVISIONS FOR SEQUENCE OF CONSTRUCTION.
3. SEE SHEET M-5 FOR VALVE AND EQUIPMENT TAG NUMBERS.
4. PRIOR TO DEMOLITION OR REMOVAL OF EXISTING DEVICES WITH SIGNAL WIRING, DISCONNECT AND PRESERVE EXISTING SIGNAL WIRING. FOLLOWING INSTALLATION OF NEW DEVICES, RECONNECT SIGNAL WIRING AND TEST NEW DEVICE. COORDINATE TESTING OF NEW DEVICES WITH THE CITY SO THAT THE CITY CAN CONFIRM SIGNALS ARE BEING RECEIVED IN SCADA AND DEVICES AND SIGNALS ARE FUNCTIONING PROPERLY. EXTEND OR REPLACE ANY DAMAGED SIGNAL WIRING WITH EQUIVALENT NEW SIGNAL WIRING PRIOR TO MAKING CONNECTIONS TO NEW DEVICES.
5. REMOVE EXISTING CHLORINE STRAINERS, DO NOT REPLACE.



- LEGEND:**
- VENT - PHASE I EAST RAIL CAR
 - GAS - PHASE I EAST RAIL CAR
 - LIQUID - PHASE I EAST RAIL CAR
 - EXISTING TO REMAIN
 - PHASE II WEST RAIL CAR REFER TO M2



DESIGNED	RKA
DRAWN	ESM
CHECKED	AAD
PROJ. ENGR.	RKA
NO.	1
ISSUED FOR	100% SUBMITTAL
DATE	-
BY	-
APPROVED	-

DESIGNED: RKA
 DRAWN: ESM
 CHECKED: AAD
 PROJ. ENGR: RKA

ROBERT K. ANDERSON P.E.
 No. 47128



HAZEN AND SAWYER
 Environmental Engineers & Scientists
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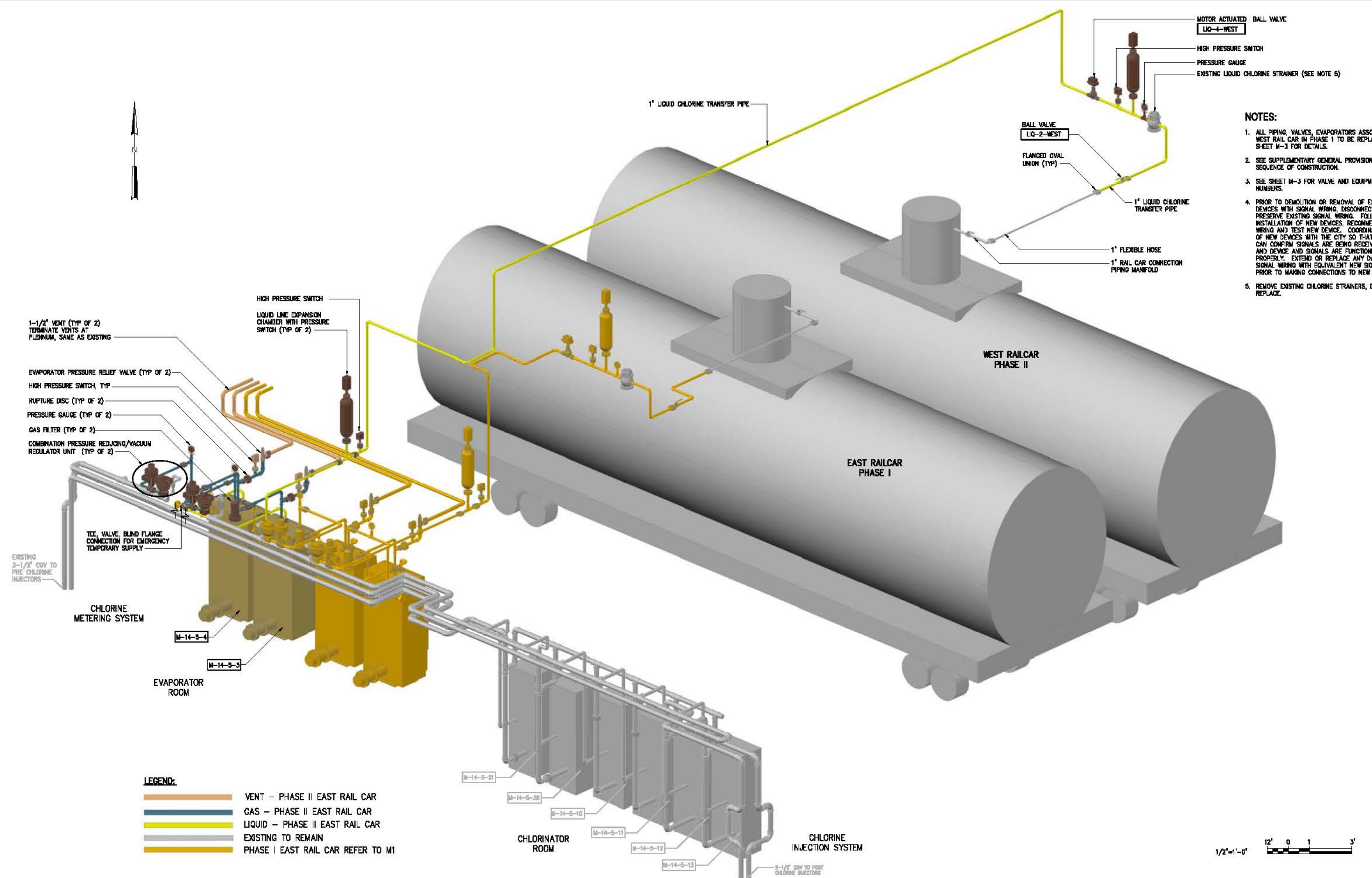
CITY OF TAMPA
 WATER DEPARTMENT
 ENGINEERING DIVISION
 DL TIPPIN WTF
 CHLORINE PIPING AND
 CHEMICAL BUILDING IMPROVEMENTS

MECHANICAL
 PHASE I - CHLORINE GAS PIPING
 REPLACEMENT (EAST RAIL CAR)

THE SCALE BAR SHOWN BELOW MEASURES ONE INCH LONG ON THE ORIGINAL DRAWING.	DATE	JUNE 2014
	H & S JOB NUMBER	41077-004
	DRAWING NUMBER	M1
	SHEET	7 OF 14

PLOT DATE: 6/24/2014 11:48 AM PR. INDORE

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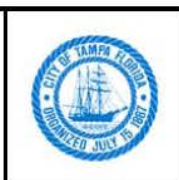


- NOTES:**
1. ALL PIPING, VALVES, EVAPORATORS ASSOCIATED WITH WEST RAIL CAR IN PHASE 1 TO BE REPLACED, SEE SHEET M-3 FOR DETAILS.
 2. SEE SUPPLEMENTARY GENERAL PROVISIONS FOR SEQUENCE OF CONSTRUCTION.
 3. SEE SHEET M-3 FOR VALVE AND EQUIPMENT TAG NUMBERS.
 4. PRIOR TO DEMOLITION OR REMOVAL OF EXISTING DEVICES WITH SIGNAL WIRING, DISCONNECT AND PRESERVE EXISTING SIGNAL WIRING. FOLLOWING INSTALLATION OF NEW DEVICES, RECONNECT SIGNAL WIRING AND TEST NEW DEVICE. COORDINATE TESTING OF NEW DEVICES WITH THE CITY SO THAT THE CITY CAN CONFIRM SIGNALS ARE BEING RECEIVED IN SCADA AND DEVICE AND SIGNALS ARE FUNCTIONING PROPERLY. EXTEND OR REPLACE ANY DAMAGED SIGNAL WIRING WITH EQUIVALENT NEW SIGNAL WIRING PRIOR TO MAKING CONNECTIONS TO NEW DEVICES.
 5. REMOVE EXISTING CHLORINE STRAINERS, DO NOT REPLACE.

