CONSTRUCTION PLANS FOR

SANITARY SEWER EXTENSIONS TO SERVE

LOT 1, BLOCK 1, COL. JAMES JABARA AIRPORT 2ND ADD.

(CENTER FOR AVIATION TRAINING)

TO

THE CITY OF WICHITA, KANSAS

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

1856 PPS (607861)

AS-BUILT PLANS
CONTRACTOR: MIES CONSTRUCTION
INSPECTOR: BRIAN BLOYD, SCHWAB-EATON, P.A.
.PDF BY: BDB 8-5-08
PROJECT WAS CONSTRUCTED TO PLAN SPECIFICATIONS

GENERAL NOTES:

1. M.S.L. Datum.

2. Contractor will be required to provide a minimum advance notice of twenty-four (24) hours to utility companies prior to starting any excavation as follows:

Kansas One-Call	1-800-344-7233

The Contractor must notify the following in case of an emergency:

Cox Communications	262-4270 or 263-2061
Westar Energy	261-6824
Kansas Gas Service	832-3121
Aquila Networks	941-1608
AT&T	268-2102
City of Wichita Water Department	268-4908
City of Wichita Sewer Maintenance	268-4071

3. Existing utility lines and their location, as shown on the plans, represent the best information obtainable for design. The contractor will be required to work around existing utilities within the right-of-way which do not conflict with proposed construction.

4. Rubble from the removal of miscellaneous structures and excess excavation which is to be wasted shall be the disposed of on sites to be provided by the Contractor. These sites shall 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 would 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 would require additional archaeological investigations unless buried in a previously approved borrow location.

5. The Contractor shall be responsible for maintaining continuous flow of sewage through construction. Contractor's proposed method for maintaining sewage flow shall be approved by the Engineer. Cost of maintaining flow of sewage through construction will not be paid for directly and this cost shall be considered as subsidiary to the other pay items of the work.

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. Trees and shrubs in public right-of-way which are in direct conflict with proposed new construction shall be removed by the Contractor with the Engineer's approval. Trees and shrubs which are not in direct conflict with the proposed new construction shall be saved and protected from damage.

8. Contractor shall vacuum test all manholes according to the City of Wichita standard specifications.

9. The tops of all Manholes to be set 0.4 feet above existing ground unless otherwise noted.

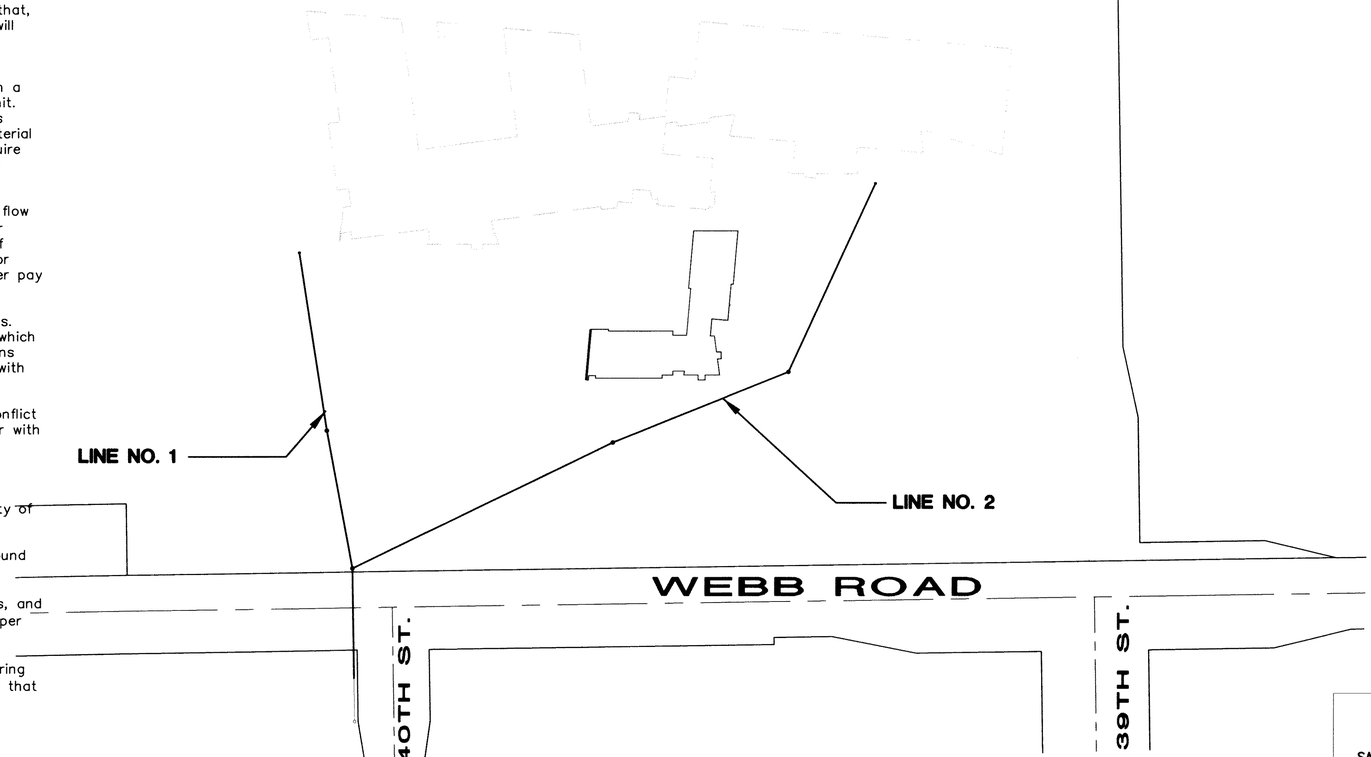
10. All areas disturbed by sewer construction, i.e. R/W, easements, and adjacent properties shall be restored with the same grass/sod as per AR 78.

11. Contractor shall maintain all existing BMP(s) on project site during construction. Contractor shall repair or replace any existing BMP(s) that are damaged (Cost subsidiary to site restoration). If BMP(s) were damaged prior to contractor beginning work on project, notify construction inspector or engineer.

12. In street right of way (not under street) and under parking lots, contractor shall backfill trench with sand and flush per City of Wichita specifications.

13. Traffic control as necessary shall be per the latest addition of the MUTCD. 2-Type III Barricades w/R11-2 (Road Closed Signs) shall be placed on Rutan, south of First St. and north of Douglas Ave prior to beginning construction. Local traffic access to Victor Place shall be maintained (see sheet 2). Contractor shall notify all property owners affected by the closing of Rutan & Victor prior to placing barricades.

14. Depth & location of all existing utilities shown must be field verified.



15. Existing flowline information obtained from city records & field survey.

16. Contractor to coordinate Sanitary Sewer Construction with City of Wichita Project No. 468-84430

17. Contractor to coordinate with Wichita Airport Authority on fence removal and other requirements. Contact John Oswald at (316) 946-4700.

MARCH 2008

PLANS PREPARED BY

POE & ASSOCIATES, INC.
CONSULTING ENGINEERS
5940 E. Central, Suite 200 ■ Wichita, KS 67208-4242
Phone 316/685-4114 ■ FAX 316/685-4444

INDEX

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SCALE

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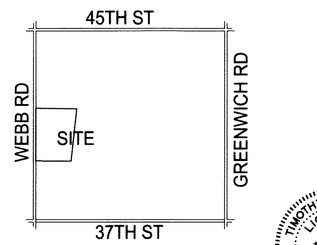


LOCATION MAP
No Scale

TIMOTHY R. AUSTIN LICENSED 11496 KANSAS PROFESSIONAL ENGINEER 3/25/08

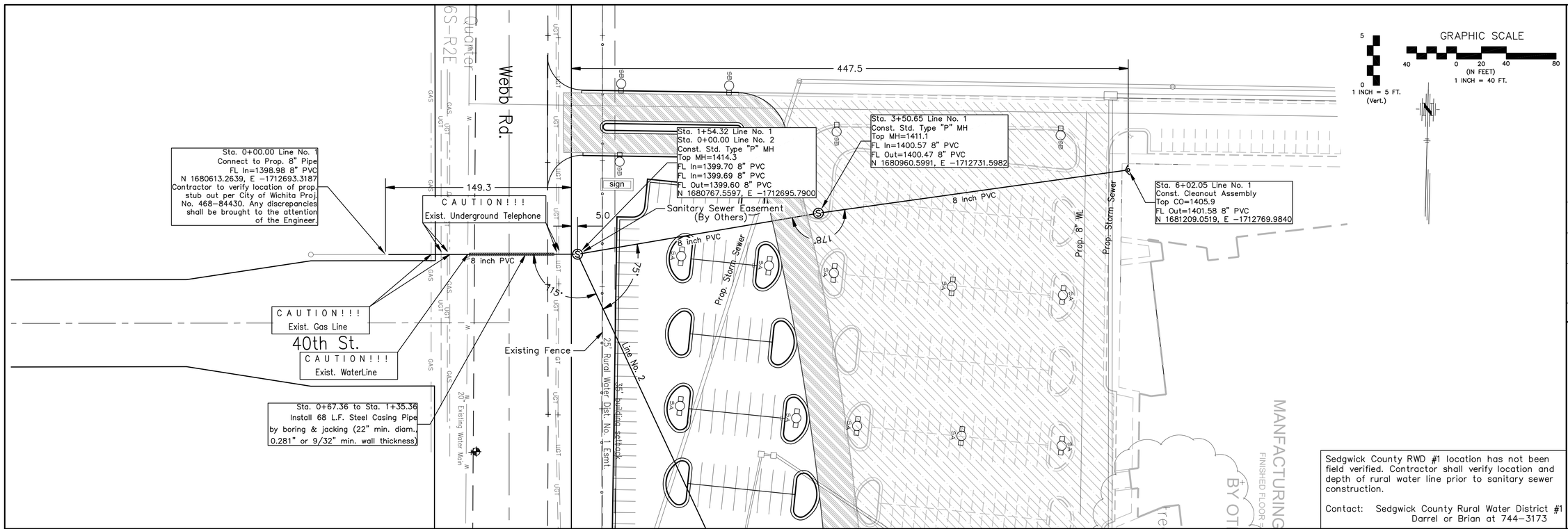
BENCH MARKS

1. BM Square Cut on Concrete Taxiway at CL-CL Intersection of Taxiways Northwest of "T" Hangers
   Elevation 1416.75
2. BM Square Cut on Concrete Taxiway at Northwest Corner of North End of Taxiway, 63' North of CL of Abandon Road to West
   Elevation 1401.47
3. BM Square Cut on Top of West Curb on Webb Road, 470' South of the Southwest Corner of the Northwest Quarter of SEC.28-T26S-R2E, SEC.28-T26S-R2E, at Fire Hydrant
   Elevation 1416.00

