NORTHERN KENTUCKY WATER DISTRICT
DUDLEY COMPLEX SODIUM HYPOCHLORITE BUILDING

CITY OF EDGEWOOD, KENTUCKY

GOVERNING BODY

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ANDREW C. COLLINS - COMMISSIONER
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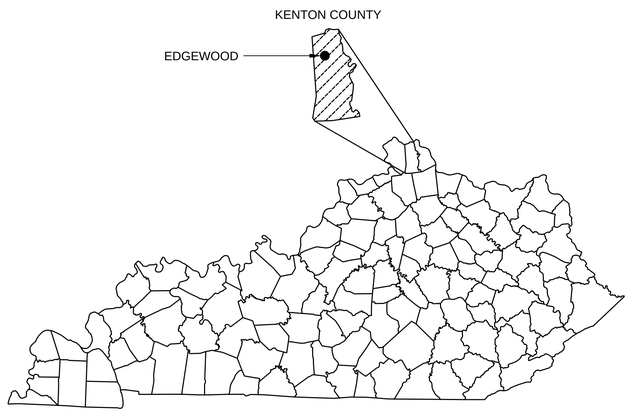

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MAY, 2015

CONFORMANCE SET
(BID OPENING DATE 4-30-2015)
GRW PROJECT NO. 4325

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X-XXX

- 00X - GENERAL (SYMBOLS LEGEND, NOTES, ETC.)
- 1XX - PLANS
- 2XX - ELEVATIONS
- 3XX - SECTIONS
- 4XX - LARGE-SCALE VIEWS
- 5XX - DETAILS
- 6XX - SCHEDULES AND DIAGRAMS
- 7XX - USER DEFINED
- 8XX - USER DEFINED

DISCIPLINE DESIGNATOR

- G - GENERAL
- C - CIVIL
- S - STRUCTURAL
- A - ARCHITECTURAL
- F - FIRE PROTECTION
- P - PLUMBING
- M - MECHANICAL
- E - ELECTRICAL
- I - INSTRUMENTATION

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CONFORMANCE SET (BID OPENING DATE 4-30-2015)

DRAWING INDEX

DUDLEY COMPLEX SODIUM HYPOCHLORITE BUILDING
CITY OF EDGEWOOD, KENTUCKY

DESIGNED:	AAB
DRAWN:	MBS
REVIEWED:	AAB
APPROVED:	AAB

REVISIONS

NO.	DESCRIPTION	DATE	BY

SCALE CHECK: THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

DATE:
MAY, 2015

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SHEET NO.
G-001

PLOTTED BY: rrisetebold

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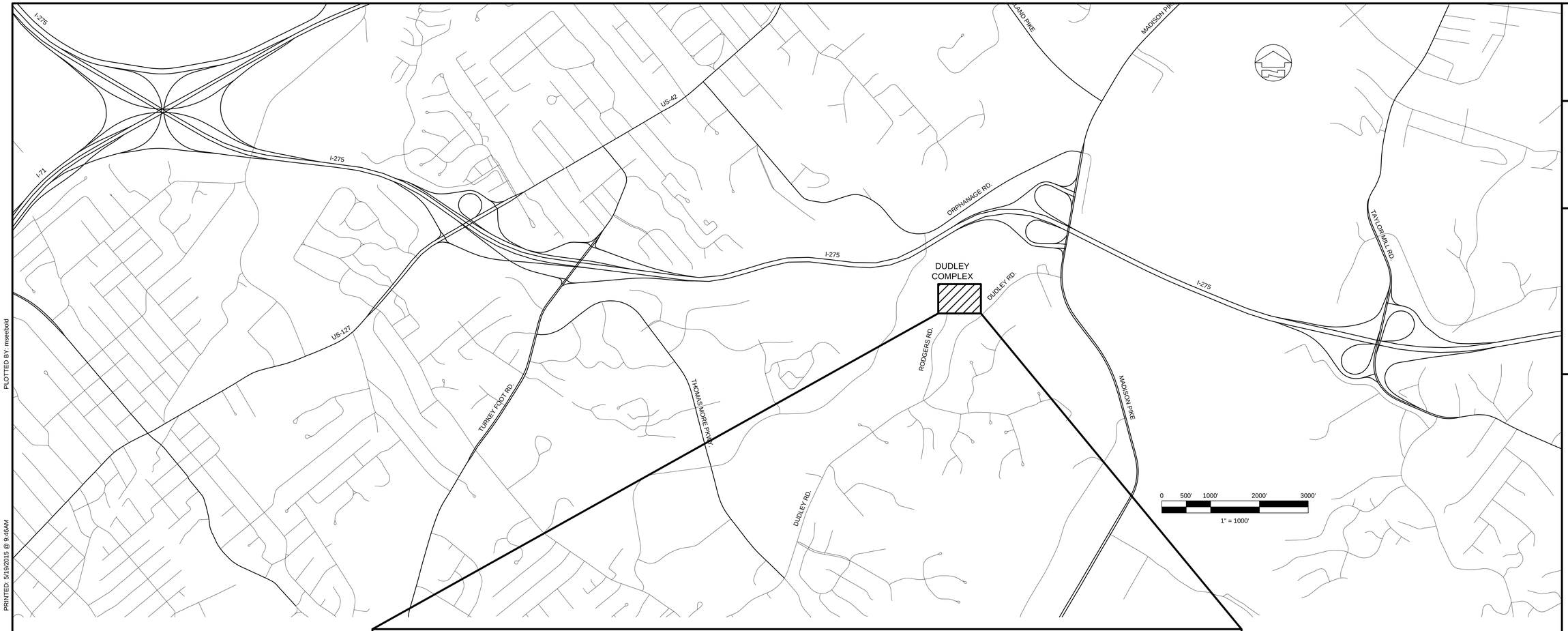

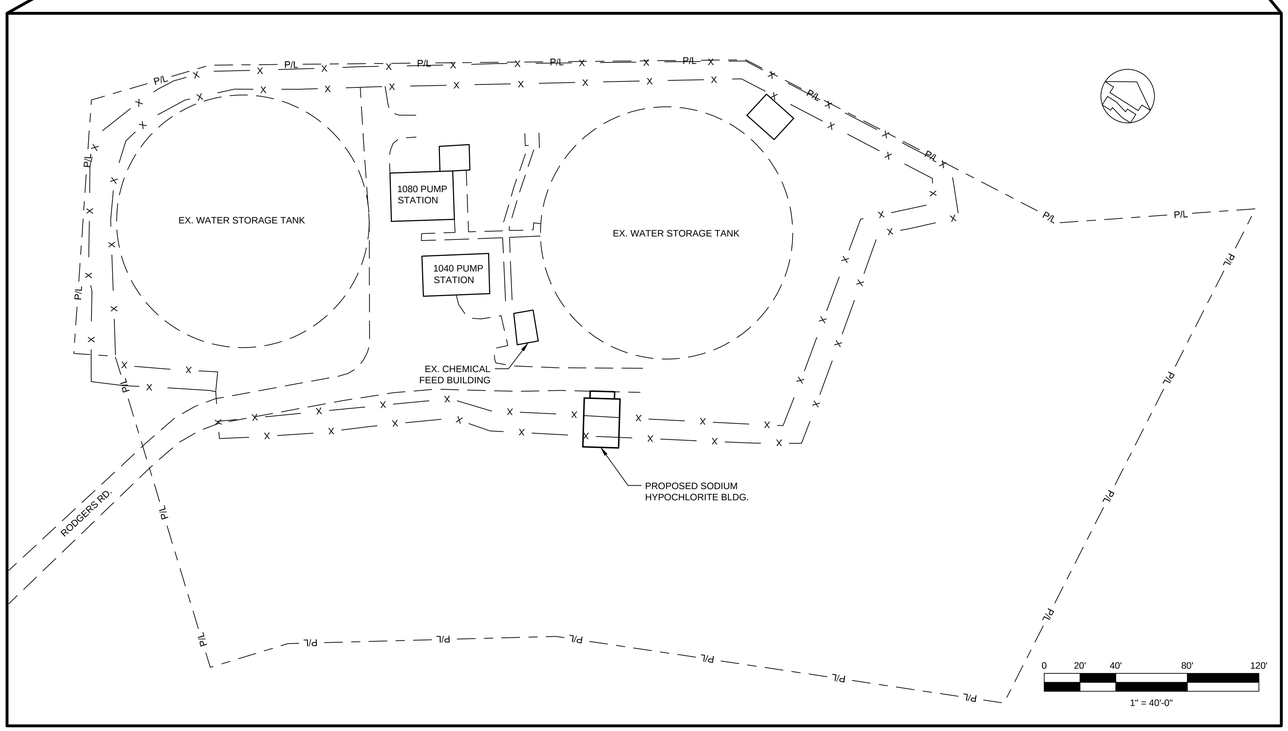

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LOCATION MAP

DUDLEY COMPLEX SODIUM HYPOCHLORITE BUILDING
CITY OF EDGEWOOD, KENTUCKY

DESIGNED:	DRAWN:	REVIEWED:	APPROVED:
ADH	MBS	ADH	AAB

REVISIONS

NO.	DESCRIPTION	DATE	BY

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DATE: MAY, 2015

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SHEET NO. G-002

GENERAL NOTES

1. CONTRACTOR SHALL CALL "KENTUCKY 811" TO LOCATE EXISTING UTILITY LINES AND SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL UTILITIES. ALL DAMAGED UTILITY MAINS AND SERVICES ARE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE IMMEDIATELY REPAIRED AT THE CONTRACTOR'S EXPENSE.
2. THE CONTRACTOR IS ADVISED TO EXERCISE CAUTION IN HIS OPERATIONS IN AREAS WHERE PLANS INDICATE THE PRESENCE OF A GAS LINE OR OTHER LINES CARRYING HAZARDOUS MATERIAL.
3. CONTRACTOR SHALL NOT DISRUPT ANY UTILITY SERVICES WITHOUT SCHEDULING AND OBTAINING APPROVAL FROM OWNER.
4. CONTRACTOR SHALL KEEP ALL WORK INSIDE THE FENCED TANK PROPERTY.
5. THE UTILITIES AND THEIR LOCATIONS SHOWN ON THESE PLANS ARE APPROXIMATE. THE CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES AND VERIFY ALL UTILITIES IN THE FIELD PRIOR TO CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR SCHEDULING UTILITY WORK INCLUDING POSSIBLE TEMPORARY SUPPORT OF UTLITY POLES AS REQUIRED. IT IS THE CONTRACTOR'S RESPONSIBILITY TO AVOID EXISTING UTILITIES AND PERFORM ANY REQUIRED REPAIRS IF UTILITIES ARE DAMAGED. IN ADDITION TO ALL UTILITY LINES, THE CONTRACTOR SHALL AVOID AND REPAIR ANY DAMAGE TO FIELD DRAINAGE TILES AND PRIVATE IRRIGATION SYSTEMS. THE CONTRACTOR SHALL NOTIFY THE OWNER WHEN UTILITIES OR OTHER SUBSURFACE LINES ARE DAMAGED.
6. PROPERTY LINES AND RIGHT-OF-WAYS SHOWN ARE NOT THE RESULT OF DEED RESEARCH AND SHALL BE CONSIDERED APPROXIMATE.
7. THE AERIAL PHOTOGRAPHS ARE SUBJECT TO SCALE INACCURACIES AND SHOULD NOT BE USED FOR SCALED QUANTITY TAKEOFFS. STATIONS SHOWN ARE FIELD MEASURED.
8. THE CONTRACTOR IS RESPONSIBLE FOR INSURING CONTINUED OPERATION OF EXISTING WATER SYSTEM AND EXISTING PUMP STATIONS DURING CONSTRUCTION.
9. ALL DISTURBED AREAS SHALL BE RESTORED TO EQUAL TO OR BETTER THAN ORIGINAL CONDITIONS.
10. ALL MATERIALS AND WORKMANSHIP SHALL BE TO THE SATISFACTION OF THE OWNER AND SHALL COMPLY WITH ALL APPLICABLE CODES, SPECIFICATIONS, LOCAL ORDINANCES, COUNTY AND TOWNSHIP ROAD DEPARTMENTS, KY DOT, THE ENGINEER, INDUSTRY STANDARDS AND UTILITY COMPANY REGULATIONS.
11. CONTRACTOR SHALL NOT OPEN CUT ANY PAVEMENT ALONG ANY STATE ROUTES.
12. CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS INCLUDING BUT NOT LIMITED TO EROSION CONTROL PERMITS.
13. GENERAL NOTES, WHEREVER THEY ARE FOUND, APPLY TO ALL WORK IN THE PROJECT, UNLESS OTHERWISE INDICATED. SHEET NOTES, UTILIZING NOTE SYMBOLS, APPLY ONLY TO THE SHEET ON WHICH THEY ARE FOUND, UNLESS OTHERWISE STATED. THE MEANING OF NOTES SYMBOLS AND NUMBERS VARIES FROM SHEET TO SHEET.
14. ALL SOILS ON THE PROJECT SITE ARE UNCLASSIFIED. ALL EARTHWORK, EXCAVATION (INCLUDING ROCK EXCAVATION), BACKFILLS, COMPACTION AND INCLUSION OF SUITABLE SOILS ARE THE CONTRACTORS RESPONSIBILITY. NO ADDITIONAL COST WILL BE ALLOWED FOR SOIL OR ROCK ISSUES.

ABBREVIATIONS

℄	CENTERLINE
CONC	CONCRETE
CONT	CONTINUOUS
DEMO	DEMOLISH/DEMOLITION
DI	DUCTILE IRON
DIA	DIAMETER
EA	EACH
EL	ELEVATION
ELEV	ELEVATION
EX	EXISTING
FLG	FLANGE
FRP	FIBERGLASS REINFORCED PRODUCT
FT	FEET
GAL	GALLON
HDXLPE	HIGH DENSITY CROSS LINKED POLYETHYLENE
HGL	HYDRAULIC GRADE LINE
ID	INSIDE DIAMETER
IE	INVERT ELEVATION
IMFO	INTEGRALLY MOLDED FLANGED OUTLET
IN	INCH
LF	LINEAR FEET
MAX	MAXIMUM
MIN	MINIMUM
MISC	MISCELLANEOUS
NaOCL	SODIUM HYPOCHLORITE
NPT	NATIONAL PIPE THREAD
NTS	NOT TO SCALE
OD	OUTSIDE DIAMETER
OHU	OVERHEAD UTILITY
PE	PLAIN END
PSI	POUNDS PER SQUARE INCH
PVC	POLYVINYL CHLORIDE
PVMT	PAVEMENT
SCH	SCHEDULE
SPEC	SPECIFICATIONS
STD	STANDARD
TYP	TYPICAL
W/	WITH
WTP	WATER TREATMENT PLANT

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(TOLL FREE) KENTUCKY UTILITIES PROTECTION SERVICE
NON-MEMBERS MUST BE CALLED DIRECTLY

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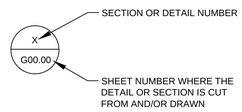
LEGEND

	EXISTING	NEW
FENCE	X X	
PROPERTY LINE	P/L	
UNDERGROUND ELECTRIC	E E	
OVERHEAD UTILITY LINE	OHU	
UNDERGROUND COMMUNICATION	C	
WATER LINE	W	
CONTOUR	470	470
YARD HYDRANT		
VALVE	WV	
TREE		
GUY WIRE		
WATER METER	WM	WM
BORING LOCATION	B-1	
POWER POLE		

BUBBLE & SECTIONING CONVENTIONS



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CONFORMANCE SET (BID OPENING DATE 4-30-2015)

LEGEND, ABBREVIATIONS & GENERAL NOTES

DUDLEY COMPLEX SODIUM HYPOCHLORITE BUILDING
CITY OF EDGEWOOD, KENTUCKY

DESIGNED:	AAB
DRAWN:	MBS
REVIEWED:	ADH
APPROVED:	AAB

REVISIONS

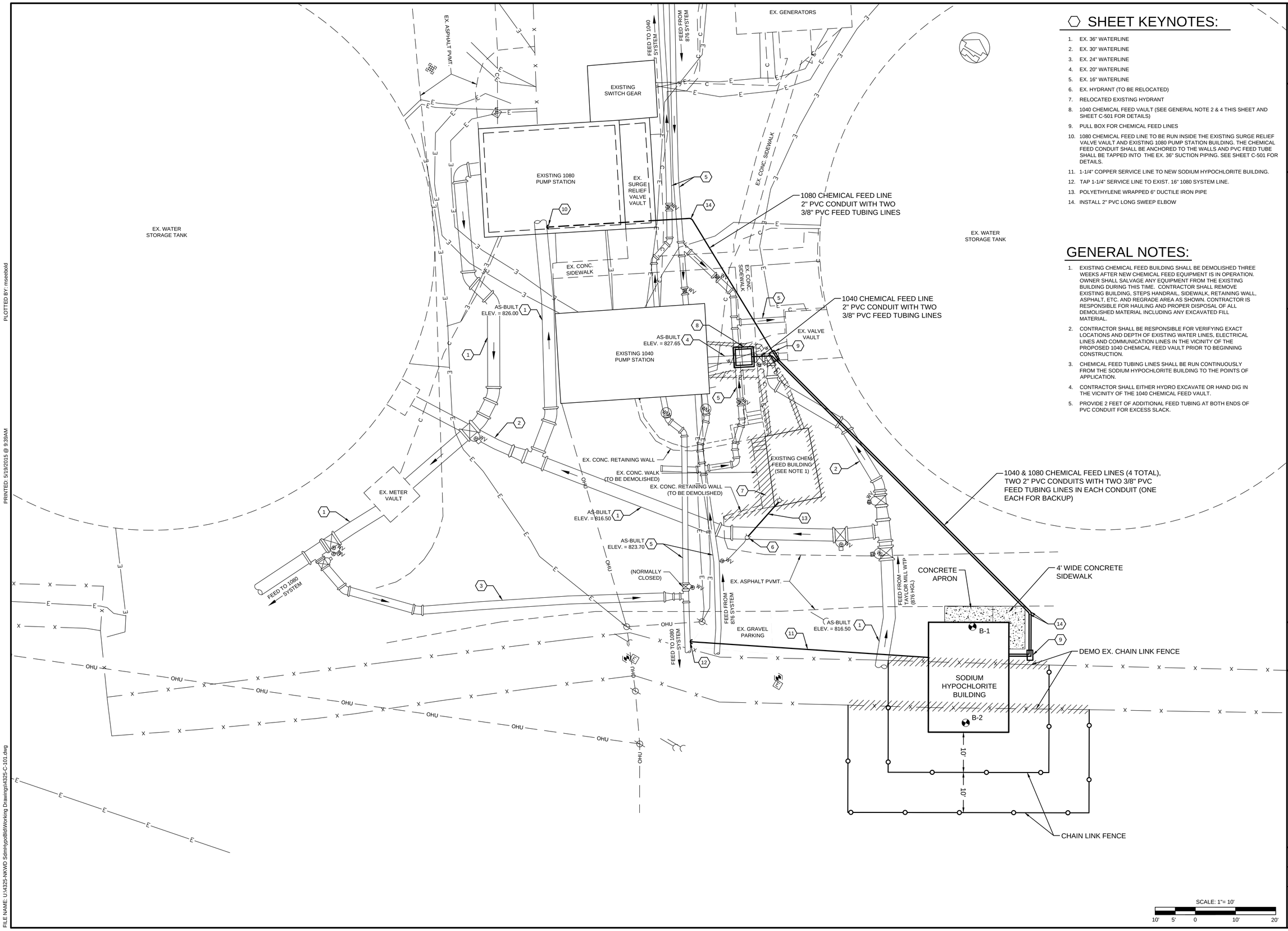
NO.	DESCRIPTION	DATE	BY

SCALE CHECK: THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

DATE: MAY, 2015

SCALE: NTS

SHEET NO. C-001



SHEET KEYNOTES:

1. EX. 36" WATERLINE
2. EX. 30" WATERLINE
3. EX. 24" WATERLINE
4. EX. 20" WATERLINE
5. EX. 16" WATERLINE
6. EX. HYDRANT (TO BE RELOCATED)
7. RELOCATED EXISTING HYDRANT
8. 1040 CHEMICAL FEED VAULT (SEE GENERAL NOTE 2 & 4 THIS SHEET AND SHEET C-501 FOR DETAILS)
9. PULL BOX FOR CHEMICAL FEED LINES
10. 1080 CHEMICAL FEED LINE TO BE RUN INSIDE THE EXISTING SURGE RELIEF VALVE VAULT AND EXISTING 1080 PUMP STATION BUILDING. THE CHEMICAL FEED CONDUIT SHALL BE ANCHORED TO THE WALLS AND PVC FEED TUBE SHALL BE TAPPED INTO THE EX. 36" SUCTION PIPING. SEE SHEET C-501 FOR DETAILS.
11. 1-1/4" COPPER SERVICE LINE TO NEW SODIUM HYPOCHLORITE BUILDING.
12. TAP 1-1/4" SERVICE LINE TO EXIST. 16" 1080 SYSTEM LINE.
13. POLYETHYLENE WRAPPED 6" DUCTILE IRON PIPE
14. INSTALL 2" PVC LONG SWEEP ELBOW

GENERAL NOTES:

1. EXISTING CHEMICAL FEED BUILDING SHALL BE DEMOLISHED THREE WEEKS AFTER NEW CHEMICAL FEED EQUIPMENT IS IN OPERATION. OWNER SHALL SALVAGE ANY EQUIPMENT FROM THE EXISTING BUILDING DURING THIS TIME. CONTRACTOR SHALL REMOVE EXISTING BUILDING, STEPS HANDRAIL, SIDEWALK, RETAINING WALL, ASPHALT, ETC. AND REGRADE AREA AS SHOWN. CONTRACTOR IS RESPONSIBLE FOR HAULING AND PROPER DISPOSAL OF ALL DEMOLISHED MATERIAL INCLUDING ANY EXCAVATED FILL MATERIAL.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING EXACT LOCATIONS AND DEPTH OF EXISTING WATER LINES, ELECTRICAL LINES AND COMMUNICATION LINES IN THE VICINITY OF THE PROPOSED 1040 CHEMICAL FEED VAULT PRIOR TO BEGINNING CONSTRUCTION.
3. CHEMICAL FEED TUBING LINES SHALL BE RUN CONTINUOUSLY FROM THE SODIUM HYPOCHLORITE BUILDING TO THE POINTS OF APPLICATION.
4. CONTRACTOR SHALL EITHER HYDRO EXCAVATE OR HAND DIG IN THE VICINITY OF THE 1040 CHEMICAL FEED VAULT.
5. PROVIDE 2 FEET OF ADDITIONAL FEED TUBING AT BOTH ENDS OF PVC CONDUIT FOR EXCESS SLACK.

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SITE LAYOUT & DEMO PLAN

DUDLEY COMPLEX SODIUM HYPOCHLORITE BUILDING
CITY OF EDGEWOOD, KENTUCKY

DESIGNED:	DRAWN:	REVIEWED:	APPROVED:
ADH	KAR	ADH	AAB

REVISIONS

NO.	DESCRIPTION	DATE	BY

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SCALE CHECK:

DATE:
MAY, 2015

SCALE:
1"=10'

SHEET NO.
C-101

PLOTTED BY: rsteitbild

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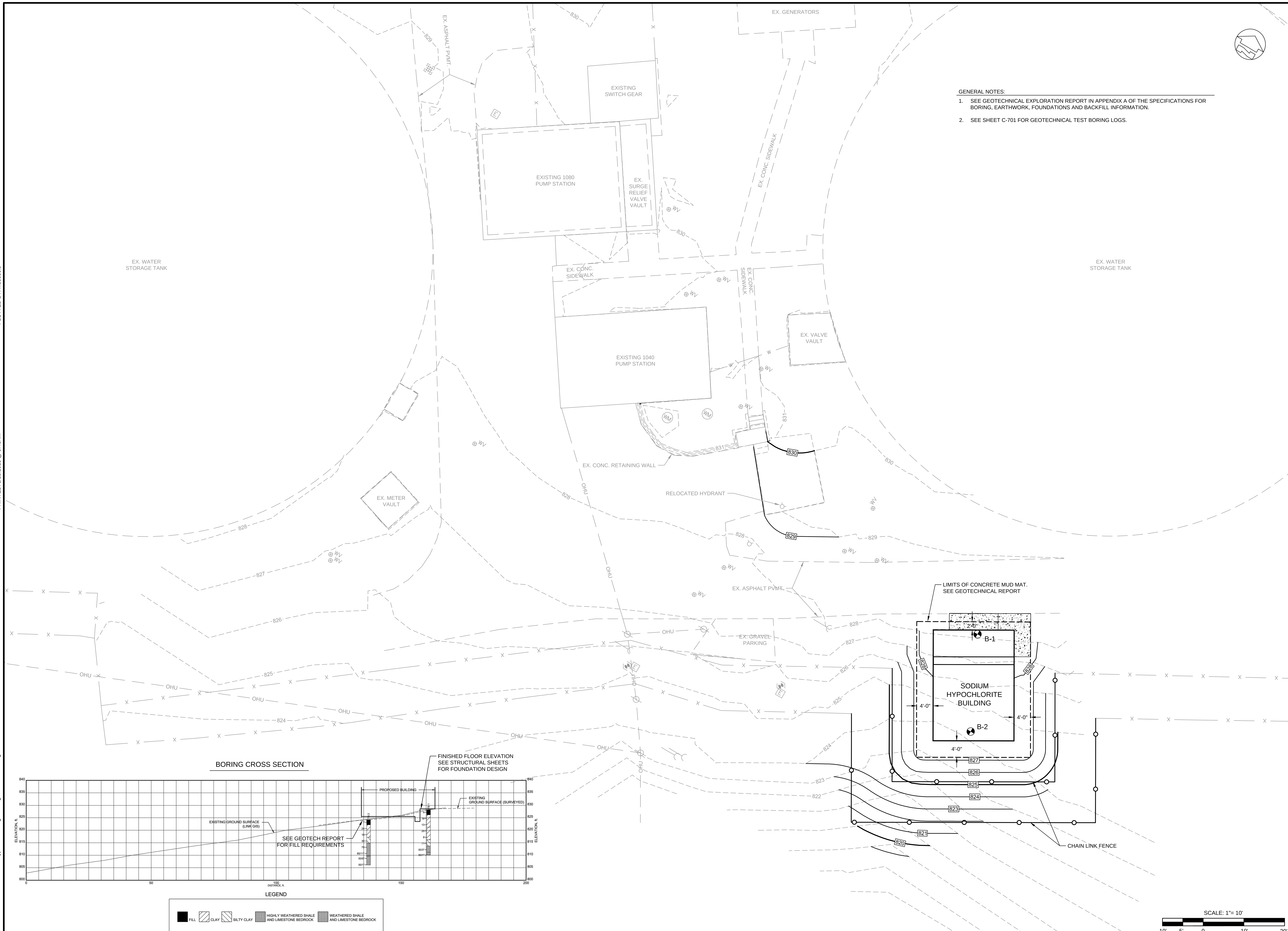

GENERAL NOTES:

1. SEE GEOTECHNICAL EXPLORATION REPORT IN APPENDIX A OF THE SPECIFICATIONS FOR BORING, EARTHWORK, FOUNDATIONS AND BACKFILL INFORMATION.
2. SEE SHEET C-701 FOR GEOTECHNICAL TEST BORING LOGS.

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GRADING PLAN

DUDLEY COMPLEX SODIUM HYPOCHLORITE BUILDING
CITY OF EDGEWOOD, KENTUCKY

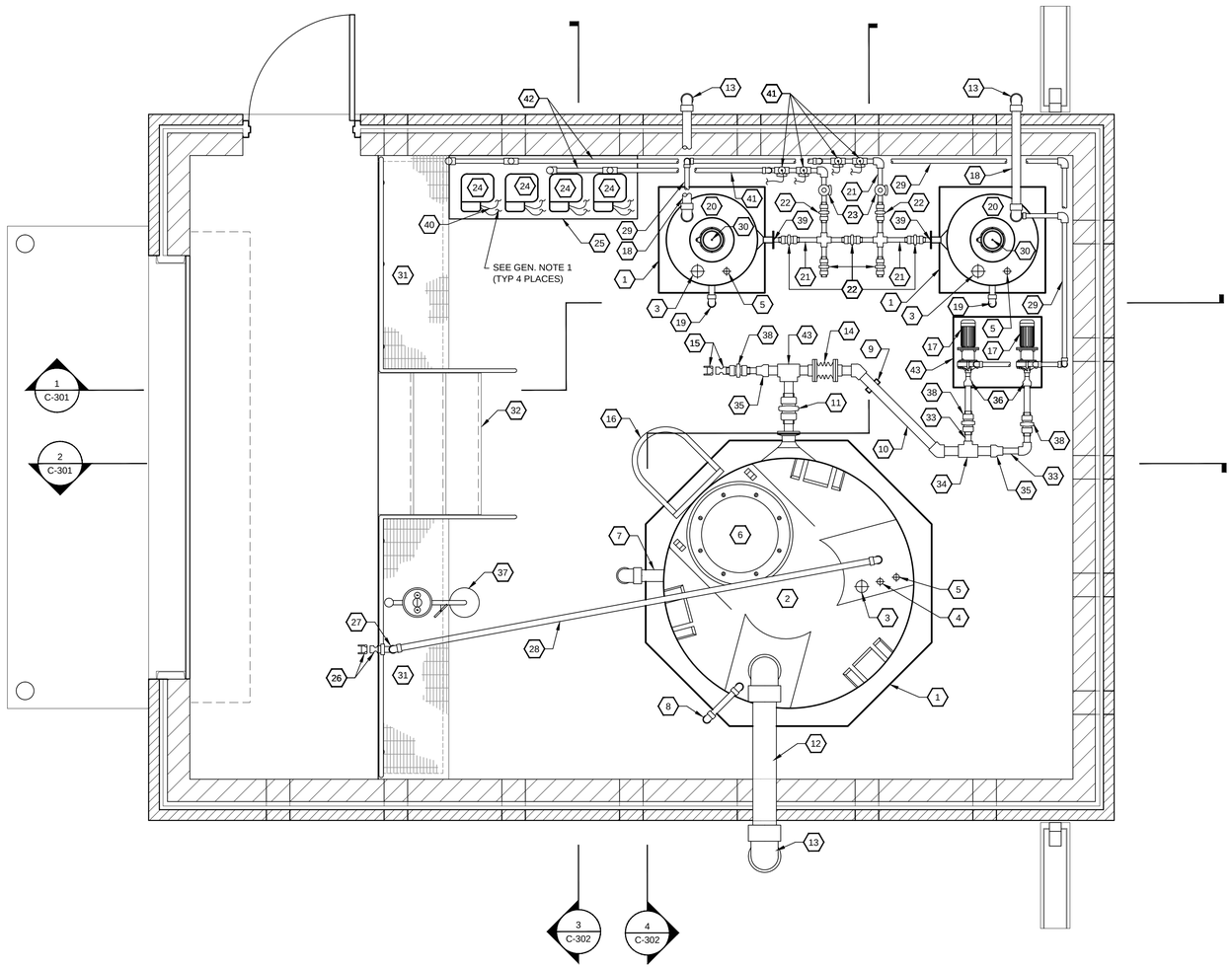
DESIGNED: ADH
DRAWN: KAR
REVIEWED: ADH
APPROVED: AAB

REVISIONS

NO.	DESCRIPTION	DATE	BY

SCALE CHECK: THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

DATE: MAY, 2015
SCALE: 1"=10'
SHEET NO. C-102



PLAN NORTH

SODIUM HYPOCLORITE BUILDING - PLAN

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

0 1' 2' 4'

SHEET KEYNOTES:

1. 6" CONCRETE PAD
2. 3,000 GALLON HDXLPE BULK STORAGE TANK W/ 3" IMFO OUTLET
3. 4" FLANGE FITTING FOR RADAR CONTINUOUS LEVEL SENSOR (SEE INSTRUMENTATION & CONTROLS)
4. 2" FLANGE FITTING FOR pH PROBE (SEE INSTRUMENTATION & CONTROLS)
5. 2" FLANGE FITTING FOR HIGH LEVEL ALARM SENSOR (SEE INSTRUMENTATION & CONTROLS)
6. 24" BOLTED MANWAY
7. 4" PVC OVERFLOW LINE W/ DUCKBILL CHECK VALVE
8. 2" REVERSE LEVEL FLOAT GAUGE
9. RIGID SUPPORT
10. 3" PVC BULK TANK DISCHARGE PIPING (SLOPE PIPING UP TO BULK TANK)
11. 3" PVC VENTED BALL VALVE
12. 8" PVC VENT PIPE
13. BRONZE INSECT SCREEN ON VENT PIPING
14. 3" EXPANSION JOINT
15. 2" CAM LOCK W/ CAP (BULK TANK DRAIN LINE)
16. FRP LADDER W/ CAGE & RETURN
17. TRANSFER PUMP
18. 3" PVC VENT PIPE
19. 2" PVC OVERFLOW LINE W/ DUCKBILL CHECK VALVE
20. 200 GALLON HPXLPE DAY STORAGE TANK W/ 2" IMFO OUTLET
21. 1-1/2" PVC DAY TANK DISCHARGE PIPING (SLOPE PIPING UP TO DAY TANKS)
22. 1-1/2" PVC VENTED BALL VALVE
23. 1-1/2" x 1" REDUCING PVC TEE, 1" BALL VALVE (NaOCl TO BE VENTED) AND CALIBRATION COLUMN WITH 1" PVC VENT BACK TO DAYTANK. 1" VENT LINE NOT SHOW FOR CLARITY, SEE SECTION VIEW
24. PERISTALTIC METERING PUMP
25. FRP PUMP STAND
26. 2" CAM LOCK W/ CAP (FILL LINE)
27. 2" TEE FOR FILL LINE DRAIN DOWN TO GRATING
28. 2" PVC BULK TANK FILL PIPE W/ 2" PVC PERFORATED PIPE INSIDE TANK TO THE BOTTOM (SLOPE PIPING UP TO BULK TANKS). (PROVIDE FRP SUPPORTS)
29. 1-1/2" PVC TRANSFER PUMP DISCHARGE PIPING (SLOPE PIPING UP TO DAY TANKS)
30. 7" THREADED LID
31. 2'-0" (W) X 2'-0" (D) CONTAINMENT TRENCH W/ FRP GRATING
32. FRP STAIRS WITH GRATED TREADS
33. 2" PVC TRANSFER PUMP SUCTION PIPING (SLOPE PIPING UP TO BULK TANK)
34. 3" X 3" X 2" PVC TEE
35. 3" X 2" PVC REDUCER
36. 2" X 1" PVC REDUCER
37. EYE WASH STATION (SEE PLUMBING SHEETS)
38. 2" PVC VENTED BALL VALVE
39. 2" x 1-1/2" PVC REDUCER BUSHING IN DAY TANK OUTLET
40. 3/8" METERING PUMP FLEXIBLE TUBING (TYP. 4 PLACES)
41. 1-1/2" TEE UPWARD WITH 1-1/2" BALL VALVE (NaOCl TO BE VENTED) THEN TRANISTION TO 3/8" METERING PUMP FEXIBLE TUBING
42. 1-1/2" PVC PRESSURE RELIEF VALVE VENT PIPING
43. 3" X 3" X 3" PVC TEE
44. 3" THICK CONCRETE PAD

GENERAL NOTES

1. METERING PUMP DISCHARGE PIPING NOT SHOWN FOR CLARITY. SEE SECTIONS VIEWS AND CHEMICAL FEED SCHEMATIC FOR PIPING LAYOUT AND DETAILS ON SHEET C-301.
2. BULK STORAGE TANK DISCHARGE PIPING SHALL NOT BE ANCHORED TO THE FLOOR WITH RIGID SUPPORTS UNTIL AFTER THE EXPANSION JOINT AS SHOWN.
3. ALL PVC PIPING, FITTINGS, VALVES, ETC. SHALL BE SCHEDULE 80 WITH SOCKETED CONNECTONS UNLESS OTHERWISE NOTED.

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CONFORMANCE SET (BID OPENING DATE 4-30-2015)

SODIUM HYPOCLORITE BUILDING PLAN

DUDLEY COMPLEX SODIUM HYPOCHLORITE BUILDING
CITY OF EDGEWOOD, KENTUCKY

DESIGNED:	DRAWN:	REVIEWED:	APPROVED:
ADH	MBS	AAB	AAB

REVISIONS

NO	DESCRIPTION	DATE	BY

THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

SCALE CHECK:

DATE: MAY, 2015

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

SHEET NO. C-103

PLOTTED BY: rrsteibold

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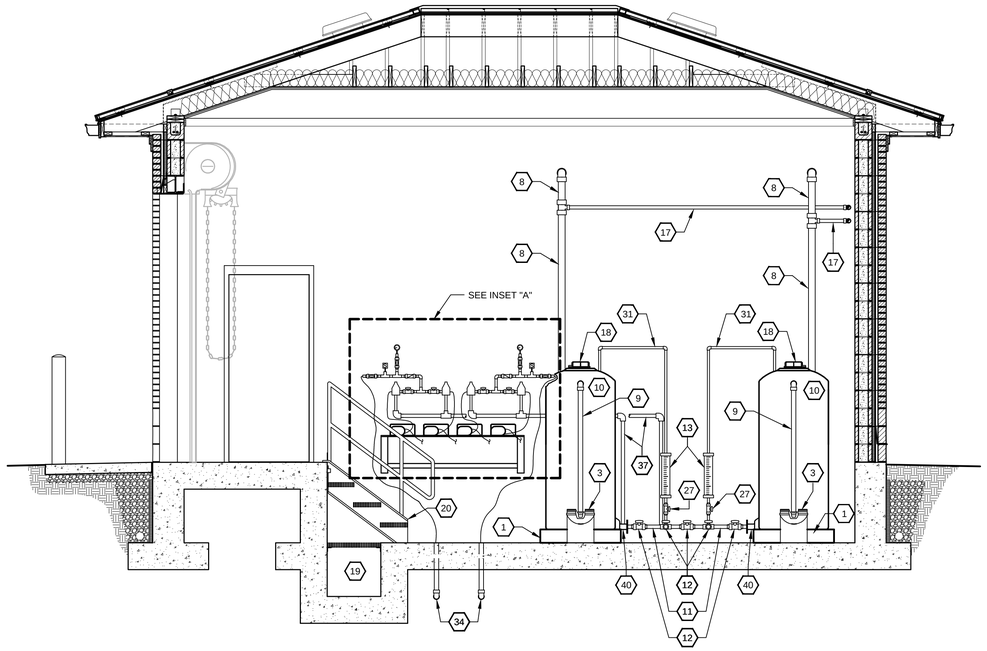

1 SECTION
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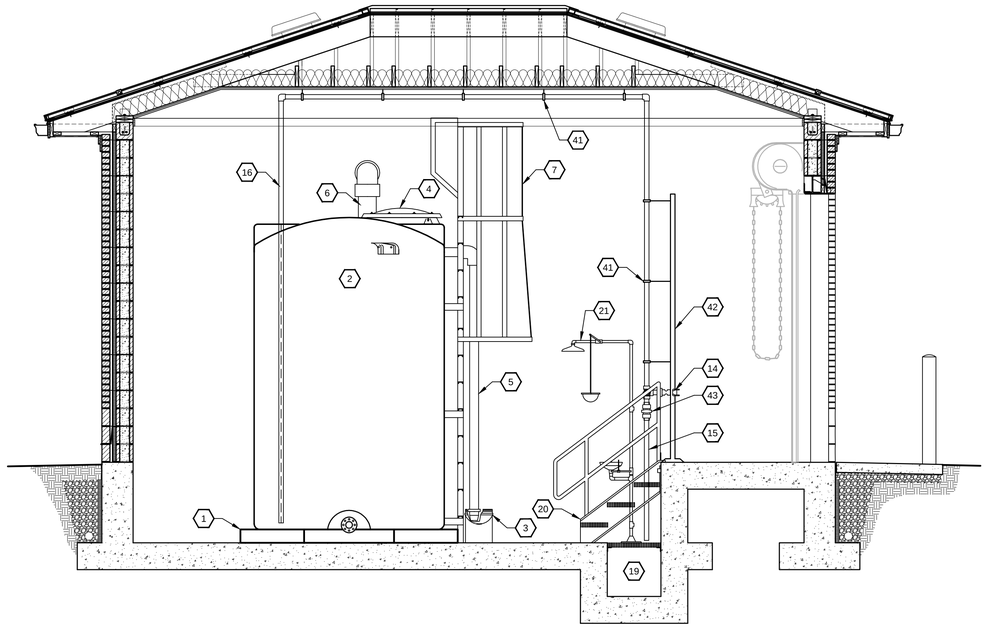
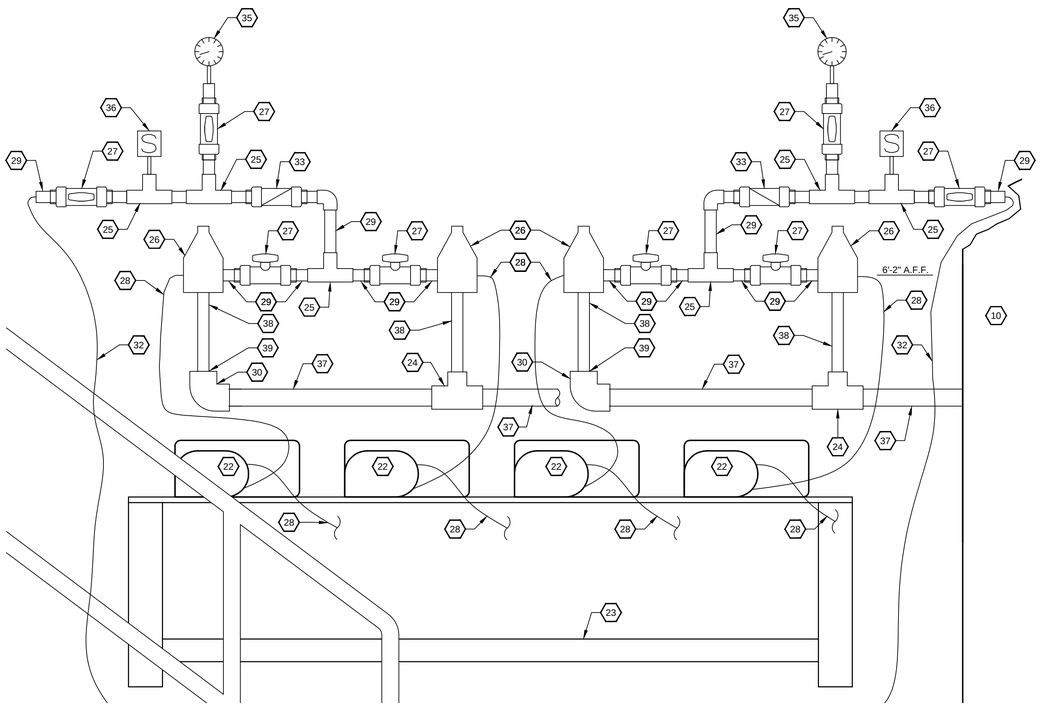


2 SECTION
SCALE: 3/8"=1'-0"



INSET "A"
NOT TO SCALE

SHEET KEYNOTES:

1. 6" CONCRETE PAD
2. 3,000 GALLON HDXLPE BULK STORAGE TANK W/ 3" IMFO OUTLET
3. 5 GALLON BUCKET FOR OVERFLOW LINE
4. 24" BOLTED MANWAY
5. 4" PVC OVERFLOW LINE W / DUCKBILL CHECK VALVE
6. 8" PVC VENT PIPE
7. FRP LADDER W/ CAGE & RETURN
8. 3" PVC VENT PIPE
9. 2" PVC OVERFLOW LINE W/ DUCKBILL CHECK VALVE
10. 200 GALLON HPXLPE DAY STORAGE TANK WITH 2" IMFO OUTLET
11. 1-1/2" PVC DAY TANK DISCHARGE PIPING (SLOPE PIPING UP TO DAY TANKS)
12. 1-1/2" PVC VENTED BALL VALVE
13. CALIBRATION COLUMN
14. 2" CAM LOCK W/ CAP (FILL LINE)
15. 2" PVC FILL LINE DRAIN DOWN TO GRATING
16. 2" PVC BULK TANK FILL PIPE W / 2" PVC PERFORATED PIPE INSIDE TANK TO THE BOTTOM (SLOPE TO BULK TANK)
17. 1-1/2" PVC TRANSFER PUMP DISCHARGE PIPING (SEE GENERAL NOTE 2)
18. 7" THREADED LID
19. 2'-0" (W) X 2'-0" (D) CONTAINMENT TRENCH W/ FRP GRATING
20. FRP STAIRS WITH GRATED TREADS
21. EYE WASH STATION (SEE PLUMBING SHEETS)
22. PERISTALTIC METERING PUMP
23. FRP PUMP STAND
24. 1-1/2" X 1-1/2" X 1" PVC REDUCING TEE
25. 1" PVC TEE
26. 1" PRESSURE RELIEF VALVE
27. 1" PVC VENTED BALL VALVE
28. 3/8" METERING PUMP FLEXIBLE TUBING
29. 1" PVC METERING PUMP DISCHARGE PIPING
30. 1-1/2" PVC 90° BEND
31. 1" PVC CALIBRATION COLUMN VENT PIPE
32. 3/8" PVC CHEMICAL FEED TUBING (SEE GENERAL NOTE 3)
33. 1" PVC BALL CHECK VALVE
34. RUN TWO 3/8" PVC CHEMICAL FEED TUBING LINES (ONE FOR BACKUP) IN EACH OF THE TWO 2" PVC CONDUITS UNDERGROUND TO FEED LOCATIONS.
35. PRESSURE GAUGE
36. FLOW SENSOR
37. 1-1/2" PVC PRESSURE RELIEF VALVE RETURN PIPING
38. 1" PVC PRESSURE RELIEF VALVE RETURN PIPING
39. 1-1/2" x 1" PVC REDUCER BUSHING IN 90° BEND
40. 2" x 1-1/2" PVC REDUCER BUSHING IN DAYTANK OUTLET
41. SUPPORT (TYP.)
42. FRP STAND
43. 2" PVC VENTED BALL VALVE

GENERAL NOTES

1. ALL PVC PIPING, FITTINGS, VALVES, ETC. SHALL BE SCHEDULE 80 WITH SOCKETED CONNECTONS UNLESS OTHERWISE NOTED.
2. LOCATE HORIZONTAL RUNS OF TRANSFER PUMP DISCHARGE PIPING (KEYNOTE 17) A MINIMUM OF 12" ABOVE THE MAXIMUM LIQUID LEVEL IN THE BULK STORAGE TANK.
3. PROVIDE 2 FEET OF ADDITIONAL FEED TUBING BEFORE PVC CONDUITS FOR EXCESS SLACK.

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CONFORMANCE SET (BID OPENING DATE 4-30-2015)

SODIUM HYPOCHLORITE BUILDING SECTIONS

DUDLEY COMPLEX SODIUM HYPOCHLORITE BUILDING
CITY OF EDGEWOOD, KENTUCKY

DESIGNED:	DRAWN:	REVIEWED:	APPROVED:
ADH	MBS	ABB	ABB

REVISIONS

NO.	DESCRIPTION	DATE:	BY:

THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED
SCALE CHECK:

DATE:
MAY, 2015

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SHEET NO.
C-301

PLOTTED BY: mseebold

PRINTED: 5/19/2015 @ 9:42AM

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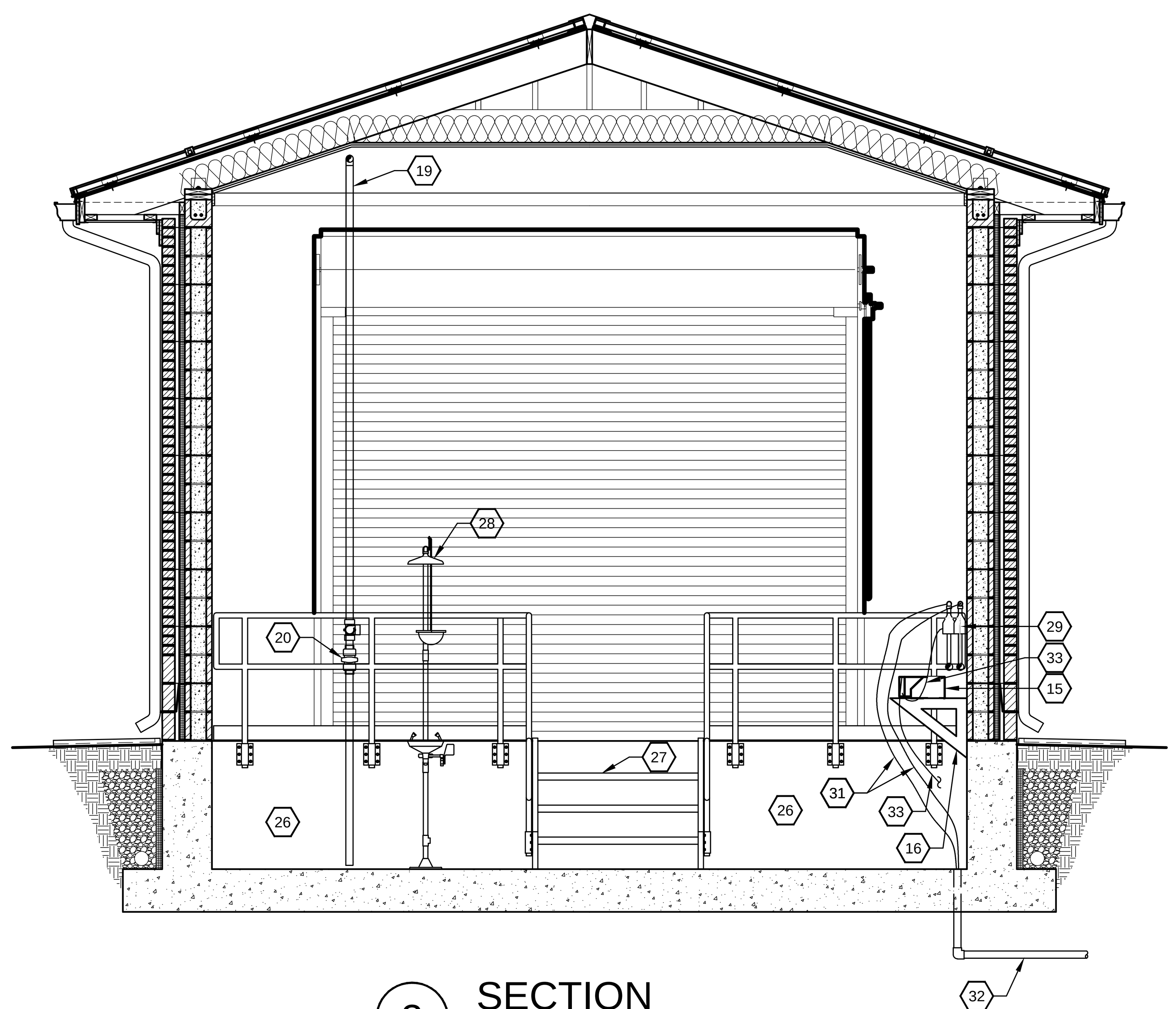
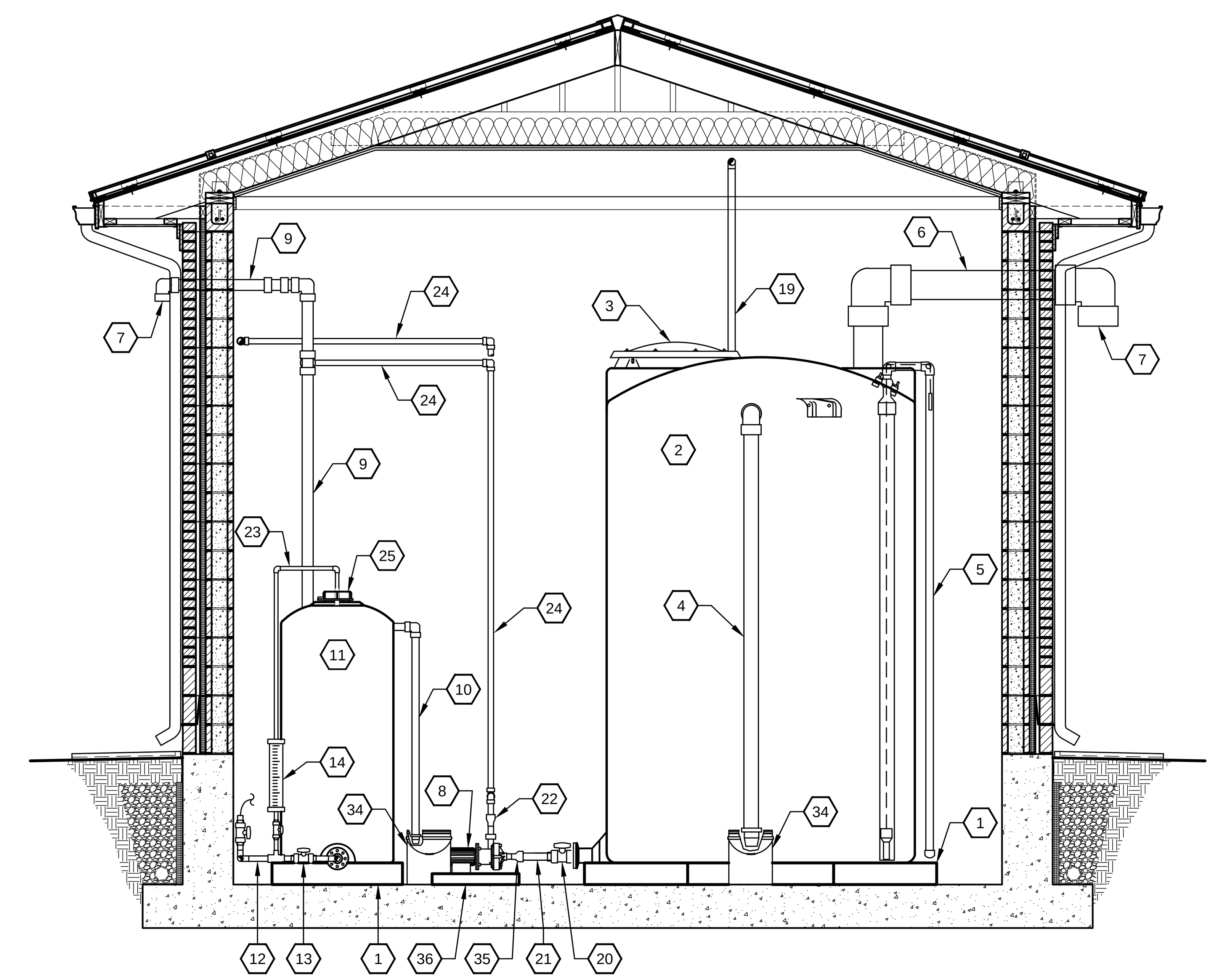


3 SECTION
SCALE: 3/8"=1'-0"



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

GENERAL NOTES

1. BULK STORAGE TANK DISCHARGE PIPING SHALL NOT BE ANCHORED TO THE FLOOR WITH RIGID SUPPORTS UNTIL AFTER THE EXPANSION JOINT AS SHOWN.
2. ALL PVC PIPING AND FITTINGS SHALL BE SCHEDULE 80 UNLESS OTHERWISE NOTED.
3. LOCATE HORIZONTAL RUNS OF TRANSFER PUMP DISCHARGE PIPE (KEYNOTE 24) A MINIMUM OF 12" ABOVE THE MAXIMUM LIQUID LEVEL IN THE BULK STORAGE TANK.
4. PROVIDE 2 FEET OF ADDITIONAL FEED TUBING BEFORE PVC CONDUITS FOR EXCESS SLACK.

⬡ SHEET KEYNOTES:

1. 6" CONCRETE PAD
2. 3,000 GALLON HDXLPE BULK STORAGE TANK W/ 3" IMFO OUTLET
3. 24" BOLTED MANWAY
4. 4" PVC OVERFLOW LINE W / DUCKBILL CHECK VALVE
5. 2" REVERSE LEVEL FLOAT GAUGE
6. 8" PVC VENT PIPE
7. BRONZE INSECT SCREEN
8. TRANSFER PUMP
9. 3" PVC VENT PIPE
10. 2" PVC OVERFLOW LINE W / DUCKBILL CHECK VALVE
11. 200 GALLON HPXLPE DAY STORAGE TANK WITH 2" IMFO OUTLET
12. 1-1/2" PVC DAY TANK DISCHARGE PIPING (SLOPE PIPING UP TO DAY TANKS)
13. 1-1/2" PVC VENTED BALL VALVE
14. CALIBRATION COLUMN
15. PERISTALTIC METERING PUMP
16. FRP PUMP STAND
17. NOT USED
18. NOT USED
19. 2" PVC BULK TANK FILL PIPE W/ 2" PVC PERFORATED PIPE INSIDE TANK TO THE BOTTOM (SLOPE UP TO BULK TANK)
20. 2" PVC VENTED BALL VALVE
21. 2" PVC TRANSFER PUMP SUCTION PIPING (SLOPE PIPING UP TO BULK TANK)
22. 1-1/2" X 1" PVC REDUCER
23. 1" PVC CALIBRATION COLUMN VENT LINE
24. 1-1/2" PVC TRANSFER PUMP DISCHARGE PIPING (SLOPE PIPING UP TO DAY TANKS). (SEE GENERAL NOTE 3)
25. 7" THREADED LID
26. 2'-0" (W) X 2'-0" (D) CONTAINMENT TRENCH W/ FRP GRATING
27. FRP STAIRS WITH GRATED TREADS
28. EYE WASH STATION (SEE PLUMBING SHEETS)
29. 1" PRESSURE RELIEF VALVE (TYP. 2 PLACES)
30. NOT USED
31. 3/8" PVC CHEMICAL FEED TUBING (SEE GENERAL NOTE 4)
32. RUN TWO 3/8" PVC CHEMICAL FEED TUBING LINES (ONE FOR BACKUP) IN TWO 2" PVC CONDUITS UNDERGROUND TO FEED LOCATIONS. RUN PULL WIRE IN CONDUITS AS WELL.
33. 3/8" METERING PUMP FLEXIBLE TUBING
34. 5 GALLON BUCKET FOR OVERFLOW LINE
35. 2" X 1" PVC REDUCER
36. 3" THICK CONCRETE PAD

This document, originally issued, sealed, and signed by Alan A. Bryan, Kentucky Professional Engineer, No. 20964, on 5-18-15, shall not be used in lieu of a certified document.

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CONFORMANCE SET (BID OPENING DATE 4-30-2015)

SODIUM HYPOCHLORITE BUILDING SECTIONS

DUDLEY COMPLEX SODIUM HYPOCHLORITE BUILDING
CITY OF EDGEWOOD, KENTUCKY

DESIGNED:	DRAWN:	REVIEWED:	APPROVED:
ADH	MBS	AAB	AAB

REVISIONS

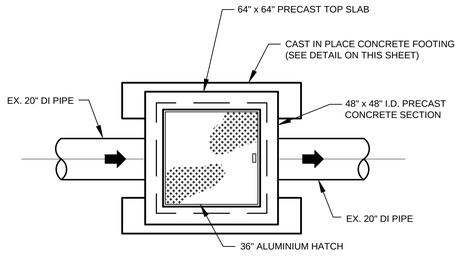
NO.	DESCRIPTION	DATE	BY

SCALE CHECK: THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

DATE: MAY, 2015

SCALE: AS SHOWN

SHEET NO. C-302



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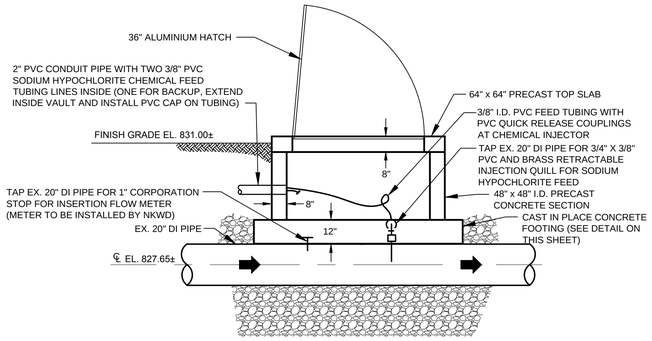
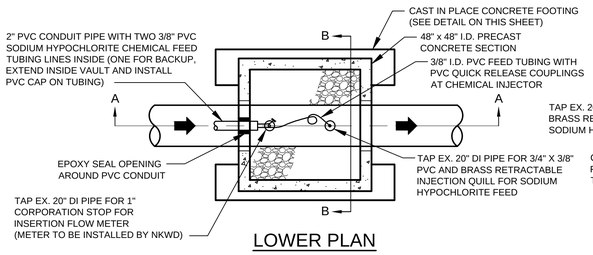
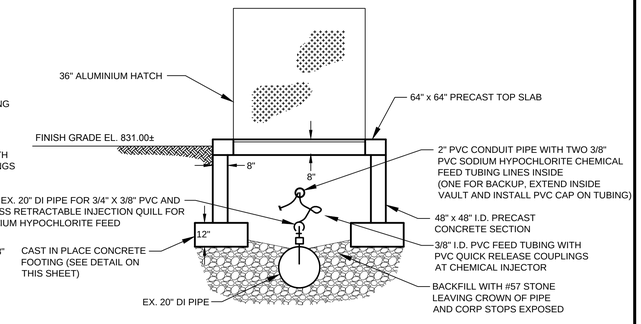


SECTION A



LOWER PLAN



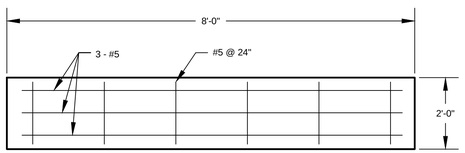
SECTION B

1040 CHEMICAL FEED VAULT DETAIL

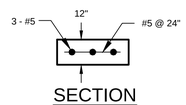
NOT TO SCALE

GENERAL NOTES:

1. CHEMICAL FEED TUBING LINES SHALL BE RUN CONTINUOUSLY FROM THE SODIUM HYPOCHLORITE BUILDING TO THE POINTS OF APPLICATION.