- LEGEND:**
- VENT - PHASE II EAST RAIL CAR
 - GAS - PHASE II EAST RAIL CAR
 - LIQUID - PHASE II EAST RAIL CAR
 - EXISTING TO REMAIN
 - PHASE I EAST RAIL CAR REFER TO M1

DESIGNED	RKA
DRAWN	ESM
CHECKED	AAD
PROJ. ENGR.	RKA
NO.	1
ISSUED FOR	100% SUBMITTAL
DATE	-
BY	-
APPROVED	-

ROBERT K. ANDERSON P.E.
No. 47128



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Environmental Engineers & Scientists
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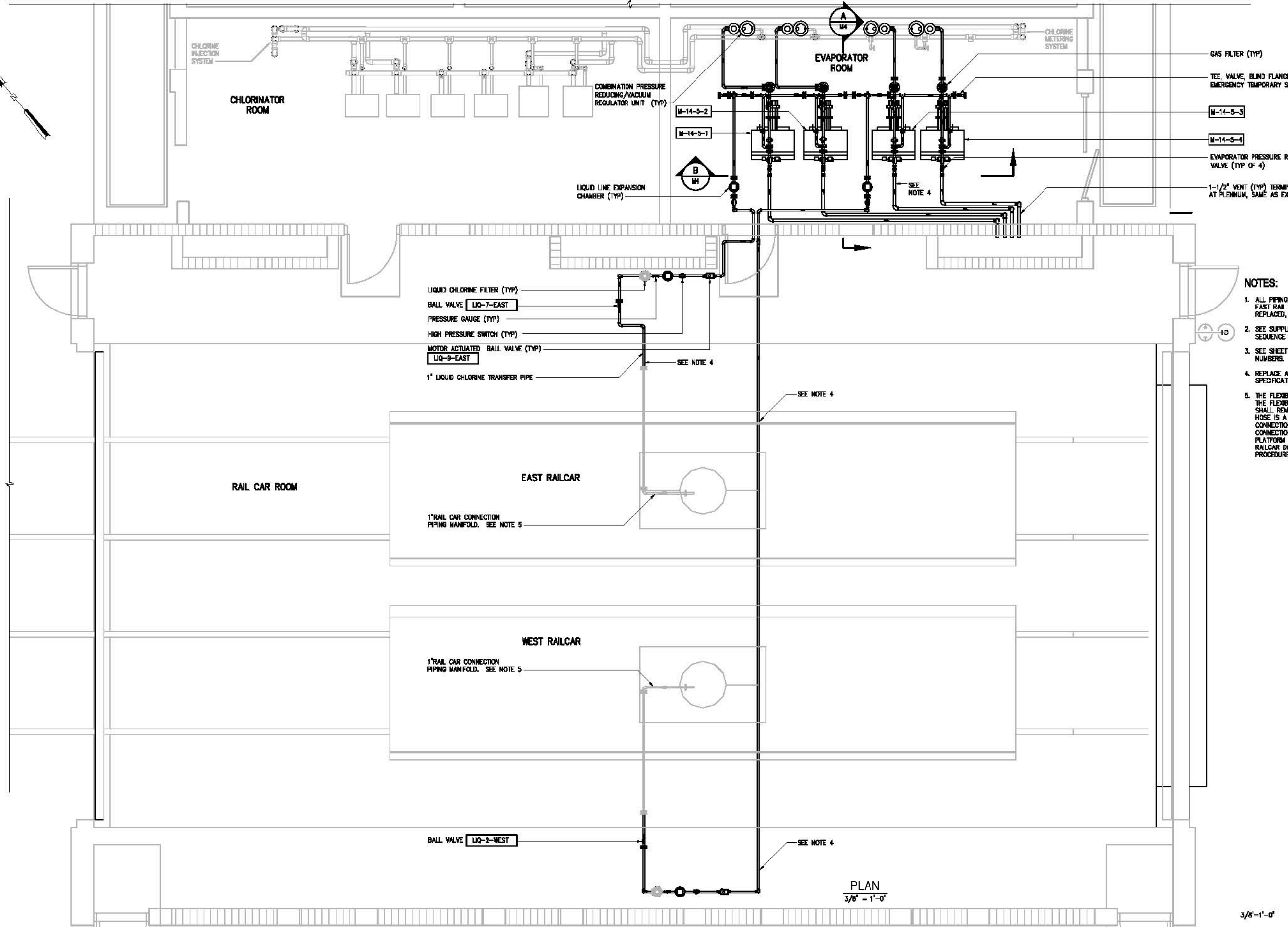
CITY OF TAMPA
WATER DEPARTMENT
ENGINEERING DIVISION
DL TIPPIN WTF
CHLORINE PIPING AND
CHEMICAL BUILDING IMPROVEMENTS

MECHANICAL
PHASE II - CHLORINE GAS PIPING
REPLACEMENT (WEST RAIL CAR)

THE SCALE BAR SHOWN BELOW MEASURES ONE INCH LONG ON THE ORIGINAL DRAWING.	DATE	JUNE 2014
	H & S JOB NUMBER	41077-004
	DRAWING NUMBER	M2
	SHEET	8 OF 14

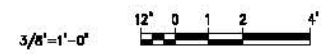
PLT DATE: 05/29/2014 11:48 AM RW: ANDERSON

100% DESIGN SUBMITTAL - NOT FOR CONSTRUCTION



- NOTES:**
1. ALL PIPING, VALVES, EVAPORATORS ASSOCIATED WITH EAST RAIL CAR AND WEST RAIL CAR TO BE REPLACED, REFER TO M1 AND M2 FOR 3D VIEW.
 2. SEE SUPPLEMENTARY GENERAL PROVISIONS FOR SEQUENCE OF CONSTRUCTION.
 3. SEE SHEET M-5 FOR VALVE AND EQUIPMENT TAG NUMBERS.
 4. REPLACE ALL PIPE SUPPORTS IN ACCORDANCE WITH SPECIFICATION 15020 - PIPE SUPPORTS.
 5. THE FLEXIBLE HOSE AND THE PIPE MANIFOLD BETWEEN THE FLEXIBLE HOSE AND THE RAILCAR ANGLE VALVE SHALL REMAIN. THE CONNECTION TO THE FLEXIBLE HOSE IS A TWO BOLT GASKETED FLANGED CONNECTION. THE CITY SHALL MAKE THE FINAL CONNECTIONS TO THE FLEXIBLE HOSE ON THE PLATFORM AND THE ANGLE VALVE INSIDE THE RAILCAR DOME USING THEIR STANDARD OPERATING PROCEDURE FOR MAKING THESE CONNECTIONS.

PLAN
3/8" = 1'-0"



DESIGNED	RKA
DRAWN	ESM
CHECKED	AAD
PROJ. ENGR.	RKA
NO.	1
ISSUED FOR	100% SUBMITTAL
DATE	-
BY	-
APPROVED	-

ROBERT K. ANDERSON
No. 47129 P.E.



