SWS #540
STORM WATER IMPROVEMENTS
CLIFTON AND BUTLER STREETS
E.L. OF K-15 HIGHWAY TO W.L. OF CLIFTON
PROJECT NO. 468-83151
OCA # 660456

GENERAL NOTES

Utility service lines, poles, valve boxes, meters, and et cetera 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. 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.

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

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.

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	268-4908
City of Wichita Sewer Maintenance	268-4071

Mailboxes within the limits of the project shall be removed and replaced by the Contractor as approved by the Engineer. Contractor will be required to make satisfactory provisions for mail delivery to properties affected by this project during its construction.

The Water Department shall field locate water valves one time during construction when requested by the Contractor. It shall be the Contractor's responsibility to preserve such field locations during the construction process. Water valves, water valve boxes or fire hydrants damaged during construction shall be repaired by the Contractor at his own expense. Water valves, valve boxes, fire hydrants and water meters shall be adjusted by the Water Department.

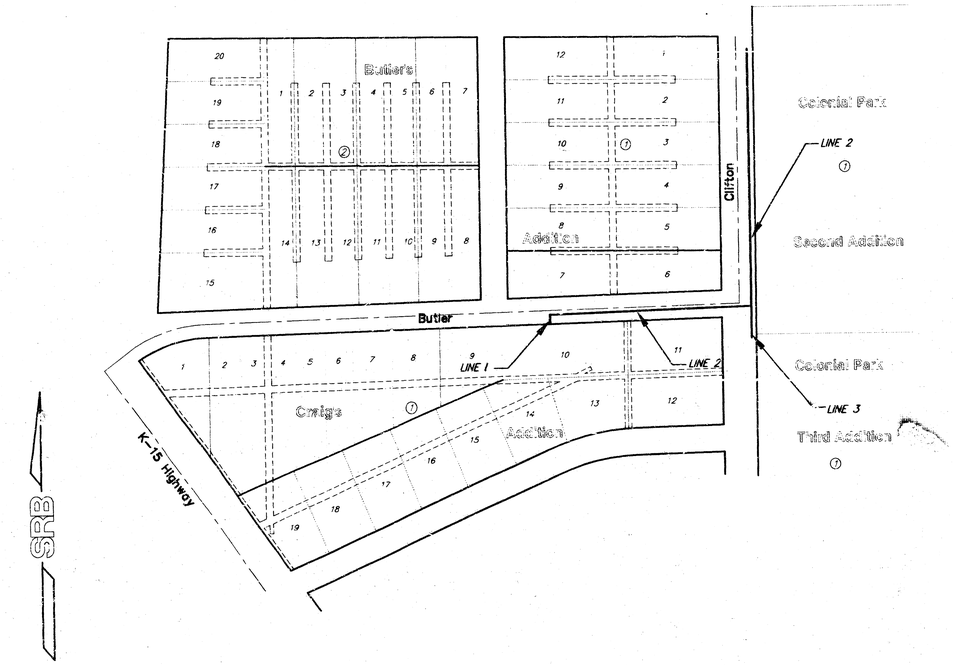
The Contractor shall give all property owners and/or tenants of developed property directly abutting the construction of this project a minimum of ten (10) days advance notice prior to start of construction.

Removal of existing concrete parking lot pavements, asphalt parking lot pavements, asphalt driveway pavement and/or asphalt sidewalk pavements will be paid for as square feet of walk and drive removed.

Properties within the project limits may have underground sprinkler systems in public right-of-way which conflict with new construction. Contractor will be required to remove such improvements should they not be removed by their owner at the time of construction of the project. The Contractor will be required to salvage all sprinkler heads and/or valves and give such material to their owner. 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 considered as subsidiary to the contract pay items for work.

Contractor shall maintain one-way traffic on Butler throughout construction.

Erosion control shall be installed and maintained during construction of this project. Contractor shall comply with the requirements of the City of Wichita Storm Water Pollution Prevention Ordinance.



