PRIVATE SANITARY SEWER EXTENSION

TO SERVE

SEDGWICK COUNTY ARENA

PRIVATE PROJECT NO. 1793 PPS (607861)

CITY OF WICHITA, KANSAS

JAMES L. ARMOUR, P.E. - CITY ENGINEER

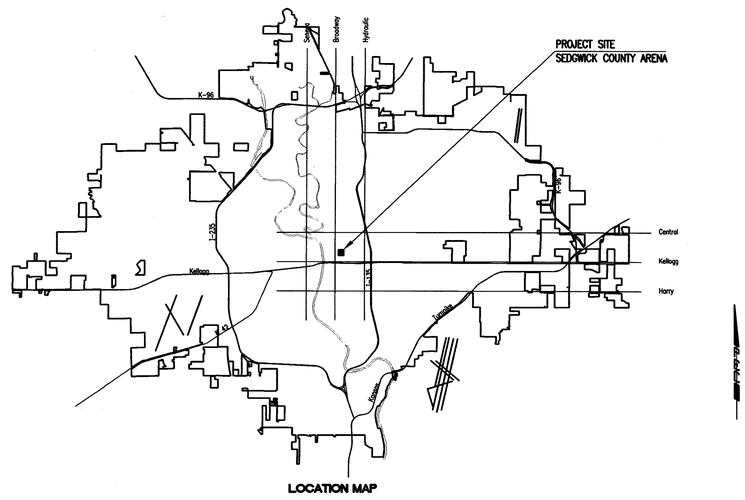
AS-BUILT PLANS

CONTRACTOR: DONDLINGER & SONS CONST. CO., INC.

INSPECTOR: BRIAN BLOYD, SCHWAB-EATON, P.A.

.PDF BY: BDB 7-9-08

PROJECT WAS CONSTRUCTED TO PLAN SPECIFICATIONS.



LOCATION MAP

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APPROVED AS NOTED
By CITY ENGINEER OF WICHITA

Sanitary Sewers VRH 10/26/07

Storm Sewers _____

Driveway Approaches _____

Paving _____

NOTE TO CONTRACTOR

INSPECTION AND TESTING FOR THIS PROJECT IS TO BE PROVIDED BY A LICENSED CONSULTING ENGINEERING FIRM CONTRACTED BY THE OWNER/DEVELOPER. SAID INSPECTION TO BE IN ACCORDANCE WITH THE CITY OF WICHITA STANDARD CONSTRUCTION ENGINEERING PRACTICES AND CERTIFIED BY A LICENSED PROFESSIONAL ENGINEER. NO WORK SHALL BE PERFORMED IN DEDICATED EASEMENTS OR PUBLIC RIGHT-OF-WAY BY THE CONTRACTOR UNTIL SUCH INSPECTION IS ARRANGED FOR AND REQUIRED BONDS HAVE BEEN SUBMITTED TO AND APPROVED BY THE CITY NOR SHALL ANY WORK BE COMMENCED IN DEDICATED EASEMENTS OR PUBLIC RIGHT-OF-WAY WITHOUT WRITTEN AUTHORIZATION BY THE CITY ENGINEER. IMPROVEMENTS PERFORMED UNDER THIS PROJECT SHALL NOT BE ACCEPTED BY THE CITY UNTIL ALL APPLICABLE DOCUMENTATION HAS BEEN SUBMITTED TO THE CITY ENGINEER. THIS MAY INCLUDE: RECORD DRAWINGS, INSPECTION LOGS, TEST DOCUMENTATION, TV TAPES, AND A CERTIFICATE OF COMPLETION. THE ABOVE SHALL BE PERFORMED BY THE CONSULTING FIRM CONTRACTED TO INSPECT THIS PROJECT.

JULY 2007

PLANS PREPARED BY

PROFESSIONAL ENGINEERING CONSULTANTS, P.A.

ENGINEERS

WICHITA, KANSAS

Saved 10-17-2007 4:00:18 PM by CSL
Printed 10-17-2007 4:03:56 PM by CSL
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MICHAEL D. METZEN
13944
10/24/07
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PROFESSIONAL ENGINEER

arenadesign CONSORTIUM

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	WALTER P. MOORE STRUCTURAL ENGINEER	WRIGHTSON, JOHNSON, HADDON & WILLIAMS, INC.
BRUCE A. MANSCHOLE AND PERRY ASSOCIATE ARCHITECT	PROFESSIONAL ENGINEERING CONSULTANTS	AUDIO VISUAL CONSULTANT BIGELOW
GOSSEN LIVINGSTON ASSOCIATES, INC ASSOCIATE ARCHITECT	MECH/ELECT/PLUMBING ENGINEER	FOOD SERVICE CONSULTANT

SEDGWICK COUNTY ARENA
500 E. WATERMAN, WICHITA, KS 67202

FOR CONSTRUCTION
OCTOBER 26, 2007

PACKAGE

REVISIONS

NO.	DATE	DESCRIPTION

KEYPLAN

PROJECT NO. 05220	ISSUED BY: PEC
DRAWN BY: CSL	REVIEWED BY: RRY

ISSUE DATE: 10-26-2007

SHEET TITLE:

SANITARY SEWER TITLE SHEET

CU4.1

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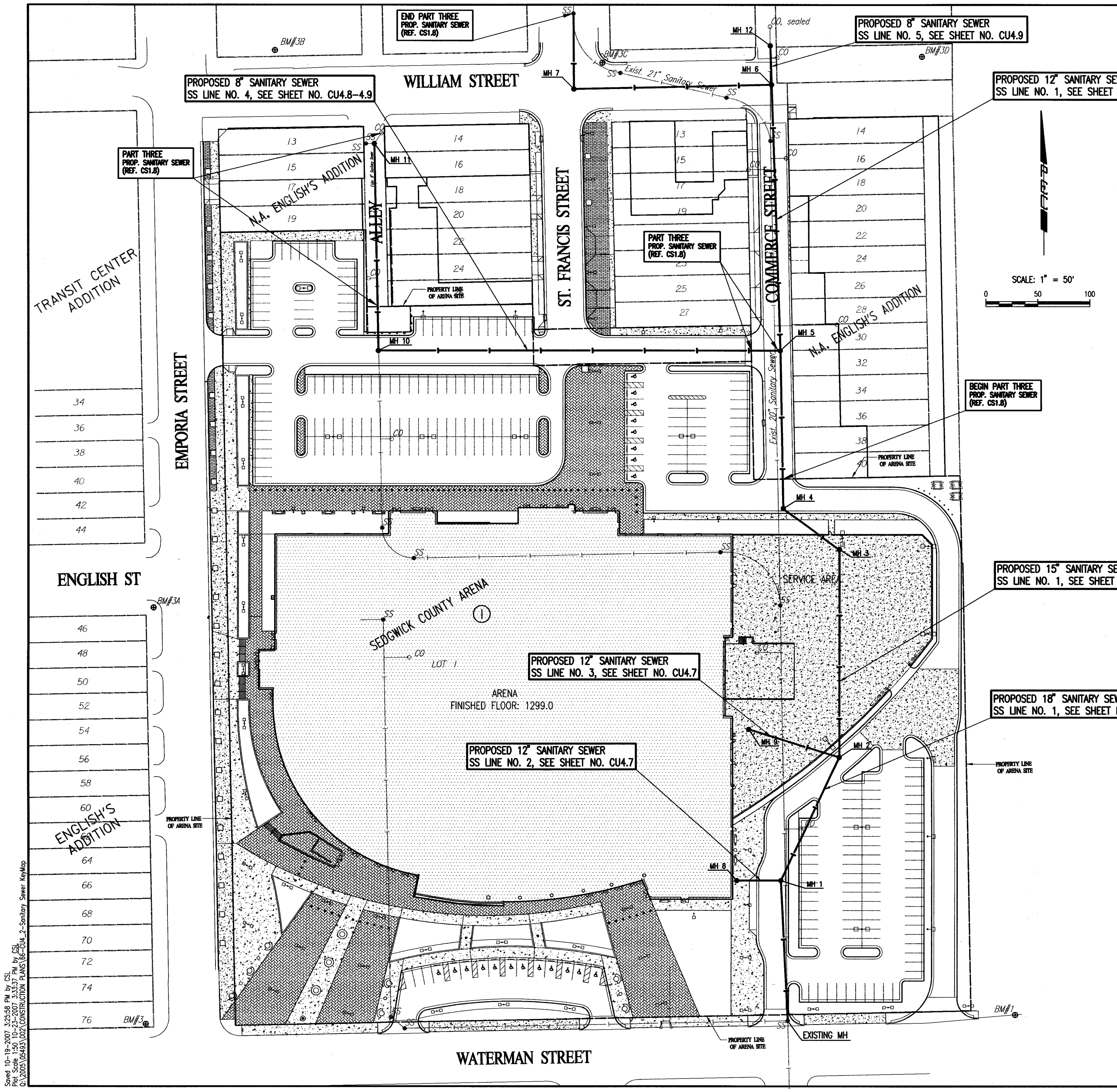

GENERAL NOTES

1. ALL CONSTRUCTION AND MATERIALS TO COMPLY WITH CITY OF WICHITA SPECIFICATIONS AND STANDARDS.
2. ALL ELEVATIONS SHOWN ARE U.S.G.S. DATUM.
3. THE CONTRACTOR SHALL LIMIT THE EXTENT OF TRENCH TO REMAIN OPEN OVERNIGHT AND WEEKENDS TO LESS THAN 50 FEET.
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 TO REQUEST THE LOCAL UTILITY COMPANIES MARK ANY EXISTING LINES WITHIN THE PROJECT AREA.
5. UNDERGROUND UTILITY SERVICE LINES AND OVERHEAD UTILITY POLE LINES ARE TO BE ADJUSTED AS NECESSARY BY OTHERS PRIOR TO CONSTRUCTION UNLESS THE PLANS SPECIFICALLY CALL FOR THEIR ADJUSTMENT BY THE CONTRACTOR OR UNLESS THE PLANS SPECIFICALLY IDENTIFY A UTILITY TO BE ADJUSTED BY ITS OWNER DURING CONSTRUCTION. EXISTING UTILITIES AND THEIR LOCATIONS, AS SHOWN ON THE PLANS, REPRESENT THE BEST INFORMATION OBTAINABLE FOR THE DESIGN. THE CONTRACTOR WILL BE REQUIRED TO WORK AROUND EXISTING UTILITIES WITHIN THE RIGHT-OF-WAY WHICH DO NOT CONFLICT WITH PROPOSED CONSTRUCTION.
6. 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.
7. CONTRACTOR SHALL PROVIDE POSITIVE DRAINAGE AWAY FROM ALL MANHOLE COVERS.
8. MANHOLES SHALL BE TYPE "P" MANHOLES. MANHOLES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS AND THE STANDARD DETAIL DRAWINGS.
9. ALL LAWN/TURF AREAS DISTURBED BY CONSTRUCTION OF THE PROPOSED IMPROVEMENTS SHALL BE RESTORED WITH THE SAME GRASS/SOD AS EXISTING. 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. AR78 WHICH GOVERNS CLEANUP AND RESTORATION OR REPLACEMENT FOLLOWING CONSTRUCTION.
10. 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.
11. 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.
12. THE CONTRACTOR SHALL PREVENT ANY CONSTRUCTION DEBRIS FROM ENTERING THE EXISTING SANITARY SEWER DURING CONSTRUCTION.
13. 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.
14. CONTRACTOR IS REQUIRED TO MAINTAIN CONTINUOUS FLOW OF SEWAGE IN EXISTING MAINS AT ALL TIMES.
15. 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. 9 ABOVE. TEMPORARY SEEDING OR PERMANENT SEEDING/SODDING SHALL BE APPLIED WITHIN 14 DAYS AFTER THE AREA HAS BEEN DISTURBED.
16. THE CONTRACTOR SHALL NOT BURY MANHOLES THAT HAVE RIM ELEVATIONS WHICH ARE LOWER THAN EXISTING GROUND AT THE MANHOLE. THE GROUND AROUND SUCH MANHOLES AND ALONG THE SEWER ALIGNMENT SHALL BE BACKFILLED TO THE APPROXIMATE ELEVATION OF THE PROPOSED GROUND ELEVATION SHOWN ON THE PLAN/PROFILE SHEETS. THE CONTRACTOR SHALL PROVIDE DRAINAGE AWAY FROM THESE MANHOLES AND SEWER LINES BY CONSTRUCTION OF TEMPORARY DITCHES OR SLOPING THE GROUND AS REQUIRED.
17. THE CONTRACTOR SHALL PROVIDE MOUNDED EARTH AT MANHOLES AND CLEANOUTS THAT HAVE TOP ELEVATIONS GREATER THAN 1 FOOT ABOVE EXISTING GRADE, AS SHOWN ON THE PLANS.
18. INTERURBAN TRAFFIC GENERATED OUTSIDE THE PROJECT AREA AND LOCAL BUSINESS OR RESIDENTIAL TRAFFIC GENERATED WITHIN THE PROJECT AREA ARE TO BE CARRIED THROUGH CONSTRUCTION AS FURTHER PROMULGATED BY PROJECT SPECIAL PROVISIONS. THE CONTRACTOR SHALL UTILIZE BARRICADES, SIGNS, GUARDS, AND FLAGMEN IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
19. WHERE INDICATED IN THE PLANS, THE SANITARY SEWER EXCAVATION SHALL BE SAND FILLED AND FLUSHED (JETTED AND VIBRATED) WITH WATER PER THE REQUIREMENTS LISTED IN THE STANDARD SPECIFICATIONS FOR THE CITY OF WICHITA, UNLESS FLOWABLE FILL OR OTHER IMPROVED BACKFILL MATERIAL IS OTHERWISE SPECIFIED.
20. THE CONTRACTOR SHALL INSTALL AND/OR MAINTAIN EROSION CONTROL METHODS AS SPECIFIED ON SHEETS CG4.2-4.6. 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.
21. CONTRACTOR SHALL VERIFY THE LOCATIONS OF SANITARY SEWER SERVICES AND RECONNECT ALL LIVES SANITARY SEWER SERVICES.
22. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL RE-ESTABLISH CONTROL POINTS AND BENCH MARKS AND VERIFY THEIR ACCURACY.

BENCH MARKS

Datum Bench Mark
Sec. 21, T27S, R1E
10.40' S. of the NW corner of the old Union Train Station, 3 1/2 rails S. of the centerline of the Douglas Avenue viaduct, set vertically in the W. wall of the old Railroad Station.
Elev.=1316.61 NGVD 29 (Arena SWS Outfall vertical control)
Elev.=1317.08 NAVD 88 (Waterwalk vertical control)

BM#1 – Elev.=1294.96
Chiseled square SW corner curb inlet N. side of Waterman on W. side of RR track bridge

BM#2 – Elev.=1296.05
Chiseled square W edge concrete parking lot S. side of concrete drive 25'± N. of the NE corner of Waterman Street and St. Francis Street

BM#3 – Elev.=1294.80
Chiseled square SW corner concrete slab sign base NW corner of Waterman Street and Emporia Street

BM#3A – 1294.71
Chiseled square on concrete base for cross walk signal pole at SW corner of Emporia Street and English Street

BM#3B – 1298.94
Chiseled square on concrete base for light pole at NE corner of Emporia Street and William Street

BM#3C – 1297.42
Chiseled square on top of curb at NE corner of William Street and St. Francis Street

BM#3D – 1298.59
Chiseled square on top of curb 10.00' W of E. end of N. curb WNW of William Street and Santa Fe Avenue

No.	Revision	By	Date

PRIVATE SANITARY SEWER SEWER EXTENSION
SEDGWICK COUNTY ARENA

KEY MAP AND GENERAL NOTES

JAMES L. ARMOUR, P.E. – CITY ENGINEER
PRIVATE PROJECT NO. 1793 PPS (607861)

Professional Engineering Consultants, P.A.
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Designed by	MDK	Job No. 35-05493-002-1324		Sht. CU4.2
Drawn by	CSL, JAN	Date	JANUARY 2006	

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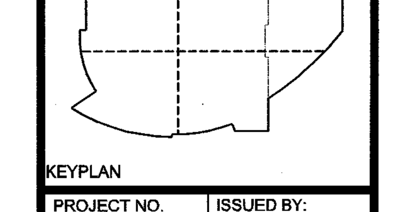


