GENERAL STRUCTURAL NOTES (GSN)

GENERAL

G1. SCOPE
THE NOTES ON THIS SHEET AND THE STANDARD STRUCTURAL DETAILS ARE GENERAL AND APPLY TO THE ENTIRE PROJECT WHETHER SPECIFICALLY CALLED OUT OR NOT, EXCEPT WHERE THERE ARE SPECIFIC INDICATIONS TO THE CONTRARY ON STRUCTURAL SHEETS. IF THERE ARE QUESTIONS, THEY SHALL BE SUBMITTED TO THE STRUCTURAL ENGINEER AND ANSWERED IN WRITING PRIOR TO CONSTRUCTION.

G2. APPLICABLE SPECIFICATIONS AND CODES
A. INTERNATIONAL BUILDING CODE, IBC 2003 WITH APPLICABLE EDITIONS OF THE CODE REFERENCED STANDARDS.
B. ACI 350–06
C. LOCAL JURISDICTION AMENDMENTS

G3. DESIGN CRITERIA
1. APPLIES TO ALL STRUCTURES (UNO)

A. DEAD LOAD:	
1. ACTUAL TRIBUTARY STRUCTURE WEIGHT	
2. SUPERIMPOSED ROOF DEAD LOAD:	7 PSF
B. LIVE LOAD:	
1. PUMP LEVEL FLOOR:	200 PSF
2. WALKWAYS, STAIRS, GRATING:	100 PSF
3. ACTUATOR LEVEL FLOOR:	100 PSF
4. ROOF:	20 PSF (NOT REDUCIBLE)
C. WIND:	
1. BASIC WIND SPEED:	90 MPH
2. EXPOSURE:	C
3. IMPORTANCE FACTOR:	1.15
4. ALL STRUCTURES ARE ENCLOSED EXCEPT AS FOLLOWS:	NO EXCEPTIONS
D. SEISMIC:	
1. PUMP STATION STRUCTURES:	
a. OCCUPANCY CATEGORY:	III
b. IMPORTANCE FACTOR:	1.25
c. SPECTRAL RESPONSE ACCELERATION,	SS = 0.143
d. SPECTRAL RESPONSE ACCELERATION,	S1 = 0.037
e. SITE CLASS:	D
f. SEISMIC DESIGN CATEGORY:	A
g. SPECTRAL RESPONSE COEFFICIENT,	SDS = 0.152
h. SPECTRAL RESPONSE COEFFICIENT,	SD1 = 0.064
i. BASIC SEISMIC FORCE RESISTING SYSTEM:	ORDINARY SHEAR WALLS
j. ANALYSIS PROCEDURE:	EQUIVALENT LATERAL FORCE
k. SEISMIC RESPONSE COEFFICIENT,	= 0.01
E. SNOW LOAD:	
1. GROUND SNOW LOAD	= 35 PSF
2. FLAT ROOF SNOW LOAD	= 27 PSF
3. EXPOSURE FACTOR	= 1.0
4. IMPORTANCE FACTOR	= 1.1
5. THERMAL FACTOR	= 1.0
F. FLOOD CRITERIA:	
1. LOWEST OCCUPIED BUILDING FLOOR ELEVATION	= 1158.25
2. DRY FLOOD PROOFED ELEVATION	= 1169.25
3. 500 YEAR FLOOD ELEVATION	= 1165.70

G4. NO GEOTECHNICAL REPORT WAS DEVELOPED FOR THIS PROJECT, THE BASIS OF THIS STRUCTURAL DESIGN IS:
CONTRACTOR TO COMPLETE GEOTECHNICAL REPORT AS REQUIRED FOR CAISSON DESIGN AND CONTRUTION.
ALLOWABLE NET SOIL BEARING = 1500 PSF ALL OTHER FOUNDATIONS

G5. SAFETY
SAFETY AND STRUCTURE STABILITY DURING CONSTRUCTION ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. STRUCTURES HAVE BEEN DESIGNED TO RESIST THE DESIGN LIVE LOADS ONLY AS A COMPLETED STRUCTURE.

G6. OPENINGS
OPENINGS FOR PIPES, DUCTS, CONDUITS, ETC. ARE NOT ALL SHOWN ON THE STRUCTURAL DRAWINGS. COORDINATE AND PROVIDE OPENINGS AS REQUIRED TO ACCOMMODATE ALL WORK SHOWN OR SPECIFIED IN THE CONTRACT DOCUMENTS AND OTHERWISE REQUIRED FOR THE FURNISHING OF A FUNCTIONALLY COMPLETE PROJECT. REINFORCE AROUND OPENINGS PER STANDARD STRUCTURAL DETAILS UNLESS OTHERWISE SHOWN.

G7. SPECIAL INSPECTIONS
SPECIAL INSPECTIONS ARE REQUIRED IN ACCORDANCE WITH CHAPTER 1 AND CHAPTER 17 OF THE IBC. PAYMENT FOR THESE INSPECTIONS IS NOT THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL PROVIDE FOR FULL ACCESS TO THE WORK BY THE SPECIAL INSPECTOR AND SHALL PROVIDE FOR THESE INSPECTIONS IN HIS CONSTRUCTION SCHEDULE IN ACCORDANCE WITH THE SPECIFICATIONS. SEE SPECIFICATION SECTION 01452 FOR SPECIAL INSPECTION PROGRAM. A STATEMENT OF SPECAIL INSPECTIONS WILL BE SUBMITTED SEPARATELY TO THE CODE OFFICIAL.

GENERAL STRUCTURAL NOTES (GSN)(CONTINUED)

G8. STANDARD DETAILS
THE STANDARD DETAILS DEPICT TYPICAL DETAILING TO BE USED ON THIS PROJECT. IF CONDITIONS ARE NOT EXPLICITLY SHOWN ON THE DRAWINGS THEY SHALL BE MADE SIMILAR TO THE STANDARD DETAILS. OBTAIN APPROVAL OF ENGINEER IN WRITING FOR SIMILAR CONDITIONS PRIOR TO CONSTRUCTION.

G9. THE CONTACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND ELEVATIONS OF EXISTING CONSTRUCTION AS REQUIRED TO COORDINATE NEW CONSTRUCTION. SUBMIT REQUIRED CHANGES FOR APPROVAL.

G10. CONTRACTOR TO SUBMIT FOR REVIEW ALL EQUIPMENT SIZES, OPERATING WEIGHTS, VIBRATION FORCES, SUPPORT LOCATIONS, ALONG WITH ANY FLOOR OPENINGS, NOTCHES, AND RECESSES REQUIRED BY SUCH EQUIPMENT. CONCRETE SUPPORT PADS AND/OR FRAMING REQUIRED TO SUPPORT SAID EQUIPMENT SHALL NOT BE FABRICATED AND PLACED UNTIL THE CONCRETE SUPPORT PADS AND/OR FRAMING IS APPROVED TO SUPPORT THE EQUIPMENT.

CONCRETE

C1. DESIGN STRENGTHS:
F'c = 4000 PSI
Fy = 60,000 PSI

C2. CONCRETE COVER
UNLESS OTHERWISE NOTED, PROVIDE CONCRETE COVER FOR REINFORCING AS FOLLOWS:
CONCRETE DEPOSITED AGAINST EARTH: 3"
ALL OTHER: 2"
SEE DRAWINGS FOR EXCEPTIONS

C3. SEE SPECIFICATIONS FOR REINFORCING PLACEMENT REQUIREMENTS.

C4. REFER TO OTHER DISCIPLINE DRAWINGS PRIOR TO CONSTRUCTION FOR EMBEDDED ITEMS AND PENETRATIONS NOT SHOWN ON STRUCTURAL DRAWINGS. AS REQUIRED TO ACCOMMODATE ALL WORK SHOWN OR SPECIFIED IN THE CONTRACT DOCUMENTS AND OTHERWISE REQUIRED FOR THE FURNISHING OF A FUNCTIONALLY COMPLETE PROJECT. REINFORCE AROUND OPENINGS PER STANDARD STRUCTURAL DETAILS UNLESS OTHERWISE SHOWN.

C5. PROVIDE 3/4" CHAMFERS AT ALL EXPOSED EDGES NOT ALL CHAMFERS MAY BE SHOWN ON DRAWINGS.

C6. FIELD ADJUST REINFORCING AT OPENINGS AND EMBEDDED ITEMS AS INDICATED.

C7. ANCHOR BOLTS NOT SPECIFIED BY ENGINEER SHALL BE DESIGNED AND CERTIFIED BY A REGISTERED PROFESSIONAL ENGINEER, RETAINED BY THE CONTRACTOR, IN ACCORDANCE WITH APPLICABLE PROJECT AND CODE REQUIREMENTS. SUBMIT AS A SHOP DRAWING FOR REVIEW AND APPROVAL BY THE ENGINEER. COORDINATE LOCATION, SIZE AND EMBEDMENT PRIOR TO CASTING CONCRETE.

C8. CONTINUOUS WATERSTOP SHALL BE INSTALLED IN JOINTS SUBJECT TO STATIC WATER PRESSURE.

C9. ABSOLUTELY NO WELDING OF REINFORCING BARS OR TORCHING TO BEND REINFORCING BARS SHALL BE ALLOWED WITHOUT SPECIFIC APPROVAL FROM THE STRUCTURAL ENGINEER.

C10. CONTRACTOR SHALL SUBMIT A CONCRETE PLACEMENT PLAN PER SPECIFICATION 03311 IDENTIFYING JOINT TYPES, JOINT LOCATIONS AND CONCRETE PLACEMENT SEQUENCE.

C11. ALL CAST IN PLACE AND POST–INSTALLED ANCHORS INDICATED IN THE STRUCTURAL DOCUMENTS SHALL COMPLY WITH APPENDIX D OF ACI 318 AND CHAPTER 19 OF THE IBC. ALL EXPANSION AND ADHESIVE ANCHORS SHALL HAVE THE ICC REPORT SHOWING EQUIVALENT LOAD CAPACITY. SUBMIT AND INSTALL PER THE ICC EVALUATION REPORT.

STEEL

S1. DESIGN STRENGTHS:

WIDE FLANGE AND TEES:	Fy=50 KSI
PIPES	Fy=35 KSI
STAINLESS STEEL	Fy=33 KSI
HSS SECTIONS	Fy=46 KSI
ALL OTHER PLATES AND SHAPES:	Fy=36 KSI

S2. DIMENSIONS:
TO CENTERLINES OF COLUMNS AND BEAMS, TOP SURFACES OF BEAMS AND TUBES AND BACKS OF CHANNELS AND ANGLES UNO.

S3. ELEVATIONS:
TOP OF STEEL REFERS TO TOP SURFACE OF MEMBER OR FLANGE UNO.

S4. WHEN FILLET WELD SIZE IS NOT INDICATED, PROVIDE MAXIMUM WELD SIZE BASED ON MATERIAL THICKNESS IN ACCORDANCE WITH AISC SPECIFICATIONS.

S5. ALL BOLTED STRUCTURAL CONNECTIONS ARE BEARING TYPE CONNECTIONS UNLESS OTHERWISE SPECIFIED TO BE SLIP–CRITICAL. PROVIDE LOAD INDICATING WASHERS AT SLIP–CRITICAL CONNECTIONS.

S6. CONFORM TO AISC 360, STEEL CONSTRUCTION MANUAL AND AISC 341, SEISMIC DESIGN MANUAL.

S7. ALL STEEL BEAMS SHALL RECEIVE STANDARD CAMBER PER THE SPECIFICATIONS UNLESS NOTED OTHERWISE ON THE PLANS.

ALUMINUM

A1. STRUCTURAL ALUMINUM YIELD STRENGTHS
STRUCTURAL ALUMINUM: Fy=35 KSI
STRUCTURAL ALUMINUM IS ALLOY 6061–T6 UNO

A2. DIMENSIONS:
TO CENTERLINES OF COLUMNS AND BEAMS, TOP SURFACES OF BEAMS AND TUBES AND BACKS OF CHANNELS AND ANGLES UNO.

A3. ELEVATIONS:
TOP OF ALUMINUM REFERS TO TOP SURFACE OR FLANGE OF MEMBER UNO.

A4. WHEN FILLET WELD SIZE IS NOT INDICATED, PROVIDE MAXIMUM WELD SIZE FOR THE MATERIAL THICKNESS IN ACCORDANCE WITH THE LATEST EDITION OF THE "ALUMINUM DESIGN MANUAL" BY THE ALUMINUM ASSOCIATION.

A5. ALUMINUM IN CONTACT WITH DISSIMILAR MATERIALS OR CONCRETE:
CONTACT SURFACES SHALL BE PROVIDED WITH GALVANIC SEPERATION PER SPECIFICATIONS.

POST–INSTALLED ANCHORS

PA1. POST–INSTALLED ANCHORS SHALL ONLY BE USED WHERE SPECIFIED ON THE CONTRACT DRAWINGS. THE CONTRACTOR SHALL OBTAIN APPROVAL FROM THE ENGINEER OF RECORD (EOR) BEFORE INSTALLING POST–INSTALLED ANCHORS FOR MISSING OR MISPLACED CAST–IN–PLACE ANCHORS.

PA2. CARE SHALL BE TAKEN IN PLACING POST–INSTALLED ANCHORS TO AVOID CONFLICTS WITH EXISTING REBAR. HOLES SHALL BE DRILLED AND CLEANED IN ACCORDANCE WITH THE MANUFACTURER WRITTEN INSTRUCTIONS.

PA3. SUBSTITUTION REQUESTS, FOR PRODUCTS OTHER THAN THOSE SPECIFIED BELOW, SHALL BE SUBMITTED BY THE CONTRACTOR TO THE EOR ALONG WITH CALCULATIONS THAT ARE PREPARED AND SEALED BY A REGISTERED PROFESSIONAL ENGINEER. THE CALCULATIONS SHALL DEMONSTRATE THAT THE SUBSTITUTED PRODUCT IS CAPABLE OF ACHIEVING THE PERTINENT EQUIVALENT PERFORMANCE VALUES (MINIMUM) OF THE SPECIFIED PRODUCT USING THE APPROPRIATE DESIGN PROCEDURE AND/OR STANDARD(S) AS REQUIRED BY THE BUILDING CODE. PRODUCT ICC–ES REPORTS SHALL BE INCLUDED WITH THE SUBMITTAL PACKAGE.

PA4. UNLESS NOTED OTHERWISE ON PLANS, ACCEPTABLE CONCRETE ANCHOR PRODUCTS SHALL BE:
A. MECHANICAL ANCHORS FOR USE IN CRACKED AND UNCRACKED CONCRETE SHALL HAVE BEEN TESTED AND QUALIFIED FOR USE IN ACCORDANCE WITH ACI 355.2 AND ICC–ES AC193. PRE–APPROVED MECHANICAL ANCHORS INCLUDE:
1. KWIK BOLT 3 (ICC–ES ESR–2032) AND KWIK BOLT TZ (ICC–ES ESR–1917) BY HILTI, INC.
2. RUBOLT + (ICC–ES ESR–2427 BY ITW RAMSET/RED HEAD.
3. STRONG BOLT (ICC–ES ESR–177) AND STRONG BOLT 2 (ICC–ES ESR–3027) BY SIMPSON

B. ADHESIVE ANCHORS FOR USE IN CRACKED AND UNCRACKED CONCRETE SHALL HAVE BEEN TESTED AND QUALIFIED FOR USE IN ACCORDANCE WITH ICC–ES AC308. PRE–APPROVED ADHESIVE ANCHORS INCLUDE:
1. HIT HY 150 MAX–SD (ICC–ES ESR–3013) SYSTEM AND HIT–RE–500 SD (ICC–ES ESR–2322) SYSTEM ADHESIVE ANCHORS BY HILTI.
2. EPCON G5 (ICC–ES ESR–1137) ADHESIVE ANCHORING SYSTEM BY ITW RAMSET/RED HEAD. 3. SET–XP (ICC–ES ESR–2508) ADHESIVE ANCHORING SYSTEMS BY SIMSPON STRONG TIE ANCHOR SYSTEM.

DEFERRED SUBMITTALS

DF1. DEFERRED SUBMITTALS ARE THOSE PORTIONS OF THE DESIGN WHICH ARE NOT SUBMITTED AT THE TIME OF PERMIT APPLICATION AND WHICH ARE TO BE SUBMITTED TO THE PERMITTING AGENCY FOR ACCEPTANCE PRIOR TO INSTALLATION OF THAT PORTION OF WORK.

DF2. THE FOLLOWING IS A LIST OF DEFERRED SUBMITTALS PER BUILDING CODE SECTION 107.3.4.2 THAT ARE EXPECTED TO CONTAIN STRUCTURAL CALCULATIONS OR SAFETY RELATED SYSTEM INFORMATION FOR REVIEW TO MEET BUILDING PERMITTING REQUIREMENTS FOR DESIGNED SYSTEMS. PRIOR TO INSTALLATION OF THE INDICATED STRUCTURAL ELEMENT, EQUIPMENT, DISTRIBUTION SYSTEM, OR COMPONENT OR ITS ANCHORAGE. THE CONTRACTOR SHALL SUBMIT THE REQUIRED CALCULATIONS AND SUPPORTING DATA AND DRAWINGS FOR REVIEW AND ACCEPTANCE BY THE ENGINEER. ADDITIONALLY, ACCEPTANCE ON THE ENGINEER'S COMMENT FORM, ALONG WITH THE COMPLETED FINAL SUBMITTAL SHALL THEN BE FILED BY THE CONTRACTOR AND ACKNOWLEDGED AS ACCEPTED BY THE PERMITTING AGENCY PRIOR TO INSTALLATION OF THESE ITEMS.

DEFERRED SUBMITTALS

SPECIFICATION SECTION	ITEM
05505	METAL FABRICATIONS: CONNECTIONS LADDERS
05522	ALUMINUM RAILINGS
13200	COLLECTOR WELL
OTHER	ANY EQUIPMENT OR COMPONENT IN WHICH A TECHNICAL SPECIFICATION REQUIRES SUBMITTAL OF EQUIPMENT OR ANCHORAGE SYSTEM CALCULATIONS.

COLLECTOR WELL

CW1. THE COLLECTOR WELL (CASSION) SHALL BE BUILT USING THE OPEN CASSION METHOD. SEE SPECIFICATION SECTION 13200.

CITY OF YANKTON
SOUTH DAKOTA

HDR Engineering, Inc.

ISSUE	DATE	DESCRIPTION
A	10/08/2014	ISSUED FOR BIDS

PROJECT MANAGER	STEVEN J. QUAIL
CIVIL	K. NEWMAN
STRUCTURAL	K. KIRCHNER
ARCHITECTURAL	J. RICKERT
PROCESS	K. NEWMAN
MECHANICAL	J. LEWIS
ELECTRICAL	K. THERNES
INSTRUMENTATION	D. PENNER
PROJECT NUMBER	135–223788–003

REGISTERED PROFESSIONAL ENGINEER
6423
KEITH R. KIRCHNER
SOUTH DAKOTA
10/8/14

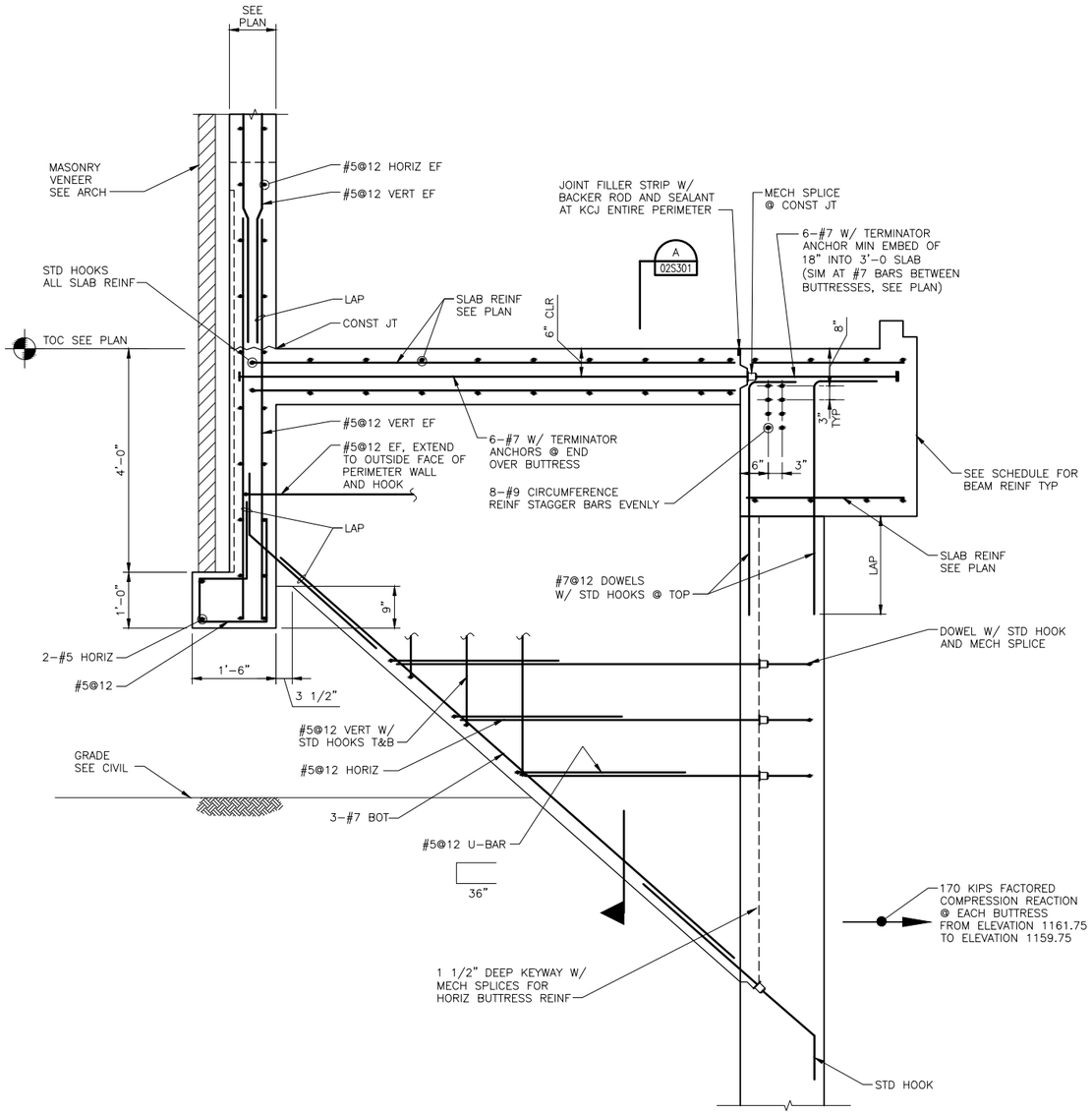
WATER SYSTEM IMPROVEMENTS
HORIZONTAL COLLECTOR WELL
CITY OF YANKTON
YANKTON, SOUTH DAKOTA 2014

STRUCTURAL NOTES

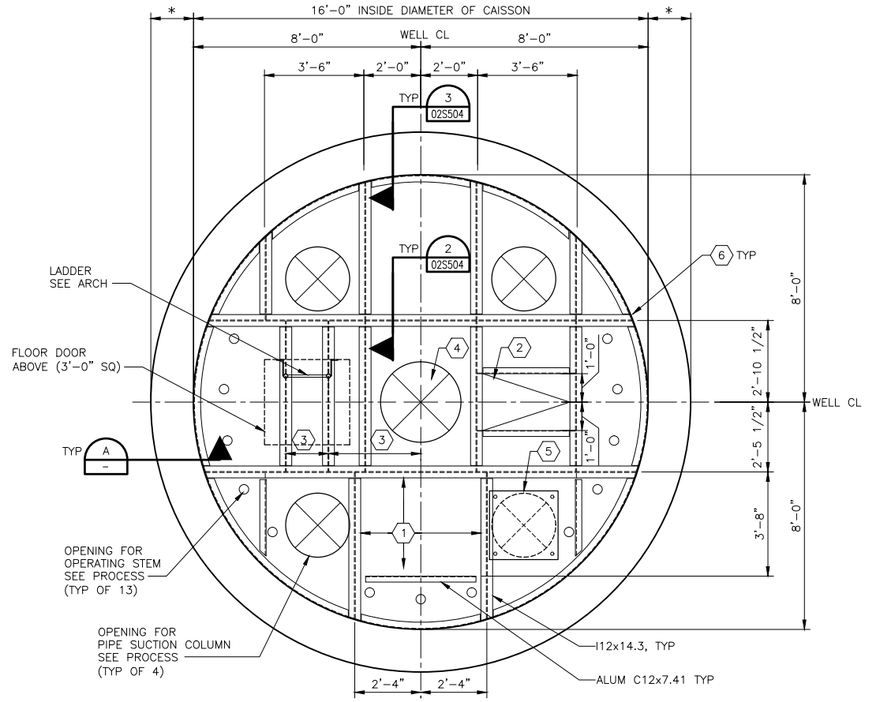
0 1" 2"

FILENAME	02S001.dwg
SCALE	AS NOTED

SHEET 02S001



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



SHEET NOTES:

1. SEE SHEET 02S001 FOR GENERAL STRUCTURAL NOTES.
2. SEE SHEETS 02S501 THRU 02S504 FOR STRUCTURAL DETAILS.
3. PROVIDE 4" HIGH ALUM KICK PLATES AT ALL OPENINGS THROUGH CHECKED PLATE.
4. FRAMING AT THIS LEVEL IS NOT DESIGNED TO SUPPORT WEIGHT FROM CONSTRUCTION ACTIVITIES ABOVE. CONTRACTOR SHALL PROVIDE THIER OWN SUPPORT SYSTEM TO CONSTRUCT LEVELS ABOVE AND BELOW THIS LEVEL.
5. 3/8" CHECKERED PLATE W/ STIFFENER AS REQD TO SUPPORT SPECIFIC FLOOR LOAD. ALL FRAMING AND CHECKERED PLATE THIS LEVEL IS ALUMINUM TOP OF CHECKERED PLATE = 1156.25.

* CAISSON WALL THICKNESS IS ASSUMED TO BE 20". IF ALTERNATE SIZE IS DESIRED, SUBMIT TO ENGINEER FOR REVIEW. COORDINATE ALL DETAILING WITH REVISED SIZE.

KEY NOTES:

1. REMOVABLE SECTION OF CHECKERED PLATE.
2. HINGED CHECKERED PLATE OPENING.
3. COORDINATE DIMENSIONS WITH LADDER PROVIDED.
4. OPENING FOR PIPE SEE PROCESS.
5. 3/8" CHECKERED PLATE OVER OPENING FOR FUTURE PUMP SUCTION COLUMN. FIELD DRILL AND TAP MIN 4 HOLES THROUGH BOTH PLATES FOR 3/8" COUNTER SUNK CAP SCREWS.
6. 4 KIP SERVICE LEVEL REACTION @ EA BEAM

COLLECTOR WELL INTERMEDIATE LEVEL PLAN
SCALE: 3/8" = 1'-0"
1

CITY OF YANKTON
SOUTH DAKOTA

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ARCHITECTURAL	J. RICKERT
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MECHANICAL	J. LEWIS
ELECTRICAL	K. THERNES
INSTRUMENTATION	D. PENNER
PROJECT NUMBER	135-223788-003

REGISTERED PROFESSIONAL ENGINEER
Reg. No. 6423
KEITH R. KIRCHNER
SOUTH DAKOTA
10/8/14

WATER SYSTEM IMPROVEMENTS HORIZONTAL COLLECTOR WELL

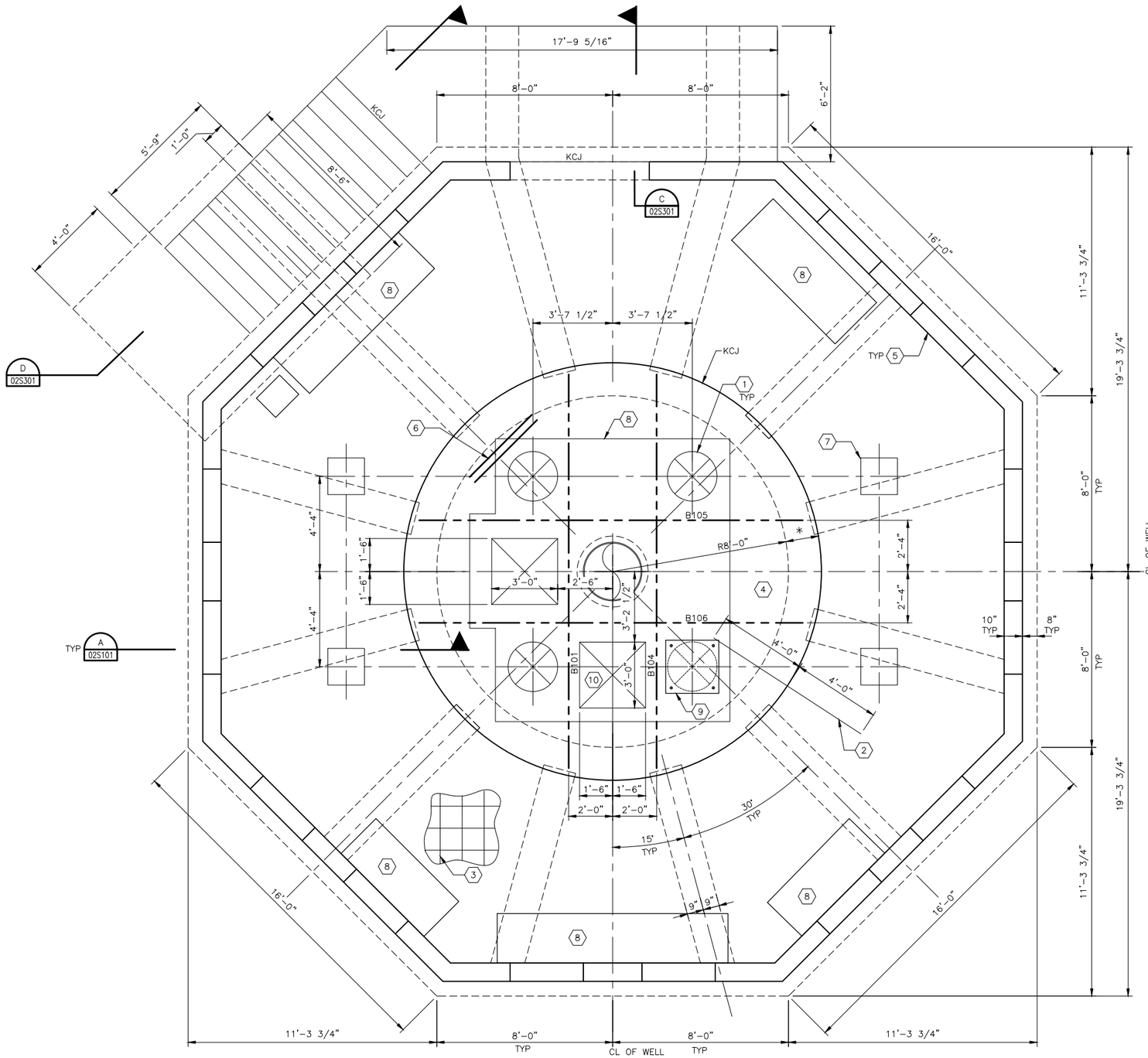
CITY OF YANKTON
YANKTON, SOUTH DAKOTA 2014

LOWER AND INTERMEDIATE LEVEL PLANS

0 1" 2"

FILENAME	02S101.dwg
SCALE	AS NOTED

SHEET 02S101



N

SHEET NOTES:

1. SEE SHEET 02S001 FOR GENERAL STRUCTURAL NOTES.
2. SEE SHEETS 02S501 THRU 02S504 FOR STRUCTURAL DETAILS.
3. BXXX INDICATES A CONCRETE BEAM, SEE 6/02S503 FOR DETAIL AND SCHEDULE.

* CAISSON WALL THICKNESS IS ASSUMED TO BE 20" IF ALTERNATE SIZE IS DESIRED, SUBMIT TO ENGINEER FOR REVIEW. COORDINATE ALL DETAILING WITH REVISED SIZE.

KEY NOTES:

1. 2'-3" DIA HOLE FOR PUMP. COORDINATE DIMENSION WITH EQUIPMENT SUPPLIED.
2. #7 DOWELS AROUND SLAB JOINT W/ MECH SPLICE MIDDLE. 3 BETWEEN EA SET OF BUTTRESSES. TERMINATE WITH STANDARD HOOK AT SLAB OPENINGS.
3. 12" CONCRETE SLAB W/ #7@12 EW T&B TOC = 1169.25'.
4. 36" CONCRETE SLAB W/ #7@12 EW T&B TOC = 1169.25'.
5. TOP OF OPENINGS TO MATCH CURVITURE OF WINDOWS, SEE ARCH.
6. 2-#4x4'-0" LONG T&B REQUIRED @ ALL OPENINGS IN 36" SLAB, NO OTHER ADDITIONAL REINF IS REQUIRED PER DETAIL 1/02S501.
7. BASE ELBOW SEE DETAIL 6/02S502.
8. EQUIPMENT PAD
9. 3/8" CHECKERED PLATE COVER OVER OPENING FOR FUTURE PUMP SUCTION COLUMN. ATTACH TO CONCRETE WITH MINIMUM 8 COUNTER SUNK CONCRETE SCREWS. NO FRAME FOR CHECKERED PL REQUIRED.
10. 3/8" CHECKERED PLATE

MAIN LEVEL FRAMING PLAN

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

1 / 02S102

CITY OF YANKTON
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REGISTERED PROFESSIONAL ENGINEER
6423
KEITH R. KIRCHNER
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WATER SYSTEM IMPROVEMENTS HORIZONTAL COLLECTOR WELL

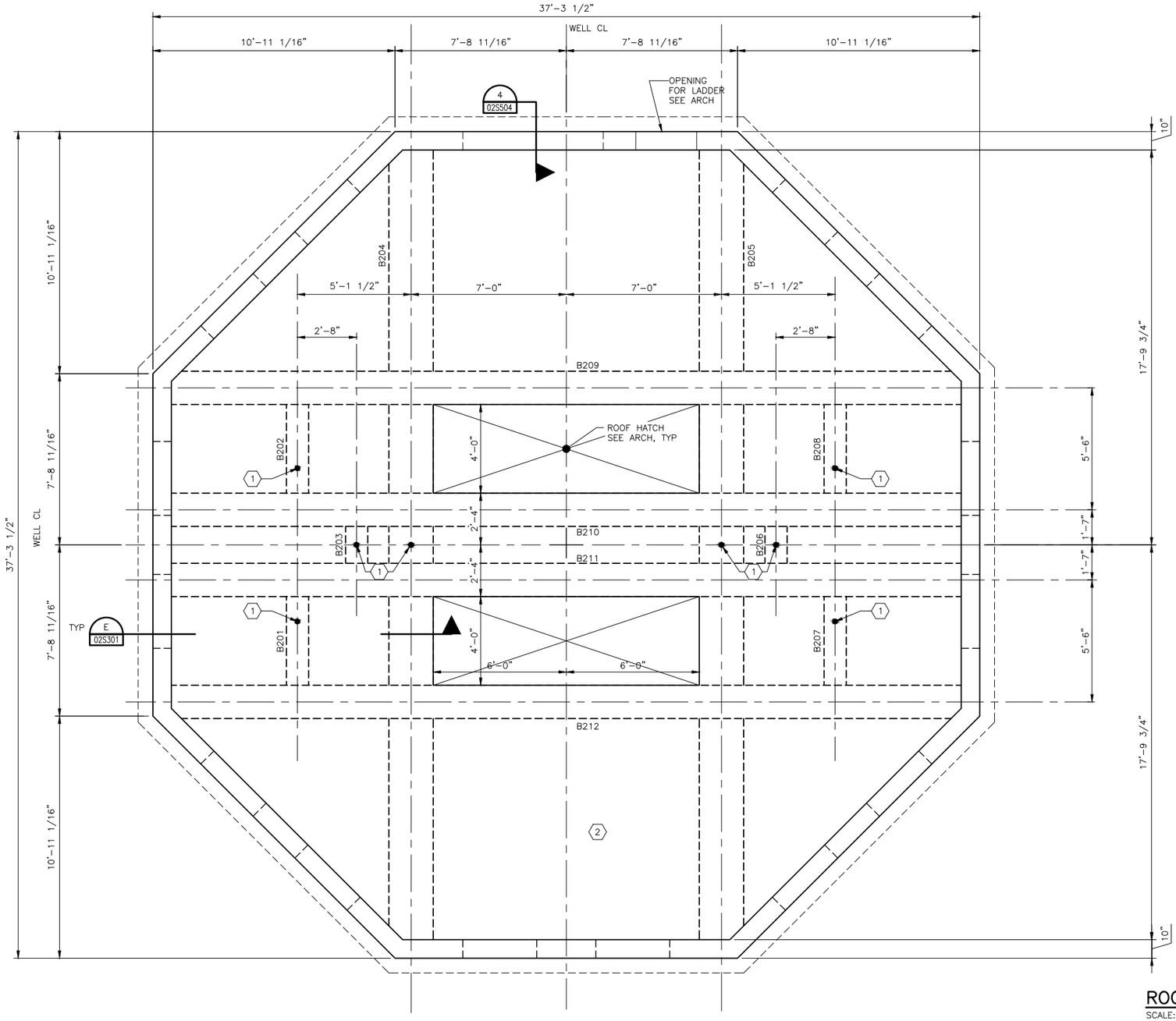
CITY OF YANKTON
YANKTON, SOUTH DAKOTA 2014

MAIN LEVEL FRAMING PLAN

0 1" 2"

FILENAME	02S102.dwg
SCALE	AS NOTED

SHEET 02S102



SHEET NOTES:

1. SEE SHEET 02S001 FOR GENERAL STRUCTURAL NOTES.
2. SEE SHEETS 02S501 THRU 02S504 FOR STRUCTURAL DETAILS.
3. BXXX INDICATES A CONCRETE BEAM, SEE 6/02S503 FOR DETAILS / SCHEDULE.