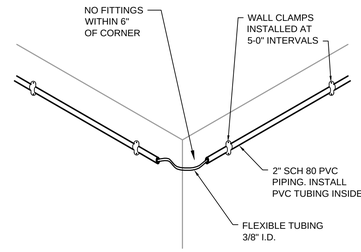
PLAN



SECTION

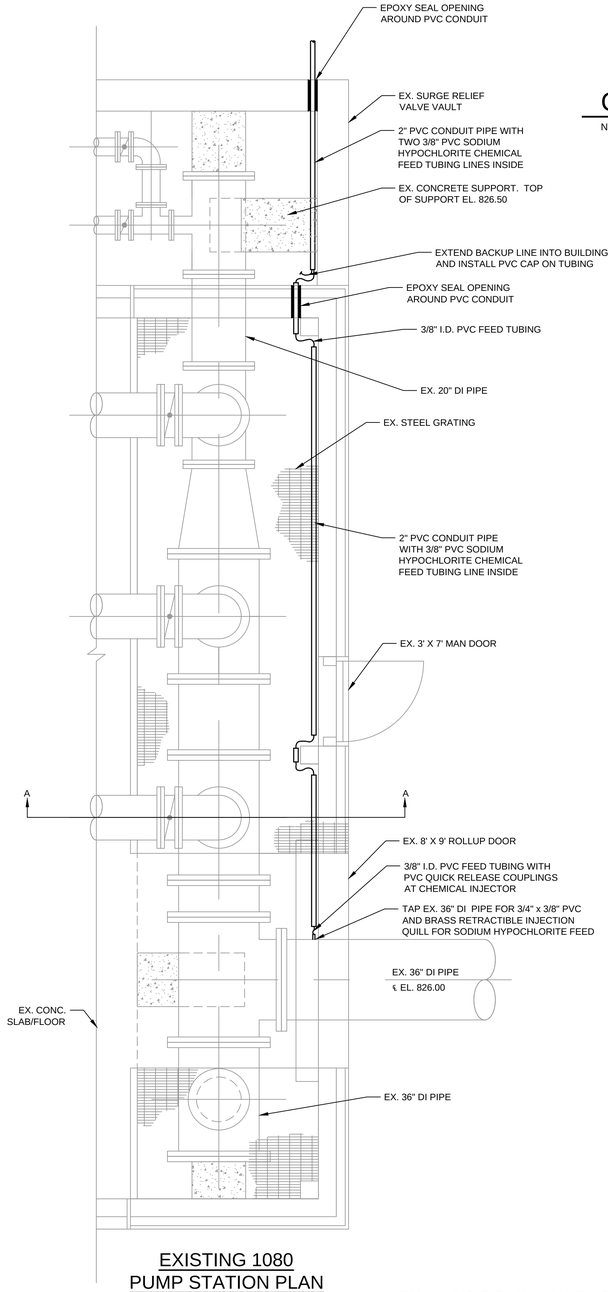
FOOTING DETAIL

NOT TO SCALE

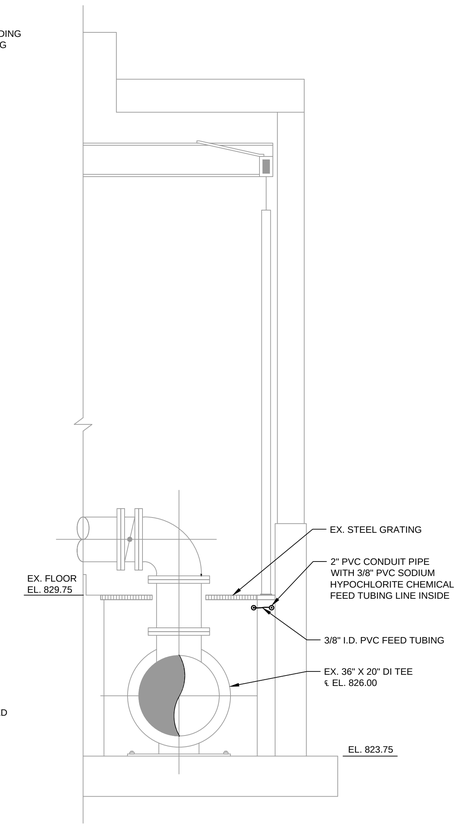


CHEMICAL FEED PIPING DETAIL

NOT TO SCALE



EXISTING 1080
PUMP STATION PLAN



SECTION A

EX. 1080 PUMP STATION CHEMICAL FEED DETAIL

NOT TO SCALE

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CONFORMANCE SET (BID OPENING DATE 4-30-2015)

DETAILS

DUDLEY COMPLEX SODIUM HYPOCHLORITE BUILDING
CITY OF EDGEWOOD, KENTUCKY

DESIGNED:	DRAWN:	REVIEWED:	APPROVED:
AAB	KAR	AAB	AAB

REVISIONS

NO.	DESCRIPTION	DATE	BY

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SHEET NO.
C-501

PLOTTED BY: nseebold

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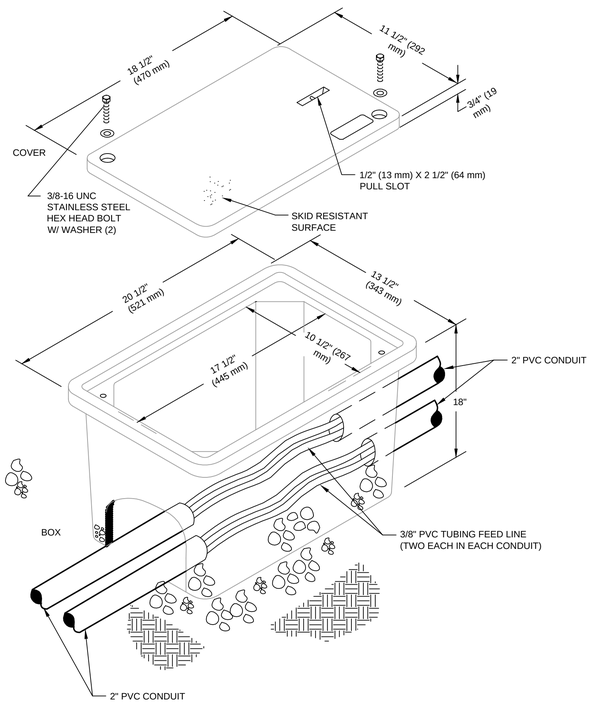
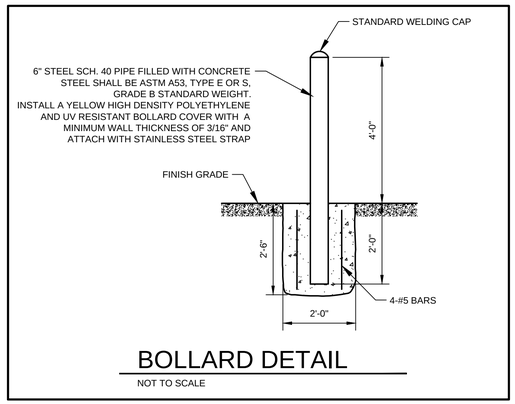


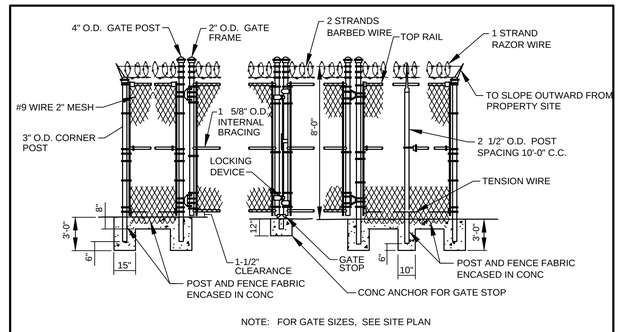
CHEMICAL FEED PULLBOX DETAIL

NOT TO SCALE



BOLLARD DETAIL

NOT TO SCALE



NOTE: FOR GATE SIZES, SEE SITE PLAN

CHAIN LINK SECURITY FENCE & GATE DETAIL

NOT TO SCALE

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CONFORMANCE SET (BID OPENING DATE 4-30-2015)

STADARD DETAILS

DUDLEY COMPLEX SODIUM HYPOCHLORITE BUILDING
CITY OF EDGEWOOD, KENTUCKY

DESIGNED:	DRAWN:	REVIEWED:	APPROVED:
ADH	MBS	ADH	AAB

REVISIONS

NO.	DESCRIPTION	DATE	BY

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SHEET NO.
C-502

PLOTTED BY: rrseebold
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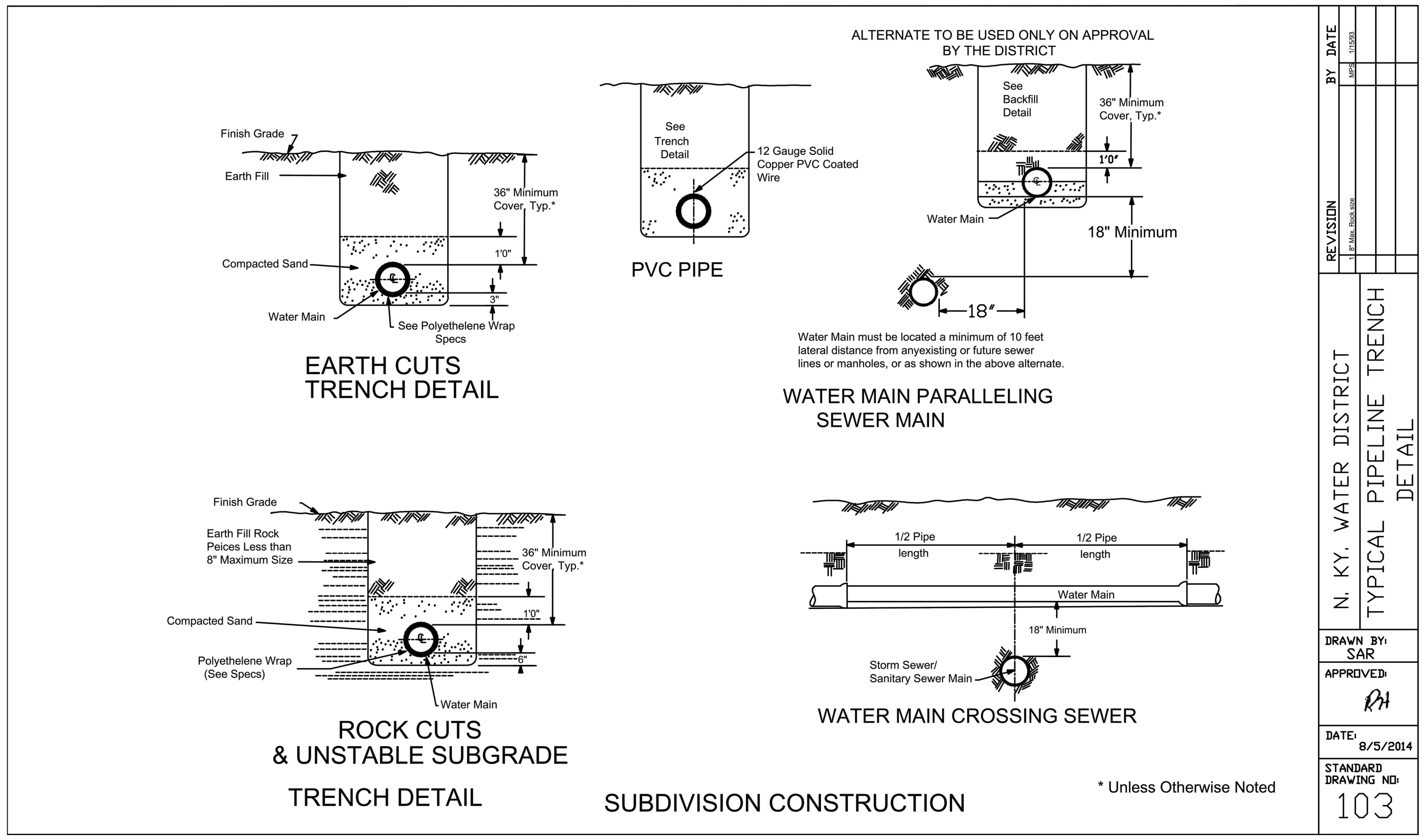
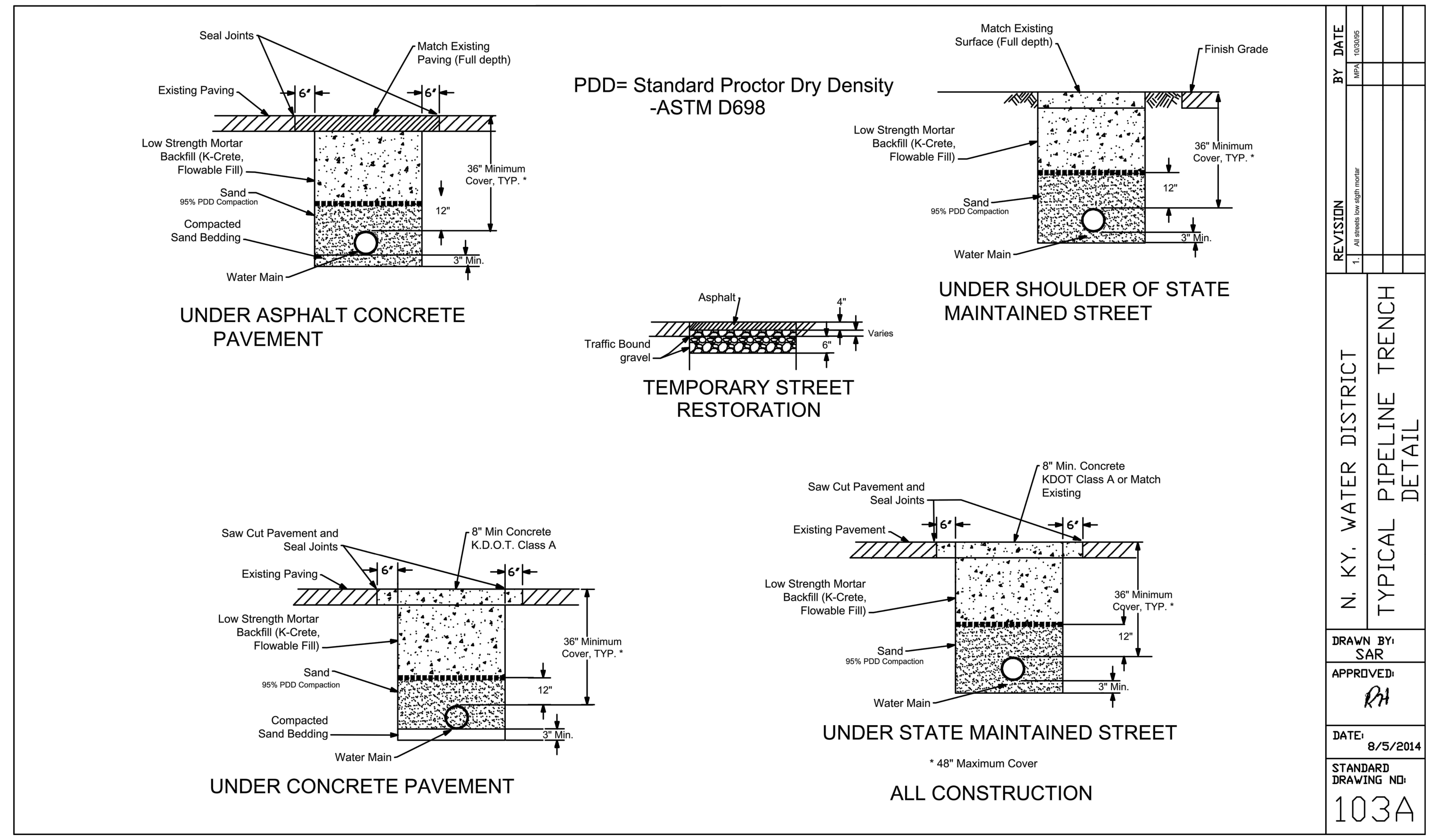
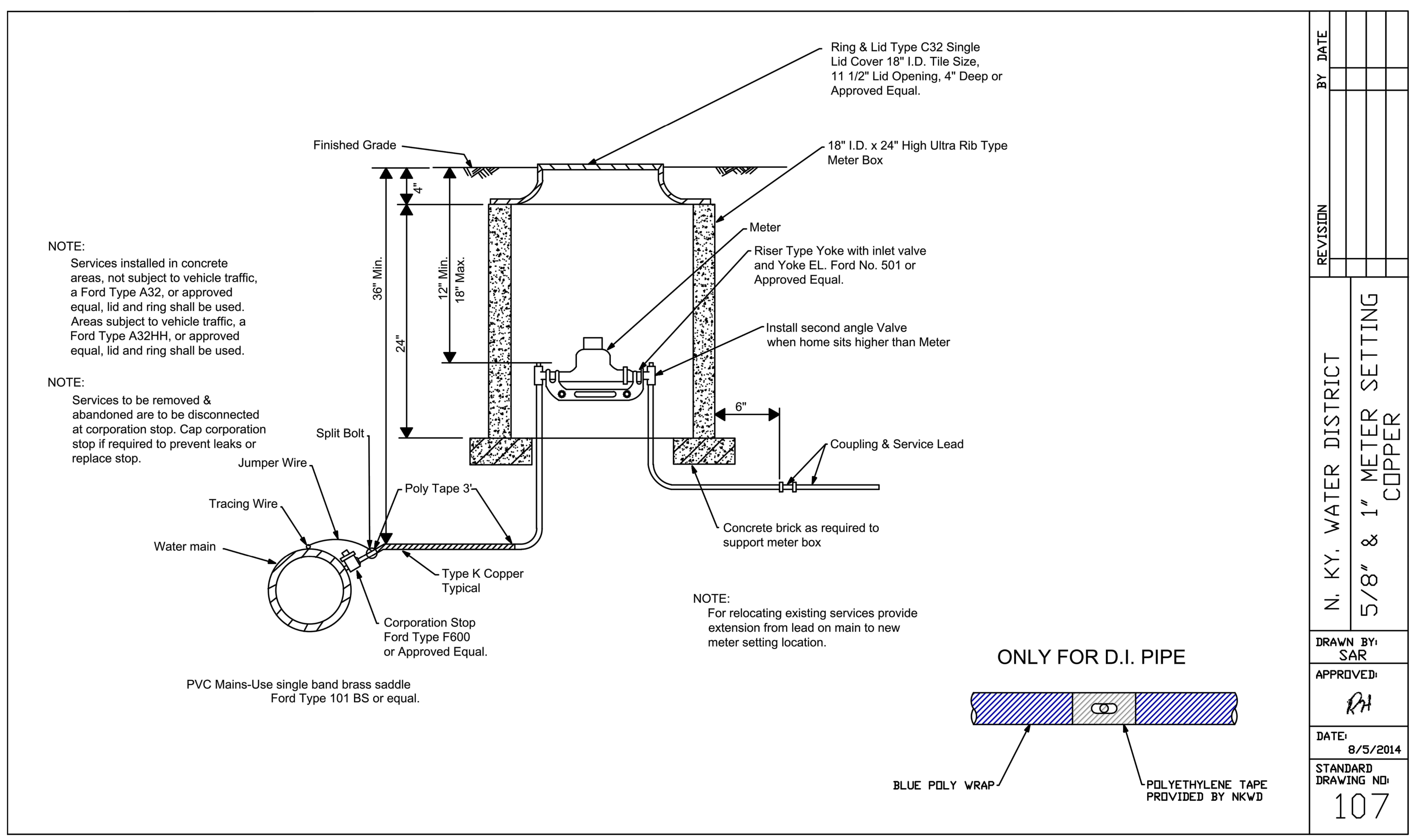


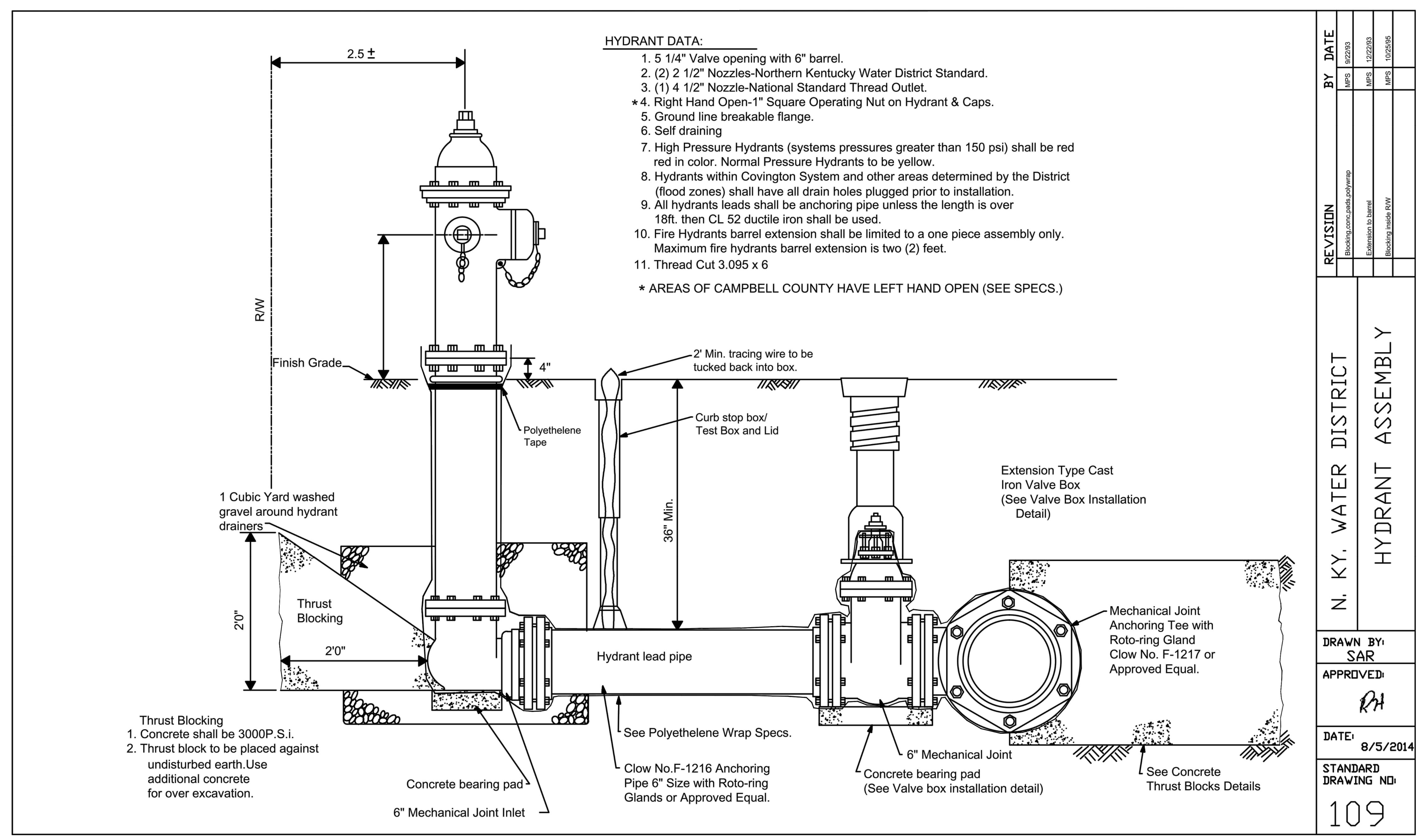
ALTERNATE TO BE USED ONLY ON APPROVAL BY THE DISTRICT
Finish Grade
Earth Fill
36" Minimum Cover, Typ.*
Compacted Sand
Water Main
See Polyethelene Wrap Specs
EARTH CUTS TRENCH DETAIL
See Trench Detail
12 Gauge Solid Copper PVC Coated Wire
PVC PIPE
See Backfill Detail
36" Minimum Cover, Typ.*
18" Minimum
18"
Water Main must be located a minimum of 10 feet lateral distance from anyexisting or future sewer lines or manholes, or as shown in the above alternate.
WATER MAIN PARALLELING SEWER MAIN
Earth Fill Rock Peices Less than 8" Maximum Size
Polyethelene Wrap (See Specs)
ROCK CUTS & UNSTABLE SUBGRADE
TRENCH DETAIL
1/2 Pipe length
18" Minimum
Storm Sewer/ Sanitary Sewer Main
WATER MAIN CROSSING SEWER
SUBDIVISION CONSTRUCTION
* Unless Otherwise Noted
N. KY. WATER DISTRICT
TYPICAL PIPELINE TRENCH DETAIL
DRAWN BY: SAR
DATE: 8/5/2014
STANDARD DRAWING NO: 103



Seal Joints
Match Existing Paving (Full depth)
Existing Paving
Low Strength Mortar Backfill (K-Crete, Flowable Fill)
36" Minimum Cover, TYP. *
Sand
95% PDD Compaction
Compacted Sand Bedding
Water Main
PDD= Standard Proctor Dry Density -ASTM D698
UNDER ASPHALT CONCRETE PAVEMENT
Asphalt
Traffic Bound gravel
Varies
TEMPORARY STREET RESTORATION
Match Existing Surface (Full depth)
Finish Grade
UNDER SHOULDER OF STATE MAINTAINED STREET
Saw Cut Pavement and Seal Joints
8" Min Concrete K.D.O.T. Class A
UNDER CONCRETE PAVEMENT
8" Min. Concrete KDOT Class A or Match Existing
UNDER STATE MAINTAINED STREET
* 48" Maximum Cover
ALL CONSTRUCTION
N. KY. WATER DISTRICT
TYPICAL PIPELINE TRENCH DETAIL
DRAWN BY: SAR
DATE: 8/5/2014
STANDARD DRAWING NO: 103A



Ring & Lid Type C32 Single Lid Cover 18" I.D. Tile Size, 11 1/2" Lid Opening, 4" Deep or Approved Equal.
Finished Grade
18" I.D. x 24" High Ultra Rib Type Meter Box
Meter
Riser Type Yoke with inlet valve and Yoke EL. Ford No. 501 or Approved Equal.
Install second angle Valve when home sits higher than Meter
36" Min.
12" Min. 18" Max.
24"
6"
Coupling & Service Lead
Concrete brick as required to support meter box
NOTE: Services installed in concrete areas, not subject to vehicle traffic, a Ford Type A32, or approved equal, lid and ring shall be used. Areas subject to vehicle traffic, a Ford Type A32HH, or approved equal, lid and ring shall be used.
NOTE: Services to be removed & abandoned are to be disconnected at corporation stop. Cap corporation stop if required to prevent leaks or replace stop.
Split Bolt
Jumper Wire
Tracing Wire
Poly Tape 3"
Water main
Type K Copper Typical
Corporation Stop Ford Type F600 or Approved Equal.
PVC Mains-Use single band brass saddle Ford Type 101 BS or equal.
NOTE: For relocating existing services provide extension from lead on main to new meter setting location.
ONLY FOR D.I. PIPE
BLUE POLY WRAP
POLYETHYLENE TAPE PROVIDED BY NKWD
N. KY. WATER DISTRICT
5/8" & 1" METER SETTING COPPER
DRAWN BY: SAR
DATE: 8/5/2014
STANDARD DRAWING NO: 107



2.5 ±
HYDRANT DATA:
1. 5 1/4" Valve opening with 6" barrel.
2. (2) 2 1/2" Nozzles-Northern Kentucky Water District Standard.
3. (1) 4 1/2" Nozzle-National Standard Thread Outlet.
*4. Right Hand Open-1" Square Operating Nut on Hydrant & Caps.
5. Ground line breakable flange.
6. Self draining
7. High Pressure Hydrants (systems pressures greater than 150 psi) shall be red red in color. Normal Pressure Hydrants to be yellow.
8. Hydrants within Covington System and other areas determined by the District (flood zones) shall have all drain holes plugged prior to installation.
9. All hydrants leads shall be anchoring pipe unless the length is over 18ft. then CL 52 ductile iron shall be used.
10. Fire Hydrants barrel extension shall be limited to a one piece assembly only. Maximum fire hydrants barrel extension is two (2) feet.
11. Thread Cut 3.095 x 6
* AREAS OF CAMPBELL COUNTY HAVE LEFT HAND OPEN (SEE SPECS.)
R/W
Finish Grade
2' Min. tracing wire to be tucked back into box.
Polyethelene Tape
Curb stop box/ Test Box and Lid
Extension Type Cast Iron Valve Box (See Valve Box Installation Detail)
36" Min.
1 Cubic Yard washed gravel around hydrant drainers
Thrust Blocking
Hydrant lead pipe
Mechanical Joint Anchoring Tee with Roto-ring Gland Clow No. F-1217 or Approved Equal.
Thrust Blocking
1. Concrete shall be 3000P.S.i.
2. Thrust block to be placed against undisturbed earth.Use additional concrete for over excavation.
Concrete bearing pad
6" Mechanical Joint Inlet
See Polyethelene Wrap Specs.
Clow No.F-1216 Anchoring Pipe 6" Size with Roto-ring Glands or Approved Equal.
6" Mechanical Joint
Concrete bearing pad (See Valve box installation detail)
See Concrete Thrust Blocks Details
N. KY. WATER DISTRICT
HYDRANT ASSEMBLY
DRAWN BY: SAR
DATE: 8/5/2014
STANDARD DRAWING NO: 109

PLOTTED BY: msiebold

PRINTED: 5/19/2015 @ 9:43AM

FILE NAME: U:\4325-NKWD SdmHypoBld\Working Drawings\4325-C-503.dwg

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CONFORMANCE SET (BID OPENING DATE 4-30-2015)

GRW PROJECT NO. 4325

CLIENT PROJECT NO.

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STADARD DETAILS

DUDLEY COMPLEX SODIUM HYPOCHLORITE BUILDING
CITY OF EDGEWOOD, KENTUCKY

DESIGNED: ADH
DRAWN: MBS
REVIEWED: ADH
APPROVED: AAB

REVISIONS

NO.	DESCRIPTION	DATE	BY

SCALE CHECK: THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

DATE: MAY, 2015

SCALE: AS SHOWN

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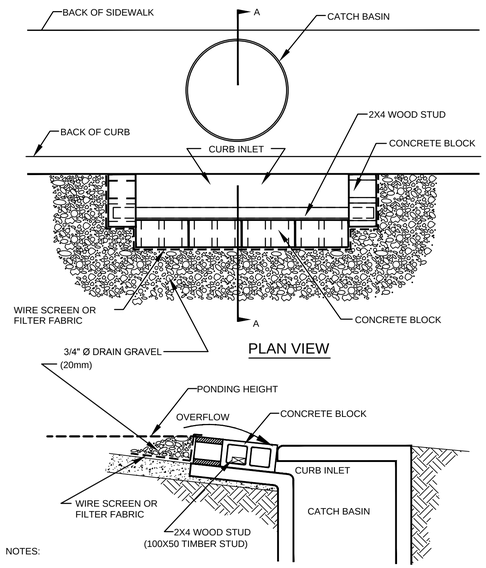


PLAN VIEW

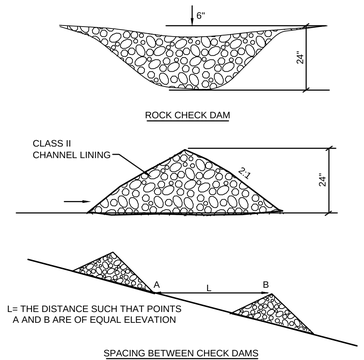
SECTION A - A

CURB INLET SEDIMENT BARRIER

NOT TO SCALE

NOTES:

1. USE BLOCK AND GRAVEL TYPE SEDIMENT BARRIER WHEN CURB INLET IS LOCATED IN GENTLY SLOPING STREET SEGMENT, WHERE WATER CAN POND AND ALLOW SEDIMENT TO SEPARATE FROM RUNOFF.
2. BARRIER SHALL ALLOW FOR OVERFLOW FROM SEVERE STORM EVENT.
3. INSPECT BARRIERS AND REMOVE SEDIMENT AFTER EACH STORM EVENT. SEDIMENT AND GRAVEL MUST BE REMOVED FROM THE TRAVELED WAY IMMEDIATELY.

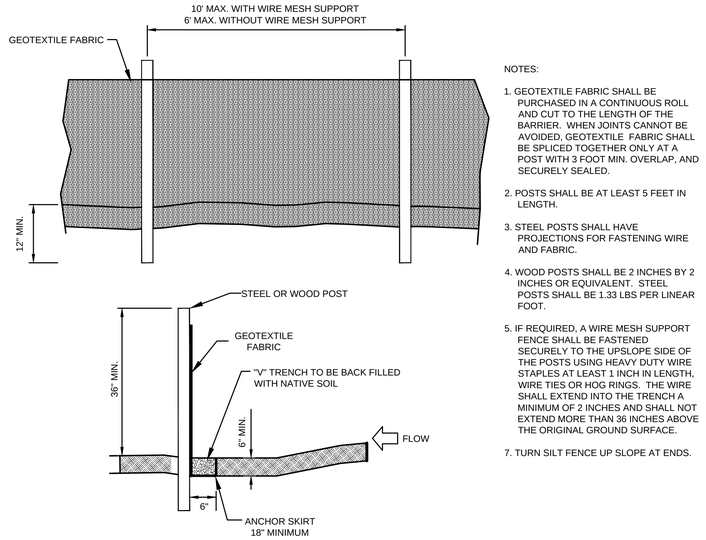


NOTE:

STONE BAGS MAY BE USED FOR TEMPORARY CHECK DAMS. INSTALL IN SAME CONFIGURATION.

CHECK DAM

NOT TO SCALE

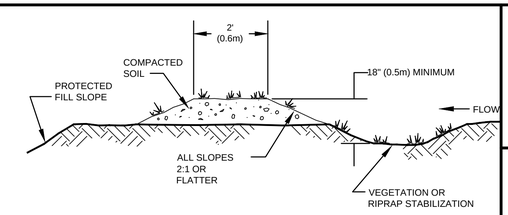


NOTES:

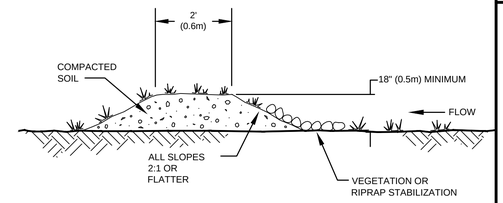
1. GEOTEXTILE FABRIC SHALL BE PURCHASED IN A CONTINUOUS ROLL AND CUT TO THE LENGTH OF THE BARRIER. WHEN JOINTS CANNOT BE AVOIDED, GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER ONLY AT A POST WITH 3 FOOT MIN. OVERLAP, AND SECURELY SEALED.
2. POSTS SHALL BE AT LEAST 5 FEET IN LENGTH.
3. STEEL POSTS SHALL HAVE PROJECTIONS FOR FASTENING WIRE AND FABRIC.
4. WOOD POSTS SHALL BE 2 INCHES BY 2 INCHES OR EQUIVALENT. STEEL POSTS SHALL BE 1.33 LBS PER LINEAR FOOT.
5. IF REQUIRED, A WIRE MESH SUPPORT FENCE SHALL BE FASTENED SECURELY TO THE UPSLOPE SIDE OF THE POSTS USING HEAVY DUTY WIRE STAPLES AT LEAST 1 INCH IN LENGTH, WIRE TIES OR HOG RINGS. THE WIRE SHALL EXTEND INTO THE TRENCH A MINIMUM OF 2 INCHES AND SHALL NOT EXTEND MORE THAN 36 INCHES ABOVE THE ORIGINAL GROUND SURFACE.
7. TURN SILT FENCE UP SLOPE AT ENDS.

SILT FENCE

NOT TO SCALE



TYPICAL FILL DIVERSION



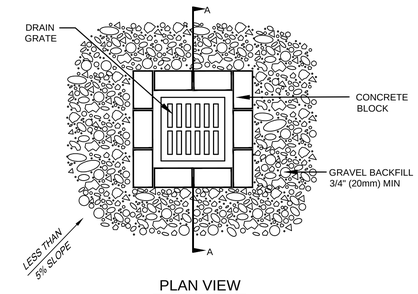
TYPICAL TEMPORARY DIVERSION DIKE

NOTES:

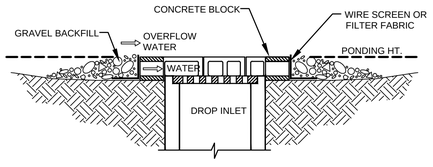
1. THE CHANNEL BEHIND THE DIKE SHALL HAVE POSITIVE GRADE TO A STABILIZED OUTLET.
2. THE DIKE SHALL BE ADEQUATELY COMPACTED TO PREVENT FAILURE.
3. THE DIKE SHALL BE STABILIZED WITH TEMPORARY OR PERMANENT SEEDING OR RIPRAP.

DIVERSION CHANNEL

NOT TO SCALE



PLAN VIEW



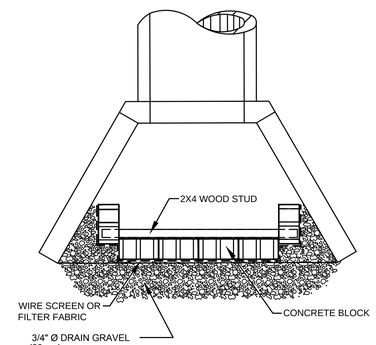
SECTION A - A

NOTES:

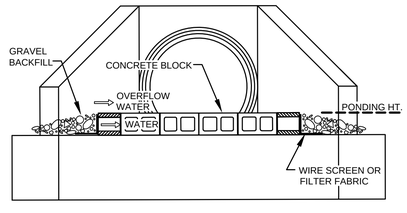
1. DROP INLET SEDIMENT BARRIERS ARE TO BE USED FOR SMALL, NEARLY LEVEL DRAINAGE AREAS. (LESS THAN 5%)
2. EXCAVATE A BASIN OF SUFFICIENT SIZE ADJACENT TO THE DROP INLET.
3. THE TOP OF THE STRUCTURE (PONDING HEIGHT) MUST BE WELL BELOW THE GROUND ELEVATION DOWNSLOPE TO PREVENT RUNOFF FROM BYPASSING THE INLET. A TEMPORARY DIKE MAY BE NECESSARY ON THE DOWNSLOPE SIDE OF THE STRUCTURE.

DROP INLET SEDIMENT BARRIER

NOT TO SCALE



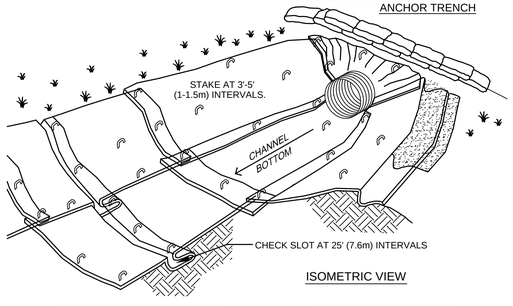
PLAN VIEW



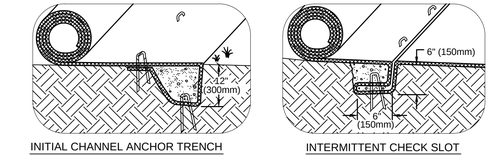
FRONT ELEVATION

CULVERT INLET SEDIMENT BARRIER

NOT TO SCALE



ISOMETRIC VIEW

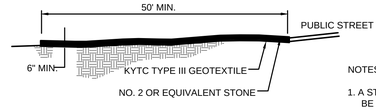


NOTES:

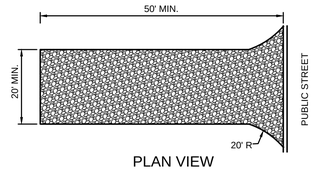
1. CHECK SLOTS TO BE CONSTRUCTED PER MANUFACTURERS SPECIFICATIONS.
2. STAKING OR STAPLING LAYOUT PER MANUFACTURERS SPECIFICATIONS.

EROSION BLANKETS & TURF REINFORCEMENT MATS

NOT TO SCALE



CROSS SECTION



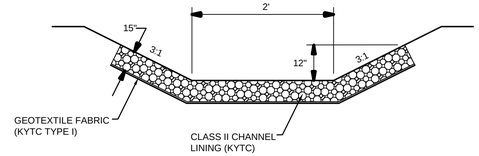
PLAN VIEW

NOTES:

1. A STABILIZED ENTRANCE PAD OF CRUSHED STONE SHALL BE LOCATED WHERE TRAFFIC WILL ENTER OR LEAVE THE CONSTRUCTION SITE ONTO A PUBLIC STREET.
2. GEOTEXTILE (KYTC TYPE III) SHALL BE USED AS A BASE FOR THE CONSTRUCTION ENTRANCE.
3. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC STREETS OR EXISTING PAVEMENT. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS WARRANT AND REPAIR OR CLEAN OUT OF ANY MEASURES USED TO TRAP SEDIMENT.
4. ANY SEDIMENT SPILLED, DROPPED, WASHED, OR TRACKED ONTO PUBLIC STREETS OR INTO STORM DRAINS MUST BE REMOVED IMMEDIATELY.
5. WHEN APPROPRIATE, WHEELS MUST BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTERING A PUBLIC STREET. WHEN WASHING IS REQUIRED, IT SHALL BE DONE IN AN AREA STABILIZED WITH CRUSHED STONE WHICH DRAINS INTO AN APPROVED SEDIMENT BASIN.

STABILIZED CONSTRUCTION ENTRANCE

NOT TO SCALE



RIPRAP CHANNEL LINING

NOT TO SCALE

GRW PROJECT NO. 4325

CLIENT PROJECT NO.

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CONFORMANCE SET (BID OPENING DATE 4-30-2015)

EROSION CONTROL DETAILS

DUDLEY COMPLEX SODIUM HYPOCHLORITE BUILDING
CITY OF EDGEWOOD, KENTUCKY

DESIGNED:	DRAWN:	REVIEWED:	APPROVED:
ADH	KAR	ADH	AAB

REVISIONS

NO.	DESCRIPTION	DATE:	BY:

THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

SCALE CHECK:

DATE:
MAY, 2015

SCALE:
AS SHOWN

SHEET NO.
C-504

PLOTTED BY: rseebold

PRINTED: 5/19/2015 @ 9:43AM

FILE NAME: U:\4325-NKWD Sam\hypoBld\Working Drawings\4325-C-504.dwg

EROSION CONTROL NOTES

1. A KPDES STORMWATER PERMIT IS REQUIRED FOR THIS PROJECT. COVERAGE STARTS WHEN THE KY DIVISION OF WATER ACKNOWLEDGES RECEIPT OF A NOTICE OF INTENT FOR COVERAGE.

2. THE KPDES PERMIT REQUIRES THAT THE PERMITTEE SHALL MINIMIZE DISTURBANCE AND THE PERIOD OF TIME THAT THE DISTURBED AREA IS WITHOUT STABILIZATION PRACTICES.

3. FINAL STABILIZATION SHALL BEGIN WITHIN 14 DAYS ON AREAS OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE PERMANENTLY CEASED OR HAVE BEEN SUSPENDED FOR MORE THAN 180 DAYS. WHEN SNOW COVER CAUSES DELAYS, STABILIZATION SHALL BEGIN AS SOON AS POSSIBLE. STABILIZATION PRACTICES INCLUDE SEEDING, MULCHING, PLACING SOD. PLANTING TREES OR SHRUBS, AND USING GEOTEXTILE FABRICS AND OTHER APPROPRIATE MEASURES. SEEDING RATES, DATES AND MATERIALS MAY BE OBTAINED FROM THE LOCAL NATURAL RESOURCES CONSERVATION SERVICE FIELD OFFICE.

4. FOR ALL CRITICAL AREAS (WITHIN 25' OF A STREAM), SOIL STABILIZATION TECHNIQUES SHALL BE IMPLEMENTED WITHIN 24 HOURS OR AS SOON AS PRACTICABLE AFTER COMPLETION OF GRADING OR DISTURBANCE. TEMPORARY STABILIZATION PRACTICES SHALL BE INITIATED WITHIN 14 DAYS OF CESSATION OF CONSTRUCTION ACTIVITIES.

5. A STORMWATER POLLUTION PREVENTION PLAN (SWPPP) SHALL BE DEVELOPED AND IMPLEMENTED AS OUTLINED IN THE KPDES STORMWATER PERMIT KYR 10.

6. SEDIMENT BASINS (DEBRIS BASINS, DESILTING BASINS, OR SEDIMENT TRAPS) SHALL BE PROPERLY DESIGNED.

7. SEDIMENT BASINS (DEBRIS BASINS, DESILTING BASINS, OR SEDIMENT TRAPS) SHALL BE INSTALLED DURING INITIAL GRADING AT LOCATIONS THAT WILL PROVIDE THE BEST PROTECTION FROM OFF-SITE DAMAGES.

8. ALL SLOPES EXCEEDING 3:1 SHALL HAVE EXTRA SLOPE PROTECTION SUCH AS NETTING.

9. A MULTI-PURPOSE BASIN USED FOR A SEDIMENT TRAP THAT IS THEN CONVERTED TO A DETENTION/RETENTION BASIN SHALL BE DREDGED PERIODICALLY DURING CONSTRUCTION ACTIVITIES AND AFTER STABILIZATION IN ORDER TO PROVIDE ADEQUATE STORAGE.

10. INLET PROTECTION IS REQUIRED TO MINIMIZE DISCHARGE OF SEDIMENT LADEN WATER.

11. SITE PERIMETER CONTROLS ARE REQUIRED AND SHALL BE INSTALLED TO PREVENT THE DEPOSIT OF SOIL AND DEBRIS FROM GRADED SURFACES ONTO PUBLIC STREETS, INTO DRAINAGE CHANNELS OR SEWERS, OR ONTO ADJOINING LAND.

12. EROSION CONTROL MEASURES SHOWN ARE THE MINIMUM REQUIRED. CONTRACTOR SHALL PROVIDE ADDITIONAL CONTROLS AND REVISE THE CONTROLS AS NEEDED.

INSPECTIONS AND MAINTENANCE

1. ALL EROSION CONTROL MEASURES, DISCHARGE LOCATIONS, VEHICLE EXITS, DISTURBED AREAS OF THE SITE, AND MATERIALS STORAGE AREAS SHALL BE INSPECTED WEEKLY AND WITHIN 24 HOURS OF THE END OF A STORM THAT IS 0.5 INCHES OR GREATER. EACH INSPECTION MUST BE DOCUMENTED IN ACCORDANCE WITH THE KPDES GENERAL PERMIT FOR STORMWATER POINT SOURCE DISCHARGES FROM CONSTRUCTION ACTIVITIES (KYR10).

2. SEDIMENT ACCUMULATED AT THE SILT FENCES, INLET PROTECTION AREAS, AND OTHER SILT CHECK DEVICES SHOULD BE REMOVED NO LATER THAN WHEN IT REACHES 1/3 HEIGHT OF THE FENCE OR 9 INCHES MAXIMUM.

3. SEDIMENT MUST BE REMOVED FROM ANY SEDIMENT BASINS WHEN THE NO MORE THAN 1/3 OF THE VOLUME HAS BEEN FILLED WITH COLLECTED SEDIMENT.

4. ALL REQUIRED REPAIRS ARE TO BE MADE IMMEDIATELY.

5. REMOVED SEDIMENT MUST BE SPREAD AND VEGETATED OR OTHERWISE STABILIZED IN A MANNER THAT DOES NOT RESULT IN MUDDY RUNOFF TO NEARBY DITCHES AND WATERBODIES.

6. INSPECT THE CONSTRUCTION ENTRANCE DAILY TO ENSURE NO TRACKING OF DIRT ONTO LOCAL ROADWAYS. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC ROAD MUST BE REMOVED IMMEDIATELY. SEE NOTE 3 FOR HANDLING OF REMOVED SEDIMENT.

7. MAINTAIN THE ENTRANCE AS NECESSARY TO PREVENT TRACKING OF DIRT.

UNTIL THE DISTRICT PERFORMS A FINAL INSPECTION AND THE LAND DISTURBING PERMIT IS CLOSED, THE PERSON RESPONSIBLE SHALL TAKE SUCH MEASURES AS ARE NECESSARY TO PREVENT EROSION OF GRADED STREETS, INTO DRAINAGE CHANNELS OR SEWERS, OR ONTO ADJOINING LAND.

SEQUENCE OF EROSION CONTROL PLAN ACTIVITIES (FROM KY DOW GUIDANCE)

1. IDENTIFY AND FLAG OFF AREAS NOT TO BE DISTURBED AND/OR COMPACTED.

2. CONSTRUCT STABILIZED CONSTRUCTION ENTRANCE.

3. INSTALL UPGRADIENT DIVERSION SWALES AND BERMS.

4. INSTALL SEDIMENT BARRIERS (SILT FENCES)

5. INSTALL SEDIMENT BASIN.

6. CONSTRUCT OTHER SWALES.

7. CONSTRUCT STORM CONVEYANCE SYSTEM (INLETS AND STORM SEWERS)

8. BEGIN CLEARING AND GRADING FOR THE ROADS, BUILDINGS, AND TANKS.

9. STABILIZE BARE AREAS AFTER FINAL GRADE IS REACHED.

10. CONSTRUCT ROADS, BUILDINGS, TANKS AND PARKING LOTS.

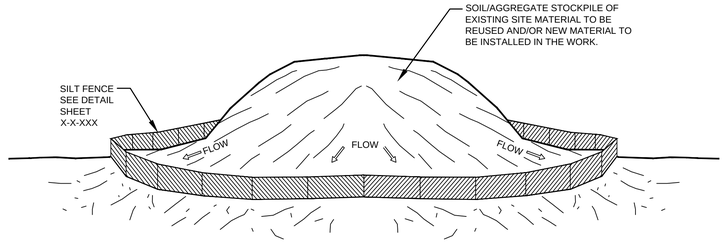
11. INSTALL LANDSCAPING.

12. DREDGE SEDIMENT BASIN AND INSTALL TEMPORARY EROSION CONTROL BLANKET ON ALL SLOPES.

13. REMOVE ALL CONTROLS ONCE THE SITE HAS BEEN FULLY STABILIZED.

14. FINAL INSPECTION FOR LAND DISTURBANCE PERMIT.

15. TEMPORARY DIVERSION DITCHES MAY BE REQUIRED DURING CONSTRUCTION TO MITIGATE EROSION OF THE DISTURBED CONSTRUCTION AREA, BY DIRECTING OFF-SITE DRAINAGE AROUND THE DISTURBANCE AREAS.

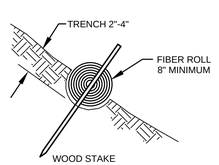


NOTES:

1. ALL EXISTING EXCAVATED MATERIAL THAT IS NOT TO BE REUSED IN THE WORK IS TO BE IMMEDIATELY REMOVED FROM THE SITE AND PROPERLY DISPOSED OF.
2. RESTORE STOCKPILE SITES TO PRE-EXISTING PROJECT CONDITION AND RESEED AS REQUIRED.
3. STOCKPILE HEIGHTS MUST NOT EXCEED 35'. STOCKPILE SLOPES MUST BE 2:1 OR FLATTER.

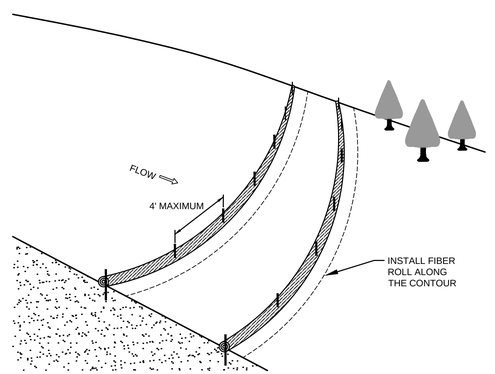
MATERIALS STOCKPILE

NOT TO SCALE



NOTES:

1. FIBER ROLLS AND OTHER COMMERCIAL PRODUCTS MADE FROM COCONUT FIBER, PLASTIC, WOOD SHAVINGS, COMPOST, OR OTHER MATERIAL CAN BE USED AS SEDIMENT BARRIERS ON SLOPES FLATTER THAN 10:1.
2. FOLLOW MANUFACTURERS' INSTALLATION INSTRUCTIONS AND ENSURE THAT SEDIMENT FILTER SPACING ON SLOPES IS CORRECT.



FIBER ROLLS

NOT TO SCALE

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CONFORMANCE SET (BID OPENING DATE 4-30-2015)

EROSION CONTROL DETAILS

DUDLEY COMPLEX SODIUM HYPOCHLORITE BUILDING
CITY OF EDGEWOOD, KENTUCKY

DESIGNED:	DRAWN:	REVIEWED:	APPROVED:
ADH	MBS	ADH	AAB

REVISIONS

NO.	DESCRIPTION	DATE	BY

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MAY, 2015

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SHEET NO.
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PLOTTED BY: nseebold

PRINTED: 5/19/2015 @ 9:43AM

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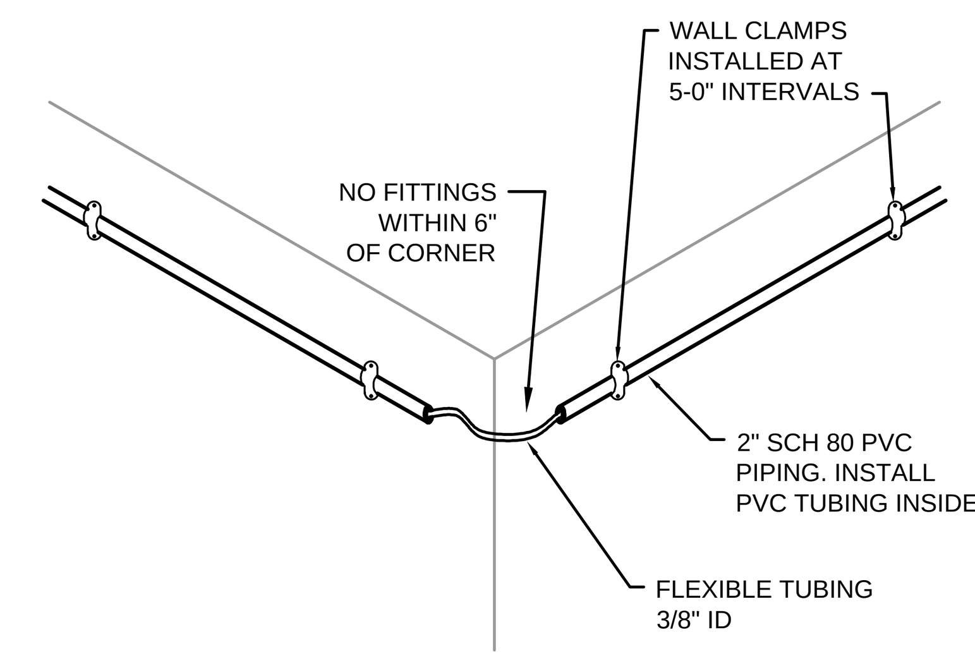
PLOTTED BY: mseebold

PRINTED: 5/19/2015 @ 9:44AM

FILE NAME: U:\4325-NKWD SdmHypoBld\Working Drawings\4325-C-601.dwg

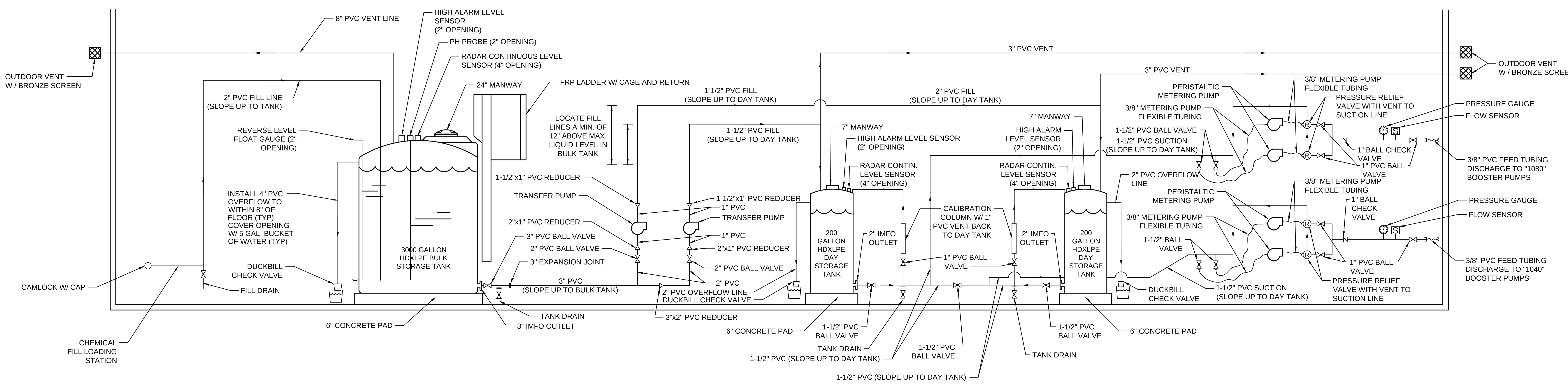
GENERAL NOTES

1. FRP FREE STANDING OR WALL SUPPORT STANDS/BRACKETS SHALL BE PROVIDED FOR ALL CHEMICAL METERING PUMPS.
2. ALL VALVES, STRAINERS & MISC OTHER PIPE APPURTENANCES SHALL BE JOINED USING "TRUE UNION" CONNECTIONS.
3. ALL PVC PIPING , FITTINGS, VALVES, ETC. SHALL BE SCHEDULE 80 UNLESS OTHERWISE NOTED.
4. ON THE DISCHARGE SIDE OF THE METERING PUMP, THE PVC PIPING WILL HOUSE FLEXIBLE TUBING TO THE POINT OF DISCHARGE.
5. SEE DETAIL THIS SHEET. THE FLEXIBLE TUBING WILL CONVEY THE CHEMICAL BEING PUMPED. ALL CHEMICAL FEED PIPING SHALL BE 1/2" FLEXIBLE TUBING INSTALLED IN A 2" PVC CONDUIT. CHEMICAL FEED PIPING SHALL COMPLY WITH THE REQUIREMENTS OF SPECIFICATION SECTION 463300.



CHEMICAL FEED PIPING DETAIL

NOT TO SCALE



SODIUM HYPOCHLORITE SCHEMATIC

NOT TO SCALE

This document, originally issued, sealed, and signed by Alan A. Bryan, Kentucky Professional Engineer, No. 20964, on 5-18-15, shall not be used in lieu of a certified document.

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CONFORMANCE SET (BID OPENING DATE 4-30-2015)

CHEMICAL FEED SCHEMATIC

DUDLEY COMPLEX SODIUM HYPOCHLORITE BUILDING
CITY OF EDGEWOOD, KENTUCKY

DESIGNED: AAB
DRAWN: MBS
REVIEWED: AAB
APPROVED: AAB

REVISIONS

NO.	DESCRIPTION	DATE	BY

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DATE: MAY, 2015

SCALE: AS SHOWN

SHEET NO. C-601

1.05 WATER MAINS ON PRIVATE PROPERTY Water mains installed on private property which are going to be maintained by the Water District, shall have a twenty-(20) foot wide easement with the water main centered in the easement area and shall have a justifiable benefit to the District (serving more than one property owner, hydraulic benefits, etc.) A four-(4) foot area over the water main shall be a non-paved, strip totally unobstructed with the exceptions as outlined in DESIGN GUIDELINES. With appropriate justification, paving may be approved within the four-(4) foot area over cross-country water mains. Outside the ten-(10) foot area over the water main, 5' either side but within the overall easement area, other utilities may be placed in this area. Proper documentation shall be provided for all easement areas. For areas that are on recorded subdivision plats, the following statement may be used in lieu of the grant of easement forms:

WATER MAIN EASE

The Water Main Easement(s) as shown on this plat are subject to the DECLARATION OF MASTER WATER FACILITY EASEMENT AGREEMENT as set forth in _____ (Document Location)

of the _____ County Clerk's records at _____, Ky.
(County Name) (Court House)

Document Location at Various Court Houses:

Court House	Document Location	County
Alexandria	Easement Book 129, Page 145	Campbell
Boone County	Easement Book 54, Page 195	Boone
Covington	Miscellaneous Book 504, Page 311	Kenton
Independence	Miscellaneous Book 228, Page 73	Kenton
Newport	Easement Book 304, Page 466	Campbell

For other areas, the Design Engineer shall prepare an easement document suitable for recording with the County Clerk. Documents shall consist of a sketch (8 1/2" by 14"), a legal description of the twenty (20) foot easement with back references to Deed Book and Page number, and a signed Grant of Easement Form (Restoration agreement) provided by the District prior to filling the main for sterilization.

1.06 WATER MAIN SIZE Minimum public water main size shall be 8", unless it is determined by the District that a dead-end main has no potential for future development, or it is determined by the District that a smaller main is adequate. The District may allow the last 600 feet of water main to be constructed as 6" water main, if a fire hydrant is deemed necessary by the Authority having Jurisdiction; or a smaller diameter main if a blow-off is sufficient. The water main around a cul-de-sac may be reduced to 4" D.I. or 2" P.E., A flushing device may be required, as determined by the District,on 4" D.I. and 2" P.E. lines, if there is no potential for future development as determined by the District and proper fire hydrant spacing can be met. The District may consider the installation of conduits for cul-de-sac lots versus a main around the cul-de-sac. Conduits will need to be installed on the opposite lot lines of the electric service and at the proper depth with a tracing wire. Additional requirements may be required for the installation of conduits subject to the approved of the District. All water mains 16" and larger shall be min. class 50 D.I.P as determined by the District. The District does not allow water mains 10" , 14" & 18" in size.

1.07 DEAD ENDS OF WATER MAINS Dead ends to water mains shall be prohibited unless approved by the District. Dead ends may be approved if one or more of the following conditions exists:

A. The distance between the dead end and the other tie-in point is greater than 600 feet.
B. Physical features exist between the dead end and the other tie- in point that in the opinion of the District make it impractical to tie them together.
C. Slopes between the dead end and the other tie-in point is greater than 3 to 1.
D. Slopes/terrain between the dead end and the other tie-in point is certified as geotechnically unstable by a qualified professional geotechnical engineer.
E. It is necessary to purchase easements to run a water line through existing developed lots.

The District reserves the right to require certain dead ends to be connected even though they meet the above conditions. No services shall be permitted to be tapped on cross-country water mains. All dead end lines must be provided with a properly sized blow-off assembly, flush hydrant or fire hydrant. Flushing device should be sized to flow a velocity of at least 2.5 feet per second in the water main being flushed. No flushing device shall be directly connected to any sewer.

Cul-de-sacs streets of less than 300 feet long may be considered for the installation of a 4" D.I. looped water main for the elimination of the dead end. A fire hydrant shall be installed at the intersection of the cross street and a valve installed between the two tees for the 4" line.

1.08 MULTIPLE WATER MAIN FEEDS A minimum of two supply sources shall be required for subdivisions of one hundred (100) customers or more, more than one street, and/or there is potential development area that exceeds the number of customers or streets previously mentioned.

1.09 MINIMUM WATER FLOW REQUIREMENTS The water main extension at the most remote location shall be able to provide a minimum fire flow of 250 gpm for the installation of fire hydrants and the water system supporting this flow has the capability of providing this flow for a period of not less than two (2) hours plus consumption at the maximum daily rate. A minimum of 30 psi must be available on the discharge side of all meters. All water mains, including those not designed to provide fire protection, shall be sized after a hydraulic analysis based on flow demands and pressure requirements. If the water system cannot support the installation of fire hydrants, anchoring tees and valves shall be installed to allow for future fire hydrant installation when adequate water is available. If the water system extension is part of a subdivision development, the developer will be responsible for installing the anchoring tees and valves as described above and providing the District with a fire hydrant for each tee and valve installed as part of the subdivision. These fire hydrants will be installed by the District after water main improvements are made in the area which support the installation of fire hydrants.

1.10 HIGH PRESSURE AREAS Additional requirements may be necessary for high-pressure areas (125 psi static pressure or higher) as determined by the District.

1.11 VALVES Sufficient valves as determined by the District shall be provided on water mais so inconvenience and public health hazards are minimized during repairs, and their location shall be approved by the District. All valves shall be operated by or under the direction of District personnel only. Valves shall be installed at each end of cross-country water mains, and at separation of no greater than 1000 feet in urban residential areas; 500 feet in commercial areas; 1 mile in rural areas with few residents.

1.12 FIRE HYDRANTS Fire hydrants shall be connected only to water mains adequately sized to carry fire flows and in no case to lines smaller than six (6) inch. Fire hydrant spacing shall be as recommended by the Northern Kentucky Area Planning Commission and the local fire department. Fire hydrants shall be located on or as close to side property lot lines as possible. Fire hydrants installed as part of a water main replacement project are to be replaced in approximately the same location as the existing one. Additional hydrants may be added when they are required for air release or flushing purposes as determined by the District.

1.13 PARALLEL INSTALLATION OF WATER AND SEWER LINES A 10' minimum lateral separation between water mains and sewers (defined as any sanitary/combined sewer, septic tank or subsoil treatment system) and sewer manholes, measured from the outside diameter to outside, must be maintained. When a 10' separation is not practical then a variance may be obtained from DOW to maintain an 18" vertical and 18" lateral separation. No variances will be permitted for force mains.

REVISION | BY | DATE

N. KY. WATER DISTRICT
SPECIFICATIONS

DRAWN BY: SAR
APPROVED: RH
DATE: 8/5/2014
STANDARD DRAWING NO: 100-A

1.14 CROSSING OF WATER AND SEWER LINES Waterlines crossing under or over sewers lines (defined as any sanitary/combined sewer, septic tank or subsoil treatment system) must maintain a minimum vertical clearance of 18" and one full length of pipe shall be located so both joints are as far from the sewer as possible. Special Structural support for the water and sewer pipes may be required.

1.15 PARALLEL INSTALLATION WITH OTHER UNDERGROUND UTILITIES- Water mains should maintain a minimum lateral separation of 3 feet from all other underground utilities whenever possible, with the exception of sewers as stated elsewhere in these specifications.

1.16 WATER CROSSINGS Surface water crossings, both over and under water, present special problems which should be discussed with the District before improvement plans are prepared. Over water crossings, the pipe shall be adequately supported, protected from damage, freezing, and accessible for repair or replacement. The pipe shall be of special construction having flexible, watertight joints. Valves shall be provided at both ends of water crossings so that the section can be isolated for test or repair. Where the water main is constructed under a blue line stream, the pipe shall be protected with concrete encasement. This encasement shall extend a distance equal to the width of the channel measured from top of bank to top of bank. The encasement shall be per Standard Drawing No. 110. Valves shall be installed on each side of the water crossing in areas not subject to flooding when the crossing water courses greater than 15 feet in width (bank to bank). Permanent taps shall be installed on each side of the system side valve for leakage and sampling purposes. The Developer will be responsible for meeting the requirements of 401 KAR 4:050 and KRS 151.250 for sub-fluvial pipe line crossings.

1.17 SAFETY The "Manual of Accident Prevention In Construction" published by the Associated General Contractors of America, O.S.H.A Regulations and other state and local safety regulations shall be followed.

1.18 MAINTENANCE PERIOD The Developer shall be responsible for the maintenance of the installed water mains and appurtenances to District Standards for a period of not less than one (1) year from the date the water main is placed in service by the District. Approximately ten (10) months after the main is placed in service, an inspection will be conducted by the District to ensure that the water main and appurtenances were installed and maintained to District standards. If the 10-month inspection reveals that the installation does not meet District standards, the developer will be notified in writing to correct all discrepancies and/or problems within 60 days after notification. If the problems are not corrected within the 60-day period, the District shall make the corrections at the expense of the Developer. The Developer shall then be billed by the District at a rate of time and material plus overhead or at the rate of actual cost plus overhead when done by an available contractor hired by the District. Payment is required within 30 days of invoice date. Non-payment of invoice after 45 days by the Developer creates an indebtedness to the Water District, which violates Water District's Tariff. This indebtedness to the Water District will result in no future water being provided to the Developer on all existing and future water main projects and/or phases until all indebtedness is paid in full.

