SANITARY SEWER MAIN
Lateral 342, FOUR MILE CREEK SEWER
WHISPERING LAKES ESTATES ADDITION
PROJECT NO. 468-83538
OCA NO. 743960

GENERAL NOTES

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	687-2470

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

Cox Communications	262-0661
Kansas Gas Service	383-8600
K.G.E. Electric	383-8600
Peoples Natural Gas Company	1-800-303-0357
Southwestern Bell Telephone Company	1-800-286-8313
City of Wichita Water Department	262-6000
City of Wichita Sewer Maintenance	262-6000
Jayhawk Pipeline LLC	755-0241
Farmland Industries	755-4042

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 location, as shown on the plans, represent the best information obtainable for design. Location information has been obtained from the various utility companies and is either from company record drawings or company-provided field locations. The Contractor will be required to work around existing utilities within the right-of-way which do not conflict with proposed construction.

A saw cut of at least one-half the depth of existing surface courses or one-fourth the depth of existing total pavement thickness shall be provided at locations where proposed construction abuts an existing surface course or pavement for which partial removal of that surface or pavement is required, except when such saw cuts are within three (3) feet of an existing joint the limits of removal shall be extended to the existing joint. Such saw cuts will not be paid for directly and this cost shall be considered as subsidiary to the removal of the surface or pavement.

Rubble from the removal of miscellaneous structures and excess excavation which is to be wasted shall be 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 permitting regulations. Any material buried or stockpiled beyond approved of Engineers construction limits would require additional archeological investigations unless buried in a previously approved borrow location.

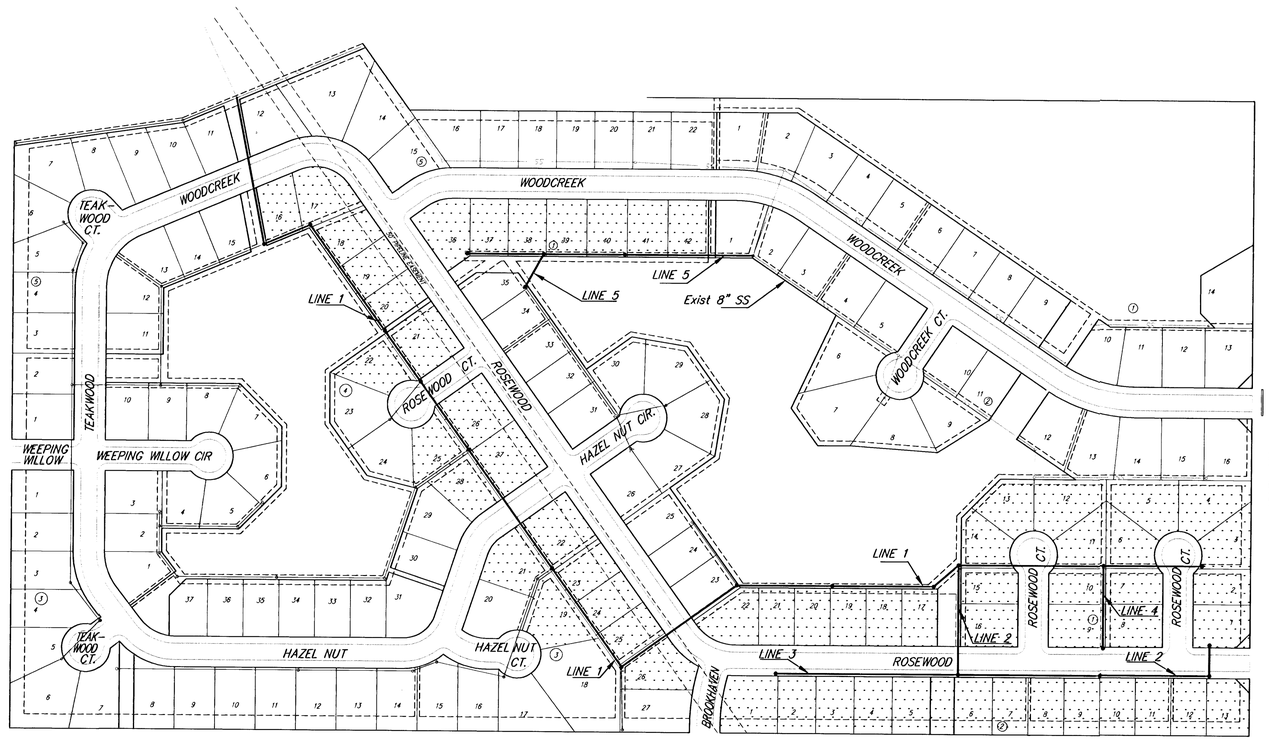
The Engineer shall take field ties to all quarter section corners. The Contractor shall set a City survey monument in the required location where such quarter section corners fall within the limits of pavement construction. Survey monuments will be furnished by the City. The Engineer will accurately located and install the iron at the quarter section corner. This work will not be paid for directly, but shall be considered subsidiary to the other pay items of work in the contract.

The Contractor shall notify pipeline companies at least 24 hours in advance of any work being performed across and/or adjacent to pipelines.

The Contractor shall give all property owners and/or tenants of developed property directly abutting the construction of this project a minimum of ten (10) days advance notice prior to start of construction.

The Contractor shall seed, fertilize and mulch all disturbed areas upon completion of construction. Incidental to the bid item for "Site Clearing and Restoration".

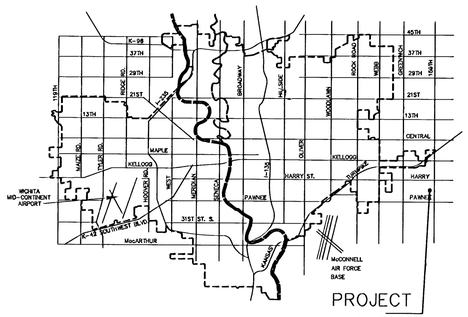
See Key Map for placement of erioson control. 1824 L.F. of linear sediment barrier to be placed per specifications on sheet 11. Erosion control quantities are for information only.



BENCH MARKS

BENCHMARK : RR SPIKE IN P.P. 47' EAST AND 853' NORTH OF THE S.E. COR. N.E. 1/4, SEC. 36-27S-2E
Elev. 1287.62 (NGVD)

INDEX OF SHEETS



VICINITY MAP

AS BUILT
11/06/03
RDL
.PDF

Scale: 1" = 150'

CHRISTOPHER MICHAEL DUHM LICENSED 11631 6/19/03 KANSAS PROFESSIONAL ENGINEER

BENEFIT DISTRICT

CITY OF WICHITA, KANSAS
NEIL CABLE, P.E. - CITY ENGINEER

Ruggles & Bohm, P.A.
Engineering, Surveying, Land Planning
924 North Main
Wichita, Kansas 67203
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(316) 264-8008
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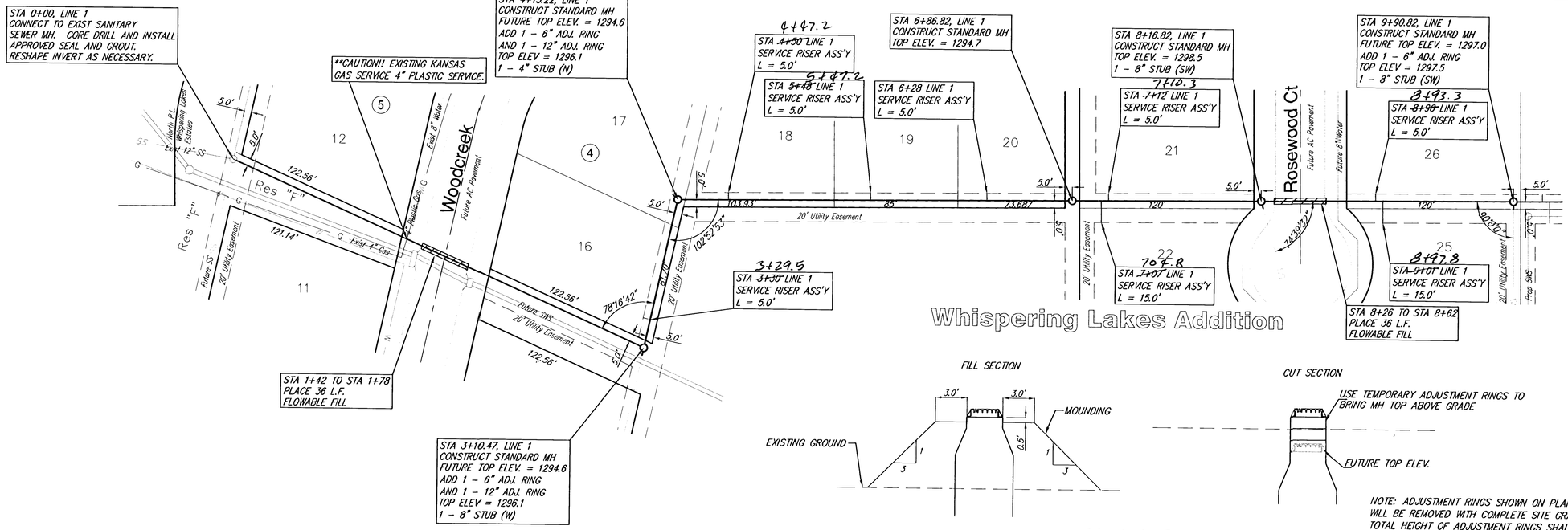

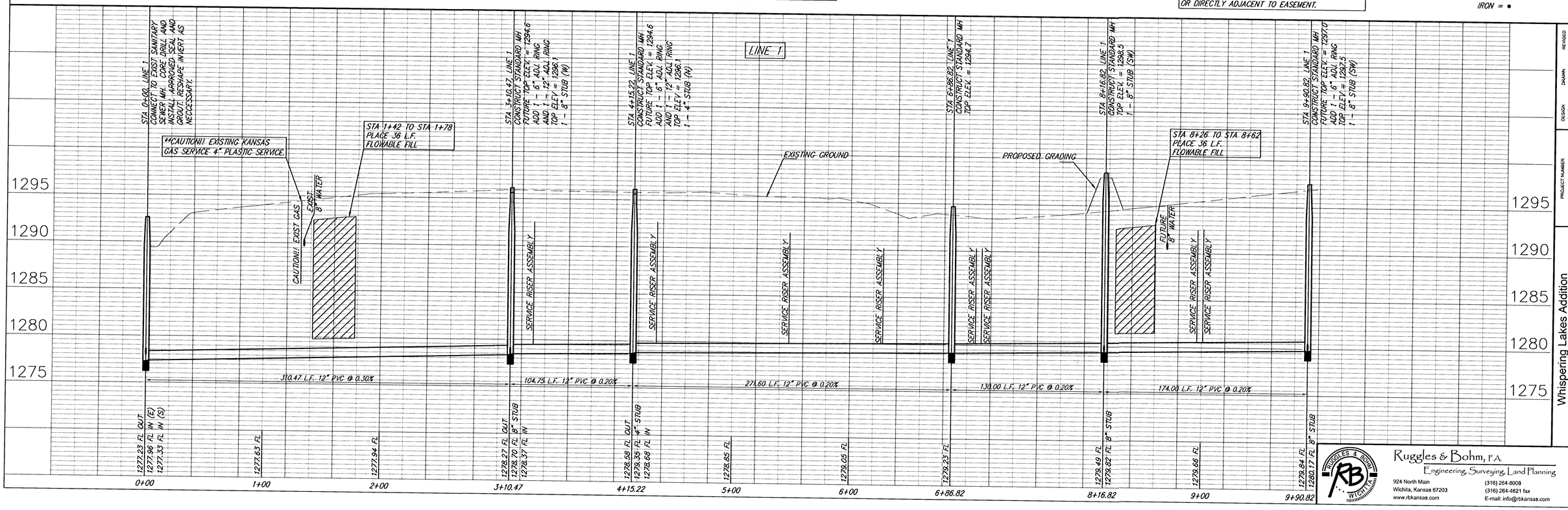

DESIGN CMB | DRAWN EJG | REVISED
UTILITY | DATE Feb. 13, 2003 | REVIEW
PROJECT NUMBER 468-83358
DRAWING FILE Sanitary Sewer (SS 01)

