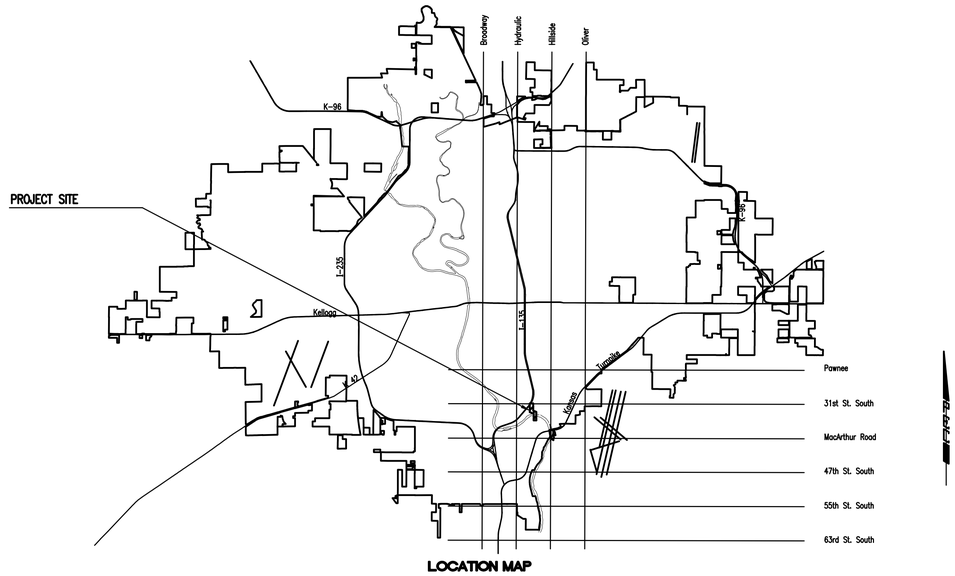
WASTEWATER PLANT 2
INFLUENT FORCE MAIN - PHASE 1
IN
THE CITY OF WICHITA, KANSAS
CITY OF WICHITA PROJECT NO. 468-85118
OCA NO. 620860
GARY JANZEN, P.E. - CITY ENGINEER



LOCATION MAP

INDEX OF SHEETS

CIVIL

STRUCTURAL

MECHANICAL

ELECTRICAL

MARCH 2017

PLANS PREPARED BY
PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
ENGINEERS
WICHITA, KANSAS

MICHAEL D. KELSEY LICENSED 13944 04/03/2017 KANSAS PROFESSIONAL ENGINEER

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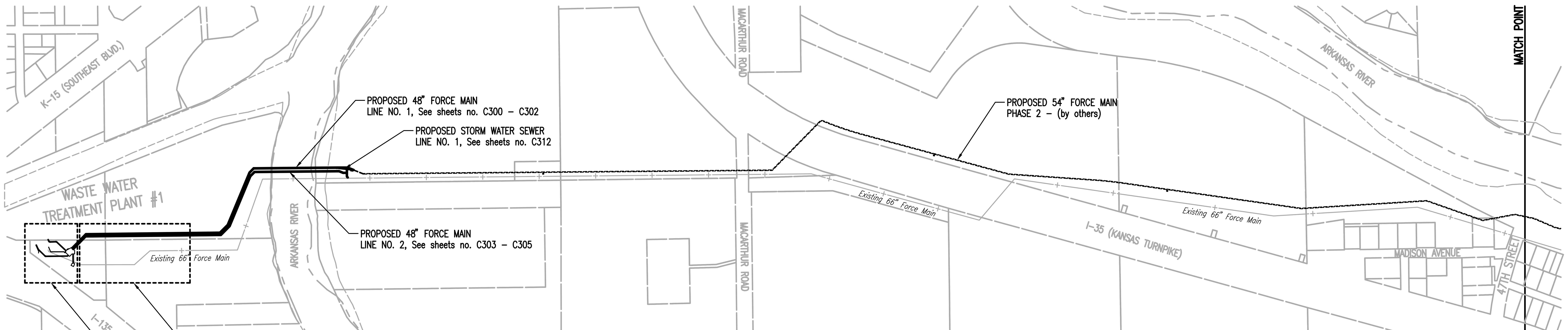
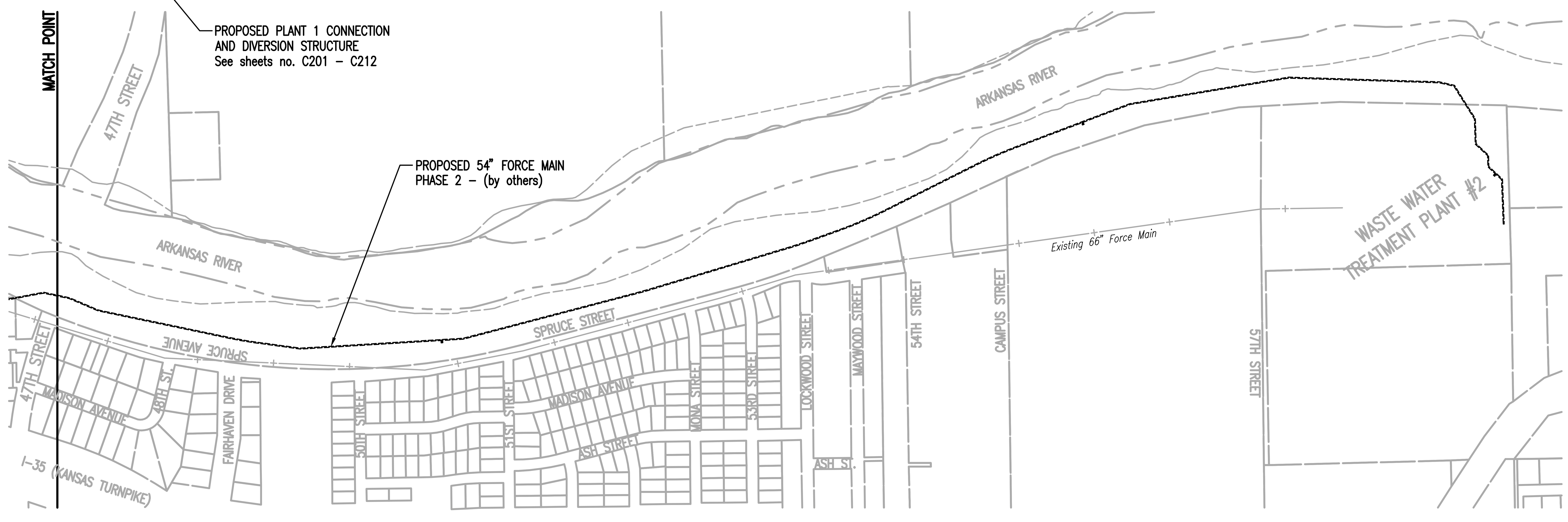


SCALE: 1" = 400'

LEGEND

- EXISTING SANITARY SEWER
- EXISTING FORCE MAIN SEWER
- PROPOSED FORCE MAIN SEWER
- EXISTING SANITARY SEWER w/MANHOLE
- PROPOSED SANITARY SEWER w/MANHOLE



CONDUIT/SERVICE BOX ASSEMBLY

The Contractor shall install a continuous conduit the entire length of the proposed 48"/54" Force Main (FM 1). The conduit shall be CARLON OPTIC–GARD 1–1/4" diameter, SDR 11, PE Pipe or approved equal. The pipe shall be ribbed/smooth, orange in color, and shall contain a pre–installed poly pull rope. Where necessary, the pipe shall be jointed with metallic threaded sleeve couplings as manufactured by Carlon, or approved equal. Stainless Steel bands shall be installed every 20 feet along the 48"/54" Force Main to secure the conduit to the top of the Force Main.

The service box assembly shall be QUAZITE COMPOSOLITE Part No. PG3048BA18 service box (30"W x 48"L x 18"D) with a QUAZITE COMPOSOLITE Part No. PG3048HA00 heavy duty locking cover, or approved equal. The locking cover for the service box shall be imprinted with "CITY OF WICHITA".

The conduit entering and exiting the service box assembly shall extend to an elevation approximately 12" below grade. The pre–installed poly rope shall extend a minimum of 3' inside the service box. The service box shall be placed on a 6" crushed rock base (compacted to 95% of ASTM D698) extending a minimum of 12" around the box perimeter. A 12" wide x 12" thick concrete border (COW concrete pavement mix) shall be placed flush around the top of the service box assembly.

Service Boxes shall be installed along the route of the Force Main (FM 1) as listed in the Service Box Location table. The locations of the service boxes shown in the Service Box Location table are approximate. Maximum spacing for service boxes shall be 2,000 feet. The service boxes shall be placed along the outside limits of the Force Main excavation except where such placement would fall within a paved or unpaved vehicular travelway. Service boxes shall be situated at least 5' outside of all vehicle travelways, and in locations as approved by the Field Engineer. This work shall be considered subsidiary to the price bid for Force Main Pipe.

SERVICE BOX LOCATION TABLE

APPROX. FM 1 STATION	OFFSET
10+10	5' Rt.
20+84	5' Rt.
26+19	5' Rt.
32+98	10' Rt.

(Approx. 3,300 L.F. conduit required.)

BEDDING AND BACKFILL NOTES

1. ALL BEDDING BETWEEN FM 1 STA. 26+19.13 AND 32+32.91 AND BETWEEN FM 2 STA. 26+00.86 AND 32+26.55 SHALL BE IMPROVED BEDDING CONSISTING OF TYPE 1 PIPE BEDDING MATERIAL UNDER THE BARREL OF THE PIPE EXTENDING UP TO A LEVEL TWELVE INCHES (12") ABOVE THE TOP OF THE PIPE.

   FOR THESE SECTIONS OF PIPE, EXCLUDING FROM FM1 STA. 27+51.11 TO 29+78.00 AND FROM FM 2 STA. 27+35.84 TO 29+43.00, GEOTEXTILE FABRIC SHALL BE PLACED ALONG THE TRENCH BOTTOM AND UP THE SIDES OF THE TRENCH TO A LEVEL TWELVE INCHES (12") ABOVE THE TOP OF THE PIPE. THE GEOTEXTILE FABRIC SHALL BE PAID FOR PER LINEAR FOOT OF TRENCH AS THE BID ITEM "GEOTEXTILE FABRIC".

2. ALL OTHER BEDDING SHALL CONSIST OF TYPE 1 PIPE BEDDING MATERIAL UNDER THE BARREL OF THE PIPE EXTENDING UP TO A LEVEL EQUAL TO ONE–HALF (1/2) THE OUTSIDE PIPE DIAMETER. TYPE 3 PIPE BEDDING MATERIAL SHALL BE USED FROM THIS LEVEL TO A LEVEL TWELVE INCHES (12") ABOVE THE TOP OF THE PIPE.

3. IF SOFT SOILS ARE ENCOUNTERED IN THE BEDDING ZONE, REFER TO THE GEO–TECHNICAL REPORT FOR METHODS TO ACCOMMODATE.

GENERAL NOTES

1. ALL CONSTRUCTION AND MATERIALS TO COMPLY WITH CITY OF WICHITA SPECIFICATIONS AND STANDARDS, UNLESS OTHERWISE NOTED.

2. EACH BIDDER SHALL VISIT THE SITE OF THE PROJECT BEFORE SUBMITTING THE PROPOSAL FOR THIS WORK SO THAT HE WILL BE FULLY INFORMED OF THE EXISTING FIELD CONDITIONS AND THE OBSTACLES WHICH MIGHT BE ENCOUNTERED. UPON AWARD OF THE CONTRACT THE CONTRACTOR WILL NOT BE GRANTED ANY ADDITIONAL COMPENSATION WITH REGARDS TO TIME AND MONEY FOR CONDITIONS THAT MAY HAVE BEEN EVALUATED DURING ANY INSPECTION OF THE SITE.

3. ALL ELEVATIONS SHOWN ARE BASED ON NAVD 88 DATUM.

4. AT LEAST 72 HOURS PRIOR TO BEGINNING EXCAVATION (EXCLUDING WEEKENDS AND HOLIDAYS), THE CONTRACTOR SHALL CONTACT THE KANSAS ONE–CALL SYSTEM, A UTILITY LOCATION SERVICE, AT (316) 687–2470 OR 811 TO REQUEST THE LOCAL UTILITY COMPANIES MARK ANY EXISTING LINES WITHIN THE PROJECT AREA.

5. THE CONTRACTOR MUST NOTIFY THE FOLLOWING IN CASE OF AN EMERGENCY:

EMERGENCY DISPATCH	911
COX COMMUNICATIONS	316–260–7745 – MARC HENDERSON
KANSAS GAS SERVICE	316–832–3126 – JIM COE
WESTAR ENERGY	316–261–6264 – ZACH LAWS
BLACK HILLS ENERGY	316–529–6620 – STACY CATLIN
AT&T	316–268–2008 – JASON EDWARDS
WICHITA WATER UTILITIES (SS AND WL)	316–262–6000
WICHITA WASTE WATER TREATMENT	316–303–8702 – BECKY LEWIS
KANSAS TURNPIKE AUTHORITY	785–224–3650 – DAVID JACOBSON

6. THE CONTRACTOR SHALL GIVE ALL PROPERTY OWNERS AND/OR TENANTS OF DEVELOPED PROPERTY ABUTTING THE CONSTRUCTION OF THIS PROJECT A MINIMUM OF TEN (10) DAYS ADVANCE NOTICE PRIOR TO START OF CONSTRUCTION.

7. THE CONTRACTOR SHALL NOT START WORK ON THE PROJECT UNTIL THE PROJECT INSPECTOR IS ASSIGNED AND IS PRESENT ON THE SITE. ANY WORK DONE WITHOUT INSPECTION WILL BE REQUIRED TO BE UNCOVERED FOR INSPECTION AT THE CONTRACTORS EXPENSE.

8. EXISTING UTILITIES AND THEIR LOCATION, AS SHOWN ON THE DRAWINGS, REPRESENT THE BEST INFORMATION OBTAINABLE FOR DESIGN. LOCATION INFORMATION HAS BEEN OBTAINED FROM THE VARIOUS UTILITY COMPANIES AND IS EITHER FROM COMPANY RECORD DRAWINGS OR COMPANY PROVIDED FIELD LOCATIONS. THE CONTRACTOR SHALL PROVIDE THE MATERIAL AND MEANS TO PROTECT AND SUPPORT SAID UTILITIES DURING CONSTRUCTION TO THE SATISFACTION OF THE UTILITY OWNER. IT SHOULD BE NOTED THAT OTHER BURIED LINES AND CABLES MAY EXIST WHICH ARE NOT SHOWN ON THESE DRAWINGS. THE CONTRACTOR SHALL HAVE ALL BURIED LINES LOCATED AND FLAGGED IN THE FIELD PRIOR TO COMMENCING WORK. THE CONTRACTOR SHALL CONTACT THE ENGINEER AND REVIEW ALL BURIED LINES LOCATED TO DETERMINE IF CONFLICTS EXIST. THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION DURING TRENCHING OPERATIONS TO AVOID DAMAGING THESE LINES. ANY LINES DAMAGED SHALL BE REPLACED OR REPAIRED IMMEDIATELY AS DIRECTED BY THE ENGINEER AT THE CONTRACTOR'S EXPENSE.

9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PRESERVING PROPERTY IRONS. THE CONTRACTOR WILL BE REQUIRED TO RE–ESTABLISH ANY PROPERTY IRONS WHICH ARE DAMAGED OR DESTROYED BY HIS CONSTRUCTION OPERATIONS. SUCH IRONS SHALL BE RE–ESTABLISHED BY A LICENSED LAND SURVEYOR IN ACCORDANCE WITH STATE LAWS. ALL COSTS FOR THIS WORK SHALL BE SUBSIDIARY TO THE LUMP SUM PRICE BID FOR "SITE RESTORATION".

10. EASEMENTS AND RIGHT–OF–WAY PROVIDED BY THE OWNER FOR THE PROJECT ARE SHOWN ON THE DRAWINGS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ACQUISITION OF ANY ADDITIONAL TEMPORARY EASEMENTS OR RIGHT–OF–WAY THAT HE DESIRES TO USE IN COMPLETING THE WORK.

11. RUBBLE FROM THE REMOVAL OF MISCELLANEOUS STRUCTURES INCLUDING ANY TREES REMOVED, TREE TRIMMINGS, AND EXCESS EXCAVATION WHICH IS TO BE WASTED SHALL BE DISPOSED OF ON SITES PROVIDED BY THE CONTRACTOR. THESE SITES SHALL ALSO BE APPROVED BY THE ENGINEER AS TO SUITABILITY, APPEARANCE, AND SITE LOCATION. LOCATIONS THAT, IN THE OPINION OF THE ENGINEER, WILL LEAVE AN UNSIGHTLY APPEARANCE WILL NOT BE APPROVED. ALL DISPOSAL SITES MUST BE APPROVED BY THE KANSAS DEPARTMENT OF HEALTH AND ENVIRONMENT. MATERIAL EITHER STOCKPILED OR DISPOSED OF IN A FLOOD PLAIN WILL REQUIRE A KANSAS STATE BOARD OF AGRICULTURE PERMIT. ANY MATERIAL DUMPED IN WATERS OF THE UNITED STATES OR WETLANDS IS SUBJECT TO U.S. CORPS OF ENGINEERS PERMITTING REGULATIONS. ANY MATERIAL BURIED OR STOCKPILED BEYOND APPROVED CONSTRUCTION LIMITS MAY REQUIRE ARCHAEOLOGICAL INVESTIGATIONS UNLESS BURIED IN A PREVIOUSLY APPROVED DISPOSAL LOCATION.

12. THE CONTRACTOR SHALL AVOID REMOVAL OR TRIMMING OF ANY TREES OR SHRUBS WHERE POSSIBLE. WHERE THE CONTRACTOR BELIEVES THE REMOVAL OR TRIMMING IS UNAVOIDABLE, HE SHALL COORDINATE SUCH WORK WITH THE ENGINEER. TREES ADJACENT TO THE TRENCH THAT ARE REMOVED SIMPLY FOR ACCESS SHOULD BE CUT AT GROUND LEVEL TO PRESERVE THE ROOT SYSTEM TO MAINTAIN SOIL STABILITY. COSTS FOR TREE/SHRUB REMOVAL AND TRIMMING REGARDLESS OF SIZE SHALL BE CONSIDERED SUBSIDIARY TO THE LUMP SUM PRICE BID FOR "SITE CLEARING".

13. THE CONTRACTOR SHALL RESTORE ALL DITCHES, SWALES, ROAD SHOULDERS, AND BANKS TO THEIR ORIGINAL SLOPES AND GRADES. WHERE EXISTING ENTRANCE PIPE, DRAINAGE PIPE, SIGNS, FENCES, IRRIGATION, LANDSCAPING, ETC., CONFLICT WITH THE PROPOSED WORK HEREIN, THEY SHALL BE REMOVED AND REPLACED OR RESET, UNLESS OTHERWISE NOTED ON THE DRAWINGS. THE REPLACEMENT OF ALL THE AFOREMENTIONED ITEMS, INCLUDING SEEDING, FERTILIZER, AND MULCHING SHALL BE CONSIDERED SUBSIDIARY TO "SITE CLEARING AND RESTORATION".

14. THE CONTRACTOR SHALL INSTALL AND/OR MAINTAIN EROSION CONTROL METHODS AS SPECIFIED ON SHEET C400. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THE EROSION CONTROL SHOWN THROUGH THE COMPLETION OF THIS PROJECT. INSTALLATION OF THESE BMP'S DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF ABATING SOIL EROSION.

15. THE CONTRACTOR SHALL TAKE CARE TO PREVENT SILT AND DEBRIS FROM ENTERING ANY STORM DRAINAGE SYSTEM DURING CONSTRUCTION. PIPES OR STRUCTURES WHICH CONTAIN MATERIALS FROM THE CONTRACTORS ACTIVITIES SHALL BE THOROUGHLY CLEANED BY THE CONTRACTOR, AT HIS OWN EXPENSE, PRIOR TO THE FINAL INSPECTION.

16. ALL LAWN/TURF AREAS DISTURBED BY CONSTRUCTION OF THE PROPOSED IMPROVEMENTS SHALL BE RESTORED WITH A MIXTURE OF RYEGRASS (50 LBS PER ACRE) AND BUFFALO GRASS (200 LBS PER ACRE). RESTORATION OF DISTURBED AREAS SHALL INCLUDE, BUT NOT BE LIMITED TO, TOP SOIL PREPARATION, SEEDING, MULCH, AND/OR RESEEDING. ALL SEEDING/SODDING WORK SHALL BE IN ACCORDANCE WITH THE CITY OF WICHITA STANDARD SPECIFICATIONS AND THE CITY OF WICHITA ADMINISTRATIVE REGULATION NO. AR6.5 WHICH GOVERNS CLEANUP AND RESTORATION OR REPLACEMENT FOLLOWING CONSTRUCTION. ALL COSTS FOR THIS WORK SHALL BE SUBSIDIARY TO THE LUMP SUM PRICE BID FOR "SITE RESTORATION".

17. THE CONTRACTOR SHALL SEED ALL AREAS DISTURBED BY CONSTRUCTION ACTIVITIES WITH TEMPORARY RYE GRASS. RYE GRASS SEED SHALL BE PLANTED AT A MINIMUM RATE OF SIX (6) POUNDS PER ONE THOUSAND (1,000) SQUARE FEET. THIS TEMPORARY SEEDING MAY BE OMITTED ONLY IF OTHER SEEDING IS REQUIRED IN ACCORDANCE WITH GENERAL NOTE NO. 16 ABOVE. TEMPORARY SEEDING OR PERMANENT SEEDING/SODDING SHALL BE APPLIED WITHIN 14 DAYS AFTER THE AREA HAS BEEN DISTURBED.

18. THE CONTRACTOR SHALL PREVENT ANY CONSTRUCTION DEBRIS FROM ENTERING THE EXISTING SANITARY SEWER DURING CONSTRUCTION.

19. THE CONTRACTOR IS REQUIRED TO MAINTAIN CONTINUOUS FLOW OF SEWAGE IN EXISTING SANITARY SEWERS AT ALL TIMES.

20. THE CONTRACTOR SHALL LIMIT THE EXTENT OF TRENCH TO REMAIN OPEN OVERNIGHT AND WEEKENDS TO LESS THAN 50 FEET. ANY EXCAVATED AREAS SHALL BE FENCED.

21. THE TEST PRESSURE FOR THE NEWLY CONSTRUCTED FORCE MAIN SHALL BE 100 PSI. ALL FIBERGLASS FITTINGS, PIPE, AND APPURTENANCES INSTALLED SHALL HAVE A PRESSURE RATING OF 100 PSI (MIN.). ALL DUCTILE IRON FITTINGS PIPE AND APPURTENANCES INSTALLED SHALL HAVE A PRESSURE RATING OF 200 PSI (MIN.).

22. PIPE DEFLECTIONS AT A JOINT SHALL NOT EXCEED THE MANUFACTURERS RECOMMENDATIONS. IF PIPE DEFLECTIONS SHOWN IN THE PLANS EXCEED THE MAXIMUM PIPE DEFLECTIONS ALLOWABLE PER THE PIPE MANUFACTURER'S RECOMMENDATIONS, THESE PIPE DEFLECTIONS MAY BE ACCOMPLISHED THROUGH MORE THAN ONE JOINT.

23. ALLOWABLE PIPE OPTIONS FOR THE 60" PUMP DISCHARGE PIPING TO THE DIVERSION STRUCTURE SHALL BE FIBER GLASS OR DUCTILE IRON. ALLOWABLE PIPE OPTIONS FOR THE PROPOSED 42", 48", AND 78" PIPING SHALL BE FIBERGLASS.

24. THE CONTRACTOR SHALL RESTRAIN ALL BENDS, TEES, VALVES AND PIPE THROUGH THE USE OF FIBERGLASS COUPLINGS WITH LOCKING RODS OR AS SPECIFIED, AT THE MINIMUM LENGTHS AS SHOWN IN THE PLANS. RESTRAINED JOINT PIPE WILL NOT BE BID SEPARATELY AND SHALL BE INCLUDED IN THE PRICE BID FOR PIPE IN PLACE.

25. THE CROSSING OF THE ARKANSAS RIVER SHALL CONFORM WITH THE FOLLOWING;

    A. ANY BANKLINE DISTURBED DURING CONSTRUCTION MUST BE RE–ESTABLISHED IMMEDIATELY FOLLOWING PROJECT COMPLETION WITH FINISH GRADING; CORPS APPROVED STABILIZATION MATERIAL, AND BANKS AND FORESHORES MUST BE SEEDED WITH CORPS APPROVED VEGETATION (50/50 FESCUE/BROME MIX).

    B. THE CONTRACTOR SHALL MEET ALL REQUIREMENTS OF THE KANSAS DEPARTMENT OF WILDLIFE, PARKS, AND TOURISM ACTION PERMIT.

    B. THE FLOOD CONTROL SUPERVISOR MUST BE NOTIFIED, AT 316–268–4095, FIFTEEN (15) WORKING DAYS PRIOR TO BEGINNING CONSTRUCTION.

    C. UPON PROJECT COMPLETION, PROVIDE A SET OF AS–BUILT DRAWINGS FOR THE PROJECT TO THE CITY OF WICHITA STORM WATER MANAGEMENT OFFICE.

    D. PROVIDE SEDIMENT BARRIERS AT THE BANKS OF THE ARKANSAS RIVER IN ACCORDANCE WITH THE EROSION CONTROL DETAILS.

26. NO CONSTRUCTION EQUIPMENT SHALL BE ALLOWED ON SURFACE ABOVE OR WITHIN 10 FEET OF THE EXISTING 66" RCP FORCE MAIN (EXCLUDING WORK AT DIVERSION STRUCTURE AND CROSS CONNECTION ASSEMBLY). WHERE THE PROPOSED FORCE MAIN IS WITHIN 40 FEET OF THE EXISTING 66" RCP FORCE MAIN, TEMPORARY FENCING SHALL BE INSTALLED 10 FEET OFF OF THE EXISTING FORCE MAIN TO PREVENT CONSTRUCTION EQUIPMENT FROM ENTERING THE AREA.

27. ACCESS TO PROJECT SITE SHALL BE THROUGH THE WASTEWATER TREATMENT PLANT 1 GATE ENTRANCE OR OFF OF MACARTHUR ROAD THROUGH CHAPIN PARK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPLACEMENT/RESTORATION OF ANY DAMAGED PAVEMENTS OR ROADWAYS. THIS WORK SHALL BE CONSIDERED SUBSIDIARY TO "SITE RESTORATION".

28. DUE TO POTENTIAL SOIL CONTAMINATION AND METHANE GAS, ALL CONTRACTOR PERSONNEL WORKING IN THE PIPE TRENCH OR STRUCTURE EXCAVATION SHALL CARRY AIR MONITORING DEVICES IN ACCORDANCE WITH THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION RECOMMENDATIONS.

29. A FORCE MAIN WARNING SIGN SHALL BE PLACED DIRECTLY ABOVE ALL HORIZONTAL BENDS. PER DETAIL ON SHEET C310

30. NITRILE GASKETS SHALL BE USED ON THE 60" NORTH AND SOUTH PUMP DISCHARGE FORCE MAINS, 78" EXTRANEOUS FLOW PIPE, FM 1 BETWEEN STA. 10+00.00 AND 11+31.58, AND FM 2 BETWEEN STA. 10+00.00 AND 11+19.04. THE GASKET COST SHALL BE CONSIDERED SUBSIDIARY TO THE PRICE BID FOR PIPE.

MICHAEL D. KELSEY
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13944
04/07/2017
KANSAS
PROFESSIONAL ENGINEER

No.	Revision	By	Date

WASTEWATER PLANT 2
INFLUENT FORCE MAIN – PHASE 1

KEY MAP AND GENERAL NOTES

GARY JANZEN, P.E. – CITY ENGINEER
CITY OF WICHITA PROJECT NO. 468–85118

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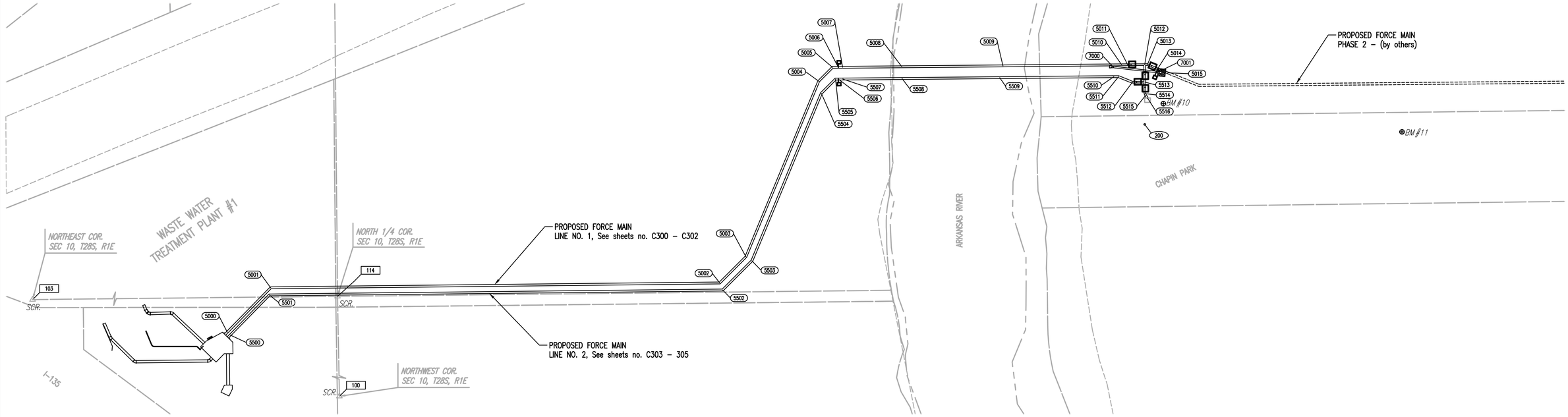
Designed by	MDK, TBK	Job No.	35–15554–1–0042	Sht. C100 of 58
Drawn by	CSL, KTD	Date	NOVEMBER 2016	

SCALE: 1" = 100'



FORCE MAIN LINE NO. 1 COORDINATE LIST				
POINT	NORTHING	EASTING	STATION	DESCRIPTION
5000	1,667,396.3780	1,657,424.1365	10+00.00	STRUCTURE
5001	1,667,304.3533	1,657,518.1893	11+31.58	BEND
5002	1,666,352.2594	1,657,528.5667	20+83.73	BEND
5003	1,666,296.6825	1,657,584.1436	21+62.33	BEND
5004	1,666,142.3866	1,657,956.6468	25+65.53	BEND
5005	1,666,112.9599	1,657,985.9861	26+07.02	BEND
5006	1,666,100.9412	1,657,986.0920	26+19.13	AIR RELEASE
5007	1,666,091.6381	1,657,986.1733	26+28.43	VERTICAL BEND
5008	1,665,965.9629	1,657,987.2718	27+54.11	VERTICAL BEND
5009	1,665,751.6511	1,657,989.1450	29+68.43	VERTICAL BEND
5010	1,665,500.0907	1,657,991.3438	32+20.00	VERTICAL BEND
5011	1,665,487.1763	1,657,991.4567	32+32.91	REDUCER
5012	1,665,451.2577	1,657,991.7707	32+68.83	TEE
5013	1,665,445.4246	1,657,991.8216	32+74.66	BEND
5014	1,665,423.7067	1,657,983.0474	32+98.09	AIR RELEASE
5015	1,665,402.3824	1,657,974.4312	33+21.09	PLUG

(5000) = COORDINATE POINT NO.

FORCE MAIN LINE NO. 2 COORDINATE LIST				
POINT	NORTHING	EASTING	STATION	DESCRIPTION
5500	1,667,390.1833	1,657,418.0754	10+00.00	STRUCTURE
5501	1,667,306.9331	1,657,503.1603	11+19.04	BEND
5502	1,666,345.9787	1,657,513.6343	20+80.05	BEND
5503	1,666,283.9661	1,657,575.6468	21+67.75	BEND
5504	1,666,136.8028	1,657,930.9304	25+52.30	BEND
5505	1,666,106.6925	1,657,961.0407	25+94.89	BEND
5506	1,666,100.7227	1,657,961.0929	26+00.86	AIR RELEASE
5507	1,666,091.4231	1,657,961.1742	26+10.16	VERTICAL BEND
5508	1,665,965.7479	1,657,962.2727	27+35.84	VERTICAL BEND
5509	1,665,758.5958	1,657,964.0833	29+43.00	VERTICAL BEND
5510	1,665,516.6050	1,657,966.1985	31+85.00	VERTICAL BEND
5511	1,665,506.6385	1,657,966.2856	31+94.96	BEND/REDUCER
5512	1,665,477.3559	1,657,954.4552	32+26.55	BEND
5513	1,665,450.9336	1,657,954.6861	32+52.97	TEE
5514	1,665,450.7201	1,657,930.2637	32+77.39	BEND
5515	1,665,449.1570	1,657,926.5815	32+81.39	BEND
5516	1,665,445.2640	1,657,920.8640	32+88.31	EXIST. STRUCTURE

(5500) = COORDINATE POINT NO.

SWS LINE NO. 1 COORDINATE LIST				
POINT	NORTHING	EASTING	STATION	DESCRIPTION
7000	1,665,517.6609	1,657,986.7085	10+00.00	R.C. END SECTION
7001	1,665,423.2808	1,657,975.8732	10+95.00	R.C. END SECTION

MICHAEL D. KELSEY LICENSED 13944 04/03/2017 KANSAS PROFESSIONAL ENGINEER

No.	Revision	By	Date

WASTEWATER PLANT 2
INFLUENT FORCE MAIN – PHASE 1

FORCE MAIN BUBBLE MAP

GARY JANZEN, P.E. – CITY ENGINEER
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Drawn by	CSL, KTD	Date	NOVEMBER 2016	

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CONTROL POINTS

Pt No. 200
N: 1665451.1570 E: 1657864.8400
#4 REBAR IN LINE WITH N FACE OF CONCRETE MANHOLE STRUCTURE.
1. 46.65' E TO NW CORNER OF MANHOLE STRUCTURE
2. 71.15' EAST NORTHEAST TO CENTER OF ABANDONED SS MANHOLE
3. 59.30' SE TO CHISELED "±" ON SE CORNER OF TELECOMMUNICATIONS MANHOLE SLAB, "BENCHMARK # 10"

Pt No. 201 – (NOT SHOWN)
N: 1664057.7570 E: 1657940.0000
MAG NAIL IN ASPHALT PAVEMENT
1. 100.00' EAST NORTHEAST TO "T" INTERSECTION OF ASPHALT DRIVES IN CHAPIN PARK, E, W AND N
2. 28.00' S TO CHAIN LINK FENCE PI W AND SE
3. 41.03' SE TO CHISELED "±" ON TOP OF SOUTH EDGE OF CONCRETE SIDEWALK, "BENCHMARK # 13"
4. 1.80' S TO S EDGE OF ASPHALT PAVEMENT

Pt. No. 202 – (NOT SHOWN)
N: 1662941.2060 E: 1658106.5090
CHISELED "+" ON E SIDE OF SIDEWALK
1. ±200' SW TO MANHOLE STRUCTURE
2. 300' S TO CENTERLINE OF MACARTHUR RD.
3. 200' W TO 6' WOOD PRIVACY FENCE N–S
4. ±280' SOUTH SOUTHWEST TO SOUTH ENTRANCE TO CHAPIN PARK.

Pt No. 203 – (NOT SHOWN)
N: 1662018.5650 E: 1657924.3260
#4 REBAR
1. 7.40' W TO E EDGE OF ASPHALT DRIVE
2. 14.80' E TO W KANSAS TURNPIKE AUTHORITY RIGHT OF WAY FENCE
3. 30.00' NNE TO PAIR OF 24" ELM TREES
4. ±630.00' N TO CENTERLINE OF MACARTHUR RD.

Pt No. 204 – (NOT SHOWN)
N: 1660485.0900 E: 1657872.2140
#4 REBAR
1. 50.00' W TO E KANSAS TURNPIKE AUTHORITY RIGHT OF WAY FENCE
2. 30.00' EAST NORTHEAST TO CENTERLINE OF GRAVEL ACCESS ROAD FOR BOEING LANDFILL
3. 450.00' S TO 6' CHAIN LINK FENCE, S END OF BOEING LANDFILL PROPERTY
4. 34.12' N TO SE CORNER OF CONCRETE MANHOLE STRUCTURE

Pt No. 205 – (NOT SHOWN)
N: 1660031.5340 E: 1657760.0970
T POST SET IN TOP OF DITCH. AKA "BENCHMARK # 19"
1. ±10' N TO 6' CHAIN LINK FENCE, S END OF BOEING LANDFILL PROPERTY
2. 46.57' EAST NORTHEAST TO NW CORNER OF N SS STRUCTURE
3. 78.97' SE TO NW CORNER OF S SS STRUCTURE
4. 46.82' ESE TO SW CORNER OF N SS STRUCTURE

Pt. No. 206 – (NOT SHOWN)
N: 1656458.3810, E: 1657346.7870
#4 REBAR IN GRASS NEAR SE CORNER OF 48TH STREET AND SPRUCE
1. 4.00' E TO RIGHT OF WAY FENCE N–S
2. 15.00' N TO CENTERLINE OF DIRT ACCESS DRIVE
3. 34.00' W TO CENTERLINE OF SPRUCE ST.
4. 130.00' N TO CONCRETE MANHOLE STRUCTURE

Pt. No. 207 – (NOT SHOWN)
N: 1654508.7570 E: 1657411.0410
#4 REBAR IN GRASS
1. 34.00' WEST SOUTHWEST TO CENTERLINE OF SPRUCE ST.
2. ±210.00' NNW TO CENTERLINE OF INTERSECTION OF SPRUCE AND 51ST ST. S
3. 10.00' E TO STEEL CABLE RIGHT OF WAY FENCE
4. 10.00' N TO SW CORNER OF CONCRETE SS STRUCTURE

Pt. No. 208 – (NOT SHOWN)
N: 1653095.5710 E: 1657761.4850
#4 REBAR IN GRASS AT SE CORNER OF SPRUCE AND LOCKWOOD
1. 23.00' W TO CENTERLINE OF SPRUCE ST
2. 40.00' N TO LINE OF LOCKWOOD ST W
3. 6.50' S TO NE CORNER OF CURB INLET
4. 53.50' N TO S SIDE OF WHEELCHAIR RAMP ON E SIDE OF SPRUCE ST.

Pt. No. 209 – (NOT SHOWN)
N: 1650711.1530 E: 1657997.6270
#4 REBAR IN GRASS ISLAND
1. 250.00' W TO POWER POLE WITH OVERHEAD ELECTRIC WEST ONLY
2. 388.00' W TO E EDGE OF ASPHALT DRIVE
3. 500.00' WNW TO SE CORNER OF SOLID STORAGE FACILITY, COW SANITARY SEWER TREATMENT PLANT #2
4. 310.00' S TO 6' CHAIN LINK FENCE E–W

Pt. No. 210 – (NOT SHOWN)
N: 1650731.3520 E: 1657126.2050
MAG NAIL AT N EDGE OF ASPHALT
1. 11.00' S TO CENTERLINE OF 57TH ST S
2. 250.00' W TO ENTRANCE GATE TO COW SANITARY SEWER TREATMENT PLANT #2
3. 27.00' W TO CENTERLINE OF DRIVE SOUTH
4. 275.00' EAST NORTHEAST TO SW CORNER OF SOLID STORAGE FACILITY, COW SANITARY SEWER TREATMENT PLANT #2

BENCH MARK LIST

BM 10 – CHISELED "□" ON SE CORNER OF CONCRETE SLAB OF TELECOMMUNICATIONS MANHOLE, 30' S OF SANITARY SEWER STRUCTURE, N SIDE OF CHAPIN PARK.
ELEV. = 1280.29 (NAVD 88)

BM 11 – T POST IN GRASS, APPROXIMATELY 35' NW OF NW CORNER OF PARKING AREA FOR RC AIRSTRIP IN CHAPIN PARK, 140' E OF GRAVEL BIKE PATH.
ELEV. = 1283.02 (NAVD 88)

BM 12 – (NOT SHOWN) CHISELED "□" ON SW CORNER OF CONCRETE SLAB FOR TELECOMMUNICATIONS MANHOLE, SW OF PARKING AREA FOR RC AIRSTRIP IN CHAPIN PARK.
ELEV. = 1279.02 (NAVD 88) – (NOT SHOWN)

BM 13 – CHISELED "□" ON S EDGE OF CONCRETE SIDEWALK IN CHAPIN PARK, 25' E OF CHAIN LINK FENCE CORNER.
ELEV. = 1286.34 (NAVD 88) – (NOT SHOWN)

BM 14 – CHISELED "□" ON NW CORNER OF CONCRETE SANITARY SEWER STRUCTURE, 5' E OF E BOUNDARY FENCE FOR TRAILER PARK, N OF S ENTRANCE TO CHAPIN PARK.
ELEV. = 1275.24 (NAVD 88) – (NOT SHOWN)

BM 15 – CHISELED "□" NE CORNER OF CONCRETE SLAB FOR BEEHIVE SDM INLET, 125' NE OF MANHOLE STRUCTURE ON N SIDE OF MACARTHUR RD.
ELEV. = 1273.19 (NAVD 88) – (NOT SHOWN)

BM 16 – CHISELED "□" ON SE CORNER OF CONCRETE SLAB FOR TELECOMMUNICATIONS MANHOLE, 250' SOUTH SOUTHEAST OF INTERSECTION OF MACARTHUR RD. AND SPRUCE ST.
ELEV. = 1273.14 (NAVD 88) – (NOT SHOWN)

BM 17 – CHISELED "□" ON SW CORNER OF CONCRETE SLAB FOR TELECOMMUNICATIONS MANHOLE, W SIDE OF SPRUCE ST, 1250' S OF MACARTHUR RD.
ELEV. = 1271.93 (NAVD 88) – (NOT SHOWN)

BM 18 – CHISELED "□" ON NW CORNER OF CONCRETE SANITARY SEWER STRUCTURE. INSIDE BOEING LANDFILL PROPERTY, 12' E OF KANSAS TURNPIKE AUTHORITY RIGHT OF WAY FENCE.
ELEV. = 1270.41 (NAVD 88) – (NOT SHOWN)

BM 19 – T POST IN TOP OF N SIDE OF DRAINAGE DITCH AT S END OF BOEING LANDFILL PROPERTY, 60' W OF N CONCRETE SANITARY SEWER STRUCTURE.
ELEV. = 1270.87 (NAVD 88) – (NOT SHOWN)

BM 19A – CHISELED "□" ON SW CORNER OF CONCRETE SANITARY SEWER STRUCTURE, 90' WEST SOUTHWEST OF NW CORNER OF COPART AUTO SALVAGE YARD.
ELEV. = 1279.50 (NAVD 88) – (NOT SHOWN)

BM 20 – CHISELED "□" ON NE CORNER OF CONCRETE MANHOLE STRUCTURE, 80' S OF N FENCE FOR BEELINE AUTO SALVAGE YARD.
ELEV. = 1273.28 (NAVD 88) – (NOT SHOWN)

BM 21 – CHISELED "□" ON SE CORNER OF CONCRETE MANHOLE STRUCTURE, INSIDE BEELINE AUTO SALVAGE YARD, 250' E OF CENTERLINE OF MADISON ST.
ELEV. = 1270.25 (NAVD 88) – (NOT SHOWN)

BM 22 – CHISELED "□" ON SW CORNER OF CONCRETE MANHOLE STRUCTURE ON E SIDE OF SPRUCE ST. AND 100' N OF 48TH ST. S
ELEV. = 1270.62 (NAVD 88) – (NOT SHOWN)

BM 23 – CHISELED "□" ON NW CORNER OF CONCRETE MANHOLE STRUCTURE ON E SIDE OF RIGHT OF WAY FENCE, NE OF INTERSECTION OF 50TH ST S AND SPRUCE.
ELEV. = 1269.96 (NAVD 88) – (NOT SHOWN)

BM 24 – CHISELED "□" ON NE CORNER OF CONCRETE MANHOLE STRUCTURE, 30' S OF 60" COTTONWOOD TREE ON E SIDE OF SPRUCE ST. ACROSS THE STREET FROM 5219 SPRUCE ST.
ELEV. = 1268.63 (NAVD 88) – (NOT SHOWN)

BM 25 – CHISELED "□" ON SE CORNER OF CONCRETE MANHOLE STRUCTURE, NW OF NW CORNER OF HOUSE AT 5472 S. SPRUCE.
ELEV. = 1265.70 (NAVD 88) – (NOT SHOWN)

BM 26 – CHISELED "□" ON SW CORNER OF CONCRETE MANHOLE STRUCTURE, 75' E OF INTERSECTION OF 54TH ST. S AND SPRUCE ST.
ELEV. = 1265.23 (NAVD 88) – (NOT SHOWN)

BM 27 – CHISELED "□" ON NW CORNER OF CONCRETE MANHOLE STRUCTURE IN FIELD AT N END OF SANITARY SEWER TREATMENT PLANT #2, 550' ESE OF NE CORNER OF SOLID STORAGE FACILITY.
ELEV. = 1263.99 (NAVD 88) – (NOT SHOWN)

BM 28 – CHISELED "□" ON NW CORNER OF CONCRETE MANHOLE STRUCTURE, 15' S OF CHAIN LINK FENCE NORTH OF TRICKLING FILTERS AT COW SANITARY SEWER TREATMENT PLANT #2.
ELEV. = 1267.93 (NAVD 88) – (NOT SHOWN)

BM 29 – CHISELED "□" ON SE CORNER OF CONCRETE STRUCTURE, 45' N OF CENTERLINE OF ASPHALT DRIVE N OF TRICKLING FILTERS AT SANITARY SEWER TREATMENT PLANT #2
ELEV. = 1265.35 (NAVD 88) – (NOT SHOWN)

SECTION CORNERS

Pt. No. 100
NORTHWEST CORNER, SEC 10, T28S, R1E
N: 1,667,113.5040, E: 1,654855.0260
3/4" PIPE IN THIMBLE
49.18' NORTHEAST TO NAIL AND CAP I NORTHWEST FACE OF POWER POLE
45.63' SOUTHWEST TO NAIL AND CAP IN SOUTHEAST FACE OF LIGHT POLE
38.52' NORTHWEST TO CHISELED CROSS ON TOP OF CURB, NORTH END OF NORTHWEST CURB RETURN
24.47' EAST TO CHISELED CROSS ON TOP OF EAST CURB HYDRAULIC

Pt. No. 101 – (NOT SHOWN)
SOUTHWEST CORNER, SEC 10, T28S, R1E
N: 1,662,585.0280, E: 1,655,279.4500
1/2" PIPE IN THIMBLE
86.90' NORTHWEST TO CHISELED CROSS ON NORTHWEST CORNER OF TRAFFIC SIGNAL MANHOLE
65.55' SOUTHWEST TO 3 NAILS IN NORTH FACE OF POWER POLE
69.84' SOUTHEAST TO 3 NAILS IN POWER POLE

Pt. No. 102 – (NOT SHOWN)
SOUTH 1/4 CORNER, SEC 10, T28S, R1E
N: 1,662,623.0150, E: 1,657912.5880
1/2" PIPE IN THIMBLE WITH ORANGE CAP STAMPED CB KS CLS 179 IN ℄ OF EAST BOUND LANES
42.12' SOUTH SOUTHEAST TO CHISELED CROSS ON SOUTHWEST CORNER OF CONCRETE STRUCTURE
79.70' EAST SOUTHEAST TO 40D NAIL IN SOUTHWEST FACE OF POWER POLE
62.61' NORTH TO 40D NAIL IN WEST FACE OF POWER POLE
22.54' NORTH TO 5/8" IRON IN CENTER LINE OF MACARTHUR ROAD

Pt. No. 103
NORTHEAST CORNER , SEC 10, T28S, R1E
N: 1,667,187.3180, E: 1,660,140.7820
1/2" PIPE IN THIMBLE
31.59' SOUTH TO CHISELED CROSS ON TOP OF CURB INLET
69.79' NORTHEAST TO CHISELED CROSS ON TOP OF CURB, CENTER OF NORTHEAST CURB RETURN
61.32' NORTHWEST TO CHISELED CROSS ON TOP OF CURB, CENTER OF NORTHWEST CURB RETURN
37.84' SOUTHWEST TO CHISELED CROSS ON TOP OF SOUTH CURB OF 31ST STREET SOUTH

Pt. No. 104 – (NOT SHOWN)
WEST 1/4 CORNER, SEC 15, T28S, R1E
N: 1,659,925.3460, E: 1,655,315.9670
1/2" PIPE
40.87' EAST SOUTHEAST TO NAIL AND CAP IN SOUTH FACE OF POWER POLE
45.78' SOUTHWEST TO MAG NAIL AND WASHER IN NORTHWEST FACE OF POWER POLE
29.90' SOUTHEAST TO CHISELED CROSS ON TOP OF CURB
60.29' NORTHWEST TO TOP CENTER OF FIRE HYDRANT

Pt. No. 105 – (NOT SHOWN)
SOUTHWEST CORNER, SEC 15, T28S, R1E
N: 1,657,269.9820, E: 1,655,350.0430
1/2" PIPE IN THIMBLE
70.26' NORTHEAST TO CHISELED CROSS ON NORTHERLY CORNER OF TRAFFIC MANHOLE
64.06' NORTHEAST TO CHISELED CROSS ON TOP OF CURB, CENTER OF NORTHEAST CURB RETURN
72.69' SOUTHEAST TO CHISELED CROSS ON NORTHWEST CORNER OF TRAFFIC MANHOLE
64.88' SOUTHEAST TO CHISELED CROSS ON TOP OF CURB, CENTER OF SOUTHEAST CURB RETURN
68.95' NORTHWEST TO CHISELED CROSS ON WESTERLY CORNER OF TRAFFIC MANHOLE

Pt. No. 106 – (NOT SHOWN)
WEST 1/4 CORNER, SEC 22, T28S, R1E
N: 1,654,685.5920, E: 1,655,380.0700
1/2" PIPE IN THIMBLE
30.09' WEST TO CHISELED CROSS ON WEST CURB HYDRAULIC AVENUE
50.59' SOUTHEAST TO PK NAIL IN SOUTH FACE OF POWER POLE
47.24' NORTHEAST TO PK NAIL IN SOUTH FACE OF POWER POLE

Pt. No. 107 – (NOT SHOWN)
SOUTHWEST CORNER, SEC 22, T28S, R1E
N: 1,652,037.4500, E: 1,655,418.2030
1/2" PIPE IN THIMBLE
32.43' EAST SOUTHEAST TO CHISELED CROSS ON TOP OF CURB
44.96' NORTHEAST TO CHISELED CROSS ON TOP OF CURB
49.45' NORTHWEST TO CHISELED CROSS ON TOP OF CURB
45.32' NORTHWEST TO CHISELED CROSS ON TOP OF CURB

Pt. No. 108 – (NOT SHOWN)
WEST 1/4 CORNER, SEC 27, T28S, R1E
N: 1,649,384.2790, E: 1,655,458.9380
1/2" PIPE IN THIMBLE
42.21' WEST NORTHWEST TO PK NAIL IN SOUTH FACE OF POWER POLE
34.60' SOUTHWEST TO CHISELED CROSS ON CURB INLET
74.20' SOUTHEAST TO TOP CENTER OF FIRE HYDRANT
68.21' SOUTH SOUTHEAST TO PK NAIL IN NORTH FACE OF POWER POLE
32.42' NORTHEAST TO CHISELED CROSS ON TOP OF CURB

Pt. No. 109 – (NOT SHOWN)
SOUTHWEST CORNER, SEC 23, T28S, R1E
N: 1,651,300.1480, E: 1,660,435.0810
REBAR AND 3/4" PVC PIPE OVER CENTER OF STONE, 12" DEEP
64.42' NORTH NORTHWEST TO 60D NAIL AND CHASER IN WEST FACE OF 48" COTTONWOOD STUMP
687.92' WEST SOUTHWEST TO NAIL AND SAVOY WASHER IN NORTH FACE OF POWER POLE
80.45' EAST NORTHEAST TO 3 NAILS IN SOUTHEAST FACE OF A POWER POLE
7.00' NORTH TO SOUTH EDGE OF GRAVEL ROAD

Pt. No. 110 – (NOT SHOWN)
SOUTHWEST CORNER, SEC 27, T28S, R1E
N: 1,646,723.7390, E: 1,655,505.5700
#4 REBAR WITH ARMSTRONG CAP AT CONCRETE ROAD SURFACE
74.59' SOUTHEAST TO CHISELED "+" ON THE NORTHWEST CORNER OF SIGNAL POLE BASE
74.65' NORTHEAST TO CHISELED "+" ON THE SOUTHWEST CORNER OF SIGNAL POLE BASE
72.63' EAST NORTHEAST TO CHISELED "+" ON THE SOUTHEAST CORNER OF SIGNAL POLE BASE
74.56' NORTH TO CHISELED "+" ON THE NORTHEAST CORNER OF SIGNAL POLE BASE

Pt. No. 111 – (NOT SHOWN)
SOUTHWEST CORNER, SEC 14, T28S, R1E
N: 1,656,541.6300, E: 1,660,316.1800
ALUMINUM CAP 3" BELOW ASPHALT ROAD SURFACE
24.30' SOUTH TO CHISELED "+" ON THE TOP OF CURB
67.94' SOUTHEAST TO TOP CENTER OF CONCRETE POST
24.52' NORTH TO CHISELED "+" ON THE TOP OF CURB
84.27' NORTHEAST TO 3 NAILS IN THE SOUTHEAST FACE OF A POWER POLE
57' WEST TO CENTERLINE OF JONQUIL STREET TO THE SOUTH

Pt. No. 113 – (NOT SHOWN)
SOUTH 1/4 CORNER, SEC 27, T28S, R1E
N: 1,646,766.7690, E: 1,658,139.0610
3/4" PIPE, 0.15' BELOW ASPHALT ROAD SURFACE, ON ℄ OF 63RD STREET SOUTH AND 271' WEST TO ℄ OF GROVE STREET SOUTH
69.58' SOUTHEAST TO 3 NAILS ON TOP OF FENCE POST
69.68' NORTH NORTHEAST TO NAIL AND SHINER IN TO OF FENCE POST
36.13' NORTHWEST TO CHISELED "+" ON TOP OF CURB
35.72' SOUTHWEST TO CHISELED "+" ON TOP OF CURB

Pt. No. 114 – (NOT SHOWN)
NORTH 1/4 CORNER, SEC 10, T28S, R1E
N: 1,667,162.5940, E: 1,657,500.2020
CHISELED "+" ON SIDEWALK
33.35' EAST NORTHEAST TO 3 NAILS IN SOUTH FACE OF POWER POLE
51.47' EAST SOUTHEAST TO NORTHWEST CORNER OF BUILDING
69.88' WEST TO NORTHEAST CORNER OF BUILDING
55.61' SOUTH SOUTHWEST TO CHISELED "+" ON NORTHEAST CORNER OF CONCRETE BASE OF MANHOLE
±400.00' NORTH TO ℄ OF OVERHEAD DOOR AT SOUTHWEST CORNER OF MAIN PUMP BUILDING AT C.O.W. SANITARY SEWER PLANT #1

MICHAEL D. KELSEY LICENSED 13944 04/03/2017 KANSAS PROFESSIONAL ENGINEER

No.	Revision	By	Date

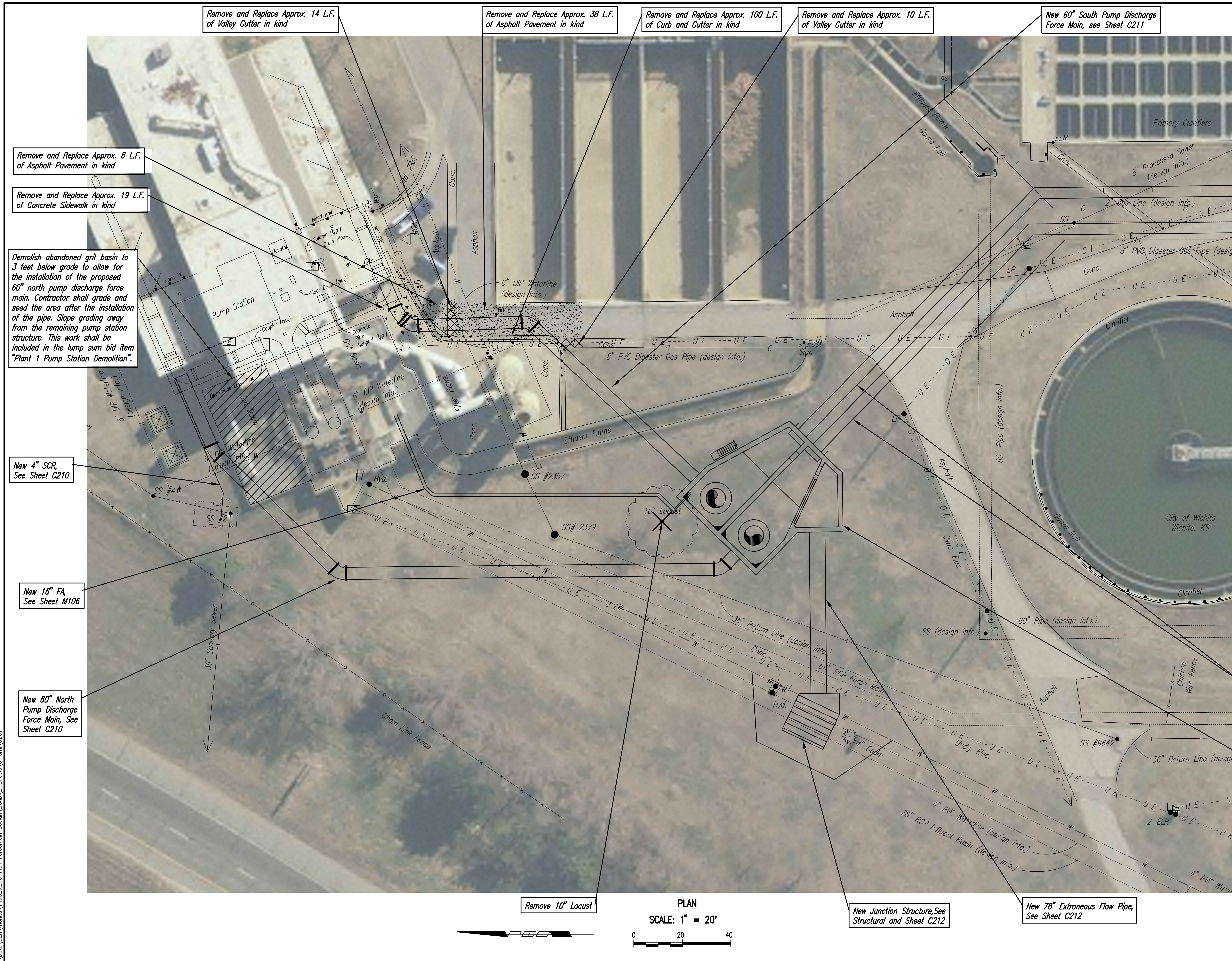
WASTEWATER PLANT 2
INFLUENT FORCE MAIN – PHASE 1

HORIZONTAL AND VERTICAL CONTROL

GARY JANZEN, P.E. – CITY ENGINEER
CITY OF WICHITA PROJECT NO. 468-85118

PEC
PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
303 SOUTH TOPEKA WICHITA, KS 67202
316-262-2691 www.pec1.com

Designed by	MDK, TBK	Job No.	35-15554-1-0042
Drawn by	CSL, KTD	Date	NOVEMBER 2016



PROPOSED WORK SEQUENCE:

1. CONSTRUCT THE NEW DIVERSION STRUCTURE AND 54" PIPES ACROSS THE ARKANSAS RIVER. CROSS CONNECTION VALVES SHALL BE CONSTRUCTED BUT CONNECTION TO EXISTING FORCE MAIN STRUCTURE WILL NOT BE MADE AT THIS TIME.
2. INSTALL THE NEW WALL SLEEVE IN THE EXISTING PUMP STATION EXTERIOR WALL. ALIGN THE WALL SLEEVE WITH THE DISCHARGE HEADER FOR THE SOUTH SIDE PUMPS AND CONSTRUCT THE SOUTH SIDE 60" DISCHARGE FORCE MAIN FROM THE PUMP STATION TO THE NEW DIVERSION STRUCTURE.
3. SCHEDULE THE OUTAGE TO CONNECT THE SOUTH SIDE PUMPS TO THE NEW 60" DISCHARGE FORCE MAIN. THIS WILL REQUIRE THE REMOVAL OF A PORTION OF THE EXISTING 60" PIPING IN THE STATION, THE INSTALLATION OF A SHORT SPOOL PIECE AND A NEW RESTRAINED SLEEVE-TYPE COUPLING. DURING THE DURATION OF THIS CONNECTION PROCESS, THE FLOWS WILL CONTINUE THROUGH THE NORTH PUMPS UNDER NORMAL OPERATIONS.
4. ALL FLOW WILL BE ROUTED THROUGH THE NORTH PUMPS AND INTO THE EXTRANEOUS FLOW BASINS WHILE THE CONNECTION, SOUTH OF THE RIVER, IS MADE TO THE EXISTING FORCE MAIN STRUCTURE. ABANDON/SEAL UPSTREAM FORCE MAIN PIPE OPENING. THIS MUST OCCUR WITHIN AN APPROXIMATELY 20-HOUR PERIOD. SCHEDULE DURING A LOW PRECIPITATION PERIOD. CONTRACTOR WILL BE REQUIRED TO SUBMIT A COMPREHENSIVE WORK PLAN WITH CONTINGENCY PLANS FOR ANY POTENTIAL ISSUES TO THE ENGINEER/CITY.
5. PLACE SOUTH SIDE PUMPS IN SERVICE UTILIZING THE NEW DIVERSION STRUCTURE AND NEW SOUTH DISCHARGE FORCE MAIN. DRAIN THE EXTRANEOUS FLOW BASIN.
6. TAKE THE EXISTING 66" FORCE MAIN OUT OF SERVICE BETWEEN THE DIVERSION STRUCTURE AND CONNECTION SOUTH OF THE RIVER. THE NORTH SIDE PUMPS SHALL REMAIN IN OPERATION IN ORDER TO DELIVER WET WEATHER FLOWS TO THE EXTRANEOUS FLOW BASINS, IF NECESSARY.
7. EXTEND THE NEW 78" EXTRANEOUS FLOW PIPE FROM THE NEW DIVERSION STRUCTURE TO THE EXTRANEOUS FLOW PIPE. THIS WILL REQUIRE DEMOLITION OF A PORTION OF THE EXISTING 66" FORCE MAIN.
8. CONSTRUCT THE JUNCTION STRUCTURE AROUND EXISTING 78" RCP EXTRANEOUS FLOW PIPE.
9. SCHEDULE OUTAGE TO BREAK OUT THE EXISTING 78" RCP, POUR A BENCH AT THE BOTTOM OF THE NEW JUNCTION STRUCTURE, AND ABANDON/SEAL THE UPSTREAM PIPE PENETRATION. THE EXTRANEOUS FLOW WILL NOW ENTER FROM THE NEW DIVERSION STRUCTURE AND THE NORTH SIDE PUMPS SHALL BE PLACED TEMPORARILY OUT OF SERVICE. EMERGENCY PUMPING/BYPASSING MAY BE REQUIRED FOR THIS STEP AND DURING STEP 10, AS THE EXTRANEOUS FLOW BASIN WILL BE TEMPORARILY OUT OF SERVICE. SCHEDULE DURING A LOW PRECIPITATION PERIOD. CONTRACTOR WILL BE REQUIRED TO SUBMIT A COMPREHENSIVE WORK PLAN WITH CONTINGENCY PLANS FOR ANY POTENTIAL ISSUES TO THE ENGINEER/CITY.
10. CONSTRUCT PIPING FROM THE NEW DIVERSION STRUCTURE TO THE NORTH SIDE PUMPS AND CONNECT TO THE EXISTING HEADER PIPE. DEMOLISH GRIT BASIN AS INDICATED TO FACILITATE THE NEW PIPE INSTALLATION.
11. PLACE NORTH SIDE PUMPS IN SERVICE.
12. COMPLETE DEMOLITION OF EXISTING GRIT TANK AND OTHER STRUCTURES AS INDICATED.
13. THE CONTRACTOR SHALL BE RESPONSIBLE FOR TEMPORARY PUMPING OF WASTEWATER FLOWS TO PREVENT WASTEWATER FROM ENTERING THE RIVER DUE TO WET WELL OVERFLOWS DURING A PEAK FLOW EVENT. WHEN ONLY FOUR PUMP STATION PUMPS ARE AVAILABLE OR WHEN FLOW CANNOT BE DIRECTLY DIVERTED TO THE EXTRANEOUS FLOW BASIN DUE TO CONSTRUCTION, TEMPORARY PUMPING SHALL BE PROVIDED THAT IS CAPABLE OF A TOTAL FLOW RATE OF 17,400 GPM. EXCESS FLOW MAY BE DIVERTED FROM THE EXISTING MANHOLE LOCATED ON THE WET WELL OVERFLOW LINE. THE EXISTING ABANDONED BASINS AT PLANT 1 SHALL BE UTILIZED FOR HOLDING EXCESS FLOWS. IF THOSE BASINS BECOME FULL, FURTHER EXCESS FLOW SHALL BE DIVERTED TO THE EXTRANEOUS FLOW BASIN. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MONITORING THE WET WELL WASTEWATER LEVEL AND SHALL HAVE THE NECESSARY PUMPS AND PIPING IN PLACE TO COMPLETE THE BYPASS PRIOR TO A PEAK FLOW EVENT OCCURRING. THE CONTRACTOR SHALL SUBMIT A TEMPORARY PUMPING PLAN TO THE ENGINEER/CITY BEFORE CONSTRUCTION BEGINS. AFTER EXCESS FLOWS CEASE, THE CONTRACTOR SHALL PUMP ALL STORED WASTEWATER FROM THE ABANDONED BASINS BACK INTO THE WET WELL.