1.19 APPLICATION FOR SERVICE Application for water service will only be accepted after the water main bacteria samples are shown to be negative following disinfection and the main is placed in-service by the District. No service installation will be scheduled until the water main is approved and turned on.

1.20 CONDUITS FOR WATER SERVICES IN ROCKY AREAS The Developer is responsible for notifying the District when rocky conditions are found in a development which could affect the installation of customer water service lines. The Developer shall give sufficient notification to the District to facilitate the installation of conduits before the street is installed. If a street is installed in a rocky area without conduits, the Developer may be responsible for any additional cost incurred.

1.21 ORGANIC CONTAMINATION Mains installed within 200 feet of petroleum tanks and other areas of organic contamination must be ductile iron pipe.

PART II - MATERIALS

2.01 WATER MAIN PIPE AND FITTINGS

A. Minimum Class 50 Ductile Iron Pipe (D.I.P) - A minimum of Class 50 Ductile Iron pipe shall conform to the latest edition of AWWA C151. All pipe shall be clearly marked as to class by the manufacturer "Push-on single gasket" type joints shall conform to the latest edition of AWWA C-111. Pipe shall have a standard thickness cement mortar lining in conformance with AWWA C-104.

Under no conditions shall pipe line deflection measured between joints exceed the manufacturer's published recommended standard for that type of pipe. The maximum deflection at push-on joints and/or mechanical joints shall be 5 degrees or as recommended by Manufacturer. All D.I.P. shall be blue polyethylene wrapped.

B. Polyvinyl Chloride Pipe (P.V.C.) - D.R. 18, P.V.C. pipe shall conform to the latest edition of AWWA C900, must be NSF approved and manufactured in accordance with ASTM standards. All pipe shall be clearly marked as to class by the manufacturer. The outside diameter shall be equivalent to D.I.P. Pipe shall have gasket bell end type joints furnished complete with gaskets meeting the latest edition of ASTM F477. Solvent weld joints are prohibited.

P.V.C. pipe shall be permitted for use in residential subdivisions and along city and county roads as approved by the District. Pipe size shall be limited to 6", 8" & 12". P.V.C. pipe shall not be installed in high pressure areas where the static system pressures exceeds 125 psi or other system conditions exist which increase pressures over 125 psi. as determined by the District. P.V.C. pipe cannot be used for cross country lines, along state highways, water crossings, or installed within 200 feet radius of oil or gasoline lines, underground storage tanks, petroleum storage tanks or pumping stations.

P.V.C. pipe may be tied into an existing ductile iron main in a subdivision when the extension is over 450 linear feet of main, or when the pipe is installed around a cul-de-sac or a dead-end street with no possible extension of the street as approved by the District. Transition between D.I.P. and P.V.C. pipe shall be made with some type of ductile iron fitting.

Beveled spigot ends must have a minimum bevel of 8 degrees to a maximum bevel of 15 degrees. The vertical face of the spigot end may not exceed 75% of pipe wall thickness and the horizontal length of the bevel shall not exceed 1.25 inches. Field beveled spigot end shall be made per manufacturers recommendation and as approved by the District. The degree of bevel shall be approved for the type of pipe being installed.

P.V.C. Pipe Shipping, Handling & Storage - The front end of all pipe delivered by truck shall be covered for protection against exhaust fumes.P.V.C. pipe shall be protected from exposure to sunlight according to manufacturer's recommendations. Pipe will not be accepted for installation if discoloration is evident due to sunlight or other exposure. Pipe shall be stored in such a manner to prevent beaming the pipe.

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C. Molecularly Oriented Polyvinyl Chloride Pressure Pipe (P.V.C.O.) P.V.C.O. pipe shall conform to the latest edition of AWWA C909, must be NSF approved and manufactured in accordance with ASTM standards. All pipe shall be clearly marked as to class by the manufacturer. The outside diameter shall be equivalent to D.I.P. Pipe shall have gasket bell end type joints furnished complete with gaskets meeting the latest edition of ASTM D3139. Solvent weld joints are prohibited. P.V.C.O. pipe installation shall follow the P.V.C. C-900 Standards - Part II -Materials, 2.01, Section C of these specifications.

D. Polyethylene Pipe - Class 200, S.D.R. 9, 200 psi, ASTM D-2737, P.E. pipe shall conform to the latest edition of AWWA C901, must be NSF approved and manufactured in accordance with ASTM standards. All pipe shall be clearly marked as to class by the manufacturer. The outside diameter shall be equivalent to Copper Tubing Size (CTS). The P.E. pipe shall be homogeneous throughout and free of visible cracks, holes, kinks, foreign inclusions or other defects. It shall be uniform in color, opacity, density and other physical properties. Solvent weld joints are prohibited.

P.E. pipe shall be permitted for use in residential subdivisions cul-de-sacs only as approved by the District. Pipe size shall be limited to 2". P.E. pipe shall not be installed in high pressure areas where the static system pressures exceeds 125 psi or other system conditions exist which increase pressures over 125 psi. as determined by the District. P.E. pipe cannot be used for cross country lines, along state highways, water crossings, or installed within 200 feet radius of oil or gasoline lines, underground storage tanks, petroleum storage tanks or pumping stations.

P.E. pipe expands and contracts when exposed to temperature changes, allowances shall be made during installation. Normally P.E. pipe will "snake" itself in the trench enough to provide sufficient slack. An extra 6" per 100' of pipe per 45 F temperature change should be added to compensate for thermal conditions.

E. Tracing Wire All water mains, including out-of-service stubs intended for future extension, shall be installed with copper tracing wire (P.V.C. coated) taped to the top of the pipe every 5'. Maximum tracing wire length shall be 500' without terminating in a curb stop box. Curb stop boxes shall not be located in the pavement areas. Splices in the tracing wire shall be kept to a minimum and approved by the District. If splices are required they shall be made with copper split bolt (lisco #ik-8 or approved equal) and taped with electrical tape. Jumper wires must be run from the main tracing wire and secured to all water meter service lines.

F. Fittings - All fittings and accessories shall be Ductile Iron, rated for a minimum of 200 psi working pressure or as specified herein. The fittings and accessories shall be new and unused. (NOTE: Certain areas of the Northern Kentucky Water District require materials used, to be of a higher working pressure than 200 psi.) All pipe fittings shall be mechanical joint fittings. Mechanical joints shall conform to AWWA C111. Bolts and nuts shall be high strength, corrosion resistant alloy, such as "Cor-Ten" or approved equal. Ductile Iron Compact Fittings shall conform to AWWA C153 and Full Body Fittings to AWWA C110. A bituminous seal coat shall be applied to the outside of the fitting. All ductile iron fittings shall be cement lined and seal coated in accordance to AWWA C104.

2.02 POLYETHYLENE WRAP All ductile iron pipe, fittings, valves, and fire hydrant leads shall be polyethylene wrapped, installed according to the current edition of AWWA C105. Polyethylene wrap shall be blue in color. Ductile iron fittings,valves, and fire hydrant leads used in the installation of P.V.C. pipe shall be included. Polyethylene wrap shall be 8-mill thickness low-density film or 4-mil thickness high-density cross-laminated polyethylene tube per AWWA C105. The contractors shall cut the roll in tubes 2 feet longer than a standard length of pipe.

Each tube shall be slipped over the length of pipe, centering to allow a one foot overlap on each adjacent pipe section. After the lap is made, slack in the tubing shall be taken up for a snug fit, and the overlay shall be secured with polyethylene tape. Pipe shall not be wrapped and stored on site for any period of time, but wrapped and immediately placed in the trench, fittings shall be wrapped prior to installing blocking or pads. (see Standard Drawing #104) Polyvinyl chloride pipe requires no wrap. Odd shaped appurtenances such as valves, tees, fittings, and other ferrous metal pipeline appurtenances shall be wrapped by using a flat sheet of polyethylene. Wrapping shall be done by placing the sheet under the appliances and bringing the edges together, folding twice, and taping down.

2.03 VALVES All valves shall open by turning counter-clockwise with the operation of a 2 inch square operating nut. All valves shall have openings through the body of the same circular area as that of the pipe to which they are attached. Valves shall have mechanical joint ends except Tapping Valves.

A. GATE VALVES Valves 12 inches and smaller shall be resilient seated gate valves, non-rising stem with rubber "O" ring packing seals, rated at 250 psi working pressure and conform to the applicable portions of AWWA Standard C509, Latest Edition. High pressure gate valves shall be required when the pressure exceeds 200 psi. Valve bodies shall be ductile iron, glands shall be the same material as the valve. All external dome and packing bolts shall be stainless steel. The valves shall open by turning counter-clockwise. All valves shall have openings through the body of the same circular area as that of the pipe to which they are attached. Valves shall have mechanical joint ends unless otherwise shown on the plans or directed by the District. An extension stem shall be furnished if required, to bring the operating nut within 3-1/2 feet of finished grade. Extension stems shall be securely fastened to the valve stem. The Contractor shall make all valves tight under their working pressures after they have been placed and before the main is placed in operation.

B. TAPPING SLEEVE AND VALVES - No tapping sleeves and valves unless approved by Northern Kentucky Water District. Tapping sleeves and valves shall be designed for a working pressure of 200 psi. The tapping sleeve together with the tapping valve shall be tested at 250 psi for visible leakage before the main is tapped. Tapping sleeve and valve used in high pressure areas shall be tested at 350 psi.

1. Tapping Sleeves - Tapping sleeves shall be a two piece body with mechanical joint type ends, and be so designed as to assure uniform gasket pressure and permit centering of the sleeve on the pipe. Stainless steel type tapping sleeves with full gasket maybe considered, but will need to be approved by the District prior to installation.

2. Tapping Valves - Tapping valves shall be resilient seated gate valves, rated at 200 psi (unless installed in high pressure service area) and conform to the applicable portions of AWWA Standard 509, latest edition except that the seat rings shall be oversized to permit entry of the tapping machine cutter. All external dome and packing bolts shall be stainless steel. Tapping valves shall be ductile iron body, non-rising stem with rubber "O" ring packing seals. Tapping valves shall have a flange on one end for bolting to the tapping sleeve and a mechanical joint type end connection on the slotted standard flange or other adapters for connection to the tapping machine.

C. BUTTERFLY VALVES Valves 16 inches and larger shall be ductile iron body butterfly valves rated at 250 psi working pressure and conform to AWWA Standard C504, Latest Edition. District shall approve all butterfly valves before installation. The contractor shall be required to transport all butterfly valves to Water District's Warehouse for testing.

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D. VALVE STEM EXTENSIONS A valve stem extension shall be installed by the contractor to bring the operating nut within 2 1/2 to 3 1/2 ft. of final grade. Extension stems will be supplied by the Water District if the extension is justified. The contractor shall measure the needed length and provide a minimum of 48 hours notice for receipt of stem extension.

2.04 VALVE BOXES All valves shall be provided with valve boxes. Valve boxes shall be of standard, adjustable, heavy duty cast iron extension type, two piece, 5 1/4 inch shaft, screw type, and of such length as necessary to extend from valve to finished grade, Tyler #562-S, Tyler #564-S or approved equal. Valve box cover shall be stamped "Water". Tops shall be set at final established grade. If valve boxes are not of sufficient height to bring the top of the box to final grade, a section of 6" ductile iron pipe for pavement areas and 6" PVC for non-pavement areas may be used to extend the valve box to final grade with prior approval from the District. The length of pipe shall permit the valve box to be adjusted up and down. All valves will be installed with a box-lok type valve box centering ring or approved equal.

2.05 FIRE HYDRANTS All fire hydrants shall have auxiliary valves for isolating water flow to the hydrant. All fire hydrants and auxiliary valves shall be positively locked to the water main by restrained joints, hydrant adapters, or other approved method. Hydrants shall be designed to 200 psi working pressure and shall be shop tested to 300 psi hydrostatic pressure with the main valve both open and closed. High pressure fire hydrants will be required when pressures exceed 150 psi.

The barrel shall have a breakable safety section and/or base bolts just above the ground line. Hydrants shall have a main valve opening of 5 1/4 inches, a 6 inch mechanical joint inlet to be suitable for setting in a trench 3' 6" deep minimum, and shall be the traffic style hydrant so that the main valve remains closed when the barrel is broken off. Hydrants shall have a dry top and shall be self draining, when the main valve is closed. Self draining hydrants shall drain to dry wells provided exclusively for that purpose. Hydrant drains shall not be connected to storm or sanitary sewers. Hydrants located generally in the Covington System and other areas determined by the District (flood zones) shall have all drain holes plugged prior to installation. Hydrants shall be rotatable in a minimum of eight (8) position in 360 degrees.

All hydrants shall have two (2) - two and one half (2 1/2) inch hose nozzles and one (1) steamer or pumper connection threaded to conform to Northern Ky. Water District's Standards: steamer nozzle shall be National Standard Thread and 2 1/2" outlets shall be Old Cincinnati Thread. The operating nut and the nuts of the nozzle caps shall be square in shape, measuring one (1) inch from side to side. Hydrant body shall be painted yellow for areas designed for 150 psi working pressure and red for areas in excess of 150 psi.

All hydrants shall be right hand open, clockwise, except in areas of Campbell County (Ft. Thomas, Alexandria, Cold Springs, Melbourne, Highland Heights, Wilder, Southgate & county areas) as determined by the District, and shall have a direction arrow of operation cast into the dome of the hydrant. Installation per Standard Drawing 109.

The following fire hydrants are approved for installation in the District's system: Mueller, Waterous, U.S. Pipe, M & H, Kennedy and American Darling.

2.06 PRESSURE REDUCING VALVES Pressure reducing valves will be installed by the District in regular 2" and smaller meter settings when the static system pressure is at or above 125 psi for new and old services when deemed necessary by the District. Pressure reducing valves are only installed to protect the meter. The District will not be liable for any damage due to pressure conditions caused by or arising out of the failure or defective condition of such pressure regulator or for damage that may occur through the installation, maintenance, or use of such equipment.

2.07 AIR RELEASE VALVES AND/OR TAPS Air release valves shall be installed in the high points of the water mains where hydrants are not installed and as required by the District and in accordance with Standard Drawing No. 106. 8" and smaller water mains, tap size and piping shall be 3/4", 12" water main-1",& 16" and larger water main-2". Temporary taps of suitable size may be required at certain points on the water main for the release of air for filling and/or flushing purposes. Temporary taps will be removed and plugged after use. The air relief vent of automatic air release valves, where practial, may be extended to a distance of at least 1 foot above the grade and installed with a screened, downward facing elbow. Manually operated air release valves shall include a camlock-type coupling and waste valve.

2.08 STEEL CASING PIPE Casing pipe shall be steel pipe with a minimum yield strength of 35,000 psi with a minimum wall thickness as listed below:

Nominal Diameter Casing Pipe	Normal Wall Thickness	Nominal Diameter Casing Pipe	Normal Wall Thickness
Under 14"	0.251"	26"	0.438"
14" & 16"	0.282"	28" & 30"	0.469"
18"	0.313"	32"	0.501"
20"	0.344"	34" & 36"	0.532"
22"	0.375"	38", 40", & 42"	0.563"
24"	0.407"	48"	0.626"

The inside diameter of the casing pipe shall be at least four (4) inches greater than the outside diameter of the carrier pipe joints. Steel casing sections shall be connected by welding, conforming to AWWA C206. All carrier pipe placed in steel casing pipe shall be minimum class 50 ductile iron pipe and conform to the latest edition of AWWA C151. Carrier pipe gaskets shall develop a wedging action between pairs of high-strength stainless steel elements spaced around the gasket (FIELD LOK , FASTGRIP or approved equal gaskets). Adequate pipe spacers shall be installed to ensure that the carrier pipe is adequately supported in the center of the casing pipe throughout it's length, particularly at the ends to offset settling and possible electrical shorting. Manufactured pipe spacers shall be installed per manufacture's installation requirements. There shall not be any metallic contact between the casing and carrier pipe. Casings shall have both ends sealed up in such a way as to prevent the entrance of foreign material. See Standard Drawing #114 for installation details.

PART III - INSTALLATION OF WATER MAINS AND APPURTENANCES

3.01 GENERAL Installation of water mains and appurtenances shall conform to the latest edition of AWWA Standard C600 for D.I.P, C605 for P.V.C. type pipe and C901 for P.E. Water main pipe and fittings shall be laid on a good level foundation with no gaps or humps under the pipe or fittings. Excavation shall be done by hand at joints to prevent the pipe and fittings from being supported by the mechanical joint or slip joint bell. Transition between D.I.P. and P.V.C. type pipe shall be made with some type of ductile iron fitting. Repairs to or section replacement of D.I.P. shall not be made using P.V.C. materials. Pipe shall be laid with the bell ends facing in the direction of laying.

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This document, originally issued, sealed, and signed by Alan A. Bryan, Kentucky Professional Engineer, No. 20964, on 5-18-15, shall not be used in lieu of a certified document.

GRW PROJECT NO. 4325
CLIENT PROJECT NO.

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CONFORMANCE SET (BID OPENING DATE 4-30-2015)

NKWD STANDARD SPECIFICATIONS

DUDLEY COMPLEX SODIUM HYPOCHLORITE BUILDING
CITY OF EDGEWOOD, KENTUCKY

DESIGNED:	DRAWN:	REVIEWED:	APPROVED:
AAB	MBS	AAB	AAB

REVISIONS

NO.	DESCRIPTION	BY	DATE

SCALE CHECK: THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

DATE: MAY, 2015
SCALE: AS SHOWN
SHEET NO.
C-701

PLOTTED BY: rseebold
PRINTED: 5/19/2015 @ 9:44AM
FILE NAME: U:\4325-NKWD Sdm\HypoBld\Working Drawings\4325-C-701.dwg

The interior of the pipe shall be thoroughly cleaned of foreign matter before being lowered into the trench and shall be kept clean during laying operations. ALL OPEN ENDS ARE TO BE CLOSED WITH CAPS OR PLUGS AT ALL TIMES WHEN PIPE LAYING OPERATIONS ARE NOT IN OPERATION AND AT THE END OF THE DAY. All caps or plugs shall be properly installed and blocked in advance of filling, flushing, and testing mains. All securing and blocking shall be inspected by the District prior to back filling of ditch.

If the existing water main material being tapped or connected to is asbestos concrete, then during the process of tapping the asbestos concrete water main, the contractor shall conform to OSHA regulations governing the handling of hazardous waste. Pieces of asbestos concrete resulting from the tap shall be doubled bagged, placed in a rigid container and disposed of in an approved landfill.

3.02 CONTRACTORS RESPONSIBILITY All work performed on any water mains and/or appurtenances that are owned or anticipated to be owned by the District shall be completed under the direction of the District adhering to an acceptable plan approved by the District. A minimum 24 hours notice shall be given to the District by the contractor prior to the start of water main work. One set of District approved plans shall be on the job site during construction. Water main construction will not be permitted to start until all pprovals are received. There shall be no deviation from the approved plans without written approval from the District.

A. If the interruption of service to any customer of the District is necessary, the Contractor shall make arrangements to provide such shutdown and notify District customers at the direction of the District Inspector. All private residents shall be notified no less than 48 hours and all businesses commercial and Industrial customers shall be notified no less than 1 week prior to the interruption of service. All shutdowns shall be coordinated with the effected residents, with priority given to any special needs customers such as hospitals, schools, and customers with medical needs.

B. Contractor shall be responsible for relieving any water main pressure (whether air or water) before removing any cap, plug, fire hydrant, valve, etc.

3.03 HANDLING Pipe, fittings, valves, hydrants, and accessories shall be loaded and unloaded by lifting with hoists or skidding so as to avoid shock or damage. Pipe hooks that extend inside the ends of the pipe shall not be used for handling the pipe since they could damage the lining. Under no circumstances shall such materials be dropped. Pipe handled on skid ways shall not be skidded or rolled against other pipe. All bolts shall be tightened with proper wrenches and must have equal tension. The interior of all pipe, fittings and other accessories shall be kept free from dirt and foreign material at all times. When handling P.V.C., P.V.C.O. & P.E. pipe care should be taken to avoid abrasion damage, gouging of the pipe, rocks, and any stressing of the bell joints or damage of the bevel ends.

3.04 TRENCHING, GRADE, AND COVER Typically no trenching or laying of pipe or fittings shall be done until pavement (curbs) has been installed. In cases where water main installation is required under new pavement (side streets) main may be installed from trench stakes. When main installation is done prior to the pavement completion, test holes may be required by the District if valve depth, service taps or other evidence indicates that the minimum or maximum cover requirements are not met or that the main is in the wrong location. The contractor will be responsible for digging test holes at intervals required by the District to verify depth and location.

All trenching, grade, and cover work shall conform to the lines and grades established, and shall be done according to the drawings and specifications, subject to such modifications as the District may determine to be necessary during the execution of the work. Trenches for water lines shall be of a depth that will provide a minimum cover over the top of pipe of three (3) feet and a maximum of four (4) feet from the final finished grade. Cover over four feet in depth will not be allowed unless approved by the District to avoid interference with other utilities. Kentucky Dept. of Transportation requires a minimum of 42" of cover for water mains along state highways.

The Contractor shall establish all locations, lines, and grades in advance of all work where practical. In addition the Contractor will keep the Northern Kentucky Water District informed a reasonable time in advance of the times and places in which the Contractor intends to work (minimum advance notice shall be one working day, 24 hours).

3.05 TRENCH EXCAVATION

A. TRENCH WIDTH Widths of trenches shall be held to a minimum to accommodate the pipe and appurtenances. The trench width shall be measured at the top of the pipe barrel and shall conform to the following limits:

Earth

Minimum - outside diameter of the pipe barrel plus 8 inches, 4 inches each side of pipe.
Maximum - nominal pipe diameter plus 24 inches.

Rock

Minimum - 24" or less, nominal pipe size: outside diameter of pipe barrel plus 12 inches, @ 6 inches each side.
Minimum - Larger than 24", nominal pipe size: outside diameter of pipe barrel plus 18 inches, @ 9 inches each side.
Maximum - nominal pipe diameter plus 24 inches.

B. BUTTERFLY VALVES
Trench width shall be over excavated 24" on the side that the operating mechanism is located on the butterfly valve when the surrounding area cannot be hand dug.

3.06 BOTTOM PREPARATION The Contractor shall use excavation equipment that produces an even (remove) foundation. For the entire length of the trench, a compacted 3" layer of sand, shall be installed below the pipe. Bell holes and depressions for joints, valves, and fittings shall be dug after the trench bedding has been graded in order that the pipe rest upon the prepared bedding for as nearly its full length as practicable. Bell holes and depressions shall be only of such length, depth, and width as required for properly making the particular type of joint.

3.07 UNSTABLE SUB-GRADE MATERIAL When the sub-grade is found to include non-approved backfill material (rock, refuse, organic material, etc.), such material shall be removed to a minimum of six (6) inches below the bottom of the pipe and backfilled with sand, backrun or granular material and thoroughly compacted.

3.08 UNSTABLE SUB-GRADE If the material forming the trench bottom is not suitable for a good foundation, a further depth shall be excavated and backfilled with an approved backfill material and thoroughly compacted or a foundation shall be constructed using piling, treated timbers, concrete, or other materials as directed and approved by the District.

3.09 PIPE LAYING Pipe shall be laid with bell ends facing in the direction of laying. After placing a length of pipe in the trench, the spigot end shall be centered in the bell and the pipe forced home. All pipe shall be laid with ends abutting and true to line and grade. Deflection of pipe joints in excess of the manufacturer's recommendations shall not be permitted. Caps or plugs shall be installed to prevent the entrance of foreign material whenever pipe laying operations are not in progress.

3.10 PIPE CUTTING Cutting of pipe for installing valves, fittings, or hydrants shall be done in a neat and workmanlike manner without damage to the pipe or lining. The end shall be smooth and at right angles to the axis of the pipe. Flame cutting of metal pipe by means of an oxyacetylene torch shall not be permitted.

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3.11 PUSH-ON JOINTS The surfaces with which the rubber gasket comes in contact shall be thoroughly cleaned just prior to assembly. The gasket shall then be inserted into the groove in the bell. Before starting joint assembly, a liberal coating of special lubricant, per manufacturers recommendation, shall be applied to the spigot end. (Special lubricant shall be suitable for use in potable water) With the spigot end centered in the bell, the spigot is pushed home per manufacturers recommendations. Insertion of spigot into PVC type pipe bell should be inserted until the reference mark is flush with the end of the bell. Over insertion of the pipe is not recommended per the manufacturer. Pipe joint materials which prevent permeation by petroleum products shall be used within 200 foot radius of oil or gasoline lines, underground storage tanks, petroleum storage tanks or pumping stations.

3.12 MECHANICAL JOINTS Mechanical joints for D.I.P. and P.V.C. type pipe require that the spigot be carefully located in the bell. The surfaces with which the rubber gasket comes in contact shall be thoroughly cleaned just prior to assembly. These clean surfaces shall be brushed with a special lubricant just prior to slipping the gasket over the spigot end and into the bell. (Special lubricant shall be suitable for use in potable water) The lubricant shall also be brushed on each gasket prior to installation to remove the loose dirt and lubricate the gasket as it is force into its retaining space. P.V.C. type pipe spigot ends shall be field cut smooth and at right angles to the axis of the pipe for installation in mechanical joint fittings. Care shall be taken to ensure that the P.V.C. plain end is completely home into the mechanical joint fitting.

3.13 RESTRAINED JOINTS Restrained joint-type pipe and fittings shall only be used as approval by the District. Retaining glands, field lock gaskets, or retaining flanges maybe used as temporary blocking but shall not be considered as providing a permanent restrained joint or as an alternate for permanent concrete blocking. The use of these type of restraining joints need to be approved by the District prior to installation.

3.14 SETTING VALVES Valves shall be set on a firm solid concrete block foundation so that no load will be transferred to the connecting pipe. Valves in water mains shall, where possible, be located on the side property lines extended, unless otherwise shown on the plans. A valve box shall be provided for every valve. The valve box shall not transmit shock or stress to the valve and shall be centered and plumb over the operating nut of the valve. The box cover shall be set flush with the surface of the finished pavement unless otherwise shown. All valves boxes with the exception of isolating valves for fire hydrants that are located in non-paved areas shall have a minimum 2' by 2' by 4" concrete pad as shown in Standard Drawing No. 105, unless a smaller pad is approved by the District.

3.15 SETTING FIRE HYDRANTS Hydrants shall be located as shown on the plans or as directed by the District. The location shall provide complete accessibility and minimize the possibility of damage from vehicles or injury to pedestrians. All hydrants shall stand plumb with the pumper nozzle facing the curb. Hydrant shall be set to the established grade, with the traffic flange within 4" above final grade in accordance to Standard Drawing No. 109. Each hydrant shall be controlled by an independent gate valve with valve box. All valves used for hydrant control shall be anchored to the branch tee. Fire hydrant barrel extension shall be limited to a one piece assembly only, stacking two or more extensions is prohibited. Maximum fire hydrant barrel extension is 2 feet.

3.16 CROSS-COUNTRY WATER MAINS All cross-country water mains shall be installed with a tracing wire as described in Part II, Section 2.01 - F- Tracing Wire.

3.17 THRUST BLOCKING All bends over five (5) degrees shall be securely blocked against movement with concrete thrust blocks placed against undisturbed earth in accordance with Standard Drawing No. 104 & 104-A. Thrust blocks shall be approved by the District prior to backfilling. Water mains shall have concrete thrust block at all pipe intersections and changes of direction to resist forces acting on the pipeline. All concrete thrust blocks shall be poured in such a manner that the bolts can be replaced without disturbing the blocking. All caps or plugs used in mains to undergo hydrostatic test shall be properly installed and blocked in advance of testing mains. All caps or plug installations shall be approved by the District representative before the main is subjected to the pressure test. The District may permit the use of restrained type glands, gaskets, 3/4" welded eye bolts @ a 90 degree bend & 3/4" threaded rods or other means as prior approved by the District for temporary restraint only. Permanent concrete thrust restraint shall be provided with any temporary restraint. Duc-Lucs are prohibited for use.

3.18 TRENCH BACKFILL TO 12" OVER PIPE BARREL (REMOVED) All trench excavations shall be backfilled immediately after pipe is laid with the exception of thrust blocks. Compacted sand material shall be used to backfill the trench from the bottom of the pipe barrel to the 12" over the pipe barrel. Backfill material shall be free from cinders, refuse, organic material, boulders, top soil, frozen material, material with a high void content, rocks 1 1/2" or larger measured in any direction, sharp stones and crushed rocks larger than 3/4", or other materials which in the opinion of the District is unsuitable. No flushing of backfill shall be permitted to achieve compaction.

3.19 REMAINING TRENCH BACKFILL IN NON-PAVEMENT AREAS From 12" above the pipe barrel to the surface, excavated trench material may be used as backfill material or as required by local or county authorities. No material shall be used for backfill that contains frozen earth, vegetable or organic material, debris, rocks 8" or larger measured in any direction, or earth with an exceptionally high void content. Compaction of remaining trench backfill shall be as required by local or county authorities.

3.20 REMAINING TRENCH BACKFILL IN EXISTING PUBLIC ROADWAYS Roadway opening permits shall be obtained from the local City, County or Ky. State Dept. of Highways if applicable. The minimum requirements for backfill beneath all existing public roadways from 12" above the pipe barrel to sub-grade shall be flowable fill unless City, County, or State have additional requirements. The flowable fill shall comply with the latest edition of the Kentucky Transportation Cabinet/ Department of Highways "Standard Specifications for Road and Bridge Construction".The remaining trench backfill to final grade shall match the existing pavement/surface conditions.

3.21 DISINFECTION Water Mains designed to carry water for domestic consumption shall be thoroughly cleaned, flushed, and disinfected before being put in service and before acceptance by the District. Disinfection shall be done by the addition of suitable amounts of chlorine or liquid sodium hypochlorite in such amounts to produce a concentration of at least fifty (50) ppm and a residual of at least twenty five (25) ppm at the end of 24 hours and followed by thorough flushing. The application shall be as approved by the District and in accordance with AWWA C651 and applicable Ky. Division of Water requirements.The contractor shall be responsible for de-chlorination of the disinfection water. All non-disinfected fittings used for tie-ins or repairs shall be cleaned and swabbed with a hypochlorite disinfecting solution prior to installation. New water distribution lines shall not be placed into service untill bacteriological samples taken at the points specified in 401 KAR 8:150 Section 4 (2) are examined and are shown to be negative following disinfection. Disposal of chlorinated water will be in accordance with 401 KARS5:031. Coliform samples must be taken at connection points to existing mains, 1 mile intervals along new mains, and at all dead ends.

REVISION	BY	DATE

N. KY. WATER DISTRICT
SPECIFICATIONS

DRAWN BY: SAR
APPROVED: DH
DATE: 8/5/2014
STANDARD DRAWING NO: 100-F

A. TABLET METHOD Calcium hypochlorite tablets shall be installed in each length of pipe to insure a sufficient dosage of 50 ppm based on the following table:

Pipe Diameter	Tablets per Length
6"	2 ea. -5 gram tablets
8"	4 ea. -5 gram tablets
10"	6 ea. -5 gram tablets
12"	8 ea. -5 gram tablets
16"	14 ea. -5gram tablets

The tablets shall be attached by a food-grade adhesive such as Permatex No. 2 or Permatex Clear RTV Silicone Adhesive Sealant. Tablets shall be attached inside and at the top of the main with approximately equal numbers of tablets at each end of the pipe. Tablets must be water soluble.

B. LIQUID CHLORINE METHOD Disinfection may be done by the addition of suitable amounts of chlorine in the form of liquid sodium hypochlorite as per AWWA B300 to obtain the results as the previous method described. Note: Permission for this method of disinfection shall be obtained by the District prior to construction.

3.22 PRESSURE TESTING Pressure Testing must be in accordance with AWWA Standards C600. The water main being tested shall have all air expelled by additional flushing or the installation of taps on high points in the line. The pressure of the water main shall be gradually increased to obtain a minimum pressure of 100 psi over the design pressure (250 psi minimum) at the lowest elevation point of the water main or as directed by the District. The test will be for a two (2) hour duration and will not vary by more than 5 psi. All tests performed for each test section shall be witnessed and approved by a representative of the District, in the event any test is performed without a representative of the District, the Contractor shall be required to test the section again. Leakage is defined as the amount of water used to maintain the test pressure.

REVISION	BY	DATE

N. KY. WATER DISTRICT
SPECIFICATIONS

DRAWN BY: SAR
APPROVED: DH
DATE: 8/5/2014
STANDARD DRAWING NO: 100-G

GRW PROJECT NO. 4325

CLIENT PROJECT NO.

engineering | architecture | geospatial
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CONFORMANCE SET (BID OPENING DATE 4-30-2015)

NKWD STANDARD SPECIFICATIONS

DUDLEY COMPLEX SODIUM HYPOCHLORITE BUILDING
CITY OF EDGEWOOD, KENTUCKY

DESIGNED:	DRAWN:	REVIEWED:	APPROVED:
AAB	MBS	AAB	AAB

REVISIONS

NO.	DESCRIPTION	DATE	BY

SCALE CHECK: THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

DATE: MAY, 2015

SCALE: AS SHOWN

SHEET NO. C-702

THELEN ASSOCIATES, INC.

www.thelenassoc.com

Geotechnical • Testing Engineers

• 1398 Cox Avenue, Erlanger, KY 41018-1002 / 859-746-9400 / Fax 859-746-9408

Offices
Erlanger, Kentucky
Lexington, Kentucky
Cincinnati, Ohio
Dayton, Ohio

LOG OF TEST BORING

CLIENT: GRW Engineers, Inc.
PROJECT: Geotechnical Exploration, Sodium Hypochlorite Building
NKWD Dudley Complex, Edgewood, Kentucky
LOCATION OF BORING: As shown on Boring Plan, Drawing 140820E-1

BORING #: 1
PROJECT #: 140820E
PAGE #: 1 of 1

ELEV.	COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTIONS DESCRIPTION	Strata Depth (feet)	Depth Scale (feet)	Sample Condition	Sample Number	Sample Type	SPT* Blows/6" / Rock Core RQD (%)	Recovery (in.)	Recovery (%)
828.2	Ground Surface	0.0	0						
826.2	Mixed brown moist very stiff FILL, silty clay, trace organics and topsoil.	2.0		I	1	DS	2-4-5	18	100
821.2	Brown moist very stiff CLAY, trace organics, trace concretions (glacial) (CH).	7.0	5	I	2	DS	6-9-9	18	100
816.2	Mottled brown moist very stiff to hard CLAY, trace concretions, trace shale fragments, limestone floaters/fragments (glacial).	12.0		I	3	DS	6-7-6	18	100
813.7	Brown moist very stiff to hard SILTY CLAY, trace bedding planes, trace to little limestone floaters/layers (residuum).	14.5	10	I	4	DS	7-10-15	15	83
811.2	Interbedded brown moist extremely weak highly weathered SHALE and gray medium strong to very strong LIMESTONE (bedrock).	17.0		I	5	DS	5-4-4	18	100
810.1	Interbedded brown moist extremely weak, trace very weak weathered SHALE and gray medium strong to very strong LIMESTONE (bedrock).	18.1	15	I	6	DS	9-21-50	18	100
	Split spoon refusal and bottom of test boring at 18.1 feet.			I	7	DS	38-50/3"	9	100
			20	I	8	DS	48-50/1"	7	100
			25						
			30						

Datum: Mean Sea Level
Surface Elevation: 828.2 ft.
Date Started: 9/29/2014
Date Completed: 9/29/2014
Hammer Weight: 140 lb.
Hammer Drop: 30 in.
Pipe Size: 2 in. O.D.
Hole Diameter: 8 in.
Rock Core Diameter: --
Boring Method: HSA-3.25
Drill Rig: CME-55 TD-3
Foreman: J. Franz
Engineer: A. Saxena

BORING METHOD
HSA = Hollow Stem Augers
CFA = Continuous Flight Augers
DC = Driving Casing
MD = Mud Drilling

SAMPLE TYPE
PC = Pavement Core
CA = Continuous Flight Auger
DS = Driven Split Spoon
PT = Pressed Shelby Tube
RC = Rock Core

SAMPLE CONDITIONS
D = Disintegrated
I = Intact
U = Undisturbed
L = Lost

GROUNDWATER DEPTH
First Noted: None
At Completion: Dry
After: --
Backfilled: Immediately

* SPT = Standard Penetration Test - Driving 2" O.D. Sampler 18" with 140-Pound Hammer Falling 30"; Count Made at 6" Intervals

THELEN ASSOCIATES, INC.

www.thelenassoc.com

Geotechnical • Testing Engineers

• 1398 Cox Avenue, Erlanger, KY 41018-1002 / 859-746-9400 / Fax 859-746-9408

Offices
Erlanger, Kentucky
Lexington, Kentucky
Cincinnati, Ohio
Dayton, Ohio

LOG OF TEST BORING

CLIENT: GRW Engineers, Inc.
PROJECT: Geotechnical Exploration, Sodium Hypochlorite Building
NKWD Dudley Complex, Edgewood, Kentucky
LOCATION OF BORING: As shown on Boring Plan, Drawing 140820E-1

BORING #: 2
PROJECT #: 140820E
PAGE #: 1 of 1

ELEV.	COLOR, MOISTURE, DENSITY, PLASTICITY, SIZE, PROPORTIONS DESCRIPTION	Strata Depth (feet)	Depth Scale (feet)	Sample Condition	Sample Number	Sample Type	SPT* Blows/6" / Rock Core RQD (%)	Recovery (in.)	Recovery (%)
824.2	Ground Surface	0.0	0						
822.2	Mixed brown moist stiff FILL, silty clay, trace organics and topsoil.	2.0		I	1	DS	2-4-3	18	100
817.2	Brown moist hard CLAY, trace oxide concretions, trace limestone fragments (glacial) (CH).	7.0	5	I	2	DS	8-11-13	18	100
814.7	Brown, trace gray moist very stiff SILTY CLAY, bedding planes and limestone floaters/layers (residuum).	9.5		I	3	DS	8-9-9	18	100
809.7	Interbedded brown moist extremely weak highly weathered SHALE and gray medium strong to very strong LIMESTONE (bedrock).	14.5	10	I	4	DS	5-8-22	18	100
806.1	Interbedded gray, trace brown moist extremely weak slightly weathered SHALE and gray medium strong to very strong LIMESTONE (bedrock).	18.1		I	5	DS	16-29-50	18	100
	Split spoon refusal and bottom of test boring at 18.1 feet.		15	I	6	DS	34-35-50/5"	15	88
				I	7	DS	50/6"	6	100
			20	I	8	DS	26-50/1"	7	100
			25						
			30						

Datum: Mean Sea Level
Surface Elevation: 824.2 ft.
Date Started: 9/29/2014
Date Completed: 9/29/2014
Hammer Weight: 140 lb.
Hammer Drop: 30 in.
Pipe Size: 2 in. O.D.
Hole Diameter: 8 in.
Rock Core Diameter: --
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Drill Rig: CME-55 TD-3
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U = Undisturbed
L = Lost

GROUNDWATER DEPTH
First Noted: None
At Completion: Dry
After: --
Backfilled: Immediately

* SPT = Standard Penetration Test - Driving 2" O.D. Sampler 18" with 140-Pound Hammer Falling 30"; Count Made at 6" Intervals

GRW PROJECT NO. 4325

CLIENT PROJECT NO.

engineering | architecture | geospatial

www.grwinc.com

CONFORMANCE SET (BID OPENING DATE 4-30-2015)

GEOTECHNICAL TEST BORING LOGS

DUDLEY COMPLEX SODIUM HYPOCHLORITE BUILDING
CITY OF EDGEWOOD, KENTUCKY

DESIGNED:	DRAWN:	REVIEWED:	APPROVED:
AAB	MBS	AAB	AAB

REVISIONS

NO.	DESCRIPTION	DATE	BY

SCALE CHECK: THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

DATE: MAY, 2015

SCALE: AS SHOWN

SHEET NO. C-703

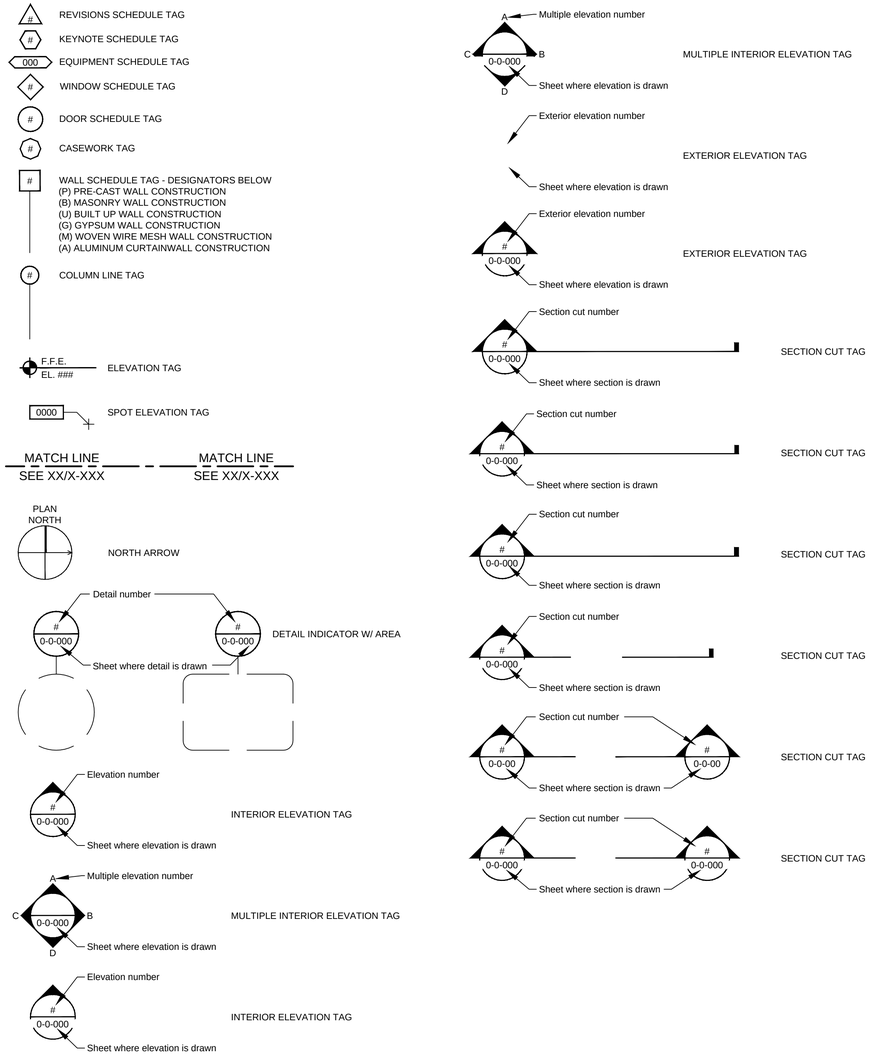
ARCHITECTURAL MATERIAL INDICATIONS

- EARTH (ORIGINAL GRADE)
- GRAVEL
- CONCRETE
- MORTAR - CEMENT - PLASTER - STUCCO
- CONCRETE MASONRY UNITS
- STEEL (CROSS SECTION)
- INSULATION (RIGID)
- INSULATION (LOOSE OR BATT)
- BRICK
- WOOD (BLOCKING)
- WOOD (FINISH)
- AGGREGATE BASE (LARGE SCALE - SECTION)

GENERAL ARCHITECTURAL NOTES:

1. REFER TO ENLARGED PLANS FOR ADDITIONAL DIMENSIONS INDICATED ON REFERENCE SHEETS.
2. DIMENSIONS THAT ARE NOT STATED AS "MAXIMUM" OR "MINIMUM" ARE ABSOLUTE.
3. CONTRACTOR SHALL NOT SCALE DRAWINGS FOR DIMENSIONAL USE.
4. ALL DIMENSIONS ARE TO FACE OF C.M.U. OR STUD, UNLESS NOTED OTHERWISE.
5. CONTRACTOR SHALL INSTALL ALL BUILDING COMPONENTS WITHIN CURRENT DIMENSIONAL REQUIREMENTS OF THE ADA ACCESSIBILITY GUIDELINES FOR BUILDINGS AND FACILITIES.
6. ALL EQUIPMENT SHOWN IN THE DRAWINGS IS TO BE CONTRACTOR FURNISHED AND INSTALLED UNLESS NOTED "NIC".
7. ALL WALL TYPES TO REFERENCE THE ARCHITECTURAL WALL TYPES SCHEDULE UNLESS OTHERWISE NOTED.
8. ALL CONC. STOOPS SHALL BE 2'-0" WIDER THAN DOOR OPENING - CENTERED WITH OPENING. DEPTH TO BE 1'-0" GREATER THAN DOOR WIDTH UNLESS NOTED OTHERWISE NOTED .
9. CONTRACTOR AND SUB-CONTRACTORS TO VERIFY ALL DIMENSIONS IN THE FIELD PRIOR TO BEGINNING CONSTRUCTION OR ORDERING MATERIALS.

ARCHITECTURAL SYMBOL KEY:



ABBREVIATIONS

A

A.C.	AIR CONDITIONED
ACOUST	ACOUSTIC TILE CEILING
ACOUST / P	ACOUSTIC WALL PANEL
ACOUST / S	ACOUSTIC TEXTURED SPRAY FINISH
A.D.	AREA DRAIN
ADA	AMERICANS WITH DISABILITIES ACT
ADDIT.	ADDITIONAL
A.H.U.	AIR HANDLING UNIT
ALT	ALTERNATE
ALUM.	ALUMINUM
AMP., A.	AMPERES
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
APPROX.	APPROXIMATELY
A.O.	ACCESS OPENING
ARCH.	ARCHITECTURAL
ARGB	ABUSE-RESISTANT GYP. BD.
A.T.	ASPHALT TILE
AV	AUDIO VISUAL

B

BAL.	BALANCE
BD.	BOARD
BLDG.	BUILDING
BLK.	BLANK
BM.	BEAM
BOT.	BOTTOM
B.O.	BOTTOM OF
BRG.	BEARING
B.T.U.H.	BRITISH THERMO UNIT/HOUR

C

℄	CENTER LINE
CAB.	CABINET
CAP.	CAPACITY
CARPT	CARPET
CARPTL	CARPET TILE
C/B	CIRCUIT BREAKER
C.D.	CEILING DIFFUSER
CEM.	CEMENT
CER.	CERAMIC
C.F.M.	CUBIC FEET/MINUTE
CIRC.	CIRCULATING
C.J.	CONTROL JOINT
CKT.	CIRCUIT
CL.	CLOSET
CLG.	CEILING
CMD	CORRUGATED METAL DECKING
C.M.U.	CONCRETE MASONRY UNIT
C.O.	CLEAN OUT
COL.	COLUMN
CONC.	CONCRETE
COND.	CONDENSATE
CONN.	CONNECTION
CONST.	CONSTRUCTION
CONT.	CONTINUOUS
CONTR. JT.	CONTRACTION JOINT
COORD.	COORDINATE
CT	CERAMIC TILE
CTB	CERAMIC TILE BASE

D

DEMO	DEMOLISH / DEMOLITION
DET.	DETAIL
DF	DRINKING FOUNTAIN
DIA.	DIAMETER
DIFF.	DIFFUSER
DIM.	DIMENSION
DISC.	DISCONNECT
D.J.	DUMMY JOINT
DN.	DOWN
DR.	DRAIN
D.S.	DOWN SPOUT
DWG.(S)	DRAWING(S)

E

EA.	EACH
E.C.	EMPTY CONDUIT
E.F.	EXHAUST FAN
E.J.	EXPANSION JOINT
ELEC.	ELECTRIC
ELEV.	ELEVATION
ENG.	ENGINEER
EP	EPOXY PAINT
EQUIP.	EQUIPMENT
E.W.C.	ELECTRIC WATER COOLER
EXH.	EXHAUST
EXT.	EXTERIOR
EXIST.	EXISTING

F

F.A.	FIRE ALARM
F.C.	FLEXIBLE CONNECTION
F.D.	FLOOR DRAIN
F.E.C.	FIRE EXTINGUISHER CABINET
F.F.E.	FINISH FLOOR ELEVATION
F.O.	FACE OF
FIN.	FINISH
FLR.	FLOOR
FT.	FOOT, FEET
FTG.	FOOTING
F.V.	FIELD VERIFY

G

GA.	GAGE
GAL.	GALLON
GALV.	GALVANIZED
GEN.	GENERAL
GL.	GLASS
GLAZ.	GLAZING
GND.	GROUND
G.P.H.	GALLONS/HOUR
G.P.M.	GALLONS/MINUTE
G.W.B.	GYPSUM WALL BOARD
GYP.	GYPSUM

H

H.	HIGH
H.&V.	HEATING AND VENTILATING
H.B.	HOSE BIBB
H.C.	HOLLOW CORE
HDWR.	HARDWARE
HGHT.	HEIGHT
H.M.	HOLLOW METAL
H.P.	HORSE POWER
HR.	HOUR
HTR.	HEATER
HTG.	HEATING
HYD.	HYDRANT

I

I.D.	INSIDE DIAMETER
I.E.	INVERT ELEVATION
IN.	INCHES
INCAND.	INCANDESCENT
INSUL.	INSULATION
INT.	INTERIOR
INTL	INTERNATIONAL

J

JAN.	JANITOR
J.B.	JUNCTION BOX
JCT.	JUNCTION
JT.	JOINT

K

KVA	KILOVOLT AMPERE
KW	KILOWATT

L

L.	LONG
LAV.	LAVATORY
LB.,#	POUND
L.P.	LIGHTING PANEL
LTG.	LIGHTING

M

MAINT.	MAINTENANCE
MAX.	MAXIMUM
M.D.P.	MAIN DISTRIBUTION PANEL
MECH.	MECHANICAL
MIN.	MINIMUM
MISC.	MISCELLANEOUS
M.O.	MASONRY OPENING
MRGB	MOISTURE-RESISTANT GYP.BD.
M.T.	METAL THRESHOLD
MTD.	MOUNTED
MTG.	MOUNTING
MTL.	METAL
M.V.	MECHANICAL VENTILATION
M.G.T.	MATT GLAZE TILE

N

N.A., N/A	NOT APPLICABLE
N.I.C.	NOT IN CONTRACT
NO.	NUMBER

O

O.C.	ON CENTER
O.D.	OUTSIDE DIAMETER
OH.	OVERHEAD
OPNG.	OPENING
OPP.	OPPOSITE
O.S.D.	OPEN SIGHT DRAIN

P

P.	PAINT
PART.	PARTITION
PER.	PERIMETER
P.I.	POINT OF INTERSECTION
PL.	PLATE
PLBG.	PLUMBING
PLY. WD.	PLYWOOD
PNL.	PANEL
P.O.T.	POINT ON TANGENT
PRE	PREFINISHED
PRESS.	PRESSURE
PRB	PROFILED RUBBER BASE
PSF	POUNDS/SQUARE FOOT
PSI	POUNDS/SQUARE INCH
PT.	POINT
PWD	PRE-ENGINEERED WOOD

Q

QT	QUARRY TILE
QTB	QUARRY TILE BASE
QTR.	QUARTER
QUAN.	QUANTITY

R

R.	RISER
R.A.	RETURN AIR
RAD.	RADIUS
RB	RESILIENT BASE
RD.	ROUND
RECD.	RECOMMENDED
RECIRC.	RECIRCULATING
RECP.	RECEPTACLE
REG.	REGISTER
REINF.	REINFORCING
REQ.	REQUIRED
RET.	RETURN
R.G.	RETURN GRILLE
RM.	ROOM
R.P.M.	REVOLUTION/MINUTE

S

S.	SUPPLY
SCH.	SCHEDULE
SECT.	SECTION
SERV.	SERVICE
SHT.	SHEET
S.J.	SLIP JOINT
SPEC.	SPECIFICATIONS
SQ. FT., SF	SQUARE FEET
ST	STAIN
STOR.	STORAGE
STRUCT.	STRUCTURAL
SUSP.	SUSPENDED
SV	SHEET VINYL

T

T	THICK/THICKNESS
TEL.	TELEPHONE
TEMP.	TEMPERATURE
THRESH.	THRESHOLD
T.O.	TOP OF
TYP.	TYPICAL

U

URIN.	URINAL
UTIL.	UTILITY

V

V.	VOLT
VCT	VINYL COMPOSITION TILE
VENT.	VENTILATION
VERT.	VERTICAL
VWC	VINYL WALL COVERING

W

W.	WATT
W/	WITH
W.C.	WATER CLOSET
WD.	WOOD
WF	WIDE FLANGE
W.W.F.	WELDED WIRE FABRIC

GRW PROJECT NO. 4325

CLIENT PROJECT NO.

engineering | architecture | geospatial
www.grwinc.com

CONFORMANCE SET (BID OPENING DATE 4-30-2015)

ARCHITECTURAL ABBREVIATIONS & SYMBOLS

DUDLEY COMPLEX SODIUM HYPOCHLORITE BUILDING
CITY OF EDGEWOOD, KENTUCKY

DESIGNED:	JMT
DRAWN:	JMT
REVIEWED:	SL
APPROVED:	SL

REVISIONS

NO.	DESCRIPTION	DATE	BY

THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

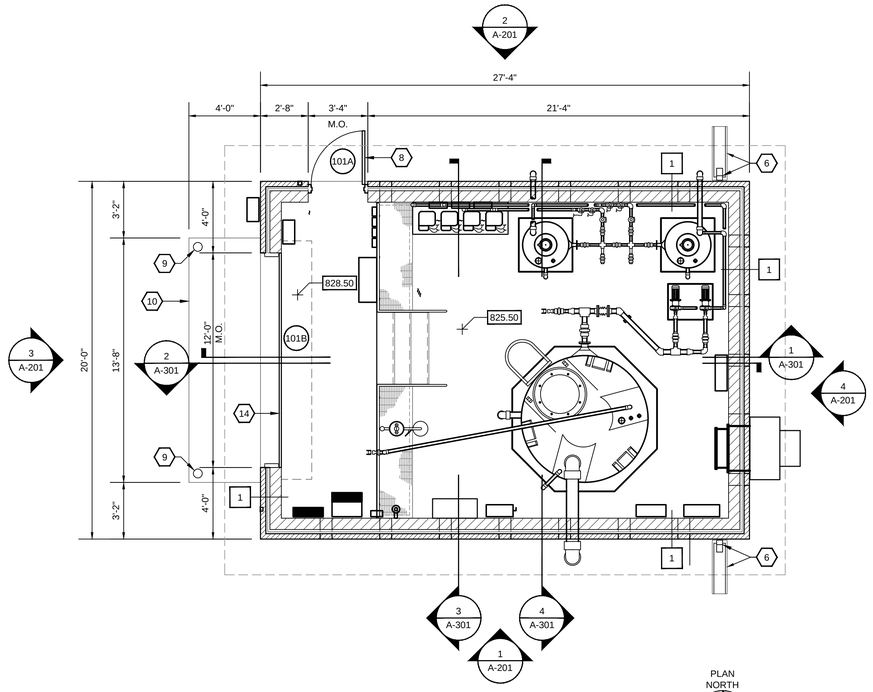
SCALE CHECK:

DATE: MAY, 2015

SCALE: AS NOTED

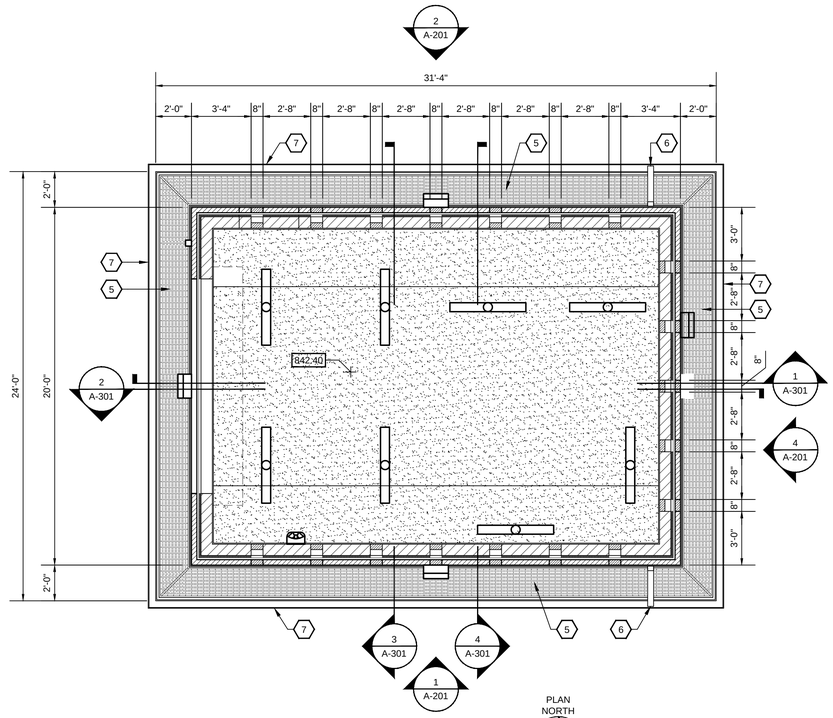
SHEET NO.

A-001



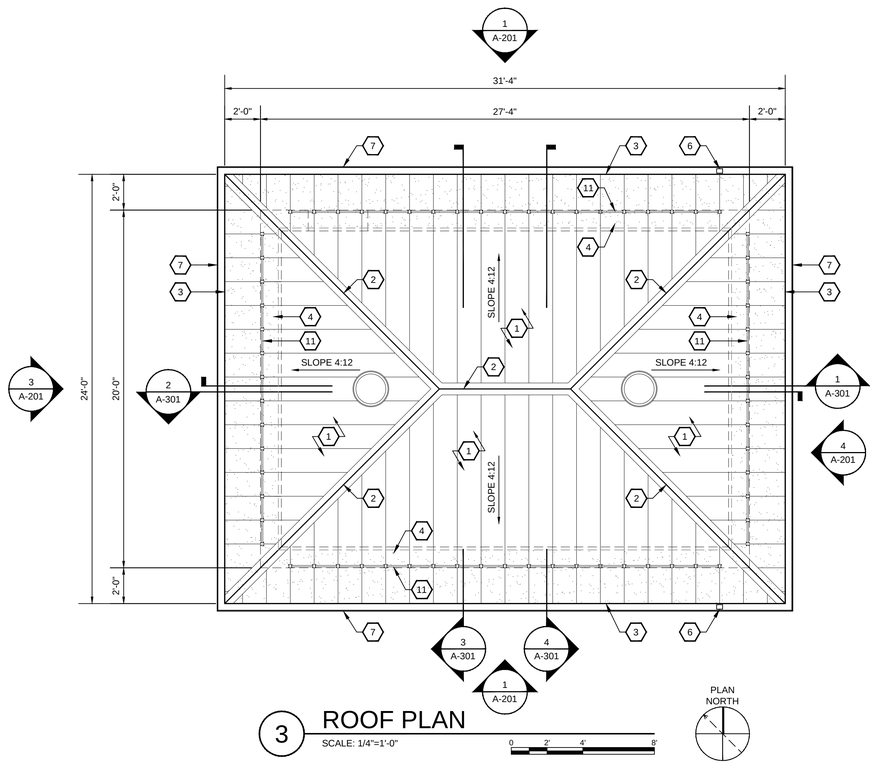
1 FLOOR PLAN

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



2 REFLECTED CEILING PLAN

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



3 ROOF PLAN

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

GENERAL NOTES:

REFER TO 'CIVIL' DWG.'S AND SPEC.'S FOR ADDIT. INFO. PERTAINING TO EARTHWORK, GRADING, AND CONCRETE CONSTRUCTION.

COORD. LOCATION OF MECH. AND ELECT. ITEMS W/ INFO. SHOWN ON 'M' AND 'E' DWG. SHT.'S AND SPEC.', TYP.

REFER TO ELECT. DWG.'S AND SPEC.'S FOR LOCATION OF EXTERIOR LIGHTING - COORD. MOUNTING HEIGHT W/ ELECT. ENGINEER AND ARCHITECT.

COORDINATE STRUCTURAL ITEMS W/ INFO. SHOWN ON 'S' DWG. SHT.'S AND SPEC.'S, TYP.

PROVIDE ADJUSTIBLE / FLEXIBLE PLUMBING BOOT @ ALL PLUMBING VENT PIPING PENETRATIONS - COORD. LOCATION W/ PLUMBING DWG.'S AND SPEC.'S. PROVIDE SEALANT @ PERIMETER OF PENETRATION AS REQ.'D FOR A WATERTIGHT CONDITION, TYP.

COORDINATE LOCATION AND DIA. OF THRU-WALL PENETRATIONS W/ ENGINEERING DWG.'S AND SPEC.'S. PROVIDE SEALANT @ PERIMETER OF PENETRATION AS REQ.'D FOR A WATERTIGHT CONDITION.

ANY AND ALL DAMAGE INCURRED DURING THE CONSTRUCTION IS TO BE REPAIRED OR REPLACED BY THE CONTRACTOR AS APPROPRIATE, SUBJECT TO APPROVAL BY THE OWNER, AT NO ADDIT. COST TO THE OWNER.

⬡ SHEET KEYNOTES:

1. PROVIDE 16"(W) x 2"(H) MACHINED-SEAMED PREFINISHED STANDING SEAM METAL ROOF PANELS OVER (2) LAYERS OF 15# FELT OR (1) LAYER OF 30# FELT - CONTRACTOR'S OPTION. OVERLAP UNDERLAYMENT AS REQ.'S BY ROOF MANF. - SEE SPEC. SECTION 074113.
2. PROVIDE CONT. PREFINISHED METAL HIP/ RIDGE CAP - SEE SPEC. SECTION 074113.
3. PROVIDE PREFINISHED METAL FASCIA W/ PREFINISHED METAL DRIP EDGE - SEE SPEC. SECTION 076200. COLOR TO BE SELECTED BY OWNER, TYP.
4. PROVIDE 36"(W) SELF-ADHERED ICE AND WATER UNDERLAYMENT OVER PLY.WD. DECK @ PERIMETER OF ROOF (EXTEND DOWN FASCIA MIN. 4') - SEE SPEC. SECTION 074113.
5. PROVIDE CONT. PERFORATED ALUMINUM SOFFIT - COLOR TO BE SELECTED BY OWNER, TYP.
6. PROVIDE 3" X 4" PREFINISHED METAL DOWNSPOUT - SEE SPEC.'S. FINAL COLOR TO BE SELECTED BY OWNER. PROVIDE 12"(W) X 36"(L) PRECAST CONC. SPLASHBLOCK @ B.O. EA. DOWNSPOUT, UNLESS OTHERWISE SPEC.'D.
7. PROVIDE CONT. 5"(H) X 6"(W) 'OGEE STYLE' PREFINISHED METAL GUTTER - SEE SPEC. SECTION 07620 FOR ADDIT. INFORMATION - FINAL COLOR TO BE SELECTED BY OWNER.
8. PROVIDE 3'-0"(W) X 7'-0"(H) FRP DOOR AND FRAME - SEE DOOR SCHEDULE AND SPEC. SECTION 082200 FOR ADDIT. INFO., TYP.
9. PROVIDE 4'-0"(H) / 6" DIA. STEEL BOLLARD - PAINT. SEE DETAIL FOR ADDIT. INFORMATION, TYP.
10. PROVIDE 13'-8"(W) X 4'-0"(D) CONC. APRON @ F.O. OVERHEAD COILING DOOR - SEE SPEC. SECTION 033000.
11. PROVIDE S-RAIL ALUMINUM SNOW RAIL AND BRACKET - SEE SPEC. SECTION 074113.
12. NOT USED.
13. NOT USED.
14. PROVIDE 10'-0"(H) X 12'-0"(W) ALUM. INSULATED O.H. COILING DOOR - SEE SPEC. SECTION 083323.

☐ WALL TYPES:

1. 4"(T) X 24"(H) SPLIT-FACE CMU WAINSCOT W/ 4"(T) RUNNING-BOND BRICK VENEER, 1 1/2"(T) RIGID INSULATION, CONT. VAPOR BARRIER, 5/8"(T) EXTERIOR GRADE PLYWOOD SHEATHING, AND 8"(T) CMU W/ MASONRY ANCHORS SPACED VERTICALLY @ 16" O.C.