Whispering Lakes Addition
Sanitary Sewer Line 1
WICHITA, KANSAS

RB JOB 2211E
SHEET 2 OF 15

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STA 9+90.82, LINE 1
CONSTRUCT STANDARD MH
SEE SHEET 2

STA 11+30 TO STA 11+66
PLACE 36 L.F.
FLOWABLE FILL

STA 10+11 LINE 1
SERVICE RISER ASS'Y
L = 5.0'

STA 12+94.82, LINE 1
CONSTRUCT STANDARD MH
FUTURE TOP ELEV. = 1298.9
ADD 1 - 12" ADJ. RING
TOP ELEV. = 1299.9
1 - 8" STUB (SW) L = 15'

STA 12+00 LINE 1
SERVICE RISER ASS'Y
L = 5.0'

STA ~~13+15~~ 13+18.3 LINE 1
SERVICE RISER ASS'Y
L = 5.0'

STA ~~14+03~~ 14+03.8 LINE 1
SERVICE RISER ASS'Y
L = 5.0'

STA ~~14+83~~ 14+84.8 LINE 1
SERVICE RISER ASS'Y
L = 5.0'

STA 15+47.32, LINE 1
CONSTRUCT STANDARD MH
TOP ELEV. = 1300.6
1 - 12" STUB (S)

STA 16+47 TO STA 16+67
PLACE 20' X 80' L.F.
PROTECTIVE FILL @ 12" DEEP
OVER FARMLAND PIPELINE PRIOR
TO EXCAVATION IN THIS AREA

STA 15+47.32, LINE 1
CONSTRUCT STANDARD MH
SEE NOTE THIS SHEET

STA 18+43.57, LINE 1
CONSTRUCT STANDARD MH
TOP ELEV. = 1294.8
1 - 8" STUB (NW)

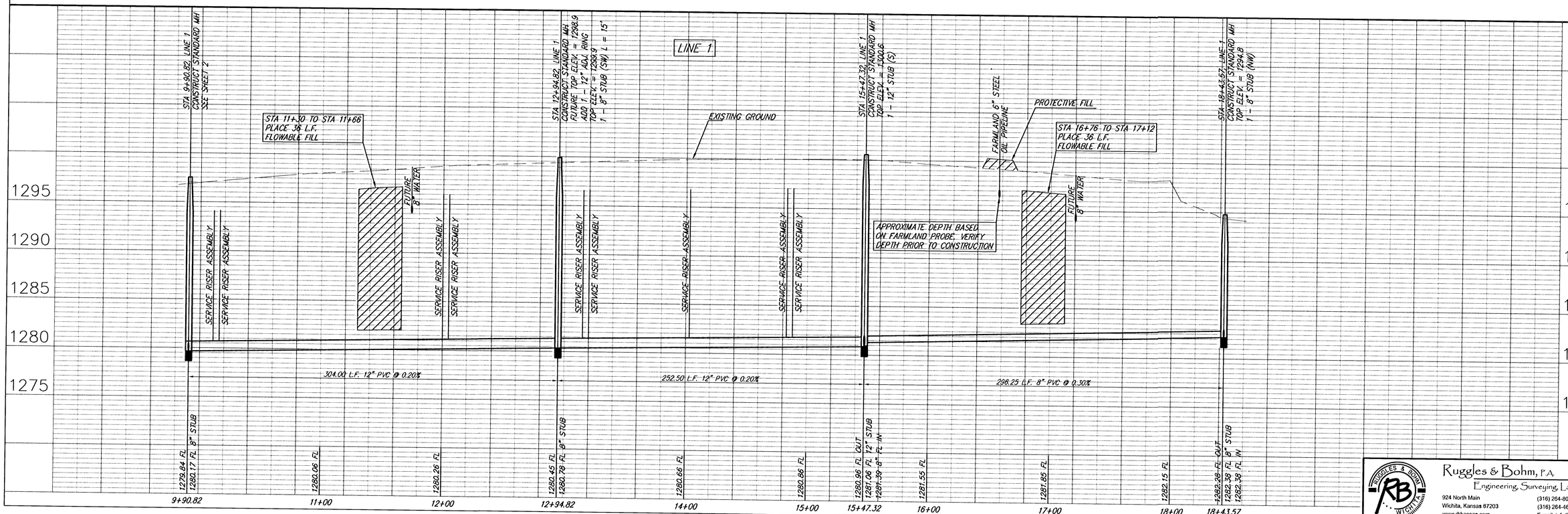
STA 16~~+76~~ TO STA 17+12
PLACE 36 L.F.
FLOWABLE FILL

NOTE: CONTRACTOR MUST CONTACT RANDY FINUF WITH FARMLAND INDUSTRIES AT 755-4042 PRIOR TO CONSTRUCTION. A REPRESENTATIVE FROM FARMLAND INDUSTRIES MUST BE ON SITE WHEN WORK IS OCCURING WITHIN OR DIRECTLY ADJACENT TO FARMLAND PIPELINE EASEMENT.

Hazel Nut
Future AC Pavement
Future 8" Water
Future Water
Future SWS
20' Utility Easement
Whispering Lakes Addition
Rosewood
Future AC Pavement
W. Future Water
20' Utility Easement
Future Farmland Industries Gas Pipeline Easement
6" Steel Oil Pipeline
Brookhaven
Future AC Pavement
Whispering Lakes Addition

SCALE: Plan 1" = 40'
Profile 1" = 40' Horiz.
1" = 5' Vert.
IRON = ●

SEE SHEET 10
FOR VERTICAL RISER DETAILS



DESIGN	CAB
DRAWN	EJG
REVISED	
DATE	Feb. 13, 2003
REVIEW	
UTILITY	
PROJECT NUMBER	468-83538
DRAWING FILE	Sanitary Sewer (SS 02)

Whispering Lakes Addition
Sanitary Sewer Line 1
WICHITA, KANSAS

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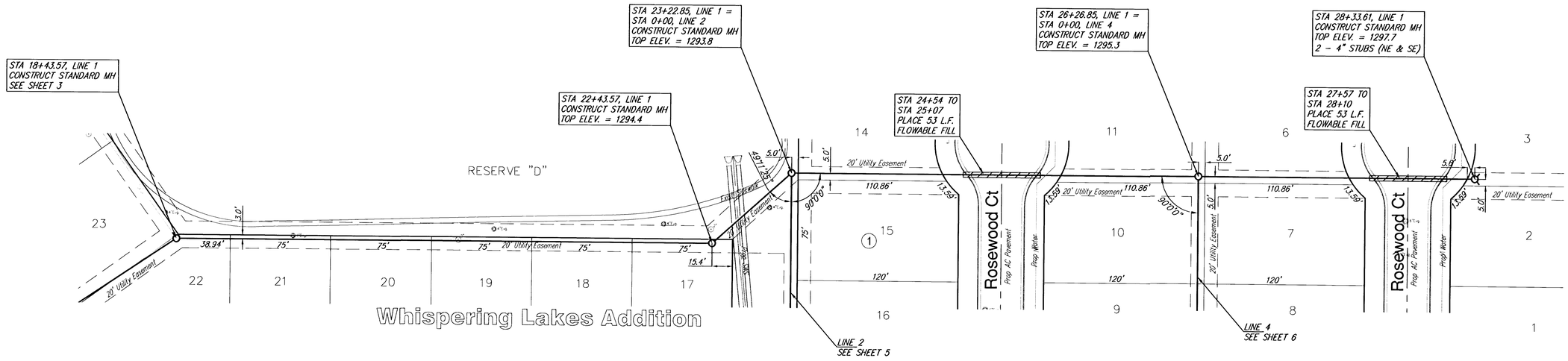
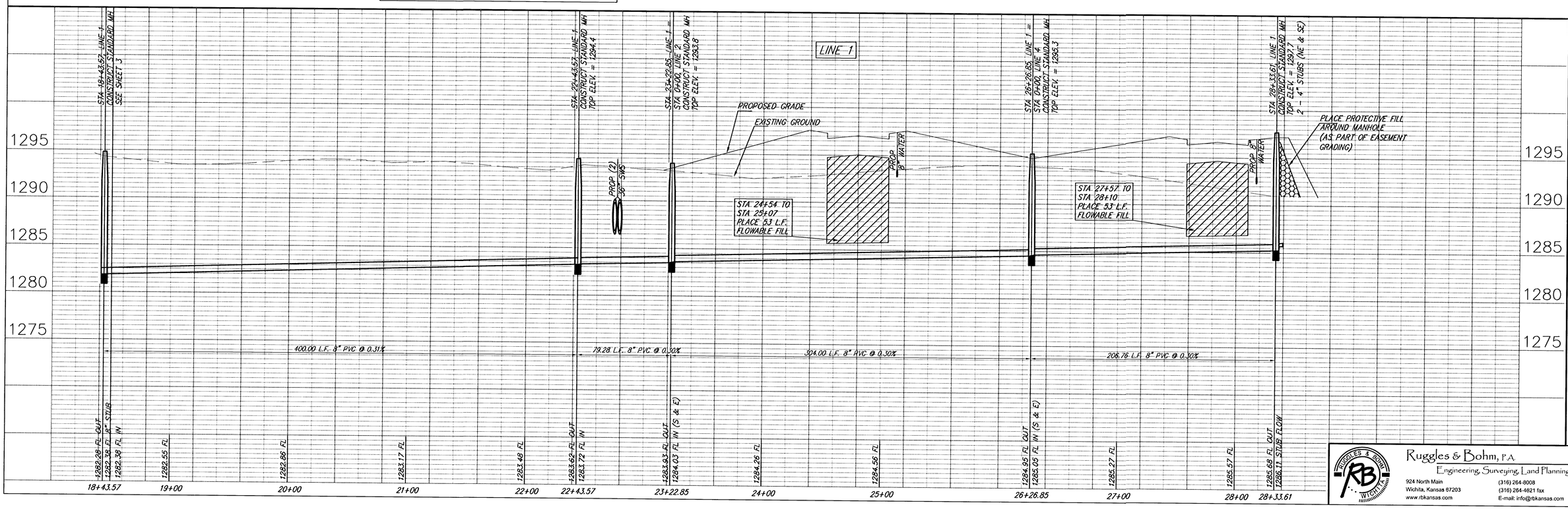
RB JOB 2211E
SHEET 3 OF 15



NOTE: PROPERTIES, INCLUDING RESERVES, WITHIN THE PROJECT LIMITS MAY HAVE UNDERGROUND SPRINKLER SYSTEMS WHICH CONFLICT WITH NEW CONSTRUCTION. CONTRACTOR WILL REPLACE ANY SPRINKLER SYSTEM DAMAGED DURING CONSTRUCTION. PORTIONS OF UNDERGROUND SPRINKLER SYSTEMS NOT IN CONFLICT WITH NEW CONSTRUCTION SHALL BE PROTECTED FROM DAMAGE AND SHALL REMAIN IN PLACE. ALL WORK IN CONNECTION WITH UNDERGROUND SPRINKLER SYSTEMS SHALL BE SUBSIDIARY TO THE BID ITEM FOR SITE CLEARING AND RESTORATION.