Scale 1" = 150'

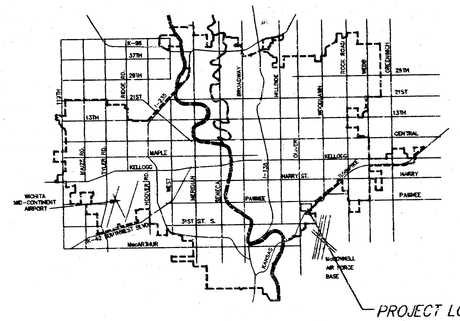
BENCH MARKS

BM #1 – "X" Chiseled in S. Rim of Manhole, East Lot Line of 3420 Butler Street.
Elev. 122.65 (C.O.W.) 1310.05 (M.S.L.)

BM #2 – "□ Cut in West Side of Concrete P.P. Base. S.E. Corner of S.E. Boulevard & Butler Street.
Elev. 103.38 (C.O.W.) 1290.78 (M.S.L.)

INDEX OF SHEETS

BOOKED 2-5-01 MCG D-492

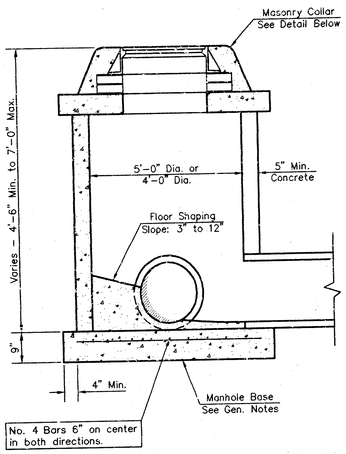


VICINITY MAP

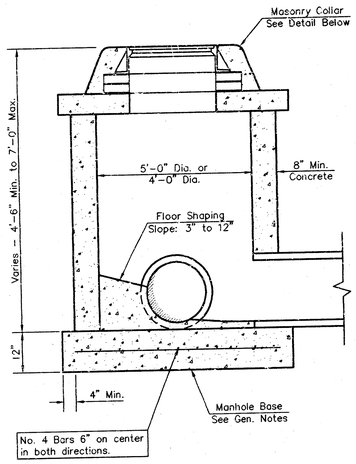
CHRISTOPHER MICHAEL BOHM LICENSED 7/16/02 21631 PROFESSIONAL ENGINEER KANSAS

CITY OF WICHITA, KANSAS
MICHAEL E. LINDEBAK, P.E. - CITY ENGINEER

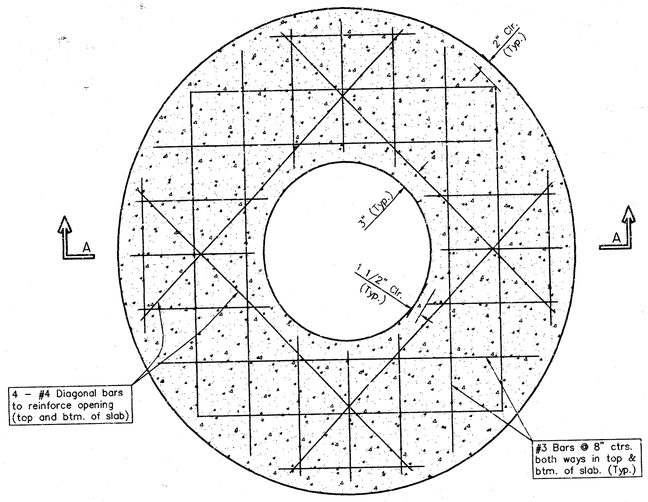
SRB 924 NORTH MAIN WICHITA, KANSAS 67203 316-264-6008 FAX 264-4621
SAVOY, RUGGLES & BOHM, P.A.
ENGINEERING & SURVEYING



SHALLOW TYPE "P" MANHOLE



SHALLOW TYPE "C" MANHOLE



PLAN

GENERAL NOTES

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

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

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

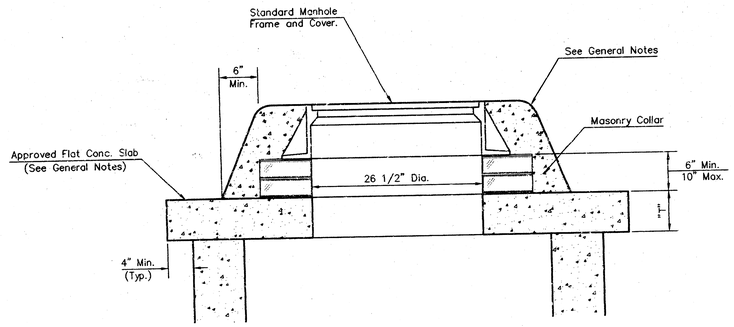
4. Pipes installed within the excavation made for the manhole shall be cradled with concrete to the limits of the manhole excavation. When clay pipe is used, the cradle shall extend to the first joint outside the manhole. The cradle shall be terminated at the clay pipe joint in a manner which will maintain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

