SANITARY SEWER SYSTEM

TO SERVE CENTRAL MAIZE MIDDLE SCHOOL

PROJECT NUMBER: 1286 PPS

OCA # 607861

GENERAL NOTES

1. Contractor will be required to notify Kansas One-Call (687-2470), a minimum of 48 hours in advance of beginning any excavation.

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

Cox Communications	262-0661
Kansas Gas Service	383-8600
Westar Energy	383-8600
Aquila Net	1-800-303-0337
Southwestern Bell Telephone Company	1-800-286-8313
City of Wichita Water Department	262-6000
City of Wichita Sewer Maintenance	262-6000

2. 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.

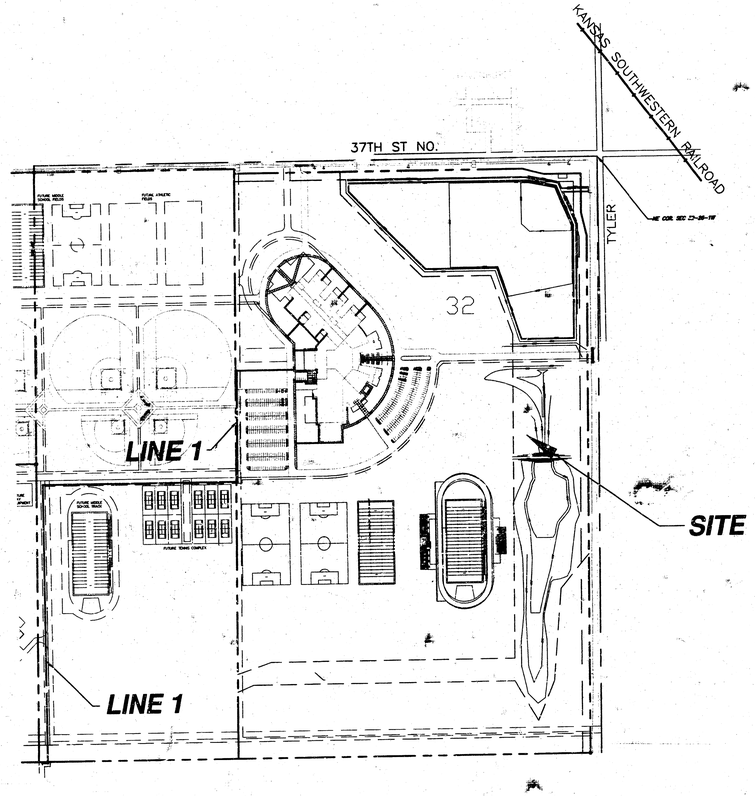
3. The Contractor shall be responsible for preserving property irons. The Contractor will be required to re-establish any property irons which are damaged or destroyed by his construction operations. Such irons shall be re-established by a licensed land surveyor in accordance with state laws.

4. It shall be the responsibility of the Contractor to maintain sewage flow during construction of this project. The Contractor's plan for maintaining sewage flow shall be approved by the Engineer prior to construction.

5. The Contractor shall seed and fertilize all disturbed turf areas upon completion of construction (incidental to bid item for site clearing and restoration.

6. Easement areas are to be final graded as shown on sheet 4.

7. The Contractor shall install Phase 1 Soil Erosion Prevention measures prior to any disturbance of the site. See sheets 7-9.



INDEX OF SHEETS

BENCH MARKS

BM #1 60 d SPIKE IN NORTH POLE OF "H" FRAME TRANSMISSION LINE, EAST OF S.E. COR., N.E. 1/4, SEC. 32. ELEV. = 1363.49 N.G.V.D.

BM #2 TOP OF IRON, N.W. COR., N.E. 1/4, N.W. 1/4, SECTION 32. ELEV. = 1353.38 N.G.V.D.

AS-BUILTS (03/12/2003)

Inspector: Tim Kelly / Mike Stump (Ruggles & Bohm)

Contractor: Mies Construction (Albert)

Start Date: Line A 3-15-02 → 3-20-02

Line 1 1-17-03 → 2-18-03

BUILT PER PLAN

Scale 1" = 300'

8/21/03
RDL
.PDF

MICHAEL WILLIAM SCOTT
15629
11-27-2002
KANSAS
PROFESSIONAL ENGINEER

APPROVED AS NOTED
BY CITY ENGINEER OF WICHITA

Sanitary Sewers VRH 11/27/02

Storm Sewers _____

Driveway Approaches _____

Water Mains _____

Paving _____

NOTE TO CONTRACTORS

Inspection and testing for this project are to be provided by a Licensed Consulting Engineering Firm under contract with the Owner/Developer. Said inspection to be in accordance with the City of Wichita standard construction engineering practices and certified by a Licensed Professional Engineer. No work shall be performed in dedicated easements or public right-of-way by the Contractor without such inspection, nor shall any work be commenced without written authorization by the City Engineer.