DESIGN CMB | DRAWN EJG | CHECKED | REVIEWED
DATE: Feb. 13, 2003
UTILITY
PROJECT NUMBER 468-83538
DRAWING FILE Sanitary Sewer {SS 03}

Whispering Lakes Addition
Sanitary Sewer Line 1
WICHITA, KANSAS

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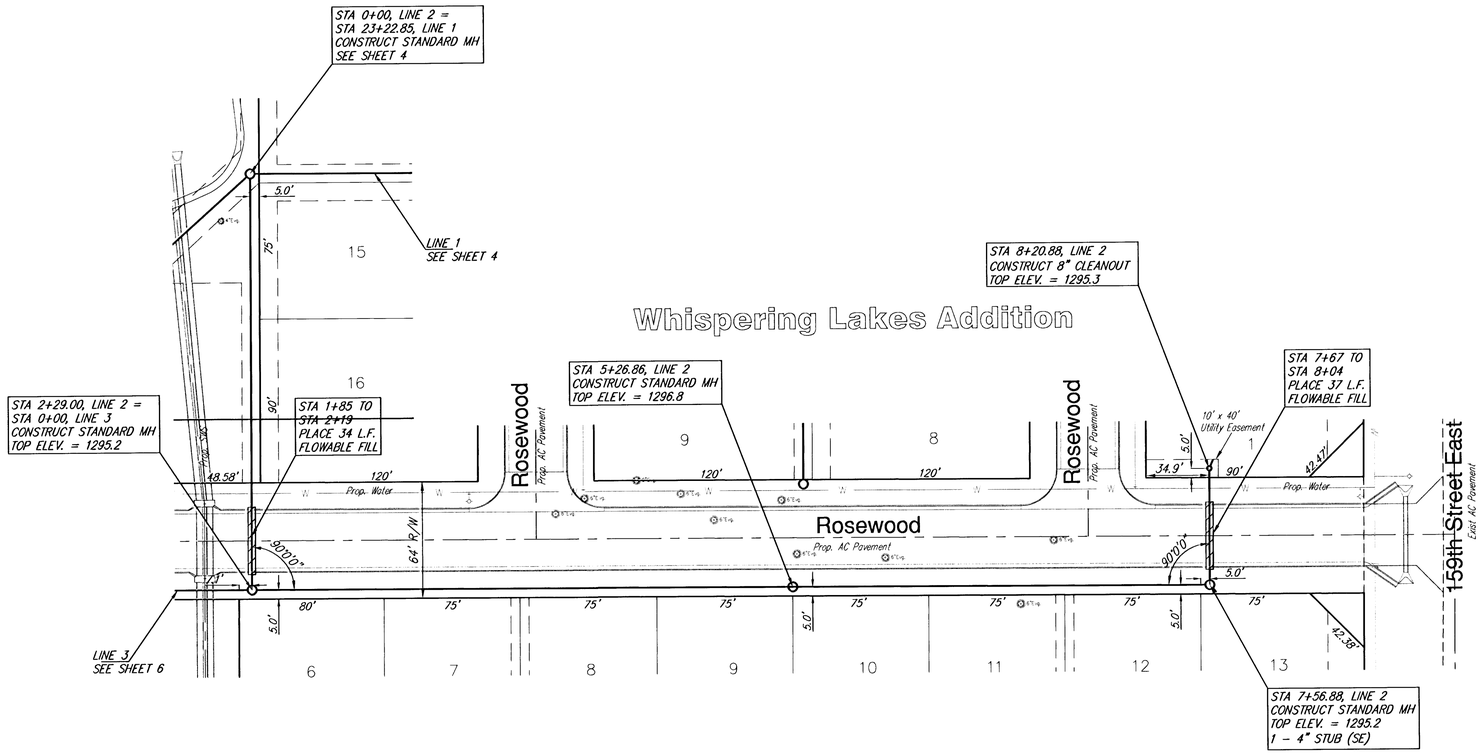
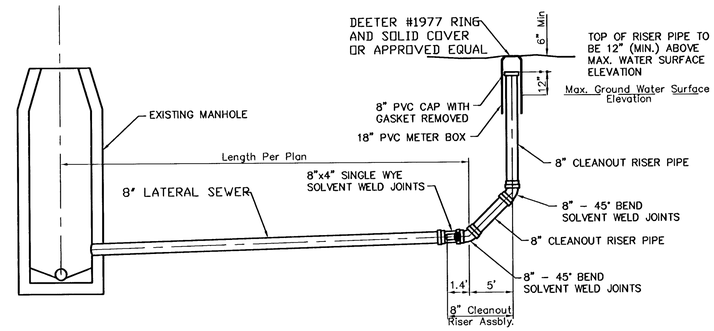
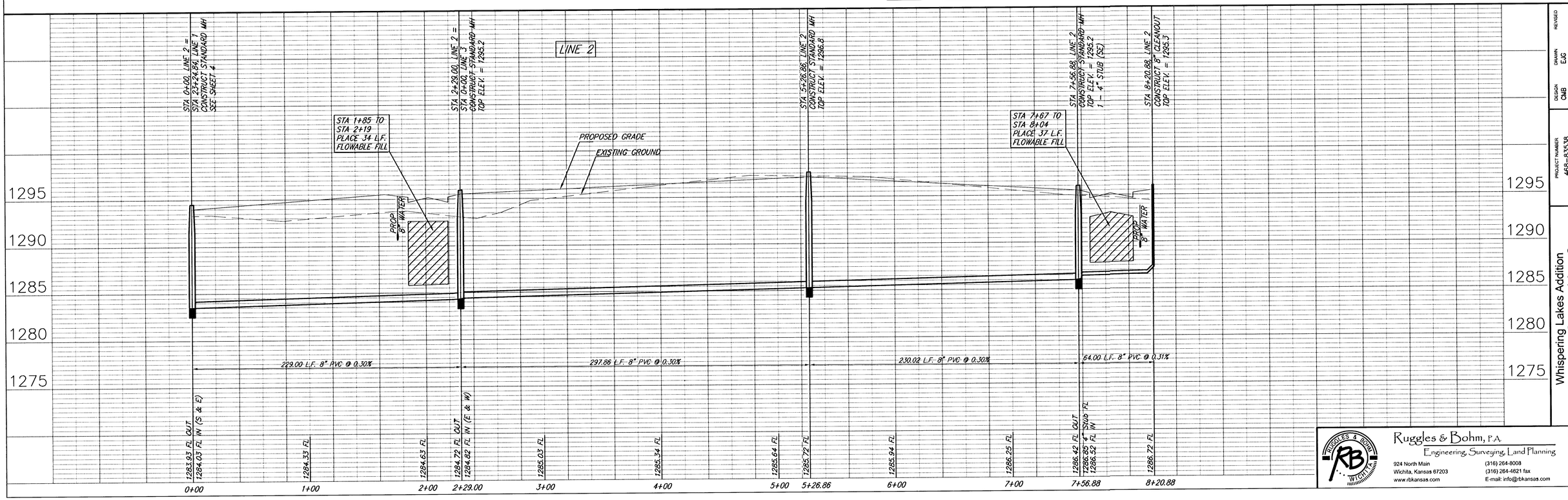
RB JOB 2211E
SHEET 4 OF 15





8" CLEANOUT RISER ASSEMBLY DETAIL

SCALE: Plan 1" = 40'
Profile 1" = 40' Horiz.
1" = 5' Vert.
IRON = ●



DESIGN	CMB
DRAWN	EJG
CHECKED	
DATE	Feb. 13, 2003
REVISED	
REVIEW	
PROJECT NUMBER	468-83538
DRAWING FILE	Sanitary Sewer ISS 04

Whispering Lakes Addition
Sanitary Sewer Line 2
WICHITA, KANSAS

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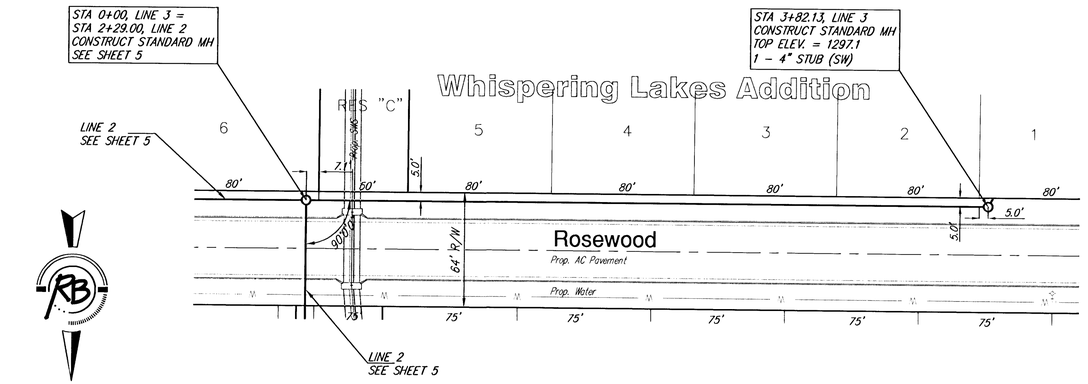
SHEET 5 OF 15



SCALE: Plan 1" = 40'
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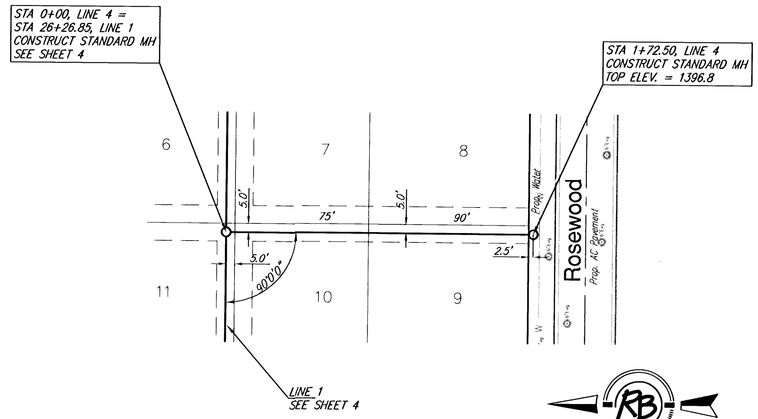
1" = 5' Vert.
IRON = ●