APPROVED AS NOTED BY CITY ENGINEER OF WICHITA

SANITARY SEWER VRH 3/25/08

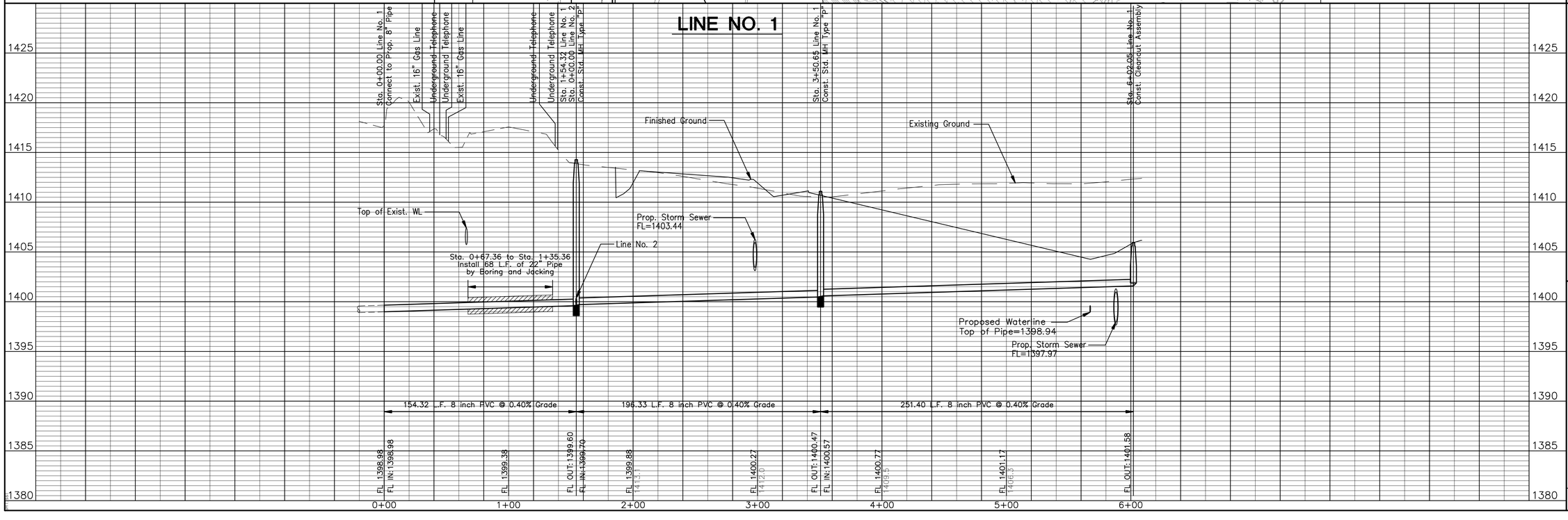
Inspection and testing for this project are to be provided by a Licensed Consulting Engineering Firm under contract with the Owner/Developer. Said inspection is to be in accordance with the City of Wichita standard construction engineering practices and certified by a Licensed Professional Engineer. No work shall be performed in dedicated easements or public right-of-way by the Contractor without such inspection nor shall work be commenced without written authorization by the City Engineer. All construction and materials shall comply with the City of Wichita Specifications and Standards (on file and available in the City Engineer's Office).



Sedgwick County RWD #1 location has not been field verified. Contractor shall verify location and depth of rural water line prior to sanitary sewer construction.

Contact: Sedgwick County Rural Water District #1
Darrel or Brian at 744-3173

LINE NO. 1



No.	Date	By	Approved	Revision

COL. JAMES JABARA AIRPORT-AVIATION CENTER
SANITARY SEWER IMPROVEMENTS
LINE NO. 1

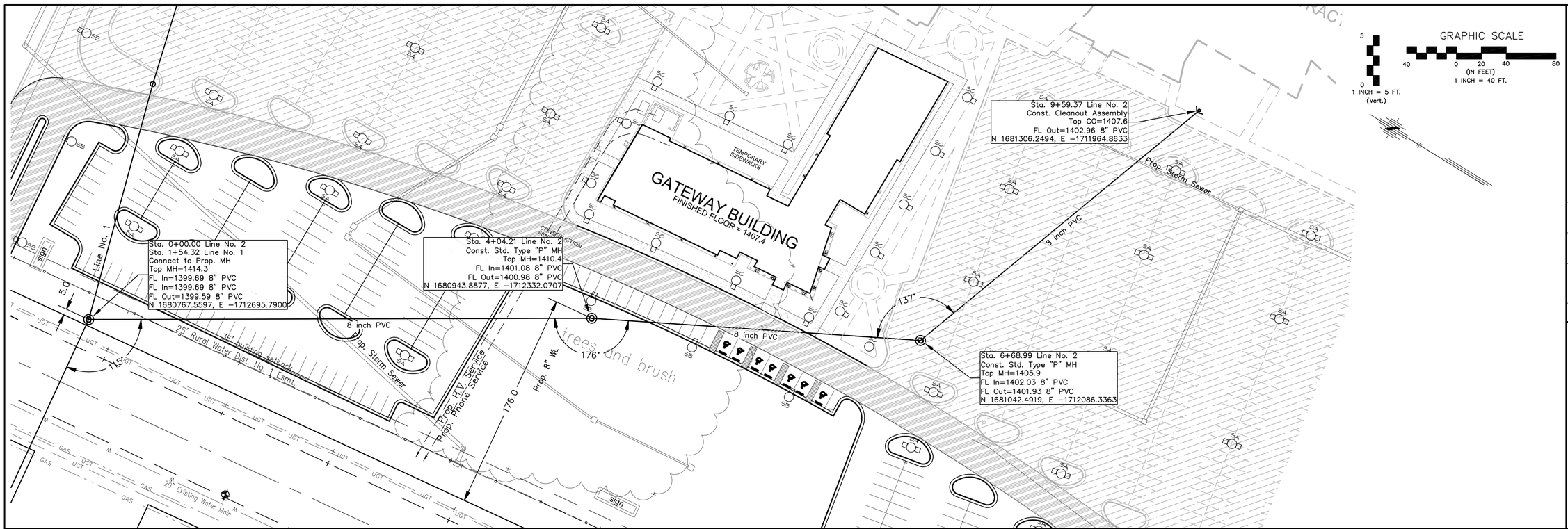
CITY OF WICHITA, KANSAS
JAMES L. ARMOUR, P.E. - CITY ENGINEER
1856 PPS (607861)

POE & ASSOCIATES, INC.
CONSULTING ENGINEERS
5940 E. Central, Suite 200 ■ Wichita, KS 67208-4242
Phone 316/685-4114 ■ FAX 316/685-4444

FINAL

Designed By: S. Schimdt
Drawn By: A. Moss
Poe Job No.: 1873
Date: MARCH 2008

Sheet
C27.2 of 13



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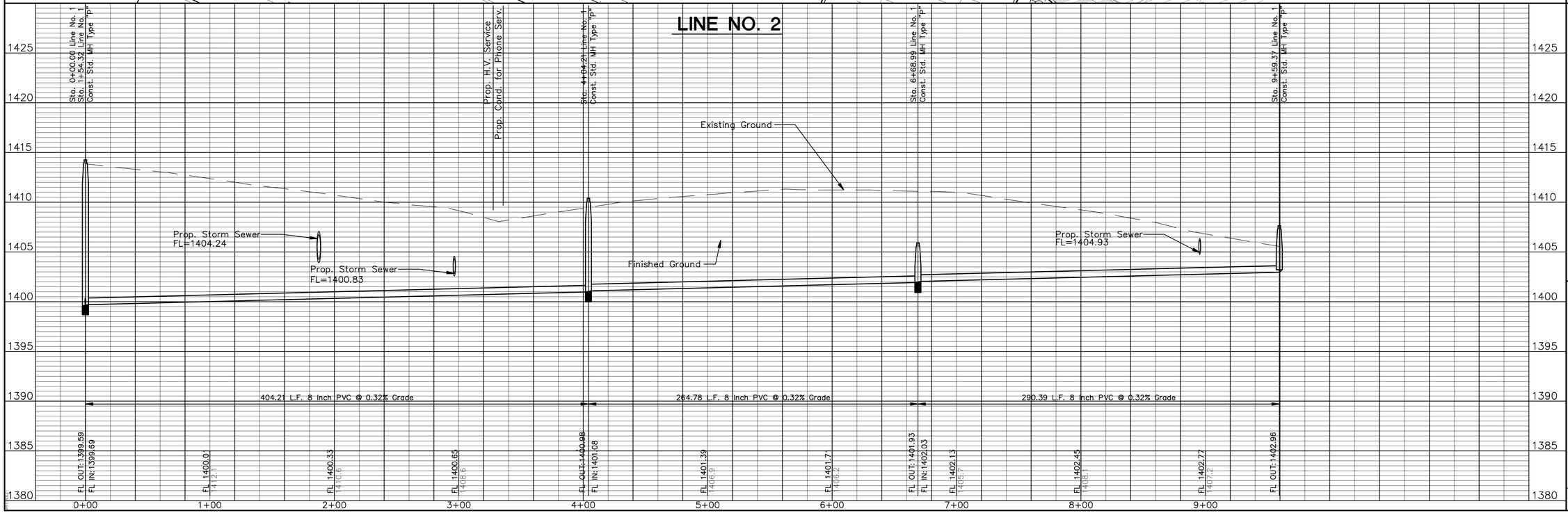

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COL. JAMES JABARA AIRPORT-AVIATION CENTER
SANITARY SEWER IMPROVEMENTS
LINE NO. 2

CITY OF WICHITA, KANSAS

JAMES L. ARMOUR, P.E. - CITY ENGINEER
1856 PPS (607861)

POE & ASSOCIATES, INC.
CONSULTING ENGINEERS
3940 E. Central, Suite 200 ■ Wichita, KS 67208-4242
Phone 316/685-4114 ■ FAX 316/685-4444

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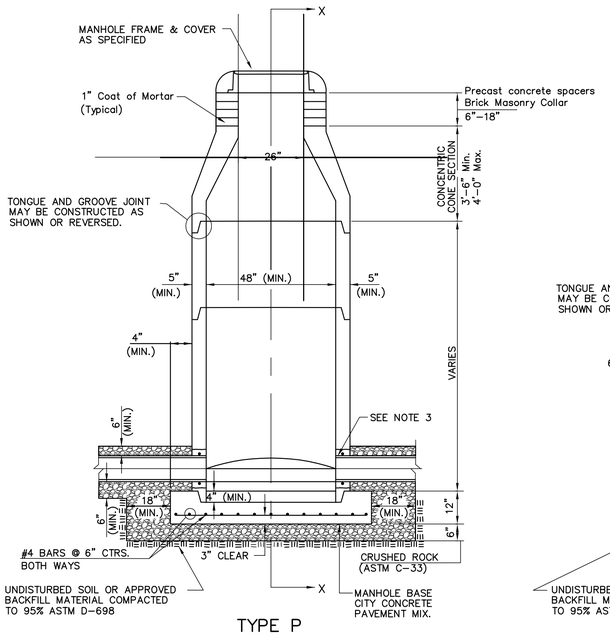
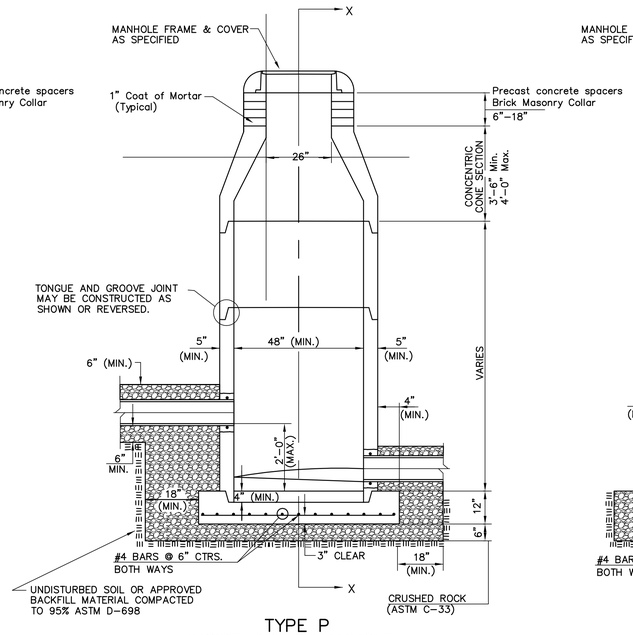
Sheet
C27.3 of 13