DEMOLITION/RESTORATION LEGEND

- TREE REMOVAL
- DEMOLITION
- ASPHALT PAVEMENT RESTORATION
- VALLEY GUTTER REPLACEMENT
- CURB AND GUTTER REPLACEMENT
- CONCRETE SIDEWALK RESTORATION

Brown AND Caldwell

ALLEN PAUL SEHLOFF LICENSED 24989 3/23/2017 KANSAS PROFESSIONAL ENGINEER

No.	Revision	By	Date

WASTEWATER PLANT 2
INFLUENT FORCE MAIN – PHASE 1

PLANT 1 SITE PLAN AND WORK SEQUENCE

GARY JANZEN, P.E. – CITY ENGINEER
CITY OF WICHITA PROJECT NO. 468–85118

PEC PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
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Designed by	E.DESOUZA	Job No.	35–15554–1–0042
Drawn by	N. WHIRTY	Date	MARCH 2017

N: 1667657.33, E: 1657442.83
North Discharge Force Main, Sta.1+00
Connect to Exist. Header Pipe

See Sheet M104 for Details of 4" SCR inside Pump Station

N: 1667654.86, E: 1657437.15
North Discharge Force Main, Sta.1+06.19
Exist. Pump Station Outer Wall
Core Wall and Install Wall Sleeve

34.15' – 60" RJ Pipe

Contractor Shall Protect Existing Electrical Transformers During Construction

116 LF 4" SCR (Schedule 80 PVC)

N: 1667643.61, E: 1657411.41
North Discharge Force Main, Sta.1+34.15
22 ½° RJ Horiz. Bend
Defl. = 22°30'00"

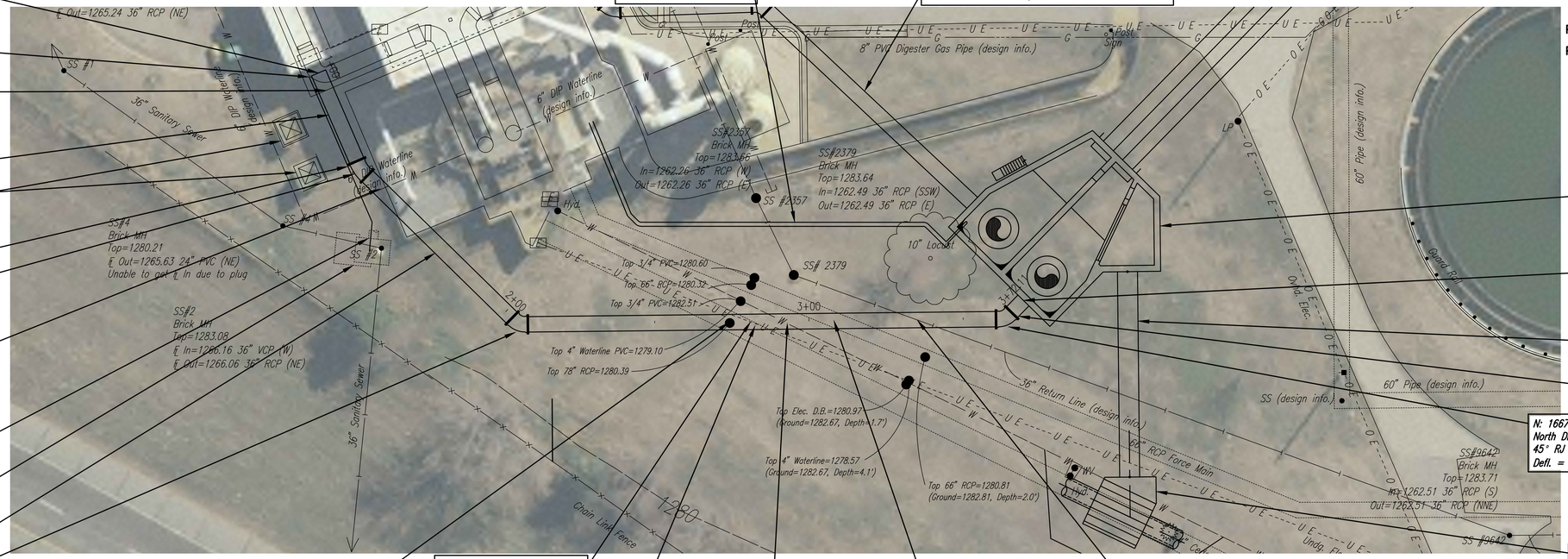
6" DI Waterline, Remove Portion of Pipe as Necessary and Cap Remaining. This work shall be considered subsidiary to the bid item "Site Clearing".

Connect 4" SCR to Existing SS #2, See Detail, an Sheet C311

Contractor Shall Brace and Protect Existing Structure During Construction

71.75' – 60" RJ Pipe

N: 1667592.43, E: 1657361.33
North Discharge Force Main, Sta. 2+05.90
45° RJ Horiz. Bend
Defl. = 45°00'00"



78" RCP Extraneous Flow Line, Remove Portion of Pipe as Necessary and Plug Remaining. This work shall be considered subsidiary to the bid item "Site Clearing".

CAUTION, Exist. UE. Contractor shall protect during construction.

157.15' – 60" RJ Pipe

CAUTION, Exist. 4" PVC Waterline. Contractor shall protect during construction.

66" RCP Force Main, Remove Portion of Pipe as Necessary and Plug Remaining. This work shall be considered subsidiary to the bid item "Site Clearing".

36" Sanitary Return Line To Remain In Service, Protect During Construction

Note: Pipe lengths are from center of fitting to center of fitting.

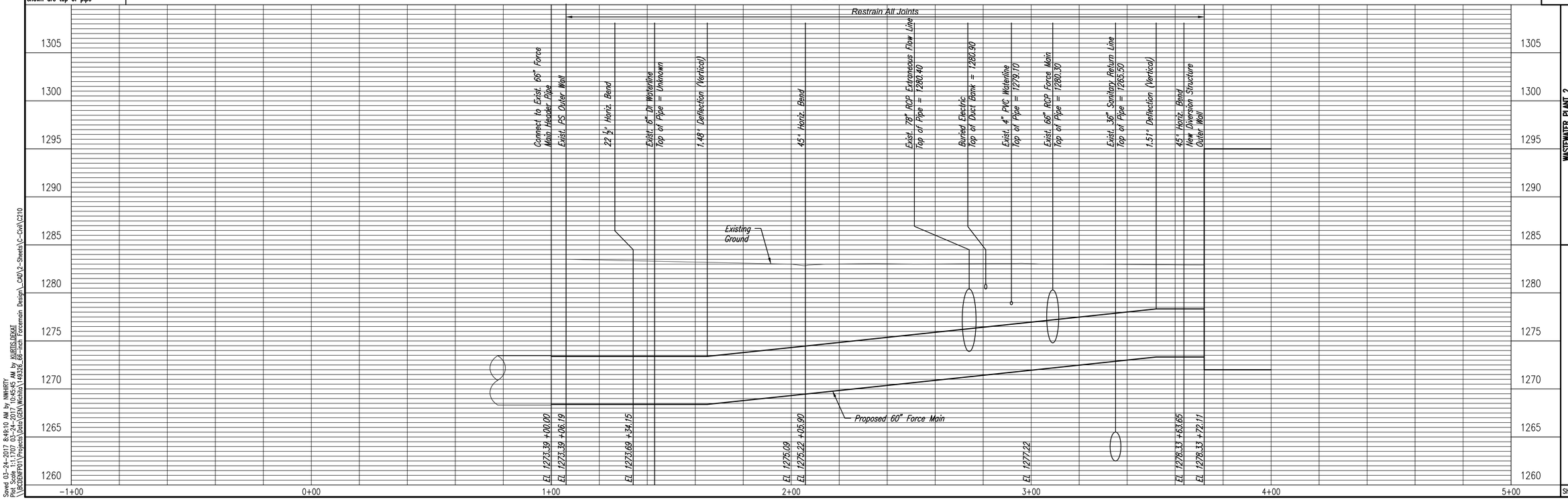
SCALE:
PLAN: LAT. & LONG. 0 20 40
PROFILE: HORIZ. SAME AS ABOVE
VERT. 0 5

Brown AND Caldwell

PLAN | CHECKED | CHECKED | BY | DATE

60" NORTH PUMP DISCHARGE FORCE MAIN

Unless noted otherwise, elevations shown are top of pipe



PROFILE | CHECKED | CHECKED | BY | DATE

WASTEWATER PLANT 2
INFLUENT FORCE MAIN – PHASE 1
60" NORTH PUMP DISCHARGE FORCE MAIN
PLAN AND PROFILE
GARY JANZEN, P.E. – CITY ENGINEER
CITY OF WICHITA PROJECT NO. 468-85118

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Designed By	E. DESOUZA	Job No.	35-15554-001-0042
Drawn By	N. WHIRTY	Date	MARCH 2017

Sheet C210 of 58

ALLEN PAUL SEIHOOL
LICENSED
24989
04/23/2017
KANSAS
PROFESSIONAL ENGINEER

Saved 03-24-2017 8:49:10 AM by NWHIRTY
Plotted 03-24-2017 8:50:02 AM by KURTIS.DEKAT
\\BR2DENFP01\Projects\Data\GEN Wichita\149326.68-Inch Forcemain Design_CAD\2-Sheets\C-Civil\C210

N: 1667573.47, E: 1657481.52
South Discharge Force Main, Sta. 4+00
Connect to Exist. Header Pipe

14.24' – 60" RJ Pipe

N: 1667569.99, E: 1657473.44
South Discharge Force Main, Sta. 4+08.80
Exist. Pump Station Outer Wall
Core Wall and Install Wall Sleeve

N: 1667569.13, E: 1657471.45
South Discharge Force Main, Sta. 4+14.24
22 ½° RJ Horiz. Bend
Defl. = 22°30'00"

7.35' – 60" RJ Pipe

Adjust Exist. UE As Necessary For Installation Of 60" Force Main

N: 1667561.26, E: 1657464.08
South Discharge Force Main, Sta. 4+21.59
45° RJ Horiz. Bend
Defl. = 45°00'00"

48.55 – 60" RJ Pipe

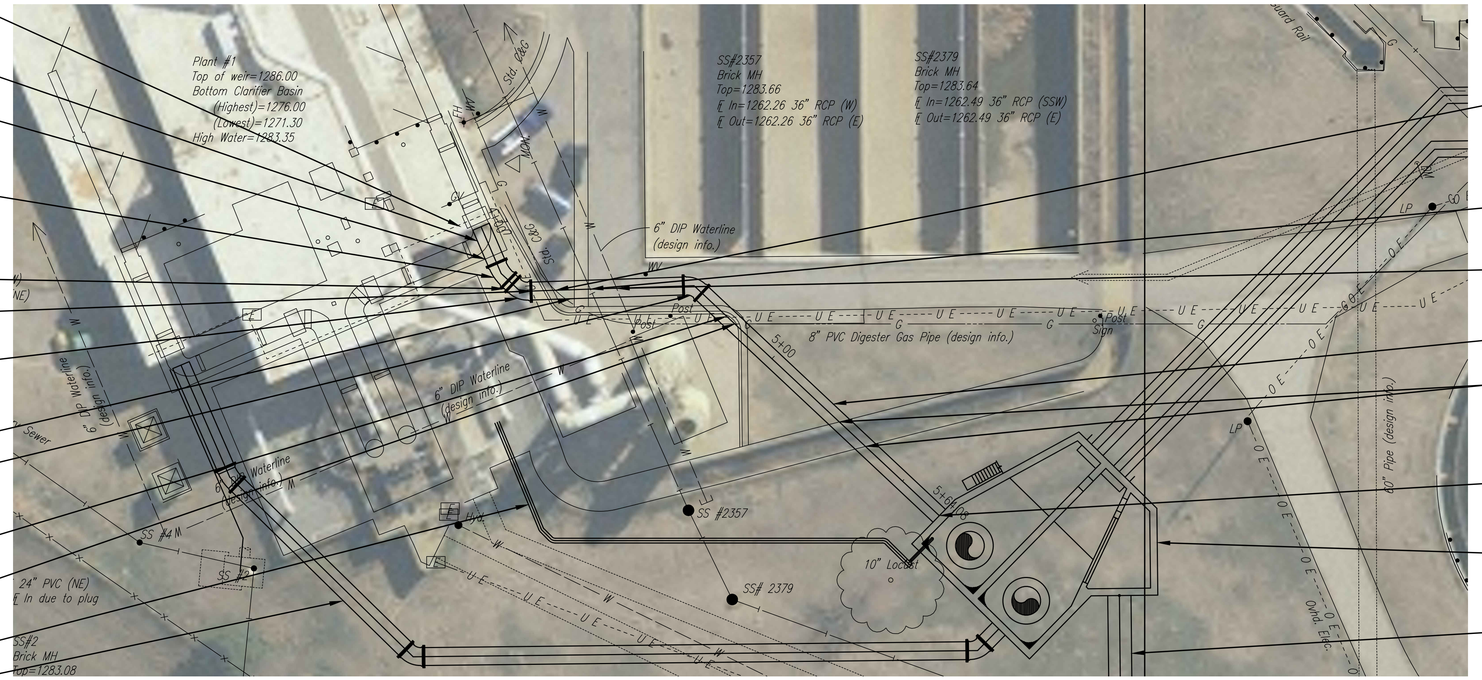
N: 1667514.60, E: 1657465.63
South Discharge Force Main, Sta. 4+70.14
45° RJ Horiz. Bend
Defl. = 45°00'00"

Adjust Exist. UE As Necessary For Installation Of 60" Force Main

8" PVC Digester Gas Pipe, Remove Portion As Necessary and Cap Remaining. This work shall be considered subsidiary to the bid item "Site Clearing".

New 16" FA, See Sheet M106

New 60" North Discharge Force Main, See Sheet C210



8" PVC Digester Gas Pipe, Remove Portion As Necessary and Cap Remaining. This work shall be considered subsidiary to the bid item "Site Clearing".

36" Sanitary Return Line To Be Protected and Remain In Service

6" DI Waterline, Remove Portion of Pipe As Necessary and Cap Remaining. This work shall be considered subsidiary to the bid item "Site Clearing".

93.12' – 60" RJ Pipe

Demolish Effluent Flume As Necessary For Installation Of South Pump Discharge Force Main. This work shall be considered subsidiary to the bid item "Plant 1 Pump Station Demolition".

N: 1667445.37, E: 1657400.76
South Discharge Force Main, Sta. 5+64.08
Connect to New Diversion Structure

New Diversion Structure, See Structural Sheets

New 78" Extraneous Flow Line, See Sheet C212

Note: Pipe lengths are from center of fitting to center of fitting.

SCALE:
PLAN: LAT. & LONG. 0 20 40
PROFILE: HORIZ. SAME AS ABOVE
VERT. 0 5

Brown AND Caldwell

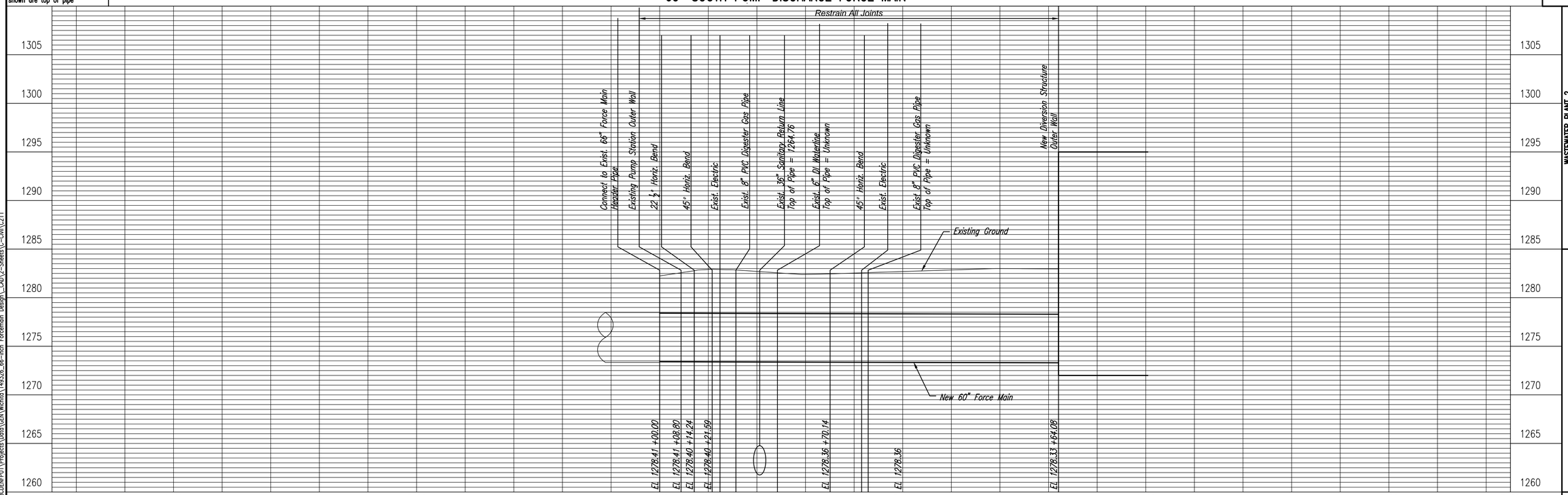
ALLEN PAUL SEHLER
LICENSED
11/23/2017
24989
KANSAS
PROFESSIONAL ENGINEER

PLAN | BY | DATE | CHECKED | CHECKED

PROFILE | CHECKED | CHECKED

Unless noted otherwise, elevations shown are top of pipe

60" SOUTH PUMP DISCHARGE FORCE MAIN



WASTEWATER PLANT 2
INFLUENT FORCE MAIN – PHASE 1
60" SOUTH PUMP DISCHARGE FORCE MAIN
PLAN AND PROFILE
GARY JANZEN, P.E. – CITY ENGINEER
CITY OF WICHITA PROJECT NO. 468-85118

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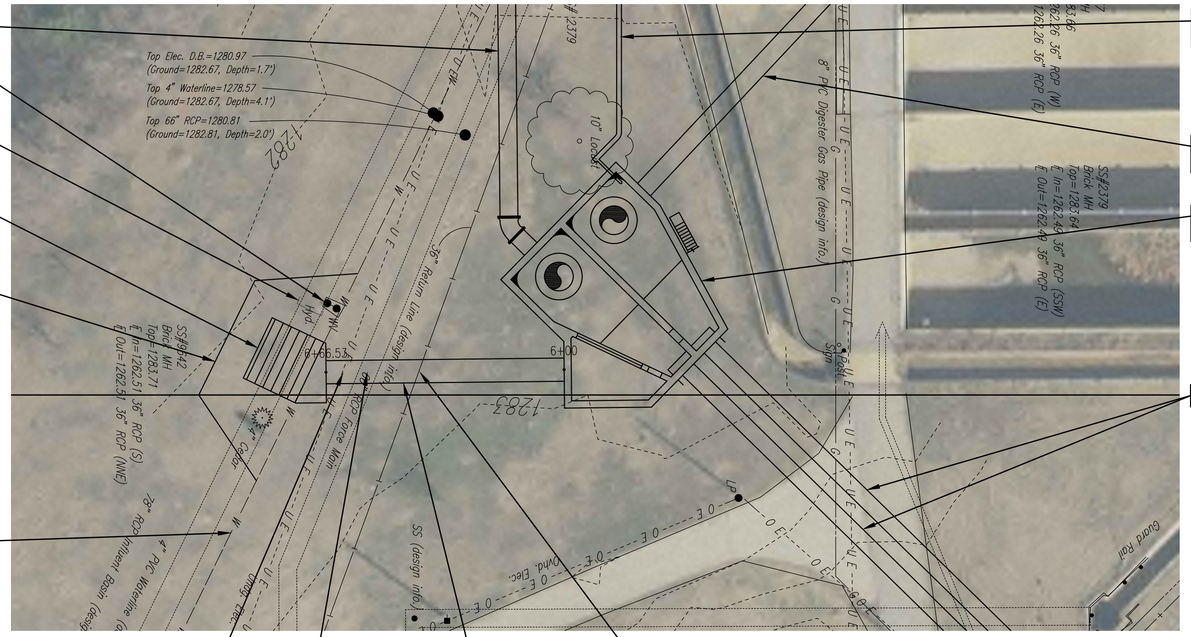
303 SOUTH TOPEKA WICHITA, KS 67202
316-262-2691 www.pec1.com

Designed By	E. DESOUZA	Job No.	35-15554-001-0042
Drawn By	N. WHIRTY	Date	MARCH 2017

Sheet C211 of 58

Saved 03-24-2017 8:53:18 AM by NWHIRTY
Plotted Scale: 1:1 03-24-2017 08:54:11 AM by KURTIS.REKAT
\\BCDCIWFP01\Projects\Data\GEN Wichita\149326_66-inch Forcemain Design_CAD\2-Sheets\C-Civil\C211



New 60" North Discharge Force Main, See Sheet C210

Relocate Fire Hydrant and Valve With Waterline Offset. This work shall be considered subsidiary to the bid item "4" Waterline Relocation".

Plug 78" RCP. Abandon Piping Up To Pump Station. This work shall be included in the lump sum bid item "Plant 1 Pump Station Demolition.

Build Cast-In_place Junction Structure Around Existing 78" RCP. Demolish and Seal the Existing Upstream Portion of 78" RCP Once New Connection Is Operational. See Structural Sheets. Install Flow Meter 1 in Junction Structure.

Offset Existing 4" PVC Waterline As Necessary In Order To Avoid Conflict With Proposed Structure. The Contractor shall provide protective fill over the 4" waterline as required to maintain a minimum cover of 42-inches. The protective cover shall be graded at a 4:1 slope to the existing ground and graded to drain. The protective fill shall be considered subsidiary to the bid item "4" Waterline Relocation".

4" PVC Waterline

New 16" FA, See Sheet M106

New 60" South Discharge Force Main, See Sheet C211

New Pump Diversion Structure, See Structural Sheets

See Sheet C101 For Continuation

Adjust Exist. UE As Necessary For Installation of 78" Extraneous Flow Pipe

66" RCP Force Main, Remove Portion Of Pipe As Necessary and Plug Remaining

66.53' - 78" Pipe

36" Sanitary Return Line To Remain In Service, Protect During Construction

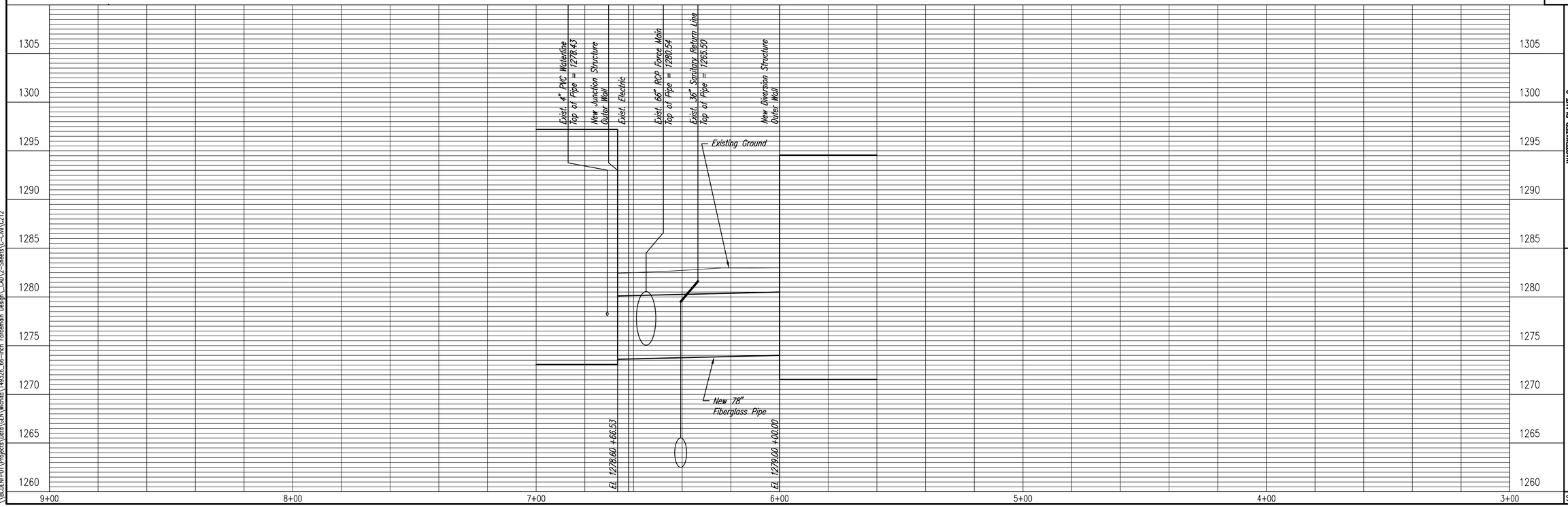
SCALE:

PLAN: LAT. & LONG. 0 20 40

PROFILE: HORIZ. SAME AS ABOVE

VERT. 5 0

78" EXTRANEOUS FLOW PIPE



PLAN

	BY	DATE
CHECKED		
CHECKED		

PROFILE

	BY	DATE
CHECKED		
CHECKED		

Brown AND Caldwell

ALLEN PAUL SEHLOF
LICENSED
24989
PROFESSIONAL ENGINEER
10/23/2017
KANSAS

WASTEWATER PLANT 2
INFLUENT FORCE MAIN - PHASE 1
78" EXTRANEOUS FLOW PIPE
PLAN AND PROFILE
GARY JANZEN, P.E. - CITY ENGINEER
CITY OF WICHITA PROJECT NO. 468-85118

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Designed By	E. DESOUZA	Job No.	35-15554-001-0042
Drawn By	N. WHIRITY	Date	MARCH 2017

Sheet C212 of 58

Saved: 10-30-2017 7:17:34 AM by DESOUZA
Plotted: 10-30-2017 7:17:52 AM by KURTIS.DEKAT
\\BC3DWKP01\Projects\Data\GEN\Wichita\149376_66-inch Forcemain Design_CAD\2-Sheets\C-Civil\C212

N: 1667396.3780, E: 1657424.1365
FM 1, Sta. 10+00.00
Begin FM Line No. 1
Connect to Diversion Structure
see sheets, no. C201 – C212
(5000)

N: 1667304.3533, E: 1657518.1893
FM 1, Sta. 11+31.58
1– 48" 45° RJ Bend
Defl.= 45°00'00"
(5001)

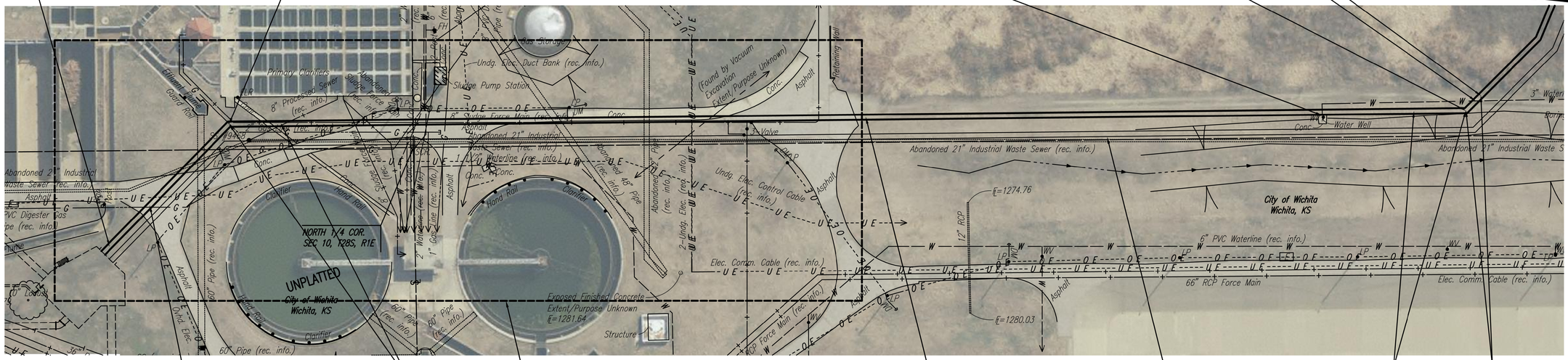
N: 1666352.2594, E: 1657528.5667
FM 1, Sta. 20+83.73
1– 48" 45° RJ Bend
Defl.= 44°22'32"
(5002)

CAUTION!!!
Existing 3" Waterline
Cut & Cap as necessary
Subsidiary to "Site Clearing"

Abandon/Remove Exist.
Ground Water Well
Cut & Cap Waterline
Subsidiary to "Site Clearing"

N: 1666340.7583, E: 1657540.0678
FM 1, Sta. 21+00.00
Match Point

SCALE:
0 40 80
PLAN: LAT. & LONG.
PROFILE: HORIZ. SAME AS ABOVE
VERT.
5 0



131.58'– 48" RJ Pipe

40.00'– 48" RJ Pipe

Refer to sheet no. C306 for Plant 1 Site Detail and Existing Utilities

872.15'– 48" Pipe

FM LINE NO. 2
See sheet no. C303

40.00'– 48" RJ Pipe

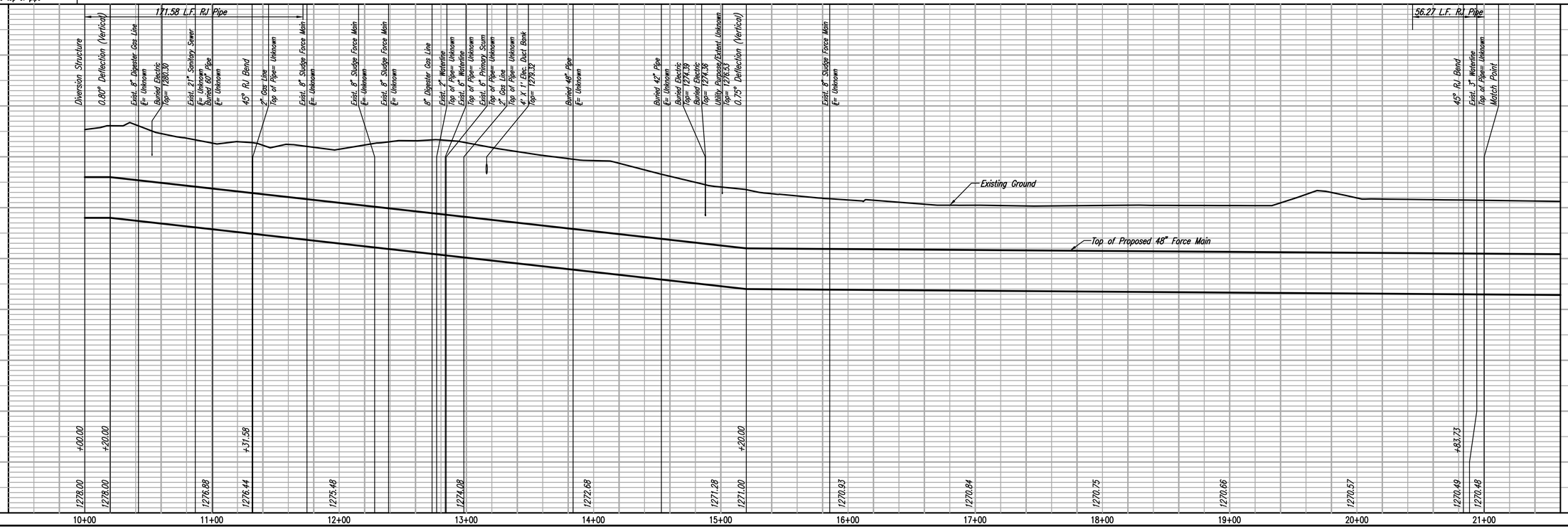
16.27'– 48" RJ Pipe

(5000) – SEE SHEET NO. C101 FOR FORCE MAIN COORDINATES (TYP.)

MICHAEL D. KEESEE
LICENSED
13944
04/03/2017
KANSAS
PROFESSIONAL ENGINEER

Unless noted otherwise, elevations shown are top of pipe

FORCE MAIN LINE NO. 1



PLAN | CHECKED | CHECKED | BY | DATE

PROFILE | CHECKED | CHECKED | BY | DATE

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Plotted 03–31–2017 8:42:08 AM by KURTIS.DEKAT
U:\Wichita–Civil\2015\15554\001\Main\Drawings\Phase 1\15554–001–C300–FORCE MAIN LINE NO. 1

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Job No. 35–15554–001–0042
Date NOVEMBER 2016
Designed By MDK, TBK
Drawn By CSL, KTD

WASTEWATER PLANT 2
INFLUENT FORCE MAIN – PHASE 1

FORCE MAIN LINE NO. 1

GARY JANZEN, P.E. – CITY ENGINEER
CITY OF WICHITA PROJECT NO. 468–85118

Sheet C300 of 58

PLAN	BY	DATE
CHECKED		
CHECKED		

PROFILE	BY	DATE
CHECKED		
CHECKED		

SCALE:
PLAN: LAT. & LONG. 0 40 80
PROFILE: HORIZ. SAME AS ABOVE
VERT. 0 5

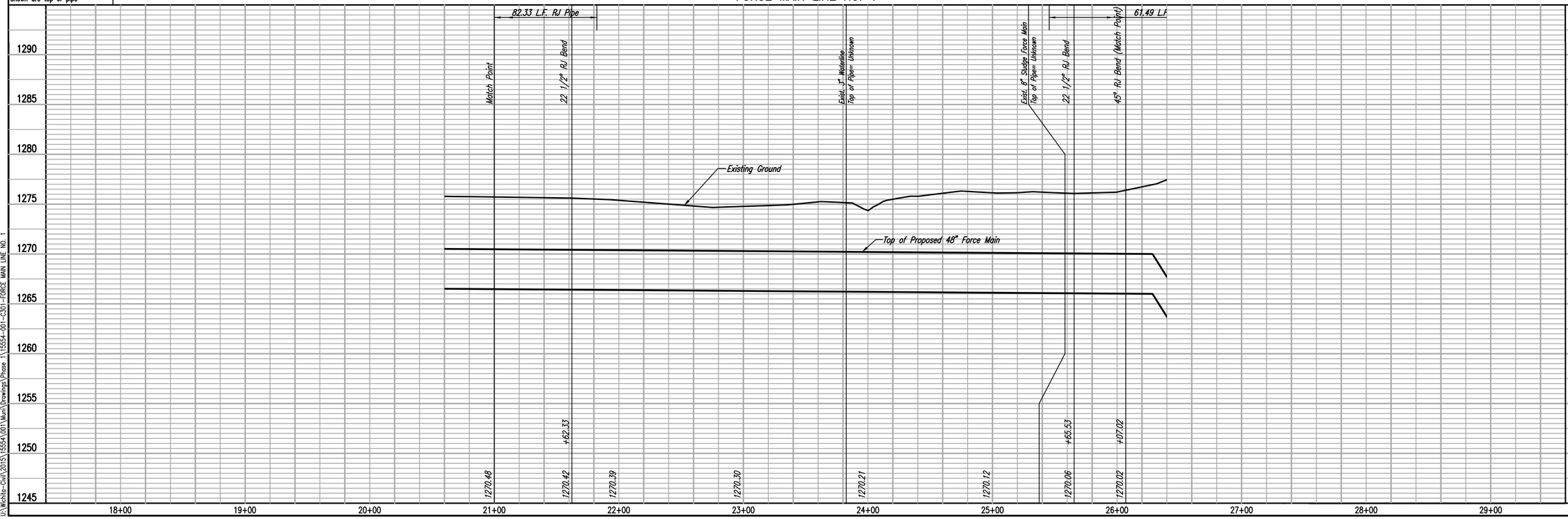
* PRIOR TO BEGINNING CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE THE EXISTING UTILITY TO VERIFY PIPE SIZE, TYPE, FITTINGS, AND HORIZONTAL AND VERTICAL LOCATION. THE CONTRACTOR SHALL REPORT HIS FINDINGS TO THE ENGINEER SO THAT ANY NECESSARY PLAN MODIFICATIONS CAN BE MADE.

(5000) – SEE SHEET NO. C101 FOR FORCE MAIN COORDINATES (TYP.)

MICHAEL D. KELSEY LICENSED 13944 04/03/2017 KANSAS PROFESSIONAL ENGINEER

Unless noted otherwise, elevations shown are top of pipe

FORCE MAIN LINE NO. 1



WASTEWATER PLANT 2
INFLUENT FORCE MAIN – PHASE 1
FORCE MAIN LINE NO. 1

CARY JANZEN, P.E. – CITY ENGINEER
CITY OF WICHITA PROJECT NO. 468–85118

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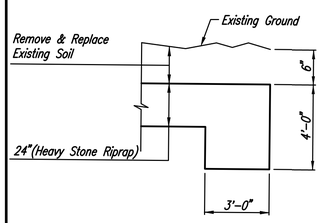
Designed By	MDK, TBK	Job No.	35–15554–001–0042
Drawn By	CSL, KTD	Date	NOVEMBER 2016

Sheet C301 of 58

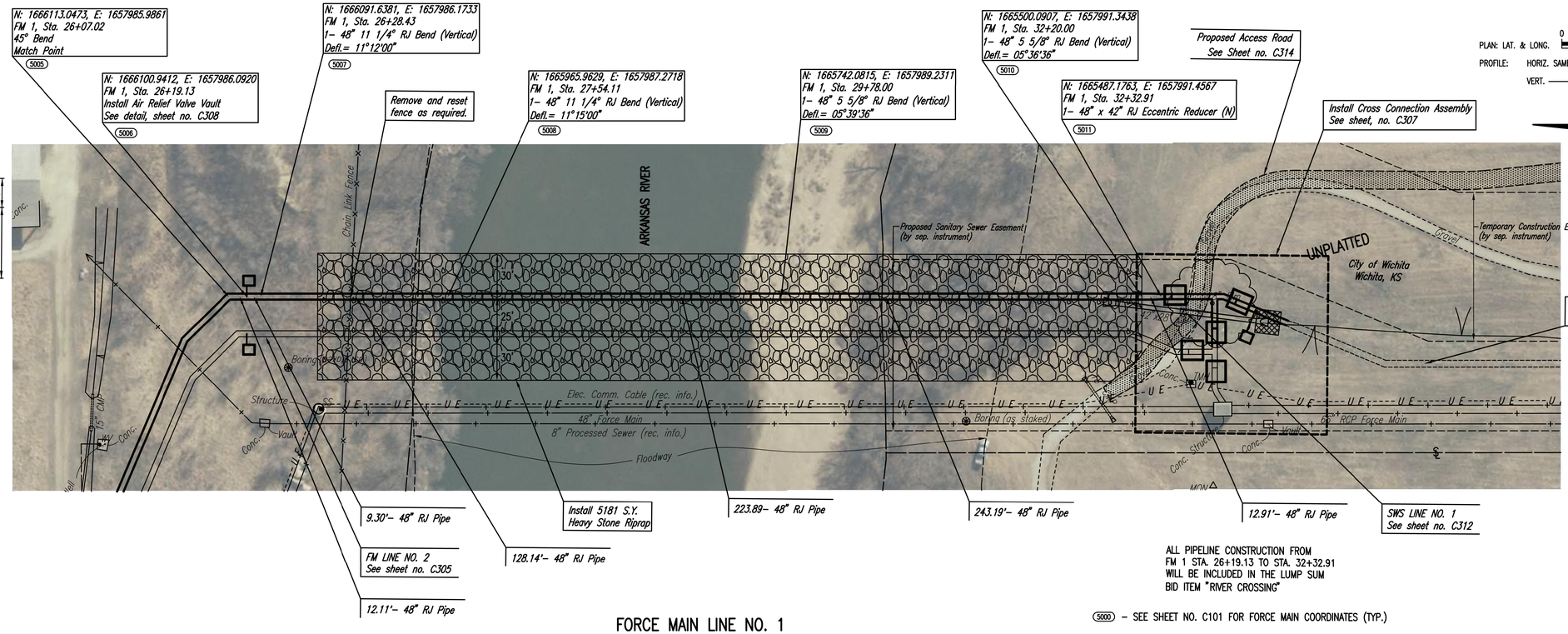
Saved 03–20–2017 2:52:58 PM by KURTIS.DEKAT
Scale: 1:1 3/20/2017 2:52:58 PM by KURTIS.DEKAT
U:\Wichita–Civil\2015\15554\001\Main\Drawings\Phase 1\15554–001–C301–FORCE MAIN LINE NO. 1



TYPICAL SECTION THRU TOEWALL
NO SCALE

NOTES

1. ALL RIPRAP FOR THIS PROJECT SHALL BE NATURAL STONE.
2. TOEWALLS SHALL BE INSTALLED ALONG ALL EDGES OF STONE RIPRAP.
3. GROUTING OF THE SURFACE OF THE RIPRAP SHALL NOT BE PERFORMED UNLESS INDICATED OTHERWISE. GROUTING OF THE TOEWALLS SHALL BE PERFORMED PER CITY SPECIFICATIONS.
4. REMOVAL AND REPLACEMENT OF 6" EXISTING SOIL SHALL BE CONSIDERED SUBSIDIARY TO "HEAVY STONE RIP RAP".

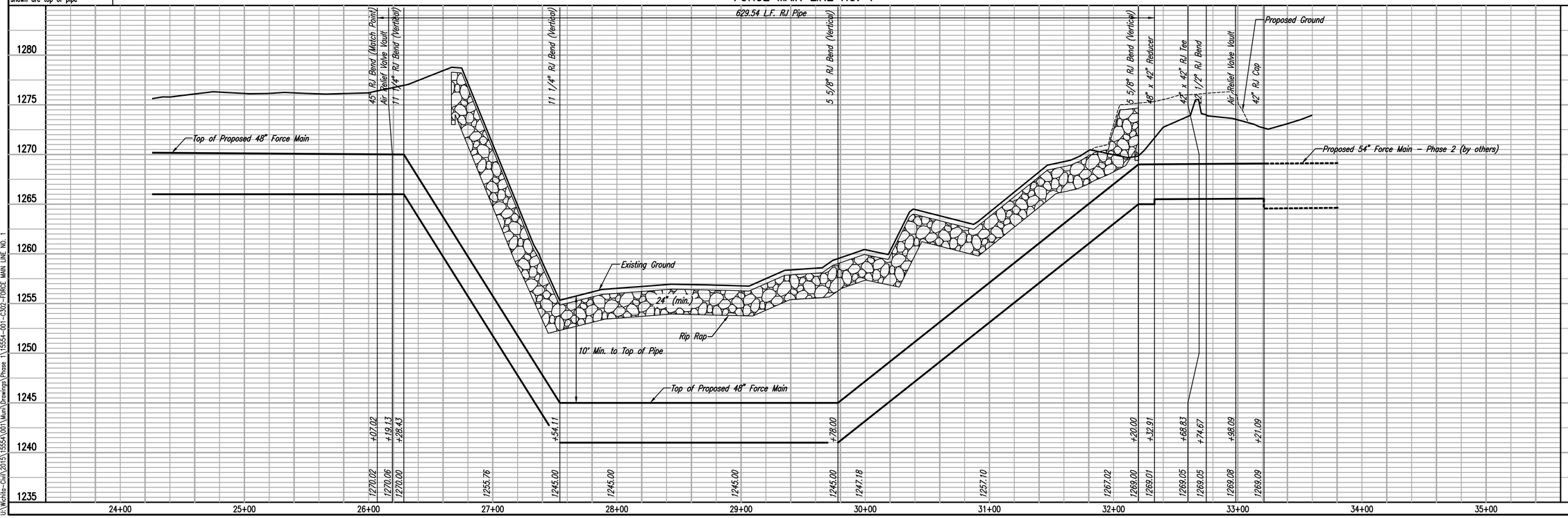


ALL PIPELINE CONSTRUCTION FROM FM 1 STA. 26+19.13 TO STA. 32+32.91 WILL BE INCLUDED IN THE LUMP SUM BID ITEM "RIVER CROSSING"

(5000) – SEE SHEET NO. C101 FOR FORCE MAIN COORDINATES (TYP.)

Unless noted otherwise, elevations shown are top of pipe

FORCE MAIN LINE NO. 1



PLAN	BY	DATE
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CHECKED		

PROFILE	BY	DATE
CHECKED		
CHECKED		

MICHAEL D. KEIST LICENSED 13944 04/03/2017 KANSAS PROFESSIONAL ENGINEER

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Job No. 35-15554-001-0042
Date NOVEMBER 2016
Designed By MDK, TBK
Drawn By CSL, KTD

WASTEWATER PLANT 2
INFLUENT FORCE MAIN – PHASE 1

FORCE MAIN LINE NO. 1

GARY JANZEN, P.E. – CITY ENGINEER
CITY OF WICHITA PROJECT NO. 468-85118

Sheet C302 of 58

Saved 03-31-2017 10:22:22 AM by KURTIS.DEKAT
Plotted 03-31-2017 10:24:27 AM by KURTIS.DEKAT
U:\Wichita-Civil\2015\15554\001\Main\Drawings\Phase 1\15554-001-C302-FORCE MAIN LINE NO. 1

N: 1667390.1833, E: 1657418.0754
FM 2, Sta. 10+00.00
Begin FM Line No. 2
Connect to Diversion Structure
see sheets, no. C201–C212
5500

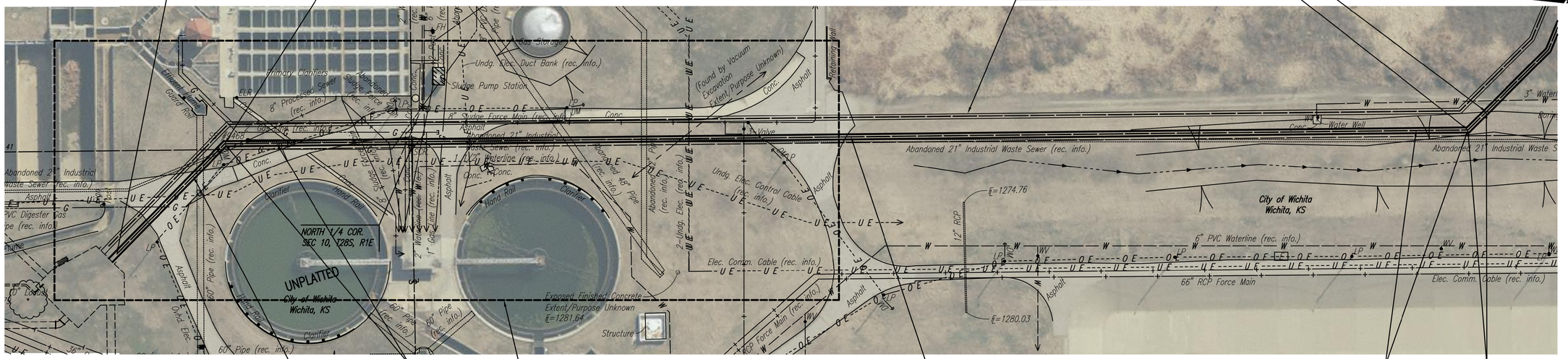
N: 1667306.9331, E: 1657503.1603
FM 2, Sta. 11+19.04
1– 48" 45° RJ Bend
Defl.= 45°00'00"
5501

N: 1666345.9787, E: 1657513.6343
FM 2, Sta. 20+80.05
1–48" 45° RJ Bend
Defl.= 44°22'32"
5502

N: 1666331.8715, E: 1657527.7414
FM 2, Sta. 21+00.00
Match Point

FM LINE NO. 1
See sheet no. C300

SCALE:
0 40 80
PLAN: LAT. & LONG.
PROFILE: HORIZ. SAME AS ABOVE
VERT.
0 5



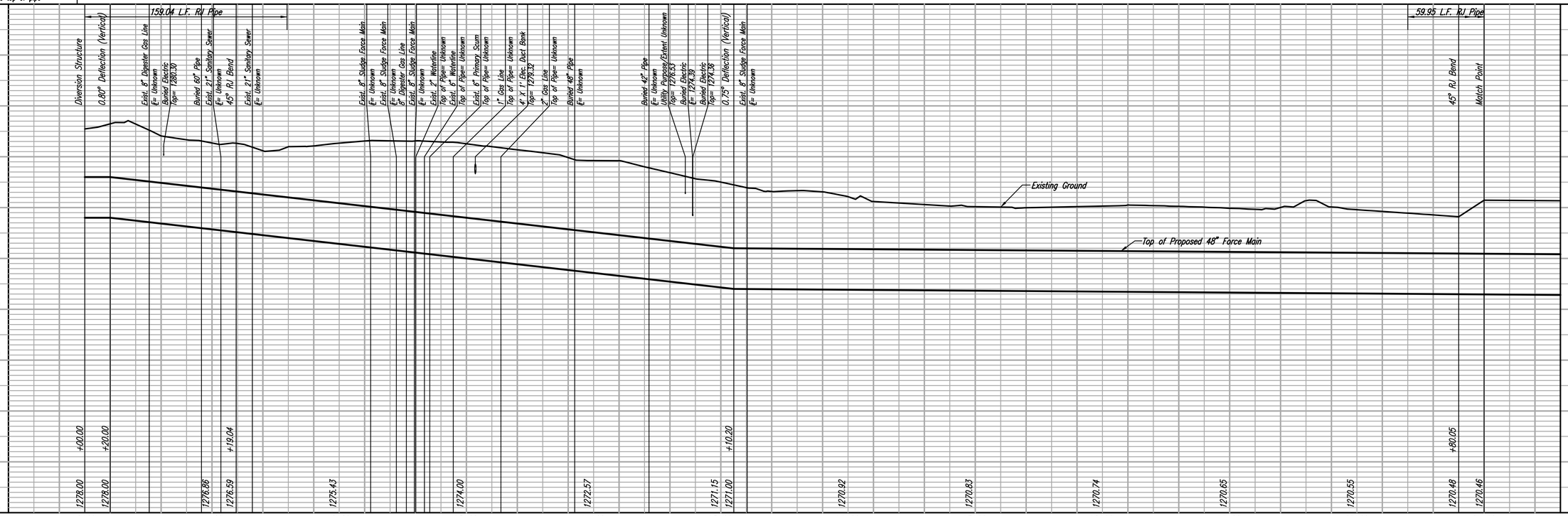
119.04'– 48" RJ Pipe
40.00'– 48" RJ Pipe
Refer to sheet no. C306 for Plant 1 Site Detail
881.01'– 48" Pipe
40.00'– 48" RJ Pipe
19.95'– 48" RJ Pipe

MICHAEL D. KEVER
LICENSED P.E.
13944
04/03/2017
KANSAS
PROFESSIONAL ENGINEER

Unless noted otherwise, elevations shown are top of pipe

FORCE MAIN LINE NO. 2

5000 – SEE SHEET NO. C101 FOR FORCE MAIN COORDINATES (TYP.)



PLAN: CHECKED / CHECKED — BY / DATE

PROFILE: CHECKED / CHECKED — BY / DATE

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Plotted 03–21–2017 4:50:04 PM by KURTIS.DEKAT
U:\Wichita–Civil\20151 15554\001\Main\Drawings\Phase 1\15554–001–C303–FORCE MAIN LINE NO. 2

WASTEWATER PLANT 2
INFLUENT FORCE MAIN – PHASE 1
FORCE MAIN LINE NO. 2
GARY JANZEN, P.E. – CITY ENGINEER
CITY OF WICHITA PROJECT NO. 468–85118

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Designed By MDK, TBK
Drawn By CSL, KTD
Job No. 35–15554–001–0042
Date NOVEMBER 2016

Sheet C303 of 58

PLAN	CHECKED	CHECKED	BY	DATE

PROFILE	CHECKED	CHECKED	BY	DATE

N: 1666331.8715, E: 1657527.7414
FM 2, Sta. 21+00.00
Match Point

N: 1666283.9661, E: 1657575.6468
FM 2, Sta. 21+67.75
1– 48" 22 1/2° RJ Bend
Defl.= 22°30'00"
(5503)

CAUTION!!!
Existing 3" Waterline *
Contractor shall adjust as necessary.
See Detail, sheet no. C311

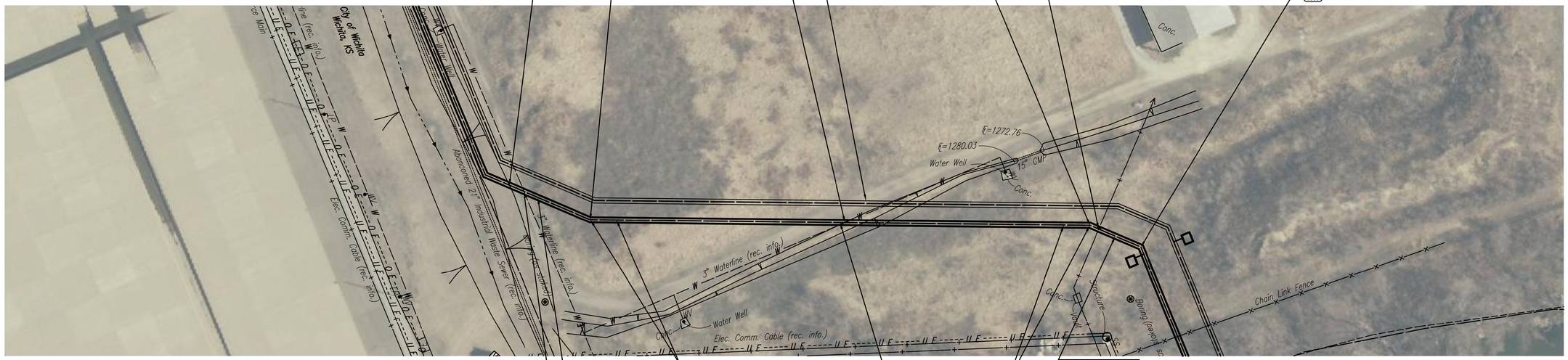
FM LINE NO. 1
See sheet no. C301

N: 1666136.8028, E: 1657930.9304
FM 2, Sta. 25+52.30
1– 48" 22 1/2° RJ Bend
Defl.= 22°30'00"
(5504)

CAUTION!!!
Existing 8" Sludge Force Main (Inactive) *
Contractor shall adjust as necessary
See Detail, sheet no. C311

N: 1666106.6925, E: 1657961.0407
FM 2, Sta. 25+94.89
1– 48" 45° RJ Bend
Defl.= 44°29'57"
Match Point
(5505)

SCALE:
PLAN: LAT. & LONG. 0 40 80
PROFILE: HORIZ. SAME AS ABOVE
VERT. 5 0



67.75– 48" RJ Pipe

20.00– 48" RJ Pipe

344.55'– 48" RJ Pipe

20.00– 48" RJ Pipe

42.59'– 48" RJ Pipe

CAUTION!!!
Existing 3" Waterline
Cut & Cap as necessary
Subsidiary to "Site Clearing"

* PRIOR TO BEGINNING CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE THE EXISTING UTILITY TO VERIFY PIPE SIZE, TYPE, FITTINGS, AND HORIZONTAL AND VERTICAL LOCATION. THE CONTRACTOR SHALL REPORT HIS FINDINGS TO THE ENGINEER SO THAT ANY NECESSARY PLAN MODIFICATIONS CAN BE MADE.

(5000) – SEE SHEET NO. C101 FOR FORCE MAIN COORDINATES (TYP.)

MICHAEL D. KELSEY LICENSED 13944 04/03/2017 KANSAS PROFESSIONAL ENGINEER

Unless noted otherwise, elevations shown are top of pipe

FORCE MAIN LINE NO. 2

WASTEWATER PLANT 2
INFLUENT FORCE MAIN – PHASE 1

FORCE MAIN LINE NO. 2

CARY JANZEN, P.E. – CITY ENGINEER
CITY OF WICHITA PROJECT NO. 468–85118

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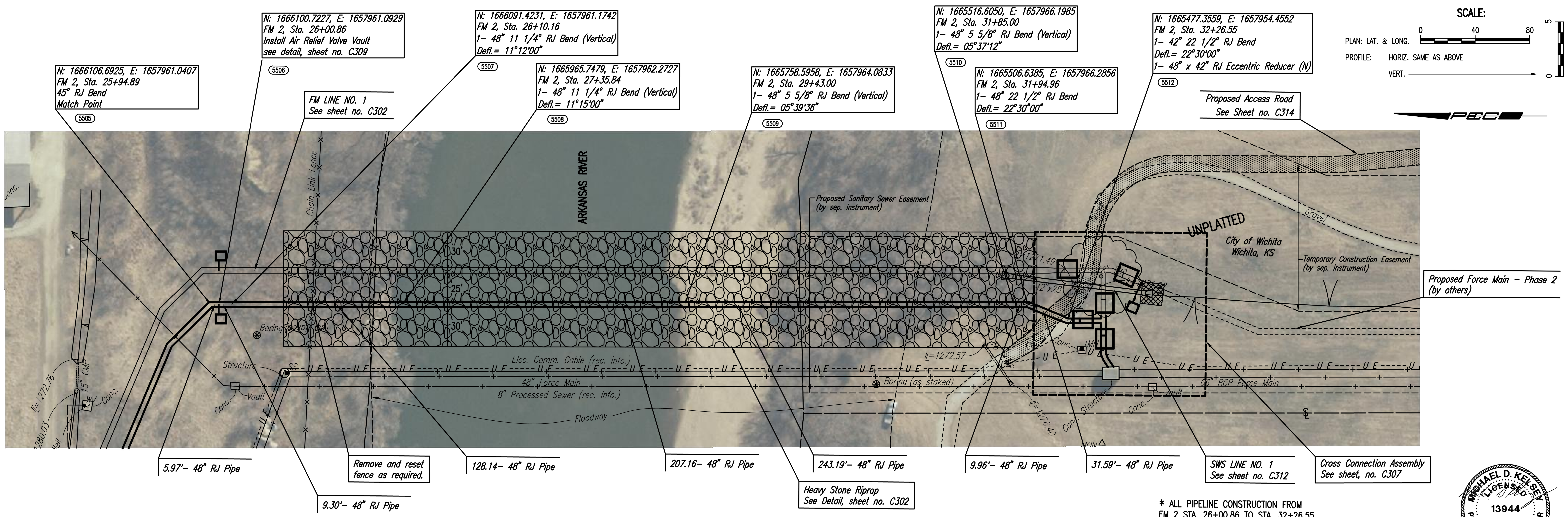
Designed By	MDK, TBK	Job No.	35–15554–001–0042
Drawn By	CSL, KTD	Date	NOVEMBER 2016

Saved 03–20–2017, 3:01:34 PM by KURTIS.DEKAT
Plotted: 21 Mar 2017, 3:02:53 PM by KURTIS.DEKAT
U:\Wichita–Civil\2015\15554\001\Mainline\Phase 1\15554–001–C304–FORCE MAIN LINE NO. 2

SCALE:
PLAN: LAT. & LONG. 0 40 80
PROFILE: HORIZ. SAME AS ABOVE
VERT. 0 5



N: 1666106.6925, E: 1657961.0407
FM 2, Sta. 25+94.89
45° RJ Bend
Match Point
5505
N: 1666100.7227, E: 1657961.0929
FM 2, Sta. 26+00.86
Install Air Relief Valve Vault
see detail, sheet no. C309
5506
N: 1666091.4231, E: 1657961.1742
FM 2, Sta. 26+10.16
1– 48" 11 1/4° RJ Bend (Vertical)
Defl.= 11°12'00"
5507
FM LINE NO. 1
See sheet no. C302
N: 1665965.7479, E: 1657962.2727
FM 2, Sta. 27+35.84
1– 48" 11 1/4° RJ Bend (Vertical)
Defl.= 11°15'00"
5508
N: 1665758.5958, E: 1657964.0833
FM 2, Sta. 29+43.00
1– 48" 5 5/8° RJ Bend (Vertical)
Defl.= 05°39'36"
5509
N: 1665516.6050, E: 1657966.1985
FM 2, Sta. 31+85.00
1– 48" 5 5/8° RJ Bend (Vertical)
Defl.= 05°37'12"
5510
N: 1665506.6385, E: 1657966.2856
FM 2, Sta. 31+94.96
1– 48" 22 1/2° RJ Bend
Defl.= 22°30'00"
5511
N: 1665477.3559, E: 1657954.4552
FM 2, Sta. 32+26.55
1– 42" 22 1/2° RJ Bend
Defl.= 22°30'00"
1– 48" x 42" RJ Eccentric Reducer (N)
5512
Proposed Access Road
See Sheet no. C314
ARKANSAS RIVER
Chain Link Fence
Proposed Sanitary Sewer Easement
(by sep. instrument)
UNPLATTED
City of Wichita
Wichita, KS
Temporary Construction Easement
(by sep. instrument)
Gravel
Proposed Force Main – Phase 2
(by others)
30'
25'
30'
Conc.
Structure
Vault
Boring (as staked)
Elec. Comm. Cable (rec. info.)
48" Force Main
8" Processed Sewer (rec. info.)
Floodway
66" RCP Force Main
Conc.
5.97'– 48" RJ Pipe
9.30'– 48" RJ Pipe
Remove and reset
fence as required.
128.14– 48" RJ Pipe
207.16– 48" RJ Pipe
243.19'– 48" RJ Pipe
Heavy Stone Riprap
See Detail, sheet no. C302
9.96'– 48" RJ Pipe
31.59'– 48" RJ Pipe
SWS LINE NO. 1
See sheet no. C312
Cross Connection Assembly
See sheet, no. C307

* ALL PIPELINE CONSTRUCTION FROM FM 2 STA. 26+00.86 TO STA. 32+26.55 WILL BE INCLUDED IN THE LUMP SUM BID ITEM "RIVER CROSSING"

MICHAEL D. KELSEY LICENSED 13944 04/03/2017 KANSAS PROFESSIONAL ENGINEER

(5000) – SEE SHEET NO. C101 FOR FORCE MAIN COORDINATES (TYP.)