KEY NOTES:

(1) PH-1 SEE DETAIL 5/0S502

(2) 6" CONCRETE SLAB W/ #6@12 EW CENTERED. TOC = 1191.25'

ROOF LEVEL FRAMING PLAN
SCALE: 3/8" = 1'-0"
1 / 02S102

CITY OF YANKTON
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HORIZONTAL COLLECTOR WELL

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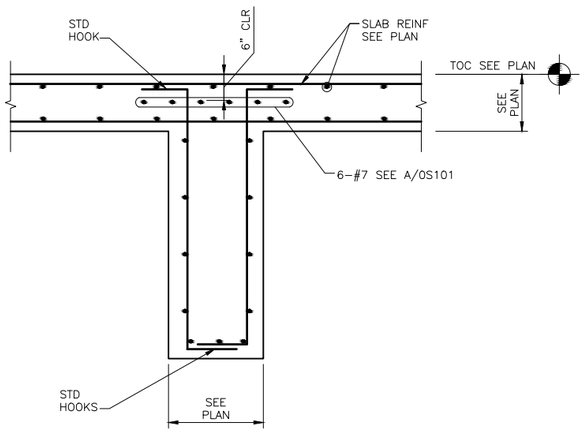
YANKTON, SOUTH DAKOTA 2014

ROOF LEVEL FRAMING PLAN

0 1" 2"

FILENAME	02S103.dwg
SCALE	AS NOTED

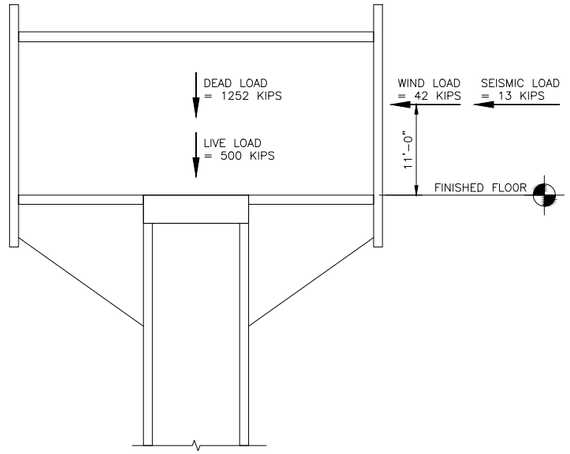
SHEET 02S103



BUTTRESS SECTION

3/4" = 1'=0"

A 02S101

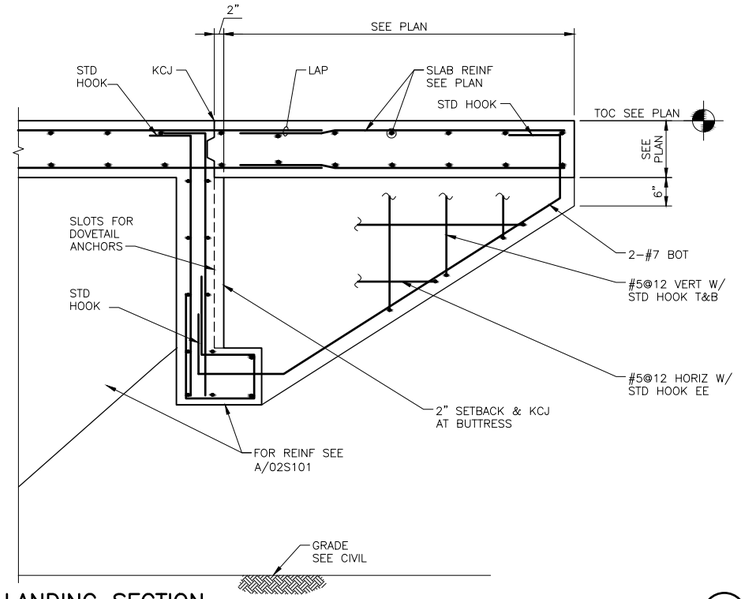


NOTES:
1. DESIGN SHALL INCLUDE LIVE LOAD CONSIDERED AT AN ECCENTRICITY OF 5' FROM THE CENTER.

CAISSON LOADING DIAGRAM

NO SCALE

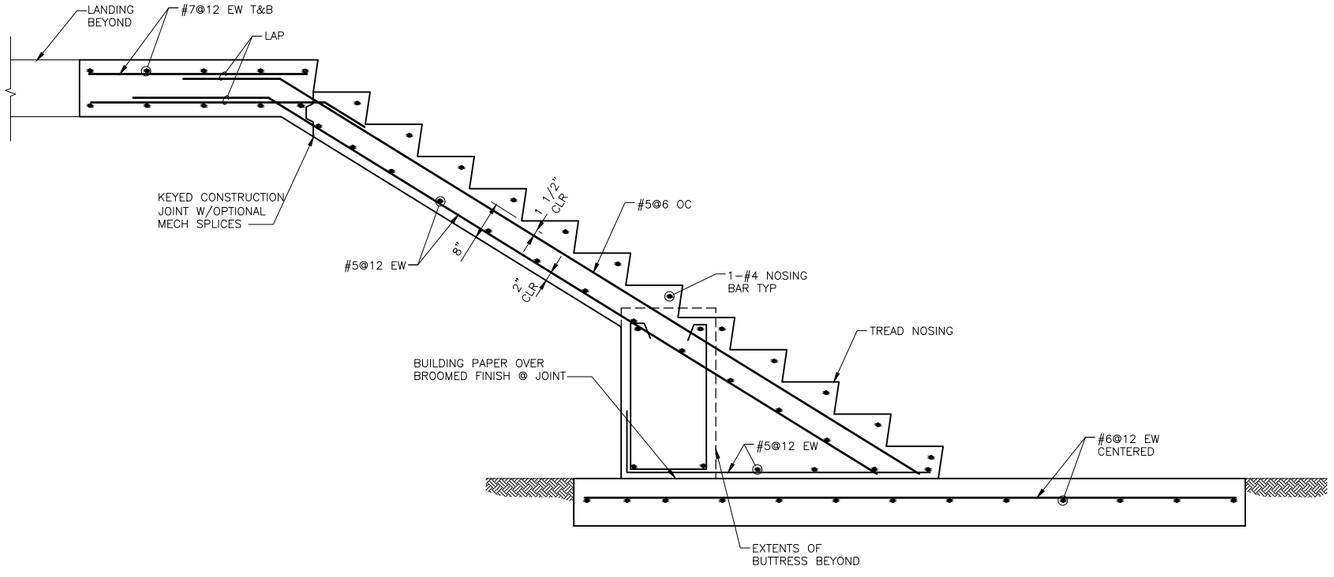
B 02S102



LANDING SECTION

3/4" = 1'=0"

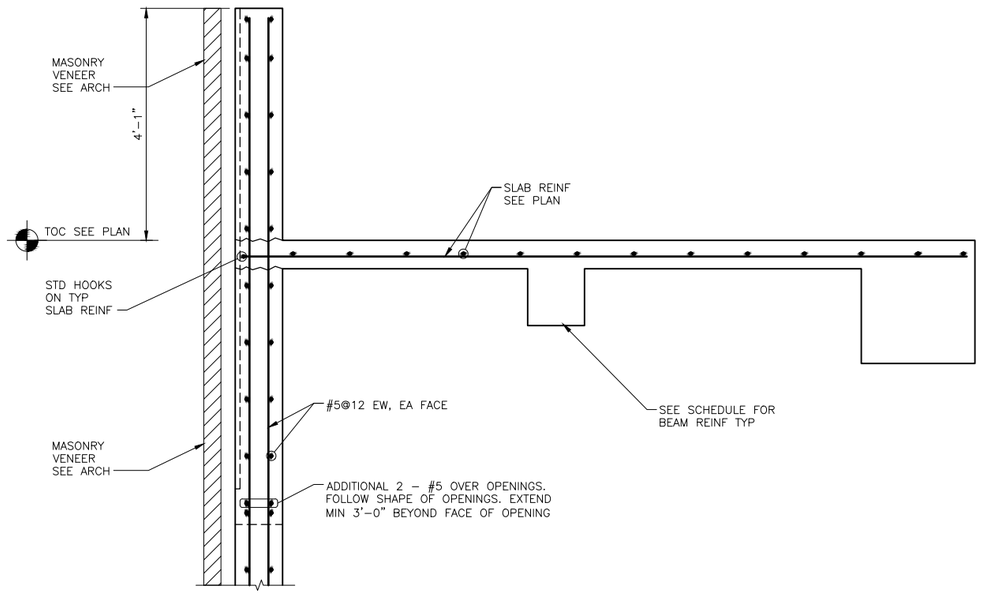
C 02S102



STAIR SECTION

3/4" = 1'=0"

D 10S102



SECTION

3/4" = 1'=0"

E 02S103

CITY OF YANKTON

SOUTH DAKOTA

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REGISTERED PROFESSIONAL ENGINEER
REG. NO. 6423
KEITH R. KIRCHNER
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10/8/14

WATER SYSTEM IMPROVEMENTS HORIZONTAL COLLECTOR WELL

CITY OF YANKTON

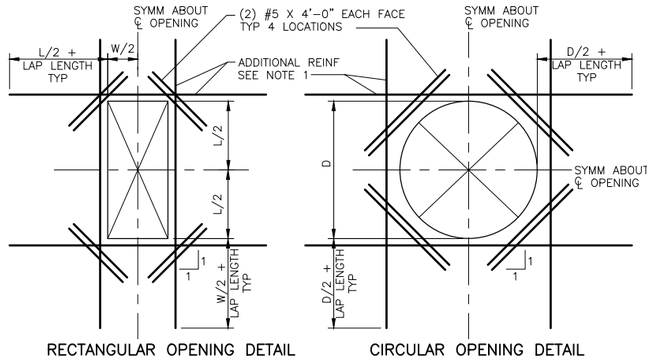
YANKTON, SOUTH DAKOTA 2014

STRUCTURAL SECTION

0 1" 2"

FILENAME	02S301.dwg
SCALE	AS NOTED

SHEET 02S301



NOTES:

1. PROVIDE ADDITIONAL REINFORCING THE SAME SIZE AS DISCONTINUOUS REINFORCEMENT AT OPENING. QUANTITY OF REINFORCING IN EACH DIRECTION SHALL BE EQUAL TO OR ONE GREATER THAN THE NUMBER OF DISCONTINUOUS BARS. PLACE 1/2 OF ADDITIONAL REINFORCING BARS EACH SIDE OF OPENING, PLACE ADDITIONAL REINFORCEMENT AT 3" OC (TYPICAL BOTH DIRECTIONS AND ALL LAYERS OF REINFORCEMENT). START FIRST BAR 2" CLEAR TO OPENING.
2. EXTEND ADDITIONAL REINFORCING BEYOND EDGE OF OPENING AS SHOWN ABOVE. ADDITIONAL BARS MAY TERMINATE AT THE END OF THE WALL WITH A STANDARD HOOK WHERE THE LENGTH OF THE WALL WILL NOT PERMIT BARS TO EXTEND AS SHOWN ABOVE.
3. TYPICAL WALL OR SLAB REINFORCING NOT SHOWN FOR CLARITY. TERMINATE TYPICAL REINFORCING 2" CLEAR TO OPENING.
4. OPENINGS 12" OR LESS IN SLABS AND OPENINGS 18" OR LESS IN WALLS, NO EXTRA REBARS ARE REQUIRED UNLESS SHOWN OTHERWISE. TYPICAL REINFORCING SHALL BE RESPACED (NOT CUT) TO ALLOW FOR OPENINGS TO BE MADE.
5. UNLESS SHOWN OTHERWISE ON DRAWINGS, PROVIDE EXTRA REINFORCING AROUND OPENINGS AS SHOWN AND INDICATED ABOVE.
6. PROVIDE ADDITIONAL DOWELS PER NOTE 1 ABOVE FOR ALL OPENINGS NEAR THE FLOOR SLAB, BASE SLAB, OR CORNERS.

EXTRA REINFORCING AROUND OPENINGS

1

NOT TO SCALE

LAP SPLICE AND EMDEDMENT LENGTHS f'c =4.0 ksi fy = 60 ksi f'c =4.5 ksi		
BAR	BARS SPACED GREATER THAN 4"	BARS SPACED LESS THAN OR EQUAL TO 4"
#3	14"	20"
#4	19"	32"
#5	29"	46"
#6	39"	62"
#7	55"	87"
#8	69"	107"
#9	76"	116"
#10	97"	140"
#11	120"	146"

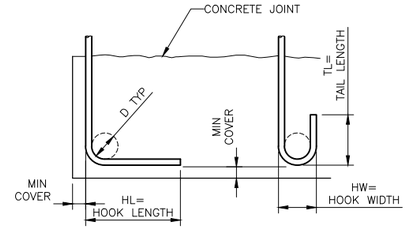
NOTES:

1. PROVIDE MINIMUM LAP SPLICE LENGTHS AND EMBEDMENTS PER TABLE UNLESS NOTED OTHERWISE. EMBEDMENT LENGTH EQUALS THE LAP SPLICE LENGTH UNLESS OTHERWISE NOTED.
2. BAR SPACING AT LAP SPLICE IS THE MINIMUM CLEAR DISTANCE BETWEEN LAPPED BARS PLUS ONE BAR DIAMETER.
3. ALL SPLICES TO BE CONTACT SPLICES AND WIRED TOGETHER UNLESS OTHERWISE APPROVED BY ENGINEER.

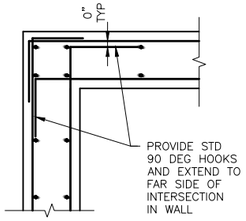
CONCRETE REINFORCING LAP AND EMBEDMENT SCHEDULE

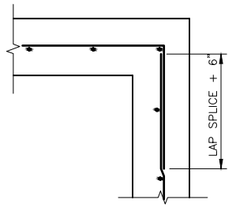
2

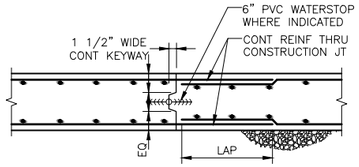
NO SCALE



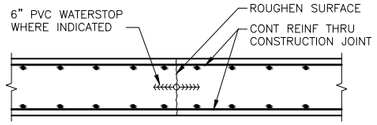
BAR SIZE GRADE 60	HL	HW	TL	D
#3	6"	3"	3"	2 1/4"
#4	8"	4"	4 1/2"	3"
#5	10"	5"	5"	3 3/4"
#6	1'-0"	6"	6"	4 1/2"
#7	1'-2"	7"	7"	5 1/4"
#8	1'-4"	8"	8"	6"
#9	1'-7"	11 3/4"	10 1/2"	9 1/2"
#10	1'-10"	1'-1 1/4"	11 1/2"	10 3/4"
#11	2'-0"	1'-2 3/4"	1'-1"	12"







KEYED CONSTRUCTION JOINT (KCJ)



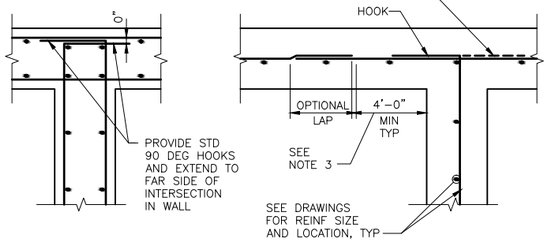
ROUGHENED CONSTRUCTION JOINT (RCJ)

NOTES:

1. FURNISH KCJ SHOWN HERE AT ALL WALL VERTICAL AND SLAB CONSTRUCTION JOINTS UNO.
2. SEE SPECIFICATION FOR REQUIREMENT TO TIE WATERSTOPS IN PLACE TO PREVENT MOVEMENT OR FOLDING OVER.
3. ALIGN WATERSTOP CENTERED IN KEYWAY OR CENTERED BETWEEN KEYWAY AND REINFORCING ON WATER SIDE.

CONSTRUCTION JOINT

3



NOTES:

1. ALL HOOKS SHALL BE STD 90 DEGREE HOOKS.
2. OPTIONAL LAP LOCATION. APPLIES TO BOTH DOUBLE AND SINGLE LAYER CONDITIONS TYP.

WALL REINFORCEMENT AT CORNERS AND INTERSECTIONS

6

3/4"=1'-0"

NOT USED

4

REINFORCING HOOK SCHEDULE

5

1"=1'-0"

CITY OF YANKTON

SOUTH DAKOTA

HDR Engineering, Inc.

ISSUE	DATE	DESCRIPTION
A	10/08/2014	ISSUED FOR BIDS

PROJECT MANAGER	STEVEN J. QUAIL
CIVIL	K. NEWMAN
STRUCTURAL	K. KIRCHNER
ARCHITECTURAL	J. RICKERT
PROCESS	K. NEWMAN
MECHANICAL	J. LEWIS
ELECTRICAL	K. THERNES
INSTRUMENTATION	D. PENNER
PROJECT NUMBER	135-223788-003

REGISTERED PROFESSIONAL ENGINEER 9423 KEITH R. KIRCHNER SOUTH DAKOTA 10/8/14

WATER SYSTEM IMPROVEMENTS HORIZONTAL COLLECTOR WELL

CITY OF YANKTON

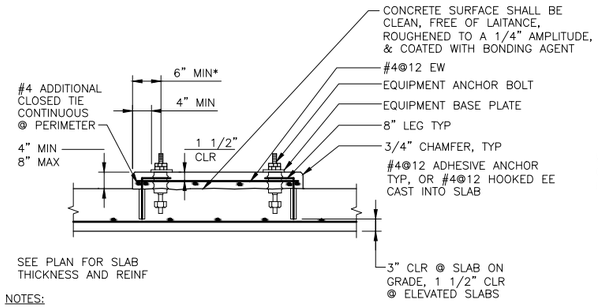
YANKTON, SOUTH DAKOTA 2014

STRUCTURAL DETAILS

0 1" 2"

FILENAME	02S501.dwg
SCALE	AS NOTED

SHEET 02S501



NOTES:

1. PROVIDE ABOVE PAD UNDER ALL ELECTRICAL AND MECHANICAL EQUIPMENT SUPPORTED ON STRUCTURAL SLABS. ALSO PROVIDE FOR EQUIPMENT WEIGHING LESS THAN 5000 POUNDS WHICH ARE SUPPORTED ON GRADE, OR WHERE SPECIFICALLY NOTED ON PLANS. FOR PAD HEIGHT GREATER THAN 8" SEE TALL EQUIPMENT SUPPORT PAD.
2. PAD THICKNESS SHALL BE A MINIMUM OF 4". CONTRACTOR SHALL VERIFY THE PAD THICKNESS WITH EQUIPMENT SUPPLIER. THICKEN SLAB ON GRADE BELOW EQUIPMENT PAD AS REQUIRED TO MAINTAIN MINIMUM 3" COVER ON EQUIPMENT ANCHOR BOLTS.
3. PROVIDE EMBEDDED CHANNELS FOR ANCHORING ELEC EQUIP WHERE REQD.

PAD NOTES:

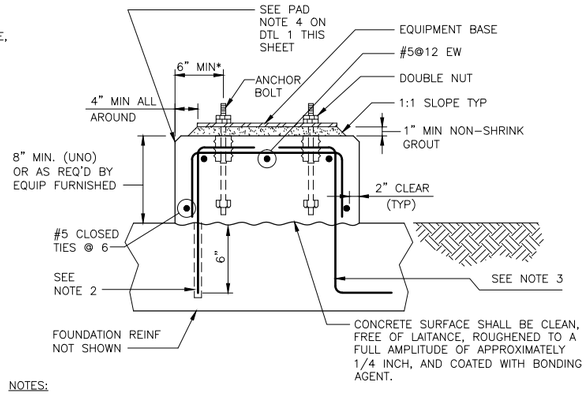
1. PAD DETAILS 1, 2 AND 3 ON THIS SHEET APPLY FOR SUPPORT OF ALL EQUIPMENT UNLESS INDICATED OTHERWISE ON THE DRAWINGS.
2. BEFORE EQUIPMENT SUPPORT PADS ARE CAST, THE PAD SIZES AND REINFORCING SHALL BE APPROVED BY THE ENGINEER AS BEING CAPABLE OF SUPPORTING EQUIPMENT TO BE PLACED THEREON. EQUIPMENT BASE DIMENSIONS SHALL BE THE LARGER OF AS DETERMINED BY THE EQUIPMENT MANUFACTURER OR AS INDICATED ON THE DRAWINGS. SUBMIT ALL EQUIPMENT DIMENSIONS AND LOADS TO ENGINEER. THE SIZE, NUMBER, TYPE, LOCATION, AND THREAD PROJECTION OF THE ANCHOR BOLTS (AB) SHALL BE AS DETERMINED BY THE EQUIPMENT MANUFACTURER AND SHALL BE AS APPROVED BY THE ENGINEER. AB SHALL BE HELD IN POSITION WITH A TEMPLATE WHILE EQUIPMENT PAD IS CAST.

*3. 6" MINIMUM PAD EDGE DIMENSION TO EQUIPMENT AB APPLIES FOR ALL NON-ELECTRICAL EQUIPMENT SUPPORT PADS. AT ELECTRICAL EQUIPMENT PROVIDE 1" FROM EDGE OF EQUIPMENT TO EDGE OF EQUIPMENT PAD.

4. THE SIZE, NUMBER, TYPE, LOCATION, AND THREAD PROJECTION OF THE ANCHOR BOLTS SHALL BE AS DETERMINED BY THE EQUIPMENT MANUFACTURER AND SHALL BE AS APPROVED BY THE ENGINEER. ANCHOR BOLTS SHALL BE HELD IN POSITION WITH A TEMPLATE WHILE EQUIPMENT BASE IS BEING CAST, SEE DETAIL 6 THIS SHEET.
5. EQUIPMENT BASES SHALL BE INSTALLED LEVEL UNLESS SPECIFIED OTHERWISE, TOLERANCE IS 1/8" ACROSS PLAN DIAGONALS.

TYP SHALLOW EQUIPMENT SUPPORT PAD

1

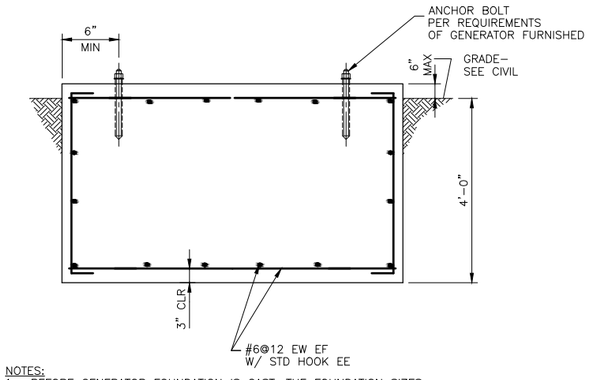


NOTES:

1. SEE PAD NOTES ON DETAIL 1 THIS SHEET.
2. DRILL INTO SLAB TO INDICATED DEPTH AT 12" CENTERS AROUND PERIMETER OF EQUIPMENT BASE AND SET #5 DOWEL HOOKED AS SHOWN USING ADHESIVE ANCHORS.
3. FOR EQUIPMENT BASES ON NEW SLABS, PROVIDE #5 DOWELS HAVING TWO HOOKED ENDS AT 12" CENTERS AROUND PERIMETER.

TYPICAL TALL EQUIPMENT SUPPORT PAD

2



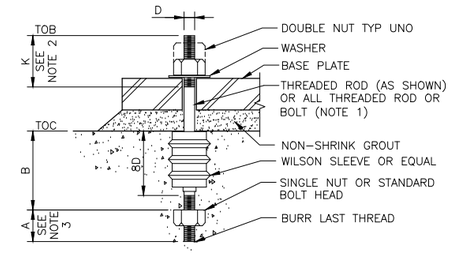
NOTES:

1. BEFORE GENERATOR FOUNDATION IS CAST, THE FOUNDATION SIZES AND REINFORCING SHALL BE APPROVED BY THE ENGINEER AS BEING CAPABLE OF SUPPORTING EQUIPMENT TO BE PLACED THERE ON. FOUNDATION DIMENSIONS SHALL BE THE LARGER OF AS DETERMINE BY THE EQUIPMENT MANUFACTURER OR AS INDICATED IN THE DRAWINGS. SUBMIT ALL EQUIPMENT DIMENSIONS AND LOADS TO ENGINEER. THE SIZE, NUMBER, TYPE, LOCATION, AND THREAD PROJECTION OF THE ANCHOR BOLTS (AB) SHALL BE AS APPROVED BY THE ENGINEER. AB SHALL BE HELD IN POSITION WITH A TEMPLATE WHILE EQUIPMENT PAD IS CAST.
2. THE SIZE AND LOCATION OF THE EQUIPMENT PAD FOR THE GENERATOR SHALL BE COORDINATED TO KEEP THE EQUIPMENT CENTER OF GRAVITY ABOVE THE CENTER OF THE EQUIPMENT PAD.
3. CONTRACTOR SHALL COORDINATE ALL CONDIUT STUBS-UPS AND ANCHOR BOLT LOCATIONS WITH ELECTRICAL PRIOR TO POURING CONCRETE.

GENERATOR FOUNDATION PAD

NOT TO SCALE

3



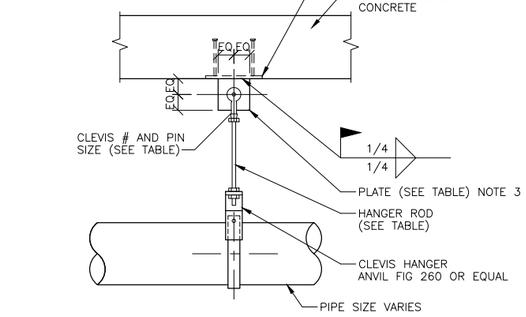
ANCHOR BOLT TYPE A				
D	A	B	K	REMARKS
3/8"	1"	6"	2 3/4"	
1/2"	1 1/4"	8"	3"	
5/8"	1 1/2"	10"	3 1/4"	
3/4"	1 3/4"	12"	3 1/2"	
7/8"	2"	14"	3 3/4"	
1"	2 1/4"	16"	4"	
1 1/8"	2 1/2"	18"	4 1/4"	
1 1/4"	2 3/4"	20"	4 1/2"	
1 3/8"	3"	22"	4 3/4"	
1 1/2"	3 1/4"	24"	5"	
1 3/4"	3 3/4"	28"	5 1/2"	
2"	4 1/4"	32"	6"	
2 1/2"	5 1/2"	48"	7"	
3"	6 1/4"	66"	8"	

NOTES:

1. PROVIDE SST ANCHOR BOLTS UNO IN SECTIONS AND DETAILS.
2. STANDARD BOLT THREAD LENGTH MAY BE USED WHERE APPLICABLE.
3. DIMENSION IN SCHEDULE OR STANDARD BOLT HEAD.
4. WILSON SLEEVE TO BE FILLED W/ NON-SHRINK GROUT.

EQUIPMENT ANCHOR BOLT DETAIL

4



PIPE SIZE (IN)	HANGER ROD (IN)	CLEVISE SIZE (#)	CLEVISE PIN SIZE (IN)	PLATE SIZE
12-18	1"	3	1 1/4"	1/2x5x0'-5"
20	1 1/4"	3	1 1/4"	1/2x5x0'-5"
24	1 1/4"	3	1 1/4"	1/2x5x0'-5"

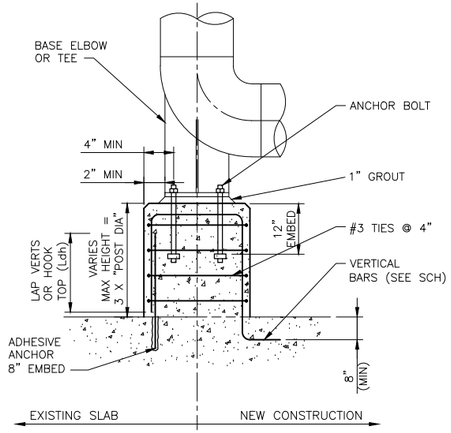
NOTES:

1. FOR SMALLER PIPE DATA SEE SPEC SECTION 15090.
2. ALL COMPONENTS TO BE SST UNO.
3. PLATE SHALL BE PARALLEL TO PIPE. PLATE MATERIAL TO MATCH SUPPORTING BEAM MATERIAL.

PIPE HANGER DETAIL - PH1

NOT TO SCALE

5



PEDESTAL SCHEDULE, UNO			
PIPE DIA	POST DIA	VERTS	ANCHOR BOLTS
TO 16"	16"	(4) #7	3/4"
TO 30"	20"	(4) #8	3/4"
36"	24"	(6) #8	7/8"

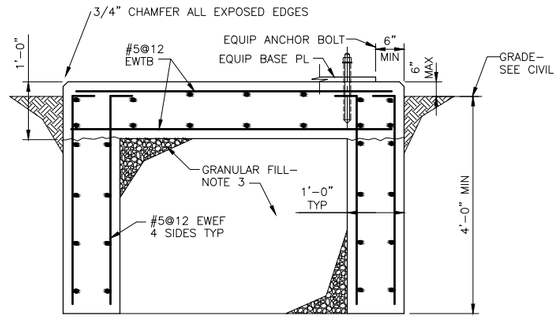
NOTE:

1. USE FOR DUCTILE IRON OR CAST IRON PIPES ONLY.

PIPE SUPPORT DETAIL

NOT TO SCALE

6



NOTES:

1. SEE PAD NOTES ON DETAIL 1 THIS SHEET.
2. INCREASE SLAB THICKNESS AS REQD TO MAINTAIN 3" MIN CONCRETE COVER BELOW EQUIPMENT ANCHOR BOLTS.
3. AT CONTRACTORS OPTION, REPLACE GRANULAR FILL WITH CONCRETE POURED WITH PERIMETER GRADE BEAM AND TOP SLAB. PROVIDE ALL REINFORCING SHOWN.

TYPICAL EXTERIOR EQUIPMENT PAD

4

CITY OF YANKTON
SOUTH DAKOTA

HDR
HDR Engineering, Inc.

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STRUCTURAL	K. KIRCHNER
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MECHANICAL	J. LEWIS
ELECTRICAL	K. THERNES
INSTRUMENTATION	D. PENNER
PROJECT NUMBER	135-223788-003

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 6423
KEITH R. KIRCHNER
SOUTH DAKOTA
10/8/14

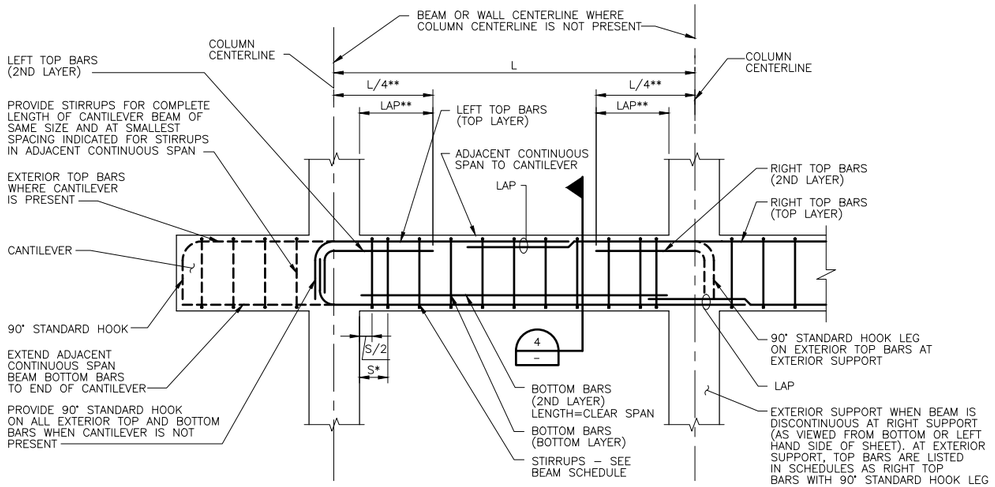
WATER SYSTEM IMPROVEMENTS
HORIZONTAL COLLECTOR WELL
CITY OF YANKTON
YANKTON, SOUTH DAKOTA 2014

STRUCTURAL DETAILS

0 1" 2"

FILENAME	02S502.dwg
SCALE	AS NOTED

SHEET 02S502



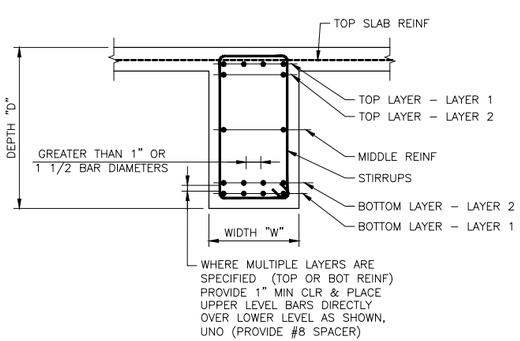
*S = FIRST STIRRUP SPACING INDICATED IN BEAM SCHEDULE.

* PROVIDE ONE ADDITIONAL STIRRUP IN ALL BEAMS LOCATED AT 1/2 S FROM FACE OF SUPPORT. ADDITIONAL STIRRUP TO BE OF SAME SIZE AS SCHEDULED STIRRUPS. APPLIES FOR ALL BEAMS.

** PROVIDE GREATER OF L/4 FROM CENTER LINE OF BEAM, COL OR WALL OR LAP LENGTH FROM FACE OF SUPPORT.

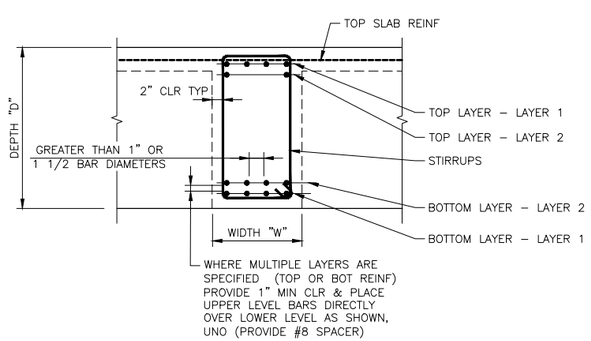
TYPICAL BEAM REINFORCING

1



TYP BEAM SECTION – TYPE 1

4

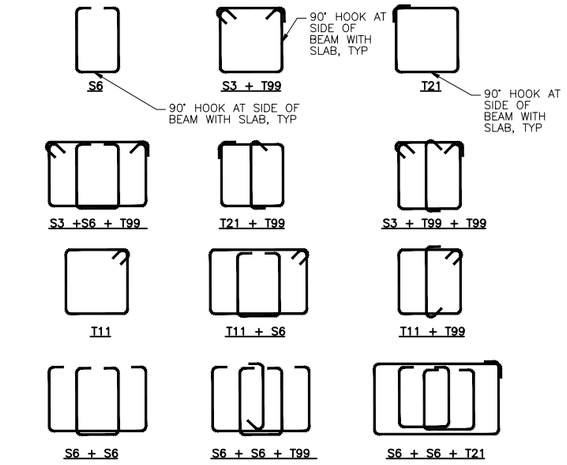


TYP BEAM SECTION – TYPE II

5

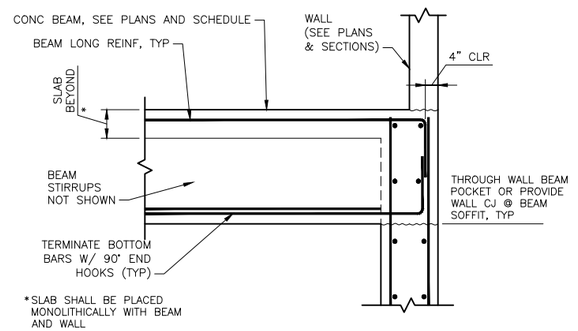
NOTES:

1. ALL TOP AND BOTTOM BARS SHALL BE PLACED IN ONE LAYER UNLESS TWO LAYERS ARE NOTED IN SCHEDULES. WHERE TWO LAYERS ARE NOTED PROVIDE 1" CLEAR BETWEEN LAYERS. LOCATE BARS IN SECOND LAYER DIRECTLY ABOVE OR BELOW BARS IN THE FIRST LAYER.
2. STIRRUPS SPACING INDICATED IN SCHEDULES START AT FACE OF SUPPORT. PROVIDE 1 ADDITIONAL STIRRUP AT 1/2 THE FIRST SCHEDULED SPACING AT EACH FACE OF EACH SUPPORT.
3. PROVIDE STANDARD ACI 90° HOOK WHERE HOOKS ARE INDICATED.
4. ALL BEAMS ARE DIMENSIONED TO CENTERLINE OF BEAM UNLESS NOTED OTHERWISE.



STIRRUP AND TIE DEFINITIONS

2



TYP WALL CONSTRUCTION JOINT AT BEAM

3

CONCRETE BEAM SCHEDULE

BEAM	SIZE (IN)		TYPE	BOTTOM LAYER1		BOTTOM LAYER 2		MIDDLE REINF EF		TOP REINF		STIRRUPS					REMARKS
	W	D		NO.	SIZE	NO.	SIZE	NO.	SIZE	NO.	SIZE	TYPE	QTY	SIZE	SPA.	LOCATION	
B101	12	36	II	2	7	–	–	–	–	2	7	S6	–	#3	8"	TO	PROVIDE 3" CLR ON BOT REINF
B104	12	36	II	2	7	–	–	–	–	2	7	S6	–	#3	8"	TO	PROVIDE 3" CLR ON BOT REINF
B105	20	36	II	4	9	2	9	–	–	2	7	S6+S6	–	#4	12"	TO	
B106	20	36	II	4	9	2	9	–	–	2	7	S6+S6	–	#4	12"	TO	
B201	12	18	I	2	6	–	–	1	5	2	6	S3+T99	–	#3	6"	TO	
B202	12	18	I	2	6	–	–	1	5	2	6	S3+T99	–	#3	6"	TO	
B203	12	18	I	2	6	–	–	1	5	2	6	S3+T99	–	#3	6"	TO	
B204	24	26	I	4	9	–	–	2	5	2	7	S3+T99	–	#4	10"	TO	CONTINUOUS BETWEEN PERIMETER WALLS
B205	24	26	I	4	9	–	–	2	5	2	7	S3+T99	–	#4	10"	TO	CONTINUOUS BETWEEN PERIMETER WALLS
B206	12	18	I	2	6	–	–	1	5	2	6	S3+T99	–	#3	6"	TO	
B207	12	18	I	2	6	–	–	1	5	2	6	S3+T99	–	#3	6"	TO	
B208	12	18	I	2	6	–	–	1	5	2	6	S3+T99	–	#3	6"	TO	
B209	18	30	I	2	9	2	9	3	5	2	7	S3+T99	–	#4	12"	TO	
B210	18	30	I	2	9	2	9	3	5	2	7	S3+T99	–	#4	12"	TO	
B211	18	30	I	2	9	2	9	3	5	2	7	S3+T99	–	#4	12"	TO	
B212	18	30	I	2	9	2	9	3	5	2	7	S3+T99	–	#4	12"	TO	

NOTES:

1. EE = EACH END
   TO = THROUGHOUT

CITY OF YANKTON
SOUTH DAKOTA

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10/8/14

WATER SYSTEM IMPROVEMENTS HORIZONTAL COLLECTOR WELL

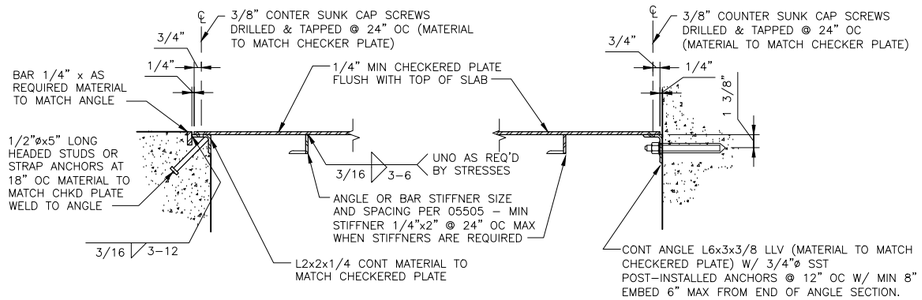
CITY OF YANKTON
YANKTON, SOUTH DAKOTA 2014

STRUCTURAL DETAILS

0 1" 2"

FILENAME	02S503.dwg
SCALE	AS NOTED

SHEET 02S503

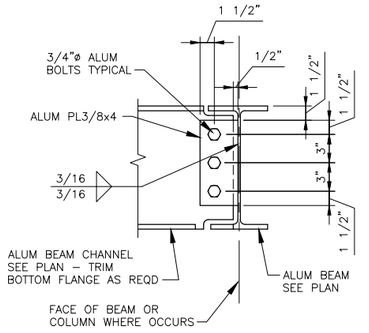


NOTES:

1. CHECKERED PLATE SIZE TO BE DETERMINED BY CONTRACT DOCUMENTS.
2. FIELD DRILL HOLES FOR SCREWS AT CONTRACTORS OPTION.
3. PROVIDE DISSIMILAR MATERIAL PROTECTION FOR ALUMINUM IN CONTACT WITH CONCRETE PER SPECIFICATION.