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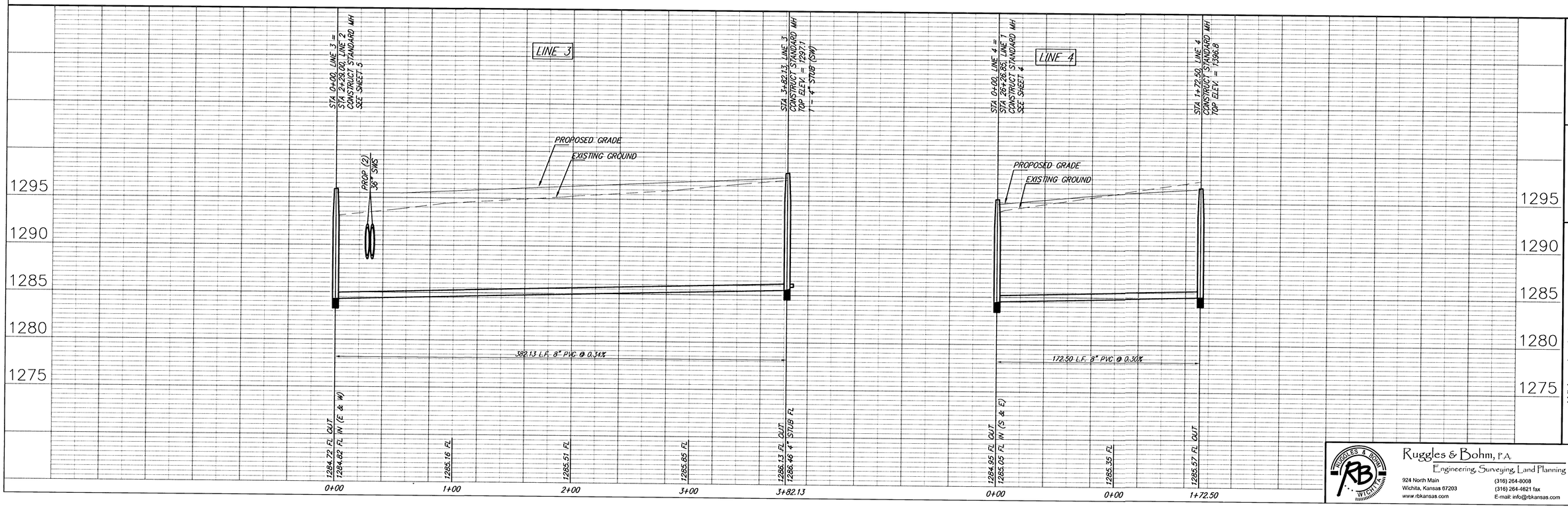
IRON = ●



RUGGLES & BOHM WICHITA, KANSAS

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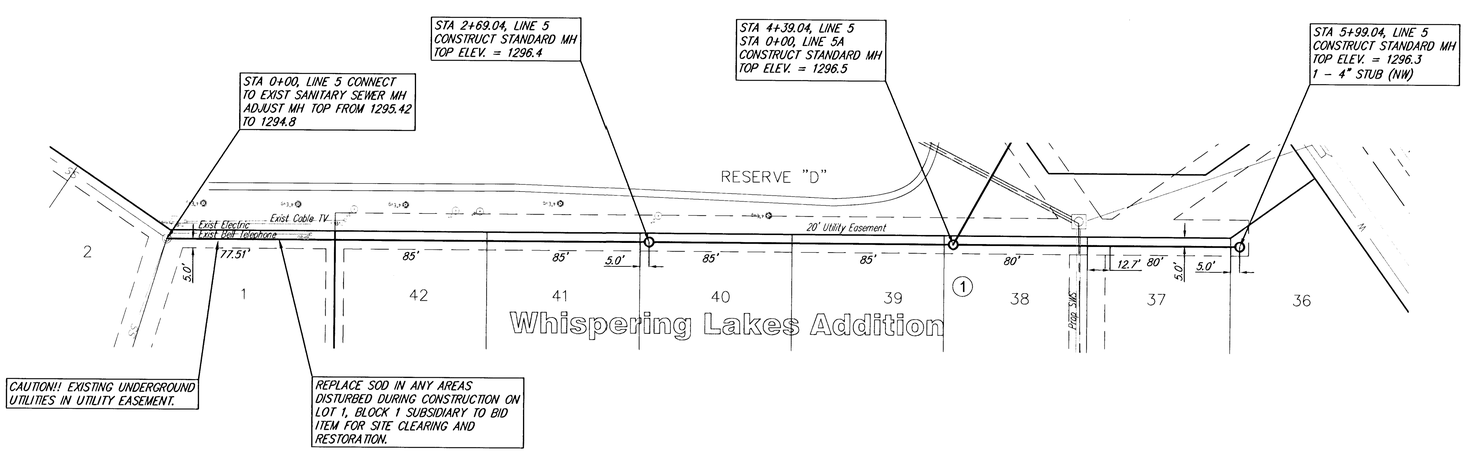
SHEET 6 OF 15

DESIGN CMB | DRAWN EJG | REVISED
UTILITY | DATE Feb. 13, 2003 | REVIEW
PROJECT NUMBER 468-83538
DRAWING FILE Sanitary Sewer [SS 05]

Whispering Lakes Addition
Sanitary Sewer Lines 3 and 4
WICHITA, KANSAS

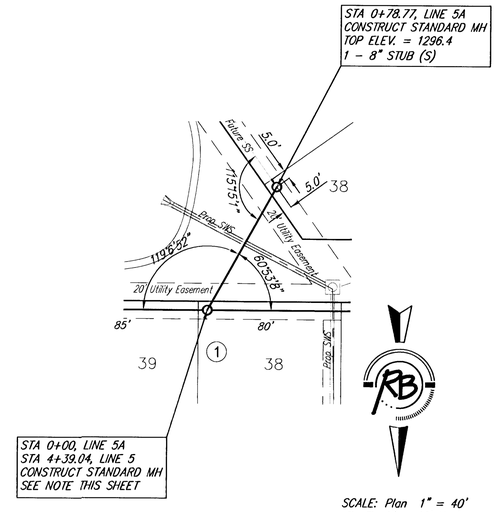


CAUTION!! EXISTING UNDERGROUND UTILITIES IN UTILITY EASEMENT.

REPLACE SOD IN ANY AREAS DISTURBED DURING CONSTRUCTION ON LOT 1, BLOCK 1 SUBSIDIARY TO BID ITEM FOR SITE CLEARING AND RESTORATION.

NOTE: CONTACT HOMEOWNER LOT 1, BLOCK 1 PRIOR TO SANITARY SEWER CONSTRUCTION

NOTE: PROPERTIES, INCLUDING RESERVES, WITHIN THE PROJECT LIMITS MAY HAVE UNDERGROUND SPRINKLER SYSTEMS WHICH CONFLICT WITH NEW CONSTRUCTION. CONTRACTOR WILL REPLACE ANY SPRINKLER SYSTEM DAMAGED DURING CONSTRUCTION. PORTIONS OF UNDERGROUND SPRINKLER SYSTEMS NOT IN CONFLICT WITH NEW CONSTRUCTION SHALL BE PROTECTED FROM DAMAGE AND SHALL REMAIN IN PLACE. ALL WORK IN CONNECTION WITH UNDERGROUND SPRINKLER SYSTEMS SHALL BE SUBSIDIARY TO THE BID ITEM FOR SITE CLEARING AND RESTORATION.



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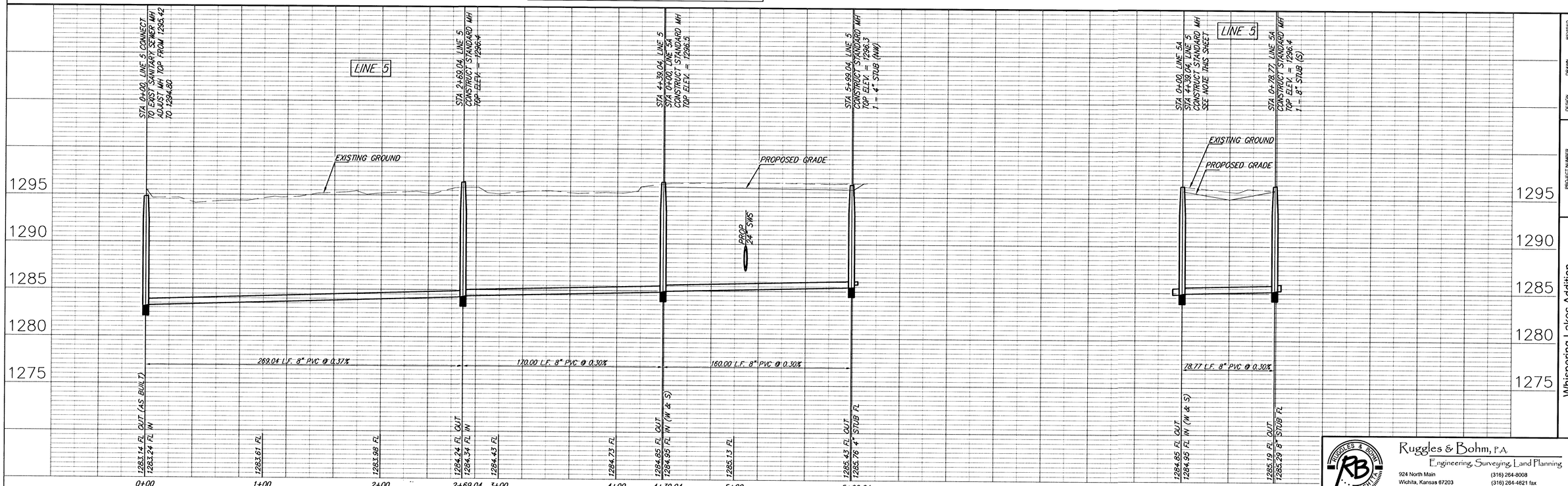
IRON = ●



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DRAWN	EJG
DESIGN	CMB
DATE	Feb. 13, 2003
UTILITY	REVIEW
PROJECT NUMBER	468-83538
DRAWING FILE	Sanitary Sewer [SS 06]