GRW PROJECT NO. 4325

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CONFORMANCE SET (BID OPENING DATE 4-30-2015)

BUILDING PLANS

DUDLEY COMPLEX SODIUM HYPOCHLORITE BUILDING
CITY OF EDGEWOOD, KENTUCKY

DESIGNED: AB/JMT
DRAWN: JMT
REVIEWED: SL
APPROVED: SL

REVISIONS

NO.	DESCRIPTION	DATE	BY

THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

SCALE CHECK:

DATE:
MAY, 2015

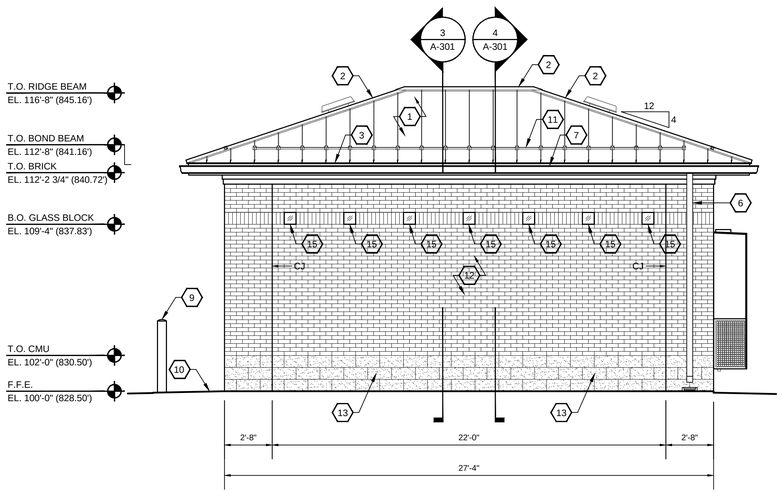
SCALE:
AS NOTED

SHEET NO.
A-101

PLOTTED BY: rsteinbold

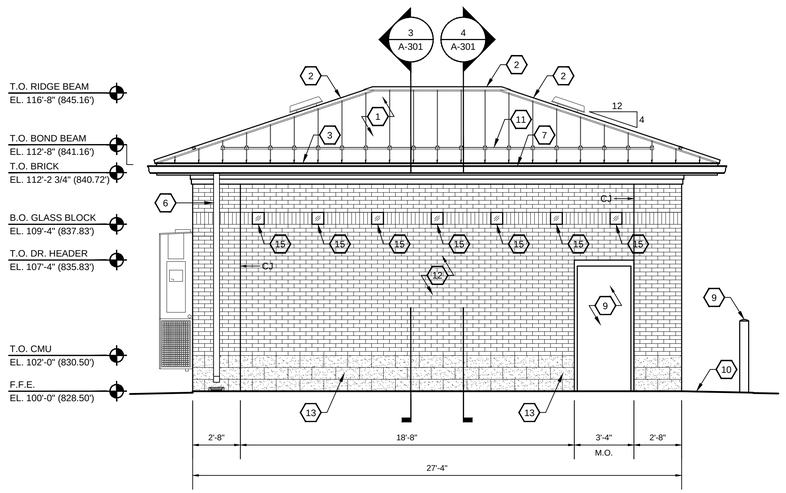
PRINTED: 5/15/2015 @ 11:57AM

FILE NAME: U:\4325-NKWD Sdm\Hypo\Bld\Working Drawings\4325-A-101.dwg



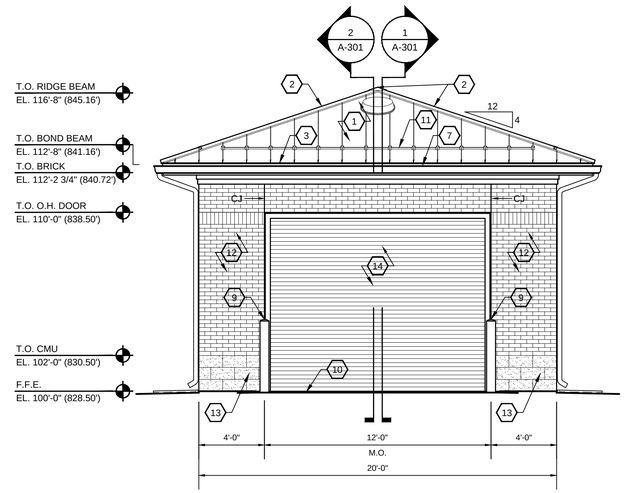
1 SOUTH ELEVATION

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



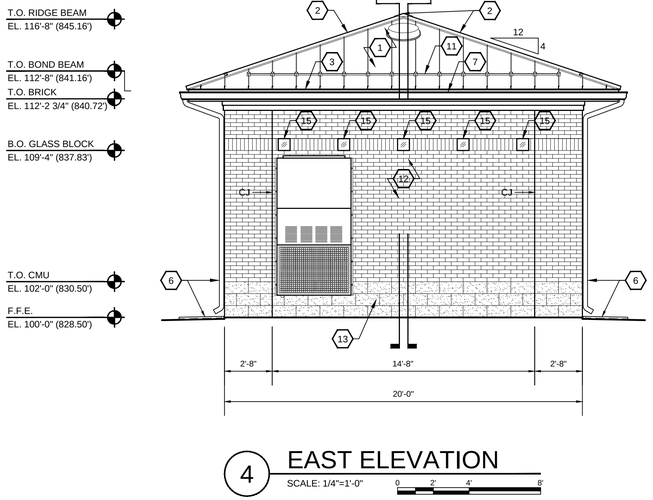
2 NORTH ELEVATION

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



3 WEST ELEVATION

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



4 EAST ELEVATION

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

GENERAL NOTES:

REFER TO 'CIVIL' DWG.'S AND SPEC.'S FOR ADDIT. INFO. PERTAINING TO EARTHWORK, GRADING, AND CONCRETE CONSTRUCTION.

COORD. LOCATION OF MECH. AND ELECT. ITEMS W/ INFO. SHOWN ON 'M' AND 'E' DWG. SHT.'S AND SPEC.', TYP.

REFER TO ELECT. DWG.'S AND SPEC.'S FOR LOCATION OF EXTERIOR LIGHTING - COORD. MOUNTING HEIGHT W/ ELECT. ENGINEER AND ARCHITECT.

COORDINATE STRUCTURAL ITEMS W/ INFO. SHOWN ON 'S' DWG. SHT.'S AND SPEC.'S, TYP.

PROVIDE ADJUSTIBLE / FLEXIBLE PLUMBING BOOT @ ALL PLUMBING VENT PIPING PENETRATIONS - COORD. LOCATION W/ PLUMBING DWG.'S AND SPEC.'S. PROVIDE SEALANT @ PERIMETER OF PENETRATION AS REQ.'D FOR A WATERTIGHT CONDITION, TYP.

PROVIDE 36"(W) SELF-ADHERED ICE AND WATER UNDERLAYMENT @ PERIMETER OF PLY.WD. ROOF DECK - INSTALL PER MANF. INSTRUCTIONS. EXTEND DOWN FASCIA MIN. 2".

COORDINATE LOCATION AND DIA. OF THRU-WALL PENETRATIONS W/ ENGINEERING DWG.'S AND SPEC.'S. PROVIDE SEALANT @ PERIMETER OF PENETRATION AS REQ.'D FOR A WATERTIGHT CONDITION.

ANY AND ALL DAMAGE INCURRED DURING THE CONSTRUCTION IS TO BE REPAIRED OR REPLACED BY THE CONTRACTOR AS APPROPRIATE, SUBJECT TO APPROVAL BY THE OWNER, AT NO ADDIT. COST TO THE OWNER.

⬡ SHEET KEYNOTES:

1. PROVIDE 16"(W) x 2"(H) MACHINED-SEAMED PREFINISHED STANDING SEAM METAL ROOF PANELS OVER (2) LAYERS OF 15# FELT OR (1) LAYER OF 30# FELT - CONTRACTOR'S OPTION. OVERLAP UNDERLAYMENT AS REQ.'S BY ROOF MANF. - SEE SPEC. SECTION 074113.
2. PROVIDE CONT. PREFINISHED METAL HIP/ RIDGE CAP - SEE SPEC. SECTION 074113.
3. PROVIDE PREFINISHED METAL FASCIA W/ PREFINISHED METAL DRIP EDGE - SEE SPEC. SECTION 076200. COLOR TO BE SELECTED BY OWNER, TYP.
4. NOT USED.
5. NOT USED.
6. PROVIDE 3" X 4" PREFINISHED METAL DOWNSPOUT - SEE SPEC.'S. FINAL COLOR TO BE SELECTED BY OWNER. PROVIDE 12"(W) X 36"(L) PRECAST CONC. SPLASHBLOCK @ B.O. EA. DOWNSPOUT, UNLESS OTHERWISE SPEC.'D.
7. PROVIDE CONT. 5"(H) X 6"(W) 'OGEE STYLE' PREFINISHED METAL GUTTER - SEE SPEC. SECTION 07620 FOR ADDIT. INFO. - FINAL COLOR TO BE SELECTED BY OWNER.
8. PROVIDE 3'-0"(W) X 7'-0"(H) FRP DOOR AND FRAME - SEE DOOR SCHEDULE AND SPEC. SECTION 082200 FOR ADDIT. INFO., TYP.
9. PROVIDE 4'-0"(H) / 6" DIA. STEEL BOLLARD - PAINT. SEE DETAIL FOR ADDIT. INFORMATION, TYP.
10. PROVIDE 13'-8"(W) X 4'-0"(D) CONC. APRON @ F.O. O.H. COILING DOOR - SEE SPEC. SECTION 033000.
11. PROVIDE S-RAIL ALUMINUM SNOW RAIL AND BRACKET - SEE SPEC. SECTION 074113.
12. PROVIDE CONT. RUNNING BOND BRICK MASONRY VENEER. SEE SPEC. SECTION 042000.
13. PROVIDE (3) COURSE (H) CONT. RUNNING SPLIT-FACE CMU MASONRY VENEER. SEE SPEC. SECTION 042000.
14. PROVIDE 10'-0"(H) X 12'-0"(W) ALUM. O.H. COILING DOOR - SEE SPEC. SECTION 083323.
15. PROVIDE 8" X 8" GLASS BLOCK UNIT - SEE ENLARGED DETAIL, TYP.

GRW PROJECT NO. 4325

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CONFORMANCE SET (BID OPENING DATE 4-30-2015)

EXTERIOR ELEVATIONS

DUDLEY COMPLEX SODIUM HYPOCHLORITE BUILDING
CITY OF EDGEWOOD, KENTUCKY

DESIGNED:	DRAWN:	REVIEWED:	APPROVED:
JMT	JMT	SL	SL

REVISIONS

NO.	DESCRIPTION	DATE:	BY:

THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

SCALE CHECK

DATE:
MAY, 2015

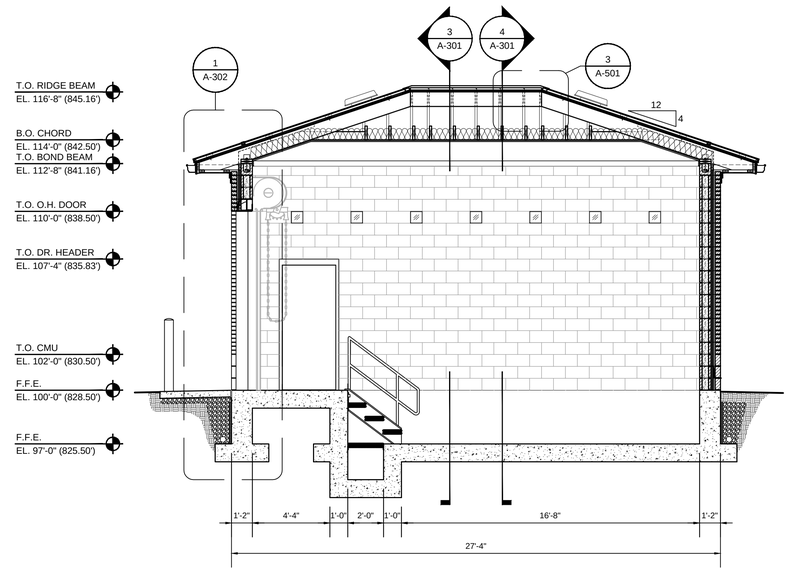
SCALE:
AS NOTED

SHEET NO.
A-201

PLOTTED BY: rsteinbold

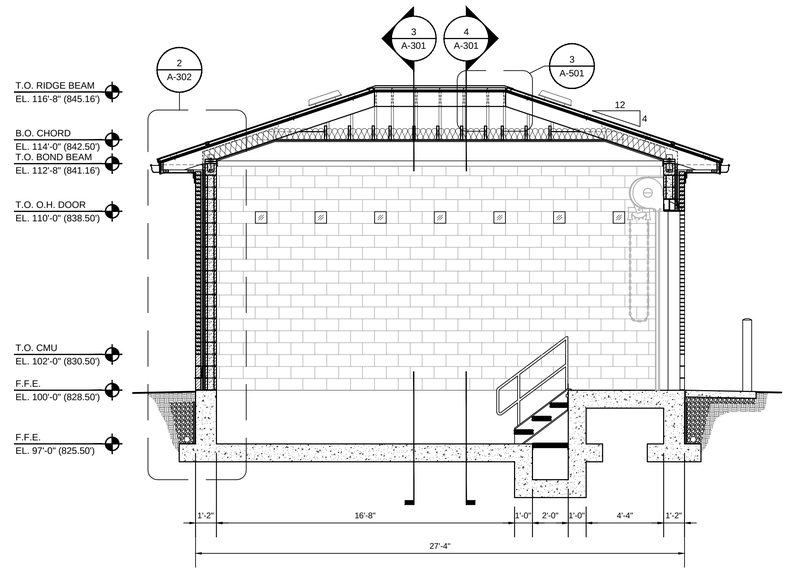
PRINTED: 5/15/2015 @ 11:57AM

FILE NAME: U:\4325-NKWD Sodiumhypobld\Working Drawings\4325-A-201.dwg



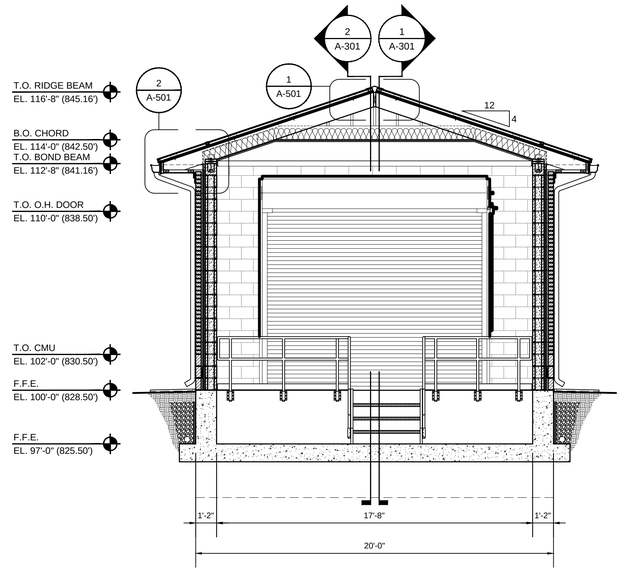
1 BUILDING SECTION

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



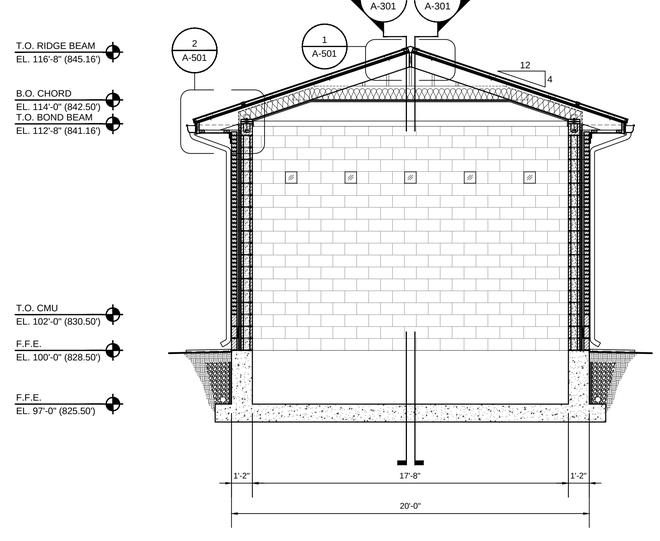
2 BUILDING SECTION

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



3 BUILDING SECTION

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



4 BUILDING SECTION

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

ADDENDUMS:

- PER ADDENDUM 2 / ITEM 2:
  PROVIDE PRE-ENGINEERED WOOD TRUSSES AND DIMENSIONAL LUMBER FOR ROOF FRAMING AS INDICATED ON STRUCTURAL SHEET S-101.

This document, originally issued, sealed, and signed by Shane Lyle, Kentucky Professional Architect, No. 3188, on 5-14-15, shall not be used in lieu of a certified document.

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CONFORMANCE SET (BID OPENING DATE 4-30-2015)

BUILDING SECTIONS

DUDLEY COMPLEX SODIUM HYPOCHLORITE BUILDING
CITY OF EDGEWOOD, KENTUCKY

DESIGNED:	DRAWN:	REVIEWED:	APPROVED:
JMT	JMT	SL	SL

REVISIONS

NO.	DESCRIPTION	DATE	BY

THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

SCALE CHECK:

DATE:
MAY, 2015

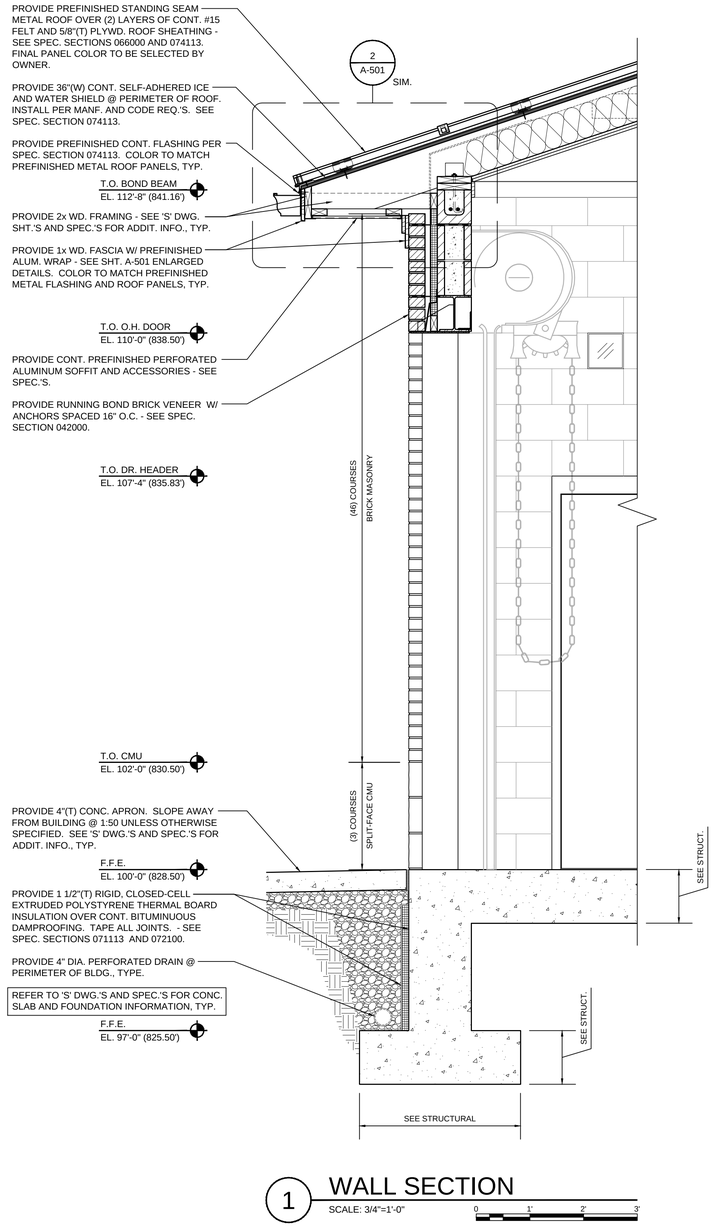
SCALE:
AS NOTED

SHEET NO.
A-301

PLOTTED BY: rrisetbold

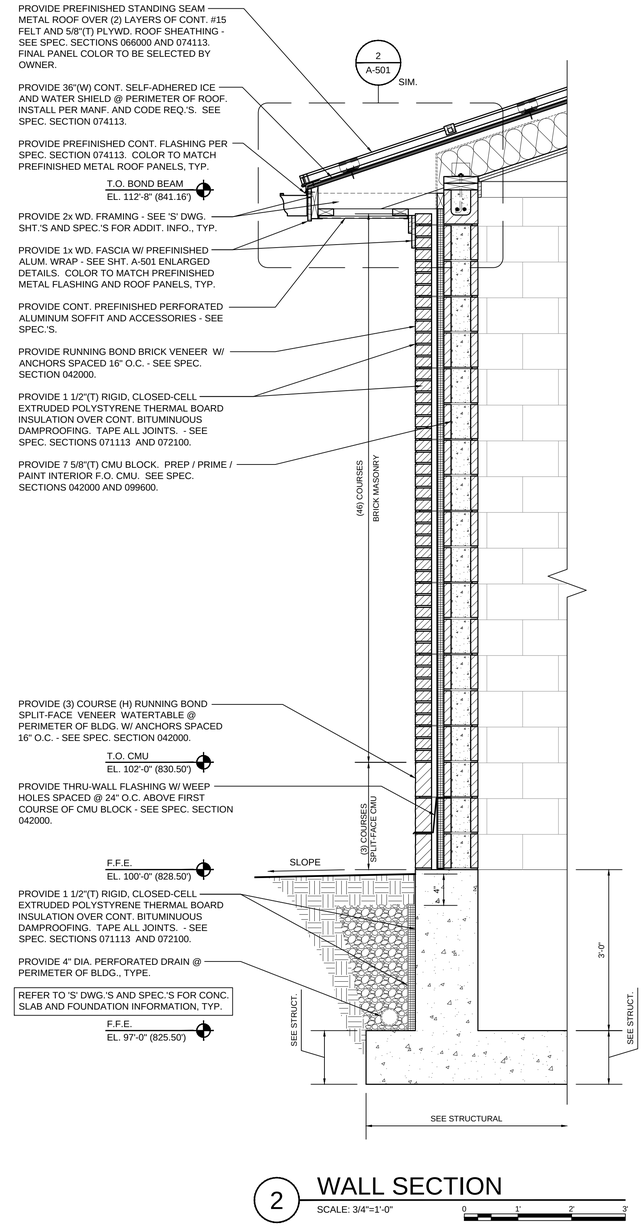
PRINTED: 5/15/2015 @ 11:58AM

FILE NAME: U:\4325-NKWD Sdm\HypoBld\Working Drawings\4325-A-301.dwg



1 WALL SECTION

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



2 WALL SECTION

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

ADDENDUMS:

- PER ADDENDUM 2 / ITEM 2:
  PROVIDE PRE-ENGINEERED WOOD TRUSSES AND DIMENSIONAL LUMBER FOR ROOF FRAMING AS INDICATED ON STRUCTURAL SHEET S-101.

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CONFORMANCE SET (BID OPENING DATE 4-30-2015)

WALL SECTIONS

DUDLEY COMPLEX SODIUM HYPOCHLORITE BUILDING
CITY OF EDGEWOOD, KENTUCKY

DESIGNED:	DRAWN:	REVIEWED:	APPROVED:
JMT	JMT	SL	SL

REVISIONS

NO.	DESCRIPTION	DATE	BY

THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

SCALE CHECK:

DATE:
MAY, 2015

SCALE:
AS NOTED

SHEET NO.
A-302

PLOTTED BY: rrsetebold

PRINTED: 5/15/2015 @ 11:58AM

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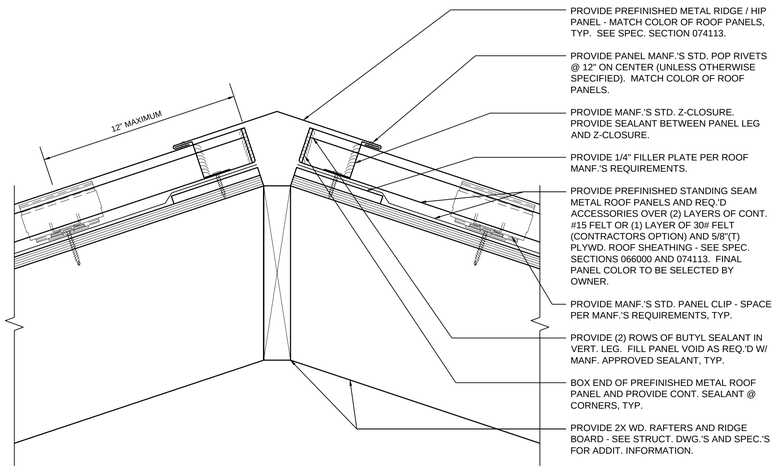
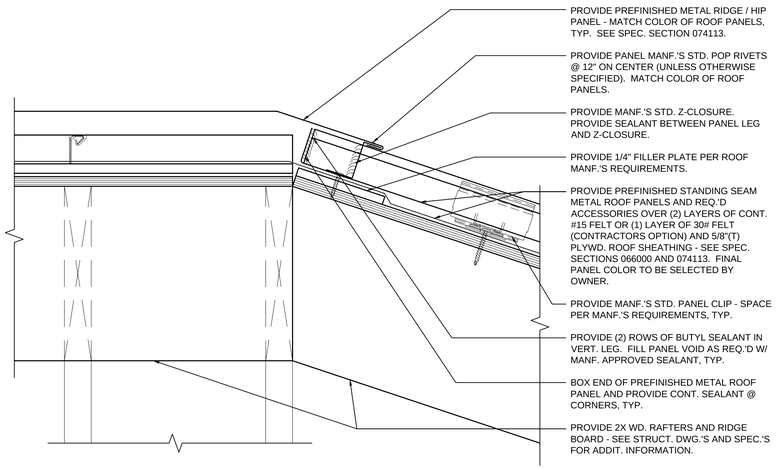
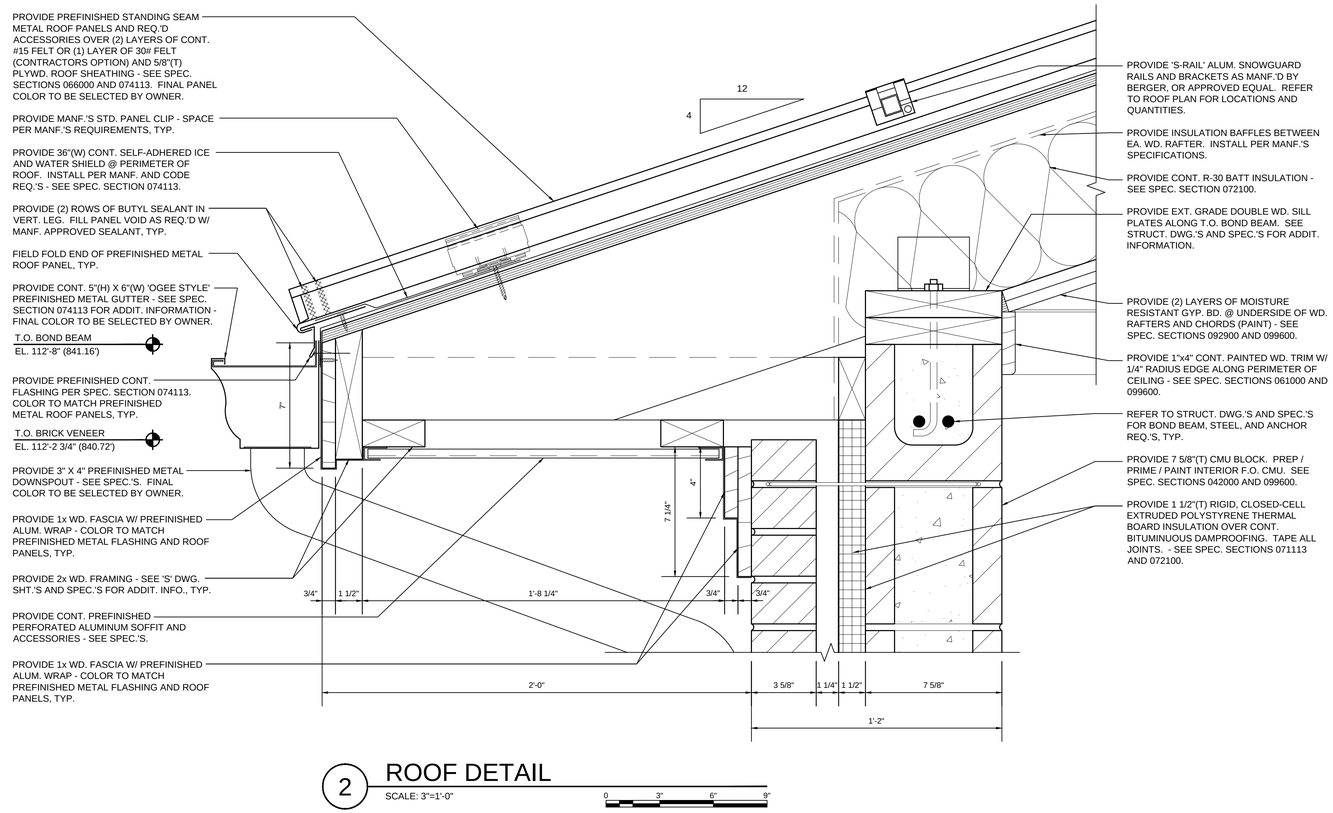


1 ROOF DETAIL
SCALE: 3"=1'-0"



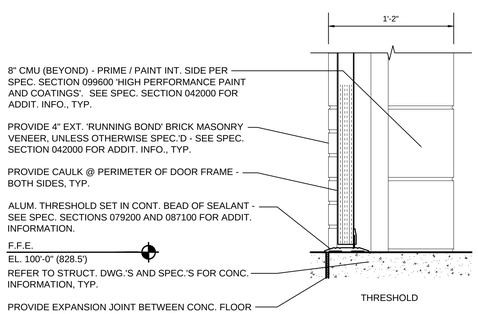
3 ROOF DETAIL
SCALE: 3"=1'-0"



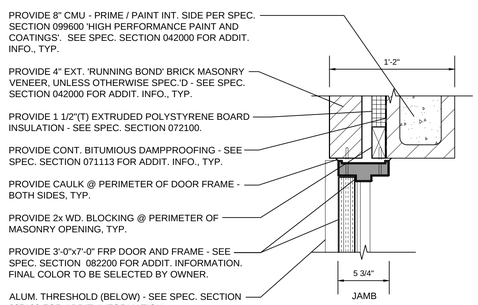
2 ROOF DETAIL
SCALE: 3"=1'-0"

ADDENDUMS:

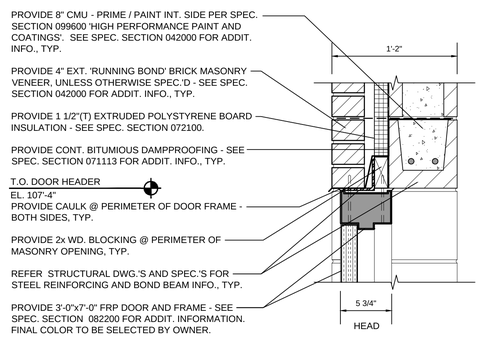
- PER ADDENDUM 2 / ITEM 2:
  PROVIDE PRE-ENGINEERED WOOD TRUSSES AND DIMENSIONAL LUMBER FOR ROOF FRAMING AS INDICATED ON STRUCTURAL SHEET S-101.



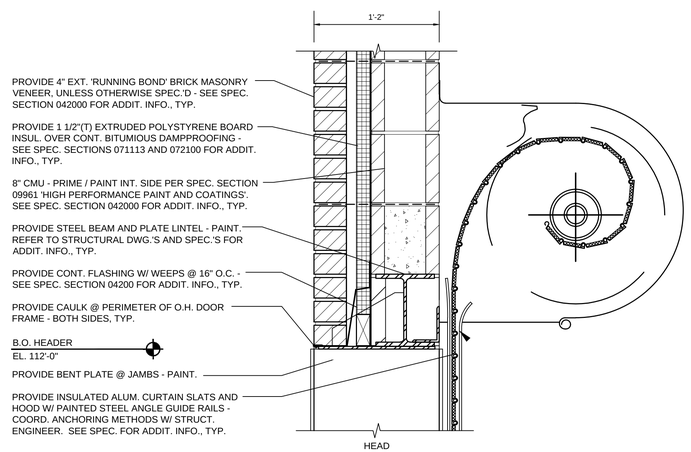
4 DOOR DETAIL
SCALE: 1 1/2"=1'-0"



5 DOOR DETAIL
SCALE: 1 1/2"=1'-0"



6 DOOR DETAIL
SCALE: 1 1/2"=1'-0"



7 O.H. DOOR DETAIL
SCALE: 1 1/2"=1'-0"

GRW PROJECT NO. 4325

CLIENT PROJECT NO.

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CONFORMANCE SET (BID OPENING DATE 4-30-2015)

DETAILS

DUDLEY COMPLEX SODIUM HYPOCHLORITE BUILDING
CITY OF EDGEWOOD, KENTUCKY

DESIGNED:	DRAWN:	REVIEWED:	APPROVED:
JMT	JMT	SL	SL

REVISIONS

NO.	DESCRIPTION	DATE:	BY:

SCALE CHECK: THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

DATE: MAY, 2015

SCALE: AS NOTED

SHEET NO. A-501

PLOTTED BY: rsteeltold

PRINTED: 5/15/2015 @ 11:59AM

FILE NAME: U:\4325-NKWD Sam\ypoBld\Working Drawings\4325-A-501.dwg

FINISH SCHEDULE

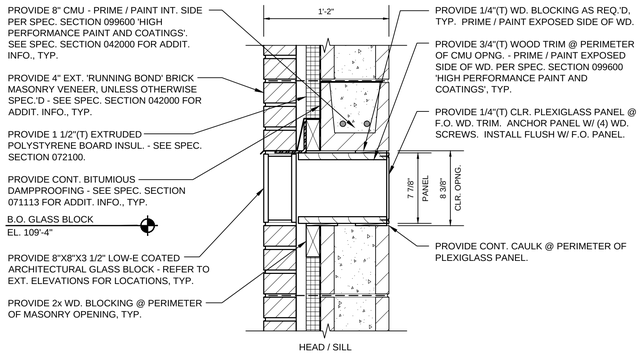
ROOM NO.	ROOM NAME	FLOOR		BASE								WALLS								CEILING			REMARKS	GENERAL NOTES
				MATERIAL				FINISH				MATERIAL				FINISH								
		MATERIAL	FINISH	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST	MATERIAL	FINISH	HEIGHT		
101	SODIUM HYPOCHLORITE	CONC	SEALED	RB	RB	RB	RB	PRE	PRE	PRE	PRE	CONC / CMU	CONC / CMU	CONC / CMU	CONC / CMU	9	9	9	9	GYP BD	P	SLOPED	REFER TO BLDG. SECTION	1. REFER TO SPEC. SECTION 099600 FOR HIGH PERFORMANCE PAINT AND COATING REQUIREMENTS, TYP. 2. FINAL COLOR TO BE SELECTED BY OWNER FROM MANF.'S STD. AVAILABLE COLORS.

DOOR SCHEDULE

DOOR NO.	ROOM NAME	DOOR SIZE (W x H x T)	RATING	DOORS					FRAMES			DETAILS			REMARKS
				TYPE	MATERIAL	FINISH	GLASS	HDWR. SET	TYPE	MATERIAL	FINISH	HEAD	JAMB	THRES	
101A	SODIUM HYPOCHLORITE	3'-0" x 7'-0" x 1 3/4"	-	A	FRP	PRE	NONE	1	1	FRP	PRE	4/A-501	5/A-501	6/A-501	
101B	SODIUM HYPOCHLORITE	12'-0" x 10'-0" O.H. DOOR	-	B	ALUM	PRE	NONE	-	-	ALUM	PRE	7/A-501	-	-	

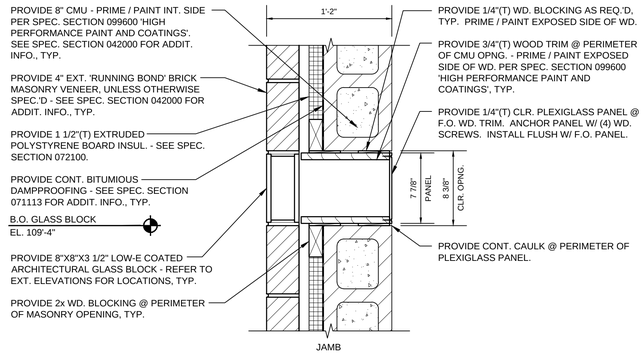
GENERAL NOTES:

1. FINAL COLOR TO BE SELECTED BY OWNER FROM MANF.'S STD. AVAILABLE COLORS.
2. REFER TO SPEC. SECTION 087100 FOR DOOR HARDWARE REQUIREMENTS, TYP.



1 GLASS BLOCK DETAIL

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

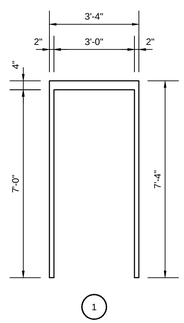


2 GLASS BLOCK DETAIL

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

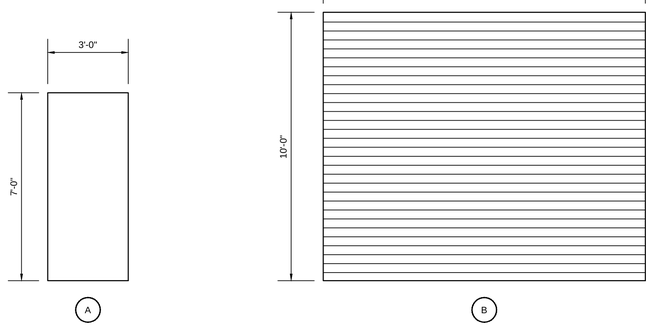
DOOR FRAMES

NOT TO SCALE



DOOR ELEVATIONS

NOT TO SCALE



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GRW PROJECT NO. 4325

CLIENT PROJECT NO.

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CONFORMANCE SET (BID OPENING DATE 4-30-2015)

FINISH SCHEDULE / DOOR SCHEDULE

DUDLEY COMPLEX SODIUM HYPOCHLORITE BUILDING
CITY OF EDGEWOOD, KENTUCKY

DESIGNED:	DRAWN:	REVIEWED:	APPROVED:
AB/JMT	JMT	SL	SL

REVISIONS

NO.	DESCRIPTION	DATE	BY

SCALE CHECK: THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

DATE: MAY, 2015

SCALE: AS NOTED

SHEET NO. A-601

PLOTTED BY: rrsetebold

PRINTED: 5/15/2015 @ 11:56AM

FILE NAME: U:\4325-NKWD Sdm\HypoBld\Working Drawings\4325-A-601.dwg

GENERAL STRUCTURAL NOTES

1. THESE STRUCTURAL DRAWINGS ARE TO BE USED IN CONJUNCTION WITH ALL OTHER DRAWINGS, SPECIFICATIONS & CONTRACT DOCUMENTS.

2. THE DESIGN, CONSTRUCTION, QUALITY CONTROL AND SAFETY OF ALL WORK PERFORMED ON THE PROJECT SHALL CONFORM TO THE REFERENCED CODES AND STANDARDS, INCLUDING ALL SPECIFICATIONS REFERENCED WITH THE LATEST EDITIONS SHALL APPLY UNLESS NOTED.

BUILDING CODE:	INTERNATIONAL BUILDING CODE - 2012, KENTUCKY BUILDING CODE - 2013
3. COUNTY/STATE:	KENTON / KENTUCKY
4. RISK CATEGORY:	III
5. DEAD LOADS:	
ROOF:	20 PSF TOP CHORD, 18 PSF BOTTOM CHORD
7. DESIGN LIVE LOADS:	
ROOF SNOW LOAD:	30 PSF (PG = 20 PSF, C_e = 1.1, C_t = 1.1, I_s = 1.1, C_s = 1.0)
8. LATERAL LOADS - WIND:	
MAIN WIND FORCE RESISTING SYSTEM	MASONRY SHEAR WALL
BASIC WIND SPEED:	120 MPH
EXPOSURE CATEGORY:	C
EFFECTIVE PRESSURE:	30 PSF
COMPONENTS/CLADDING WIND PRESSURE:	30 PSF
ANALYSIS PROCEDURE	DIRECTIONAL PROCEDURE

9. LATERAL LOADS - SEISMIC: :

MAPPED SHORT PERIOD SPECTRAL RESPONSE ACCELERATION, S_S:	0.147g
MAPPED 1 SECOND SPECTRAL RESPONSE ACCELERATION, S_1:	0.080g
DESIGN SHORT PERIOD SPECTRAL RESPONSE ACCELERATION, S_{DS}:	0.118g
DESIGN 1 SECOND SPECTRAL RESPONSE ACCELERATION, S_{D1}:	0.091g
SEISMIC IMPORTANCE FACTOR, I_e:	1.25
SEISMIC RESPONSE FACTOR, R :	2.5
SEISMIC COEFFICIENT, C_S:	0.059
SOIL SITE CLASS:	C
SEISMIC DESIGN CATEGORY:	B
BASIC SEISMIC FORCE RESISTING SYSTEM:	MASONRY SHEAR WALL
DESIGN BASE SHEAR:	13.82-KIPS
ANALYSIS PROCEDURE:	EQUIVALENT LATERAL FORCE

10. ALL CONTRACTOR PROPOSED STRUCTURAL SUBSTITUTIONS, INCLUDING CONCRETE ADDITIVES, SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL PRIOR TO ANY PERTINENT WORK AND PRIOR TO THE AWARD OF A SUBCONTRACTOR.

11. SHOP DRAWINGS, TEST REPORTS, AND CERTIFICATIONS ARE REQUIRED FOR THE FOLLOWING STRUCTURAL ITEMS:
    A. CONCRETE CYLINDER TESTS
    B. CONCRETE MIX DESIGNS
    C. GROUT MIX DESIGNS
    D. REINFORCING STEEL SHOP DRAWINGS
    E. MISCELLANEOUS AND STRUCTURAL STEEL SHOP DRAWINGS
    F. ALUMINUM HANDRAIL SHOP DRAWINGS
    G. CONCRETE MASONRY UNIT CERTIFICATION AND DATA
    H. MORTAR CERTIFICATION AND DATA
    I. PRE-ENGINEERED WOOD ROOF TRUSSES (SEALED BY A KY P.E.)

    *THE SHOP DRAWINGS SPECIFIED BY THE ENGINEER ARE AN INTEGRAL PART OF THE COMPLETE DESIGN. THEY SERVE AS BOTH A CHECK ON THE CONTRACTOR'S INTERPRETATION OF THE ENGINEER'S DRAWINGS AND SPECIFICATIONS AND AS A FINAL CHECK ON THE COORDINATED, DETAILED DESIGN PRIOR TO CONSTRUCTION. THEREFORE, ANY MATERIAL ORDERED OR WORK PERFORMED PRIOR TO THE ENGINEER'S REVIEW AND APPROVAL OF THE SHOP DRAWINGS ARE DONE AT THE CONTRACTOR'S SOLE FINANCIAL RISK. THIS MEANS THAT WHERE DIFFERENCES OF INTERPRETATION EXIST, WORK DONE PRIOR TO THE APPROVAL OF THE SHOP DRAWINGS THAT IS ADJUDGED BY THE ENGINEER TO BE NOT IN CONFORMANCE WITH THE SPECIFICATIONS MAY BE SUBJECT TO REMOVAL AND REPLACEMENT AT THE CONTRACTORS SOLE EXPENSE. AT A MINIMUM, WHERE REASONABLE ADDITIONS TO THE WORK ARE INDICATED ON THE SHOP DRAWINGS, THE ADDITIONAL COST OF THE REMOVAL AND REWORK THAT WOULD NOT HAVE BEEN REQUIRED HAD THE CONTRACTOR NOT PROCEEDED PRIOR TO SHOP DRAWING APPROVAL SHALL BE AT THE CONTRACTOR'S SOLE EXPENSE.

12. CONSTRUCTION METHODS, PROCEDURES, AND SEQUENCES ARE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL TAKE ALL NECESSARY MEANS TO MAINTAIN AND PROTECT THE STRUCTURAL INTEGRITY OF ALL CONSTRUCTION AT ALL STAGES.

13. COORDINATION WITH THE ARCHITECTURAL, MECHANICAL, PLUMBING AND ELECTRICAL DRAWINGS TO VERIFY THE LOCATIONS AND SIZES OF ALL CHASES, INSERTS, OPENINGS, SLEEVES, FINISHES, DEPRESSIONS, AND OTHER PROJECT REQUIREMENTS ARE THE CONTRACTOR'S RESPONSIBILITY. ALL REQUIRED OPENINGS, SLEEVES, OR OTHER COMPONENTS MAY NOT BE SHOWN ON THE STRUCTURAL DRAWINGS.

14. IMPOSED CONSTRUCTION LOADS, INCLUDING CRANE LOADS, IN EXCESS OF THE STATED DESIGN LOADS MUST BE SUBMITTED TO THE ENGINEER FOR REVIEW PRIOR TO THE IMPOSITION OF SUCH LOADS.

15. IMPLEMENTING JOB SITE SAFETY AND CONSTRUCTION PROCEDURES ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

16. IN CASE OF CONFLICT BETWEEN THE GENERAL NOTES, DETAILS AND SPECIFICATIONS, THE MOST RIGID REQUIREMENTS SHALL GOVERN.

PRE-ENGINEERED TIMBER TRUSSES

1. PRE-ENGINEERED TIMBER TRUSSES SHALL BE DESIGNED AND FABRICATED IN ACCORDANCE WITH N.L.M.A. STANDARDS AND TPI SPECIFICATIONS FOR METAL PLATE CONNECTED WOOD TRUSSES, LATEST EDITION.
2. ALL TRUSS CHORDS SHALL BE NO. 2 SOUTHERN PINE OR APPROVED EQUAL (KILN DRIED @ 15% MC).
3. ALL WEB MATERIALS SHALL BE NO. 2 SOUTHERN PINE, OR APPROVED EQUAL (KILN DRIED @ 15% MC).
4. TRUSSES SHALL BE FABRICATED WITH NECESSARY CAMBER AT MID-SPAN.
5. CALCULATIONS, JOINT STRENGTH INFORMATION, LOAD TEST DATA AND TRUSS JOINT DETAILS SHALL BE SUBMITTED WITH TRUSS SHOP DRAWINGS FOR APPROVAL PRIOR TO FABRICATION.
6. TRUSS DESIGN SHALL BE CERTIFIED BY A REGISTERED ENGINEER IN THE STATE OF KENTUCKY AND SHALL BE SHOP INSPECTED BY AN APPROVED INDEPENDENT TESTING LABORATORY.
7. TRUSS LOADING:

	TOP CHORD -	LL = 30 PSF
		DL = 20 PSF
	BOTTOM CHORD -	LL = 0 PSF
		DL = 18 PSF

8. TRUSSES SHALL BE HANDLED, ERECTED, AND BRACED IN STRICT ACCORDANCE WITH THE BUILDING COMPONENT SAFETY INFORMATION GUIDE BCSI 1-03.
9. WEB ARRANGEMENT TO BE MANUFACTURER'S STANDARD UNLESS OTHERWISE NOTED ON DRAWINGS.
10. ALL CONNECTIONS TO BE G90 GALVANIZED STEEL.
11. ALL TEMPORARY BRACING SHALL COMPLY WITH THE LATEST EDITION OF BCSI-B1 AND BCSI-B2 AS PUBLISHED BY THE TRUSS PLATE INSTITUTE. SPACERS SHALL NOT BE USED FOR TEMPORARY BRACING.
12. PERMANENT BRACING FOR INDIVIDUAL MEMBERS OF A WOOD TRUSS COMPONENT IS TO BE SHOWN ON THE TRUSS DESIGN DRAWINGS AND SHALL BE INSTALLED BY THE BUILDING CONTRACTOR. THIS BRACING IS NEEDED FOR THE PROPER PERFORMANCE OF INDIVIDUAL TRUSS UNITS AND IS IN ADDITION TO THE PERMANENT BRACING SHOWN ON THE BUILDING DESIGN DRAWINGS.
13. EXACT SPACING BETWEEN TRUSSES SHOULD BE MAINTAINED AS BRACING IS INSTALLED TO AVOID THE PRACTICE OF REMOVING BRACING TO ADJUST SPACING AS SHEATHING IS APPLIED.
14. ALL BRACING THAT TERMINATES AT, OR IS INTERRUPTED BY, STRUCTURAL BEARING WALLS SHALL BE ATTACHED THERETO.
15. LAP ALL LATERAL BRACES AT LEAST TWO TRUSSES.
16. DO NOT PLACE CONCENTRATED LOADS (INCLUDING ROOF SHEATHING BUNDLES) ATOP TRUSSES UNTIL ALL SPECIFIED BRACING HAS BEEN INSTALLED AND ROOF SHEATHING IS PERMANENTLY NAILED IN PLACE.
17. INSTALL TEMPORARY BRACING TO PREVENT LATERAL MOVEMENT DURING ERECTION.
18. TRUSS MANUFACTURER TO SUPPLY THE FOLLOWING INFORMATION FOR APPROVAL PRIOR TO FABRICATION:
    18.1. TRUSS CONFIGURATION, INCLUDING SPAN, PITCH, AND SPACING OF PANEL POINTS.
    18.2. SPECIES, STRESS GRADE, AND NOMINAL SIZE OF LUMBER USED.
    18.3. DESIGN LIVE AND DEAD LOADS INCLUDING PANEL POINT LOADS AND REACTIONS.
    18.4. MANUAL OR COMPUTER PRINTOUT OF MEMBER AXIAL FORCES AND FLEXURAL STRESS PLUS DESIGN OF MEMBER FOR COMBINED LOADING AS APPLICABLE.
    18.5. JOINT, SPLICE, AND TRUSS TO TRUSS GIRDER CONNECTION DESIGN AND DETAILS.
    18.6. TRUSS CALCULATIONS AND MEMBER LAYOUT DIAGRAMS SHALL BE SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF KENTUCKY.
    18.7. DRAWINGS TO INDICATE TRUSS LAYOUT, CONFIGURATION, AND LOCATIONS OF ALL COMPRESSION WEB AND CHORD BRACING.
    18.8. THE TRUSS MANUFACTURER SHALL COORDINATE DESIGN RESPONSIBILITIES WITH HIS ENGINEER(S) PRIOR TO BIDDING THE PROJECT. SHOP DRAWING SUBMITTALS WILL NOT BE APPROVED UNLESS ALL OF THE REQUIREMENTS OF THESE NOTES AND THE SPECIFICATIONS ARE MET OR EXCEEDED.

PRE-ENGINEERED TIMBER TRUSSES CONT.

19. TRUSSES SHALL BE DESIGNED SO THAT NO OUTWARD THRUST LOADS ARE IMPARTED ON THE MASONRY WALLS.
20. TRUSSES SHALL BE DESIGNED FOR A MAXIMUM VERTICAL DEFLECTION OF 1/480 OF THE SPAN FOR 100% LIVE LOAD AND 1/240 OF THE SPAN FOR 100% TOTAL LOAD.
21. SCISSOR TRUSSES SHALL BE DESIGNED FOR A MAXIMUM HORIZONTAL DEFLECTION AT SUPPORTS OF 3/4" DUE TO 100% LIVE LOAD AND 1 1/4" DUE TO 100% TOTAL LOAD.
22. SEE ARCHITECT'S DRAWINGS FOR WORK POINTS, OVERHANGS, ETC.

GENERAL FOUNDATION/GEOTECHNICAL NOTES

1. THE SOILS REPORT, PREPARED BY THELEN ASSOCIATES, INC., DATED 10/28/2014, IS ON FILE WITH THE OWNER AND A COPY IS AVAILABLE FOR EXAMINATION AT THE OFFICE OF THE STRUCTURAL ENGINEER.
2. THE SOIL BEARING VALUE OF SPREAD FOOTINGS BEARING ON STIFF TO HARD NATIVE CLAYEY SOILS IS 3,000 PSF, AS RECOMMENDED BY THELEN ASSOCIATES, INC.
3. VERIFY LOCATIONS OF COLUMNS, UNDERGROUND UTILITIES, ETC., WITH ARCHITECTURAL, MECHANICAL, ELECTRICAL, AND CIVIL DRAWINGS PRIOR TO PLACEMENT OF FOUNDATIONS.
4. ALL FOUNDATION AND SLAB-ON-GRADE SUB GRADES ARE TO BE FIELD INSPECTED BY AN EXPERIENCED QUALIFIED GEOTECHNICAL ENGINEER TO VERIFY THAT THE ALLOWABLE BEARING PRESSURE IS ACHIEVED AND THAT THE SUB GRADES ARE SUITABLE FOR SUPPORT OF THE FOUNDATIONS AND SLAB-ON-GRADE. THE GEOTECHNICAL ENGINEER SHALL ALSO VERIFY FOUNDATION ELEVATIONS PRIOR TO PLACEMENT OF FOUNDATION ELEMENTS.
5. UNLESS DETERMINED OTHERWISE BY GEOTECHNICAL EVALUATION, FILL MATERIAL FOR SLAB AND FOOTING AREAS SHALL BE PLACED IN LAYERS NOT EXCEEDING 8 INCHES (UNCOMPACTED THICKNESS) AND COMPACTED TO 98% OF MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D698.
6. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO BRACE FOUNDATION WALLS WHEN BACK FILLING AND WHEN THERE IS A POSSIBILITY OF DAMAGE BY EXCESS WATER.
7. COMPACTION OF BACKFILL WITHIN 2 FEET OF FOUNDATION WALLS SHALL BE ACCOMPLISHED WITH HAND EQUIPMENT. WHERE FILL IS REQUIRED ON BOTH SIDES OF FOUNDATION WALL, BRING THE FILL UP EACH SIDE SIMULTANEOUSLY AND UNIFORMLY.
8. THE SURFACE AREA ADJACENT TO THE FOUNDATION WALL SHALL BE PROVIDED WITH ADEQUATE DRAINAGE AND SHALL BE GRADED SO AS TO DRAIN SURFACE WATER AWAY FROM FOUNDATION WALLS.
9. IF FOOTING EXCAVATIONS ENCOUNTER ISOLATED AREAS OF RELATIVELY HARD ROCK AT OR ABOVE THE PLANNED FOOTING ELEVATIONS, THE ROCK SHALL BE OVER EXCAVATED TO A DEPTH OF APPROXIMATELY ONE FOOT BELOW THE FOUNDATION BEARING ELEVATION AND BACKFILLED WITH STRUCTURAL FILL.
10. FOUNDATIONS SHALL NOT BE PLACED ON MUD OR MUCK, SOFT OR LOOSE SOIL, IN STANDING WATER OR ON FROZEN GROUND.
11. ALL NON-CANTILEVER WALLS SHALL BE BE ADEQUATELY BRACED PRIOR TO BACKFILL.
12. CANTILEVER RETAINING WALLS SHALL NOT BE BACKFILLED UNTIL THE CONCRETE HAS DEVELOPED 100% OF THE REQUIRED 28-DAY COMPRESSIVE STRENGTH FOR THE CLASS OF CONCRETE SPECIFIED.

STRUCTURAL STEEL

1. ALL MATERIALS AND WORKMANSHIP SHALL COMPLY WITH THE REQUIREMENTS OF THE FOLLOWING CODES AND STANDARDS:
   "MANUAL OF STEEL CONSTRUCTION - AISC 360-10 FOURTEENTH EDITION, 2010, AMERICAN INSTITUTE OF STEEL CONSTRUCTION (INCLUDING SPECIFICATIONS FOR STRUCTURAL STEEL BUILDINGS, SPECIFICATIONS FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS, AND AISC CODE OF STANDARD PRACTICE).
   "DETAILING FOR STEEL CONSTRUCTION" AISC 326-09, AMERICAN INSTITUTE OF STEEL CONSTRUCTION.
   "SEISMIC PROVISIONS FOR STRUCTURAL STEEL BUILDINGS, ANSI/AISC 341-05'" AMERICAN INSTITUTE OF STEEL CONSTRUCTIONS.
   "STRUCTURAL WELDING CODE ANSI/AWS D1.1/D1.1M-2004", AMERICAN WELDING SOCIETY.

MEMBER TYPE	SPECIFICATION
W SHAPES	ASTM A992
PLATE	ASTM A36
ANGLE	ASTM A36
ANCHOR RODS	ASTM F 1554 GR 36
WELDING ELECTRODES	AWS A5.1 OR A5.5 E70XX

2. THE FRAMING SHOWN ON THE COMPLETED DRAWINGS HAS BEEN DESIGNED FOR THE LOADS INDICATED ON THE DRAWINGS. THE FABRICATOR AND ERECTOR ARE SOLELY RESPONSIBLE FOR THE DESIGN OF TEMPORARY BRACING AND RECOMMENDED ERECTION PROCEDURES.
3. THE TYPICAL DETAILS ON THE DRAWINGS CONTAIN ADDITIONAL GENERAL STEEL CONSTRUCTION NOTES AND DETAILS.
4. GROUT SHALL BE NON-METALLIC, NON-CORROSIVE, NON-SHRINK, NON-STAINING CONFORMING TO ASTM C 1107 WITH A 28 DAY COMPRESSIVE STRENGTH OF 5,000 PSI.
5. ALL SHOP AND FIELD WELDING SHALL BE DONE BY A CERTIFIED WELDER USING QUALIFIED WELDING PROCEDURES.
6. ALL STEEL SURFACES SHALL BE PREPARED ACCORDING TO SSPC SP-3, "POWER TOOL CLEANING" UNLESS NOTED OR REQUIRED OTHERWISE.
7. CUTTING OR BURNING OF STRUCTURAL STEEL IN THE FIELD IS NOT ALLOWED, UNLESS BY WRITTEN APPROVAL BY THE ENGINEER.
8. PAINTING OF STRUCTURAL STEEL SHALL BE IN ACCORDANCE WITH THE PAINTING SPECIFICATIONS. ONE SHOP COAT OF PAINT SHALL BE APPLIED TO ALL STRUCTURAL MEMBERS EXCEPT:
   A. GALVANIZED SURFACES
9. ALL STEEL AT AND BELOW FINISHED GRADE OR FLOOR SLAB SHALL RECEIVE TWO COATS OF BITUMINOUS PAINT.
10. STEEL EXPOSED TO VIEW SHALL BE FABRICATED WITH SURFACES THAT ARE TRUE, SMOOTH AND FREE OF BLEMISHES IN ACCORDANCE WITH INDUSTRY STANDARDS. COPES AND CUTS SHALL BE TRUE, SQUARE AND PROPERLY RADIUSED AS INDICATED ON THE SHOP DETAIL DRAWINGS.
11. ALL STEEL LINTELS IN EXTERIOR WALLS SHALL BE GALVANIZED. HOT-DIPPED GALVANIZING OF STRUCTURAL STEEL SHALL CONFORM TO ASTM A123, A153 OR A385 AS APPROPRIATE WHERE GALVANIZING IS INDICATED ON THE PLANS.
12. FOR MISCELLANEOUS STEEL NOT SHOWN ON THESE DRAWINGS, SEE ARCHITECTURAL AND OTHER ENGINEERING DRAWINGS.
13. THE GENERAL CONTRACTOR SHALL NOTIFY THE STRUCTURAL ENGINEER OF ANY FABRICATION OR ERECTION ERRORS OR DEVIATIONS AND RECEIVE WRITTEN APPROVAL BEFORE ANY FIELD CORRECTIONS ARE MADE.
14. CONTRACTOR AND ERECTOR ARE RESPONSIBLE FOR COMPLYING WITH ALL OSHA REGULATIONS.

CAST-IN-PLACE CONCRETE

1. ALL MATERIALS AND WORKMANSHIP SHALL COMPLY WITH THE REQUIREMENTS OF THE FOLLOWING CODES AND STANDARDS:
   "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE, ACI 318-11", AMERICAN CONCRETE INSTITUTE
   "ACI MANUAL OF CONCRETE PRACTICE - PARTS 1 THROUGH 5", LATEST EDITION
   "MANUAL OF STANDARD PRACTICE", CONCRETE REINFORCING STEEL INSTITUTE
   ACI 305 AND ACI 306 FOR HOT AND COLD WEATHER CONCRETE CONSTRUCTION
   ACI 347 FOR SHORING AND RESHORING OF CONCRETE STRUCTURES

2. CONTRACTOR SHALL PROVIDE MATERIALS WHICH COMPLY WITH THE FOLLOWING ASTM REQUIREMENTS, AS REQD.:

CEMENT	ASTM C150: TYPE I OR TYPE II
AGGREGATES	ASTM C33
FLY ASH	ASTM C618
PLAIN REINFORCING BARS	ASTM A615, GRADE 60
WELDED WIRE FABRIC	ASTM A185
AIR-ENTRAINING ADMIXTURE:	ASTM C260

3. CONCRETE PROTECTION FOR REINFORCEMENT SHALL BE IN ACCORDANCE WITH THE FOLLOWING TABLE, U.N.O. ON THE CONSTRUCTION DRAWINGS:

APPLICATION	COVER
- CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH:	3"
- CONCRETE EXPOSED TO EARTH OR WEATHER:	
#6 THROUGH #18 BARS:	2"
#5 BAR, W31 OR D31 WIRE AND SMALLER:	1-1/2"
- CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND SLABS, WALLS, AND JOISTS:	
#14 AND #18 BARS:	1-1/2"
#11 BAR AND SMALLER:	3/4"

4. CONCRETE MIXES SHALL BE AS FOLLOWS:

APPLICATION	COMP. STRENGTH, AIR
- CONCRETE USED FOR FOUNDATION CONSTRUCTION OR CONCRETE EXPOSED TO CYCLES OF FREEZE THAW (SIDEWALKS, EXTERIOR SLAB ON GRADE ETC.):	4,500 PSI, 6%
- MUDMAT	1,500 PSI, NONE

5. SHOP DRAWINGS SHOWING THE SIZE, LENGTH, QUANTITY, LOCATION AND MARK OF ALL REINFORCING BARS, SUPPORTS AND ACCESSORIES SHALL BE SUBMITTED FOR APPROVAL PRIOR TO FABRICATION.
6. MIX DESIGNS AND ADMIXTURE PRODUCT DATA SHALL BE SUBMITTED FOR APPROVAL PRIOR TO ORDERING CONCRETE.
7. THE TYPICAL DETAILS, PLANS, AND SECTIONS ON THESE DRAWINGS CONTAIN ADDITIONAL GENERAL CONCRETE CONSTRUCTION NOTES AND INFORMATION.
8. ALL CONCRETE SHALL BE REINFORCED UNLESS NOTED OTHERWISE.
9. SUPPORTS TO ADEQUATELY POSITION REINFORCING BARS DURING CONSTRUCTION SHALL BE INSTALLED.
10. FOUNDATION DOWELS OF THE SAME SIZE AND SPACING AS VERTICAL STEEL SHALL BE INSTALLED FOR ALL WALLS, PIERS, AND COLUMNS.
11. ALL REINFORCING AT WALL AND FOOTING CORNERS AND INTERSECTIONS SHALL BE CONTINUOUS BY THE USE OF BENT BARS OR CORNER BARS UNLESS INDICATED OTHERWISE.
12. CONSTRUCTION JOINTS SHALL BE POSITIONED SO AS NOT TO ADVERSELY AFFECT THE STRUCTURAL PERFORMANCE. CONSTRUCTION JOINT LOCATIONS NOT INDICATED ON THE STRUCTURAL DRAWINGS SHALL BE APPROVED BY THE STRUCTURAL ENGINEER.
13. PIPE SLEEVES AND INSERTS SHALL BE INSTALLED IN CONCRETE WORK AT ALL PENETRATIONS. PENETRATIONS OF BEAMS, JOISTS, COLUMNS OR STRUCTURAL SLABS NOT INDICATED ON THE STRUCTURAL DRAWINGS SHALL BE APPROVED BY THE STRUCTURAL ENGINEER.
14. ADMIXTURES CONTAINING CHLORIDE OR OTHER CORROSIVE CHEMICALS SHALL NOT BE USED IN CONCRETE.
15. AGGREGATES SHALL BE FREE OF DELETERIOUS OR NON-DURABLE MATERIALS SUCH AS CHERTS.
16. REINFORCING SHALL BE ADEQUATELY TIED AND SUPPORTED TO HOLD IT IN THE CORRECT POSITION DURING CONSTRUCTION AND THE PLACEMENT OF CONCRETE.
17. CONCRETE SHALL BE CONSOLIDATED ADEQUATELY DURING PLACEMENT BY MECHANICAL VIBRATION IN ACCORDANCE WITH PUBLISHED PRACTICES.
18. PLASTIC CHAIRS SHALL BE USED IN ALL CONCRETE THAT WILL BE EXPOSED TO VIEW IN THE COMPLETED STRUCTURE.
19. EXPOSED CONCRETE CORNERS SHALL BE CHAMFERED MINIMUM ¾", OR AS INDICATED ON THE STRUCTURAL/ARCHITECTURAL DRAWINGS.
20. FORMED SURFACES SHALL HAVE A SMOOTH-FORM FINISH WHERE EXPOSED TO VIEW AND A ROUGH-FORM FINISH WHERE NOT EXPOSED TO VIEW UNLESS INDICATED OTHERWISE.
21. UNFORMED SURFACES SHALL HAVE A TROWEL FINISH WHERE EXPOSED TO VIEW AND A FLOAT FINISH WHERE NOT EXPOSED TO VIEW U.N.O. EXCEPT THAT STAIRS AND EXTERIOR WALKING SURFACES SHALL HAVE A BROOM FINISH U.N.O.
22. FOUNDATION SLAB ON GRADE SHALL BE PLACED ON A VAPOR BARRIER OVER 3-INCH MUDMAT OVER COMPACTED SUBGRADE, U.N.O. SEE PLANS FOR ADDITIONAL INFORMATION.
23. PROVIDE ISOLATION JOINTS IN SLABS AS FOLLOWS:
    A. BETWEEN SLABS AND INSERTS SUCH AS PIPES

MASONRY

1. ALL MATERIALS AND WORKMANSHIP SHALL COMPLY WITH THE REQUIREMENTS OF THE FOLLOWING CODES AND STANDARDS:

   "BUILDING CODE REQUIREMENTS AND SPECIFICATION FOR MASONRY STRUCTURES", (ACI 530-11/ASCE 5-11/TMS 402-11) AND "SPECIFICATION FOR MASONRY STRUCTURES", (ACI 530. 1-11/ASCE 6-11/TMS 602-11).