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

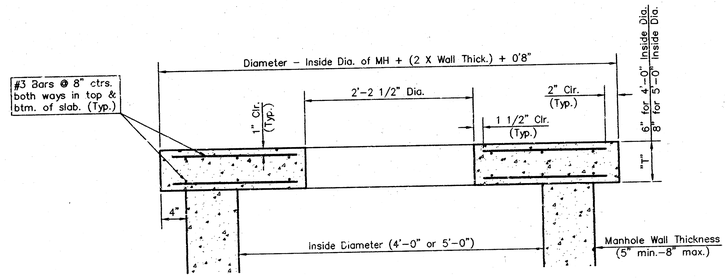
6. The crowns of inflowing pipes shall never be set lower than the crown of the outflowing pipe.

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

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



MASONRY COLLAR DETAIL



SECTION A-A

FLAT CONCRETE SLAB DETAILS

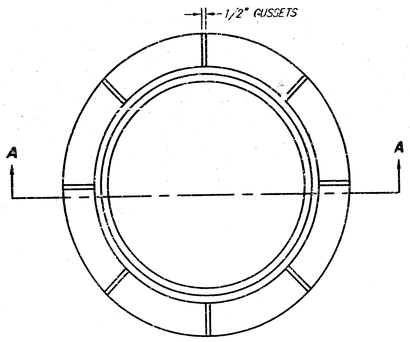
THE CITY OF WICHITA

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

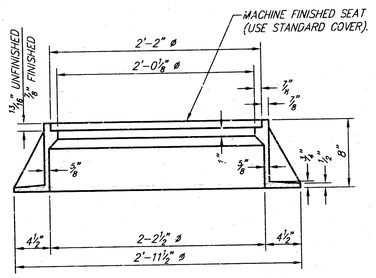
SHALLOW MANHOLES TYPE 'P' AND 'C'

M. E. LINDEBAK P.E. – CITY ENGINEER

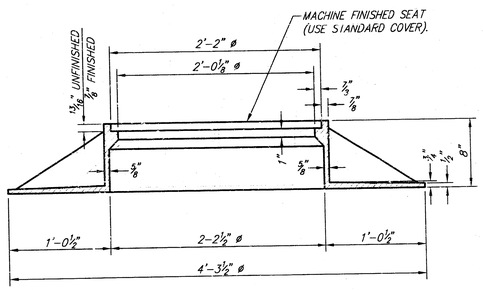
PROJECT NUMBER	OCA #
472-83080	765580
DATE: MAR 96	SHEET 2 OF 8