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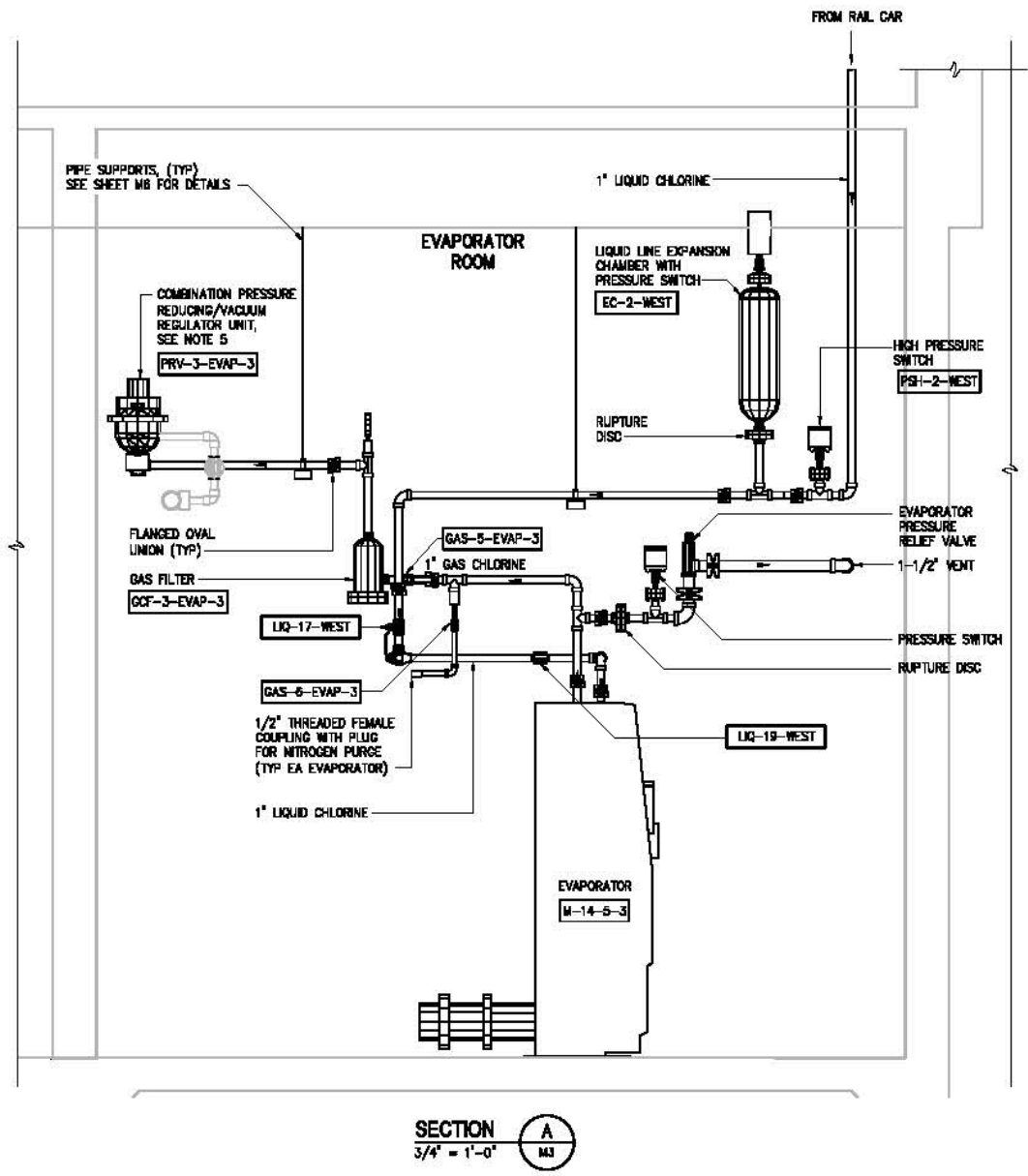
MECHANICAL
CHLORINE GAS PIPING REPLACEMENT -
OVERALL PLAN

THE SCALE BAR SHOWN BELOW MEASURES ONE INCH LONG ON THE ORIGINAL DRAWING.	DATE	JUNE 2014
	H & S JOB NUMBER	41077-004
	DRAWING NUMBER	M3
	SHEET	9 OF 14

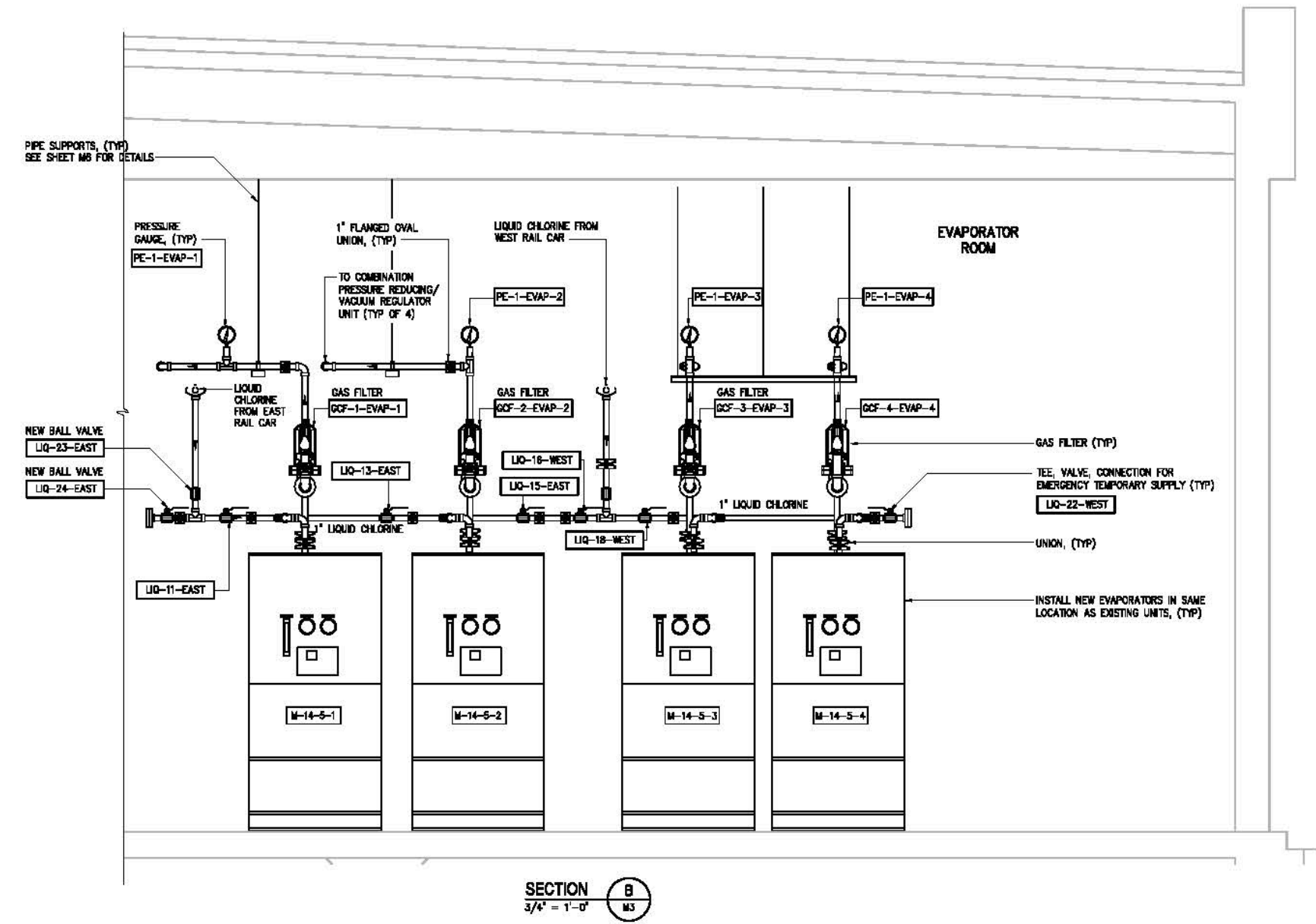
100% DESIGN SUBMITTAL - NOT FOR CONSTRUCTION

NOTES:

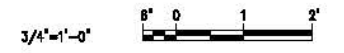
1. ALL PIPING, VALVES, EVAPORATORS ASSOCIATED WITH EAST RAIL CAR AND WEST RAIL CAR TO BE REPLACED, REFER TO M1 AND M2 FOR 3D VIEW.
2. SEE SUPPLEMENTARY GENERAL PROVISIONS FOR SEQUENCE OF CONSTRUCTION.
3. SEE SHEET M-5 FOR VALVE AND EQUIPMENT TAG NUMBERS.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR DISCONNECTING AND RE-CONNECTING POWER AND SIGNAL WIRING FROM EVAPORATORS AND ALL ACCESSORIES. REPLACE ANY EXISTING WIRING AND CONDUIT DAMAGED DURING CONSTRUCTION OR AS NECESSARY FOR RELOCATION AND RE-INSTALLATION OF DEVICES.
5. PRESSURE REDUCING VALVE IS ELECTRIC MOTOR ACTUATED AND HAS A HEATED DRIP LEG. THERE IS A LOW TEMPERATURE SWITCH BETWEEN THE PRV AND VACUUM REGULATOR. SEE NOTE 4.