Unless noted otherwise, elevations shown are top of pipe

FORCE MAIN LINE NO. 2

635.31 L.F. RJ Pipe
45° RJ Bend (Match Point)
Air Relief Valve Vault
11 1/4° RJ Bend (Vertical)
11 1/4° RJ Bend (Vertical)
5 5/8° RJ Bend (Vertical)
5 5/8° RJ Bend (Vertical)
22 1/2° RJ Bend
22 1/2° RJ Bend
42" x 42" RJ Tee
22 1/2° RJ Bend
11.25° RJ Bend
Buried Comm. Cable
Existing Structure
Proposed Ground
Top of Proposed 42" Force Main
℄ Out = 1263.70
Exist 66" Force Main
Existing Ground
24" (min.)
Rip Rap
10' Min. to Top of Pipe
Top of Proposed 48" Force Main
1280
1275
1270
1265
1260
1255
1250
1245
1240
1235
+94.89
+00.86
+10.16
+35.84
+43.00
+85.00
+94.96
+26.55
+52.97
+77.39
+81.39
+91.25
1270.01
1270.01
1270.00
1252.13
1245.00
1245.00
1245.00
1245.00
1250.65
1260.57
1269.00
1269.01
1269.03
1269.05
1269.05
1269.05
1269.05
24+00
25+00
26+00
27+00
28+00
29+00
30+00
31+00
32+00
33+00
34+00
35+00

WASTEWATER PLANT 2
INFLUENT FORCE MAIN – PHASE 1
FORCE MAIN LINE NO. 2
GARY JANZEN, P.E. – CITY ENGINEER
CITY OF WICHITA PROJECT NO. 468-85118

PEC
PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
303 SOUTH TOPEKA WICHITA, KS 67202
316-262-2691 www.pec1.com

Job No.	35-15554-001-0042
Date	NOVEMBER 2016
Designed By	MDK, TBK
Drawn By	CSL, KTD

Sheet C305 of 58

PLAN	CHECKED	CHECKED	BY	DATE

PROFILE	CHECKED	CHECKED	BY	DATE

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Plot Scale 1:1 03-31-2017 5:27:50 PM by KURTIS.DEKAT
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SCALE:
0 20 40
PLAN: LAT. & LONG.

CAUTION !!!
8" Digester Gas Line (Inactive)
Cut & Cap as necessary

CAUTION !!!
Buried Electric
Contractor shall protect
thru construction.

Remove and replace
43 L.F. Asphalt
Pavement in kind.
See Detail, sheet no. C311

CAUTION !!!
21" Industrial Waste Sewer (Inactive)
Cut & Cap pipe North of
Proposed Force Main.
Fully Remove manhole and pipe from
FM 2 Sta. 10+86.91 to
Sta. 20+80.05

CAUTION !!!
Buried 60" Pipe (Inactive)
Cut & Plug as necessary

CAUTION !!!
2" Gas Line (Inactive)
Cut & Cap as necessary

CAUTION !!!
8" Sludge Force Main (Inactive)
Cut & Cap Northeast of proposed
Force Main. Fully Remove pipe
from FM 1 Sta. 11+35.05 to
Sta. 15+85.51

Remove and replace
5 L.F. Concrete
sidewalk in kind.

CAUTION !!!
8" Primary Scum
Cut & Cap as necessary

CAUTION !!!
8" Primary Scum
Cut & Cap as necessary

CAUTION !!!
8" Sludge Force Main
(Inactive) (Abandoned)
Cut & Cap as necessary

CAUTION !!!
8" Digester Gas Line (Inactive)
Cut & Cap as necessary

CAUTION !!!
Existing 2" Waterline
Cut & Cap as necessary

CAUTION !!!
8" Sludge Force Main (Inactive)
Cut & Cap as necessary

CAUTION !!!
Existing 6" Waterline
Cut & Cap as necessary

CAUTION !!!
6" Primary Scum (Inactive)
Cut & Cap as necessary

CAUTION !!!
2" Gas Line (Inactive)
Cut & Cap as necessary

Remove and replace
161 L.F. Asphalt
Pavement in kind.
See Detail, sheet no. C311

CAUTION !!!
Buried Electric Duct Bank
Contractor shall protect
thru construction

CAUTION !!!
Buried 48" Pipe (Inactive)
Cut & Plug as necessary

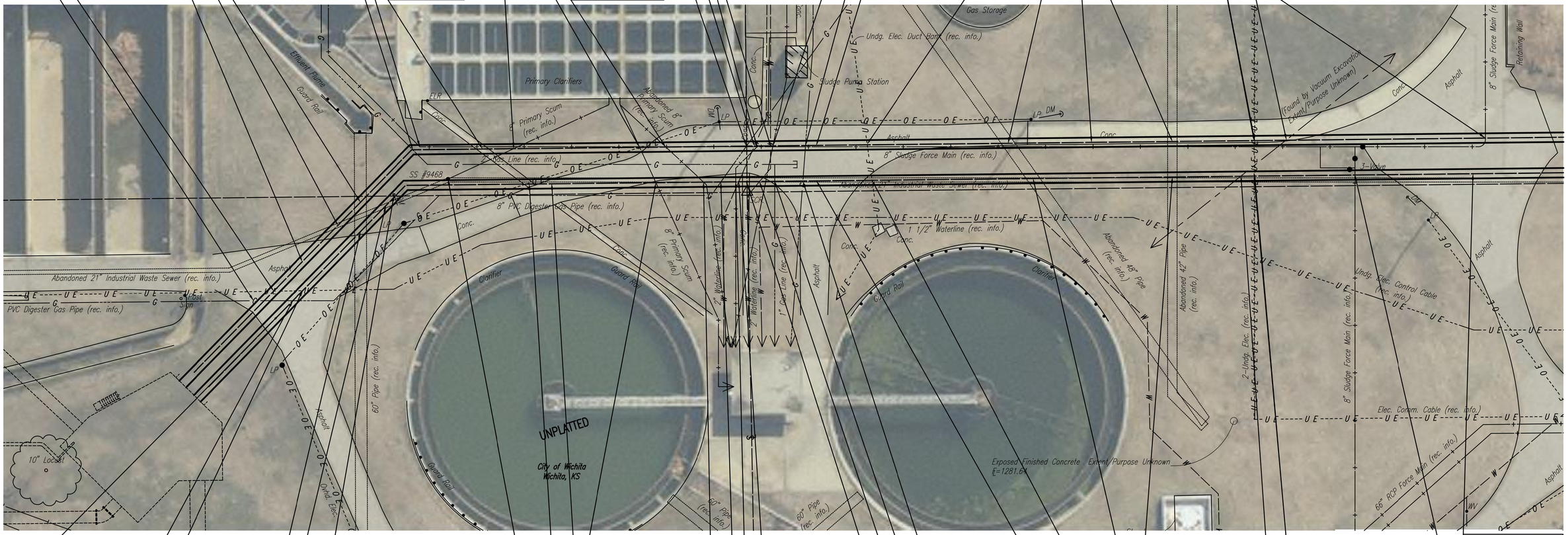
Remove and replace
112 L.F. Concrete
Pavement in kind.
See Detail, sheet no. C311

CAUTION !!!
Buried 42" Pipe (Inactive)
Cut & Cap as necessary

CAUTION !!!
Buried Electric
Contractor shall protect thru construction

CAUTION !!!
Found by Vacuum Excavation
Extent/Purpose Unknown

CAUTION !!!
8" Sludge Force Main (Inactive)
Cut & Cap East of proposed
Force Main. Provide marker to
Identify location of capped end.
Fully Remove pipe from FM 1
Sta. 11+35.05 to Sta. 15+85.51



CAUTION!!!
Deadman
Deadman to be removed and reset
by Contractor.
Contractor shall support pole as required
during construction

Remove and replace
56 L.F. Asphalt
Pavement in kind.
See Detail, sheet no. C311

CAUTION !!!
Buried Electric
Contractor shall protect
thru construction.

CAUTION !!!
8" Digester Gas Line (Inactive)
Cut & Cap as necessary

CAUTION !!!
21" Industrial Waste Sewer (Inactive)
Cut & Cap pipe North of
Proposed Force Main.
Fully Remove manhole and pipe from
FM 2 Sta. 10+86.91 to
Sta. 20+80.05

CAUTION !!!
Buried 60" Pipe (Inactive)
Cut & Plug as necessary

CAUTION !!!
8" Primary Scum
Cut & Cap as necessary

Remove and replace
47 L.F. Asphalt
Pavement in kind.
See Detail, sheet no. C311

Remove and replace
5 L.F. Concrete
sidewalk in kind.

CAUTION !!!
21" Industrial Waste Sewer (Inactive)
Cut & Cap pipe North of
Proposed Force Main.
Fully Remove manhole and pipe from
FM 2 Sta. 10+86.91 to
Sta. 20+80.05

CAUTION !!!
8" Digester Gas Line (Inactive)
Cut & Cap as necessary

CAUTION !!!
8" Primary Scum
(Inactive) (Abandoned)
Cut & Cap as necessary

CAUTION !!!
Existing 6" Waterline
Cut & Cap as necessary

CAUTION !!!
8" Sludge Force Main
Cut & Cap as necessary

CAUTION !!!
8" Digester Gas Line (Inactive)
Cut & Cap as necessary

CAUTION !!!
2" Gas Line (Inactive)
Cut & Cap as necessary

CAUTION !!!
1" Gas Line (Inactive)
Cut & Cap as necessary

CAUTION !!!
Existing 2" Waterline
Cut & Cap as necessary

Remove and replace
3 L.F. Concrete
sidewalk in kind.

CAUTION !!!
Buried Electric Duct Bank
Contractor shall protect
thru construction

Remove and replace
40 L.F. Asphalt
Pavement in kind.
See Detail, sheet no. C311

CAUTION !!!
Buried 42" Pipe (Inactive)
Cut & Cap as necessary

CAUTION !!!
Buried 48" Pipe (Inactive)
Cut & Plug as necessary

CAUTION !!!
Buried Electric
Contractor shall protect thru construction

CAUTION !!!
Found by Vacuum Excavation
Extent/Purpose Unknown

Remove and replace
66 L.F. Asphalt
Pavement in kind.
See Detail, sheet no. C311

CAUTION !!!
8" Sludge Force Main (Inactive)
Fully Remove Pig Launcher
Valves and Piping. Cut & Cap
West of Proposed Force Main

THE UTILITIES SHOWN WERE OBTAINED
FROM WASTE WATER TREATMENT PLANT 1
CONSTRUCTION PLANS AND RECORD DRAWINGS.

ALL CUTS, CAPS, PLUGS, MARKERS, AND REMOVAL OF EXISTING UTILITIES SHALL BE
CONSIDERED SUBSIDIARY TO "SITE CLEARING".

No.	Revision	By	Date

WASTEWATER PLANT 2
INFLUENT FORCE MAIN – PHASE 1

PLANT NO. 1 SITE DETAIL AND EXISTING UTILITIES

GARY JANZEN, P.E. – CITY ENGINEER
CITY OF WICHITA PROJECT NO. 468-85118

MICHAEL D. KELSEY LICENSED 13944 04/03/2017 KANSAS PROFESSIONAL ENGINEER

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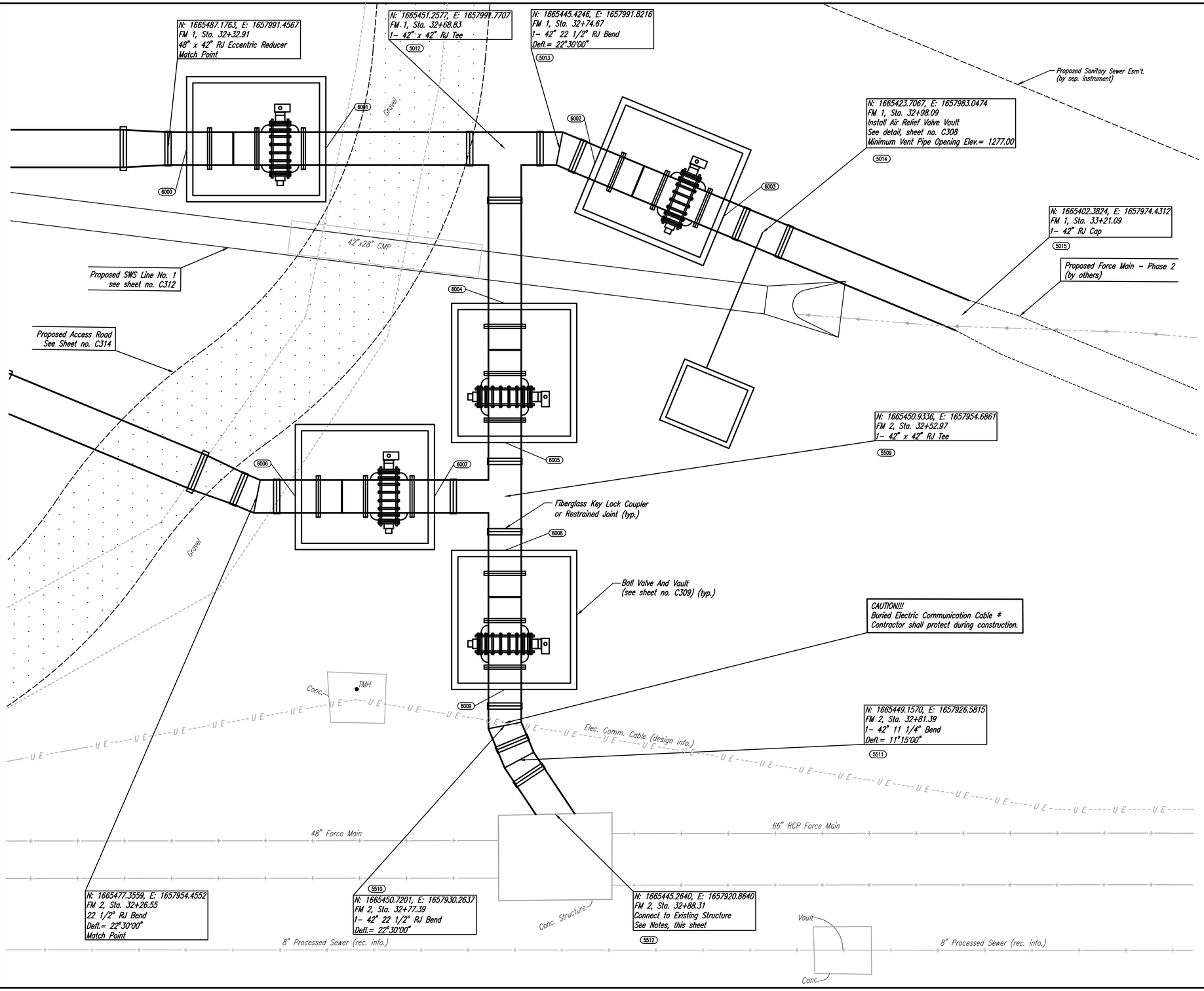
316-262-2691 www.pec1.com

Designed by	MDK, TBK	Job No.	35-15554-1-0042	Sht. C306 of 58
Drawn by	CSL, KTD	Date	NOVEMBER 2016	

Saved: 03-20-2017, 10:15:23 AM by KURTIS DEKAT
Plotted: 03-20-2017, 10:23:28 AM by KURTIS DEKAT
U:\Wichita-Civil\2015\15554\001\Mxrd\Drawings\Phase 1\15554-001-C306-PLANT #1 SITE DETAIL



SCALE: 1" = 5'

0 5 10

PEC

COORDINATE LIST		
POINT	NORTHING	EASTING
6000	1,665,485.1764	1,657,991.4742
6001	1,665,470.3370	1,657,991.6039
6002	1,665,441.6386	1,657,990.2921
6003	1,665,427.8791	1,657,984.7331
6004	1,665,451.1135	1,657,975.2753
6005	1,665,450.9838	1,657,960.4359
6006	1,665,473.2727	1,657,954.4908
6007	1,665,458.4333	1,657,954.6206
6008	1,665,450.8833	1,657,948.9363
6009	1,665,450.7536	1,657,934.0969

EXISTING STRUCTURE CONNECTION NOTES

1. SEE PROPOSED WORK SEQUENCE NOTE 4 ON SHEET C201 FOR SEQUENCING OF CONNECTION.
2. CORE EXISTING CONCRETE STRUCTURE WALL AND INSTALL NEW 42" PIPE. SEAL NEW 42" PIPE TO EXISTING STRUCTURE WITH AN APPROVED WATERSTOP GASKET AND NON-SHRINK GROUT.
3. RESHAPE STRUCTURE FLOOR TO PROVIDE SMOOTH FLOW USING A HIGH EARLY STRENGTH CONCRETE MIX.
4. PLUG 48" PIPE (N) WITH 3' OF HIGH EARLY STRENGTH CONCRETE MIX.

ALL WORK ASSOCIATED WITH THE CROSS CONNECTION ASSEMBLY AS SHOWN ON THIS SHEET (EXCLUDING THE AIR RELIEF VALVE VAULT) SHALL BE PAID FOR AS THE LUMP SUM BID ITEM "CROSS CONNECTION ASSEMBLY".

* PRIOR TO BEGINNING CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE THE EXISTING UTILITY TO VERIFY PIPE SIZE, TYPE, FITTINGS, AND HORIZONTAL AND VERTICAL LOCATION. THE CONTRACTOR SHALL REPORT HIS FINDINGS TO THE ENGINEER SO THAT ANY NECESSARY PLAN MODIFICATIONS CAN BE MADE.

MICHAEL D. KELSEY LICENSED PROFESSIONAL ENGINEER 13944 04/03/2017 KANSAS

No.	Revision	By	Date

WASTEWATER PLANT 2
INFLUENT FORCE MAIN - PHASE 1

CROSS CONNECTION ASSEMBLY DETAIL

GARY JANZEN, P.E. - CITY ENGINEER
CITY OF WICHITA PROJECT NO. 468-85118

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PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
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Designed by	MDK, TBK	Job No.	35-15554-1-0042
Drawn by	CSL, KTD	Date	NOVEMBER 2016

Sht. C307 of 58

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Plotted: 03-31-2017 7:56:16 AM by KURTIS.DEKAT
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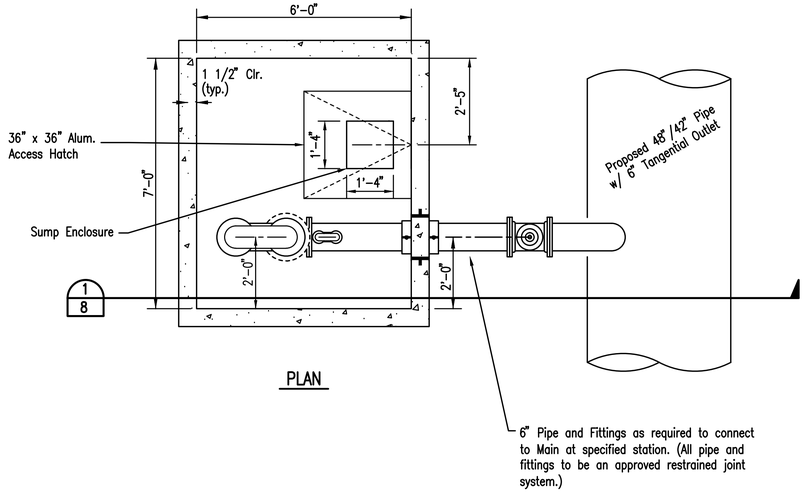
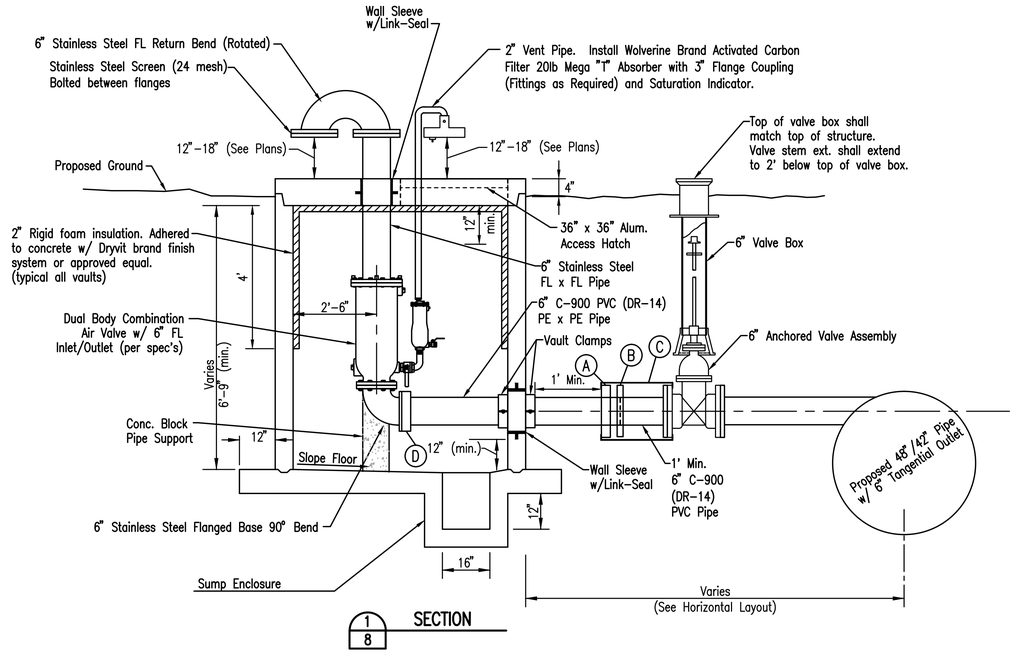


PLAN



6" COMBINATION AIR VALVE VAULT

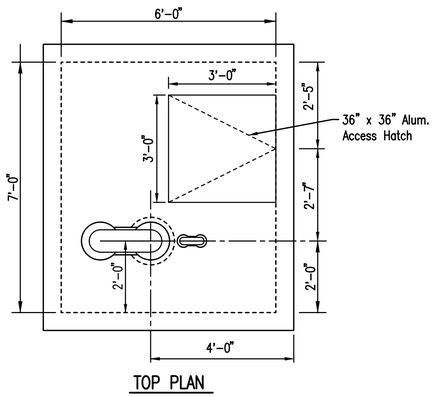
NO SCALE

NOTE: PROVIDE A "CONFINED ENTRY SPACE WARNING" SIGN, CHAMPION AMERICAN MODEL 73415HH OR APPROVED EQUAL, FOR VAULT AT LOCATION AS APPROVED BY THE ENGINEER. THE "CONFINED ENTRY SPACE WARNING" SIGN SHALL BE FASTENED TO THE TOP OF ALL VAULTS. IF NECESSARY FOR LANDSCAPING OR SITE CONSIDERATIONS, THE SIGN MAY BE FASTENED TO THE VAULT LID IF IT DOES NOT IMPEDE ACCESS OR AIR FLOW.

THE CONTRACTOR SHALL PROVIDE VERTICAL FITTINGS AS REQUIRED TO MEET THE REQUIREMENTS FOR DEPTH OF THE VAULT SHOWN IN THE DETAIL. THE TOP OF THE 6" PIPING INTO THE VAULT SHALL BE 5' (MIN.) BELOW EXISTING GROUND.

SEE SHEET S301 FOR STRUCTURAL DETAILS

A	Megalug or One-Lok
B	6" Coupling w/ 1" gap
C	Tie Rods (per manufacturers recommendations) Sigma, Romac or approved equal
D	Megaflange or Sigmaflange and One-Lok



TOP PLAN

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U:\Wichita-Civil\2015\15554\001\Mun\Drawings\Phase 1\15554-001-C308-AIR RELIEF VALVE PLAN & DETAILS

No.	Revision	By	Date

MICHAEL D. KELSEY LICENSED 13944 04/06/2017 KANSAS PROFESSIONAL ENGINEER

WASTEWATER PLANT 2
INFLUENT FORCE MAIN - PHASE 1

AIR RELIEF VALVE PLAN & DETAILS

GARY JANZEN, P.E. - CITY ENGINEER
CITY OF WICHITA PROJECT NO. 468-85118

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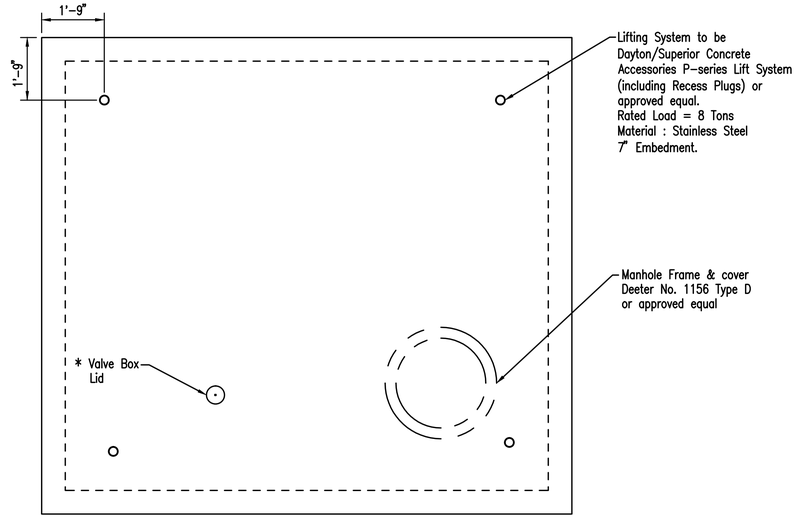
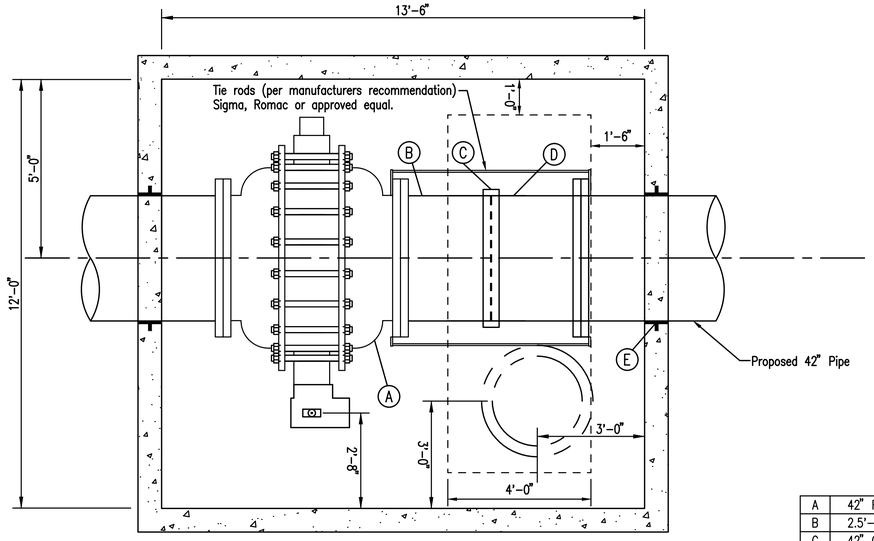
PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
303 SOUTH TOPEKA WICHITA, KS 67202
316-262-2691 www.pec1.com

Designed by	MDK, TBK	Job No.	35-15554-1-0042
Drawn by	CSL, KTD	Date	NOVEMBER 2016

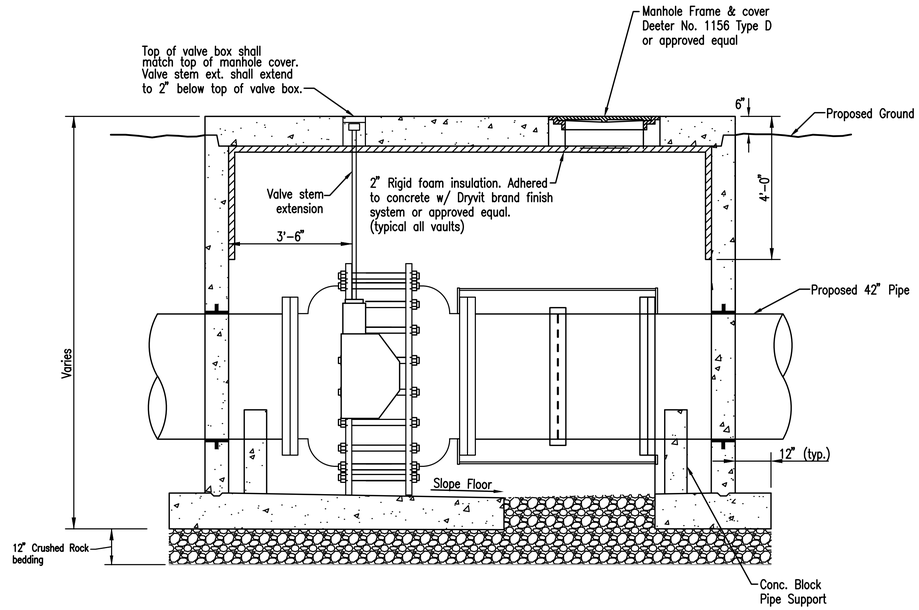


TOP



PLAN

A	42" Flanged Ball Valve
B	2.5'- 42" Spool (Fl. x Fl.)
C	42" Coupling w/ 1" Gap
D	2.5'- 42" Spool (PE x Fl.)
E	42" Wall Sleeve w/ Link-Seal



SECTION

LINE VALVE VAULT DETAIL

SCALE 1" = 2'

* VALVE BOXES SHALL BE FURNISHED WITH TAMPER PROOF LOCKING LIDS. McGARD INTIMIDATOR CURB-LOCK OR APPROVED EQUAL. TWO SOCKET WRENCH KEYS SHALL BE PROVIDED FOR EACH SIZE AND TYPE OF LOCKING LID. TYPICAL ALL VAULTS.

THE CONTRACTOR SHALL UTILIZE RESTRAINED JOINT PIPE AND TIE RODS TO RESTRAIN ALL PIPING AT THE VALVE LOCATIONS.

SEE SHEET NO. S302 FOR STRUCTURAL DETAILS.

MICHAEL D. KELSEY LICENSED 13944 04/03/2017 KANSAS PROFESSIONAL ENGINEER

No.	Revision	By	Date

WASTEWATER PLANT 2
INFLUENT FORCE MAIN - PHASE 1

LINE VALVE VAULT DETAIL

GARY JANZEN, P.E. - CITY ENGINEER
CITY OF WICHITA PROJECT NO. 468-85118

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303 SOUTH TOPEKA WICHITA, KS 67202
316-262-2691 www.pec1.com

Designed by	MDK, TBK	Job No.	35-15554-1-0042
Drawn by	CSL, KTD	Date	NOVEMBER 2016

Sht. C309 of 58

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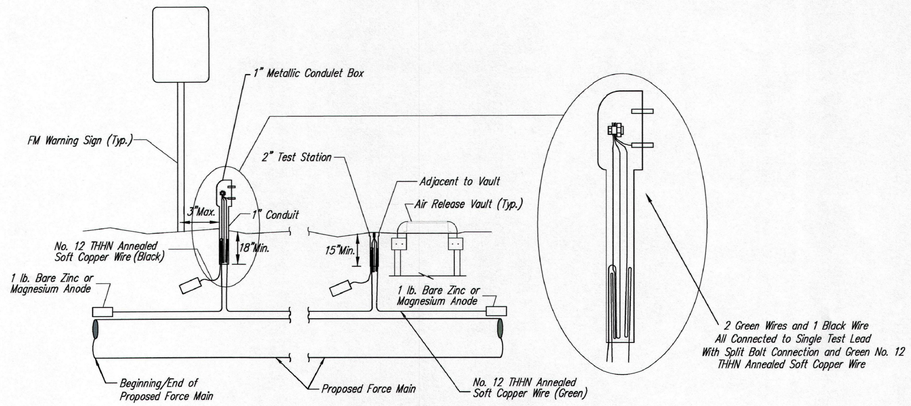
Plotted: 03-29-2017 7:35:44 PM by KURTIS.DEKAT
U:\Wichita-Civil\2015\15554\001\Main\Drawings\Phase 1\15554-001-C309-LINE VALVE VAULT DETAIL



TRACER WIRE

Conductive type pipe locator/tracer wire shall be installed to locate all sanitary sewer force main pipe regardless of pipe material. The wire shall extend the entire length of the proposed pipe. The wire shall be taped to the force mains and pulled with the pipe. Split-bolt connectors shall be used at splice locations. Electrical tape shall cover all splices so no bare wire is exposed. Test stations shall be installed adjacent to all air release vaults and force main warning signs. Any exceptions to the location of test stations shall be approved by the engineer. At each test station, the tracer wire shall be connected to a 1 lb. Zinc or magnesium anode. Anodes shall also be attached to the tracer wire at both the beginning and the end of the proposed sewer line. A typical layout of the tracer wire and test station is provided in the above figure.

WIRE

The tracer wire shall be Green No. 12 THHN annealed soft copper wire with thermal plastic insulation. The insulation shall be heat, oil, and gasoline resistant as manufactured by Temple Electric or approved equal. To allow for grade adjustment, a minimum of 12" of excess wire shall be coiled at the bottom of the test station for all wires. The insulation sheathing shall be removed such that 1" bare copper wire is exposed at all points of connection.

TEST STATIONS

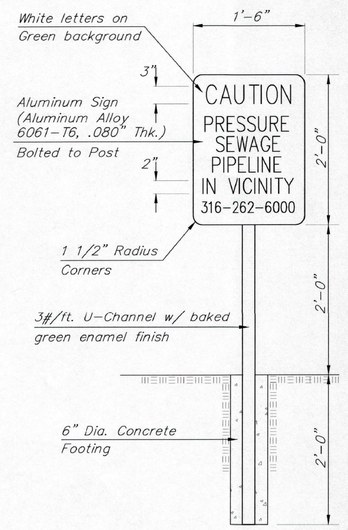
The test station for the force main warning signs applications shall be a 1 inch galvanized "condulet" style test station as manufactured by AGRA Industries with a removable solid cover having two leads extending from the face or approved equal. The test station for air release vault applications shall be 2 inch flush style test station T2PS3B as manufactured by HANDLEY Industries or approved equal. The conduit style shall be attached to a 1 inch rigid galvanized conduit with a minimum length of 36" and plastic end bushing. The flush style shall have the word "Sewer" stamped or molded into the lid. All test stations shall be manufactured using molded green tops or sufficiently coated with green enamel paint. The tracer wire and the anode wire shall be installed to allow 10 inches of wire within the test station. In concrete environments such as sidewalks or in the downtown area the contractor shall use the flush style test station. The location of all test stations shall be approved by the engineer, recorded, and shown in the as-built drawings.

ANODES

The anodes shall be 1 lb. bare zinc or magnesium. The anodes shall be buried at the same elevation as the sanitary sewer force main at each test station. The anodes shall be connected to Black No. 12 THHN annealed soft copper wire which shall be extended to the test station.

SEWER TRACER WIRE DETAIL

COST IS SUBSIDIARY TO PIPE INSTALLATION



FORCE MAIN WARNING SIGN DETAIL

Note: Install Metal Warning Signs at Locations as Shown on the Plans. Exact Locations of Warning Signs shall be Approved by the Engineer.

GARY L. JANZEN LICENSED 18294 KANSAS PROFESSIONAL ENGINEER
04/18/13

CITY OF WICHITA
PUBLIC WORKS & UTILITIES ENGINEERING DIVISION

TRACER WIRE & WARNING SIGN FOR SANITARY SEWER FORCE MAIN

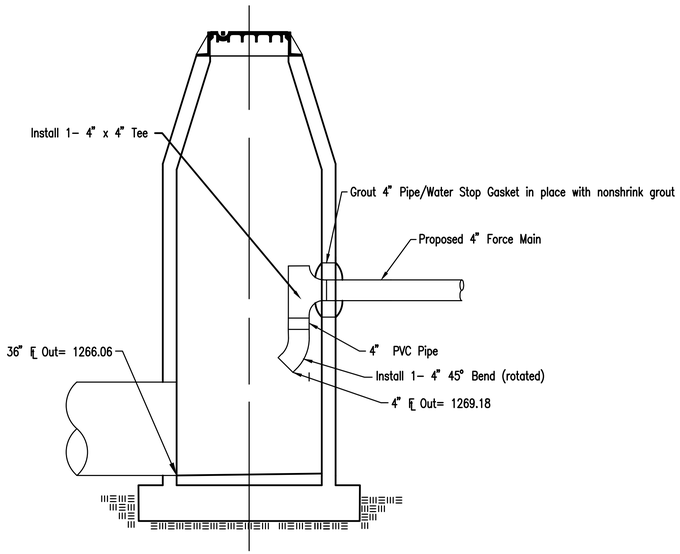
CITY ENGINEER
GARY JANZEN, P.E.

PROJECT NUMBER	OCA NUMBER	DATE
468-85118	620860	12/2012

CITY ENGINEER'S OFFICE
CITY HALL - SEVENTH FLOOR
455 NORTH MAIN STREET
WICHITA, KANSAS 67202-1620
(316) 268-4501

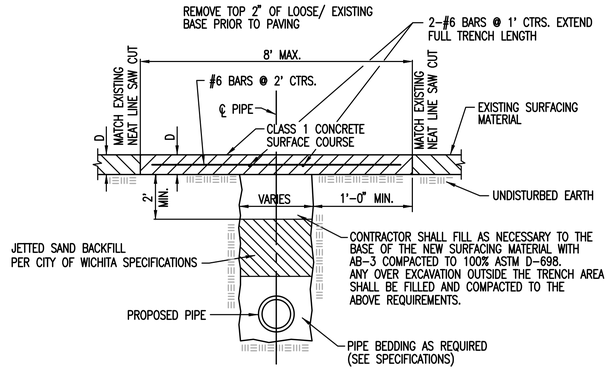
SHEET
C310 of 58

SS-106

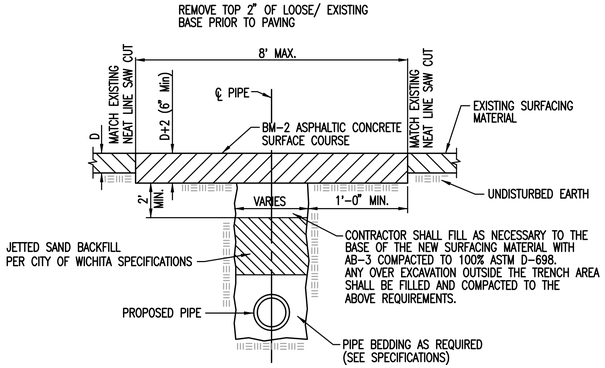


FORCE MAIN CONNECTION DETAIL

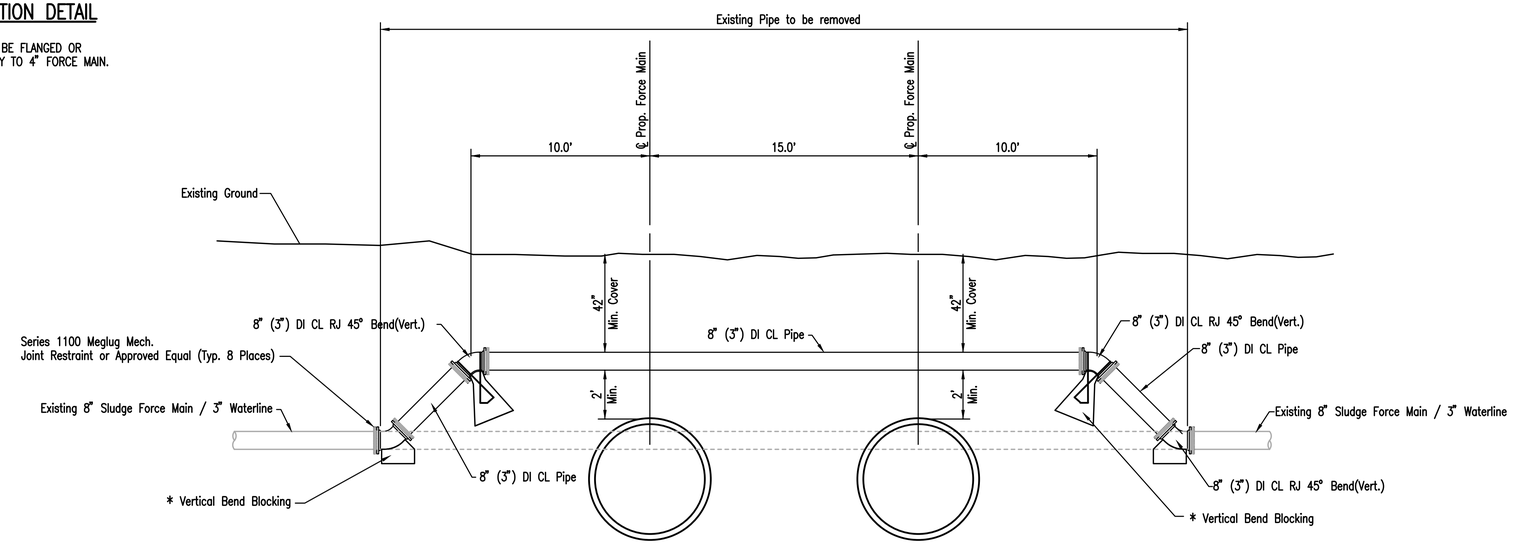
ALL INTERIOR FITTINGS SHALL BE FLANGED OR RESTRAINED JOINT. COST SUBSIDIARY TO 4" FORCE MAIN.



CONCRETE PAVEMENT REMOVAL AND REPLACEMENT DETAIL



ASPHALT PAVEMENT REMOVAL AND REPLACEMENT DETAIL



WATERLINE/FORCE MAIN ADJUSTMENT DETAIL (TYPICAL)

NOT TO SCALE

* Reference City of Wichita Miscellaneous Water Details, WL104 (http://www.wichita.gov/Government/Departments/PMU/Pages/Regulations.aspx).

MICHAEL D. KELSEY LICENSED 13944 04/03/2017 KANSAS PROFESSIONAL ENGINEER

No.	Revision	By	Date

WASTEWATER PLANT 2
INFLUENT FORCE MAIN – PHASE 1

MISCELLANEOUS DETAILS

GARY JANZEN, P.E. – CITY ENGINEER
CITY OF WICHITA PROJECT NO. 468–85118

PEC
PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
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316-262-2691 www.pec1.com

Designed by	MDK, TBK	Job No.	35–15554–1–0042	Sht. C311 of 58
Drawn by	CSL, KTD	Date	NOVEMBER 2016	

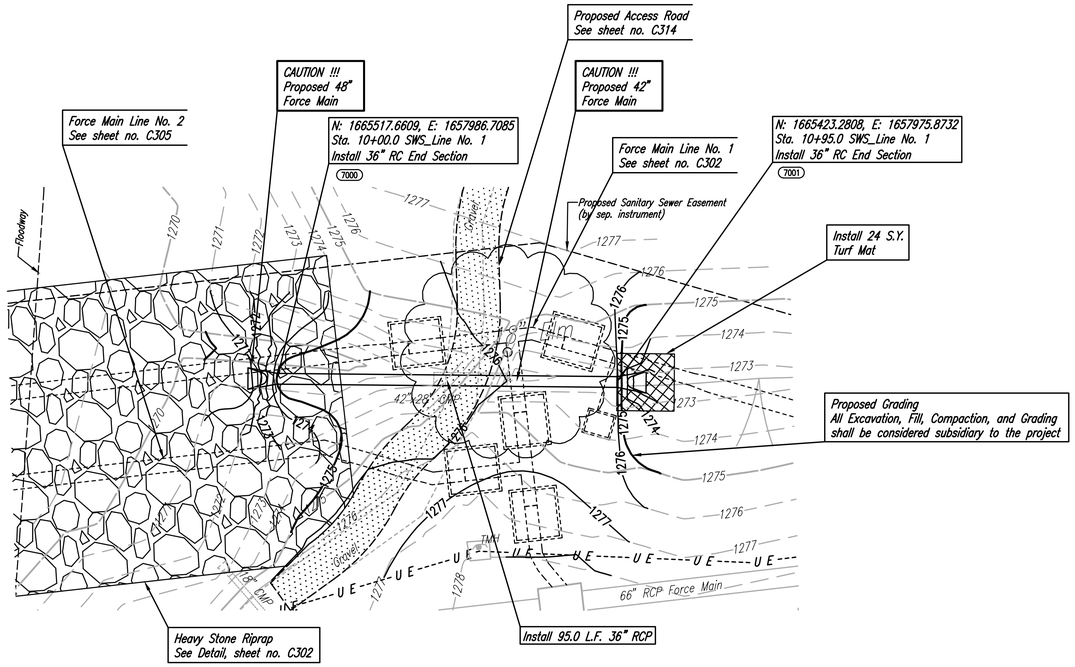
PLAN	BY	DATE
CHECKED		
CHECKED		

SCALE:

PLAN: LAT. & LONG. 0 20 40

PROFILE: HORIZ. SAME AS ABOVE

VERT.

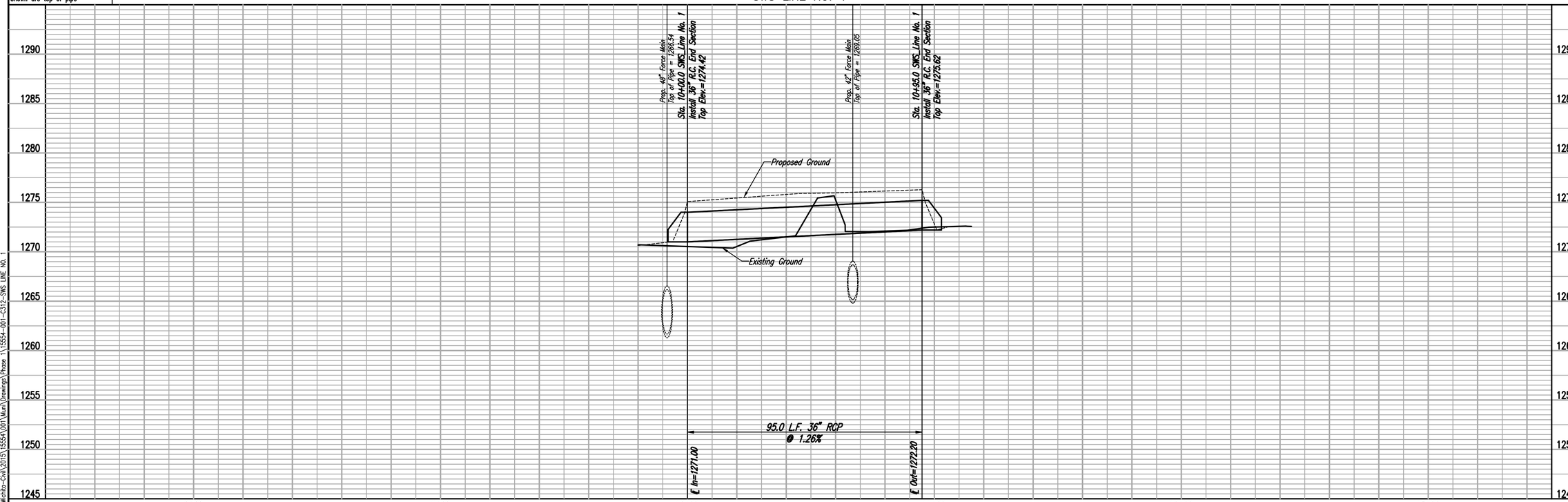


7000 – SEE SHEET NO. C101 FOR STORM SEWER COORDINATES (TYP.)

Unless noted otherwise, elevations shown are top of pipe

SWS LINE NO. 1

PROFILE	BY	DATE
CHECKED		
CHECKED		



WASTEWATER PLANT 2
INFLUENT FORCE MAIN – PHASE 1

SWS LINE NO. 1

GARY JANZEN, P.E. – CITY ENGINEER
CITY OF WICHITA PROJECT NO. 468-85118

PEC
PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
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316-262-2691 www.pec1.com

Designed By	MDK, TBK	Job No.	35-15554-001-0042
Drawn By	CSL, KTD	Date	NOVEMBER 2016

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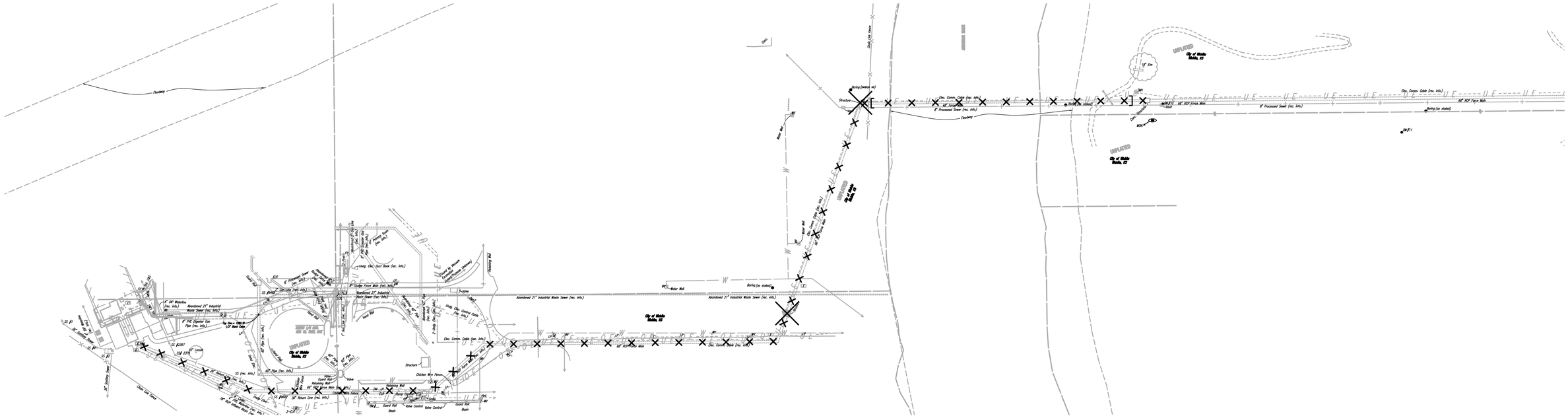
SCALE: 1" = 100'



DEMOLITION NOTES

A. WHEN ABANDONING THE EXISTING FORCE MAIN THE CONTRACTOR SHALL THOROUGHLY FLUSH THE PIPE PRIOR TO ABANDONMENT. THE EXISTING 66" RCP SHALL THEN BE SAND FILLED OR THE TOP HALF OF THE PIPE MAY BE BROKEN IN PLACE AND THE RESULTING TRENCH BACK FILLED. SAND SHALL BE USED AS INITIAL BACKFILL TO THE TOP OF THE REMAINING PIPE. THE EXISTING 48" PIPE CROSSING THE RIVER SHALL BE FLUSHED AND PLUGGED ON BOTH ENDS.

B. STRUCTURES AND FOOTINGS TO BE ABANDONED SHALL BE COMPLETELY REMOVED TO AN ELEVATION OF 3' BELOW FINISHED GRADE. THE BOTTOM OF THE STRUCTURE SHALL BE BROKEN TO ALLOW FOR DRAINAGE AND THE REMAINING PORTION OF THE ABANDONED STRUCTURES SHALL BE BACKFILLED WITH SAND OR FLOWABLE FILL TO AN ELEVATION OF 2' BELOW GRADE. THE TOP 2' OF THE EXCAVATION SHALL BE BACKFILLED WITH COMPACTED MATERIAL SIMILAR TO THE ADJACENT SURFACE TO 95% OF ASTM D698.

C. AFTER BACKFILLING, THE ENTIRE SITE DISTURBED BY DEMOLITION SHALL BE CLEARED OF ALL DEBRIS, CONCRETE RUBBLE, ETC., GRADED TO DRAIN AND RE SEEDED.

D. ALL WORK REQUIRED TO ABANDON THE EXISTING FORCE MAIN AND ANY INCIDENTAL WORK NECESSARY SHALL BE CONSIDERED SUBSIDIARY TO THE LUMP SUM PRICE BID FOR "FORCE MAIN ABANDONMENT/REMOVAL".

LEGEND

- EXISTING FORCE MAIN TO BE ABANDONED
- EXISTING STRUCTURE TO BE ABANDONED
- CAP/PLUG

MICHAEL D. KELSEY LICENSED 13944 04/03/2017 KANSAS PROFESSIONAL ENGINEER

No.	Revision	By	Date

WASTEWATER PLANT 2
INFLUENT FORCE MAIN – PHASE 1

DEMOLITION PLAN

GARY JANZEN, P.E. – CITY ENGINEER
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Designed by	MDK, TBK	Job No.	35-15554-1-0042
Drawn by	CSL, KTD	Date	NOVEMBER 2016

Sht. C313 of 58

SCALE: 1" = 200'

0 200 400

ACCESS NOTES

1. ALL CONSTRUCTION TRAFFIC THRU CHAPIN PARK SHALL UTILIZE THE EXISTING ACCESS ROAD AND ENTRANCE OFF OF MACARTHUR ROAD AND SHALL CONTINUE NORTH THROUGH THE RUNWAY PARKING LOT AND OFF THE NORTH END OF THE PAVEMENT.
2. CONSTRUCTION TRAFFIC AND CLOSURES IN CHAPIN PARK IS ONLY ALLOWED BETWEEN SEPTEMBER 4TH, 2017 AND JANUARY 26, 2018.
3. THE PROPOSED ACCESS ROAD SHALL BE COMPLETE AND GRADED SMOOTH AFTER ALL PIPE WORK IS COMPLETE. IT MAY ALSO SERVE AS A TEMPORARY CONSTRUCTION ACCESS ROAD.
4. OTHER TEMPORARY CONSTRUCTION ACCESS AGGREGATE MAY BE INSTALLED ALONG THE SAME ROUTE. ANY TEMPORARY AGGREGATE SHALL BE COMPLETELY REMOVED AFTER CONSTRUCTION AND THE AREA SHALL BE RESTORED TO EXISTING CONDITIONS. THIS WORK SHALL BE CONSIDERED SUBSIDIARY TO THE PROJECT.
5. THE CONTRACTOR SHALL TAKE CARE TO PROTECT THE EXISTING PAVEMENT FROM DAMAGE. THE 2" MILL AND OVERLAY WILL ONLY BE COMPLETED IF DIRECTED BY THE ENGINEER. THE 2" MILL AND OVERLAY WILL BE COMPLETED AFTER ALL OTHER CONSTRUCTION TRAFFIC THROUGH CHAPIN PARK CEASES. THE LIMITS OF THE 2" MILL AND OVERLAY WILL BE DETERMINED AT THAT TIME BY THE ENGINEER. THIS WORK WILL BE PAID FOR AS "AC PAVEMENT 2" MILL AND OVERLAY" FOR THE MEASURED QUANTITY.
6. THE CONTRACTOR SHALL CONTAIN HIS OPERATIONS TO PERMIT EMERGENCY TRAFFIC THROUGH AND ACROSS CONSTRUCTION AT ALL TIMES. THE CONTRACTOR SHALL ERECT WARNING SIGNS, FLASHING LIGHTS, AND BARRICADES IN COMPLIANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) TO ENSURE SAFETY AS DIRECTED IN THE GENERAL CONDITIONS.
7. IF THE CAP OF THE LANDFILL IS DISTURBED, IT MUST BE RECONSTRUCTED TO EXISTING CONDITIONS WITH AN 18" CLAY LAYER AND ANOTHER 6" OF VEGETATIVE COVER. ANY SOLID WASTE ENCOUNTERED (PREVIOUSLY BURIED TRASH) WILL HAVE TO BE DISPOSED OF PROPERLY AT A MUNICIPAL SOLID WASTE LANDFILL OR THROUGH THE SOLID WASTE TRANSFER STATION.

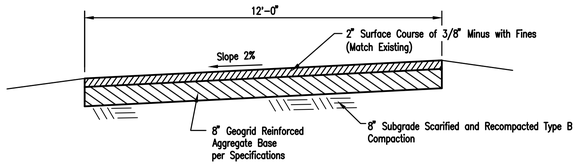
LEGEND

= PROPOSED GRAVEL ACCESS ROAD (See Detail, this sheet)

= 2" MILL AND OVERLAY

= TYPE III BARRICADE

= SIGN TO BE MOUNTED ON TYPE III BARRICADE



LONGITUDINAL SLOPE SHALL BE 5% MAXIMUM UNLESS OTHERWISE APPROVED BY THE ENGINEER

ACCESS ROAD DETAIL

NOT TO SCALE

MICHAEL D. KELSEY LICENSED 13944 04/03/2017 KANSAS PROFESSIONAL ENGINEER

No.	Revision	By	Date

WASTEWATER PLANT 2
INFLUENT FORCE MAIN – PHASE 1

CHAPIN PARK ACCESS PLAN

GARY JANZEN, P.E. – CITY ENGINEER
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Designed by	MDK, TBK	Job No.	35-15554-1-0042
Drawn by	CSL, KTD	Date	NOVEMBER 2016

Sht. C314 of 58

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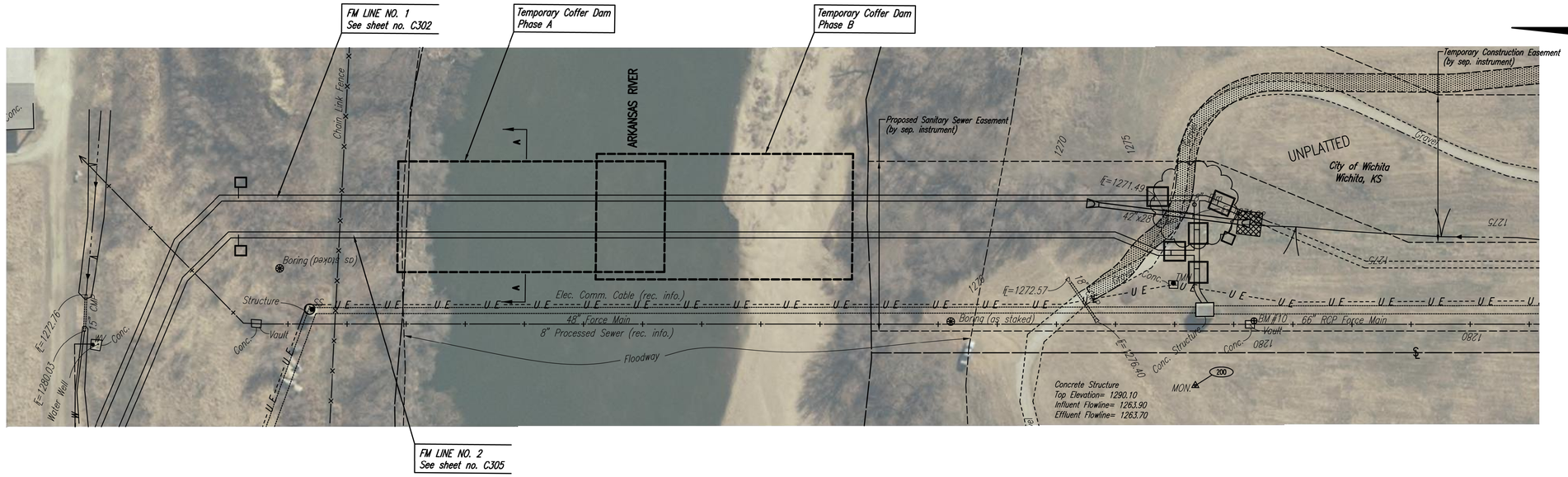
Plot Date: 31 MAR 2017 10:47:33 AM by KURTIS.DEKAT
U:\Wichita-Civil\2015\15554\001\Mun\Drawings\Phase 1\15554-001-C314 CHAPIN PARK ACCESS PLAN

SCALE:

PLAN: LAT. & LONG. 0 40 80

PROFILE: HORIZ. SAME AS ABOVE

VERT. 0 5



COFFER DAM NOTES

1. THE SOIL COFFER DAM SHOWN MAY ONLY BE USED FROM SEPTEMBER 1, 2017 TO FEBRUARY 28, 2018. ANY COFFER DAM USED OUTSIDE OF THESE DATES SHALL BE A NON-SOIL PORTABLE COFFER DAM AS MANUFACTURED BY AQUA DAM, AQUA-BARIER, PORTADAM, OR APPROVED EQUAL. INSTALLATION SHALL BE PER MANUFACTURERS RECOMMENDATIONS.

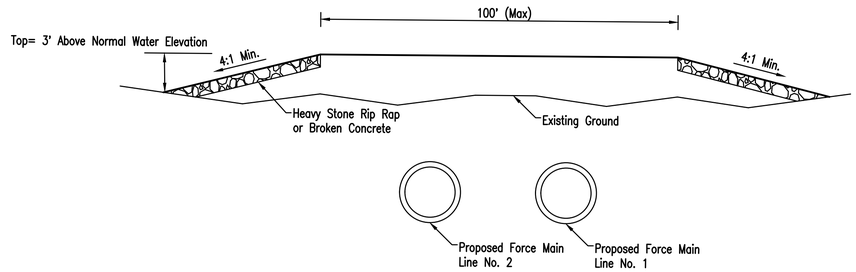
2. THE COFFER DAM SHALL NOT EXTEND ACROSS MORE THAN 2/3 OF THE RIVER BED AT ANY TIME.

3. ADEQUATE RIPRAP SHALL BE MAINTAINED ON THE LEADING EDGE, UPSTREAM, AND DOWNSTREAM SLOPES OF THE COFFER DAM TO PREVENT SEDIMENT FROM WASHING DOWNSTREAM.