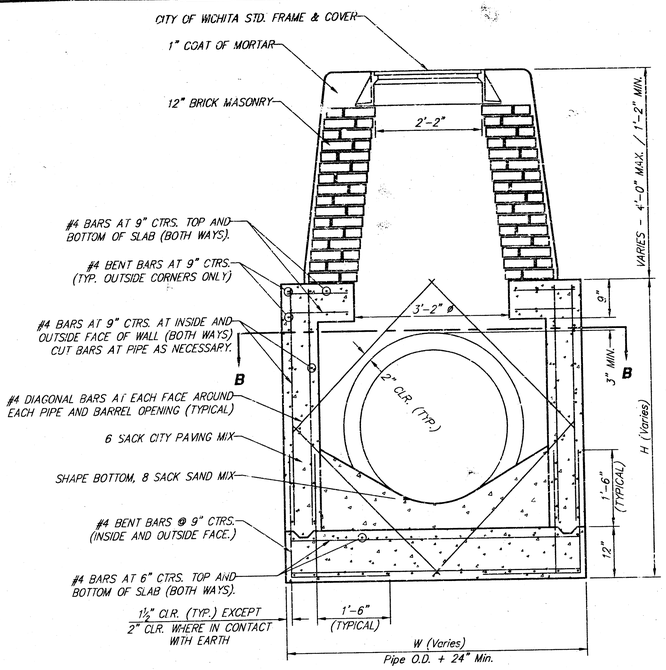
PLAN
*STANDARD MANHOLE FRAME SHOWN



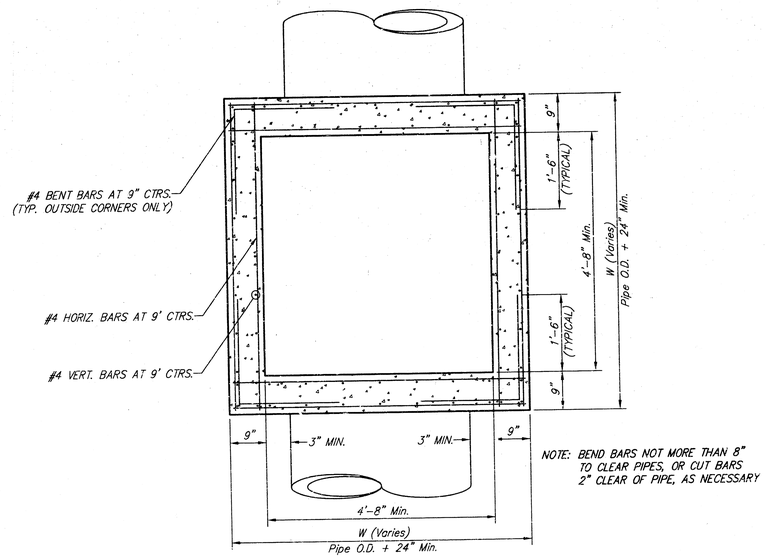
SECTION A-A
STANDARD MANHOLE FRAME
WEIGHT = 240 LBS.



SECTION A-A
WIDE FLANGE MANHOLE FRAME
WEIGHT = 705 LBS.

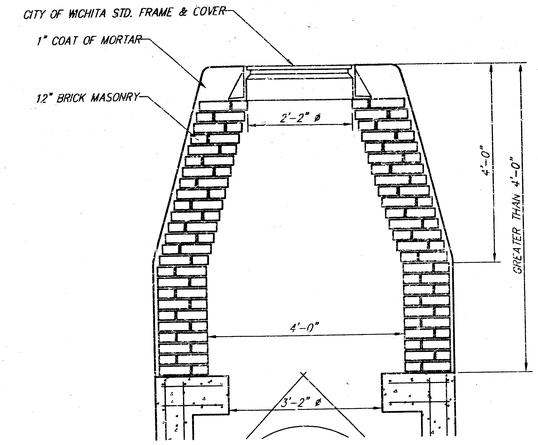


REINFORCED CONCRETE MANHOLE
STACK HEIGHT 2'-4" TO 4'-0"

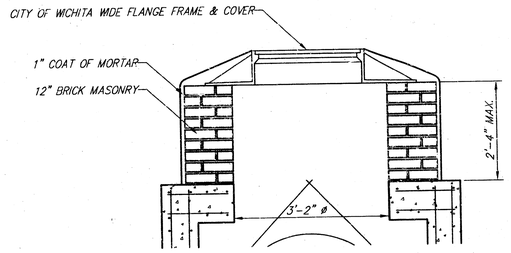


SECTION B-B

NOTE: BEND BARS NOT MORE THAN 8" TO CLEAR PIPES, OR CUT BARS 2" CLEAR OF PIPE, AS NECESSARY



STACK HEIGHT GREATER THAN 4'-0"



STACK HEIGHT LESS THAN 2'-4"

GENERAL NOTES:

1. MORTAR USED IN MASONRY CONSTRUCTION SHALL CONTAIN 8 SACKS OF CEMENT PER CUBIC YARD. CONCRETE USED IN MANHOLE WALLS AND BASES SHALL CONFORM TO THE REQUIREMENTS 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.
2. THE FLOORS OF ALL MANHOLES SHALL BE SHAPED WITH FLOW CHANNELS SUCH THAT THE MANHOLES WILL BE SELF-CLEANING, USING 8 SACK SAND MIX CONCRETE. FLOW CHANNELS SHALL BE FORMED TO MATCH THE BOTTOM HALVES OF THE INFLOWING PIPES AND THE OUTFLOWING PIPE. MANHOLE FLOORS SHALL HAVE SLOPES OF 3 INCHES PER FOOT IN THE AREAS OUTSIDE OF THE FLOW CHANNELS, SLOPED TOWARD THE FLOW CHANNELS.
3. 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.
4. THE ENDS OF ALL PIPES IN MANHOLES SHALL BE CUT OFF FLUSH WITH THE INSIDE FACE OF MANHOLE WALL.