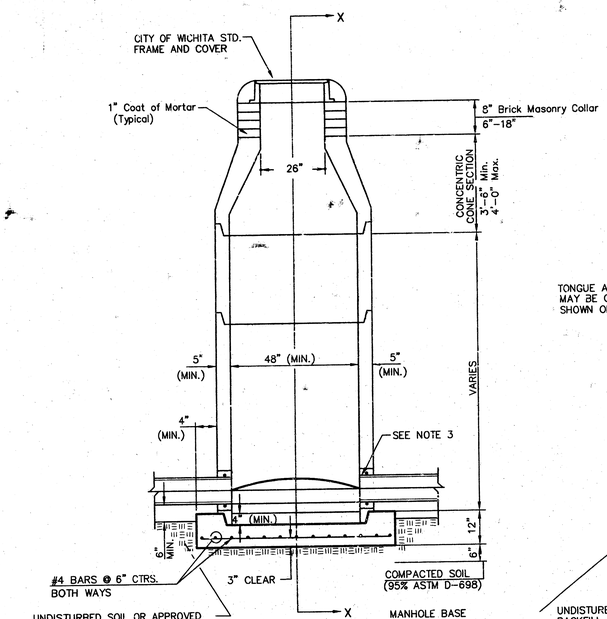
CITY OF WICHITA, KANSAS

NEIL D. CABLE, P.E. - CITY ENGINEER

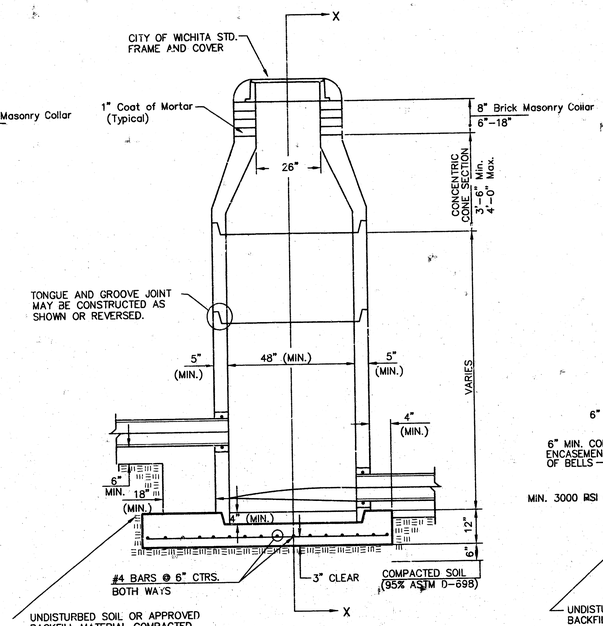
Ruggles & Bohm, P.A.
Engineering, Surveying, Land Planning
924 North Main
Wichita, Kansas 67203
www.rbkansas.com
(316) 264-8008
(316) 264-4621 fax
E-mail: info@rbkansas.com