CHECKERED PLATE SUPPORT

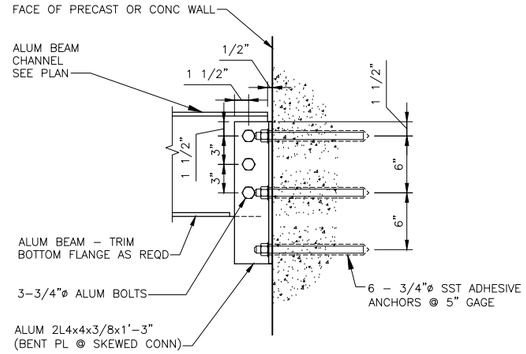
1 / –



TYPICAL ALUMINUM BEAM TO BEAM CONN

1 1/2"=1'-0"

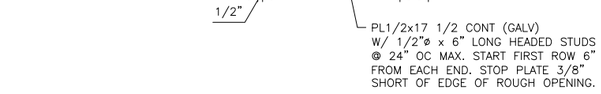
2 / –



TYPICAL ALUMINUM CONNECTION DETAIL

1 1/2"=1'-0"

3 / –



LINTEL PLATE

4 / –

CITY OF YANKTON
SOUTH DAKOTA

HDR Engineering, Inc.

ISSUE	DATE	DESCRIPTION
A	10/08/2014	ISSUED FOR BIDS

PROJECT MANAGER	STEVEN J. QUAIL
CIVIL	K. NEWMAN
STRUCTURAL	K. KIRCHNER
ARCHITECTURAL	J. RICKERT
PROCESS	K. NEWMAN
MECHANICAL	J. LEWIS
ELECTRICAL	K. THERNES
INSTRUMENTATION	D. PENNER
PROJECT NUMBER	135-223788-003

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 6423
KEITH R. KIRCHNER
SOUTH DAKOTA
10/8/14

WATER SYSTEM IMPROVEMENTS HORIZONTAL COLLECTOR WELL

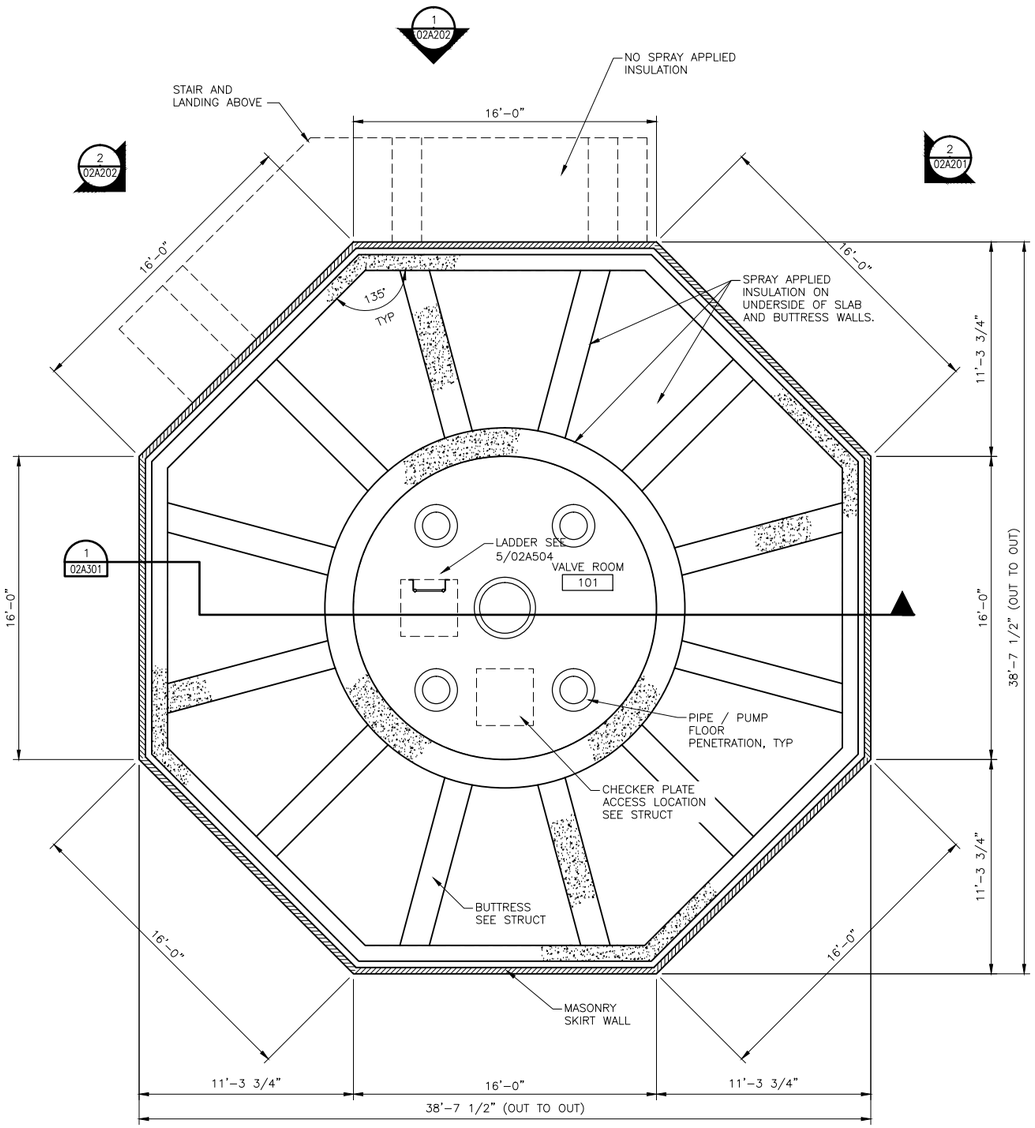
CITY OF YANKTON
YANKTON, SOUTH DAKOTA 2014

STRUCTURAL DETAILS

0 1" 2"

FILENAME	02S504.dwg
SCALE	AS NOTED

SHEET 02S504



FLOOR PLAN – INTERMEDIATE LEVEL

CODE SUMMARY – YANKTON COLLECTOR WELL
LOCATION: YANKTON, SOUTH DAKOTA

BUILDING CODE:
2003 IBC AS ADOPTED BY THE CITY OF YANKTON

OCCUPANCY: (IBC CHAPTER 3)
UTILITY AND MISCELLANEOUS GROUP U

CONSTRUCTION TYPE: (IBC TABLE 601)
TYPE II–B

ALLOWABLE HEIGHT AND AREA: (IBC TABLE 503)
FOR TYPE II–B CONSTRUCTION AND GROUP U OCCUPANCY, THE ALLOWED AREA IS 8,500 SQUARE FEET. NO AREA INCREASES ARE INCLUDED.
ACTUAL AREAS:
MAIN LEVEL = ~1052 SF
INTERMEDIATE LEVEL = ~201 SF
THE ALLOWED HEIGHT IS 2 STORIES AND 55 FEET. ACTUAL HEIGHT WILL BE <55 FEET.

OCCUPANT LOAD BASED ON USE: (IBC TABLE 1004.1.2)
MECHANICAL EQUIPMENT ROOMS (300 SF GROSS) = ~1253 SF / 300 = 5 OCCUPANTS

TOTAL EXIT WIDTH REQUIRED: (IBC TABLE 1005.1)
0.2 INCHES PER PERSON X 5 OCCUPANTS = 1 INCH, 64 INCHES PROVIDED

MINIMUM NUMBER OF EXITS REQUIRED: (IBC TABLE 1014.1)
1 EXIT REQUIRED (LESS THAN 50 OCCUPANTS), 1 EXIT PROVIDED

MAXIMUM ALLOWABLE EXIT ACCESS TRAVEL DISTANCE (IBC TABLE 1015.1)
NON–SPRINKLERED GROUP U OCCUPANCY: 300 FT

FIRE PROTECTION
NO AUTOMATIC SPRINKLER REQUIRED (IBC SECTION 903)
NO FIRE ALARM AND DETECTION SYSTEM REQUIRED (IBC SECTION 907)

NOTE THAT THE UNDERGROUND BUILDING PROVISIONS OF SECTION 405 IS NOT APPLICABLE SINCE THE LOWEST FLOOR LEVEL USED FOR HUMAN OCCUPANCY IS NOT MORE THAN 30 FEET BELOW THE LOWEST LEVEL OF EXIT DISCHARGE.

ARCHITECTURAL GENERAL NOTES
1. NEW PARTITIONS SHOWN BOLD OR FULL–TONE ON FLOOR PLANS.
2. ALL ANGLES ON PLAN ARE 45 OR 90 DEGREES UNLESS NOTED OTHERWISE.
3. ALL ITEMS NOTED ARE NEW UNLESS SPECIFICALLY IDENTIFIED AS EXISTING.
4. ALL DIMENSIONS ARE ACTUAL AND ARE TO FACE OF MASONRY, OUTSIDE FACE OF METAL FRAME, CENTERLINE OF COLUMN OR CENTERLINE OF BEAM UNLESS NOTED OTHERWISE. ALL DIMENSIONS ARE FOR BIDDING PURPOSES ONLY. ACTUAL FIELD DIMENSIONS SHALL BE VERIFIED PRIOR TO SUBMITTAL OF SHOP DRAWINGS, ORDERING RELATED MATERIALS AND PERFORMING DEMOLITION OR CONSTRUCTION WORK. ALL DIMENSIONS ALIGNING WITH OR RELATED TO EXISTING CONDITIONS ARE TO BE LAID OUT PRIOR TO COMMENCING WORK AND VERIFIED.
5. VERIFY MECHANICAL AND ELECTRICAL DRAWINGS FOR SCOPE AND INTERFACE. CONTRACTOR SHALL COORDINATE LOCATION FOR ALL MECHANICAL AND ELECTRICAL ITEMS WITH GENERAL CONSTRUCTION. REVIEW ANY DISCREPANCIES WITH THE ENGINEER PRIOR TO INSTALLATION AND/OR FABRICATION.
6. SEE MECHANICAL DRAWINGS FOR ALL ROOF PENETRATIONS WHICH MUST BE FLASHED/ROOFED AROUND.
7. IN SOME INSTANCES, THERMAL & SOUND BATT INSULATION HAS BEEN OMITTED FROM THE DETAILS FOR CLARITY. SEE SPECIFICATIONS, WALL TYPES & REFLECTED CEILING PLANS FOR LOCATIONS REQUIRING INSULATION.
8. AT LARGE SCALE COLUMN/PLAN DETAILS, WALL TYPES ARE INDICATED. FOR CLARITY, IN SOME INSTANCES NOT ALL STUDS AND/OR FURRING ARE SHOWN ON THE DETAILS. CONTRACTOR SHALL FRAME USING NORMAL FRAMING METHODS AND SHALL ALSO COMPLY WITH INSTRUCTIONS OUTLINED IN THE SPECIFICATIONS.
9. IT IS THE INTENT OF THIS CONTRACT THAT ALL AREAS AFFECTED BY CONSTRUCTION BE A FINISHED & COMPLETE PROJECT. CONTRACTOR SHALL PATCH, REPAIR & ADJUST AS REQUIRED TO ACHIEVE THIS FINISHED PROJECT.

CITY OF YANKTON
SOUTH DAKOTA

HDR Engineering, Inc.

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A	10/08/2014	ISSUED FOR BIDS

PROJECT MANAGER	STEVEN J. QUAIL
CIVIL	K. NEWMAN
STRUCTURAL	K. KIRCHNER
ARCHITECTURAL	J. RICKERT
PROCESS	K. NEWMAN
MECHANICAL	J. LEWIS
ELECTRICAL	K. THERNES
INSTRUMENTATION	D. PENNER
PROJECT NUMBER	135–223788–003

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 8073
JOHN D. RICKERT
SOUTH DAKOTA
10.8.2014

WATER SYSTEM IMPROVEMENTS HORIZONTAL COLLECTOR WELL

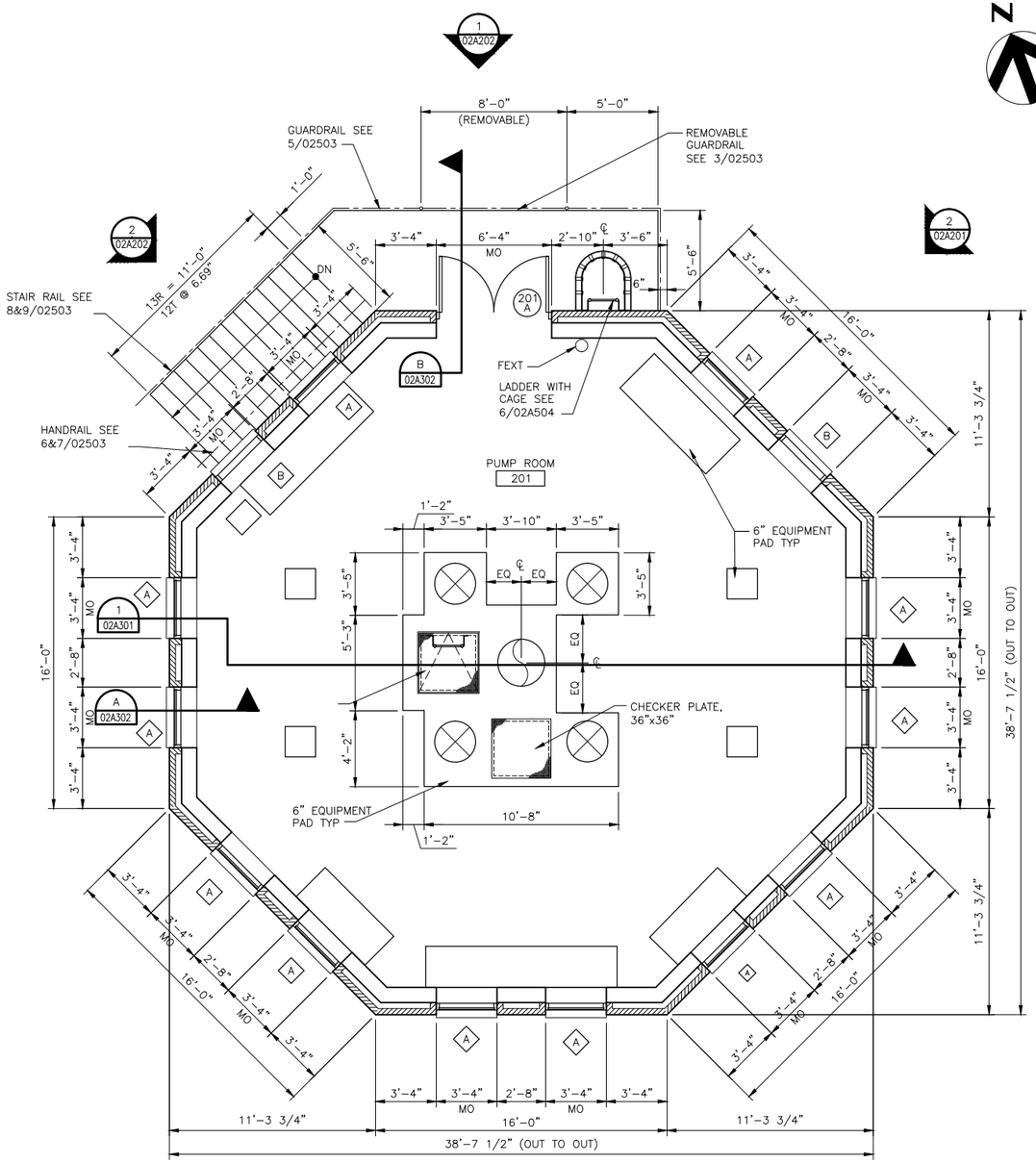
CITY OF YANKTON
YANKTON, SOUTH DAKOTA 2014

FLOOR PLAN
INTERMEDIATE LEVEL

0 1" 2"

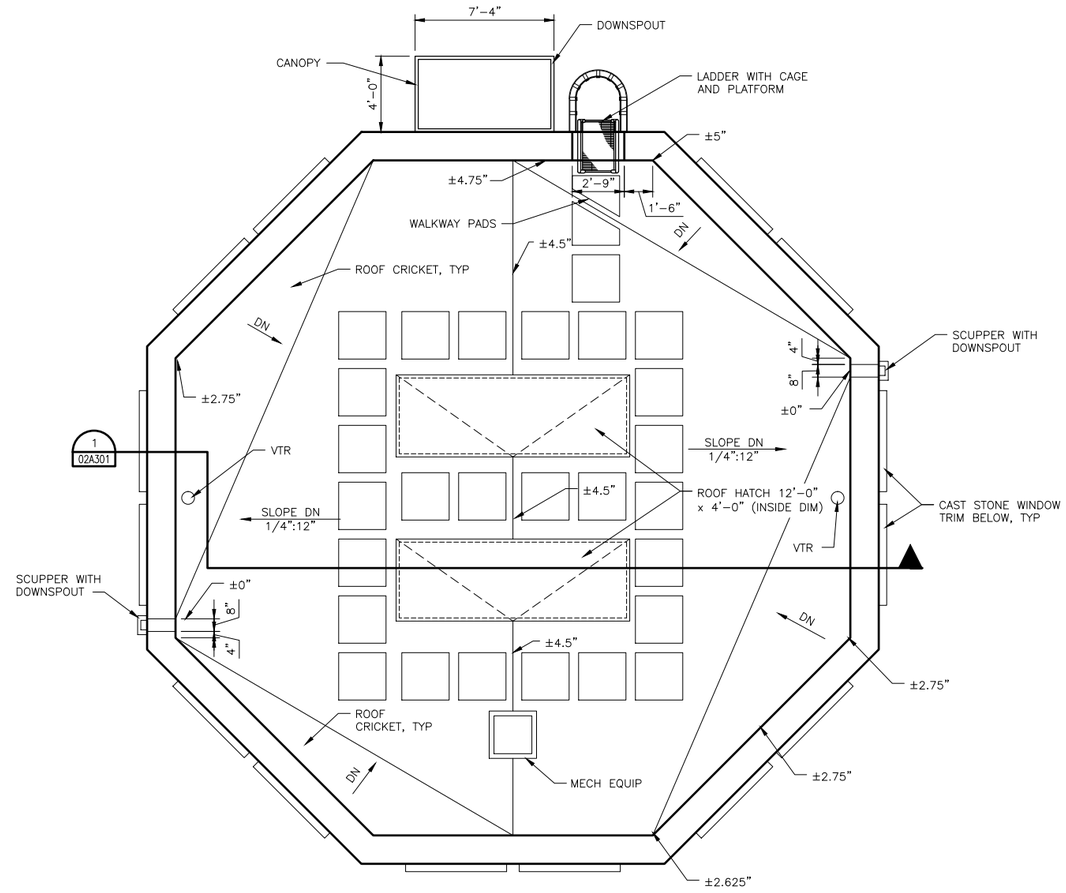
FILENAME	02A101.dwg
SCALE	1/4" = 1'–0"

SHEET 02A101



FLOOR PLAN – MAIN LEVEL

1
02A201
TYP



ROOF PLAN

GENERAL NOTES:
1. SEE SHEET 02A301 FOR DOOR SCHEDULE.
2. SEE SHEET 02A301 FOR ROOM FINISH SCHEDULE.
3. +0" = TOP OF BASE INSULATION. ALL ELEVATIONS TAGS CALCULATED FROM TOP OF 1–1/2" BASE INSULATION.
4. ALL SPOT ELEVATIONS AT EXTERIOR WALL.

CITY OF YANKTON
SOUTH DAKOTA

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REG. NO. 8073
JOHN B. RICKERT
SOUTH DAKOTA
10 OCT. 2014

WATER SYSTEM IMPROVEMENTS
HORIZONTAL COLLECTOR WELL

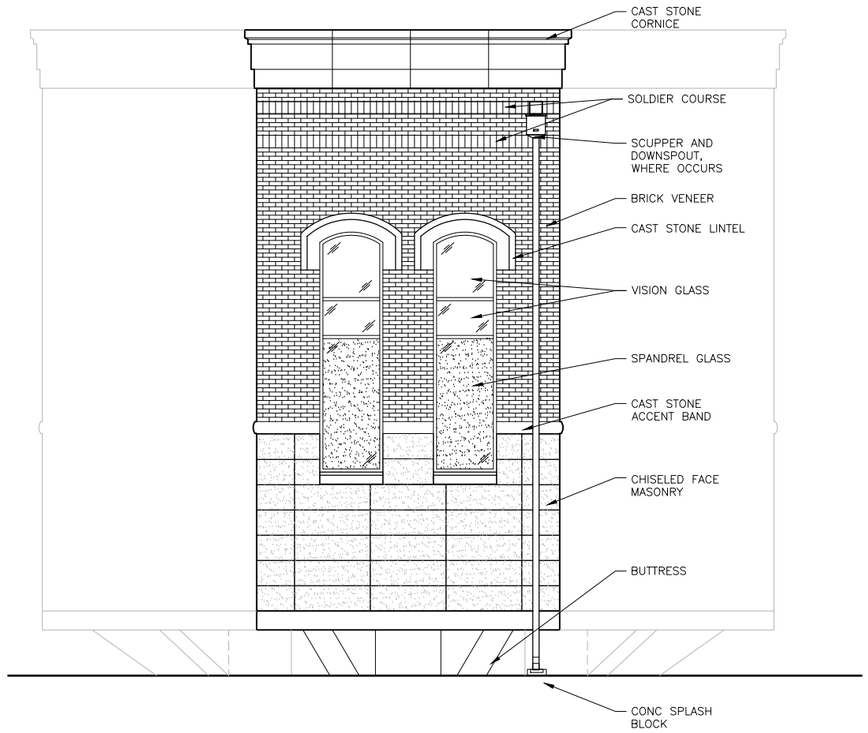
CITY OF YANKTON
YANKTON, SOUTH DAKOTA 2014

FLOOR PLANS
MAIN LEVEL AND ROOF PLAN

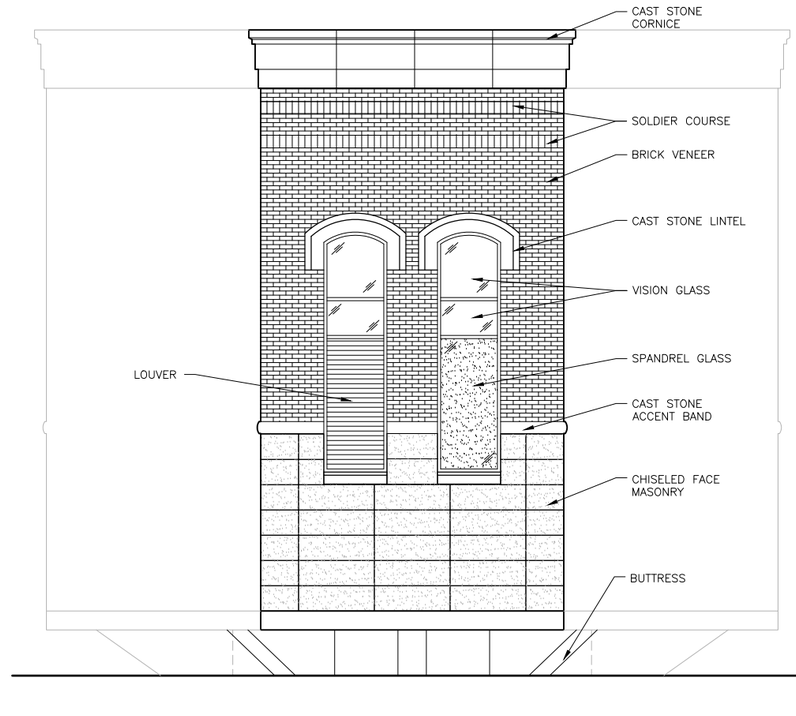
0 1" 2"

FILENAME	02A102.dwg
SCALE	1/4" = 1'–0"

SHEET
02A102



BUILDING ELEVATION (TYP)
1/4" = 1'-0"
1 / 02A101



BUILDING ELEVATION
1/4" = 1'-0"
2 / 02A101

CITY OF YANKTON
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JOHN S. RICKERT
SOUTH DAKOTA
ARCHITECT
10-8-2014

WATER SYSTEM IMPROVEMENTS
HORIZONTAL COLLECTOR WELL

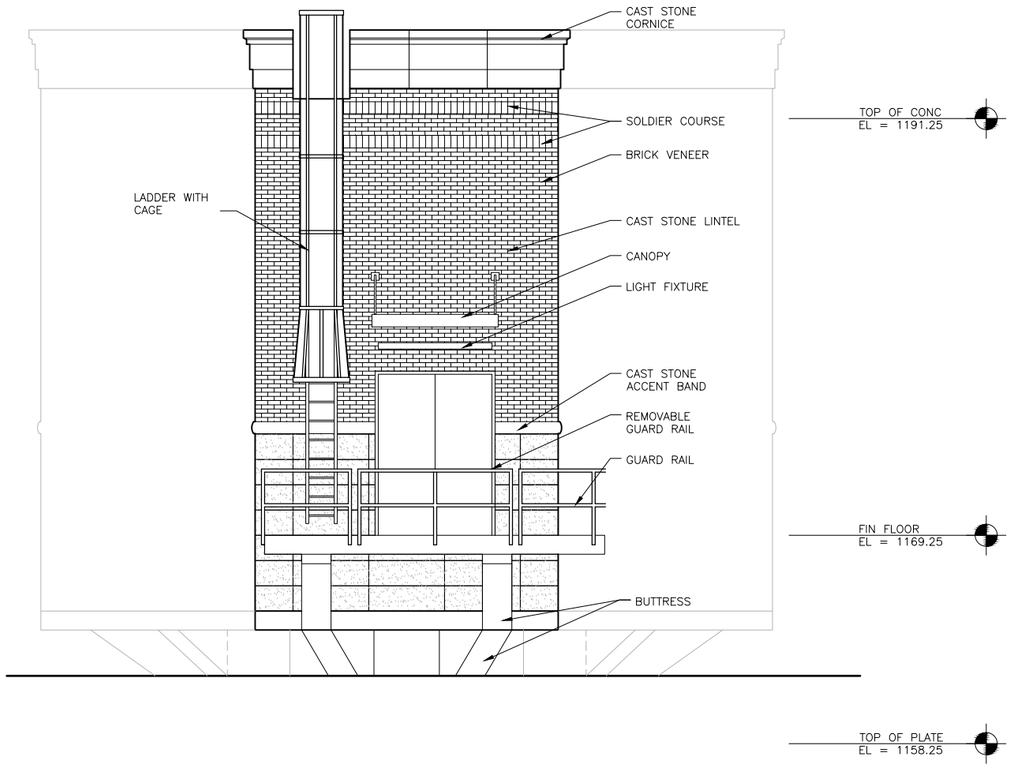
CITY OF YANKTON
YANKTON, SOUTH DAKOTA 2014

BUILDING ELEVATIONS

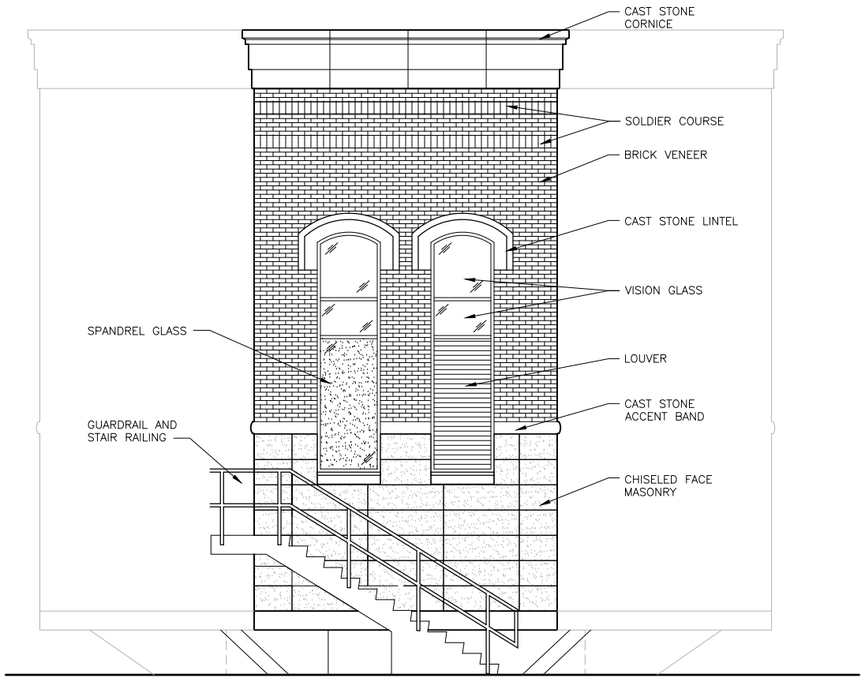
0 1" 2"

FILENAME	02A201.dwg
SCALE	1/4" = 1'-0"

SHEET 02A201



BUILDING ELEVATION
1/4" = 1'-0"
1 / 02A101



BUILDING ELEVATION
1/4" = 1'-0"
2 / 02A101

CITY OF YANKTON
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JOHN S. RICKERT
SOUTH DAKOTA
10-8-2014

WATER SYSTEM IMPROVEMENTS
HORIZONTAL COLLECTOR WELL

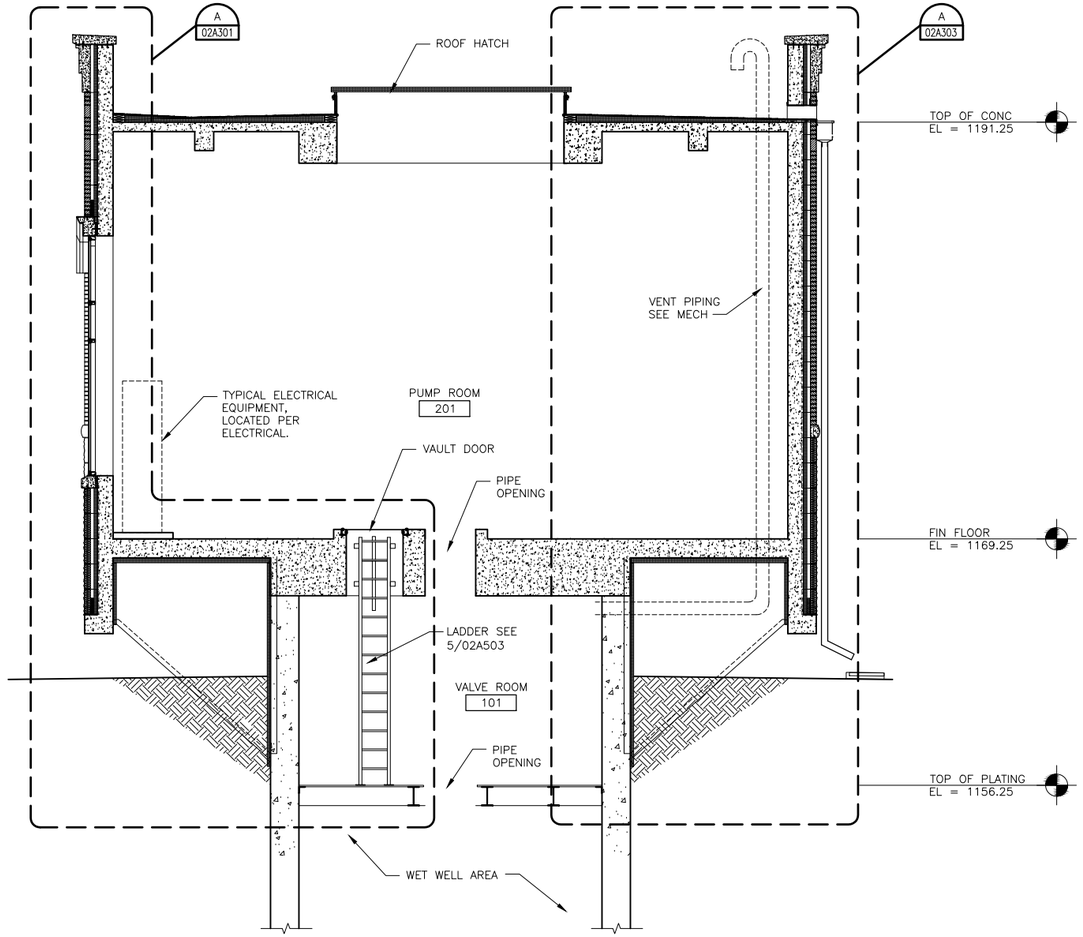
CITY OF YANKTON
YANKTON, SOUTH DAKOTA 2014

BUILDING ELEVATIONS

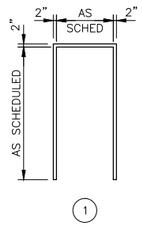
0 1" 2"

FILENAME	02A202.dwg
SCALE	1/4" = 1'-0"

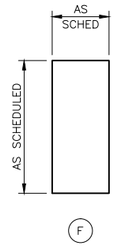
SHEET 02A202



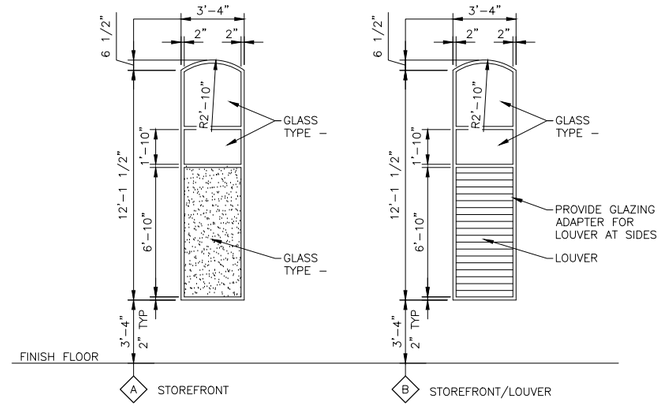
BUILDING SECTION
1/4" = 1'-0"
1 / 02A101



DOOR FRAME TYPES
1/4"=1'-0"
2 / –



DOOR TYPES
1/4"=1'-0"
3 / –



WINDOW FRAME TYPES
1/4"=1'-0"
4 / –

ROOM FINISH SCHEDULE

ROOM NUMBER	ROOM NAME	DRAWING NUMBER	FLOOR	BASE	WALLS NORTH	WALLS EAST	WALLS SOUTH	WALLS WEST	CEILING HEIGHT	CEILING FINISH	*REMARKS
101	VALVE ROOM	02A101	CP	N	CF	CF	CF	CF	21'-6"	C	
201	PUMP ROOM	02A102	CS-1	N	CF	CF	CF	CF	21'-6"	C	

MATERIAL AND FINISH LEGEND

FLOOR		BASE	
CS-1	CHEMICAL FLOOR SEALER	N	NONE
CP	CHECKER PLATE		
WALLS		**CEILING**	
HPIC	HIGH PERFORMANCE INDUSTRIAL COATING	C	CONCRETE - NO PAINT
CF-5	CONCRETE FINISH NO. 5	HPIC	PAINTED STRUCTURE

GENERAL NOTES:

REMARKS:
1. PROVIDE CONCRETE FINISH NO. 5 WHERE CONCRETE WALLS ARE INDICATED TO BE PAINTED; SEE SPECIFICATION SECTION 03348.

DOOR SCHEDULE

DOOR NUMBER	SIZE (W x H)	DRAWING NUMBER	DOOR TYPE	DOOR MATERIAL	DOOR FINISH	DOOR GLASS	FRAME TYPE	FRAME MATERIAL	FRAME FINISH	FRAME GLASS	FIRE RATING	GLASS TYPE	HARDWARE SET	DETAILS	*REMARKS
201A	PR 3'-0" X 8'-6"	02A102	F	AL	FRP	-	1	AL	AN	-	-	-	HW-1	1, 3 / 02A502	

MATERIAL AND FINISH LEGEND

MATERIAL		FINISH	
AL	ALUMINUM	AN	ANODIZED
FRP	FIBERGLASS REINFORCED POLYMER PANEL	FRP	FIBERGLASS REINFORCED POLYMER PANEL

NOTES:
1. SEE DOOR TYPES DETAIL 02A301 FOR DOOR ELEVATIONS.
2. SEE FRAME TYPES DETAIL 02A301 FOR FRAME ELEVATIONS.