4. AFTER PIPE INSTALLATION IS COMPLETE, THE COFFER DAM SHALL BE COMPLETELY REMOVED AND THE AREA SHALL BE RESTORED USING NATURAL CHANNEL DESIGN PER THE CORPS OF ENGINEERS PERMIT REQUIREMENTS.

5. IF WATER IS TRAPPED INSIDE OR BETWEEN THE COFFER DAM, SEINING SHALL BE PERFORMED PRIOR TO PUMPING TO REMOVE FISH. FISH SHOULD BE RELEASED IN FLOWING WATER DOWNSTREAM OF THE CONSTRUCTION SITE. THE FINAL 5 SEINE HAULS MUST CONTAIN NO FISH FOR THE REQUIREMENTS OF DEPLETION TO BE MET. IF FISH ARE COLLECTED IN THE FINAL 5 SEINE HAULS, THE COUNT SHOULD RESTART UNTIL 5 SEINE HAULS ARE COMPLETED WITH NO FISH COLLECTED. A MINIMUM OF 15 SEINE HAULS MUST BE COMPLETED. A KDWPT COLLECTION PERMIT WILL BE REQUIRED FOR THOSE COMPLETING THE SEINING. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING THIS PERMIT AND ALL ASSOCIATED COSTS.

6. ALL COSTS ASSOCIATED WITH THIS WORK SHALL BE CONSIDERED SUBSIDIARY TO THE LUMP SUM BID ITEM "RIVER CROSSING".



SECTION "A"
COFFER DAM DETAIL
NOT TO SCALE

No.	Revision	By	Date

MICHAEL D. KELSEY LICENSED 13944 04/03/2017 KANSAS PROFESSIONAL ENGINEER

WASTEWATER PLANT 2
INFLUENT FORCE MAIN – PHASE 1

COFFER DAM PLAN

GARY JANZEN, P.E. – CITY ENGINEER
CITY OF WICHITA PROJECT NO. 468-85118

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Designed by	MDK, TBK	Job No.	35-15554-1-0042	Sht. C315 of 58
Drawn by	CSL, KTD	Date	NOVEMBER 2016	

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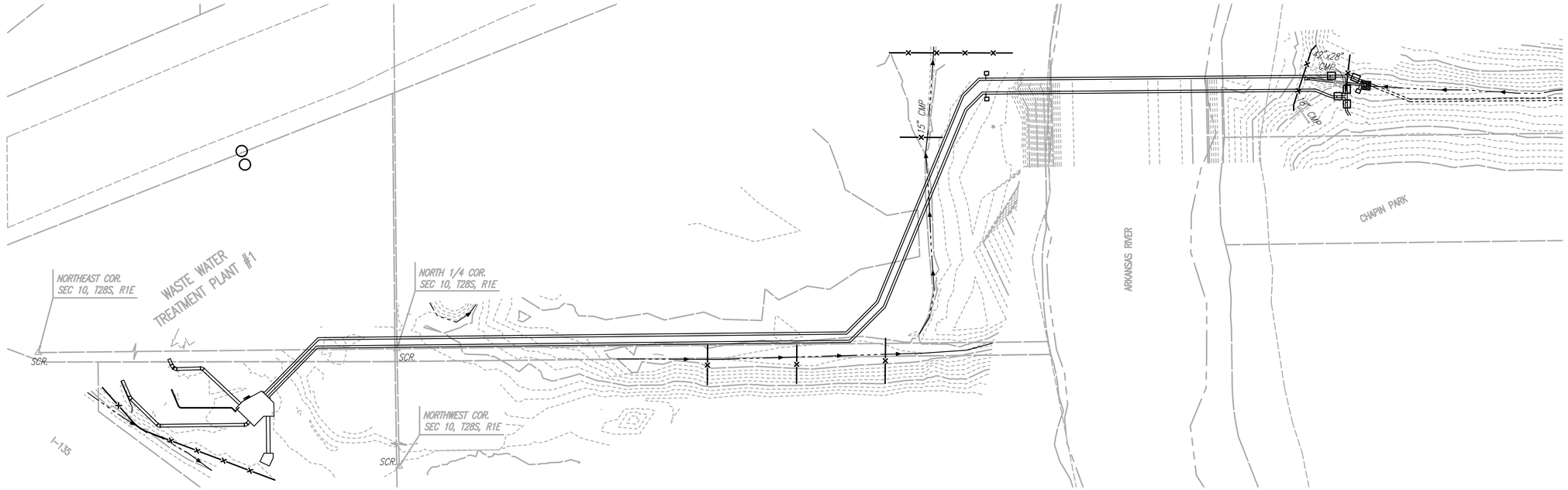
SCALE: 1" = 300'



LEGEND

- SILT FENCE
- PROPOSED INLET PROTECTION
- PROPOSED SANITARY SEWER FORCE MAIN

GENERAL NOTES

1. THE EROSION CONTROL DEVICES SHOWN ON THIS SHEET ARE CONSIDERED MINIMUM STANDARDS. WHENEVER SEDIMENT ENTERS THE STREETS, STORM SEWERS, DITCHES, OR PONDS, CONTRACTOR WILL INSTALL ADDITIONAL DEVICES, AS NEEDED, TO CORRECT THE PROBLEM.
3. THE EROSION CONTROL DEVICES SHOWN HEREON MUST BE IN PLACE AT ALL TIMES DURING CONSTRUCTION UNTIL SUCH TIME AS THE SITE IS REESTABLISHED WITH PAVING OR GRASS. TEMPORARY OR PERMANENT SEEDING AND MULCH WILL BE INSTALLED WHEN EARTHWORK ACTIVITIES CEASE IN AN AREA FOR 14 DAYS OR MORE.
4. ANY MUD INADVERTENTLY TRACKED ONTO ANY STREET SHALL BE CLEANED UP BY THE CONTRACTOR, AT THE END OF EACH DAY'S WORK, OR AS DIRECTED BY THE FIELD ENGINEER.
5. CONTRACTOR TO FURNISH A TRUCK WASH-OUT PIT TO BE PLACED AT A CONVENIENT LOCATION THAT DOES NOT CONFLICT WITH CONSTRUCTION. CONTRACTOR SHALL CLEAN OUT AND BACKFILL PIT PRIOR TO FINAL INSPECTION. LOCATION SHALL BE APPROVED BY THE FIELD ENGINEER.
6. DITCH CHECKS TO BE PLACED IN DITCHES WITH 6% OR LESS SLOPE. SILT FENCE DITCH CHECKS SHOWN ARE FOR REPRESENTATION ONLY. SEE EROSION CONTROL AND SEDIMENT BARRIER DETAILS FOR PLACEMENT REQUIREMENTS.

MICHAEL D. KEITH LICENSED 13944 04/03/2017 KANSAS PROFESSIONAL ENGINEER

No.	Revision	By	Date

WASTEWATER PLANT 2
INFLUENT FORCE MAIN – PHASE 1

EROSION CONTROL PLAN

GARY JANZEN, P.E. – CITY ENGINEER
CITY OF WICHITA PROJECT NO. 468-85118

PEC PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
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Designed by	MDK, TBK	Job No.	35-15554-1-0042	Sht. C400 of 58
Drawn by	CSL, KTD	Date	NOVEMBER 2016	

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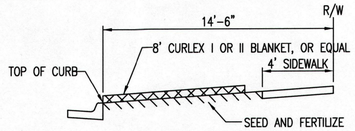
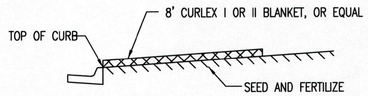
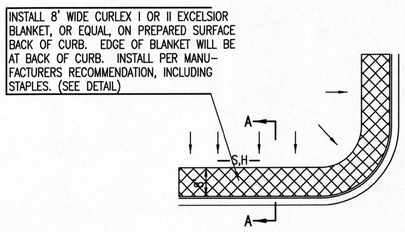


SECTION B–B



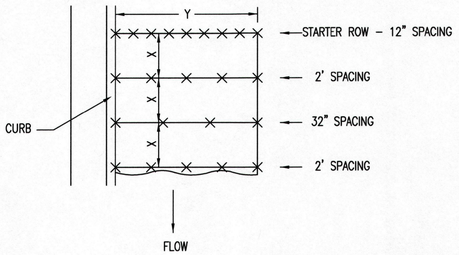
SECTION A–A



GENERAL NOTES

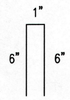
1. EXCELSIOR MAT TO BE INSTALLED WHEN SOD IS NOT SPECIFIED ON PROJECT.
2. EXCELSIOR BLANKET TO BE INSTALLED OVER SEED AND FERTILIZER, AS SPECIFIED IN THE PROJECT SPECIFICATIONS.
3. AFTER INSTALLATION OF EXCELSIOR BLANKET, AT LOCATIONS WHERE CONCENTRATED FLOW CARRIES SEDIMENT OVER THE CURB AND INTO THE GUTTER, SUPPLEMENTAL EROSION CONTROL DEVICES WILL BE INSTALLED BY THE CONTRACTOR AS NEEDED, TO FIX THE PROBLEM.

BACK OF CURB PROTECTION DETAIL



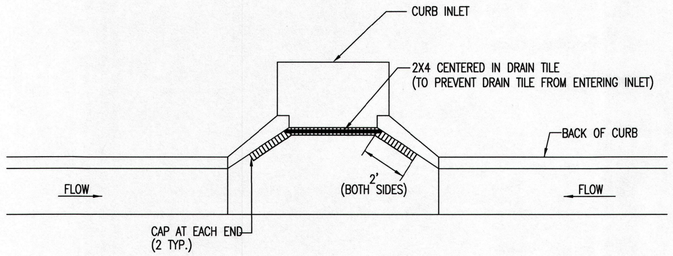
STAPLE PATTERN

NOTES: USE 6" SEAM OVERLAP
(X & Y = RECOMMENDED BY MANUFACTURE)



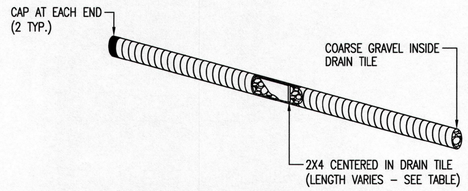
STAPLE

DETAILS FOR APPROVED EROSION CONTROL MAT

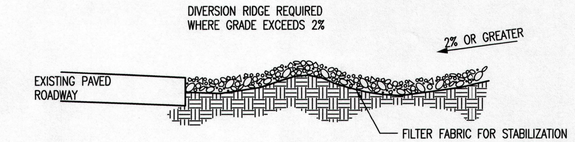


NOTE:
PLACE 4" PERFORATED PVC PIPE, FILLED WITH 1/2"–1" DIA. GRAVEL, IN FRONT OF CURB INLET AS SHOWN.

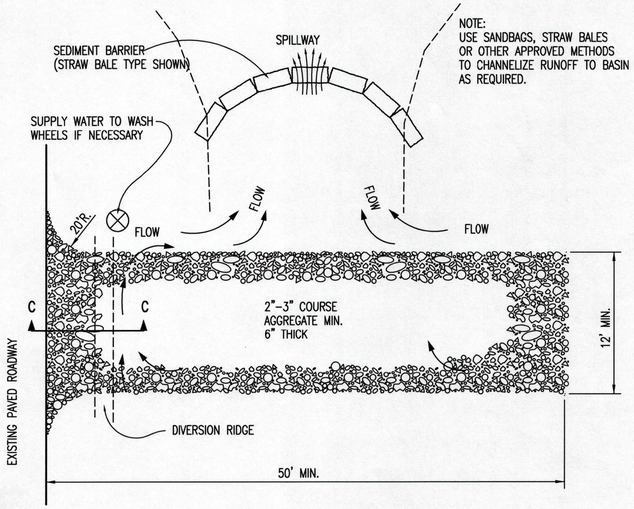
2X4 LENGTH	INLET TYPE	INLET OPENING
5'–6"	1–A	5'–0"
10'–6"	1–A	10'–0"
15'–6"	1–A	15'–0"



CURB INLET PROTECTION
4" PERFORATED PIPE W/ GRAVEL



SECTION C–C



STABILIZED CONSTRUCTION ENTRANCE

GENERAL NOTES

1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS–OF–WAY. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.
2. WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC RIGHT–OF–WAY.
3. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN, AS SHOWN ABOVE.
4. DRIVE ENTRANCES ONTO RESIDENTIAL LOTS WILL NOT BE REQUIRED TO HAVE THE SEDIMENT BARRIER SHOWN, BUT WHEEL WASHING MAY BE REQUIRED IF STABILIZED ENTRANCE IS NOT SUFFICIENT TO KEEP MUD FROM BEING TRACKED ONTO ADJACENT STREET. ENTRANCE SHALL EXTEND FROM BACK OF CURB TO DWELLING.

REVISION DATE: MAY 2013

GARY L. JANZEN LICENSED 16294 PROFESSIONAL ENGINEER KANSAS
05/30/13

CITY OF WICHITA
PUBLIC WORKS & UTILITIES
ENGINEERING DIVISION

BACK OF CURB PROTECTION, CURB INLET PROTECTION AND CONSTRUCTION ENTRANCE

CITY ENGINEER
GARY JANZEN, P.E.

PROJECT NUMBER	OCA NUMBER	DATE
468-85118	620860	

CITY ENGINEER'S OFFICE
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(316) 268-4501

SHEET
C401 of 58

SW–501

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Plot Scale 1:1 03–31–2017 5:34:19 PM by KURTIS.DEKAT
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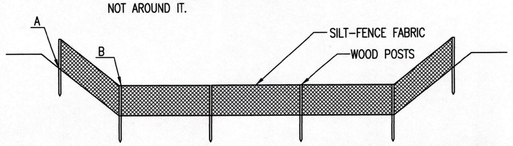
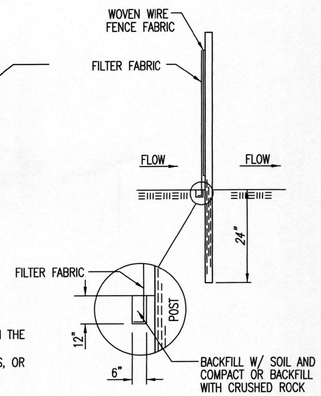
NOTE: POINT A MUST BE HIGHER THAN POINT B SO THAT WATER FLOWS OVER THE SILT FENCE FABRIC AND NOT AROUND IT.



ELEVATION

SILT FENCE DITCH CHECKS
(STREAM PROTECTION)



ANCHOR TRENCH DETAIL

MATERIAL SPECIFICATION:

SILT FENCE FABRIC SHOULD CONFORM TO THE AASHTO M288 96 SILT FENCE SPECIFICATION.
THE POSTS USED TO SUPPORT THE SILT FENCE FABRIC SHOULD BE A HARDWOOD MATERIAL WITH THE FOLLOWING MINIMUM DIMENSIONS: 2" SQUARE (NOMINAL) BY 4' LONG.
SILT FENCE FABRIC SHOULD BE ATTACHED TO THE WOODEN POSTS WITH STAPLES, WIRE, ZIP TIES, OR NAILS.

PLACEMENT:

PLACE SILT FENCE IN DITCHES WHERE IT IS UNLIKELY THAT IT WILL BE OVERTOPPED.
WATER SHOULD FLOW THROUGH A SILT FENCE DITCH CHECK, NOT OVER IT. SILT FENCE DITCH CHECKS OFTEN FAIL WHEN OVERTOPPED.
SILT FENCE DITCH CHECKS SHOULD BE PLACED PERPENDICULAR TO THE FLOWLINE OF THE DITCH.
THE SILT FENCE SHOULD EXTEND FAR ENOUGH SO THAT THE GROUND LEVEL AT THE ENDS OF THE FENCE IS HIGHER THAN THE TOP OF THE LOW POINT OF THE FENCE. THIS PREVENTS WATER FROM FLOWING AROUND THE CHECK.
SILT FENCE DITCH CHECKS SHOULD NOT BE PLACED IN DITCHES WHERE HIGH FLOWS ARE EXPECTED. ROCK CHECKS SHOULD BE USED INSTEAD.
SILT FENCE SHOULD BE PLACED IN DITCHES WITH SLOPES OF 6% OR LESS. FOR SLOPES STEEPER THAN 6%, ROCK CHECKS SHOULD BE USED.

THE FOLLOWING TABLE PROVIDES CHECK SPACING FOR A GIVEN DITCH GRADE:

DITCH GRADE (%)	SPACING CHECK SPACING (FEET)
0.5	200
1.0	200
2.0	100
3.0	65
4.0	50
5.0	40
6.0	30

PROPER INSTALLATION METHOD:

EXCAVATE A TRENCH PERPENDICULAR TO THE DITCH FLOWLINE THAT IS AT LEAST 12" DEEP BY 6" WIDE.
EXTEND THE TRENCH IN A STRAIGHT LINE ALONG THE ENTIRE LENGTH OF THE PROPOSED DITCH CHECK.
PLACE THE SOIL ON THE UPSTREAM SIDE OF THE TRENCH FOR LATER USE.
ROLL OUT A CONTINUOUS LENGTH OF SILT FENCE FABRIC ON THE DOWNSTREAM SIDE OF THE TRENCH.
PLACE THE EDGE OF THE FABRIC IN THE TRENCH STARTING AT THE TOP UPSTREAM EDGE OF THE TRENCH.
LINE TWO SIDES OF THE TRENCH WITH THE FABRIC AS SHOWN ON DETAIL. BACKFILL OVER THE FABRIC IN THE TRENCH WITH THE EXCAVATED SOIL AND COMPACT. AFTER FILLING THE TRENCH, APPROXIMATELY 24" TO 36" OF SILT FENCE FABRIC SHOULD REMAIN EXPOSED.
LAY THE EXPOSED SILT FENCE ON THE UPSTREAM SIDE OF THE TRENCH TO CLEAR AN AREA FOR DRIVING IN THE POSTS. JUST DOWNSTREAM OF THE TRENCH, DRIVE POSTS INTO THE GROUND TO A DEPTH OF AT LEAST 24". PLACE POSTS NO MORE THAN 4' APART.
ATTACH THE SILT FENCE TO THE ANCHORED POST WITH STAPLES, WIRE, ZIP TIES, OR NAILS.

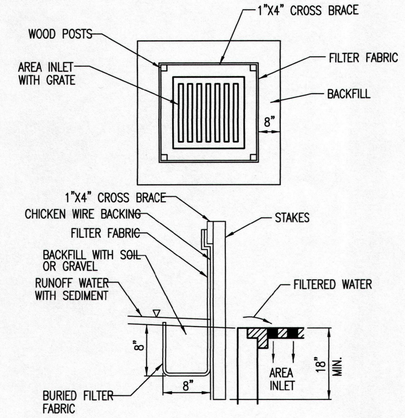
LIST OF COMMON PLACEMENT/INSTALLATION MISTAKES TO AVOID:

WATER SHOULD FLOW THROUGH A SILT FENCE DITCH CHECK-NOT OVER IT. PLACE SILT FENCE IN DITCHES WHERE IT IS UNLIKELY THAT IT WILL BE OVERTOPPED. SILT FENCE INSTALLATIONS QUICKLY DETERIORATE WHEN WATER OVERTOPS THEM.
DO NOT PLACE SILT FENCE POSTS ON THE UPSTREAM SIDE OF THE SILT FENCE FABRIC. IN THIS CONFIGURATION, THE FORCE OF THE WATER IS NOT RESTRICTED BY THE POSTS, BUT ONLY BY THE STAPLES (WIRE, ZIP TIES, NAILS, ETC.). THE SILT FENCE WILL RIP AND FAIL.
DO NOT PLACE A SILT FENCE DITCH CHECK DIRECTLY IN FRONT OF A CULVERT OUTLET. IT WILL NOT STAND UP TO THE CONCENTRATED FLOW.
DO NOT PLACE SILT FENCE DITCH CHECKS IN DITCHES THAT WILL LIKELY EXPERIENCE HIGH FLOWS. THEY WILL NOT STAND UP TO CONCENTRATED FLOW.
FOLLOW PRESCRIBED DITCH CHECK SPACING GUIDELINES. IF SPACING GUIDELINES ARE EXCEEDED, EROSION WILL OCCUR BETWEEN THE DITCH CHECKS.
DO NOT ALLOW WATER TO FLOW AROUND THE DITCH CHECK. MAKE SURE THAT THE DITCH CHECK IS LONG ENOUGH SO THAT THE GROUND LEVEL AT THE ENDS OF THE FENCE IS HIGHER THAN THE LOW POINT ON THE TOP OF THE FENCE.
DO NOT PLACE SILT FENCE DITCH CHECKS IN CHANNELS WITH SHALLOW SOILS UNDERLAIN BY ROCK. IF THE CHECK IS NOT ANCHORED SUFFICIENTLY, IT WILL WASH OUT.

INSPECTION AND MAINTENANCE:

SILT FENCE DITCH CHECKS SHOULD BE INSPECTED EVERY 7 DAYS AND WITHIN 24 HOURS OF A RAINFALL OF 1/2" OR MORE. THE FOLLOWING IS A LIST OF QUESTIONS THAT SHOULD BE ADDRESSED DURING EACH INSPECTION:

DOES WATER FLOW AROUND THE DITCH CHECK?
DOES WATER FLOW UNDER THE DITCH CHECK?
DOES THE SILT FENCE SAG EXCESSIVELY?
HAS THE SILT FENCE TORN OR BECOME DETACHED FROM THE POSTS?
DOES SEDIMENT NEED TO BE REMOVED FROM BEHIND THE DITCH CHECK?



SILT FENCE BARRIERS FOR AREA INLETS
(INLET PROTECTION)

MATERIAL SPECIFICATION:

SILT FENCE FABRIC SHOULD CONFORM TO THE AASHTO M288 96 SILT FENCE SPECIFICATION.
THE WIRE OR POLYMERIC MESH BACKING USED TO HELP SUPPORT THE SILT FENCE FABRIC SHOULD CONFORM TO THE AASHTO M288 96 SILT FENCE SPECIFICATION.
THE POSTS USED TO SUPPORT THE SILT FENCE FABRIC SHOULD BE A HARDWOOD MATERIAL WITH THE FOLLOWING MINIMUM DIMENSIONS: 2" SQUARE (NOMINAL) BY 4' LONG.
THE MATERIAL USED TO FRAME THE TOPS OF THE POSTS SHOULD BE 1" BY 4" BOARDS.
SILT FENCE FABRIC AND SUPPORT BACKING SHOULD BE ATTACHED TO THE WOODEN POSTS AND FRAME WITH STAPLES, WIRE, ZIP TIES, OR NAILS.

PLACEMENT:

PLACE A SILT FENCE DROP INLET BARRIER IN A LOCATION WHERE IT IS UNLIKELY TO BE OVERTOPPED.
WATER SHOULD FLOW THROUGH SILT FENCE, NOT OVER IT. SILT FENCE BARRIERS FOR AREA INLETS OFTEN FAIL WHEN REPEATEDLY OVERTOPPED.
WHEN USED AS A BARRIER FOR AREA INLETS, SILT FENCE FABRIC AND POSTS MUST BE SUPPORTED AT THE TOP BY A WOODEN FRAME.
WHEN A SILT FENCE BARRIER FOR AREA INLETS IS LOCATED NEAR AN INLET THAT HAS STEEP APPROACH SLOPES, THE STORAGE CAPACITY BEHIND THE BARRIER IS DRASTICALLY REDUCED. TIMELY REMOVAL OF SEDIMENT MUST OCCUR FOR A BARRIER TO OPERATE PROPERLY IN THIS LOCATION.

PROPER INSTALLATION METHOD:

EXCAVATE A TRENCH AROUND THE PERIMETER OF THE AREA INLET THAT IS AT LEAST 8" DEEP BY 8" WIDE.
DRIVE POSTS TO A DEPTH OF AT LEAST 18" AROUND THE PERIMETER OF THE AREA INLET.
THE DISTANCE BETWEEN POSTS SHOULD BE 4' OR LESS. IF THE DISTANCE BETWEEN TWO ADJACENT CORNER POSTS IS MORE THAN 4', ADD ANOTHER POST(S) BETWEEN THEM.
CONNECT THE TOPS OF ALL THE POSTS WITH A WOODEN FRAME MADE OF 1" BY 4" BOARDS. USE NAILS OR SCREWS FOR FASTENING.
ATTACH THE WIRE OR POLYMERIC-MESH BACKING TO THE OUTSIDE OF THE POST/FRAME STRUCTURE WITH STAPLES, WIRE, ZIP TIES, OR NAILS.
ROLL OUT A CONTINUOUS LENGTH OF SILT FENCE FABRIC LONG ENOUGH TO WRAP AROUND THE PERIMETER OF THE AREA INLET. ADD MORE LENGTH FOR OVERLAPPING THE FABRIC JOINT. PLACE THE EDGE OF THE FABRIC IN THE TRENCH, STARTING AT THE OUTSIDE EDGE OF THE TRENCH. LINE ALL THREE SIDES OF THE TRENCH WITH THE FABRIC. BACKFILL OVER THE FABRIC IN THE TRENCH WITH THE EXCAVATED SOIL AND COMPACT. AFTER FILLING THE TRENCH, APPROXIMATELY 24" TO 36" OF SILT FENCE FABRIC SHOULD REMAIN EXPOSED.
ATTACH THE SILT FENCE TO THE OUTSIDE OF THE POST/FRAME STRUCTURE WITH STAPLES, WIRE, ZIP TIES, OR NAILS. THE JOINT SHOULD BE OVERLAPPED TO THE NEXT POST.

NOTE: WHEN A SILT FENCE BARRIER FOR AREA INLET IS PLACED IN A SHALLOW MEDIAN DITCH, MAKE SURE THAT THE TOP OF THE BARRIER IS NOT HIGHER THAN THE PAVED ROAD. IN THIS CONFIGURATION, WATER MAY SPREAD ONTO THE ROADWAY CAUSING A HAZARDOUS CONDITION.

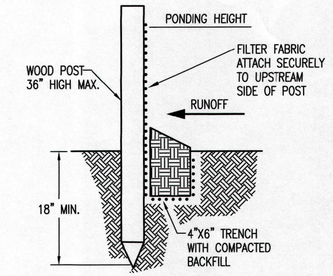
LIST OF COMMON PLACEMENT/INSTALLATION MISTAKES TO AVOID:

WATER SHOULD FLOW THROUGH A SILT FENCE BARRIER FOR AREA INLET-NOT OVER IT. PLACE A SILT FENCE BARRIER FOR AREA INLET IN A LOCATION WHERE IT IS UNLIKELY TO BE OVERTOPPED. SILT FENCE BARRIER FOR AREA INLETS OFTEN FAIL WHEN REPEATEDLY OVERTOPPED.
DO NOT PLACE POSTS ON THE OUTSIDE OF THE SILT FENCE BARRIER FOR AREA INLET. IN THIS CONFIGURATION, THE FORCE OF THE WATER IS NOT RESISTED BY THE POSTS, BUT ONLY BY THE STAPLES (WIRE, ZIP TIES, NAILS, ETC.). THE SILT FENCE WILL RIP AND FAIL.
DO NOT INSTALL SILT FENCE BARRIER FOR AREA INLETS WITHOUT FRAMING THE TOP OF THE POSTS. THE CORNER POSTS AROUND AREA INLETS ARE STRESSED IN TWO DIRECTIONS WHEREAS A NORMAL SILT FENCE IS ONLY STRESSED IN ONE DIRECTION. THIS ADDED STRESS REQUIRES MORE SUPPORT.

INSPECTION AND MAINTENANCE:

SILT FENCE BARRIER FOR AREA INLETS SHOULD BE INSPECTED EVERY 7 DAYS AND WITHIN 24 HOURS OF A RAINFALL OF 1/2" OR MORE. THE FOLLOWING IS A LIST OF QUESTIONS THAT SHOULD BE ADDRESSED DURING EACH INSPECTION:

DOES WATER FLOW UNDER THE SILT FENCE?
DOES THE SILT FENCE SAG EXCESSIVELY?
HAS THE SILT FENCE TORN OR BECOME DETACHED FROM THE POSTS?
DOES SEDIMENT NEED TO BE REMOVED FROM BEHIND THE AREA INLET BARRIER?



SILT FENCE BARRIERS

MATERIAL SPECIFICATION:

SILT FENCE FABRIC SHOULD CONFORM TO THE AASHTO M288 96 SILT FENCE SPECIFICATION.
THE POSTS USED TO SUPPORT THE SILT FENCE FABRIC SHOULD BE A HARDWOOD MATERIAL WITH THE FOLLOWING MINIMUM DIMENSIONS: 2" SQUARE (NOMINAL) BY 4' LONG.
SILT FENCE FABRIC SHOULD BE ATTACHED TO THE WOODEN POSTS WITH STAPLES, WIRE, ZIP TIES, OR NAILS.

PLACEMENT:

A SLOPE BARRIER SHOULD BE USED AT THE TOE OF A SLOPE WHEN A DITCH DOES NOT EXIST. THE SLOPE BARRIER SHOULD BE PLACED ON NEARLY LEVEL GROUND 5' TO 10' AWAY FROM THE TOE OF A SLOPE. THE BARRIER IS PLACED AWAY FROM THE TOE OF THE SLOPE TO PROVIDE ADEQUATE STORAGE FOR SETTLING OUT SEDIMENT.
WHEN PRACTICABLE, SILT FENCE SLOPE BARRIERS SHOULD BE PLACED ALONG CONTOURS TO AVOID A CONCENTRATION OF FLOW.
SILT FENCE SLOPE BARRIERS CAN ALSO BE PLACED ALONG RIGHT-OF-WAY FENCE LINES TO KEEP SEDIMENT FROM CROSSING ONTO ADJACENT PROPERTY. WHEN PLACED IN THIS MANNER, THE SLOPE BARRIER WILL NOT LIKELY FOLLOW CONTOURS.

PROPER INSTALLATION METHOD:

EXCAVATE A TRENCH THE LENGTH OF THE PLANNED SLOPE BARRIER THAT IS 6" DEEP BY 4" WIDE.
MAKE SURE THAT THE TRENCH IS EXCAVATED ALONG A SINGLE CONTOUR. WHEN PRACTICABLE, SLOPE BARRIERS SHOULD BE PLACED ALONG CONTOURS TO AVOID A CONCENTRATION OF FLOW. PLACE THE SOIL ON THE UPSLOPE SIDE OF THE TRENCH FOR LATER USE.
ROLL OUT A CONTINUOUS LENGTH OF SILT FENCE FABRIC ON THE DOWNSLOPE SIDE OF THE TRENCH.
PLACE THE EDGE OF THE FABRIC IN THE TRENCH STARTING AT THE TOP UPSLOPE EDGE. LINE ALL THREE SIDES OF THE TRENCH WITH THE FABRIC. BACKFILL OVER THE FABRIC IN THE TRENCH WITH THE EXCAVATED SOIL AND COMPACT. AFTER FILLING THE TRENCH, APPROXIMATELY 24" TO 36" OF SILT-FENCE FABRIC SHOULD REMAIN EXPOSED.
LAY THE EXPOSED SILT FENCE UPSLOPE OF THE TRENCH TO CLEAR AN AREA FOR DRIVING IN THE POSTS. JUST DOWNSLOPE OF THE TRENCH, DRIVE POSTS INTO THE GROUND TO A DEPTH OF AT LEAST 18".
PLACE POSTS NO MORE THAN 4' APART.
ATTACH THE SILT FENCE TO THE ANCHORED POST WITH STAPLES, WIRE, ZIP TIES, OR NAILS.

LIST OF COMMON PLACEMENT/INSTALLATION MISTAKES TO AVOID:

WHEN PRACTICABLE, DO NOT PLACE SILT FENCE SLOPE BARRIERS ACROSS CONTOURS. SLOPE BARRIERS SHOULD BE PLACED ALONG CONTOURS TO AVOID A CONCENTRATION OF FLOW. WHEN THE FLOW CONCENTRATES, IT OVERTOPS THE BARRIER AND THE SILT FENCE SLOPE BARRIER QUICKLY DETERIORATES.
DO NOT PLACE SILT-FENCE POSTS ON THE UPSLOPE SIDE OF THE SILT FENCE FABRIC. IN THIS CONFIGURATION, THE FORCE OF THE WATER IS NOT RESTRICTED BY THE POSTS, BUT ONLY BY THE STAPLES (WIRE, ZIP TIES, NAILS, ETC.). THE SILT FENCE WILL RIP AND FAIL.
DO NOT PLACE SILT FENCE SLOPE BARRIERS IN AREAS WITH SHALLOW SOILS UNDERLAIN BY ROCK. IF THE BARRIER IS NOT SUFFICIENTLY ANCHORED, IT WILL WASH OUT.
SILT FENCE SLOPE BARRIERS MUST BE DUG INTO THE GROUND-SILT FENCE AT GROUND LEVEL DOES NOT WORK BECAUSE WATER WILL FLOW UNDERNEATH.

INSPECTION AND MAINTENANCE:

SILT FENCE SLOPE BARRIERS SHOULD BE INSPECTED EVERY 7 DAYS AND WITHIN 24 HOURS OF A RAINFALL OF 1/2" OR MORE. THE FOLLOWING IS A LIST OF QUESTIONS THAT SHOULD BE ADDRESSED DURING EACH INSPECTION:

ARE THERE ANY POINTS ALONG THE SLOPE BARRIER WHERE WATER IS CONCENTRATING?
DOES WATER FLOW UNDER THE SLOPE BARRIER?
DO THE SILT FENCES SAG EXCESSIVELY?
HAS THE SILT FENCE TORN OR BECOME DETACHED FROM THE POSTS?
DOES SEDIMENT NEED TO BE REMOVED FROM BEHIND THE SLOPE BARRIER?

REVISION DATE: MAY 2013

GARY L. JANZEN LICENSED 16294 PROFESSIONAL ENGINEER KANSAS
05/31/13

CITY OF WICHITA
PUBLIC WORKS & UTILITIES ENGINEERING DIVISION

SILT FENCE DITCH CHECK AND BARRIER DETAILS

CITY ENGINEER
GARY JANZEN, P.E.

PROJECT NUMBER	OCA NUMBER	DATE
468-85118	620860	

CITY ENGINEER'S OFFICE
CITY HALL - SEVENTH FLOOR
455 NORTH MAIN STREET
WICHITA, KANSAS 67202-1620
(316) 268-4501

SHEET
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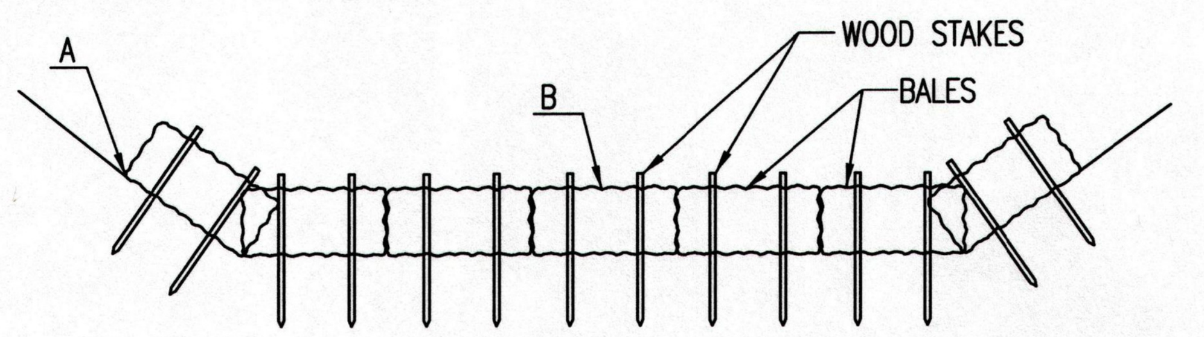
NOTE: POINT A MUST BE HIGHER THAN POINT B SO THAT WATER FLOWS OVER THE BALES AND NOT AROUND THEM.



STRAW BALE DITCH CHECKS

MATERIAL SPECIFICATION:

BALE DITCH CHECKS MAY BE CONSTRUCTED OF WHEAT STRAW, OAT STRAW, PRAIRIE HAY, OR BROMEGRASS HAY THAT IS FREE OF WEEDS DECLARED NOXIOUS BY THE KANSAS STATE BOARD OF AGRICULTURE.
THE STAKES USED TO ANCHOR THE BALES SHOULD BE A HARDWOOD MATERIAL WITH THE FOLLOWING MINIMUM DIMENSIONS: 2" SQUARE (NOMINAL) BY 4' LONG.
OPTIONAL: THE DOWNSTREAM SCOUR APRON SHOULD BE CONSTRUCTED OF A DOUBLE-NETTED STRAW EROSION-CONTROL BLANKET AT LEAST 6' WIDE.
OPTIONAL: THE METAL LANDSCAPE STAPLES USED TO ANCHOR THE EROSION-CONTROL BLANKET SHOULD BE AT LEAST 8" LONG.

PLACEMENT:

BALE DITCH CHECKS SHOULD BE PLACED PERPENDICULAR TO THE FLOWLINE OF THE DITCH.
THE DITCH CHECK SHOULD EXTEND FAR ENOUGH SO THAT THE GROUND LEVEL AT THE ENDS OF THE CHECK IS HIGHER THAN THE TOP OF THE LOWEST CENTER BALE. THIS PREVENTS WATER FROM FLOWING AROUND THE CHECK.
STRAW BALE DITCH CHECKS SHOULD NOT BE PLACED IN DITCHES WHERE HIGH FLOWS ARE EXPECTED. ROCK CHECKS SHOULD BE USED INSTEAD.
BALES SHOULD BE PLACED IN DITCHES WITH SLOPES OF 6% OR LESS. FOR SLOPES STEEPER THAN 6%, ROCK CHECKS SHOULD BE USED.
THE FOLLOWING TABLE PROVIDES CHECK SPACING FOR A GIVEN DITCH GRADE:

DITCH CHECK SPACING

DITCH GRADE (%)	CHECK SPACING (FEET)
0.5	200
1.0	200
2.0	100
3.0	65
4.0	50
5.0	40
6.0	30

PROPER INSTALLATION METHOD:

EXCAVATE A TRENCH PERPENDICULAR TO THE DITCH FLOWLINE THAT IS 4" DEEP AND A BALE'S WIDTH WIDE. EXTEND THE TRENCH IN A STRAIGHT LINE ALONG THE ENTIRE LENGTH OF THE PROPOSED DITCH CHECK. PLACE THE SOIL ON THE UPSTREAM SIDE OF THE TRENCH-IT WILL BE USED LATER.
OPTIONAL: ON THE DOWNSTREAM SIDE OF THE TRENCH, ROLL OUT A LENGTH OF EROSION-CONTROL BLANKET (SCOUR APRON) EQUAL TO THE LENGTH OF THE TRENCH. PLACE THE UPSTREAM EDGE OF THE EROSION-CONTROL BLANKET ALONG THE BOTTOM UPSTREAM EDGE OF THE TRENCH. THE EROSION CONTROL BLANKET SHOULD BE ANCHORED IN THE TRENCH WITH ONE ROW OF 8" LANDSCAPE STAPLES PLACED ON 18" CENTERS. THE REMAINDER OF THE EROSION-CONTROL BLANKET (THE PORTION THAT IS NOT LYING IN THE TRENCH) WILL SERVE AS THE DOWNSTREAM SCOUR APRON. THIS SECTION OF THE BLANKET SHOULD BE ANCHORED TO THE GROUND WITH 8" LANDSCAPE STAPLES PLACED AROUND THE PERIMETER OF THE BLANKET ON 18" CENTERS. THE REMAINDER OF THE BLANKET SHOULD BE ANCHORED USING TWO EVENLY SPACED ROWS OF 8" LANDSCAPE STAPLES ON 18" CENTERS PLACED PERPENDICULAR TO THE FLOWLINE OF THE DITCH.
PLACE THE BALES IN THE TRENCH, MAKING SURE THAT THEY ARE BUTTED TIGHTLY. TWO STAKES SHOULD BE DRIVEN THROUGH EACH BALE ALONG THE CENTERLINE OF THE DITCH CHECK, APPROXIMATELY 6" TO 8" IN FROM THE BALE ENDS. STAKES SHOULD BE DRIVEN AT LEAST 12" INTO THE GROUND.
ONCE ALL THE BALES HAVE BEEN INSTALLED AND ANCHORED, PLACE THE EXCAVATED SOIL AGAINST THE UPSTREAM SIDE OF THE CHECK AND COMPACT IT. THE COMPACTED SOIL SHOULD BE NO MORE THAN 3" TO 4" DEEP AND EXTEND UPSTREAM NO MORE THAN 24".

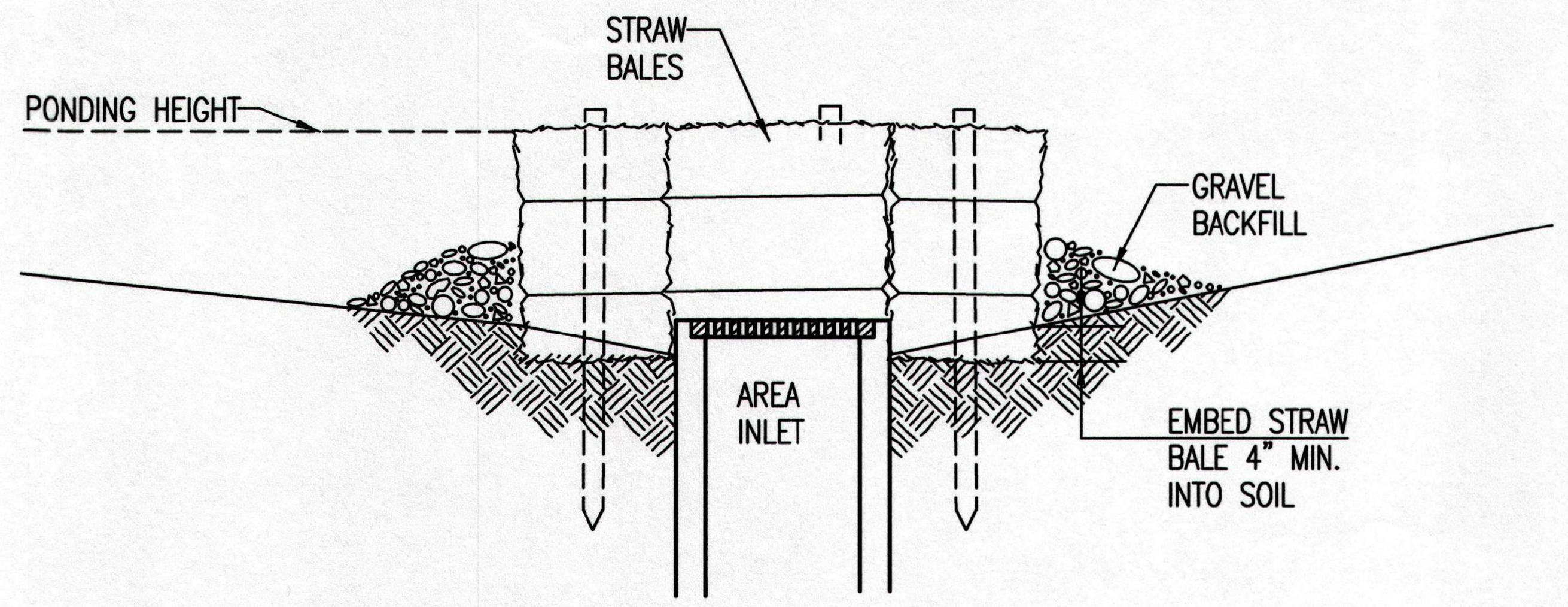
LIST OF COMMON PLACEMENT/INSTALLATION MISTAKES TO AVOID:

DO NOT PLACE A BALE DITCH CHECK DIRECTLY IN FRONT OF A CULVERT OUTLET. IT WILL NOT STAND UP TO THE CONCENTRATED FLOW.
DO NOT PLACE BALE DITCH CHECKS IN DITCHES THAT WILL LIKELY EXPERIENCE HIGH FLOWS. THEY WILL NOT STAND UP TO CONCENTRATED FLOW.
FOLLOW PRESCRIBED DITCH-CHECK SPACING GUIDELINES. IF SPACING GUIDELINES ARE EXCEEDED, EROSION WILL OCCUR BETWEEN THE DITCH CHECKS.
DO NOT ALLOW WATER TO FLOW AROUND THE DITCH CHECK. MAKE SURE THAT THE DITCH CHECK IS LONG ENOUGH SO THAT THE GROUND LEVEL AT THE ENDS OF THE CHECK IS HIGHER THAN THE TOP OF THE LOWEST CENTER BALE.
DO NOT PLACE BALE DITCH CHECKS IN CHANNELS WITH SHALLOW SOILS UNDERLAIN BY ROCK. IF THE CHECK IS NOT ANCHORED SUFFICIENTLY, IT WILL WASH OUT.
BALE DITCH CHECKS MUST BE DUG INTO THE GROUND. BALES AT GROUND LEVEL DO NOT WORK BECAUSE THEY ALLOW WATER TO FLOW UNDER THE CHECK.

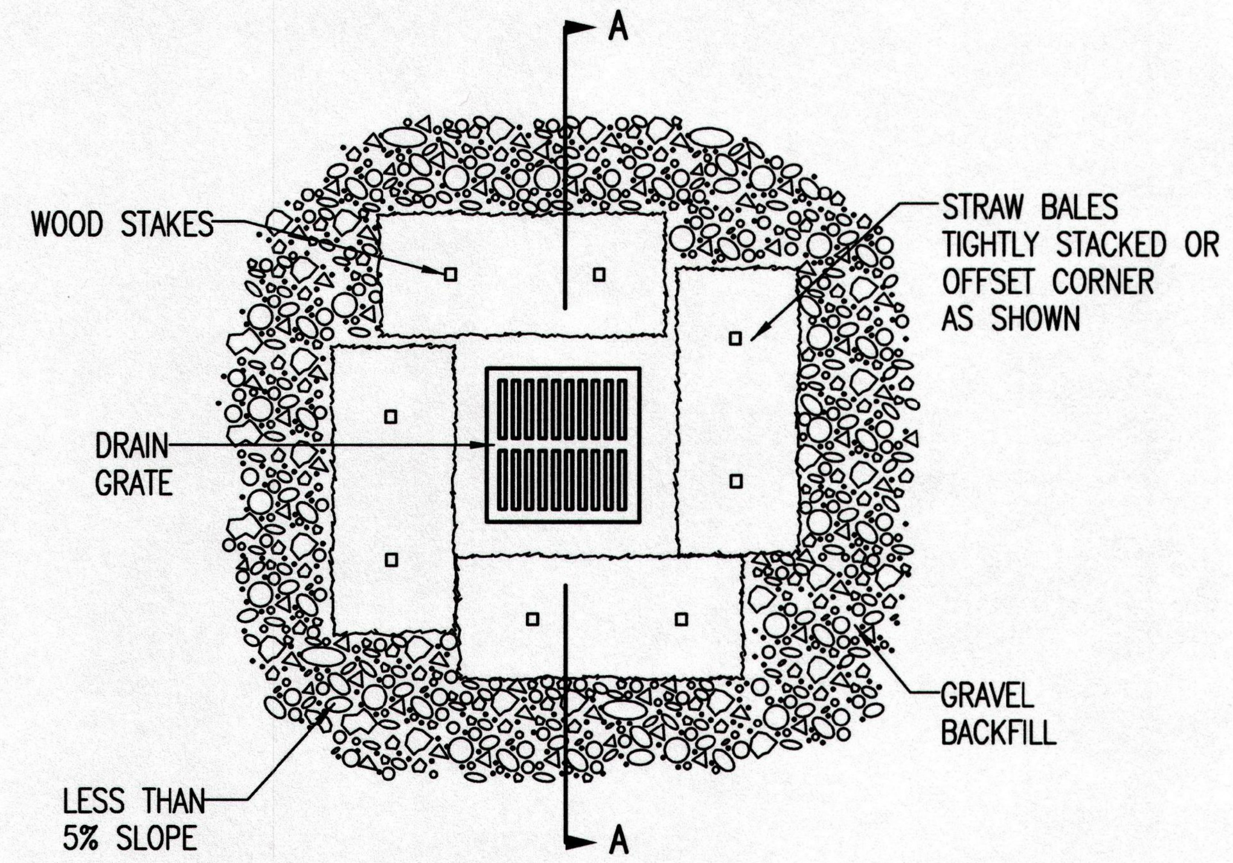
INSPECTION AND MAINTENANCE:

BALE DITCH CHECKS SHOULD BE INSPECTED EVERY 7 DAYS AND WITHIN 24 HOURS OF A RAINFALL OF 1/2" OR MORE. THE FOLLOWING IS A LIST OF QUESTIONS THAT SHOULD BE ADDRESSED DURING EACH INSPECTION:

DOES WATER FLOW AROUND THE DITCH CHECK?
DOES WATER FLOW UNDER THE DITCH CHECK?
DOES WATER FLOW THROUGH SPACES BETWEEN ABUTTING BALES?
ARE ANY BALES AND/OR SCOUR APRONS (OPTIONAL) DISLODGED?
ARE BALES DECOMPOSING DUE TO AGE AND/OR WATER DAMAGE?
DOES SEDIMENT NEED TO BE REMOVED FROM BEHIND THE DITCH CHECK?



SECTION A-A



STRAW BALE BARRIERS FOR AREA INLETS

(INLET PROTECTION)

MATERIAL SPECIFICATION:

BALE AREA INLET BARRIERS SHOULD BE CONSTRUCTED OF WHEAT STRAW, OAT STRAW, PRAIRIE HAY, OR BROMEGRASS HAY THAT IS FREE OF WEEDS DECLARED NOXIOUS BY THE KANSAS STATE BOARD OF AGRICULTURE.
THE STAKES USED TO ANCHOR THE BALES SHOULD BE A HARDWOOD MATERIAL WITH THE FOLLOWING MINIMUM DIMENSIONS: 2" SQUARE (NOMINAL) BY 4' LONG.
TWINE SHOULD BE USED TO BIND BALES. THE USE OF WIRE BINDING IS PROHIBITED BECAUSE IT DOES NOT BIODEGRADE READILY.

PLACEMENT:

BALE AREA INLET BARRIERS SHOULD BE PLACED DIRECTLY AROUND THE PERIMETER OF A DROP INLET. WHEN A BALE AREA INLET BARRIER IS LOCATED NEAR AN INLET THAT HAS STEEP APPROACH SLOPES, THE STORAGE CAPACITY BEHIND THE BARRIER IS DRASTICALLY REDUCED. TIMELY REMOVAL OF SEDIMENT MUST OCCUR FOR A BARRIER TO OPERATE PROPERLY IN THIS LOCATION.

PROPER INSTALLATION METHOD:

EXCAVATE A TRENCH AROUND THE PERIMETER OF THE AREA INLET THAT IS AT LEAST 4" DEEP BY A BALE'S WIDTH WIDE.
PLACE THE BALES IN THE TRENCH, MAKING SURE THAT THEY ARE BUTTED TIGHTLY. SOME BALES MAY NEED TO BE SHORTENED TO FIT INTO THE TRENCH AROUND THE AREA INLET. TWO STAKES SHOULD BE DRIVEN THROUGH EACH BALE, APPROXIMATELY 6" TO 8" IN FROM THE BALE ENDS.
STAKES SHOULD BE DRIVEN AT LEAST 12" INTO THE GROUND.
ONCE ALL THE BALES HAVE BEEN INSTALLED AND ANCHORED, PLACE THE EXCAVATED SOIL AGAINST THE RECEIVING SIDE OF THE BARRIER AND COMPACT IT. THE COMPACTED SOIL SHOULD BE NO MORE THAN 3" TO 4" DEEP.
NOTE: WHEN A BALE AREA INLET BARRIER IS PLACED IN A SHALLOW MEDIAN DITCH, MAKE SURE THAT THE TOP OF THE BARRIER IS NOT HIGHER THAN THE PAVED ROAD. IN THIS CONFIGURATION, WATER MAY SPREAD ONTO THE ROADWAY CAUSING A HAZARDOUS CONDITION.

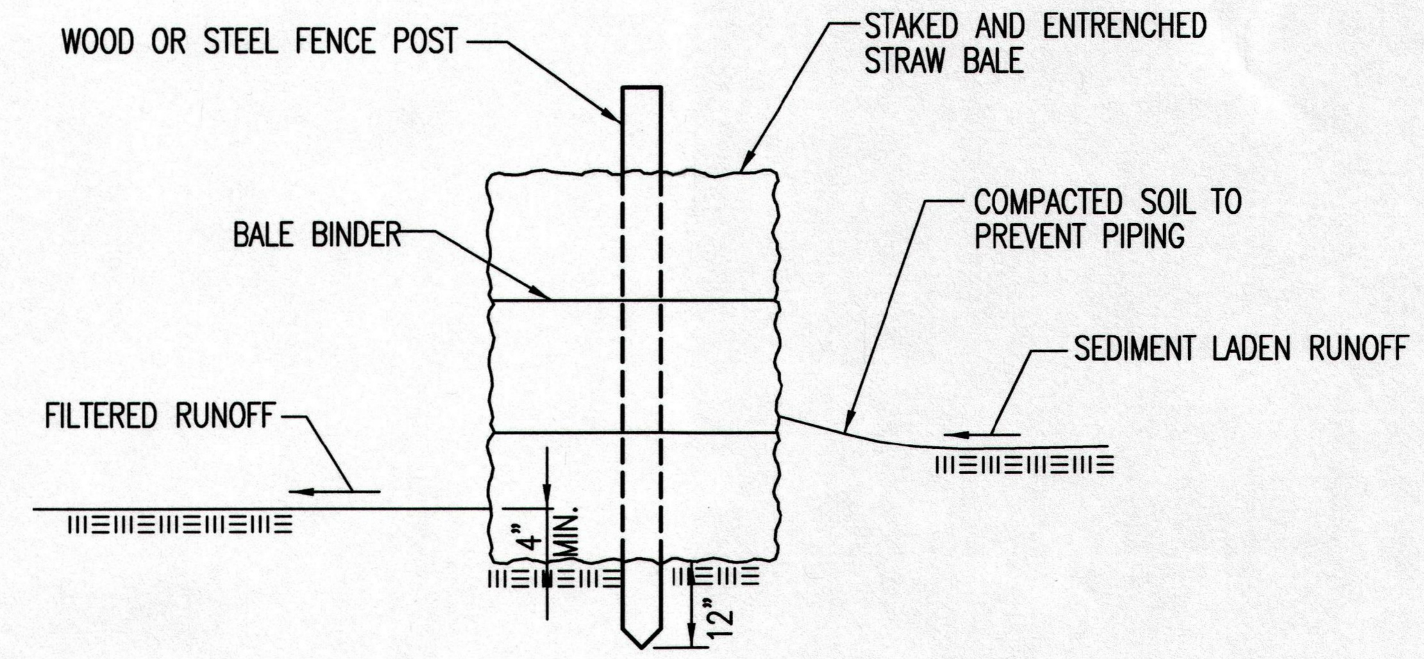
LIST OF COMMON PLACEMENT INSTALLATION MISTAKES TO AVOID:

BALES SHOULD BE PLACED DIRECTLY AGAINST THE PERIMETER OF THE AREA INLET. THIS ALLOWS OVERTOPPING WATER TO FLOW DIRECTLY INTO THE INLET INSTEAD OF ONTO NEARBY SOIL CAUSING SCOUR.
BALE AREA INLET BARRIERS MUST BE DUG INTO THE GROUND. BALES AT GROUND LEVEL DO NOT WORK BECAUSE THEY ALLOW WATER TO FLOW UNDER THE BARRIER.

INSPECTION AND MAINTENANCE:

BALE AREA INLET BARRIERS SHOULD BE INSPECTED EVERY 7 DAYS AND WITHIN 24 HOURS OF A RAINFALL 1/2" OR MORE. THE FOLLOWING IS A LIST OF QUESTIONS THAT SHOULD BE ADDRESSED DURING EACH INSPECTION:

DOES WATER FLOW UNDER THE AREA INLET BARRIER?
DOES WATER FLOW THROUGH SPACES BETWEEN ABUTTING BALES?
ARE ANY BALES DISLODGED?
ARE BALES DECOMPOSING DUE TO AGE AND/OR WATER DAMAGE?
DOES SEDIMENT NEED TO BE REMOVED FROM BEHIND THE AREA INLET BARRIER?



STRAW BALE BARRIERS

MATERIAL SPECIFICATION:

BALE SLOPE BARRIERS MAY BE CONSTRUCTED OF WHEAT STRAW, OAT STRAW, PRAIRIE HAY, OR BROMEGRASS HAY THAT IS FREE OF WEEDS DECLARED NOXIOUS BY THE KANSAS STATE BOARD OF AGRICULTURE.
THE STAKES USED TO ANCHOR THE BALES SHOULD BE A HARDWOOD MATERIAL WITH THE FOLLOWING MINIMUM DIMENSIONS: 2" SQUARE (NOMINAL) BY 4' LONG.
TWINE SHOULD BE USED TO BIND BALES. THE USE OF WIRE BINDING IS PROHIBITED BECAUSE IT DOES NOT BIODEGRADE READILY.

PLACEMENT:

A SLOPE BARRIER SHOULD BE USED AT THE TOE OF A SLOPE WHEN A DITCH DOES NOT EXIST. THE SLOPE BARRIER SHOULD BE PLACED ON NEARLY LEVEL GROUND 5' TO 10' AWAY FROM THE TOE OF A SLOPE. THE BARRIER IS PLACED AWAY FROM THE TOE OF THE SLOPE TO PROVIDE ADEQUATE STORAGE FOR SETTLING OUT SEDIMENT.
WHEN PRACTICABLE, BALE SLOPE BARRIERS SHOULD BE PLACED ALONG CONTOURS TO AVOID A CONCENTRATION OF FLOW.
BALE SLOPE BARRIERS CAN ALSO BE PLACED ALONG RIGHT-OF-WAY FENCE LINES TO KEEP SEDIMENT FROM CROSSING ONTO ADJACENT PROPERTY. WHEN PLACED IN THIS MANNER, THE SLOPE BARRIER WILL NOT LIKELY FOLLOW CONTOURS.

PROPER INSTALLATION METHOD:

EXCAVATE A TRENCH THE LENGTH OF THE PLANNED SLOPE BARRIER THAT IS 4" DEEP AND A BALE'S WIDTH WIDE. MAKE SURE THAT THE TRENCH IS EXCAVATED ALONG A SINGLE CONTOUR. WHEN PRACTICABLE, SLOPE BARRIERS SHOULD BE PLACED ALONG CONTOURS TO AVOID A CONCENTRATION OF FLOW. PLACE THE SOIL ON THE UPSLOPE SIDE OF THE TRENCH FOR LATER USE.
PLACE THE BALES IN THE TRENCH, MAKING SURE THAT THEY ARE BUTTED TIGHTLY. TWO STAKES SHOULD BE DRIVEN THROUGH EACH BALE ALONG THE CENTERLINE OF THE DITCH CHECK, APPROXIMATELY 6" TO 8" IN FROM THE BALE ENDS. STAKES SHOULD BE DRIVEN AT LEAST 12" INTO THE GROUND.
ONCE ALL THE BALES HAVE BEEN INSTALLED AND ANCHORED, PLACE THE EXCAVATED SOIL AGAINST THE UPSLOPE SIDE OF THE CHECK AND COMPACT IT. THE COMPACTED SOIL SHOULD BE NO MORE THAN 3" TO 4" DEEP.

LIST OF COMMON PLACEMENT/INSTALLATION MISTAKES TO AVOID:

WHEN PRACTICAL, DO NOT PLACE BALE SLOPE BARRIERS ACROSS CONTOURS. SLOPE BARRIERS SHOULD BE PLACED ALONG CONTOURS TO AVOID A CONCENTRATION OF FLOW. CONCENTRATED FLOW OVER A SLOPE BARRIER CREATES A SCOUR HOLE ON THE DOWNSLOPE SIDE OF THE BARRIER. THE SCOUR HOLE EVENTUALLY UNDERMINES THE BALES AND THE BARRIER FAILS.
DO NOT PLACE BALE SLOPE BARRIERS IN AREAS WITH SHALLOW SOILS UNDERLAIN BY ROCK. IF THE BARRIER IS NOT ANCHORED SUFFICIENTLY, IT WILL WASH OUT.
BALE SLOPE BARRIERS MUST BE DUG INTO THE GROUND. BALES AT GROUND LEVEL DO NOT WORK BECAUSE THEY ALLOW WATER TO FLOW UNDER THE BARRIER.

INSPECTION AND MAINTENANCE:

BALE SLOPE BARRIERS SHOULD BE INSPECTED EVERY 7 DAYS AND WITHIN 24 HOURS OF A RAINFALL OF 1/2" OR MORE. THE FOLLOWING IS A LIST OF QUESTIONS THAT SHOULD BE ADDRESSED DURING EACH INSPECTION:

ARE THERE ANY POINTS ALONG THE SLOPE BARRIER WHERE WATER IS CONCENTRATING?
DOES WATER FLOW UNDER THE SLOPE BARRIER?
DOES WATER FLOW THROUGH SPACES BETWEEN ABUTTING BALES?
ARE ANY BALES DISLODGED?
ARE BALES DECOMPOSING DUE TO AGE AND/OR WATER DAMAGE?
DOES SEDIMENT NEED TO BE REMOVED FROM BEHIND THE SLOPE BARRIER?

REVISION DATE: MAY 2013

GARY L. JANZEN LICENSED 16294 KANSAS PROFESSIONAL ENGINEER 05/30/13

CITY OF WICHITA
PUBLIC WORKS & UTILITIES ENGINEERING DIVISION

STRAW BALE DITCH CHECK AND BARRIER DETAILS		
CITY ENGINEER: GARY JANZEN, P.E.		
PROJECT NUMBER: 468-85118	OCA NUMBER: 620860	DATE
CITY ENGINEER'S OFFICE CITY HALL - SEVENTH FLOOR 455 NORTH MAIN STREET WICHITA, KANSAS 67202-1620 (316) 268-4501		SHEET: C403 of 58

GENERAL

G 1 SCOPE
THE GENERAL NOTES AND STANDARD DETAILS ARE GENERAL AND APPLY TO THE ENTIRE PROJECT EXCEPT WHERE THERE ARE SPECIFIC INDICATIONS TO THE CONTRARY.

G 2 PRECEDENCE
IF THERE IS A CONFLICT BETWEEN PROJECT SPECIFICATIONS AND STRUCTURAL DRAWINGS, INCLUDING STRUCTURAL NOTES, CONTACT THE STRUCTURAL ENGINEER OF RECORD FOR CLARIFICATION. SPECIFIC NOTES AND DETAILS ON DRAWINGS TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS.

G 3 DIMENSIONS
STRUCTURAL DIMENSIONS CONTROLLED BY OR RELATED TO THE MECHANICAL OR ELECTRICAL EQUIPMENT AND DIMENSIONS RELATED TO EXISTING FACILITIES SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. CONTRACTOR IS RESPONSIBLE FOR COORDINATING ALL CONSTRUCTION DIMENSIONS AND NOTIFYING CONSTRUCTION MANAGER OF DISCREPANCIES IN A TIMELY FASHION.