SEWER APPURTENANCES DETAILS
ADOPTED AS STANDARD DESIGN BY CITY OF WICHITA, KS AUGUST 2007



TYPE P
STANDARD MANHOLE
Not to Scale



TYPE P
INSIDE DROP MANHOLE
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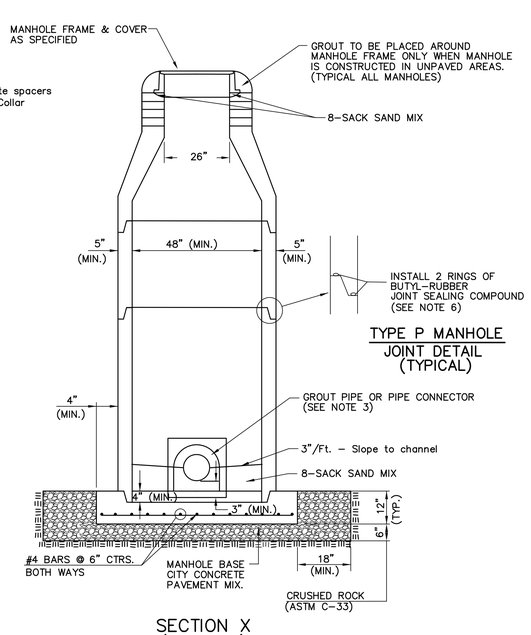
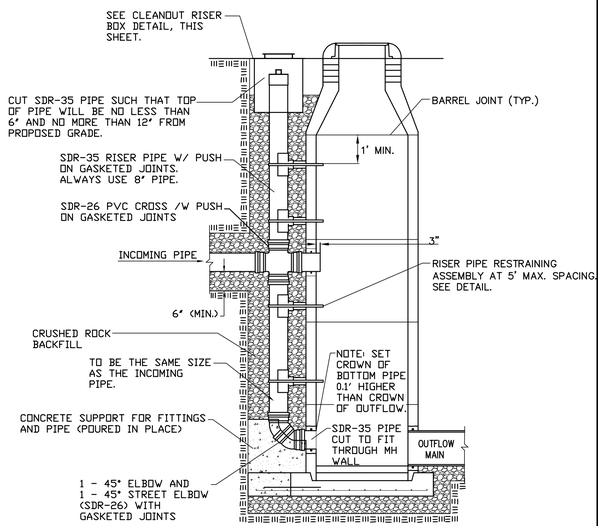


TYPE P MANHOLE
JOINT DETAIL
(TYPICAL)

SECTION X
(TYPICAL)
Not to Scale



TYPE P
OUTSIDE DROP MANHOLE
Not to Scale

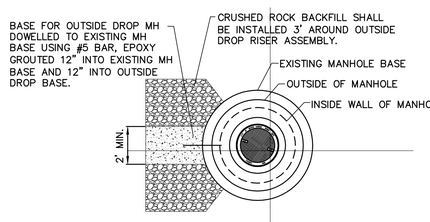
PRECAST MANHOLE GENERAL NOTES

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 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 CRUSHED ROCK 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 PER SECTION 804.4 OF STANDARD SPECIFICATIONS.
5. EXTERIOR MANHOLE WALLS SHALL BE COATED PER SECTION 804.4 OF STANDARD SPECIFICATIONS.
6. JOINT SEALING COMPOUND SHALL BE PER 804.4 OF STANDARD SPECIFICATIONS.
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. 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. WALL THICKNESS SHALL BE 1" GREATER THAN MANHOLE DIAMETER IN FEET.
13. OPENINGS SHALL BE CORE DRILLED INTO THE MANHOLE WALL WHEN OUTSIDE DROPS ARE CONSTRUCTED ON EXISTING MANHOLES. SUCH OPENINGS DRILLED 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. 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.
14. 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.
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' REGARDLESS OF PIPE SIZE. 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.
19. THE FULL DIAMETER OF THE MANHOLE SHALL EXTEND THE ENTIRE DEPTH OF THE MANHOLE TO THE CONE SECTION. NO REDUCTION IN MANHOLE DIAMETER WILL BE ALLOWED.
20. REFER TO PLANS FOR SIZE OF OUTSIDE DROP RISER, SADDLES AND CROSS.
21. FRAMES AND CHIMNEYS OF ALL MANHOLES CONSTRUCTED IN A FLOODWAY OR UNDER A PAVED SURFACE SHALL BE SEALED WITH AN EXTERNAL CHIMNEY SEAL, AS MANUFACTURED BY CRETEX SPECIALTY PRODUCTS, OR PRE-APPROVED EQUAL. THE CHIMNEY SEAL SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND CONSIST OF A FLEXIBLE EXTERNAL RUBBER SLEEVE, INTERLOCKING EXTENSIONS AND STAINLESS STEEL COMPRESSION BANDS, DESIGNED TO REMAIN FLEXIBLE THROUGHOUT A 25 YEAR LIFE, ALLOWING REPEATED VERTICAL MOVEMENT OF THE FRAME OF NOT LESS THAN 2 INCHES AND/OR REPEATED HORIZONTAL MOVEMENT OF NOT LESS THAN 1/2 INCH, WITH A SLEEVE PORTION THAT IS CORRUGATED WITH A MINIMUM UNEXPANDED VERTICAL HEIGHT OF EITHER 6 INCHES OR 9 INCHES AND CAPABLE OF BEING MECHANICALLY LOCKED TO THE MANHOLE FRAME, WITH A MINIMUM THICKNESS OF 3/16 INCHES MADE FROM A HIGH QUALITY RUBBER COMPOUND CONFORMING TO THE APPLICABLE REQUIREMENTS OF ASTM C-923, WITH A MINIMUM OF 1500 PSI TENSILE STRENGTH, A MAXIMUM 18% COMPRESSION SET AND A HARDNESS (DUROMETER) OF 48+5, WITH BANDS INTEGRALLY FORMED FROM 16 GAUGE STAINLESS STEEL CONFORMING TO ASTM A-240, TYPE 304, WITH NO WELDED ATTACHMENTS AND WITH A MINIMUM ADJUSTMENT RANGE OF 2 DIAMETER INCHES, USING SCREWS, BOLTS AND NUTS OF STAINLESS STEEL CONFORMING TO ASTM F-593 AND 594, TYPE 304.
22. ALL MANHOLE SECTION JOINTS THAT WILL BE IN GROUNDWATER SHALL BE WRAPPED WITH AN EXTERNAL JOINT SEAL, CRETEXWRAP EXTERNAL JOINT SEAL, OR PRE-APPROVED EQUAL. EXTERNAL JOINT SEAL SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS, AND SHALL MEET OR EXCEED THE REQUIREMENTS OF ASTM C-877 TYPE II, AND HAVE PASSED THE ASTM C-1244 TEST. EXTERNAL JOINT SEAL SHALL CONSIST OF A COLLAR 9" TO 18" WIDE WITH AN OUTER LAYER OF POLYETHYLENE WITH A MINIMUM TENSILE STRENGTH OF 4,000 PSI AND A MINIMUM TEAR RESISTANCE OF 1500 PSI, AND AN UNDER LAYER OF RUBBERIZED MASTIC REINFORCED WITH WOVEN POLYPROPYLENE FABRIC, WITH TWO 5/8" STEEL STRAPS LOCATED WITHIN THE COLLAR 3/4" FROM EACH EDGE AND CONFINED IN TUBES THAT ISOLATE THEM FROM THE MASTIC AND ALLOW THEM TO SLIP FREELY WHEN MECHANICALLY TIGHTENED AND LOCKED AROUND THE MANHOLE JOINT, AND FURNISHED WITH A MINIMUM OF 6" OVERLAP AND A CLOSING FLAP TO COVER ANY REMAINING EXPOSED STRAP.

= CRUSHED ROCK *

= UNDISTURBED SOIL

* CRUSHED ROCK USED FOR ENCASEMENT AND BEDDING SHALL CONFORM TO ASTM C-33, GRADATION NO. 67, AND SHALL MEET ALL REQUIREMENTS FOR PORTLAND CEMENT CONCRETE PAVEMENT COARSE AGGREGATE, SECTION 406.2, CITY OF WICHITA STANDARD SPECIFICATIONS. ALL CRUSHED ROCK FOR BEDDING AND ENCASEMENT SHALL EXTEND TO THE LIMITS OF THE MANHOLE EXCAVATION.



MH BASE DETAIL
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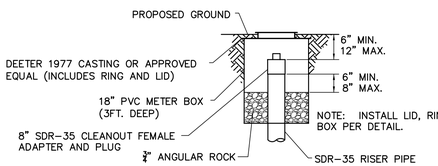

CLEAN-OUT RISER BOX DETAIL
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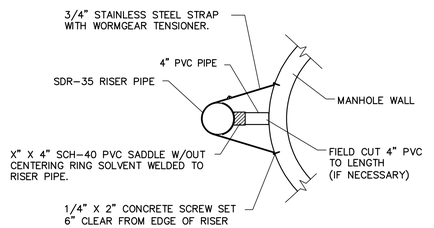


SUPPORT/SPACER DETAIL
Not to Scale

CITY OF WICHITA
PUBLIC WORKS
ENGINEERING

STANDARD TYPE 'P' MANHOLES

CITY ENGINEER
JAMES L. ARMOUR, P.E., L.S.
ACTING

PROJECT NUMBER	OCA NUMBER	DATE

DESIGN	DRAWN

SHEET

CITY ENGINEER'S OFFICE
CITY HALL - SEVENTH FLOOR
455 NORTH MAIN STREET
WICHITA, KANSAS 67202-1620
(316) 268-4501
(316) 268-4114 FAX

No.	Date	By	Approved	Revision

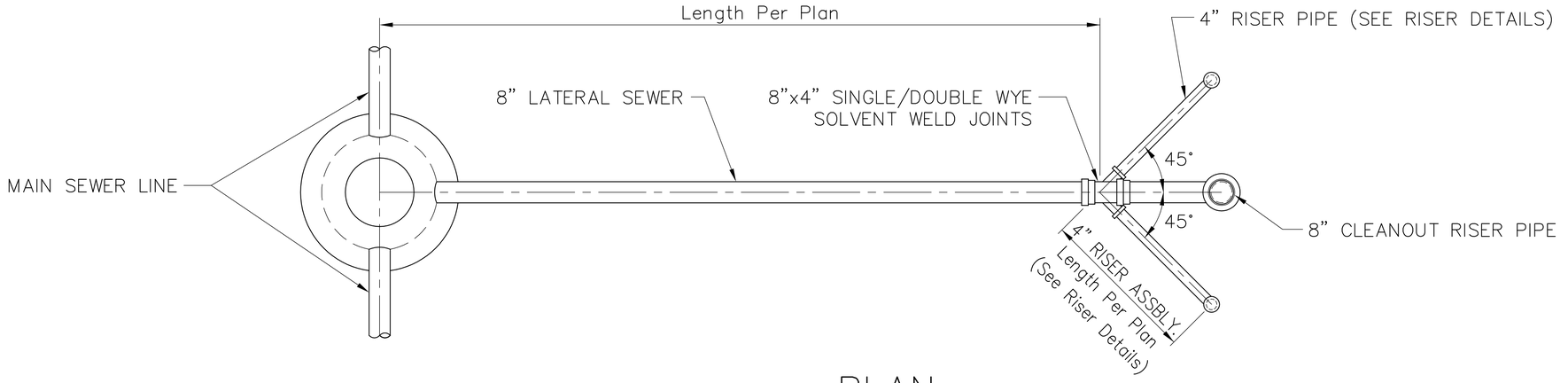
COL. JAMES JABARA AIRPORT-AVIATION CENTER
SANITARY SEWER IMPROVEMENTS
TYPE "P" MANHOLE
CITY OF WICHITA, KANSAS
JAMES L ARMOUR, P.E. - CITY ENGINEER
1856 PPS (607861)