19FJE

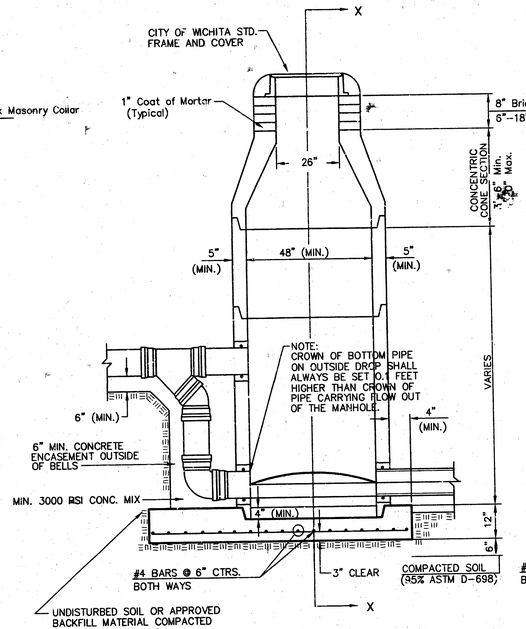
SEWER APPURTENANCES DETAILS



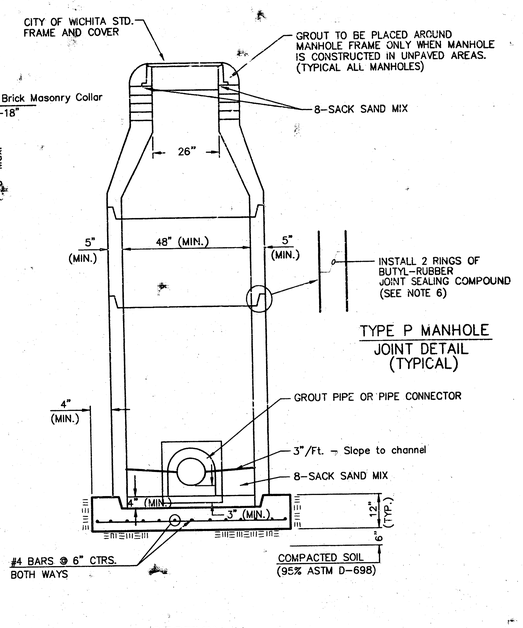
TYPE P
STANDARD MANHOLE



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 NON-SHRINK GROUT FOR THE FULL MANHOLE WALL THICKNESS. THE EXTERIOR OF THE COMPLETED CONNECTION SHALL BE SEALED WITH AN APPROVED BITUMINOUS COATING SUCH THAT THE CONNECTION WILL BE WATER TIGHT. FLOOR OF MANHOLE SHALL BE MODIFIED TO FORM NEW FLOW CHANNEL FOR THE NEW CONNECTION AS INDICATED BY THE DRAWING. THIS WORK, INCLUDING MODIFICATION OF MANHOLE FLOOR, SHALL BE PAID FOR AT THE UNIT PRICE BID FOR OUTSIDE DROP STACK CONSTRUCTED ON EXISTING MANHOLE.
13. THE FLOORS OF ALL MANHOLES SHALL BE SHAPED WITH FLOW CHANNELS SUCH THAT THE MANHOLES WILL BE SELF CLEANING AND FREE OF AREAS WHERE SOLIDS COULD BE DEPOSITED AS SEWAGE FLOWS THROUGH THE MANHOLE FROM ALL INLET PIPES TO THE OUTLET PIPE. FLOW CHANNELS SHALL BE FORMED TO MATCH THE BOTTOM HALVES OF THE INFLOWING PIPES AND THE OUTFLOWING PIPE AS SHOWN BY THE DRAWINGS EXCEPT FOR INSIDE DROP MANHOLES. FLOW CHANNELS FOR INSIDE DROP MANHOLES SHALL BE CONSTRUCTED AS INDICATED BY THE DRAWING. MANHOLE FLOORS SHALL HAVE SLOPES OF 3 INCHES PER FOOT IN THE AREAS OUTSIDE OF THE FLOW CHANNELS SLOPED TOWARD THE FLOW CHANNELS. PIPES LAID THROUGH MANHOLES SHALL HAVE THE TOP HALF REMOVED TO NEAT LINES FOR THE FULL INSIDE DIAMETER OF THE MANHOLE. MANHOLE FLOORS SHALL THEN BE SHAPED AROUND THE BOTTOM HALF OF THE PIPE WHICH FORMS THE FLOW CHANNEL.
14. PIPES INSTALLED WITHIN THE EXCAVATION MADE FOR THE MANHOLE SHALL BE CRADLED WITH CONCRETE TO THE LIMITS OF THE MANHOLE EXCAVATION. WHEN CLAY PIPE IS USED, THE CRADLE SHALL EXTEND TO THE FIRST JOINT OUTSIDE THE MANHOLE. THE CRADLE SHALL BE TERMINATED AT THE CLAY PIPE JOINT IN A MANNER WHICH WILL MAINTAIN THE FLEXIBILITY OF THE JOINT. COST OF CRADLE WITHIN MANHOLE EXCAVATION OR TO CLAY PIPE JOINTS ADJACENT TO MANHOLE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE MANHOLE.
15. MANHOLE COVER CASTINGS AND MANHOLE FRAME CASTINGS SHALL CONFORM TO THE REQUIREMENTS AS INDICATED IN THE STANDARD SPECIFICATIONS AND AS SHOWN IN THE STANDARD DETAIL DRAWING.
16. THE VERTICAL DROP IN INSIDE DROP MANHOLES SHALL NOT EXCEED 2' FOR INFLOWING PIPES SIZED 12" OR SMALLER AND 2' FOR INFLOWING PIPES LARGER THAN 12". THE CROWNS OF INFLOWING PIPES SHALL NEVER BE SET LOWER THAN THE CROWN OF THE OUTFLOWING PIPE.
17. STANDARD MANHOLES AND STANDARD INSIDE DROP MANHOLES SHALL BE BID AS STANDARD MANHOLES FOR THE TYPE AND DIAMETER INDICATED. OUTSIDE DROP MANHOLES SHALL BE BID AS STANDARD OUTSIDE DROP MANHOLES FOR THE TYPE AND DIAMETER INDICATED. ALL MANHOLE DIAMETERS WILL BE 4' UNLESS INDICATED OTHERWISE.
18. A BRICK MASONRY COLLAR SHALL BE INSTALLED BETWEEN THE CAST IRON FRAME AND THE CONCENTRIC CONE. THE COLLAR WILL HAVE 8" WALLS AND A VERTICAL HEIGHT OF 6" MINIMUM AND 18" MAXIMUM. A 1" COAT OF MORTAR WILL BE PLASTERED ON THE OUTSIDE OF THE COLLAR. THE USE OF PRE-CAST CONCRETE SPACERS FOR MANHOLE TOP ADJUSTMENT IS ALSO ALLOWED.