SECTION A
3/4" = 1'-0"
M4



SECTION B
3/4" = 1'-0"
M5



PLOT DATE: 05/29/14 11:43 AM DFC: ANDERSON

DESIGNED	RKA
DRAWN	ESM
CHECKED	AAD
PROJ. ENGR.	RKA
NO.	1
ISSUED FOR	100% SUBMITTAL
DATE	-
BY	-
APPROVED	

ROBERT K. ANDERSON P.E.
No. 47129



HAZEN AND SAWYER
Environmental Engineers & Scientists
10002 PRINCESS PALM AVE., SUITE 200
TAMPA, FLORIDA 33619
Certificate of Authorization No. 2771

CITY OF TAMPA
WATER DEPARTMENT
ENGINEERING DIVISION
DL TIPPIN WTF
CHLORINE PIPING AND
CHEMICAL BUILDING IMPROVEMENTS

MECHANICAL
CHLORINE GAS PIPING REPLACEMENT -
SECTIONS

THE SCALE BAR SHOWN BELOW MEASURES ONE INCH LONG ON THE ORIGINAL DRAWING.	DATE	JUNE 2014
	H & S JOB NUMBER	41077-004
	DRAWING NUMBER	M4
	SHEET	10 OF 14

100% DESIGN SUBMITTAL - NOT FOR CONSTRUCTION

EAST VALVES AND EQUIPMENT

Chlorine System East Railcar Tag Number List		
Tag Number	Location	Description
LIQ -6- EAST	East Platform	Ball valve, short header used to connect flex line to the angle valve
LIQ -7- EAST	East Platform	Line valve on the platform
LIQ -8- EAST	East Platform	Purge valve located on the platform
LCF -1- EAST	East Platform	Liquid chlorine filter on the platform
PE -1- EAST	East Platform	Pressure gauge on the platform
EC -1- EAST	East Platform	Expansion Chamber with rupture disc on the platform
PSH -1- EAST	East Platform	High Pressure Switch on the platform
LIQ -9- EAST	East Platform	Automatic transfer valve, operated by pressure
LIQ -10- EAST	East Platform	Purge valve located at ground level for nitrogen tank connection
PSH -2- EAST	Evaporator Room	High Pressure Switch upstream from Evaporators 1 and 2
EC -2- EAST	Evaporator Room	Expansion Chamber with rupture disc upstream from Evaporators 1 and 2
LIQ -11- EAST	Evaporator Room	RED VALVE, Main line valve from east car, this valve will isolate evaporators #1 & #2
LIQ -12- EAST	Evaporator Room	Evaporator #1 isolation valve
LIQ -13- EAST	Evaporator Room	Isolation valve between evaporators #1 & #2
LIQ -14- EAST	Evaporator Room	Evaporator #2 isolation valve
LIQ -15- EAST	Evaporator Room	Valve remains closed at all times. This valve will provide connection of the east and west liquid systems in the event of a problem with normal supply from the rail cars.
LIQ-23-EAST	Evaporator Room	ADDED RED VALVE , Main line Valve from East Rail Car, this valve will isolate Evaporators 1 and 2
LIQ-24-EAST	Evaporator Room	ADDED Isolation valve, external header connection that must remain closed and capped
EVAP-1	Evaporator Room	Evaporator #1
GAS-1-EVAP-1	Evaporator Room	Gas discharge valve from evaporator #1
GCF -1- EVAP-1	Evaporator Room	Gas chlorine filter on evaporator #1 gas discharge
PE-1-EVAP-1	Evaporator Room	Pressure Gauge
GAS-2-EVAP-1	Evaporator Room	Purge valve, evaporator #1
RD-1-EVAP-1	Evaporator Room	Safety pressure relief rupture disc on evaporator #1 gas discharge
PSH-1-EVAP-1	Evaporator Room	High pressure switch on evaporator #1 gas discharge
PRV-1 EVAP-1	Evaporator Room	Pressure relief valve on evaporator #1 gas discharge to vent
PR/VAC-1-EVAP-1	Evaporator Room	Combination Pressure Reducing and Vacuum Regulating Valve Assembly
EVAP-2	Evaporator Room	Evaporator #2
GAS-3-EVAP-2	Evaporator Room	Gas discharge valve from evaporator #2
GCF-2-EVAP-2	Evaporator Room	Gas chlorine filter on evaporator #2 gas discharge
PE-1-EVAP-2	Evaporator Room	Pressure Gauge
GAS-4-EVAP-2	Evaporator Room	Purge valve, evaporator #2
RD-2-EVAP-2	Evaporator Room	Safety pressure relief rupture disc on evaporator #1 gas discharge
PSH-2-EVAP-2	Evaporator Room	High pressure switch on evaporator #1 gas discharge

WEST VALVES AND EQUIPMENT

Chlorine System West Railcar Tag Number List		
Tag Number	Location	Description
LIQ -1- WEST	West Platform	Ball valve, short header used to connect flex line to the angle valve
LIQ -2- WEST	West Platform	Line valve on the platform
LIQ -3- WEST	West Platform	Purge valve located on the platform
LCF -1- WEST	West Platform	Liquid chlorine filter on the platform
PE -1- WEST	West Platform	Pressure gauge on the platform
EC -1- WEST	West Platform	Expansion Chamber with rupture disc on the platform
PSH -1- WEST	West Platform	High Pressure Switch on the platform
LIQ -4- WEST	West Platform	Automatic transfer valve, operated by pressure
LIQ -5- WEST	West Platform	Purge valve located at ground level for nitrogen tank connection
PSH -2- WEST	Evaporator Room	High Pressure Switch upstream from Evaporators 3 and 4
EC -2- WEST	Evaporator Room	Expansion Chamber with rupture disc upstream from Evaporators 3 and 4
LIQ -16- WEST	Evaporator Room	Valve remains closed at all times. This valve will provide connection of the east and west liquid systems in the event of a problem with normal supply from the rail cars.
LIQ -17- WEST	Evaporator Room	RED VALVE, Main line valve from west car, this valve will isolate evaporators #3 & #4
LIQ -18- WEST	Evaporator Room	RED VALVE, Main line valve from west car, this valve will isolate evaporators #3 & #4
EVAP-3	Evaporator Room	Evaporator #3
LIQ -19- WEST	Evaporator Room	Evaporator #3 isolation valve
LIQ -20- WEST	Evaporator Room	Isolation valve between evaporators #3 & #4
LIQ -21- WEST	Evaporator Room	Evaporator #4 isolation valve
LIQ -22- WEST	Evaporator Room	Isolation valve, external header connection that must remain closed and capped
GAS-1-EVAP-1	Evaporator Room	Gas discharge valve from evaporator #1
GAS-5-EVAP-3	Evaporator Room	Gas discharge valve from evaporator #3
GCF-3-EVAP-3	Evaporator Room	Gas chlorine filter on evaporator #3 gas discharge
PE-1-EVAP-3	Evaporator Room	Pressure Gauge
GAS-6-EVAP-3	Evaporator Room	Purge valve, evaporator #3
RD-3-EVAP-3	Evaporator Room	Safety pressure relief rupture disc on evaporator #3 gas discharge
PSH-3-EVAP-3	Evaporator Room	High pressure switch on evaporator #3 gas discharge
PRV-3-EVAP-3	Evaporator Room	Pressure relief valve on evaporator #3 gas discharge to vent
PR/VAC-3-EVAP-3	Evaporator Room	Combination Pressure Reducing and Vacuum Regulating Valve Assembly
EVAP-4	Evaporator Room	Evaporator #4
GAS-7-EVAP-4	Evaporator Room	Gas discharge valve from evaporator #4
GCF-4-EVAP-4	Evaporator Room	Gas chlorine filter on evaporator #4 gas discharge
PE-1-EVAP-4	Evaporator Room	Pressure Gauge
GAS-8-EVAP-4	Evaporator Room	Purge valve, evaporator #4
RD-4-EVAP-4	Evaporator Room	Safety pressure relief rupture disc on evaporator #4 gas discharge
PSH-4-EVAP-4	Evaporator Room	High pressure switch on evaporator #4 gas discharge

PLT: JUNE 2014 11:43 AM DR. ANDERSON

DESIGNED	RKA
DRAWN	ESM
CHECKED	AAD
PROJ. ENGR.	RKA
NO.	1
ISSUED FOR	100% SUBMITTAL
DATE	-
BY	-
APPROVED	

ROBERT K. ANDERSON P.E.
No. 47129

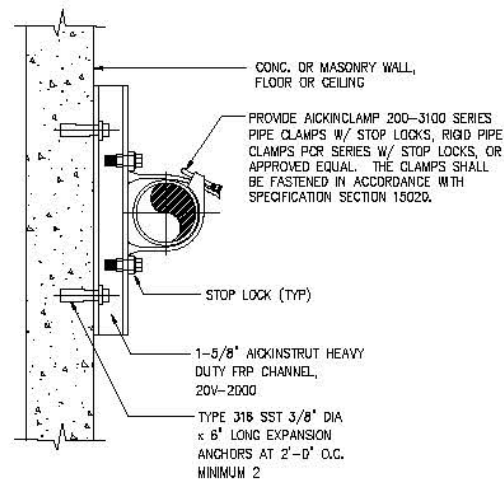


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TAMPA, FLORIDA 33619
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CITY OF TAMPA
WATER DEPARTMENT
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DL TIPPIN WTF
CHLORINE PIPING AND
CHEMICAL BUILDING IMPROVEMENTS