POE & ASSOCIATES, INC.
CONSULTING ENGINEERS
3940 E. Central, Suite 200 ■ Wichita, KS 67208-4242
Phone 316/685-4114 ■ FAX 316/685-4444

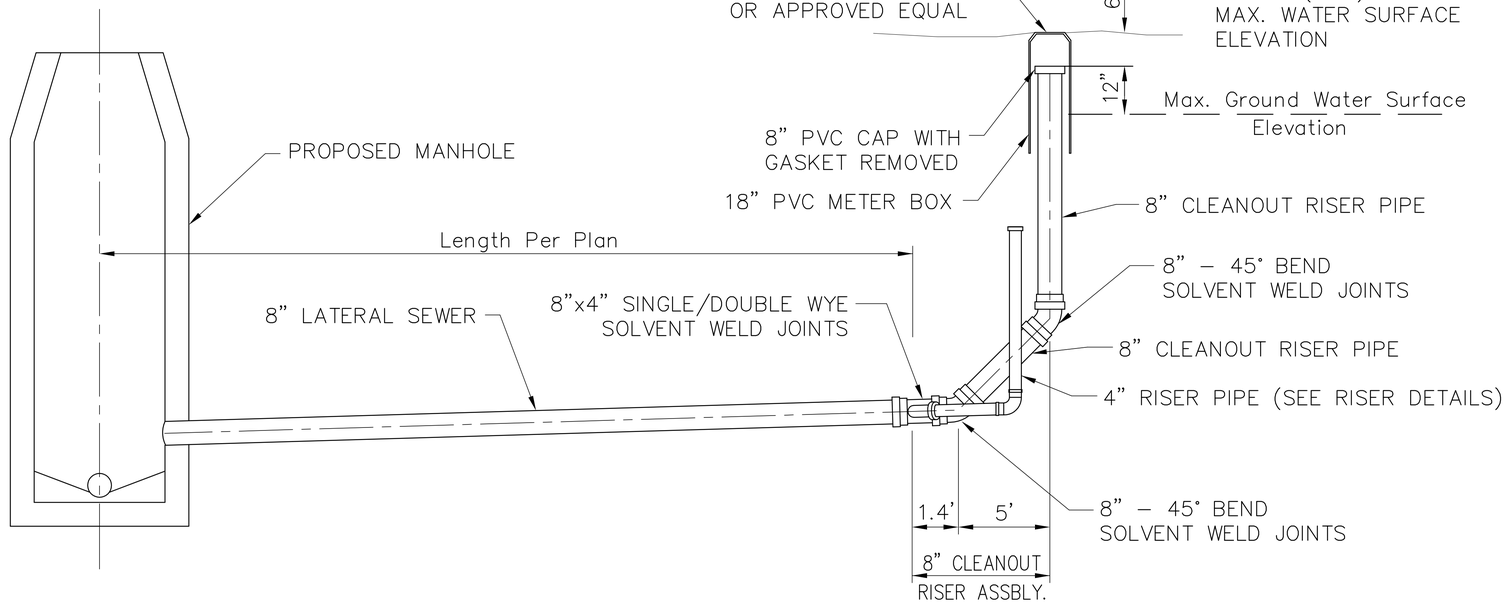
FINAL

Designed By: S. Schimdt
Drawn By: A. Moss
Poe Job No.: 1873
Date: MARCH 2008

Sheet
C27.4 of 13



PLAN



PROFILE

"Cleanout" shall be paid for at the contract unit price per each, which price shall be full compensation for all pipe, fittings, marking tape, ring & solid cover, meter box, and any other incidentals required to complete the work.

8" CLEANOUT RISER ASSEMBLY DETAIL

No.	Date	By	Approved	Revision

COL. JAMES JABARA AIRPORT–AVIATION CENTER
SANITARY SEWER IMPROVEMENTS
CLEANOUT DETAILS
CITY OF WICHITA, KANSAS
JAMES L. ARMOUR, P.E. – CITY ENGINEER
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POE & ASSOCIATES, INC.
CONSULTING ENGINEERS
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Designed By: S. Schimdt
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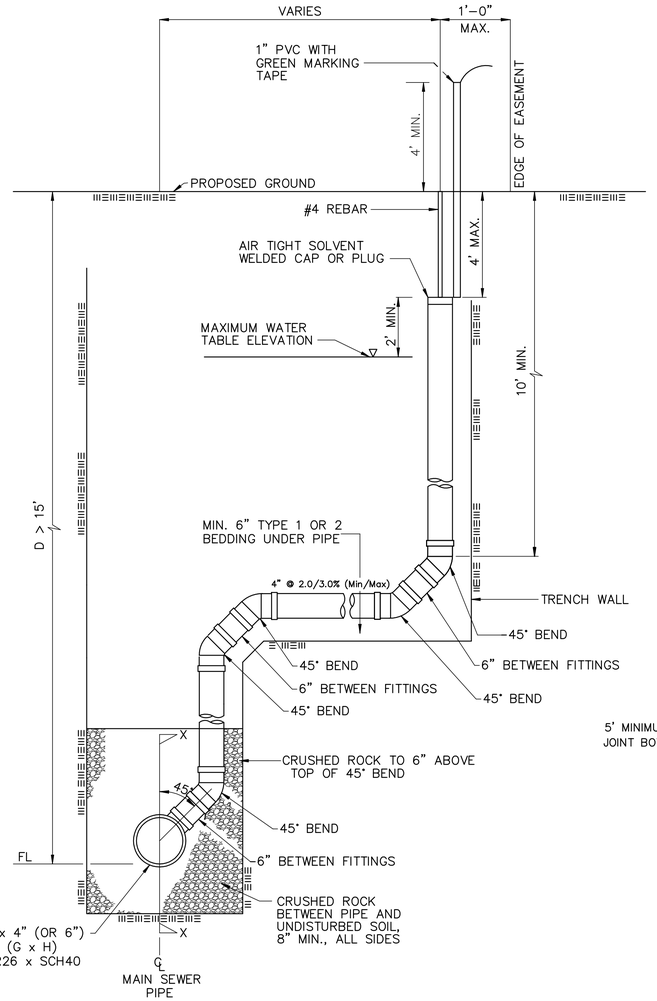
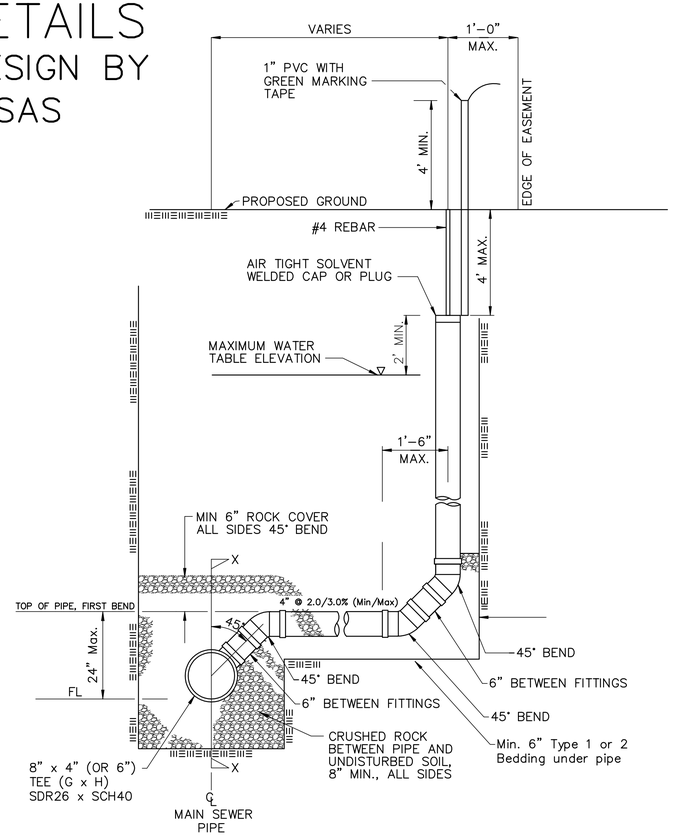
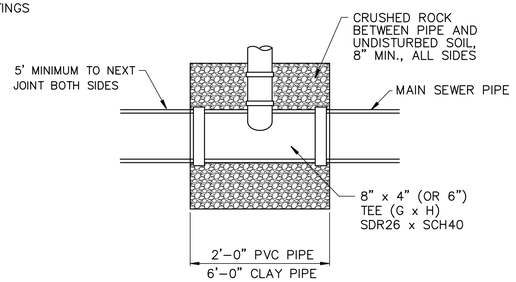
Poe Job No.: 1873
Date: MARCH 2008

Sheet C27.5 of 13

VERTICAL RISER DETAILS
ADOPTED AS STANDARD DESIGN BY CITY OF WICHITA, KANSAS
AUGUST 2007







TYPICAL SECTION X–X

= CRUSHED ROCK *

= UNDISTURBED SOIL

*** CRUSHED ROCK USED FOR ENCASEMENT AND BEDDING SHALL CONFORM TO ASTM C–33, GRADATION NO. 67, AND SHALL MEET ALL REQUIREMENTS FOR PORTLAND CEMENT CONCRETE PAVEMENT COARSE AGGREGATE, SECTION 406.2, CITY OF WICHITA STANDARD SPECIFICATIONS. ALL CRUSHED ROCK FOR BEDDING AND ENCASEMENT SHALL EXTEND TO THE LIMITS OF THE MANHOLE EXCAVATION.**

NOTE: RISER PIPE REQUIREMENTS AT MANHOLE STUBS SHALL BE SIMILAR TO THOSE SHOWN ABOVE.

GENERAL NOTES

1. RISERS. Risers shall be installed to serve all lots or tracts where the sanitary sewer main is below the water table. Risers shall also be installed to serve all lots and tracts where the sanitary sewer main depth is greater than 12 feet below the proposed ground elevation. Installation of risers because of field conditions shall be as approved by the Construction Engineer. The location of the risers to serve developed property shall be approved by the property owner and the Construction Engineer.

2. PIPE STUBS. Pipe stubs shall be installed in manholes where locations of manholes will provide satisfactory service connection as determined by the Construction Engineer. The vertical distance between the flowline of the manhole pipe stub and the flowline of the sanitary sewer main out of the manhole shall not exceed 2 feet. Risers shall be utilized at manhole pipe stubs as indicated in Note 1. Manhole pipe stubs shall be set such that the top of the stub is not lower than the top of the sanitary sewer main.