As-Builts (3/12/03) Built per Plan

THE CITY OF WICHITA

CITY ENGINEER'S OFFICE
CITY HALL – SEVENTH FLOOR
455 NORTH MAIN STREET
WICHITA, KANSAS 67202
(316) 268-4507
(316) 268-4114 FAX

STANDARD TYPE 'P' MANHOLES

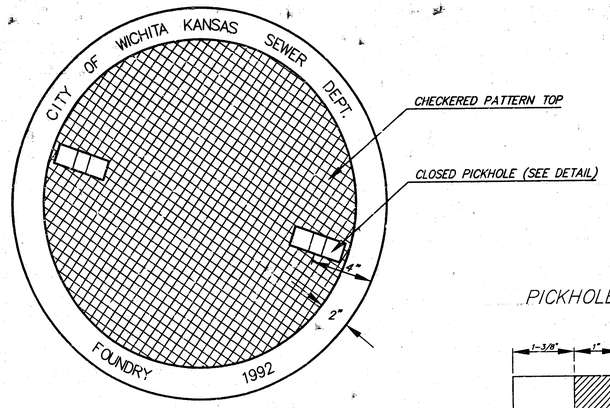
M. E. LINDEBAK P.E. – CITY ENGINEER

PROJECT NUMBER	OCA #
1286 PPS	607861
DATE MAR 98	SHEET 2 OF 6

MANHOLE FRAME AND COVER DETAIL

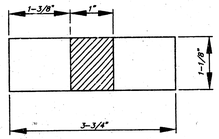
ADOPTED AS STANDARD DESIGN BY
CITY OF WICHITA, KANSAS

MANHOLE COVER
Weight = 180 Lbs.

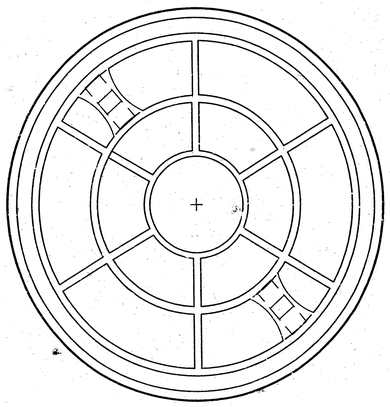


TOP VIEW

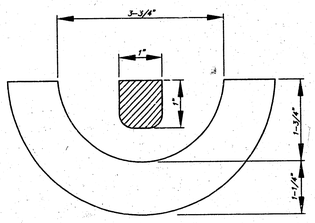
PICKHOLE DETAIL



TOP VIEW

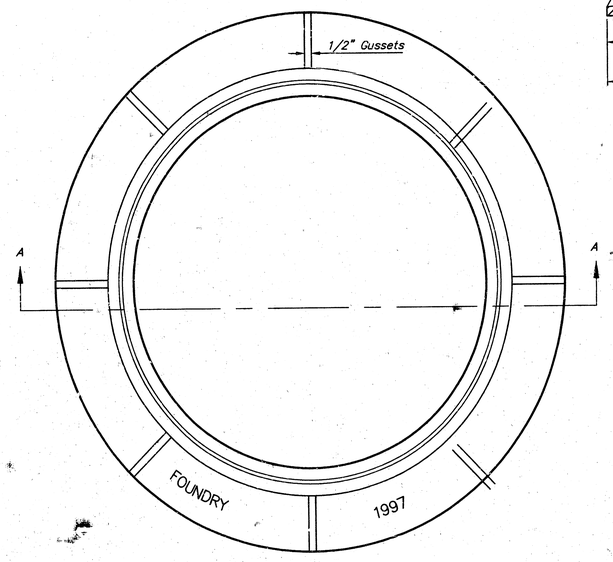


BOTTOM VIEW

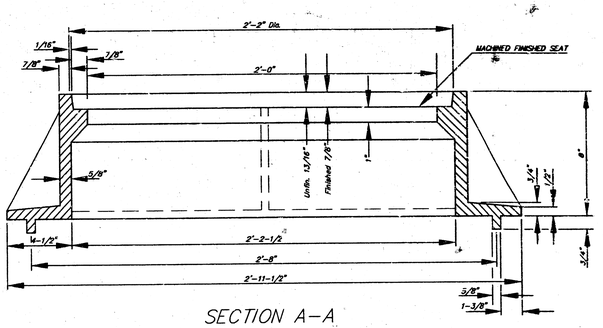


SECTION VIEW

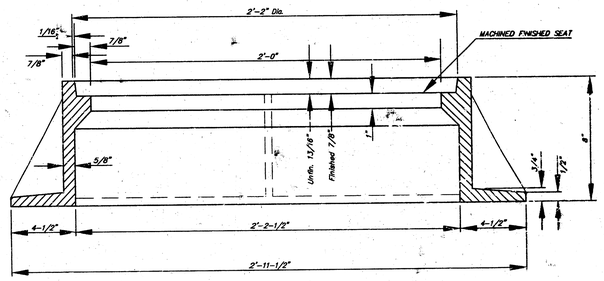
MANHOLE FRAME
Weight = 240 Lbs.



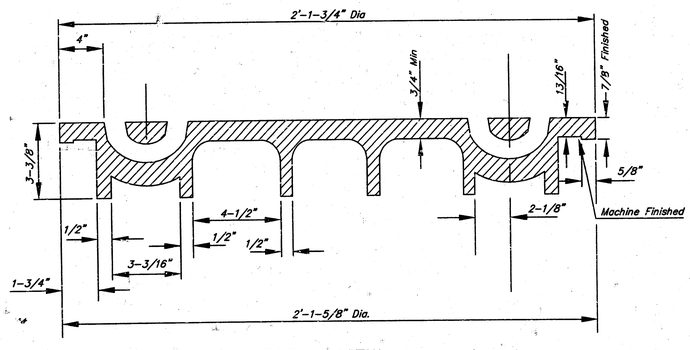
TOP VIEW



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.