G 4 PROVISIONS FOR EQUIPMENT
MECHANICAL AND ELECTRICAL EQUIPMENT SUPPORTS, ANCHORAGES, OPENINGS, RECESSES AND EMBEDMENTS NOT SPECIFIED ON THE STRUCTURAL DRAWINGS, BUT SPECIFIED ON OTHER CONTRACT DRAWINGS, SHALL BE PROVIDED PRIOR TO CASTING CONCRETE.

G 5 MEANS, METHODS & CONSTRUCTION LOADS
CONTRACT DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE. CONTRACTOR IS RESPONSIBLE FOR MEANS, METHODS AND SEQUENCE OF CONSTRUCTION, AND SHALL MAKE ADEQUATE PROVISION TO MAINTAIN THE INTEGRITY OF ALL STRUCTURES AT ALL STAGES OF CONSTRUCTION. DETERMINATION OF AND PROVISIONS FOR CONSTRUCTION LOADING SHALL BE PROVIDED BY THE CONTRACTOR.

G 6 SAFETY
CONTRACTOR SHALL TAKE ADEQUATE PRECAUTIONS TO ENSURE THE SAFETY OF WORKERS AND VISITORS TO THE SITE, INCLUDING BUT NOT LIMITED TO SHORING, BRACING AND ACCESS RESTRICTION. COMPLY WITH ALL FEDERAL, STATE AND LOCAL SAFETY CODES AND STANDARDS.

G 7 DRAINAGE SURFACES
SLOPE DRAINAGE SURFACES UNIFORMLY TO DRAIN. SLOPE SHALL BE 1/8" TO 1/4" PER FOOT EXCEPT WHERE NOTED OTHERWISE ON THE PLANS.

G 8 OPENINGS
OPENINGS THROUGH NEW AND EXISTING WALLS AND SLABS FOR PIPES, DUCTS, CONDUITS, ETC., ARE NOT ALL SHOWN ON THE STRUCTURAL DRAWINGS. THE CONTRACTOR SHALL COORDINATE WITH OTHER DISCIPLINES AND PROVIDE THESE OPENINGS IN ACCORDANCE WITH THE OTHER CONTRACT DOCUMENTS.

DESIGN CRITERIA

D 1 GOVERNING BUILDING CODE
CONSTRUCTION AND DESIGN SHALL BE IN ACCORDANCE WITH 2012 INTERNATIONAL BUILDING CODE. THIS CODE SHALL GOVERN EXCEPT WHERE OTHER APPLICABLE CODES OR CONTRACT PROVISIONS ARE MORE RESTRICTIVE.

D 2 LIVE LOADS

1. STAIRS, LANDINGS AND ENTRY AREAS .... 100 PSF
2. FRP COVER LIVE LOAD .... 100 PSF

D 3 SNOW LOADS
GROUND SNOW LOAD .... p_g = 15 PSF
SNOW EXPOSURE FACTOR .... C_e = 0.9
THERMAL FACTOR .... C_t = 1.2
SNOW LOAD IMPORTANCE FACTOR .... I_s = 1.10
FLAT ROOF SNOW LOAD .... p_f =15 PSF
PLUS DRIFT LOADS IN ACCORDANCE WITH ASCE 7–10

D 4 WIND
BASIC WIND SPEED (ULTIMATE) .... 120 MPH
RISK CATEGORY III
EXPOSURE CATEGORY C
TOPOGRAPHIC FACTOR .... K_{ZT}= 1.0

DESIGN CRITERIA (continued)

D 6 SEISMIC
MCE ACCELERATION, SHORT PERIOD .... S_S = .109 g
MCE ACCELERATION, 1–SEC PERIOD .... S_1 = 0.054 g
SITE CLASS .... D
DESIGN ACCEL, SHORT PERIOD .... S_{DS} = .116 g
DESIGN ACCEL, 1–SEC PERIOD .... S_{D1} = 0.086 g
RISK CATEGORY III
SEISMIC IMPORTANCE FACTOR .... I_e = 1.25I_p = 1.00
SEISMIC DESIGN CATEGORY .... B
BEARING SPECIAL REINFORCED MASONRY
BASINS AND VAULTS:
GROUND SUPPORTED REINFORCED CONCRETE
TANKS WITH NON–SLIDING BASE
(ASCE 7–10, TABLE 15.4–2)... R = 2 Ω_o = 2
ANALYSIS PROCEDURE: EQUIVALENT LATERAL FORCE
EXCEPT AT LIQUID CONTAINING BASINS ANALYSIS
BASED ON ACI 350.3–06 .... R_i = 2 R_c = 1

FOUNDATION

F 1 DESIGN BASIS
FOUNDATION DESIGN IS BASED ON RECOMMENDATIONS CONTAINED IN THE GEOTECHNICAL REPORT, "CITY OF WICHITA WASTEWATER TREATMENT PLANT 1 FLOW CONTROL STRUCTURE, WICHITA, KANSAS", BY PEC CONSULTANTS, P.A., DATED JANUARY, 2017. CONTRACTOR SHALL FOLLOW THE PROJECT SPECIFICATIONS AND TAKE INTO CONSIDERATION RECOMMENDATIONS CONTAINED IN THE REPORT. NOTIFY THE CONSTRUCTION MANAGER OF CONFLICTS BETWEEN SPECIFICATIONS AND THE REPORT RECOMMENDATIONS FOR RESOLUTION.

F 2 ALLOWABLE BEARING PRESSURE
SHALLOW FOUNDATIONS SHALL BEAR ON AT LEAST 2 FEET OF STRUCTURAL FILL AND HAVE BEEN DESIGNED FOR AN ALLOWABLE BEARING PRESSURE OF 3,000 PSF.

F 3 MINIMUM FOUNDATION PREPARATION
ALL NEW FOUNDATIONS AND SLAB ON GRADE FLOORS SHALL BE SUPPORTED ON A MINIMUM OF 2 FEET OF PROPERLY PLACED AND COMPACTED STRUCTURAL FILL (SEE GEOTECHNICAL REPORT).

F 4 DIFFERING CONDITIONS
FOUNDATION CONDITIONS NOTED DURING CONSTRUCTION WHICH DIFFER FROM THOSE INDICATED IN THE REPORT SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE CONSTRUCTION MANAGER. CONTRACTOR IS RESPONSIBLE FOR REPLACING WORK CONDUCTED AFTER SUCH NOTIFICATION BUT BEFORE CONSTRUCTION MANAGER PROVIDES ADDITIONAL DIRECTIONS.

F 5 EXCAVATION, DE–WATERING & SAFETY
CONTRACTOR SHALL PROVIDE FOR ALL DE–WATERING OF EXCAVATIONS, AND DESIGN / PROVIDE ALL CRIBBING, SHORING AND BRACING REQUIRED FOR SAFETY AND TO ALLOW CONSTRUCTION OF THE WORK PRESENTED HEREIN.

F 6 STRUCTURAL BACKFILL
UNLESS NOTED OTHERWISE, STRUCTURAL BACKFILL SHALL BE PLACED IN UNIFORM LAYERS AND SHALL BE BROUGHT UP UNIFORMLY AROUND THE STRUCTURE. ADDITIONALLY, BACKFILL SHALL BE BROUGHT UP UNIFORMLY ON BOTH SIDES OF FOUNDATION WALLS. SEE SPECIFICATION 31 23 00 FOR ADDITIONAL INFORMATION.

CONCRETE

C 1 APPLICABLE CODES
CONCRETE CONSTRUCTION SHALL CONFORM TO ACI 301–10 "SPECIFICATIONS FOR STRUCTURAL CONCRETE", AND THE FOLLOWING CODES: ACI 318–14 "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE" ACI 350–06 (FOR LIQUID CONTAINING STRUCTURES) – "CODE REQUIREMENTS FOR ENVIRONMENTAL ENGINEERING CONCRETE STRUCTURES"

C 2 REINFORCING STEEL DETAILS
ALL DETAILING, FABRICATION AND ERECTION OF REINFORCING BARS, UNLESS OTHERWISE NOTED, SHALL BE IN ACCORDANCE WITH ACI DETAILING MANUAL (ACI SP–66), LATEST EDITION.

C 3 DESIGN STRENGTH
1. STRUCTURAL CAST–IN–PLACE CONCRETE EXCEPT AS NOTED IN ITEM 2 BELOW .... f'c = 4,500 PSI
2. REINFORCED STEEL .... ASTM A615, GRADE 60 DEFORMED BARS UNLESS OTHERWISE NOTED

C 4 CONCRETE COVER
CONCRETE COVER FOR REINFORCING BARS SHALL CONFORM TO ACI 350 AND AS FOLLOWS WITH MINIMUM COVER OF ONE BAR DIAMETER:
1. CONCRETE CAST AGAINST EARTH .... 3"
2. CONCRETE EXPOSED TO EARTH, WASTEWATER, CHEMICALS OR WEATHER .... 3"
3. CONCRETE NOT EXPOSED TO EARTH, WASTEWATER, CHEMICALS OR WEATHER .... 1–1/2"

C 5 BAR DEVELOPMENT AND LAP SPLICE LENGTH
SEE TABLE AT THE END OF THESE STRUCTURAL NOTES.

C 6 WELDING REINFORCING BARS
ALL REINFORCING TO BE WELDED SHALL CONFORM TO ASTM A706. REBAR WELDING SHALL BE IN ACCORDANCE WITH AWS D1.4.

C 7 STANDARD HOOKS
BARS ENDING IN RIGHT ANGLE BENDS OR HOOKS SHALL CONFORM TO THE REQUIREMENTS OF ACI 318–11. PROVIDE STANDARD HOOK IN BARS WHICH TERMINATE AT WALL OR SLAB EDGES / INTERSECTIONS THAT PROVIDE LESS THAN THE SPECIFIED DEVELOPMENT LENGTH.

C 8 CHAMFERS
EXCEPT AS OTHERWISE REQUIRED, EXPOSED CONCRETE CORNERS AND EDGES SHALL HAVE 3/4" CHAMFERS. RE–ENTRANT CORNERS SHALL NOT HAVE FILLETS.

C 9 ANCHOR BOLTS
ANCHOR BOLTS SHALL BE STAINLESS STEEL TYPE 316 MATERIAL UNLESS OTHERWISE NOTED (SEE SPECIFICATIONS).

C 10 INSERTS
PROVIDE ANCHORAGE INSERTS ON CONCRETE WALLS AND CONCRETE CEILINGS IN GALLERIES, PIPE CHASES, TUNNELS AS REQUIRED BY MECHANICAL AND ELECTRICAL INSTALLATIONS. USE UNISTRUT P3200 SERIES HOT DIP GALVANIZED OR EQUAL UNLESS OTHERWISE SPECIFIED.

C 11 COMPATIBLE FINISHES
CURING COMPOUNDS AND OTHER SURFACE TREATMENTS, CONCRETE ADMIXTURES AND SUB–SLAB DRAINAGE SHALL BE REVIEWED BY CONTRACTOR AND CERTIFIED COMPATIBLE WITH FINISHES TO BE APPLIED LATER IN THE CONSTRUCTION SEQUENCE.

C 12 EXPOSED ENDS OF REINFORCING BARS AT SAWCUT OPENINGS IN EXISTING CONCRETE REMOVE REINFORCING BARS 1 1/2 INCHES BACK FROM FACE OF OPENING BY FLAME GOUGING. FILL HOLE AND REPAIR SURFACE WITH CONCRETE REPAIR MORTAR.

GROUT

GR 1 PRECISION NON–SHRINK CEMENT GROUT FOR STRUCTURAL STEEL COLUMNS AND TRUSS BEARING BASE PLATES: MASTERFLOW 928 GROUT OR EQUAL APPROVED BY OWNER.

DOWELS

DL 1 LOCATE HOLES IN EXISTING CONCRETE TO MISS MAIN REINFORCING BARS, STIRRUPS AND EMBEDMENTS. THIS MAY INVOLVE RELOCATING DOWELS FROM POSITIONS SHOWN. NOTIFY THE OWNER OF ANY DOWEL RELOCATIONS. PRIOR TO DRILLING HOLES, FIELD VERIFY AND MARK THE LOCATION OF NEARBY EXISTING REINFORCING BARS, STIRRUPS AND EMBEDMENTS USING A PACHOMETER. IF THEY ARE HIT DURING DRILLING, NOTIFY THE OWNER.

DL 2 CLEAN AND PREPARE HOLES IN ACCORDANCE WITH THE EPOXY MANUFACTURER'S RECOMMENDATIONS. AS A MINIMUM, BLOW COMPRESSED OIL–FREE AIR FROM THE BOTTOM OF HOLE TOWARDS THE SURFACE. DRY AND CLEAN HOLE OF CONTAMINANTS.

DL 3 PRESSURE GROUT ALL HOLES DEEPER THAN TWO FEET. SUBMIT PROCEDURE AND TECHNIQUE FOR PRESSURE GROUTING TO OWNER FOR APPROVAL PRIOR TO PLACING EPOXY.

DL 4 FILL EACH HOLE WITH A SUFFICIENT AMOUNT OF EPOXY TO COMPLETELY SURROUND THE DOWEL. INSERT THE DOWEL AFTER THE EPOXY IS PLACED IN THE HOLE.

STEEL

ST 1 ALL STRUCTURAL STEEL WORK SHALL BE IN ACCORDANCE WITH THE AISC "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS" (AISC 360–10) AND AISC "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES" (AISC 303–10). IN SEISMIC DESIGN CATEGORIES D, E AND F, THE PROVISIONS OF AISC 341–10, "SEISMIC PROVISIONS FOR STRUCTURAL STEEL BUILDINGS", SHALL ALSO APPLY.

ST 2 MATERIALS
1. STEEL WIDE FLANGE SHAPES SHALL CONFORM TO ASTM A992. OTHER STEEL SHAPES AND PLATES SHALL CONFORM TO ASTM A36.
2. STRUCTURAL STEEL PIPE SHALL CONFORM TO ASTM A53 TYPES E OR S, GRADE B. STRUCTURAL STEEL TUBING SHALL CONFORM TO ASTM A500 GRADE B (Fy = 46 KSI).
3. ALL STAINLESS STEEL SHALL BE TYPE 316 MEETING ASTM A276 FOR BARS AND SHAPES, AND ASTM A240 FOR PLATES, UNLESS OTHERWISE SPECIFIED. ALL STAINLESS STEEL SHALL BE PASSIVATED PER ASTM A380.

ST 3 WELDING
1. WELDING SHALL CONFORM TO AWS D1.1–1 AND AISC 341–10.
2. ELECTRODES FOR SHOP AND FIELD WELDS SHALL CONFORM TO AWS A5.1 OR A5.5, CLASS E70XX.
3. STAINLESS STEEL WELDING SHALL CONFORM TO AWS D1.6 WITH A5.4 OR A5.9 ELECTRODES.

ST 4 BOLTS
STRUCTURAL BOLTS AT STEEL FRAMING SHALL BE GALVANIZED AND CONFORM TO ASTM A325N (TYPE 1) FOR CONNECTION OF GALVANIZED OR PAINTED FRAMING. HIGH STRENGTH BOLTS SHALL BE FULLY TENSIONED UNLESS CONNECTING HSS SHAPES OR OTHERWISE NOTED. STAINLESS STEEL TYPE 316 BOLTS SHALL BE USED FOR CONNECTION OF STAINLESS STEEL AND ALUMINUM FRAMING.

ST 5 EXPANSION ANCHORS SHALL BE STAINLESS STEEL "KWIK BOLT TZ" BY HILTI INC. OR EQUAL APPROVED BY OWNER.

ST 6 ENCASED STEEL
STEEL COMPLETELY ENCASED IN CONCRETE SHALL NOT BE GALVANIZED OR PAINTED AND SHALL HAVE A CLEAN SURFACE FOR BONDING TO CONCRETE UNLESS OTHERWISE NOTED ON THE DRAWINGS.

ST 7 PAINTING
STRUCTURAL STEEL SHALL BE PAINTED IN ACCORDANCE WITH SPECIFICATION. SHOP PRIMER SHALL BE COMPATIBLE WITH FINISH COATINGS. MONORAIL CAPACITIES SHALL BE PAINTED ON THE SIDE OF MONORAIL BEAMS.

Brown AND Caldwell

JERRY A. SIMON LICENSED 13577 3/23/2017 KANSAS PROFESSIONAL ENGINEER

No.	Revision	By	Date

WASTEWATER PLANT 2
INFLUENT FORCE MAIN – PHASE 1

STRUCTURAL GENERAL NOTES – 1

GARY JANZEN, P.E. – CITY ENGINEER
CITY OF WICHITA PROJECT NO. 468–85118

PEC
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Designed by	J. SIMON	Job No.	35–15554–1–0042	Sht. S001 of 58
Drawn by	R.BLUMENSHINE	Date	MARCH 2017	

ALUMINUM

A 1 APPLICABLE CODE
ALUMINUM CONSTRUCTION SHALL CONFORM TO THE 2015 EDITION OF THE ALUMINUM DESIGN MANUAL OF THE ALUMINUM ASSOCIATION.

A 2 MATERIAL
1. ALUMINUM STRUCTURAL SHAPES SHALL BE ALLOY 6061–T6 PER ASTM B308.
2. ALUMINUM PIPE AND TUBING SHALL BE ALLOY 6061–T6 PER ASTM B241.
3. ALUMINUM PLATE SHALL BE ALLOY 6061–T6 PER ASTM B209.
4. ALUMINUM RAISED PATTERN (CHECKERED PLATE) PLATE SHALL BE ALLOY 6061–T6 TREAD PLATE PER ASTM B632.

A 3 DISSIMILAR MATERIALS
WHERE ALUMINUM IS IN CONTACT WITH CONCRETE OR MASONRY SURFACES, CONTACT SURFACE SHALL BE COATED WITH A HEAVY COAT OF ALKALI–RESISTANT BITUMINOUS PAINT.

ALUMINUM GRATING

AG–1 UNLESS OTHERWISE NOTED, ALL GRATING AND GRATING STAIR TREADS SHALL BE ALUMINUM.

AG 2 ALUMINUM GRATING AND TREADS SHALL BE OF ALLOY 6061–T6 CONFORMING TO ASTM B221. SEE STANDARD DETAIL FOR GRATING THICKNESS UNLESS NOTED OTHERWISE ON THE DRAWINGS. THE MINIMUM BEARING BAR WIDTH SHALL BE 3/16". PROVIDE ABRASIVE NOSING AT STAIR LANDINGS AND TREADS (CHECKERED PLATE NOSING IS NOT ALLOWED).

AG 3 ALUMINUM GRATING SHALL BE ANCHORED TO SUPPORT FRAMING WITH 1/4" DIAMETER SELF TAPPING STAINLESS STEEL SCREWS PLACED THROUGH STAINLESS STEEL U–CLIPS ENGAGING TWO MAIN BEARING BARS. MINIMUM FOUR CLIPS PER GRATING PANEL. MAXIMUM DISTANCE BETWEEN CLIPS SHALL BE THREE FEET.

AG 4 ALL GRATING, INCLUDING STAIR TREADS, SHALL BE SERRATED FOR SLIP RESISTENCE UNLESS NOTED OTHERWISE.

FRP STRUCTURES

FS 1 FIBERGLASS REINFORCED PLASTIC (FRP) PLATFORMS, STAIRS, STRINGERS, RAILINGS, LADDERS AND SUPPORT STRUCTURES SHALL BE MANUFACTURED FROM VINYL ESTER RESIN. FLAME SPREAD TO BE LESS THAN 25 PER ASTM E84 AND SHALL BE SELF–EXTINGUISHING PER ASTM D635. ALL FRP STRUCTURES SHALL BE MANUFACTURED WITH A ULTRA–VIOLET (UV) INHIBITOR. IN ADDITION, AN INDUSTRIAL GRADE POLYURETHANE UV RESISTANT COATING SHALL BE FACTORY APPLIED TO ALL FRP PRODUCTS AND FABRICATIONS.

FS 2 FRP STRUCTURES SHALL BE CONNECTED WITH TYPE 316 STAINLESS STEEL BOLTS.

FS 3 PULTRUDED FRP STRUCTURAL SHAPE SHALL HAVE THE FOLLOWING MINIMUM ULTIMATE COUPON PROPERTIES:
1. TENSILE STRESS IN LONGITUDINAL DIRECTION..... 30,000 PSI
2. COMPRESSIVE STRESS IN LONGITUDINAL DIRECTION.....30,000 PSI
3. FLEXURAL STRESS IN LONGITUDINAL DIRECTION.....30,000 PSI
4. SHORT BEAM SHEAR IN LONGITUDINAL DIRECTION.....4,500 PSI
5. TENSILE STRESS IN TRANSVERSE DIRECTION.....7,000 PSI
6. COMPRESSIVE STRESS IN TRANSVERSE DIRECTION.....15,000 PSI
7. FLEXURAL STRESS IN TRANSVERSE DIRECTION.....10,000 PSI
8. MODULUS OF ELASTICITY, FULL SECTION.....2,800 KSI

SPECIAL INSPECTIONS

SI 1 A TESTING COMPANY RETAINED BY THE OWNER AND APPROVED BY THE BUILDING OFFICIAL SHALL INSPECT THE FOLLOWING IN ACCORDANCE WITH CHAPTER 17 OF THE IBC:

1. SOIL COMPACTION AT FOUNDATIONS.
2. REINFORCING BAR, CONCRETE PLACEMENT AND TAKING OF CONCRETE TEST SPECIMENS.
3. ANCHOR BOLTS.
4. FIELD WELDING OF STRUCTURAL STEEL AND ALUMINUM.
5. SHOP WELDING OF STRUCTURAL STEEL EXCEPT WHERE WELDING IS DONE IN AN APPROVED FABRICATOR'S SHOP IN ACCORDANCE WITH THE PROVISIONS OF THE GOVERNING BUILDING CODE.
6. EXPANSION ANCHOR INSTALLATION.
7. ANCHORS INSTALLED USING EPOXY ADHESIVE.
8. HIGH STRENGTH BOLTING.

SI 2 CONTRACTOR SHALL NOTIFY THE TESTING COMPANY FOR ALL INSPECTIONS.

STRUCTURAL DEFERRED SUBMITTALS
(IBC 2015, SECTION 107.3.4.1)

SDS 1 THE CONTRACTOR SHALL SUBMIT DRAWINGS AND CALCULATIONS BEARING THE SEAL OF A PROFESSIONAL ENGINEER LICENSED IN KANSAS TO THE ENGINEER FOR REVIEW. STRUCTURAL DEFERRED SUBMITTAL INCLUDE:
1. PRECAST–PRESTRESSED CONCRETE ELEMENTS INCLUDING:
   a. SITE STRUCTURES AND VAULTS.
2. ANCHOR BOLTS FOR ALL EQUIPMENT ANCHORAGE.
3. GUARDRAILS AND HANDRAILS.
4. FLOOR AND ROOF ACCESS HATCHES.
5. FRP COVER SYSTEM.

TENSION DEVELOPMENT AND LAP SPLICE LENGTHS (IN INCHES) FOR UNCOATED BARS IN NORMAL–WEIGHT CONCRETE WITH f_c' = 4,000 PSI OR HIGHER

THIS TABLE IS GOOD ONLY FOR CENTER/CENTER SPACING OF REINFORCING BARS EQUAL TO THE MINIMUM SHOWN OR GREATER.
NO TRANSVERSE REINFORCING ASSUMED.

BAR SIZE	APPLICATION	CONCRETE COVER = 2.00 IN.		CONCRETE COVER = 3.00 IN.	
		TOP OTHER	MIN C/C SPACING	TOP OTHER	MIN C/C SPACING
#3	DEVELOPMENT	12 / 12 / 16 / 16	4.50 / 4.75	12 / 12 / 16 / 16	6.50 / 6.75
	LAP SPLICE				
#4	DEVELOPMENT	12 / 15 / 20 / 16	4.50 / 5.00	12 / 15 / 20 / 16	6.50 / 7.00
	LAP SPLICE				
#5	DEVELOPMENT	15 / 19 / 24 / 19	4.75 / 5.25	15 / 19 / 24 / 19	6.75 / 7.25
	LAP SPLICE				
#6	DEVELOPMENT	17 / 22 / 29 / 22	4.75 / 5.50	17 / 22 / 29 / 22	6.75 / 7.50
	LAP SPLICE				
#7	DEVELOPMENT	25 / 33 / 42 / 33	5.00 / 5.75	25 / 33 / 42 / 33	7.00 / 7.75
	LAP SPLICE				
#8	DEVELOPMENT	29 / 37 / 48 / 37	5.00 / 6.00	29 / 37 / 48 / 37	7.00 / 8.00
	LAP SPLICE				
#9	DEVELOPMENT	36 / 46 / 60 / 46	5.25 / 6.25	32 / 42 / 55 / 42	7.25 / 8.25
	LAP SPLICE				
#10	DEVELOPMENT	44 / 57 / 74 / 57	5.25 / 6.50	36 / 47 / 61 / 47	7.25 / 8.50
	LAP SPLICE				
#11	DEVELOPMENT	53 / 68 / 90 / 69	5.50 / 6.75	40 / 52 / 68 / 52	7.50 / 8.75
	LAP SPLICE				

NOTES:

1. TABULATED VALUES ARE BASED ON GRADE 60 REINFORCING BARS AND NORMAL–WEIGHT CONCRETE.
2. TENSION DEVELOPMENT LENGTHS AND TENSION LAP SPLICE LENGTHS ARE CALCULATED PER ACI 318–11, SECTIONS 12.2 AND 12.15, RESPECTIVELY.
3. LAP SPLICE LENGTHS ARE LAP CLASS B = 1.3 l_d (ACI 318–11, SECTION 12.15.1).
4. TOP BARS ARE HORIZONTAL BARS WITH MORE THAN 12 IN. OF FRESH CONCRETE CAST BELOW THE BARS. NOTE THAT IN ADDITION TO TOP BARS IN BEAMS AND SLABS, ALL HORIZONTAL BARS IN WALLS ARE CONSIDERED TO BE TOP BARS.

Brown AND Caldwell

JERRY A. SIMON LICENSED 13577 3/29/2017 KANSAS PROFESSIONAL ENGINEER

No.	Revision	By	Date

WASTEWATER PLANT 2
INFLUENT FORCE MAIN – PHASE 1

STRUCTURAL GENERAL NOTES – 2

GARY JANZEN, P.E. – CITY ENGINEER
CITY OF WICHITA PROJECT NO. 468–85118

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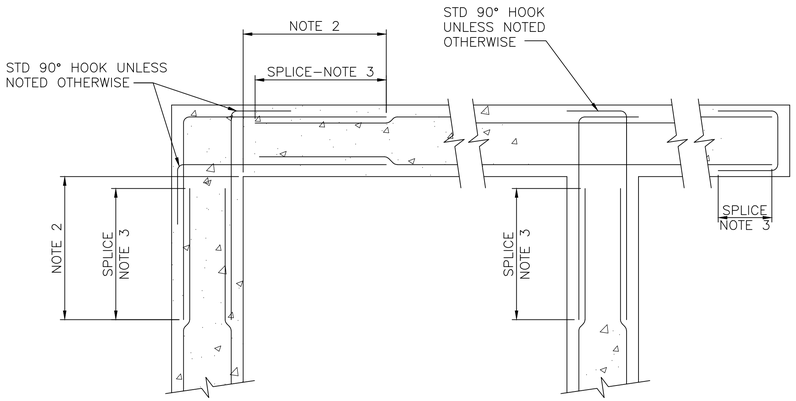
Designed by J. SIMON | Job No. 35–15554–1–0042
Drawn by R.BLUMENSHINE | Date MARCH 2017
SHT. S002 of 58



DOUBLE MAT REINFORCING

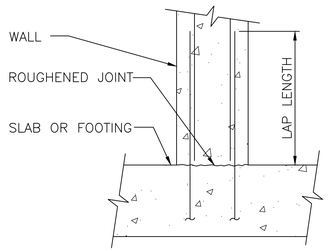
NOTES:

1. UNLESS NOTED OTHERWISE, SIZE AND SPACING OF CORNER OR INTERSECTION REINFORCING SHALL MATCH HORIZONTAL REINFORCING SHOWN IN SPECIFIC SECTIONS OR DETAILS. VERTICAL REINFORCING NOT SHOWN FOR CLARITY.
2. UNLESS NOTED OTHERWISE, BAR SPLICE SHALL BE LOCATED OUTSIDE OF CORNER OR INTERSECTION AREA TO AVOID CONGESTION. CONTRACTORS OPTION TO PROVIDE SINGLE BENT BAR IN LIEU OF SPLICE CONFIGURATION AT ONE END ONLY.
3. SEE GENERAL STRUCTURAL NOTES FOR SPLICE LENGTH. HORIZONTAL WALL BARS SHALL BE CONSIDERED TOP BARS FOR DEVELOPMENT AND SPLICE LENGTHS.

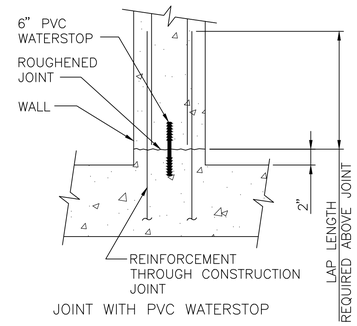
TYPICAL HORIZONTAL WALL REINFORCING

DETAIL A / VAR

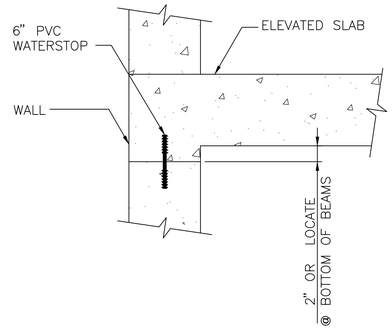
SCALE: NONE



TYPICAL JOINT WITHOUT WATERSTOP



JOINT WITH PVC WATERSTOP



WALL/ELEVATED SLAB JOINT WITH PVC WATERSTOP

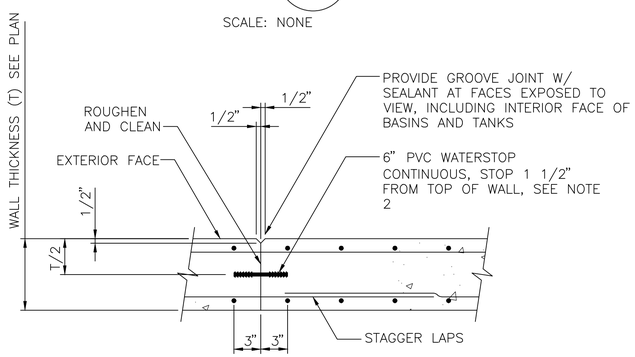
NOTES:

1. SEE SECTIONS AND DETAILS FOR TYPE OF JOINT REQUIRED.
2. ALL REINFORCING TO CONTINUE THROUGH JOINT.

TYPICAL HORIZONTAL CONSTRUCTION JOINT

DETAIL B / VAR

SCALE: NONE



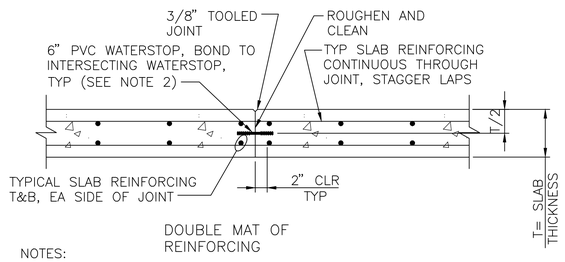
NOTES:

1. ALL REINFORCING SHALL BE CONTINUOUS THROUGH JOINT.
2. WATERSTOP REQUIRED AT LIQUID HOLDING BASINS AND TANKS, AND BELOW GRADE WALLS EXCEPT STEM WALLS TO SHALLOW FOOTINGS.

TYPICAL VERTICAL WALL CONSTRUCTION JOINT

DETAIL C / VAR

SCALE: NONE



DOUBLE MAT OF REINFORCING

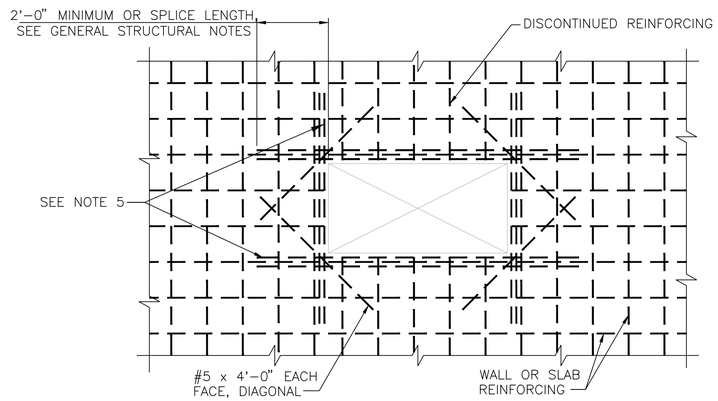
NOTES:

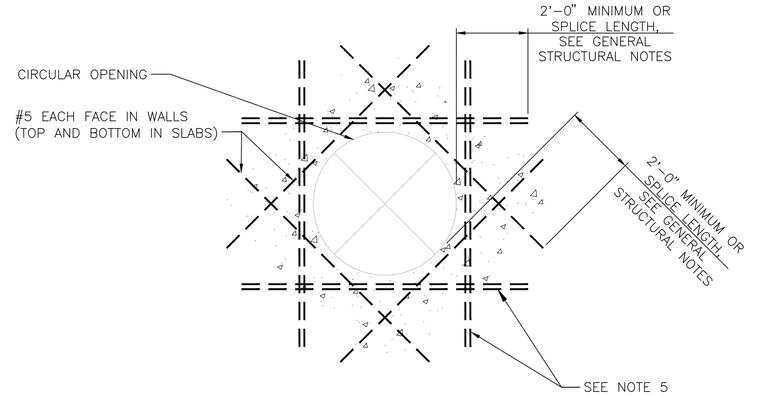
1. ALL REINFORCING SHALL BE CONTINUOUS THROUGH JOINT.
2. WATERSTOP REQUIRED AT LIQUID HOLDING BASINS AND TANKS, AND BELOW GRADE SLABS.

TYPICAL SLAB CONSTRUCTION JOINT

DETAIL D / VAR

SCALE: NONE





NOTES:

1. THIS DETAIL APPLIES TO UP TO 8'–0" MAXIMUM DIMENSION FOR RECTANGULAR OPENINGS AND UP TO 8'–0" DIAMETER FOR CIRCULAR OPENINGS.
2. AT OPENINGS 12" OR LESS, NO ADDITIONAL #5 DIAGONAL REINFORCING IS REQUIRED UNLESS NOTED OTHERWISE. REINFORCING SHALL BE OFFSET, STILL MAINTAINING REQUIRED SPACING, TO ALLOW FOR OPENING WHERE PRACTICAL, OR CUT AT THE OPENING AND ADDITIONAL REINFORCING ADDED PER NOTE 5.
3. OPENINGS ARE NOT ALL SHOWN ON STRUCTURAL DRAWINGS. PROVIDE OPENINGS IN ACCORDANCE WITH ARCHITECTURAL, MECHANICAL AND OTHER CONTRACT DRAWINGS.
4. ADDITIONAL REINFORCEMENT MAY BE OMITTED ONLY WHERE OPENING IS FRAMED BY BEAMS OR WALLS.
5. ADDITIONAL REINFORCING (4) SIDES OF OPENING EQUAL TO NUMBER AND SIZE OF DISCONTINUOUS REINFORCING. WHERE AN ODD NUMBER OF REBAR ARE DISCONTINUOUS, PROVIDE (ODD NO. +1)/2 EACH SIDE OF OPENING.

ADDITIONAL REINFORCING AT OPENINGS

DETAIL E / VAR

SCALE: NONE

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No.	Revision	By	Date

WASTEWATER PLANT 2
INFLUENT FORCE MAIN – PHASE 1

STRUCTURAL STANDARD DETAILS – 1

GARY JANZEN, P.E. – CITY ENGINEER
CITY OF WICHITA PROJECT NO. 468–85118

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Designed by	J. SIMON	Job No.	35–15554–1–0042	Sht. S003 of 58
Drawn by	R.BLUMENSHINE	Date	MARCH 2017	

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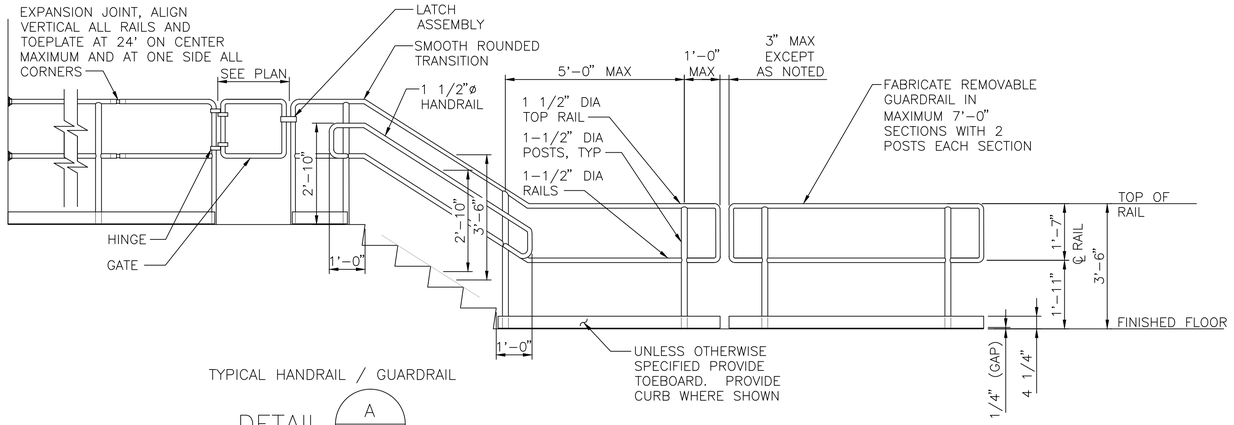
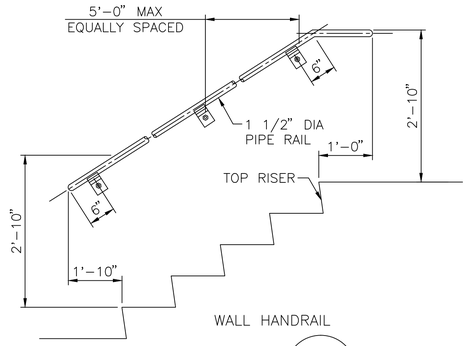


TYPICAL HANDRAIL / GUARDRAIL

DETAIL A / VAR

SCALE: NONE



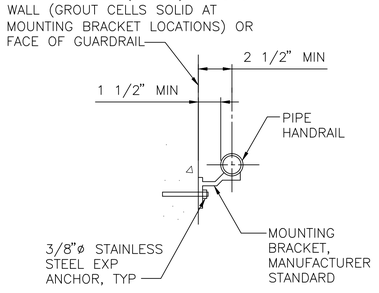
WALL HANDRAIL

DETAIL B / VAR

SCALE: NONE

GENERAL NOTES:

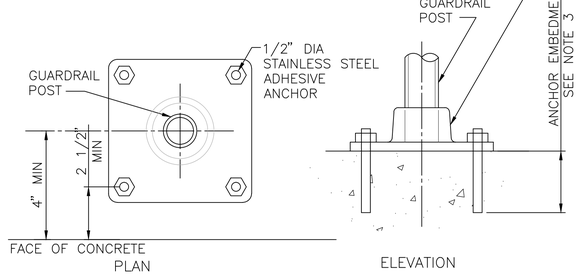
1. UNLESS OTHERWISE NOTED, HANDRAIL, GUARDRAIL, AND MOUNTING APPURTENANCES SHALL BE ANODIZED ALUMINUM.
2. ALL FASTENERS SHALL BE STAINLESS STEEL, TYPE 316.
3. NUMBER OF ANCHORS AND SIZE OF ANCHORS ARE MINIMUM. PROVIDE LARGER ANCHOR SIZE IF NECESSARY TO MEET LOAD REQUIREMENTS. CONTRACTOR'S SUPPLIER AND ENGINEER ARE RESPONSIBLE FOR DESIGNING BASE BRACKET AND STAINLESS STEEL ANCHOR BOLT SIZE AND EMBEDMENT DEPTH INTO CONCRETE TO RESIST LOADS TAKING INTO ACCOUNT ANCHOR EDGE DISTANCES AND CONCRETE STRENGTHS AT THE POINT OF ATTACHMENT.
4. UNLESS SPECIFICALLY INDICATED OTHERWISE, GUARDRAIL MOUNTING MAY BE BY ANY SHOWN METHOD AS APPLICABLE.
5. RAILING POST LOCATION SHALL BE FIELD MEASURED AND RAILING FABRICATED TO FIT.
6. TOP AND MIDDLE RAILS SHALL BE CONTINUOUS EXCEPT AT GUARDRAIL SECTIONS SPECIFICALLY CALLED OUT ON DRAWINGS AS REMOVABLE GUARDRAIL.
7. THE SPACING OF EXPANSION JOINTS IN GUARDRAILS AND TOEBOARDS SHALL NOT EXCEED 24 FEET.
8. ALL ALUMINUM SURFACES IN CONTACT WITH CONCRETE, GROUT, OR DISSIMILAR METALS SHALL HAVE CONTACT SURFACE PROTECTED IN ACCORDANCE WITH SPECIFICATIONS.



HANDRAIL MOUNTING BRACKET

DETAIL C / VAR

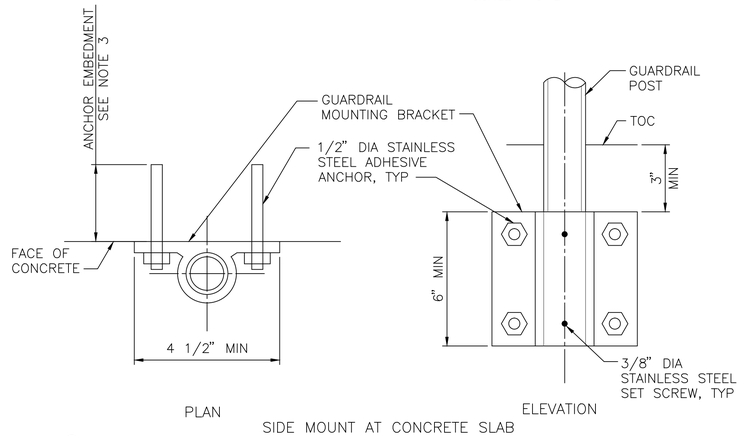
SCALE: NONE



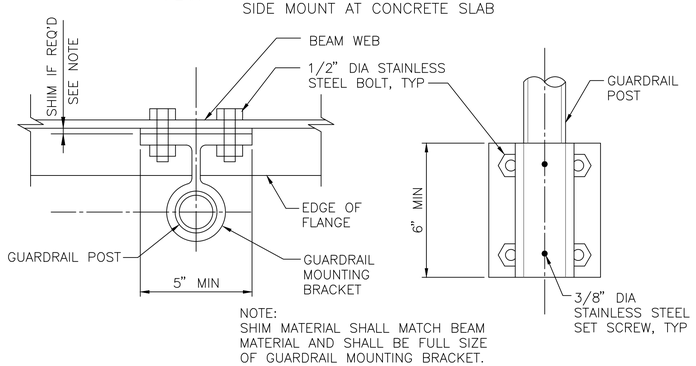
BASE FLANGE MOUNT

DETAIL D / VAR

SCALE: NONE



SIDE MOUNT AT CONCRETE SLAB



NOTE:
SHIM MATERIAL SHALL MATCH BEAM MATERIAL AND SHALL BE FULL SIZE OF GUARDRAIL MOUNTING BRACKET.

SIDE MOUNT AT METAL BEAMS

DETAIL E / VAR

SCALE: NONE

No.	Revision	By	Date

WASTEWATER PLANT 2
INFLUENT FORCE MAIN – PHASE 1

STRUCTURAL STANDARD DETAILS – 2

GARY JANZEN, P.E. – CITY ENGINEER
CITY OF WICHITA PROJECT NO. 468-85118

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Designed by	J. SIMON	Job No.	35-15554-1-0042	SHT S004 of 58
Drawn by	R. BLUMENSHINE	Date	MARCH 2017	

JERRY A. SIMON LICENSED 13577 3/23/2017 KANSAS PROFESSIONAL ENGINEER

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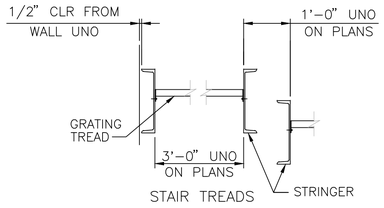
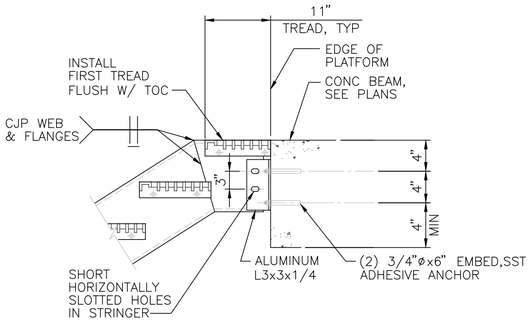
GENERAL NOTES:

1. PROVIDE PROTECTION FOR DISSIMILAR METALS AND CONCRETE AS SPECIFIED.
2. STAIR HANDRAIL NOT SHOWN.
3. STAIR MANUFACTURER TO COORDINATE BOLTED TREADS AND HANDRAIL CONNECTIONS.
4. ALL FASTENERS SHALL BE STAINLESS STEEL.
5. FIELD VERIFY DIMENSIONS AND ELEVATIONS PRIOR TO FABRICATION.
6. UNLESS OTHERWISE NOTED, PROVIDE ALUMINUM PLATES, ANGLES, TREADS AND GRATING.



STAIR TREADS

STAIRWAY WIDTH	TREAD BEARING BARS
	ALUMINUM TREAD
2'-9" OR LESS	1 1/4" x 3/16"
3'-3" OR LESS	1 1/2" x 3/16"
4'-7" OR LESS	1 3/4" x 3/16"

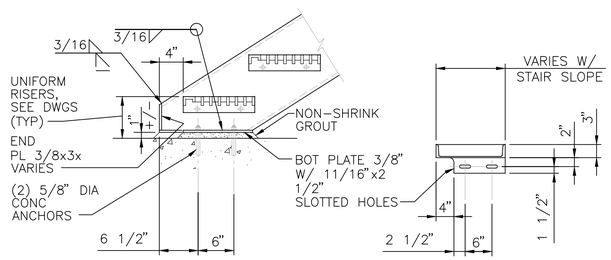


TOP CONNECTION – CONCRETE

STAIR DETAILS – ALUMINUM

DETAIL B / VAR

SCALE: NONE



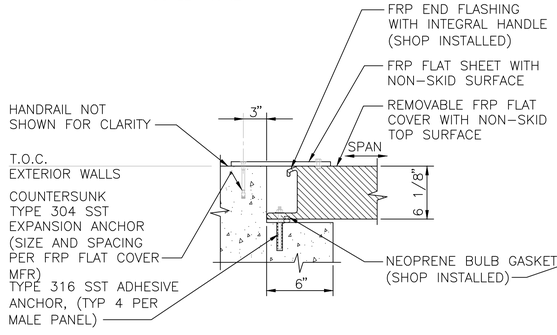
BOTTOM CONNECTION

PLAN

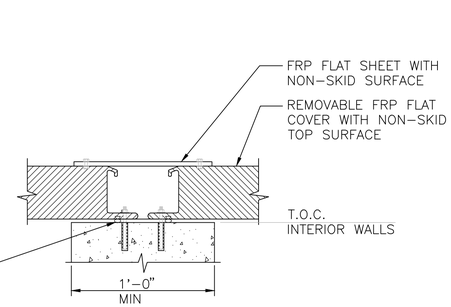
STAIR DETAILS – ALUMINUM

DETAIL A / VAR

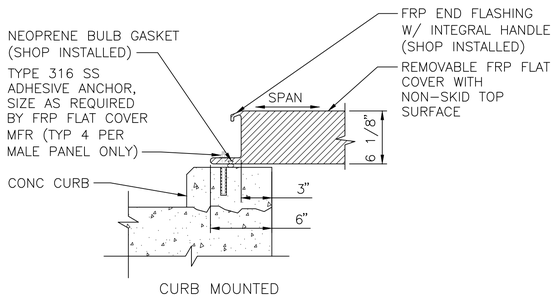
SCALE: NONE



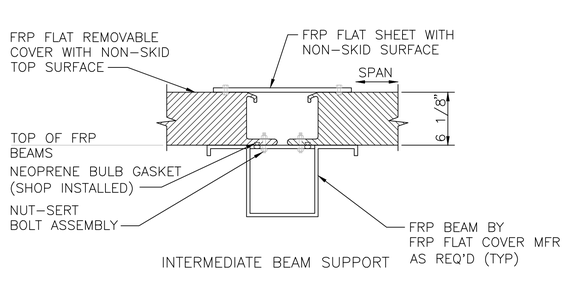
EXTERIOR WALL SUPPORT



INTERIOR WALL SUPPORT



CURB MOUNTED



INTERMEDIATE BEAM SUPPORT

REMOVABLE FRP FLAT COVER

DETAIL C / VAR

SCALE: NONE

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No.	Revision	By	Date

WASTEWATER PLANT 2
INFLUENT FORCE MAIN – PHASE 1

STRUCTURAL STANDARD DETAILS – 3

GARY JANZEN, P.E. – CITY ENGINEER
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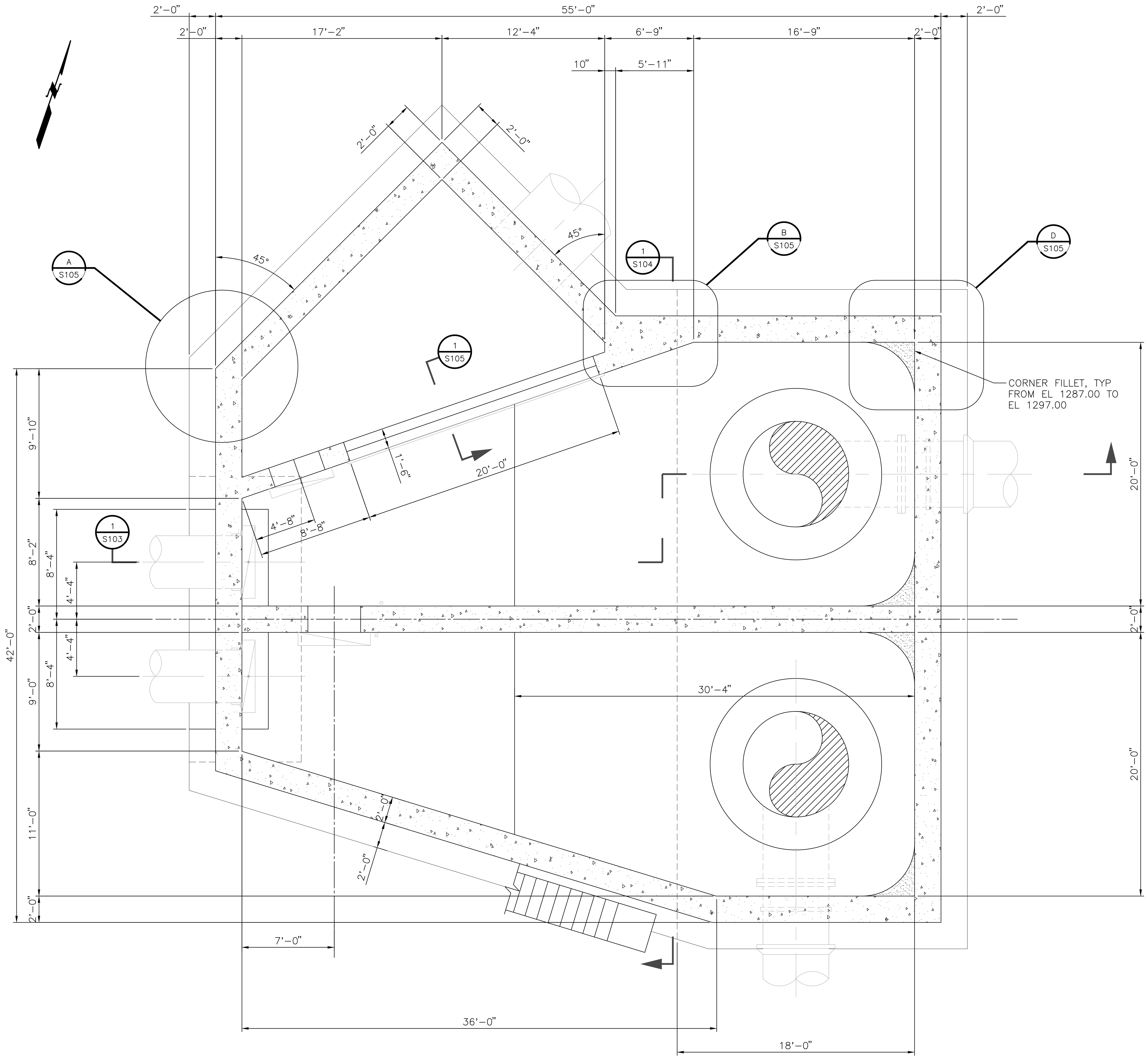
Designed by	J. SIMON	Job No.	35-15554-1-0042	Sht. S005 of 58
Drawn by	R.BLUMENSHINE	Date	MARCH 2017	



LOWER LEVEL PLAN

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

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No.	Revision	By	Date

WASTEWATER PLANT 2
INFLUENT FORCE MAIN – PHASE 1

DIVERSION STRUCTURE LOWER LEVEL PLAN

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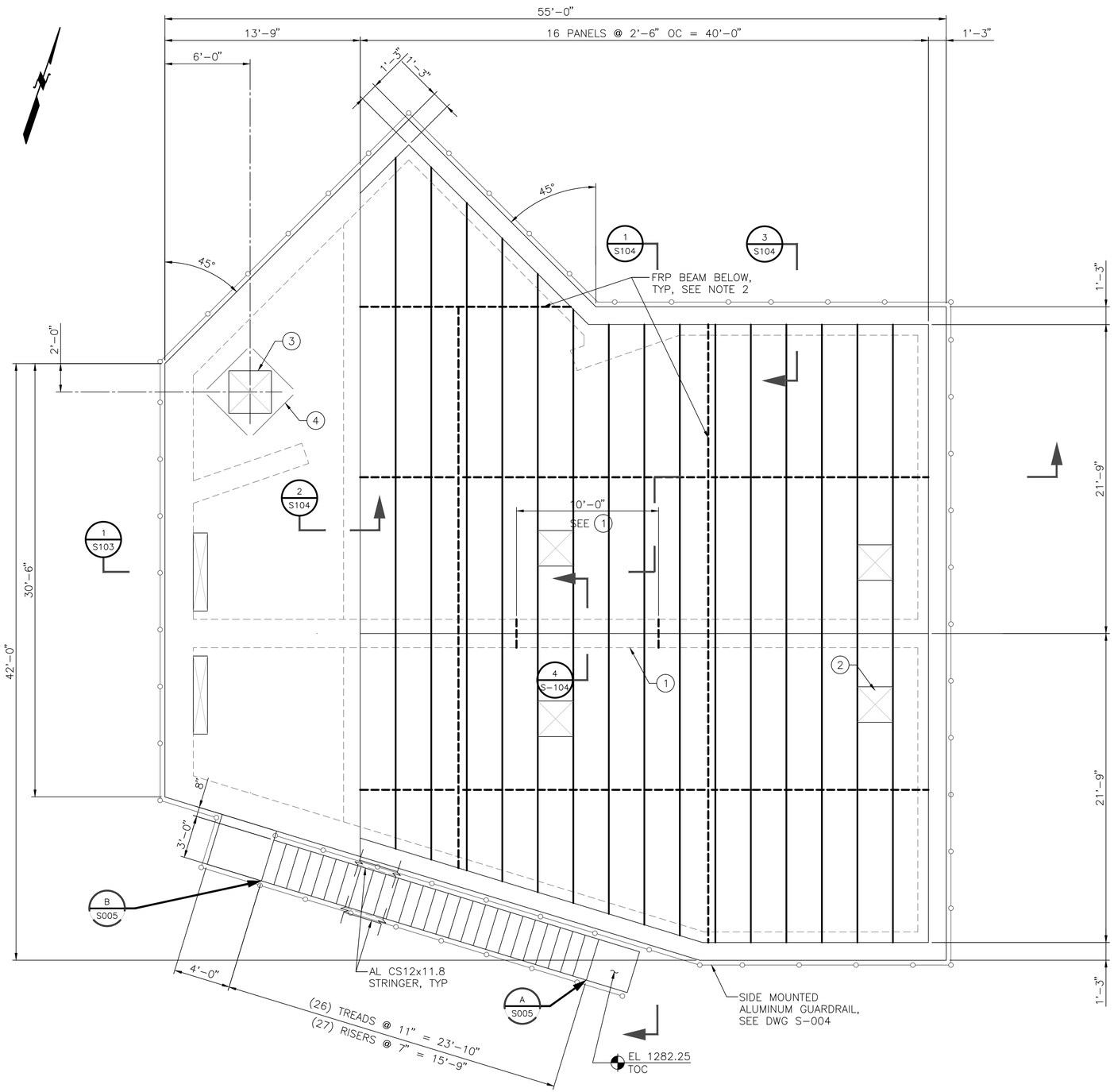

UPPER LEVEL PLAN

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

GENERAL NOTES:

1. SEE SPECIFICATION 06 83 20 FOR COVER.
2. SUPPORT BEAMS SHOWN ARE CONCEPTUAL AND FOR BIDDING PURPOSES. THE MANUFACTURER SHALL DESIGN THE SUPPORT BEAM AND ASSOCIATED BRACKETS AND ANCHOR BOLTS.
3. SEE DETAIL C/S005 FOR CONNECTION DETAILS OF FRP COVER TO CONCRETE.

KEY NOTES:

(1) CONTRACTOR SHALL COORDINATE FINAL PASSIVE OVERFLOW LOCATION WITH THE COVER MANUFACTURER. THE FINAL LOCATION SHALL BE CENTERED BETWEEN ANY SUPPORT BEAMS THAT MAY BE REQUIRED BY THE COVER MANUFACTURER. IN NO CASE SHALL THE PASSIVE OVERFLOW EXTEND BELOW A COVER SUPPORT BEAM.

(2) 2'-6" SQUARE ACCESS HATCH PROVIDED BY FRP COVER MANUFACTURER, TYP 4 PLACES.

(3) 3'-0" SQUARE ALUMINUM ACCESS HATCH. HATCH SHALL BE J-4AL BY THE BILCO COMPANY, OR EQUAL.

(4) PROVIDE ADDITIONAL REINFORCING AROUND OPENING PER DETAIL E/S003.