3. SIZING. Pipe stubs and risers shall be sized according to the plans and riser table where risers are indicated by the plans. Where risers or pipe stubs are required because of field conditions, the risers and stubs shall be six–inch diameter for commercial or industrial properties and 4" or 6" diameter for residential properties, based on lot size and sanitary sewer main depth. Sizing of risers and stubs must be approved by the Construction Engineer prior to installation.

4. RISER OR STUB MATERIAL. Risers 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, on the riser itself, shall be solvent welded. The 8" x 4" or 8" x 6" full body tee shall be SDR 26 PVC pipe, gasket x solvent weld.

5. ROCK ENCASEMENT. Riser connections to clay pipe sanitary sewers shall be rock encased both ways from the riser centerline. The rock encasement shall extend three feet from the riser centerline or stop at the first sanitary sewer pipe joint within three feet of the riser centerline. Riser connections to PVC Sanitary Sewer mains shall be rock encased one foot each way from the riser centerline. Crushed rock shall conform to ASTM C–33, Gradation No. 67, and shall meet all requirements for Portland Cement Concrete Pavement Coarse Aggregate, Section 406.2, City of Wichita Standard Specifications.

6. BEDDING. Beyond the limits of the rock encasement, bedding around the sanitary sewer riser 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 riser pipe. Compacted Pipe Bedding Type 1 or 2 shall be required for all risers whether constructed in vertical wall or sloped wall trenches. Bedding material and construction practices shall be approved by the Construction Engineer prior to installation.

7. SUPPORT OF RISERS. Sanitary sewer riser pipe shall be supported during trench backfill. The riser pipe shall be held in a vertical position at all times until trench backfill and compaction has been completed. Contractor's methods for supporting and backfilling the riser pipe shall be approved by the Construction Engineer.

8. PLUGGING. The ends of the riser pipes and manhole stubs shall be plugged using an airtight solvent welded cap or plug. Cap or plug fittings shall be approved by the Construction Engineer prior to installation. Caps or plugs which do not provide an airtight seal will not be accepted.

9. TOP OF THE RISER PIPE. The top elevation of the sanitary sewer riser pipe shall be built per plan elevations, unless otherwise directed by the Construction Engineer. Where riser elevations are not shown on the plans, the top of the risers shall be set at an elevation four feet below the proposed ground surface. If ground water is encountered, the top of the riser pipe shall be set at an elevation two feet (min.) above the maximum water table elevation, regardless of the riser elevation shown on the plans.

10. MARKING. Locations of the ends of the sanitary sewer riser pipe shall be marked by installing 1" PVC from the top of the riser to a minimum of 4' above the top of finished grade. No. 4 rebar shall be placed centered over the riser from the cap to the existing ground. The 1" PVC pipe shall be wrapped with green colored plastic tape, for the full length above ground surface. The green tape shall be 4 mil Polyethylene film with a minimum width of three inches, specifically manufactured for the purpose of identifying underground sewers.

11. LOCATION MEASURES. The project inspector shall record and document the location of all risers constructed as measured from the nearest manhole, indicating the direction from the manhole, the direction and distance from the main, riser size, and elevation of the top of the riser.

12. RISER LOCATION. The riser shall be located per plan if shown. If not shown on the plan, the riser shall be located at the center of the lot, within one foot of the property side of the easement for the lot being served. All riser locations shall be approved by the Construction Engineer prior to installation.

13. PAYMENT. "Sanitary sewer risers" shall be paid for at the contract unit price per each, which price shall be full compensation for all pipe, fittings, marking tape, length of 1" PVC, length of No. 4 rebar, rock encasement, support during backfill, backfill, labor, site restoration, and any other items necessary to complete the work.

"Manhole stubs" shall be paid for at the contract unit price per each, which shall be full compensation for all labor, material, and incidentals necessary to complete the work including all pipe, fittings, rock encasement, and all other items as required and listed for "Sanitary Sewer Risers".

No.	Date	By	Approved	Revision

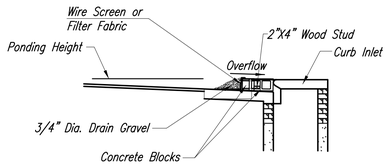
COL. JAMES JABARA AIRPORT–AVIATION CENTER
SANITARY SEWER IMPROVEMENTS
RISER DETAILS
CITY OF WICHITA, KANSAS
JAMES L. ARMOUR, P.E. – CITY ENGINEER
1856 PPS (607861)

POE & ASSOCIATES, INC.
CONSULTING ENGINEERS
5940 E. Central, Suite 200 ■ Wichita, KS 67208–4242
Phone 316/685–4114 ■ FAX 316/685–4444

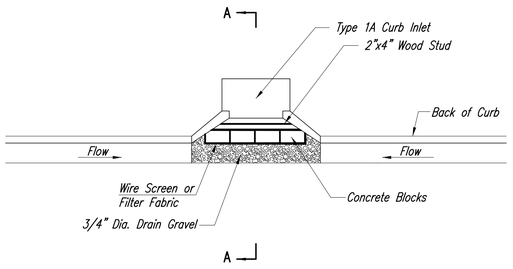
FINAL

Designed By: S. Schimdt
Drawn By: A. Moss
Poe Job No.: 1873
Date: MARCH 2008

Sheet
C27.6 of 13



SECTION A–A



CURB INLET GRAVEL FILTERS
(INLET PROTECTION–RESIDENTIAL STREETS ONLY)

NOTE: Other types of curb inlet protection may be approved by the city so long as equal protection is provided.

A gravel inlet filter shall be installed at sump locations on residential streets. This type of protection is not to be used on arterial or collector streets at any time that it would pose an undue traffic hazard.

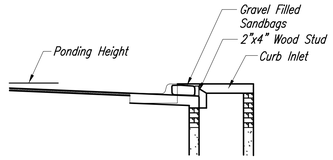
Instructions for Installing:

STEP 1: Place concrete blocks around the inlet as shown on drawing. Insert 2x4 board as shown.
STEP 2: Wrap 1/2" mesh wire screen around the concrete blocks.
STEP 3: Place 1" to 1-1/2" diameter rock around the blocks and wire screen. Be sure the rock extends down from the top of the concrete block.
STEP 4: To prevent damage to vehicles, signs warning drivers about the structures may be necessary. An alternative installation is the use of gravel bags supported by a 2"x4" board to prevent collapsing.

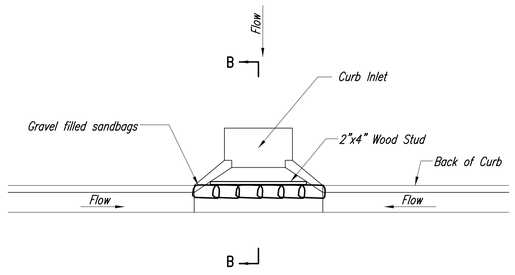
Use of rock with diameters smaller than 1" in the bag may result in clogging of pores and reduce the amount of water flowing into an inlet.

Maintenance:

All curb inlet gravel filters shall be inspected and repaired after each runoff event. Sediment deposits are to be removed once material is within 8 cm (3 inches) of the top of any block. Periodically, the gravel shall be raked to increase infiltration and filtering of runoff waters. Accumulated sediment is to be removed immediately from roads and streets.

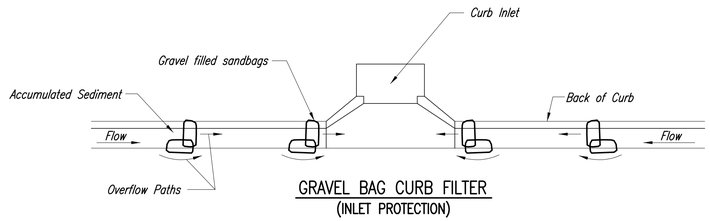


SECTION B–B



CURB INLET SANDBAG FILTERS
(INLET PROTECTION)

NOTE: Other types of curb inlet protection may be approved by the City so long as equal protection is provided.



GRAVEL BAG CURB FILTER
(INLET PROTECTION)

NOTE: Place two or more sets of bags in a manner that results in maximum support. The flow line bag must be lower than top of curb.

CURB SEDIMENT TRAPS

When inlets are located on streets having a grade (i.e., sump conditions do not exist), installing gravel (or sand) bags in the gutter flow line to create small sediment traps can be considered. Gravel bags are recommended over sand bags to allow for drainage.

If the spacing between bags becomes too large, little sediment may be trapped. Spacing of bags should be completed using the table or graph that illustrates placement distances based upon street slope. When installed in the gutter, bag tops must be lower than the sidewalk.

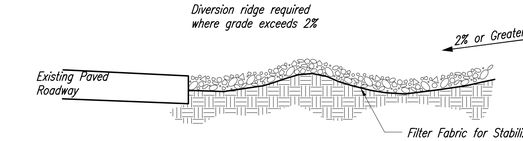
Spacing:

Gravel bags are to be placed according to street grades using the following table or graph that appears below.

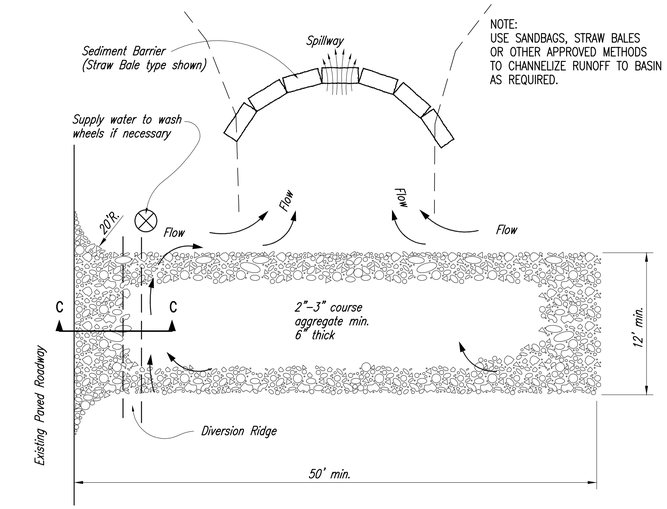
GRADE (%)	SPACING (FEET)
0.5	75
1.0	45
2.0	18
3.0	12
4.0	9
5.0	6

Maintenance:

Collected sediment shall be removed after every runoff event. Bags that are destroyed by vehicular traffic or through natural deterioration are to be immediately replaced.



SECTION C–C



STABILIZED CONSTRUCTION ENTRANCE

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.

No.	Date	By	Approved	Revision

COL. JAMES JABARA AIRPORT–AVIATION CENTER
SANITARY SEWER IMPROVEMENTS
EROSION CONTROL BMP'S
CITY OF WICHITA, KANSAS
JAMES L. ARMOUR, P.E. – CITY ENGINEER
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POE & ASSOCIATES, INC.
CONSULTING ENGINEERS
3940 E. Central, Suite 200 ■ Wichita, KS 67208-4242
Phone 316/685-4114 ■ FAX 316/685-4444

CITY OF WICHITA

SOIL EROSION BMPs

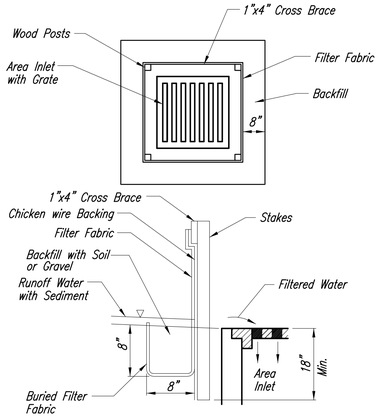
CURB INLET PROTECTION AND CONSTRUCTION ENTRANCE

SCOTT LINDEBAK, P.E.
STORM WATER ENGINEER

FINAL

Designed By: S. Schimdt
Drawn By: A. Moss
Poe Job No.: 1873
Date: MARCH 2008

Sheet
C27.7 of 13



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.