REMARKS:
1

CITY OF YANKTON
SOUTH DAKOTA

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PROCESS	K. NEWMAN
MECHANICAL	J. LEWIS
ELECTRICAL	K. THERNES
INSTRUMENTATION	D. PENNER
PROJECT NUMBER	135-223788-003

REGISTERED PROFESSIONAL ARCHITECT
REG. NO. 8073
JOHN S. RICKERT
SOUTH DAKOTA
10.08.2014

WATER SYSTEM IMPROVEMENTS HORIZONTAL COLLECTOR WELL

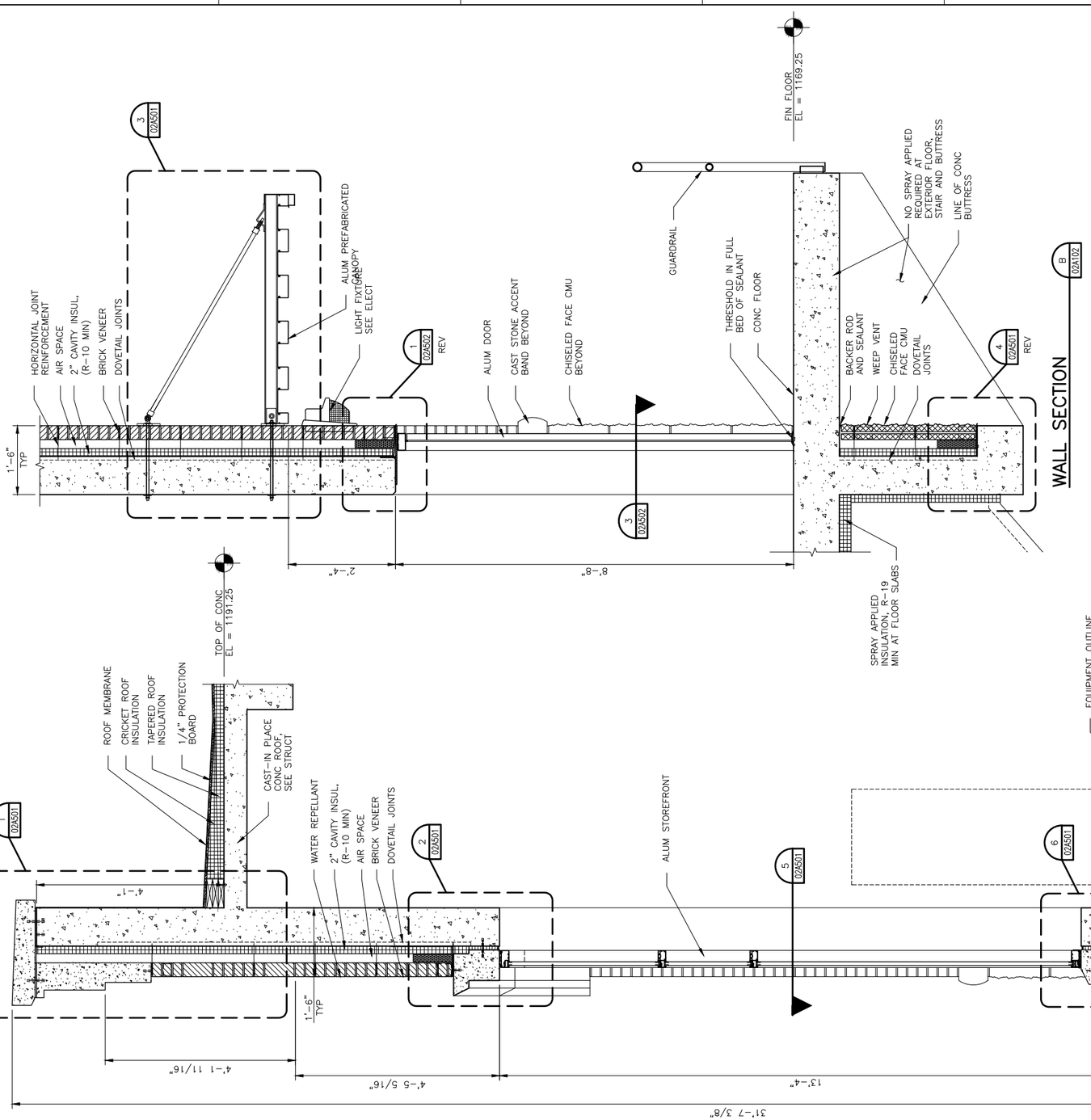
CITY OF YANKTON
YANKTON, SOUTH DAKOTA 2014

BUILDING SECTION

0 1" 2"

FILENAME	02A301.dwg
SCALE	1/4" = 1'-0"

SHEET 02A301



CITY OF YANKTON
SOUTH DAKOTA

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JOHN R. RICKERT
SOUTH DAKOTA
10.08.2014

WATER SYSTEM IMPROVEMENTS HORIZONTAL COLLECTOR WELL

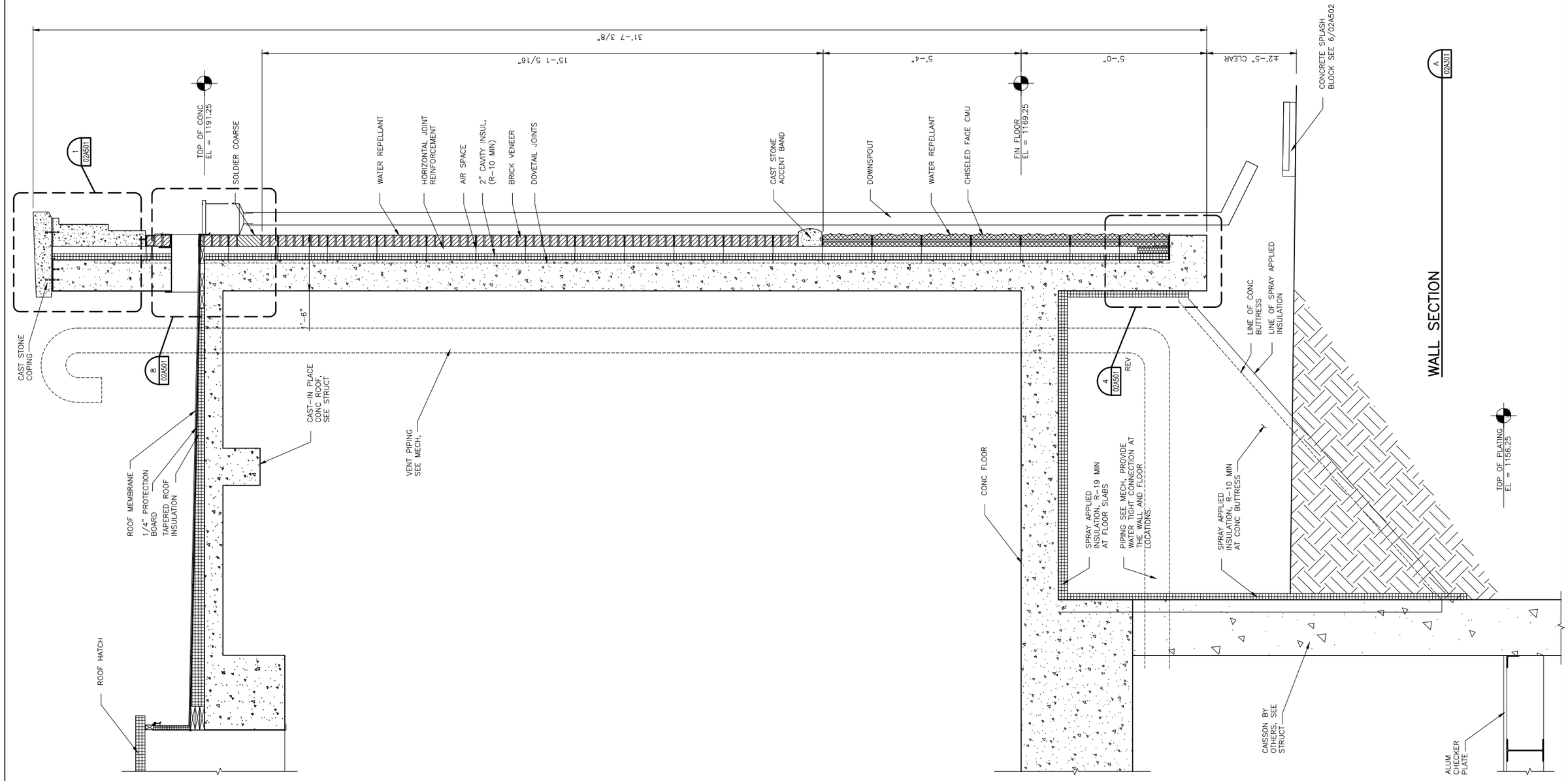
CITY OF YANKTON
YANKTON, SOUTH DAKOTA 2014

WALL SECTION

0 1" 2"

FILENAME	02A302.dwg
SCALE	3/4" = 1'-0"

SHEET
02A302



WALL SECTION

A
02A301

CITY OF YANKTON

SOUTH DAKOTA

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ELECTRICAL	K. THERNES
INSTRUMENTATION	D. PENNER
PROJECT NUMBER	135-223788-003

REGISTERED PROFESSIONAL ARCHITECT
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8073
JOHN S.
RICKERT
SOUTH DAKOTA
10/8/2014

WATER SYSTEM IMPROVEMENTS
HORIZONTAL COLLECTOR WELL

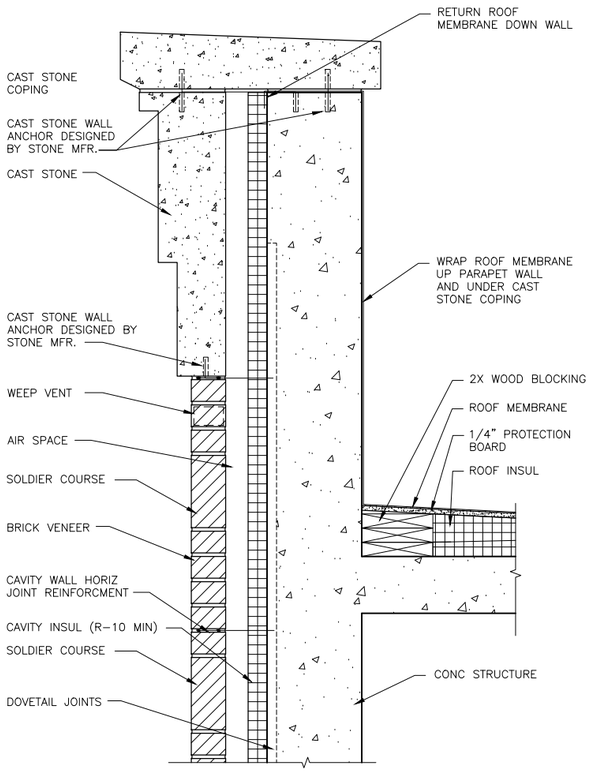
CITY OF YANKTON
YANKTON, SOUTH DAKOTA 2014

WALL SECTION

0 1" 2"

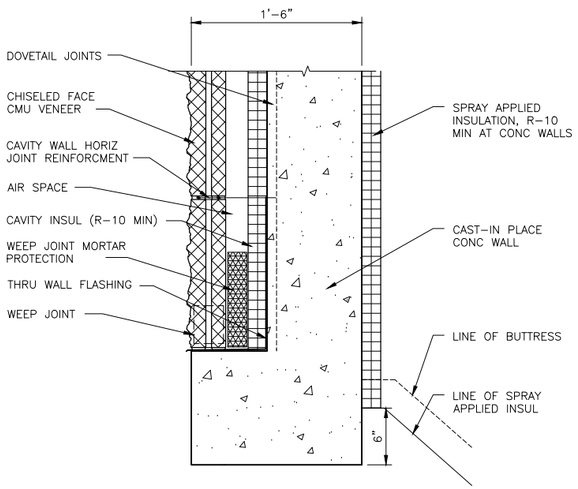
FILENAME	02A303.dwg
SCALE	3/4" = 1'-0"

SHEET
02A303



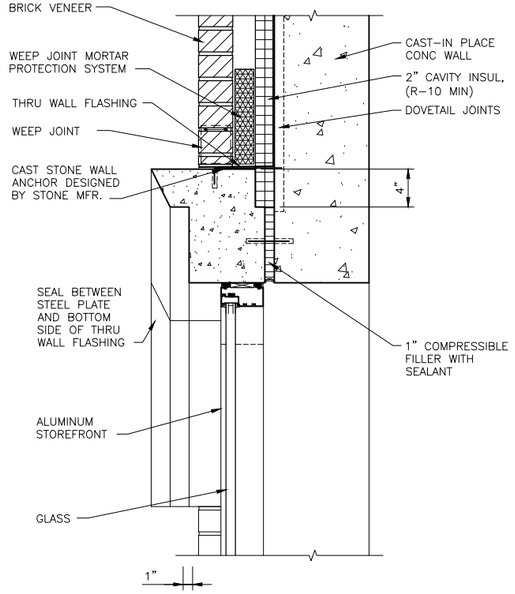
PARAPET DETAIL

1 1/2" = 1'-0" — 1 / 02A501



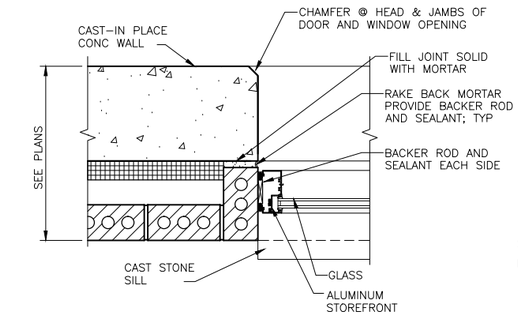
BASE OF WALL DETAIL

1 1/2" = 1'-0" — 4 / 02A501



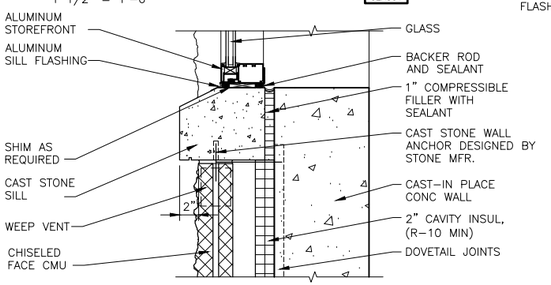
WINDOW HEAD DETAIL

1 1/2" = 1'-0" — 2 / 02A501



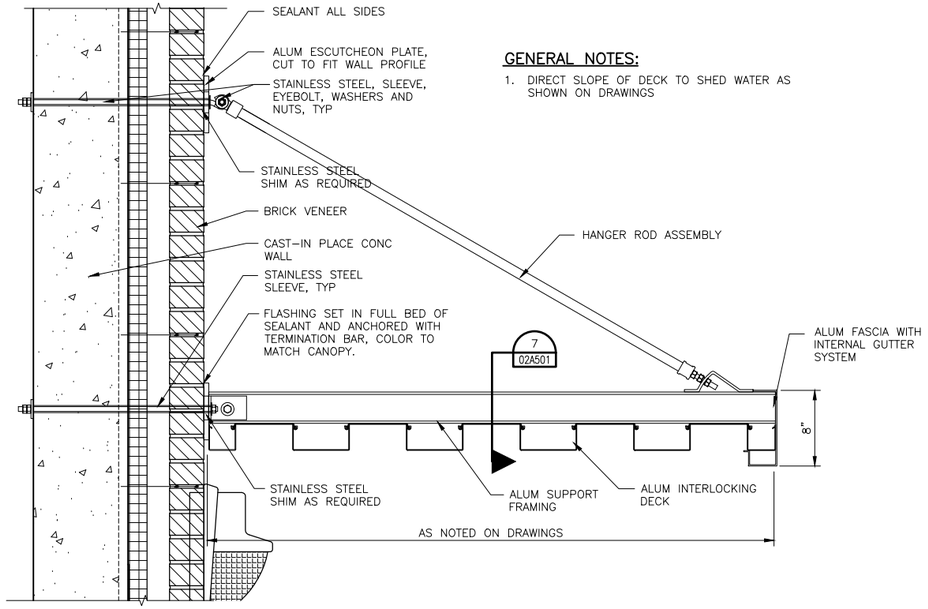
WINDOW JAMB DETAIL

1 1/2" = 1'-0" — 5 / 02A501



WINDOW SILL DETAIL

1 1/2" = 1'-0" — 6 / 02A501

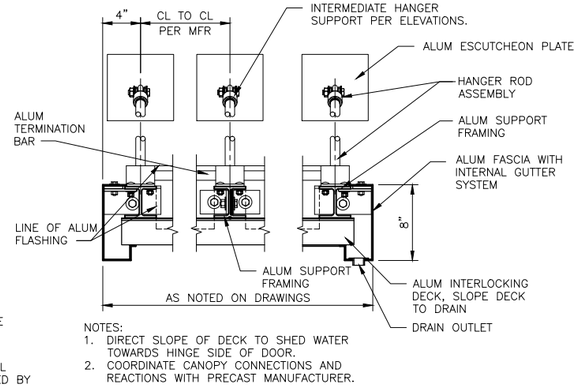


CANOPY SECTION

1 1/2" = 1'-0" — 3 / 02A501

GENERAL NOTES:

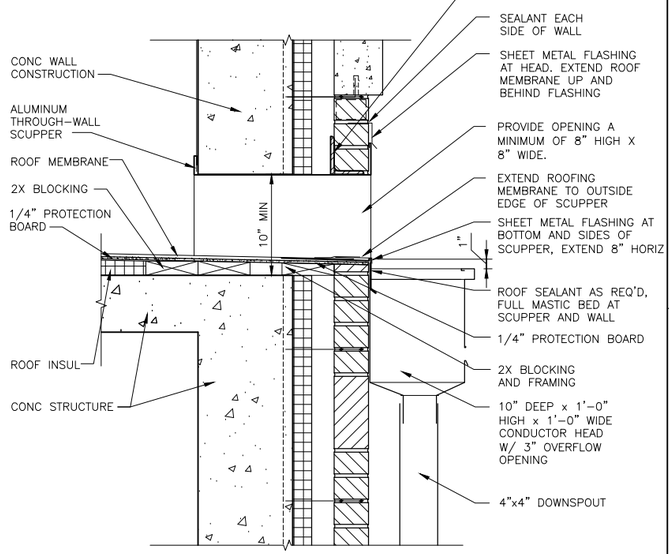
1. DIRECT SLOPE OF DECK TO SHED WATER AS SHOWN ON DRAWINGS



NOTES:
1. DIRECT SLOPE OF DECK TO SHED WATER TOWARDS HINGE SIDE OF DOOR.
2. COORDINATE CANOPY CONNECTIONS AND REACTIONS WITH PRECAST MANUFACTURER.

CANOPY SECTION

7 / 18A501



SCUPPER DETAIL

1 1/2" = 1'-0" — 8 / 18A501

CITY OF YANKTON

SOUTH DAKOTA

HDR Engineering, Inc.

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REGISTERED PROFESSIONAL ARCHITECT — REG. NO. 8073 — JOHN R. RICKERT — SOUTH DAKOTA — 10-8-2014

WATER SYSTEM IMPROVEMENTS HORIZONTAL COLLECTOR WELL

CITY OF YANKTON

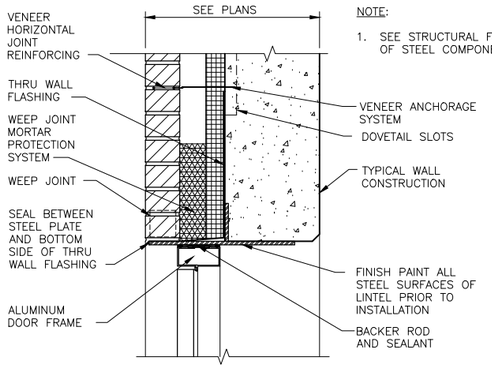
YANKTON, SOUTH DAKOTA 2014

BUILDING DETAILS

0 1" 2"

FILENAME	02A501.dwg
SCALE	1-1/2" = 1'-0"

SHEET 02A501

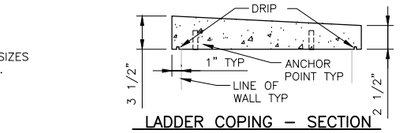


NOTE:

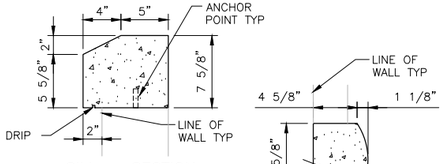
1. SEE STRUCTURAL FOR SIZES OF STEEL COMPONENTS.

ALUMINUM DOOR HEAD DETAIL 1

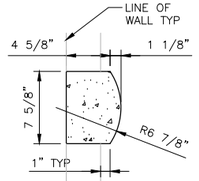
1 1/2"=1'-0"



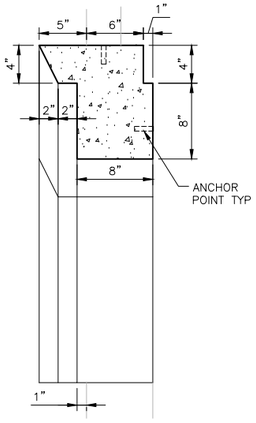
LADDER COPING – SECTION



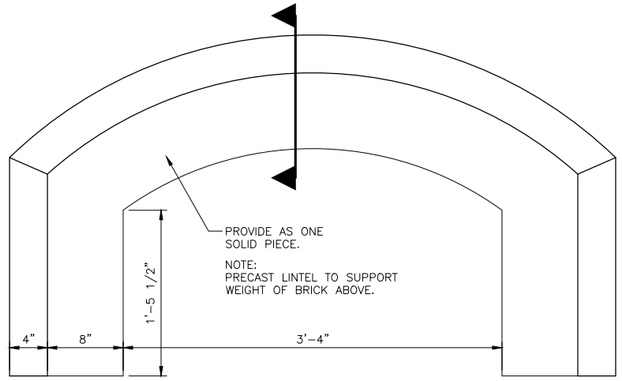
SILL – SECTION



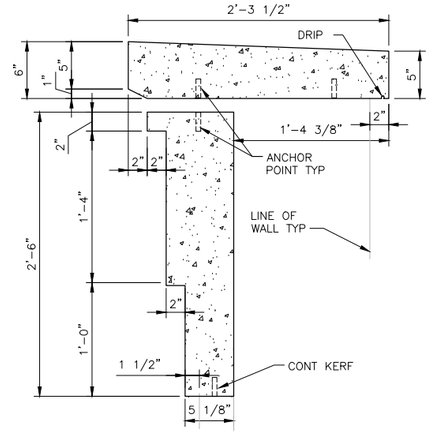
ACCENT BAND – SECTION



WINDOW LINTEL – SECTION



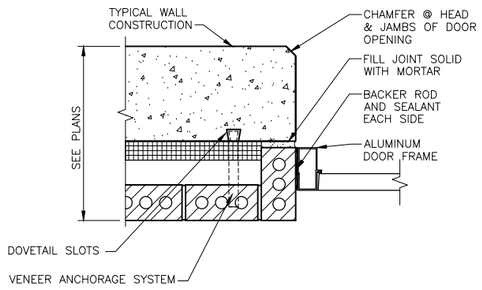
WINDOW LINTEL – ELEVATION



PARAPET – SECTION 2

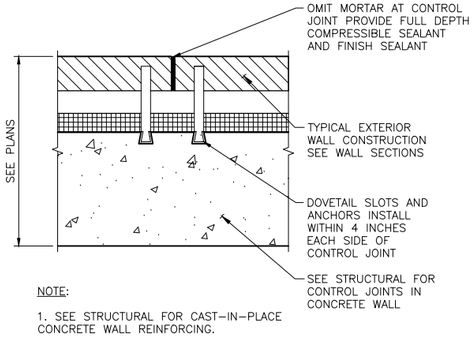
CAST STONE DETAILS

1 1/2"=1'-0"



ALUMINUM DOOR JAMB DETAIL 3

1 1/2"=1'-0"

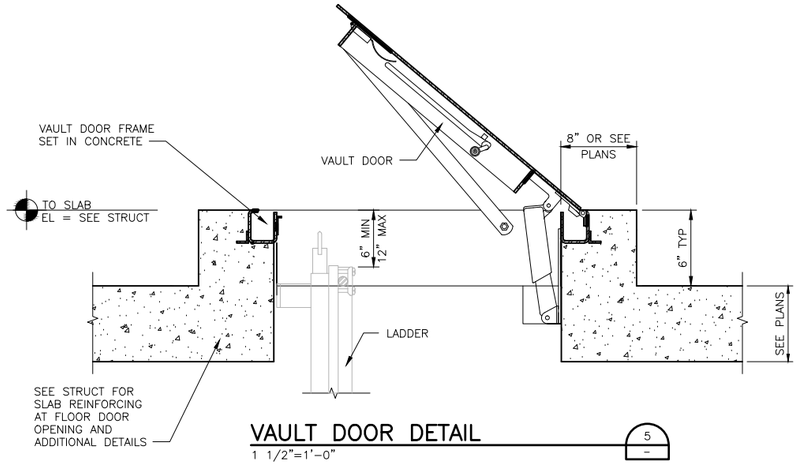


NOTE:

1. SEE STRUCTURAL FOR CAST-IN-PLACE CONCRETE WALL REINFORCING.

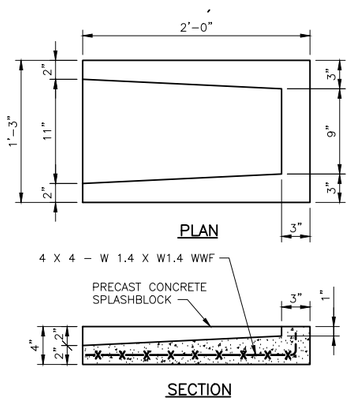
CONTROL JOINT MCJ 4

1 1/2"=1'-0"



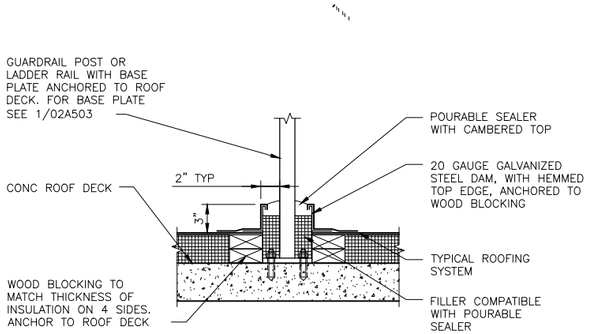
VAULT DOOR DETAIL 5

1 1/2"=1'-0"



SPLASH BLOCK DETAIL 6

1 1/2"=1'-0"



PITCH POCKET 7

1 1/2"=1'-0"

CITY OF YANKTON

SOUTH DAKOTA

HDR Engineering, Inc.

ISSUE	DATE	DESCRIPTION
A	10/08/2014	ISSUED FOR BIDS

PROJECT MANAGER	STEVEN J. QUAIL
CIVIL	K. NEWMAN
STRUCTURAL	K. KIRCHNER
ARCHITECTURAL	J. RICKERT
PROCESS	K. NEWMAN
MECHANICAL	J. LEWIS
ELECTRICAL	K. THERNES
INSTRUMENTATION	D. PENNER
PROJECT NUMBER	135-223788-003

REGISTERED PROFESSIONAL ARCHITECT REG. NO. 8079 JOHN G. RICKERT SOUTH DAKOTA 10.08.2014

WATER SYSTEM IMPROVEMENTS HORIZONTAL COLLECTOR WELL

CITY OF YANKTON

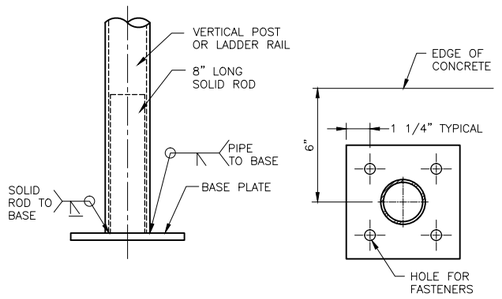
YANKTON, SOUTH DAKOTA 2014

BUILDING DETAILS

0 1" 2"

FILENAME	02A502.dwg
SCALE	AS NOTED

SHEET 02A502



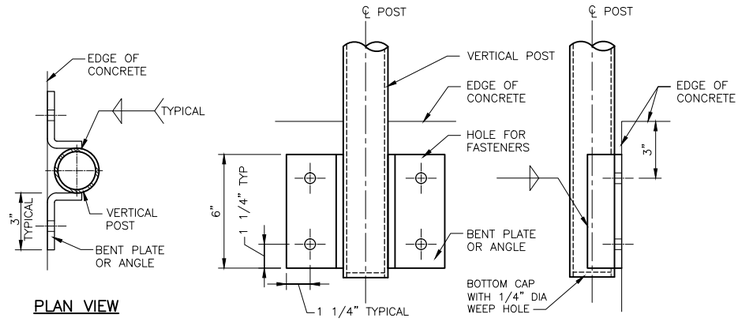
BASE PLATE FOR MOUNTING TO CONCRETE

NOTE:

1. TOEBOARD NOT SHOWN.

METAL POST BASE PLATE DETAIL 1

3"=1'-0"



PLAN VIEW

FRONT VIEW

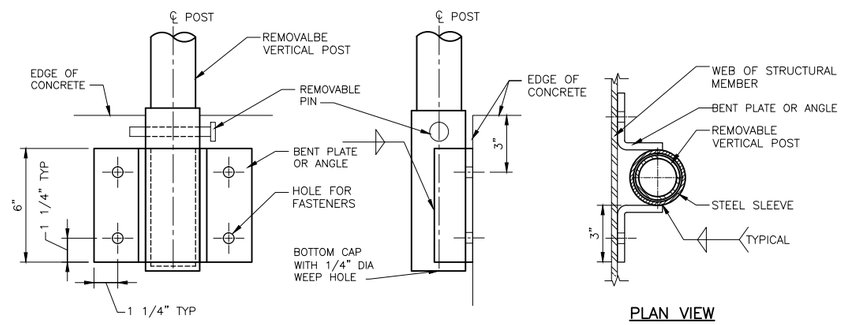
SIDE VIEW

NOTE:

1. TOEBOARD NOT SHOWN.

GUARDRAIL POST 2

3"=1'-0"



FRONT VIEW

SIDE VIEW

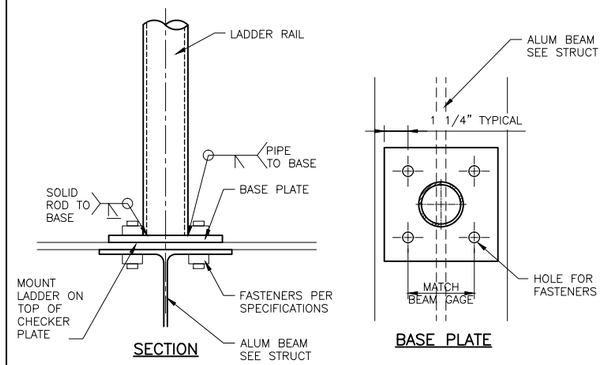
PLAN VIEW

NOTE:

1. TOEBOARD NOT SHOWN.

REMOVABLE GUARDRAIL POST 3

3"=1'-0"

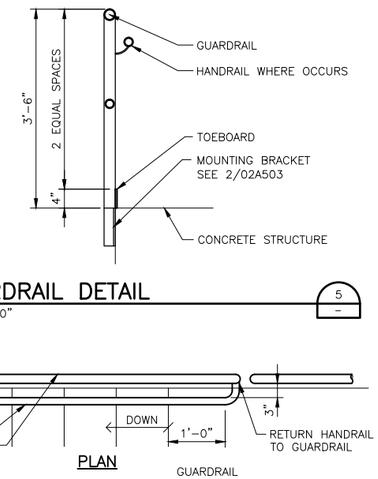


SECTION

BASE PLATE

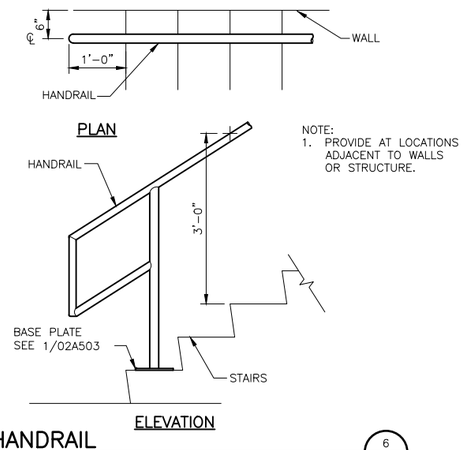
LADDER BASE PLATE DETAIL 4

3"=1'-0"



GUARDRAIL DETAIL 5

3/4"=1'-0"



PLAN

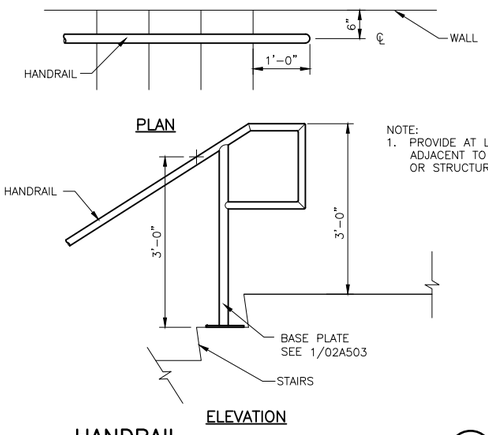
ELEVATION

NOTE:

1. PROVIDE AT LOCATIONS ADJACENT TO WALLS OR STRUCTURE.

HANDRAIL 6

3/4"=1'-0"



PLAN

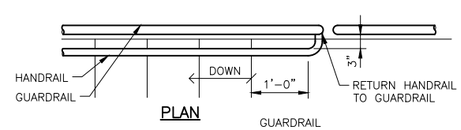
ELEVATION

NOTE:

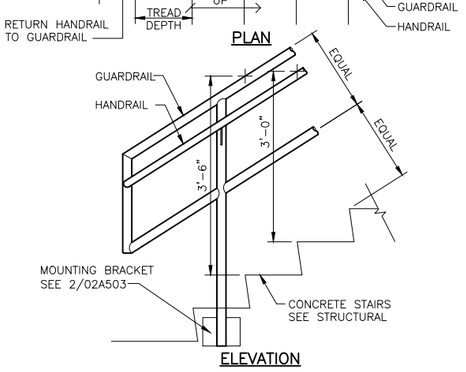
1. PROVIDE AT LOCATIONS ADJACENT TO WALLS OR STRUCTURE.

HANDRAIL 7

3/4"=1'-0"



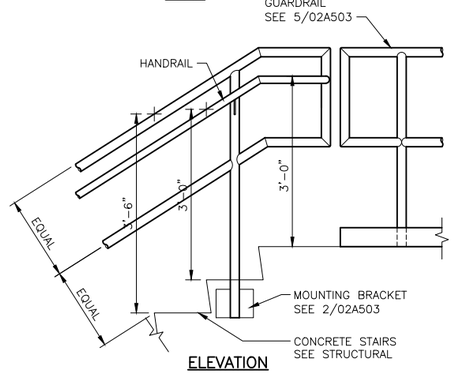
PLAN



ELEVATION

STAIR RAIL DETAIL 8

3/4"=1'-0"



ELEVATION

STAIR RAIL DETAIL 9

3/4"=1'-0"

CITY OF YANKTON

SOUTH DAKOTA

HDR Engineering, Inc.

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CIVIL	K. NEWMAN
STRUCTURAL	K. KIRCHNER
ARCHITECTURAL	J. RICKERT
PROCESS	K. NEWMAN
MECHANICAL	J. LEWIS
ELECTRICAL	K. THERNES
INSTRUMENTATION	D. PENNER
PROJECT NUMBER	135-223788-003

REGISTERED PROFESSIONAL ARCHITECT
REG. NO. 8078
JOHN S. RICKERT
SOUTH DAKOTA
10-8-2014

WATER SYSTEM IMPROVEMENTS HORIZONTAL COLLECTOR WELL

CITY OF YANKTON

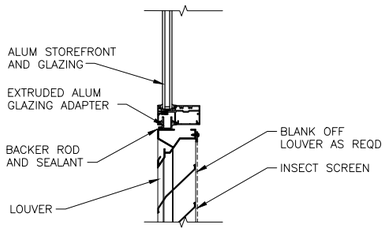
YANKTON, SOUTH DAKOTA 2014

BUILDING DETAILS

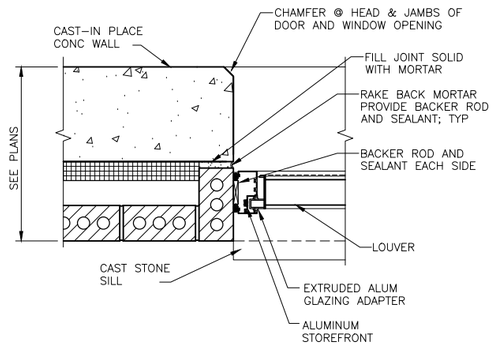
0 1" 2"

FILENAME	02A503.dwg
SCALE	AS NOTED

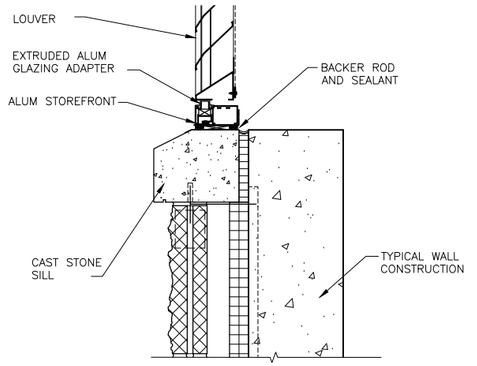
SHEET 02A503



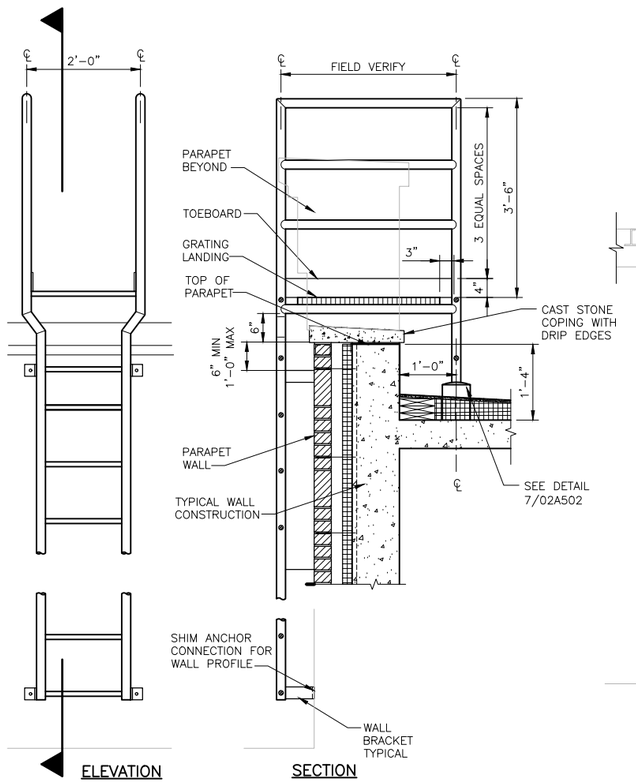
LOUVER HEAD DETAIL
1 1/2"=1'-0" — 1



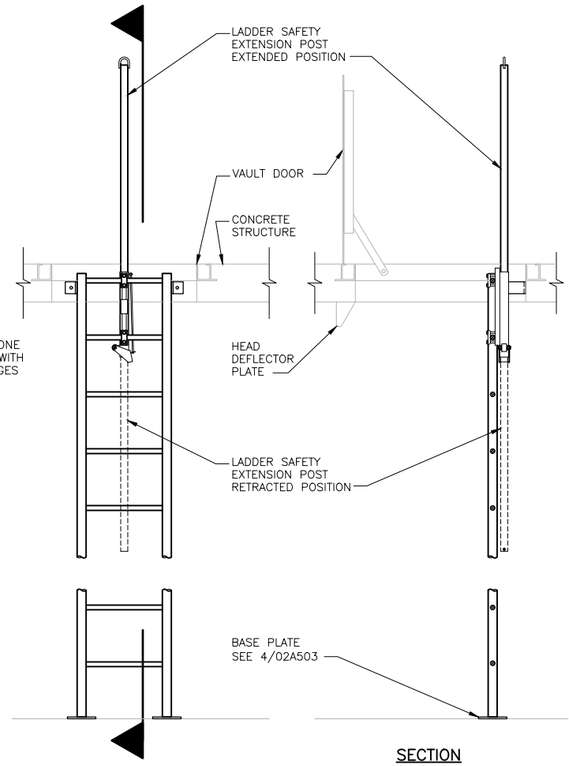
LOUVER JAMB DETAIL
1 1/2"=1'-0" — 2



LOUVER SILL DETAIL
1 1/2"=1'-0" — 3



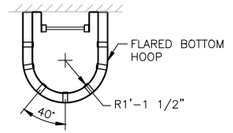
LADDER DETAIL
3/4"=1'-0" — 4



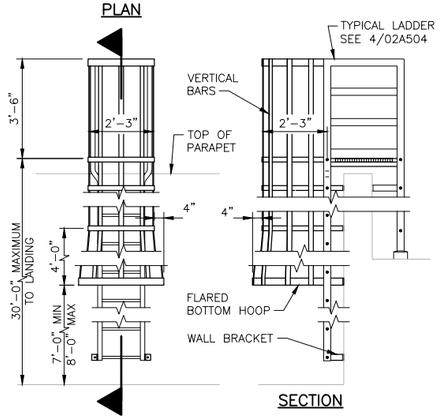
NOTE:

1. PROVIDE HEAD DEFLECTOR PLATE WHEN CLEARANCE ON CLIMBING SIDE OF LADDER IS LESS THAN 2'-6".

LADDER DETAIL
3/4"=1'-0" — 5



PLAN



NOTE:

1. PROVIDE CAGES ON ALL LADDERS EXCEEDING 20'-0" LENGTH OF CLIMB.

LADDER DETAIL
3/8" = 1'-0" — 6

CITY OF YANKTON
SOUTH DAKOTA

HDR Engineering, Inc.