CITY OF WICHITA STANDARD MANHOLE FRAME DETAILS

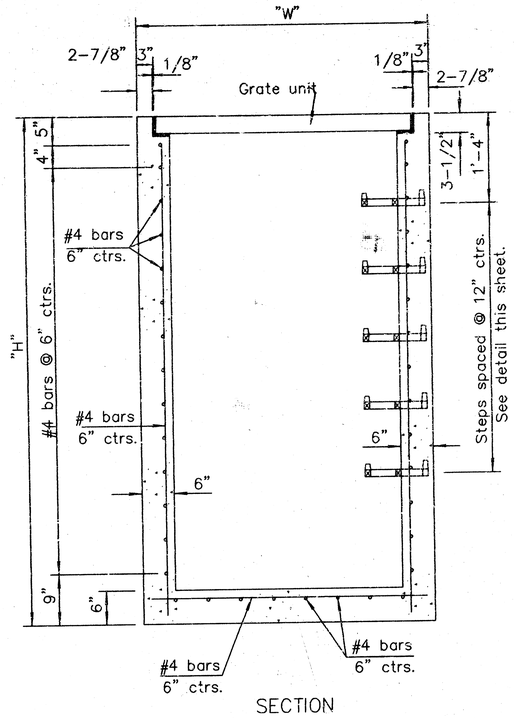
CLIFTON & BUTLER INCIDENTAL DRAINAGE
REINFORCED CONCRETE MANHOLE DETAILS
WICHITA, KANSAS

SRB
924 NORTH MAIN
WICHITA, KANSAS 67203
http://www.srb1.com
316-264-8008
FAX 264-4621
E-mail: srb@srb1.com
SAVOY, RUGGLES & BOHM, P.A.
ENGINEERING & SURVEYING

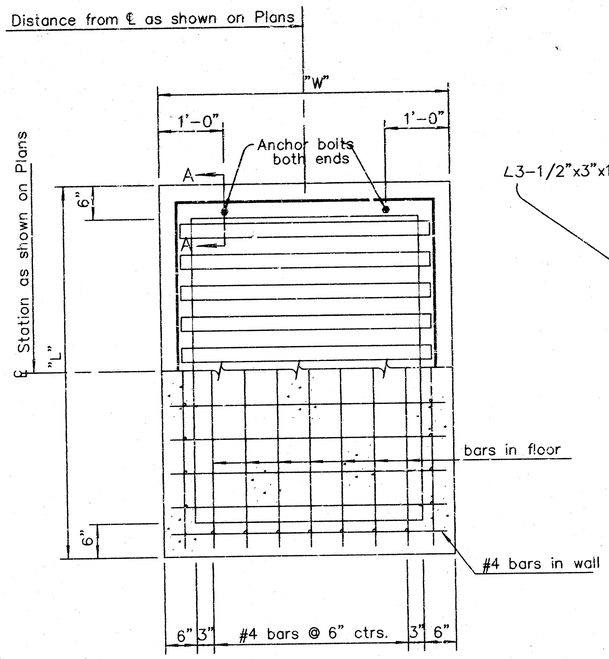
PROJECT NUMBER
472-83030

DESIGN	DRAWN	UTILITY	REVIEW	DATE	REVISED
C.O.W.	J. Long		CWS	July 5, 2000	

SRB JOB 16300
SHEET 3 of 8
DWG FILE (SRB)Reinforced Concrete Manhole



SECTION



PLAN AND SECTION

Steps shall be uniformly spaced. Spacing shall be 12" minimum and 16" maximum.

GENERAL NOTE

Use Class A Concrete throughout. All exposed edges shall be finished with an edging tool.

At the contractors option, Class A Concrete (AE) or mix used in concrete pavement may be used throughout.