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No.	Revision	By	Date

WASTEWATER PLANT 2
INFLUENT FORCE MAIN – PHASE 1

DIVERSION STRUCTURE UPPER LEVEL PLAN

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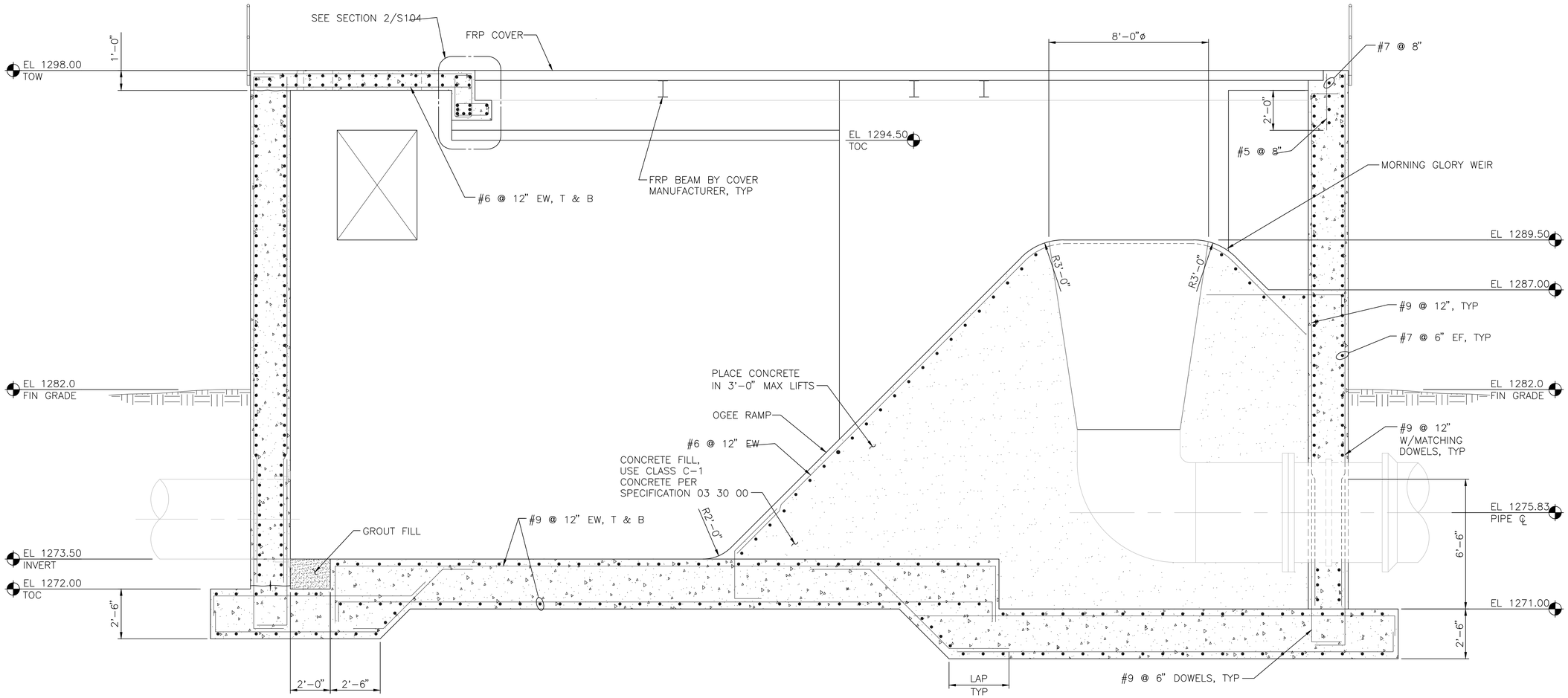
Drawn by	R. BLUMENSHINE	Date	MARCH 2017	



SECTION 1/S101

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

No.	Revision	By	Date

WASTEWATER PLANT 2
INFLUENT FORCE MAIN – PHASE 1

DIVERSION STRUCTURE SECTION 1

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SH. S103 of 58

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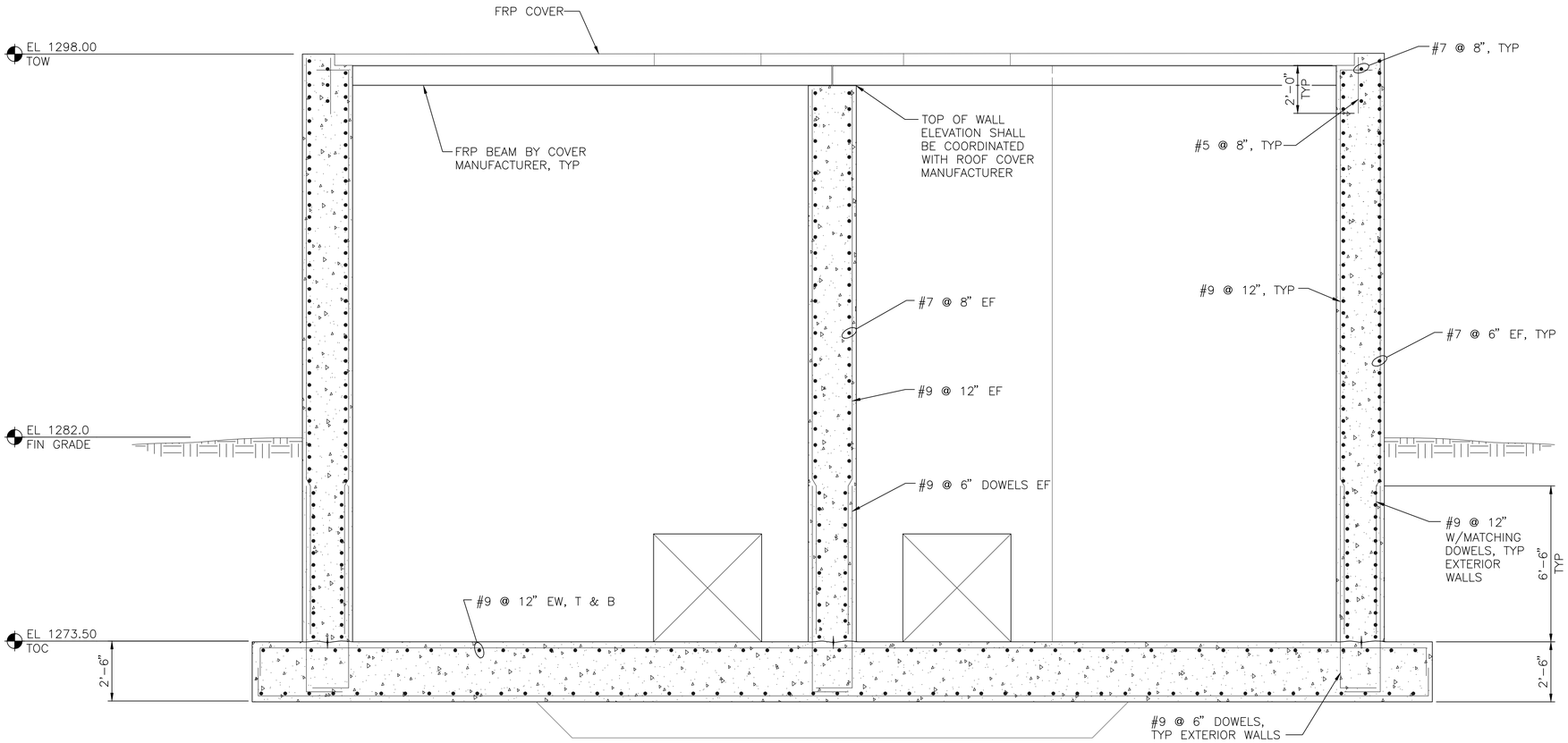

SECTION 1/S101

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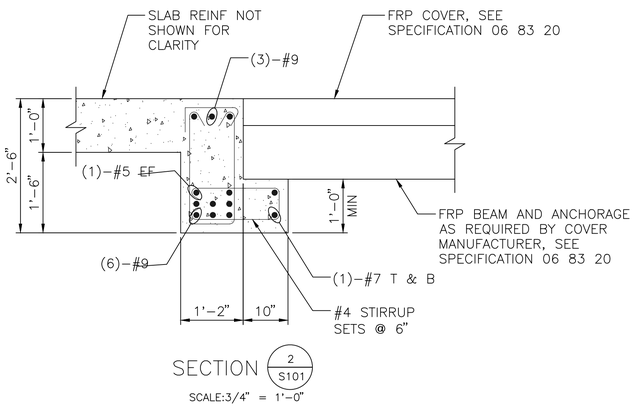

SECTION 2/S101

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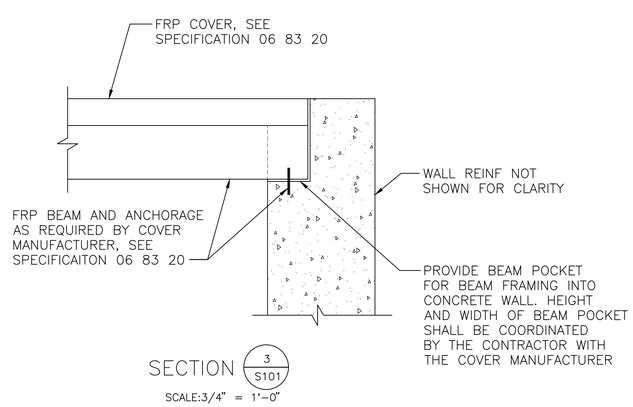

SECTION 3/S101

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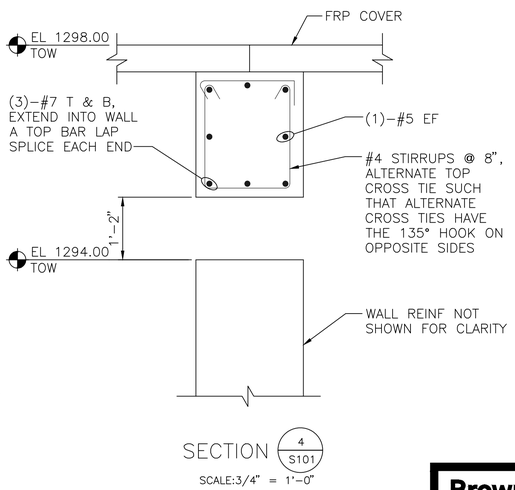

SECTION 4/S101

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

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No.	Revision	By	Date

WASTEWATER PLANT 2
INFLUENT FORCE MAIN – PHASE 1

DIVERSION STRUCTURE SECTIONS 2

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Sht. S104 of 58

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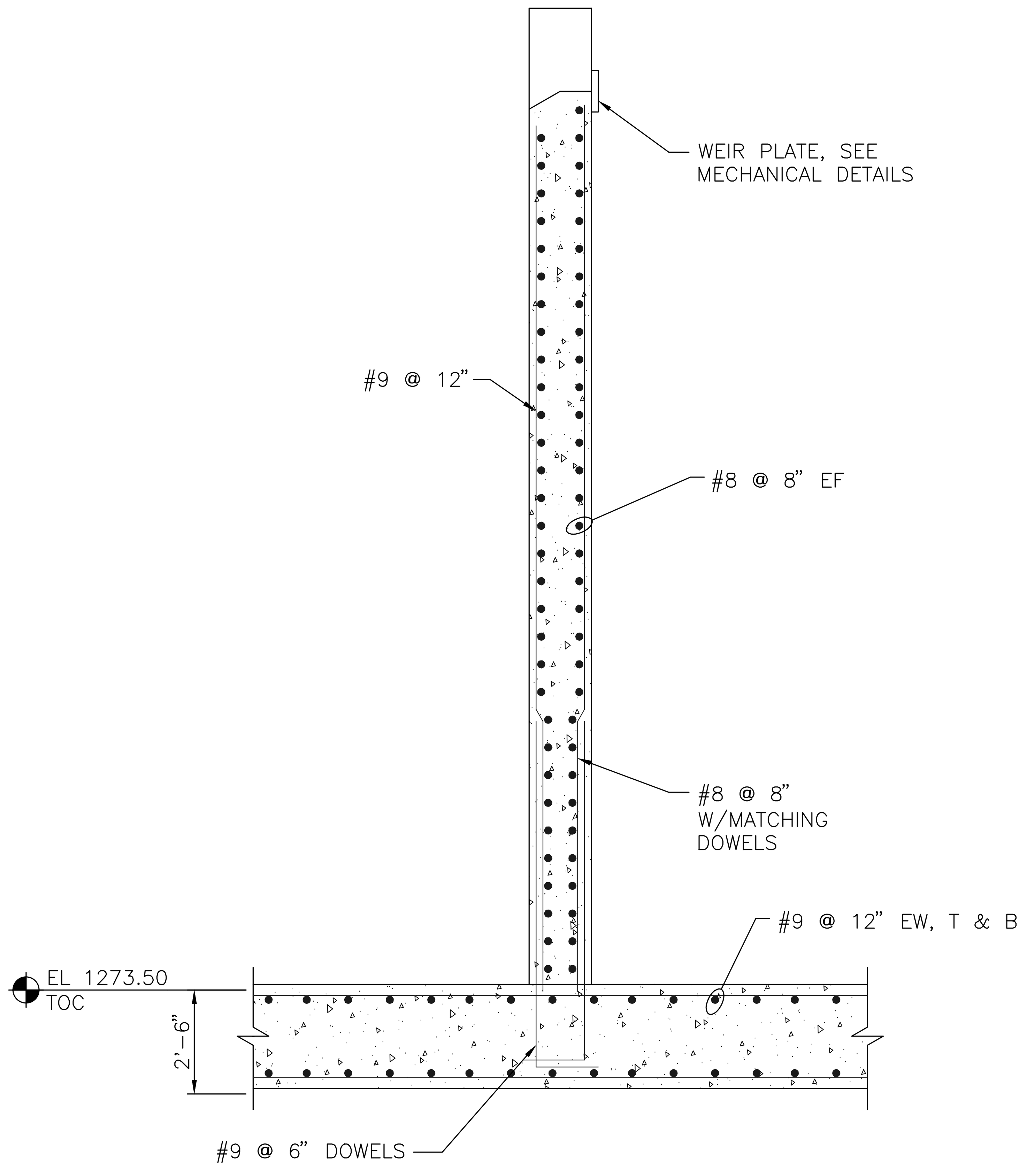

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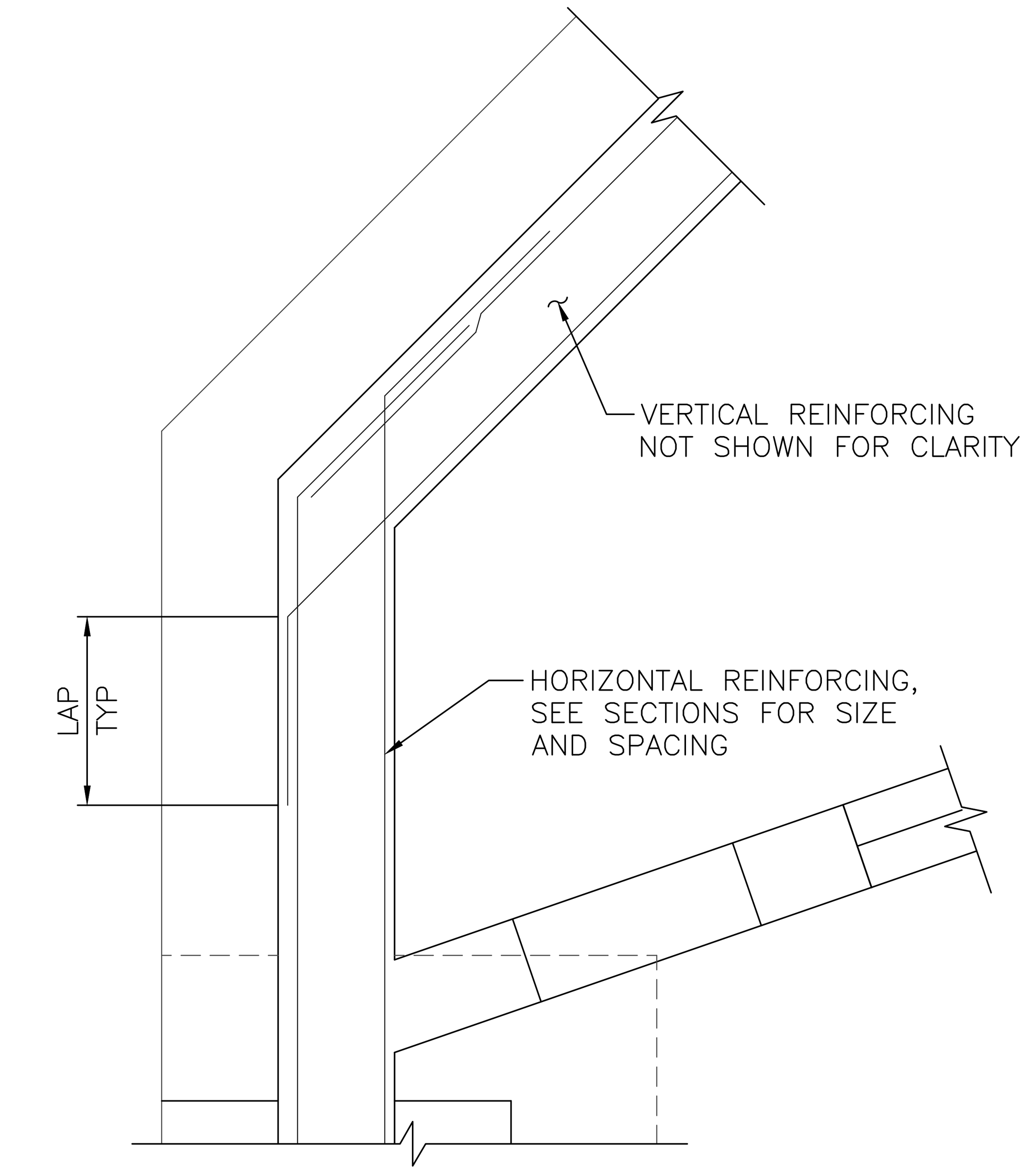

DETAIL A/S101

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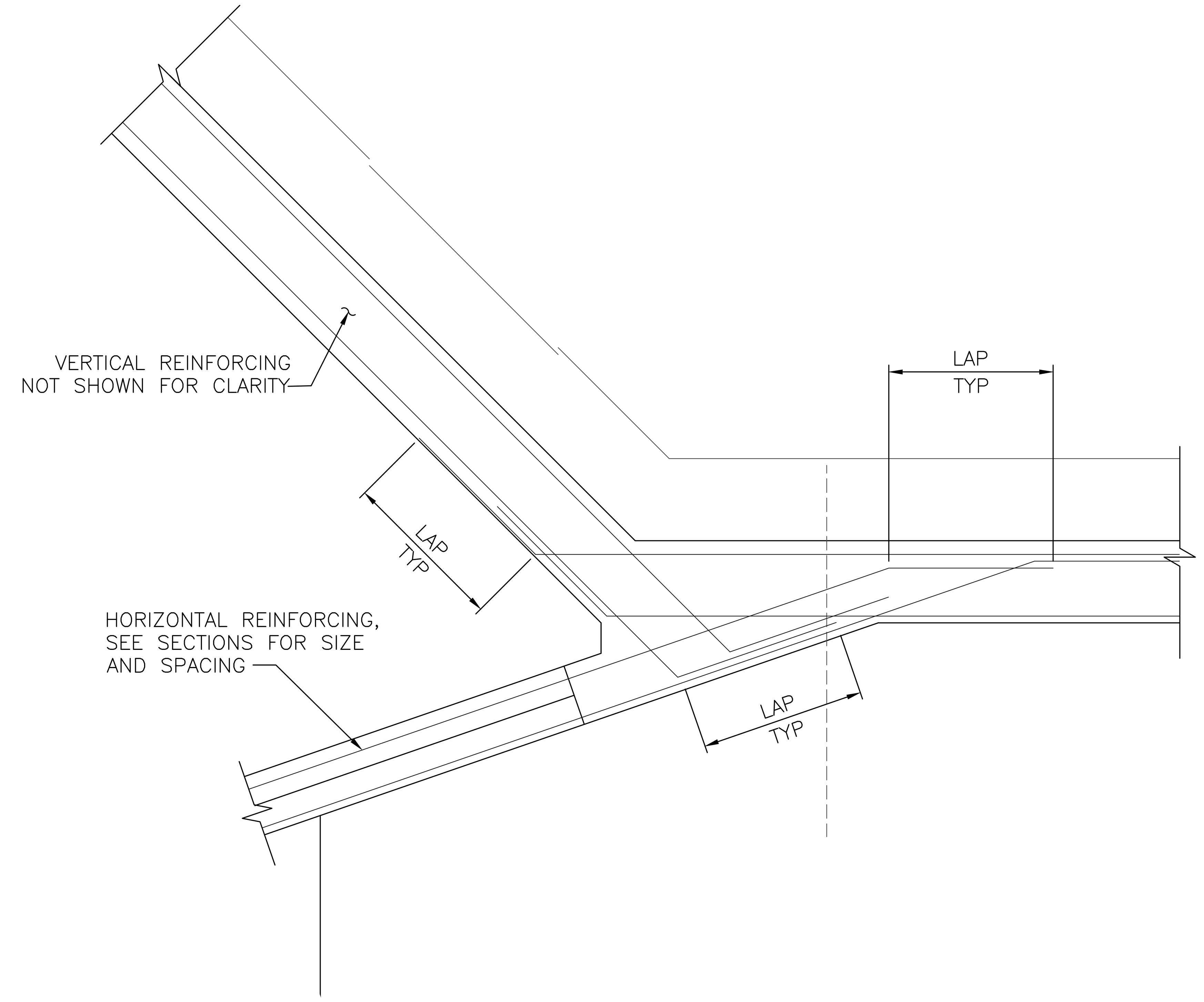

DETAIL B/S101

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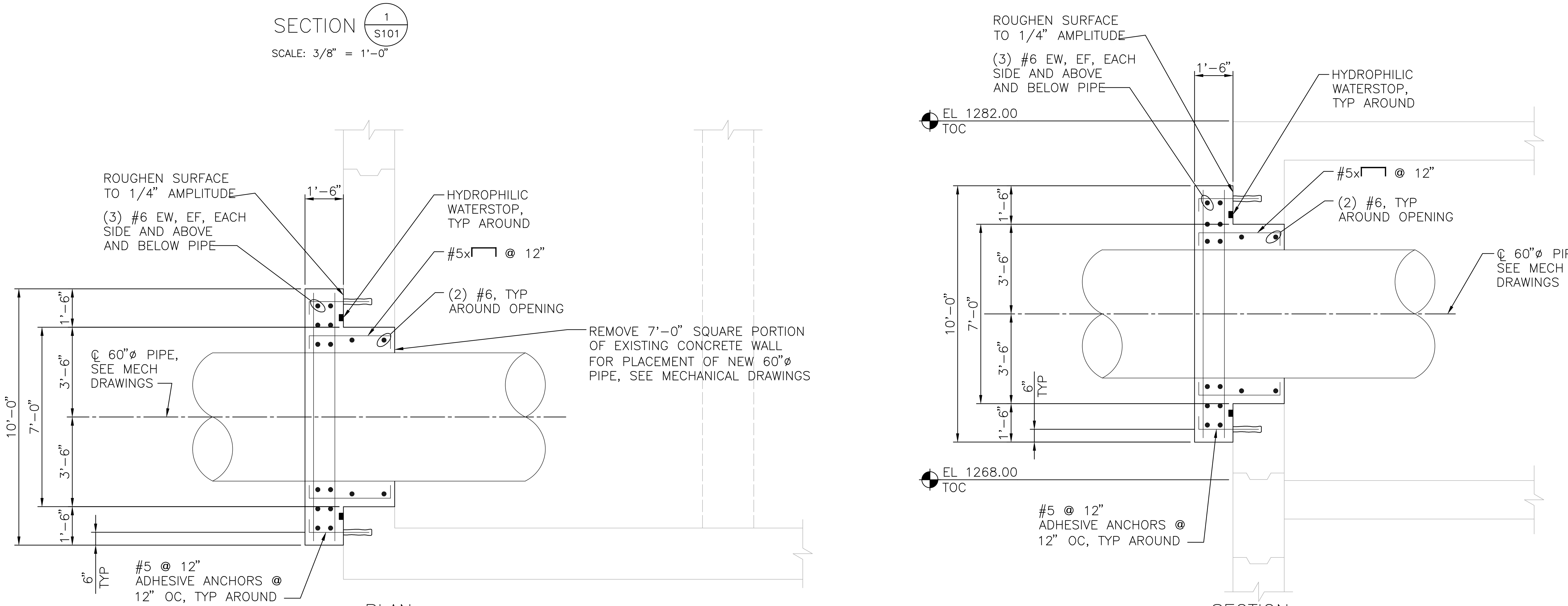
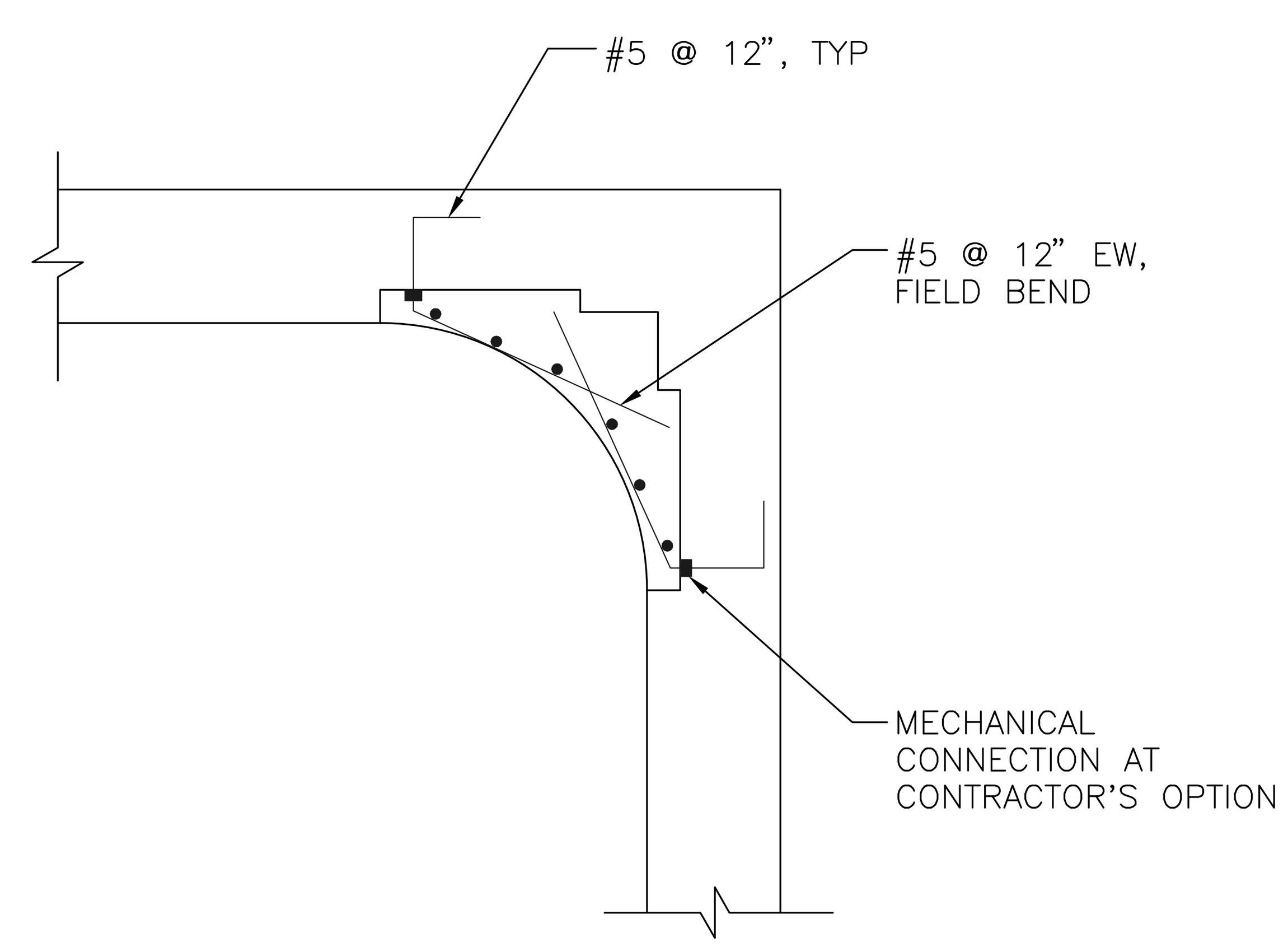


DETAIL C

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



DETAIL D/S101

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

No.	Revision	By	Date

WASTEWATER PLANT 2
INFLUENT FORCE MAIN – PHASE 1

STRUCTURAL MISCELLANEOUS DETAILS

GARY JANZEN, P.E. – CITY ENGINEER
CITY OF WICHITA PROJECT NO. 468-85118

JERRY A. SIMON LICENSED 13577 KANSAS PROFESSIONAL ENGINEER 3/23/2017

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Drawn by	R.BLUMENSHINE	Date MARCH 2017	

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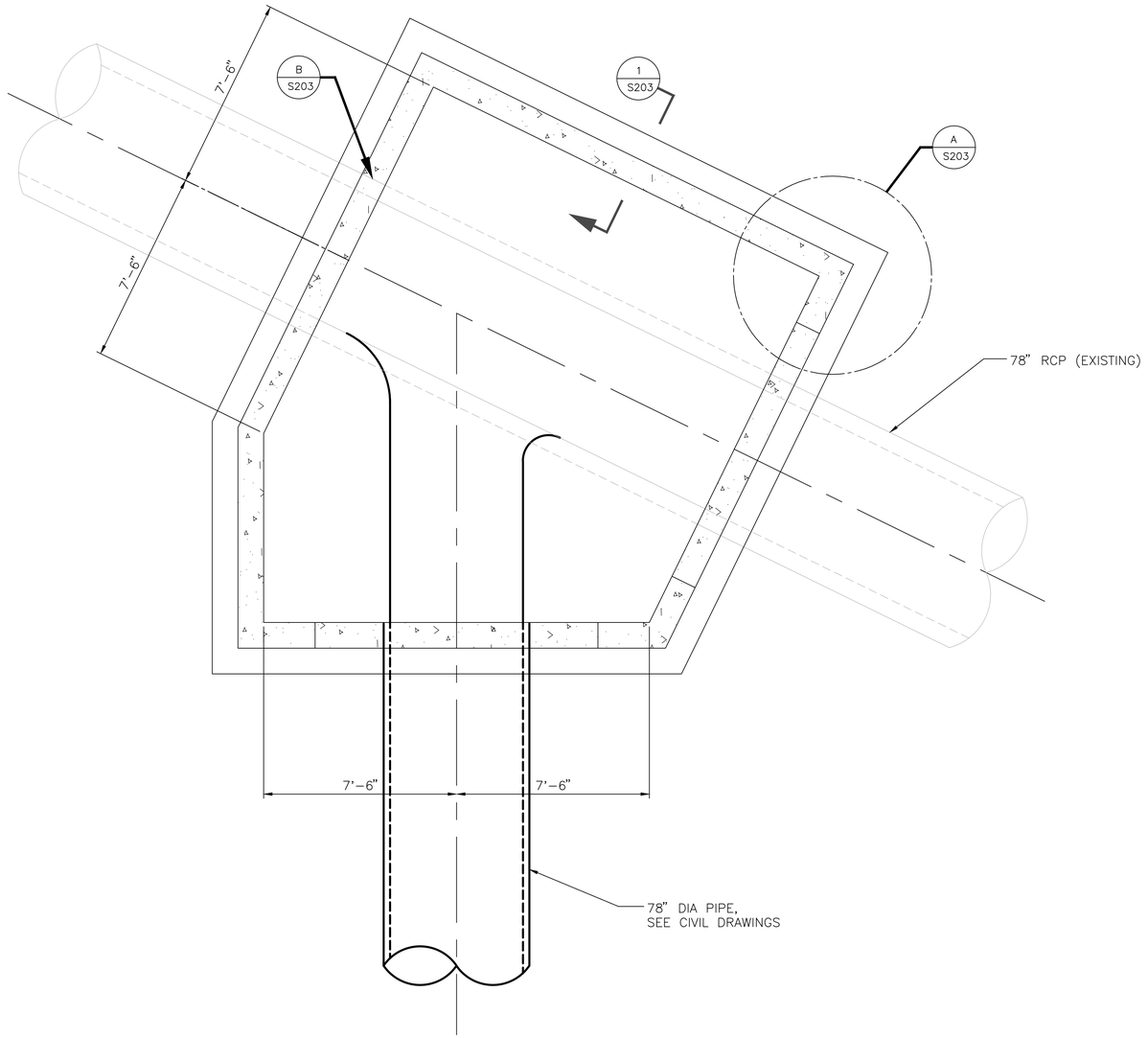

LOWER LEVEL PLAN

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

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JERRY A. SIMON LICENSED 13577 3/29/2017 KANSAS PROFESSIONAL ENGINEER

No.	Revision	By	Date

WASTEWATER PLANT 2
INFLUENT FORCE MAIN – PHASE 1

JUNCTION STRUCTURE LOWER LEVEL PLAN

GARY JANZEN, P.E. – CITY ENGINEER
CITY OF WICHITA PROJECT NO. 468-85118

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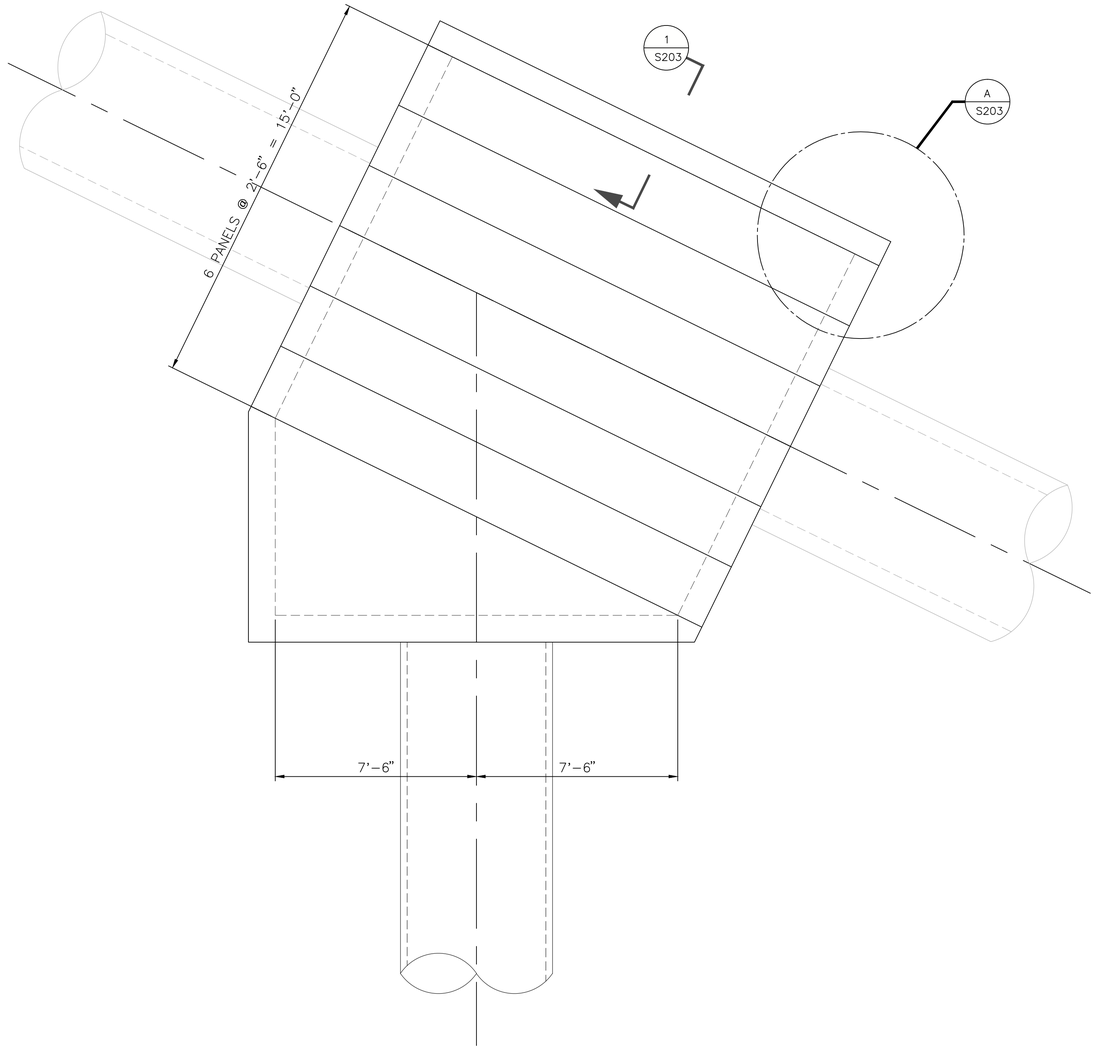
Designed by	J. SIMON	Job No.	35-15554-1-0042
Drawn by	R. BLUMENSHINE	Date	MARCH 2017

Sht. S201 of 58

GENERAL NOTES:

1. SEE SPECIFICATION 06 83 20 FOR COVER.
2. SEE DETAIL C/S005 FOR CONNECTION DETAILS OF FRP COVER TO CONCRETE



UPPER LEVEL PLAN
SCALE: 3/8" = 1'-0"

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JERRY A. SIMON LICENSED 13577 KANSAS PROFESSIONAL ENGINEER 3/23/2017

No.	Revision	By	Date

WASTEWATER PLANT 2
INFLUENT FORCE MAIN – PHASE 1

JUNCTION STRUCTURE UPPER LEVEL PLAN

GARY JANZEN, P.E. – CITY ENGINEER
CITY OF WICHITA PROJECT NO. 468-85118

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Drawn by	R. BLUMENSHINE	Date	MARCH 2017

Sht. S202 of 58

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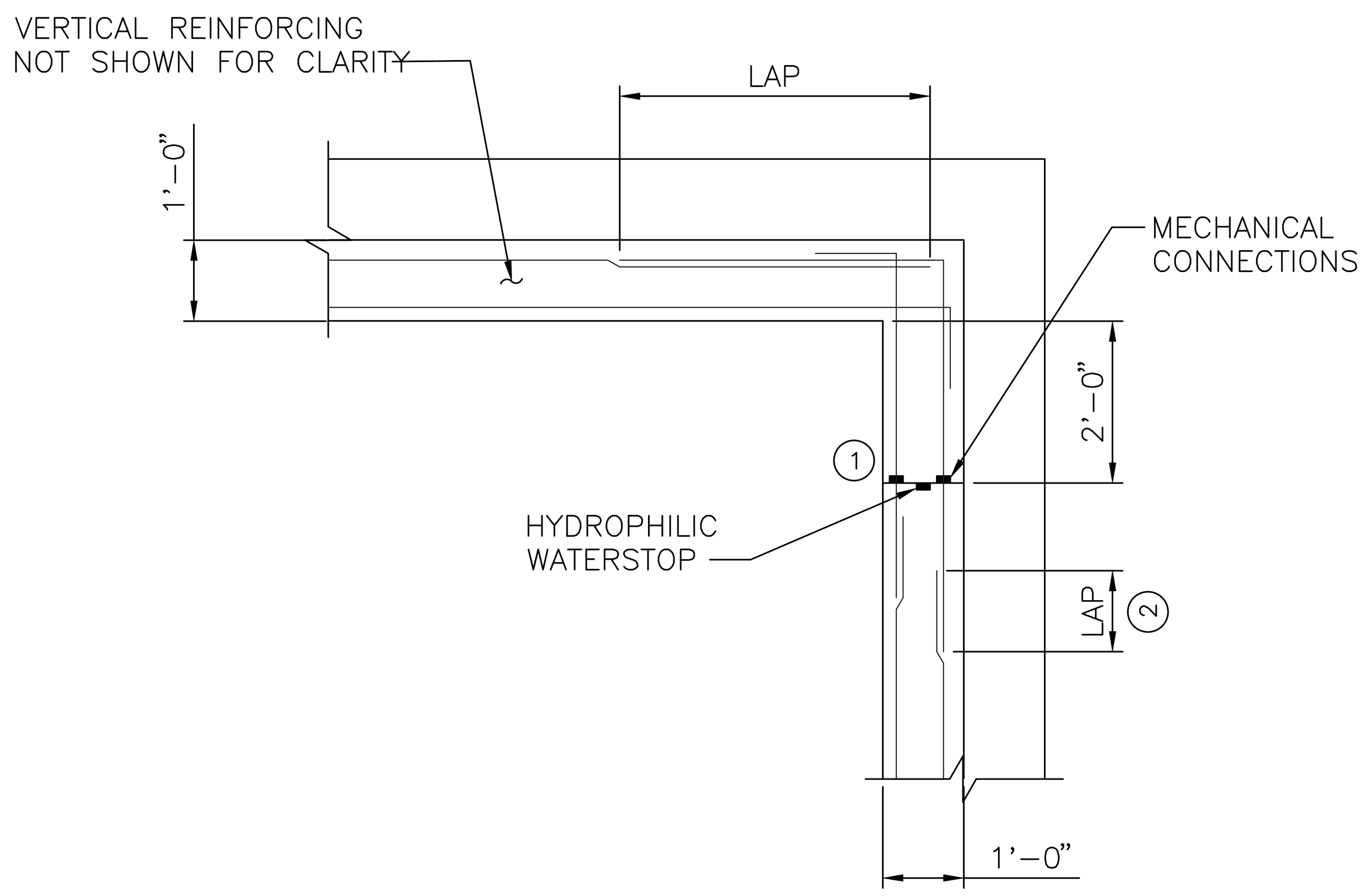
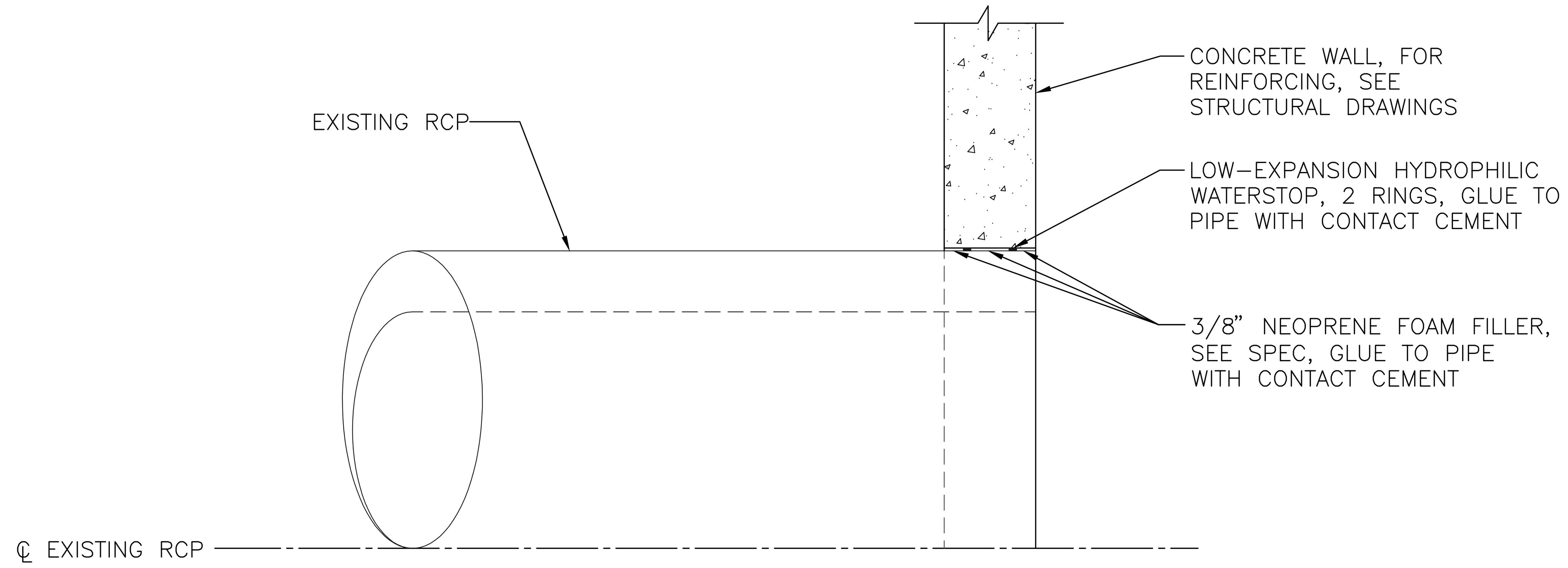


NOTES:
1. PROVIDE VERTICAL CONSTRUCTION JOINT IN WALL TO ALLOW FOR "CLOSURE" WALL TO BE PLACED AFTER PIPE IS REMOVED.
2. STAGGER LAP SPLICES, TYP EACH END OF WALL.

DETAIL A / S201

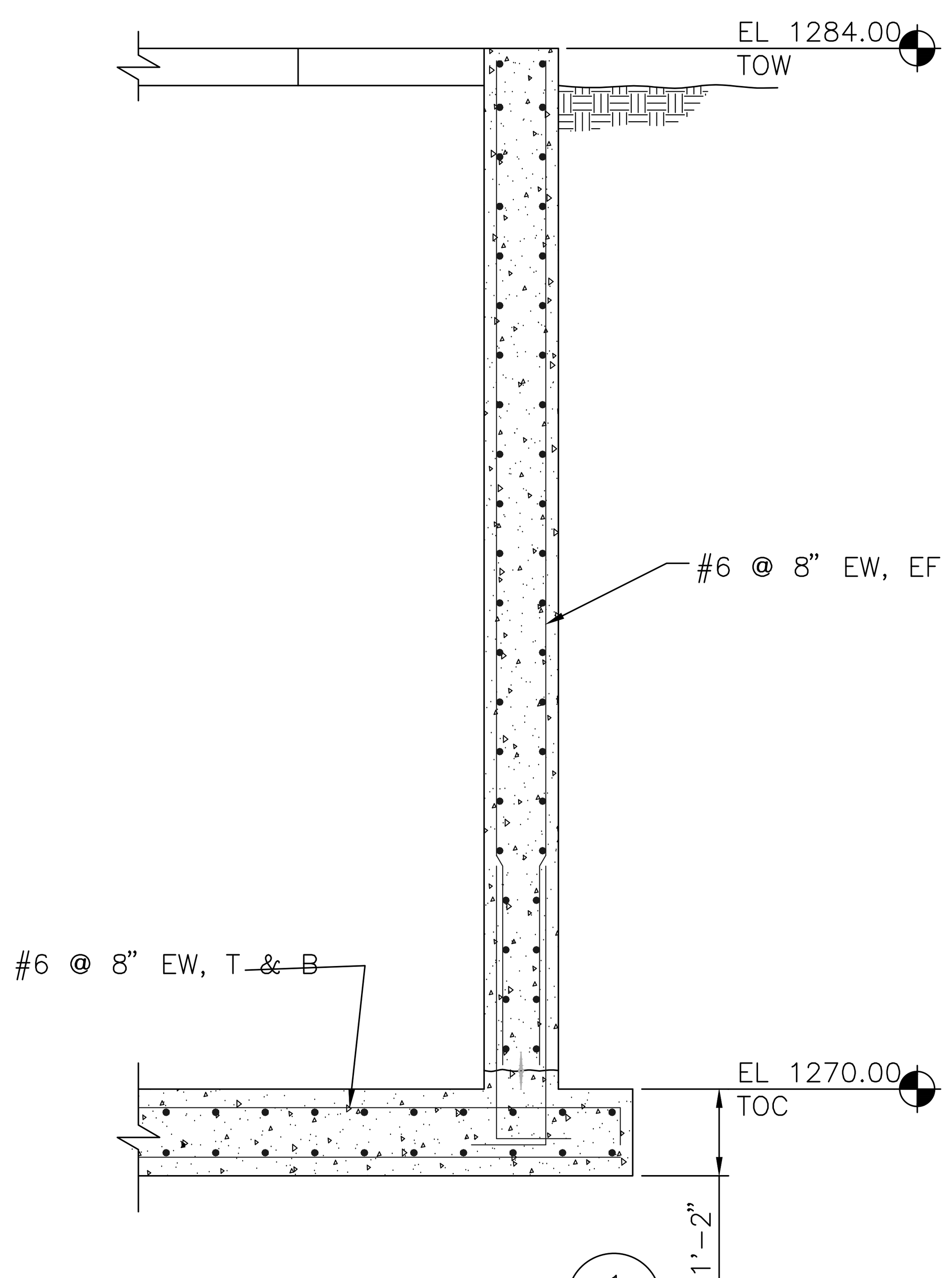
SCALE:1/2" = 1'-0"



NOTES:
1. PROVIDE DOUBLE RING OF LOW-EXPANSION HYDROPHILIC WATERSTOP AROUND EXISTING RCP PIPES EMBEDDED IN NEW CONCRETE WALLS. PROVIDE NEOPRENE FOAM FILLER BETWEEN AND ADJACENT TO HYDROPHILIC WATERSTOPS AS SHOWN.
2. WHERE RCP PIPE PENETRATES NEW CONCRETE WALLS AT OR BELOW THE SLAB, STOP PVC WATERSTOP AT PIPE AND CONNECT PVC WATERSTOP TO RING HYDROPHILIC WATERSTOP AROUND.

DETAIL B / S201

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



SECTION 1 / S201

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

No.	Revision	By	Date

WASTEWATER PLANT 2
INFLUENT FORCE MAIN – PHASE 1

JUNCTION STRUCTURE DETAILS

GARY JANZEN, P.E. – CITY ENGINEER
CITY OF WICHITA PROJECT NO. 468-85118

JERRY A. SIMON LICENSED 13577 KANSAS PROFESSIONAL ENGINEER 3/23/2017

Brown AND Caldwell

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Designed by	J. SIMON	Job No.	35-15554-1-0042	Sht. S203 of 58
Drawn by	R. BLUMENSHINE	Date	MARCH 2017	

GENERAL STRUCTURAL NOTES

A. DESIGN CRITERIA

1. BUILDING CODE: INTERNATIONAL BUILDING CODE (IBC), 20012 EDITION, INCLUDING LOCAL SUPPLEMENTS.

2. GRAVITY LOADS:

LOCATION	LIVE LOAD	DEAD LOAD*
VAULT COVER	HS20-44 (VEHICLE LOAD)	5 PSF

*DEAD LOAD WHICH IS SUPERIMPOSED ONTO ACTUAL STRUCTURAL WEIGHTS DOES NOT INCLUDE SOIL SURCHARGE.

3. SOIL LOADS

SOIL WEIGHT:	120 PCF
EXTERNAL SOIL PRESSURE	90 PCF (SATURATED)

B. DELEGATED ENGINEERING OF STRUCTURAL COMPONENTS & SYSTEMS

1. ALL STRUCTURAL COMPONENTS & SYSTEMS DESIGNED AND SEALED BY A SPECIALTY STRUCTURAL ENGINEER (SSE) SHALL MEET THE GUIDELINES PUBLISHED BY THE COUNCIL OF AMERICAN STRUCTURAL ENGINEERS (CASE) FOR DELEGATED SPECIALTY STRUCTURAL ENGINEERING.

2. WHEN COMPONENTS & SYSTEMS SPECIFIED ARE DELEGATED, THE SHOP DRAWINGS SHALL HAVE THE FOLLOWING:

   A. PROVIDE A FULL DESIGN ANALYSIS INCLUDING CALCULATIONS WITH A SEALED COVER SHEET IDENTIFYING THE PROJECT NAME AND ADDRESS.

   B. THE ENGINEER THAT SEALED THE CALCULATIONS SHALL ALSO SEAL THE FABRICATION, PLACING, AND ERECTION PLANS. EACH PLAN SHALL IDENTIFY THE PROJECT NAME/ADDRESS.

   C. THE ENGINEER THAT SEALED THE PLANS SHALL STATE THAT HE HAS COMPLETED A DETAILED REVIEW OF THE CONTRACT DOCUMENTS AND HAS INCORPORATED THE PERFORMANCE CRITERIA INTO THE SUBMITTAL.

3. THE CONTRACTOR SHALL REVIEW THE SUBMITTAL FOR QUANTITIES AND DIMENSIONS AND VERIFY THAT THE ABOVE INFORMATION HAS BEEN INCLUDED IN THE SUBMITTAL.

PRECAST CONCRETE

1. AT THE CONTRACTORS OPTION A PRECAST STRUCTURE MAY BE USED IN PLACE OF THE CAST IN PLACE STRUCTURE. ALL EARTHWORK AND QUALITY ASSURANCE MEASURES SHALL BE AS NOTED IN THE STRUCTURAL GENERAL NOTES AND DETAILS.

2. REF. DELEGATED ENGINEERED STRUCTURAL COMPONENTS & SYSTEM FOR SUBMITTAL REQUIREMENTS.

3. REF. DESIGN CRITERIA FOR BUILDING CODE, SERVICE CRITERIA AND LOADS TO BE USED IN DESIGN.

4. ADDITIONAL DETAILED CRITERIA

   A. PRECAST COMPONENTS & CONNECTIONS SHALL BE DESIGNED IN ACCORDANCE WITH THE PCI DESIGN HANDBOOK, ASTM C913 (RECTANGULAR), OR ASTM C478 (ROUND). NON-STANDARD MEMBER CROSS-SECTIONS SHALL BE APPROVED BY THE ENGINEER IN ADVANCE OF SHOP DRAWINGS.

   B. ALL OPENINGS GREATER THAN 6" ON A SIDE SHALL BE NEATLY FORMED TO DIMENSIONS. OPENINGS 6" OR SMALLER MAY BE CORE DRILLED IN THE FIELD.

   C. CONCRETE SHALL MEET THE REQUIREMENTS OF THE MIX DESIGN SECTION UNDER CONCRETE. SELF-CONSOLIDATION CONCRETE MAY BE USED WITH APPROVAL PRIOR TO USE.

   D. DO NOT REMOVE CONCRETE FROM FORMS UNTIL THE CONCRETE HAS ATTAINED SUFFICIENT STRENGTH NOT TO BE DAMAGED BY FORM REMOVAL OPERATION. ALL EXPOSED FORM TIES MUST BE REMOVED SO THAT NONE ARE VISIBLE.

   E. GROUT UNDER PIECES WITH NON-SHRINK NON-METALLIC GROUT THAT HAS THE SAME STRENGTH AS THE PRECAST.

C. SOIL PREPARATION AND FOUNDATIONS

1. SOIL SUPPORTED FOUNDATIONS:

   A. DESIGN BEARING PRESSURE (NET) IS 1500 PSF FOR FOUNDATIONS BEARING ON UNDISTURBED SOIL OR APPROVED ENGINEERED FILL MATERIAL.

   B. ALL FOUNDATIONS ARE DESIGNED WITH EARTH FORMED SIDES; THE TOP 7¼" OF THE FOUNDATION SHALL BE FORMED TO THE DESIGN DIMENSION WHEN VISIBLE AFTER CONSTRUCTION IS COMPLETE. THE CONSTRUCTED FOUNDATION DIMENSION SHALL BE NO LESS THAN THE DESIGN DIMENSION, AND NO MORE THAN 6" GREATER THAN THE DESIGN DIMENSION.

2. DO NOT BACKFILL FOUNDATION WALLS UNTIL THE RESTRAINING COVER SLAB OR ADEQUATE BRACING ARE IN PLACE AND CONCRETE STRENGTH HAS REACHED 75% OF DESIGN STRENGTH. ALL BACKFILL SHALL BE PLACED AND COMPACTED IN ACCORDANCE WITH THE SPECIFICATION.

D. CONCRETE

1. ALL STRUCTURAL CONCRETE HAS BEEN DESIGNED IN ACCORDANCE WITH THE ACI 318 AND THE BUILDING CODE, AND IN CONFORMANCE WITH THE CURRENT "ACI MANUAL OF CONCRETE PRACTICE."

2. THE CONCRETE REQUIREMENTS ARE:

   A. CEMENT SHALL BE TYPE I OR II CONFORMING TO ASTM C150. FLY ASH CONFORMING TO ASTM C618 TYPE C OR F MAY BE USED TO REPLACE A MAXIMUM OF 20% OF THE CEMENT BY WEIGHT.

   B. FINE AGGREGATE FOR NORMAL WEIGHT CONCRETE SHALL MEET ASTM C33.

   C. COARSE AGGREGATES FOR NORMAL WEIGHT CONCRETE SHALL CONFORM TO ASTM C33, GRADE 67 OR LARGER. COARSE AGGREGATES SHALL BE NO LESS THAN 50% OF THE TOTAL AGGREGATE BY WEIGHT, UNLESS APPROVED BY THE ENGINEER PRIOR TO MIX DESIGN SUBMITTAL.

   D. MIX REQUIREMENTS ARE:

LOCATION	MIN. F'_c (PSI)	MIN. CEM.(PCY)	MAX. W/C RATIO	AIR CONTENT	SLUMP§ INCHES
CAST-IN-PLACE	4500	470	0.45	5%±1%	2-5
PRECAST	4500	---	---	---	---

§ PRIOR TO THE ADDITION OF HIGH RANGE WATER REDUCERS, IF APPROVED BY ENGINEER, AFTER ADDITION THE SLUMP MAY NOT EXCEED 8".

F'C SPECIFIED IS BASED ON THE 28 DAY COMPRESSIVE STRENGTH IN ACCORDANCE WITH ACI 318 ACCEPTANCE CRITERIA

3. ADMIXTURES, HARDENERS, & CURING COMPOUNDS

   A. ALL CONCRETE ADMIXTURES SHALL, WHEN MIXED INTO CONCRETE, BE NON-CHLORIDE AND NON-CHLORIDE FORMING.

   B. ALL ADMIXTURES MUST CONFORM TO ASTM C-494 AND C-260.

   C. CONCRETE CURING COMPOUND AND SEALERS SHALL MEET ASTM C-309 TYPE 1 OR 1D.

   D. THE CONTRACTOR SHALL VERIFY THAT ALL ADMIXTURES, HARDENERS, CURING COMPOUNDS, AND FLOOR COVERING ADHESIVES ARE COMPATIBLE WITH EACH OTHER.

4. MISCELLANEOUS CONCRETE DETAILS:

   A. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 3/4" INSIDE FORMS OR TOOLED TO 3/4" RADIUS UNLESS NOTED OTHERWISE.

   B. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN OF ALL FORMING AND SHORING. SHORING FOR ELEVATED SLABS SHALL BE SET SO THAT ANY LOAD DUE TO THE CONCRETE OPERATIONS DOES NOT CAUSE THE FORMS TO SETTLE (SLACK, TAKE-UP, ETC.).

   C. NO ALUMINUM SHALL BE EMBEDDED IN CONCRETE. CONDUITS AND PIPING EMBEDDED IN CONCRETE WALLS, SLABS, OR BEAMS SHALL BE SPACED A MINIMUM OF FOUR DIAMETERS AND THE OUTSIDE DIAMETER SHALL BE LESS THAN 30% OF THE MEMBER THICKNESS AND PLACED BETWEEN LAYERS OF REINFORCING.

   D. NO CONDUIT MAY BE EMBEDDED IN TOPPING SLABS ON PRECAST CONCRETE UNLESS SPECIFICALLY DETAILED OR NOTED OTHERWISE ON STRUCTURAL PLANS.

   E. WATERSTOP AT PRECAST JOINTS, OPENINGS, AND PENETRATIONS SHALL BE "SWELLSTOP" (¾"X1") BY GREENSTREAK OR APPROVED EQUAL. WATERSTOP AT CAST IN PLACE JOINTS SHALL BE PVC WATERSTOP MODEL NO. 702 BY GREENSTREAK OR APPROVED EQUAL.

   F. PROVIDE EXTERIOR WATERPROOFING AT ALL CONCRETE SURFACES BELOW GRADE. USE 2 COATS OF SEAL MASTIC BY W.R. MEADOWS OR APPROVED EQUAL. APPLY PER MANUFACTURER'S RECOMMENDATIONS.

E. CONCRETE REINFORCING (CAST-IN-PLACE & PRECAST)

1. MATERIALS:

	ASTM	GRADE
PLATE & ANGLE	A36	---
REINFORCING BARS:	A615	60
WELDED WIRE FABRIC-WWF (PRECAST ONLY):	A185	60 (MIN.)
HEADED STUDS:	A108	---
DEFORMED BAR ANCHORS:	A706	60

2. DETAILS:

   A. WELDING OF REINFORCING BARS IS PROHIBITED.

3. EMBEDMENTS

   A. ALL EMBEDDED PLATES AND ANCHOR RODS SHALL BY HOT DIP GALVANIZED. COATINGS IN THE WELD AREA SHALL BE REPAIRED.

4. PLACEMENT

   A. ALL REINFORCING (BARS, ANCHOR RODS, EMBEDMENTS, WWF, ETC.) SHALL BE SUPPORTED ON CHAIRS/BOLSTERS TO THE DESIGN DIMENSIONS. SPACING SHALL BE SUFFICIENTLY CLOSE TO PREVENT DISPLACEMENT OR PERMANENT DEFORMATION DUE TO CONCRETE PLACEMENT, FOOT TRAFFIC, OR VIBRATION. "PUDDLING IN" OR "PULLING UP" REINFORCING IS NOT AN ACCEPTABLE METHOD FOR PLACING REINFORCING. CHAIRS/BOLSTERS SHALL HAVE PLASTIC COATED FEET OR BE MADE OF STAINLESS STEEL. CHAIRS/BOLSTERS IN CONTACT WITH EARTH SHALL HAVE BOTTOM PLATES AND BE COATED TO PREVENT CORROSION. ANCHOR RODS SHALL BE HELD IN PLACE WITH TEMPLATES SUFFICIENTLY STRONG TO PREVENT DISPLACEMENT OR TILTING.

   B. MAINTAIN ACI CLEAR COVER ON REINFORCING AS LISTED BELOW UNLESS NOTED OTHERWISE.

CAST AGAINST EARTH (BOTTOM OR SIDES):	3"
FORMED – EXPOSED TO SOIL, WEATHER OR LIQUIDS:	2"
PRECAST:	1½"

   C. PROVIDE CORNER BARS OF THE SAME SIZE AND SPACING AS ADJACENT REINFORCING. REFERENCE DETAILS. CONTINUOUS WALL FOOTING REINFORCING NEED ONLY TO OVERLAP.

   D. OPENINGS IN WALLS OR STRUCTURAL SLABS SHALL BE REINFORCED PER DETAIL.

   E. ALL REINFORCING BARS ARE TO BE MADE CONTINUOUS OR LAPPED 40 BAR DIAMETERS.

   F. WWF SHALL BE MADE CONTINUOUS BY LAPPING ONE FULL SQUARE PLUS 2". (PRECAST ONLY)

F. POST INSTALLED ANCHORING SYSTEMS

1. ANCHORS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS (MPII) AND THE EVALUATION REPORT (ER/ESR) SPECIFIED INCLUDING HOLE PREPARATION, TEMPERATURE AND MOISTURE CONDITIONS.

2. ADHESIVE ANCHORS:

   A. THE CONTRACTOR SHALL ARRANGE AN ANCHOR MANUFACTURER'S REPRESENTATIVE TO PROVIDE ONSITE INSTALLATION TRAINING FOR ALL ANCHOR PRODUCTS SPECIFIED. THE CONTRACTOR MUST MAINTAIN TRAINING RECORDS OF ALL CONTRACTOR PERSONNEL INSTALLING ANCHORS AND SUBMIT TO THE ENGINEER OF RECORD PRIOR TO INSTALLING ANCHORS UPON REQUEST.

   B. ADHESIVE ANCHORS SHALL BE USED IN CONJUNCTION WITH THE APPROPRIATE ADHESIVE SYSTEM. STANDARD REINFORCING STEEL ANCHORED IN CONCRETE SHALL BE IN ACCORDANCE WITH ASTM A615 GRADE 60 UNLESS NOTED OTHERWISE.

   C. APPROVED ADHESIVE ANCHORS FOR PREVIOUSLY CAST CONCRETE:

MANUFACTURER/PRODUCT	REPORT NUMBER
HILTI HIT-HY200 SSS* WITH HIT-Z ROD	ICC-ES ESR-3187
HILTI HIT-HY200 SSS* WITH HOLLOW BIT & HAS-E ROD	ICC-ES ESR-3187
HILTI HIT-HY200 SSS* WITH HOLLOW BIT & STEEL REINFORCING	ICC-ES ESR-3187

*SAFE SET SYSTEM

G. CONTRACT/CONSTRUCTION DOCUMENTS

1. THE CONTRACT DOCUMENTS SHALL INCLUDE ALL PLANS, SPECIFICATIONS, ADDENDAS, AND SUPPLEMENTAL INSTRUCTIONS.

2. THE CONTRACTOR SHALL BE RESPONSIBLE TO OBTAIN A FULL SET OF THE MOST RECENT REVISIONS OF EACH DOCUMENT.

3. THE CONTRACTOR SHALL REVIEW THE DOCUMENTS PRIOR TO FABRICATION AND/OR INSTALLATION OF ANY MATERIALS FOR CONFLICTS. IF CONFLICTS OCCUR THE CONTRACTOR SHALL USE THE MOST STRINGENT REQUIREMENT. ALTERNATELY, THE CONTRACTOR MAY REQUEST A CLARIFICATION THROUGH A REQUEST FOR INFORMATION (RFI).

4. THE DOCUMENTS MAY NOT BE REPRODUCED IN WHOLE OR IN PART FOR USE ON PROJECTS OTHER THAN IDENTIFIED IN THE TITLE BLOCK. SHOULD THE CONTRACTOR USE THE DOCUMENTS AS A PORTION OF A SHOP DRAWING SUBMITTAL, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY CONSEQUENCES RESULTING FROM ERRORS IN THE REPRODUCED DOCUMENTS.

5. DETAILS LABELED TYPICAL ARE INTENDED TO REPRESENT A CONDITION THAT OCCURS AT SEVERAL LOCATIONS IN THE PLANS WHETHER OR NOT THE DETAIL IS REFERENCED.

6. DO NOT SCALE THE PLANS AND DETAILS FOR THE PURPOSE OF ESTABLISHING DIMENSIONS.

H. CONTRACTOR'S RESPONSIBILITY

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REVIEWING ALL SUB-CONTRACTOR SUBMITTALS AND NOTING ALL CONFLICTS WITH THE CONSTRUCTION DOCUMENTS PRIOR TO SUBMITTING TO THE STRUCTURAL ENGINEER FOR REVIEW.

2. THE CONTRACTOR WILL BE SOLELY RESPONSIBLE FOR SITE SAFETY.

I. CONSTRUCTION MEANS AND METHODS ISSUES

1. SLABS ON GRADE AND ELEVATED SLABS ARE NOT DESIGNED TO SUPPORT CRANES, FORKLIFTS, TRUCKS, MANLIFTS, OR OTHER CONSTRUCTION RELATED EQUIPMENT UNLESS NOTED AS SUCH. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE IF CONSTRUCTION EQUIPMENT CAN BE SAFELY OPERATED ON THESE SLABS AND TO REPAIR ANY DAMAGE THE EQUIPMENT MAY CAUSE.