LOAD BEARING CONCRETE MASONRY UNITS	ASTM C90, TYPE I, GRADE N (MIN. COMPRESSIVE STRENGTH ON NET AREA = 1900 PSI) NORMAL (MEDIUM-LIGHT) WEIGHT
MORTAR	ASTM C270, TYPE S ABOVE GRADE/BELOW GRADE
CMU GROUT	ASTM C476, (MIN. COMPRESSIVE STRENGTH AT 28 DAYS = 2000 PSI)
CMU PRISM STRENGTH	F'm = 1500 PSI PER ACI 530/ASCE 5/TMS 402 UNIT STRENGTH METHOD
HORIZONTAL JOINT REINFORCING	ASTM A951, HOT DIPPED GALVANIZED
PLAIN REINFORCING BARS	ASTM A615, GRADE 60

2. CONCRETE MASONRY WALLS SHOWN ON STRUCTURAL DRAWINGS SHALL BE CONSTRUCTED IN ACCORDANCE WITH ACI 530.1 "SPECIFICATIONS FOR MASONRY STRUCTURES".

MASONRY CONT.

3. INSTALLATION DRAWINGS SHALL BE SUBMITTED FOR APPROVAL BY THE STRUCTURAL ENGINEER. THE INSTALLATION DRAWINGS SHALL INDICATE:
   3.1. THE MATERIALS USED, THEIR SPECIFICATIONS, AND THEIR DESIGN STRENGTHS.
   3.2. ELEVATIONS OF ALL STRUCTURAL CONCRETE MASONRY WALLS SHOWING THE LAYOUT, INCLUDING OPENINGS AND JOINTS, REINFORCING, ACCESSORIES, BOND BEAMS, LINTELS AND EMBEDDED ITEMS.
4. PRODUCT DATA AND MATERIAL CERTIFICATIONS FOR MASONRY MATERIALS AND ACCESSORIES SHALL BE SUBMITTED FOR APPROVAL IN SHOP DRAWING FORMAT.
5. MORTAR CEMENT SHALL BE PORTLAND-LIME CEMENT. MASONRY CEMENT SHALL NOT BE USED.
6. THE TYPICAL DETAILS ON THE DRAWINGS CONTAIN ADDITIONAL GENERAL MASONRY NOTES AND DETAILS.
7. CORNERS OF LOAD BEARING CONCRETE MASONRY WALLS SHALL BE LAID IN RUNNING BOND.
8. PROVIDE SOLID GROUTED CONCRETE MASONRY AROUND BEARING ENDS OF ALL BEAMS AND JOISTS.
9. NO OPENINGS FOR TRADES SHALL OCCUR IN CONCRETE MASONRY WALLS WITHIN 16 INCHES OF BEAM BEARING CENTERLINES.
10. EMBEDDED ITEM LOCATIONS SHALL BE COORDINATED WITH THE APPROVED SHOP DRAWINGS OF THE TRADES.
11. PROVIDE GALVANIZED HORIZONTAL JOINT REINFORCING IN ALL WALLS AT 16" O.C. PROVIDE ONE-PEICE PREFABRICATED "T" AND "L" SHAPED UNITS AT ALL WALL CORNERS AND INTERSECTIONS.
12. CONCRETE MASONRY IS SUPPOSED TO ABSORB WATER FROM MORTAR AND GROUT. DO NOT PLACE OR GROUT WET CONCRETE MASONRY UNITS.
13. WEBS OF MASONRY UNITS FOR PIERS, COLUMNS, PILASTERS, AND THE STARTER COURSE SHALL BE MORTARED. WEBS OF MASONRY UNITS SHALL ALSO BE MORTARED WHERE REQUIRED TO CONFINE GROUT.
14. IN GROUTED AND/OR REINFORCED MASONRY WALLS, USE MASONRY UNITS WITH CORES THAT ALIGN VERTICALLY. PROVIDE CONTINUOUS UNOBSTRUCTED CELLS FOR REINFORCEMENT PLACEMENT AND GROUTING.
15. SPACES TO BE FILLED WITH GROUT SHALL BE KEPT CLEAN AND FREE FROM PROTRUSIONS OF MASONRY OR MORTAR.
16. THE MAXIMUM GROUT POUR HEIGHT FOR EACH SPECIFIC TYPE AND SIZE OF CONCRETE MASONRY UNIT SHALL NOT EXCEED THE LIMITS SPECIFIED IN ACI 530.1.
17. GROUT SLUMP SHALL BE 8" - 11" AT TIME OF PLACEMENT.
18. GROUT POURS SHALL BE CONSOLIDATED ADEQUATELY DURING PLACEMENT BY MECHANICAL VIBRATION IN ACCORDANCE WITH PUBLISHED PRACTICES.
19. PROVIDE VERTICAL MASONRY CONTROL JOINTS AT APPROXIMATELY 20'-0" O.C., AND IN ACCORDANCE WITH RECOMMENDATIONS IN THE "MASONRY DESIGNER'S GUIDE". REFER TO ARCHITECTURAL PLANS FOR LOCATIONS, OR IF NOT SHOWN, COORDINATE LOCATIONS WITH THE ARCHITECT.
20. SPLICE LAP LENGTHS FOR REINFORCING SHALL BE IN ACCORDANCE WITH THE FOLLOWING TABLE, U.N.O. ON THE PLANS:

BAR SIZE	LAP LENGTH
#5	48"
#6	60"

21. DO NOT EMBED ANY NON-STRUCTURAL ITEMS IN STRUCTURAL MASONRY WITHOUT WRITTEN PERMISSION FROM THE STRUCTURAL ENGINEER.
22. ALL REINFORCING STEEL SHALL BE PLACED AND TIED IN THE PROPER POSITION AS THE WALLS ARE CONSTRUCTED. LOWERING THE BARS IN FROM THE TOP OF A COMPLETED WALL OR SECTION OF WALL IS NOT ALLOWED.
23. CONTRACTOR SHALL PROVIDE BRACING AND SUPPORT FOR ALL MASONRY WORK UNTIL PERMANENT ROOF/FLOOR FRAMING IS IN PLACE.
24. DO NOT APPLY UNIFORM FLOOR OR ROOF LOADS FOR AT LEAST 12 HOURS AND CONCENTRATED LOADS FOR AT LEAST 3 DAYS AFTER BUILDING MASONRY WALLS OR COLUMNS.

SPECIAL INSPECTIONS

1. SPECIAL INSPECTION IS REQUIRED ACCORDING TO SECTION 1704.0 OF THE KENTUCKY BUILDING CODE AND THE 2012 INTERNATIONAL BUILDING CODE.
2. SPECIAL INSPECTIONS SHALL BE PERFORMED FOR THE FOLLOWING WORK AS REQUIRED IN THE KENTUCKY BUILDING CODE:
   2.1. FABRICATORS IN ACCORDANCE WITH SECTION 1704.02.
   2.2. STEEL CONSTRUCTION IN ACCORDANCE WITH SECTION 1704.3
   2.3. CONCRETE CONSTRUCTION IN ACCORDANCE WITH SECTION 1704.4
   2.4. MASONRY CONSTRUCTION IN ACCORDANCE WITH SECTION 1704.5
   2.5. WOOD CONSTRUCTION IN ACCORDANCE WITH SECTION 1704.6
   2.6. SOILS CONSTRUCTION IN ACCORDANCE WITH SECTION 1704.7
3. THE TYPE AND EXTENT OF EACH TEST AND INSPECTION REQUIRED FOR EACH TYPE OF WORK SHALL BE AS INDICATED IN THE SPECIFICATIONS AND/OR THE BUILDING CODE AND THE REFERENCES INCORPORATED THEREIN.
4. SPECIAL INSPECTION SERVICES SHALL BE CONTRACTED AND PAID FOR BY THE OWNER.
5. WORK REQUIRING SPECIAL INSPECTION SHALL BE INSPECTED BY THE SPECIAL INSPECTOR FOR CONFORMANCE WITH THE APPROVED DRAWINGS AND SPECIFICATIONS. INSPECTION REPORTS INDICATING THE RESULTS OF SPECIAL INSPECTIONS SHALL BE PROMPTLY SUBMITTED TO THE CONTRACTOR, THE ARCHITECT, THE STRUCTURAL ENGINEER.
6. ALL SPECIAL INSPECTIONS INDICATING NON-CONFORMING WORK SHALL BE REPORTED IMMEDIATELY TO THE CONTRACTOR, THE ARCHITECT AND THE STRUCTURAL ENGINEER. IMPENDING CONSTRUCTION WORK THAT WOULD IMPEDE ECONOMICAL CORRECTION OF NON-CONFORMING WORK SHALL NOT PROCEED WITHOUT WRITTEN APPROVAL.
7. A FINAL REPORT DOCUMENTING COMPLETION OF ALL REQUIRED SPECIAL INSPECTIONS AND CORRECTION OF ANY NON-CONFORMING WORK NOTED IN THE INSPECTIONS SHALL BE SUBMITTED BY THE SPECIAL INSPECTOR AT THE COMPLETION OF THE PROJECT.
8. THE SPECIAL INSPECTION AGENCY SHALL NOT BE ENGAGED BY THE CONTRACTOR FOR OTHER TESTING OR INSPECTION SERVICES ON THIS PROJECT.
9. SPECIAL INSPECTION SHALL BE PERFORMED BY A QUALIFIED INSPECTION AND TESTING AGENCY APPROVED BY THE BUILDING OFFICIAL, THE ARCHITECT AND THE STRUCTURAL ENGINEER.

This document, originally issued, sealed, and signed by David C. Hoy, Kentucky Professional Engineer, No. 28586, on 5/15/15, shall not be used in lieu of a certified document.

CONFORMANCE SET (BID OPENING DATE 4-30-2015)

GRW PROJECT NO. 4325

CLIENT PROJECT NO.

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STRUCTURAL NOTES

DUDLEY COMPLEX SODIUM HYPOCHLORITE BUILDING
CITY OF EDGEWOOD, KENTUCKY

DESIGNED: DCH
DRAWN: KJW
REVIEWED: DCH
APPROVED: DCH

REVISIONS

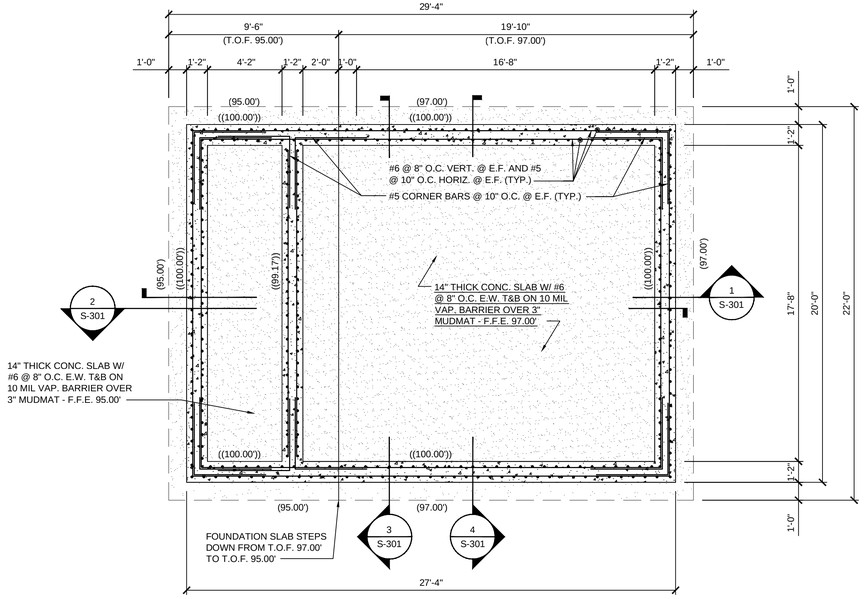
NO.	DESCRIPTION	DATE	BY

SCALE CHECK: THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

DATE: MAY, 2015

SCALE: AS NOTED

SHEET NO. S-001



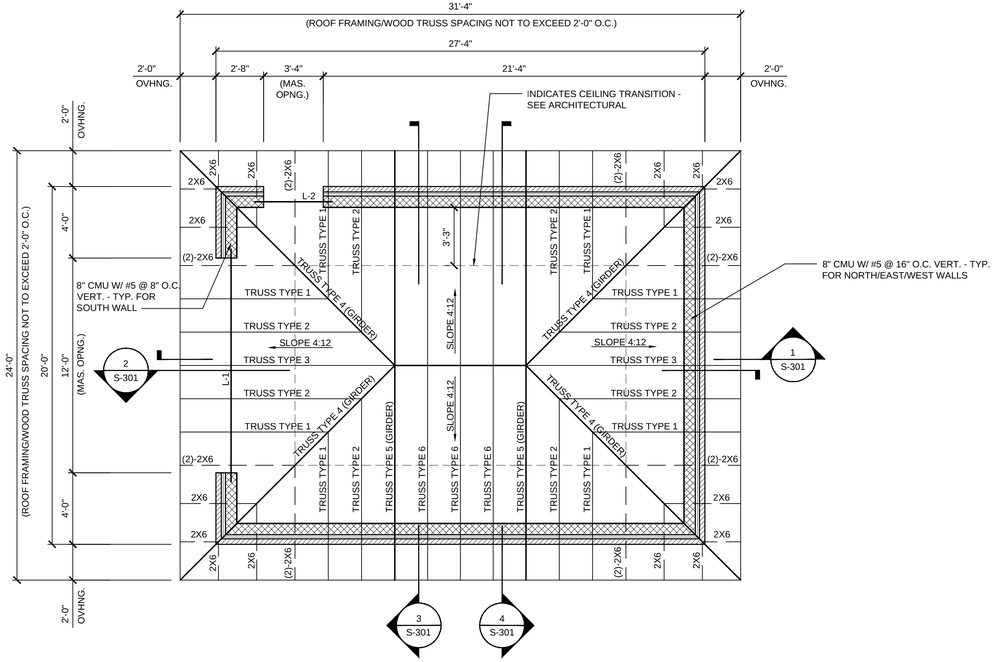
1 FOUNDATION PLAN

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

PLAN NORTH

FOUNDATION NOTES:

1. TOP OF FOOTING ELEVATION SHOWN ( ) ON PLAN. TOP OF WALL ELEVATION SHOWN (( )) ON PLAN.
2. COORDINATE EXACT LOCATIONS OF ALL WALLS W/ ARCHITECTURAL DRAWINGS.
3. COORDINATE EXACT LOCATION OF ALL FOUNDATION WALL AND FLOOR SLAB PENETRATIONS W/ ARCHITECTURAL, CIVIL, MECHANICAL, ELECTRICAL, AND PLUMBING DRAWINGS, G.C. AND ALL OTHER TRADES. ALL UTILITIES SHALL PASS THROUGH FOUNDATION WALLS AND NOT THE FOOTINGS THEMSELVES OR BENEATH FOOTINGS.
4. THE CONTRACTOR SHALL ENGAGE A QUALIFIED GEOTECHNICAL REPRESENTATIVE TO VERIFY THAT SUITABLE SUBGRADE CONDITIONS (THAT MEET OR EXCEED THE REQUIREMENTS SET FORTH IN THE CONTRACT DOCUMENTS AND THE GEOTECHNICAL REPORT) ARE MET PRIOR TO THE PLACEMENT OF FOUNDATIONS.
5. ALL AREAS BENEATH FLOOR SLABS SHALL BE PROOF-ROLLED W/ A PNEUMATIC - TIRED FULLY LOADED (MINIMUM 20-TON) TANDEM AXLE DUMP TRUCK W/ A MINIMUM OF 3 PASSES. ANY SOFT AREAS SHALL BE OVEREXCAVATED AND BACKFILLED W/ STRUCTURAL FILL.
6. PROVIDE CORNER BARS SAME SIZE AND SPACING AS LONGITUDINAL REINFORCING IN FOUNDATION WALLS.
7. ALL 8" CMU AT THE NORTH/EAST/WEST WALLS SHALL BE REINFORCED W/ #5 @ 16" O.C. U.N.O. (FULL HEIGHT). ALL 8" CMU AT THE SOUTH WALL SHALL BE REINFORCED W/ #5 @ 8" O.C. U.N.O. (FULL HEIGHT).
8. PROVIDE CONT. WATERSTOP AROUND INTERFACE BETWEEN PERIMETER CONCRETE FOUNDATION WALL AND FOUNDATION SLAB.
9. FOUNDATION WALLS SHALL RECEIVE SELF-ADHERED SHEET WATERPROOFING AROUND ENTIRE PERIMETER.



2 ROOF FRAMING PLAN

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

PLAN NORTH

FRAMING NOTES:

1. REFER TO S-501 FOR LINTEL SCHEDULE.
2. REFER TO S-501 FOR SHEATHING FASTENER DETAIL.

This document, originally issued, sealed, and signed by David C. Hoy, Kentucky Professional Engineer, No. 28586, on 5/15/15, shall not be used in lieu of a certified document.

GRW PROJECT NO. 4325

CLIENT PROJECT NO.

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CONFORMANCE SET (BID OPENING DATE 4-30-2015)

STRUCTURAL PLANS

DUDLEY COMPLEX SODIUM HYPOCHLORITE BUILDING
CITY OF EDGEWOOD, KENTUCKY

DESIGNED:	DRAWN:	REVIEWED:	APPROVED:
DCH	KJW	DCH	DCH

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DATE: MAY, 2015

SCALE: AS NOTED

SHEET NO. S-101

PLOTTED BY: kyu160

PRINTED: 5/15/2015 @ 10:57AM

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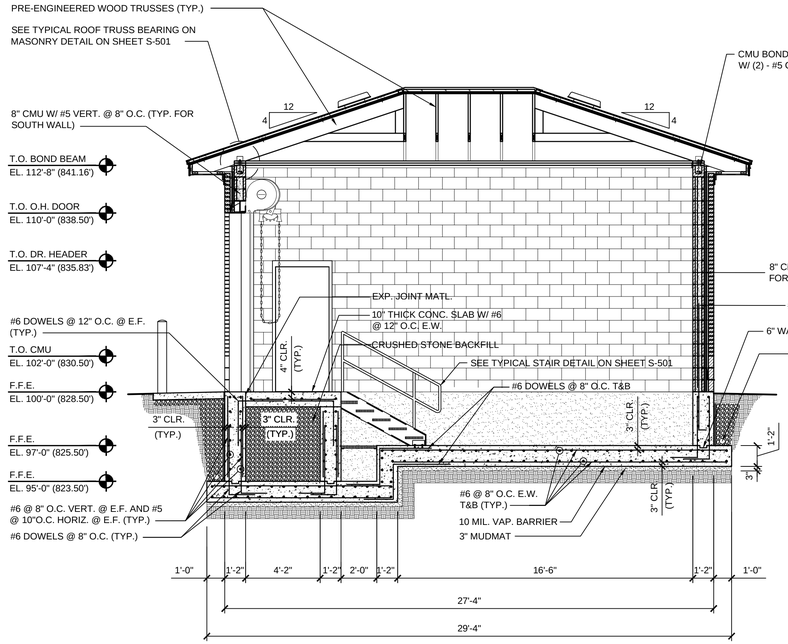
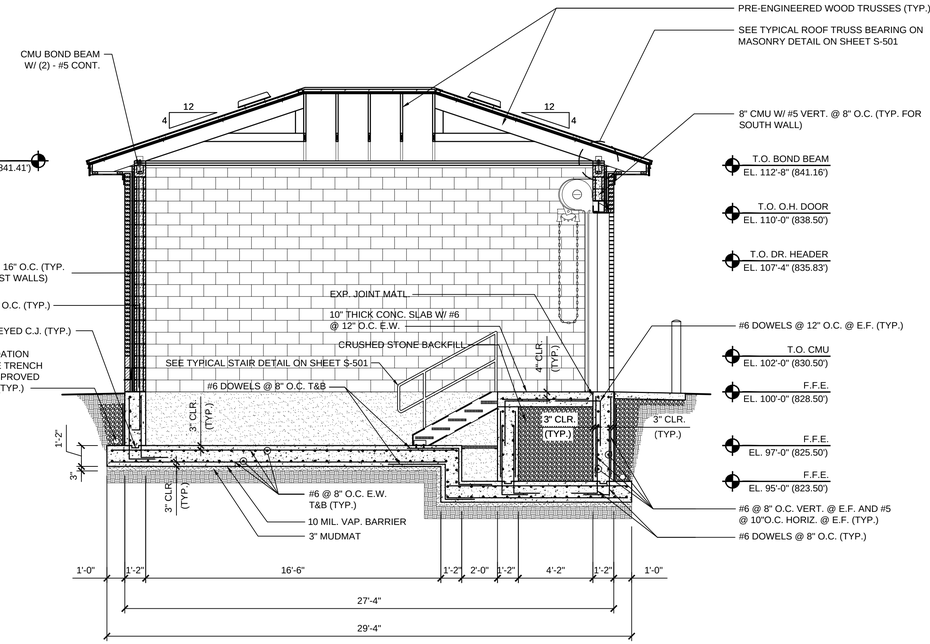


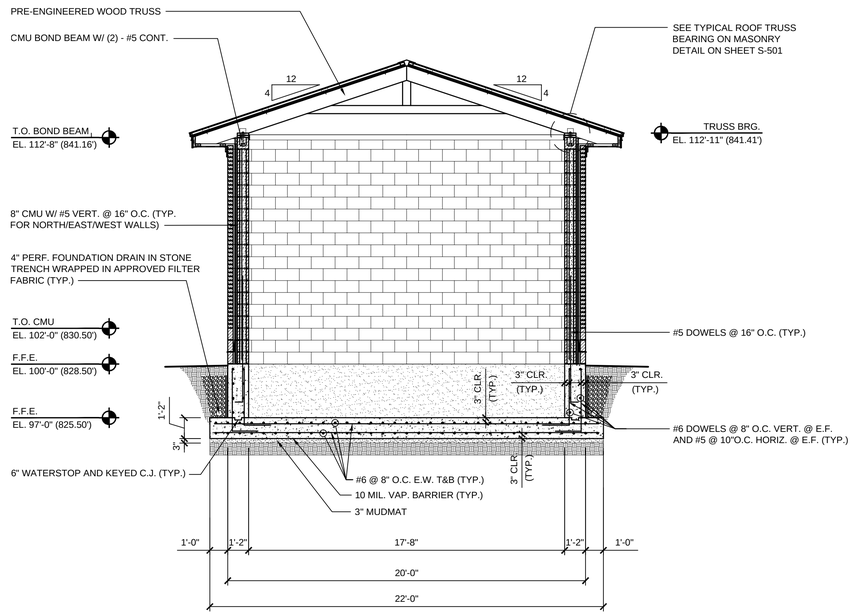
1 BUILDING SECTION

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



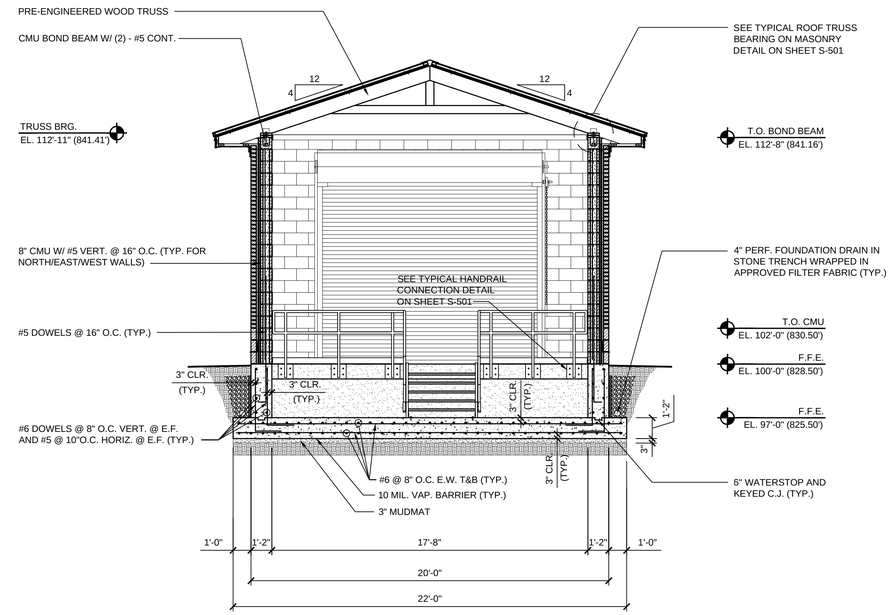
2 BUILDING SECTION

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



4 BUILDING SECTION

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



3 BUILDING SECTION

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

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STRUCTURAL BUILDING SECTIONS

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REVISIONS

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SCALE CHECK: THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

DATE: MAY, 2015

SCALE: AS NOTED

SHEET NO. S-301

PLOTTED BY: kjw160

PRINTED: 5/15/2015 @ 10:58AM

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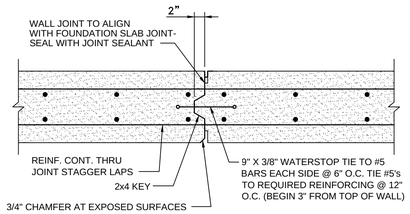
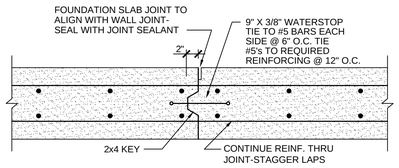


TYPICAL FOUNDATION WALL CONSTRUCTION JOINT DETAIL

SCALE: NONE

NOTE : SAWCUT MAX. DEPTH OF 1"
JOINT SHALL BE CLEANED TO SOUND AGGREGATE, MOISTENED WITH WATER AND SLUSHED WITH NEAT CEMENT GROUT IMMEDIATELY PRIOR TO PLACING CONCRETE. CONTRACTOR SHALL MAKE EVERY EFFORT TO POUR WALLS AS A CONT. POUR.



TYPICAL FOUNDATION SLAB CONSTRUCTION JOINT DETAIL

SCALE: NONE

NOTE : SAWCUT MAX. DEPTH OF 1 1/2"
CONTRACTOR SHALL MAKE EVERY EFFORT TO POUR FOUNDATION SLAB AS A CONT. POUR.

ADDENDUMS:

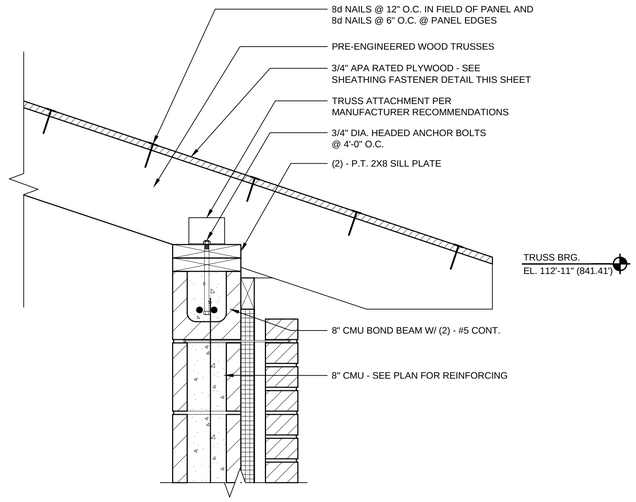
- PER ADDENDUM NO.2:

  ALL REFERENCES TO ALUMINUM HANDRAILS, GRATING AND SUPPORT STRUCTURES ON DRAWING DETAILS SHOWN ON SHEET S-501 SHALL BE REVISED TO INDICATE FRP CONSTRUCTION. FRP PRODUCTS SHALL BE DESIGNED AND PROVIDED IN ACCORDANCE WITH SPECIFICATION SECTION 107455 FIBERGLASS REINFORCED PLASTIC PRODUCTS AND FABRICATIONS.

LINTEL SCHEDULE

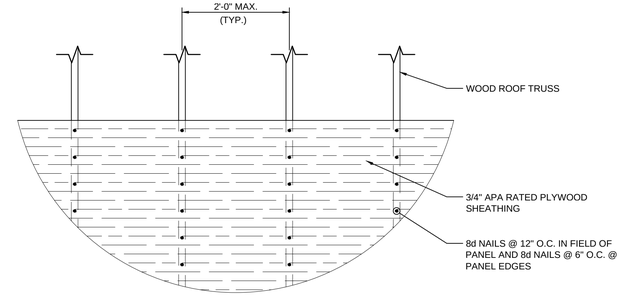
MARK	DESCRIPTION	CONFIG.	WALL THKNS.	OPNG WIDTH	BEARING EA END	REMARKS
L-1*	W8X28 W/ CONT. 13"Wx3/8" THK. BOT. PLATE		0'-8" MAS. 4" BRICK	12'-0"	1'-4"	
L-2	(3)-L6x3 1/2x5/16		0'-8" MAS. 4" BRICK	3'-4"	0'-8"	

*PROVIDE 3/4" DIA. SHEAR STUDS (8" LG.) @ 8" O.C. WELDED TO TOP FLANGE INTO MASONRY. PROVIDE (2) - 3/4" DIA. HEADED BOLTS (16" LG.) WELDED TO BOT. PLATE @ EACH BEARING END. GROUT CORES SOLID BENEATH BEAM BEARING.



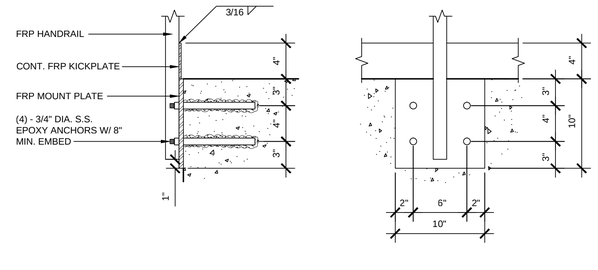
TYPICAL ROOF TRUSS BEARING ON MASONRY DETAIL

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



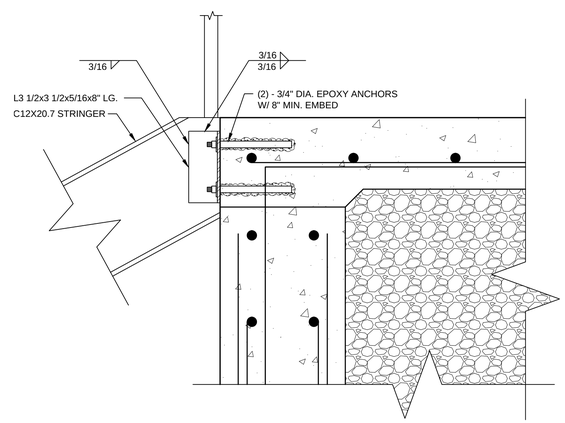
SHEATHING FASTENER DETAIL

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



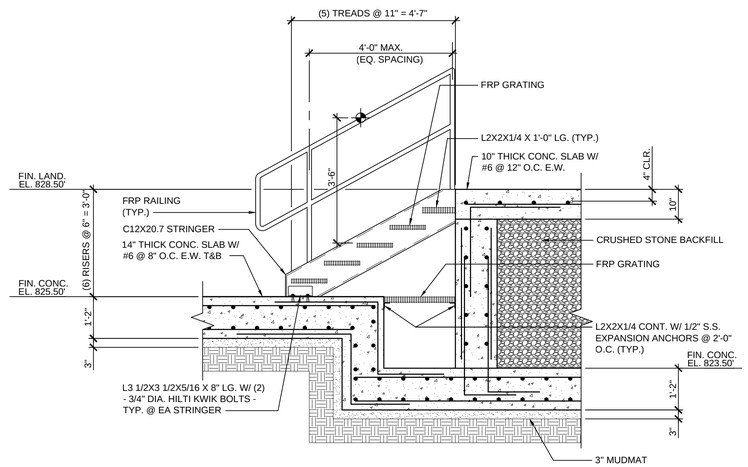
TYPICAL HANDRAIL CONNECTION DETAILS

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



STRINGER CONNECTION DETAIL

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



TYPICAL STAIR DETAIL

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

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CONFORMANCE SET (BID OPENING DATE 4-30-2015)

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CITY OF EDGEWOOD, KENTUCKY

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DCH	KJW	DCH	DCH

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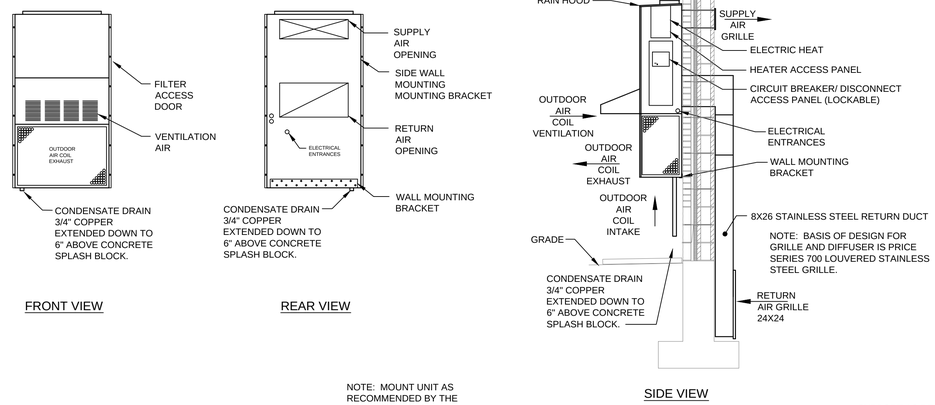
SCALE CHECK

DATE: MAY, 2015

SCALE: AS NOTED

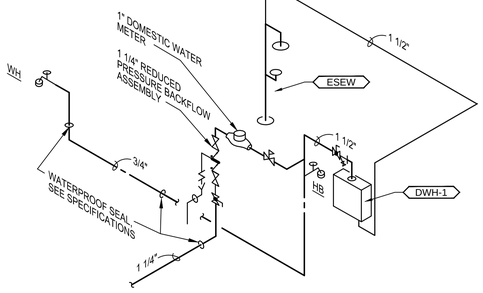
SHEET NO. S-501



NOTE: MOUNT UNIT AS RECOMMENDED BY THE MANUFACTURER.

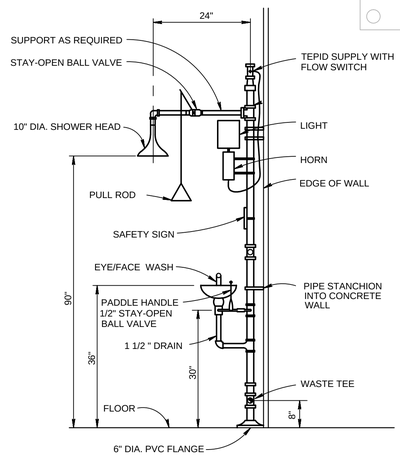
1 TYPICAL WALL-MOUNTED PACKAGED HEAT PUMP UNIT DETAIL

NOT TO SCALE



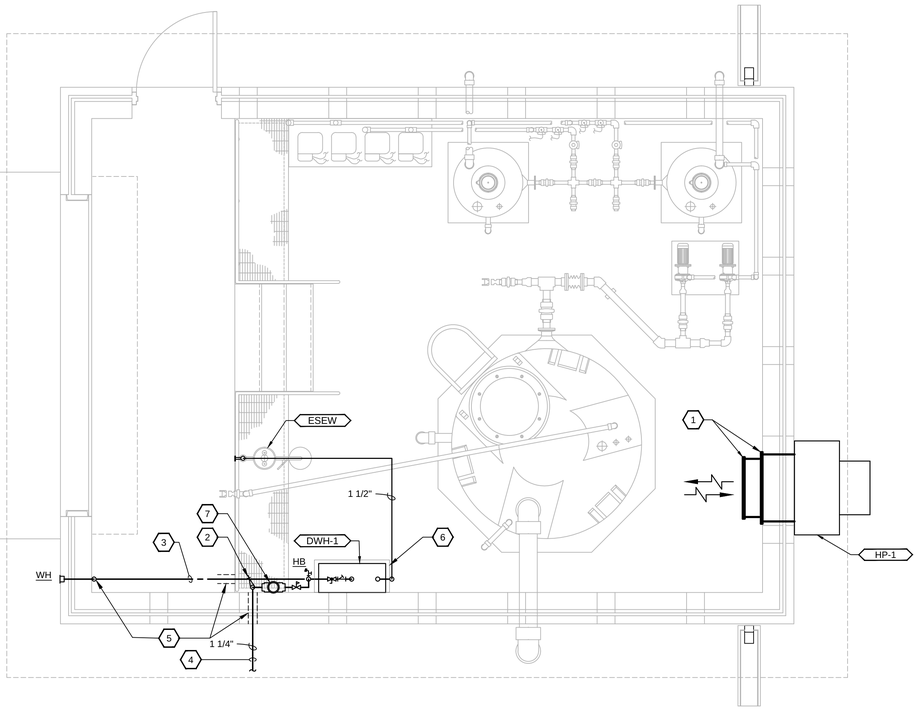
2 DOMESTIC WATER RISER

NOT TO SCALE



3 SAFETY SHOWER-(ESEW) EYE/FACE WASH DETAIL

NOT TO SCALE



SODIUM HYPOCHLORITE BUILDING MECHANICAL PLAN

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

0 2' 4' 6'

PLAN NORTH

GENERAL NOTES:

1. SEE MECHANICAL GENERAL NOTES AND LEGEND ON SHEET M-001.

ADDENDUMS:

- PER ADDENDUM NO.1:

  REMARKS AND ACCESSORIES NOTES BELOW THE DOMESTIC WATER HEATERS SCHEDULE HAVE BEEN REVISED AS SHOWN.

SHEET KEYNOTES:

1. STAINLESS STEEL SUPPLY AND RETURN AIR GRILLES.
2. 1 1/4" VERTICAL REDUCED PRESSURE ZONE BACKFLOW ASSEMBLY.
3. 3/4" DOMESTIC WATER PIPE BURIED BELOW SLAB HERE TO SUPPLY THE WALL HYDRANT AS SHOWN.
4. SEE SITE UTILITY PLAN C-101 FOR CONTINUATION.
5. MECHANICAL SLEEVE SEAL, SEE SPECIFICATIONS.
6. 4" CONCRETE HOUSEKEEPING PAD.
7. 1" DISC TYPE WATER METER.

PLUMBING FIXTURE SCHEDULE

MARK	MANUFACTURER & MODEL NO.	TYPE	TRIM	SUPPLY	DRAIN	MOUNTING	ACCESSORIES/COMMENTS
ESEW (ADA COMPLIANT)	GUARDIAN TRIM: MODEL G1992	POLYETHELENE COATED BRASS 1 1/4" NPT STAY OPEN BALL VALVE, 10" DIAMETER YELLOW IMPACT RESISTANT PLASTIC BOWL, TWIN PERFORATED-DISC EYE/FAC WASH HEADS WITH PROTECTIVE POP-OFF SPRAYHEAD COVERS.	ADA TRIM	1 1/4" TEPID WATER	-	FLOOR	PROVIDE EMERGENCY LIGHT, HORN, AND FLOW SWITCH.
HB	WOODFORD, MODEL 24	CHROME FINISH, WITH VACUUM BREAKER WITH 3/4" MALE HOSE THREAD.	ASSE STANDARD 1011 APPROVED	3/4"	-		
WH	WOODFORD, MODEL 65	CHROME FINISH, WITH VACUUM BREAKER WITH 3/4" MALE HOSE THREAD.	ASSE STANDARD 1011 APPROVED	3/4"	-		

REMARKS:
1. SEE SPECIFICATIONS FOR FIXTURE STANDARDS AND EQUIVALENT MANUFACTURERS.
2. SEE ARCHITECTURAL ROOM ELEVATION DWGS FOR MOUNTING HEIGHTS OF ALL PLUMBING FIXTURES.

DOMESTIC WATER HEATERS

UNIT NO.	LOCATION	DELIVERY G.P.M.	DELIVERY HEAT SOURCE	INPUT	VOLTS/Ø	TYPE	WARR.	CONTROLS	REMARKS	ACCESSORIES
DWH-1	-	20	ELECTRIC	72KW	480/3	-	5 YR.	ON DEMAND	1	1-8

REMARKS:
1. DESIGN BASIS: KELTECH SNA SERIES

ACCESSORIES:
1. STACK LIGHT WITH DISTRIBUTED CONTROL SYSTEM LINK
2. INTERNAL FUSED DISCONNECT
3. GROUND FAULT PACKAGE
4. ASME HEAT EXCHANGER
5. NEMA 4X ENCLOSURE - STAINLESS STEEL
6. PRESSURE AND TEMPERATURE RELIEF VALVE
7. Y-PATTERN STAINLESS STEEL STRAINER
8. FLOOR MOUNTED CABINET ENCLOSURE

HEAT PUMPS

UNIT NO.	TYPE	LOCATION	SUPPLY FAN NOM. CFM	RETURN CFM	O.A. CFM	EXH. CFM	EXT.S.P. IN. W.C.	RPM	HP	BHP	VOLTS /Ø	COOLING CAPACITY AT 95 °F TOTAL BTUH	SENS. BTUH	EAT °F DB	EAT °F WB	EER	COMPRESSOR NO.	COMPRESSOR VOLTS/Ø	HEATING CAPACITY AT 47°F TOTAL BTUH	EAT °F	COP	COMPRESSOR	COMPRESSOR VOLTS/Ø	AUX. HEATERS MAX. BTUH	NO. STEPS	KW EACH	VOLTS /Ø	REMARKS
HP--1	PACKAGE WALL MOUNT	-	800	760	40	40	.50"	VAR	1/3	-	460/3	22,400	18,400	80	67	11.2	1	460/3	22,200	70	3.2	1	460/3	18,840	1	6	460/3	1,2,3,4,5,6,7,8,9,10

REMARKS:
1. BARD T24H1C06WPSX1 2 TON DX WALL MOUNTED PACKAGED HEAT PUMP USED AS BASIS OF DESIGN.
2. PROVIDE DEHUMIDIFICATION OPTION.
3. PROVIDE FULL FLOW ENTHALPY ECONOMIZER.
4. PROVIDE 2" PLEATED FILTERS (MERV 8).
5. PROVIDE STAINLESS STEEL FINISH.
6. PROVIDE PHENOLIC COATED EVAPORATOR COIL.
7. PROVIDE FUSED DISCONNECT.
8. 3/4" COPPER CONDENSATE DRAIN PIPING TERMINATED 6" ABOVE CONCRETE SPLASH BLOCK.

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CONFORMANCE SET (BID OPENING DATE 4-30-2015)

SODIUM HYPOCHLORITE BUILDING
MECHANICAL PLAN

DUDLEY COMPLEX SODIUM HYPOCHLORITE BUILDING
CITY OF EDGEWOOD, KENTUCKY

DESIGNED:	DRAWN:	REVIEWED:	APPROVED:
CGT	CGT	DBC	DBC

REVISIONS

NO	DESCRIPTION	DATE	BY

THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

SCALE CHECK

DATE:
MAY, 2015

SCALE:
AS NOTED

SHEET NO.
M-101

PLOTTED BY: mseebold

PRINTED: 5/15/2015 @ 1:12PM

FILE NAME: U:\4325-NKWD Sdm\HypoBid\Working Drawings\4325-M-101.dwg

INTERIOR LIGHTING

CEILING MOUNTED / WALL MOUNTED

- b A — TWO BY FOUR FOOT LED LIGHTING FIXTURE,
  A - INDICATES TYPE
  b - DENOTES SWITCH DESIGNATION
- b a A — TWO BY FOUR FOOT LED LIGHTING FIXTURE WIRED FOR INDIVIDUAL SWITCHING OF INSIDE AND OUTSIDE LAMPS, LETTER INDICATES TYPE
- b a A — EMERGENCY TWO BY FOUR FOOT LED LIGHTING FIXTURE WIRED FOR INDIVIDUAL SWITCHING OF INSIDE AND OUTSIDE LAMPS, LETTER INDICATES TYPE
- A — EMERGENCY TWO BY FOUR LED LIGHTING FIXTURE, LETTER INDICATES TYPE
- C — LED ONE BY FOUR LIGHTING FIXTURE, LETTER INDICATES TYPE — C
- C — EMERGENCY ONE BY FOUR LED LIGHTING FIXTURE, LETTER INDICATES TYPE
- D — STRIP LED LIGHTING FIXTURE, LETTER INDICATES TYPE — D
- D — 8' STRIP LED LIGHTING FIXTURE,
- A — TWO BY TWO FOOT LED LIGHTING FIXTURE, LETTER INDICATES TYPE
- A — EMERGENCY TWO BY TWO FOOT LED LIGHTING FIXTURE LETTER INDICATES TYPE
- A — EMERGENCY SELF CONTAINED LIGHTING UNIT WITH TWO LIGHT FIXTURE HEADS, LETTER INDICATES TYPE — A
- OR / OR — EXIT LIGHT WITH ARROW, LETTER INDICATES TYPE
  X1 - SINGLE FACE
  X2 - DOUBLE FACE — OR / OR
- R — EMERGENCY REMOTE HEAD — R
- A — INCANDESCENT OR HID LIGHTING FIXTURE, LETTER INDICATES TYPE — A
- A — EMERGENCY INCANDESCENT OR HID LIGHTING FIXTURE, LETTER INDICATES TYPE — A
- A — HID LIGHTING FIXTURE WITH QUARTZ RESTRIKE, LETTER INDICATES TYPE — A

INTERIOR CONDUIT AND WIRE

- CONDUIT CONCEALED IN WALL OR CEILING TIC MARKS INDICATE NUMBER OF WIRES. #12 IF NOT OTHERWISE SHOWN. CONDUIT SHALL BE 3/4 " UNLESS OTHERWISE NOTED.
  - GROUND
  - PHASE(S)
  - NEUTRAL
- CONDUIT CONCEALED BEHIND CEILING OR WALL FINISH
- CONDUIT EXPOSED ON WALL OR STRUCTURE
- CONDUIT IN OR UNDER FLOOR SLAB
- LP1-2 — HOMERUN TO PANEL (PANEL LP1 CIRCUIT 2 INDICATED)
- SIGNIFIES MULTIPLE CIRCUITS IN ONE CONDUIT
- EXPLOSION PROOF CONDUIT SEAL
- CONDUIT WITH END CAPPED
- CONDUIT TURNED UP
- CONDUIT TURNED DOWN
- Ⓑ — BLANKED OFF OUTLET BOX

INTERIOR POWER EQUIPMENT AND DEVICES

- SINGLE RECEPTACLE
- PUSHBUTTON STATION
- GENERATOR SET
- AUTOMATIC TRANSFER SWITCH
- DUPLEX RECEPTACLE, 125 VOLT, 2-POLE, 3 WIRE, NEMA 5-20R GROUNDING TYPE, SUBSCRIPT DENOTES THE FOLLOWING:
  WP : WEATHERPROOF
  GFI : INTEGRAL GROUND FAULT INTERRUPT
  IG : ISOLATED GROUND
  EXP : EXPLOSION PROOF
- (6-60) GFI — SPECIAL PURPOSE RECEPTACLE, NUMBER DENOTES NEMA CONFIGURATION, SUBSCRIPTS DENOTE THE FOLLOWING:
  WP : WEATHERPROOF
  GFI : INTEGRAL GROUND FAULT INTERRUPT
  EXP : EXPLOSION PROOF, PROVIDE TYPE 7 ENCLOSURE
- TRIPLEX RECEPTACLE, SUBSCRIPT DENOTES THE FOLLOWING
  WP : WEATHERPROOF
  GFI : INTEGRAL GROUND FAULT INTERRUPT
- QUADRAPLEX RECEPTACLE, 125 VOLT, 2-POLE, 3 WIRE, NEMA 5-20R GROUNDING TYPE, SUBSCRIPT DENOTES THE FOLLOWING:
  WP : WEATHERPROOF
  GFI : INTEGRAL GROUND FAULT INTERRUPT
- SINGLE SPECIAL PURPOSE RECEPTACLE
- FLOOR MOUNTED RECEPTACLE
- RANGE OUTLET
- Ⓙ — JUNCTION BOX WALL OR CEILING MOUNTED FLUSH, 4"X4" SQUARE UNLESS OTHERWISE NOTED
- Ⓙ — JUNCTION BOX SURFACE MOUNTED ON WALL OR STRUCTURE 4"X4" SQUARE UNLESS OTHERWISE NOTED
- P — PULL BOX-SIZE AS INDICATED ON DRAWINGS
- (1) (3) (5) (3) — MULTI-OUTLET SURFACE RACEWAY, SIZE AND NUMBER OF RECEPTACLE AS SCHEDULED. NUMBER INDICATES CIRCUIT NUMBER
- W W W W W — WIREWAY
- C C C C C — CABLE TRAY
- B B B B B — PLUGIN OR FEEDER BUS
- WALL MOUNTED SINGLE FACE CLOCK
- WALL MOUNTED DOUBLE FACE CLOCK
- $X — WALL SWITCH 120-277 VOLT, 20 AMP, SINGLE POLE SUBSCRIPT (X) DENOTES OTHERWISE SWITCH DESIGNATIONS DESIGNATION:

X= EP : EXPLOSIONPROOF
M : MOTOR RATED WITH OVERLOAD PROTECTION
T : TIMER
D,600 : DIMMER SWITCH, 600 WATT NOTED
a : SWITCHING DESIGNATION
L : LOW VOLTAGE

2 : DOUBLE POLE
3 : THREE WAY
4 : FOUR WAY
K : KEY OPERATED
P : PILOT LIGHT
D : DOOR SWITCH
WP : WEATHERPROOF

- $$ — TWO SINGLE POLE SWITCHES FOR MULTI-LEVEL LIGHTING
- M OR 5 — MOTOR CONNECTION (5 HP INDICATED)
- SWITCHBOARD
- PANELBOARD, SURFACE MOUNTED
- PANELBOARD, RECESSED
- DISCONNECT SWITCH
  - NON-FUSED
  - FUSED
- 3/30-15RK5/3R
  - NEMA DESIGNATION
  - FUSE SIZE, UL CLASS (FUSED SWITCH ONLY)
  - SWITCH AMP RATING
  - NUMBER OF POLES
- ENCLOSED CIRCUIT BREAKER
- 3/100-22K/3R
  - NEMA DESIGNATION
  - AIC RATING
  - TRIP RATING (AMPS)
  - NUMBER OF POLES
- MOTOR CONTROLLER
- 31/R
  - NOTATION WHEN OTHER THAN ACROSS THE LINE
    RVA - REDUCED VOLTAGE AUTO TRANSFORMER
    RVR - REDUCED VOLTAGE PRIMARY RESISTER
    RVW - REDUCED VOLTAGE WYE/DELTA
    RVP - REDUCED VOLTAGE PART WINDING
    R - REVERSIBLE
  - STARTER NEMA SIZE
  - NUMBER OF POLES
- COMBINATION STARTER/FUSED DISCONNECT
- 31/60-30RK5/3R
  - NEMA DESIGNATION
  - FUSE RATING AND UL CLASS
  - SWITCH AMP RATING
  - STARTER NEMA SIZE
  - NUMBER OF POLES
- COMBINATION STARTER/CIRCUIT BREAKER
- 31/60-22K/3R
  - NEMA DESIGNATION
  - AIC RATING
  - TRIP AMP RATING
  - STARTER NEMA SIZE
  - NUMBER OF POLES
- VARIABLE FREQUENCY CONTROLLER
- 3/15-V/3R
  - NEMA DESIGNATION
  - CONTROLLER TYPE:
    H - CONSTANT HP
    C - CONSTANT TORQUE
    V - VARIABLE TORQUE
  - HP RATING
  - NUMBER OF POLES
- MCD — MAGNETIC CONTACT, DOOR MOUNTED
- MCW — MAGNETIC CONTACT, WINDOW MOUNTED
- M — PASSIVE INFRARED MOTION DETECTOR, ARROW DENOTES CURTAIN DIRECTION

- ETM — ELAPSED TIME METER
- TM — TIMER MOTOR
- R OR CR# — RELAY
- SV — SOLENOID VALVE CONNECTION
- LS — LIMIT SWITCH CONNECTION
- T — THERMOSTAT CONNECTION
- PE — PNEUMATIC/ELECTRIC CONNECTION
- PC — PHOTOCELL
- PS — PRESSURE SWITCH CONNECTION

EXTERIOR

EXISTING		NEW
35/3	POLE, LENGTH AND CLASS AS INDICATED	35/3
8M-20	DOWN GUY-NOTED AS 8000 POUND STRENGTH. ANCHOR AT 20 FEET FROM POLE	8M-20
3-25	TRANSFORMER BANK POLE MOUNTED-SHOWN AS THREE PHASE 25 KVA TRANSFORMERS	3-25
25	SINGLE PHASE TRANSFORMER, POLE MOUNTED 25 KVA NOTED	25
T 100	PAD MOUNTED TRANSFORMER INDICATED AS 100 KVA	T 100
	FUSE CUTOUT WITH FUSE SIZE AND TYPE NOTED	
	DISCONNECT SWITCH OR SECTIONALIZING SWITCH	
4#6 4160V EOP	OVERHEAD PRIMARY-SHOWN AS 4-#6 CONDUCTORS, 4160V	3 PHASE 4#6 4160V OHP SINGLE PHASE
EUP	UNDERGROUND PRIMARY	UP
EOS	OVERHEAD SECONDARY	OHS
EUS	UNDERGROUND SECONDARY	US
EUT	UNDERGROUND TELEPHONE CONDUIT	UT
EOT	OVERHEAD TELEPHONE	OT
EUC	UNDERGROUND COMMUNICATION	UC
XXX-XX-XX XXX-XX-XX=	POLE MOUNTED LIGHTING FIXTURE FIXTURE DESIGNATION / FIXTURE #	XXX-XX-XX
EG	BURIED GROUND WIRE	G
EG	GROUND WIRE IN OR UNDER FLOOR SLAB	G
EG	GROUND WIRE EXPOSED	G
	GROUND CONNECTION OR EQUIPMENT BOND	
EG	ROOF CONDUCTOR	G
10-3/4 W	GROUND ROD. SIZE AS NOTED 10 FT. LENGTH AND 3/4 INCHES DIAMETER NOTED (W DENOTES INSTALLATION IN WELL)	10-3/4 W
24	LIGHTNING ROD, (24 INCHES HIGH NOTED)	24
60/2	MAST TYPE LIGHTNING PROTECTION SYSTEM. 60' CLASS 2 POLE NOTED	60/2
XXX	MANHOLE, SUBSCRIPT DENOTES THE FOLLOWING XXX=EMH=ELECTRICAL CMH=COMMUNICATIONS	
XXX	HANDHOLE, SUBSCRIPT DENOTES THE FOLLOWING XXX=EHH=ELECTRICAL CHH=COMMUNICATIONS	
XXX	PULLBOX, SUBSCRIPT DENOTES THE FOLLOWING XXX=EPB=ELECTRICAL CPB=COMMUNICATIONS	
	WALLPACK EXTERIOR LIGHT FIXTURE	

ABBREVIATIONS

A, AMP - AMPERES
AF - AMPERE FRAME
AFF - ABOVE FINISHED FLOOR
AFG - ABOVE FINISHED GRADE
AHU - AIR HANDLING UNIT
AL - ALUMINUM
AT - AMPERE TRIP
ATRV - AUTOTRANSFORMER REDUCED VOLTAGE
ATS - AUTOMATIC TRANSFER SWITCH
AWG - AMERICAN WIRE GAUGE
BLDG - BUILDING
C - CONDUIT
CB - CIRCUIT BREAKER
CCTV - CLOSED CIRCUIT TELEVISION
CKT - CIRCUIT
C/L - CENTERLINE
CLG - CEILING
COND - CONDUCTOR
CONN - CONNECTION
CTL - CONTROL
CU - COPPER
DACT - DIGITAL ALARM COMMUNICATING TRANSMITTER
DB - DIRECT BURIAL
DET - DETAIL
DP - DISTRIBUTION PANEL
DISC - DISCONNECT
DN - DOWN
DP - DISTRIBUTION PANEL
DPST - DOUBLE POLE SINGLE THROW
EA - EACH
EC - EMPTY CONDUIT
ELEC - ELECTRICAL
ELEV - ELEVATOR
EM, EMERG - EMERGENCY
EMT - ELECTRICAL METALLIC TUBING
EOL - END OF LINE
EUH - ELECTRIC UNIT HEATER
EWC - ELECTRIC WATER COOLER
EWH - ELECTRIC WATER HEATER
EX - EXISTING
F - FUSE
FLA - FULL LOAD AMPS
FLEX - FLEXIBLE
FLR - FLOOR
FLUOR - FLUORESCENT
FOR - FOWARD-OFF-REVERSE
FTG - FITTING
FVNR - FULL VOLTAGE NON-REVERSING
GALV - GALVANIZED
G, GND - GROUND
GFI - GROUND FAULT INTERRUPTING
HID - HIGH INTENSITY DISCHARGE
HP - HORSEPOWER
HT, H - HEIGHT
IG - ISOLATED GROUND
IN - INCH
INC - INCANDESCENT
J-BOX, JB - JUNCTION BOX
KCMIL - 1000 CIRCULAR MILS
KVA - KILOVOLT AMPS
KVAF - KILOVOLT AMPS REACTIVE
KW - KILOWATT
KWH - KILOWATT HOUR
LA - LIGHTNING ARRESTER
LTG - LIGHTING
LV - LOW VOLTAGE
LVDT - LINEAR VARIABLE DIFFERENTIAL TRANSFORMER
MAU - MAKEUP AIR UNIT
MAX - MAXIMUM
MCB - MAIN CIRCUIT BREAKER
MCC - MOTOR CONTROL CENTER
MCP - MOTOR CIRCUIT PROTECTOR
MDP - MAIN DISTRIBUTION PANEL
MFR - MANUFACTURER
MG - MOTOR GENERATOR
MH - MANHOLE, METAL HALIDE, MOUNTING HEIGHT
MIC - MICROPHONE
MIN - MINIMUM
MLO - MAIN LUGS ONLY
MTD - MOUNTED
MV - MEDIUM VOLTAGE
N/A - NOT APPLICABLE
NEC - NATIONAL ELECTRICAL CODE
NEMA - NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
NESC - NATIONAL ELECTRICAL SAFETY CODE
NFPA - NATIONAL FIRE PROTECTION ASSOCIATION
NIC - NOT IN CONTRACT
NTS - NOT TO SCALE
NO - NORMALLY OPEN, NUMBER
OH - OVERHEAD
OL - OVERLOAD
P - POLE
PB - PULL BOX, PUSH BUTTON
PH - PHASE
PNL - PANEL
POC - POINT OF CONNECTION
PS - PULL SWITCH OR PRESSURE SWITCH
QTY - QUANTITY
REF - REFERENCE, REFER
RCPT - RECEPTACLE
RGS - RIGID GALVANIZED STEEL
SCH - SCHEDULE
SMR - SURFACE METAL RACEWAY
S/N - SOLID NEUTRAL
SQ FT - SQUARE FOOT
SS - STAINLESS STEEL
STD - STANDARD
STP - SHIELDED TWISTED PAIR
SW - SWITCH
SYS - SYSTEM
TEL - TELEPHONE
TM - THERMAL MAGNETIC
TV - TELEVISION
TVSS - TRANSIENT VOLTAGE SURGE SUPRESSOR
TYP - TYPICAL
UG - UNDERGROUND
UH - UNIT HEATER
V - VOLTAGE
VFD - VARIABLE FREQUENCY DRIVE
W - WIRE
W/ - WITH
W/O - WITH OUT
WP - WEATHERPROOF
WT - WEIGHT
X'FMR, XFMR - TRANSFORMER

- LIST OF ABBREVIATIONS, ACRONYMS, AND SYMBOLS IS A STANDARD LIST. NOT ALL SYMBOLS ARE USED ON THIS PROJECT.
- SYMBOLS USED BUT NOT LISTED HERE SHALL BE DEFINED ELSEWHERE IN THE BID DOCUMENTS. IF NOT, CONTACT THE ENGINEER FOR CLARIFICATION PRIOR TO BID OPENING.

— KEY NOTE CALL OUT

CONTROLS

- A — AMMETER
- DM — DAMPER MOTOR ACTUATOR, SPRING RETURN
- EF — EXHAUST FAN MOTOR
- V — VOLTMETER
- W — WATTMETER
- WH — WATTHOUR METER
- CURRENT TRANSFORMER
- POTENTIAL TRANSFORMER
- TVSS — TRANSIENT VOLTAGE SURGE SUPPRESSOR
- TS OR — LIGHTNING ARRESTOR (CROWBAR STYLE)
- CAPACITOR
- GROUND
- TRANSFORMER
- RELAY CONTROLS (NORMALLY OPEN)
- RELAY CONTROLS (NORMALLY CLOSED)
- K — KEY INTERLOCK
- THERMAL OVERLOAD PROTECTION
- OR — FUSE
- SWITCH, NONFUSED
- FUSED SWITCH
- DOUBLE THROW SWITCH OR TRANSFER SWITCH
- FLOAT SWITCH
- THERMOSTATIC SWITCH
- PRESSURE SWITCH
- LIMIT SWITCH OR TORQUE SWITCH
- DOT INDICATES CONNECTION OF WIRES
- 1 2 — TERMINALS FOR WIRE CONNECTIONS FROM REMOTE DEVICE
- OR — PILOT LIGHT IN CONTROL CIRCUIT
- M — MOTOR STARTER COIL
- AUTOTRANSFORMER
- TIMER CLUTCH OR SOLENOID
- CIRCUIT BREAKER GENERIC
- MAGNETIC ONLY CIRCUIT BREAKER (SINGLE POLE SHOWN)
- THERMAL-MAGNETIC CIRCUIT BREAKER (SINGLE POLE SHOWN)
- BATTERY
- GF — GROUND FAULT PROTECTED BREAKER
- STOP START M — START-STOP PUSHBUTTON (NON-MAINTAINED CONTACT)
- OFF ON — ON-OFF PUSHBUTTON (MAINTAINED CONTACT)
- H O A — 3 POSITION SELECTOR SWITCH
  H O A - HAND/OFF/ON AUTOMATIC
  L O R - LOCAL/OFF/REMOTE

MISCELLANEOUS

DETAIL CONVENTIONS

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

C5.2 / C3
- SHEET WHERE DETAIL IS DRAWN
- DETAIL NUMBER
- SHEET WHERE DETAIL OCCURS

C5.2 / C3
DETAIL IN PLAN

- C- CIVIL/SANITARY
- A- ARCHITECTURAL
- S- STRUCTURAL
- M- MECHANICAL
- P- PLUMBING
- E- ELECTRICAL

GENERAL NOTE:

1. ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR COORDINATING WIRING WITH INSTRUMENTATION EQUIPMENT PROVIDED IN DIVISION 33.

CONFORMANCE SET (BID OPENING DATE 4-30-2015)

GRW PROJECT NO. 4325
CLIENT PROJECT NO.