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CIVIL	K. NEWMAN
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ARCHITECTURAL	J. RICKERT
PROCESS	K. NEWMAN
MECHANICAL	J. LEWIS
ELECTRICAL	K. THERNES
INSTRUMENTATION	D. PENNER
PROJECT NUMBER	135-223788-003

REGISTERED PROFESSIONAL ARCHITECT
REG. NO. 8079
JOHN S. RICKERT
SOUTH DAKOTA
10-08-2014

WATER SYSTEM IMPROVEMENTS HORIZONTAL COLLECTOR WELL

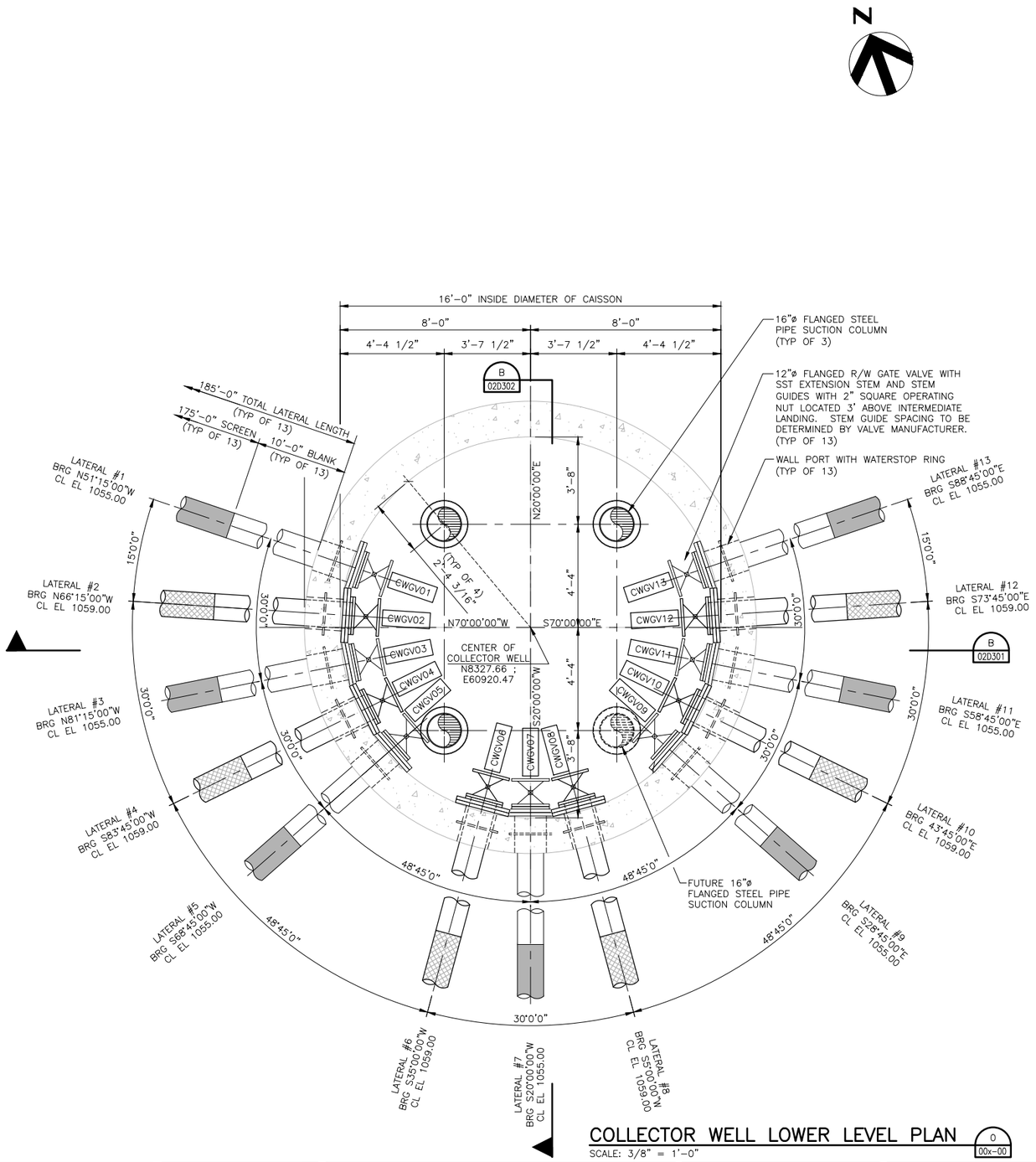
CITY OF YANKTON
YANKTON, SOUTH DAKOTA 2014

BUILDING DETAILS

0 1" 2"

FILENAME	02A504.dwg
SCALE	AS NOTED

SHEET 02A504



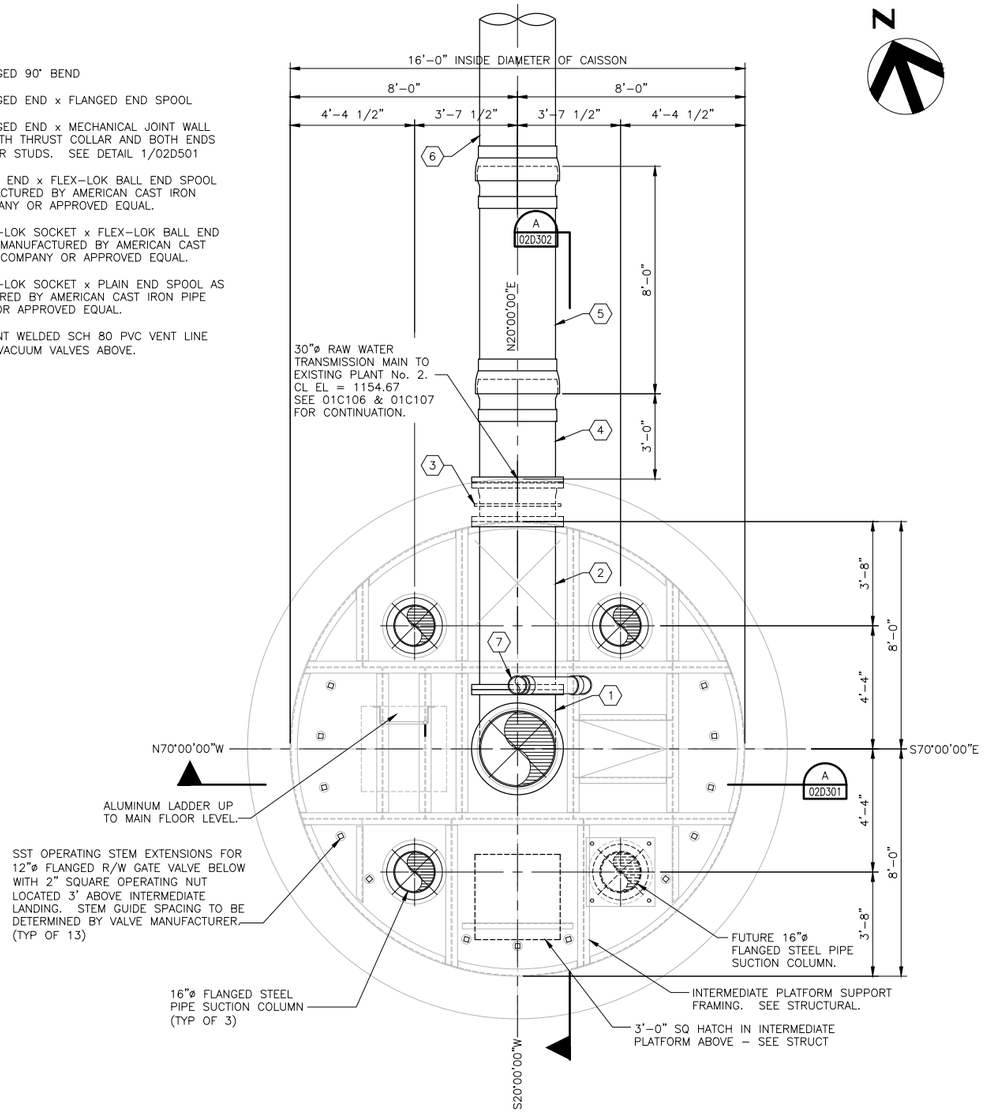
COLLECTOR WELL LOWER LEVEL PLAN

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

0 00x-00

KEY NOTES:

1. 30"ø FLANGED 90° BEND
2. 30"ø FLANGED END x FLANGED END SPOOL
3. 30"ø FLANGED END x MECHANICAL JOINT WALL CASTING WITH THRUST COLLAR AND BOTH ENDS TAPPED FOR STUDS. SEE DETAIL 1/02D501
4. 30"ø PLAIN END x FLEX-LOK BALL END SPOOL AS MANUFACTURED BY AMERICAN CAST IRON PIPE COMPANY OR APPROVED EQUAL.
5. 30"ø FLEX-LOK SOCKET x FLEX-LOK BALL END SPOOL AS MANUFACTURED BY AMERICAN CAST IRON PIPE COMPANY OR APPROVED EQUAL.
6. 30"ø FLEX-LOK SOCKET x PLAIN END SPOOL AS MANUFACTURED BY AMERICAN CAST IRON PIPE COMPANY OR APPROVED EQUAL.
7. 6"ø SOLVENT WELDED SCH 80 PVC VENT LINE FROM AIR/VACUUM VALVES ABOVE.



COLLECTOR WELL INTERMEDIATE LEVEL PLAN

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

0 00x-00

CITY OF YANKTON
SOUTH DAKOTA

HDR Engineering, Inc.

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ARCHITECTURAL	J. RICKERT
PROCESS	K. NEWMAN
MECHANICAL	J. LEWIS
ELECTRICAL	K. THERNES
INSTRUMENTATION	D. PENNER
PROJECT NUMBER	135-223788-003

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 8247
KEVIN E. NEWMAN
SOUTH DAKOTA
10/03/2014

WATER SYSTEM IMPROVEMENTS HORIZONTAL COLLECTOR WELL

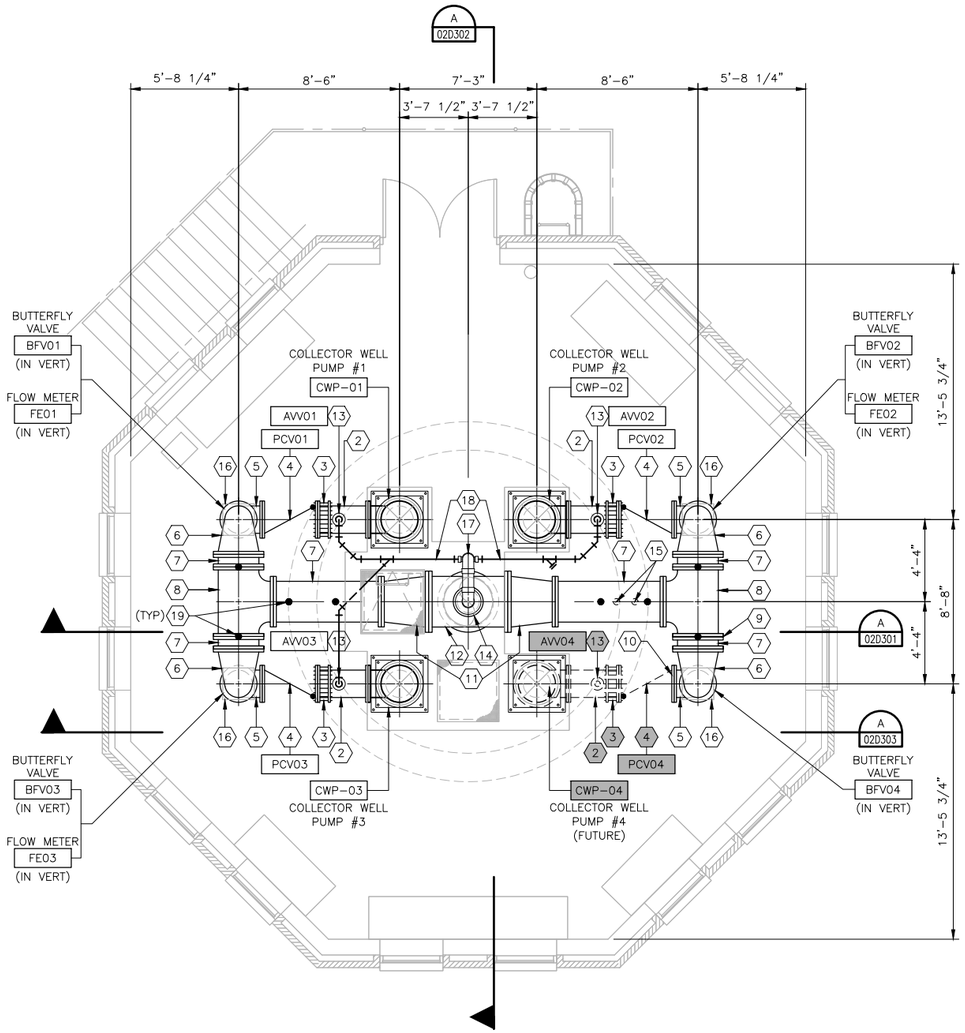
CITY OF YANKTON
YANKTON, SOUTH DAKOTA 2014

LOWER AND INTERMEDIATE LEVEL PLANS

0 1" 2"

FILENAME	02D101.dwg
SCALE	AS NOTED

SHEET 02D101



COLLECTOR WELL MAIN LEVEL PLAN

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

1

N

KEY NOTES:

1. NOT USED
2. 16"ø FLANGED END x PLAIN END SPOOL WITH 3"ø WELDED ONTAPPED BOSS IN TOP OF PIPE FOR AIR/VACUUM VALVE ASSEMBLY INSTALLATION.
3. 16"ø RESTRAINED FLANGED COUPLING ADAPTER.
4. 16"ø PUMP CONTROL VALVE SEE SPECIFICATIONS SECTION 15106.
5. 16"ø SHORT RADIUS BASE 90° BEND.
6. 24" x 16" SHORT RADIUS REDUCING 90° BEND.
7. 24"ø FLANGED END x FLANGED END SPOOL.
8. 24" x 24" x 24" FLANGED TEE.
9. 24"ø STEEL BLIND FLANGE – THICKNESS OF FLANGE TO BE DETERMINED BY CONTRACTOR BASED ON LENGTH OF FLANGED END x FLANGED END SPOOL.
10. 16"ø BLIND FLANGE
11. 30" x 24" FLANGED CONCENTRIC REDUCER.
12. 30" x 30" x 30" FLANGED TEE WITH 6"ø FACTORY WELDED-ON FLANGED OUTLET IN TOP OF TEE FOR AIR/VACUUM VALVE INSTALLATION.
13. 3"ø AIR/VACUUM VALVE. SEE DETAIL 4/02D501
14. 6"ø AIR/VACUUM VALVE. SEE DETAIL 3/02D501
15. (2)-3"ø WELDED-ON THREADED BOSSES ON BOTTOM OF 24"ø DI HEADER FOR MECHANICAL RAW WATER SUPPLY AND RETURN LINES. SEE MECHANICAL SHEETS.
16. REINFORCED CONCRETE BASE 90° BEND SUPPORT. SEE DETAIL 6/02S502.
17. 6"ø SOLVENT WELD SCH 80 PVC VENT LINE FROM 6"ø AIR/VACUUM VALVE.
18. 3"ø SOLVENT WELD SCH 80 PVC VENT LINES FROM 3"ø AIR/VACUUM VALVE. (TYP)
19. PIPE HANGERS (TYP) – SEE DETAIL 5/02S502.

DENOTES FUTURE EQUIPMENT, VALVES AND PIPING TO BE INSTALLED BY OTHERS.

CITY OF YANKTON
SOUTH DAKOTA

HDR Engineering, Inc.

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ARCHITECTURAL	J. RICKERT
PROCESS	K. NEWMAN
MECHANICAL	J. LEWIS
ELECTRICAL	K. THERNES
INSTRUMENTATION	D. PENNER
PROJECT NUMBER	135-223788-003

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 6247
KEVIN F. NEWMAN
SOUTH DAKOTA
10/03/2014

WATER SYSTEM IMPROVEMENTS HORIZONTAL COLLECTOR WELL

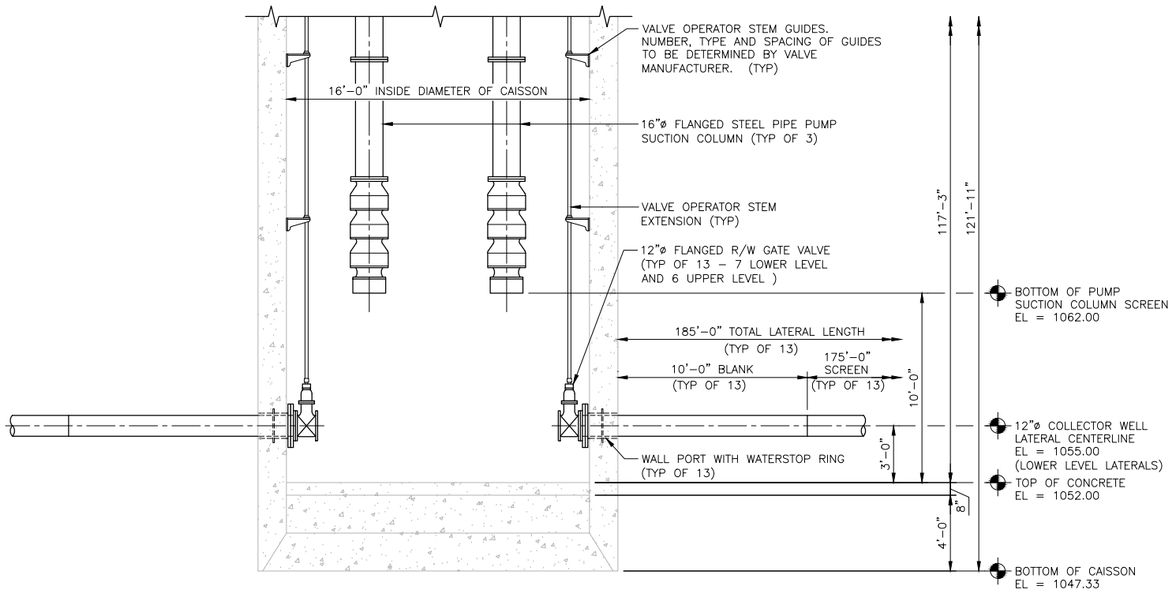
CITY OF YANKTON
YANKTON, SOUTH DAKOTA 2014

MAIN LEVEL PLAN

0 1" 2"

FILENAME	02D102.dwg
SCALE	AS NOTED

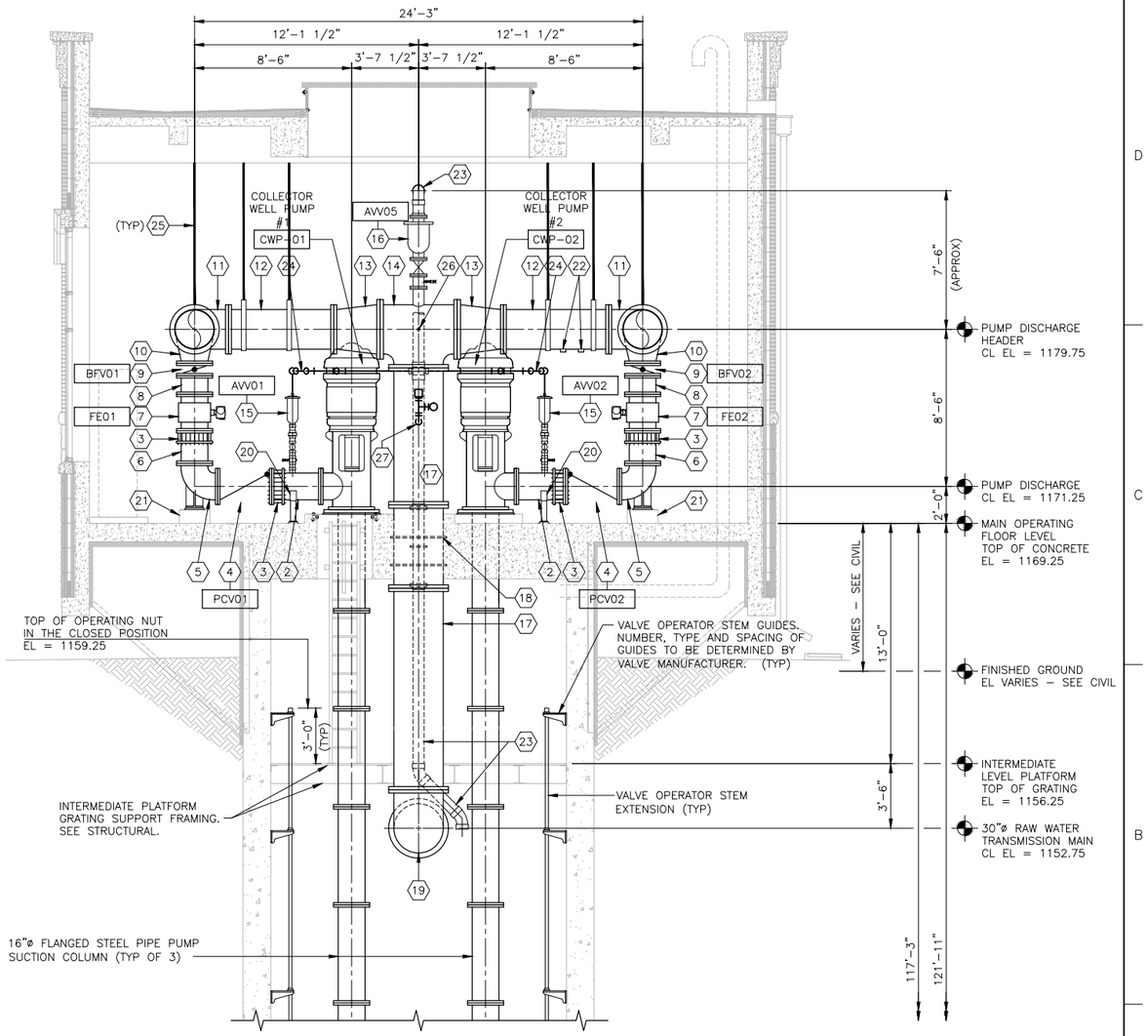
SHEET 02D102



PARTIAL SECTION THROUGH LOWER LEVEL

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

B 02D101



PARTIAL SECTION SHOWING INTERMEDIATE AND MAIN LEVELS

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

A 02D101 | A 02D102

KEY NOTES:

1. NOT USED
2. 16"ø FLANGED END x PLAIN END SPOOL WITH 3"ø TAPPED BOSS IN TOP OF PIPE FOR AIR/VACUUM VALVE ASSEMBLY INSTALLATION.
3. 16"ø RESTRAINED FLANGED COUPLING ADAPTER.
4. 16"ø PUMP CONTROL VALVE SEE SPECIFICATIONS SECTION 15106.
5. 16"ø SHORT RADIUS BASE 90° BEND.
6. 16"ø FLANGED END x PLAIN END SPOOL.
7. 16"ø MAGNETIC FLOW METER - SEE SPECIFICATION SECTION 13442.
8. 16"ø FLANGED END x FLANGED END SPOOL.
9. 16"ø FLANGED BUTTERFLY VALVE WITH CHAIN WHEEL OPERATOR.
10. 24" x 16" SHORT RADIUS REDUCING 90° BEND.
11. 24" x 24" x 24" FLANGED TEE.
12. 24"ø FLANGED END x FLANGED END SPOOL.
13. 30" x 24" FLANGED CONCENTRIC REDUCER.
14. 30" x 30" x 30" FLANGED TEE WITH 6"ø FACTORY WELDED-ON FLANGED OUTLET IN TOP OF TEE FOR AIR/VACUUM VALVE INSTALLATION.
15. 3"ø AIR/VACUUM VALVE ASSEMBLY. SEE DETAIL 4/02D501.
16. 6"ø AIR/VACUUM VALVE ASSEMBLY. SEE DETAIL 3/02D501.
17. 30"ø FLANGED END x FLANGED END SPOOL.
18. 30"ø FLANGED END x FLANGED END SPOOL WITH DOUBLE THRUST COLLAR CAST INTO FLOOR SLAB.
19. 30"ø FLANGED 90° BEND.
20. PIPE SUPPORT - SEE DETAIL 2/02D501. (TYP OF 3)
21. REINFORCED CONCRETE BASE 90° BEND SUPPORT - SEE DETAIL 6/02S502. (TYP OF 4)
22. (2)-3"ø WELDED-ON THREADED BOSSES ON BOTTOM OF 24"ø DI HEADER FOR MECHANICAL RAW WATER SUPPLY AND RETURN LINES. SEE MECHANICAL SHEETS.
23. 6"ø SOLVENT WELD SCH 80 PVC AIR/VACUUM VENT LINE.
24. 3"ø SOLVENT WELD SCH 80 PVC AIR/VACUUM VENT LINE. CONNECT TO 6" VENT LINE IN THE VERTICAL TO CAISSON.
25. PIPE HANGERS - TYP. SEE DETAIL 5/02S502.
26. (2)-3/4"ø WELDED-ON THREADED BOSSES, ONE ON EACH SIDE OF 30"ø TEE, FOR PUMP PRE-LUBE SYSTEM. CONTRACTOR TO PIPE PUMP PRE-LUBE SYSTEM PER PROCESS SCHEMATIC ON SHEET 00G011.
27. DRILL AND TAP 30"ø PIPE FOR PRESSURE GAUGE AND TRANSMITTER 5' AFF.

CITY OF YANKTON
SOUTH DAKOTA

HDR Engineering, Inc.

ISSUE	DATE	DESCRIPTION
A	10/08/2014	ISSUED FOR BIDS

PROJECT MANAGER	STEVEN J. QUAIL
CIVIL	K. NEWMAN
STRUCTURAL	K. KIRCHNER
ARCHITECTURAL	J. RICKERT
PROCESS	K. NEWMAN
MECHANICAL	J. LEWIS
ELECTRICAL	K. THERNES
INSTRUMENTATION	D. PENNER
PROJECT NUMBER	135-223788-003

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 6947
KEVIN R. NEWMAN
SOUTH DAKOTA
10/03/2014

WATER SYSTEM IMPROVEMENTS HORIZONTAL COLLECTOR WELL

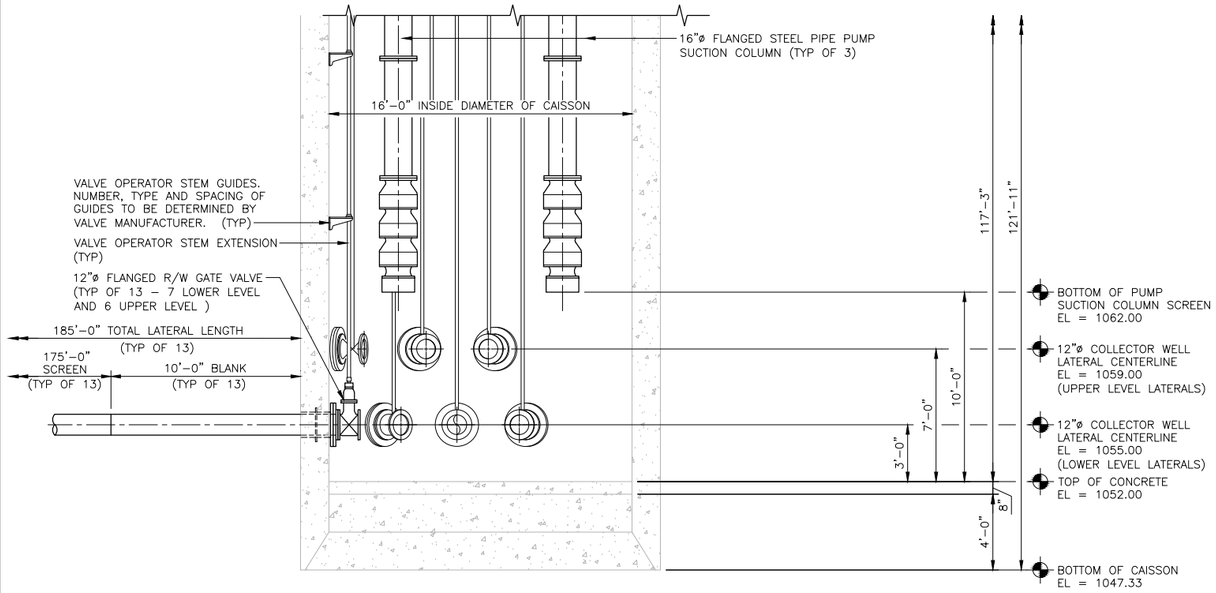
CITY OF YANKTON
YANKTON, SOUTH DAKOTA 2014

PROCESS SECTIONS

0 1" 2"

FILENAME	02D301.dwg
SCALE	AS NOTED

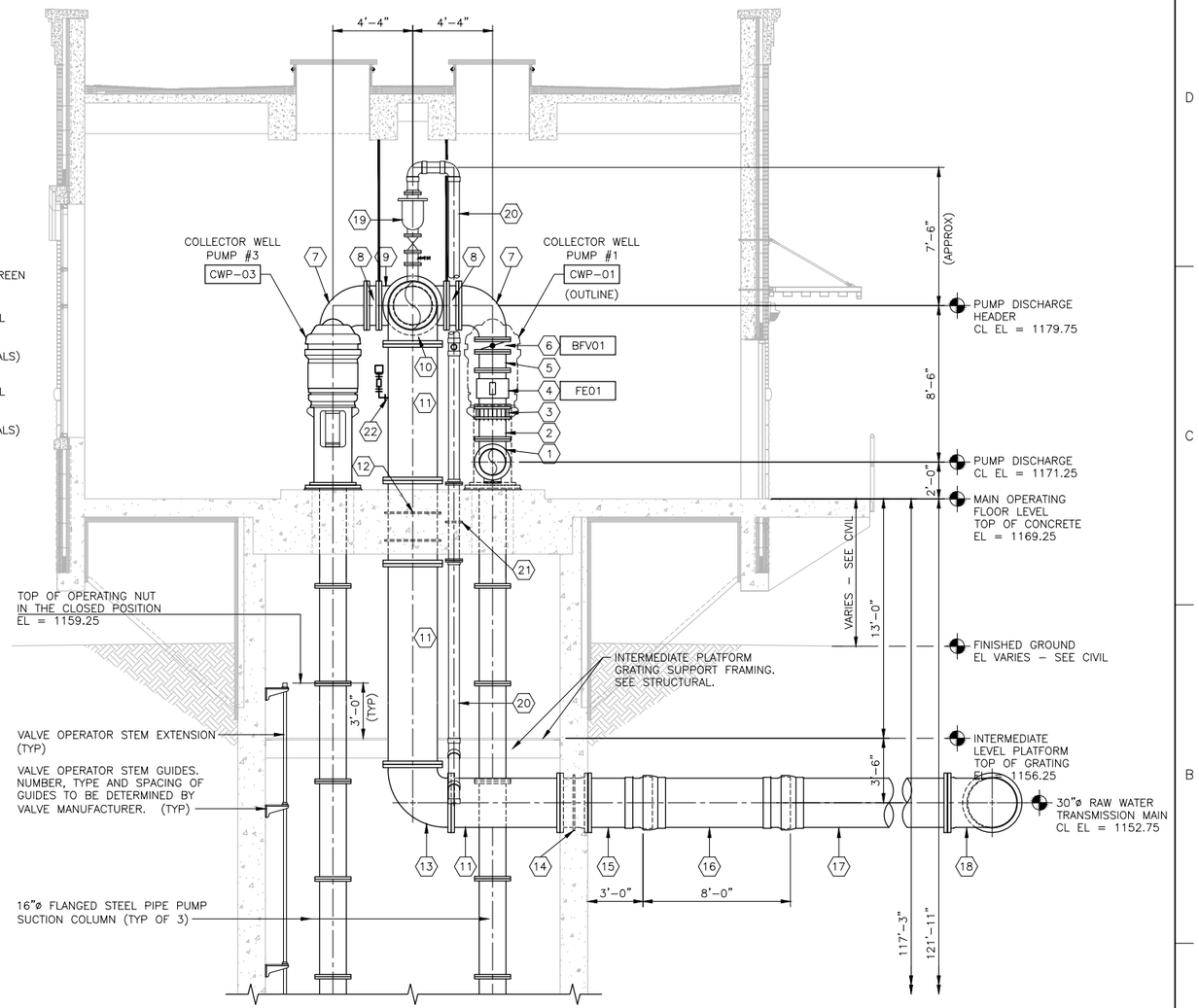
SHEET 02D301



PARTIAL SECTION SHOWING LOWER LEVEL

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

B 02D101



PARTIAL SECTION SHOWING INTERMEDIATE AND MAIN LEVELS

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

A 02D101 A 02D102

KEY NOTES:

1. 16"ø SHORT RADIUS BASE 90° BEND.
2. 16"ø FLANGED END x PLAIN END SPOOL.
3. 16"ø RESTRAINED FLANGED COUPLING ADAPTER.
4. 16"ø MAGNETIC FLOW METER – SEE SPECIFICATION SECTION 13442.
5. 16"ø FLANGED END x FLANGED END SPOOL.
6. 16"ø FLANGED BUTTERFLY VALVE WITH CHAIN WHEEL OPERATOR.
7. 24" x 16" SHORT RADIUS REDUCING 90° BEND.
8. 24"ø FLANGED END x FLANGED END SPOOL.
9. 24" x 24" x 24" FLANGED TEE.
10. 30" x 30" x 30" FLANGED TEE WITH 6"ø FACTORY WELDED–ON FLANGED OUTLET IN TOP OF TEE FOR AIR/VACUUM VALVE INSTALLATION.
11. 30"ø FLANGED END x FLANGED END SPOOL.
12. 30"ø FLANGED END x FLANGED END SPOOL WITH DOUBLE THRUST COLLAR CAST INTO FLOOR SLAB.
13. 30"ø FLANGED 90° BEND.
14. 30"ø FLANGED END x MECHANICAL JOINT WALL CASTING WITH THRUST COLLAR AND BOTH ENDS TAPPED FOR STUDS. SEE DETAIL 1/02D501.
15. 30"ø PLAIN END x FLEX–LOK BALL END SPOOL AS MANUFACTURED BY AMERICAN CAST IRON PIPE COMPANY OR APPROVED EQUAL.
16. 30"ø FLEX–LOK SOCKET x FLEX–LOK BALL END SPOOL AS MANUFACTURED BY AMERICAN CAST IRON PIPE COMPANY OR APPROVED EQUAL.
17. 30"ø FLEX–LOK SOCKET x PLAIN END SPOOL AS MANUFACTURED BY AMERICAN CAST IRON PIPE COMPANY OR APPROVED EQUAL.
18. 30"ø MECHANICAL JOINT 90° BEND WITH RESTRAINED JOINTS. SEE SHEET 01C106 FOR LOCATION.
19. 6"ø AIR/VACUUM VALVE ASSEMBLY. SEE DETAIL 3/02D501.
20. 6"ø SOLVENT WELD SCH 80 PVC AIR/VACUUM VALVE VENT LINE.
21. 6"ø FLANGED END x FLANGED END SPOOL WITH SEEP RING CAST INTO FLOOR SLAB.
22. DRILL AND TAP 30"ø PIPE FOR PRESSURE GAUGE AND TRANSMITTER 5' AFF.