2. THE CONTRACTOR SHALL PROVIDE ANY TEMPORARY BRACING AND/OR SHORES TO SAFELY CONSTRUCT THE STRUCTURE AND PREVENT DAMAGE DURING CONSTRUCTION.

3. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND ELEVATIONS OF EXISTING CONSTRUCTION THAT MAY AFFECT THE PROJECT AND REPORT DISCREPANCIES TO THE ENGINEER. EXISTING BUILDING ELEMENTS THAT ARE TO BE ABANDONED THAT INTERFERE WITH NEW CONSTRUCTION SHALL BE REMOVED.

4. WHEN A PIECE OF EQUIPMENT IS PROVIDED THAT IS DIFFERENT THAN THE EQUIPMENT THAT THE STRUCTURE WAS DESIGNED FOR EITHER BY SIZE, WEIGHT OR CONFIGURATION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH THE REMEDY OF THE SITUATION.

J. STRUCTURAL TESTS, INSPECTIONS, AND QUALITY ASSURANCE

1. ALL STRUCTURAL TESTS AND INSPECTIONS SHALL BE PERFORMED PER CHAPTER 17 OF THE BUILDING CODE WITH LOCAL SUPPLEMENTS, UNLESS MORE STRINGENT REQUIREMENTS ARE SPECIFIED.

DAVID K. CARPENTER LICENSED 23070 03/31/2017 KANSAS PROFESSIONAL ENGINEER

No.	Revision	By	Date

WASTEWATER PLANT 2
INFLUENT FORCE MAIN – PHASE 1

STRUCTURAL GENERAL NOTES-VALVE VAULTS

GARY JANZEN, P.E. – CITY ENGINEER
CITY OF WICHITA PROJECT NO. 468-85118

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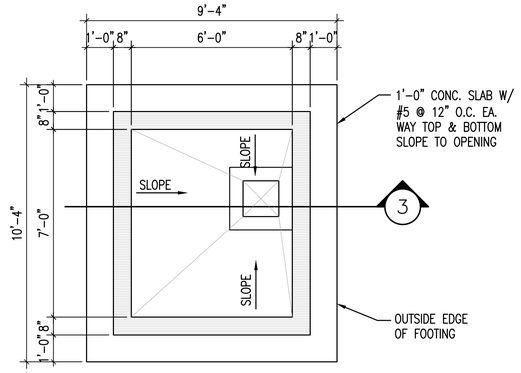
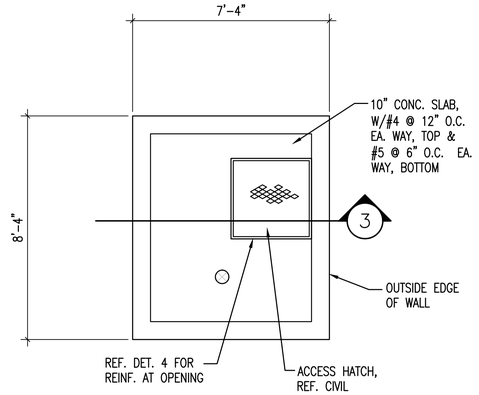
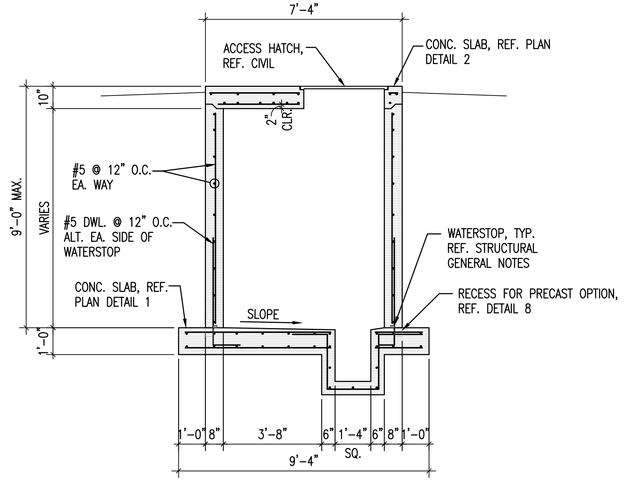
Designed by	DKC	Job No.	35-15554-1-0042
Drawn by	DGC	Date	NOVEMBER 2016



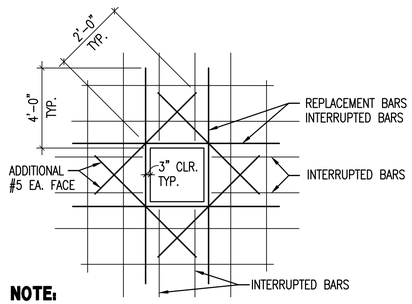
1 VAULT FOUNDATION PLAN
3/8"=1'-0"



2 VAULT COVER PLAN
3/8"=1'-0"



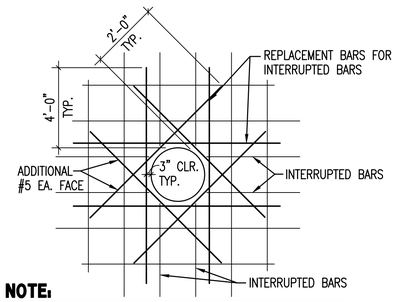
3 VAULT SECTION
3/8"=1'-0"



NOTE:

1. USE THIS DETAIL FOR ALL OPENINGS IN CONCRETE WALLS AND SLABS GREATER THAN 6", PROVIDE 2–#5 ON DIAGONAL AT EACH CORNER AS SHOWN. EXTEND BARS 2'–0" PAST OPENING. REPLACE ALL VERTICAL AND HORIZONTAL BARS INTERRUPTED BY THE OPENING WITH AN EQUAL NUMBER AND SIZE BARS EVENLY DIVIDED ON EACH SIDE OF THE OPENING UNLESS NOTED OTHERWISE.
2. REFER TO PLANS FOR OPENING LOCATIONS.

4 WALL/SLAB OPENING REINFORCING
NO SCALE



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5 WALL/SLAB OPENING REINFORCING
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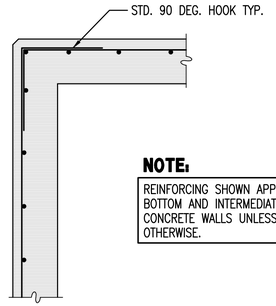
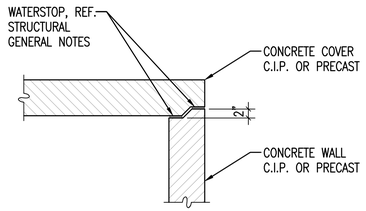


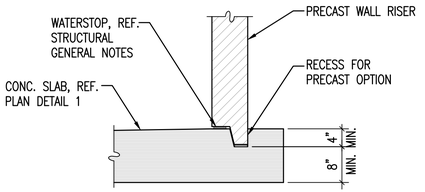
NOTE:

REINFORCING SHOWN APPLIES TO TOP, BOTTOM AND INTERMEDIATE BARS IN CONCRETE WALLS UNLESS NOTED OTHERWISE.

6 CORNER AND INTERSECTION REINF.
NO SCALE



7 COVER JOINT
3/4"=1'-0"



8 PRECAST OPTION AT CONC. SLAB
3/4"=1'-0"

DAVID K. CARPENTER LICENSED 23070 03/31/2017 KANSAS PROFESSIONAL ENGINEER

No.	Revision	By	Date

WASTEWATER PLANT 2
INFLUENT FORCE MAIN – PHASE 1
STRUCTURAL PLANS AND DETAILS
AIR RELIEF VALVE VAULT
GARY JANZEN, P.E. – CITY ENGINEER
CITY OF WICHITA PROJECT NO. 468–85118

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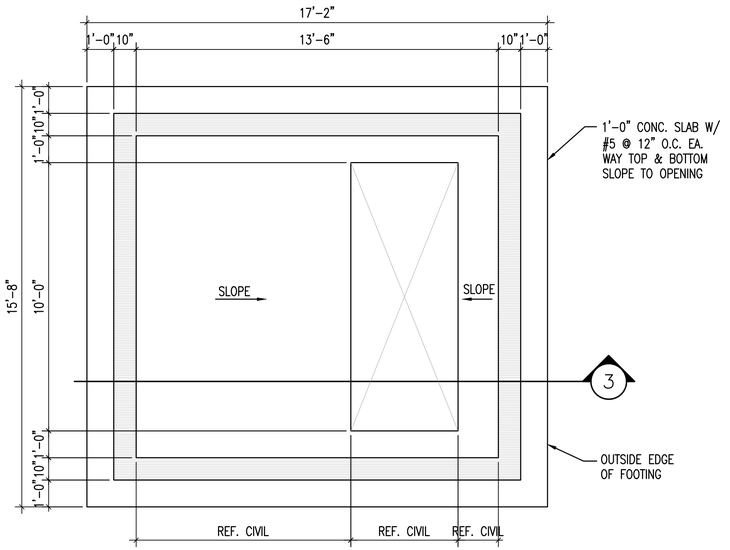
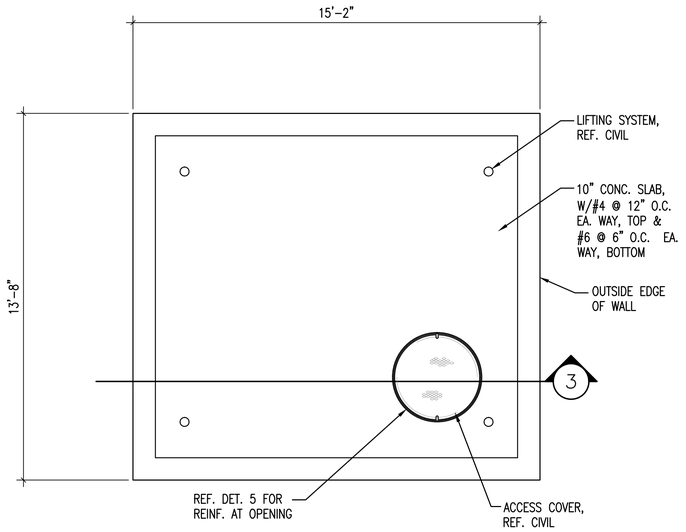


1 VAULT FOUNDATION PLAN
3/8"=1'-0"



2 VAULT COVER PLAN
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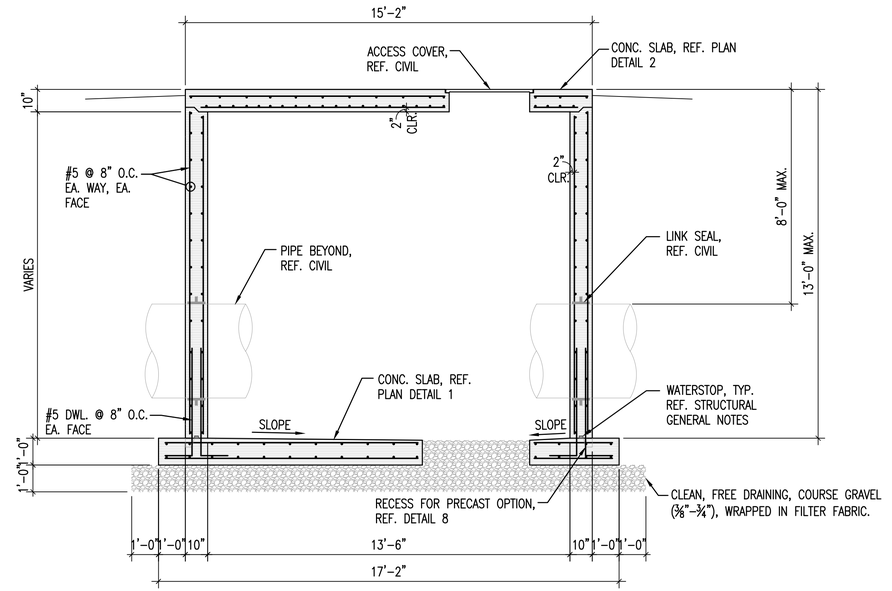
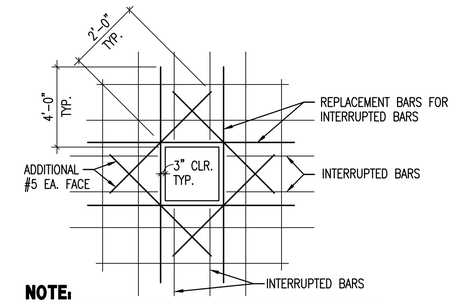


3 VAULT SECTION
3/8"=1'-0"



NOTE:

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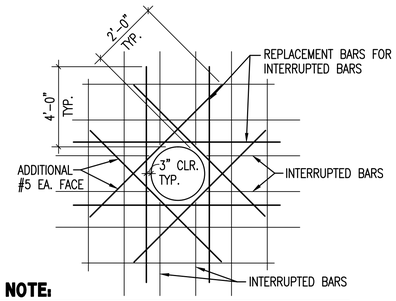
2. REFER TO PLANS FOR OPENING LOCATIONS.

4 WALL/SLAB OPENING REINFORCING
NO SCALE



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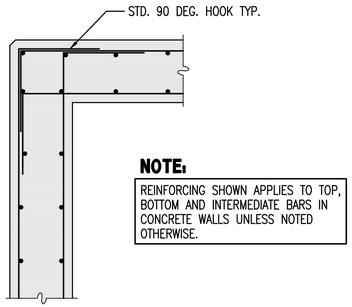
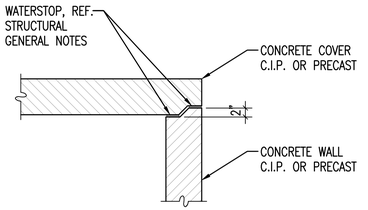
5 WALL/SLAB OPENING REINFORCING
NO SCALE



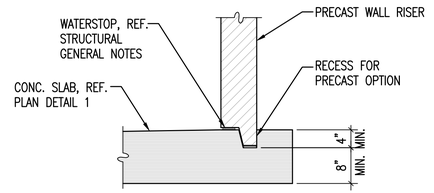
NOTE:

REINFORCING SHOWN APPLIES TO TOP, BOTTOM AND INTERMEDIATE BARS IN CONCRETE WALLS UNLESS NOTED OTHERWISE.

6 CORNER AND INTERSECTION REINF.
NO SCALE



7 COVER JOINT
3/4"=1'-0"



8 PRECAST OPTION AT CONC. SLAB
3/4"=1'-0"

No.	Revision	By	Date

WASTEWATER PLANT 2
INFLUENT FORCE MAIN – PHASE 1
STRUCTURAL PLANS AND DETAILS
LINE VALVE VAULT
GARY JANZEN, P.E. – CITY ENGINEER
CITY OF WICHITA PROJECT NO. 468–85118

DAVID K. CARPENTER LICENSED 23070 03/31/2017 KANSAS PROFESSIONAL ENGINEER

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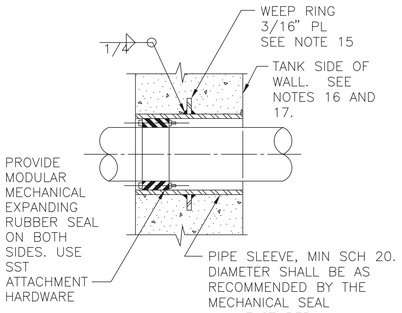
316-262-2691 www.pec1.com

Designed by	DKC	Job No.	35–15554–1–0042
Drawn by	DGC	Date	NOVEMBER 2016

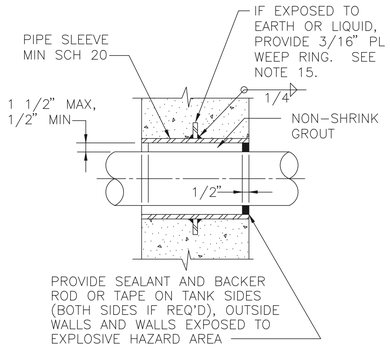


FOR WALLS

TYPE D PIPE PENETRATION

DETAIL A VAR

SCALE: NONE

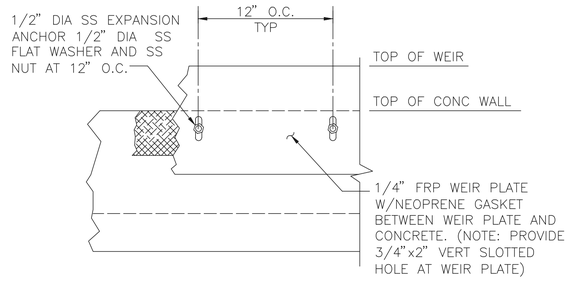


FOR WALLS

TYPE E PIPE PENETRATION

DETAIL B VAR

SCALE: NONE



NOTE: ALL METAL BOLTS, WASHERS, NUTS AND FASTENERS SHOWN SHALL BE TYPE 316 S.S.

TYPICAL WEIR PLATE CONNECTION

DETAIL C VAR

SCALE: NONE

PIPE PENETRATION TYPES					
CONDITION			TYPE		
	FROM	TO	STEEL PIPE	CAST IRON	PLASTIC PIPE
1	TANK	TANK BELOW W.S.	E	E	E
2	TANK	TANK ABOVE W.S.	D OR E	D OR E	D OR E
3	PASSAGE	TANK BELOW W.S.	E	E	E
4	PASSAGE	TANK ABOVE W.S.	D OR E	D OR E	D OR E
5	PASSAGE	PASSAGE	B OR C SEE NOTE 6	B OR C SEE NOTE 6	B OR C SEE NOTE 6
6	PASSAGE	OUTSIDE WALL	D OR E	D OR E	D OR E

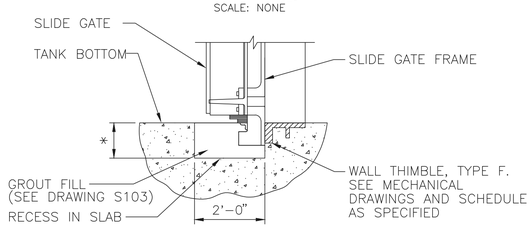
PIPE PENETRATION NOTES:

1. WHERE PIPES PASS THROUGH WALLS, FLOORS, OR CEILINGS, PENETRATIONS SHALL CONFORM TO TABLE, EXCEPT AS OTHERWISE SPECIFIED.
2. IN TABLE, "TANK" SHALL MEAN ANY PART OF A STRUCTURE CONTAINING LIQUID, OR IN CONTACT WITH THE EARTH.
3. IN TABLE, "PASSAGE" SHALL MEAN ANY ROOM, GALLERY, TUNNEL, OR SIMILAR ENCLOSURE.
4. IN TABLE, WATER SURFACE "WS" SHALL MEAN AN ELEVATION 9-INCHES ABOVE MAXIMUM WATER SURFACE SHOWN.
5. ALL STEEL SLEEVES SHALL BE HOT DIPPED GALVANIZED AFTER FABRICATION.
6. IN CONDITION 5, PENETRATION TYPE E,H,J, OR K SHALL BE USED WHERE ONE SIDE IS DESIGNATED AS HAZARDOUS (CLASSIFIED), WHERE FLOODING IS POSSIBLE, OR WHERE SPECIFIED.
7. SEAL FLANGES SHALL BE FACED AND DRILLED TO 150 POUND STANDARD. EACH JOINT SHALL BE FULL FACE GASKETED.
8. WHERE SPECIFIED, CAST IRON FLANGES MAY BE INSTALLED FLUSH WITH WALL AND TAPPED FOR STUDS.
9. PROVIDE CURB WHERE PENETRATING FLOOR, EXCEPT FOR PENETRATION TYPES A AND C. CURB SHALL BE 4" HIGH BY 3" WIDE.
10. PROVIDE A MINIMUM OF 3" CLEARANCE BETWEEN REINFORCING STEEL AND FERROUS METAL PENETRATIONS.
11. FLEXIBLE JOINTS SHALL BE PROVIDED FOR UNDERGROUND PIPING AS SPECIFIED.
12. RESTRAINED FLEXIBLE COUPLINGS FOR STEEL PIPE SHALL BE DESIGNED FOR 100 PSI LINE PRESSURE IN ACCORDANCE WITH AWWA MANUAL MII, FIGURES 19.15 AND 19.16. AWWA MANUAL M11, TABLE 19.7 SHALL BE UTILIZED.
13. UNLESS OTHERWISE SPECIFIED, INSULATION SHALL NOT EXTEND THROUGH SLEEVES. CHILLED WATER MUST PENETRATE WITH INSULATION.
14. WHERE CAST IRON PIPE IS EMBEDDED IN CONCRETE AT AN EXPANSION JOINT, USE TYPE L PENETRATION.
15. WEEP RINGS SHALL HAVE A MINIMUM DIAMETER 3-INCHES GREATER THAN THE OUTSIDE PIPE DIAMETER.
16. "TANK SIDE OF WALL" SHALL MEAN SIDE OF WALL NORMALLY EXPOSED TO LIQUID, EARTH, OR OUTSIDE ATMOSPHERE.
17. SEAL WITH MASTIC SEALANT WHERE WALL IS EXPOSED TO LIQUID, EARTH, OR A HAZARDOUS (CLASSIFIED) AREA.

PENETRATION TYPES AND STANDARD NOTES

DETAIL D VAR

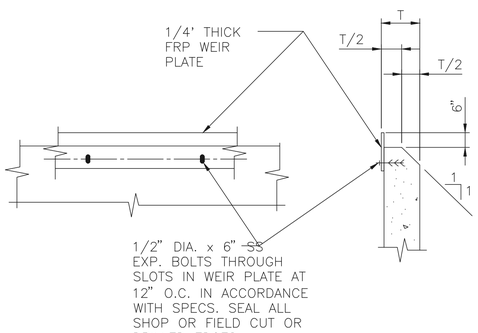
SCALE: NONE



FLUSH BOTTOM CLOSURE FOR SLIDE GATE

DETAIL H VAR

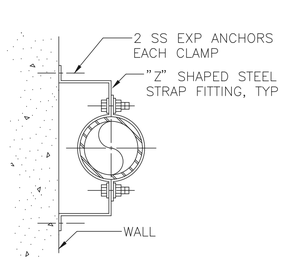
SCALE: NONE



TYPICAL WEIR PLATE

DETAIL E VAR

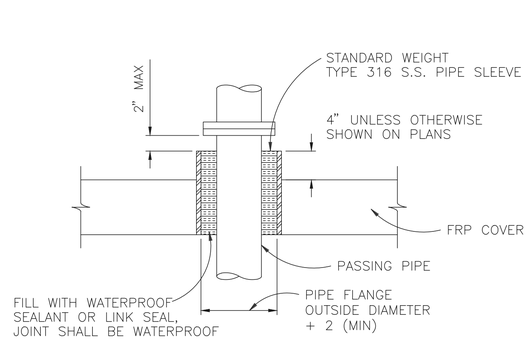
SCALE: NONE



FOR VERTICAL PIPE ONLY
3/4" THROUGH 8" PIPE
TYPE 11 OFFSET PIPE CLAMP

DETAIL F VAR

SCALE: NONE



FLOOR SLEEVE

DETAIL G VAR

SCALE: NONE

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No.	Revision	By	Date

WASTEWATER PLANT 2
INFLUENT FORCE MAIN – PHASE 1

STANDARD DETAILS 1

GARY JANZEN, P.E. – CITY ENGINEER
CITY OF WICHITA PROJECT NO. 468-85118

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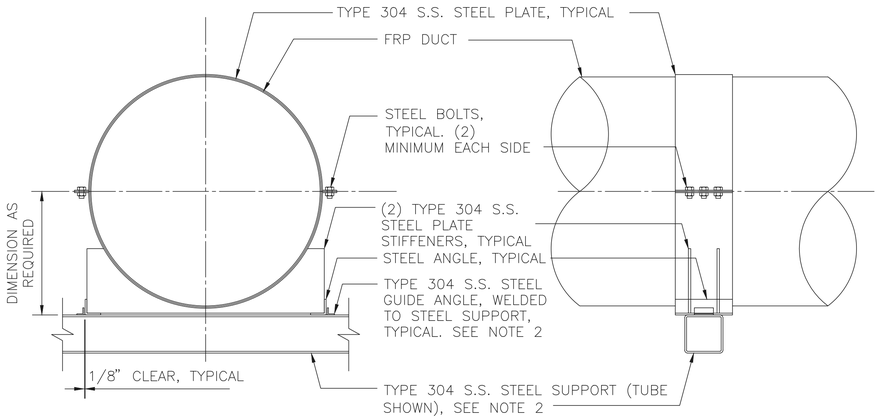
Designed by	E.DESOUZA	Job No.	35-15554-1-0042
Drawn by	T.DIMICELI	Date	MARCH 2017

Sht. M001 of 58

Saved: 03-24-2017 3:19:48 AM by TDIMICELI
Print Date: 03/24/2017 10:06:01 AM by KURTIS.DEKAT
P:\Jobs\GEN Wichita\149376_66-inch Forcemain Design_CAD\2-Sheets\M-Mechanical\M001



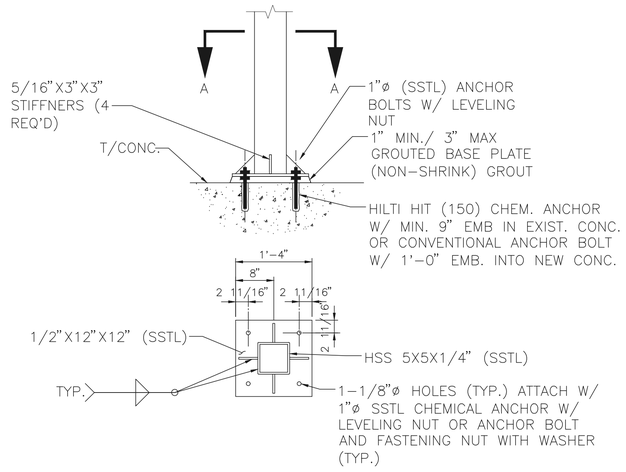
SECTION ELEVATION

NOTES:

1. FRP DUCT GUIDE SHALL BE FIGURE D90 AS DESIGNED AND FABRICATED BY BRITT ENGINEERING, BIRMINGHAM, ALABAMA OR EQUAL.
2. FRP DUCT GUIDE SHALL BE TYPE 304 S.S.
3. ALL METAL BOLTS, WASHERS, NUTS AND FASTENERS SHALL BE TYPE 304 S.S.

FRP DUCT GUIDE DETAIL A VAR

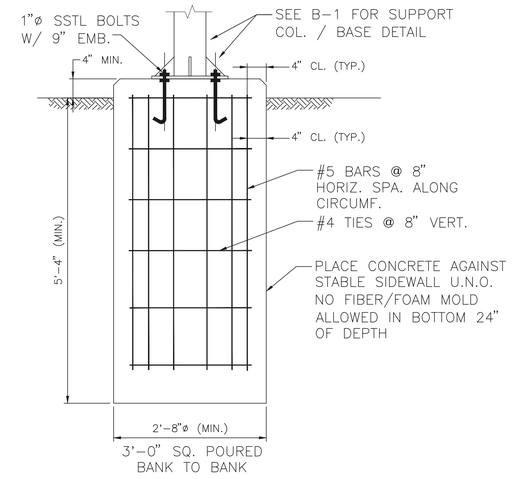
SCALE: NONE



SECTION "A-A"

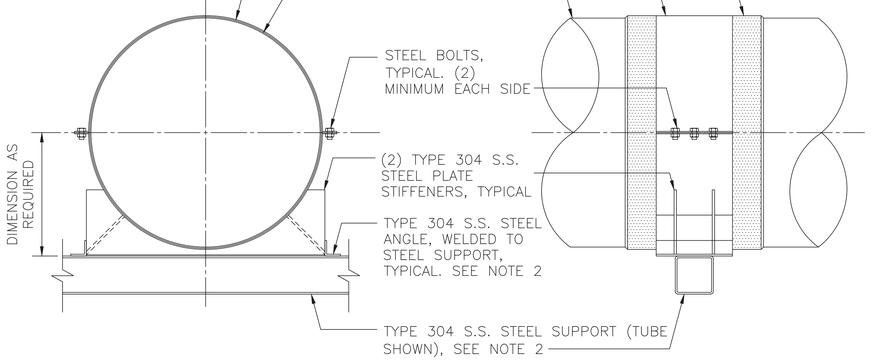
PIPE SUPPORT DETAIL C VAR

SCALE: NONE



PIPE SUPPORT DETAIL D VAR

SCALE: NONE



SECTION ELEVATION

NOTES:

1. FRP DUCT GUIDE SHALL BE FIGURE D90 AS DESIGNED AND FABRICATED BY BRITT ENGINEERING, BIRMINGHAM, ALABAMA OR EQUAL.
2. FRP DUCT GUIDE SHALL BE TYPE 304 S.S.
3. ALL METAL BOLTS, WASHERS, NUTS AND FASTENERS SHALL BE TYPE 304 S.S.

FRP DUCT ANCHOR DETAIL B VAR

SCALE: NONE

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ALLEN PAUL SEMAN LICENSED 24989 KANSAS PROFESSIONAL ENGINEER 3/23/2017

No.	Revision	By	Date

WASTEWATER PLANT 2
INFLUENT FORCE MAIN – PHASE 1

STANDARD DETAILS 2

GARY JANZEN, P.E. – CITY ENGINEER
CITY OF WICHITA PROJECT NO. 468-85118

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Designed by	E.DESOUZA	Job No.	35-15554-1-0042
Drawn by	T.DIMICELI	Date	MARCH 2017

Sht. M002 of 58

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Plotted 03-24-2017 10:47:01 AM by TDIMICELI
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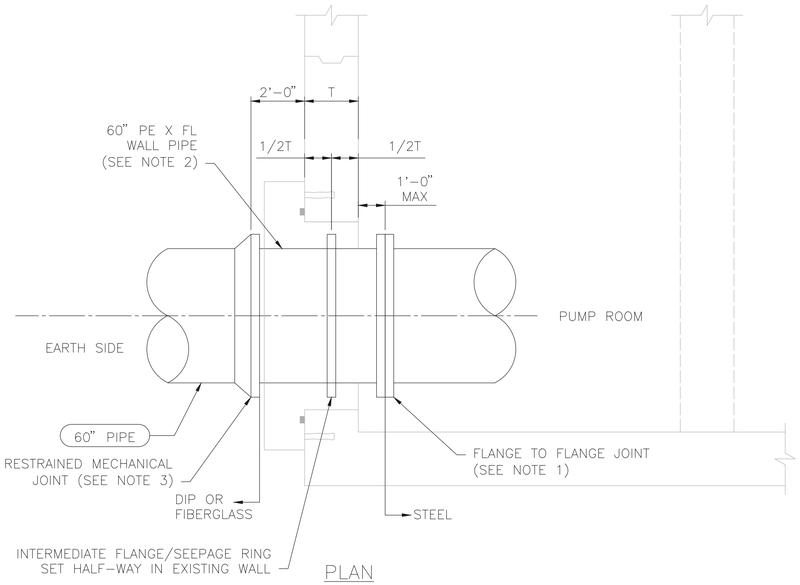
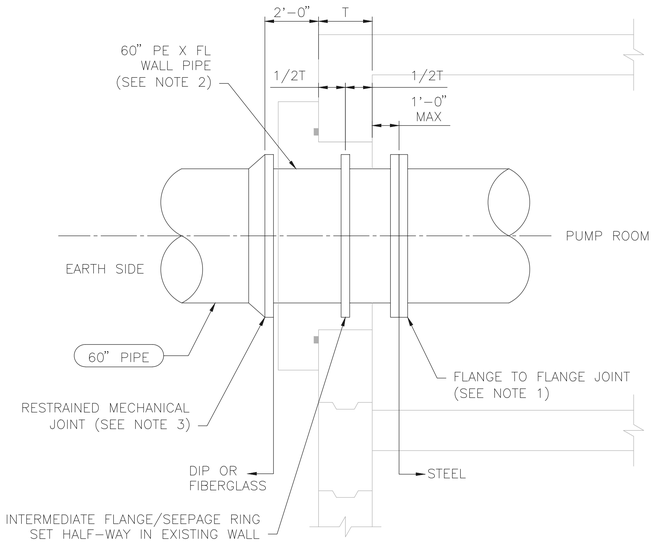


PLAN



SECTION

NOTES:
1. COORDINATE BOLT HOLE LOCATIONS BETWEEN DIFFERENT PIPE MATERIALS.
2. COAT WALL PIPE WITH SYSTEM SPECIFIED IN SECTION 33 05 31.
3. PROVIDE EQUIVALENT RESTRAINED JOINT SHOULD FIBERGLASS PIPE BE USED.

60" DIP PE X FL WALL PIPE AT PUMP STATION

DETAIL A VAR

SCALE: NONE

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ALLEN PAUL SEHL JR. LICENSED 24969 3/23/2017 KANSAS PROFESSIONAL ENGINEER

No.	Revision	By	Date

WASTEWATER PLANT 2
INFLUENT FORCE MAIN – PHASE 1

STANDARD DETAILS 3

GARY JANZEN, P.E. – CITY ENGINEER
CITY OF WICHITA PROJECT NO. 468-85118

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Designed by	E.DESOUZA	Job No.	35-15554-1-0042	Sht. M003 of 58
Drawn by	T.DIMICELI	Date	MARCH 2017	

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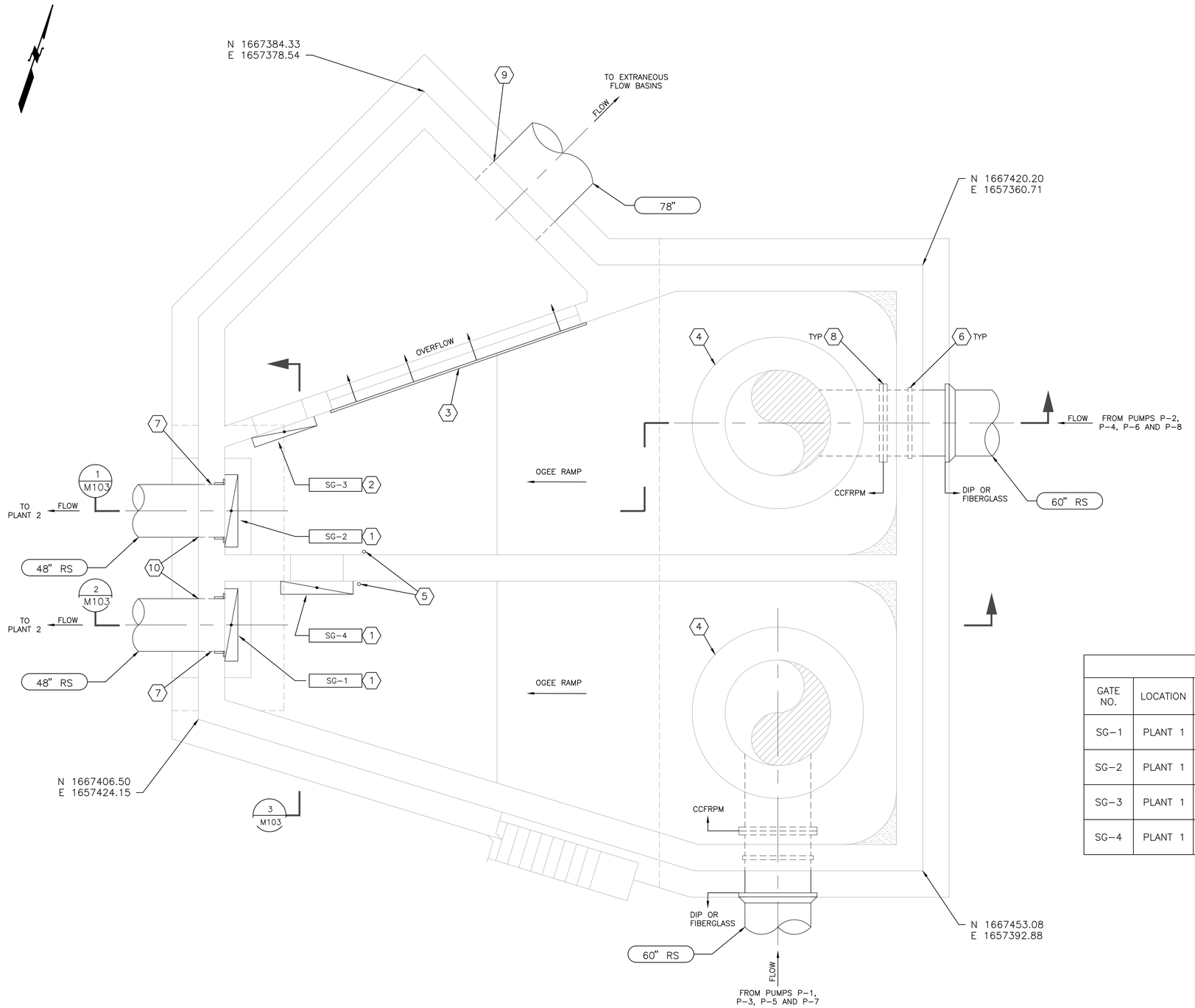

LOWER LEVEL PLAN
SCALE: 1/4" = 1'-0"

GENERAL NOTES:

1. TEMPORARY BYPASS SYSTEM MUST BE IN OPERATION PRIOR TO CONNECTION OF 60" DIA. PRESSURIZED LINES TO EXISTING PUMP STATION.
2. BURIED RAW SEWAGE (RS) PRESSURE PIPING SHALL BE DUCTILE IRON PIPE OR FIBERGLASS PIPE WITH RESTRAINED JOINTS AS SPECIFIED. CONCRETE THRUST BLOCKS SHALL NOT BE USED.

(X) KEY NOTES:

1. SELF CONTAINED FLUSH BOTTOM GATE MOUNTED ON WALL THIMBLE
2. SELF CONTAINED DOWNWARD OPENING WEIR GATE
3. FRP WEIR PLATE. SEE DETAIL C&E/M001
4. CCFRPM PIPE ELBOW AND INCREASER. SEE SECTION 1/M103
5. 1 1/2" DIA. SCHEDULE 80 PVC PIPE FOR SAMPLER TUBING. MOUNT PER DETAIL F/M001
6. 60" DIP FL X MJ WALL PIPE. SEE DETAIL A/M003
7. PIPE PENETRATION WITH SLIDE GATE WALL THIMBLE. SEE DETAIL H/M001
8. COORDINATE BOLT HOLE LOCATIONS BETWEEN DIFFERENT PIPE MATERIALS. FASTEN/TIGHTEN ALL PIPE FLANGE CONNECTION BOLTS BEFORE PLACING CONCRETE FILL
9. PROVIDE PIPE SLEEVE FOR CONNECTION OF 78" EXTRANEOUS FLOW PIPE
10. PROVIDE PIPE SLEEVES FOR CONNECTION OF 48" RS PIPES

GATE SCHEDULE

GATE NO.	LOCATION	SERVICE	SIZE (IN) (WxH)	SEATING HEAD (FT)	LW SEATING HEAD (FT)	OPERATOR	REMARKS
SG-1	PLANT 1	RAW SEWAGE	48"x48"	21.5	21.5	ELECTRIC ACTUATOR	SS, RISING STEM, SELF CONTAINED, WALL THIMBLE TYPE F
SG-2	PLANT 1	RAW SEWAGE	48"x48"	21.5	21.5	ELECTRIC ACTUATOR	SS, RISING STEM, SELF CONTAINED, WALL THIMBLE TYPE F
SG-3	PLANT 1	RAW SEWAGE	48"x60"	10.0	10.0	ELECTRIC ACTUATOR	SS, RISING STEM, SELF CONTAINED, WEIR GATE
SG-4	PLANT 1	RAW SEWAGE	60"x72"	10.0	10.0	ELECTRIC ACTUATOR	SS, RISING STEM, SELF CONTAINED, WALL THIMBLE TYPE F

Brown AND Caldwell

ALLEN PAUL SCHLEGEL LICENSED 24988 PROFESSIONAL ENGINEER STATE OF KANSAS 12/23/2017

No.	Revision	By	Date

WASTEWATER PLANT 2
INFLUENT FORCE MAIN - PHASE 1
DIVERSION STRUCTURE
LOWER LEVEL PLAN
GARY JANZEN, P.E. - CITY ENGINEER
CITY OF WICHITA PROJECT NO. 468-85118

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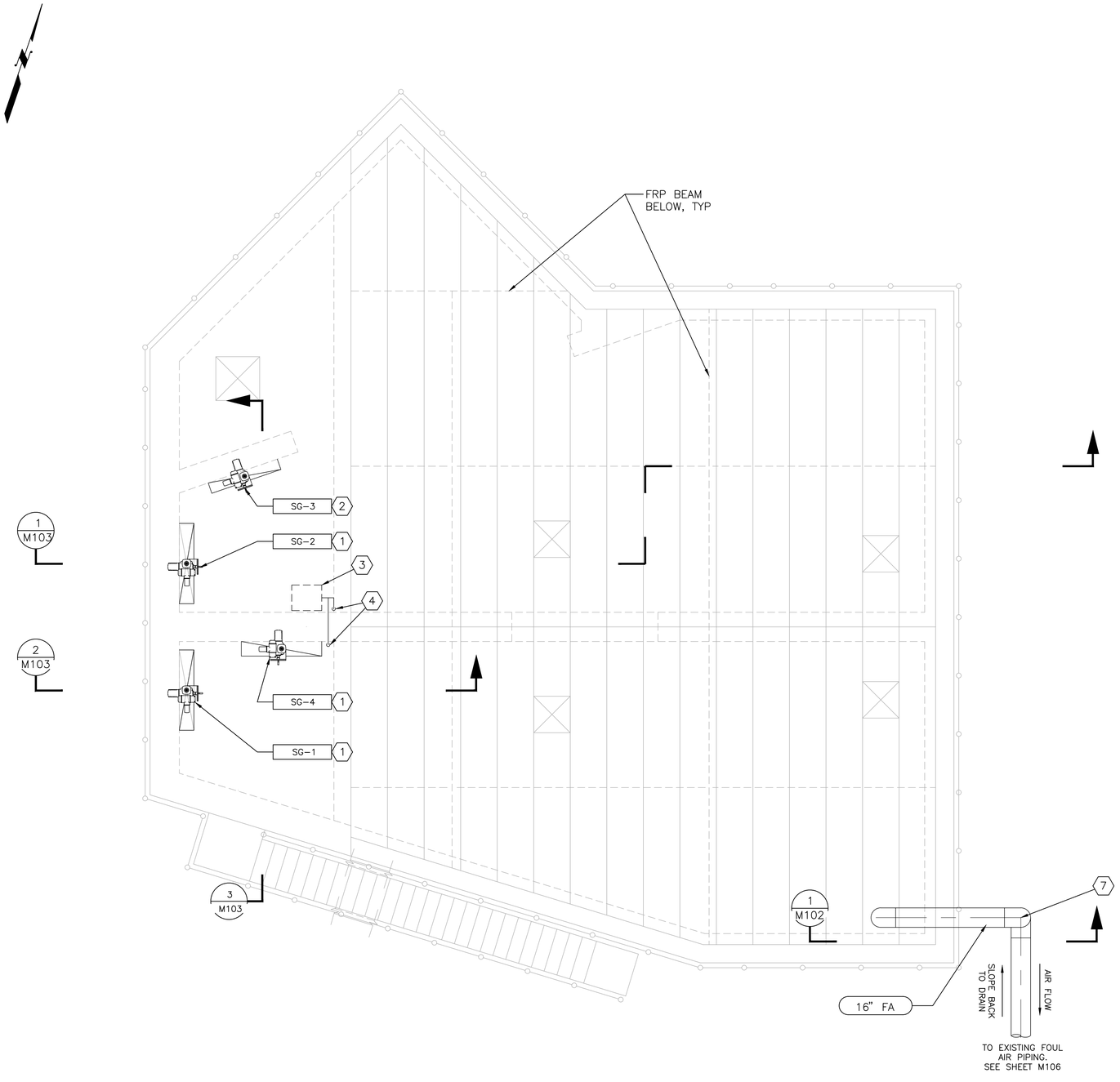
Designed by	E.DESOUZA	Job No.	35-15554-1-0042
Drawn by	T.DIMICELI	Date	MARCH 2017

Sht. M101 of 58

Saved: 04-06-2017 10:09:42 AM by: EDESOUZA
Print Date: 11-Apr-2017 10:09:24 AM by: AURTIS.DEKAT
P:\Data\CEN\Wichita\149326_66-inch Forcemain Design_CAD\2-Sheets\M-Mechanical\M101



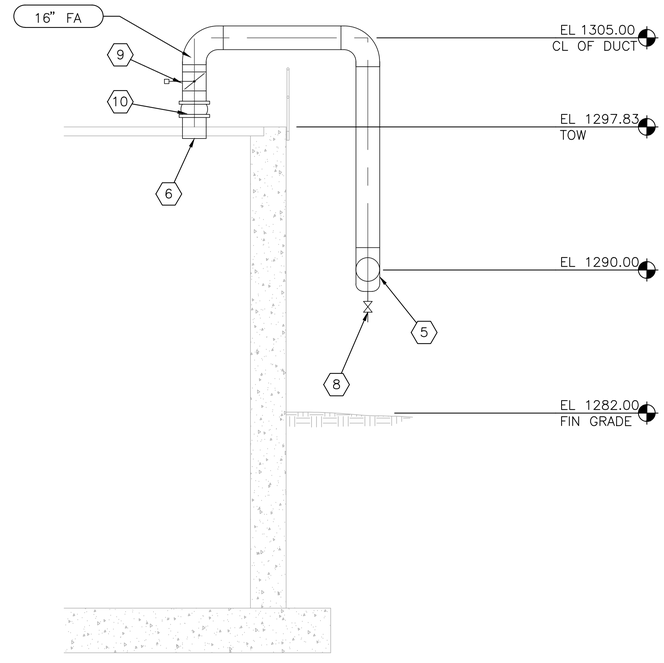
UPPER LEVEL PLAN
SCALE: 1/4" = 1'-0"

GENERAL NOTES:

1. FRP COVER PER SECTION 06 83 20.
2. SLOPE ALL FA DUCTWORK BACK TO DRAIN AT 1" PER FOOT.
3. FA DUCTWORK PIPE PER SECTION 23 31 16.16.
4. PROVIDE DUCT SUPPORTS AS SHOWN ON DRAWING M002. AT A MINIMUM, DUCT SUPPORTS SHALL BE PROVIDED AT THE TOP OF STRUCTURE WALLS AND AT CHANGES IN DUCT DIRECTION. MAXIMUM SUPPORT SPACING SHALL BE 20 FEET.

(X) KEY NOTES:

1. SELF CONTAINED FLUSH BOTTOM GATE MOUNTED ON WALL THIMBLE
2. SELF CONTAINED DOWNWARD OPENING WEIR GATE
3. SAMPLER (PROVIDED BY OWNER)
4. 1 1/2" DIA. SCHEDULE 80 PVC PIPE FOR SAMPLER TUBING. EXTEND THROUGH CONCRETE PER DETAIL G/M001
5. PROVIDE SUPPORT AS SHOWN IN PLAN ON M106 AND DETAILS ON M002
6. 16" FA DUCTWORK TO EXTEND THROUGH FRP COVER
7. 90 DEGREE 16" DIA. BEND
8. 16" TEE WITH DISHED HEAD ON BOTTOM LEG. 1" DIA. CONDENSATE DRAIN WITH 1" DIA. SS BALL VALVE. COORDINATE ELEVATION / LOCATION OF VALVE WITH ENGINEER IN THE FIELD
9. 8" DAMPER
10. FLEXIBLE DUCT CONNECTION



SECTION 1/M102
SCALE: 1/4" = 1'-0"

Brown AND Caldwell

ALLEN PAUL SEMLER
LICENSED
24988
12/31/2017
KANSAS
PROFESSIONAL ENGINEER

No.	Revision	By	Date

WASTEWATER PLANT 2
INFLUENT FORCE MAIN – PHASE 1
DIVERSION STRUCTURE
UPPER LEVEL PLAN
GARY JANZEN, P.E. – CITY ENGINEER
CITY OF WICHITA PROJECT NO. 468-85118

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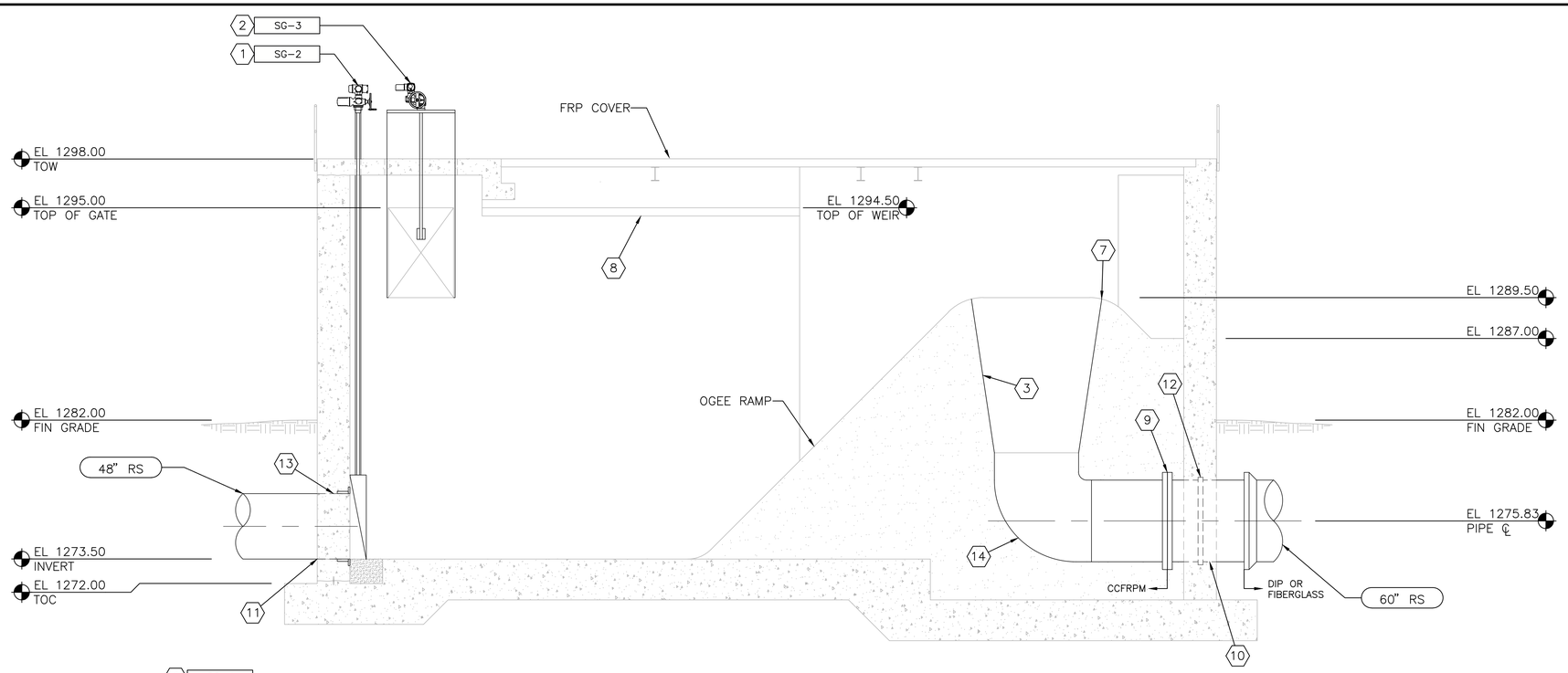
316-262-2691 www.pec1.com

Designed by	E.DESOUZA	Job No.	35-15554-1-0042
Drawn by	T.DIMICELI	Date	MARCH 2017

Sht. M102 of 58

Saved: 03-24-2017 9:24:48 AM By: TDIMICELI
Plotted: 03-24-2017 09:26 AM By: KURTIS.DEKAT
P:\Data\GEN\Wichita\149326_66-inch Forcemain Design_CAD\2-Sheets\M-Mechanical\M102

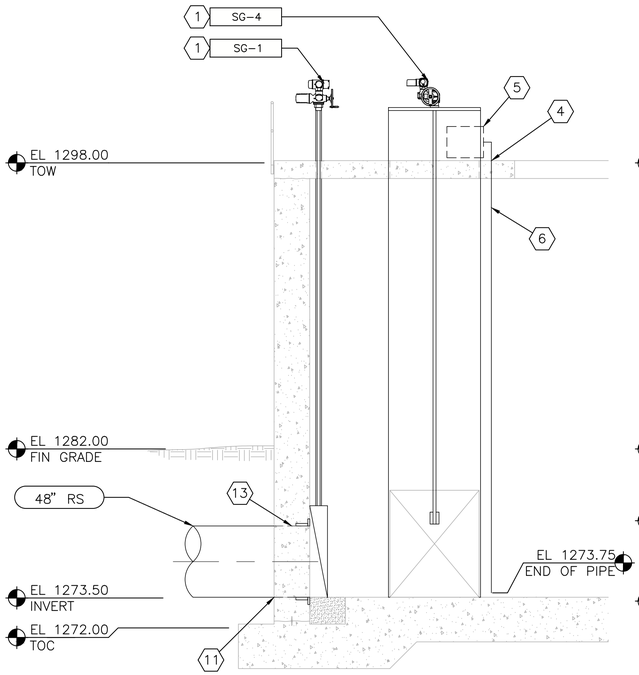


GENERAL NOTES:

1. BURIED RAW SEWAGE (RS) PIPING SHALL BE DUCTILE IRON PIPE OR FIBERGLASS PIPE WITH RESTRAINED JOINTS AS SPECIFIED. CONCRETE THRUST BLOCKS SHALL NOT BE USED.
2. PROVIDE FA DUCTWORK SUPPORTS AS SHOWN ON DRAWING M002. AT A MINIMUM, DUCT SUPPORTS SHALL BE PROVIDED AT THE TOP OF STRUCTURE WALLS AND AT CHANGES IN DUCT DIRECTION. MAXIMUM SUPPORT SPACING SHALL BE 20 FEET.

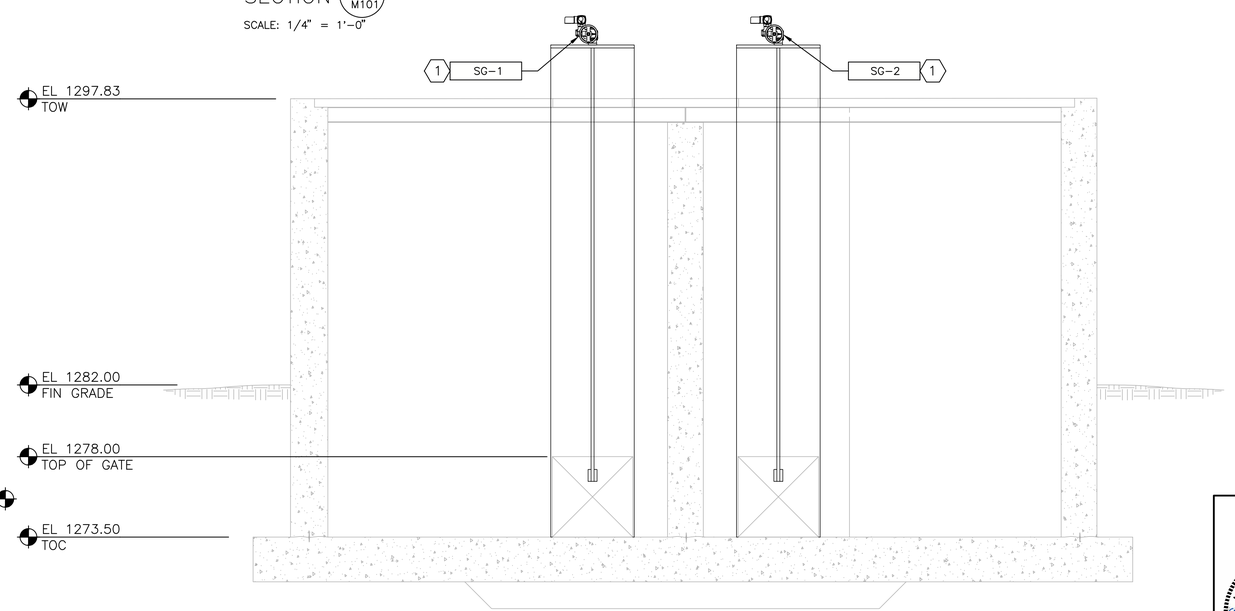
(X) KEY NOTES:

1. SELF CONTAINED FLUSH BOTTOM GATE MOUNTED ON WALL THIMBLE
2. SELF CONTAINED DOWNWARD OPENING WEIR GATE
3. CCFRPM 60"X84" INCREASER
4. SEE DETAIL G/M001 FOR FLOOR SLEEVE
5. SAMPLER (PROVIDED BY OWNER). CONTRACTOR TO INSTALL AT LOCATION DETERMINED BY ENGINEER
6. MOUNT 1 1/2" DIA. SCHEDULE 80 PVC PIPE FOR SAMPLER TUBING NEAR SLIDE GATE SG-4 (BOTH SIDES). PIPING SHALL BE MOUNTED A MAXIMUM DISTANCE OF 3" ABOVE THE FLOOR AT EL. 1273.75
7. MORNING GLORY WEIR
8. FRP WIER. SEE DETAILS C&E/M001
9. COORDINATE BOLT HOLE LOCATIONS BETWEEN DIFFERENT PIPE MATERIALS. FASTEN/TIGHTEN ALL PIPE FLANGE CONNECTION BOLTS BEFORE PLACING CONCRETE FILL
10. 60" DIP FL X MJ WALL PIPE
11. PROVIDE PIPE SLEEVES FOR CONNECTION OF 48" RS PIPE
12. SEEPAGE RING SET HALF WAY IN WALL
13. PIPE PENETRATION WITH SLIDE GATE WALL THIMBLE. SEE DETAIL H/M001
14. CCFRPM 60"ø 90° BEND



SECTION 2 / M101
SCALE: 1/4" = 1'-0"

SECTION 1 / M101
SCALE: 1/4" = 1'-0"



SECTION 3 / M101
SCALE: 1/4" = 1'-0"

Brown AND Caldwell

ALLEN PAUL SEMAN
LICENSED
24989
PROFESSIONAL ENGINEER
KANSAS
3/23/2017

No.	Revision	By	Date

WASTEWATER PLANT 2
INFLUENT FORCE MAIN – PHASE 1
DIVERSION STRUCTURE
SECTIONS
GARY JANZEN, P.E. – CITY ENGINEER
CITY OF WICHITA PROJECT NO. 468-85118

PEC
PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
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Designed by	E.DESOUZA	Job No.	35-15554-1-0042
Drawn by	T.DIMICELI	Date	MARCH 2017

Sht. M103 of 58

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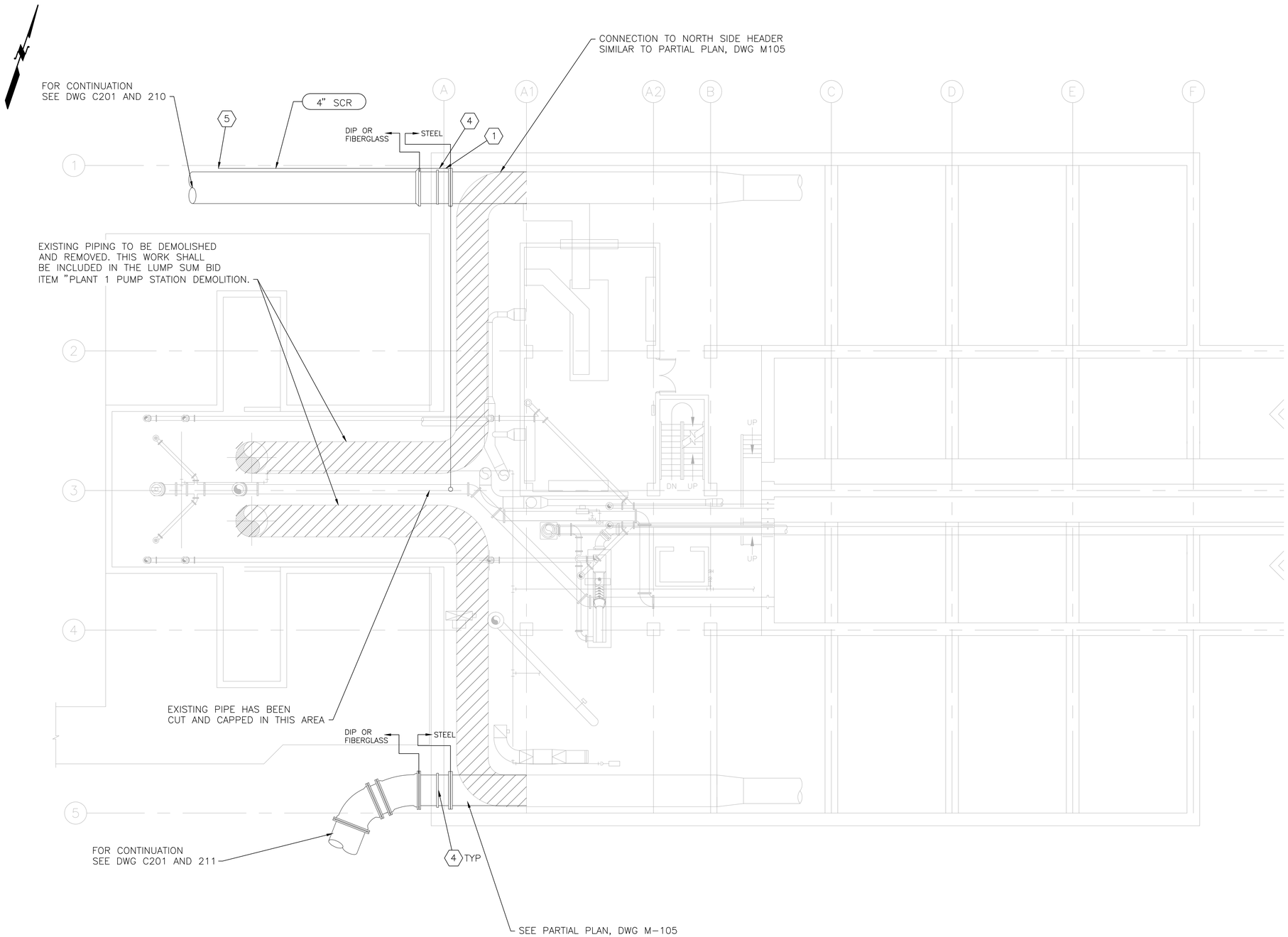

INTERMEDIATE LEVEL FLOOR PLAN

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

GENERAL NOTES:

1. COORDINATE CONNECTION OF NEW SCR PIPE TO EXISTING PIPE WITH OWNER. LIMIT OUTAGE FOR CONNECTION TO NO MORE THAN 2 HOURS.
2. EXISTING 4" SCR IS STEEL PIPE. NEW 4" SCR SHALL BE SCHEDULE 80# PVC.
3. PROVIDE NEW PIPE SUPPORTS FOR 4" SCR. ROUTE PIPE A MINIMUM OF 7' ABOVE EXISTING FLOOR.