As-Builts (3/12/03) Built per Plan

THE CITY OF WICHITA

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

MANHOLE FRAME AND COVER

M. E. LINDEBAK P.E. – CITY ENGINEER

PROJECT NUMBER	OCA #
1286 PPS	607861
DATE MAR 96	SHEET 3 OF 6

Proposed Sanitary Sewer System by Others. City of Wichita Project No. 468-83423

BASELINE STA. 0+00 = SW CORNER OF THE NE 1/4

25' Utility Easement (By others)

Westar Energy Consent Agreement to cross their easement.

BASELINE = WEST LINE OF THE NORTHEAST QUARTER

STA. 19+22.54 LINE 1 = BL STA. 9+27.95, 31.86' RT. CONSTRUCT STD. TYPE "P" MANHOLE TOP ELEV. = 1356.00

LINE 1

STA. 9+64 LINE 1 = BL STA. -0+04.83, 15.00' RT. CONSTRUCT STD. TYPE "P" MANHOLE TOP ELEV. = 1354.19 1 - 10" STUB (S) FL (S) = 1340.69 *** PLUG 10" LINE TO THE EAST UNTIL THE CITY OF WICHITA PROJECT IS COMPLETED. ***

20' Utility Easement (By others)

15'

75'

5'

EAST SIDE

20' UTILITY ESMT.

26.00 L.F. 10" PVC SANITARY SEWER PIPE

312.54 L.F. 10" PVC SANITARY SEWER PIPE

310.00 L.F. 10" PVC SANITARY SEWER PIPE

310.00 L.F. 10" PVC SANITARY SEWER PIPE

STA. 9+90 LINE 1 = BL STA. -0+04.54, 41.00' RT. CONSTRUCT STD. TYPE "P" MANHOLE TOP ELEV. = 1354.24

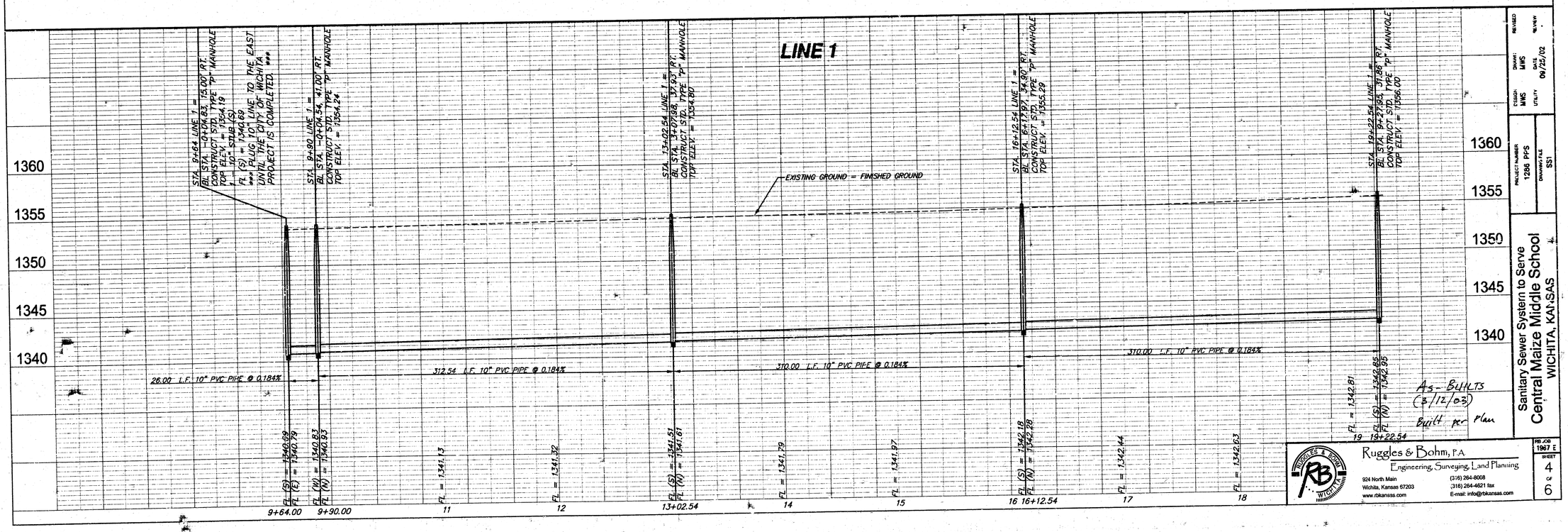
SOUTH LINE OF THE NORTHEAST QUARTER

STA. 13+02.54 LINE 1 = BL STA. 3+07.98, 37.93' RT. CONSTRUCT STD. TYPE "P" MANHOLE TOP ELEV. = 1354.80

STA. 16+12.54 LINE 1 = BL STA. 6+17.97, 34.90' RT. CONSTRUCT STD. TYPE "P" MANHOLE TOP ELEV. = 1355.29

0 5 10 15 30 35 20 25 40 45 20 45 40 25 20 5

SCALE
1" = 40' Horiz. (Plan)
1" = 5' Vert. (Profile)