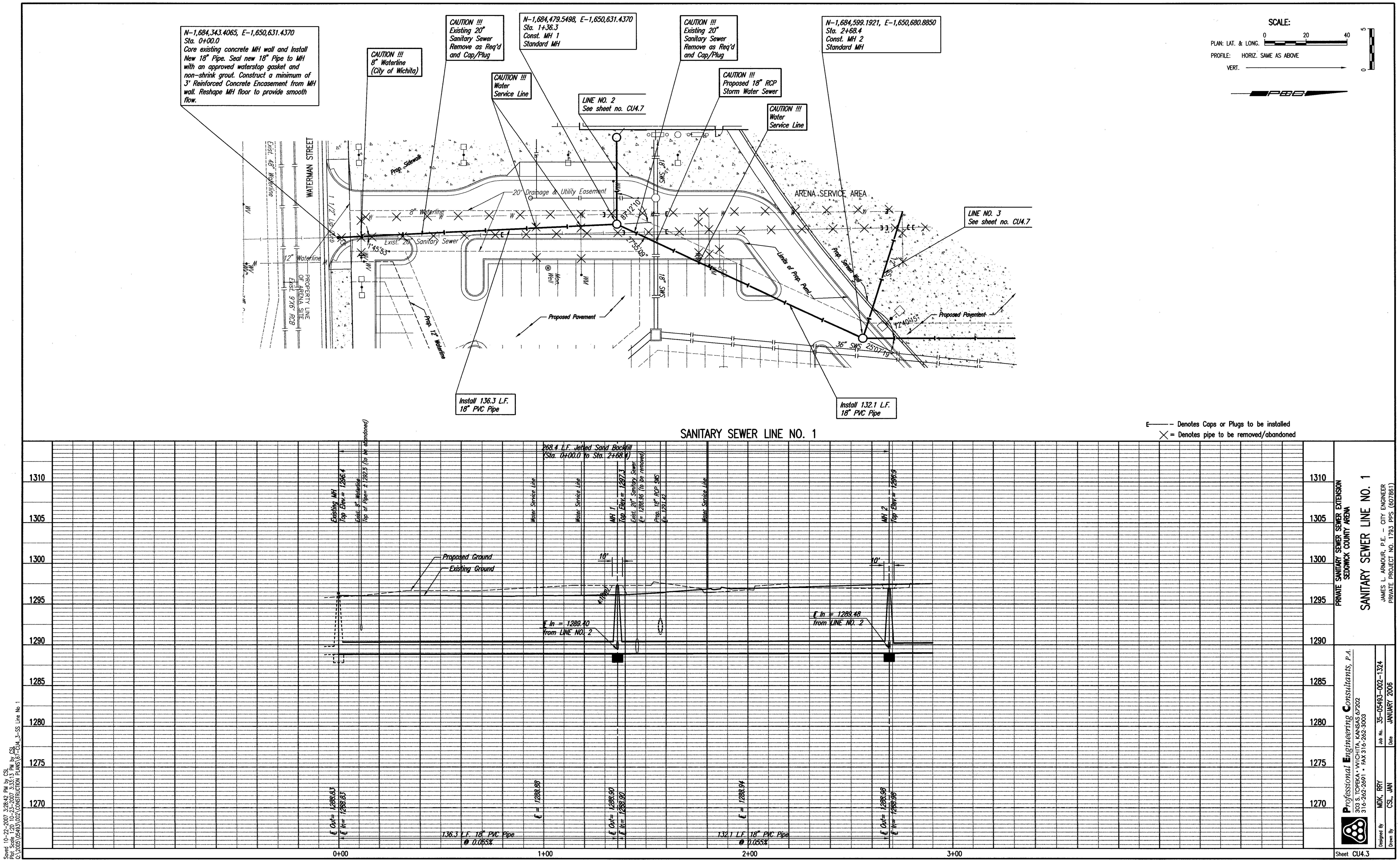
KEYPLAN

PROJECT NO. 05220	ISSUED BY: PEC
DRAWN BY: CSL	REVIEWED BY: RRY
ISSUE DATE: 10-26-2007	

SHEET TITLE:

SANITARY SEWER KEY MAP

CU4.2



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PRIVATE SANITARY SEWER SEWER EXTENSION
SEDGWICK COUNTY ARENA

SANITARY SEWER LINE NO. 1

JAMES L. ARMOUR, P.E. – CITY ENGINEER
PRIVATE PROJECT NO. 1793 PPS (607861)

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Designed By MDK, RRY — Job No. 35-05493-002-1324
Drawn By CSL, JAN — Date JANUARY 2006

Sheet CU4.3

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SEDGWICK COUNTY ARENA

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SHEET TITLE:

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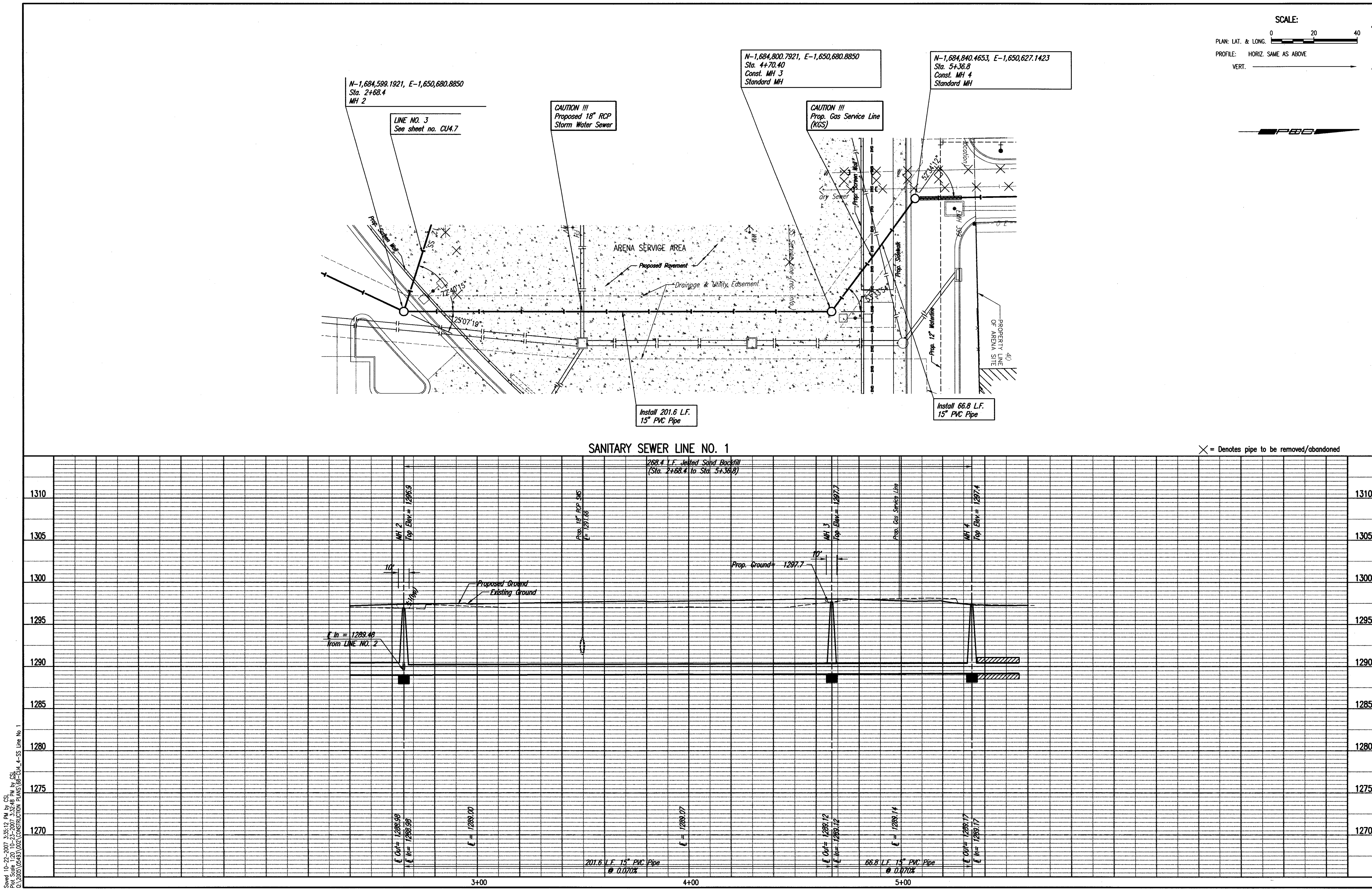

PRIVATE SANITARY SEWER SEWER EXTENSION
SEDGWICK COUNTY ARENA

SANITARY SEWER LINE NO. 1

JAMES L. ARMOUR, P.E. – CITY ENGINEER
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ISSUE DATE:	10-26-2007

SHEET TITLE:

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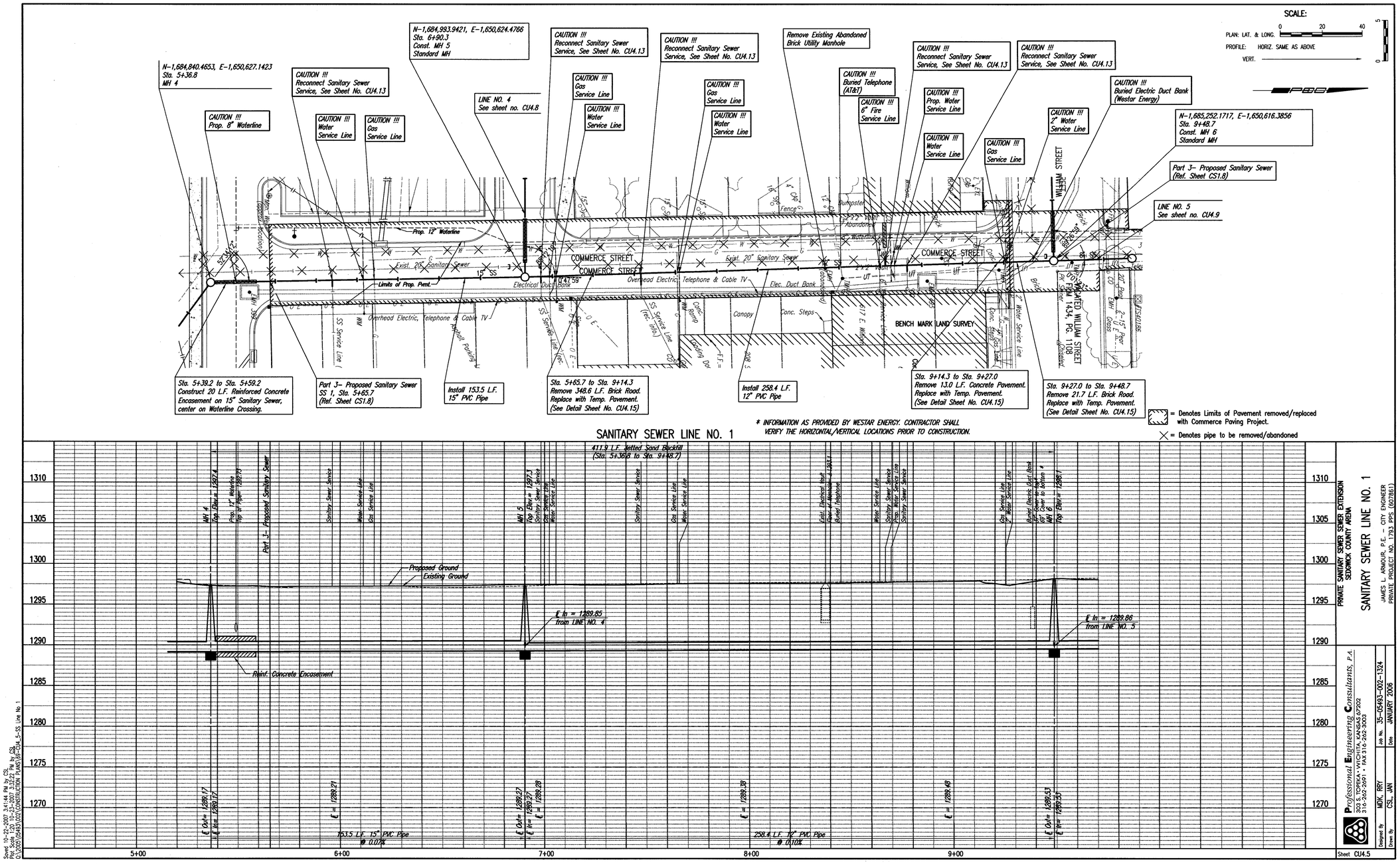

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SEDGWICK COUNTY ARENA

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PRIVATE SANITARY SEWER SEWER EXTENSION
SEDGWICK COUNTY ARENA

SANITARY SEWER LINE NO. 1

JAMES L. ARMOUR, P.E. – CITY ENGINEER
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Date JANUARY 2006

Sheet CU4.5

KEYPLAN

PROJECT NO. 05220	ISSUED BY: PEC
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ISSUE DATE: 10-26-2007	

SHEET TITLE:

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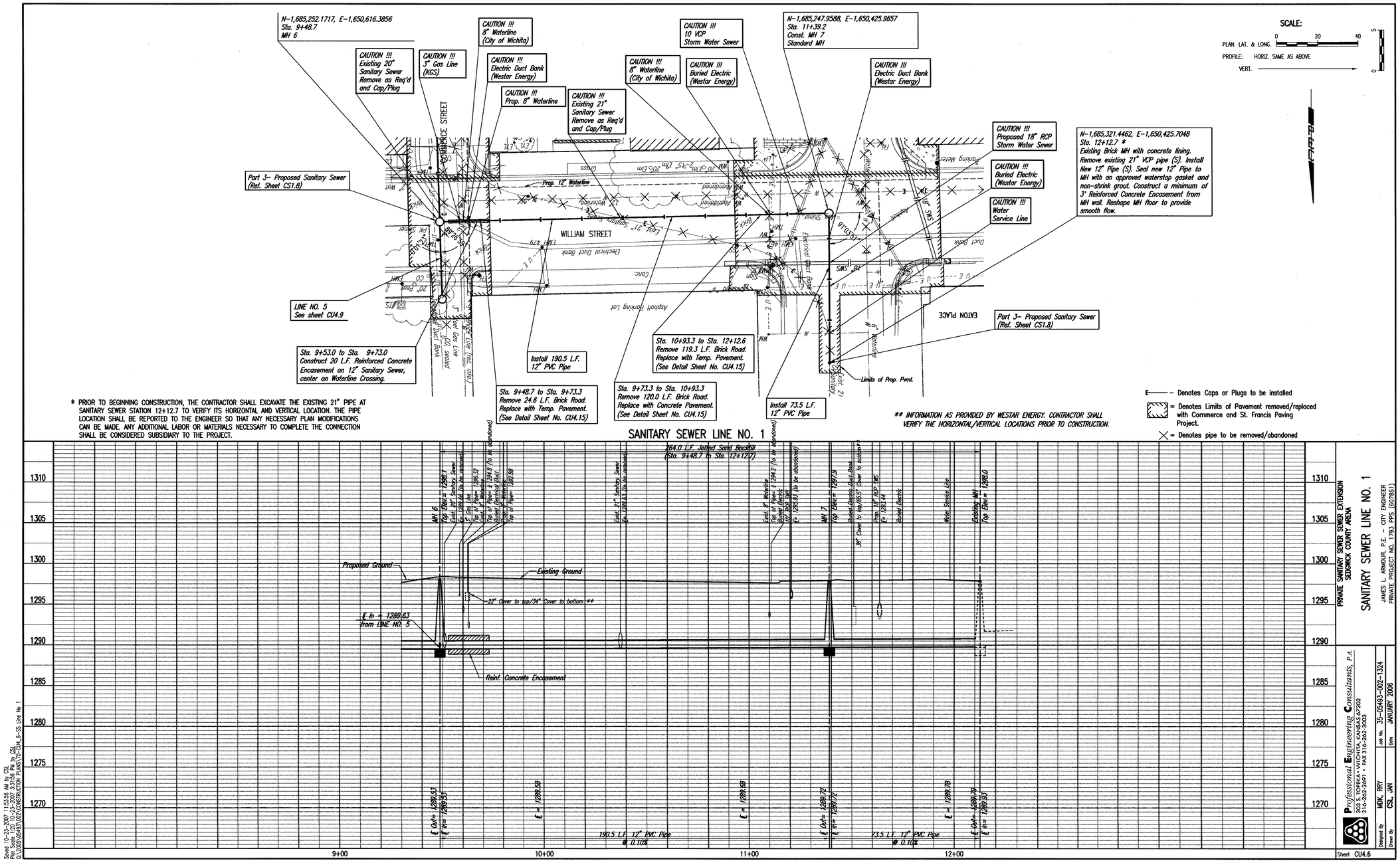

* PRIOR TO BEGINNING CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE THE EXISTING 21" PIPE AT SANITARY SEWER STATION 12+12.7 TO VERIFY ITS HORIZONTAL AND VERTICAL LOCATION. THE PIPE LOCATION SHALL BE REPORTED TO THE ENGINEER SO THAT ANY NECESSARY PLAN MODIFICATIONS CAN BE MADE. ANY ADDITIONAL LABOR OR MATERIALS NECESSARY TO COMPLETE THE CONNECTION SHALL BE CONSIDERED SUBSIDIARY TO THE PROJECT.