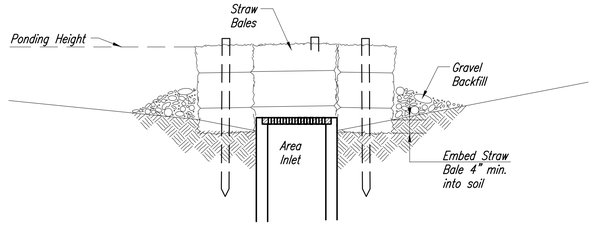
List of common placement/installation mistakes to avoid:

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.

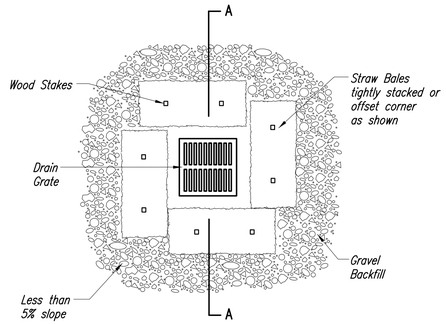
Inspection and Maintenance:

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?



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.

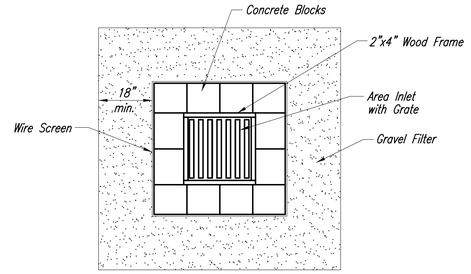
List of common placement installation mistakes to avoid:

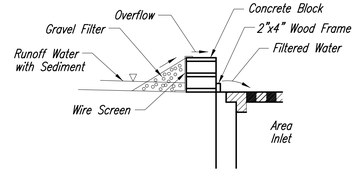
Bales should be placed directly against the perimeter of the area inlet. This allows overtopping water to flow directly into the inlet instead of onto nearby soil causing scour.
Bale area inlet barriers must be dug into the ground. Bales at ground level do not work because they allow water to flow under 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?





CONCRETE BLOCK FILTER FOR AREA INLETS
(INLET PROTECTION)

Gravel barriers provide little filtering of large inflow waters. However, when installed correctly and maintained, they can effectively treat low runoff flows.

Placement of gravel filters around area drains must be completed in a manner that will not cause local flooding.

Gravel filters can be used if the immediate and adjacent area to the area drain consists of soil or pavement.

Only gravel filters are to be installed on top of the pavement.

Instructions for Installing:

STEP 1: Place concrete blocks around the grate. The blocks can be stacked one or two high and should be supported by a 2"x4" board.
STEP 2: Wrap 1/2" mesh wire screen around the concrete blocks.
STEP 3: Place 1" to 1–1/2" diameter rock around the blocks and wire screen. Be sure the rock extends down from the top of the concrete block.
STEP 4: To prevent damage to vehicles, signs warning drivers about the structures may be necessary.

An alternative method is use of gravel bags that are supported to prevent collapsing.

Use of rock having diameters smaller than 1" may result in clogging of pores and reduce the amount of water flowing into an inlet.

Maintenance:

All gravel filters installed around area drains should be inspected and repaired after each runoff event. Sediment should be removed when material is within 3" of the top of any block. Periodically, the gravel should be raked to increase infiltration and filtering of runoff waters. Accumulated sediment is to be removed immediately from roads and streets after every runoff event.

CITY OF WICHITA

SOIL EROSION BMPs

AREA INLET BARRIERS

SCOTT LINDEBAK, P.E.
STORM WATER ENGINEER

No.	Date	By	Approved	Revision

COL. JAMES JABARA AIRPORT–AVIATION CENTER
SANITARY SEWER IMPROVEMENTS
EROSION CONTROL BMP'S
CITY OF WICHITA, KANSAS
JAMES L. ARMOUR, P.E. – CITY ENGINEER
1856 PPS (607861)

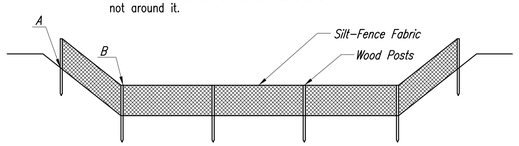
POE & ASSOCIATES, INC.
CONSULTING ENGINEERS
5940 E. Central, Suite 200 ■ Wichita, KS 67208-4242
Phone 316/685-4111 ■ FAX 316/685-4444

FINAL

Designed By: S. Schimdt
Drawn By: A. Moss
Poe Job No.: 1873
Date: MARCH 2008

Sheet
C27.8 of 13

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)

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 (%)	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.

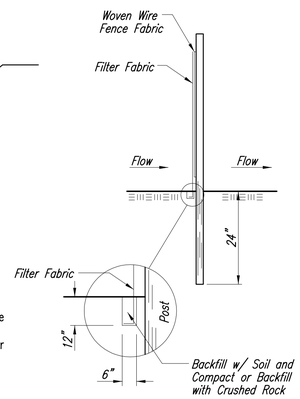
List of common placement/installation mistakes to avoid:

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:

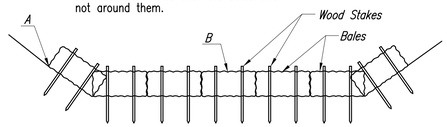
Silt fence ditch checks should be inspected every 7 days and within 24 hours of a rainfall of 1/2" or more. The following is a list of questions that should be addressed during each inspection:

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?



ANCHOR TRENCH DETAIL

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 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".

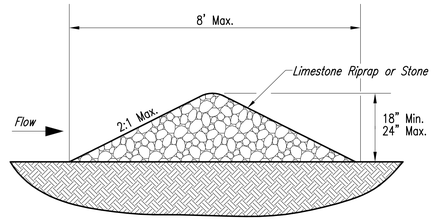
List of common placement/installation mistakes to avoid:

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.

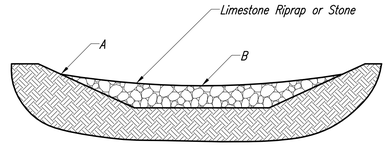
Inspection and Maintenance:

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?



DETAIL OF ROCK DITCH CHECK INSTALLATION



INSTALLATION OF ROCK DITCH CHECKS

ROCK DITCH CHECKS

Purpose & Design

Rock ditch checks operate by intercepting and ponding sediment-laden run-off. Ponding the water dissipates the energy of any incoming flow and allows a large portion of the suspended sediment to settle out. Water exits the ditch check by flowing over its crest. Rock ditch checks are ideal for ditches that will eventually have a riprap lining. Upon completion of the project, the rock ditch checks can be spread out to form the riprap channel lining.

Material Specification:

Stone used for rock ditch checks shall be free from soapstone, shale, shalelike, or other easily disintegrated material. Stone used may be irregular in shape and shall be approximately 6" to 9" in width, 12" in length and a minimum weight per stone of 50 lbs. Precast concrete blocks and concrete from old structures may not be used. The stone shall be placed ungrouted.

Placement:

Rock ditch checks shall be placed perpendicular to the flowline of the ditch.

Rock ditches must be designed so that water can flow over them, not around them.
The ditch checks should extend far enough so that the ground level at the ends of the check is higher than the low point on the crest of the check.

Proper installation method:

Using Limestone or Rock as listed above, construct a rock ditch check perpendicular to the ditch flowline.
The ditch check should be 18" to 24" high and have side slopes no steeper than 2:1. The rock ditch check must be constructed so that water can flow over the top and not around the ends (i.e., the ground level at the ends of the check must be higher than the low point on the crest of the check).

List of common placement/installation mistakes to avoid:

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 low point on the crest of the check

Inspection and Maintenance:

Rock ditch checks should be inspected every 7 days and within 24 hours of a rainfall of 0.5 inches or more. The following is a list of questions that should be addressed during each inspection.

Does the water flow around the ditch check?
This is usually caused by insufficient ditch check length. If this occurs extend the check a sufficient length so that the ground level at th ends of the check is higher than the low point on the crest of the check.

Have high-velocity flows displaced any stones from the check?
Sometimes high-velocity flows can carry away portions of a rock ditch check after a large rainstorm, inspect the rock ditch check for any displaced stones. If a large portion of a rock ditch check has washed away, fill in the void with new stone immediately.

Does sediment need to be removed from behind the ditch check?
Sediment accumulated behind the ditch check should be removed when it reaches one-half of the original exposed height of the rock ditch check. Allowing too much sediment to accumulate behind a ditch check drastically reduces its effectiveness. One high-intensity rainfall can dislodge That is why it is extremely important to inspect ditch checks within 24 hours of a large rainfall.

CITY OF WICHITA

SOIL EROSION BMPs

DITCH CHECK DETAILS

SCOTT LINDEBAK, P.E.
STORM WATER ENGINEER

No.	Date	By	Approved	Revision

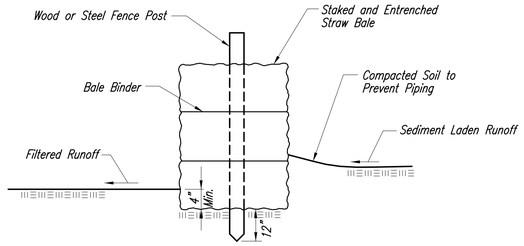
COL. JAMES JABARA AIRPORT-AVIATION CENTER
SANITARY SEWER IMPROVEMENTS
EROSION CONTROL BMP'S
CITY OF WICHITA, KANSAS
JAMES L. ARMOUR, P.E. - CITY ENGINEER
1856 PPS (607861)

POE & ASSOCIATES, INC.
CONSULTING ENGINEERS
3940 E. Central, Suite 200 ■ Wichita, KS 67208-4242
Phone 316/685-4114 ■ FAX 316/685-4444

FINAL

Designed By: S. Schimdt
Drawn By: A. Moss
Poe Job No.: 1873
Date: MARCH 2008

Sheet
C27.9 of 13



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.

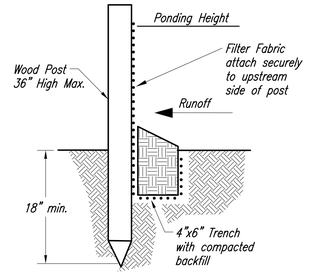
List of common placement/installation mistakes to avoid:

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?



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?