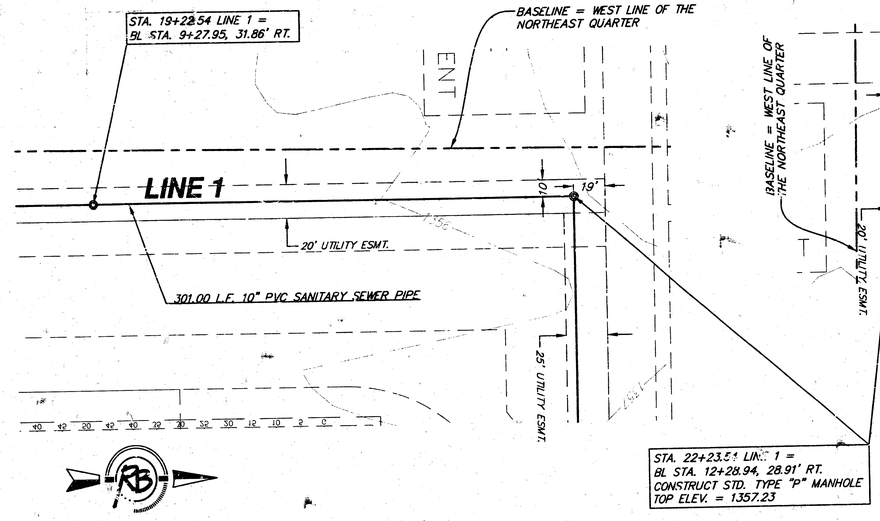
As-Builts (3/12/03) Built per plan

Ruggles & Bohm, P.A.
Engineering, Surveying, Land Planning
924 North Main
Wichita, Kansas 67203
www.rbkansas.com
(316) 264-8008
(316) 264-4621 fax
E-mail: info@rbkansas.com

Sanitary Sewer System to Serve
Central Maize Middle School
WICHITA, KANSAS

PROJECT NUMBER 1266 PPS
DRAWING FILE SS1
DESIGN MWS
DRAWN MWS
DATE 06/25/02
UTILITY
REVISED
REVIEW

RB JOB 1967.E
SHEET 4 of 6



SCALE
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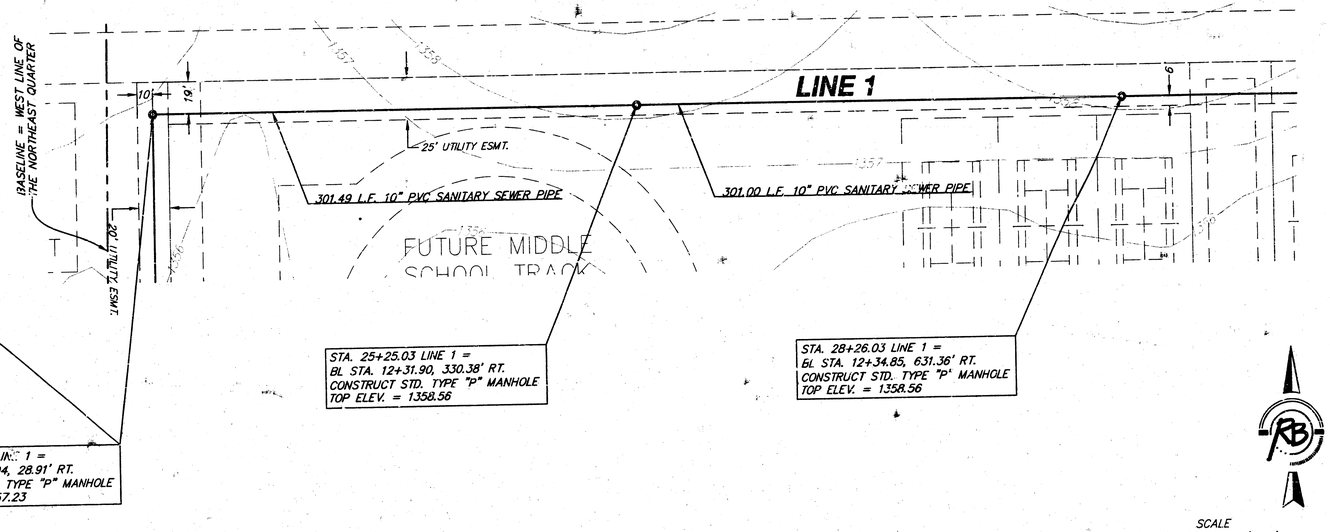
1" = 5' Vert. (Profile)