** INFORMATION AS PROVIDED BY WESTAR ENERGY. CONTRACTOR SHALL VERIFY THE HORIZONTAL/VERTICAL LOCATIONS PRIOR TO CONSTRUCTION.

SANITARY SEWER LINE NO. 1

PRIVATE SANITARY SEWER EXTENSION
SEDGWICK COUNTY ARENA

SANITARY SEWER LINE NO. 1

JAMES L. ARMOUR, P.E. - CITY ENGINEER
PRIVATE PROJECT NO. 1793 SPS (607/851)

Professional Engineering Consultants, P.A.
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Job No. 35-05493-002-1324
Date JANUARY 2006
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Sheet CU4.6

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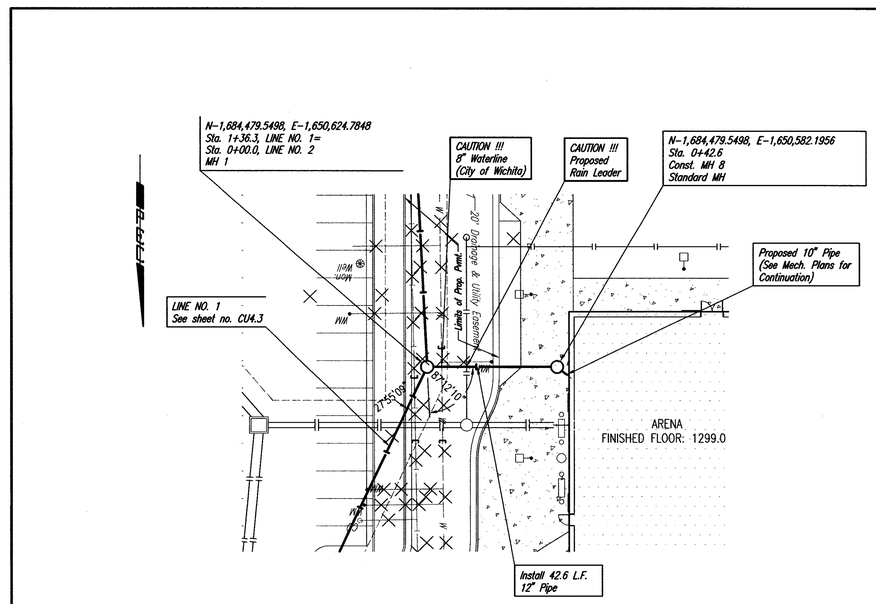

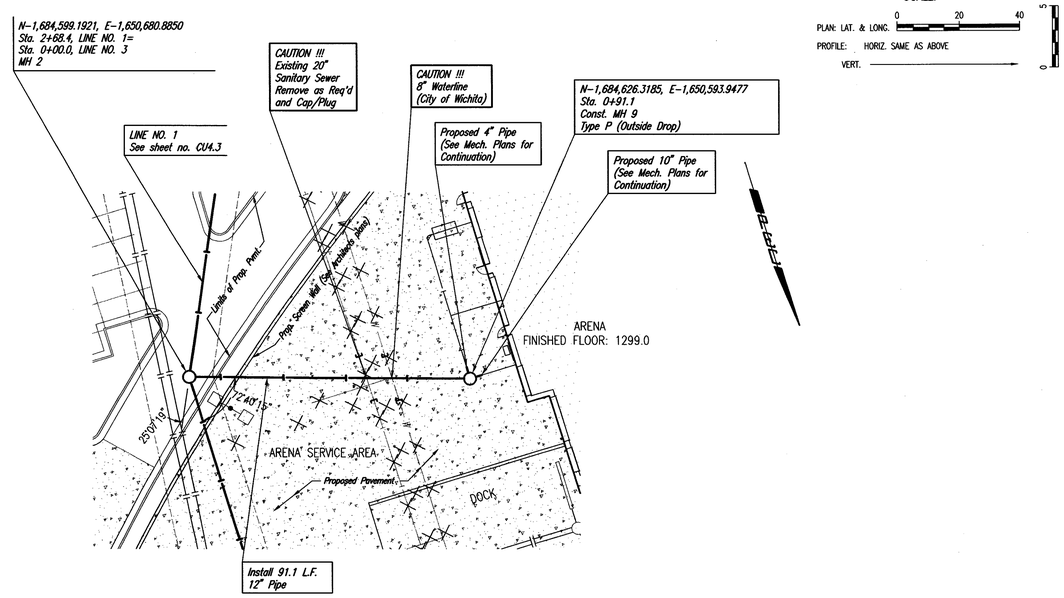

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E—— Denotes Caps or Plugs to be installed
×— Denotes pipe to be removed/abandoned

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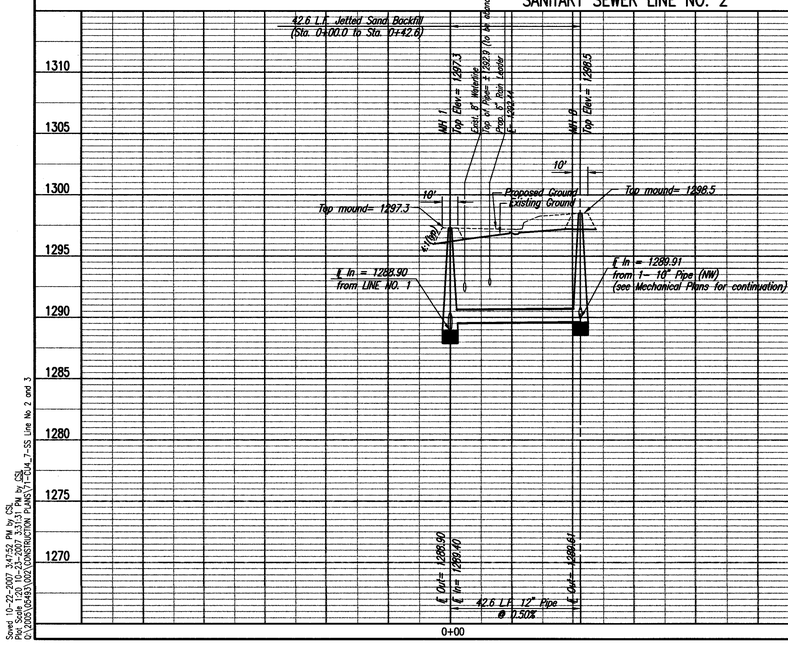

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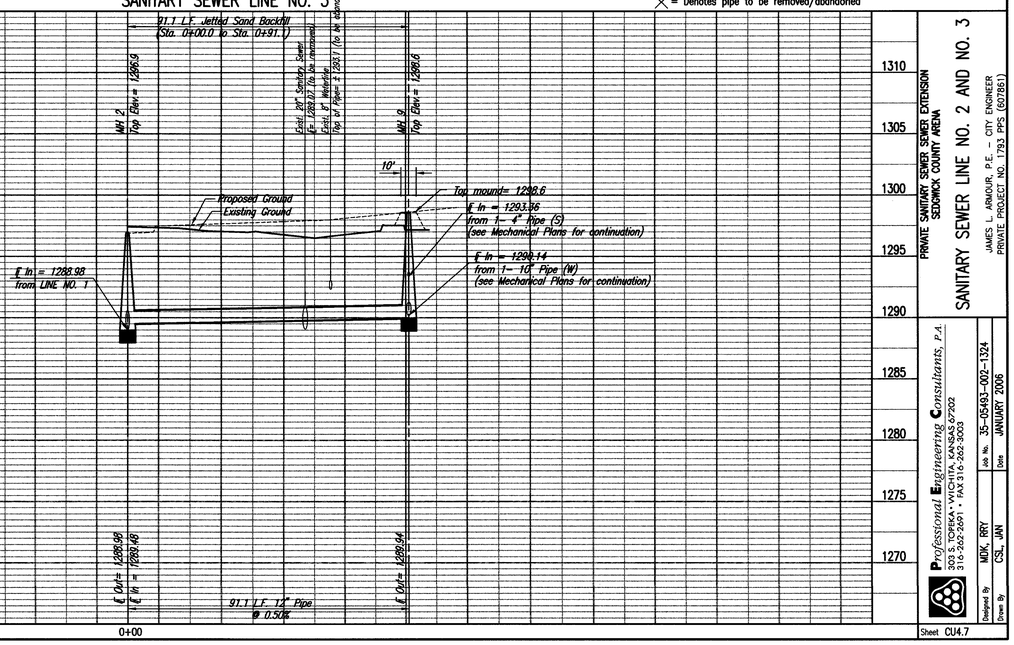

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Sheet CU4.7

PRIVATE SANITARY SEWER SEWER EXTENSION
SEDGWICK COUNTY ARENA

SANITARY SEWER LINE NO. 2 AND NO. 3

JAMES L. ARMOUR, P.E. – CITY ENGINEER
PRIVATE PROJECT NO. 1783, PFS (607857)

Professional Engineering Consultants, P.A.
303 S. TOPEKA • WICHITA, KANSAS 67202
316-262-2691 • FAX 316-262-3003
Designed By: MDK, RRY
Drawn By: CSL, JAN
Job No. 35-05493-002-1324
Date JANUARY 2006

MICHAEL D. KEY — 13944 — 10/26/07 — KANSAS — PROFESSIONAL ENGINEER

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ARCHITECT OF RECORD	DESIGN ARCHITECT
105 N. Washington	
Wichita, KS 67202	
McCLUGGAGE VANSICKLE AND PERRY	WALTER P. MOORE
ASSOCIATE ARCHITECT	STRUCTURAL ENGINEER
GOSSEN LIVINGSTON ASSOCIATES, INC.	CONSULTANTS
ASSOCIATE ARCHITECT	MECHELECT/PLUMBING ENGINEER

ME ENGINEERS	
ASSOCIATE MECHELECT/PLUMBING ENGINEER	
HARRIS, KOCH, JOHNSON, HADDON & WILLIAMS, INC.	
AUDIO VISUAL CONSULTANT	
BIGELOW	
FOOD SERVICE CONSULTANT	

SEDGWICK COUNTY ARENA

500 E. WATERMAN, WICHITA, KS 67202

FOR CONSTRUCTION
OCTOBER 26, 2007

PACKAGE

REVISIONS

NO.	DATE	DESCRIPTION

KEYPLAN

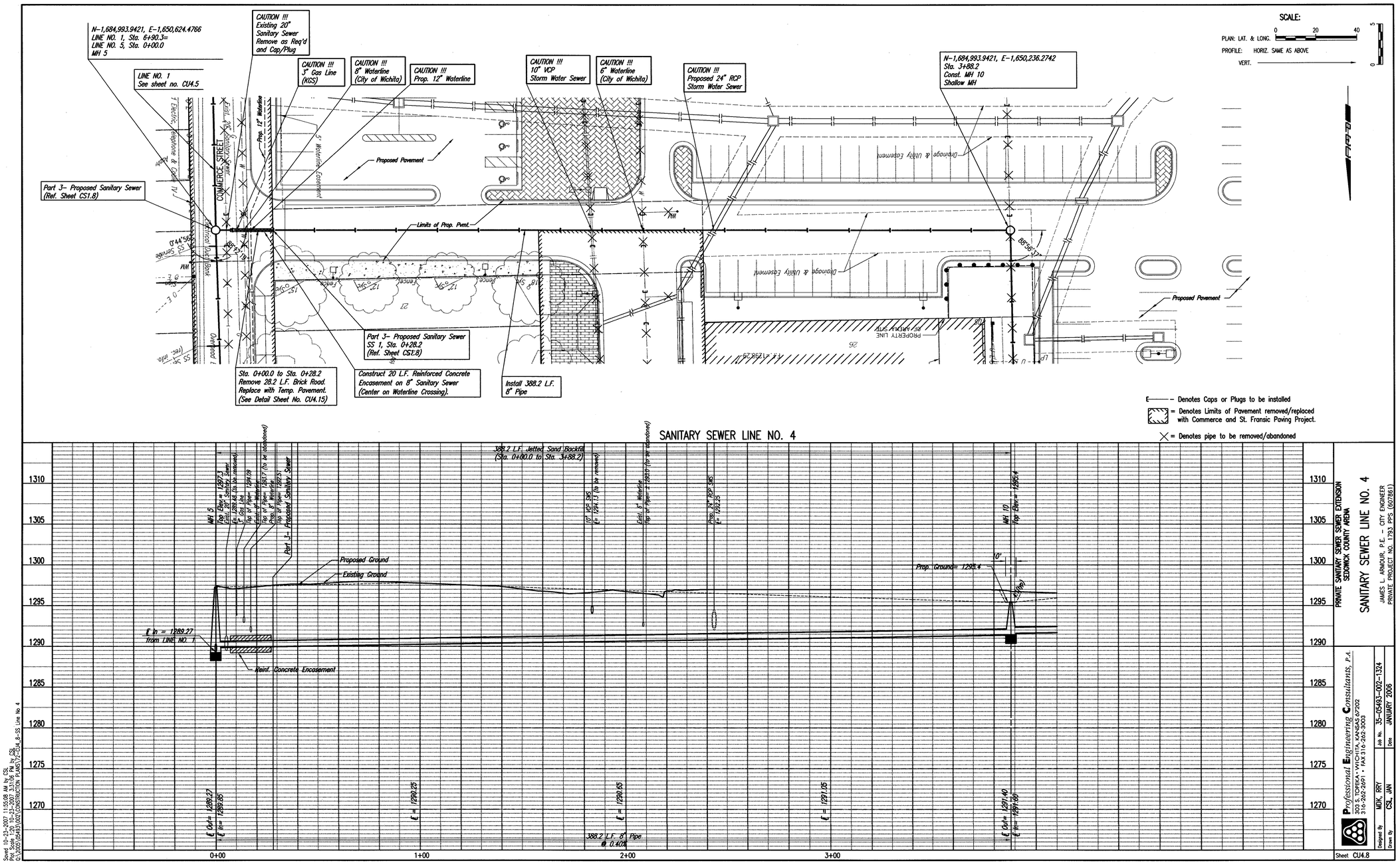
PROJECT NO. 05220	ISSUED BY: PEC
DRAWN BY: CSL	REVIEWED BY: RRY

ISSUE DATE: 10-26-2007

SHEET TITLE:

SANITARY SEWER LINE NO. 2 AND NO. 3

CU4.7



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MICHAEL D. KRAUS
13944
10/24/07
KANSAS
PROFESSIONAL ENGINEER

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WALTER P. MOORE STRUCTURAL ENGINEER	FOOD SERVICE CONSULTANT
McCLOUGH ROBERTS & MONTGOMERY AND PERRY MACCHIATO ASSOCIATE ARCHITECT	PROFESSIONAL ENGINEERING CONSULTANTS GOSSEN LIVINGSTON ASSOCIATES, INC. ASSOCIATE ARCHITECT
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SEDGWICK COUNTY ARENA

500 E. WATERMAN, WICHITA, KS 67202

FOR CONSTRUCTION
OCTOBER 26, 2007

PACKAGE

REVISIONS

NO.	DATE	DESCRIPTION

KEYPLAN

PROJECT NO. 05220	ISSUED BY: PEC
DRAWN BY: CSL	REVIEWED BY: RRY
ISSUE DATE: 10-26-2007	

SHEET TITLE:

SANITARY SEWER LINE NO. 4

CU4.8

PRIVATE SANITARY SEWER EXTENSION
SEDGWICK COUNTY ARENA

SANITARY SEWER LINE NO. 4

JAMES L. ARMOUR, P.E. – CITY ENGINEER
PRIVATE PROJECT NO. 1793, IPFS (607261)

Professional Engineering Consultants, P.A.
303 S. TOPEKA • WICHITA, KANSAS 67202
316-262-2691 • FAX 316-262-3003

Designed By	MDK, RRY	Job No.	35-05483-002-1324
Drawn By	CSL, JAN	Date	JANUARY 2006