In general, pipes will enter and leave the manhole at various positions. Where possible bend bars around pipes.

Floor of inlet shall be shaped as shown in various "Examples" on Reinforced Concrete Manhole Standard Drawing RD633. Concrete used for shaping shall be unreinforced Class "A" Concrete or concrete pavement mix. No addition in concrete quantities shall be made for shaping floor of inlets.

Manhole steps, where used, shall be placed to afford easy access to top of shaped invert.

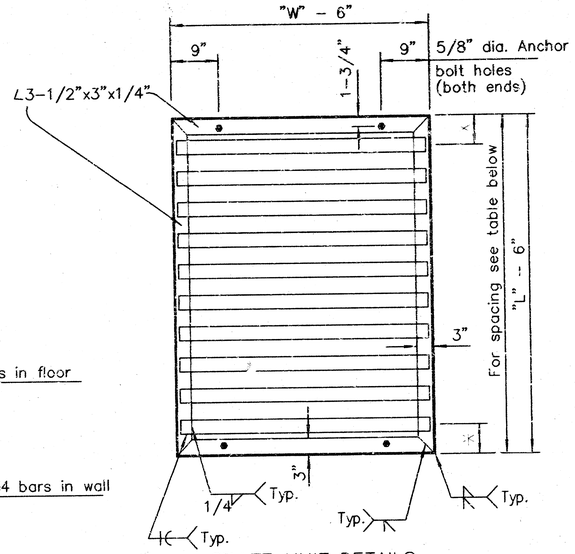
No deductions in concrete quantities shall be made for pipe openings.

All bars are #4 @ 6" spacing and shall have a minimum clearance of 1-1/2" unless otherwise noted on the plans.

The top of the manhole shall be sloped slightly to approximately fit the ground line or other conditions as directed by the Engineer.

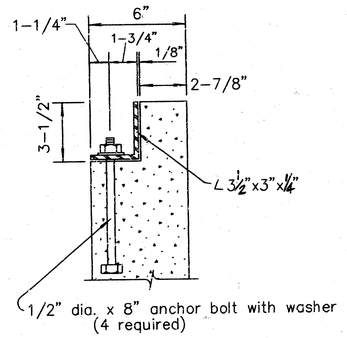
Steps shall be installed on all storm sewer inlets when specified in the plans or when "H" is equal to or greater than six feet. Steps shall comply with the KDOT Standard Specification.

The grate shall be fabricated from standard or commercial grade structural steel and black steel pipe. The unit shall be hot dipped, galvanized after fabrication, in accordance with ASTM A123 except the weight of coating shall average not less than 2.0 ounces per square foot of actual surface and no individual test shall show less than 1.8 ounces of coating per square foot of actual surface area.

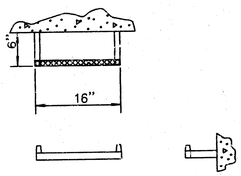


GRATE UNIT DETAILS

PIPE DIMENSIONS AND SPACING			
L x W	No. of Bars	Dia. x Length x Spacing	
7-0"x6'-0"	13	2-1/2ø x 5'-4-1/4" pipes @ 6" ctrs.	6"
4'-6"x4'-6"	8	2-1/2ø x 3'-10-1/4" pipes @ 5-1/2" ctrs.	4-3/4"