Whispering Lakes Addition
Sanitary Sewer Line 5
WICHITA, KANSAS

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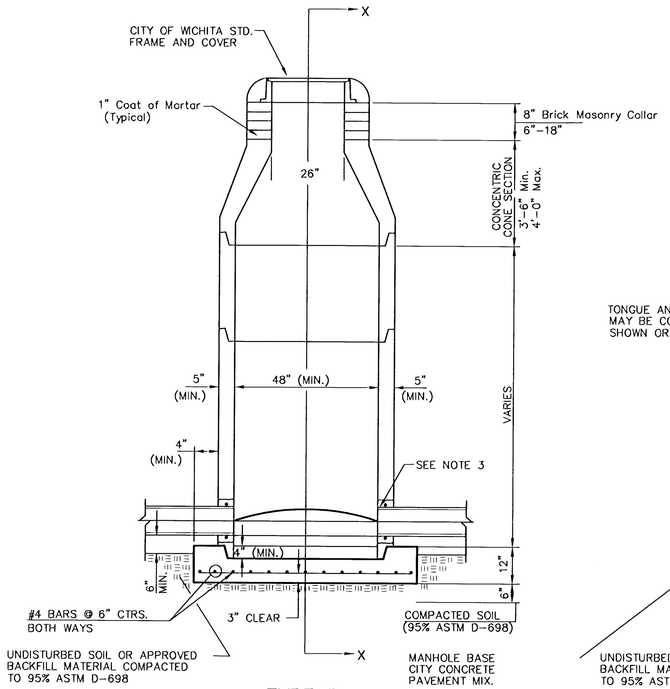
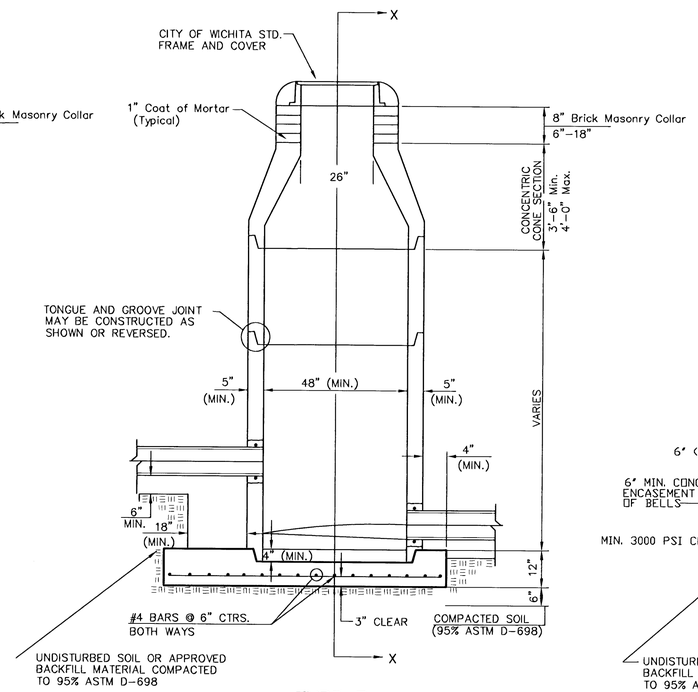
SHEET 7 OF 15

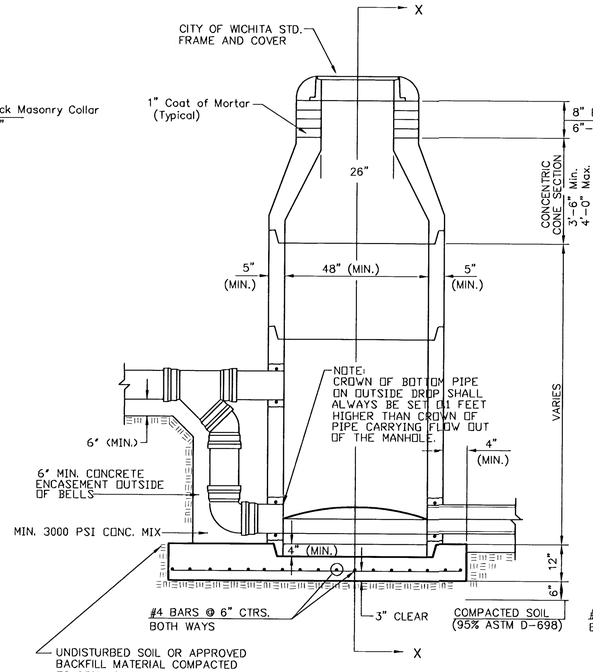
SEWER APPURTENANCES DETAILS



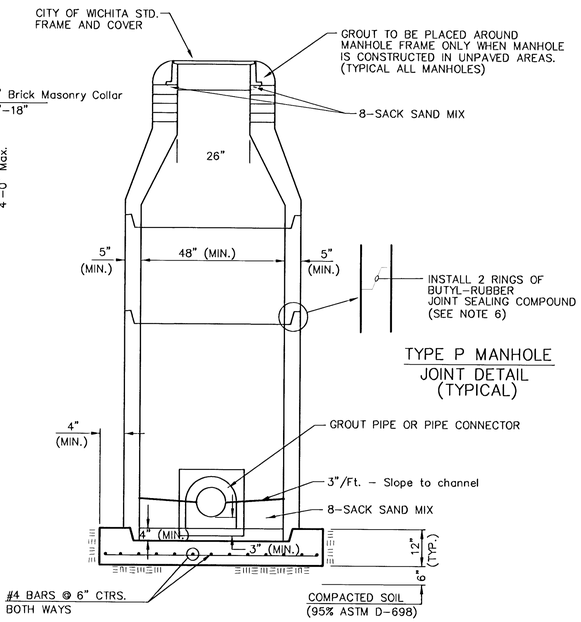
TYPE P
STANDARD MANHOLE



TYPE P
INSIDE DROP MANHOLE



TYPE P
OUTSIDE DROP MANHOLE



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 TNEMEC 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 MAHOLE. 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.

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CITY ENGINEER'S OFFICE
CITY HALL – SEVENTH FLOOR
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WICHITA, KANSAS 67202
(316) 268–4501
(316) 268–4114 FAX

STANDARD TYPE 'P' MANHOLES

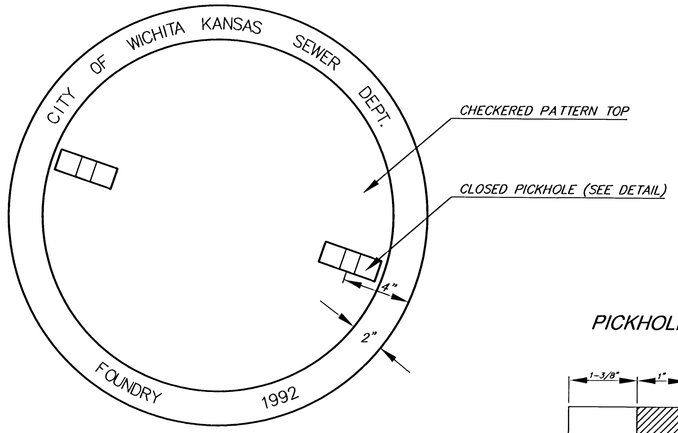
M. E. LINDEBAK P.E. – CITY ENGINEER

PROJECT NUMBER	OCA #
468–83538	743960
DATE MAR 96	SHEET 8 OF 15

MANHOLE FRAME AND COVER DETAIL

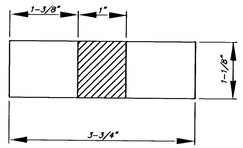
ADOPTED AS STANDARD DESIGN BY
CITY OF WICHITA, KANSAS

MANHOLE COVER
Weight = 180 Lbs.

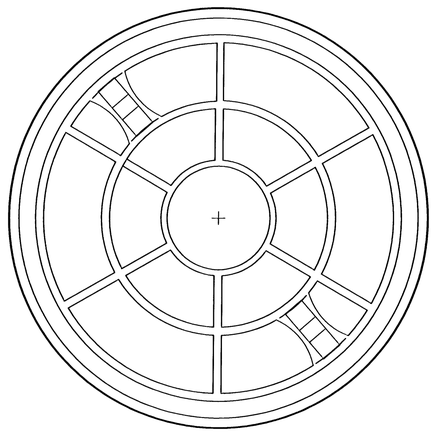


TOP VIEW

PICKHOLE DETAIL



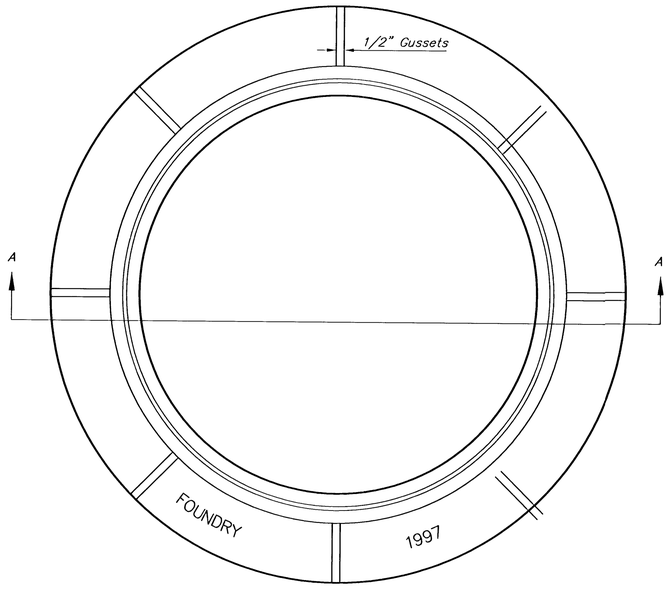
TOP VIEW



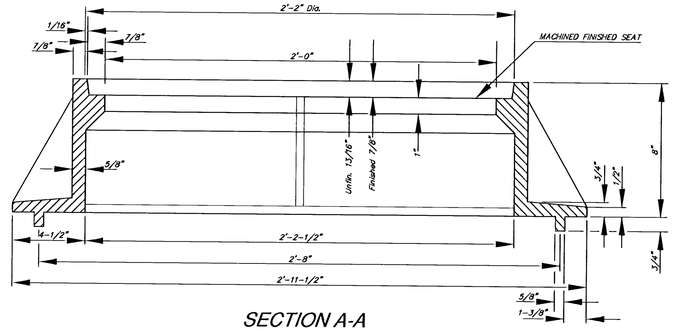
BOTTOM VIEW

SECTION VIEW

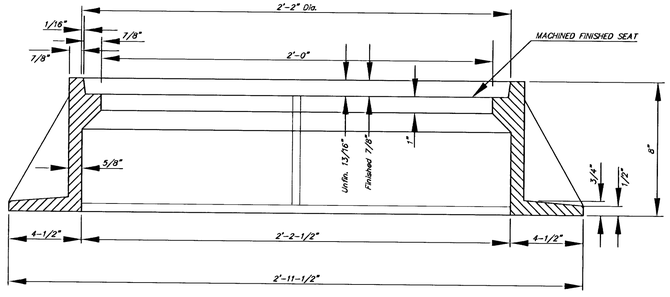
MANHOLE FRAME
Weight = 240 Lbs.