SCALE
1" = 40' Horiz. (Plan)
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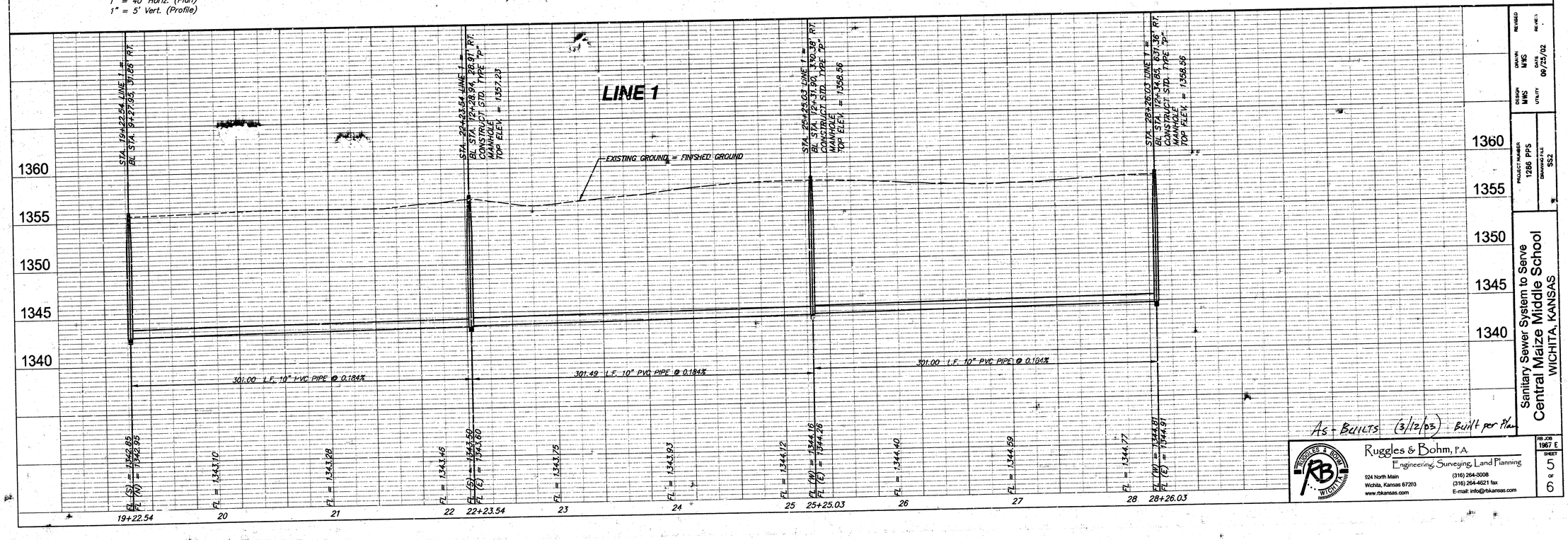