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STANDARD ELECTRICAL SYMBOLS

DUDLEY COMPLEX SODIUM HYPOCHLORITE BUILDING
CITY OF EDGEWOOD, KENTUCKY

DESIGNED:	DRAWN:	REVIEWED:	APPROVED:
WER	WER	WER	WER

REVISIONS

NO.	DESCRIPTION	DATE	BY

SCALE CHECK: THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

DATE: MAY, 2015
SCALE: AS NOTED
SHEET NO. E-001

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PRINTED: 5/15/2015 @ 11:40AM
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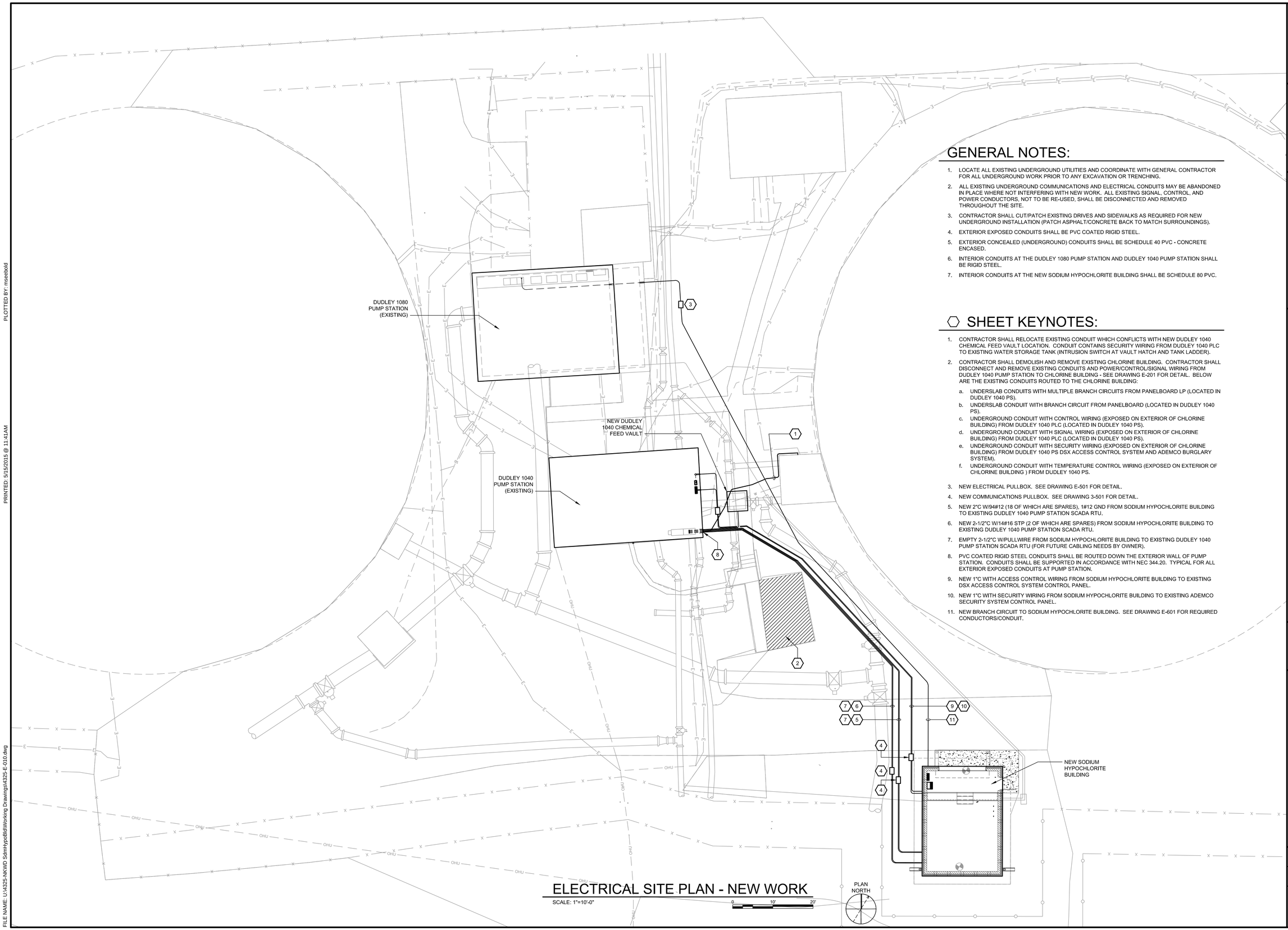

ELECTRICAL SITE PLAN - NEW WORK

SCALE: 1"=10'-0"

0 10' 20'

PLAN NORTH

GENERAL NOTES:

1. LOCATE ALL EXISTING UNDERGROUND UTILITIES AND COORDINATE WITH GENERAL CONTRACTOR FOR ALL UNDERGROUND WORK PRIOR TO ANY EXCAVATION OR TRENCHING.
2. ALL EXISTING UNDERGROUND COMMUNICATIONS AND ELECTRICAL CONDUITS MAY BE ABANDONED IN PLACE WHERE NOT INTERFERING WITH NEW WORK. ALL EXISTING SIGNAL, CONTROL, AND POWER CONDUCTORS, NOT TO BE RE-USED, SHALL BE DISCONNECTED AND REMOVED THROUGHOUT THE SITE.
3. CONTRACTOR SHALL CUT/PATCH EXISTING DRIVES AND SIDEWALKS AS REQUIRED FOR NEW UNDERGROUND INSTALLATION (PATCH ASPHALT/CONCRETE BACK TO MATCH SURROUNDINGS).
4. EXTERIOR EXPOSED CONDUITS SHALL BE PVC COATED RIGID STEEL.
5. EXTERIOR CONCEALED (UNDERGROUND) CONDUITS SHALL BE SCHEDULE 40 PVC - CONCRETE ENCASED.
6. INTERIOR CONDUITS AT THE DUDLEY 1080 PUMP STATION AND DUDLEY 1040 PUMP STATION SHALL BE RIGID STEEL.
7. INTERIOR CONDUITS AT THE NEW SODIUM HYPOCHLORITE BUILDING SHALL BE SCHEDULE 80 PVC.

⬡ SHEET KEYNOTES:

1. CONTRACTOR SHALL RELOCATE EXISTING CONDUIT WHICH CONFLICTS WITH NEW DUDLEY 1040 CHEMICAL FEED VAULT LOCATION. CONDUIT CONTAINS SECURITY WIRING FROM DUDLEY 1040 PLC TO EXISTING WATER STORAGE TANK (INTRUSION SWITCH AT VAULT HATCH AND TANK LADDER).
2. CONTRACTOR SHALL DEMOLISH AND REMOVE EXISTING CHLORINE BUILDING. CONTRACTOR SHALL DISCONNECT AND REMOVE EXISTING CONDUITS AND POWER/CONTROL/SIGNAL WIRING FROM DUDLEY 1040 PUMP STATION TO CHLORINE BUILDING - SEE DRAWING E-201 FOR DETAIL. BELOW ARE THE EXISTING CONDUITS ROUTED TO THE CHLORINE BUILDING:
   a. UNDERSLAB CONDUITS WITH MULTIPLE BRANCH CIRCUITS FROM PANELBOARD LP (LOCATED IN DUDLEY 1040 PS).
   b. UNDERSLAB CONDUIT WITH BRANCH CIRCUIT FROM PANELBOARD (LOCATED IN DUDLEY 1040 PS).
   c. UNDERGROUND CONDUIT WITH CONTROL WIRING (EXPOSED ON EXTERIOR OF CHLORINE BUILDING) FROM DUDLEY 1040 PLC (LOCATED IN DUDLEY 1040 PS).
   d. UNDERGROUND CONDUIT WITH SIGNAL WIRING (EXPOSED ON EXTERIOR OF CHLORINE BUILDING) FROM DUDLEY 1040 PLC (LOCATED IN DUDLEY 1040 PS).
   e. UNDERGROUND CONDUIT WITH SECURITY WIRING (EXPOSED ON EXTERIOR OF CHLORINE BUILDING) FROM DUDLEY 1040 PS DSX ACCESS CONTROL SYSTEM AND ADEMCO BURGLARY SYSTEM).
   f. UNDERGROUND CONDUIT WITH TEMPERATURE CONTROL WIRING (EXPOSED ON EXTERIOR OF CHLORINE BUILDING) FROM DUDLEY 1040 PS.
3. NEW ELECTRICAL PULLBOX. SEE DRAWING E-501 FOR DETAIL.
4. NEW COMMUNICATIONS PULLBOX. SEE DRAWING 3-501 FOR DETAIL.
5. NEW 2"C W/94#12 (18 OF WHICH ARE SPARES), 1#12 GND FROM SODIUM HYPOCHLORITE BUILDING TO EXISTING DUDLEY 1040 PUMP STATION SCADA RTU.
6. NEW 2-1/2"C W/14#16 STP (2 OF WHICH ARE SPARES) FROM SODIUM HYPOCHLORITE BUILDING TO EXISTING DUDLEY 1040 PUMP STATION SCADA RTU.
7. EMPTY 2-1/2"C W/PULLWIRE FROM SODIUM HYPOCHLORITE BUILDING TO EXISTING DUDLEY 1040 PUMP STATION SCADA RTU (FOR FUTURE CABLING NEEDS BY OWNER).
8. PVC COATED RIGID STEEL CONDUITS SHALL BE ROUTED DOWN THE EXTERIOR WALL OF PUMP STATION. CONDUITS SHALL BE SUPPORTED IN ACCORDANCE WITH NEC 344.20. TYPICAL FOR ALL EXTERIOR EXPOSED CONDUITS AT PUMP STATION.
9. NEW 1"C WITH ACCESS CONTROL WIRING FROM SODIUM HYPOCHLORITE BUILDING TO EXISTING DSX ACCESS CONTROL SYSTEM CONTROL PANEL.
10. NEW 1"C WITH SECURITY WIRING FROM SODIUM HYPOCHLORITE BUILDING TO EXISTING ADEMCO SECURITY SYSTEM CONTROL PANEL.
11. NEW BRANCH CIRCUIT TO SODIUM HYPOCHLORITE BUILDING. SEE DRAWING E-601 FOR REQUIRED CONDUCTORS/CONDUIT.

GRW PROJECT NO. 4325

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CONFORMANCE SET (BID OPENING DATE 4-30-2015)

ELECTRICAL SITE PLAN

DUDLEY COMPLEX SODIUM HYPOCHLORITE BUILDING
CITY OF EDGEWOOD, KENTUCKY

DESIGNED:	DRAWN:	REVIEWED:	APPROVED:
WER	WER	WER	WER

REVISIONS

NO.	DESCRIPTION	DATE	BY

THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

SCALE CHECK

DATE: MAY, 2015

SCALE: 1" = 10'-0"

SHEET NO. E-010

PLOTTED BY: rsteitold

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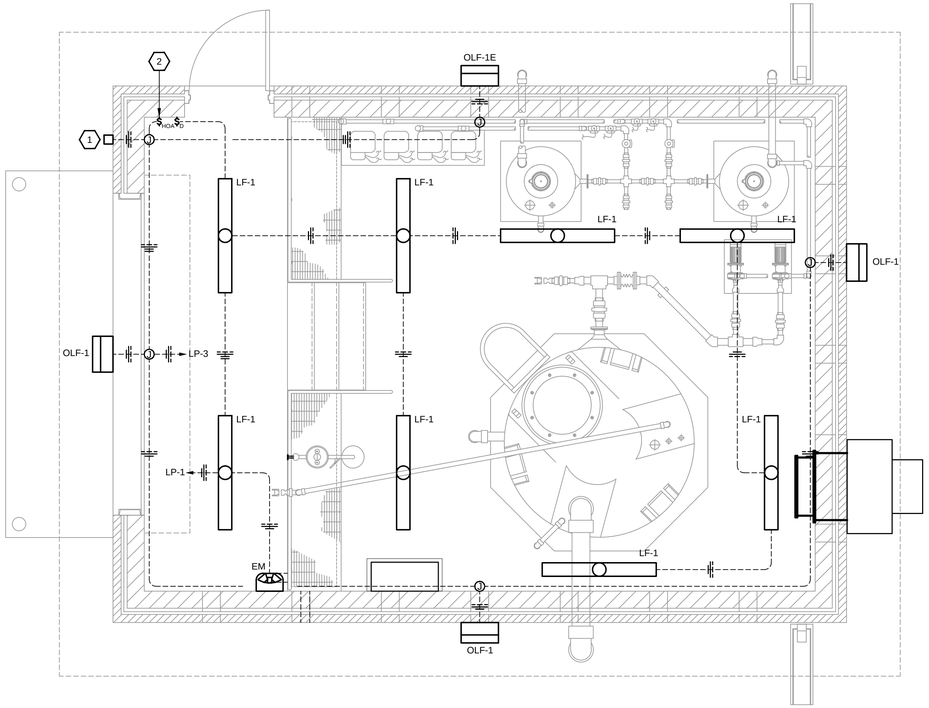
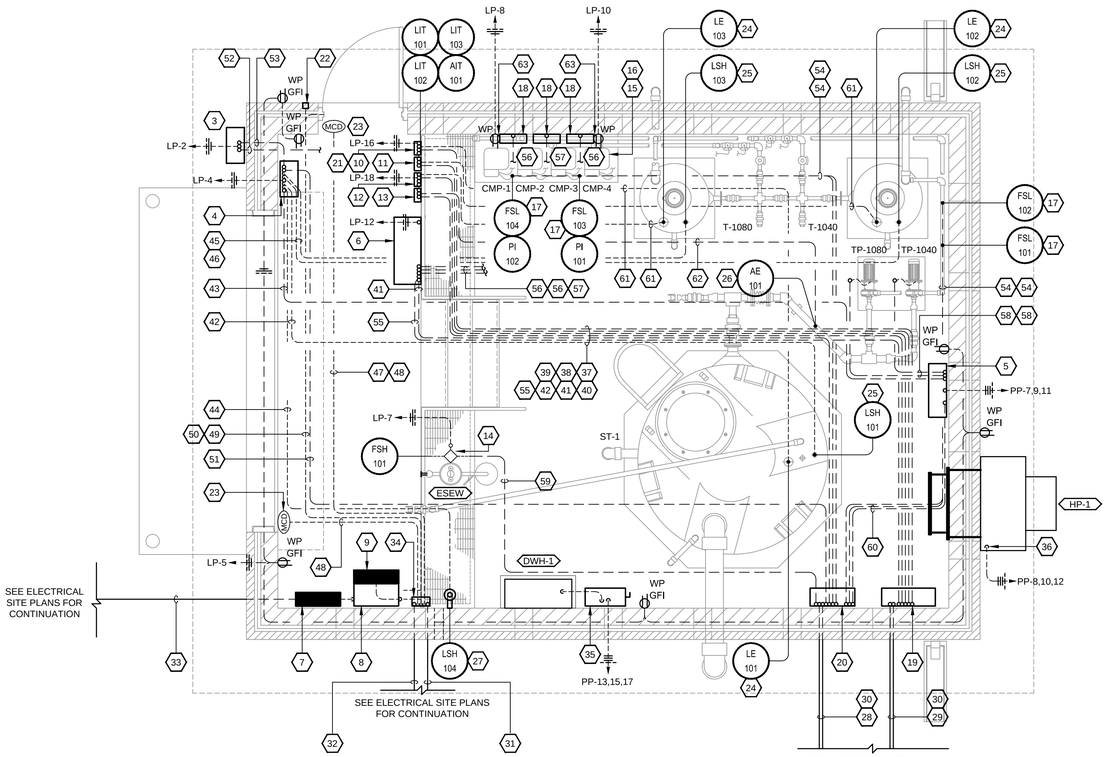


1 SODIUM HYPOCHLORITE BUILDING - LIGHTING PLAN

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

0 2' 4' 6'

PLAN NORTH



2 SODIUM HYPOCHLORITE BUILDING - POWER PLAN

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

0 2' 4' 6'

PLAN NORTH

GENERAL NOTES:

1. LIGHT FIXTURES LF-1 LOCATED AT UPPER LEVEL SHALL BE MOUNTED AT 10' AFF.
2. LIGHT FIXTURES LF-1 LOCATED AT LOWER LEVEL SHALL BE MOUNTED AT 12' AFF.
3. LIGHT FIXTURES OLF-1/OLF-1E SHALL BE MOUNTED AT 11' AFG.
4. LIGHT FIXTURES MAY BE MOUNTED OFF OF UNISTRUT OR CHAIN HANG AT THE CONTRACTORS DISCRETION.
5. SEE DRAWING E-701 FOR WALLPACK LIGHTING CONTROL.
6. POWER WIRING IS NOT SHOWN TO LIQUID FLOW SWITCHES FOR CLARITY, HOWEVER, SHALL BE PROVIDED. SEE PANEL SCHEDULE FOR REQUIRED CIRCUITS.
7. SURGE SUPPRESSORS SHALL BE PROVIDED ON ALL INSTRUMENTS LOCATED WITHIN THE SODIUM HYPOCHLORITE BUILDING. SEE P&ID AND SPECIFICATIONS FOR DETAILS.
8. SEE DRAWING E-601 FOR POWER DISTRIBUTION EQUIPMENT FEEDERS.
9. SURGE PROTECTION DEVICES SHALL ARE NOT SHOWN ON THE ELECTRICAL PLAN FOR CLARITY, HOWEVER, SHALL BE FURNISHED AND INSTALLED AS NEAR THEIR RESPECTIVE PANELBOARD AS PRACTICAL.
10. EXTERIOR EXPOSED CONDUITS SHALL BE PVC COATED RIGID STEEL.
11. EXTERIOR CONCEALED (UNDERGROUND) CONDUITS SHALL BE SCHEDULE 40 PVC - CONCRETE ENCASED.
12. INTERIOR CONDUITS AT THE NEW SODIUM HYPOCHLORITE BUILDING SHALL BE SCHEDULE 80 PVC.

SHEET KEYNOTES:

1. BUILDING MOUNTED PHOTOCELL FOR CONTROL OF BUILDING MOUNTED WALLPACKS. PHOTOCELL SHALL BE MOUNTED AT 11' AFG. SEE DRAWING E-701 FOR WALLPACK LIGHTING CONTROL CIRCUIT.
2. OVERRIDE SELECTOR SWITCH FOR CONTROL OF BUILDING WALLPACKS. SEE DRAWING E-701 FOR WALLPACK LIGHTING CONTROL CIRCUIT.
3. BULK TANK LEVEL STATUS CONTROL PANEL - NEMA 4X NON-METALLIC. SEE DRAWING E-701 FOR CONTROL CIRCUIT.
4. SODIUM HYPOCHLORITE HIGH LEVEL ALARM CONTROL PANEL - NEMA 4X NON-METALLIC. SEE DRAWING E-703 FOR CONTROL CIRCUIT.
5. TRANSFER PUMP CONTROL PANEL - NEMA 4X NON-METALLIC. SEE DRAWING E-702 FOR CONTROL CIRCUIT.
6. CHEMICAL METERING PUMP CONTROL PANEL - HANDRAIL-MOUNTED - NEMA 4X NON-METALLIC. SEE DRAWING E-704 FOR CONTROL CIRCUIT.
7. PANELBOARD PP. PANELBOARD SHALL BE NEMA 4X FRP ENCLOSED.
8. PANELBOARD LP TRANSFORMER - WALL MOUNTED BELOW PANELBOARD. INSTALL FRONT OF PANELBOARD FLUSH WITH FRONT OF TRANSFORMER. MAINTAIN 12" MINIMUM SEPARATION BETWEEN TOP OF TRANSFORMER AND BOTTOM OF PANELBOARD. TRANSFORMER SHALL BE NEMA 4X ENCAPSULATED.
9. PANELBOARD LP. PANELBOARD SHALL BE NEMA 4X FRP ENCLOSED.
10. STORAGE TANK LEVEL TRANSMITTER - HANDRAIL-MOUNTED. SEE DRAWING E-501 FOR MOUNTING DETAIL
11. DAYTANK 1040 LEVEL TRANSMITTER - HANDRAIL-MOUNTED. SEE DRAWING E-501 FOR MOUNTING DETAIL.
12. DAYTANK 1080 LEVEL TRANSMITTER - HANDRAIL-MOUNTED. SEE DRAWING E-501 FOR MOUNTING DETAIL.
13. STORAGE TANK pH TRANSMITTER - HANDRAIL-MOUNTED. SEE DRAWING E-501 FOR MOUNTING DETAIL.
14. FLOW SWITCH ALARM SYSTEM FURNISHED WITH EMERGENCY EYEWASH/SHOWER.
15. CHEMICAL METERING PUMP WITH SCADA MODULE - TYPICAL OF 4.
16. TUBE LEAK DETECTION SENSOR FURNISHED AND INSTALLED WITH CHEMICAL METERING PUMP - TYPICAL OF 4.
17. LIQUID FLOW SWITCH FOR MONITORING NO FLOW IN CHEMICAL FEED LINE. SEE DRAWING I-601 FOR LOCATIONS - TYPICAL OF 4.
18. NEMA 4X JUNCTION BOX (NON-METALLIC) FOR CONTROL/SIGNAL WIRING TO CHEMICAL METERING PUMP SCADA MODULE. COORDINATE CABLING REQUIREMENTS WITH MANUFACTURER.
19. NEMA 4X JUNCTION BOX (NON-METALLIC) FOR ANALOG SIGNALS TO/FROM THE DUDLEY 1040 PUMP STATION SCADA RTU PLC LOCATED IN DUDLEY 1040 PUMP STATION.
20. NEMA 4X JUNCTION BOX (NON-METALLIC) FOR DIGITAL SIGNALS TO/FROM THE DUDLEY 1040 PUMP STATION SCADA RTU PLC LOCATED IN DUDLEY 1040 PUMP STATION.
21. NEMA 4X JUNCTION BOX (NON-METALLIC) MOUNTED BELOW LEVEL TRANSMITTER. CONTRACTOR SHALL FURNISH AND INSTALL LOOP ISOLATOR FOR 4-20mAdc CONTINUOUS SIGNAL TO DUDLEY 1040 PUMP STATION SCADA RTU PLC AND BULK TANK LEVEL STATUS CONTROL PANEL. CONTRACTOR SHALL UTILIZE CIRCUIT LP-18 FOR POWER TO LOOP ISOLATOR.
22. ACCESS CONTROL PIN PAD WITH CARD SWIPE ACCESS - FLUSH-MOUNTED.
23. MAGNETIC DOOR CONTACT - SURFACE MOUNTED. TYPICAL OF 2 FOR DOUBLE LEAF GARAGE DOOR.
24. TRANSDUCER (RADAR) FLANGE MOUNTED AT STORAGE TANK/DAYTANK.
25. VIBRATION LEVEL SWITCH FLANGE MOUNTED AT STORAGE TANK/DAYTANK.
26. pH PROBE - FLOW-THRU TEE MOUNTED IN 3" PVC PIPING.
27. VIBRATION LEVEL SWITCH WALL MOUNTED 12" BELOW BOTTOM OF TROUGH. SEE DRAWING I-501 FOR MOUNTING DETAIL.
28. NEW 2"C W/94#12 (18 OF WHICH ARE SPARES), 1#12 GND FROM SODIUM HYPOCHLORITE BUILDING TO EXISTING DUDLEY 1040 PUMP STATION SCADA RTU.
29. NEW 2-1/2"C W/14#16 STP (2 OF WHICH ARE SPARES) FROM SODIUM HYPOCHLORITE BUILDING TO EXISTING DUDLEY 1040 PUMP STATION SCADA RTU.
30. EMPTY 2-1/2"C W/PULLWIRE FROM SODIUM HYPOCHLORITE BUILDING TO EXISTING DUDLEY 1040 PUMP STATION SCADA RTU (FOR FUTURE CABLING NEEDS BY OWNER).
31. NEW 1"C WITH ACCESS CONTROL WIRING FROM SODIUM HYPOCHLORITE BUILDING TO EXISTING DSX ACCESS CONTROL SYSTEM CONTROL PANEL LOCATED IN DUDLEY1040 PUMP STATION.
32. NEW 1"C WITH SECURITY SYSTEM WIRING FROM SODIUM HYPOCHLORITE BUILDING TO EXISTING ADEMCO SECURITY SYSTEM CONTROL PANEL LOCATED IN DUDLEY 1040 PUMP STATION.
33. ELECTRICAL FEEDER FROM MCC NO.2, LOCATED IN DUDLEY 1080 PUMP STATION, TO NEW PANELBOARD PP. SEE DRAWING E-601 FOR REQUIRED CONDUIT/CONDUCTORS.
34. NEMA 4X JUNCTION BOX (NON-METALLIC) FOR SECURITY/ACCESS CONTROL WIRING TO DUDLEY 1040 PUMP STATION.
35. NEMA 4X, 200A NON-FUSED DISCONNECT SWITCH - WALL-MOUNTED.
36. HP-1 SHALL BE PROVIDED WITH A FUSED DISCONNECT SWITCH INTEGRAL TO THE UNIT - SEE MECHANICAL DRAWINGS/SPECIFICATIONS FOR REQUIREMENTS.
37. 1#16 STP IN 1"C FROM STORAGE TANK LEVEL TRANSMITTER, LIT-101, TO DUDLEY 1040 PLC VIA JUNCTION BOX.
38. 1#16 STP IN 1"C FROM DAYTANK 1040 LEVEL TRANSMITTER, LIT-102, TO DUDLEY 1040 PLC VIA JUNCTION BOX.
39. 1#16 STP IN 1"C FROM DAYTANK 1080 LEVEL TRANSMITTER, LIT-103, TO DUDLEY 1040 PLC VIA JUNCTION BOX.
40. 1#16 STP IN 1"C FROM STORAGE TANK pH TRANSMITTER, AIT-101, TO DUDLEY 1040 PLC VIA JUNCTION BOX.
41. 48#12 (8 OF WHICH ARE SPARES), 1#12 GND, 1-1/2"C FROM DUDLEY 1040 PLC TO CHEMICAL METERING PUMP CONTROL PANEL (METERING PUMP START/STOP SIGNAL & MONITORING SIGNALS - SEE SHEET E-704 FOR CONTROL CIRCUIT AND SIGNALS) VIA JUNCTION BOX.
42. 4#12, 1#12 GND, 3/4"C FROM SODIUM HYPOCHLORITE HIGH LEVEL ALARM CONTROL PANEL TO STORAGE TANK HIGH LEVEL SWITCH, LSH-101.
43. 4#12, 1#12 GND, 3/4"C FROM SODIUM HYPOCHLORITE HIGH LEVEL ALARM CONTROL PANEL TO TRANSFER PUMP CONTROL PANEL (PUMP LOCKOUT SIGNALS).
44. 4#12, 1#12 GND, 3/4"C FROM SODIUM HYPOCHLORITE HIGH LEVEL ALARM CONTROL PANEL TO CONTAINMENT SUMP HIGH LEVEL SWITCH, LSH-104.
45. 4#12, 1#12 GND, 3/4"C FROM SODIUM HYPOCHLORITE HIGH LEVEL ALARM CONTROL PANEL TO DAYTANK 1040 HIGH LEVEL SWITCH, LSH-102.
46. 4#12, 1#12 GND, 3/4"C FROM SODIUM HYPOCHLORITE HIGH LEVEL ALARM CONTROL PANEL TO DAYTANK 1080 HIGH LEVEL SWITCH, LSH-103.
47. #18 2/C, 3/4"C FROM MAGNETIC DOOR CONTACT TO DSX ACCESS CONTROL SYSTEM VIA JUNCTION BOX.
48. #18 2/C, 3/4"C FROM MAGNETIC DOOR CONTACT TO ADEMCO SECURITY SYSTEM PANEL VIA JUNCTION BOX.
49. #18 2/C FROM DSX ACCESS CONTROL SYSTEM TO ELECTRIC STRIKE VIA JUNCTION BOX.
50. #18 6/C, 3/4"C FROM DSX ACCESS CONTROL SYSTEM TO PIN PAD WITH SWIPE CARD ACCESS.
51. 8#12, 1#12 GND, 3/4"C FROM SODIUM HYPOCHLORITE HIGH LEVEL ALARM CONTROL PANEL TO DUDLEY 1040 PLC VIA JUNCTION BOX.
52. #16 STP IN 1"C FROM STORAGE TANK LEVEL TRANSMITTER, LIT-101, TO BULK TANK LEVEL STATUS CONTROL PANEL VIA LOOP ISOLATOR.
53. 2#12, 1#12 GND, 3/4"C FROM SODIUM HYPOCHLORITE HIGH LEVEL ALARM CONTROL PANEL TO BULK TANK LEVEL STATUS CONTROL PANEL (STORAGE TANK HIGH LEVEL SIGNAL).
54. 2#12, 1#12 GND, 3/4"C FROM LIQUID FLOW SWITCH TO DUDLEY 1040 PLC (LOW FLOW SIGNAL) - TYPICAL FOR FSL-101, FSL-102, FSL-103, AND FSL-104.
55. 8#16 STP IN 2"C FROM DUDLEY 1040 PLC TO CHEMICAL METERING PUMP CONTROL PANEL VIA JUNCTION BOXES (CHEMICAL METERING PUMPS SPEED CONTROL AND SPEED FEEDBACK).
56. 24#12 (4 OF WHICH ARE SPARES), 1#12 GND, 1-1/2"C FROM CHEMICAL METERING PUMP CONTROL PANEL TO CHEMICAL METERING PUMP JUNCTION BOX (TYPICAL OF 2 - ONE FOR METERING PUMPS NO.1/NO.2 AND ONE FOR METERING PUMPS NO.3/NO.4).
57. 8#16 STP IN 2"C FROM CHEMICAL METERING PUMP CONTROL PANEL TO CHEMICAL METERING PUMP JUNCTION BOX.
58. 3#12, 1#12 GND, 3/4"C FROM TRANSFER PUMP CONTROL PANEL TO EACH TRANSFER PUMP - TYPICAL OF EACH TRANSFER PUMP.
59. 2#12, 1#12 GND, 3/4"C FROM EMERGENCY EYEWASH/SHOWER FLOW SWITCH TO DUDLEY 1040 PLC VIA JUNCTION BOX.
60. 18#12, 1#12 GND, 1"C FROM TRANSFER PUMP CONTROL PANEL TO DUDLEY 1040 PLC VIA JUNCTION BOX.
61. 1"C WITH MANUFACTURERS PRIMARY CABLE FROM RADAR TO REMOTE TRANSMITTER - TYPICAL FOR LIT-101, LIT-102, AND LIT-103.
62. 1"C WITH MANUFACTURERS PRIMARY CABLE FROM pH SENSOR TO pH TRANSMITTER.
63. NEMA 5-20R, WEATHERPROOF, DUPLEX RECEPTACLE FOR POWER CONNECTION TO CHEMICAL METERING PUMPS. RECEPTACLE SHALL BE MOUNTED AT 5'-0" AFF.

This document, originally issued, sealed, and signed by Wayne E. Roberts, Kentucky Professional Engineer, No. 23413, on 5-15-15, shall not be used in lieu of a certified document.

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CONFORMANCE SET (BID OPENING DATE 4-30-2015)

SODIUM HYPOCHLORITE BUILDING LIGHTING/POWER PLAN

DUDLEY COMPLEX SODIUM HYPOCHLORITE BUILDING
CITY OF EDGEWOOD, KENTUCKY

DESIGNED:	DRAWN:	REVIEWED:	APPROVED:
WER	WER	WER	WER

REVISIONS

NO	DESCRIPTION	DATE	BY

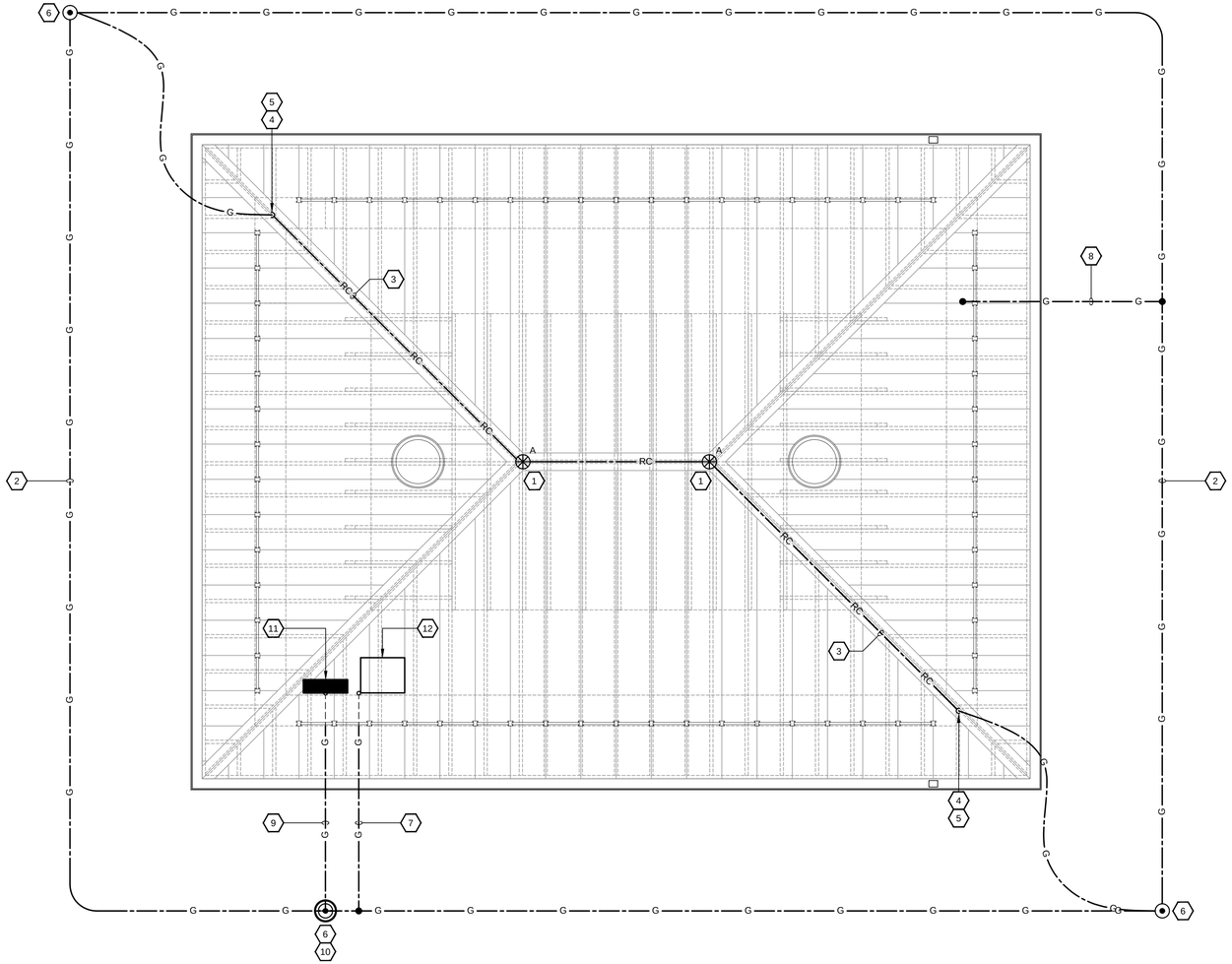
SCALE CHECK: THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

DATE: MAY, 2015

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

SHEET NO.

E-101



1 SODIUM HYPOCHLORITE BUILDING - LIGHTNING PROTECTION PLAN

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

0 2' 4' 6'

PLAN NORTH

GENERAL NOTES:

1. THE LIGHTNING PROTECTION SYSTEM SHALL BE INSTALLED TO COMPLY WITH THE REQUIREMENTS OF NFPA 780 - INSTALLATION OF LIGHTNING PROTECTION SYSTEMS. THE LIGHTNING PROTECTION SYSTEM INSTALLER SHALL PROVIDE A "MASTER LABEL" AND THE OWNER SHALL BE FURNISHED WITH A PLAQUE STATING SAME.
2. ALL METAL PROTRUSIONS THROUGH ROOF AND ON ROOF SHALL BE GROUNDED WITH #4 MINIMUM SIZE CONDUCTOR.
3. ALL HIDDEN GROUND CONNECTIONS SHALL BE EXOTHERMICALLY WELDED.
4. MECHANICAL EQUIPMENT, RAILINGS, ETC. ON ROOF THAT ARE METAL SHALL BE FURNISHED WITH AIR TERMINALS (MIN. 10") ABOVE THE ITEM AND BONDED TO THE LIGHTNING PROTECTION SYSTEM.
5. THIS SYSTEM IS DESIGNED AROUND COPPER GROUND COMPONENTS AND ALUMINUM LIGHTNING PROTECTION COMPONENTS.
6. INCOMING METAL UTILITY LINES (WATER, ELECTRICAL CONDUITS, ETC) SHALL BE CONNECTED TO GROUND SYSTEM.

⬡ SHEET KEYNOTES:

1. AIR TERMINAL - TYPE A - WITH STANDING SEAM BASE. SEE DRAWING E-501 FOR FURTHER REQUIREMENTS.
2. CLASS 1 COPPER GROUND COUNTERPOISE - EXTEND AROUND BUILDING 5' FROM FOUNDATION w/ 30" COVER. BOND TO ALL GROUND RODS.
3. #1/0 CLASS 1 ALUMINUM MAIN ROOF CONDUCTOR - EXTEND AND BOND TO ALL AIR TERMINALS. ROOF CONDUCTOR SHALL BE ATTACHED WITH STANDING SEAM CLAMPS/CABLE CLIPS.
4. CLASS 1 COPPER DOWN CONDUCTOR. CONTRACTOR SHALL FURNISH AND INSTALL NEW BI-METAL CONNECTOR TO CONVERT FROM ALUMINUM ROOF CONDUCTOR TO COPPER DOWN CONDUCTOR.
5. CLASS 1 COPPER DOWN CONDUCTOR IN 1" SCHEDULE 80 PVC.
6. 3/4" X 10' COPPER CLAD DRIVEN GROUND ROD. BOND TO GROUND COUNTERPOISE AND TO GROUNDING ELECTRODE CONDUCTOR EXTENDING INTO BUILDING.
7. #2 BARE COPPER GROUND CONDUCTOR - EXTEND FROM TRANSFORMER Xo TO GROUNDING BAR.
8. #2 BARE COPPER GROUND CONDUCTOR - EXTEND FROM GROUND ROD/COUNTERPOISE UNDERGROUND TO FOUNDATION REBAR.
9. BARE #2 GROUNDING ELECTRODE CONDUCTOR - EXTEND FROM MAIN PANEL GROUND BAR TO GROUND COUNTERPOISE VIA GROUND TEST WELL.
10. GROUND TEST WELL. SEE DRAWING E-501 FOR DETAIL.
11. NEW MAIN PANELBOARD PP. SEE DRAWING E-101 FOR FINAL LOCATION.
12. NEW 15 KVA, 480 X 120/240V, DRY-TYPE TRANSFORMER. SEE DRAWING E-101 FOR FINAL LOCATION.

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CONFORMANCE SET (BID OPENING DATE 4-30-2015)

SODIUM HYPOCHLORITE BUILDING LIGHTNING PROTECTION PLAN

DUDLEY COMPLEX SODIUM HYPOCHLORITE BUILDING
CITY OF EDGEWOOD, KENTUCKY

DESIGNED:	DRAWN:	REVIEWED:	APPROVED:
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SHEET NO. E-102

PLOTTED BY: rsteibold

PRINTED: 5/15/2015 @ 11:42AM

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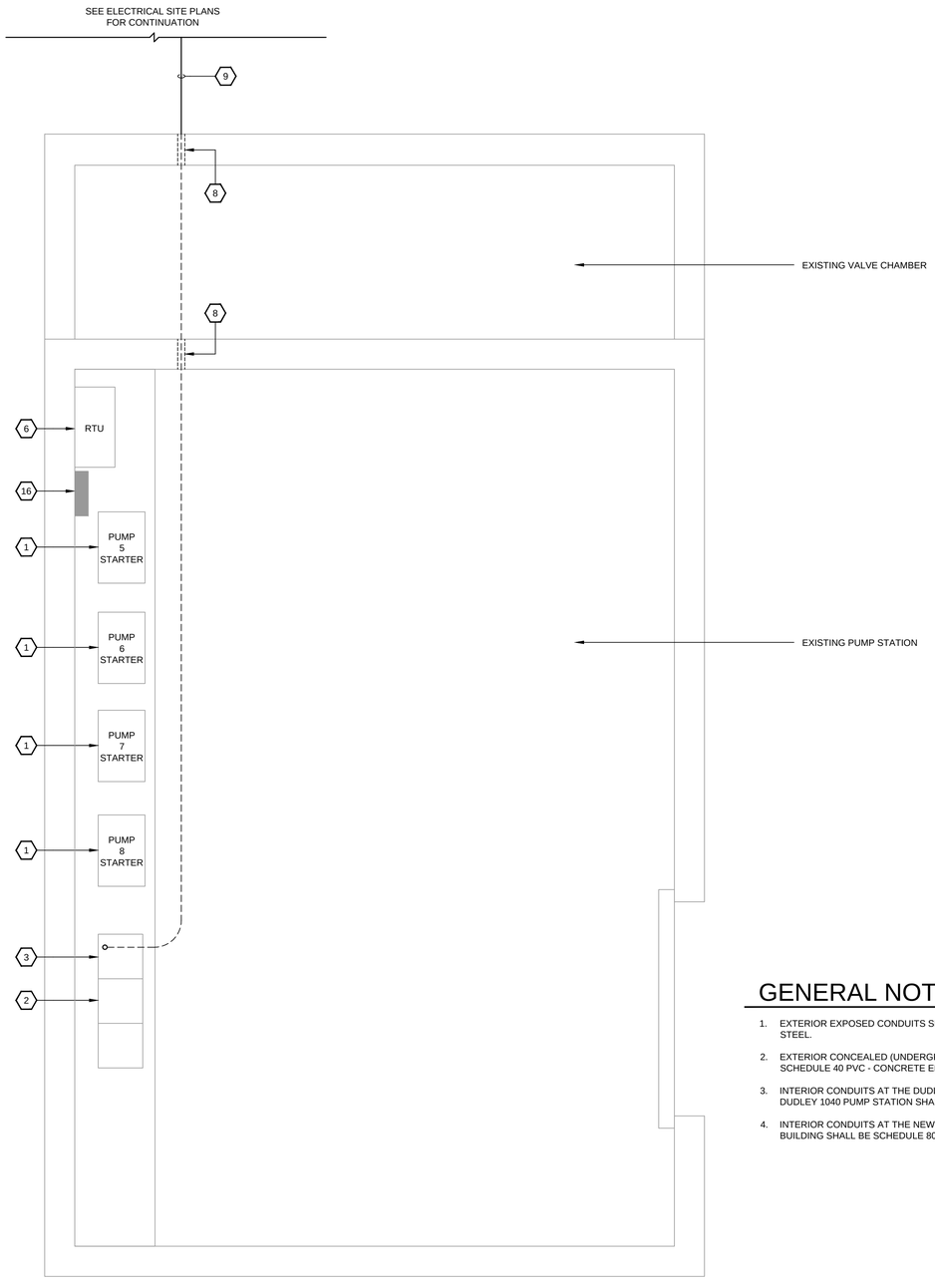
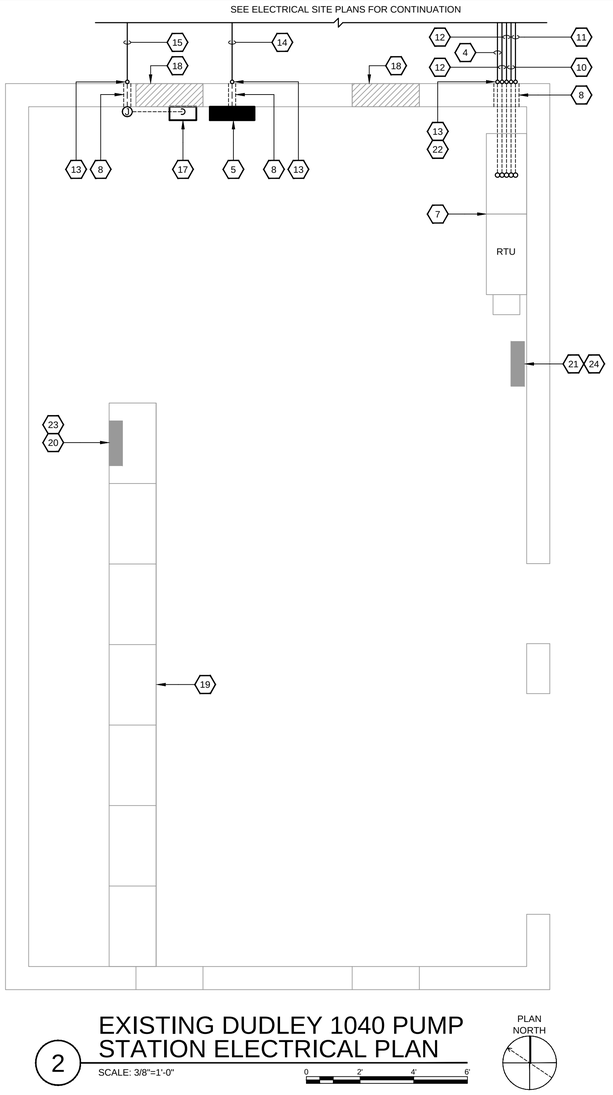


1 EXISTING DUDLEY 1080 PUMP STATION ELECTRICAL PLAN

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

0 2' 4' 6'

PLAN NORTH



2 EXISTING DUDLEY 1040 PUMP STATION ELECTRICAL PLAN

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

0 2' 4' 6'

PLAN NORTH

GENERAL NOTES:

1. EXTERIOR EXPOSED CONDUITS SHALL BE PVC COATED RIGID STEEL.
2. EXTERIOR CONCEALED (UNDERGROUND) CONDUITS SHALL BE SCHEDULE 40 PVC - CONCRETE ENCASED.
3. INTERIOR CONDUITS AT THE DUDLEY 1080 PUMP STATION AND DUDLEY 1040 PUMP STATION SHALL BE RIGID STEEL.
4. INTERIOR CONDUITS AT THE NEW SODIUM HYPOCHLORITE BUILDING SHALL BE SCHEDULE 80 PVC.

SHEET KEYNOTES:

1. EXISTING MOTOR STARTERS TO REMAIN.
2. EXISTING WESTINGHOUSE SERIES 2100 MOTOR CONTROL CENTER TO REMAIN. SEE DRAWING E-601 FOR WORK REQUIRED.
3. CONTRACTOR SHALL FURNISH AND INSTALL NEW BRANCH CIRCUIT BREAKER FOR NEW SODIUM HYPOCHLORITE BUILDING. SEE DRAWING E-601 FOR REQUIRED BREAKER.
4. EMPTY 3/4"C WITH PULLWIRE FROM DUDLEY 1040 PLC TO NEW DUDLEY 1040 CHEMICAL FEED VAULT (FUTURE INTRUSION MONITORING BY OWNER).
5. EXISTING DSX ACCESS CONTROL SYSTEM CONTROL PANEL TO REMAIN. SEE E-701 FOR WORK REQUIRED. EXISTING SYSTEM SHALL MONITOR NEW DOOR CONTACT AT SODIUM HYPOCHLORITE BUILDING. A NEW PROXIMITY CARD READER AT THE SODIUM HYPOCHLORITE BUILDING SHALL ALSO BE INTEGRATED WITH EXISTING ACCESS CONTROL SYSTEM CONTROL PANEL.
6. EXISTING DUDLEY 1080 PUMP STATION SCADA RTU PANEL TO REMAIN.
7. EXISTING DUDLEY 1040 PUMP STATION SCADA RTU PANEL TO REMAIN. SEE I-SERIES DRAWINGS FOR WORK REQUIRED.
8. CONTRACTOR SHALL CORE OPENING IN EXISTING WALL FOR ROUTING OF NEW CONDUIT. CONTRACTOR SHALL SEAL CONDUIT AS REQUIRED FOR WATERTIGHT PENETRATION.
9. NEW BRANCH CIRCUIT TO SODIUM HYPOCHLORITE BUILDING. SEE DRAWING E-601 FOR REQUIRED CONDUCTORS/CONDUIT.
10. NEW 2"C W/9#12 (18 OF WHICH ARE SPARES), 1#12 GND FROM SODIUM HYPOCHLORITE BUILDING TO EXISTING DUDLEY 1040 PUMP STATION SCADA RTU.
11. NEW 2-1/2"C W/14#16 STP (2 OF WHICH ARE SPARES) FROM SODIUM HYPOCHLORITE BUILDING TO EXISTING DUDLEY 1040 PUMP STATION SCADA RTU.
12. EMPTY 2-1/2"C W/PULLWIRE FROM SODIUM HYPOCHLORITE BUILDING TO EXISTING DUDLEY 1040 PUMP STATION SCADA RTU (FOR FUTURE CABLING NEEDS BY OWNER).
13. PVC COATED RIGID STEEL CONDUITS SHALL BE ROUTED DOWN THE EXTERIOR WALL OF PUMP STATION. CONDUITS SHALL BE SUPPORTED IN ACCORDANCE WITH NEC 344.20.
14. NEW 1"C WITH ACCESS CONTROL WIRING FROM SODIUM HYPOCHLORITE BUILDING TO EXISTING DSX ACCESS CONTROL SYSTEM CONTROL PANEL.
15. NEW 1"C WITH SECURITY WIRING FROM SODIUM HYPOCHLORITE BUILDING TO EXISTING ADEMCO SECURITY SYSTEM CONTROL PANEL.
16. EXISTING DSX ACCESS CONTROL SYSTEM CONTROL PANEL TO REMAIN.
17. EXISTING ADEMCO SECURITY SYSTEM CONTROL PANEL TO REMAIN. SEE E-701 FOR WORK REQUIRED. EXISTING SYSTEM SHALL MONITOR NEW OVERHEAD DOOR CONTACT AT THE SODIUM HYPOCHLORITE BUILDING.
18. EXISTING LOUVER. CONDUITS SHALL BE ROUTED TO AVOID CROSSING LOUVER.
19. EXISTING MOTOR CONTROL CENTER MCC NO.1 LINEUP TO REMAIN.
20. EXISTING PANELBOARD LP (MOUNTED IN MCC NO.1) TO REMAIN.
21. EXISTING PANELBOARD TO REMAIN.
22. ROUTING OF NEW EXTERIOR CONDUITS SHALL NOT INTERFERE WITH EXISTING WALL MOUNTED SECURITY CAMERA.
23. CONTRACTOR SHALL DISCONNECT AND REMOVE EXISTING BRANCH CIRCUITS FROM PANELBOARD LP TO EXISTING CHLORINE BUILDING. THERE ARE MULTIPLE BRANCH CIRCUITS IN THIS PANELBOARD WHICH FEED THE CHLORINE BUILDING. REVISE EXISTING LABELS TO STATE 'SPARE' AT ALL REMOVED BRANCH CIRCUITS.
24. CONTRACTOR SHALL DISCONNECT AND REMOVE EXISTING BRANCH CIRCUIT FROM PANELBOARD (A/C BRANCH CIRCUIT) TO EXISTING CHLORINE BUILDING. REVISE EXISTING CIRCUIT DIRECTORY TO STATE 'SPARE' AT REMOVED BRANCH CIRCUIT.

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CONFORMANCE SET (BID OPENING DATE 4-30-2015)

EXISTING PUMP STATIONS (1080 & 1040) ELECTRICAL PLAN

DUDLEY COMPLEX SODIUM HYPOCHLORITE BUILDING
CITY OF EDGEWOOD, KENTUCKY

DESIGNED:	DRAWN:	REVIEWED:	APPROVED:
WER	WER	WER	WER

REVISIONS

NO.	DESCRIPTION	DATE	BY

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DATE: MAY, 2015

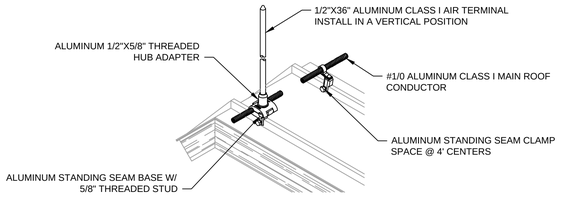
SCALE: 1/4" = 1'-0"

SHEET NO. E-201

PLOTTED BY: rrsetebold

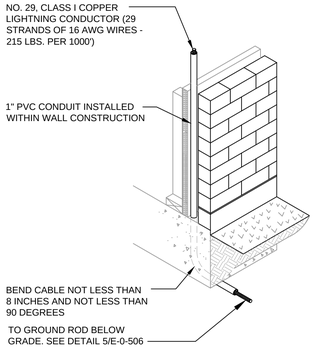
PRINTED: 5/15/2015 @ 11:42AM

FILE NAME: U:\4325-NKWD Sdm\hypoBld\Working Drawings\4325-E-201.dwg



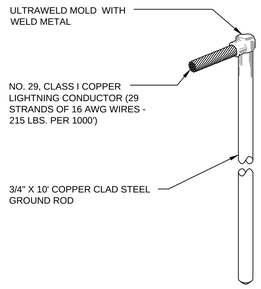
1 AIR TERMINAL - TYPE E - MOUNTING DETAIL

NOT TO SCALE



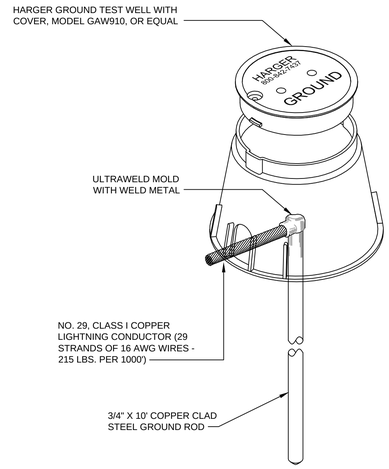
2 DOWN CONDUCTOR DETAIL

NOT TO SCALE



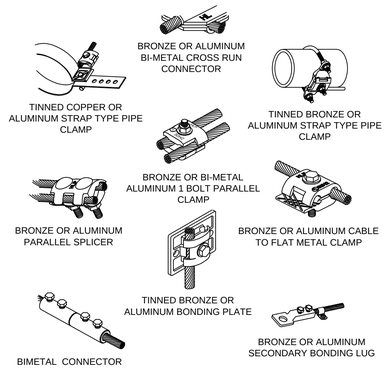
3 GROUND ROD DETAIL

NOT TO SCALE



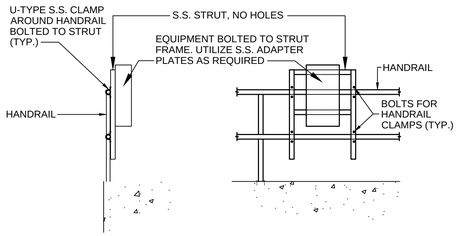
4 GROUND ROD TEST WELL INSTALLATION

NOT TO SCALE



5 TYPICAL BONDING AND SPLICING DETAILS

NOT TO SCALE



NOTES:

1. ALL NUTS, BOLTS, WASHERS, ETC. SHALL BE STAINLESS STEEL.

6 TYPICAL HANDRAIL MOUNTED ELECTRICAL EQUIPMENT

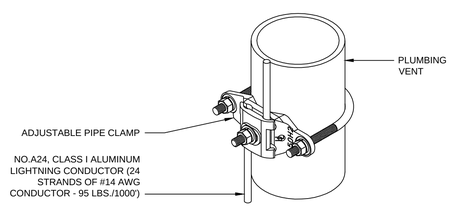
NOT TO SCALE

NOTES:

1. THIS DETAIL ALSO APPLIES FOR COMMUNICATIONS (SIGNAL WIRING) WHERE SHOWN ON DRAWINGS.
2. DIMENSIONS ARE FOR REFERENCE ONLY. PULL BOXES SHALL BE SIZED PER NEC.

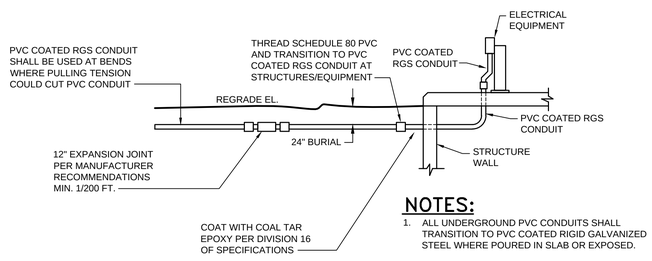
9 ELECTRICAL PULLBOX DETAIL

NOT TO SCALE



7 TYPICAL PIPE BONDING DETAIL

NOT TO SCALE



NOTES:

1. ALL UNDERGROUND PVC CONDUITS SHALL TRANSITION TO PVC COATED RIGID GALVANIZED STEEL WHERE POURED IN SLAB OR EXPOSED.

8 TYPICAL UNDERGROUND PVC CONDUIT TRANSITION TO PVC COATED RGS CONDUIT

NOT TO SCALE

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CONFORMANCE SET (BID OPENING DATE 4-30-2015)

MISCELLANEOUS DETAILS

DUDLEY COMPLEX SODIUM HYPOCHLORITE BUILDING
CITY OF EDGEWOOD, KENTUCKY

DESIGNED:	DRAWN:	REVIEWED:	APPROVED:
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REVISIONS

NO.	DESCRIPTION	DATE	BY

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DATE: MAY, 2015

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SHEET NO. E-501

PLOTTED BY: rrosebold

PRINTED: 5/15/2015 @ 11:43AM

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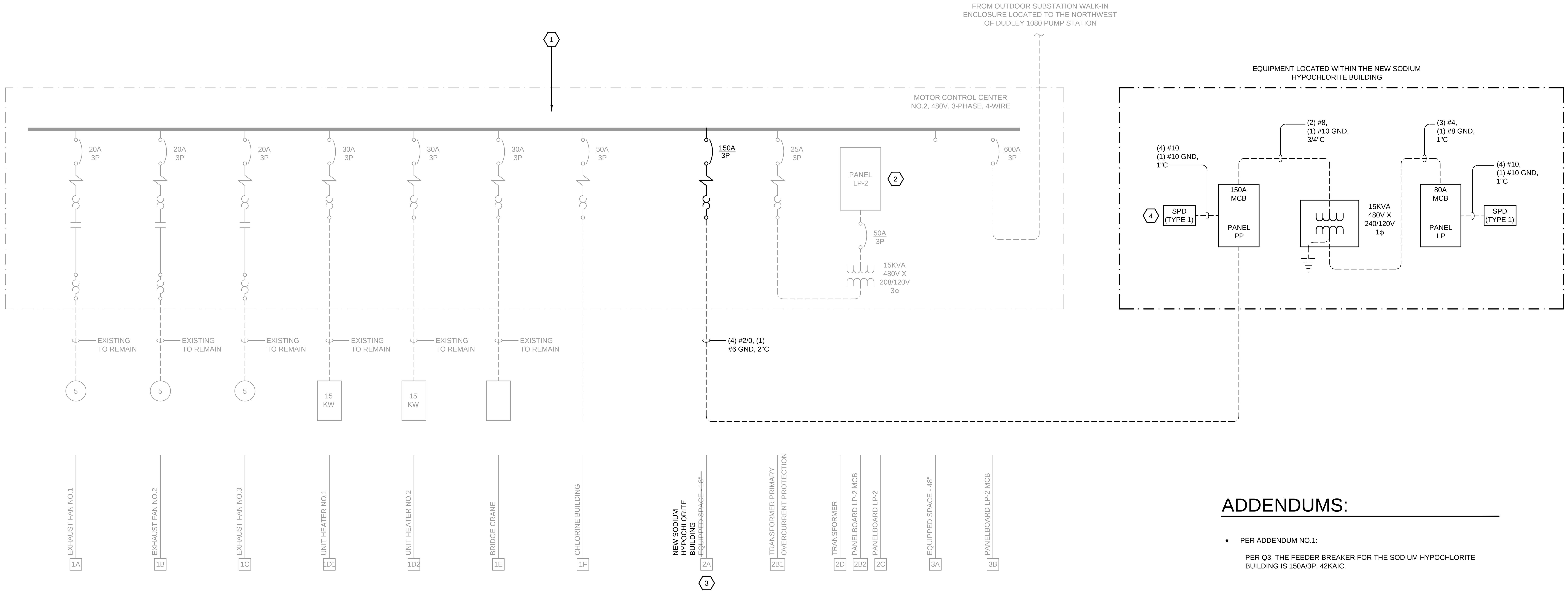


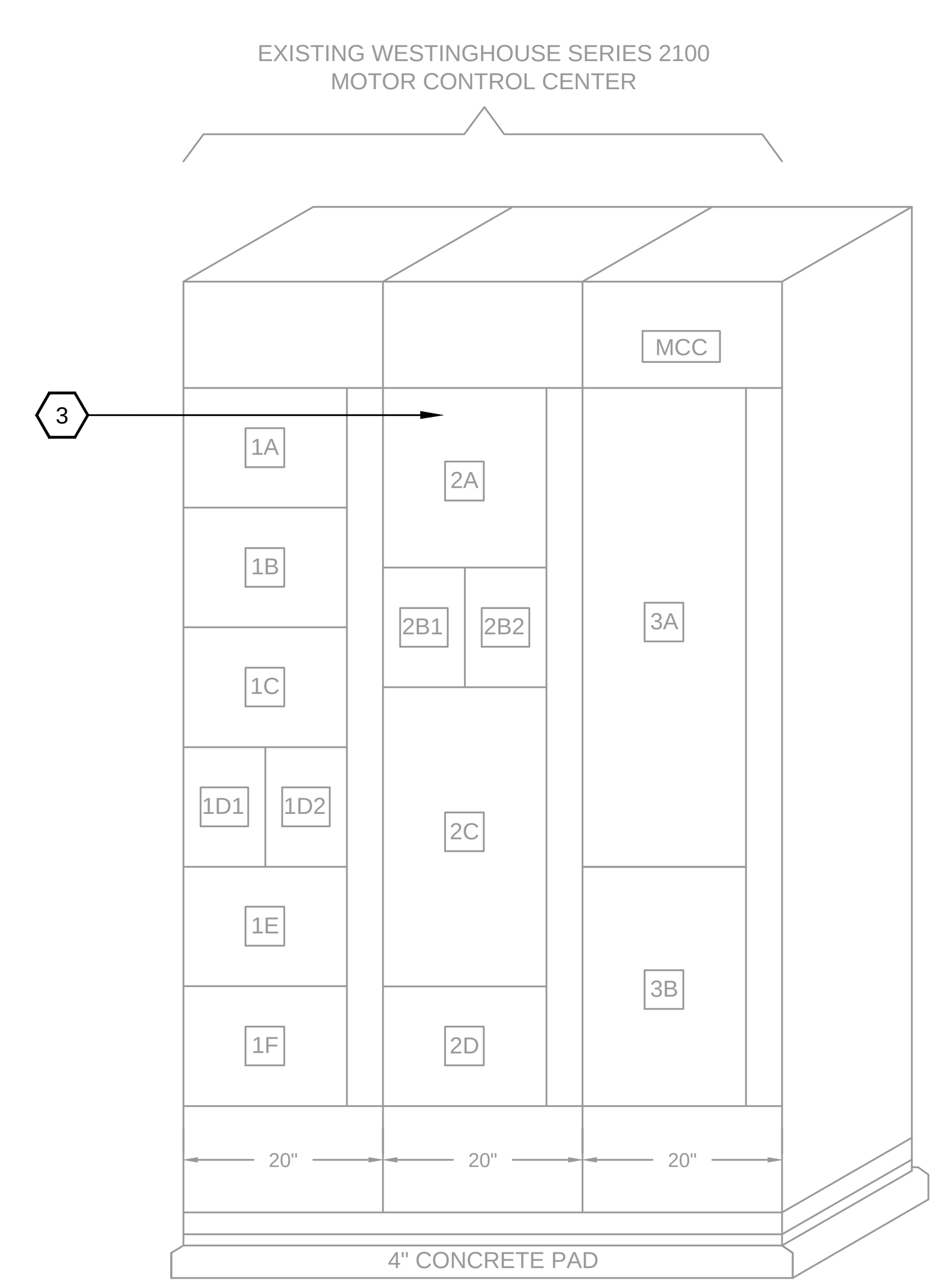
ADDENDUMS:

- PER ADDENDUM NO.1:

  PER Q3, THE FEEDER BREAKER FOR THE SODIUM HYPOCHLORITE BUILDING IS 150A/3P, 42KAIC.

1 EXISTING ONE LINE DIAGRAM - MOTOR CONTROL CENTER NO. 2 MODIFICATIONS - DUDLEY 1080 PUMP STATION

NOT TO SCALE



2 EXISTING MOTOR CONTROL CENTER, MCC NO.2 DEMOLITION/MODIFICATIONS, FRONT ELEVATION

NOT TO SCALE

GENERAL NOTES:

1. WORK SHOWN IN LIGHT PEN (SHADED) IS EXISTING TO REMAIN.
2. WORK SHOWN IN HEAVY PEN (BOLD) IS NEW WORK REQUIRED AS PART OF THIS CONTRACT.
3. CROSS HATCHING REPRESENTS WORK TO BE DEMOLISHED.
4. THE OWNER HAS THE OPTION OF RETAINING ANY EQUIPMENT BEING REMOVED AS PART OF THIS PROJECT.
5. COORDINATE WITH OWNER FOR DISPOSAL OF EQUIPMENT BEING REMOVED. OWNER MAY REQUEST CERTAIN ITEMS BE TURNED OVER INTO THEIR POSSESSION.
6. SURGE PROTECTION DEVICES SHALL MEET UL REQUIREMENTS FOR MASTER LABELLED LIGHTNING PROTECTION SYSTEM.