CITY OF YANKTON
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INSTRUMENTATION	D. PENNER
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10/03/2014

WATER SYSTEM IMPROVEMENTS HORIZONTAL COLLECTOR WELL

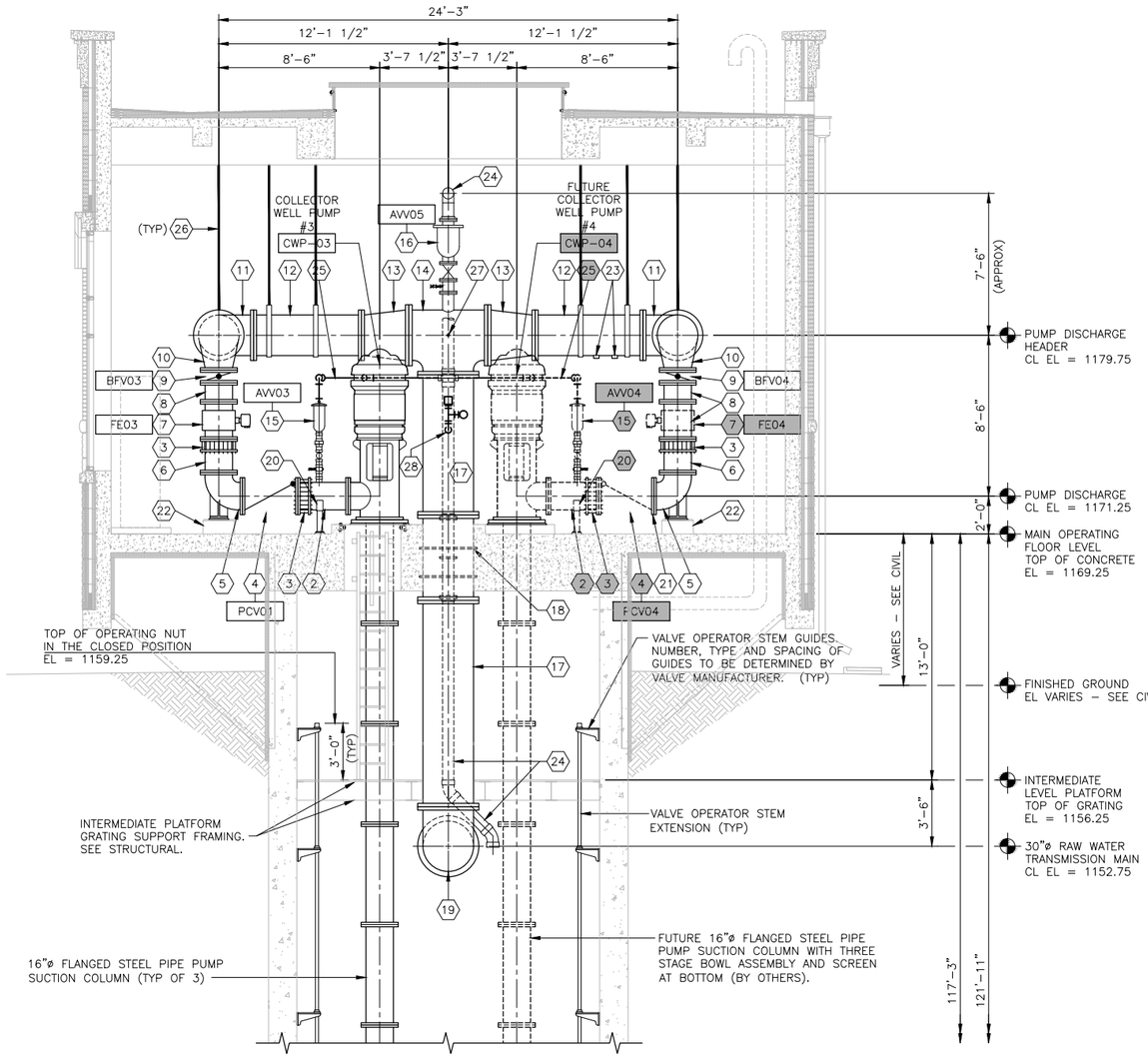
CITY OF YANKTON
YANKTON, SOUTH DAKOTA 2014

PROCESS SECTIONS

0 1" 2"

FILENAME	02D302.dwg
SCALE	AS NOTED

SHEET 02D302



PARTIAL SECTION SHOWING INTERMEDIATE AND MAIN LEVELS

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

A 02D101 | A 02D102

KEY NOTES:

1. NOT USED
2. 16"ø FLANGED END x PLAIN END SPOOL WITH 3"ø TAPPED BOSS IN TOP OF PIPE FOR AIR/VACUUM VALVE ASSEMBLY INSTALLATION.
3. 16"ø RESTRAINED FLANGED COUPLING ADAPTER.
4. 16"ø PUMP CONTROL VALVE SEE SPECIFICATIONS SECTION 15106.
5. 16"ø SHORT RADIUS BASE 90° BEND.
6. 16"ø FLANGED END x PLAIN END SPOOL.
7. 16"ø MAGNETIC FLOW METER – SEE SPECIFICATION SECTION 13442.
8. 16"ø FLANGED END x FLANGED END SPOOL.
9. 16"ø FLANGED BUTTERFLY VALVE WITH CHAIN WHEEL OPERATOR.
10. 24" x 16" SHORT RADIUS REDUCING 90° BEND.
11. 24" x 24" x 24" FLANGED TEE.
12. 24"ø FLANGED END x FLANGED END SPOOL.
13. 30" x 24" FLANGED CONCENTRIC REDUCER.
14. 30" x 30" x 30" FLANGED TEE WITH 6"ø FACTORY WELDED-ON FLANGED OUTLET IN TOP OF TEE FOR AIR/VACUUM VALVE INSTALLATION.
15. 3"ø AIR/VACUUM VALVE ASSEMBLY. SEE DETAIL 4/02D501.
16. 6"ø AIR/VACUUM VALVE ASSEMBLY. SEE DETAIL 3/02D501.
17. 30"ø FLANGED END x FLANGED END SPOOL.
18. 30"ø FLANGED END x FLANGED END SPOOL WITH DOUBLE THRUST COLLAR CAST INTO FLOOR SLAB.
19. 30"ø FLANGED 90° BEND.
20. PIPE SUPPORT – SEE DETAIL 2/02D501. (TYP OF 3)
21. 16"ø BLIND FLANGE
22. REINFORCED CONCRETE BASE 90° BEND SUPPORT – SEE DETAIL 6/02S502. (TYP OF 4)
23. (2)–3"ø WELDED ON THREADED BOSSES ON BOTTOM OF 24"ø DI HEADER FOR MECHANICAL RAW WATER SUPPLY AND RETURN LINES. SEE MECHANICAL SHEETS.
24. 6"ø SOLVENT WELD SCH 80 PVC AIR/VACUUM VENT LINE.
25. 3"ø SOLVENT WELD SCH 80 PVC AIR/VACUUM VENT LINE. CONNECT TO 6" VENT LINE IN THE VERTICAL TO CAISSON.
26. PIPE HANGERS – TYP. SEE DETAIL 5/02S502.
27. (2)–3/4"ø WELDED-ON THREADED BOSSES, ONE ON EACH SIDE OF 30"ø TEE, FOR PUMP PRE-LUBE SYSTEM. CONTRACTOR TO PIPE PUMP PRE-LUBE SYSTEM PER PROCESS SCHEMATIC ON SHEET 00G011.
28. DRILL AND TAP 30"ø PIPE FOR PRESSURE GAUGE AND TRANSMITTER 5' AFF.

DENOTES FUTURE EQUIPMENT, VALVES AND PIPING TO BE INSTALLED BY OTHERS.

CITY OF YANKTON
SOUTH DAKOTA

HDR Engineering, Inc.

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INSTRUMENTATION	D. PENNER
PROJECT NUMBER	135-223788-003

REGISTERED PROFESSIONAL ENGINEER
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KEVIN E. NEWMAN
SOUTH DAKOTA
10/08/2014

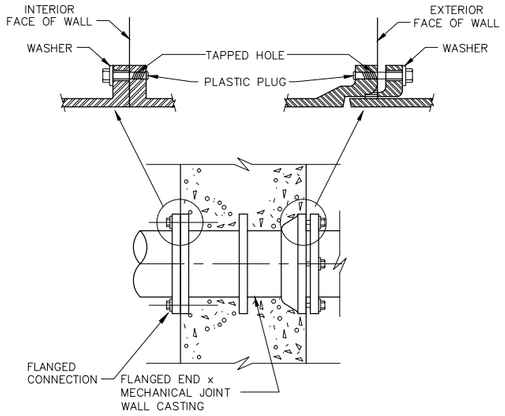
WATER SYSTEM IMPROVEMENTS
HORIZONTAL COLLECTOR WELL
CITY OF YANKTON
YANKTON, SOUTH DAKOTA 2014

PROCESS SECTION

0 1" 2"

FILENAME	02D303.dwg
SCALE	AS NOTED

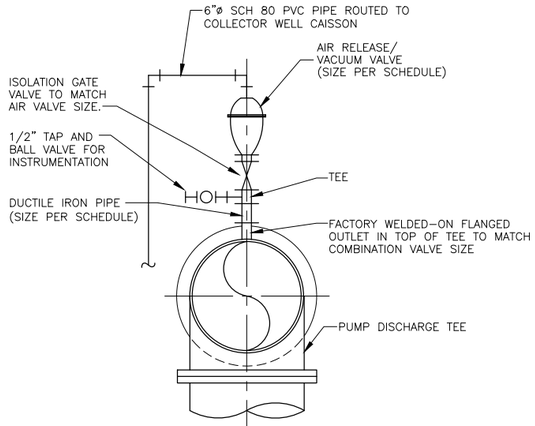
SHEET 02D303



FLANGED END x MECHANICAL JOINT WALL PIPE DETAIL

1

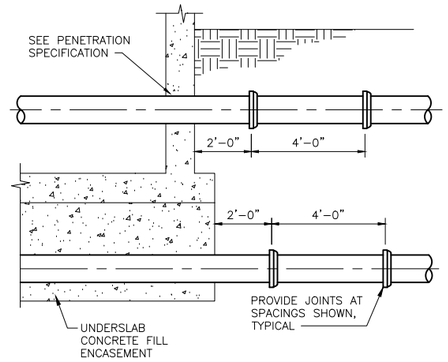
NOT TO SCALE



AIR RELEASE/VACUUM VALVE DETAIL

3

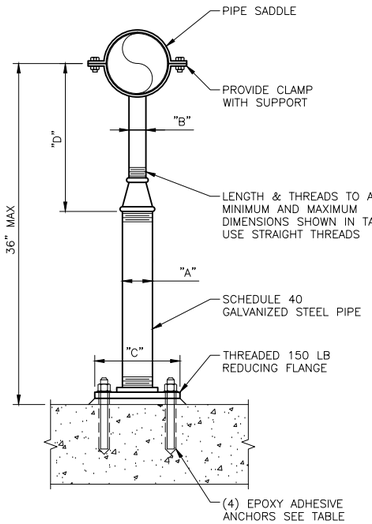
NOT TO SCALE



LOCATION OF FLEXIBLE JOINTS FOR PIPE

5

NOT TO SCALE



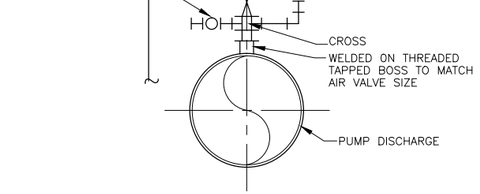
FLOOR PIPE SUPPORT SCHEDULE
DIMENSIONS IN INCHES

PIPE SIZE	"A"	"B"	"C"	"D" MINIMUM	"D" MAXIMUM	ANCHORS DIA	ANCHORS EMBED
≤ 2 1/2	2 1/2	1 1/2	9	8	13	5/8	5
3	2 1/2	1 1/2	9	8 1/2	13 1/2	5/8	5
3 1/2	2 1/2	1 1/2	9	8 1/2	13 1/2	5/8	5
4	3	2 1/2	9	9 1/2	14	5/8	5
6	3	2 1/2	9	10 1/2	15 1/2	5/8	5
8	3	2 1/2	9	11 1/2	16 1/2	5/8	5
10	3	2 1/2	9	13 1/2	18 1/2	5/8	5
12	3	2 1/2	9	15	19 1/2	5/8	5
14	4	3	11	16 1/2	20 1/2	3/4	6 5/8
16	4	3	11	17 1/2	22 1/2	3/4	6 5/8
18	6	3 1/2	13 1/2	19 1/2	24	3/4	6 5/8
20	6	3 1/2	13 1/2	21	25 1/2	3/4	6 5/8
24	6	4	13 1/2	23 1/2	28 1/2	3/4	6 5/8

ADJUSTABLE PIPE SUPPORT

2

NTS



AIR RELEASE/VACUUM VALVE DETAIL

4

NOT TO SCALE

AIR RELEASE/VACUUM VALVE SCHEDULE

LOCATION	SIZE	INLET SIZE	OUTLET SIZE	FLOW RANGE	OPERATING PRESSURE
16ø COLLECTOR WELL PUMP DISCHARGE (3 EACH)	3"ø	3"ø NPT	3"ø	2000 TO 5600 GPM	60 TO 80 psi
30"ø COLLECTOR WELL PUMP DISCHARGE HEADER (1 EACH)	6"ø	6"ø FLANGED	6"ø	2000 TO 16700 GPM	60 TO 80 PSI

* MANUFACTURER TO CONFIRM SIZE

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MECHANICAL	J. LEWIS
ELECTRICAL	K. THERNES
INSTRUMENTATION	D. PENNER
PROJECT NUMBER	135-223788-003

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 6247
KEVIN R. NEWMAN
SOUTH DAKOTA
10/08/2014

WATER SYSTEM IMPROVEMENTS HORIZONTAL COLLECTOR WELL

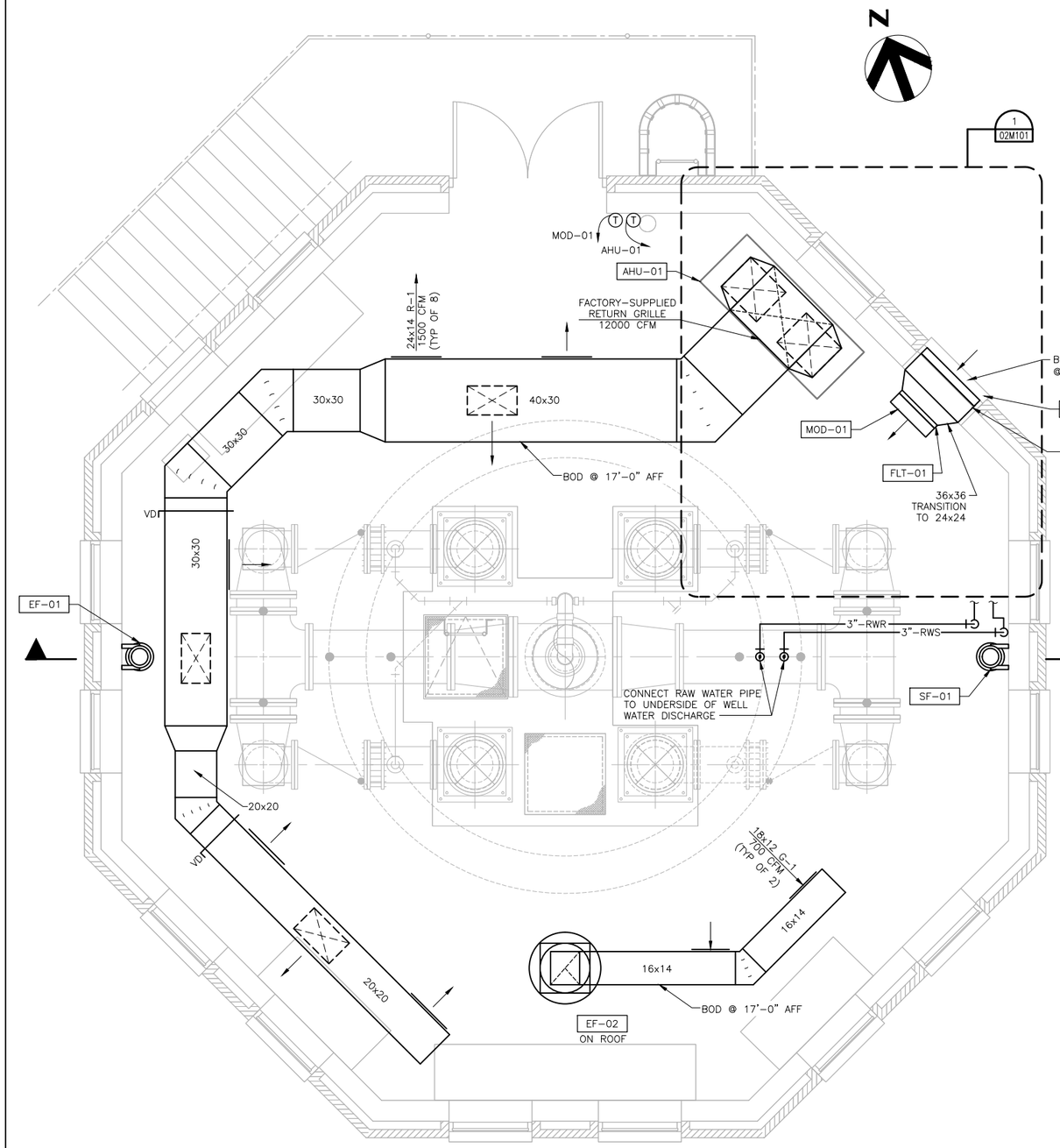
CITY OF YANKTON
YANKTON, SOUTH DAKOTA 2014

PROCESS DETAILS

0 1" 2"

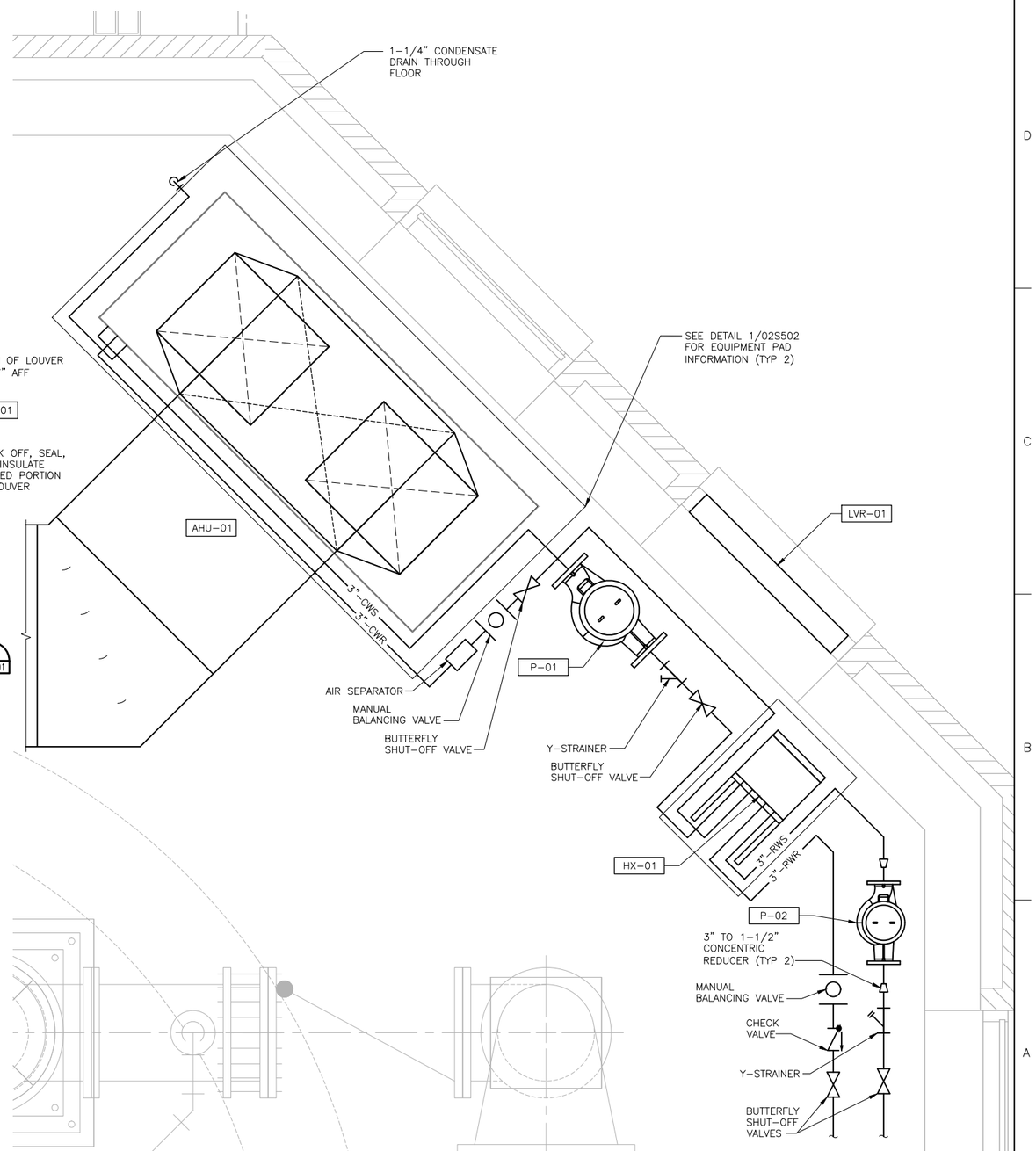
FILENAME	02D501.dwg
SCALE	AS NOTED

SHEET 02D501



COLLECTOR WELL MAIN LEVEL PLAN

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



COLLECTOR WELL ENLARGED PIPING PLAN

SCALE: 1" = 1'-0"

1
–

CITY OF YANKTON

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10/8/14

WATER SYSTEM IMPROVEMENTS HORIZONTAL COLLECTOR WELL

CITY OF YANKTON

YANKTON, SOUTH DAKOTA 2014

MECHANICAL PLAN

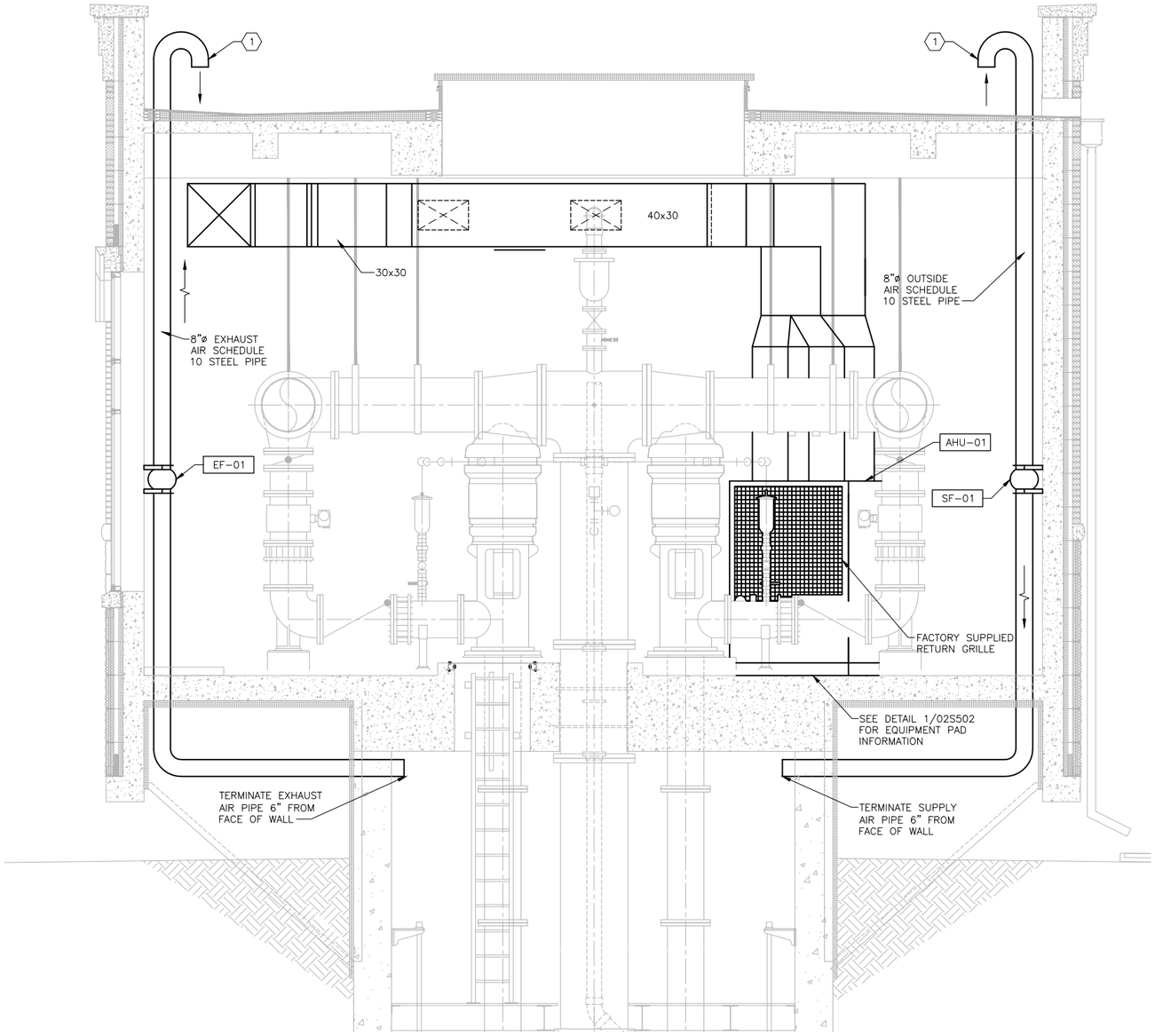
0 1" 2"

FILENAME	02M101.dwg
SCALE	AS NOTED

SHEET 02M101

KEY NOTES:

(1) SEE DETAIL 3/02M601 FOR GOOSE NECK VENT INFORMATION.



COLLECTOR WELL SECTION VIEW

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

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PROJECT NUMBER	135-223788-003

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10/8/14

WATER SYSTEM IMPROVEMENTS HORIZONTAL COLLECTOR WELL

CITY OF YANKTON
YANKTON, SOUTH DAKOTA 2014

MECHANICAL SECTION VIEW

0 1" 2"

FILENAME	02M301.dwg
SCALE	AS NOTED

SHEET 02M301

WATER SOURCE HEAT PUMP UNIT SCHEDULE

MARK	LOCATION	CFM	EXT. S.P. (IN. WG)	COOLING DATA				HEATING DATA		WATERSIDE DATA		ELECTRICAL DATA					BASIS OF DESIGN	NOTES
				E.A.T. (°F)		MIN CAP.		E.A.T. (°F)	MIN. (MBH)	FLOW (GPM)	MAX P.D. (FT. WG)	VOLT	PH	HZ	MIN CIRC. (AMPS)	FULL LOAD (AMPS)		
				DB	WB	TOTAL (MBH)	SENS. (MBH)											
AHU-01	MAIN LEVEL	12,000	1	80	67	450	315.62	60	290	90	24.5	480	3	60	71.6	65.0	CARRIER 50BVQ34	

NOTES:

AIR FILTER PERFORMANCE DATA

MARK	LOCATION	SERVES	CFM	P.D. (IN. WG)		HEIGHT	WIDTH	BASIS OF DESIGN	NOTES
				INITIAL	FINAL				
FLT-01	COLLECTOR WELL	LVR-01	1,400	0.1	0.2	24	24	CAMFIL FARR 30/30	1

NOTES:
1. PROVIDE TYPE 8 SIDE ACCESS IN FILTER HOUSING FOR 1 24"x24" FILTER SECTION.

HEAT EXCHANGER SCHEDULE

MARK	LOCATION	TYPE	CAPACITY (MBH)	HEAT XFER SURFACE AREA (SF)	FLUID #1 DATA (RAW WATER)					FLUID #2 DATA (CONDENSER WATER)					BASIS OF DESIGN	NOTES
					PROP. GLYCOL	EWT (DEG F)	LWT (DEG F)	GPM	MAX PD (FT H2O)	PROP. GLYCOL	EWT (DEG F)	LWT (DEG F)	GPM	MAX PD (FT H2O)		
HX-01	MAIN LEVEL	DOUBLE WALL PLATE AND FRAME	450.8	54.9	0%	50	63.8	65	24.5	20%	70	60	90	24.5	BELL & GOSSETT P14	

NOTES:

FAN SCHEDULE

MARK	LOCATION	FAN DATA						ELECTRICAL DATA				BASIS OF DESIGN	NOTES
		TYPE	CFM	EXT. S.P. (IN. WG)	DIA. (IN.)	DRIVE	RPM	HP	VOLT	PH	HZ		
EF-01	COLLECTOR WELL	EXHAUST	225	0.25	13.4	DIRECT	1496	0.037	120	1	60	LOREN COOK 8 CVD	
EF-02	COLLECTOR WELL ROOF	EXHAUST	1400	0.5	35	DIRECT	953	1/3	120	1	60	LOREN COOK ACRUD 150	
SF-01	COLLECTOR WELL	SUPPLY	225	0.25	13.4	DIRECT	1496	0.037	120	1	60	LOREN COOK 8 CVD	

NOTES:

LOUVER SCHEDULE

MARK	SERVICE TYPE	NOM. AIRFLOW (CFM)	MAX VEL. @ FREE AREA (FPM)	MAX P.D. (IN. WG)	LOUVER MATERIAL	SCREEN TYPE	SIZE H x W x D (IN.)	BASIS OF DESIGN	NOTES
LVR-01	INTAKE	1400	310	0.02	ALUMINUM	BIRD	82x36x6	RUSKIN ELF375DXH	

NOTES:

DIFFUSER, REGISTER AND GRILLE SCHEDULE

MARK	TYPE	FACE SIZE (IN.)	NECK SIZE (IN.)	FINISH	MAX. P.D. (IN. WG)	MAX. N.C. AT P.D. SHOWN	BASIS OF DESIGN	NOTES
R-1	SUPPLY	26x16	24x14	ANODIZED	0.1	25	TITUS 300 FL	
G-1	EXHAUST	20x14	18x12	ANODIZED	0.1	25	TITUS 350 FL	

NOTES:

DAMPER SCHEDULE

MARK	SERVES	SERVICE TYPE	BLADE TYPE	MAX AIR VEL. (FPM)	NOM. SIZE L x W (IN.)	ACTUATOR TYPE	BASIS OF DESIGN	NOTES
MOD-01	LVR-01	INTAKE	PARALLEL	156	36x36	MOTORIZED	RUSKIN CD50	

NOTES:

PUMP SCHEDULE

MARK	LOCATION	SERVES	TYPE	FLOW (GPM)	HEAD (FT. WG)	MIN EFF (%)	MOTOR DATA				BASIS OF DESIGN	NOTES
							HP	RPM	V/PH	CONTROL TYPE		
P-01	COLLECTOR WELL MAIN LEVEL	AHU-01	INLINE	90	61	50	3.0	1760	480/3	T-STAT	TACO KV3009	
P-02	COLLECTOR WELL MAIN LEVEL	HX-01	INLINE	65	28	50	1.0	1760	480/3	T-STAT	TACO KV1506	

NOTES:

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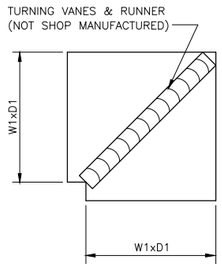
YANKTON, SOUTH DAKOTA 2014

MECHANICAL SCHEDULES

0 1" 2"

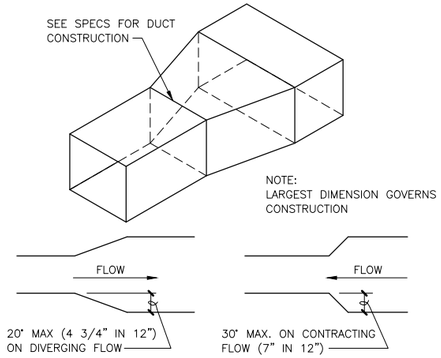
FILENAME	02M501.dwg
SCALE	AS NOTED

SHEET 02M501



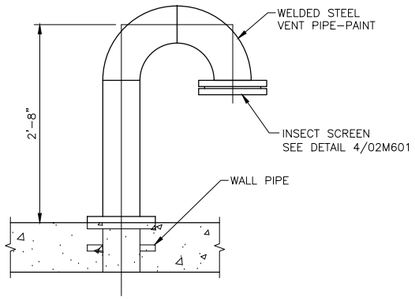
SQUARE THROAT 90° ELBOW WHEN DUCT SIZE EQUAL 1

NTS



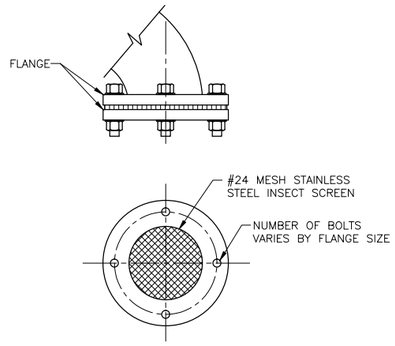
DUCT TRANSITION DETAIL 2

NTS



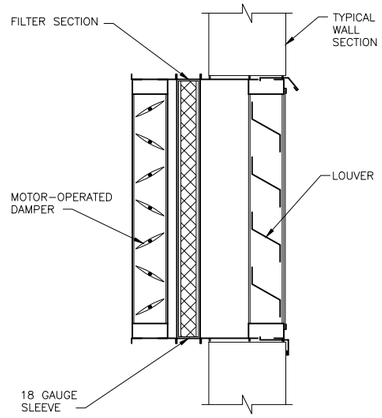
GOOSE NECK VENT DETAIL 3

NTS



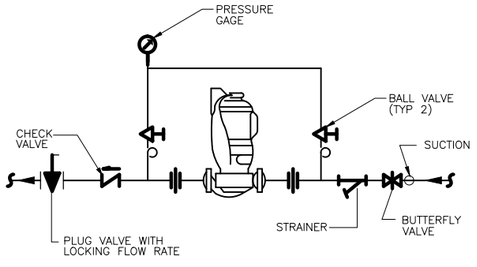
INSECT SCREEN DETAIL 4

NTS



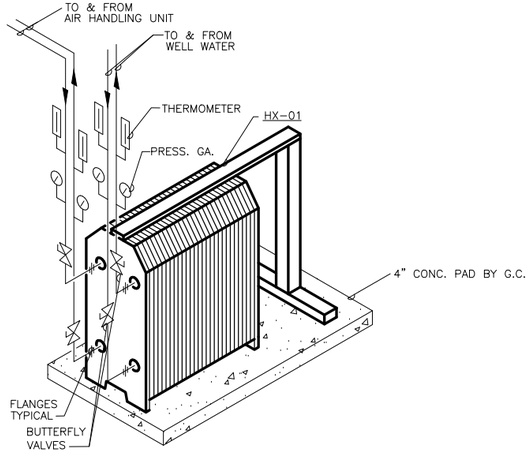
LOUVER DETAIL 5

NO SCALE



INLINE PUMP DETAIL 6

NTS



FLAT PLATE HEAT EXCHANGER DETAIL 7

NTS

CITY OF YANKTON

SOUTH DAKOTA

HDR Engineering, Inc.

ISSUE	DATE	DESCRIPTION
A	10/08/2014	ISSUED FOR BIDS

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ARCHITECTURAL	J. RICKERT
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ELECTRICAL	K. THERNES
INSTRUMENTATION	D. PENNER
PROJECT NUMBER	135–223788–003

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SOUTH DAKOTA
10/8/14

WATER SYSTEM IMPROVEMENTS HORIZONTAL COLLECTOR WELL

CITY OF YANKTON

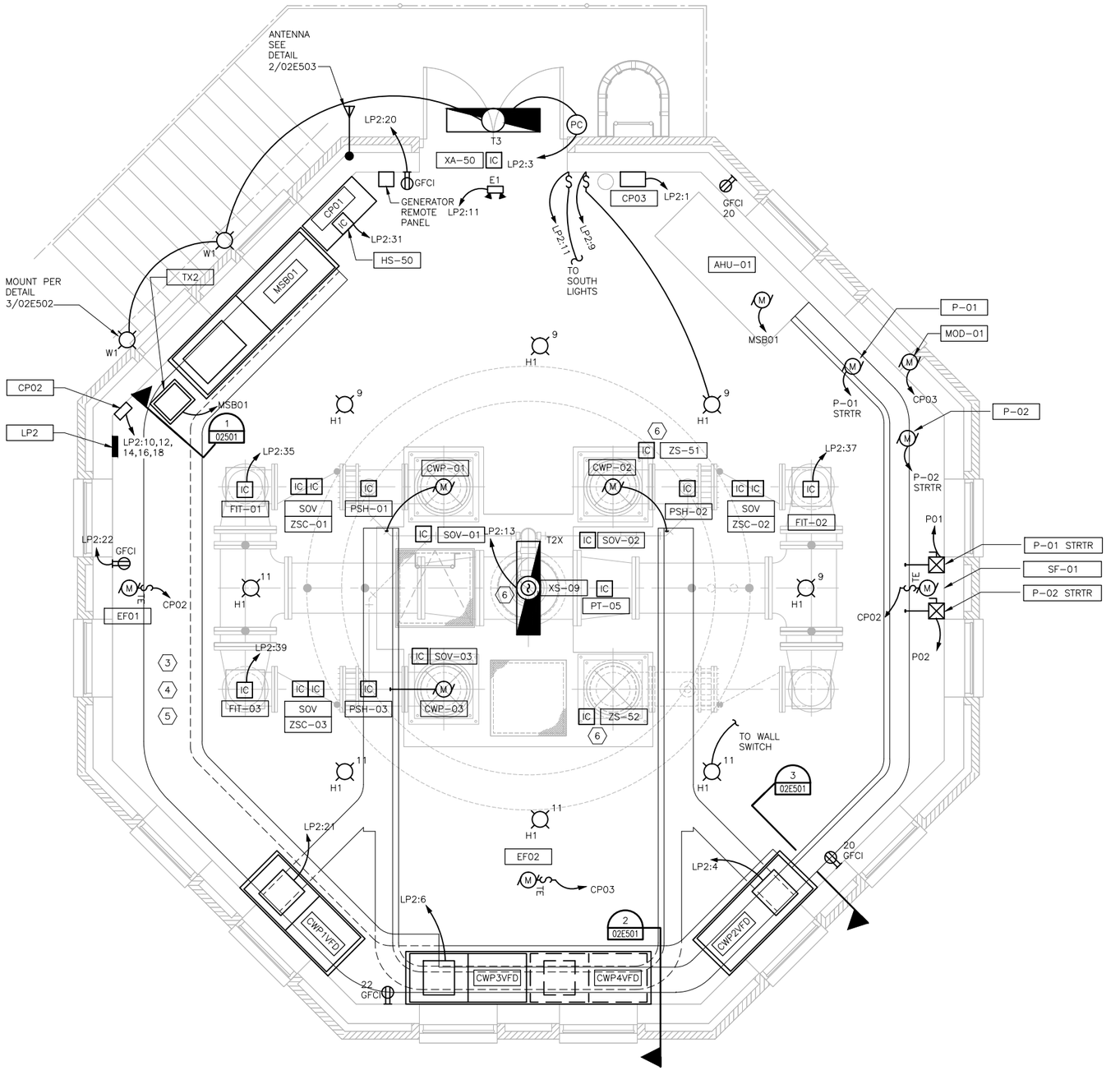
YANKTON, SOUTH DAKOTA 2014

MECHANICAL AND PLUMBING DETAILS

0 1" 2"

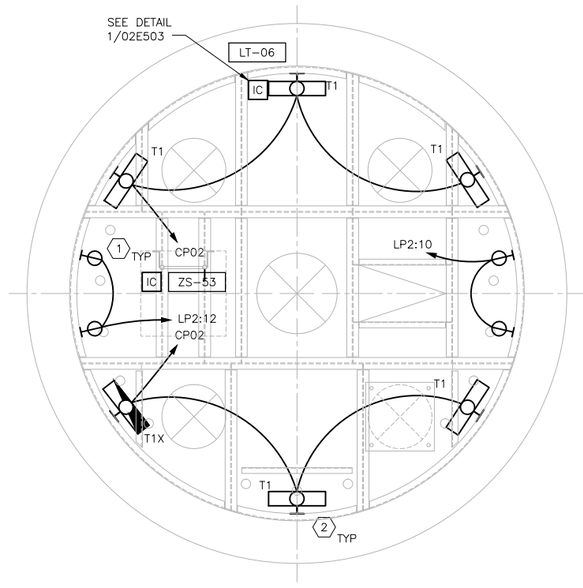
FILENAME	02M601.dwg
SCALE	AS NOTED

SHEET 02M601



COLLECTOR WELL GROUND LEVEL

3/8" = 1'-0"



COLLECTION WELL VALVE ROOM LEVEL

3/8" = 1'-0"

N

GENERAL NOTE:

1. LIGHTS MOUNTED 13' AFF AT GROUND LEVEL AND 9" BELOW CEILING IN VALVE ROOM.
2. SEE SHEET 02E631 FOR INSTRUMENT AND CONTROL WIRE AND CONDUIT INFORMATION.