SECTION A-A



STEP DETAILS

INLET - MANHOLE, SPECIAL

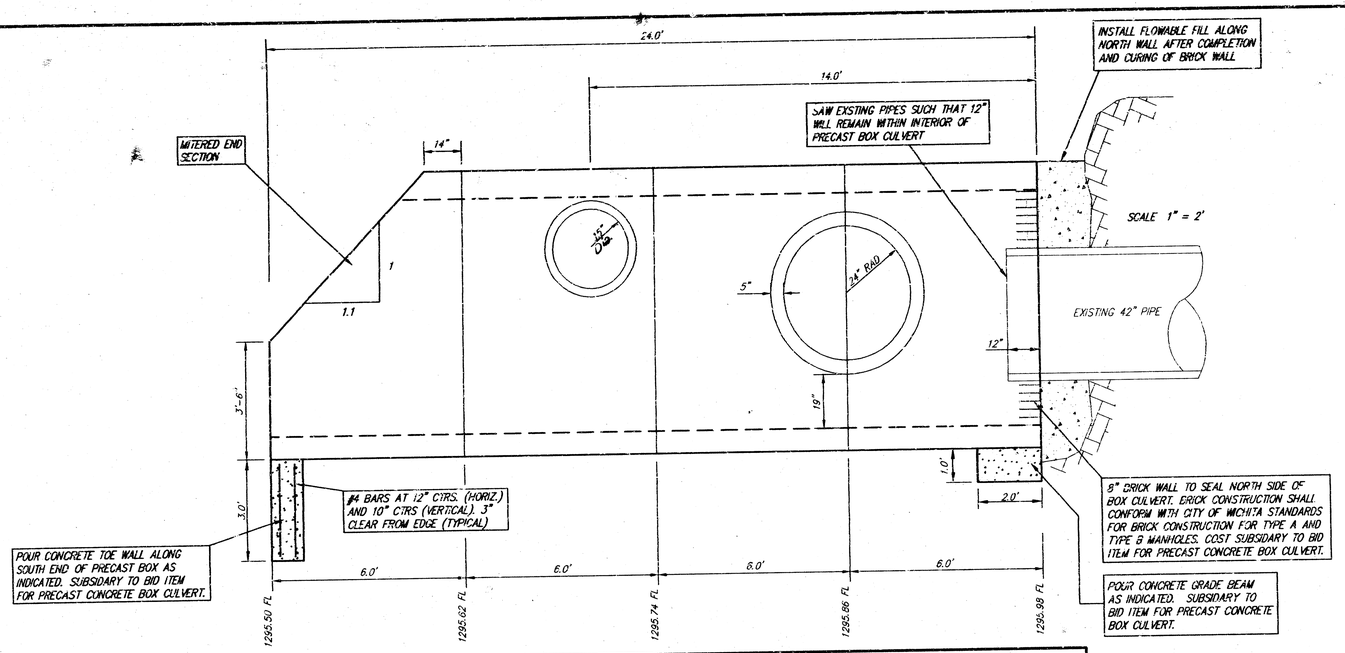
SRB
924 NORTH MAIN
WICHITA, KANSAS 67203
http://www.srb1.com
316-264-8008
FAX 264-4621
E-mail: srb@srb1.com
SAVOY, RUGGLES & BOHM, P. A.
ENGINEERING & SURVEYING