As-Builts (3/12/03) Built per Plan

DESIGN MWS UTILITY
DRAWN MWS DATE 06/25/02
REVISED
RE-VIS'D

PROJECT NUMBER 1286 PPS
DRAWING FILE SS2

Sanitary Sewer System to Serve
Central Maize Middle School
WICHITA, KANSAS

RB JOB 1967 E
SHEET 5 OF 6

Ruggles & Bohm, P.A.
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924 North Main
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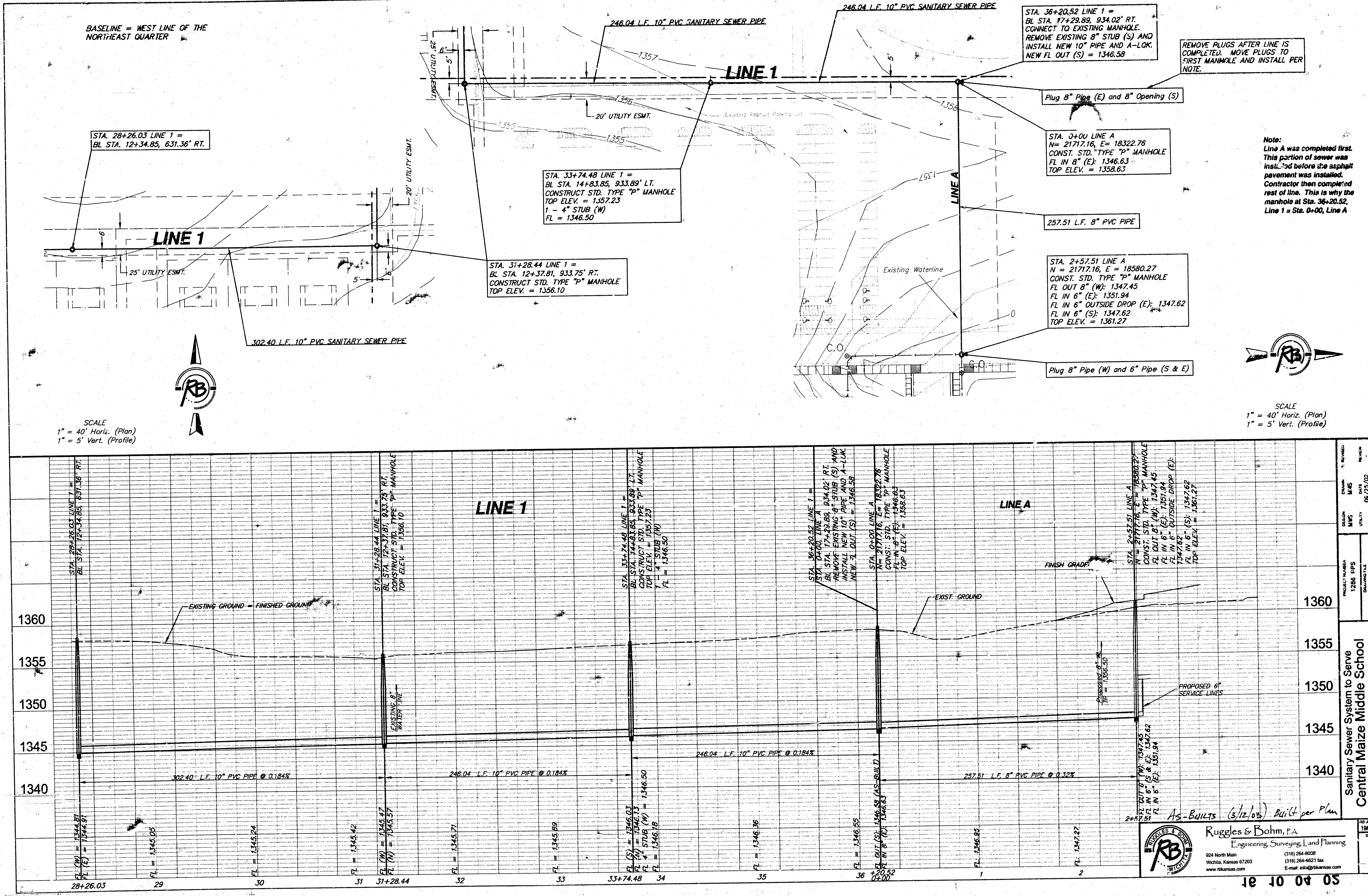
BASELINE = WEST LINE OF THE NORTHEAST QUARTER
LINE 1
LINE A
246.04 L.F. 10" PVC SANITARY SEWER PIPE
302.40 L.F. 10" PVC SANITARY SEWER PIPE
257.51 L.F. 8" PVC PIPE
STA. 28+26.03 LINE 1 = BL STA. 12+34.85, 631.36' RT.
STA. 31+28.44 LINE 1 = BL STA. 12+37.81, 933.75' RT. CONSTRUCT STD. TYPE "P" MANHOLE TOP ELEV. = 1356.10
STA. 33+74.48 LINE 1 = BL STA. 14+83.85, 933.89' LT. CONSTRUCT STD. TYPE "P" MANHOLE TOP ELEV. = 1357.23 1 - 4" STUB (W) FL = 1346.50
STA. 36+20.52 LINE 1 = BL STA. 17+29.89, 934.02' RT. CONNECT TO EXISTING MANHOLE. REMOVE EXISTING 8" STUB (S) AND INSTALL NEW 10" PIPE AND A-LOK. NEW FL OUT (S) = 1346.58
REMOVE PLUGS AFTER LINE IS COMPLETED. MOVE PLUGS TO FIRST MANHOLE AND INSTALL PER NOTE.
Plug 8" Pipe (E) and 8" Opening (S)
STA. 0+00 LINE A N= 21717.16, E= 18322.76 CONST. STD. TYPE "P" MANHOLE FL IN 8" (E): 1346.63 TOP ELEV. = 1358.63
STA. 2+57.51 LINE A N = 21717.16, E = 18580.27 CONST. STD. TYPE "P" MANHOLE FL OUT 8" (W): 1347.45 FL IN 6" (E): 1351.94 FL IN 6" OUTSIDE DROP (E): 1347.62 FL IN 6" (S): 1347.62 TOP ELEV. = 1361.27
Plug 8" Pipe (W) and 6" Pipe (S & E)
Note: Line A was completed first. This portion of sewer was installed before the asphalt pavement was installed. Contractor then completed rest of line. This is why the manhole at Sta. 36+20.52, Line 1 = Sta. 0+00, Line A
25' UTILITY ESMT.
20' UTILITY ESMT.
Existing Waterline
C.O.
SCALE 1" = 40' Horiz. (Plan) 1" = 5' Vert. (Profile)
EXISTING GROUND = FINISHED GROUND
EXIST GROUND
FINISH GRADE
EXISTING 8" WATER LINE
PROPOSED 6" SERVICE LINES
302.40 L.F. 10" PVC PIPE @ 0.184%
246.04 L.F. 10" PVC PIPE @ 0.184%
257.51 L.F. 8" PVC PIPE @ 0.32%
1360
1355
1350
1345
1340
28+26.03
29
30
31
31+28.44
32
33
33+74.48
34
35
36
36+20.52 0+00
1
2
2+57.51
AS-BUILTS (3/12/03) Built per Plan
Sanitary Sewer System to Serve
Central Maize Middle School
WICHITA, KANSAS
PROJECT NUMBER 1286 FPS
DRAWING FILE SS3
DESIGN MWS
DRAWN MHS
DATE 06/25/02
Ruggles & Bohm, P.A.
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SHEET 6 of 6