KEYNOTES:

1. RECEPTACLES ARE WATER PROOF WHEN NOT IN USE.
2. LIGHTS ARE IP66 SEE SPECIFICATION 16500 AND SHEET 00E651.
3. SEE SHEET 02E501 FOR CABLE TRAY DETAILS.
4. CABLE RUNS WILL UTILIZE TRAY AS MUCH AS PRACTICAL FOR HORIZONTAL RUNS. CONDUITS WILL BE USED FOR VERTICALS ONLY AS MUCH AS PRACTICAL.
5. INITIAL CABLE PLACEMENT IS CRITICAL FOR FUTURE EXPANSION. SEE TRAY DETAILS ON SHEET 02E501.
6. THESE DEVICES ARE MOUNTED AT THE CEILING LEVEL.

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SOUTH DAKOTA

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INSTRUMENTATION	D. PENNER
PROJECT NUMBER	135-223788-003

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10/8/14

WATER SYSTEM IMPROVEMENTS HORIZONTAL COLLECTOR WELL

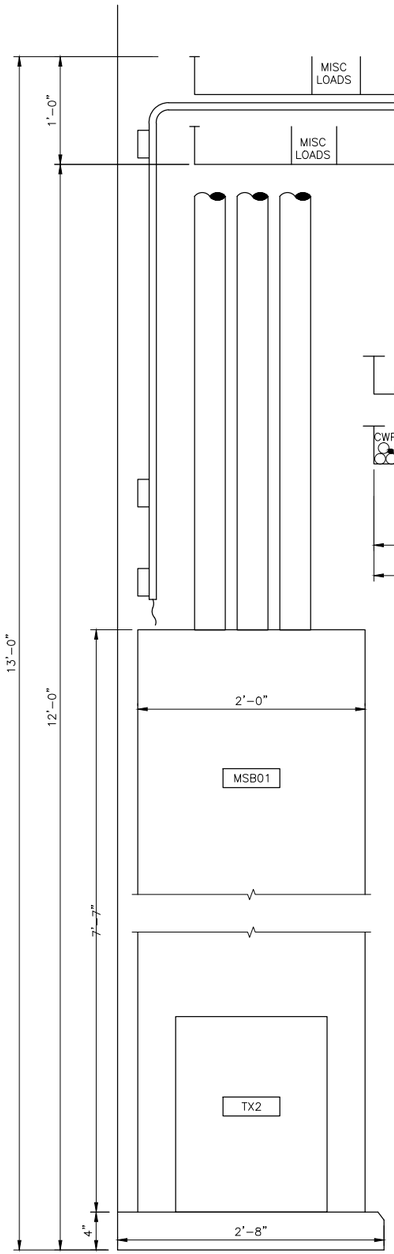
CITY OF YANKTON
YANKTON, SOUTH DAKOTA 2014

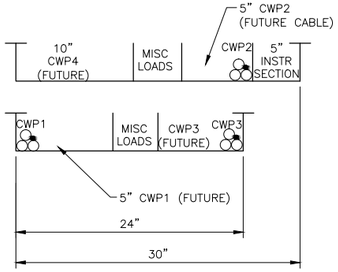
ELECTRIC POWER AND LIGHTING PLAN

0 1" 2"

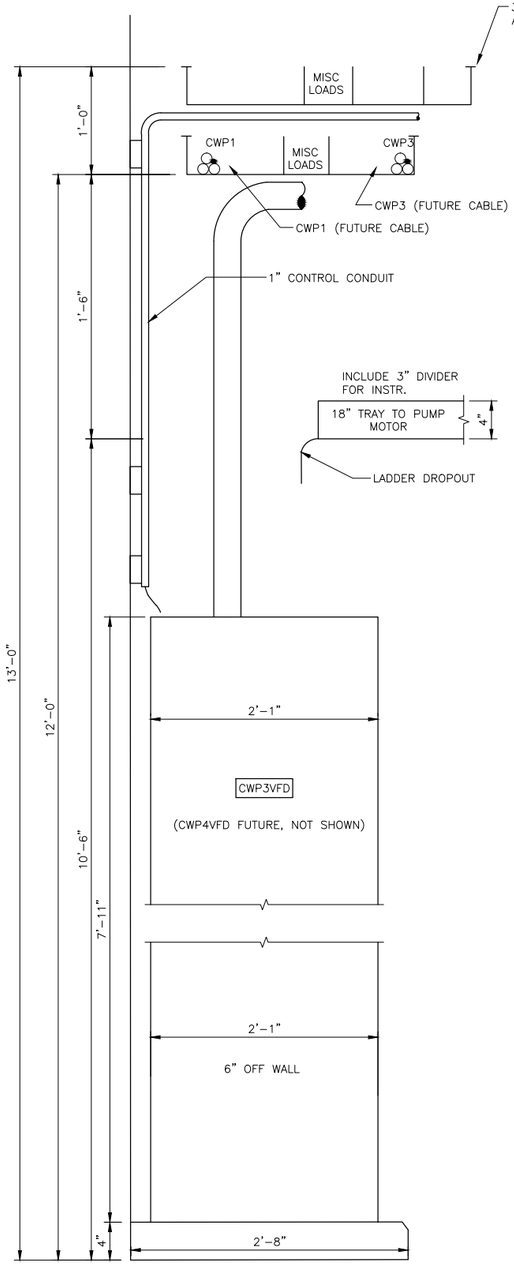
FILENAME	02E101.dwg
SCALE	AS NOTED

SHEET 02E101

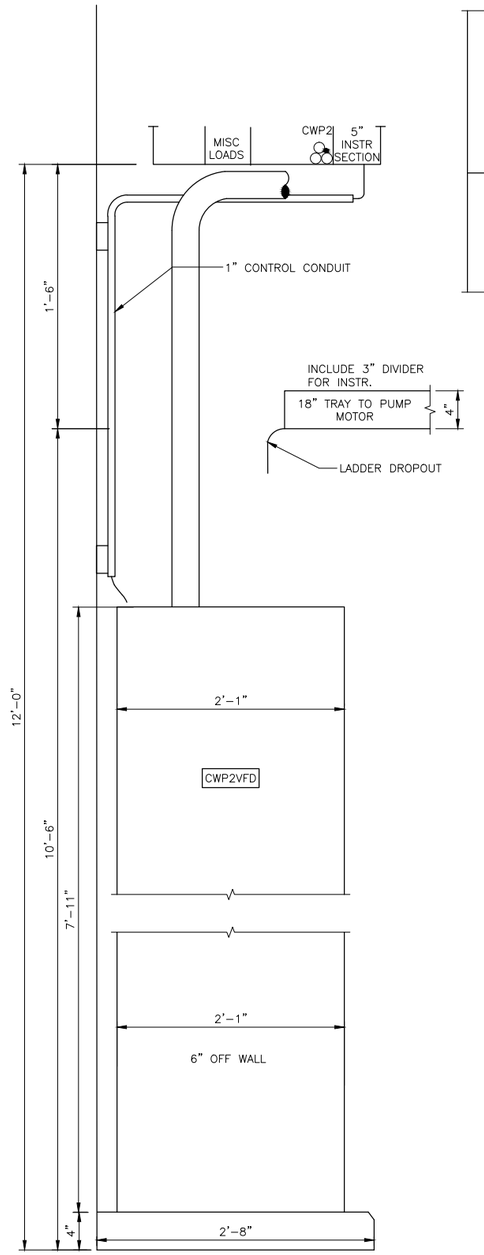




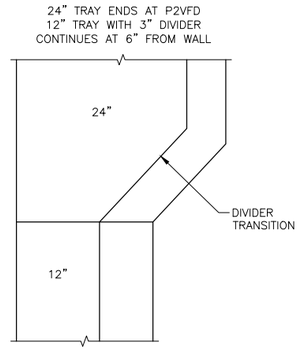
SECTION CUT – POWER TRAY 1 / 02E101

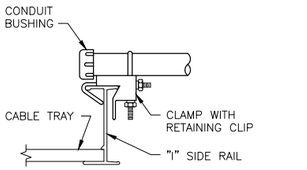


SECTION CUT – POWER TRAY 2 / 02E101

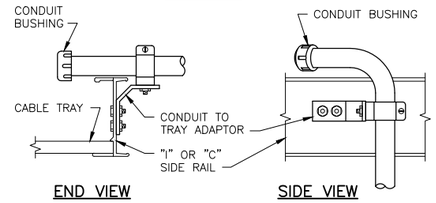


SECTION CUT – POWER TRAY 3 / 02E101





END VIEW



END VIEW SIDE VIEW

CONDUIT TO CABLE TRAY 8 / –

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10/8/14

WATER SYSTEM IMPROVEMENTS HORIZONTAL COLLECTOR WELL

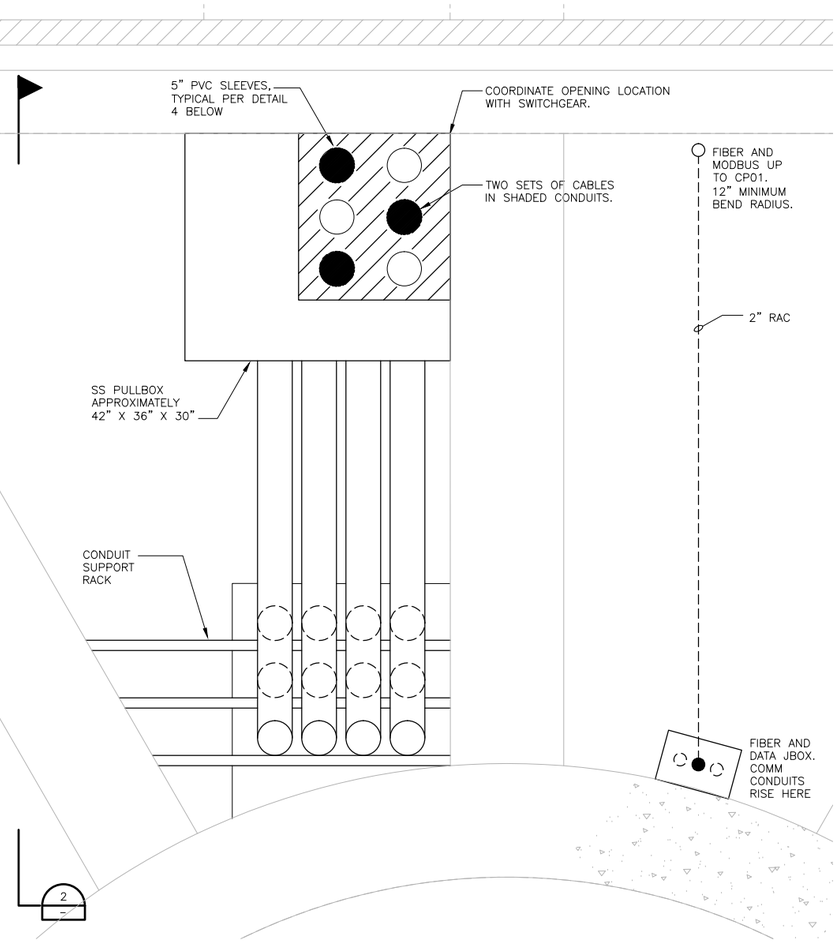
CITY OF YANKTON
YANKTON, SOUTH DAKOTA 2014

ELECTRICAL DETAILS

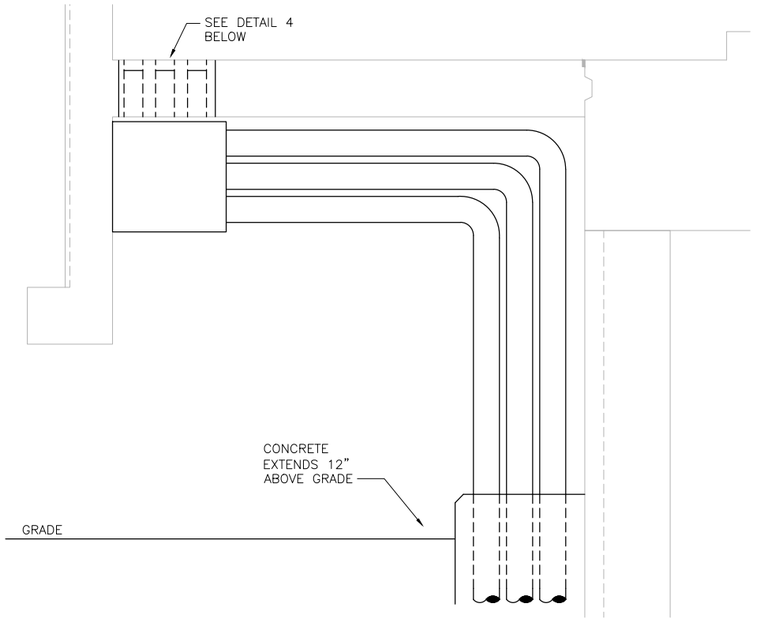
0 1" 2"

FILENAME	02E501.dwg
SCALE	AS NOTED

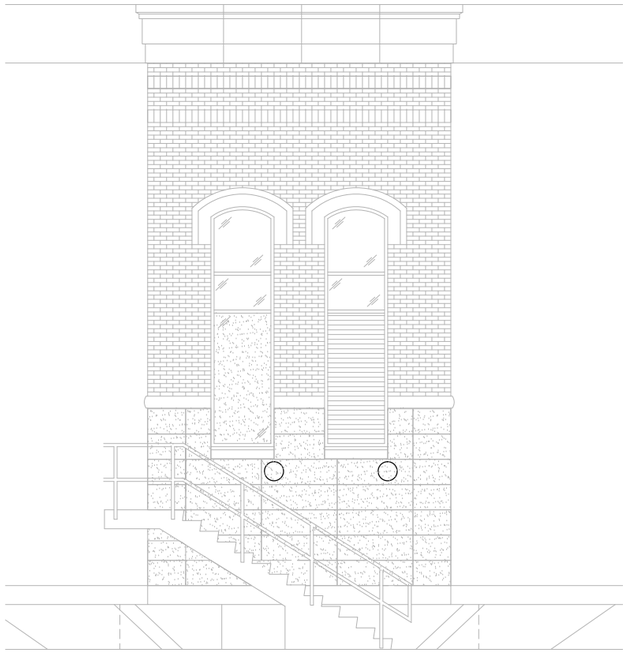
SHEET 02E501



CONDUIT ENTRY DETAIL 1
NTS



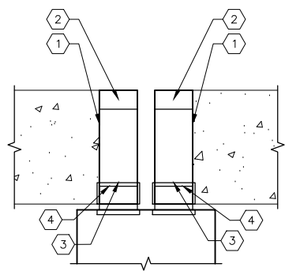
CONDUIT ENTRY DETAIL 2
NTS



BUILDING ELEVATION 3
NTS

NOTES:

1. LIGHTS ARE CONTROLLED BY PHOTOCELL.
2. SEE SHEET 02E651 FOR LUMINAIRE SPECIFICATION.
3. MOUNT TOP OF FIXTURES 3" BELOW WINDOW FRAME.



PLAN VIEW

KEY NOTES:

1. 5" CONDUIT SLEEVE (6 TOTAL).
2. 5" END BELL FLUSH WITH INTERIOR WALL.
3. 5" TYP 'FA' ADAPTER FLUSH WITH INTERIOR WALL.
4. 5" CHASE NIPPLE WITH LOCKOUT AND BUSHING AT INTERIOR OF JUNCTION BOX.
5. SEAL INSIDE AND OUTSIDE OPENINGS IN ACCORDANCE WITH SPECIFICATION SECTION 01800. TYPICAL FOR ALL OPENINGS.

FLOOR PENETRATION 4
NTS

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PROCESS	K. NEWMAN
MECHANICAL	J. LEWIS
ELECTRICAL	K. THERNES
INSTRUMENTATION	D. PENNER
PROJECT NUMBER	135-223788-003

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SOUTH DAKOTA
10/18/14

WATER SYSTEM IMPROVEMENTS HORIZONTAL COLLECTOR WELL

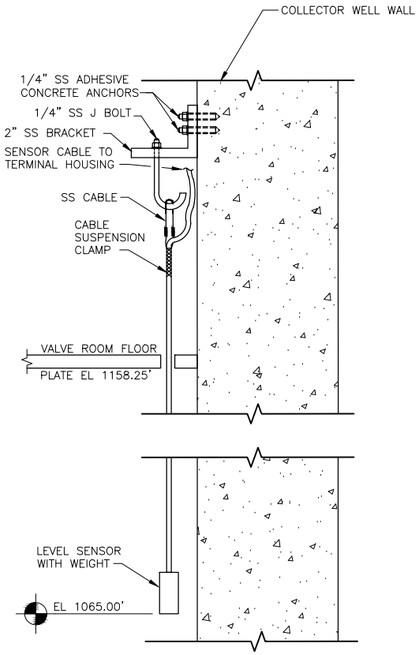
CITY OF YANKTON
YANKTON, SOUTH DAKOTA 2014

ELECTRICAL DETAILS

0 1" 2"

FILENAME	02E502.dwg
SCALE	AS NOTED

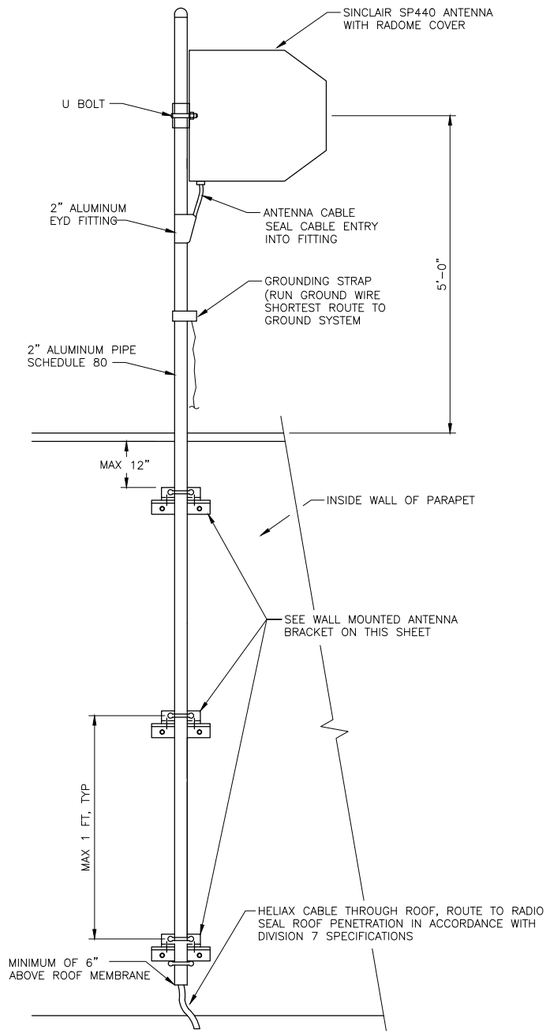
SHEET 02E502



SUBMERSIBLE LEVEL TRANSMITTER INSTALLATION DETAIL

1 –

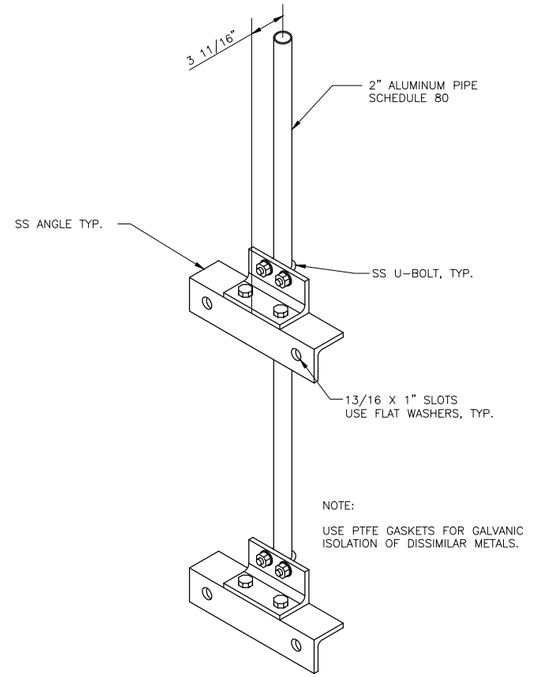
NTS



BUILDING MOUNTED RADIO ANTENNA INSTALLATION DETAIL

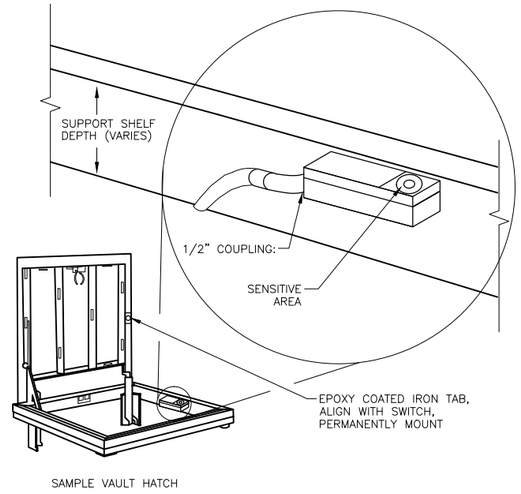
2 –

NOT TO SCALE



WALL MOUNTED ANTENNA BRACKET DETAIL

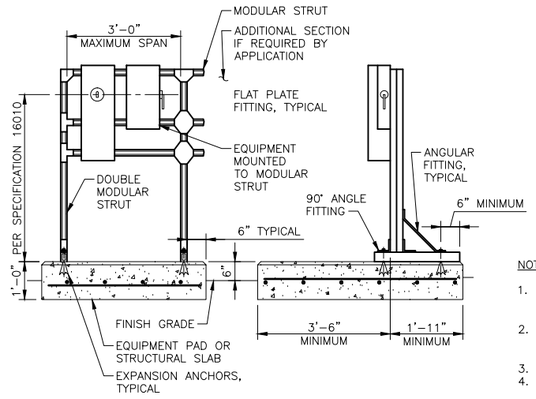
3 –



SAMPLE VAULT HATCH

TYPICAL HATCH SWITCH INSTALLATION ADJUST PER APPLICATION

5 –



FRONT VIEW SIDE VIEW

MODULAR EQUIPMENT RACK

4 –

NOT TO SCALE

NOTES:

1. COMBINED EQUIPMENT LOADS PER 36" SPAN SHALL NOT EXCEED 200 LBS.
2. PROVIDE GROUNDING FOR OUTDOOR INSTALLATIONS, PER SPECIFICATION 16060.
3. MODULAR STRUT WIDTH: 1 5/8".
4. RACK ASSEMBLY MATERIAL: ALUMINUM PER SPECIFICATION 16010.
5. ANCHORS: STAINLESS STEEL, 1/2" DIAMETER, 3 1/2" EMBEDMENT, PER SPECIFICATION 05505.
6. PROTECT SURFACES WITH DISSIMILAR MATERTIALS IN ACCORDANCE WITH SPECIFICATION 09905.
7. REPAIR CUT ENDS AND DAMAGED SURFACES IN ACCORDANCE WITH SPECIFICATION 05505.

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INSTRUMENTATION	D. PENNER
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10/8/14

WATER SYSTEM IMPROVEMENTS HORIZONTAL COLLECTOR WELL

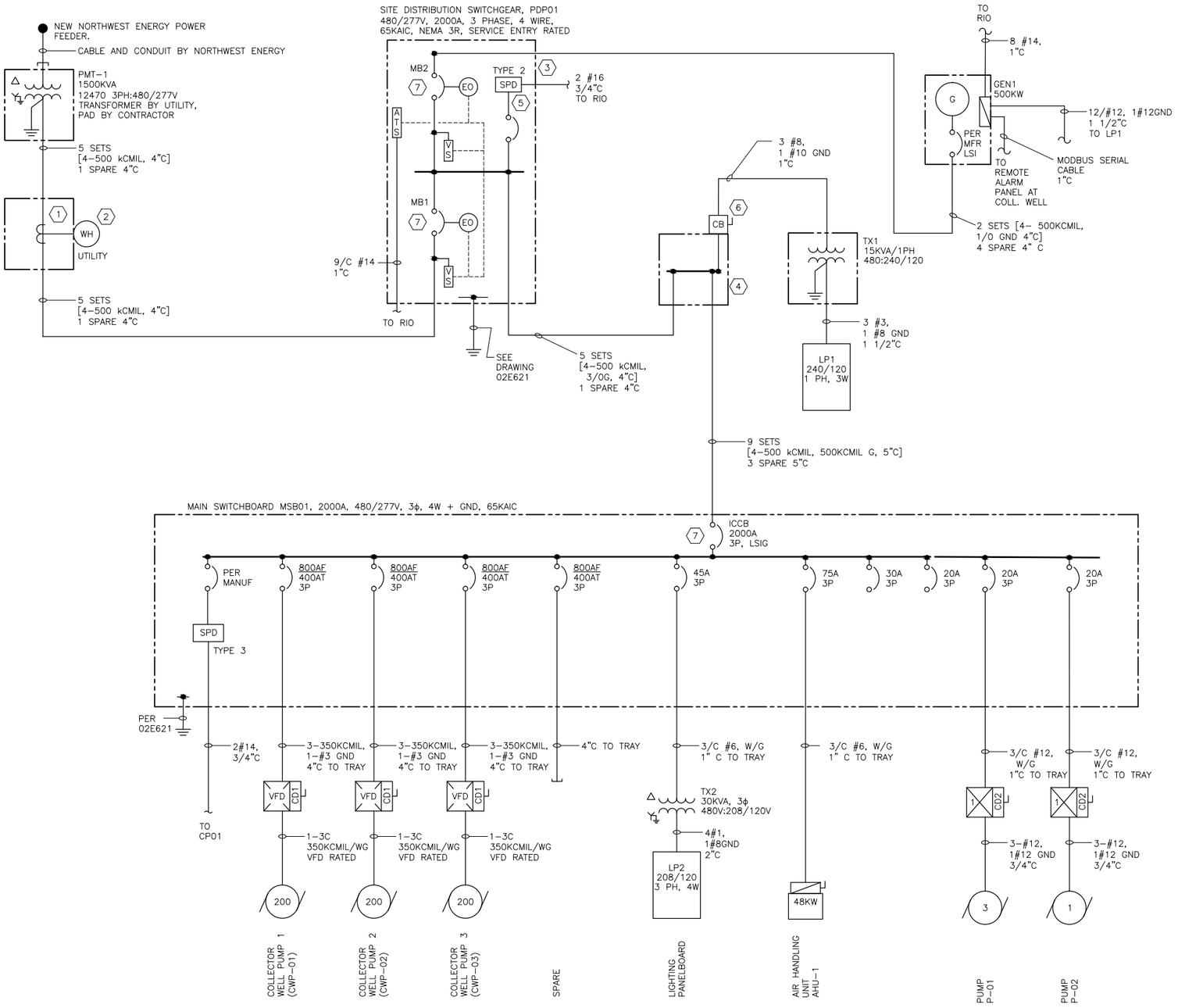
CITY OF YANKTON
YANKTON, SOUTH DAKOTA 2014

ELECTRICAL DETAILS

0 1" 2"

FILENAME	02E503.dwg
SCALE	AS NOTED

SHEET 02E503



	VFD LOAD	FVNR LOAD	HVAC LOAD	LIGHTING LOAD	MISC. LOAD	TOTAL KVA	LOAD AMPS @ .95PF
INITIAL	360.5	3.7	48	2.2	6	420.4	532.3
FINAL BUILDOUT	913.25	3.7	48	2.2	6	973.15	1232.2

KEY NOTES:

1. 2000A CABLE TERMINATION (CTC) METERING CABINET. AMERICAN MIDWEST POWER CTC CABINET. COPPER BUS.
2. MILLBANK UC7461-XL. 20A, RING TYPE, 13 TERMINAL WITH TEST PROVISION.
3. EATON FLOOR STANDING MAGNUM BASED AUTOMATIC TRANSFER SWITCH. OPEN TRANSITION, 2000A, 480V, 3 POLE, 4 WIRE, SERVICE ENTRANCE RATED, WITH LSIG TRIPS, 100% RATED, AND NEMA 3R ENCLOSURE. EATON PART No.: ATV9MGB32000XRU PLUS OPTIONS. CONFIRM FULL PART NUMBER PER SPECIFICATIONS AND SERVICE. INSTALL ON A FOUR INCH HOUSEKEEPING PAD.
4. MTS TERMINATION ENCLOSURE, 3000A, 14 CONNECTIONS PER PHASE. TRINETICS PART No.:63257613. COPPER BUS.
5. CIRCUIT BREAKER PER REQUIREMENT OF SPD MANUFACTURER. TYPE 2 SPD PER SPECIFICATION 16491.
6. 480V, 40A, 2POLE, HIGH INTERRUPT CIRCUIT BREAKER IN A NEMA 4X ENCLOSURE. 42,000 MINIMUM INTERRUPT. ENCLOSURE PER SPECIFICATION 16412. MOUNT PER 16010.
7. ARC FLASH MAINTENANCE SWITCH. SEE DIAGRAMS 4 AND 5 ON SHEET 02E641.

MSB01 ONE-LINE DIAGRAM

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WATER SYSTEM IMPROVEMENTS HORIZONTAL COLLECTOR WELL

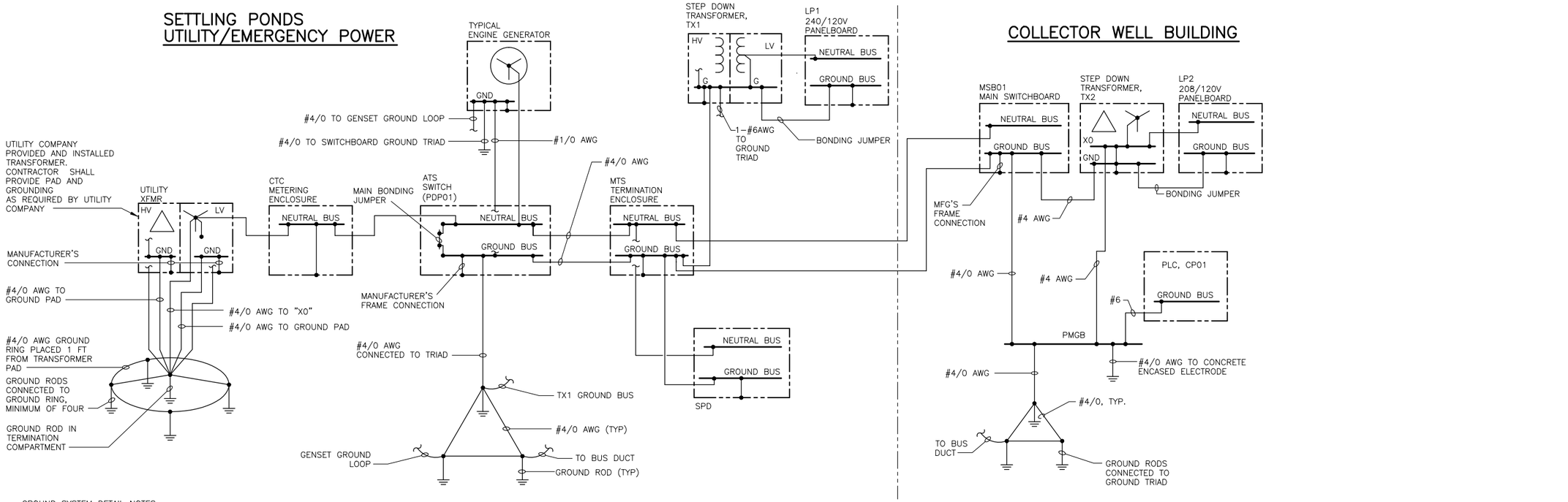
CITY OF YANKTON
YANKTON, SOUTH DAKOTA 2014

ONE-LINE DIAGRAM

0 1" 2"

FILENAME	02E601.dwg
SCALE	AS NOTED

SHEET 02E601

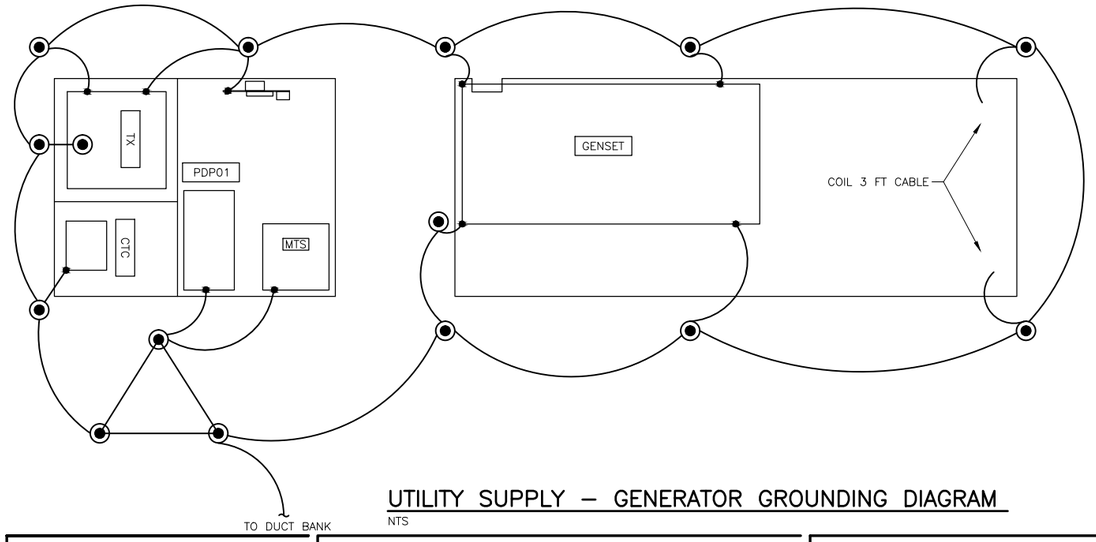


GROUND SYSTEM DETAIL NOTES:

1. ABBREVIATIONS:
   PMGB – 12" LONG POWER MAIN GROUNDING BAR.
2. ALL CONDUCTOR SIZES BASED ON COPPER.
3. SEE ONE–LINE DIAGRAM FOR CONDUCTOR SIZES NOT SHOWN.
4. SEE SECTION 16060–GROUNDING FOR ADDITIONAL REQUIREMENTS.