CITY OF WICHITA

SOIL EROSION BMPs

BARRIER DETAILS

SCOTT LINDEBAK, P.E.
STORM WATER ENGINEER

No.	Date	By	Approved	Revision

COL. JAMES JABARA AIRPORT-AVIATION CENTER
SANITARY SEWER IMPROVEMENTS
EROSION CONTROL BMP'S
CITY OF WICHITA, KANSAS
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Phone 316/685-4114 ■ FAX 316/685-4444

FINAL

Designed By: S. Schimdt
Drawn By: A. Moss
Poe Job No.: 1873
Date: MARCH 2008

Sheet
C27.10 of 13

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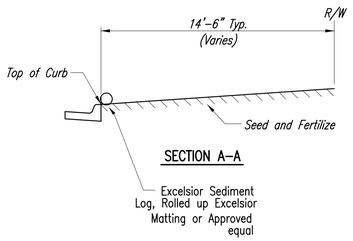
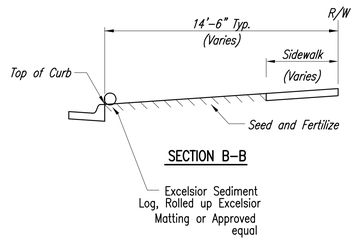
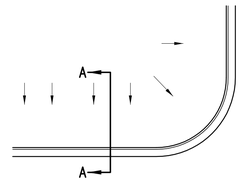


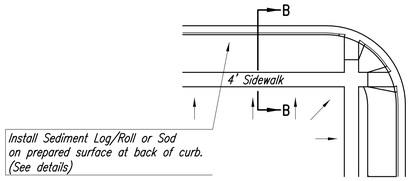
SECTION A-A



SECTION B-B



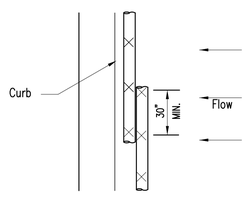
SOUTH STREET



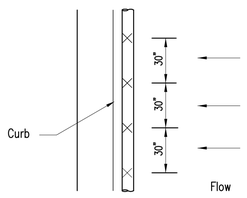
NOTES:

1. EXCELSIOR LOG/ROLL TO BE INSTALLED WHEN SOD IS NOT SPECIFIED ON PROJECT.
2. AFTER INSTALLATION OF LOG/ROLL, 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.

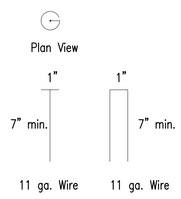
BACK OF CURB PROTECTION DETAIL



OVERLAP PATTERN

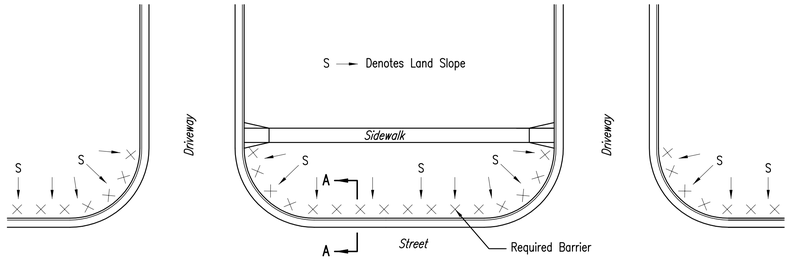


STAPLE PATTERN

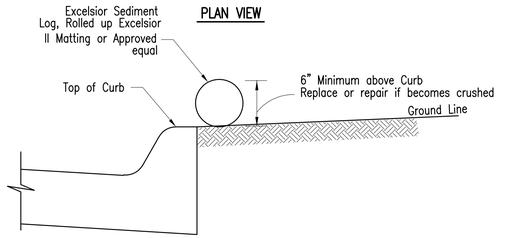


STAPLE

DETAILS FOR SEDIMENT LOG/ROLL



PLAN VIEW



SECTION A-A

NOTES:

1. Barriers must be placed back of curb along street and up the driveway sufficiently to catch all sediment from the yard.
2. Anchor to ground every 30" with a 7" min. long staple.
3. Remove accumulated sediment when within 2 inches of top of device.
4. Replace/repair all broken/damaged sediment logs/rolls to maintain effectiveness of device.
5. Sediment logs/rolls can be driven over for access to the site. They need to be picked up and put back down after they have been compacted by any traffic to maintain effectiveness of BMP. Replace as needed per original design.

SEDIMENT LOG BARRIERS

NOTES:
FOLDED Excelsior matting will not be accepted.

CITY OF WICHITA

SOIL EROSION BMPs

BACK OF CURB SEDIMENT BARRIER DETAILS

SCOTT LINDEBAK, P.E.
STORM WATER ENGINEER

No.	Date	By	Approved	Revision

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SANITARY SEWER IMPROVEMENTS
EROSION CONTROL BMP'S
CITY OF WICHITA, KANSAS
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POE & ASSOCIATES, INC.
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FINAL

Designed By: S. Schimdt
Drawn By: A. Moss
Poe Job No.: 1873
Date: MARCH 2008

Sheet
C27.11 of 13

Point No.	Easting	Northing	Description
16	-1710348.586	1680746.747	Section Corner
17	-1713009.764	1680707.98	1/4 Corner
18	-1715644.182	1680653.083	Section Corner
20	-1710394.441	1683386.68	1/4 Corner
23	-1713010.478	1680757.976	Property Corner
24	-1711319.192	1680782.401	Property Corner
25	-1711419.601	1680806.234	Property Corner
26	-1711594.551	1680803.536	Property Corner
27	-1711597.08	1680978.653	Property Corner
28	-1711618.572	1681078.353	Property Corner
4500	-1712693.319	1680613.264	Connect to Exist. Pipe
4501	-1712695.79	1680767.56	Std. Type "P" MH
4502	-1712731.598	1680960.599	Std. Type "P" MH
4503	-1712332.071	1680943.888	Std. Type "P" MH
4504	-1712086.336	1681042.492	Std. Type "P" MH
4505	-1712769.984	1681209.052	Cleanout Assembly
4506	-1711964.863	1681306.249	Cleanout Assembly

No.	Date	By	Approved	Revision

COL. JAMES JABARA AIRPORT-AVIATION CENTER
SANITARY SEWER IMPROVEMENTS
COORDINATE POINTS LIST
CITY OF WICHITA, KANSAS
JAMES L. ARMOUR, P.E. – CITY ENGINEER
1856 PPS (607861)

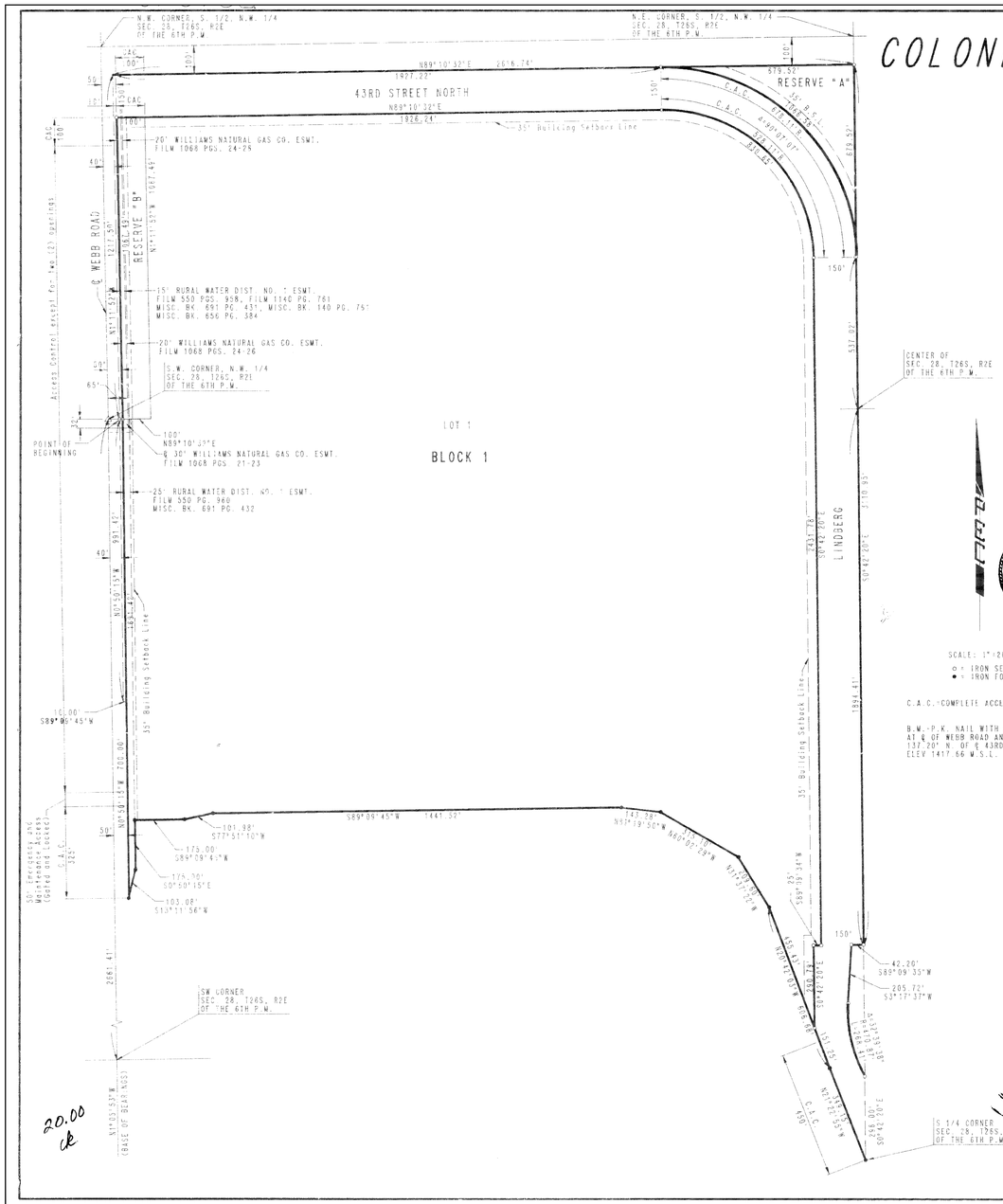
POE & ASSOCIATES, INC.
CONSULTING ENGINEERS
5940 E. Central, Suite 200 ■ Wichita, KS 67208-4242
Phone 316/685-4114 ■ FAX 316/685-4444

FINAL

Designed By: S. Schimdt
Drawn By: A. Moss
Poe Job No.: 1873
Date: MARCH 2008

COLONEL JAMES JABARA AIRPORT 2ND ADDITION

TO WICHITA, SEDGWICK COUNTY, KANSAS



SCALE: 1"=200'

○ = IRON SET
● = IRON FOUND

C.A.C.=COMPLETE ACCESS CONTROL

B.M.=P.K. NAIL WITH SHINER AT ℄ OF WEBB ROAD AND DRIVEWAY 137.20' N. OF ℄ 43RD STREET ELEV 1417.66 M.S.L.