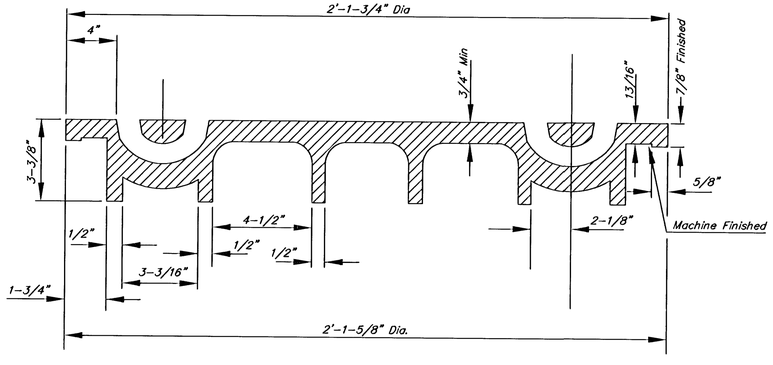
TOP VIEW



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 FOUNDARY 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 IN A CHECKERED PATTERN DESIGN 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

CITY ENGINEER'S OFFICE
CITY HALL - SEVENTH FLOOR
455 NORTH MAIN STREET
WICHITA, KANSAS 67202
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MANHOLE FRAME AND COVER

M. E. LINDEBAK P.E. - CITY ENGINEER

PROJECT NUMBER	OCA #
468-83538	743960
DATE MAR 96	SHEET 9 OF 15

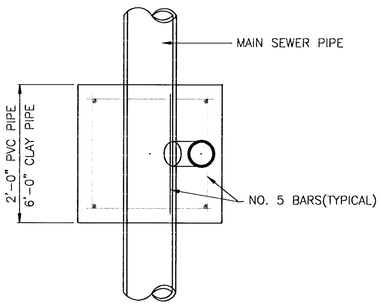
VERTICAL RISER DETAILS

ADOPTED AS STANDARD DESIGN BY
CITY OF WICHITA, KANSAS
OCTOBER 1992

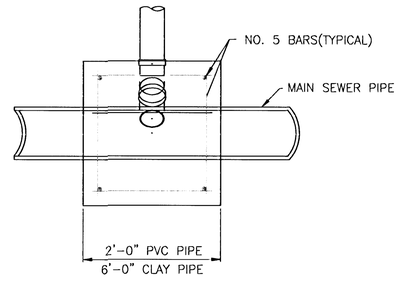
SEWER SERVICE TABLE

NUMBER	TYPE	LOCATION			STATION \ DIRECTION	FOR INFORMATION ONLY	
		LOT NO.	BLOCK NO.	LINE NO.		APPROXIMATE LENGTH 4" PIPE VERTICAL	HORIZONTAL
1	12" X 4" Tee Saddle	16	4	1	~~3+30, Lt~~ 5+29.5	13.0'	5.0'
2	12" X 4" Tee Saddle	18	4	1	~~4+50, Lt~~ 4+47.2	13.0'	5.0'
3	12" X 4" Tee Saddle	19	4	1	~~5+48, Lt~~ 5+47.2	12.0'	5.0'
4	12" X 4" Tee Saddle	20	4	1	6+28, Lt	10.0'	5.0'
5	12" X 4" Tee Saddle	22	4	1	~~7+07, Rt~~ 7+04.8	10.0'	15.0'
6	12" X 4" Tee Saddle	21	4	1	~~7+12, Lt~~ 7+10.3	10.0'	5.0'
7	12" X 4" Tee Saddle	26	4	1	~~8+96, Lt~~ 8+93.3	12.0'	5.0'
8	12" X 4" Tee Saddle	25	4	1	~~9+01, Rt~~ 8+97.8	12.0'	15.0'
9	12" X 4" Tee Saddle	27	4	1	10+11, Lt	13.0'	5.0'
10	12" X 4" Tee Saddle	28	4	1	~~10+16, Rt~~ 10+13.3	13.0'	15.0'
11	12" X 4" Tee Saddle	22	3	1	12+00, Lt	15.0'	5.0'
12	12" X 4" Tee Saddle	21	3	1	~~12+05, Rt~~ 12+06.8	15.0'	15.0'
13	12" X 4" Tee Saddle	23	3	1	~~13+15, Lt~~ 13+14.3	15.0'	5.0'
14	12" X 4" Tee Saddle	19	3	1	~~13+20, Rt~~ 13+18.8	15.0'	15.0'
15	12" X 4" Tee Saddle	24	3	1	~~14+05, Lt~~ 14+03.8	15.0'	5.0'
16	12" X 4" Tee Saddle	25	3	1	~~14+83, Lt~~ 14+81.8	15.0'	5.0'
17	12" X 4" Tee Saddle	18	3	1	~~14+88, Rt~~ 14+88.6	15.0'	15.0'

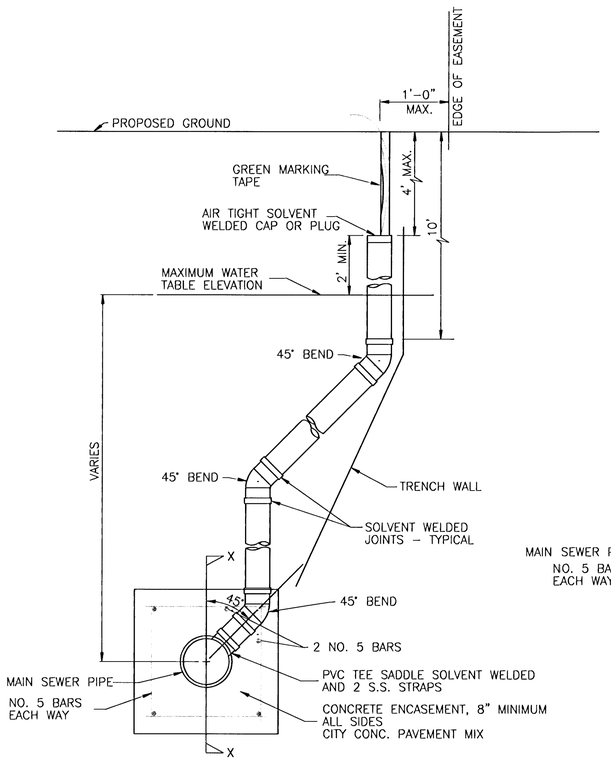
NOTE: Vertical Riser Pipe shall be extended to 2' minimum above ground water elevation and 4' maximum below proposed ground elevation.



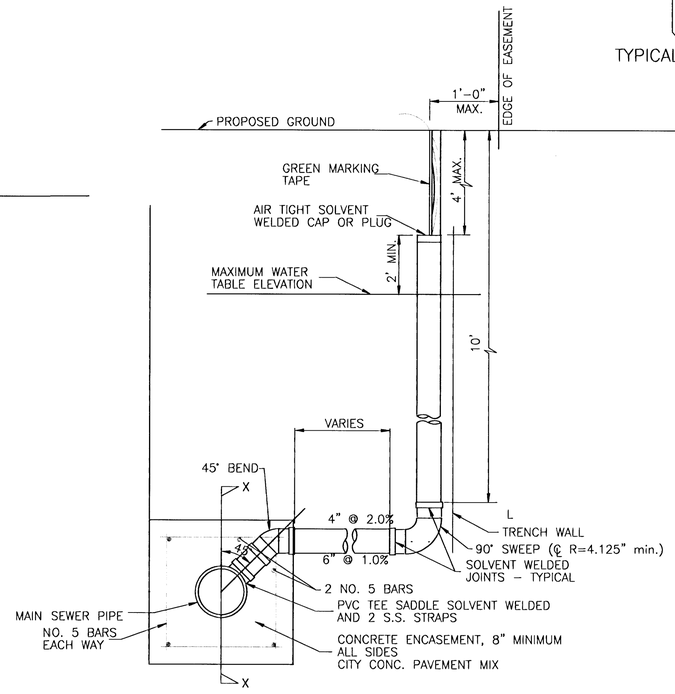
TYPICAL PLAN VIEW



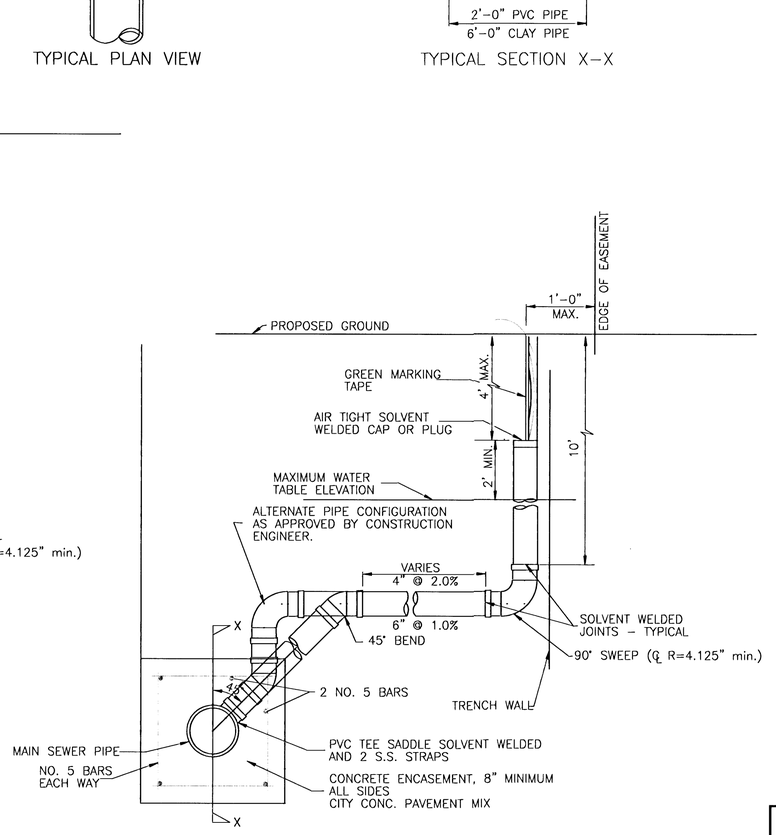
TYPICAL SECTION X-X



METHOD "A"



METHOD "B"



METHOD "C"

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 shall be approved by the Construction Engineer prior to installation.

4. RISER OR STUB MATERIAL. Risers and stubs shall be constructed of SDR 35 PVC Pipe or Schedule 40 PVC Pipe, meeting the requirements of the latest revision of A.S.T.M. . All pipe joints shall be solvent welded.

5. REINFORCED CONCRETE ENCASEMENT. Riser connections to clay pipe sanitary sewers shall be reinforced concrete encased both ways from the riser centerline. The reinforced concrete 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 reinforced concrete encased one foot each way from the riser 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.

6. BEDDING. 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 fastening green colored plastic tape to the end of the riser. The tape shall be supported by a length of wooden 2 x 4, extending from the top of the riser pipe to the proposed ground surface. The green tape shall be visible and extend one foot above the proposed ground surface. The green tape shall be 4 mil Polyethylene film with a minimum width of three inches, specifically manufactured for the purpose of identification of 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 wooden 2 x 4, reinforced concrete encasement, support during 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, reinforced concrete encasement, and all other items as required and listed for "Sanitary Sewer Risers".