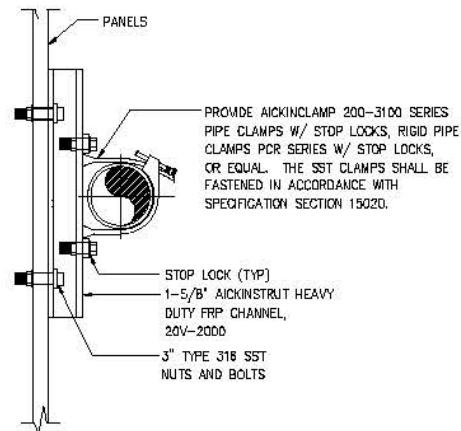
MECHANICAL
EQUIPMENT AND VALVE TAG LIST

THE SCALE BAR SHOWN BELOW MEASURES ONE INCH LONG ON THE ORIGINAL DRAWING.	DATE	JUNE 2014
	H & S JOB NUMBER	41077-004
	DRAWING NUMBER	M5
	SHEET	11 OF 14



NON-METALLIC CHANNEL ON CONCRETE PIPE SUPPORT

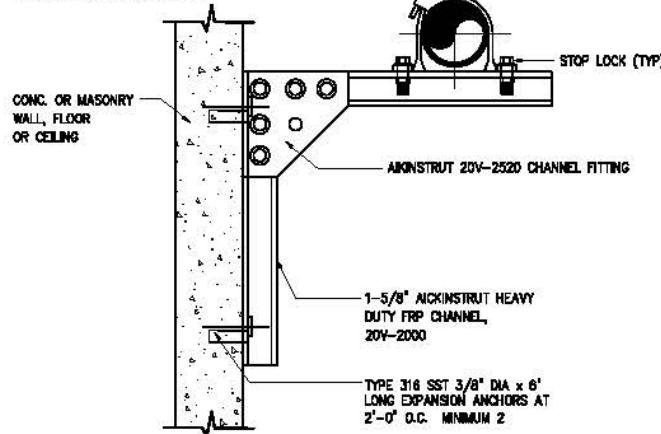
DETAIL	1
N.T.S.	M6



NON-METALLIC CHANNEL ON PANELS PIPE SUPPORT

DETAIL	2
N.T.S.	M6

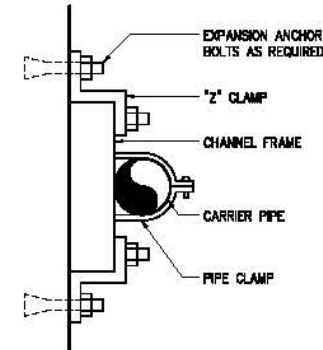
PROVIDE AICKINCLAMP 200-3100 SERIES PIPE CLAMPS W/ STOP LOCKS, RIGID PIPE CLAMPS PCR SERIES W/ STOP LOCKS, OR APPROVED EQUAL. THE CLAMPS SHALL BE FASTENED IN ACCORDANCE WITH SPECIFICATION SECTION 15020.



NON-METALLIC WALL BRACKET

DETAIL	3
N.T.S.	M6

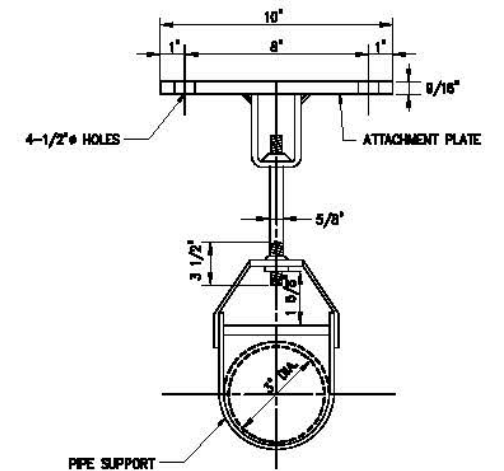
NOTE:
FOR INSULATED PIPE PROVIDE PVC SLEEVE AROUND INSULATION



PIPE WALL SUPPORT AND SUPPORT RACK SHALL BE ASSEMBLED W/ TYPE 316 STAINLESS STEEL CHANNEL FRAMES AND ACCESSORIES AS MANUFACTURED BY UNISTRUT CORP OR APPROVED EQUAL

PIPE WALL SUPPORT

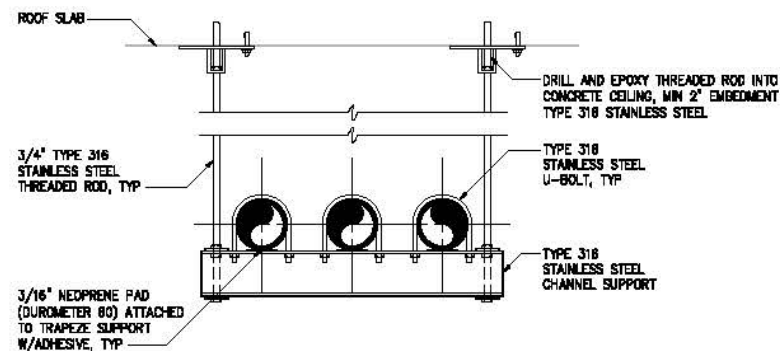
DETAIL	4
N.T.S.	M6



1. ALL TUBULAR MATERIAL TO BE NOMINAL DIAMETER 316 STAINLESS STEEL
2. PLATES AND GUSSETS TO BE STRUCTURAL GRADE 316 STAINLESS STEEL

PIPE HANGER SUPPORT

DETAIL	5
N.T.S.	M6



TRAPEZE PIPE SUPPORT

DETAIL	6
N.T.S.	M6

PLOT DATE: 5/24/2014 11:43 AM DFC: ANDERSON

DESIGNED	RKA		
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CHECKED	AAD		
PROJ. ENGR.	RKA		
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BY	-	BY	-
APPROVED			

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CITY OF TAMPA
WATER DEPARTMENT
ENGINEERING DIVISION
DL TIPPIN WTF
CHLORINE PIPING AND
CHEMICAL BUILDING IMPROVEMENTS

MECHANICAL
DETAILS

THE SCALE BAR SHOWN BELOW MEASURES ONE INCH LONG ON THE ORIGINAL DRAWING.	DATE	JUNE 2014
	H & S JOB NUMBER	41077-004
	DRAWING NUMBER	M6
	SHEET	12 OF 14

LIGHTING:

- X DENOTES FIXTURE TYPE (TYP.)
- # DENOTES CIRCUIT NUMBER (TYP.)
- 2' X 4' FLUORESCENT FIXTURE
- 1' X 4' FLUORESCENT FIXTURE
- CEILING-MOUNTED FIXTURE
- WALL-MOUNTED FIXTURE
- EMERGENCY WALL-MOUNTED FIXTURE:
LEFT: STANDARD/RIGHT: REMOTE-HEAD
- CEILING-MOUNTED EXIT SIGN:
SHADED PORTION DENOTES SIGN FACE
- WALL-MOUNTED EXIT SIGN:
SHADED PORTION DENOTES SIGN FACE
- POLE-MOUNTED FIXTURE
- PHOTOCELL
- CEILING MOUNTED OCCUPANCY SENSOR:
NUMBER DENOTES TYPE
- WALL MOUNTED OCCUPANCY SENSOR:
NUMBER DENOTES TYPE

RECEPTACLES:

- X DENOTES RECEPTACLE TYPE (TYP.)
- GFCI DENOTES GROUND FAULT CIRCUIT INTERRUPT
- UPS DENOTES UNINTERRUPTIBLE POWER SUPPLY
- WPCR DENOTES WEATHERPROOF CORROSION RESISTANT (SEE NOTE 10)
- # DENOTES CIRCUIT NUMBER (TYP.)
- DUPLEX RECEPTACLE
- SIMPLEX RECEPTACLE
- QUADRUPLEX RECEPTACLE
- MULTI-OUTLET RECEPTACLE SIMPLEX
- MULTI-OUTLET RECEPTACLE DUPLEX
- 240 VOLT RECEPTACLE
- SPECIAL PURPOSE OUTLET