Sheet CU4.8

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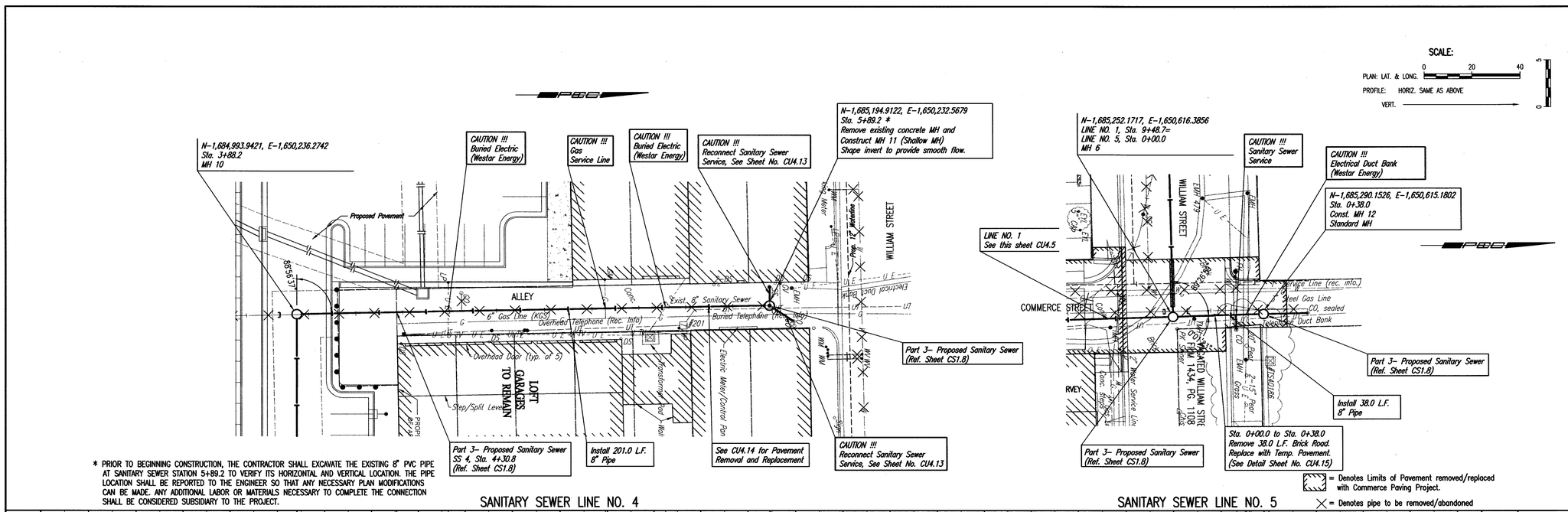

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MICHAEL D. KEE
LICENSED
KANSAS
13944
12/4/07
PROFESSIONAL ENGINEER

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ARCHITECT OF RECORD — ASSOCIATE MECH/ELECT/PLUMBING ENGINEER
105 N. Washington — WRIGHTSON, JOHNSON, HADDON & WILLIAMS, INC.
Wichita, KS 67202
MCCLAUGHERTY VANSICKLE AND PERRY — WALTER P. MOORE — AUDIO VISUAL CONSULTANT
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SEDGWICK COUNTY ARENA
500 E. WATERMAN, WICHITA, KS 67202

FOR CONSTRUCTION
OCTOBER 26, 2007

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REVISIONS

NO.	DATE	DESCRIPTION

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PROJECT NO. 05220	ISSUED BY: PEC
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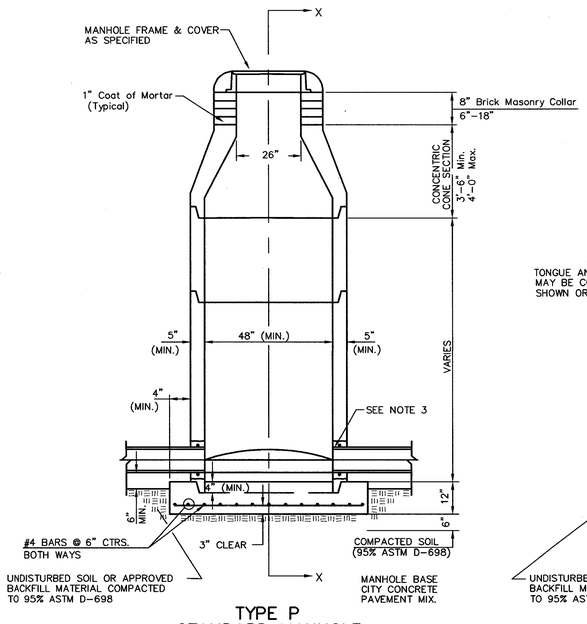
ISSUE DATE:	10-26-2007

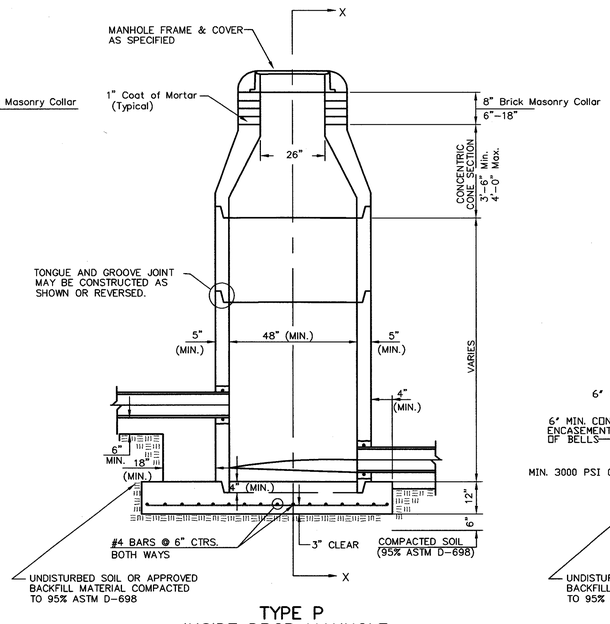
SHEET TITLE:
SANITARY SEWER LINE NO. 4 AND NO. 5

CU4.9

SEWER APPURTENANCES DETAILS



TYPE P STANDARD MANHOLE



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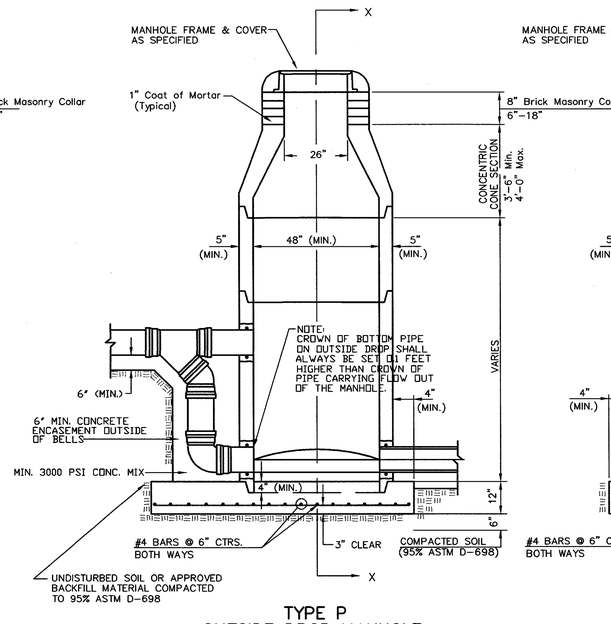

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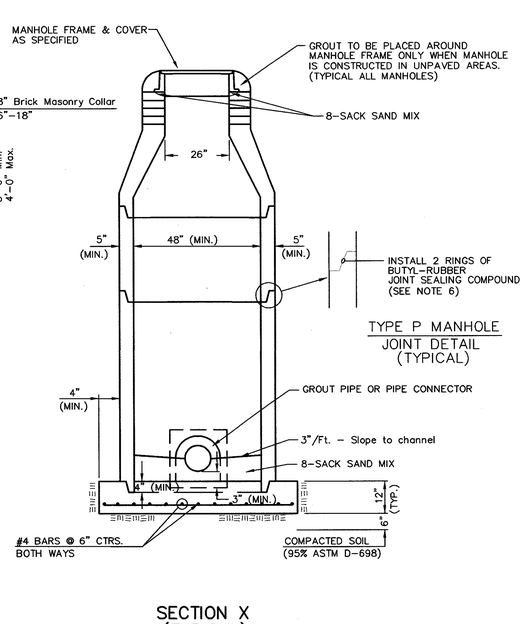

TYPE P MANHOLE
JOINT DETAIL
(TYPICAL)

SECTION X (TYPICAL)

GENERAL NOTES

PRECAST MANHOLE NOTES

1. ALL PRECAST CONCRETE MANHOLE SECTIONS SHALL CONFORM TO THE LATEST REVISIONS OF A.S.T.M. C478 AS MODIFIED BY THE SPECIFICATIONS.
2. NON–SHRINK GROUT SHALL BE NON–METALLIC TYPE.
3. APPROVED FLEXIBLE WATERSTOP GASKETS SHALL BE INSTALLED TO JOIN THE SEWER TO THE MANHOLE WALL WHEN A.B.S. COMPOSITE PIPE OR P.V.C. PIPE IS USED. FOR OTHER TYPES OF PIPE THE SEWER SHALL BE GROUTED IN PLACE WITH NON–SHRINK GROUT. THE SEWER PIPE SHALL BE SUPPORTED WITH CONCRETE ENCASEMENT A MINIMUM OF 3 FEET FROM THE MANHOLE WALL AND TO THE FIRST JOINT FOR V.C.P. SUCH THAT THE JOINT REMAINS FLEXIBLE.
4. ALL INSIDE SURFACES OF THE CONCRETE MANHOLE WHICH WOULD BE EXPOSED TO SEWER GAS SHALL BE COATED WITH 2 COATS THEMEC SERIES 66 HI–BUILD EPOXOLINE, DRY THICKNESS OF 8 MILS (MIN.)
5. EXTERIOR MANHOLE WALLS SHALL BE COATED WITH 1 COAT MOBILARMA 633 BITUMINOUS COATING.
6. JOINT SEALING COMPOUND SHALL BE KENT SEAL NO. 2 OR APPROVED EQUAL.
7. PRECAST MANHOLES SHALL BE SET AT LEAST 4 INCHES INTO THE MANHOLE BASE.
8. TOP OF MANHOLE FLOOR SLAB SHALL BE AT LEAST 3 INCHES BELOW THE FLOW LINE OF THE OUTLET PIPE TO INSURE SUFFICIENT MINIMUM THICKNESS OF SHAPED INVERT.
9. LIFTING HOLES SHALL BE FILLED WITH NON–SHRINK GROUT AND THE INTERIOR SURFACE COATED AS SPECIFIED.
10. MORTAR USED IN MASONRY CONSTRUCTION SHALL CONTAIN 8 SACKS OF CEMENT PER CUBIC YARD. CONCRETE USED IN MANHOLE BASES SHALL CONFORM TO THE REQUIREMENTS OF CONCRETE FOR CONCRETE PAVEMENT CONSTRUCTION AS SPECIFIED IN THE CITY STANDARD PAVING SPECIFICATIONS USING CITY CONCRETE PAVEMENT MIX WITHOUT AIR ENTRAINING ADMIXTURE. MORTAR SHALL BE PLACED AROUND THE MANHOLE RING AS SHOWN ON THE DRAWINGS WHEN MANHOLES ARE CONSTRUCTED IN UNPAVED AREAS. MANHOLES CONSTRUCTED WHERE PIPE SIZES ARE SMALLER THAN 24" SHALL HAVE AN INSIDE DIAMETER OF 4'. MANHOLES CONSTRUCTED WHERE PIPE SIZES ARE 24" OR LARGER SHALL HAVE AN INSIDE DIAMETER OF 5'. COMPLETED MANHOLE SHALL BE WITHOUT LEAKS AND WATER TIGHT.
11. REINFORCING STEEL SHALL BE INSTALLED IN THE MANHOLE BASES AND SHALL CONSIST OF NO. 4 BARS PLACED ON 6" CENTERS IN BOTH DIRECTIONS. THE MANHOLE BASE REINFORCEMENT SHALL BE PLACED AT LEAST 3" ABOVE THE BOTTOM OF THE MANHOLE BASE. ALL COSTS FOR FURNISHING AND INSTALLING REINFORCING STEEL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE MANHOLE.
12. OPENINGS SHALL BE CUT INTO THE MANHOLE WALL WHEN OUTSIDE DROPS ARE CONSTRUCTED ON EXISTING MANHOLES. SUCH OPENINGS CUT INTO EXISTING MANHOLES SHALL BE AS SMALL AS PRACTICAL TO FACILITATE INSTALLING AND GROUTING THE NEW PIPE IN PLACE. WATERSTOP GASKETS SHALL BE USED WITH P.V.C. AND A.B.S. COMPOSITE PIPE. THE NEW PIPE SHALL BE GROUTED INTO THE OPENING USING AN APPROVED NONSHRINK GROUT FOR THE FULL MANHOLE WALL THICKNESS. THE EXTERIOR OF THE COMPLETED CONNECTION SHALL BE SEALED WITH AN APPROVED BITUMINOUS COATING SUCH THAT THE CONNECTION WILL BE WATER TIGHT. FLOOR OF MANHOLE SHALL BE MODIFIED TO FORM NEW FLOW CHANNEL FOR THE NEW CONNECTION AS INDICATED BY THE DRAWING. THIS WORK, INCLUDING MODIFICATION OF MANHOLE FLOOR, SHALL BE PAID FOR AT THE UNIT PRICE BID FOR OUTSIDE DROP STACK CONSTRUCTED ON EXISTING MANHOLE.
13. THE FLOORS OF ALL MANHOLES SHALL BE SHAPED WITH FLOW CHANNELS SUCH THAT THE MANHOLES WILL BE SELF CLEANING AND FREE OF AREAS WHERE SOLIDS COULD BE DEPOSITED AS SEWAGE FLOWS THROUGH THE MANHOLE FROM ALL INLET PIPES TO THE OUTLET PIPE. FLOW CHANNELS SHALL BE FORMED TO MATCH THE BOTTOM HALVES OF THE INFLOWING PIPES AND THE OUTFLOWING PIPE AS SHOWN BY THE DRAWINGS EXCEPT FOR INSIDE DROP MANHOLES. FLOW CHANNELS FOR INSIDE DROP MANHOLES SHALL BE CONSTRUCTED AS INDICATED BY THE DRAWING. MANHOLE FLOORS SHALL HAVE SLOPES OF 3 INCHES PER FOOT IN THE AREAS OUTSIDE OF THE FLOW CHANNELS SLOPED TOWARD THE FLOW CHANNELS. PIPES LAID THROUGH MANHOLES SHALL HAVE THE TOP HALF REMOVED TO NEAT LINES FOR THE FULL INSIDE DIAMETER OF THE MANHOLE. MANHOLE FLOORS SHALL THEN BE SHAPED AROUND THE BOTTOM HALF OF THE PIPE WHICH FORMS THE FLOW CHANNEL.
14. PIPES INSTALLED WITHIN THE EXCAVATION MADE FOR THE MANHOLE SHALL BE CRADLED WITH CONCRETE TO THE LIMITS OF THE MANHOLE EXCAVATION. WHEN CLAY PIPE IS USED, THE CRADLE SHALL EXTEND TO THE FIRST JOINT OUTSIDE THE MANHOLE. THE CRADLE SHALL BE TERMINATED AT THE CLAY PIPE JOINT IN A MANNER WHICH WILL MAINTAIN THE FLEXIBILITY OF THE JOINT. COST OF CRADLE WITHIN MANHOLE EXCAVATION OR TO CLAY PIPE JOINTS ADJACENT TO MANHOLE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE MANHOLE.
15. MANHOLE COVER CASTINGS AND MANHOLE FRAME CASTINGS SHALL CONFORM TO THE REQUIREMENTS AS INDICATED IN THE STANDARD SPECIFICATIONS AND AS SHOWN IN THE STANDARD DETAIL DRAWING.
16. THE VERTICAL DROP IN INSIDE DROP MANHOLES SHALL NOT EXCEED 2' FOR INFLOWING PIPES SIZED 12" OR SMALLER AND 2' FOR INFLOWING PIPES LARGER THAN 12". THE CROWNS OF INFLOWING PIPES SHALL NEVER BE SET LOWER THAN THE CROWN OF THE OUTFLOWING PIPE.
17. STANDARD MANHOLES AND STANDARD INSIDE DROP MANHOLES SHALL BE BID AS STANDARD MANHOLES FOR THE TYPE AND DIAMETER INDICATED. OUTSIDE DROP MANHOLES SHALL BE BID AS STANDARD OUTSIDE DROP MANHOLES FOR THE TYPE AND DIAMETER INDICATED. ALL MANHOLE DIAMETERS WILL BE 4' UNLESS INDICATED OTHERWISE.
18. A BRICK MASONRY COLLAR SHALL BE INSTALLED BETWEEN THE CAST IRON FRAME AND THE CONCENTRIC CONE. THE COLLAR WILL HAVE 8" WALLS AND A VERTICAL HEIGHT OF 6" MINIMUM AND 18" MAXIMUM. A 1" COAT OF MORTAR WILL BE PLASTERED ON THE OUTSIDE OF THE COLLAR. THE USE OF PRE–CAST CONCRETE SPACERS FOR MANHOLE TOP ADJUSTMENT IS ALSO ALLOWED.