THE CITY OF WICHITA
CITY ENGINEER'S OFFICE
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(316) 268-4501
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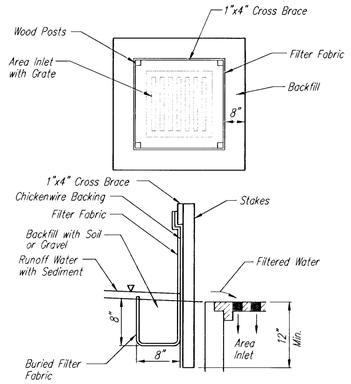
VERTICAL RISER DETAIL

M. E. LINDEBAK P.E. – CITY ENGINEER

PROJECT NUMBER	OCA #
468-83486	743948
DATE MAR 96	SHEET 10 OF 15



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 2" 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 barrierfor 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 6" deep by 4" wide.
Drive posts to a depth of at least 24" 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 2" 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.

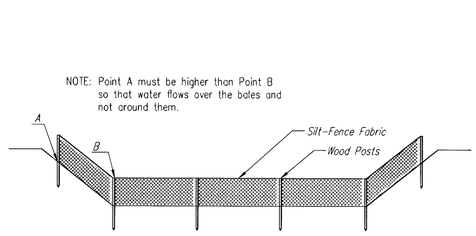
List of common placement/installation mistakes to avoid:

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 foir 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:

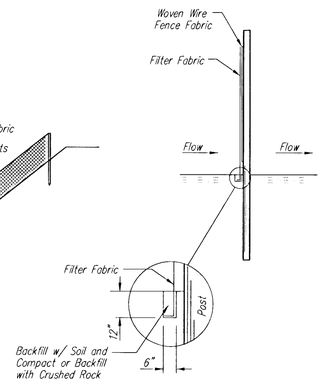
Silt fence barrier for area inlets should be inspected every 7 days and within 24 hours of a rainfall of 1/2" or more. The following is a list of questions that should be addressed during each inspection:

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?



ELEVATION

SILT FENCE DITCH CHECKS
(STREAM PROTECTION)



ANCHOR TRENCH DETAIL

Material Specification:

Silt fence fabric should conform to the AASHTO M288 96 silt fence specification.
The posts used to support the silt fence fabric should be a hardwood material with the following minimum dimensions: 2" square (nominal) by 4' long.
Silt fence fabric should be attached to the wooden posts with staples, wire, zip ties, or nails.

Placement:

Place silt fence in ditches where it is unlikely that it will be overtopped.
Water should flow through a silt fence ditch check, not over it. Silt fence ditch checks often fail when overtopped.
Silt fence ditch checks should be placed perpendicular to the flowline of the ditch.
The silt fence should extend far enough so that the ground level at the ends of the fence is higher than the top of the low point of the fence. This prevents water from flowing around the check.
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)
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 6" deep by 4" 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 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 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.

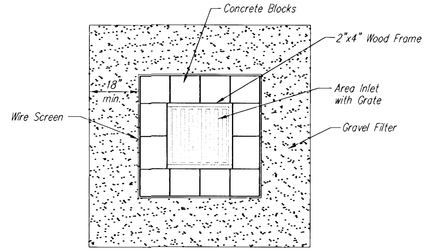
List of common placement/installation mistakes to avoid:

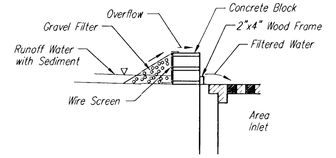
Water should flow through a silt fence ditch check-not over it. Place silt fence in ditches where it is unlikely that it will be overtopped. Silt fence installations quickly deteriorate when water overtops them.
Do not place silt fence posts on the upstream side of the silt fence fabric. In this configuration, 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?





CONCRETE BLOCK FILTER FOR AREA DRAIN
(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 BMP DETAILS

CHRISTOPHER M. CARRIER, P.E.
STORM WATER ENGINEER

PROJECT NUMBER	OCA NO.
468-83538	743960

DATE: Oct. 29, 2002

RESERVE "D"

RESERVE "D"

MATCH

MATCH

MATCH

MATCH

MATCH

Prop SS

7.6

7.6

4.8

7.2

7.2

50.0'

4.7

5.5

Rosewood Court

Prop AC Pavement

Rosewood Court

Prop AC Pavement

Prop Water

159th Street East

Exist AC Pavement

Rosewood

Future AC Pavement

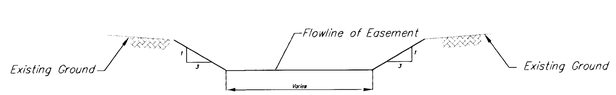
Rosewood

Prop AC Pavement

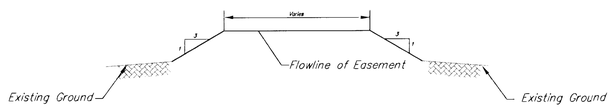
Prop SS

Prop Water

SCALE 1" = 40'



EASEMENT GRADING CUT SECTION



EASEMENT GRADING FILL SECTION

Whispering Lakes Estates

Easement Grading

WICHITA, KANSAS

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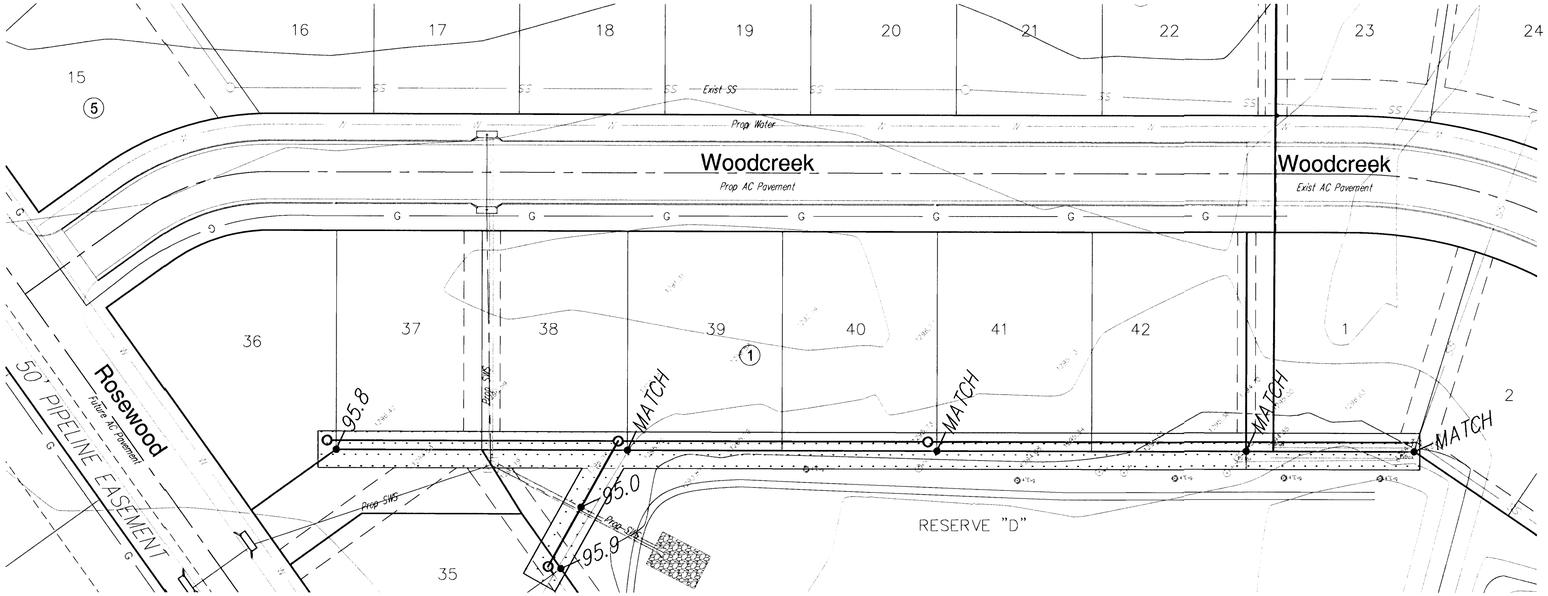
DESIGN CMB
DRAWN EJG
REVIEW
UTILITY
DATE Dec. 17, 2002

RB JOB 2211E

SHEET 12 OF 15

DRAWING FILE 2211E Easement Grading [ESMT 01]

PROJECT NUMBER 468-83538



LINE	CUT	FILL
LINE 1	0.00	4029.5
LINE 2	0.00	249.9
LINE 4	0.00	34.3
LINE 5	95.4	0.00
TOTALS	95.4	4313.6

EASEMENT GRADING QUANTITIES (CU. YDS.)
FILL NEEDED FOR GRADING TO BE TAKEN FROM ON-SITE STOCK PILES

SCALE 1" = 40'

Whispering Lakes Estates
Easement Grading
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UTILITY
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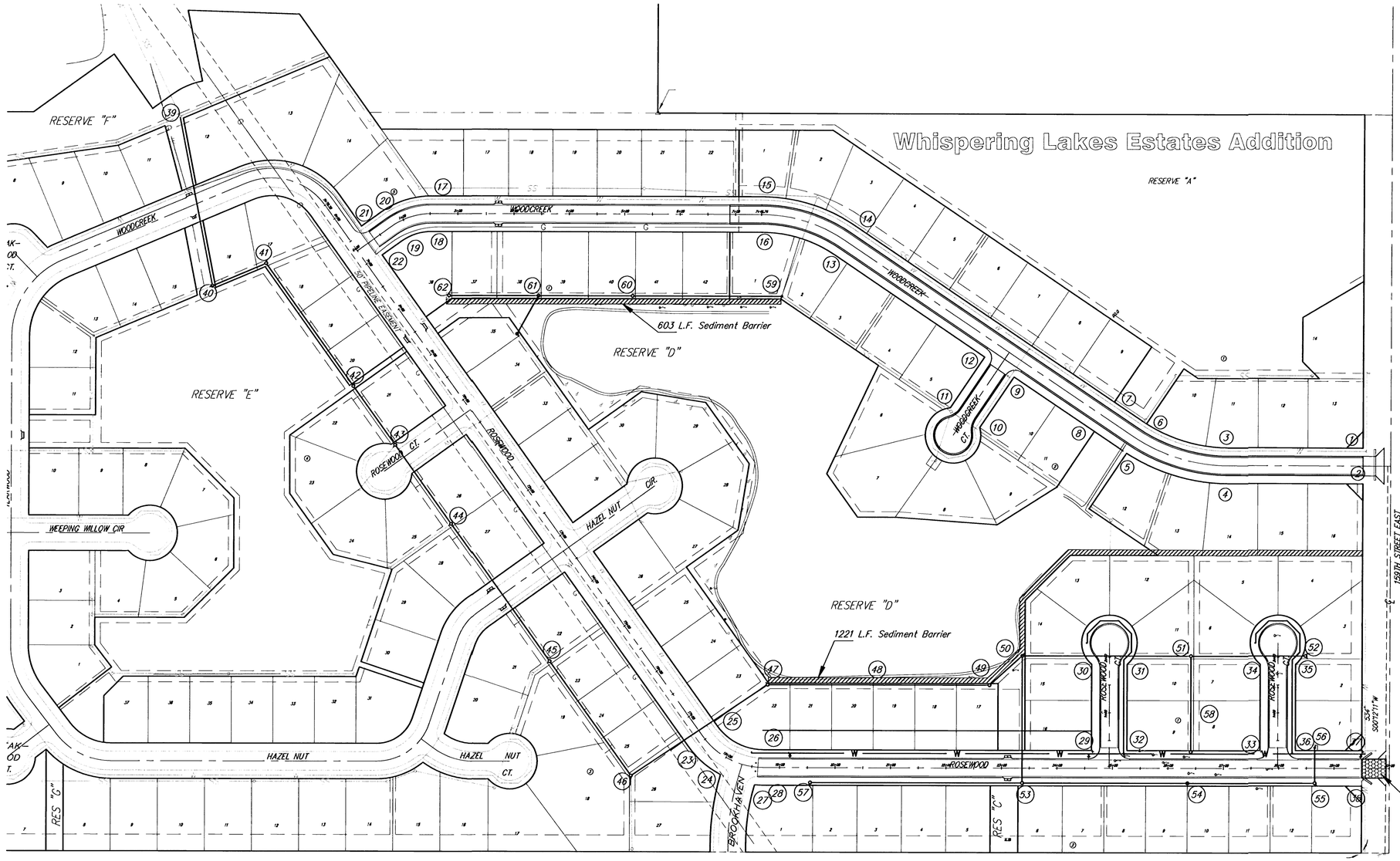
SHEET 13 OF 15