⬡ SHEET KEYNOTES:

1. THE EXISTING MCC WAS MANUFACTURED BY WESTINGHOUSE (SERIES 2100 MOTOR CONTROL CENTER - CN80866 IT.2 - FVC, JULY 1989, 600A HORIZONTAL BUS, 480V, 3-PHASE, 4-WIRE, SECTION 1-2 - 300A, SECTION 3 - 600A, NEUTRAL - 300A).
2. CONTRACTOR SHALL DISCONNECT AND REMOVE EXISTING CONDUCTORS FROM CHLORINE BUILDING BRANCH CIRCUIT TO EXISTING CHLORINE BUILDING AFTER INSTALLATION OF THE NEW SODIUM HYPOCHLORITE BUILDING.
3. CONTRACTOR SHALL FURNISH AND INSTALL NEW 150A/3P CIRCUIT BREAKER TUB/DOOR AT EXISTING EQUIPPED SPACE (18") LOCATED AT POSITION 2A.
4. CONTRACTOR SHALL FURNISH AND INSTALL NEW SURGE SUPPRESSION DEVICE. INSTALL AS NEAR AS PRACTICAL TO PANELBOARD PP.
5. CONTRACTOR SHALL FURNISH AND INSTALL NEW SURGE PROTECTION DEVICE. INSTALL AS NEAR AS PRACTICAL TO PANELBOARD LP.

This document, originally issued, sealed, and signed by Wayne E. Roberts, Kentucky Professional Engineer, No. 23413, on 5-15-15, shall not be used in lieu of a certified document.

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EXISTING ONE LINE DIAGRAM - MODIFICATIONS

DUDLEY COMPLEX SODIUM HYPOCHLORITE BUILDING

CITY OF EDGEWOOD, KENTUCKY

DESIGNED:	DRAWN:	REVIEWED:	APPROVED:
WER	WER	WER	WER

REVISIONS

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SHEET NO. E-601

PLOTTED BY: mseebold

PRINTED: 5/15/2015 @ 11:43AM

FILE NAME: U:\4325-NKWD SdmHypoBld\Working Drawings\4325-E-601.dwg

PANEL SCHEDULE	PP
LOCATION	SODIUM HYPO BLDG
ENCLOSURE	NEMA 4X FRP
SURFACE, FLUSH, OR MCC	SURFACE
AIC RATING	22,000 A

VOLTAGE	480/277V, 3-PHASE, 4-WIRE
MAINS AMPACITY	225A
MAIN C.B. SIZE	150A
TOTAL SPACES	42
NEUTRAL BUS	100%
ADDITIONAL BUS FOR ISOLATED GND?	NO

DESCRIPTION	VA	#P	BKR	FEEDER	NO	-A- VA	-B- VA	-C- VA	NO.	FEEDER	BKR	#P	VA	DESCRIPTION
SURGE PROTECTION	10	3	30	4#10, 1#10 GND, 1"C	1	7510			2	2#8, 1#10 GND, 3/4"C	40	2	7500	PANELBOARD LP
DEVICE	10	-	-	-	3		7510		4	-	-	-	7500	TRANSFORMER
-	10	-	-	-	5			10	6	-	-	-		BUSSED SPACE
TRANSFER PUMP	584	3	15	3#12, 1#12 GND, 3/4"C	7	4741			8	3#12, 1#12 GND, 3/4"C	20	3	4157	AIR CONDITIONER, HP-1
CONTROL PANEL	584	-	-	-	9		4741		10	-	-	-	4157	-
-	584	-	-	-	11			4741	12	-	-	-	4157	-
INSTANTANEOUS WATER	24000	3	110	3#2, 1#6 GND, 1-1/4"C	13	24000			14	-	-	-		BUSSED SPACE
HEATER	24000	-	-	-	15		24000		16	-	-	-		BUSSED SPACE
-	24000	-	-	-	17			24000	18	-	-	-		BUSSED SPACE
BUSSED SPACE		-	-	-	19	0			20	-	-	-		BUSSED SPACE
BUSSED SPACE		-	-	-	21		0		22	-	-	-		BUSSED SPACE
BUSSED SPACE		-	-	-	23			0	24	-	-	-		BUSSED SPACE
BUSSED SPACE		-	-	-	25	0			26	-	-	-		BUSSED SPACE
BUSSED SPACE		-	-	-	27		0		28	-	-	-		BUSSED SPACE
BUSSED SPACE		-	-	-	29			0	30	-	-	-		BUSSED SPACE
BUSSED SPACE		-	-	-	31	0			32	-	-	-		BUSSED SPACE
BUSSED SPACE		-	-	-	33		0		34	-	-	-		BUSSED SPACE
BUSSED SPACE		-	-	-	35			0	36	-	-	-		BUSSED SPACE
SPARE		1	20	-	37	0			38	-	20	1		SPARE
SPARE		1	20	-	39		0		40	-	20	1		SPARE
SPARE		1	20	-	41			0	42	-	20	1		SPARE
TOTAL VOLT-AMPERES PER PHASE						36251	36251	28751						
TOTAL AMPERES PER PHASE						130.9	130.9	103.8						

ADDENDUMS:

- PER ADDENDUM NO.1:

  PER Q9, A 30 CIRCUIT PANELBOARD MAY BE PROVIDED IN LIEU OF A 42 CIRCUIT PANELBOARD (PANELBOARD PP).

PANEL SCHEDULE	LP
LOCATION	SODIUM HYPO BLDG
ENCLOSURE	NEMA 4X FRP
SURFACE, FLUSH, OR MCC	SURFACE
AIC RATING	10,000A

VOLTAGE	120/240V, 1-PHASE, 4-WIRE
MAINS AMPACITY	100A
MAIN C.B. SIZE	80A
TOTAL SPACES	30
NEUTRAL BUS	100%
ADDITIONAL BUS FOR ISOLATED GND?	NO

DESCRIPTION	VA	#P	BKR	FEEDER	NO	-A- VA	-C- VA	NO.	FEEDER	BKR	#P	VA	DESCRIPTION
BUILDING INTERIOR LIGHTING	312	1	20	2#12, 1#12 GND, 3/4"C	1	562		2	2#12, 1#12 GND, 3/4"C	20	1	250	BULK TANK LEVEL CONTROL PNL
BUILDING EXTERIOR LIGHTING	96	1	20	2#12, 1#12 GND, 3/4"C	3		346	4	2#12, 1#12 GND, 3/4"C	20	1	250	NaOCl HIGH LEVEL ALARM PNL
BUILDING RECEPTACLES	1080	1	20	2#12, 1#12 GND, 3/4"C	5	1080		6	-	-	-		BUSSED SPACE
EYEWASH FLOW SWITCH ALARM	100	1	20	2#12, 1#12 GND, 3/4"C	7		600	8	2#12, 1#12 GND, 3/4"C	20	1	500	METERING PUMP NO.1/NO.2
TRANSFER PUMP FLOW SWITCHES	100	1	20	2#12, 1#12 GND, 3/4"C	9	600		10	2#12, 1#12 GND, 3/4"C	20	1	500	METERING PUMP NO.3/NO.4
CHEMICAL PUMP FLOW SWITCHES	100	1	20	2#12, 1#12 GND, 3/4"C	11		400	12	2#12, 1#12 GND, 3/4"C	20	1	300	CHEM. MTRG. CONTROL PANEL
BUSSED SPACE		-	-	-	13	0		14	-	-	-		BUSSED SPACE
BUSSED SPACE		-	-	-	15		200	16	2#12, 1#12 GND, 3/4"C	20	1	200	LIT-102/LIT-103
BUSSED SPACE		-	-	-	17	200		18	2#12, 1#12 GND, 3/4"C	20	1	200	LIT-101/AIT-101
SURGE PROTECTION	10	3	30	3#10, 1#10 GND, 3/4"C	19		10	20	-	-	-		BUSSED SPACE
DEVICE	10	-	-	-	21	10		22	-	-	-		BUSSED SPACE
-	10	-	-	-	23		10	24	-	-	-		BUSSED SPACE
SPARE		1	20	-	25	0		26	-	20	1		SPARE
SPARE		1	20	-	27		0	28	-	20	1		SPARE
SPARE		1	20	-	29	0		30	-	20	1		SPARE
TOTAL VOLT-AMPERES PER PHASE						2452	1566						
TOTAL AMPERES PER PHASE						20.4	13.1						

LIGHT FIXTURE SCHEDULE

FIXTURE TYPE	DESCRIPTION	LAMPS QTY.	LAMPS TYPE	LAMPS WATTS	VOLTS	MOUNTING TYPE	MOUNTING HEIGHT	MANUFACTURER	MODEL NUMBER
LF-1	LOW-PROFILE ENCLOSED AND GASKETED - LED	1	LED	61	120	SUSPENDED	VARIES	LITHONIA, OR APPROVED EQUAL	FEM4 LED 3L IMACD CS89 DIM WLF PLCL
OLF-1	ARCHITECTURAL WALL SCONCE - LED	1	LED	24	120	WALL	11'-0" AFG	LITHONIA, OR APPROVED EQUAL	WST LED 1 10A700/4000K SR4 MVOLT DDBXD FINISH BY ARCHITECT
OLF-1E	ARCHITECTURAL WALL SCONCE - LED W/INTEGRAL BATTERY BACKUP	1	LED	24	120	WALL	11'-0" AFG	LITHONIA, OR APPROVED EQUAL	WST LED 1 10A700/4000K SR4 MVOLT ELCW DDBXD FINISH BY ARCHITECT
EM	EMERGENCY LIGHTING UNIT - NEMA 4X	2	HALOGEN	12	120	WALL	APPROX. 6'-6"	LITHONIA, OR APPROVED EQUAL	INDX1236-H1212

GRW PROJECT NO. 4325

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CONFORMANCE SET (BID OPENING DATE 4-30-2015)

MISCELLANEOUS SCHEDULES

DUDLEY COMPLEX SODIUM HYPOCHLORITE BUILDING
CITY OF EDGEWOOD, KENTUCKY

DESIGNED: WER
DRAWN: WER
REVIEWED: WER
APPROVED: WER

REVISIONS

NO.	DESCRIPTION	DATE	BY

SCALE CHECK: THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

DATE: MAY, 2015

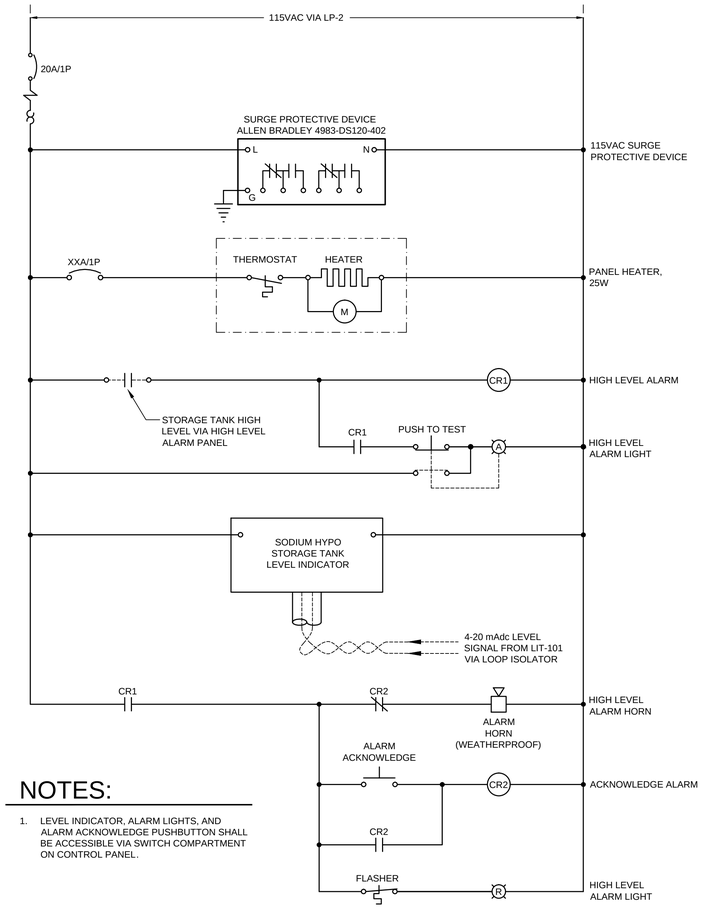
SCALE: AS NOTED

SHEET NO. E-602

PLOTTED BY: rseetbold

PRINTED: 5/15/2015 @ 11:43AM

FILE NAME: U:\4325-NKWD Sdm\hypoBld\Working Drawings\4325-E-602.dwg



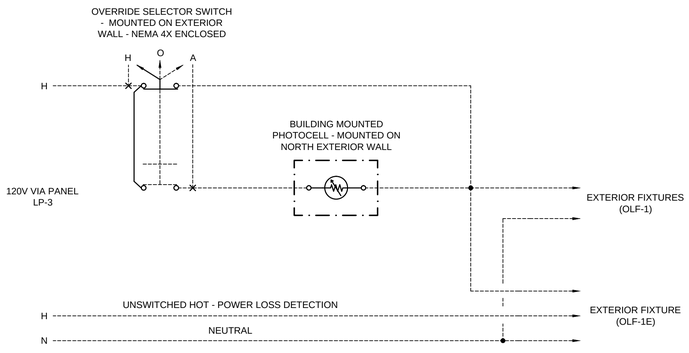
NOTES:

1. LEVEL INDICATOR, ALARM LIGHTS, AND ALARM ACKNOWLEDGE PUSHBUTTON SHALL BE ACCESSIBLE VIA SWITCH COMPARTMENT ON CONTROL PANEL.

1 CONTROL CIRCUIT - BULK TANK LEVEL STATUS CONTROL STATION

NOT TO SCALE

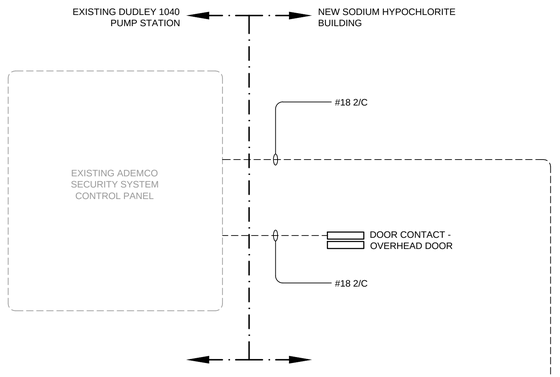
- 1 REQUIRED (NEMA 4X FRP)



2 WALLPACK LIGHTING CONTROL

NOT TO SCALE

- 1 REQUIRED (NEMA 4X FRP)



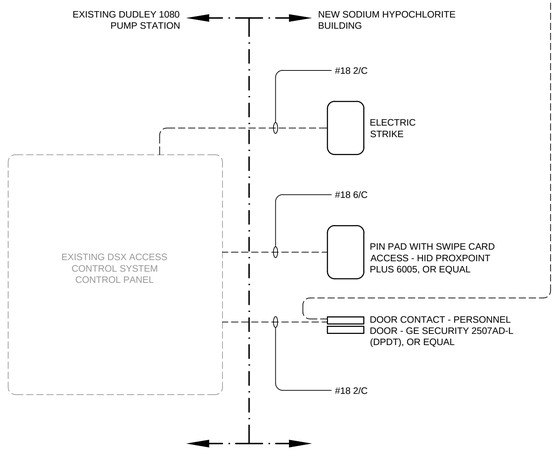
NOTES:

1. THE EXISTING SECURITY SYSTEM IS MANUFACTURER BY ADEMCO AND LOCATED WITHIN THE DUDLEY 1040 PUMP STATION.
2. ACTUAL WIRING CONFIGURATION AND TYPE/SIZE OF CONDUCTORS SHALL BE AS RECOMMENDED BY THE SECURITY SYSTEM MANUFACTURER WITHIN MINIMUM REQUIREMENTS STATED IN SPECIFICATIONS.
3. ALL SECURITY SYSTEM WIRING SHALL BE IN CONDUIT.

3 SECURITY SYSTEM INTERCONNECTION

NOT TO SCALE

- 1 REQUIRED



NOTES:

1. THE EXISTING ACCESS CONTROL SYSTEM IS MANUFACTURED BY DSX ACCESS SYSTEMS, INC.
2. ACTUAL WIRING CONFIGURATION AND TYPE/SIZE OF CONDUCTORS SHALL BE AS RECOMMENDED BY THE SECURITY SYSTEM MANUFACTURER WITHIN MINIMUM REQUIREMENTS STATED IN SPECIFICATIONS.
3. ALL ACCESS CONTROL SYSTEM WIRING SHALL BE IN CONDUIT.
4. CARD READER/CARDS SHALL BE COMPATIBLE WITH EXISTING CARD READERS ON SITE.

4 ACCESS CONTROL SYSTEM INTERCONNECTION

NOT TO SCALE

- 1 REQUIRED

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CONFORMANCE SET (BID OPENING DATE 4-30-2015)

CONTROL CIRCUITS I

DUDLEY COMPLEX SODIUM HYPOCHLORITE BUILDING
CITY OF EDGEWOOD, KENTUCKY

DESIGNED:	DRAWN:	REVIEWED:	APPROVED:
WER	WER	WER	WER

REVISIONS

NO.	DESCRIPTION	DATE	BY

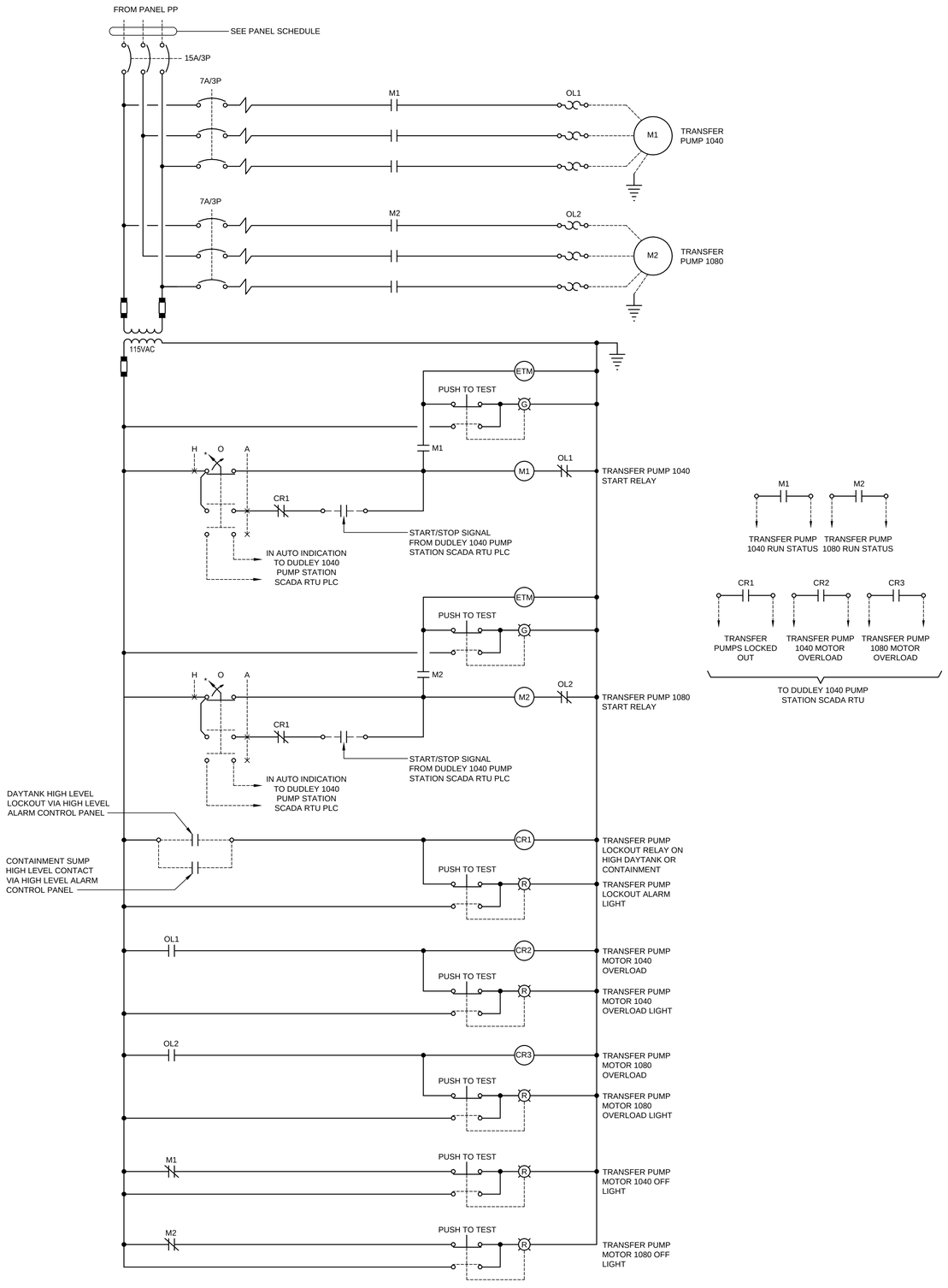
THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

SCALE CHECK:

DATE:
MAY, 2015

SCALE:
AS NOTED

SHEET NO.
E-701

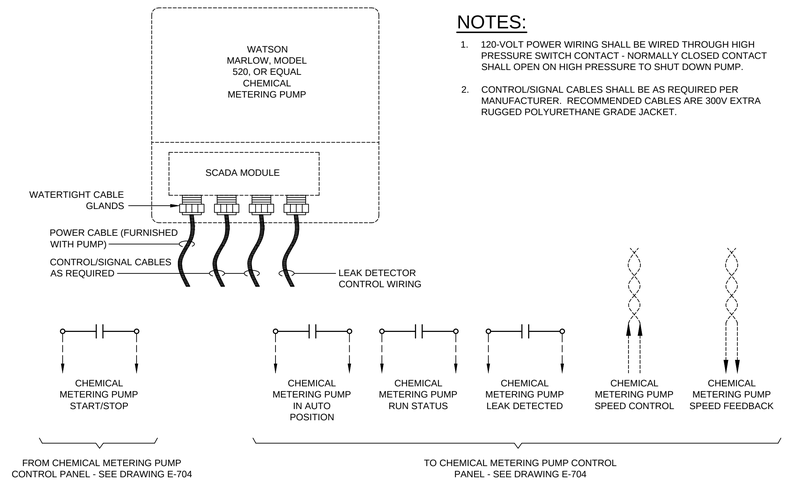


1 TRANSFER PUMP CONTROL PANEL

NOT TO SCALE

- 1 REQUIRED (NEMA 4X FRP)

* 3-POSITION SELECTOR SWITCH - SPRING LOADED FROM LOCAL TO OFF



NOTES:

1. 120-VOLT POWER WIRING SHALL BE WIRED THROUGH HIGH PRESSURE SWITCH CONTACT - NORMALLY CLOSED CONTACT SHALL OPEN ON HIGH PRESSURE TO SHUT DOWN PUMP.
2. CONTROL/SIGNAL CABLES SHALL BE AS REQUIRED PER MANUFACTURER. RECOMMENDED CABLES ARE 300V EXTRA RUGGED POLYURETHANE GRADE JACKET.

2 CHEMICAL METERING PUMP FIELD WIRING

NOT TO SCALE

- AS REQUIRED PER SPECIFICATIONS
- TYPICAL OF 4

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CONFORMANCE SET (BID OPENING DATE 4-30-2015)

CONTROL CIRCUITS II

DUDLEY COMPLEX SODIUM HYPOCHLORITE BUILDING
CITY OF EDGEWOOD, KENTUCKY

DESIGNED:	DRAWN:	REVIEWED:	APPROVED:
WER	WER	WER	WER

REVISIONS

NO.	DESCRIPTION	DATE	BY

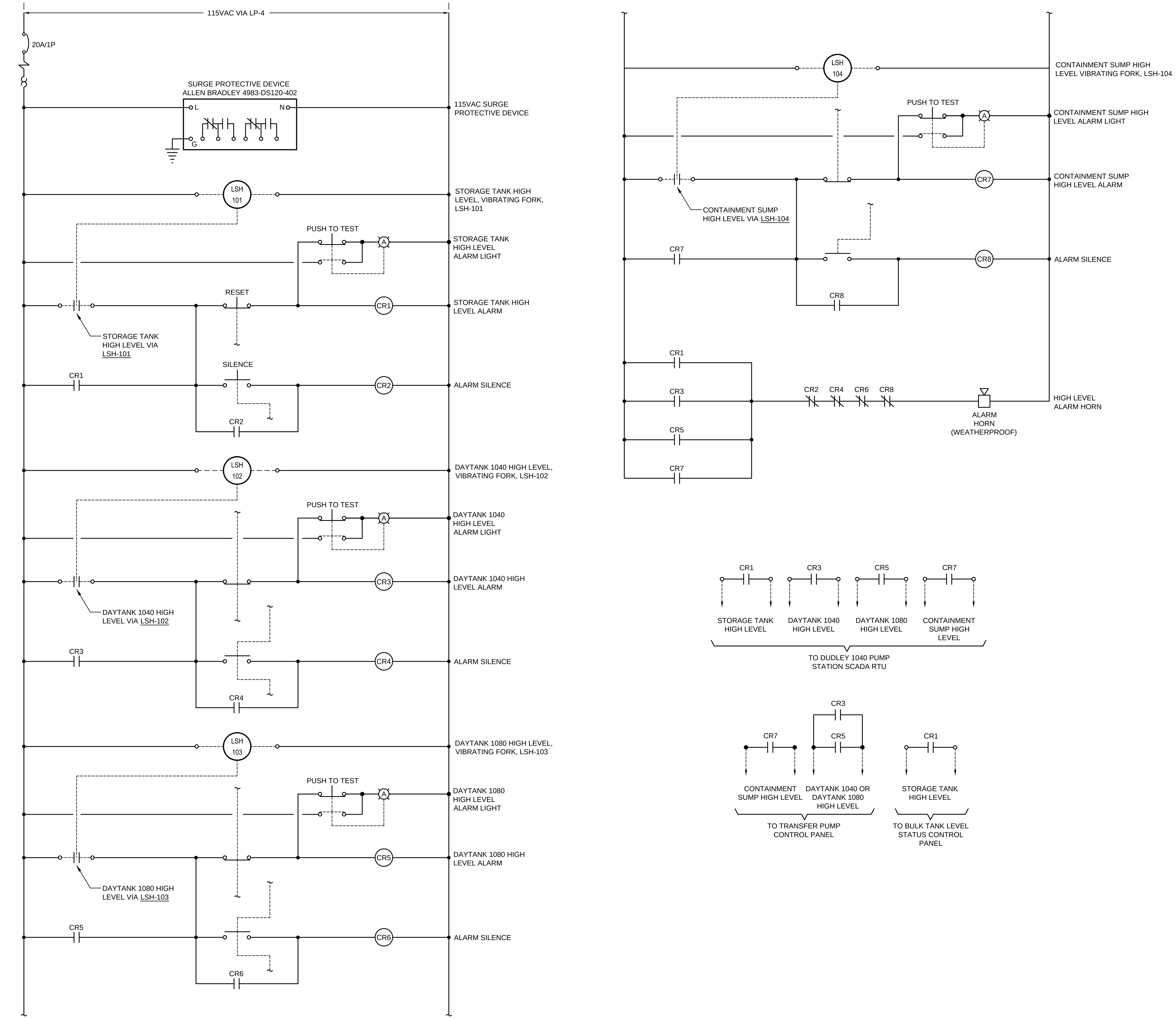
THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

SCALE CHECK:

DATE:
MAY, 2015

SCALE:
AS NOTED

SHEET NO.
E-702



1 CONTROL CIRCUIT - SODIUM HYPOCHLORITE HIGH LEVEL ALARM CONTROL PANEL

NOT TO SCALE

- 1 REQUIRED (NEMA 4X - FRP)

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CONTROL CIRCUITS III

DUDLEY COMPLEX SODIUM HYPOCHLORITE BUILDING
CITY OF EDGEWOOD, KENTUCKY

DESIGNED: WER
DRAWN: WER
REVIEWED: WER
APPROVED: WER

REVISIONS

NO.	DESCRIPTION	DATE	BY

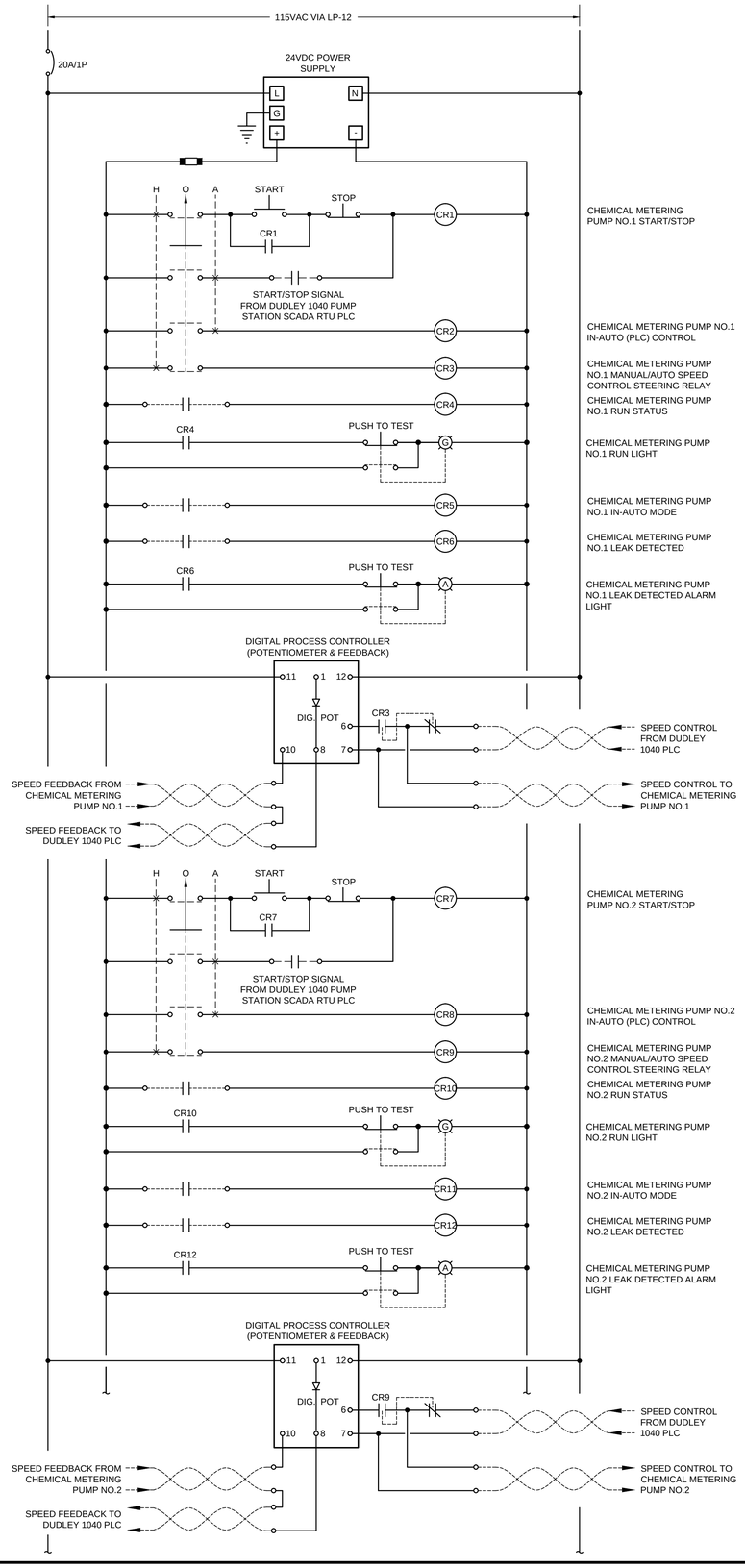
SCALE CHECK — THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

DATE: MAY, 2015

SCALE: AS NOTED

SHEET NO. E-703

FILE NAME: U:\4325-NKWD SdmHypoBld\Working Drawings\4325-E-703.dwg
PRINTED: 5/15/2015 @ 11:44AM
PLOTTED BY: mseebold



1 CHEMICAL METERING PUMP CONTROL PANEL

NOT TO SCALE

- 1 REQUIRED (NEMA 4X FRP)

PLOTTED BY: rsteitbold

PRINTED: 5/15/2015 @ 11:45AM

FILE NAME: U:\4325-NKWD Sdm\hypoBld\Working Drawings\4325-E-704.dwg

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CONTROL CIRCUITS IV

DUDLEY COMPLEX SODIUM HYPOCHLORITE BUILDING
CITY OF EDGEWOOD, KENTUCKY

DESIGNED:	DRAWN:	REVIEWED:	APPROVED:
WER	WER	WER	WER

REVISIONS

NO.	DESCRIPTION	DATE	BY

THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

SCALE CHECK

DATE: MAY, 2015

SCALE: AS NOTED

SHEET NO. E-704

INSTRUMENT SYMBOL IDENTIFICATION LETTERS TABLE

	FIRST-LETTER		SUCCEEDING-LETTERS		
	MEASURED OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS		ALARM		
B	BURNER, COMBUSTION			CLOSE, STOP, DECREASE	
C	CONTROL			CONTROL	
D		DIFFERENTIAL		OPEN, START, INCREASE	
E	VOLTAGE		SENSOR (PRIMARY ELEMENT)		
F	FLOW RATE	RATIO (FRACTION)			FAIL
G			GLASS, VIEWING DEVICE		
H	HAND				HIGH OR OPEN
I	CURRENT (ELECTRICAL)		INDICATE		
J	POWER	SCAN			
K	TIME, TIME SCHEDULE	TIME RATE OF CHANGE		CONTROL STATION	
L	LEVEL		LIGHT		LOW OR CLOSE
M	MOTOR, MOTION	MOMENTARY		MOTOR	MIDDLE INTERMEDIATE
N					STATUS (ON-OFF)
O			ORIFICE, RESTRICTION		OVERLOAD
P	PRESSURE, VACUUM		POINT (TEST) CONNECTION	PUMP	
Q	QUANTITY	INTEGRATE, TOTALIZE			
R	RADIATION		RECORD		RELAY
S	SPEED, FREQUENCY	SAFETY		SWITCH	
T	TEMPERATURE			TRANSMIT	
U	MULTIVARIABLE		MULTIFUNCTION	MULTIFUNCTION	MULTIFUNCTION
V	VIBRATION, MECHANICAL ANALYSIS	VELOCITY		VALVE, DAMPER LOUVER	
W	WEIGHT, FORCE		WELL		
X		X AXIS			
Y	EVENT, STATE OR PRESENCE	Y AXIS		RELAY, COMPUTE, CONVERT	
Z	POSITION, DIMENSION	Z AXIS		DRIVER, ACTUATOR FINAL CONTROL ELEMENT	

EXPLANATORY NOTATIONS

SIGNAL CONVERTERS

NOTE :

1: PROCESS OR INITIATING VARIABLE

2/3:

A = ANALOG	M = MOTOR
D = DIGITAL	O = ELECTROMAGNETIC, SONIC
E = VOLTAGE	P = PNEUMATIC
F = FREQUENCY	PF = PULSE FREQUENCY
H = HYDRAULIC	PD = PULSE DURATION
I = CURRENT	R = RESISTANCE

SMALL CIRCLE SIGNIFIES SIGNAL INVERSION

HAND SWITCHES

SELECTOR SWITCH (MAINTAINED CONTACT)

SPRING RETURN SWITCH OR PUSHBUTTONS (MOMENTARY CONTACT)

XXX:

AM = AUTO/MANUAL	CM = COMPUTER/MANUAL
CAM = COMPUTER/AUTO/MANUAL	CL = COMPUTER/LOCAL
FR = FOWARD/REVERSE	FOR = FOWARD/OFF/REVERSE
FS = FAST/SLOW	FOS = FAST/OFF/SLOW
HOA = HAND/OFF/AUTO	LOR = LOCAL/OFF/REMOTE
LOS = LOCKOUT/STOP	MFS = MODULATE fASTER/SLOWER
MOC = MODULATE OPEN/CLOSE	OC = OPEN/CLOSE
OO = ON/OFF	OSC = OPEN/STOP/CLOSE
SS = START/STOP	

ANALYSIS INSTRUMENTS

EXPOSED PROBE OR GAS DETECTOR

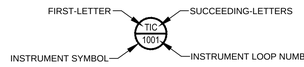
TAPPED OR SAMPLED

IN-LINE (FLOW THROUGH)

XXX:

COL = COLOR	CDG = CARBON DIOXIDE GAS
CG = COMBUSTIBLE GAS	CH4 = METHANE
CLG = CHLORINE GAS	CLR = CHLORINE RESIDUAL
COG = CARBON MONOXIDE GAS	DO = DISSOLVED OXYGEN
HC = HYDROCARBONS	HUM = HUMIDITY
H2S = HYDROGEN SULFIDE	MHO = CONDUCTIVITY
NH4 = AMMONIA	N2G = NITROGEN GAS
OG = OXYGEN GAS	OZG = OZONE GAS
PH = pH	SD = SOLIDS DENSITY
SO2 = SULPHUR DIOXIDE GAS	SS = SUSPENDED SOLIDS
TOC = TOTAL ORGANIC CARBON	TRB = TURBIDITY

INSTRUMENT TAG NUMBER



COMMONLY USED INSTRUMENT FUNCTIONAL IDENTIFICATION LETTER COMBINATIONS DEVELOPED FROM CHART AT LEFT (UNLESS NOTED AS CUSTOM SYMBOL):

COMBINATION	DESCRIPTION
AE	ANALYZER PRIMARY ELEMENT
FE	FLOW PRIMARY ELEMENT
LE	LEVEL PRIMARY ELEMENT
PE	PRESSURE PRIMARY ELEMENT
FCV	FLOW CONTROL VALVE (FINAL ELEMENT)
FIT	FLOW INDICATING TRANSMITTER
LIT	LEVEL INDICATING TRANSMITTER
AIT	ANALYSIS INDICATING TRANSMITTER
PIT	PRESSURE INDICATING TRANSMITTER
FAL	FLOW ALARM LOW
LAH	LEVEL ALARM HIGH
FI	FLOW INDICATOR
PI	PRESSURE INDICATOR
LI	LEVEL INDICATOR
FIR	FLOW INDICATING RECORDER
FIRQ	FLOW INDICATING RECODER WITH TOTALIZER
FIC	FLOW INDICATING CONTROLLER
KC	TIMER
CR	CONTROL RELAY
I/I	CURRENT TO CURRENT CONVERTER (LOOP ISOLATOR)
FY	FLOW COMPUTING RELAY
UT	TELEPHONE DIALER
MN	MOTOR STATUS
MO	MOTOR OVERLOAD
FMR	FM RADIO (CUSTOM SYMBOL)
RTU	REMOTE TERMINAL UNIT (CUSTOM SYMBOL)
MTU	MASTER TERMINAL UNIT (CUSTOM SYMBOL)
PS	POWER SUPPLY (CUSTOM SYMBOL)
I/O	INPUT/OUTPUT MODULE (CUSTOM SYMBOL)
PT	PRESSURE TRANSDUCER (CUSTOM SYMBOL)
A/D	ANALOG TO DIGITAL CONVERTER (CUSTOM SYMBOL)
D/A	DIGITAL TO ANALOG CONVERTER (CUSTOM SYMBOL)
PCM	PUMP CONTROL MODULE (CUSTOM SYMBOL)
TSG	THUMBWHEEL SETPOINT GENERATOR (CUSTOM SYMBOL)
MNC	MOTOR CALL
MNF	MOTOR FAILED
DFA	DATA FAIL ALARM

EQUIPMENT SYMBOLS

CENTRIFUGAL PUMP (DRY PIT)

CENTRIFUGAL PUMP (WET PIT)

PROGRESSIVE CAVITY PUMP

SCREW CONVEYOR/PUMP

METERING PUMP

MOTOR

MIXER

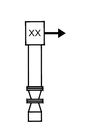
EJECTOR

BLOWER

COMPRESSOR (PISTON TYPE)

GEAR PUMP OR BLOWER (PD)

SUBMERSIBLE PUMP



VERTICAL TURBINE

HEAT EXCHANGER

XX: BLANK = CONSTANT SPEED
2S = TWO SPEED
VS = VARIABLE SPEED

MISCELLANEOUS SYMBOLS

DIAPHRAGM SEAL

RUPTURE DISK (PRESSURE RELIEF)

RUPTURE DISK (VACUUM RELIEF)

(REGULATED SIDE) PRESSURE REGULATOR

PRESSURE GAUGE

VENT TO ATMOSPHERE

AIR GAP

SNUBBER

TRANSIENT SUPPRESSOR

SIGHT GLASS

X: W = WATER
A = AIR

FLOW STRAIGHTENER

DIFFERENTIAL PRESSURE REGULATOR

ANTENNA (GENERIC)

INTERLOCK LOGIC

RESET

SQUARE ROOT EXTRACTOR

SIGNAL CONTINUATION WHERE X = 1,2,3,ETC.

GENERAL INSTRUMENT OR FUNCTION SYMBOLS

	DISCRETE INSTRUMENT	SHARED DISPLAY/ SHARED CONTROL	COMPUTER FUNCTION	PROGRAMMABLE LOGIC CONTROLLER
OPERATOR ACCESSIBLE				
NOT ACCESSIBLE TO OPERATOR				
FIELD MOUNTED				
FRONT OF PANEL MOUNTED				
INTERIOR OF PANEL MOUNTED				
MOTOR CONTROL CENTER MOUNTED				
INSTRUMENTS SHARING A COMMON HOUSING				
ANNUNCIATOR				

PRIMARY ELEMENT SYMBOLS

FLOW

ELECTROMAGNETIC

ULTRASONIC IN-LINE OR DOPPLER

ULTRASONIC CLAMP-ON

VENTURI

ORIFICE PLATE

PROPELLER OR TURBINE

VORTEX SHEDDING

TARGET

PITOT TUBE

ROTAMETER

FLUME

WEIR

UNCLASSIFIED FLOW ELEMENT: X = E
SWITCH: X = S

LEVEL

BUBBLE TUBE

ULTRASONIC/RADAR

CAPACITANCE

ELECTRODES (WITH HOLDER)

FLOAT

UNCLASSIFIED LEVEL ELEMENT: X = E
SWITCH: X = S

TEMPERATURE

TEMPERATURE WITH WELL

ACTUATOR SYMBOLS

PNUEMATIC

HYDRAULIC

NOTE XX:
PZ, HZ OR MZ INDICATES ACTUATOR WITH POSITIONER

PRESSURE OR VACUUM RELIEF SPRING OR WEIGHT LOADED

MANUAL

NOTE: ON LOSS OF PRIMARY POWER (PNEUMATIC OR ELECTRICAL)

XX: FO = FAIL OPEN
FC = FAIL CLOSED
FI = FAIL TO INTERMEDIATE POSITION
BLANK = FAIL TO LAST POSITION

ELECTROPNEUMATIC

ELECTROHYDRAULIC

SOLENOID

VALVE & GATE SYMBOLS

BUTTERFLY VALVE, DAMPER OR LOUVER

CHECK VALVE

GLOBE, GATE, PINCH OR OTHER IN-LINE VALVE

BALL VALVE

THREE WAY VALVE (ARROWS INDICATE FLOW PATTERN)

TELESCOPING VALVE

SLUICE GATE

PREFABRICATED SLIDE GATE

INSTRUMENT LINE SYMBOLS

(LINES TO BE DRAWN FINE IN RELATION TO PROCESS PIPING LINES)

CONNECTION TO PROCESS

PNEUMATIC SIGNAL

ELECTRIC — OR

HYDRAULIC SIGNAL

CAPILLARY TUBE

ELECTROMAGNETIC OR SONIC SIGNAL (GUIDED)

ELECTROMAGNETIC OR SONIC SIGNAL (NOT GUIDED)

INTERNAL SYSTEM LINK (SOFTWARE OR DATA LINK)

MECHANICAL LINK

ABBREVIATIONS/ACRONYMS

AS	AIR SUPPLY	ES	ELECTRIC SUPPLY
GS	GAS SUPPLY	HS	HYDRAULIC SUPPLY
WS	WATER SUPPLY	CO	CONTACT OUTPUT
CI	CONTACT INPUT	PD	POSITIVE DISPLACEMENT
FMR	FM RADIO	MTU	MASTER TERMINAL UNIT
RTU	REMOTE TERMINAL UNIT		

GENERAL NOTES

1. SEE DIVISION 33 OF THE SPECIFICATIONS FOR FURTHER INSTRUMENTATION REQUIREMENTS.
2. THIS IS A GUIDE TO READING INSTRUMENT SOCIETY OF AMERICA (ISA) FORMAT P&ID OR LOOP DIAGRAMS. THESE SYMBOLS AND TECHNIQUES HAVE MOSTLY EXTRACTED FROM ISA STANDARD S5.1. THIS IS NOT HOWEVER, A COMPLETE OR EXACT DUPLICATION OF S5.1. NOT ALL SYMBOLS SHOWN ARE USED ON THIS PROJECT. SOME SYMBOLS MAY BE USED THAT ARE NOT SHOWN. CONTACT THE ENGINEER OR REFER TO ISA STANDARD S5.1 FOR CLARIFICATIONS.
3. POWER SUPPLIES SHALL BE FURNISHED BY THE INSTRUMENT SUPPLIER AS REQUIRED TO MEET THE VOLTAGE AND CURRENT REQUIREMENTS OF THE COMPONENTS IN EACH LOOP OR SYSTEM.

COMMUNICATION & PROCESS SYMBOLS

FLOW STREAM CONNECTION NOT SHOWN ON OTHER DRAWINGS

FLOW STREAM CONNECTION SHOWN ON ANOTHER DRAWING. XXXX IS SHEET NUMBER WHERE SHOWN.

DIGITAL INPUT (DISCRETE)

DIGITAL OUTPUT (DISCRETE)

PULSE TRAIN INPUT

PULSE OUTPUT (MOMLENTARY UNLESS F IS PRESENT - F MEANS PULSE TRAIN OUTPUT)

ANALOG INPUT

ANALOG OUTPUT

GENERAL NOTE:

1. ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR COORDINATING WIRING WITH INSTRUMENTATION EQUIPMENT PROVIDED IN DIVISION 33.

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CONFORMANCE SET (BID OPENING DATE 4-30-2015)

INSTRUMENTATION STANDARD SYMBOLS AND LEGEND

DUDLEY COMPLEX SODIUM HYPOCHLORITE BUILDING
CITY OF EDGEWOOD, KENTUCKY

DESIGNED:	DRAWN:	REVIEWED:	APPROVED:
WER	WER	WER	WER

REVISIONS			
NO.	DESCRIPTION	DATE	BY

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DATE: MAY, 2015

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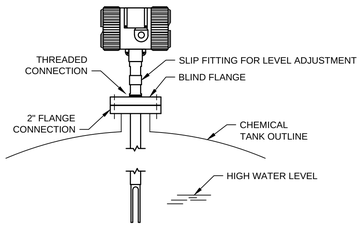
SHEET NO. I-001

PLOTTED BY: rsteinbold

PRINTED: 5/15/2015 @ 11:45AM

FILE NAME: U:\4325-NKWD Sdm\Hypo\Bld\Working Drawings\4325-I-001.dwg

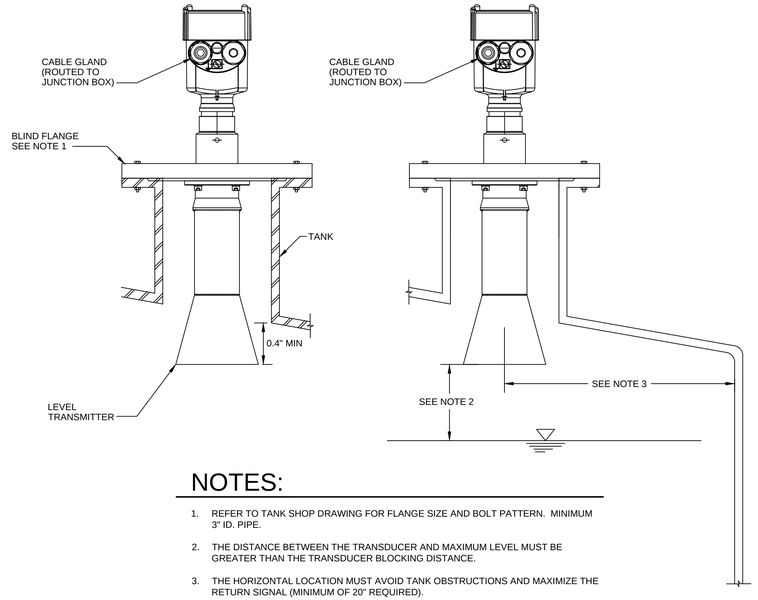


NOTES:

- TANK OPENING MAY BE A 1 1/2" NPT THREADED HOLE IN LIEU OF A FLANGED CONNECTION.
- PROVIDE 24" LENGTH OF SLIP FITTER FOR ALARM ADJUSTMENT ON 3000 GALLON HDXLPE TANK.
- PROVIDE 12" LENGTH OF SLIP FITTER FOR ALARM ADJUSTMENT ON DAYTANK.

1 VIBRATING FORK POINT LEVEL SWITCH - MOUNTING DETAIL - STORAGE TANK / DAYTANK

NOT TO SCALE

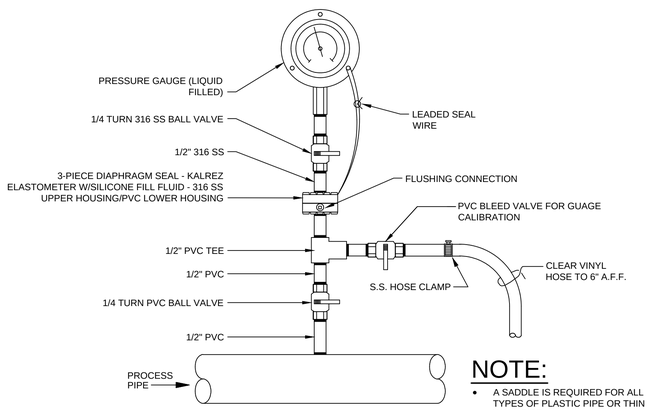


NOTES:

1. REFER TO TANK SHOP DRAWING FOR FLANGE SIZE AND BOLT PATTERN. MINIMUM 3" ID. PIPE.
2. THE DISTANCE BETWEEN THE TRANSDUCER AND MAXIMUM LEVEL MUST BE GREATER THAN THE TRANSDUCER BLOCKING DISTANCE.
3. THE HORIZONTAL LOCATION MUST AVOID TANK OBSTRUCTIONS AND MAXIMIZE THE RETURN SIGNAL (MINIMUM OF 20" REQUIRED).

2 LEVEL TRANSDUCER (RADAR) - MOUNTING DETAIL - STORAGE TANK / DAYTANK

NOT TO SCALE

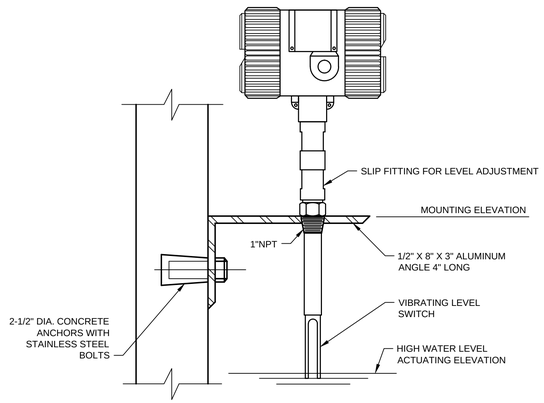


NOTE:

- A SADDLE IS REQUIRED FOR ALL TYPES OF PLASTIC PIPE OR THIN WALL PIPE.

3 TYPICAL PRESSURE GAUGE PIPING DETAIL

NOT TO SCALE



NOTES:

1. MOUNT LEVEL SWITCH AT 12" BELOW BOTTOM OF SPILL CONTAINMENT TROUGH.

1 HIGH LEVEL SWITCH MOUNTING DETAIL

NOT TO SCALE

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CONFORMANCE SET (BID OPENING DATE 4-30-2015)

MISCELLANEOUS INSTRUMENTATION DETAILS

DUDLEY COMPLEX SODIUM HYPOCHLORITE BUILDING
CITY OF EDGEWOOD, KENTUCKY

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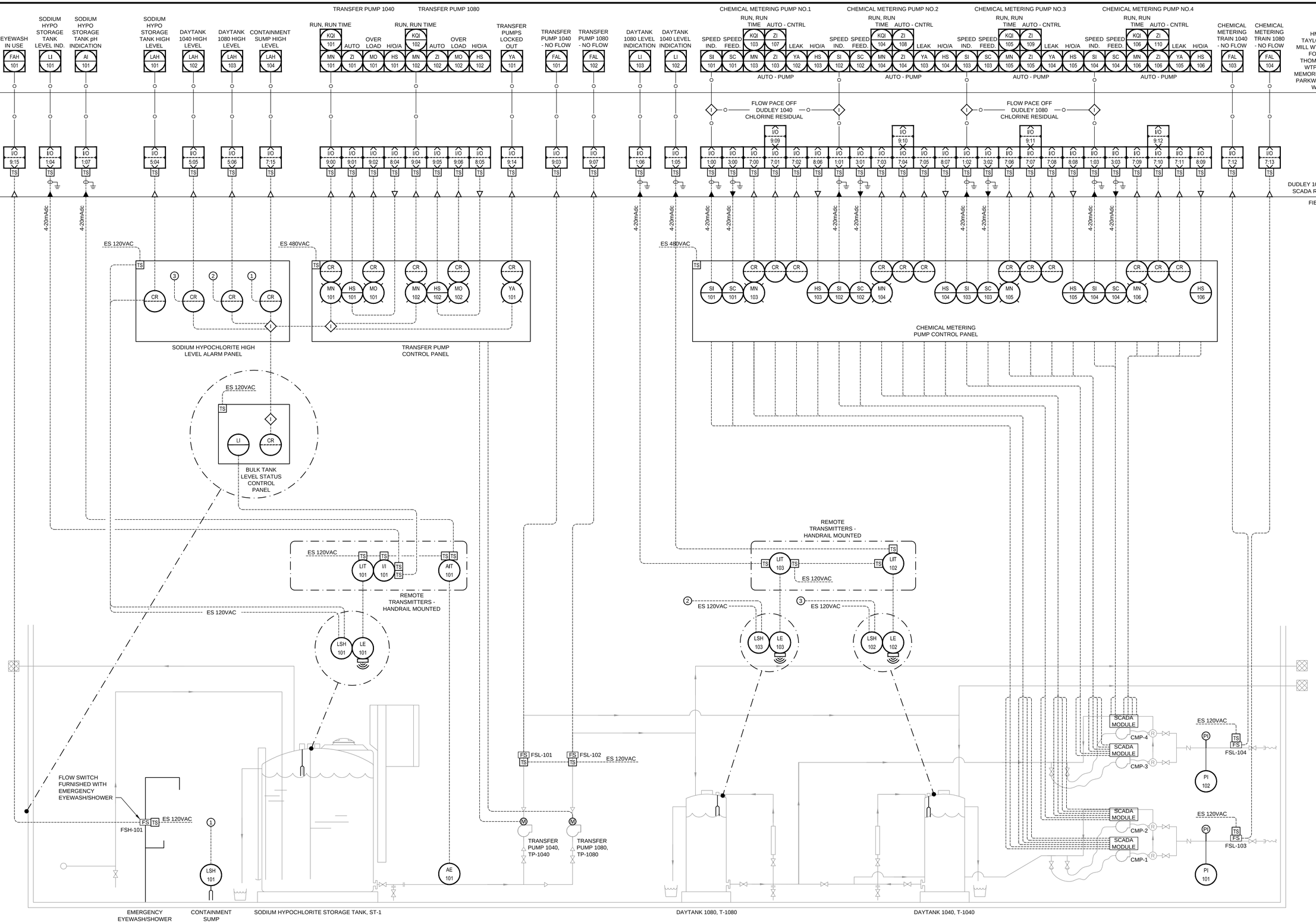
SHEET NO.

I-501

PLOTTED BY: rrsetebold

PRINTED: 5/15/2015 @ 11:46AM

FILE NAME: U:\4325-NKWD Sam\typeB\bit\Working Drawings\4325-I-501.dwg



1 PROCESS & INSTRUMENTATION DIAGRAM - SODIUM HYPOCHLORITE SYSTEM

NOT TO SCALE

PLOTTED BY: rsteitold

PRINTED: 5/15/2015 @ 11:46AM

FILE NAME: U:\4325-NKY\D Stm\Hypobit\Working Drawings\4325-I-601.dwg

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PROCESS AND INSTRUMENTATION DIAGRAM I

DUDLEY COMPLEX SODIUM HYPOCHLORITE BUILDING
CITY OF EDGEWOOD, KENTUCKY

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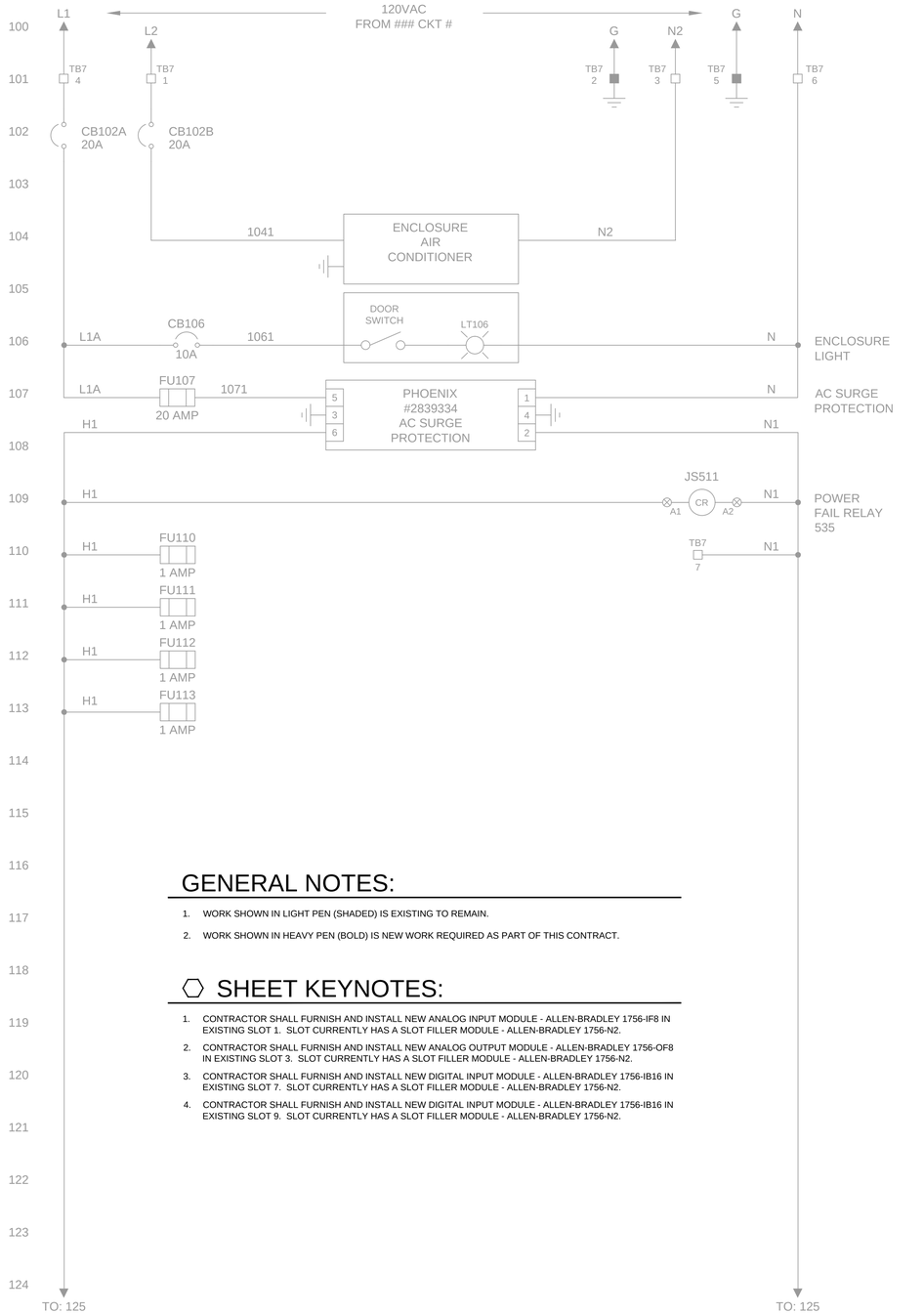
DATE: MAY, 2015

SCALE: AS NOTED

SHEET NO. I-601

NOTE: USE COPPER WIRE RATED AT 60° ONLY

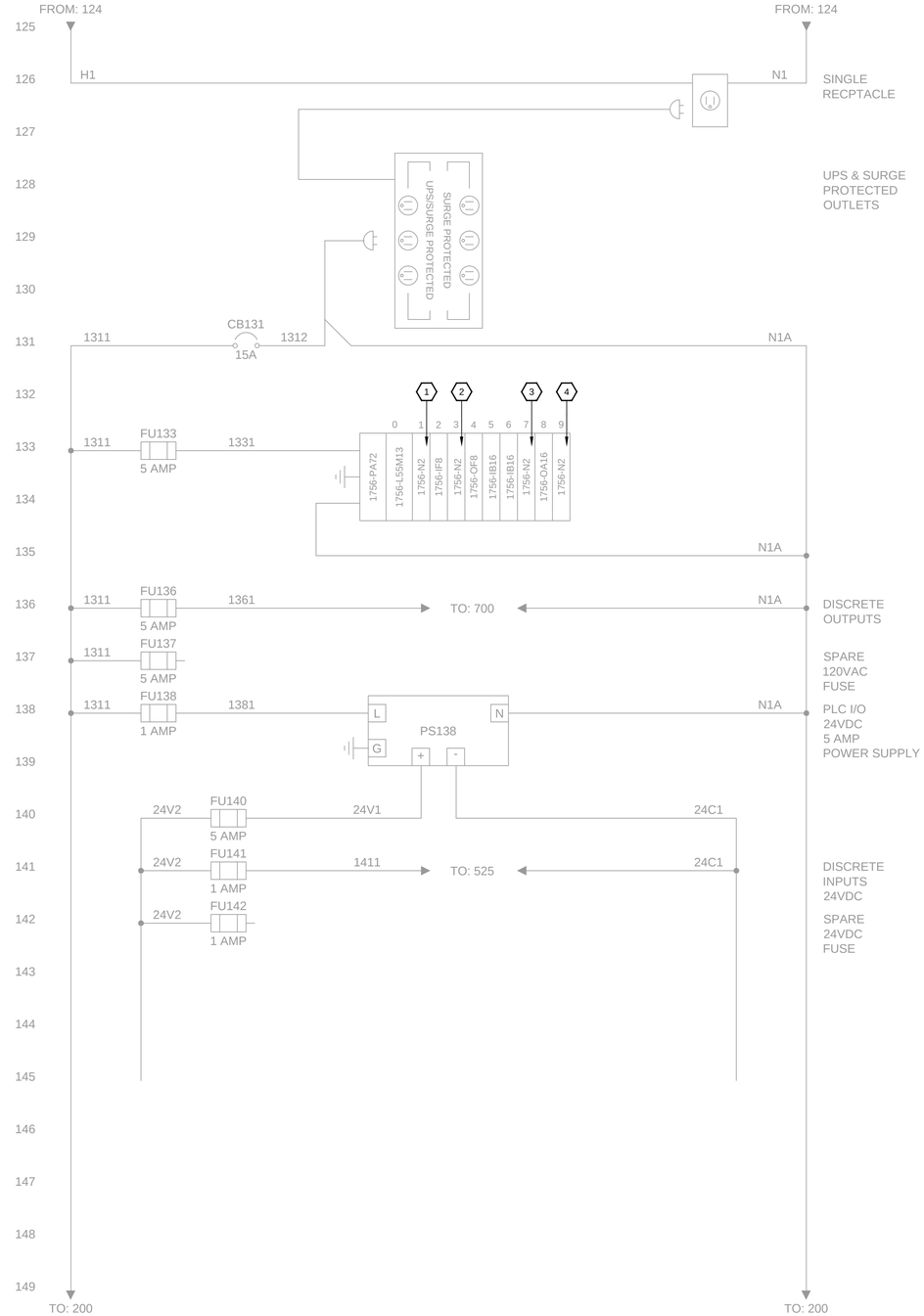


GENERAL NOTES:

1. WORK SHOWN IN LIGHT PEN (SHADED) IS EXISTING TO REMAIN.
2. WORK SHOWN IN HEAVY PEN (BOLD) IS NEW WORK REQUIRED AS PART OF THIS CONTRACT.