THE CITY OF WICHITA

CITY ENGINEER'S OFFICE
CITY HALL – SEVENTH FLOOR
455 NORTH MAIN STREET
WICHITA, KANSAS 67202
(316) 268-4422
(316) 268-4114 FAX

STANDARD TYPE 'P' MANHOLES

JAMES L. ARMOUR, P.E. – CITY ENGINEER

PROJECT NUMBER	OCA NO.
1793 PPS	(607861)
DATE: MAR 96	SHEET CU4.10

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105 N. Washington	ME ENGINEERS
Wichita, KS 67202	ASSOCIATE MECH/ELECT/PLUMBING
MCCLURE GEO. UNSICKLE AND PERRY	ENGINEER
ASSOCIATE ARCHITECT	WRIGHTSON, JOHNSON, HADDON &
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GOSSEN LIVINGSTON ASSOCIATES, INC	PROFESSIONAL ENGINEERING
ASSOCIATE ARCHITECT	CONSULTANTS
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SEDGWICK COUNTY ARENA
500 E. WATERMAN, WICHITA, KS 67202

FOR CONSTRUCTION
OCTOBER 26, 2007

PACKAGE

REVISIONS

NO.	DATE	DESCRIPTION

KEYPLAN

PROJECT NO. 05220	ISSUED BY: PEC
DRAWN BY:	REVIEWED BY: RRY

ISSUE DATE: 10-26-2007

SHEET TITLE:
STANDARD TYPE P MANHOLE DETAILS

CU4.10

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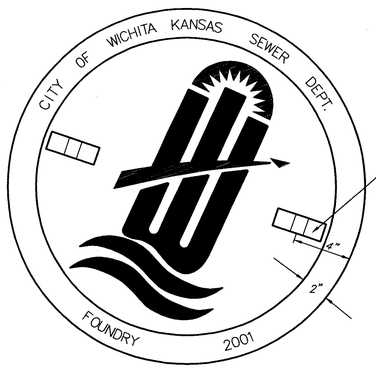
MANHOLE FRAME AND COVER DETAIL

ADOPTED AS STANDARD DESIGN BY
CITY OF WICHITA, KANSAS

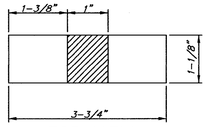
MANHOLE COVER
Weight = 180 Lbs.



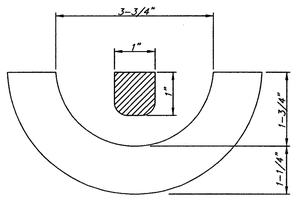
TOP VIEW

BOTTOM VIEW

PICKHOLE DETAIL

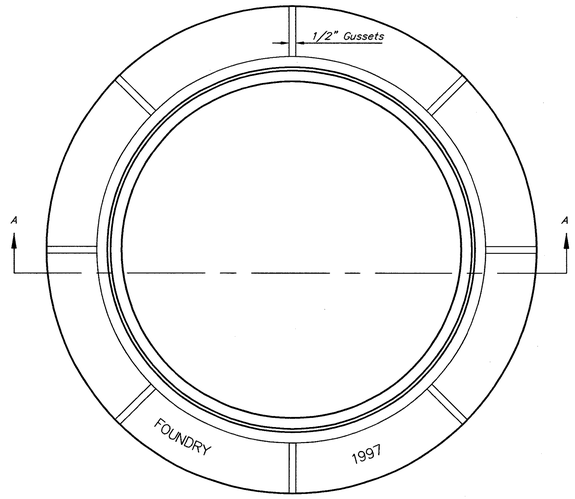


TOP VIEW



SECTION VIEW

MANHOLE FRAME
Weight = 240 Lbs.



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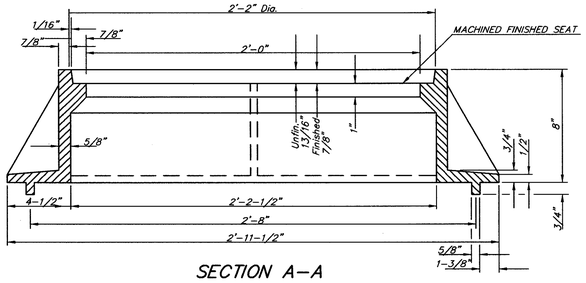
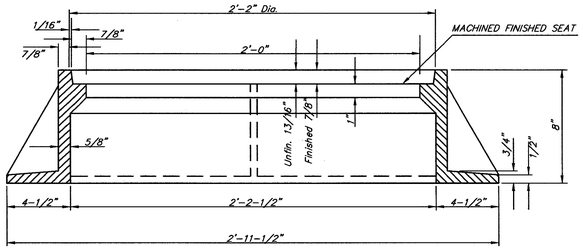
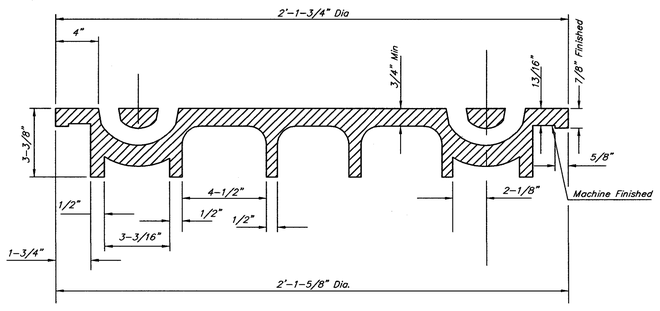


SECTION A–A
MUD RING



SECTION A–A



SECTION VIEW

GENERAL NOTES

1. MANHOLE CASTINGS SHALL BE MANUFACTURED USING GOOD QUALITY GRAY IRON CONFORMING TO CLASS 30 OF A.S.T.M. DESIGNATION A-48. DIMENSIONS AND WEIGHTS SHOWN ON THE DETAILED DRAWINGS SHALL BE CONSIDERED AS MINIMUM REQUIREMENTS AND ANY DEVIATIONS FROM THE DIMENSIONS SHOWN MUST BE SPECIFICALLY APPROVED. THE FINISHED CASTINGS SHALL BE OF UNIFORM QUALITY, FREE FROM BLOWHOLES, POROSITY, HARD SPOTS, SHRINKAGE DISTORTIONS OR OTHER DEFECTS.
2. MANHOLE CASTINGS SHALL WEIGH A MINIMUM OF 180 POUNDS ON THE SOLID COVER AND 240 POUNDS ON THE MANHOLE RING. THIS IS A TOTAL OF 420 POUNDS ON A RING AND COVER SET. CASTINGS WEIGHING LESS THAN THE MINIMUM SPECIFICATIONS WILL NOT BE ACCEPTED.
3. MANHOLE CASTINGS SHALL BE MANUFACTURED SUCH THAT A COVER MANUFACTURED BY ANY ONE FOUNDRY WILL FIT INTERCHANGEABLY INTO A FRAME MANUFACTURED BY ANOTHER FOUNDRY AND STILL MEET ALLOWABLE CLEARANCES AND NON-ROCKING REQUIREMENTS. THIS WILL REQUIRE MANUFACTURING OF THE MATCHING FACES ON THE COVER AND THE FRAME TO CLOSE TOLERANCES.
4. THE OUTSIDE CIRCUMFERENCE OF THE VERTICAL FACE OF THE COVER AND THE INSIDE CIRCUMFERENCE OF THE VERTICAL FACE IN THE FRAME RECESS SHALL BE MANUFACTURED TO TOLERANCES SUCH THAT THE CLEARANCE BETWEEN THE COVER AND FRAME WILL NOT EXCEED 1/8" AT ANY POINT AROUND THE CIRCUMFERENCE OF THE COVER. THE SEATING SURFACES BETWEEN THE COVER AND FRAME SHALL BE MACHINED SUCH THAT THESE SEATING SURFACES SHALL MAKE FULL CONTACT FOR THEIR FULL CIRCUMFERENCE TO PRECLUDE THE COVER FROM ROCKING IN THE FRAME.
5. THE MANHOLE FRAME AND COVER SHALL BE MARKED WITH LETTERING INDICATING THE NAME OF THE MANUFACTURER AND THE YEAR WHEN THE COVER OR FRAME WAS CAST. THE COVER SHALL BE FURTHER IDENTIFIED WITH REGARDS TO OWNERSHIP USING LETTERS AT LEAST 1 INCH IN HEIGHT. THIS IDENTIFICATION SHALL BE "CITY OF WICHITA SEWER DEPARTMENT". THE WORD DEPARTMENT MAY BE ABBREVIATED. THE TEXTURE OF THE TOP SURFACE OF THE COVER SHALL BE MANUFACTURED WITH THE CITY OF WICHITA LOGO AS INDICATED ON THE DRAWINGS. SMOOTH BLOCKOUTS SHALL BE UTILIZED TO HIGHLIGHT THE LETTERING ON THE COVER SURFACE. THE TOTAL AREA OF SMOOTH SURFACE BLOCKOUT SHALL NOT EXCEED THE AREA AS INDICATED ON THE DRAWING. POSITIONING OF SMOOTH BLOCKOUTS AND LETTERING MAY VARY FROM THAT SHOWN ON THE DETAILED DRAWING.

THE CITY OF WICHITA

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MANHOLE FRAME AND COVER

JAMES L. ARMOUR, P.E. – CITY ENGINEER

PROJECT NUMBER	OCA NO.
1793 PPS	(607861)
DATE: MAR 96	SHEET CU4.11

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ME ENGINEERS ARCHITECT OF RECORD 105 N. Washington Wichita, KS 67202	HOK SPORT DESIGN ARCHITECT
MECHANICAL/ELECTRICAL AND PERRY ASSOCIATE ARCHITECT	ASSOCIATE MECH/ELECT/PLUMBING ENGINEER
GOSSEN LIVINGSTON ASSOCIATES, INC ASSOCIATE ARCHITECT	WALTER P. MOORE STRUCTURAL ENGINEER
PROFESSIONAL ENGINEERING CONSULTANTS	WRIGHTSON, JOHNSON, HADDON & WILLIAMS, INC. AUDIO VISUAL CONSULTANT
MECH/ELECT/PLUMBING ENGINEER	BIGELOW FOOD SERVICE CONSULTANT

SEDGWICK COUNTY ARENA
500 E. WATERMAN, WICHITA, KS 67202

FOR CONSTRUCTION
OCTOBER 26, 2007

PACKAGE

REVISIONS

NO.	DATE	DESCRIPTION

KEYPLAN

PROJECT NO. 05220	ISSUED BY: PEC
DRAWN BY:	REVIEWED BY: RRY

ISSUE DATE: 10-26-2007

SHEET TITLE:

MANHOLE FRAME AND COVER DETAILS

CU4.11

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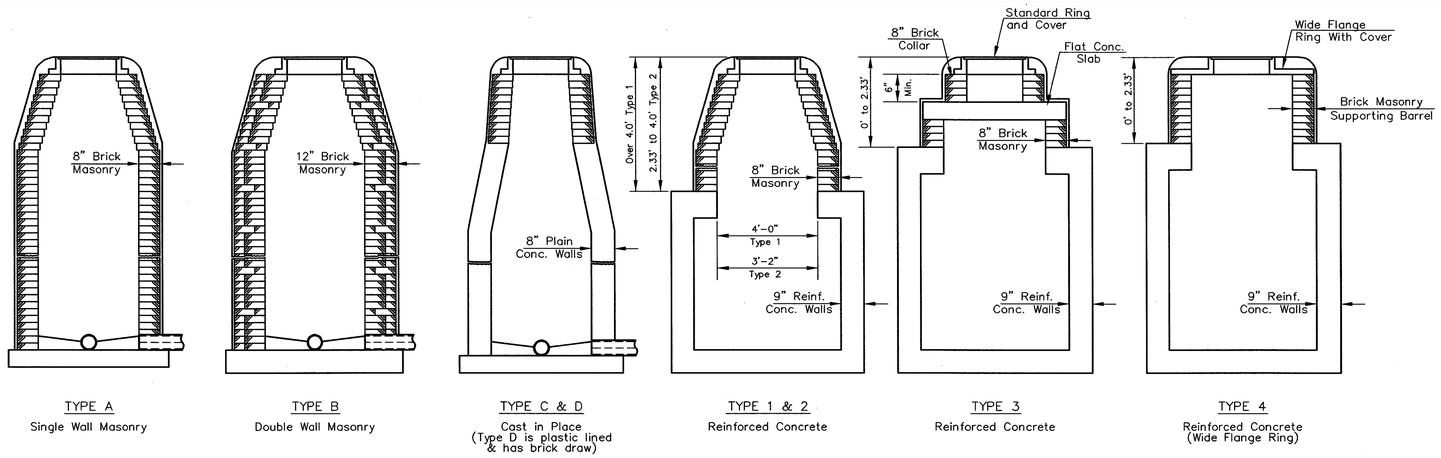


TYPE A
Single Wall Masonry

TYPE B
Double Wall Masonry

TYPE C & D
Cast in Place
(Type D is plastic lined & has brick draw)

TYPE 1 & 2
Reinforced Concrete

TYPE 3
Reinforced Concrete

TYPE 4
Reinforced Concrete
(Wide Flange Ring)

DEFINITION SKETCHES – CITY OF WICHITA STANDARD MANHOLES

GENERAL NOTES

MANHOLES DESIGNATED FOR ADJUSTMENT SHALL BE RAISED OR LOWERED AS NECESSARY SUCH THAT THE CASTING WILL CONFORM TO THE REQUIRED ELEVATION. TOPS OF STORM OR SANITARY SEWER MANHOLES LOCATED IN PAVED AREAS SHALL BE SET FLUSH WITH THE PAVEMENT. TOPS OF SANITARY SEWER MANHOLES LOCATED IN GRASSED AREAS SHALL BE SET FOUR TENTHS OF ONE FOOT (0.40') HIGHER THAN THE FINISHED GRADE. TOPS OF STORM SEWER MANHOLES LOCATED IN GRASSED AREAS SHALL BE SET FLUSH WITH THE FINISHED GRADE. TOPS OF STORM OR SANITARY SEWER MANHOLES LOCATED IN UNPAVED TRAVEL WAYS SHALL BE SET SIX INCHES (6") BELOW FINISHED GRADE.

THE NEW TOP SPECIFIED ON THE PLANS WAS ESTABLISHED FROM THE BEST INFORMATION AVAILABLE AT THE TIME THE PLANS WERE PREPARED. THE ACTUAL TOP ELEVATION SHALL BE VERIFIED OR ESTABLISHED, IN THE FIELD, BY THE ENGINEER AT THE TIME THE ADJUSTMENT IS MADE. NO ADJUSTMENT IN BID PRICE SHALL BE MADE FOR A CHANGE IN TOP ELEVATION DEEMED NECESSARY BY THE ENGINEER.

THE ADJUSTMENT OF ALL MANHOLES WHICH ARE TO BE LOWERED OR RAISED TWELVE INCHES (12") OR LESS SHALL BE ACCOMPLISHED BY REMOVING THE EXISTING RING AND COVER AND REMOVING OR ADDING THE APPROPRIATE COURSE(S) OF BRICK AND REPLACEMENT OF THE RING AND COVER. ALL WORK SHALL BE IN ACCORDANCE WITH NOTES BELOW.

ALL UPWARD OR DOWNWARD ADJUSTMENT IN EXCESS OF TWELVE INCHES (12") SHALL BE IN ACCORDANCE WITH DETAILS AND NOTES SHOWN ON THIS SHEET.

NEW BRICK USED IN THE ADJUSTMENT OF MANHOLES SHALL CONFORM TO THE REQUIREMENTS SPECIFIED FOR GRADE MS IN A.S.T.M. C32-73 OR GRADE SW IN A.S.T.M. C62-69. BRICK SHALL HAVE NOMINAL DIMENSIONS WHICH WILL PERMIT THE ADJUSTED PORTION TO MATCH THE DIMENSIONS OF THE WALLS OF THE STRUCTURE BEING ADJUSTED. UNDAMAGED EXISTING BRICK, SALVAGED AS PART OF EXISTING MANHOLE ADJUSTMENT(S), FOR THIS PROJECT, MAY BE REUSED IN COMPLETING ADJUSTMENT(S) IF THOROUGHLY CLEANED OF EXISTING MORTAR AND IF APPROVED AS TO SUITABILITY BY THE ENGINEER.

ALL BRICK SHALL BE LAID WITH SHOVE JOINTS. PORTLAND CEMENT MORTAR, AS SPECIFIED BELOW, SHALL BE USED IN LAYING THE BRICK. THE ENTIRE OUTSIDE SURFACE OF THE MANHOLES, ADJUSTED WITH BRICK, SHALL BE PLASTERED WITH A MINIMUM OF ONE INCH (1") OF THE CEMENT MORTAR. ALL CONTACT SURFACES BETWEEN BRICK MASONRY, FLAT CONCRETE SLABS (IF REQUIRED), AND CAST IRON RINGS SHALL BE SEALED WITH A LAYER OF THE CEMENT MORTAR. BACKFILL OF ADJUSTED SECTIONS SHALL NOT BE ACCOMPLISHED UNTIL THE MORTAR HAS CURED FOR TWENTY-FOUR (24) HOURS.