PANELS AND BOXES

- JUNCTION BOX
- TERMINAL JUNCTION BOX
- PULL BOX
- CONTROL PANEL

HVAC AND FIRE ALARM

- FIRE ALARM CONTROL PANEL
- FIRE ALARM ANNUNCIATOR PANEL
- FIRE ALARM PULL STATION
- FIRE ALARM INDICATOR:
X DENOTES ALERT TYPE (TYP.):
A DENOTES AUDIBLE
V DENOTES VISIBLE (# DENOTES STROBE INTENSITY)
- FIRE ALARM INDICATOR MOUNTED ABOVE A FIRE ALARM PULL STATION
- DUCT DETECTOR
- SMOKE DETECTOR:
X DENOTES TYPE:
Z DENOTES IONIZATION
P DENOTES PHOTOELECTRIC
T DENOTES THERMAL
- HEAT DETECTOR
- THERMOSTAT
- AMBIENT TEMPERATURE TRANSMITTER

SWITCHES

- WALL SWITCH:
X DENOTES TYPE:
NO SUBSCRIPT DENOTES SINGLE-POLE SWITCH
3 DENOTES 3-WAY SWITCH
4 DENOTES 4-WAY SWITCH
DENOTES CIRCUIT NUMBER
WPCR DENOTES WEATHERPROOF AND CORROSION RESISTANT
- COMBINATION MOTOR STARTER
- DISCONNECT SWITCH
- LOCAL CONTROL STATION
- MANUAL STARTER SWITCH (MSW), 120V, 1-POLE

WIRING

- CONDUIT HOME RUN
- CONDUIT EXPOSED
- CONCRETE ENCASED CONDUIT
- CONDUIT CONCEALED
- FLEXIBLE CONDUIT
- CONCRETE ENCASED DUCTBANK
- LEFT: CONDUIT RISE (TURN UP)
- RIGHT: CONDUIT DROP (TURN DOWN)

ELEMENTARY CONTROL SCHEMATICS

- 3-POSITION SELECTOR SWITCH:
HOA DENOTES HAND/OFF/AUTO
LOR DENOTES LOCAL/OFF/REMOTE
FOR DENOTES FORWARD/OFF/REVERSE
- PUSHBUTTON SWITCHES:
LEFT: N.O./RIGHT: N.C.
TEXT DENOTES LEGEND PLATE
- MUSHROOM HEAD EMERGENCY STOP PUSHBUTTON SWITCH N.C. MAINTAINED:
TEXT DENOTES LEGEND PLATE
- PUSHBUTTON SWITCH N.C. WITH LOCK-OUT:
TEXT DENOTES LEGEND PLATE
- SELECTOR SWITCH:
TEXT DENOTES LEGEND PLATE
- DISCONNECT SWITCHES:
LEFT: N.O./RIGHT: N.C.
- TEMPERATURE SWITCHES/THERMOSTATS:
LEFT: N.O./RIGHT: N.C.
TEXT DENOTES TAG NUMBER
- PRESSURE SWITCHES N.O.:
LEFT: RISE TO CLOSE/RIGHT: FALL TO CLOSE
TEXT DENOTES TAG NUMBER
- PRESSURE SWITCHES N.C.:
LEFT: RISE TO OPEN/RIGHT: FALL TO OPEN
TEXT DENOTES TAG NUMBER
- LEVEL SWITCHES N.O.:
LEFT: RISE TO CLOSE/RIGHT: FALL TO CLOSE
TEXT DENOTES TAG NUMBER
- LEVEL SWITCHES N.C.:
LEFT: RISE TO OPEN/RIGHT: FALL TO OPEN
TEXT DENOTES TAG NUMBER
- ON DELAY TIMED SWITCHES N.O.:
TEXT DENOTES TAG NUMBER
- ON DELAY TIMED SWITCHES N.C.:
TEXT DENOTES TAG NUMBER
- OFF DELAY TIMED SWITCHES:
TEXT DENOTES TAG NUMBER
- TORQUE SWITCH:
TEXT DENOTES TAG NUMBER
- LIMIT SWITCHES:
LEFT: N.O./RIGHT: N.C.
TEXT DENOTES TAG NUMBER
- FLOW SWITCHES N.O.:
LEFT: RISE TO CLOSE/RIGHT: FALL TO CLOSE
TEXT DENOTES TAG NUMBER
- FLOW SWITCHES N.C.:
LEFT: RISE TO OPEN/RIGHT: FALL TO OPEN
TEXT DENOTES TAG NUMBER
- CONTACTS:
LEFT: N.O./RIGHT: N.C.
DENOTES COIL NUMBER
- INDICATOR LIGHT:
LEFT: STANDARD/RIGHT: PUSH-TO-TEST
X DENOTES COLOR
- RUN TIME METER
- SOLENOID VALVE
- MOTOR OPERATED DAMPER
- CONTROL POWER TRANSFORMER
- MECHANICAL INTERLOCK CONNECTION
- MOTOR SPACE HEATER
- COIL:
X DENOTES TYPE:
M DENOTES MOTOR STARTER
CR DENOTES CONTROL RELAY
TR DENOTES TIME DELAY RELAY
LC DENOTES LIGHTING CONTACTOR
PR DENOTES INTERPOSING PILOT RELAY
DENOTES REFERENCE LINE NUMBER

SINGLE-LINE DIAGRAMS

- TRANSFORMER ID
48kVA
480-120/208V
- TRANSFORMER
- PROTECTIVE RELAY:
NUMBER DENOTES IEEE DEVICE FUNCTION
- PRESSURE SWITCH
- TEMPERATURE SWITCH
- FUSE
- LOW-VOLTAGE DRAWOUT POWER CIRCUIT BREAKER:
E.O. DENOTES ELECTRICALLY OPERATED
LSG DENOTES INSTALLED TRIP FUNCTIONS:
L DENOTES LOW-TIME
S DENOTES SHORT-TIME
I DENOTES INSTANTANEOUS
G DENOTES GROUND FAULT
- MEDIUM-VOLTAGE DRAWOUT POWER CIRCUIT BREAKER:
E.O. DENOTES ELECTRICALLY OPERATED
BATT. DENOTES BATTERY BACKUP POWER
- LOW-VOLTAGE MOLDED CASE CIRCUIT BREAKER
- MOTOR CIRCUIT PROTECTOR
- THERMAL OVERLOAD RELAY
- GROUND
- CT: NUMBERS DENOTE CT WINDING RATIO AND CT QUANTITY
- GFCT: NUMBERS DENOTE GFCT WINDING RATIO AND GFCT QUANTITY
- PT: NUMBERS DENOTE PT WINDING RATIOS AND PT QUANTITY
- DRAW-OUT ELEMENT
- ATS OR MTS
- MOTOR
DENOTES HORSEPOWER
- GENERATOR
- COMBINATION POWER UNIT:
X DENOTES NAMEPLATE ID
- LIGHTNING ARRESTOR

SINGLE-LINE DIAGRAMS, CONT'D.

- LEFT: RESISTOR
RIGHT: LINE REACTOR
DENOTES IMPEDANCE
- CAPACITOR
- VOLTMETER AND SWITCH
AMMETER AND SWITCH
- SHUNT TRIP
- SURGE PROTECTIVE DEVICE
- KIRK-KEY INTERLOCK
- LEFT: FWR STARTER:
X DENOTES NEMA SIZE
DP DENOTES DEFINITE PURPOSE CONTACTOR
RIGHT: FWR STARTER
- LEFT: VFD WITH LINE REACTOR
RIGHT: VFD WITH LINE REACTOR AND BYPASS STARTER
- LEFT: RVSS STARTER
RIGHT: RVSS STARTER WITH FWR BYPASS
- VFD WITH LINE REACTOR AND BYPASS RVSS STARTER

MISC PLAN VIEW SYMBOLS

- EQUIPMENT CONNECTION
- GROUND RODS:
LEFT: BURIED/RIGHT: IN TESTWELL
- DUCTBANK SECTION CUT IDENTIFIER:
DBXX DENOTES DUCTBANK ID
EXX DENOTES DRAWING NUMBER
WHERE SECTION CUT IS LOCATED
- DUCTBANK TAG:
X DENOTES DUCTBANK ID
- INSTRUMENT TAG:
X DENOTES INSTRUMENT TYPE
DENOTES INSTRUMENT NUMBER
- INSTRUMENT TRANSMITTER
- CONDUIT TAGS:
P DENOTES POWER
C DENOTES CONTROL
XXXX DENOTES CONDUIT ID
XXX-XXX DENOTES CONDUIT ID