MICHAEL W. BERRY LS-946 KANSAS LAND SURVEYOR
1-14-94

STATE OF KANSAS)
) SS
COUNTY OF SEDGWICK)

I, MICHAEL W. BERRY, A REGISTERED LAND SURVEYOR IN AFORESAID STATE AND COUNTY, DO HEREBY CERTIFY THAT ON THIS 14th DAY OF JANUARY 1994, I HAVE CAUSED TO BE SURVEYED AND PLATTED COLONEL JAMES JABARA AIRPORT 2ND ADDITION, TO WICHITA, SEDGWICK COUNTY, KANSAS, INTO A BLOCK, A LOT, STREETS AND RESERVES THE SAME BEING:
THE SOUTH 1/2 OF THE NW 1/4 OF SECTION 28, TOWNSHIP 26 SOUTH, RANGE 2 EAST OF THE 6TH P.M., EXCEPT THE NORTH 100 FEET, AND EXCEPT THE WEST 40 FEET FOR ROAD PURPOSES, TOGETHER WITH THE S.W. 1/4 OF SAID SECTION 28, EXCEPT THAT PART PLATTED AS LOT 1, BLOCK A, COLONEL JAMES JABARA AIRPORT ADDITION TO WICHITA, SEDGWICK COUNTY, KANSAS, AND EXCEPT PART OF SBS INDUSTRIAL ADDITION, SEDGWICK COUNTY, KANSAS, AND EXCEPT THE WEST 40 FEET FOR ROAD PURPOSES. MORE PARTICULARLY DESCRIBED AS:
COMMENCING AT THE S.W. CORNER OF THE N.W. 1/4 OF SECTION 28, TOWNSHIP 26 SOUTH, RANGE 2 EAST OF THE 6TH P.M.; THENCE BEARING N89°09'18"E ALONG THE SOUTH LINE OF SAID N.W. 1/4 A DISTANCE OF 40.00 TO THE POINT OF BEGINNING; THENCE BEARING N1°11'52"W PARALLEL TO AND 40.00 FEET EAST OF THE WEST LINE OF SAID N.W. 1/4 A DISTANCE OF 1217.59 FEET; THENCE BEARING N89°10'32"E PARALLEL TO AND 100.00 FEET SOUTH OF THE NORTH LINE OF THE SOUTH 1/2 OF SAID N.W. 1/4 A DISTANCE OF 2616.74 FEET TO A POINT IN THE EAST LINE OF SAID N.W. 1/4; THENCE BEARING S0°42'20"E ALONG SAID EAST LINE AND ALSO ALONG THE EAST LINE OF THE S.W. 1/4 OF SAID SECTION 28 A DISTANCE OF 1110.95 FEET TO A POINT IN THE NORTH LINE OF LOT 1, BLOCK A, SBS INDUSTRIAL ADDITION, SEDGWICK COUNTY, KANSAS; THENCE ALONG SAID NORTH LINE BEARING S89°09'35"W A DISTANCE OF 42.20 FEET; THENCE BEARING S3°17'37"W A DISTANCE OF 205.72 FEET TO THE P.C. OF A CURVE TO THE LEFT HAVING A RADIUS OF 476.87 FEET; THENCE ALONG SAID CURVE THROUGH A CENTRAL ANGLE OF 32°39'33" AN ARC DISTANCE OF 268.41 FEET TO A POINT IN THE EAST LINE OF THE S.W. 1/4 OF SAID SECTION 28 SAID POINT ALSO BEING ON A CURVE IN THE WESTERLY LINE OF LOT 1, BLOCK A, SBS INDUSTRIAL ADDITION; THENCE BEARING S0°42'20"E ALONG THE LAST LINE OF SAID S.W. 1/4 A DISTANCE OF 286.00 FEET TO THE S.E. CORNER OF THE S.W. 1/4 OF SAID SECTION 28; THENCE BEARING N71°22'55"W ALONG THE NORTHEASTERLY LINE OF LOT 1, BLOCK A IN SAID COLONEL JAMES JABARA AIRPORT ADDITION A DISTANCE OF 349.15 FEET; THENCE BEARING N30°47'03"W ALONG SAID LINE A DISTANCE OF 606.68 FEET; THENCE CONTINUING ALONG SAID LINE BEARING N33°37'22"W A DISTANCE OF 209.60 FEET; THENCE BEARING N60°02'29"W ALONG SAID LINE A DISTANCE OF 315.10 FEET; THENCE BEARING N83°15'50"W ALONG THE NORTH LINE OF SAID LOT 1, A DISTANCE OF 143.28 FEET; THENCE CONTINUING ON SAID LINE BEARING S89°09'45"W A DISTANCE OF 1441.32 FEET; THENCE BEARING S77°51'10"W A DISTANCE OF 101.98 FEET; THENCE BEARING S89°09'45"W A DISTANCE OF 75.00 FEET TO THE N.W. CORNER OF SAID LOT 1; THENCE BEARING S0°50'15"E A DISTANCE OF 175.00 FEET; THENCE BEARING S13°11'56"W A DISTANCE OF 103.08 FEET; THENCE BEARING N0°50'15"W PARALLEL TO AND 50.00 FEET EAST OF THE WEST LINE OF SAID S.W. 1/4 A DISTANCE OF 700.00 FEET; THENCE BEARING S89°09'45"W A DISTANCE OF 10.00 FEET; THENCE BEARING N0°50'15"W A DISTANCE OF 991.42 FEET TO THE POINT OF BEGINNING.

ALL PORTIONS OF LINDBERG, 39TH STREET NORTH, WEBB ROAD, AND SBS INDUSTRIAL ADDITION WITHIN THE ABOVE DESCRIBED TRACT ARE HEREBY VACATED AND REPLATTED BY VIRTUE OF K.S.A. 12-512(b) AMENDED.

Michael W. Berry
MICHAEL W. BERRY, R.L.S. #946

KNOW ALL MEN BY THESE PRESENTS THAT WE, THE UNDERSIGNED PROPERTY OWNERS OF THE LAND, AS ABOVE SET FORTH IN THE SURVEYOR'S CERTIFICATE, HAVE CAUSED THE LAND TO BE SURVEYED AND PLATTED INTO LOTS, A BLOCK, A RESERVE AND STREETS, THE SAME TO BE KNOWN AS COLONEL JAMES JABARA AIRPORT 2ND ADDITION, TO WICHITA, SEDGWICK COUNTY, KANSAS. THE STREETS ARE HEREBY DEDICATED TO AND FOR THE USE OF THE PUBLIC.

ALL ABUTTERS' RIGHTS OF ACCESS TO AND FROM WEBB ROAD OVER & ACROSS THE WEST LINE OF BLOCK 1 ARE HEREBY GRANTED TO THE CITY OF WICHITA, KANSAS; PROVIDED HOWEVER THAT LOT 1, BLOCK A SHALL HAVE ACCESS TO WEBB ROAD AT TWO (2) LOCATIONS TO BE DESIGNATED BY THE CITY ENGINEER OF WICHITA, KANSAS, TOGETHER WITH A 50 FOOT EMERGENCY AND MAINTENANCE ACCESS AS SHOWN.

ALL ABUTTERS' RIGHTS OF ACCESS TO AND FROM 43RD STREET NORTH AND LINDBERG AS SHOWN ARE HEREBY GRANTED TO THE CITY OF WICHITA.

RESERVE "A" IS HEREBY PLATTED FOR AIRPORT RELATED USES. RESERVE "B" IS HEREBY PLATTED FOR OPEN SPACE PURPOSES. RESERVE "A" AND "B" SHALL BE OWNED AND MAINTAINED BY THE WICHITA AIRPORT AUTHORITY.

OWNERS: THE WICHITA AIRPORT AUTHORITY

BY Larry James, PRESIDENT
LARRY JAMES

Judyeon N. Mohring, AIRPORT CLERK
JUDYEON MOHRING

BOARD OF COUNTY COMMISSIONERS OF SEDGWICK COUNTY, KANSAS:

Betsy Gwin, CHAIR
BETSY GWIN

Susan E. Crockett-Spoon, COUNTY CLERK
SUSAN E. CROCKETT-SPOON

#1363377

STATE OF KANSAS)
) SS
COUNTY OF SEDGWICK)

BE IT REMEMBERED THAT ON THIS 18th DAY OF January, 1994, BEFORE ME, A NOTARY PUBLIC IN AFORESAID STATE AND COUNTY, CAME JERRY JAMES, PRESIDENT AND JUDYE N. MOHRING, AIRPORT CLERK OF THE WICHITA AIRPORT AUTHORITY, IN WICHITA, KANSAS, TO ME PERSONALLY KNOWN TO BE THE SAME PERSONS WHO EXECUTED THE FOREGOING INSTRUMENT OF WRITING AND DULY ACKNOWLEDGED THE EXECUTION OF SAME FOR AND ON BEHALF AND AS THE VOLUNTARY ACT AND DEED OF SAID AIRPORT AUTHORITY. IN TESTIMONY WHEREOF I HAVE HEREUNTO SET MY HAND AND AFFIXED MY NOTARIAL SEAL THE DAY AND YEAR ABOVE WRITTEN.

Gary L. Wiley, NOTARY PUBLIC
GARY L. WILEY

MY APPOINTMENT EXPIRES Jan. 15, 1997

GARY L. WILEY NOTARY PUBLIC STATE OF KANSAS By Appt. Exp. 1-15-97

STATE OF KANSAS)
) SS
COUNTY OF SEDGWICK)

BE IT REMEMBERED THAT ON THIS 21st DAY OF January, 1994, BEFORE ME, A NOTARY PUBLIC IN AFORESAID STATE AND COUNTY, CAME BETSY GWIN, CHAIR OF THE BOARD OF COUNTY COMMISSIONERS OF SEDGWICK COUNTY, KANSAS, AND SUSAN E. CROCKETT-SPOON, SEDGWICK COUNTY CLERK, TO ME PERSONALLY KNOWN TO BE THE SAME PERSONS WHO EXECUTED THAT FOREGOING INSTRUMENT OF WRITING AND DULY ACKNOWLEDGED THE EXECUTION OF SAME FOR AND ON BEHALF AND AS THE VOLUNTARY ACT AND DEED OF SAID BOARD. IN TESTIMONY WHEREOF I HAVE HEREUNTO SET MY HAND AND AFFIXED MY NOTARIAL SEAL THE DAY AND YEAR ABOVE WRITTEN.

Gary L. Wiley, NOTARY PUBLIC
GARY L. WILEY

MY APPOINTMENT EXPIRES Jan. 15, 1997

GARY L. WILEY NOTARY PUBLIC STATE OF KANSAS By Appt. Exp. 1-15-97

THIS PLAT HAS BEEN SUBMITTED TO AND APPROVED BY THE WICHITA-SEDGWICK COUNTY METROPOLITAN AREA PLANNING COMMISSION, WICHITA, KANSAS, DATED THIS 29TH DAY OF AUGUST, 1992.

James D. Miner, CHAIRMAN
JAMES D. MINER

Marvin S. Krout, SECRETARY
MARVIN S. KROUT

THIS PLAT APPROVED AND ALL DEDICATIONS SHOWN HEREON ARE ACCEPTED BY THE CITY COUNCIL OF THE CITY OF WICHITA, KANSAS. DATED THIS 8th DAY OF February, 1994.

Elma Broadfoot, MAYOR
ELMA BROADFOOT

Pat Burnett, DEPUTY CITY CLERK
PAT BURNETT

ENTERED ON TRANSFER RECORD THIS 2nd DAY OF March, 1994.

Susan Crockett-Spoon, COUNTY CLERK
SUSAN E. CROCKETT-SPOON

THIS IS TO CERTIFY THAT THIS INSTRUMENT WAS FILED FOR RECORD IN THE REGISTER OF DEEDS OFFICE AT 8:00 A.M., ON THIS 3RD DAY OF MARCH, 1994

Pat Kettler, REGISTER OF DEEDS
PAT KETTLER

Ed Resa, DEPUTY
ED RESA

CLERK OF SEDGWICK CO. KANSAS