MORTAR USED IN ADJUSTMENT OF MANHOLES SHALL CONTAIN EIGHT (8) SACKS OF PORTLAND CEMENT PER CUBIC YARD, FINE AGGREGATE, AND SUFFICIENT WATER TO PRODUCE A WORKABLE AND PLASTIC MIX OF SUCH CONSISTENCY AS TO PERFORM PROPERLY THE FUNCTION OF MASONRY CONSTRUCTION.

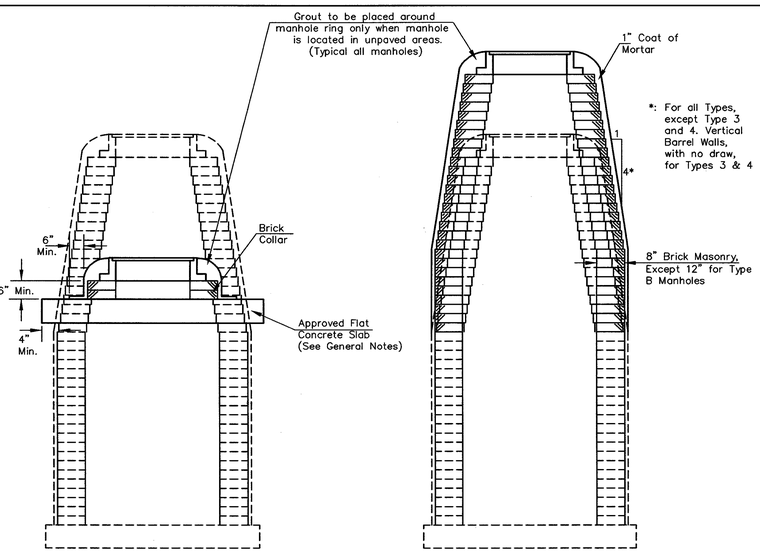
CEMENT USED FOR MORTAR SHALL BE TYPE I COMPLYING WITH THE REQUIREMENTS OF THE LATEST REVISION OF A.S.T.M. DESIGNATION C-150.

FINE AGGREGATE USED FOR MORTAR SHALL MEET THE REQUIREMENTS FOR TYPE FA-A, DIVISION 1102, OF THE "STANDARD SPECIFICATIONS FOR STATE ROAD AND BRIDGE CONSTRUCTION," KANSAS DEPARTMENT OF TRANSPORTATION, 1980 EDITION.

WATER USED FOR MORTAR SHALL MEET THE REQUIREMENTS OF DIVISION 2401, OF THE MENTIONED STANDARD SPECIFICATIONS.

AN APPROVED TYPE OF FLAT CONCRETE SLAB, CONFORMING TO THE REQUIREMENTS OF A.S.T.M. C-478, SHALL BE USED TO SUPPORT THE MANHOLE RING AND COVER WHERE IT IS NECESSARY TO LOWER MANHOLES MORE THAN TWELVE INCHES (12"). ALL SURFACES OF THE FLAT CONCRETE SLAB, FOR SANITARY SEWER MANHOLES, WHICH WOULD BE EXPOSED TO SEWER GAS SHALL BE PROTECTED BY A PLASTIC LINING. A MINIMUM SIX INCH (6") BRICK COLLAR CONFORMING TO THE SAME TYPE OF CONSTRUCTION AS SPECIFIED ABOVE SHALL BE INSTALLED BETWEEN THE MANHOLE RING AND THE FLAT CONCRETE SLAB TO FACILITATE MINOR ADJUSTMENTS IN ELEVATION.

PLASTIC LINING REQUIRED FOR FLAT CONCRETE SLABS, TO BE PLACED IN CONNECTION WITH THE ADJUSTMENT OF SANITARY SEWER MANHOLES, MAY BE AMER-PLATE T-LOCK LINER PLATE, B.F. GOODRICH LOK-RIB KOROSEAL, OR AN APPROVED EQUAL. THE PLASTIC LINING MANUFACTURER'S RECOMMENDATIONS FOR INSTALLING, SEALING JOINTS, TESTING AND INSPECTION OF THE LINING SHALL BE CONSIDERED AS INCORPORATED IN AND FORMING A PART OF THESE SPECIFICATIONS. THREE (3) COPIES OF THE PLASTIC LINING MANUFACTURER'S RECOMMENDATIONS FOR LINING INSTALLATION SHALL BE FURNISHED TO THE ENGINEER FOR APPROVAL PRIOR TO THE FABRICATION OF ANY FLAT SLABS REQUIRING PLASTIC LINING.



DOWNWARD ADJUSTMENT
(GREATER THAN 12")

All Types

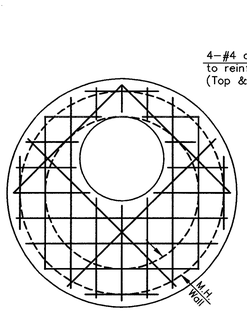
THE APPROPRIATE PORTIONS OF THE DRAW AND BARREL OF TYPE A, B, C, D, 1 AND 2 MANHOLES SHALL BE REMOVED. A FLAT CONCRETE SLAB SHALL BE PLACED AND THE RING AND COVER RESET. ALL WORK AND MATERIALS SHALL CONFORM TO THE DETAILS SHOWN AND THE GENERAL NOTES.

COURSES OF BRICK BARREL SUPPORTING THE WIDE FLANGE RING FOR TYPE 4 MANHOLES AND FLAT CONCRETE SLAB FOR TYPE 3 MANHOLES SHALL BE REMOVED AS NECESSARY PRIOR TO RESETTING THE WIDE FLANGE RING OR FLAT CONCRETE SLAB AND RING. ALL WORK AND MATERIALS SHALL CONFORM TO THE DETAILS SHOWN AND THE GENERAL NOTES.

UPWARD ADJUSTMENT
(GREATER THAN 12")

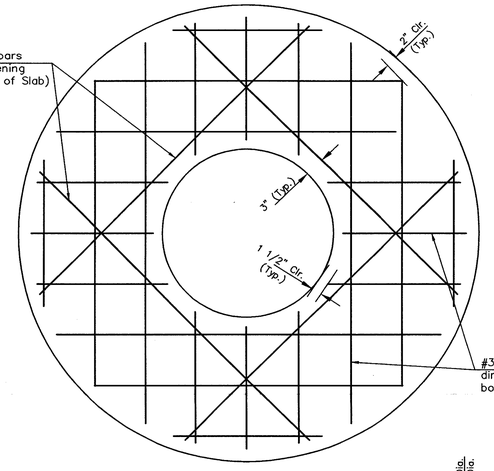
All Types

THE ENTIRE DRAW OF TYPES A, B, C, D, 1 AND 2 MANHOLES SHALL BE REMOVED, THE MANHOLE BARREL RAISED THE APPROPRIATE AMOUNT, A NEW DRAW CONSTRUCTED, AND THE RING AND COVER RESET. THE UPPER PORTION OF TYPE 3 MANHOLES SHALL BE REMOVED TO THE BOTTOM OF THE FLAT CONCRETE SLAB, THE BRICK MASONRY BARREL SUPPORTING THE SLAB SHALL BE RAISED THE APPROPRIATE AMOUNT, AND THE SLAB AND RING AND COVER RESET. THE WIDE FLANGE RING AND COVER OF TYPE 4 MANHOLES SHALL BE REMOVED, THE BRICK MASONRY BARREL SUPPORTING THE RING SHALL BE RAISED THE APPROPRIATE AMOUNT AND THE RING AND COVER RESET. ALL WORK REQUIRED FOR A GREATER THAN TWELVE INCH (12") UPWARD ADJUSTMENT OF ANY MANHOLE SHALL BE ACCOMPLISHED WITH BRICK MASONRY IN ACCORDANCE WITH THE DETAILS SHOWN AND THE GENERAL NOTES.

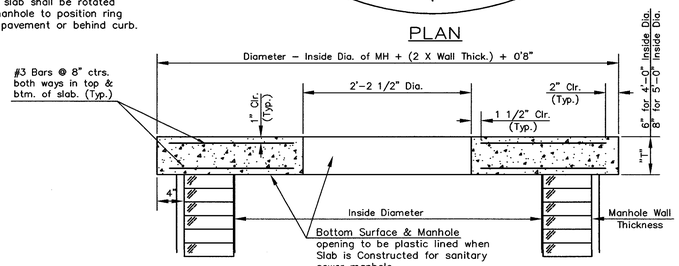


* PLAN
ALTERNATE OPENING LOCATION

*: To be used only if necessary to keep ring and cover from conflicting with curb or combined curb and gutter. Flat concrete slab shall be rotated an existing manhole to position ring and cover in pavement or behind curb.



PLAN



SECTION A–A

FLAT CONCRETE SLAB DETAILS

THE CITY OF WICHITA

CITY ENGINEER'S OFFICE
CITY HALL – SEVENTH FLOOR
455 NORTH MAIN STREET
WICHITA, KANSAS 67202
(316) 268-4501
(316) 268-4174 FAX

MANHOLE ADJUSTMENT DETAILS

JAMES L. ARMOUR, P.E. – CITY ENGINEER

PROJECT NUMBER	OCA NO.
1793 PPS	(607861)
DATE: MAR 96	SHEET CU4.12

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ME ENGINEERS — ASSOCIATE MECHELECT/PLUMBING ENGINEER
HOK SPORT — DESIGN ARCHITECT
WALTER P. MOORE — STRUCTURAL ENGINEER
WRIGHTSON, JOHNSON, HADDON & WILLIAMS — AUDIO VISUAL CONSULTANT
GOSSEN LIVINGSTON ASSOCIATES, INC — CONSULTANTS
BIGELOW — FOOD SERVICE CONSULTANT
ASSOCIATE ARCHITECT — MECHELECT/PLUMBING ENGINEER

SEDGWICK COUNTY ARENA
500 E. WATERMAN, WICHITA, KS 67202

FOR CONSTRUCTION
OCTOBER 26, 2007

PACKAGE

REVISIONS

NO.	DATE	DESCRIPTION

KEYPLAN

PROJECT NO. 05220	ISSUED BY: PEC
DRAWN BY:	REVIEWED BY: RRY

ISSUE DATE: 10-26-2007

SHEET TITLE: MANHOLE ADJUSTMENT DETAILS

CU4.12

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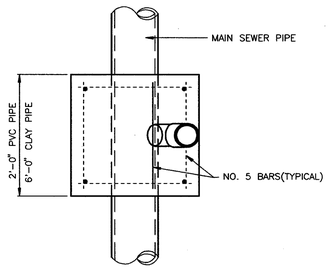
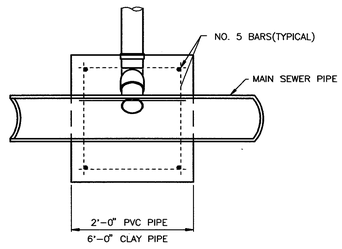
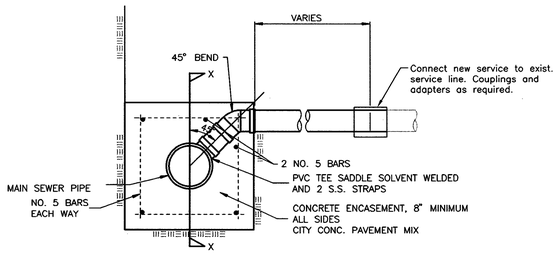


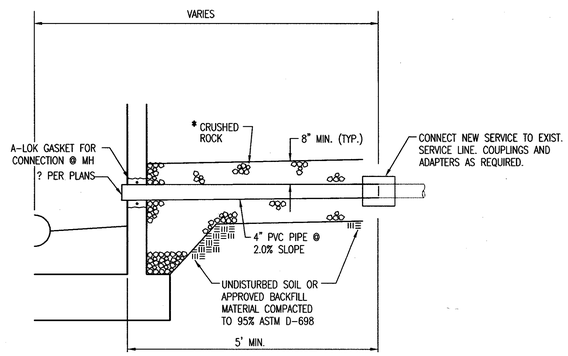
TYPICAL PLAN VIEW



TYPICAL SECTION X-X



SERVICE RECONNECTION DETAIL



MANHOLE SERVICE RECONNECTION

GENERAL NOTES

1. SIZING. Pipe stubs and services shall be sized according to the plans and service table where services are indicated by the plans. Contractor shall verify the size of the existing service line to be connected prior to installing service connection on the new main. Sizing of services and stubs shall be approved by the Construction Engineer prior to installation.

2. SERVICE OR STUB MATERIAL. Services and stubs shall be constructed of Schedule 40 PVC Pipe, meeting the requirements of the latest revision of A.S.T.M. . All pipe joints shall be solvent welded.

3. REINFORCED CONCRETE ENCASEMENT. Service Connections to clay pipe sanitary sewers shall be reinforced concrete encased both ways from the service centerline. The reinforced concrete encasement shall extend three feet from the service centerline or stop at the first sanitary sewer pipe joint within three feet of the service centerline. Service connections to PVC Sanitary Sewer mains shall be reinforced concrete encased one foot each way from the service centerline. The concrete encasement shall be reinforced using reinforcing steel as shown in the appropriate drawing. The concrete shall conform to the City Standard Specifications for concrete pavement.

4. BEDDING. Bedding around the sanitary sewer service shall be compacted Pipe Bedding Type 1 or 2. The bedding shall be placed and compacted from the depth of the sanitary sewer main to the top of the sanitary sewer service. Compacted Pipe Bedding Type 1 or 2 shall be required for all services whether constructed in vertical wall or sloped wall trenches. Bedding material and construction practices shall be approved by the Construction Engineer prior to installation.

5. LOCATION MEASURES. The project inspector shall record and document the location of all service connection constructed as measured from the nearest manhole, indicating the direction from the manhole, the direction and distance from the main, size, and elevation.

SEWER SERVICE RECONNECTION TABLE

NO.	SIZE	LOCATION LINE NO.	LOCATION STATION/ DIRECTION	FOR INFORMATION ONLY APPROXIMATE LENGTH 4" PIPE HORIZONTAL	RECORD INFORMATION (TO BE COMPLETED BY PROJECT INSPECTOR) DISTANCE FROM NEAREST MANHOLE UPSTREAM	DOWNSTREAM	NO.
1	15" x 4" Sewer Service Connection	1	5+96/Rt.	3'	57	96	1
2	12" x 4" Sewer Service Connection	1	6+98/Rt.	3'	7	251	2
3	12" x 4" Sewer Service Connection	1	7+47/Rt.	6'	71	187	3
4	12" x 4" Sewer Service Connection	1	8+67/Lt.	5'	132	127	4
5	12" x 4" Sewer Service Connection	1	8+77/Rt.	3'	184	74	5
6	Manhole Sewer Service Connection	4	5+89.2 (W)	6'	MH	MH	6
7	Manhole Sewer Service Connection	4	5+89.2 (NE)	10'	MH	MH	7
8	8" x 4" Sewer Service Connection	5	0+27/Rt.	7'	11	27	8
9	Manhole Sewer Service Connection	5	0+38 (N)	18'	MH	MH	9
	6" Clay Service	4	5+08/Lt.		81	120	
	6" Clay Service	4	5+55/Lt.		34	167	

No.	Revision	By	Date

PRIVATE SANITARY SEWER SEWER EXTENSION
SEDGWICK COUNTY ARENA

SERVICE RECONNECTION DETAILS

JAMES L. ARMOUR, P.E. – CITY ENGINEER
PRIVATE PROJECT NO. 1793 PPS (607861)

Professional Engineering Consultants, P.A.
303 S. TOPEKA • WICHITA, KANSAS 67202
316-262-2691 • FAX 316-262-3003

Designed by	MDK	Job No.	35-05493-002-1324
Drawn by	CSL, JAN	Date	JANUARY 2006

Sht. CU4.13

Saved: 10-22-2007 7:59:30 PM by CSL
Plotted: 10-22-2007 12:29:11 PM by CSL
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MICHAEL D. KELLEY
13944
10/26/07
KANSAS
PROFESSIONAL ENGINEER

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WILSON DARNELL MANN ARCHITECT'S ARCHITECT OF RECORD 105 N. Washington Wichita, KS 67202	HOK SPORT DESIGN ARCHITECT	ME ENGINEERS ASSOCIATE MECH/ELECT/PLUMBING ENGINEER
	WALTER P. MOORE STRUCTURAL ENGINEER	WRIGHTSON, JOHNSON, HADDON & WILLIAMS, INC. AUDIO VISUAL CONSULTANT
WOOLPERT LLC ASSOCIATE ARCHITECT	PROFESSIONAL ENGINEERING CONSULTANTS	BIGELOW FOOD SERVICE CONSULTANT
GOSSEN LIVINGSTON ASSOCIATES, INC ASSOCIATE ARCHITECT	MECH/ELECT/PLUMBING ENGINEER	