ABBREVIATIONS

- ANSI AMERICAN NATIONAL STANDARDS INSTITUTE
- ASCE AMERICAN SOCIETY OF CIVIL ENGINEERS
- ASME AMERICAN SOCIETY OF MECHANICAL ENGINEERS
- ATS AUTOMATIC TRANSFER SWITCH
- BC BYPASS CONTACTOR
- CT CURRENT TRANSFORMER
- CMH CONTROL MAN-HOLE
- DB DUCTBANK
- DSW DISCONNECT SWITCH
- EHH ELECTRIC HAND HOLE
- EMH ELECTRIC MANHOLE
- EO ELECTRICALLY OPERATED
- FAAP FIRE ALARM ANNUNCIATOR PANEL
- FACP FIRE ALARM CONTROL PANEL
- FOPP FIBER OPTIC PATCH PANEL
- FVNR FULL VOLTAGE NON-REVERSING
- FVR FULL VOLTAGE REVERSING
- GFCI GROUND FAULT CIRCUIT INTERRUPT
- GFCT GROUND FAULT CURRENT TRANSFORMER
- IC INPUT CONTACTOR
- IEEE INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS
- ISO INTL. ORGANIZATION FOR STANDARDIZATION
- LCS LOCAL CONTROL STATION
- LP LIGHTING PANEL
- MFR MULTI-FUNCTION RELAY
- MDD MOTOR OPERATED DAMPER
- MOG MOTOR OPERATED GATE
- MOL MOTOR OPERATED LOUVER
- MOV MOTOR OPERATED VALVE
- MTS MANUAL TRANSFER SWITCH
- MV MEDIUM VOLTAGE
- NC/NO NORMALLY CLOSED/NORMALLY OPEN
- NEC NATIONAL ELECTRICAL CODE
- NEMA NATIONAL ELECTRICAL MANUFACTURERS ASSN
- NTS NOT TO SCALE
- OC OUTPUT CONTACTOR
- OL OVERLOAD
- PC PHOTOCELL
- PCC POINT OF COMMON COUPLING
- PLC PROGRAMMABLE LOGIC CONTROLLER
- PMH POWER MANHOLE (MV)
- PMI PANEL
- PP POWER PANEL
- PT POTENTIAL TRANSFORMER
- RCS REMOTE CONTROL STATION
- RIO REMOTE I/O
- RVAT REDUCED VOLTAGE AUTO TRANSFORMER
- RVSS REDUCED VOLTAGE SOLID STATE
- SP. C. SPARE CONDUIT
- SST STAINLESS STEEL
- TB TEST BLOCK
- TC/TO TIMED CLOSE//TIMED OPEN
- TSH TWISTED SHIELDED
- TX TRANSFORMER
- UPS UNINTERRUPTIBLE POWER SUPPLY
- VFD VARIABLE FREQUENCY DRIVE
- WPCR WEATHER PROOF CORROSION RESISTANT
- WT WALK THROUGH

COMMUNICATIONS

- TELEPHONE DUPLEX RECEPTACLE: PROVIDE 1-INCH CONDUIT WITH (2) CAT-6 CABLES FROM THE RECEPTACLE TO CAT 6 PATCH PANEL IN 41:FOPP-1
- DATA 4-PORT RECEPTACLE WITH CAT 6 CABLE CONNECTORS: PROVIDE (1-1/2)-INCH CONDUIT WITH (4) CAT 6 CABLES FROM THE RECEPTACLE TO CAT 6 PATCH PANEL IN 41:FOPP-1

NOTES:

- UNLESS OTHERWISE SPECIFIED OR NOTED, ALL WALL MOUNTED ELECTRICAL PANELS, ENCLOSURES, AND SIMILAR EQUIPMENT SHALL BE MOUNTED 6'-6" (MAX) FROM THE TOP OF THE PANEL TO FINISHED FLOOR OR GRADE.
- UNLESS OTHERWISE NOTED, ALL LIGHTING SWITCHES, CONTROL SWITCHES, AND SIMILAR EQUIPMENT SHALL BE MOUNTED WITH THEIR CENTERLINE APPROXIMATELY 4'-0" ABOVE FINISHED FLOOR, SLAB, OR GRADE. THERMOSTATS SHALL BE MOUNTED 4'-4" ABOVE FINISHED FLOOR.
- A SEPARATE EQUIPMENT GROUNDING CONDUCTOR SHALL BE PROVIDED FOR EACH CIRCUIT (SEPARATE CONDUCTOR IN THE CONDUIT). THE CONDUCTOR SHALL BE TERMINATED AT THE PROPER DEVICE, TERMINAL, OR LUG AT THE POWER SOURCE (MCC GROUND BUS, PANELBOARD GROUND BUS, ETC.). GROUND CONDUCTOR SIZE SHALL BE PER THE LATEST EDITION OF THE NEC.
- IN GENERAL, NOT ALL OF THE REQUIRED JUNCTION AND PULL BOXES ARE SHOWN ON THE PLANS. CONTRACTOR SHALL PROVIDE AND FIELD LOCATE SUCH BOXES AS REQUIRED BY NEC, SITE CONDITIONS AND SPECIFICATIONS FOR PROPER PULLS AND BENDS AT NO ADDITIONAL COST TO THE OWNER.

EQUIPMENT/DEVICE LOCATION SYMBOLS

- * LOCATED AT MCC, COMBINATION STARTER, OR BYPASS STARTER
- △ LOCATED IN FIELD
- LOCATED AT PANEL:
X DENOTES PANEL ID:
L DENOTES LOCAL CONTROL STATION
- LOCATED AT VFD

PLT: JMS, EAP, BLS, TJS, AN, DR, JMS

DESIGNED	XXX
DRAWN	XXX
CHECKED	XXX
PROJ. ENGR.	RKA
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ISSUED FOR	100% SUBMITTAL
DATE	
BY	
APPROVED	

DESIGNED: XXX
DRAWN: XXX
CHECKED: XXX
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CHLORINE PIPING AND
CHEMICAL BUILDING IMPROVEMENTS

ELECTRICAL
LEGEND AND GENERAL NOTES

THE SCALE BAR SHOWN BELOW MEASURES ONE INCH LONG ON THE ORIGINAL DRAWING.	DATE: JUNE 2014
	H & S JOB NUMBER: 41077-004
	DRAWING NUMBER: E1
	SHEET: 13 OF 14

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NOTES:

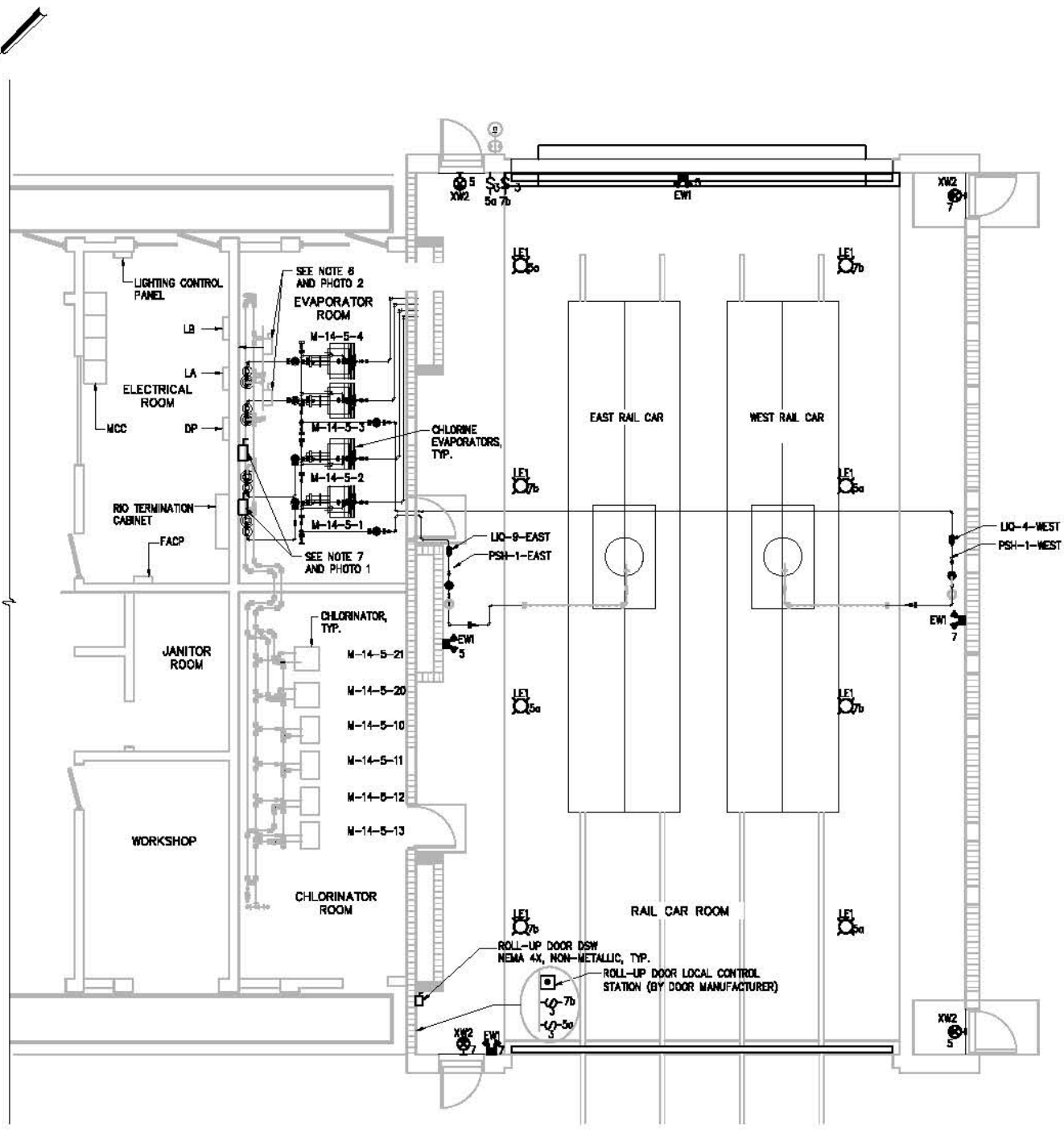
1. THE LOCATION OF EXISTING EQUIPMENT IN ELECTRICAL ROOM IS BASED ON RECORD DRAWINGS DATED JULY, 1988 AND SHALL BE FIELD VERIFIED BY THE CONTRACTOR.
2. ALL DISCONNECT SWITCHES AND CONDUIT AND WIRE SYSTEMS ASSOCIATED WITH THE CHLORINATION EQUIPMENT BEING REMOVED IN THE RAIL CAR, EVAPORATOR AND CHLORINATOR ROOMS SHALL REMAIN IN PLACE.
3. REMOVE DISCONNECT SWITCHES FOR THE RAIL CAR ROOM ROLL UP DOORS. REMOVE ASSOCIATED WIRING TO THE FEEDER CIRCUIT BREAKERS IN PANEL DP. RE-LABEL THE BREAKER FOR THE SOUTH SIDE DOOR AS SPARE.
4. REMOVE ALL EXISTING LIGHTING FIXTURES (HID AND EMERGENCY) AND LIGHT SWITCHES IN RAIL CAR ROOM. REMOVE ASSOCIATED WIRING TO THE CIRCUIT BREAKERS IN PANEL LA. REMOVE EXISTING EXIT SIGN PLAQUES AT THE FOUR THE DOORS TO THE OUTSIDE.
5. CONNECT NEW CHLORINATION EQUIPMENT (SUCH AS BUT NOT LIMITED TO THE EVAPORATORS, ASSOCIATED MOTORIZED CONTROL VALVES, PRESSURE SWITCHES, ETC.), INSTALLED IN THE PLACE OF THE REMOVED ONE, TO THE EXISTING POWER AND CONTROL CIRCUITS. EXTEND EXISTING CIRCUITS AS REQUIRED FOR COMPLETE INSTALLATION. FOR ANALOG CIRCUITS TO BE EXTENDED AS REQUIRED: EXTEND THE CONDUIT, REPLACE ENTIRE CABLE.
6. ROUTE POWER CIRCUITS FOR THE NEW CHLORINE EVAPORATORS M-14-5-3 AND M-14-5-4 VIA EXISTING WALL MOUNTED DISCONNECT SWITCHES ON THE NORTH-EAST WALL OF EVAPORATOR ROOM (SEE PHOTO No.2).
7. PROVIDE AND INSTALL WALL MOUNTED DISCONNECT SWITCHES, RATED 80A, 240VAC, 3-POLE, AT MINIMUM 42" AFT ON NORTH-EAST WALL OF EVAPORATOR ROOM WHERE SHOWN (SEE ALSO PHOTO No.1). INTERCEPT AND EXTEND EXISTING POWER FEEDER CONDUITS AND CABLES FROM THE MCC TO EVAPORATORS M-14-5-1 AND M-14-5-2 TO ALLOW ROUTING OF THE POWER FEEDER CIRCUITS VIA DISCONNECT SWITCHES.
8. PROVIDE NEW CABLES IN EXISTING CONDUIT FROM EXISTING 3-POLE BREAKER IN PANEL DP TO THE ROLL UP DOOR ON NORTH SIDE OF THE RAIL CAR ROOM. EXTEND CONDUIT TO THE NEW DISCONNECT SWITCH AND THE NEW DOOR OPERATOR AS SHOWN ON THE POWER BLOCK DIAGRAM.
9. PROVIDE NEW LIGHT FIXTURES AND LIGHTING SWITCHES IN CAR RAIL ROOM:
 - LE1 FIXTURE SHALL BE PENDANT MOUNT WITH THE BOTTOM OF THE FIXTURE AT 23- FEET AFF.
 - EMERGENCY LIGHTS SHALL BE INSTALLED 12- FEET AFF.
 - EXIST SIGNS SHALL BE MOUNTED 1-FOOT ABOVE THE TOP OF THE DOORFRAME.
 - PROVIDE TEMPORARY LIGHTING DURING REPLACEMENT.
10. PROVIDE NEW CABLES IN EXISTING CONDUITS FOR THE LIGHTING CIRCUITS IN RAIL CAR ROOM FROM EXISTING 20A, 120VAC CIRCUIT BREAKERS #6 AND #7 IN PANEL LA. EXTEND EXISTING CONDUITS AS REQUIRED TO THE LOCATION OF THE NEW FIXTURES AND EXIT SIGNS. MINIMUM WIRE SIZE SHALL BE #10AWG.
11. ALL PANEL SCHEDULES SHALL BE UPDATED UPON COMPLETION OF THE CHLORINE CHEMICAL AREA MODIFICATIONS.
12. REFER TO MECHANICAL DRAWINGS AND SPECIFICATIONS FOR CONSTRUCTION CONSTRAINTS. COORDINATE WITH THE OWNER TIME AND DURATION OF ELECTRICAL PANELS/MCC SHUT DOWNS FOR CIRCUIT MODIFICATIONS.
13. CONTRACTOR SHALL ASSUME TWO CARS IN RAIL CAR ROOMS AT ALL TIME DURING ELECTRICAL MODIFICATIONS. THE ACCESS TO CHLORINE EQUIPMENT AND CONNECTION SHALL BE MAINTAINED UNOBSTRUCTED. CAUTION SHALL BE USED TO PROTECT EXISTING RAIL CARS, SECURITY CAMERAS AND CHLORINE SYSTEM ACCESSORIES IN THIS AREA.



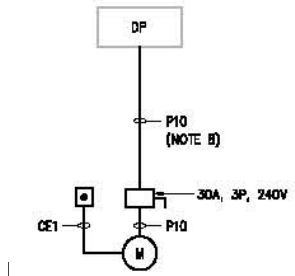
PHOTO No.1
(EVAPORATOR ROOM)



PHOTO No.2
(EVAPORATOR ROOM)



PARTIAL PLAN
3/16" = 1'-0"



ROLL-UP DOOR DIAGRAM
(RAIL CAR ROOM)

CIRCUIT LEGEND:

- P10 - 3/4" C [3#10; #10GND]
- CE1 - 1" C [EMPTY FOR VENDOR CABLE]



PLT DATE: 5/24/2014 11:43 AM BY: DMS/SL

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PROJ. ENGR.	RKA
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ISSUED FOR	100% SUBMITTAL
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ELECTRICAL
CHLORINE SYSTEM AREA PARTIAL PLAN

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