GROUNDING SYSTEM DIAGRAM

NOT TO SCALE



UTILITY SUPPLY – GENERATOR GROUNDING DIAGRAM

NTS

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WATER SYSTEM IMPROVEMENTS
HORIZONTAL COLLECTOR WELL

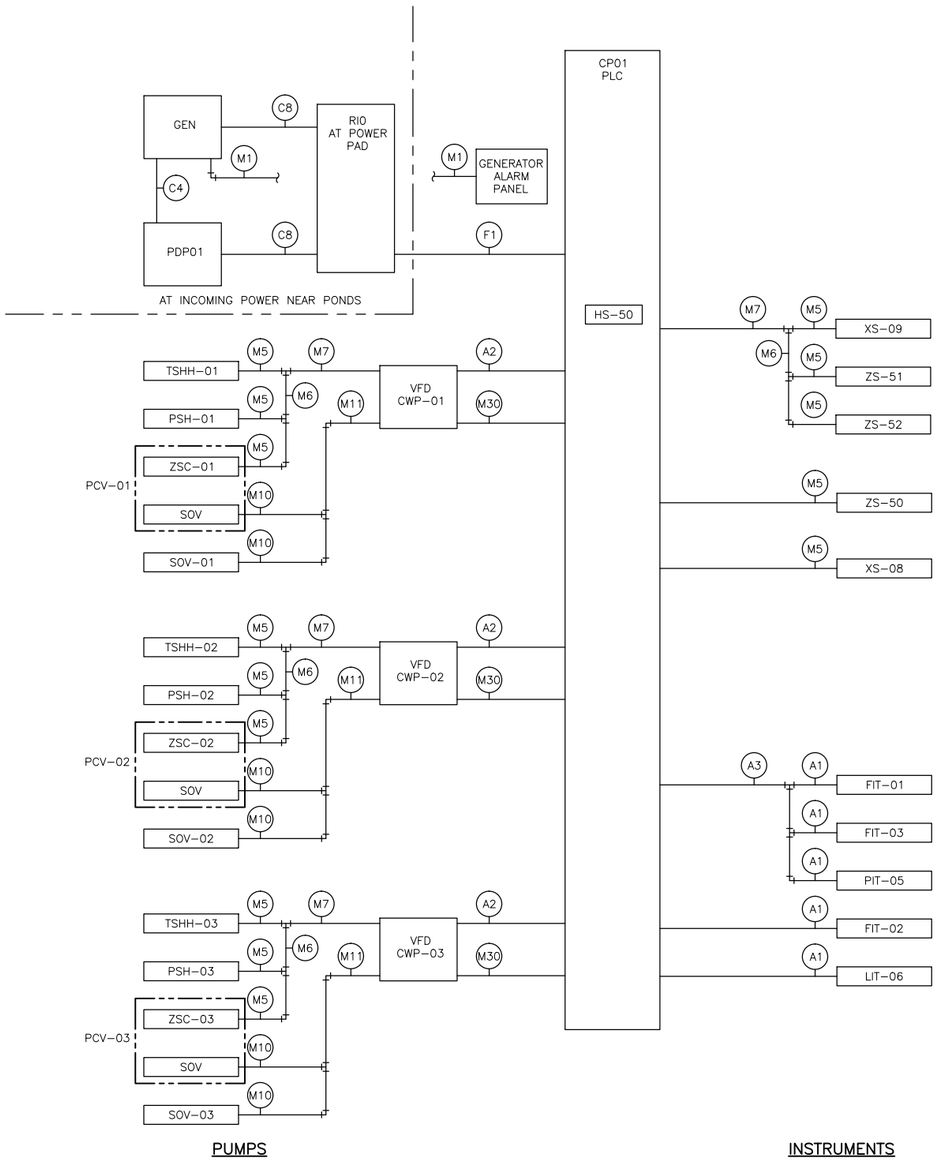
CITY OF YANKTON
YANKTON, SOUTH DAKOTA 2014

GROUNDING DIAGRAM

0 1" 2"

FILENAME	02E621.dwg
SCALE	AS NOTED

SHEET
02E621



PUMPS

INSTRUMENTS

COLLECTOR WELL BUILDING

NOTES:

1. ROUTE CABLES IN CONDUIT UP TO SMALL DIVIDED AREA IN CABLE TRAY. ROUTE TO CP01.

CONDUCTOR AND CONDUIT SCHEDULE CONTROL CIRCUITS

DWG MARK	CONDUCTOR	CONDUIT SIZE METAL	PVC	FLEX	DWG MARK	CONDUCTOR	CONDUIT SIZE METAL	PVC	FLEX
C1	1 – #14	3/4"	3/4"	3/4"	C31	31 – #14	1 1/4"	1 1/4"	1 1/4"
C2	2 – #14	3/4"	3/4"	3/4"	C32	32 – #14	1 1/4"	1 1/4"	1 1/4"
C3	3 – #14	3/4"	3/4"	3/4"	C33	33 – #14	1 1/4"	1 1/4"	1 1/4"
C4	4 – #14	3/4"	3/4"	3/4"	C34	34 – #14	1 1/4"	1 1/4"	1 1/4"
C5	5 – #14	3/4"	3/4"	3/4"	C35	35 – #14	1 1/4"	1 1/4"	1 1/4"
C6	6 – #14	3/4"	3/4"	3/4"	C36	36 – #14	1 1/4"	1 1/2"	1 1/4"
C7	7 – #14	3/4"	3/4"	3/4"	C37	37 – #14	1 1/4"	1 1/2"	1 1/4"
C8	8 – #14	3/4"	3/4"	3/4"	C38	38 – #14	1 1/4"	1 1/2"	1 1/4"
C9	9 – #14	3/4"	3/4"	3/4"	C39	39 – #14	1 1/4"	1 1/2"	1 1/4"
C10	10 – #14	3/4"	3/4"	3/4"	C40	40 – #14	1 1/4"	1 1/2"	1 1/4"
C11	11 – #14	3/4"	3/4"	3/4"	C41	41 – #14	1 1/4"	1 1/2"	1 1/4"
C12	12 – #14	3/4"	1"	3/4"	C42	42 – #14	1 1/4"	1 1/2"	1 1/4"
C13	13 – #14	3/4"	1"	3/4"	C43	43 – #14	1 1/4"	1 1/2"	1 1/4"
C14	14 – #14	3/4"	1"	3/4"	C44	44 – #14	1 1/2"	1 1/2"	1 1/2"
C15	15 – #14	3/4"	1"	3/4"	C45	45 – #14	1 1/2"	1 1/2"	1 1/2"
C16	16 – #14	1"	1"	1"	C46	46 – #14	1 1/2"	1 1/2"	1 1/2"
C17	17 – #14	1"	1"	1"	C47	47 – #14	1 1/2"	1 1/2"	1 1/2"
C18	18 – #14	1"	1"	1"	C48	48 – #14	1 1/2"	1 1/2"	1 1/2"
C19	19 – #14	1"	1"	1"	C49	49 – #14	1 1/2"	2"	1 1/2"
C20	20 – #14	1"	1 1/4"	1"	C50	50 – #14	1 1/2"	2"	1 1/2"
C21	21 – #14	1"	1 1/4"	1"	C21	51 – #14	1 1/2"	2"	1 1/2"
C22	22 – #14	1"	1 1/4"	1"	C52	52 – #14	1 1/2"	2"	1 1/2"
C23	23 – #14	1"	1 1/4"	1"	C53	53 – #14	1 1/2"	2"	1 1/2"
C24	24 – #14	1"	1 1/4"	1"	C54	54 – #14	1 1/2"	2"	1 1/2"
C25	25 – #14	1"	1 1/4"	1 1/4"	C55	55 – #14	1 1/2"	2"	1 1/2"
C26	26 – #14	1 1/4"	1 1/4"	1 1/4"	C56	56 – #14	1 1/2"	2"	1 1/2"
C27	27 – #14	1 1/4"	1 1/4"	1 1/4"	C57	57 – #14	1 1/2"	2"	2"
C28	28 – #14	1 1/4"	1 1/4"	1 1/4"	C58	58 – #14	1 1/2"	2"	2"
C29	29 – #14	1 1/4"	1 1/4"	1 1/4"	C59	59 – #14	1 1/2"	2"	2"
C30	30 – #14	1 1/4"	1 1/4"	1 1/4"	C60	60 – #14	2"	2"	2"
G	1–#14 GROUND CONDUCTOR WITH CONTROL CONDUCTORS								

CONDUCTOR AND CONDUIT SCHEDULE POWER CIRCUITS

DWG MARK	CONDUCTOR	GND	CONDUIT SIZE METAL	PVC	FLEX
P1	2–#12	1–#12	3/4"	3/4"	3/4"
P2	3–#12	1–#12	3/4"	3/4"	3/4"
P3	4–#12	2–#12	3/4"	3/4"	3/4"
P4	2–#10	1–#10	3/4"	3/4"	3/4"
P5	2–#10	–	3/4"	3/4"	3/4"
P6					
P7					
P8					
P9					
P10	1–2/C W/G #12		3/4"	3/4"	3/4"
P11	1–3/C W/G #12		1 1/4"	1 1/4"	1 1/4"
P12	1–4/C W/G #12		1 1/4"	1 1/2"	1 1/2"
P13	2–3/C W/G #12		1 1/4"	1 1/4"	1 1/4"

CONDUCTOR AND CONDUIT SCHEDULE MULTICONDUCTOR CONTROL CIRCUITS

DWG MARK	CONDUCTOR	CONDUIT SIZE METAL	PVC	FLEX
M1	MODBUS SERIAL CABLE	3/4"	3/4"	
M2	MANUFACTURER SUPPLIED	1"		
M3	MANUFACTURER SUPPLIED	2"		
M4	OWNER SUPPLIED	1"		
M5	1–2/C #14	3/4"	3/4"	3/4"
M6	2–2/C #14	3/4"	1"	1"
M7	3–2/C #14	1"	1 1/4"	1"
M8	4–2/C #14	1 1/4"	1 1/4"	1"
M9	5–2/C #14	1 1/4"	1 1/2"	1"
M10	1–3/C #14	3/4"	3/4"	3/4"
M11	2–3/C #14	1"	1 1/4"	1"
M12	3–3/C #14	1"	1 1/4"	1 1/4"
M13	4–3/C #14	1 1/4"	1 1/4"	1 1/4"
M14	5–3/C #14	1 1/4"	1 1/2"	1 1/2"
M15	1–4/C #14	3/4"	3/4"	3/4"
M16	2–4/C #14	1 1/4"	1 1/4"	1 1/4"
M17	3–4/C #14	1 1/4"	1 1/4"	1 1/4"
M18	4–4/C #14	1 1/4"	1 1/2"	1 1/4"
M19	5–4/C #14	1 1/2"	2"	1 1/2"
M20	1–7/C #14	3/4"	3/4"	3/4"
M21	2–7/C #14	1 1/4"	1 1/2"	1 1/4"
M22	3–7/C #14	1 1/4"	1 1/2"	1 1/4"
M23	4–7/C #14	1 1/2"	2"	2"
M24	5–7/C #14	2"	2"	2"
M25	6–7/C #14	2"	2"	2"
M26	7–7/C #14	2"	2"	2"
M27	1–9/C #14	1"	1"	1"
M28	2–9/C #14	1 1/2"	2"	1 1/2"
M29	3–9/C #14	2"	2"	2"
M30	1–19/C #14	1 1/4"	1 1/4"	1 1/4"
M31	7–2/C #14	2"	2"	2"
M32	8–2/C #14	2"	2"	2"
M33	9–2/C #14	2"	2"	2"
F1	12 FIBER FIBER OPTIC	2"	2"	2"

CONDUCTOR AND CONDUIT SCHEDULE INSTRUMENTATION CIRCUITS

DWG MARK	CONDUCTOR	GND	CONDUIT SIZE METAL	PVC	FLEX
A1	1–TSP #16	DRAIN	3/4"	3/4"	3/4"
A2	2–TSP #16	DRAIN	3/4"	1"	3/4"
A3	3–TSP #16	DRAIN	3/4"	1"	3/4"
A4	4–TSP #16	DRAIN	1"	1 1/4"	1"
A5	5–TSP #16	DRAIN	1"	1 1/4"	1"
A6	6–TSP #16	DRAIN	1 1/4"	1 1/4"	1 1/4"
A7	7–TSP #16	DRAIN	1 1/4"	1 1/4"	1 1/4"
A8	8–TSP #16	DRAIN	1 1/4"	1 1/2"	1 1/4"
A9	9–TSP #16	DRAIN	1 1/2"	1 1/2"	1 1/2"
A10	10–TSP #16	DRAIN	1 1/2"	2"	1 1/2"
A11	1–TST #16	DRAIN	3/4"	3/4"	3/4"
A12	2–TST #16	DRAIN	3/4"	1"	3/4"
A13	3–TST #16	DRAIN	1"	1"	1"
A14	4–TST #16	DRAIN	1"	1 1/4"	1"
A15	5–TST #16	DRAIN	1 1/4"	1 1/4"	1 1/4"
A16	6–TST #16	DRAIN	1 1/4"	1 1/4"	1 1/4"

CONDUCTOR AND CONDUIT SCHEDULE NOTES

1. ALL MARK NO.'s MAY NOT BE USED ON THIS PROJECT.
2. (C2)(P1) CONTROL CONDUCTORS IN SAME CONDUIT AS POWER CONDUCTORS
   (C2) (P1) CONTROL CONDUCTORS IS SEPARATE CONDUIT FROM POWER CONDUCTORS
3. (P1) (P1)(P1) (C2)(C2) TYPE 'T' CONDUIT BODY OR OUTLET BOX, PER SPECIFICATIONS CUBIC INCH VOLUME PER NEC. POWER CONDUCTORS CAN BE SPLICED, CONTROL CONDUCTORS AND INSTRUMENTATION CABLES SHALL BE UNSPLICED.
4. (C2)(G) GROUND CONDUCTOR IN SAME CONDUIT AS CONTROL CONDUCTOR
5. (M1)(M35) 2"C MULTIPLE MULTICONDUCTOR CABLES IN SAME CONDUIT. REQUIRED CONDUIT SIZE INDICATED.
6. J–BOX JUNCTION BOX, SIZED PER NEC, TYPE PER SPECIFICATIONS. USE TERMINAL BLOCKS FOR SPLICES IN CONTROL J–BOXES. INSTRUMENTATION J–BOXES SHALL BE USED AS PULL BOXES, CABLES SHALL NOT BE SPLICED.
7. HAZARDOUS AREA SEAL OFF
8. I.S. INTRINSICALLY SAFE CIRCUIT

CITY OF YANKTON
SOUTH DAKOTA

HDR Engineering, Inc.

ISSUE	DATE	DESCRIPTION
A	10/08/2014	ISSUED FOR BIDS

PROJECT MANAGER	STEVEN J. QUAIL
CIVIL	K. NEWMAN
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PROCESS	K. NEWMAN
MECHANICAL	J. LEWIS
ELECTRICAL	K. THERNES
INSTRUMENTATION	D. PENNER
PROJECT NUMBER	135–223788–003

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 7218
KEVIN K. THERNES
SOUTH DAKOTA
10/6/14

WATER SYSTEM IMPROVEMENTS HORIZONTAL COLLECTOR WELL

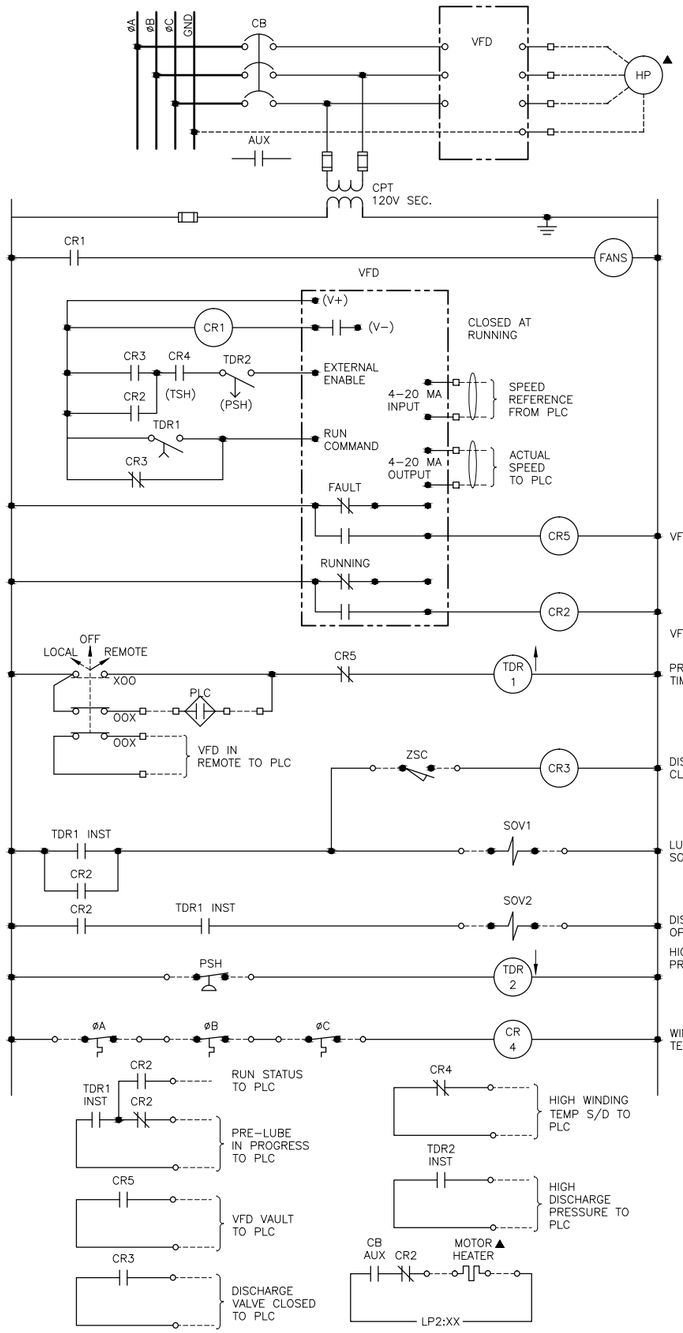
CITY OF YANKTON
YANKTON, SOUTH DAKOTA 2014

CONTROL BLOCK DIAGRAM

0 1" 2"

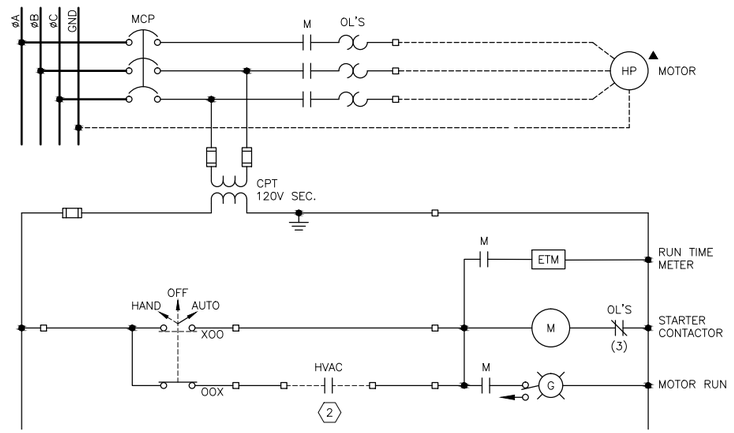
FILENAME	02E631.dwg
SCALE	AS NOTED

SHEET 02E631



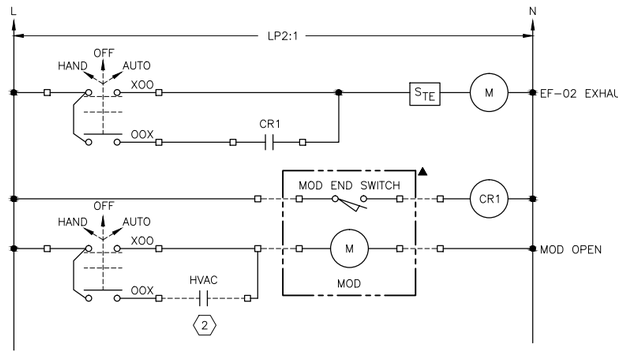
PUMP CONTROL CD1

CWP-01, CWP-02, CWP-03



CONTROL DIAGRAM CD2

P-01, P-02



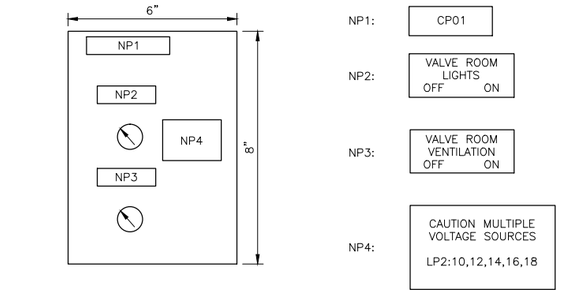
CONTROL DIAGRAM CD3 (HVAC CONTROL PANEL CP03)

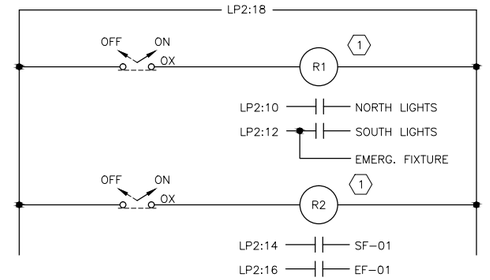
EF-02

KEY NOTES:

1. DEFINITE PURPOSE RELAYS, 20A.
2. THIS PANEL SUPPLIED AND BUILT BY THE ELECTRICAL CONTRACTOR. SEE SPECIFICATION 15970 FOR HVAC CONTROL DESCRIPTION.

▲ DENOTES FIELD DEVICE.

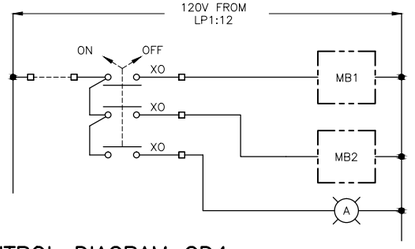




CP02: VALVE VAULT LIGHTING AND VENTILATION

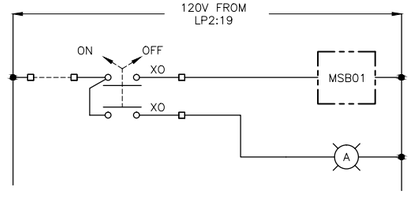
4 / XX

NTS



CONTROL DIAGRAM CD4

ARC FLASH MAINTENANCE – PDP01



CONTROL DIAGRAM CD5

ARC FLASH MAINTENANCE – MSB01

CITY OF YANKTON
SOUTH DAKOTA

HDR Engineering, Inc.

ISSUE	DATE	DESCRIPTION
A	10/08/2014	ISSUED FOR BIDS

PROJECT MANAGER	STEVEN J. QUAIL
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ARCHITECTURAL	J. RICKERT
PROCESS	K. NEWMAN
MECHANICAL	J. LEWIS
ELECTRICAL	K. THERNES
INSTRUMENTATION	D. PENNER
PROJECT NUMBER	135-223788-003

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 7218
KEVIN K. THERNES
SOUTH DAKOTA
10/9/14

WATER SYSTEM IMPROVEMENTS HORIZONTAL COLLECTOR WELL

CITY OF YANKTON
YANKTON, SOUTH DAKOTA 2014

MOTOR CONTROL DIAGRAMS

0 1" 2"

FILENAME	02E641.dwg
SCALE	AS NOTED

SHEET 02E641

PANELBOARD NO: LP1

VOLTAGE:	240/120	**BUS RATING (A):**	100	**ENCLOSURE:**	NEMA 4X SS
PHASE:	1	**MAIN OC DEVICE:**	80/2	**MOUNTING:**	SURFACE
WIRE:	3+GND	**INTERRUPTING RATING (KA):**	10	**LOCATION:**	POWER PAD
200% NEUTRAL:	NO	**SERVICE ENTRANCE LABEL:**	NO		

CKT NO.	DESCRIPTION	CONNECTED LOAD (VA) LTS	REC	MECH	MISC	OCP AMPS	P		OCP AMPS	P	CONNECTED LOAD (VA) LTS	REC	MECH	MISC	DESCRIPTION	CKT NO.
1	BATTERY CHARGER				300	20	1	A	20	1					SPARE	2
3	BAT. PAD HEATER				150	20	1	B	20	1					SPARE	4
5	ENGINE BLOCK HTR				1,500	20	2	C	20	1				300	GENSET OIL HEATER	6
7					1,500	20		A	20	1				50	GEN LOUVER	8
9	ATS CUBICLE HEATER				700	20	1	B	20	1					SPARE	10
11	SPARE					20	1	C	20	1				50	ATS TRANSFER SW	12
13	SPARE					20		A	20	1					SPARE	14
15	SPARE					20		B	20	2					SPARE	16
17	PLC UPS				225	20	1	C								18
19	PLC RECEPT		180			20	1	A							SPACE	20
21	PLC COOLER			500		20	1	B							SPACE	22
23	SPACE							C							SPACE	24

LOAD SUMMARY

	LTS	REC	MECH	MISC	SPARE	TOTAL				PHASE BALANCE	
CONNECTED LOAD (KVA)	0.0	0.2	0.5	4.8	---	5.5		240	LINE-TO-LINE VOLTS	PHASE A (KVA)	2
DEMAND FACTOR	1.25	NEC	1.00	1.00	20%	---		13	CONNECTED AMPS	PHASE B (KVA)	1
DESIGN LOAD (KVA)	0.0	0.2	0.5	4.8	1.1	6.5		16	DESIGN AMPS	PHASE C (KVA)	2

PANELBOARD NO: LP2

VOLTAGE:	208/120	**BUS RATING (A):**	150	**ENCLOSURE:**	NEMA 1
PHASE:	3	**MAIN OC DEVICE:**	80/3	**MOUNTING:**	SURFACE
WIRE:	4+GND	**INTERRUPTING RATING (KA):**	11	**LOCATION:**	COLLECTOR WELL
200% NEUTRAL:	NO	**SERVICE ENTRANCE LABEL:**	NO		

CKT NO.	DESCRIPTION	CONNECTED LOAD (VA) LTS	REC	MECH	MISC	OCP AMPS	P		OCP AMPS	P	CONNECTED LOAD (VA) LTS	REC	MECH	MISC	DESCRIPTION	CKT NO.	
1	HVAC CNTRL PNL CP03				550	20	1	A	20	1				250	CWP-01 MOTOR HEATER	2	
3	OUTSIDE LIGHTS	200				20	1	B	20	1				250	CWP-02 MOTOR HEATER	4	
5	SPARE					20	1	C	20	1				250	CWP-03 MOTOR HEATER	6	
7	SPARE					20	1	A	20	1					SPARE	8	
9	GND FLR LTS NORTH	800				20	1	B	20	1				330	VALVE FLR LTS NORTH	10	
11	GND FLR LTS SOUTH	800				20	1	C	20	1				330	VALVE FLR LTS SOUTH	12	
13	EXIT/EMERGENCY LTS	50				20	1	A	20	1			50		VLV FLR EXHAUST EF-1	14	
15	SMOKE ALARM			10		20	1	B	20	1			50		VLV FLR SUPPLY SF-1	16	
17	SPARE					20	1	C	20	1				50	CP02	18	
19	SPARE					20	1	A	20	1		720			RECEPTS GND FLR N-E	20	
21	SPACE						1	B	20	1		720			RECEPTS GND FLR S-W	22	
23	SPACE						1	C	20	1		360			RECEPTS VLV FLR EAST	24	*
25	SPACE						1	A	20	1		360			RECEPTS VLV FLR WEST	26	*
27	SPACE						1	B	20	1			330		ROOF EXHAUSTER	28	
29	SPACE						1	C	20	1					SPARE	30	
31	CP01 -PLC				500	20	1	A	20	1					SPARE	32	
33	SPARE					15	1	B		1					SPACE	34	
35	FIT-01 (CWP-01)				100	15	1	C		1					SPACE	36	
37	FIT-02 (CWP-02)				100	15	1	A		1					SPACE	38	
39	FIT-03 (CWP-03)				100	15	1	B		1					SPACE	40	
41	SPARE					15	1	C		1					SPACE	42	

LOAD SUMMARY

	LTS	REC	MECH	MISC	SPARE	TOTAL				PHASE BALANCE	
CONNECTED LOAD (KVA)	1.9	2.2	1.0	2.3	---	7.3		208	LINE-TO-LINE VOLTS	PHASE A (KVA)	3
DEMAND FACTOR	1.25	NEC	1.00	1.00	20%	---		20	CONNECTED AMPS	PHASE B (KVA)	3
DESIGN LOAD (KVA)	2.3	2.2	1.0	2.3	1.5	9.2		25	DESIGN AMPS	PHASE C (KVA)	2

* NOTED BREAKERS ARE GFCI

LUMINAIRE SCHEDULE

DWG ID TYPE	DESCRIPTION	MANUFACTURER AND LUMINAIRE TYPE	LAMP TYPE	LAMP QTY	LAMP WATTS	BALLAST	FIXTURE VOLTS	FIXTURE VA	MOUNTING TYPE	MOUNTING HEIGHT	NOTES
Exit sign or other emergency lighting											
E1	SELF-POWERED EMERGENCY LIGHTING UNIT WITH SELF-DIAGNOSTIC AND SELF-TEST FEATURES. HOUSING: STEEL PAINTED WHITE. BATTERY: SEALED MAINT. FREE NICKEL CADMIUM. TIME DELAY: 15 MINUTES.	EMERGI-LITE JS SERIES	INC	2	9	N/A	120/ 277	2	WALL	10' AFF	1
H Series - HID downlight, high bay, low bay, etc											
H1	LOW BAY LUMINAIRE. REFRACTOR: PRIZMATIC BOROSILICATE GLASS. HOUSING: DIE CAST ALUMINUM PAINTED WHITE. BALLAST: INTEGRAL	HOLOPHANE BANTAM 2000 ENDURALUME	MP175/MH	1	175	MULTI-VOLT PULSE START	120 OR 277	198	PENDANT	13' AFF	1
T Series - Flourescent Industrial											
T1	NEMA 4X, IP66, FIXTURE WITH FIXED WALL MOUNTS, AND WATERPROOF CONNECTIONS. FIBERGLASS BODY.	CROUSE-HINDS PROMAX EMAR SERIES	F17/T8	2	23	MULTI-VOLT ELECTRONIC	120 OR 277	58	FIXED WALL MOUNT	9" BELOW CEILING	
T1 X	NEMA 4X, IP66, FIXTURE WITH FIXED WALL MOUNTS, AND WATERPROOF CONNECTIONS. FIBERGLASS BODY. 1 LAMP EMERG. BALLAST	CROUSE-HINDS PROMAX EMAR SERIES	F17/T8	2	23	MULTI-VOLT ELECTRONIC	120 OR 277	58	FIXED WALL MOUNT	9" BELOW CEILING	
T2X	HEAVY-DUTY INDUSTRIAL TURRET WITH NO UPLIGHT AND WIREGUARD. INCLUDE EMERGENCY BATTERY PACK. HOUSING/REFLECTOR: STEEL PAINTED WHITE.	LITHONIA AF SERIES	FO32/T8	3	32	MULTI-VOLT ELECTRONIC	120 OR 277	62	CHAIN	13'-0" UNO	
T3	6' VANDAL RESISTANT FIXTURE. BRONZE. INTEGRAL BATTERY BACKUP.	LUMINAIRE LIGHTING CORP. AEL72-221-120-CL-BZH-PC-EMB1125	F21/T5	2	32	MULTI-VOLT ELECTRONIC	120 OR 277	62	WALL MOUNT	COORD W/ B/02A302	
W Series - Wall bracket or wall pack											
W1	EF HARMONY EYELITE: DOWNWASH, VANDAL RESISTANT WALL LAMP. BRONZE, 42 WATT FLUORESCENT WITH BATTERY BACKUP, FLUSHMOUNT. WITH ROUGH SURFACE MOUNT OPTION	COOPER FAIL SAFE EFS-12 SERIES	42CT	1	42	MULTI-VOLT ELECTRONIC	120 OR 277	57	ROUGH SURFACE WALL MOUNT	PER DRAWING DETAIL	

NOTES:
1. MOUNTING HEIGHT TO BE MEASURED FROM BOTTOM OF FIXTURE.
2. SUBMITTAL SHALL INCLUDE ALL REQUIRED FITTINGS AND A SKETCH OF THE INSTALLATION.

CITY OF YANKTON
SOUTH DAKOTA

HDR Engineering, Inc.

ISSUE	DATE	DESCRIPTION
A	10/08/2014	ISSUED FOR BIDS

PROJECT MANAGER	STEVEN J. QUAIL
CIVIL	K. NEWMAN
STRUCTURAL	K. KIRCHNER
ARCHITECTURAL	J. RICKERT
PROCESS	K. NEWMAN
MECHANICAL	J. LEWIS
ELECTRICAL	K. THERNES
INSTRUMENTATION	D. PENNER
PROJECT NUMBER	135-223788-003

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 7218
KEVIN K. THERNES
SOUTH DAKOTA
10/8/14

WATER SYSTEM IMPROVEMENTS
HORIZONTAL COLLECTOR WELL

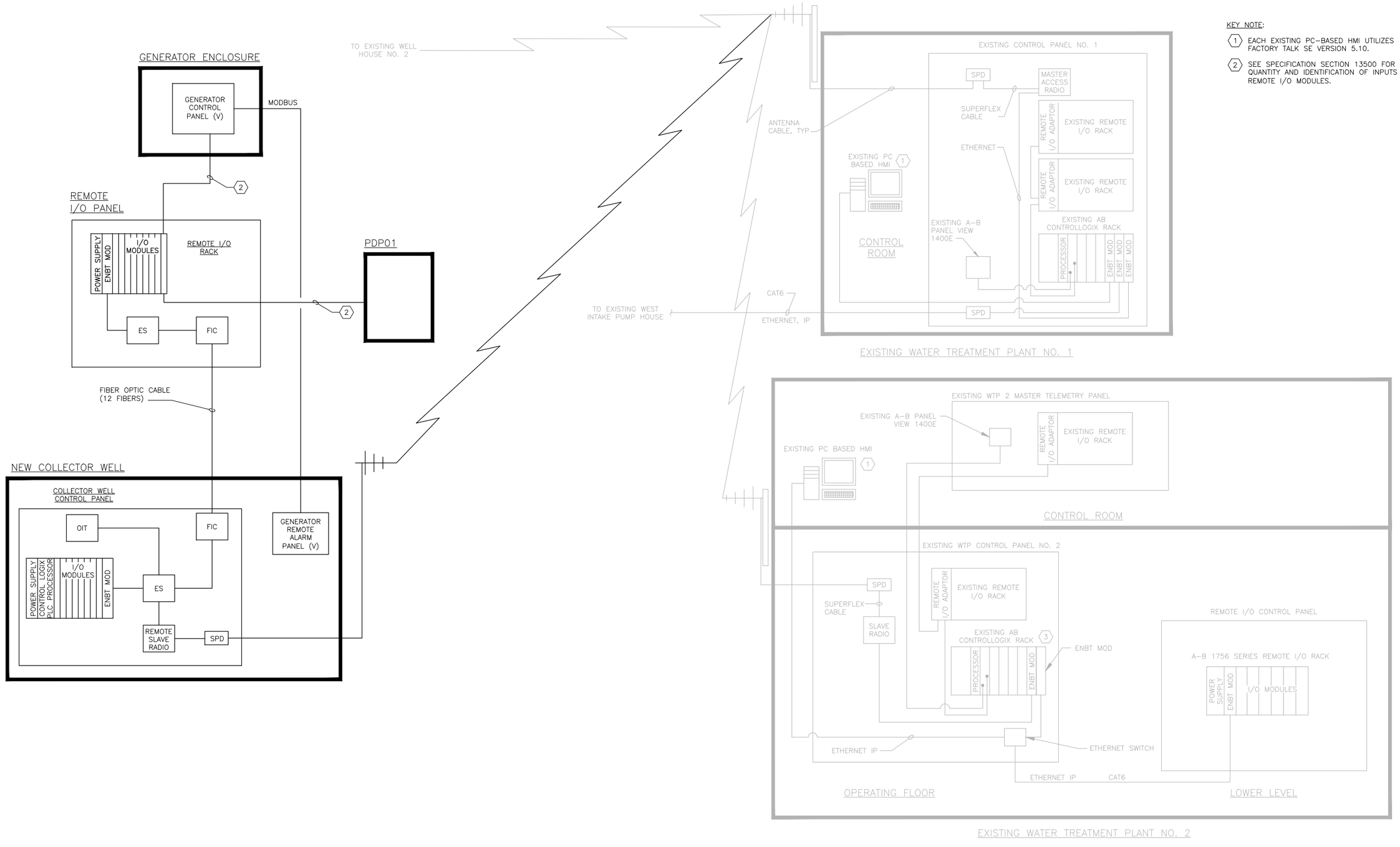
CITY OF YANKTON
YANKTON, SOUTH DAKOTA 2014

ELECTRICAL SCHEDULES

0 1" 2"

FILENAME	02E651.dwg
SCALE	AS NOTED

SHEET 02E651



KEY NOTE:

1. EACH EXISTING PC-BASED HMI UTILIZES FACTORY TALK SE VERSION 5.10.
2. SEE SPECIFICATION SECTION 13500 FOR QUANTITY AND IDENTIFICATION OF INPUTS TO REMOTE I/O MODULES.

CITY OF YANKTON
SOUTH DAKOTA

HDR Engineering, Inc.

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INSTRUMENTATION	D. PENNER
PROJECT NUMBER	135-223788-003

REGISTERED PROFESSIONAL ENGINEER
DAVID F. PENNER
SOUTH DAKOTA
10/08/14

WATER SYSTEM IMPROVEMENTS HORIZONTAL COLLECTOR WELL

CITY OF YANKTON
YANKTON, SOUTH DAKOTA 2014

CONTROL SYSTEM COMMUNICATION DIAGRAM

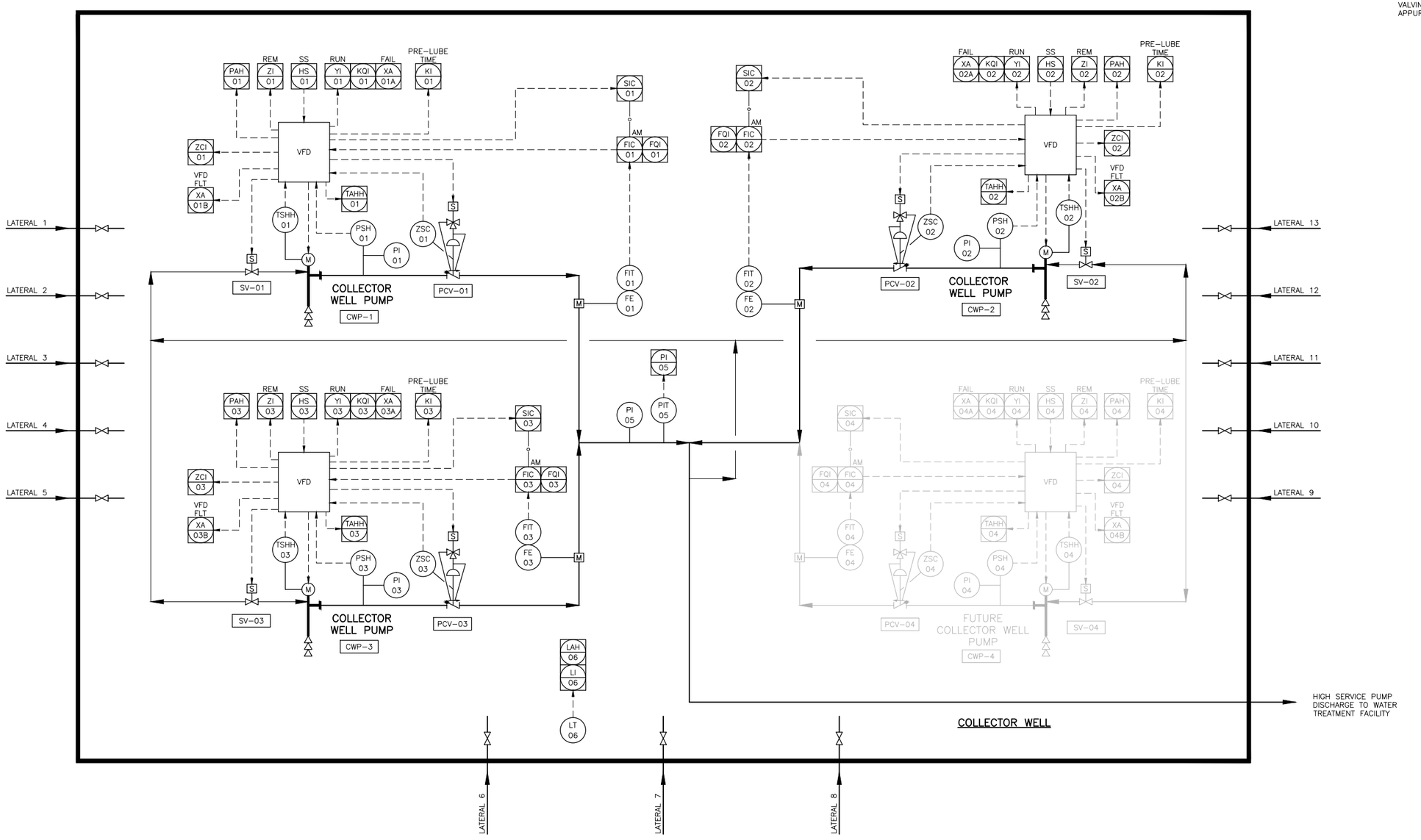
0 1" 2"

FILENAME	02Y601.dwg
SCALE	AS NOTED

SHEET 02Y601

GENERAL NOTES:

1. THIS P&ID DOES NOT PROVIDE COMPLETE DETAIL OF ALL MECHANICAL COMPONENTS. THE PRIMARY FUNCTION OF THIS P&ID IS TO SHOW PRIMARY INSTRUMENTATION AND CONTROL FUNCTIONS. SEE "D" SHEETS FOR MORE COMPLETE DEPICTION OF VALVING, PIPING AND MECHANICAL APPURTENANCES.



CITY OF YANKTON
SOUTH DAKOTA

HDR Engineering, Inc.

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INSTRUMENTATION	D. PENNER
PROJECT NUMBER	135-223788-003

REGISTERED PROFESSIONAL ENGINEER
DAVID F. PENNER
SOUTH DAKOTA
10/08/14

WATER SYSTEM IMPROVEMENTS HORIZONTAL COLLECTOR WELL

CITY OF YANKTON
YANKTON, SOUTH DAKOTA 2014

HIGH SERVICE PUMP P&ID

0 1" 2"

FILENAME	02Y602
SCALE	AS NOTED

SHEET 02Y602