SEDGWICK COUNTY ARENA
500 E. WATERMAN , WICHITA, KS 67202

FOR CONSTRUCTION
OCTOBER 26, 2007

PACKAGE

REVISIONS

NO.	DATE	DESCRIPTION

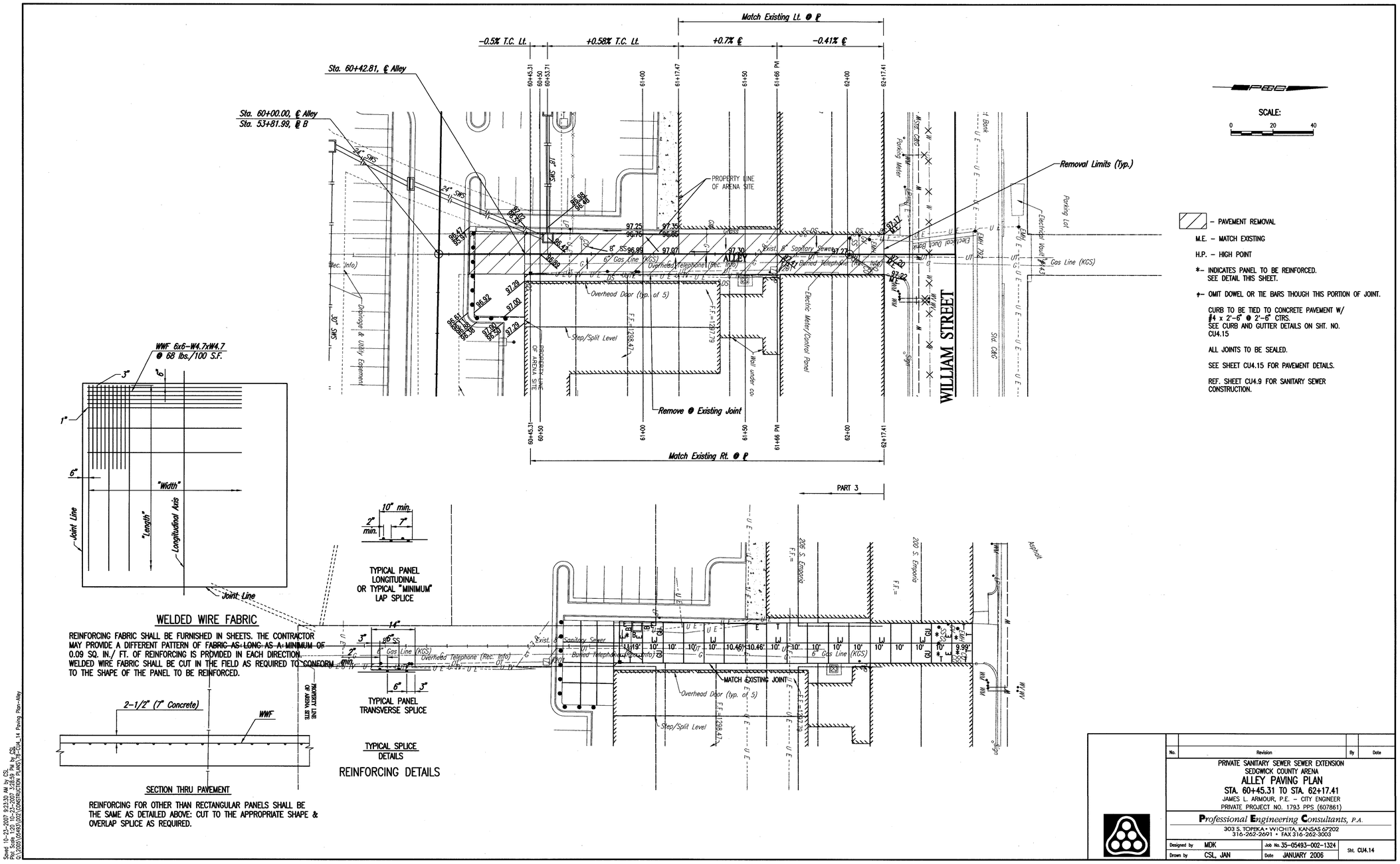
KEYPLAN

PROJECT NO. 05220	ISSUED BY: PEC
DRAWN BY:	REVIEWED BY: RRY

ISSUE DATE: 10-26-2007

SHEET TITLE:
VERTICAL RISER DETAIL

CU4.13



WELDED WIRE FABRIC

REINFORCING FABRIC SHALL BE FURNISHED IN SHEETS. THE CONTRACTOR MAY PROVIDE A DIFFERENT PATTERN OF FABRIC AS LONG AS A MINIMUM OF 0.09 SQ. IN./ FT. OF REINFORCING IS PROVIDED IN EACH DIRECTION. WELDED WIRE FABRIC SHALL BE CUT IN THE FIELD AS REQUIRED TO CONFORM TO THE SHAPE OF THE PANEL TO BE REINFORCED.

SECTION THRU PAVEMENT

REINFORCING FOR OTHER THAN RECTANGULAR PANELS SHALL BE THE SAME AS DETAILED ABOVE: CUT TO THE APPROPRIATE SHAPE & OVERLAP SPLICE AS REQUIRED.

TYPICAL PANEL LONGITUDINAL OR TYPICAL "MINIMUM" LAP SPLICE

TYPICAL PANEL TRANSVERSE SPLICE

TYPICAL SPLICE DETAILS

REINFORCING DETAILS

No.	Revision	By	Date

PRIVATE SANITARY SEWER SEWER EXTENSION
SEDGWICK COUNTY ARENA
ALLEY PAVING PLAN
STA. 60+45.31 TO STA. 62+17.41
JAMES L. ARMOUR, P.E. - CITY ENGINEER
PRIVATE PROJECT NO. 1793 PPS (607861)

Professional Engineering Consultants, P.A.
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Designed by	MDK	Job No.	35-05493-002-1324	Sht.	CU4.14
Drawn by	CSL, JAN	Date	JANUARY 2006		

Saved: 10-23-2007 9:23:30 AM by CSL
Plotted: 10-25-2007 7:58:39 AM by CSL
O:_2005\05493\002\CONSTRUCTION PLANS\78-CU4_14 Paving Plan-Alley

MICHAEL D. KEPLEY — 13944 — 10/22/07 — KANSAS — PROFESSIONAL ENGINEER

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McCLUGGAGE VANSICKLE AND PERRY ASSOCIATE ARCHITECT	WALTER P. MOORE STRUCTURAL ENGINEER
GOSSEN LIVINGSTON ASSOCIATES, INC. ASSOCIATE ARCHITECT	PROFESSIONAL ENGINEERING CONSULTANTS MECH/ELECT/PLUMBING ENGINEER
	AUDIO VISUAL CONSULTANT BIGELOW FOOD SERVICE CONSULTANT

SEDGWICK COUNTY ARENA
500 E. WATERMAN , WICHITA, KS 67202

FOR CONSTRUCTION
OCTOBER 26, 2007

PACKAGE

REVISIONS

NO.	DATE	DESCRIPTION

KEYPLAN

PROJECT NO. 05220	ISSUED BY: PEC
DRAWN BY: CSL	REVIEWED BY: RRY

ISSUE DATE: 10-26-2007

SHEET TITLE:
ALLEY PAVEMENT PLAN

CU4.14

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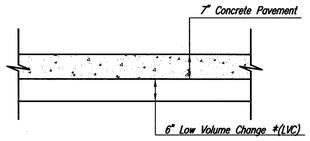
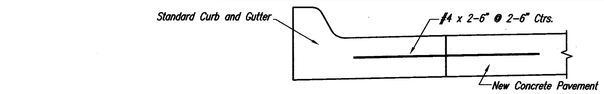


CONCRETE PAVEMENT
TYPICAL SECTION
REFERENCE SHEET CP2.1



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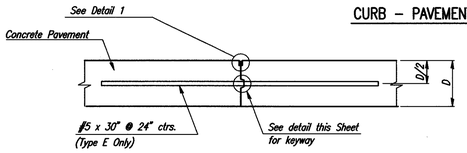
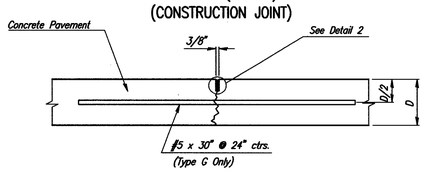


TYPE E (TIED)
TYPE EU (UNTIED)
(CONSTRUCTION JOINT)



TYPE G (TIED)
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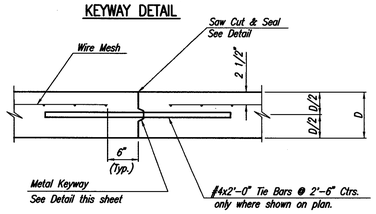
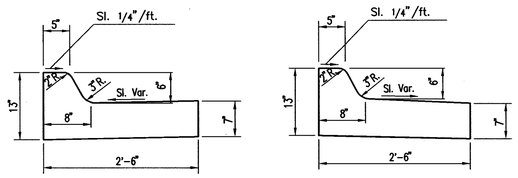
(CONTRACTION JOINT)

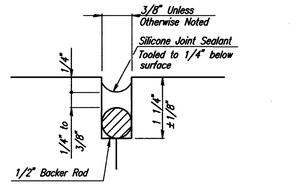
KEYWAY DETAIL



LONGITUDINAL CONSTRUCTION JOINT DETAIL
REINFORCED PAVEMENT
(TRANSVERSE SECTION)
(ALTERNATE L.J.)



CURB & GUTTER DETAILS



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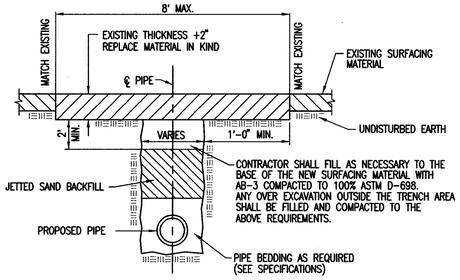

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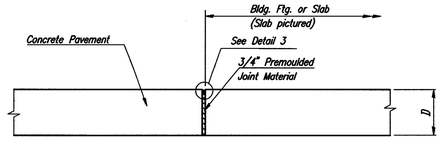
REMOVAL AND REPLACEMENT DETAIL



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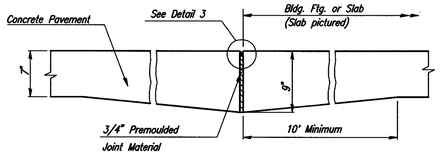

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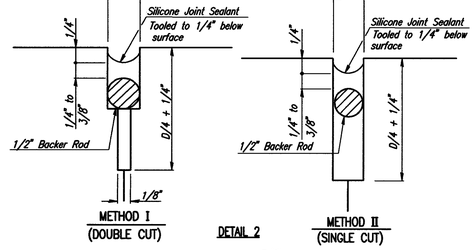

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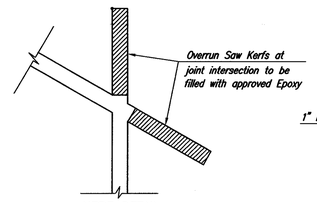
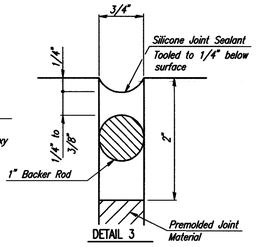
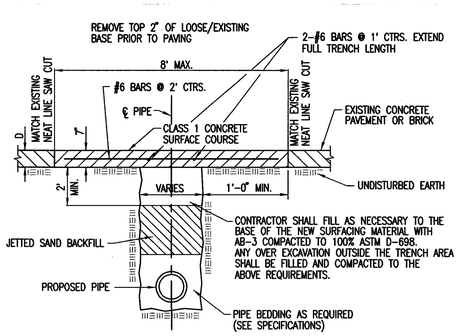


KERF DETAIL



DETAIL 3

JOINT SEAL DETAILS



CONCRETE PAVEMENT OR BRICK REMOVAL AND REPLACEMENT DETAIL
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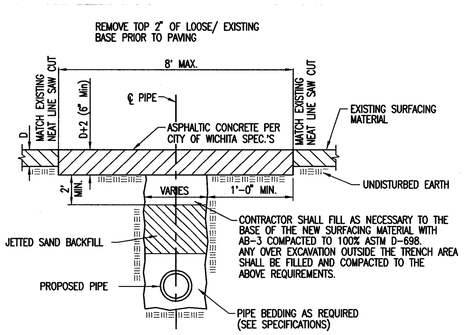
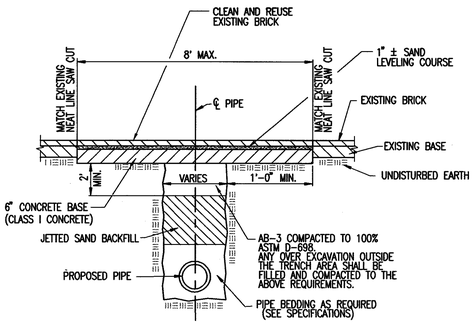


ASPHALT PAVEMENT REMOVAL AND REPLACEMENT DETAIL



BRICK PAVEMENT
REMOVAL AND REPLACEMENT

No.	Revision	By	Date

PRIVATE SANITARY SEWER SEWER EXTENSION
SEDGWICK COUNTY ARENA

PAVING DETAILS

JAMES L. ARMOUR, P.E. – CITY ENGINEER
PRIVATE PROJECT NO. 1793 PPS (607861)

Professional Engineering Consultants, P.A.
303 S. TOPEKA • WICHITA, KANSAS 67202
316-262-2691 • FAX 316-262-3003

Designed by	MDK	Job No. 35-05493-002-1324	Sht. CU4.15
Drawn by	CSL, JAN	Date JANUARY 2006	

Saved 10-23-2007 8:08:22 AM by CSL
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LICENSED PROFESSIONAL ENGINEER
DENNIS D. KEAL
139.44
1/24/47
KANSAS

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DESIGN ARCHITECT	ARCHITECTS
ASSOCIATE ARCHITECT	WILSON DARNELL MANN ARCHITECTS
ASSOCIATE ARCHITECT	105 N. Washington
ASSOCIATE ARCHITECT	Wichita, KS 67202
ASSOCIATE ARCHITECT	GOSSEN LIVINGSTON ASSOCIATES, INC.
ASSOCIATE ARCHITECT	

ME ENGINEERS	
ASSOCIATE MECH/ELECT/PLUMBING ENGINEER	
STRUCTURAL ENGINEER	WALTER P. MOORE
AUDIO VISUAL CONSULTANT	WRIGHTSON, JOHNSON, HADDON & WILLIAMS, INC.
PROFESSIONAL ENGINEERING CONSULTANTS	
FOOD SERVICE CONSULTANT	BIGELOW
MECH/ELECT/PLUMBING ENGINEER	