(X) KEY NOTES:

1. SEE PHOTO 1/M104
2. REMOVE EXISTING 4" SCR PIPE. CUT AND CAP AT CEILING
3. CONNECT NEW 4" SCR AT EXISTING GROOVED COUPLING
4. 60" DIP FL X MJ WALL PIPE. SEE DETAIL A/M003
5. FOR CONTINUATION, SEE DWG C210

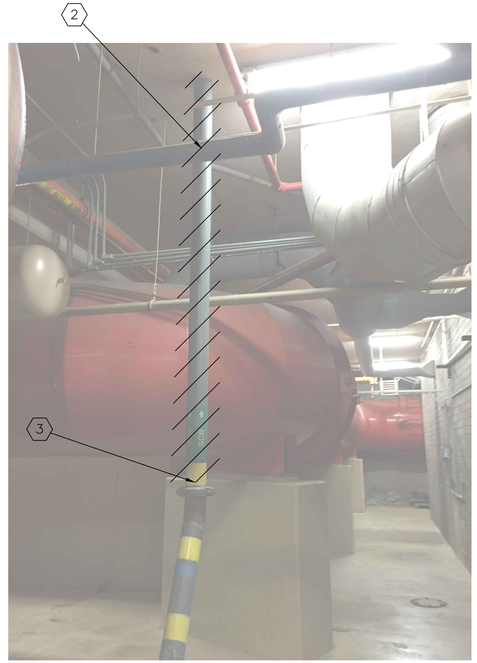

PHOTO 1– 4" SCR PIPE DEMOLITION

SCALE: NOT TO SCALE

No.	Revision	By	Date

WASTEWATER PLANT 2
INFLUENT FORCE MAIN – PHASE 1
PLANT 1 PUMPING STATION
INTERMEDIATE LEVEL OVERVIEW PLAN
GARY JANZEN, P.E. – CITY ENGINEER
CITY OF WICHITA PROJECT NO. 468-85118

ALLEN PAUL SEVILLA LICENSED 24969 PROFESSIONAL ENGINEER KANSAS 3/23/2017

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Drawn by	T.DIMICELI	Date	MARCH 2017	

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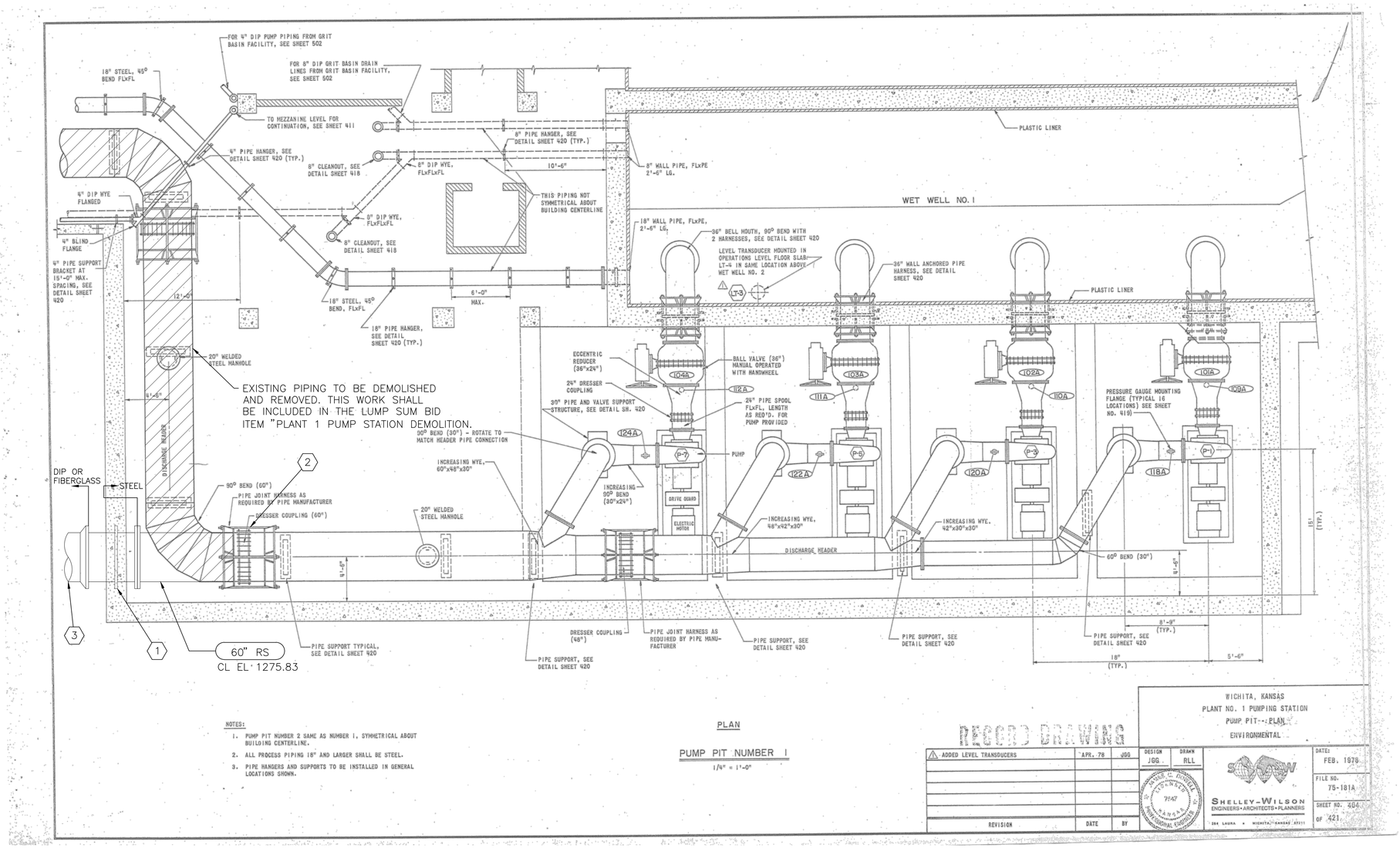
GENERAL NOTES:

A. SOUTH SIDE OF PUMPING STATION SHOWN. CONNECTION TO THE HEADER ON THE NORTH SIDE OF THE STATION IS SIMILAR.

B. FIELD VERIFY PIPING ELEVATIONS AND DIMENSIONS PRIOR TO FABRICATION.

(X) KEY NOTES:

1. 60" DIP FL X MJ WALL PIPE. SEE DETAIL A/M003
2. RESTRAINED SLEEVE–TYPE COUPLING FOR STEEL TO STEEL PIPE CONNECTION
3. FOR CONTINUATION, SEE DRAWING C201, 210 AND 211



NOTES:

1. PUMP PIT NUMBER 2 SAME AS NUMBER 1, SYMMETRICAL ABOUT BUILDING CENTERLINE.
2. ALL PROCESS PIPING 18" AND LARGER SHALL BE STEEL.
3. PIPE HANGERS AND SUPPORTS TO BE INSTALLED IN GENERAL LOCATIONS SHOWN.

PLAN

PUMP PIT NUMBER 1

1/4" = 1'-0"

RECORD DRAWING

REVISION	DATE	BY
ADDED LEVEL TRANSDUCERS	APR. 78	JGG

DESIGN JGG | DRAWN RLL

DATE: FEB. 1978

FILE NO. 75-181A

SHEET NO. 404 OF 421

WICHITA, KANSAS
PLANT NO. 1 PUMPING STATION
PUMP PIT--PLAN
ENVIRONMENTAL

SHELLEY-WILSON
ENGINEERS • ARCHITECTS • PLANNERS
384 LAURA • WICHITA, KANSAS 67211

JAMES C. HUNTER 7147 REGISTERED PROFESSIONAL ENGINEER STATE OF KANSAS

INTERMEDIATE LEVEL FLOOR PLAN

SCALE: NTS

No.	Revision	By	Date

WASTEWATER PLANT 2
INFLUENT FORCE MAIN – PHASE 1
PLANT 1 PUMPING STATION
INTERMEDIATE LEVEL PARTIAL PLAN
GARY JANZEN, P.E. – CITY ENGINEER
CITY OF WICHITA PROJECT NO. 468–85118

ALLEN PAUL BENDORF LICENSED 24966 PROFESSIONAL ENGINEER KANSAS 3/23/2017

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Drawn by	T.DIMICELI	Date	MARCH 2017	

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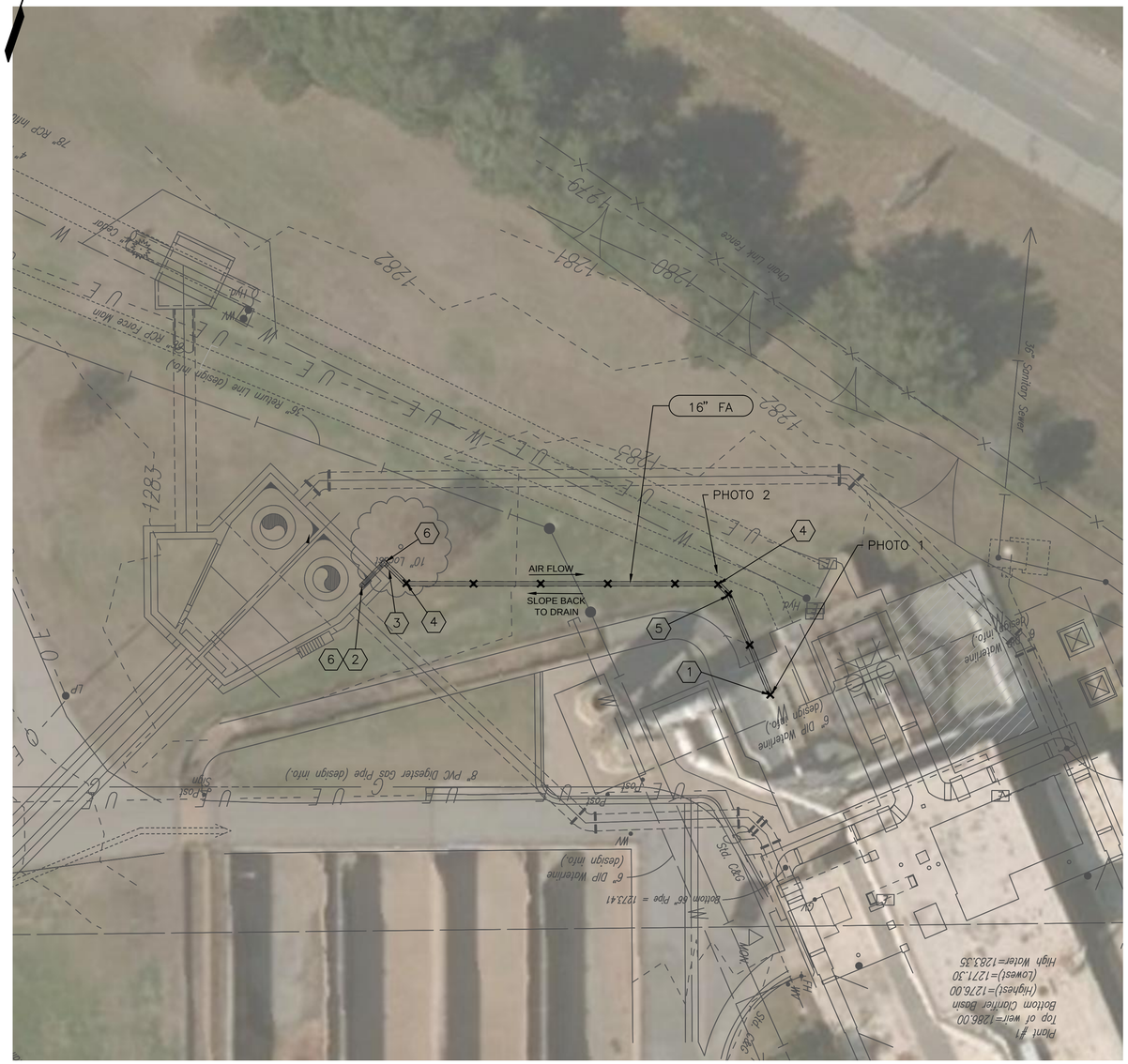

LEGEND:

✕ = FA DUCTWORK PIPE SUPPORT LOCATIONS (20' SPACING MAXIMUM)

FOUL AIR DUCT VIEW

SCALE: Custom

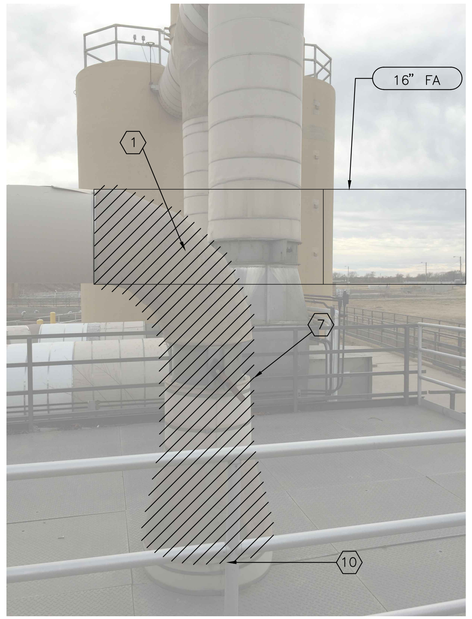

PHOTO 1 – DUCTWORK CONNECTION AT SOUTH GRIT TANK

SCALE: NOT TO SCALE

PHOTO 2– DUCTWORK MODIFICATIONS AT SOUTH GRIT TANK

SCALE: NOT TO SCALE

GENERAL NOTES:

1. FA DUCTWORK SIZE SHOWN INDICATES INSIDE DIA.
2. SLOPE ALL CONDENSATE PIPE BACK TO DRAIN AT 1" PER FOOT UNLESS NOTED OTHERWISE.
3. ALL ABOVE GROUND DUCT WORK SHALL BE FRP. SEE SECTION 23 31 16.16.
4. ALL FASTENERS, SUPPORTS, AND OTHER METALS SHALL BE TYPE 316 STAINLESS STEEL.
5. PROVIDE DUCT SUPPORTS AS SHOWN ON DRAWING M002. AT A MINIMUM, DUCT SUPPORTS SHALL BE PROVIDED AT THE TOP OF STRUCTURE WALLS AND AT CHANGES IN DUCT DIRECTION. MAXIMUM SUPPORT SPACING SHALL BE 20 FEET.
6. PROVIDE DUCT INSULATION TO MATCH EXISTING.

(X) KEY NOTES:

1. CONNECT 16" DIA. FOUL AIR DUCT TO EXISTING 16" FOUL AIR DUCT. PROVIDE DUCT SUPPORT AT WALL AND NEAR NEW CONNECTION TO EXISTING DUCT
2. CONNECT 12" DIA. FOUL AIR DUCTS TO NEW DIVERSION STRUCTURE. PENETRATE NEW FRP COVER
3. LOW POINT. ADD 1" DIA. CONDENSATE DRAIN WITH 1" SS BALL VALVE.
4. 45 DEGREE 16" DIA. BEND
5. 22.5 DEGREE 16" DIA. BEND
6. 90 DEGREE 16" DIA. BEND
7. REMOVE DUCT AND DAMPER FROM FLOOR THROUGH 90 DEGREE BEND. CAP DUCT AT FLOOR PENETRATION. PROVIDE NEW CONNECTION TO EXISTING DUCT
8. REMOVE SECTION OF DUCT AND CAP BOTH ENDS
9. CLOSE EXISTING DAMPER
10. CAP EXISTING DUCTWORK. PROVIDE SUPPORT FOR NEW DUCTWORK ABOVE

Brown AND Caldwell

ALLEN PAUL SCHLOTE LICENSED 24989 PROFESSIONAL ENGINEER STATE OF KANSAS 04/23/2017

No.	Revision	By	Date

WASTEWATER PLANT 2
INFLUENT FORCE MAIN – PHASE 1

FOUL AIR DUCT PLAN

GARY JANZEN, P.E. – CITY ENGINEER
CITY OF WICHITA PROJECT NO. 468–85118

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Designed by	E.DESOUZA	Job No.	35–15554–1–0042	Sht.	M106 of 58
Drawn by	T.DIMICELI	Date	MARCH 2017		

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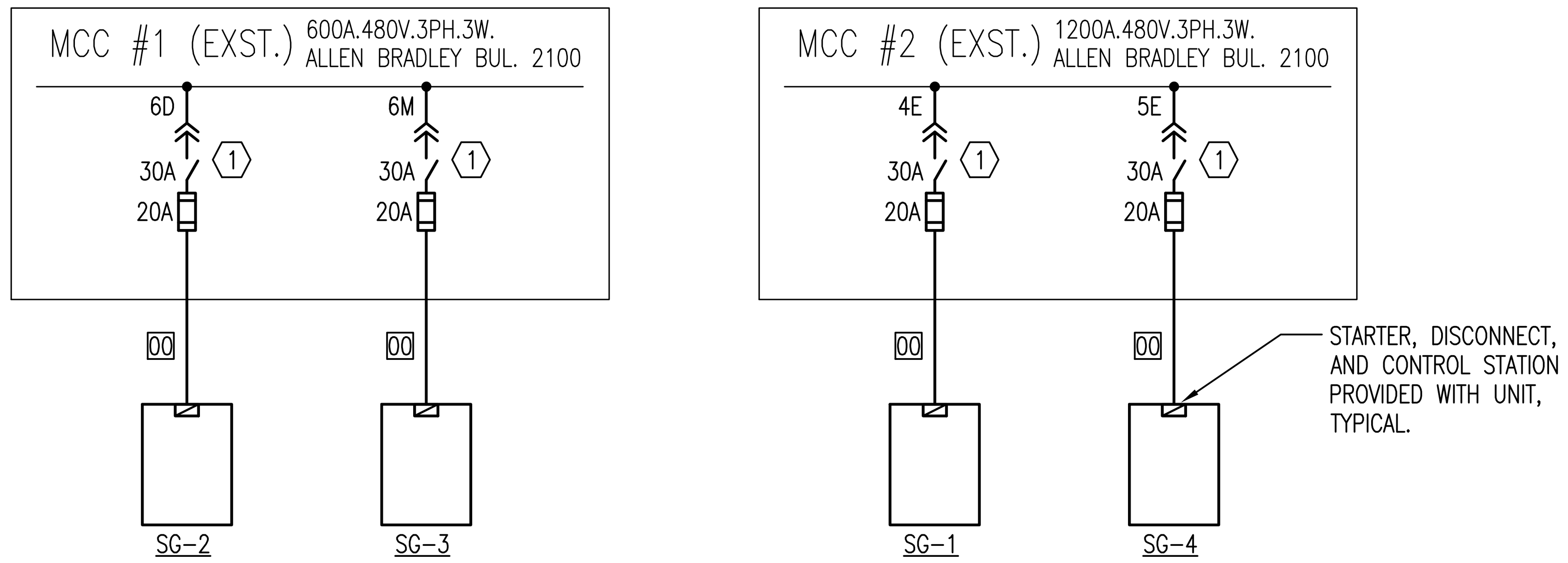


KEYED NOTES:

(1) PROVIDE AND INSTALL SWITCH IN EXISTING SPACE. SWITCH TO MATCH EXISTING UNITS. PROVIDE ALL REQUIRED MOUNTING HARDWARE, ETC. AS REQUIRED FOR A COMPLETE INSTALLATION. PROVIDE PHENOLIC NAMEPLATE TO INDICATE LOAD SERVED.

GENERAL ONE-LINE DIAGRAM NOTES:

1. UNLESS OTHERWISE NOTED, ALL CIRCUIT BREAKERS AND/OR SWITCHES ARE THREE POLE.
2. ALL ELECTRICAL EQUIPMENT AND WIRING SHOWN IN A LIGHT LINE, IS EXISTING TO REMAIN.
3. ALL ELECTRICAL EQUIPMENT AND WIRING SHOWN IN A DARK LINE, IS NEW WORK UNDER THIS CONTRACT.

1 PARTIAL ELECTRICAL ONE-LINE DIAGRAM

NO SCALE

EXISTING CONTROL PANEL IMUX-01

LOCATION:
PLANT 1 LOWER LEVEL
MAIN ELECTRICAL ROOM

	CIRCUIT No.	EQUIPMENT SERVED	CONNECT: DEVICE	CONNECT: CTL. PNL	CONNECT: STARTER	CONNECT: VFD	DESCRIPTION	CONDUCTORS IN CABLE	DISCRETE	ANALOG	DIGITAL	INPUT	OUTPUT
(1)	1	SG-1	X	–	–	–	SLIDE GATE OPEN STATUS	2	X	–	–	X	–
(1)	2	SG-1	X	–	–	–	SLIDE GATE CLOSE STATUS	2	X	–	–	X	–
(1)	3	SG-1	X	–	–	–	SLIDE GATE MOTOR FAIL	2	X	–	–	X	–
(1)	4	SG-1	X	–	–	–	SLIDE GATE POSITION FAIL	2	X	–	–	X	–
(1)	5	SG-1	X	–	–	–	SLIDE GATE POSITION CONTROL	PAIR	–	X	–	–	X
(1)	6	SG-1	X	–	–	–	SLIDE GATE POSITION INDICATION	PAIR	–	X	–	X	–
(1)	7	SG-2	X	–	–	–	SLIDE GATE OPEN STATUS	2	X	–	–	X	–
(1)	8	SG-2	X	–	–	–	SLIDE GATE CLOSE STATUS	2	X	–	–	X	–
(1)	9	SG-2	X	–	–	–	SLIDE GATE MOTOR FAIL	2	X	–	–	X	–
(1)	10	SG-2	X	–	–	–	SLIDE GATE POSITION FAIL	2	X	–	–	X	–
(1)	11	SG-2	X	–	–	–	SLIDE GATE POSITION CONTROL	PAIR	–	X	–	–	X
(1)	12	SG-2	X	–	–	–	SLIDE GATE POSITION INDICATION	PAIR	–	X	–	X	–
(1)	13	SG-3	X	–	–	–	SLIDE GATE OPEN STATUS	2	X	–	–	X	–
(1)	14	SG-3	X	–	–	–	SLIDE GATE CLOSE STATUS	2	X	–	–	X	–
(1)	15	SG-3	X	–	–	–	SLIDE GATE MOTOR FAIL	2	X	–	–	X	–
(1)	16	SG-3	X	–	–	–	SLIDE GATE POSITION FAIL	2	X	–	–	X	–
(1)	17	SG-3	X	–	–	–	SLIDE GATE POSITION CONTROL	PAIR	–	X	–	–	X
(1)	18	SG-3	X	–	–	–	SLIDE GATE POSITION INDICATION	PAIR	–	X	–	X	–
(1)	19	SG-4	X	–	–	–	SLIDE GATE OPEN STATUS	2	X	–	–	X	–
(1)	20	SG-4	X	–	–	–	SLIDE GATE CLOSE STATUS	2	X	–	–	X	–
(1)	21	SG-4	X	–	–	–	SLIDE GATE MOTOR FAIL	2	X	–	–	X	–
(1)	22	SG-4	X	–	–	–	SLIDE GATE POSITION FAIL	2	X	–	–	X	–
(1)	23	SG-4	X	–	–	–	SLIDE GATE POSITION CONTROL	PAIR	–	X	–	–	X
(1)	24	SG-4	X	–	–	–	SLIDE GATE POSITION INDICATION	PAIR	–	X	–	X	–
(1)	25	PH-1	X	–	–	–	PH METER EAST – PH	PAIR	–	X	–	X	–
(1)	26	PH-1	X	–	–	–	PH METER EAST – TEMPERATURE	PAIR	–	X	–	X	–
(1)	27	LT-1	X	–	–	–	LEVEL TRANSMITTER EAST	PAIR	–	X	–	X	–
(1)	28	PH-2	X	–	–	–	PH METER WEST – PH	PAIR	–	X	–	X	–
(1)	29	PH-2	X	–	–	–	PH METER WEST – TEMPERATURE	PAIR	–	X	–	X	–
(1)	30	LT-2	X	–	–	–	LEVEL TRANSMITTER WEST	PAIR	–	X	–	X	–
(1)	31	SMP-1	X	–	–	–	ALARM – SAMPLE CYCLE	2	X	–	–	X	–
(1)	32	SMP-1	X	–	–	–	ALARM – MISSED SAMPLE	2	X	–	–	X	–
(1)	33	SMP-1	X	–	–	–	ALARM – BOTTLE FULL	2	X	–	–	X	–
(1)	34	SMP-1	X	–	–	–	FLOW RATE	PAIR	–	X	–	–	X
(1)	35	FM-1	X	–	–	–	FLOW RATE	PAIR	–	X	–	X	–
(1)	36	FM-1	X	–	–	–	FLOW RATE – PULSE TOTALIZER	2	X	–	–	X	–

(1) CONNECT PROPOSED I/O TO EXISTING SPACE IN PANEL.

(1) EXIST. PANEL: LC

GE #AF37S, W/GRD. BUS

208/120 VOLTS, 3 PHASE, 4 WIRE
100 AMP MAIN BKR, SURFACE MTD.
10000 AIC LABELED

	CIRC NO.	LOAD V. A.	LOAD TYPE	LOAD DESCRIPTION	P.	AMP SIZE	PHASE	AMP SIZE	P.	LOAD DESCRIPTION	LOAD TYPE	LOAD V. A.	CIRC NO.	
	1		SPAR	SPARE	2	20	A	50	2	50A WELDER 3RD FLOOR			2	
	3	—	—	—	–	|	B	|	–	—	—	—	4	
	5			HEAT TRACE CHEM TANK	1	20	C	20	2	SPARE	SPAR		6	
(2)	7	800	POWR	DIV. STRUCTURE LT & PH	1	20	A	|	–	—	—	—	8	
	9			HEAT TRACE	1	20	B	20	1	DIV. STRUC. SAMPLER	RCPT	768	10	(2)
(2)	11	200	POWR	DIV. STRUCTURE RECEPT	1	20	C	20	1	POWER CHEM PUMPS			12	
	13			HEAT TRACE CHEM LINES	1	20	A	20	1	POWER LITE OUTSIDE			14	
	15			PANEL LA	3	60	B	20	1	CONTROL PANEL ODOR			16	
	17	—	—	—	–	|	C	20	1	SPARE	SPAR		18	
	19	—	—	—	–	|	A	20	1	IMUX 13B PLC			20	
	21			13A IMUX PLC	1	20	B	20	1	IMUX 13B UTILITY			22	
	23			13A IMUX UTILITY	1	20	C	20	1	IMUX 14 UTILITY			24	
(2)	25	400	POWR	FLOW METER	1	20	A	20	1	GAS DETECTOR, ULTRASON			26	
	27			SE1, SE2	1	20	B	20	1	IMUX 14 PLC			28	
	29			SPACE			C	20	1	TELEMETRY			30	

(1) ALL LOADS EXISTING TO REMAIN UON
(2) CONNECT TO EXISTING SPARE CIRCUIT BREAKER. UPDATE PANEL DIRECTORY.

FEEDER SCHEDULE

DESIG.	EQUIPMENT SERVED	CONDUCTORS: SETS	CONDUCTORS: NO.	CONDUCTORS: SIZE	GROUND SIZE PER SET	ISOLATED GROUND SIZE	CONDUIT SIZE PER SET
00	SLIDE GATE	1	3	#8 AWG CU	#10	--	1"

PEN WEIGHT LEGEND

SYMBOL	DESCRIPTION
ALL DEVICES, LIGHT FIXTURES, ETC., DRAWN IN DARK SOLID LINES ARE NEW TO BE INSTALLED.	
	NEW DUPLEX GROUNDED RECEPTACLE
	NEW LIGHT FIXTURE
ALL DEVICES, LIGHT FIXTURES, ETC., DRAWN IN LIGHT SOLID LINES ARE EXISTING TO REMAIN.	
	EXISTING DUPLEX GROUNDED RECEPTACLE TO REMAIN
	EXISTING LIGHT FIXTURE TO REMAIN
ALL DEVICES, LIGHT FIXTURES, ETC., DRAWN IN DARK DASHED LINES ARE TO BE REMOVED.	
	DUPLEX GROUNDED RECEPTACLE TO BE REMOVED
	LIGHT FIXTURE TO BE REMOVED

GENERAL NOTES

1. ALL ELECTRICAL WORK SHALL COMPLY WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE (NEC) & THE AMERICANS WITH DISABILITIES ACT (ADA).
2. REFER TO RELATED CIVIL AND STRUCTURAL DRAWINGS FOR RELATED INFORMATION.
3. REFER TO THE SPECIFICATIONS FOR DATA NOT ON THE DRAWINGS.
4. ALL MOUNTING HEIGHTS TO CENTERLINE OF ITEM UNLESS OTHERWISE NOTED. VERIFY ALL OUTLET LOCATIONS ON THE JOB PRIOR TO ROUGH-IN.
5. CONDUIT RUN W/CONDUCTORS AS INDICATED & GROUND WIRE SIZED PER N.E.C. 250.122. CONDUIT SIZE AS REQUIRED.
6. WHEN INCREASED CONDUCTOR SIZES ARE SHOWN ON THE PLANS, THE LARGER CONDUCTOR SIZE SHALL BE USED THROUGHOUT THE LENGTH OF THE CIRCUIT, INCLUDING NEUTRAL AND GROUND.
7. BRANCH CIRCUITS ARE INDICATED AS ONE CIRCUIT HOME RUNS WITH INDIVIDUAL NEUTRALS. A MAXIMUM OF THREE CIRCUITS (MAXIMUM OF THREE PHASE CONDUCTORS) MAY BE GROUPED IN A SINGLE CONDUIT. WHERE MULTIPLE CIRCUITS ARE LOCATED IN THE SAME RACEWAY, JUNCTION BOX OR ENCLOSURE, NEUTRALS SHALL BE MARKED OR LABELED TO INDICATE WHICH CIRCUIT THEY ARE ASSOCIATED WITH. SEE SPECIFICATION SECTION "LOW VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES" FOR ADDITIONAL INFORMATION.

CONTROL CABLES CONDUIT SCHEDULE

# OF CABLES	ESTIMATED CONDUIT SIZE
1	1/2"
2	3/4"
3	1"
5	1 1/4"
7	1 1/2"
13	2"
18	2 1/2"
29	3"
38	3 1/2"

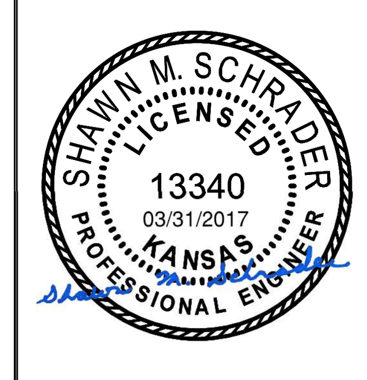
NOTE:
CONDUIT SIZES DEPEND ON ACTUAL CABLES INSTALLED. VERIFY CABLE SIZES & ADJUST CONDUIT AS REQUIRED. RUN ALL CONTROL CABLES IN SEPARATE CONDUIT FROM POWER CIRCUITS. ALSO RUN SHIELDED & LAN LAN CABLES IN SEPARATE CONDUIT FROM OTHER CONTROLS. CONTRACTOR CAN SIZE CONDUIT FOR ACTUAL CABLE SIZE, PER N.E.C. FILL TABLE WITH 25% SPARE CAPACITY. SUBMIT CALCULATIONS.

SYMBOL LIST

SYMBOL	DESCRIPTION	MOUNTING
	GROUND FAULT DUPLEX RECEPTACLE	18"AFF
WP	WEATHERPROOF	
AFG	ABOVE FINISHED GRADE	
UON	UNLESS OTHERWISE NOTED	
A A	SPECIAL OUTLET (SEE SCHEDULE OR AS NOTED)	FLOOR/WALL
J	JUNCTION BOX	
'A'	BRANCH CIRCUIT PANEL & PANEL DESIG.	72" TO TOP
	ELECTRICAL DISTRIBUTION EQUIPMENT	
1	FEEDER DESIGNATION	
#10	CONDUIT HOME RUN, 1 CIRCUIT. 2#10 & 1#10 GRD. GEN. NOTE 5 & 6	CEIL./WALL
	CONDUIT RUN 2#12 & 1#12 GRD.– 1/2"C.	CEIL./WALL
	CONDUIT RUN 2#12 & 1#12 GRD.– 3/4"C.	EARTH/FLOOR
	CONDUIT HOME RUN, 1 CIRCUIT. 2#12 & 1#12 GRD. 1/2"C.	CEIL./WALL
	CONDUIT RUN PARTIAL CIRCUIT. 2#12 & 1#12 GRD. 1/2"C.	CEIL./WALL
	CONDUIT HOME RUN, 2 CIRCUITS PHASE CONDUCTORS (#12 UON) NEUTRAL CONDUCTOR (#12 UON) SWITCH LEGS (#12 UON) GROUND CONDUCTOR (#12 UON)	CEIL./WALL
	DISCRETE CONTROL CABLE (# OF PAIRS)	CEIL./WALL
	ANALOG CONTROL CABLE (# OF SHIELDED PAIRS)	CEIL./WALL
PH	PH METER	
LT	LEVEL TRANSMITTER	
	CONDUIT SEAL-OFF	CEIL./WALL
	DISCONNECT SWITCH	
	STARTER	
FM	FLOW METER	

ELECTRICAL SHEET INDEX

SHEET NO.	DESCRIPTION
E001	ELECTRICAL LEAD SHEET
E101	ELECTRICAL DETAILS
E201	ELECTRICAL SITE PLAN
E401	DIVERSION STRUCTURE ELECTRICAL PLAN
E402	PLANT 1 LOWER LEVEL ELECTRICAL PLAN



No.	Revision	By	Date

WASTEWATER PLANT 2
INFLUENT FORCE MAIN – PHASE 1

ELECTRICAL LEAD SHEET

GARY JANZEN, P.E. – CITY ENGINEER
CITY OF WICHITA PROJECT NO. 468–85118

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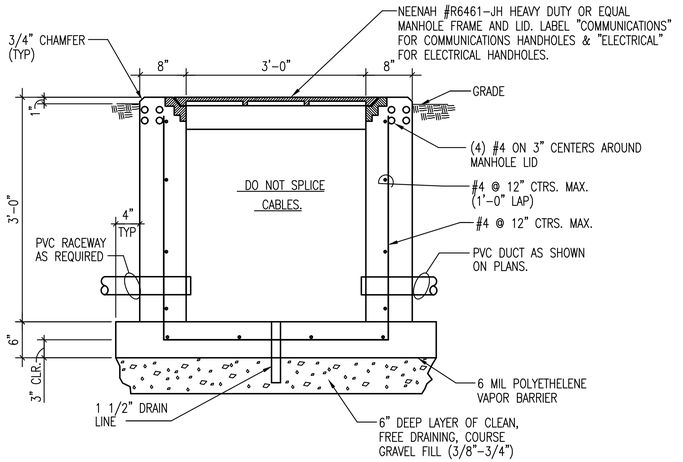
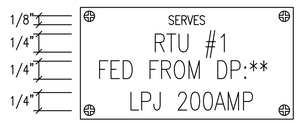
U:\Wichita–Civil\2015\15554\001\Elec\Drawings\15554–001 E001 ELECTRICAL LEAD SHEET

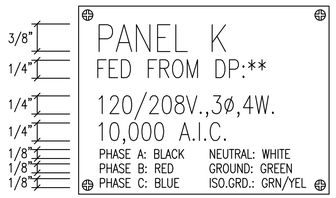


1 PULLBOX DETAIL
NO SCALE

SWITCHBOARD/DISTRIBUTION PANEL/MOTOR CONTROL CENTER BREAKER/SWITCH

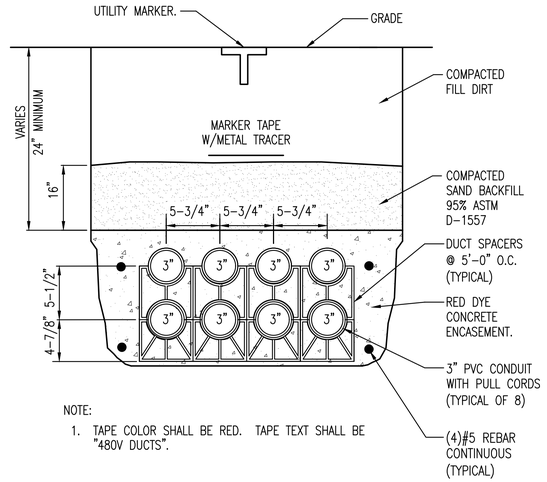


DISCONNECT SWITCH



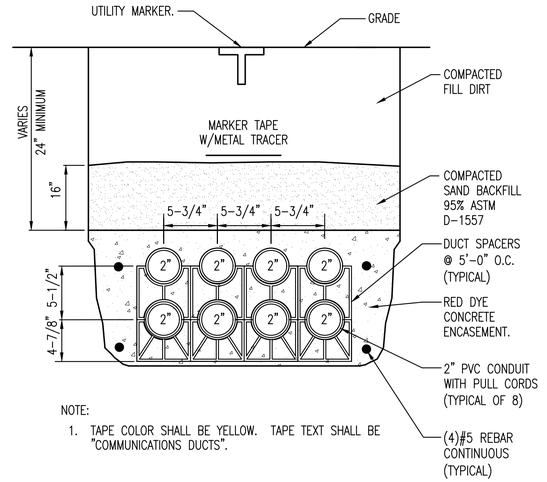
BRANCH CIRCUIT/DISTRIBUTION PANEL

2 TYPICAL NAME PLATES
NO SCALE



NOTE:
1. TAPE COLOR SHALL BE RED. TAPE TEXT SHALL BE "480V DUCTS".

3 2X4 POWER DUCT BANK DETAIL
NO SCALE



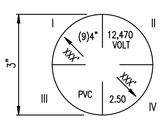
NOTE:
1. TAPE COLOR SHALL BE YELLOW. TAPE TEXT SHALL BE "COMMUNICATIONS DUCTS".

4 2X4 COMM DUCT BANK DETAIL
NO SCALE

UNDERGROUND UTILITY MARKERS

DESCRIPTIONS:

LEGEND/QUADRANT	CODE	ELECTRICAL
I	SIZE	QUANTITY AND SIZE
II	UTILITY	VOLTAGE OR COMM.
III	MATERIAL	RGS OR PVC
IV	DEPTH	DISTANCE, IN FEET, FROM TOP OF MARKER TO TOP OF UTILITY



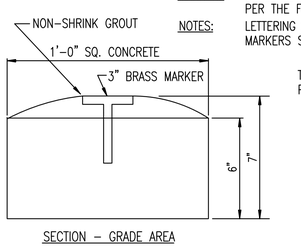
PLAN

UNDERGROUND UTILITY MARKERS

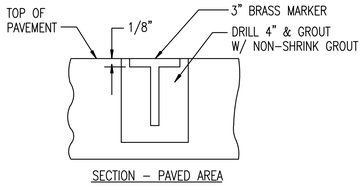
ARROW — DIRECTION(S) OF UTILITY WITH DISTANCES, XXX IN FEET, TO AND FROM ADJACENT MARKER(S) OR UTILITY STUB-UP(S).

MARKERS — SHALL BE LOCATED ON THE DRAWINGS, FURNISHED, AND INSTALLED PER THE FOLLOWING REQUIREMENTS:

NOTES: LETTERING SHALL BE STAMPED 1/4" BLOCK STYLE LETTERS. MARKERS SHALL BE A 3" FLAT BRASS SURVEY MARKER



SECTION - GRADE AREA

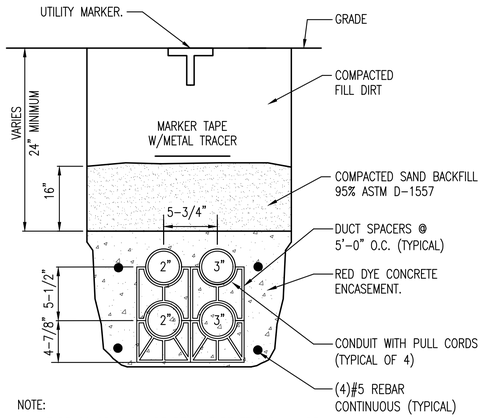


SECTION - PAVED AREA

NOTE:

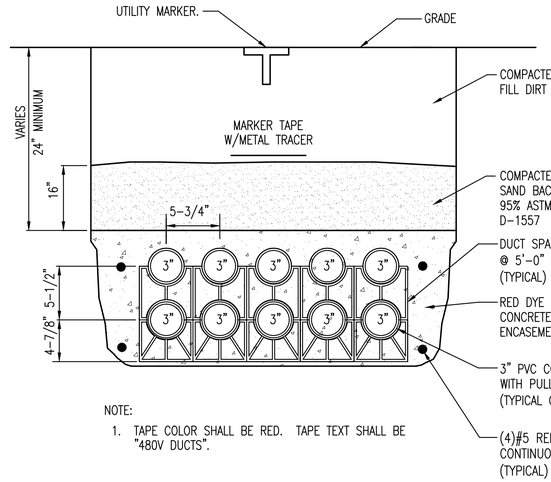
PROVIDE MARKERS AT 100'-0" ON CENTER, AND AT ALL CHANGE IN DIRECTION, FOR ALL UNDERGROUND DUCTS AND CABLES.

5 UTILITY MARKER DETAIL
NO SCALE



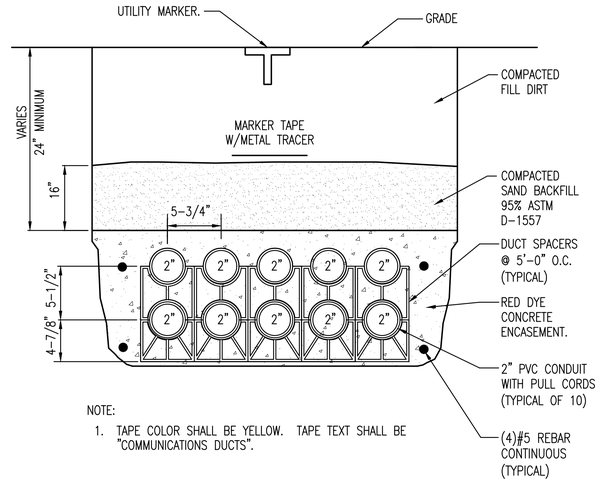
NOTE:
1. TAPE COLOR SHALL BE RED. TAPE TEXT SHALL BE "480V DUCTS".
2. TAPE COLOR SHALL BE YELLOW. TAPE TEXT SHALL BE "COMMUNICATIONS DUCTS".

6 2X2 POWER AND COMM DUCT BANK DETAIL
NO SCALE



NOTE:
1. TAPE COLOR SHALL BE RED. TAPE TEXT SHALL BE "480V DUCTS".

7 2X5 POWER DUCT BANK DETAIL
NO SCALE



NOTE:
1. TAPE COLOR SHALL BE YELLOW. TAPE TEXT SHALL BE "COMMUNICATIONS DUCTS".

8 2X5 COMM DUCT BANK DETAIL
NO SCALE

SHAWN M. SCHRADER LICENSED 13340 03/31/2017 KANSAS PROFESSIONAL ENGINEER

No.	Revision	By	Date

WASTEWATER PLANT 2
INFLUENT FORCE MAIN - PHASE 1

ELECTRICAL DETAILS

GARY JANZEN, P.E. - CITY ENGINEER
CITY OF WICHITA PROJECT NO. 468-85118

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Designed by	SMS	Job No.	35-15554-1-0042
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Sht. E101 of 58

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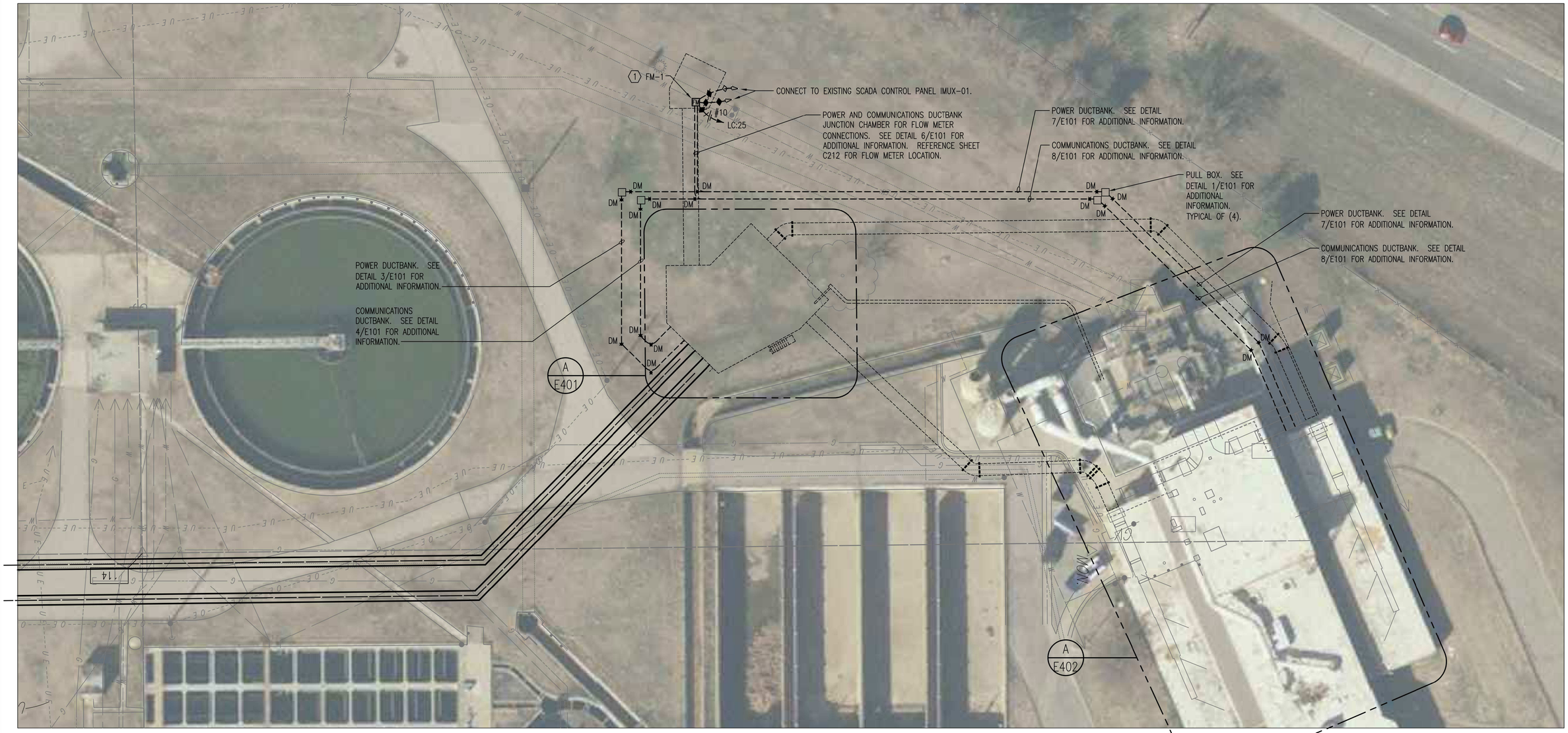
U:\Wichita-Civil\2015\15554\001\Elec\Drawings\15554-001 E101 ELECTRICAL DETAILS



A ELECTRICAL SITE PLAN

SCALE: 0 20 40

ELECTRICAL SITE PLAN NOTES:

1. UNLESS OTHERWISE NOTED, ALL CONDUIT ROUTED ON SITE SHALL BE 1" MINIMUM.
2. ALL RISERS SHALL BE PVC COATED RIGID GALVANIZED STEEL (RGS) ALL ELLS BELOW GRADE SHALL BE PVC COATED RIGID GALVANIZED STEEL (RGS). PROVIDE WITH PVC TO STEEL ADAPTER(S) AS NECESSARY.
3. CONTRACTOR SHALL REFERENCE ALL RELATED CONTRACT DOCUMENTS, SITE SURVEY, AND OTHER RESOURCES FOR POSSIBLE CONFLICTS WITH OTHER UNDERGROUND UTILITIES. AT UTILITY CROSSINGS, CONTRACTOR SHALL VERIFY UTILITY DEPTHS AND COORDINATE CONDUIT ROUTING AS NECESSARY.
4. CONTRACTOR SHALL VERIFY AND COORDINATE EXISTING CONDITIONS OF PROJECT SITE PRIOR TO BID.
5. WHERE EXISTING UTILITIES ARE CROSSED, HAND EXCAVATE AS REQUIRED T PROTECT EXISTING UTILITIES.

KEYED SITE PLAN NOTES:

(1) CONTRACTOR TO INSTALL CITY OWNED TELEDYNE ISCO LASER FLOW METER WITH NEW, CONTRACTOR PROVIDED TELEDYNE ISCO SIGNATURE SERIES AC POWER MODULE. CONTRACTOR TO PROVIDE AND INSTALL ALL REQUIRED SUPPORTS FOR INSTALLATION. CONTRACTOR TO CONNECT POWER AND CONTROLS AS REQUIRED FOR A FULLY FUNCTIONAL SYSTEM. THIS WORK SHALL BE INCLUDED IN THE LUMP SUM BID ITEM "JUNCTION STRUCTURE".

SHAWN M. SCHRADER LICENSED 13340 03/31/2017 KANSAS PROFESSIONAL ENGINEER

No.	Revision	By	Date

WASTEWATER PLANT 2
INFLUENT FORCE MAIN – PHASE 1

ELECTRICAL SITE PLAN

GARY JANZEN, P.E. – CITY ENGINEER
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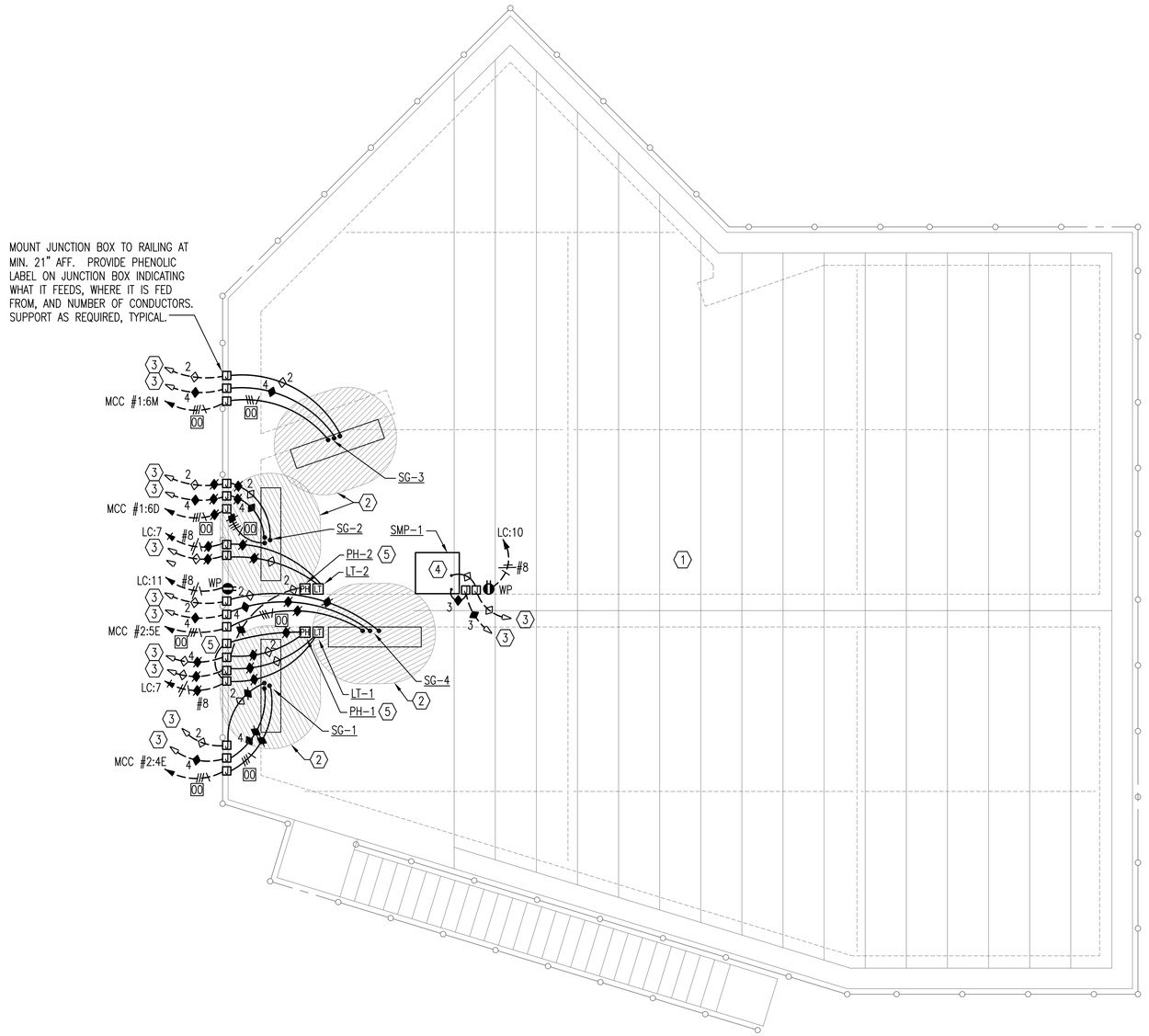

A DIVERSION STRUCTURE ELECTRICAL PLAN

0' 2' 4' 6' 1/4"=1'-0"

PLAN NOTES:

1. BRANCH CIRCUITS ARE INDICATED AS ONE CIRCUIT HOME RUNS WITH INDIVIDUAL NEUTRALS. A MAXIMUM OF THREE CIRCUITS (MAXIMUM OF THREE PHASE CONDUCTORS) MAY BE GROUPED IN A SINGLE CONDUIT. WHERE MULTIPLE CIRCUITS ARE LOCATED IN THE SAME RACEWAY, JUNCTION BOX OR ENCLOSURE, NEUTRALS SHALL BE MARKED OR LABELED TO INDICATE WHICH CIRCUIT THEY ARE ASSOCIATED WITH.
2. A GROUND CONDUCTOR SIZED PER N.E.C. ARTICLE 250 IS REQUIRED IN ALL CONDUITS.
3. ALL PENETRATIONS IN THE RATED WALLS AND CEILINGS SHALL BE SEALED WITH A MATERIAL CAPABLE OF PREVENTING THE PASSAGE OF FLAMES AND HOT GASES. THE SEALANT SHALL HAVE A T-RATING OF ONE HOUR.
4. ALL PIPING, CONDUIT, AND OUTLET BOXES (ELECTRIC, TELEPHONE, COMPUTER, ETC.) IN THE RATED WALLS OR CEILING SHALL BE CONSTRUCTED OF NON-COMBUSTIBLE MATERIAL.
5. OUTLET BOXES (ELECTRIC, TELEPHONE, COMPUTER, ETC.) SHALL BE LIMITED TO TWO OUTLET BOXES PER STUD SPACE. OUTLET BOXES ON OPPOSITE SIDES OF THE RATED WALLS SHALL BE SEPARATED BY A HORIZONTAL DISTANCE OF 24 INCHES.

KEYED NOTES:

1. THE INTERIOR OF THE DIVERSION STRUCTURE IS CLASS I, DIVISION 1 RATED PER NFPA 820.
2. THE AREA AROUND ANY OPENING EXTENDING 36" HORIZONTALLY AND 18" VERTICALLY IS CLASS I, DIVISION 2 RATED PER NFPA 820.
3. CONNECT TO EXISTING SCADA CONTROL PANEL IMUX-01.
4. CONTRACTOR TO RELOCATE EXISTING HACH COMPOSITE SAMPLER AND ALL ACCESSORIES AS INDICATED. CONTRACTOR SHALL PROVIDE ALL PIPING, SUPPORTS, ELECTRICAL AND CONTROLS AS REQUIRED AND SHOWN FOR A FULLY OPERATIONAL SYSTEM. ALL EXISTING INFORMATION AND CONTROLS IN SCADA SHALL REMAIN. CONNECT TO WEATHERPROOF WHILE-IN-USE RECEPTACLE. THIS WORK SHALL BE INCLUDED IN THE LUMP SUM BID ITEM "DIVERSION STRUCTURE".
5. CONTRACTOR TO RELOCATE EXISTING HACH MODEL SC 200 CONTROLLER AND ONE EXISTING HACH MODEL DPS 1 DIGITAL PH PROBE. CONTRACTOR TO PROVIDE ONE ADDITIONAL HACH MODEL DPS 1 DIGITAL PH PROBE TO MATCH EXISTING AND CONNECT TO EXISTING SC 200 CONTROLLER. SUPPORT SYSTEM SHALL BE PROVIDED FOR IMMERSION MOUNTING OF BOTH PH PROBES. CONTRACTOR TO PROVIDE ALL SUPPORTS, ELECTRICAL, CONTROLS, AND ANY ADDITIONAL COMPONENTS FOR THE SC 200 CONTROLLER AS REQUIRED FOR A FULLY FUNCTIONAL SYSTEM. THIS WORK SHALL BE INCLUDED IN THE LUMP SUM BID ITEM "DIVERSION STRUCTURE".

SHAWN M. SCHRADER LICENSED 13340 03/31/2017 KANSAS PROFESSIONAL ENGINEER

No.	Revision	By	Date

WASTEWATER PLANT 2
INFLUENT FORCE MAIN - PHASE 1

DIVERSION STRUCTURE ELECTRICAL PLAN

GARY JANZEN, P.E. - CITY ENGINEER
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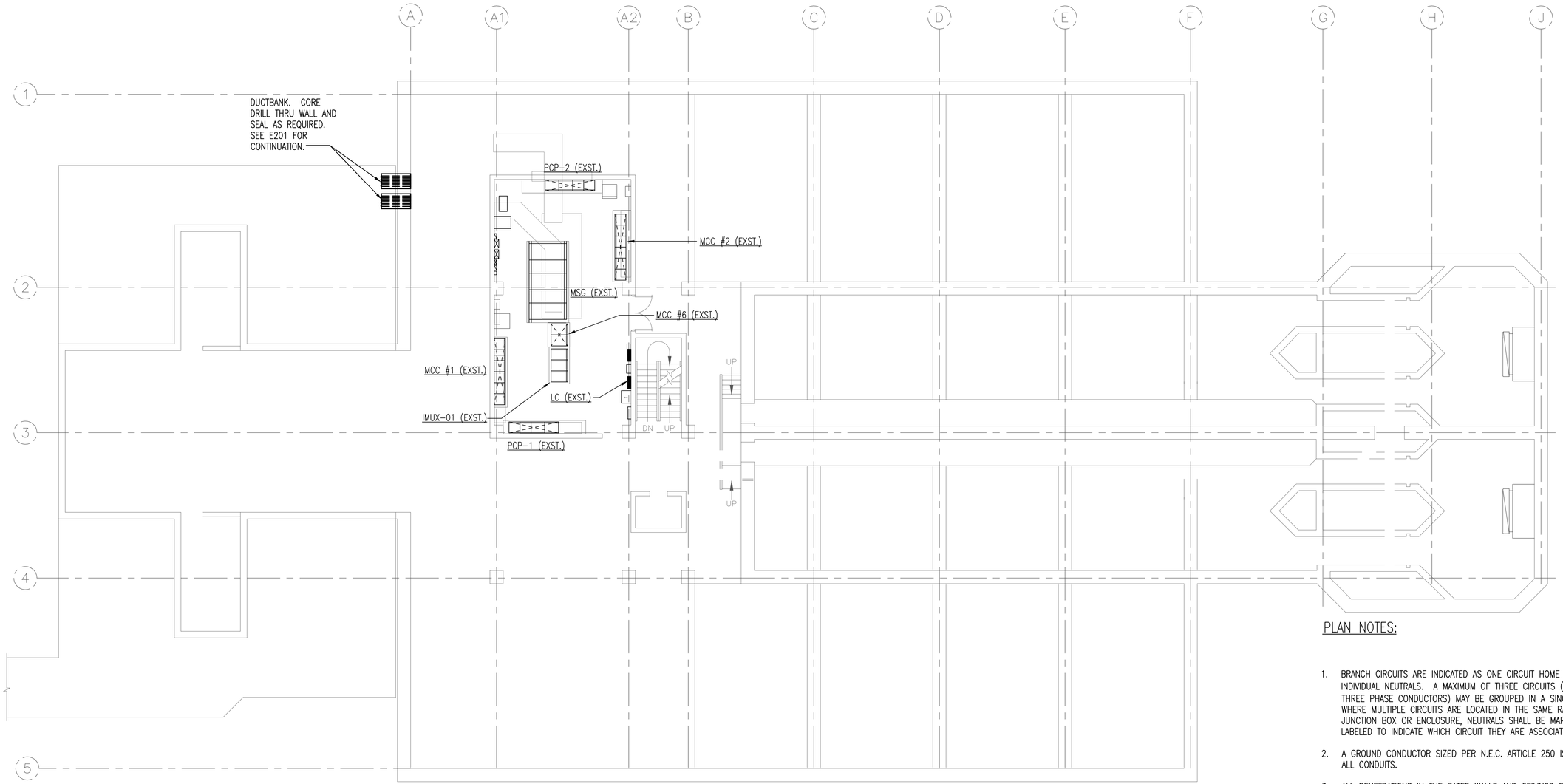

A PLANT 1 LOWER LEVEL ELECTRICAL PLAN

0' 4' 8' 12'
1/8"=1'-0"

PLAN NOTES:

1. BRANCH CIRCUITS ARE INDICATED AS ONE CIRCUIT HOME RUNS WITH INDIVIDUAL NEUTRALS. A MAXIMUM OF THREE CIRCUITS (MAXIMUM OF THREE PHASE CONDUCTORS) MAY BE GROUPED IN A SINGLE CONDUIT. WHERE MULTIPLE CIRCUITS ARE LOCATED IN THE SAME RACEWAY, JUNCTION BOX OR ENCLOSURE, NEUTRALS SHALL BE MARKED OR LABELED TO INDICATE WHICH CIRCUIT THEY ARE ASSOCIATED WITH.
2. A GROUND CONDUCTOR SIZED PER N.E.C. ARTICLE 250 IS REQUIRED IN ALL CONDUITS.
3. ALL PENETRATIONS IN THE RATED WALLS AND CEILINGS SHALL BE SEALED WITH A MATERIAL CAPABLE OF PREVENTING THE PASSAGE OF FLAMES AND HOT GASES. THE SEALANT SHALL HAVE A T-RATING OF ONE HOUR.
4. ALL PIPING, CONDUIT, AND OUTLET BOXES (ELECTRIC, TELEPHONE, COMPUTER, ETC.) IN THE RATED WALLS OR CEILING SHALL BE CONSTRUCTED OF NON-COMBUSTIBLE MATERIAL.

SHAWN M. SCHRADER LICENSED 13340 03/31/2017 KANSAS PROFESSIONAL ENGINEER

No.	Revision	By	Date

WASTEWATER PLANT 2
INFLUENT FORCE MAIN - PHASE 1

PLANT 1 LOWER LEVEL ELECTRICAL PLAN

GARY JANZEN, P.E. - CITY ENGINEER
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U:\Wichita-Civil\2015\15554\001\Elec\Drawings\15554-001 E402 PLANT 1 LOWER LEVEL ELECTRICAL PLAN