⬡ SHEET KEYNOTES:

1. CONTRACTOR SHALL FURNISH AND INSTALL NEW ANALOG INPUT MODULE - ALLEN-BRADLEY 1756-IF8 IN EXISTING SLOT 1. SLOT CURRENTLY HAS A SLOT FILLER MODULE - ALLEN-BRADLEY 1756-N2.
2. CONTRACTOR SHALL FURNISH AND INSTALL NEW ANALOG OUTPUT MODULE - ALLEN-BRADLEY 1756-OF8 IN EXISTING SLOT 3. SLOT CURRENTLY HAS A SLOT FILLER MODULE - ALLEN-BRADLEY 1756-N2.
3. CONTRACTOR SHALL FURNISH AND INSTALL NEW DIGITAL INPUT MODULE - ALLEN-BRADLEY 1756-IB16 IN EXISTING SLOT 7. SLOT CURRENTLY HAS A SLOT FILLER MODULE - ALLEN-BRADLEY 1756-N2.
4. CONTRACTOR SHALL FURNISH AND INSTALL NEW DIGITAL INPUT MODULE - ALLEN-BRADLEY 1756-IB16 IN EXISTING SLOT 9. SLOT CURRENTLY HAS A SLOT FILLER MODULE - ALLEN-BRADLEY 1756-N2.



1) ALL WIRE TAGS TO BE HEAT SHRINK TYPE
2) UNLESS NOTED ON THE SCHEMATICS USE THE FOLLOWING TYPE MTW FOR WIRING:

AC CONTROL	RED #16 AWG
DC CONTROL	BLUE #16 AWG
NEUTRAL	WHITE #16 AWG
GROUND	GREEN #16 AWG
REMOTE POWER SOURCE	YELLOW #16 AWG
ANALOG	#18 AWG SHIELDED

- ☐ P-03 TERMINAL
- ■ P-03 GROUNDING TERMINAL
- ☒ FIELD TERMINAL

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CONFORMANCE SET (BID OPENING DATE 4-30-2015)

EXISTING DUDLEY 1040 PUMP STATION SCADA RTU I

DUDLEY COMPLEX SODIUM HYPOCHLORITE BUILDING
CITY OF EDGEWOOD, KENTUCKY

DESIGNED:	WER
DRAWN:	WER
REVIEWED:	WER
APPROVED:	WER

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NO	DESCRIPTION	DATE	BY

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DATE: MAY, 2015
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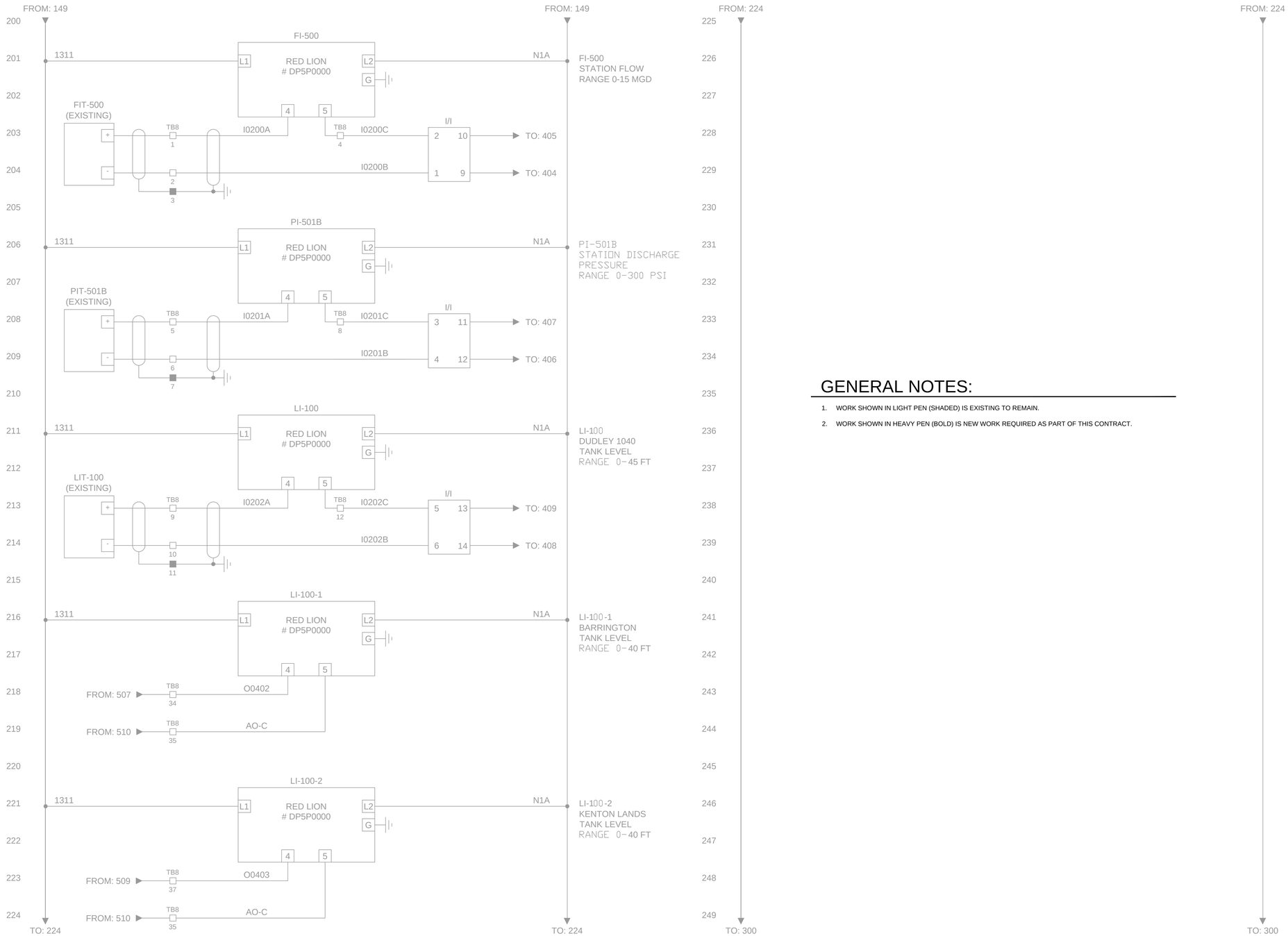

GENERAL NOTES:

1. WORK SHOWN IN LIGHT PEN (SHADED) IS EXISTING TO REMAIN.
2. WORK SHOWN IN HEAVY PEN (BOLD) IS NEW WORK REQUIRED AS PART OF THIS CONTRACT.

1) ALL WIRE TAGS TO BE HEAT SHRINK TYPE
2) UNLESS NOTED ON THE SCHEMATICS USE THE FOLLOWING TYPE MTW FOR WIRING:

AC CONTROL	RED #16 AWG
DC CONTROL	BLUE #16 AWG
NEUTRAL	WHITE #16 AWG
GROUND	GREEN #16 AWG
REMOTE POWER SOURCE	YELLOW #16 AWG
ANALOG	#18 AWG SHIELDED

- ☐ P-03 TERMINAL
- ■ P-03 GROUNDING TERMINAL
- ☒ FIELD TERMINAL

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CONFORMANCE SET (BID OPENING DATE 4-30-2015)

EXISTING DUDLEY 1040 PUMP STATION SCADA RTU II

DUDLEY COMPLEX SODIUM HYPOCHLORITE BUILDING
CITY OF EDGEWOOD, KENTUCKY

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REVISIONS

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DATE: MAY, 2015

SCALE: AS NOTED

SHEET NO.

I-702

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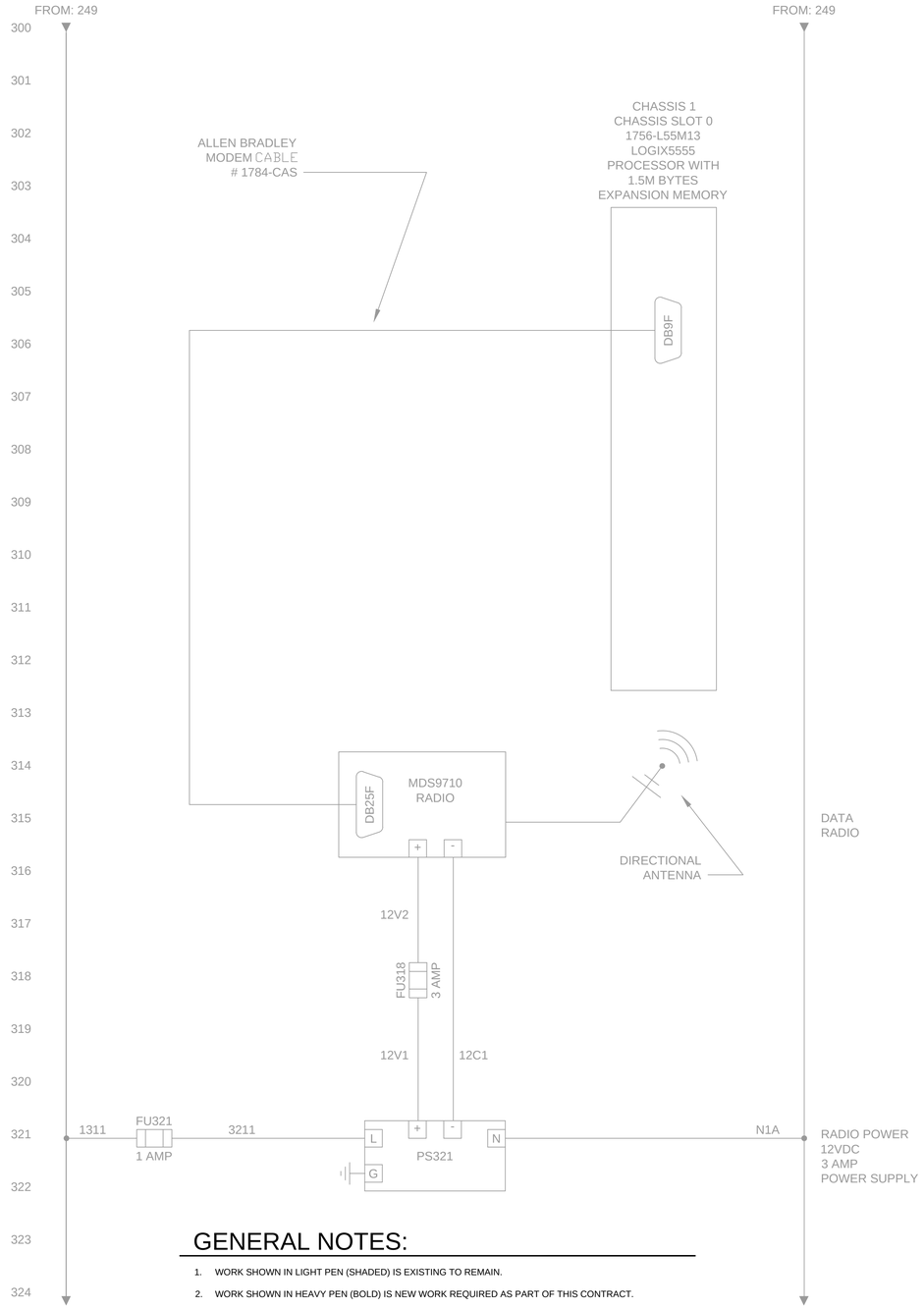
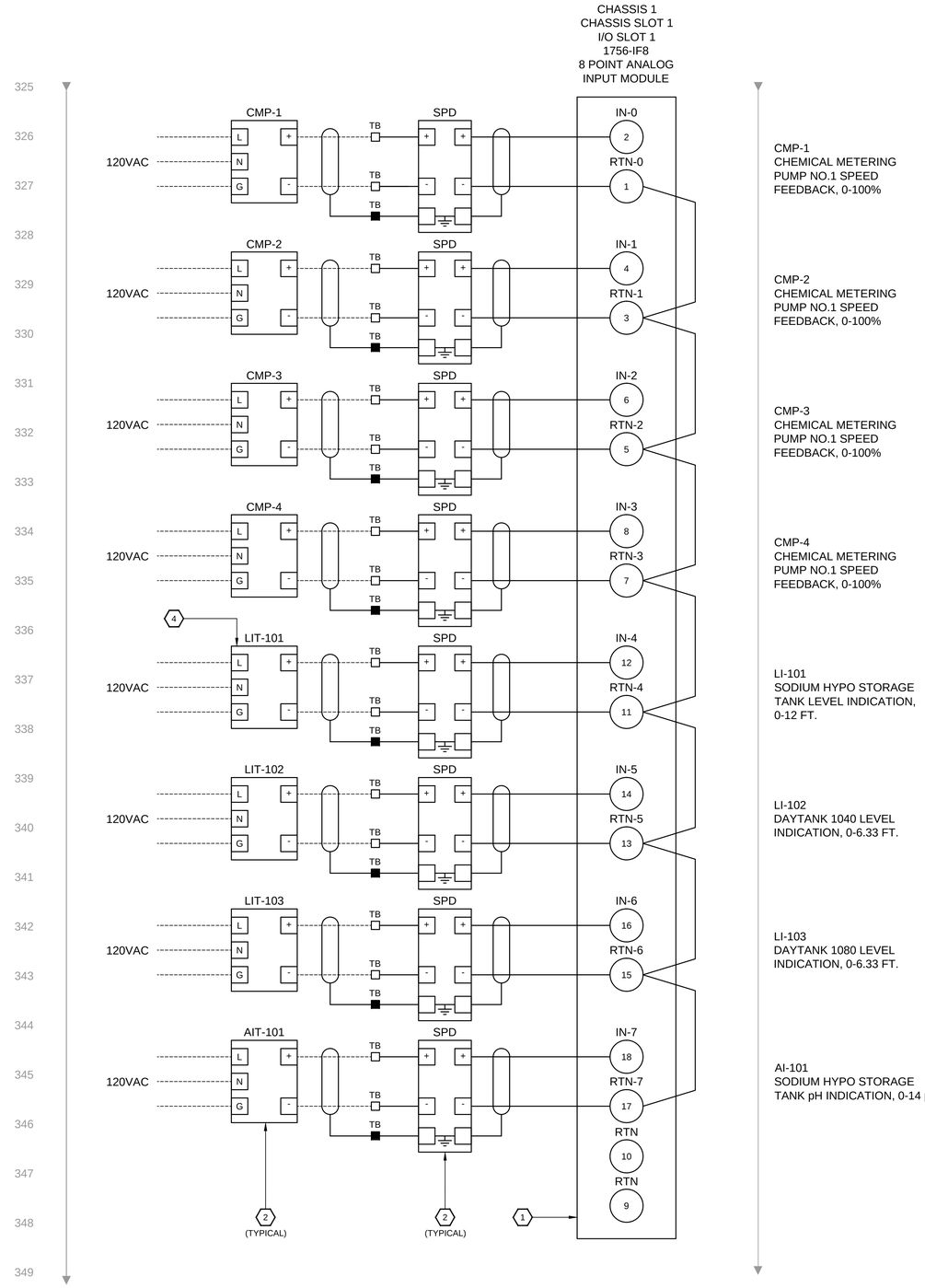
PLOTTED BY: rsteitbold
FILE NAME: U:\4325-NKWD Sam\hypoBld\Working Drawings\4325-I-702.dwg





GENERAL NOTES:

1. WORK SHOWN IN LIGHT PEN (SHADED) IS EXISTING TO REMAIN.
2. WORK SHOWN IN HEAVY PEN (BOLD) IS NEW WORK REQUIRED AS PART OF THIS CONTRACT.

⬡ SHEET KEYNOTES:

1. CONTRACTOR SHALL FURNISH AND INSTALL NEW ANALOG INPUT MODULE - ALLEN-BRADLEY 1756-IF8 IN EXISTING SLOT 1. SLOT CURRENTLY HAS A SLOT FILLER MODULE - ALLEN-BRADLEY 1756-N2.
2. CONTRACTOR SHALL TERMINATE NEW ANALOG INPUT SIGNALS AT NEW ANALOG INPUT MODULE - ALLEN-BRADLEY 1756-IF8 IN EXISTING SLOT 1.
3. CONTRACTOR SHALL FURNISH AND INSTALL SURGE PROTECTION, DIN RAIL MOUNT, AT EACH ANALOG INPUT.
4. A LOOP ISOLATOR SHALL BE PROVIDED FOR THE STORAGE TANK LEVEL SIGNAL TO PROVIDE INPUT TO THE DUDLEY 1040 SCADA RTU PLC AND THE TRUCK FILL ALARM PANEL.

1) ALL WIRE TAGS TO BE HEAT SHRINK TYPE
2) UNLESS NOTED ON THE SCHEMATICS USE THE FOLLOWING TYPE MTW FOR WIRING:

AC CONTROL	RED #16 AWG
DC CONTROL	BLUE #16 AWG
NEUTRAL	WHITE #16 AWG
GROUND	GREEN #16 AWG
REMOTE POWER SOURCE	YELLOW #16 AWG
ANALOG	#18 AWG SHIELDED

☐ P-03 TERMINAL
■ P-03 GROUNDING TERMINAL
☒ FIELD TERMINAL

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CONFORMANCE SET (BID OPENING DATE 4-30-2015)

EXISTING DUDLEY 1040 PUMP STATION SCADA RTU III

DUDLEY COMPLEX SODIUM HYPOCHLORITE BUILDING
CITY OF EDGEWOOD, KENTUCKY

DESIGNED:	DRAWN:	REVIEWED:	APPROVED:
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REVISIONS

NO.	DESCRIPTION	DATE	BY

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I-703

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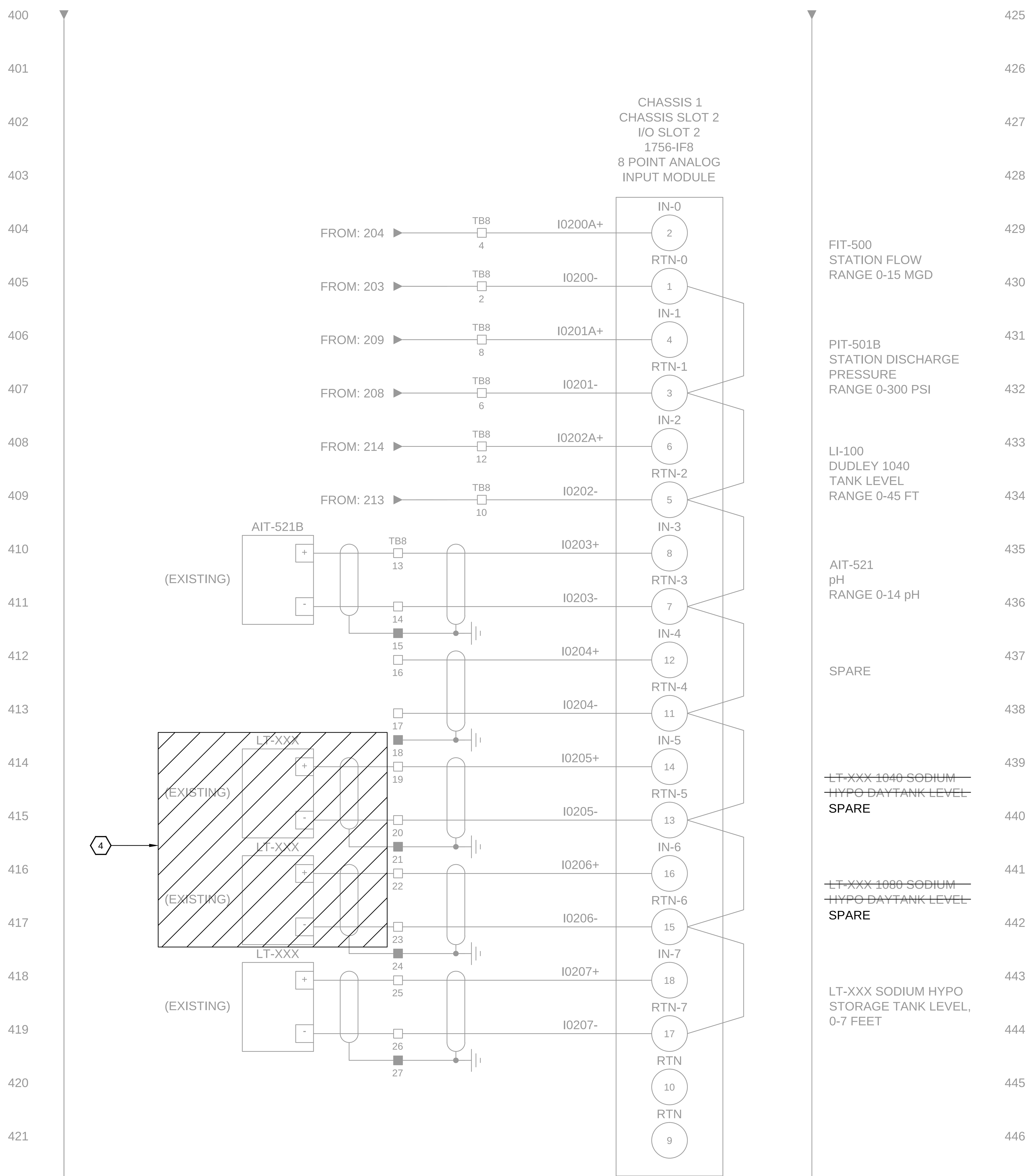

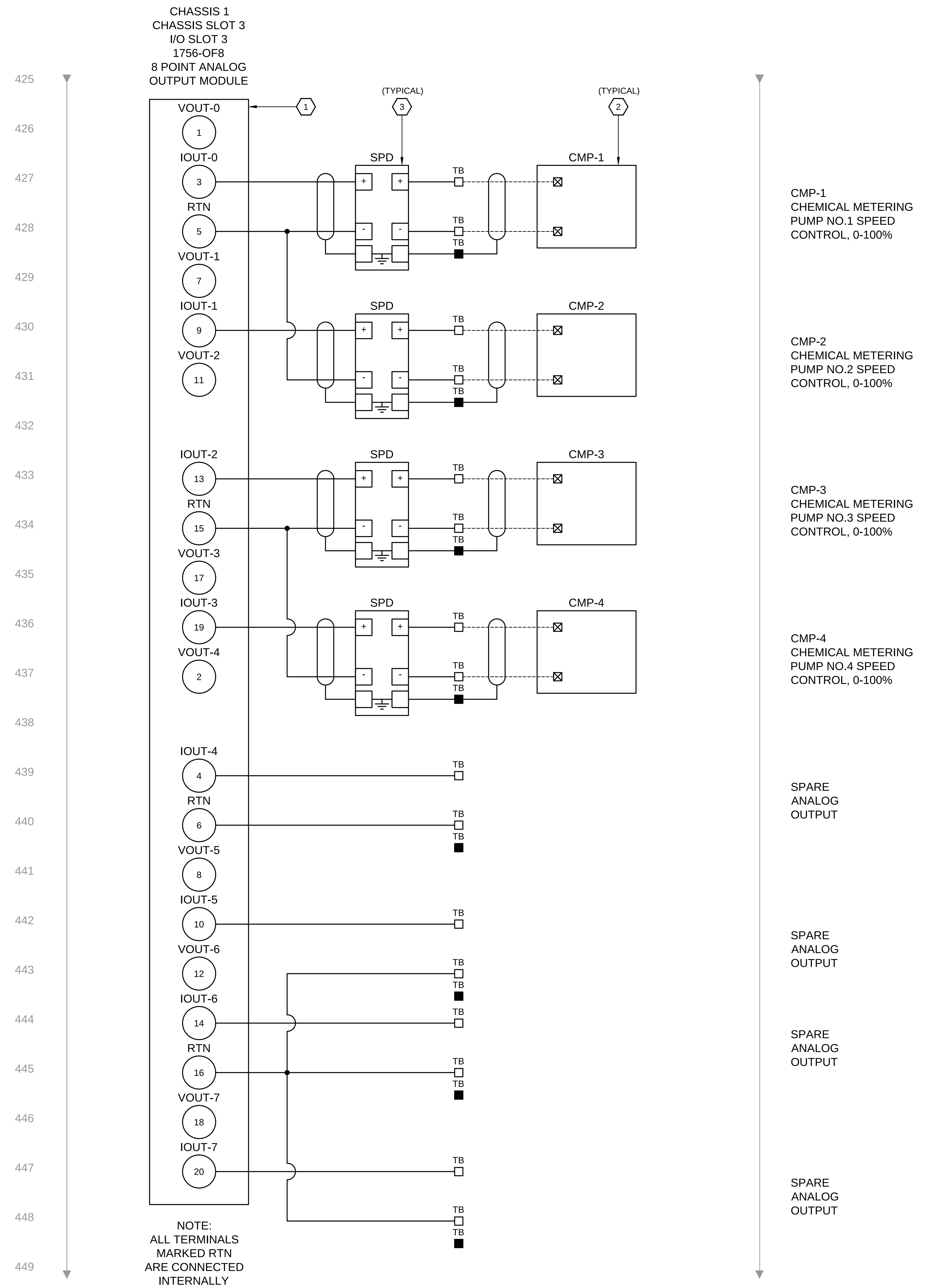

GENERAL NOTES:

1. WORK SHOWN IN LIGHT PEN (SHADED) IS EXISTING TO REMAIN.
2. WORK SHOWN IN HEAVY PEN (BOLD) IS NEW WORK REQUIRED AS PART OF THIS CONTRACT.
3. WORK SHOWN IN HATCH IS EXISTING WORK WHICH SHALL BE DISCONNECTED AND REMOVED AS PART OF THIS CONTRACT.

SHEET KEYNOTES:

1. CONTRACTOR SHALL FURNISH AND INSTALL NEW ANALOG OUTPUT MODULE - ALLEN-BRADLEY 1756-OF8 IN EXISTING SLOT 3. SLOT CURRENTLY HAS A SLOT FILLER MODULE - ALLEN-BRADLEY 1756-N2.
2. CONTRACTOR SHALL TERMINATE NEW ANALOG OUTPUT SIGNALS AT NEW ANALOG OUTPUT MODULE - ALLEN-BRADLEY 1756-OF8 IN EXISTING SLOT 3.
3. CONTRACTOR SHALL FURNISH AND INSTALL SURGE PROTECTION, DIN RAIL MOUNT, AT EACH ANALOG OUTPUT.
4. CONTRACTOR SHALL DISCONNECT AND REMOVE EXISTING INSTRUMENTATION AND SIGNAL WIRING FROM EXISTING CHLORINE BUILDING (TO BE DEMOLISHED) TO SCADA RTU PLC.

1) ALL WIRE TAGS TO BE HEAT SHRINK TYPE
2) UNLESS NOTED ON THE SCHEMATICS USE THE FOLLOWING TYPE MTW FOR WIRING:

AC CONTROL	RED #16 AWG
DC CONTROL	BLUE #16 AWG
NEUTRAL	WHITE #16 AWG
GROUND	GREEN #16 AWG
REMOTE POWER SOURCE	YELLOW #16 AWG
ANALOG	#18 AWG SHIELDED

☐ P-03 TERMINAL
■ P-03 GROUNDING TERMINAL
☒ FIELD TERMINAL

FILE NAME: U:\4325-NKWD SdmHypoBld\Working Drawings\4325-I-704.dwg
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PLOTTED BY: mseebold

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EXISTING DUDLEY 1040 PUMP STATION SCADA RTU IV

DUDLEY COMPLEX SODIUM HYPOCHLORITE BUILDING
CITY OF EDGEWOOD, KENTUCKY

DESIGNED: WER
DRAWN: WER
REVIEWED: WER
APPROVED: WER

REVISIONS

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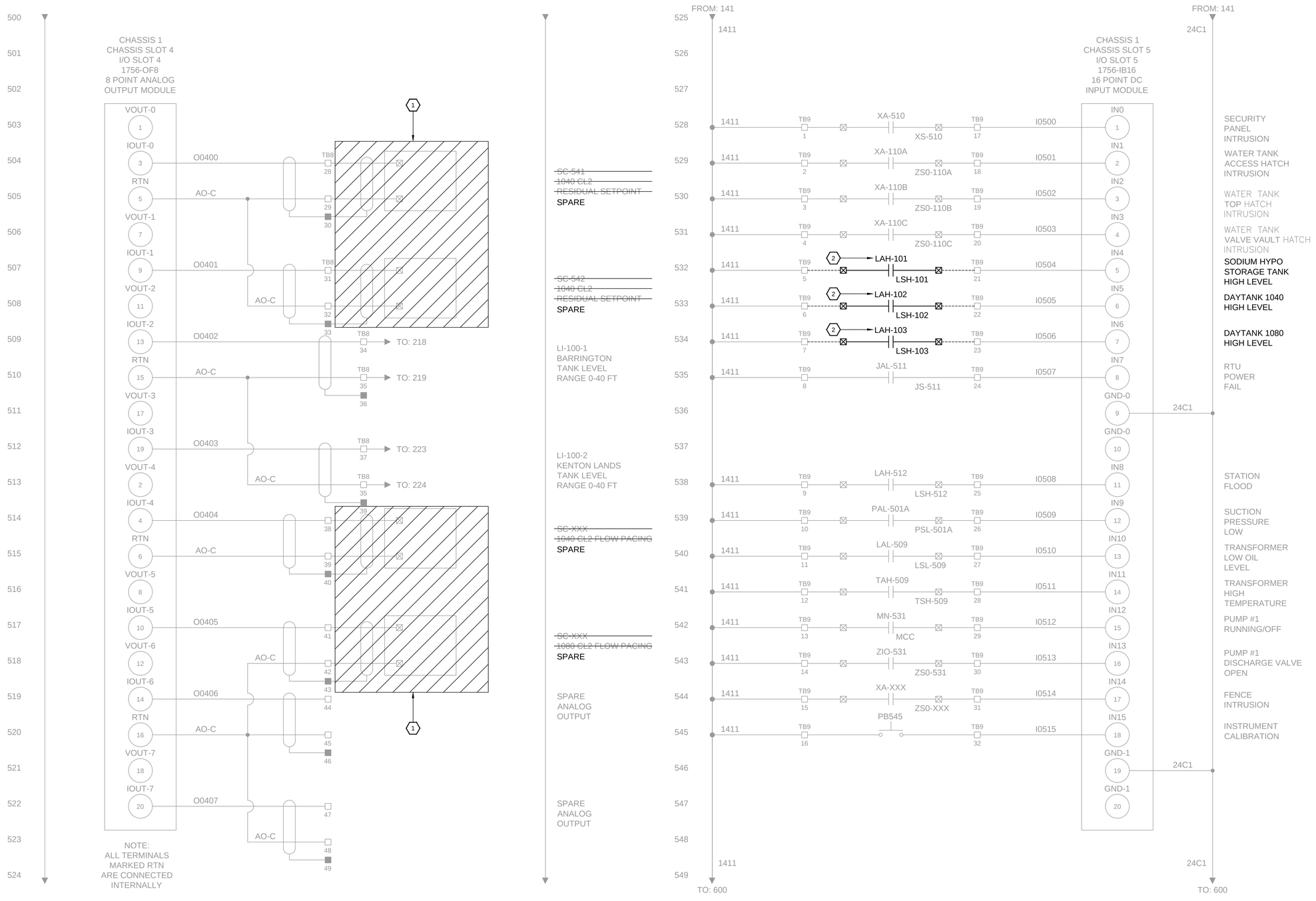

GENERAL NOTES:

1. WORK SHOWN IN LIGHT PEN (SHADED) IS EXISTING TO REMAIN.
2. WORK SHOWN IN HEAVY PEN (BOLD) IS NEW WORK REQUIRED AS PART OF THIS CONTRACT.
3. WORK SHOWN IN HATCH IS EXISTING WORK WHICH SHALL BE DISCONNECTED AND REMOVED AS PART OF THIS CONTRACT.

⬡ SHEET KEYNOTES:

1. CONTRACTOR SHALL DISCONNECT AND REMOVE EXISTING INSTRUMENTATION AND SIGNAL WIRING FROM SCADA RTU PLC TO EXISTING CHEMICAL FEED PUMPS.
2. CONTRACTOR SHALL TERMINATE NEW DIGITAL INPUT SIGNALS AT EXISTING DIGITAL INPUT MODULE - ALLEN-BRADLEY 1756-IB16 IN EXISTING SLOT 5.

1) ALL WIRE TAGS TO BE HEAT SHRINK TYPE
2) UNLESS NOTED ON THE SCHEMATICS USE THE FOLLOWING TYPE MTW FOR WIRING:

AC CONTROL	RED #16 AWG
DC CONTROL	BLUE #16 AWG
NEUTRAL	WHITE #16 AWG
GROUND	GREEN #16 AWG
REMOTE POWER SOURCE	YELLOW #16 AWG
ANALOG	#18 AWG SHIELDED

- ☐ P-03 TERMINAL
- ■ P-03 GROUNDING TERMINAL
- ☒ FIELD TERMINAL

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CONFORMANCE SET (BID OPENING DATE 4-30-2015)

EXISTING DUDLEY 1040 PUMP STATION SCADA RTU V

DUDLEY COMPLEX SODIUM HYPOCHLORITE BUILDING
CITY OF EDGEWOOD, KENTUCKY

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I-705

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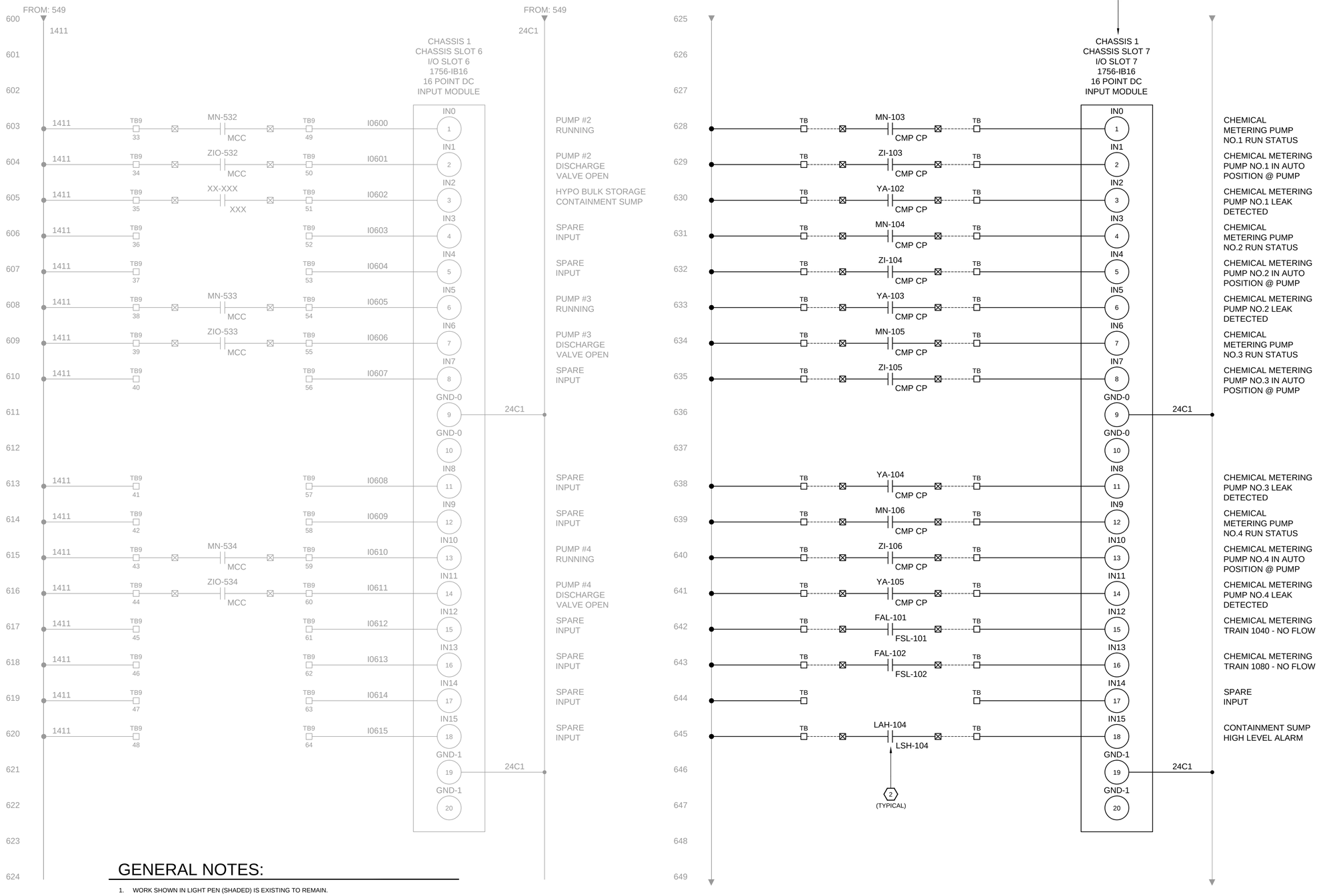

GENERAL NOTES:

1. WORK SHOWN IN LIGHT PEN (SHADED) IS EXISTING TO REMAIN.
2. WORK SHOWN IN HEAVY PEN (BOLD) IS NEW WORK REQUIRED AS PART OF THIS CONTRACT.

⬡ SHEET KEYNOTES:

1. CONTRACTOR SHALL FURNISH AND INSTALL NEW DIGITAL INPUT MODULE - ALLEN-BRADLEY 1756-IB16 IN EXISTING SLOT 7. SLOT CURRENTLY HAS A SLOT FILLER MODULE - ALLEN-BRADLEY 1756-N2.
2. CONTRACTOR SHALL TERMINATE NEW DIGITAL INPUT SIGNALS AT NEW DIGITAL INPUT MODULE - ALLEN-BRADLEY 1756-IB16 IN EXISTING SLOT 7.

1) ALL WIRE TAGS TO BE HEAT SHRINK TYPE
2) UNLESS NOTED ON THE SCHEMATICS USE THE FOLLOWING TYPE MTW FOR WIRING:

AC CONTROL	RED #16 AWG
DC CONTROL	BLUE #16 AWG
NEUTRAL	WHITE #16 AWG
GROUND	GREEN #16 AWG
REMOTE POWER SOURCE	YELLOW #16 AWG
ANALOG	#18 AWG SHIELDED

- ☐ P-03 TERMINAL
- ■ P-03 GROUNDING TERMINAL
- ☒ FIELD TERMINAL

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CONFORMANCE SET (BID OPENING DATE 4-30-2015)

EXISTING DUDLEY 1040 PUMP STATION SCADA RTU VI

DUDLEY COMPLEX SODIUM HYPOCHLORITE BUILDING
CITY OF EDGEWOOD, KENTUCKY

DESIGNED:	DRAWN:	REVIEWED:	APPROVED:
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REVISIONS

NO.	DESCRIPTION	DATE	BY

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I-706

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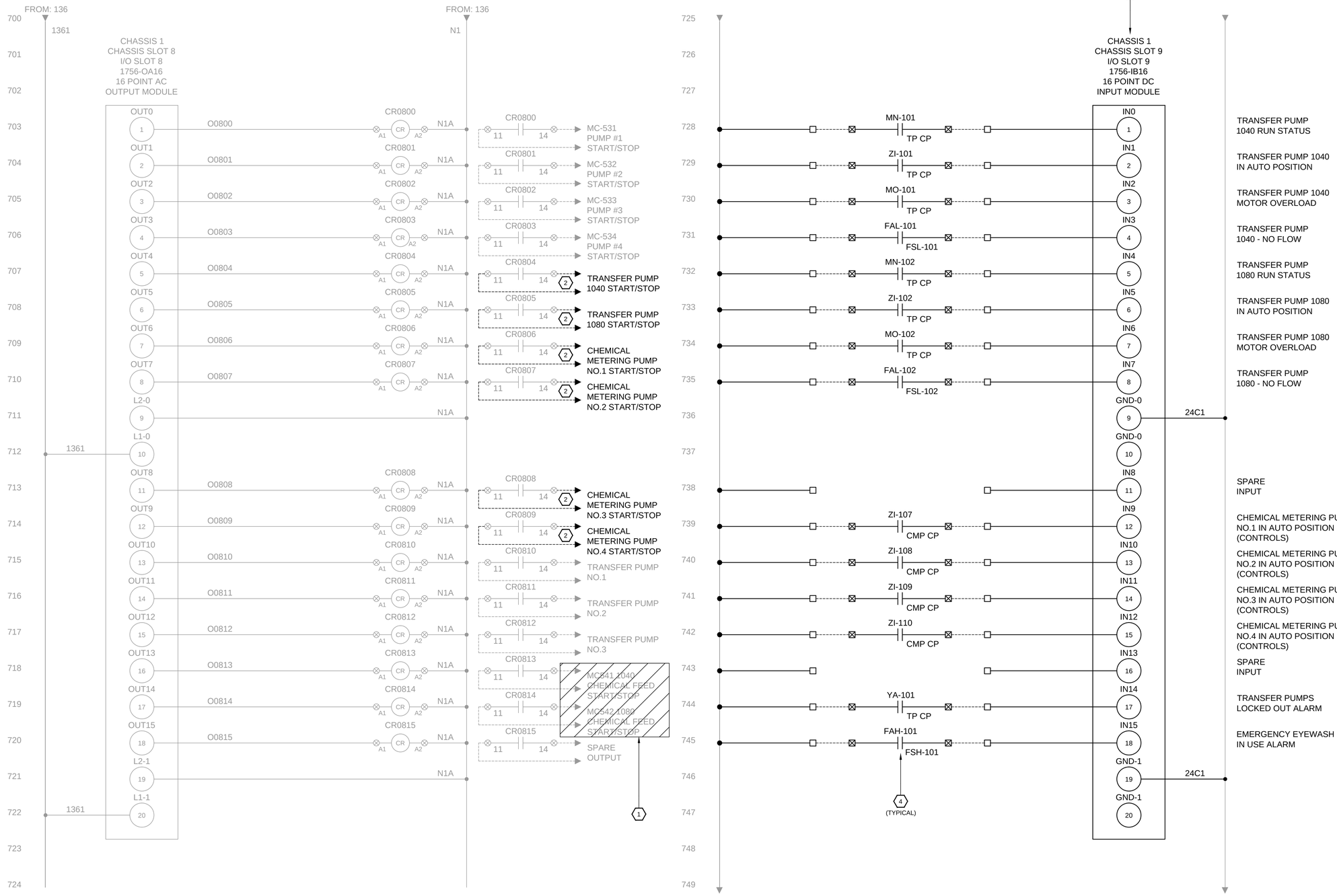

GENERAL NOTES:

1. WORK SHOWN IN LIGHT PEN (SHADED) IS EXISTING TO REMAIN.
2. WORK SHOWN IN HEAVY PEN (BOLD) IS NEW WORK REQUIRED AS PART OF THIS CONTRACT.
3. WORK SHOWN IN HATCH IS EXISTING WORK WHICH SHALL BE DISCONNECTED AND REMOVED AS PART OF THIS CONTRACT.

SHEET KEYNOTES:

1. CONTRACTOR SHALL DISCONNECT AND REMOVE EXISTING INSTRUMENTATION AND SIGNAL WIRING FROM SCADA RTU PLC TO EXISTING CHEMICAL FEED PUMPS.
2. CONTRACTOR SHALL TERMINATE NEW DIGITAL OUTPUT SIGNALS FROM EXISTING DIGITAL OUTPUT MODULE - ALLEN-BRADLEY 1756-OB16 IN EXISTING SLOT 8.
3. CONTRACTOR SHALL FURNISH AND INSTALL NEW DIGITAL INPUT MODULE - ALLEN-BRADLEY 1756-IB16 IN EXISTING SLOT 9. SLOT CURRENTLY HAS A SLOT FILLER MODULE - ALLEN-BRADLEY 1756-N2.
4. CONTRACTOR SHALL TERMINATE NEW DIGITAL INPUT SIGNALS AT NEW DIGITAL INPUT MODULE - ALLEN-BRADLEY 1756-IB16 IN EXISTING SLOT 9.

1) ALL WIRE TAGS TO BE HEAT SHROUTK TYPE
2) UNLESS NOTED ON THE SCHEMATICS USE THE FOLLOWOUTG TYPE MTW FOR WIROUTG:

AC CONTROL	RED #16 AWG
DC CONTROL	BLUE #16 AWG
NEUTRAL	WHITE #16 AWG
GROUND	GREEN #16 AWG
REMOTE POWER SOURCE	YELLOW #16 AWG
ANALOG	#18 AWG SHIELDED

- ☐ P-03 TERMOUTAL
- ■ P-03 GROUNDOUTG TERMOUTAL
- ☒ FIELD TERMOUTAL

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CONFORMANCE SET (BID OPENING DATE 4-30-2015)

EXISTING DUDLEY 1040 PUMP STATION SCADA RTU VII

DUDLEY COMPLEX SODIUM HYPOCHLORITE BUILDING
CITY OF EDGEWOOD, KENTUCKY

DESIGNED:	DRAWN:	REVIEWED:	APPROVED:
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THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

SCALE CHECK:

DATE: MAY, 2015

SCALE: AS NOTED

SHEET NO. I-707

PLOTTED BY: rsteinbold

PRINTED: 5/15/2015 @ 11:49AM

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DUDLEY 1040 PUMP STATION SCADA RTU POINTS LIST

PLC	CHASSIS	SLOT:POINT	I/O TYPE	MOMENTARY OR MAINTAINED	ISOLATED	TAG NUMBER	DESCRIPTION	FIELD DEVICE	DRAWING REFERENCE	CALIBRATED RANGE	COMMENTS
1040	1	1:00	AI	N/A	YES	SI-101	CHEMICAL METERING PUMP NO.1 SPEED FEEDBACK	CMP-1	I-601	0-100%	
1040	1	1:01	AI	N/A	YES	SI-102	CHEMICAL METERING PUMP NO.2 SPEED FEEDBACK	CMP-2	I-601	0-100%	
1040	1	1:02	AI	N/A	YES	SI-103	CHEMICAL METERING PUMP NO.3 SPEED FEEDBACK	CMP-3	I-601	0-100%	
1040	1	1:03	AI	N/A	YES	SI-104	CHEMICAL METERING PUMP NO.4 SPEED FEEDBACK	CMP-4	I-601	0-100%	
1040	1	1:04	AI	N/A	YES	LI-101	SODIUM HYPO STORAGE TANK LEVEL INDICATION	LIT-101	I-601	0-10.5 FT	
1040	1	1:05	AI	N/A	YES	LI-102	DAYTANK 1040 LEVEL INDICATION	LIT-102	I-601	0-5.5 FT	
1040	1	1:06	AI	N/A	YES	LI-103	DAYTANK 1080 LEVEL INDICATION	LIT-103	I-601	0-5.5 FT	
1040	1	1:07	AI	N/A	YES	AI-101	SODIUM HYPO STORAGE TANK pH INDICATION	AIT-101	I-601	0-14 pH	
1040	1	2:00	AI	N/A	YES		STATION FLOW	FIT-500	N/A	0-15 MGD	
1040	1	2:01	AI	N/A	YES		STATION DISCHARGE PRESSURE	PIT-501B	N/A	0-300 PSI	
1040	1	2:02	AI	N/A	YES		DUDLEY 1040 TANK LEVEL	LI-100	N/A	0-45 FT	
1040	1	2:03	AI	N/A	YES		pH	AIT-521	N/A	0-14 pH	
1040	1	2:04	AI	N/A	YES			LT-540	N/A	0-7 FT	SPARE
1040	1	2:05	AI	N/A	YES		~~1040 SODIUM HYPO DAYTANK LEVEL INDICATION~~	~~LT-XXX~~	~~N/A~~	~~XX FT~~	SPARE
1040	1	2:06	AI	N/A	YES		~~1080 SODIUM HYPO DAYTANK LEVEL INDICATION~~	~~LT-XXX~~	~~N/A~~	~~XX FT~~	SPARE
1040	1	2:07	AI	N/A	YES		SODIUM HYPO STORAGE TANK LEVEL INDICATION	LT-XXX	N/A	XX FT	
1040	1	3:00	AO	N/A	YES	SC-101	CHEMICAL METERING PUMP NO.1 SPEED CONTROL	CMP-1	I-601	0-100%	
1040	1	3:01	AO	N/A	YES	SC-102	CHEMICAL METERING PUMP NO.2 SPEED CONTROL	CMP-2	I-601	0-100%	
1040	1	3:02	AO	N/A	YES	SC-103	CHEMICAL METERING PUMP NO.3 SPEED CONTROL	CMP-3	I-601	0-100%	
1040	1	3:03	AO	N/A	YES	SC-104	CHEMICAL METERING PUMP NO.4 SPEED CONTROL	CMP-4	I-601	0-100%	
1040	1	3:04	AO	N/A	YES						SPARE
1040	1	3:05	AO	N/A	YES						SPARE
1040	1	3:06	AO	N/A	YES						SPARE
1040	1	3:07	AO	N/A	YES						SPARE
1040	1	4:00	AO	N/A	YES		~~1040 CL2 RESIDUAL SETPOINT~~	~~SC-541~~	~~N/A~~	~~0-100%~~	SPARE
1040	1	4:01	AO	N/A	YES		~~1040 CL2 RESIDUAL SETPOINT~~	~~SC-542~~	~~N/A~~	~~0-100%~~	SPARE
1040	1	4:02	AO	N/A	YES		BARRINGTON TANK LEVEL	LI-100-1	N/A	0-40 FT	
1040	1	4:03	AO	N/A	YES		KENTON LANDS TANK LEVEL	LI-100-2	N/A	0-40 FT	
1040	1	4:04	AO	N/A	YES		~~1040 CL2 FLOW PACING~~	~~SC-XXX~~	~~N/A~~	~~0-100%~~	SPARE
1040	1	4:05	AO	N/A	YES		~~1080 CL2 FLOW PACING~~	~~SC-XXX~~	~~N/A~~	~~0-100%~~	SPARE
1040	1	4:06	AO	N/A	YES						SPARE
1040	1	4:07	AO	N/A	YES						SPARE
1040	1	5:00	DI	N/A	NO		SECURITY PANEL INTRUSION		N/A	N/A	
1040	1	5:01	DI	N/A	NO		WATER TANK ACCESS HATCH INTRUSION		N/A	N/A	
1040	1	5:02	DI	N/A	NO		WATER TANK TOP HATCH INTRUSION		N/A	N/A	
1040	1	5:03	DI	N/A	NO		WATER TANK VALVE VAULT HATCH INTRUSION		N/A	N/A	
1040	1	5:04	DI	N/A	NO	LAH-101	SODIUM HYPO STORAGE TANK HIGH LEVEL	LSH-101	I-601	10.167 FT	
1040	1	5:05	DI	N/A	NO	LAH-102	DAYTANK 1040 HIGH LEVEL	LSH-102	I-601	5.167 FT	
1040	1	5:06	DI	N/A	NO	LAH-103	DAYTANK 1080 HIGH LEVEL	LSH-103	I-601	5.167 FT	
1040	1	5:07	DI	N/A	NO		RTU POWER FAIL		N/A	N/A	
1040	1	5:08	DI	N/A	NO		STATION FLOOD		N/A	N/A	
1040	1	5:09	DI	N/A	NO		SUCTION PRESSURE LOW		N/A	N/A	
1040	1	5:10	DI	N/A	NO		TRANSFORMER LOW OIL LEVEL		N/A	N/A	
1040	1	5:11	DI	N/A	NO		TRANSFORMER HIGH TEMPERATURE		N/A	N/A	
1040	1	5:12	DI	N/A	NO		PUMP NO.1 RUN STATUS		N/A	N/A	
1040	1	5:13	DI	N/A	NO		PUMP NO.1 DISCHARGE VALVE OPEN		N/A	N/A	
1040	1	5:14	DI	N/A	NO		FENCE INTRUSION		N/A	N/A	
1040	1	5:15	DI	N/A	NO		INSTRUMENT CALIBRATION		N/A	N/A	
1040	1	6:00	DI	N/A	NO		PUMP NO.2 RUN STATUS		N/A	N/A	
1040	1	6:01	DI	N/A	NO		PUMP NO.2 DISCHARGE VALVE OPEN		N/A	N/A	
1040	1	6:02	DI	N/A	NO		HYPO BULK STORAGE CONTAINMENT ALARM	LSH-XXX	N/A	0-XX FT	
1040	1	6:03	DI	N/A	NO						SPARE
1040	1	6:04	DI	N/A	NO						SPARE
1040	1	6:05	DI	N/A	NO		PUMP NO.3 RUN STATUS		N/A	N/A	
1040	1	6:06	DI	N/A	NO		PUMP NO.3 DISCHARGE VALVE OPEN		N/A	N/A	
1040	1	6:07	DI	N/A	NO						SPARE
1040	1	6:08	DI	N/A	NO						SPARE
1040	1	6:09	DI	N/A	NO						SPARE
1040	1	6:10	DI	N/A	NO		PUMP NO.4 RUN STATUS				
1040	1	6:11	DI	N/A	NO		PUMP NO.4 DISCHARGE VALVE OPEN				
1040	1	6:12	DI	N/A	NO						SPARE
1040	1	6:13	DI	N/A	NO						SPARE
1040	1	6:14	DI	N/A	NO						SPARE
1040	1	6:15	DI	N/A	NO						SPARE

GENERAL NOTES:

1. WORK SHOWN IN LIGHT PEN (SHADED) IS EXISTING TO REMAIN.
2. WORK SHOWN IN HEAVY PEN (BOLD) IS NEW WORK REQUIRED AS PART OF THIS CONTRACT.

SHEET KEYNOTES:

1. CONTRACTOR SHALL FURNISH AND INSTALL NEW ANALOG INPUT MODULE - ALLEN-BRADLEY 1756-IF8 IN EXISTING SLOT 1. SLOT CURRENTLY HAS A SLOT FILLER MODULE - ALLEN-BRADLEY 1756-N2.
2. CONTRACTOR SHALL FURNISH AND INSTALL NEW ANALOG OUTPUT MODULE - ALLEN-BRADLEY 1756-OF8 IN EXISTING SLOT 3. SLOT CURRENTLY HAS A SLOT FILLER MODULE - ALLEN-BRADLEY 1756-N2.

This document, originally issued, sealed, and signed by Wayne E. Roberts, Kentucky Professional Engineer, No. 23413, on 5-15-15, shall not be used in lieu of a certified document.

GRW PROJECT NO. 4325

CLIENT PROJECT NO.

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CONFORMANCE SET (BID OPENING DATE 4-30-2015)

I/O POINTS LIST I

DUDLEY COMPLEX SODIUM HYPOCHLORITE BUILDING
CITY OF EDGEWOOD, KENTUCKY

DESIGNED: WER
DRAWN: WER
REVIEWED: WER
APPROVED: WER

REVISIONS

NO.	DESCRIPTION	DATE	BY

THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

SCALE CHECK:

DATE: MAY, 2015

SCALE: AS NOTED

SHEET NO. I-801

PLOTTED BY: rsteltbold

PRINTED: 5/15/2015 @ 11:49AM

FILE NAME: U:\4325-NKY\D Sdm\HypoBld\Working Drawings\4325-I-801.dwg

DUDLEY 1040 PUMP STATION SCADA RTU POINTS LIST CONTINUED

PLC	CHASSIS	SLOT:POINT	I/O TYPE	MOMENTARY OR MAINTAINED	ISOLATED	TAG NUMBER	DESCRIPTION	FIELD DEVICE	DRAWING REFERENCE	CALIBRATED RANGE	COMMENTS
1040	1	7:00	DI	N/A	NO	MN-103	CHEMICAL METERING PUMP NO.1 RUN STATUS	CMP CONTROL PANEL	I-601	N/A	
1040	1	7:01	DI	N/A	NO	ZI-103	CHEMICAL METERING PUMP NO.1 IN AUTO POSITION	CMP CONTROL PANEL	I-601	N/A	
1040	1	7:02	DI	N/A	NO	YA-102	CHEMICAL METERING PUMP NO.1 LEAK DETECTED	CMP CONTROL PANEL	I-601	N/A	
1040	1	7:03	DI	N/A	NO	MN-104	CHEMICAL METERING PUMP NO.2 RUN STATUS	CMP CONTROL PANEL	I-601	N/A	
1040	1	7:04	DI	N/A	NO	ZI-104	CHEMICAL METERING PUMP NO.2 IN AUTO POSITION	CMP CONTROL PANEL	I-601	N/A	
1040	1	7:05	DI	N/A	NO	YA-103	CHEMICAL METERING PUMP NO.2 LEAK DETECTED	CMP CONTROL PANEL	I-601	N/A	
1040	1	7:06	DI	N/A	NO	MN-105	CHEMICAL METERING PUMP NO.3 RUN STATUS	CMP CONTROL PANEL	I-601	N/A	
1040	1	7:07	DI	N/A	NO	ZI-105	CHEMICAL METERING PUMP NO.3 IN AUTO POSITION	CMP CONTROL PANEL	I-601	N/A	
1040	1	7:08	DI	N/A	NO	YA-104	CHEMICAL METERING PUMP NO.3 LEAK DETECTED	CMP CONTROL PANEL	I-601	N/A	
1040	1	7:09	DI	N/A	NO	MN-106	CHEMICAL METERING PUMP NO.4 RUN STATUS	CMP CONTROL PANEL	I-601	N/A	
1040	1	7:10	DI	N/A	NO	ZI-106	CHEMICAL METERING PUMP NO.4 IN AUTO POSITION	CMP CONTROL PANEL	I-601	N/A	
1040	1	7:11	DI	N/A	NO	YA-105	CHEMICAL METERING PUMP NO.4 LEAK DETECTED	CMP CONTROL PANEL	I-601	N/A	
1040	1	7:12	DI	N/A	NO	FAL-103	CHEMICAL METERING TRAIN 1040 - NO FLOW	FSL-103	I-601	N/A	
1040	1	7:13	DI	N/A	NO	FAL-104	CHEMICAL METERING TRAIN 1080 - NO FLOW	FSL-104	I-601	N/A	
1040	1	7:14	DI	N/A	NO						SPARE
1040	1	7:15	DI	N/A	NO	LAH-104	CONTAINMENT SUMP HIGH LEVEL ALARM	LSH-104	I-601	N/A	
1040	1	8:00	DO	MAINTAINED	YES		MC-531 PUMP NO.1 START/STOP	MOTOR STARTER	N/A		
1040	1	8:01	DO	MAINTAINED	YES		MC-532 PUMP NO.2 START/STOP	MOTOR STARTER	N/A		
1040	1	8:02	DO	MAINTAINED	YES		MC-533 PUMP NO.3 START/STOP	MOTOR STARTER	N/A		
1040	1	8:03	DO	MAINTAINED	YES		MC-534 PUMP NO.4 START/STOP	MOTOR STARTER	N/A		
1040	1	8:04	DO	MAINTAINED	YES	HS-101	TRANSFER PUMP 1040 START/STOP	TP CONTROL PANEL	I-601	N/A	
1040	1	8:05	DO	MAINTAINED	YES	HS-102	TRANSFER PUMP 1080 START/STOP	TP CONTROL PANEL	I-601	N/A	
1040	1	8:06	DO	MAINTAINED	YES	HS-103	CHEMICAL METERING PUMP NO.1 START/STOP	CMP CONTROL PANEL	I-601	N/A	
1040	1	8:07	DO	MAINTAINED	YES	HS-104	CHEMICAL METERING PUMP NO.2 START/STOP	CMP CONTROL PANEL	I-601	N/A	
1040	1	8:08	DO	MAINTAINED	YES	HS-105	CHEMICAL METERING PUMP NO.3 START/STOP	CMP CONTROL PANEL	I-601	N/A	
1040	1	8:09	DO	MAINTAINED	YES	HS-106	CHEMICAL METERING PUMP NO.4 START/STOP	CMP CONTROL PANEL	I-601	N/A	
1040	1	8:10	DO	MAINTAINED	YES		TRANSFER PUMP NO.1 START/STOP	TRANSFER PUMP CONTROL	N/A	N/A	
1040	1	8:11	DO	MAINTAINED	YES		TRANSFER PUMP NO.2 START/STOP	TRANSFER PUMP CONTROL	N/A	N/A	
1040	1	8:12	DO	MAINTAINED	YES		TRANSFER PUMP NO.3 START/STOP	TRANSFER PUMP CONTROL	N/A	N/A	
1040	1	8:13	DO	MAINTAINED	YES		~~1040 CHEMICAL FEED PUMP START/STOP~~	~~CHEMICAL FEED PUMP~~	N/A	N/A	SPARE
1040	1	8:14	DO	MAINTAINED	YES		~~1080 CHEMICAL FEED PUMP START/STOP~~	~~CHEMICAL FEED PUMP~~	N/A	N/A	SPARE
1040	1	8:15	DO	MAINTAINED	YES						SPARE
1040	1	9:00	DI	N/A	NO	MN-101	TRANSFER PUMP 1040 RUN STATUS	TP-1	I-601	N/A	
1040	1	9:01	DI	N/A	NO	ZI-101	TRANSFER PUMP 1040 IN AUTO POSITION	TP-1	I-601	N/A	
1040	1	9:02	DI	N/A	NO	MO-101	TRANSFER PUMP 1040 MOTOR OVERLOAD	TP-1	I-601	N/A	
1040	1	9:03	DI	N/A	NO	FAL-101	TRANSFER PUMP 1040 NO FLOW	FSL-101	I-601	N/A	
1040	1	9:04	DI	N/A	NO	MN-102	TRANSFER PUMP 1080 RUN STATUS	TP-2	I-601	N/A	
1040	1	9:05	DI	N/A	NO	ZI-102	TRANSFER PUMP 1080 IN AUTO POSITION	TP-2	I-601	N/A	
1040	1	9:06	DI	N/A	NO	MO-102	TRANSFER PUMP 1080 MOTOR OVERLOAD	TP-2	I-601	N/A	
1040	1	9:07	DI	N/A	NO	FAL-102	TRANSFER PUMP 1080 NO FLOW	FSL-102	I-601	N/A	
1040	1	9:08	DI	N/A	NO						SPARE
1040	1	9:09	DI	N/A	NO	ZI-107	CHEMICAL METERING PUMP NO.1 IN AUTO CONTROL	CMP CONTROL PANEL	I-601	N/A	
1040	1	9:10	DI	N/A	NO	ZI-108	CHEMICAL METERING PUMP NO.2 IN AUTO CONTROL	CMP CONTROL PANEL	I-601	N/A	
1040	1	9:11	DI	N/A	NO	ZI-109	CHEMICAL METERING PUMP NO.3 IN AUTO CONTROL	CMP CONTROL PANEL	I-601	N/A	
1040	1	9:12	DI	N/A	NO	ZI-110	CHEMICAL METERING PUMP NO.4 IN AUTO CONTROL	CMP CONTROL PANEL	I-601	N/A	
1040	1	9:13	DI	N/A	NO						SPARE
1040	1	9:14	DI	N/A	NO	YA-101	TRANSFER PUMPS LOCKED OUT ALARM	TP CONTROL PANEL	I-601	N/A	
1040	1	9:15	DI	N/A	NO	FAH-101	EMERGENCY EYEWASH IN USE ALARM	FSH-101	I-601	N/A	

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GENERAL NOTES:

1. WORK SHOWN IN LIGHT PEN (SHADED) IS EXISTING TO REMAIN.
2. WORK SHOWN IN HEAVY PEN (BOLD) IS NEW WORK REQUIRED AS PART OF THIS CONTRACT.

⬡ SHEET KEYNOTES:

1. CONTRACTOR SHALL FURNISH AND INSTALL NEW DIGITAL INPUT MODULE - ALLEN-BRADLEY 1756-IB16 IN EXISTING SLOT 7. SLOT CURRENTLY HAS A SLOT FILLER MODULE - ALLEN-BRADLEY 1756-N2.
2. CONTRACTOR SHALL FURNISH AND INSTALL NEW DIGITAL INPUT MODULE - ALLEN-BRADLEY 1756-IB16 IN EXISTING SLOT 9. SLOT CURRENTLY HAS A SLOT FILLER MODULE - ALLEN-BRADLEY 1756-N2.

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CONFORMANCE SET (BID OPENING DATE 4-30-2015)

I/O POINTS LIST II

DUDLEY COMPLEX SODIUM HYPOCHLORITE BUILDING
CITY OF EDGEWOOD, KENTUCKY

DESIGNED:	DRAWN:	REVIEWED:	APPROVED:
WER	WER	WER	WER

REVISIONS

NO.	DESCRIPTION	DATE	BY

THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

SCALE CHECK:

DATE:
MAY, 2015

SCALE:
AS NOTED

SHEET NO.
I-802

PLOTTED BY: rsteitzloid

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