DRAWING FILE 2211E Easement Grading [ESMT 02]
PROJECT NUMBER 468-83538



1	N 18072.11	E 19943.17	Block Corner
2	N 18008.11	E 19942.94	Block Corner
3	N 18072.97	E 19698.60	PC
4	N 18008.97	E 19698.37	PC
5	N 18063.06	E 19515.87	PT
6	N 18120.29	E 19545.35	PT
7	N 18155.24	E 19493.75	Block Corner
8	N 18102.25	E 19457.86	Block Corner
9	N 18200.39	E 19312.97	Block Corner
10	N 18109.32	E 19251.28	PC
11	N 18145.21	E 19198.29	PT
12	N 18236.28	E 19259.98	Block Corner
13	N 18419.63	E 18989.29	PC
14	N 18472.62	E 19025.19	PC
15	N 18524.24	E 18857.53	PT
16	N 18460.24	E 18857.40	PT
17	N 18525.40	E 18263.85	PC
18	N 18461.40	E 18263.72	PC
19	N 18444.09	E 18209.51	PT
20	N 18496.18	E 18172.32	PT
21	N 18471.01	E 18137.07	Block Corner
22	N 18418.92	E 18174.25	Block Corner
23	N 17534.79	E 18726.81	Block Corner
24	N 17484.53	E 18784.46	PC
25	N 17571.97	E 18778.89	PC
26	N 17529.66	E 18860.95	PT
27	N 17466.37	E 18845.83	Block Corner
28	N 17465.66	E 18860.86	PT
29	N 17528.81	E 19453.24	Block Corner
30	N 17683.81	E 19453.46	Block Corner
31	N 17683.72	E 19517.46	PC
32	N 17528.72	E 19517.24	PT
33	N 17528.37	E 19757.24	Block Corner
34	N 17683.37	E 19757.46	Block Corner
35	N 17683.28	E 19821.46	PC
36	N 17528.28	E 19821.24	PT
37	N 17528.11	E 19941.24	Block Corner
38	N 17464.11	E 19941.01	Block Corner
39	N 18668.54	E 18323.76	SS MH STA 0+00, LINE 1
40	N 18363.68	E 18382.58	SS MH STA 3+10.47, LINE 1
41	N 18404.01	E 18479.25	SS MH STA 4+15.22, LINE 1
42	N 18182.96	E 18637.06	SS MH STA 6+86.82, LINE 1
43	N 18077.15	E 18712.60	SS MH STA 8+16.82, LINE 1
44	N 17935.54	E 18813.70	SS MH STA 9+90.82, LINE 1
45	N 17688.12	E 18990.33	SS MH STA 12+94.82, LINE 1
46	N 17482.62	E 19137.04	SS MH STA 15+47.32, LINE 1
47	N 17654.65	E 19378.02	SS MH STA 18+43.41, LINE 1
48	N 17654.37	E 19578.02	SS MH STA 20+43.41, LINE 1
49	N 17654.06	E 19790.60	SS MH STA 22+55.98, LINE 1
50	N 17698.99	E 19842.78	SS MH STA 23+24.84, LINE 1
51	N 17698.55	E 20146.78	SS MH STA 26+28.84, LINE 1
52	N 17698.25	E 20353.54	SS MH STA 28+35.60, LINE 1
53	N 17469.99	E 19842.45	SS MH STA 2+29.00, LINE 2
54	N 17469.56	E 20140.31	SS MH STA 5+28.86, LINE 2
55	N 17469.23	E 20370.32	SS MH STA 7+56.88, LINE 2
56	N 17533.23	E 20370.41	SS MH STA 8+20.88, LINE 2
57	N 17470.54	E 19460.32	SS MH STA 3+82.13, LINE 3
58	N 17613.55	E 20146.65	SS MH STA 0+85.00, LINE 4
59	N 18345.17	E 19408.46	SS MH STA 0+00, LINE 5
60	N 18345.69	E 19139.42	SS MH STA 2+69.04, LINE 5
61	N 18346.02	E 18969.42	SS MH STA 4+39.04, LINE 5
62	N 18346.34	E 18809.42	SS MH STA 5+99.04, LINE 5

SCALE 1" = 100'
IRON = ●

Whispering Lakes Estates
Key Map
WICHITA, KANSAS

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DRAWN EJG
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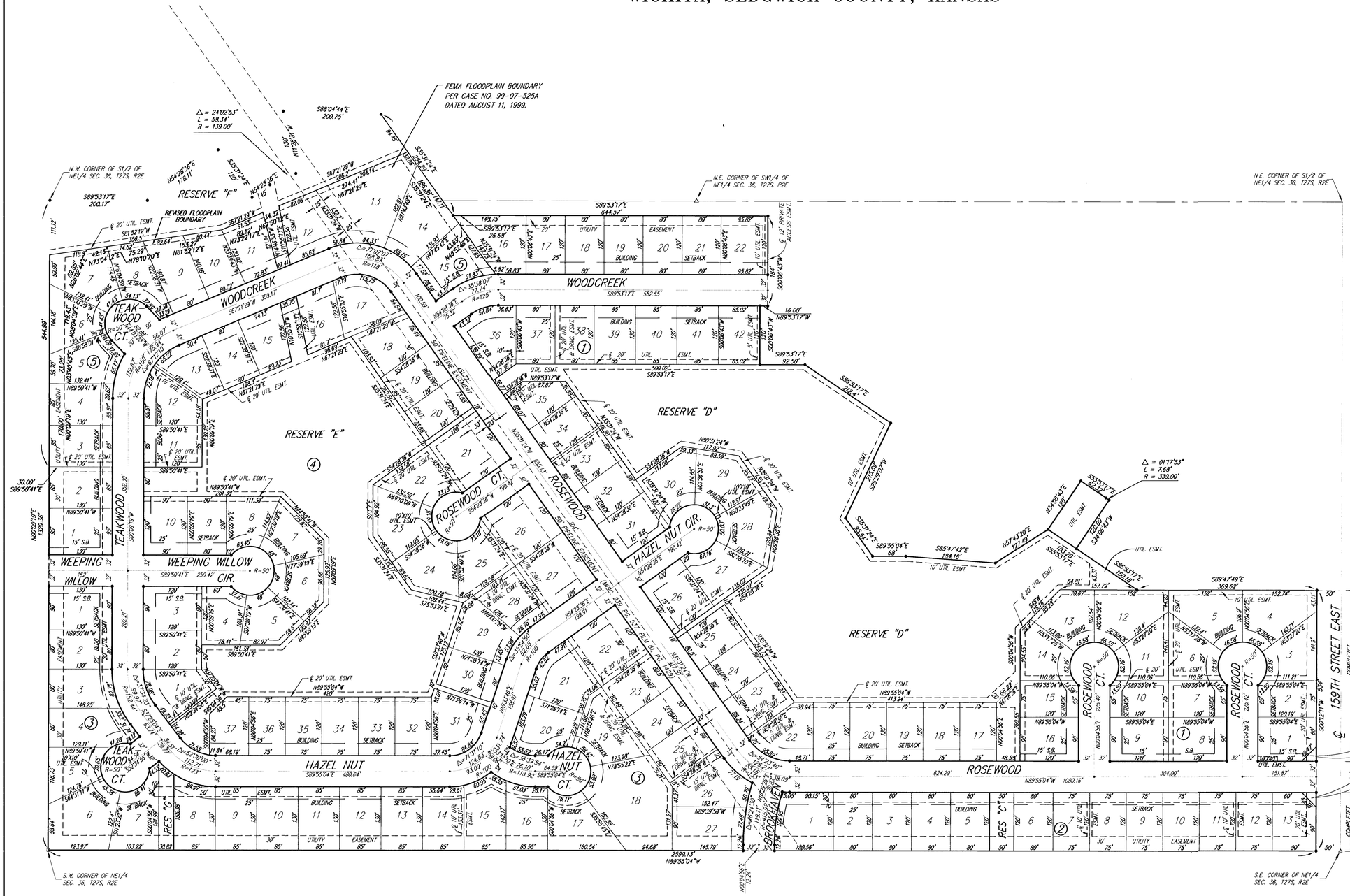
UTILITY
DATE Dec. 18, 2002
RB JOB 2201E
SHEET 14 OF 15

DRAWING FILE Details {Key Map}
PROJECT NUMBER 468-83538

WHISPERING LAKES ESTATES

WICHITA, SEDGWICK COUNTY, KANSAS



SCALE: 1"=100'

LEGEND

△ = E1/4 CORNER (FOUND)

□ = STONE W/+ CUT (FOUND)

● = 1/2" REBAR W/SRB CAP (SET)

MINIMUM BUILDING PAD ELEVATIONS FOR LOWEST OPENING INTO STRUCTURES		
BLOCK	LOT NO.	ELEVATION (N.G.V.D.)
1	4, 5	1291.5
1	12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42	1294
2	4, 5, 6, 7	1296.2
3	7, 8	1299.7
3	18, 19, 20, 21, 22, 23, 24, 25, 26, 27	1299.4
4	1, 2, 3, 4, 5, 6, 7, 23, 24, 25, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37	1297.1
4	8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22	1295.1
5	1, 2, 3, 4, 5, 6, 7	1294
5	8, 9, 10,	1293.5
5	11, 12, 13, 14, 15, 16, 17, 18	1293
5	19, 20, 21, 22	1292

BENCHMARK: R.R. SPIKE IN POWER POLE 4.7' E. & 85.3' N. OF S.E. COR. NE1/4 SEC. 36-27S-2E ELEV.=1287.62 (N.G.V.D.)

SHEET 15 OF 15

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DWG. FILE 006599F-R.C.
PROJECT NO. 97A00669P

01-10-01-1P