SEDGWICK COUNTY ARENA
500 E. WATERMAN , WICHITA, KS 67202

FOR CONSTRUCTION
OCTOBER 26, 2007

PACKAGE

REVISIONS

NO.	DATE	DESCRIPTION

KEYPLAN

PROJECT NO. 05220	ISSUED BY: PEC
DRAWN BY: SAW	REVIEWED BY: BER
ISSUE DATE:	10-26-2007

SHEET TITLE:
ALLEY PAVING DETAILS

CU4.15

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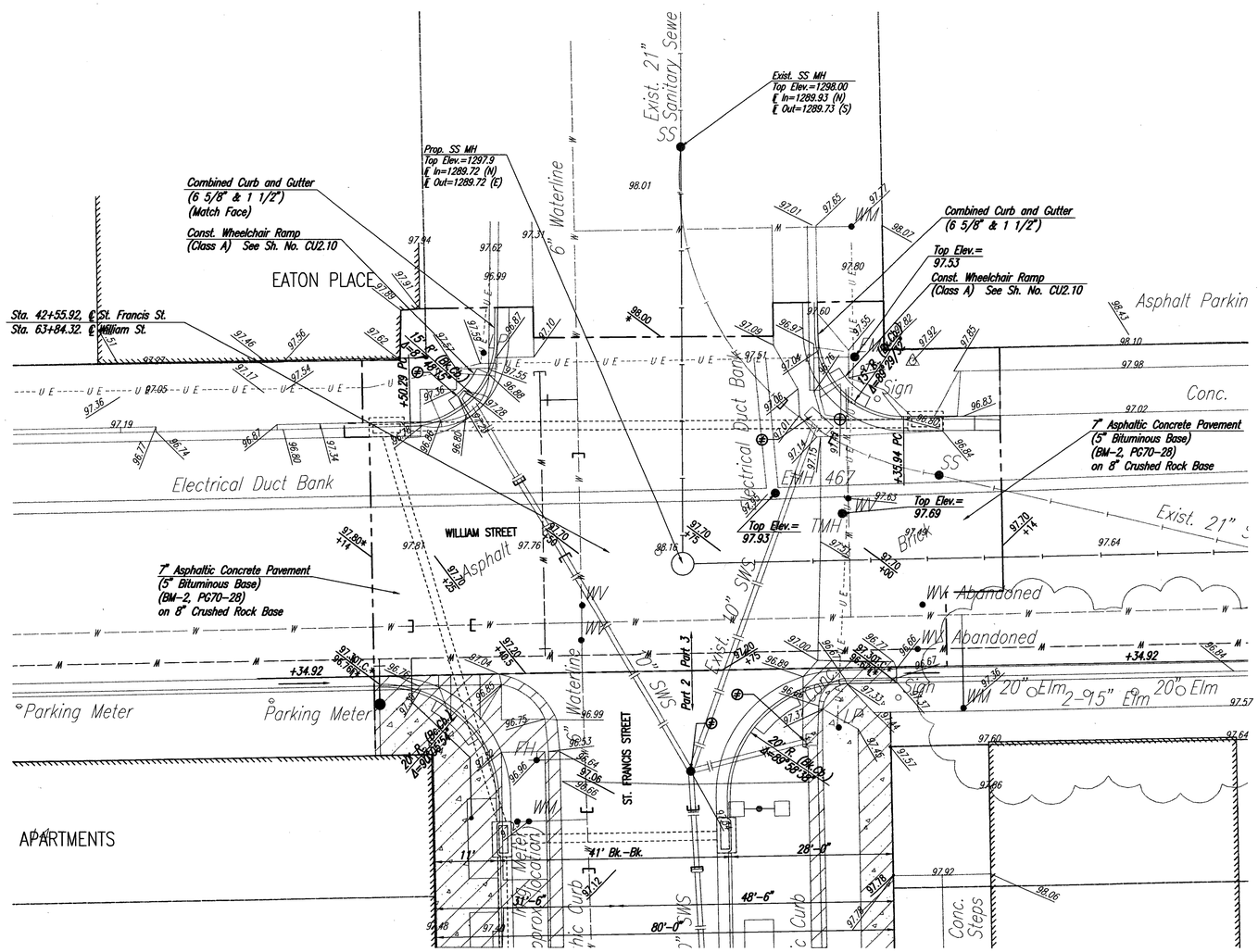

SCALE:
0 10 20

LEGEND
- TO BE REMOVED
- TO REMAIN
- MATCH EXISTING
- PAVEMENT REMOVAL

No.	Revision	By	Date

SEDGWICK COUNTY ARENA
ROAD IMPROVEMENTS
ST. FRANCIS ST. & WILLIAM ST.
INTERSECTION PLAN
JAMES L. ARMOUR, P.E. – CITY ENGINEER
PRIVATE PROJECT NO. 183 PPP (607879)

Designed by	BER	Job No. 35-05493-002-1324	Sht. CU4.16
Drawn by	SAW	Date JULY 2007	

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Wichita, KS 67202

McCLUGGAGE VANSICKLE AND PERRY
ASSOCIATE ARCHITECT

GOSSEN LIVINGSTON ASSOCIATES, INC
ASSOCIATE ARCHITECT

HOK SPORT
DESIGN ARCHITECT

WALTER P. MOORE
STRUCTURAL ENGINEER

PROFESSIONAL ENGINEERING CONSULTANTS
MECH/ELECT/PLUMBING ENGINEER

ME ENGINEERS
ASSOCIATE MECH/ELECT/PLUMBING ENGINEER

WRIGHTSON, JOHNSON, HADDON & WILLIAMS, INC
AUDIO VISUAL CONSULTANT

BIGELOW
FOOD SERVICE CONSULTANT

SEDGWICK COUNTY ARENA
500 E. WATERMAN, WICHITA, KS 67202

FOR CONSTRUCTION
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REVISIONS

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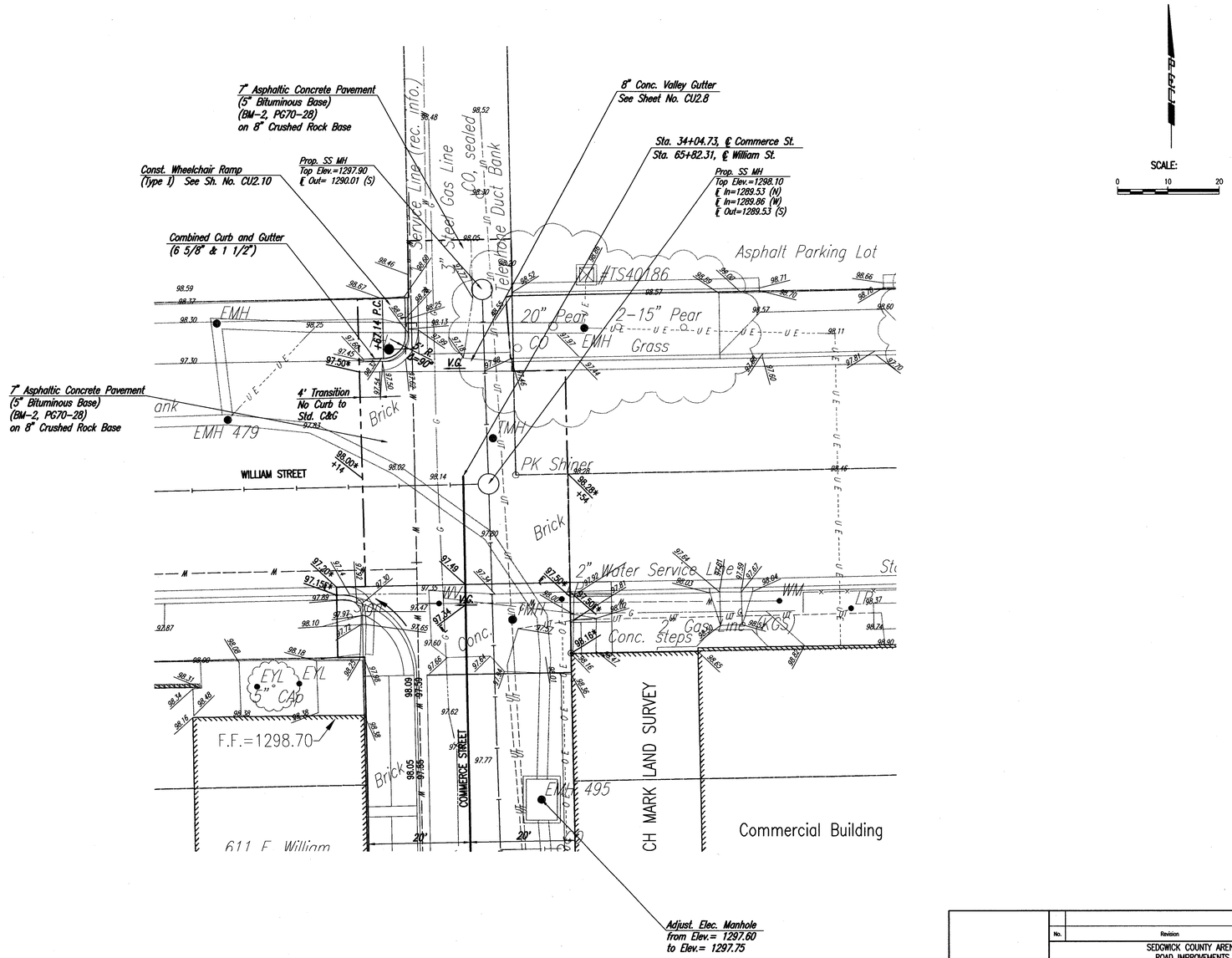
KEYPLAN

PROJECT NO. 05220	ISSUED BY: PEC
DRAWN BY: SAW	REVIEWED BY: BER
ISSUE DATE: 10-26-2007	

SHEET TITLE:
ST. FRANCIS ST. & WILLIAM ST. INTERSECTION PLAN

CU4.16



No.	Revision	By	Date

SEDGWICK COUNTY ARENA
ROAD IMPROVEMENTS
COMMERCE STREET AND WILLIAM STREET
INTERSECTION PLAN
JAMES L. ARMOUR, P.E. – CITY ENGINEER
PRIVATE PROJECT NO. 183 PPP (607879)

Designed by BER	Job No. 35-05493-002-1324	Sht. CU4.17
Drawn by SAW	Date JULY 2007	

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WRIGHTSON, JOHNSON, HADDON & WILLIAMS, INC
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FOOD SERVICE CONSULTANT

SEDGWICK COUNTY ARENA
500 E. WATERMAN, WICHITA, KS 67202

FOR CONSTRUCTION
OCTOBER 26, 2007

PACKAGE
REVISIONS

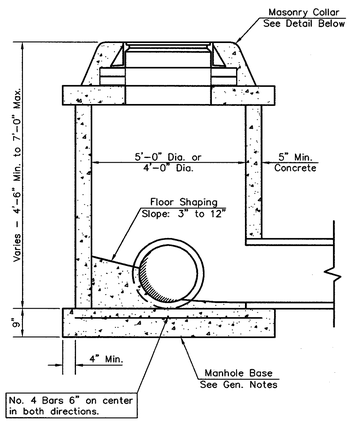
NO.	DATE	DESCRIPTION

KEYPLAN

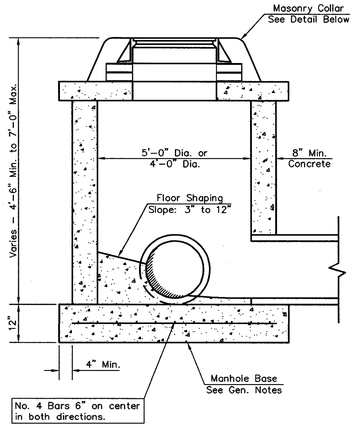
PROJECT NO. 05220	ISSUED BY: PEC
DRAWN BY: SAW	REVIEWED BY: BER
ISSUE DATE: 10-26-2007	

SHEET TITLE:
COMMERCE STREET AND WILLIAM STREET INTERSECTION PLAN

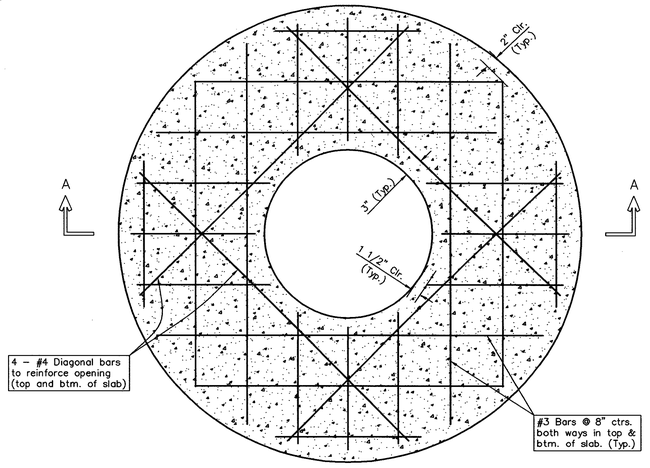
CU4.17



SHALLOW TYPE "P" MANHOLE



SHALLOW TYPE "C" MANHOLE



PLAN

GENERAL NOTES

1. Mortar used in masonry construction shall contain 8 sacks of cement per cubic yard. Concrete used in manhole bases shall conform to the requirements of concrete for concrete pavement construction as specified in the city standard paving specifications using city concrete cement mix without air entraining admixture. Mortar shall be placed around the manhole ring as shown on the drawings when manholes are constructed in unpaved areas. Manholes constructed where pipe sizes are smaller than 24" shall have an inside diameter of 4'. Manholes constructed where pipe sizes are 24" or larger shall have an inside diameter of 5'. Completed manhole shall be without leaks and water tight.

2. Reinforcing steel shall be installed in the manhole bases and shall consist of no. 4 bars placed on 6" centers in both directions. The manhole base reinforcement shall be placed 6" above the bottom of the manhole base. All costs for furnishing and installing reinforcing steel shall be included in the unit price bid for the manhole.

3. The floors of all manholes shall be shaped with flow channels such that the manholes will be self cleaning and free of areas where solids could be deposited as sewage flows through the manhole from all inlet pipes to the outlet pipe. Flow channels shall be formed to match the bottom halves of the inflowing pipes and the outflowing pipe as shown by the drawings. Manhole floors shall have slopes of 3 inches per foot in the areas outside of the flow channels sloped toward the flow channels. Pipes laid through manholes shall have the top half removed to neat lines for the full inside diameter of the manhole. Manhole floors shall then be shaped around the bottom half of the pipe which forms the flow channel.

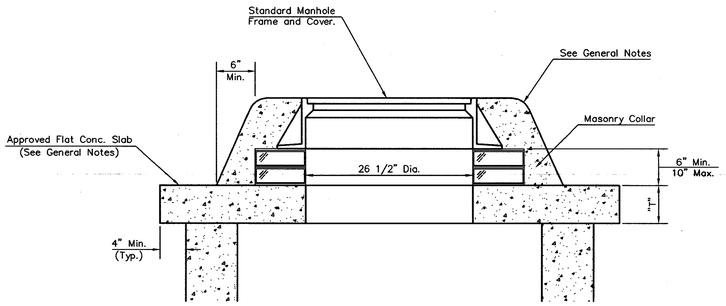
4. Pipes installed within the excavation made for the manhole shall be cradled with concrete to the limits of the manhole excavation. When clay pipe is used, the cradle shall extend to the first joint outside the manhole. The cradle shall be terminated at the clay pipe joint in a manner which will maintain the flexibility of the joint. Cost of cradle within manhole excavation or to clay pipe joints adjacent to manhole shall be included in the unit price bid for the manhole.

5. Manhole cover castings and manhole frame castings shall conform to the requirements as indicated in the standard specifications and as shown in the standard detail drawings.

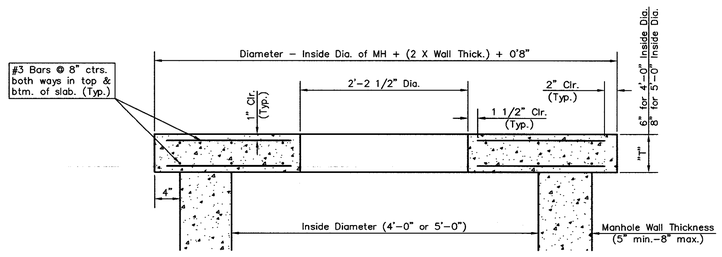
6. The crowns of inflowing pipes shall never be set lower than the crown of the outflowing pipe.

7. Standard shallow manholes type "P" and "C" shall be paid for at the unit price bid per each for the type and diameter indicated. All standard shallow manhole diameters will be 4' unless indicated otherwise.

8. All brick used in manhole construction shall meet Grade SW of ASTM C652 or C62–87.



MASONRY COLLAR DETAIL



SECTION A–A

FLAT CONCRETE SLAB DETAILS

THE CITY OF WICHITA

CITY ENGINEER'S OFFICE
CITY HALL – SEVENTH FLOOR
455 NORTH MAIN STREET
WICHITA, KANSAS 67202
(316) 268-4560
(316) 268-4114 FAX

SHALLOW MANHOLES
TYPE 'P' & 'C'

JAMES L. ARMOUR, P.E. – CITY ENGINEER

PROJECT NUMBER	CCA NO.
1793 PPS	(607861)
DATE: MAR 96	SHEET CU4.18

Speed 10-25-2007 8:16:54 AM by CSL
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WALTER P. MOORE ASSOCIATE ARCHITECT	WRIGHTSON, JOHNSON, HADDON & WILLIAMS, INC. STRUCTURAL ENGINEER
GOSSELIN/LIVINGSTON ASSOCIATES, INC ASSOCIATE ARCHITECT	AUDIO VISUAL CONSULTANT JVA, INC. PROFESSIONAL ENGINEERING CONSULTANTS
	BIGELOW FOOD SERVICE CONSULTANT
	MECHELECT/PLUMBING ENGINEER

SEDGWICK COUNTY
ARENA
500 E. WATERMAN , WICHITA, KS 67202

FOR CONSTRUCTION
OCTOBER 26, 2007

PACKAGE

REVISIONS

NO.	DATE	DESCRIPTION

KEYPLAN

PROJECT NO. 05220	ISSUED BY: PEC
DRAWN BY:	REVIEWED BY: RRY
ISSUE DATE: 10-26-2007	

SHEET TITLE:

SHALLOW MANHOLES DETAILS

CU4.18

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