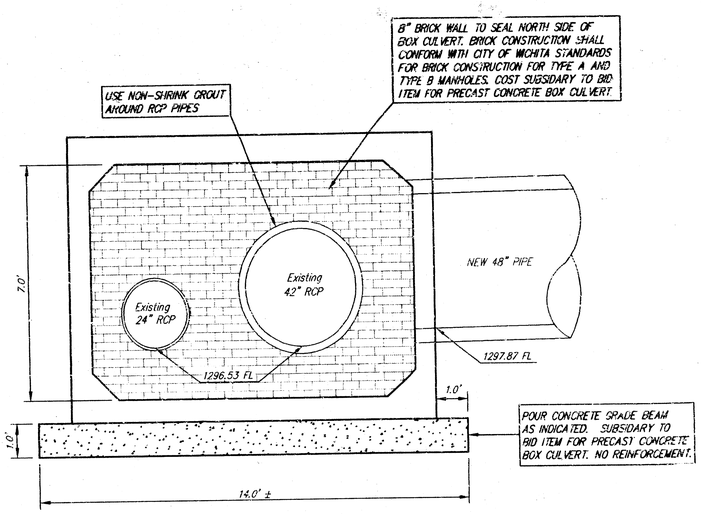
PROJECT NUMBER
472-83080

DESIGN	DRAWN	UTILITY	REVIEW	DATE	REVISED
CMB	EJG		CMB	July 17, 2000	

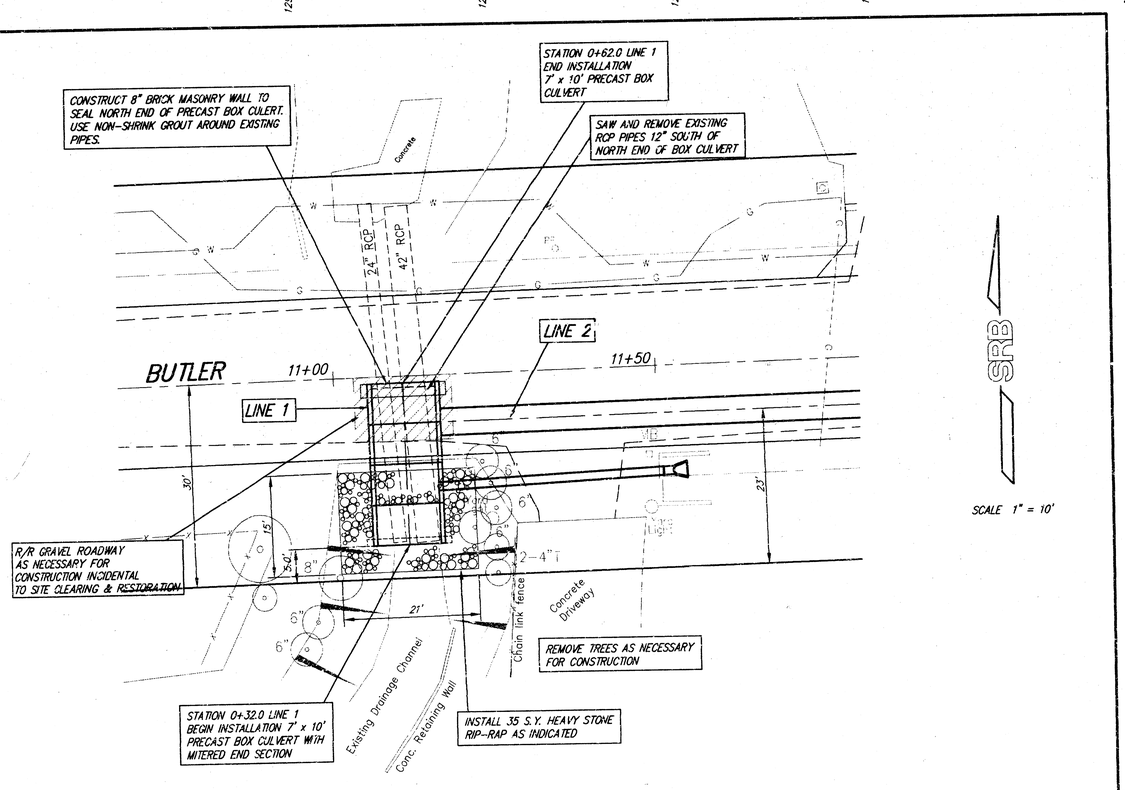
DWG. FILE: Special Inlet-Manhole

DISTRICT 2000 | 16300 | SHEET 4 | OF 8

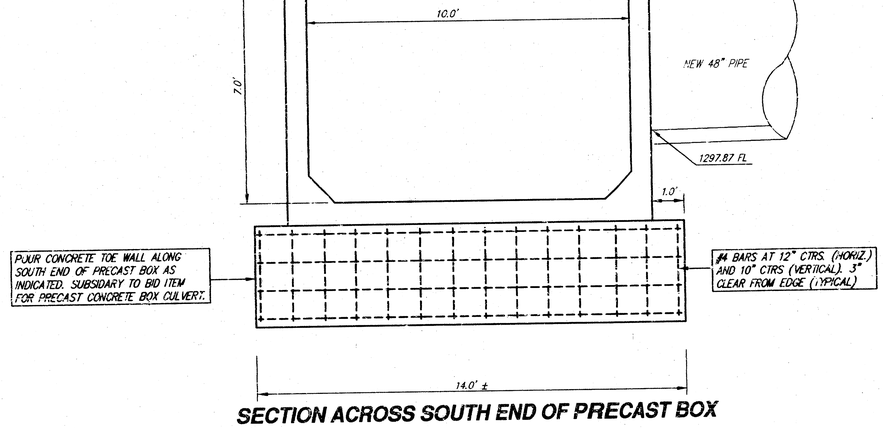




SECTION ACROSS NORTH END OF PRECAST BOX



SCALE 1" = 10'



SECTION ACROSS SOUTH END OF PRECAST BOX

Clifton and Butler Incidental Drainage

PRECAST CONCRETE BOX DETAILS

WICHITA, KANSAS

SRB
924 NORTH MAIN
WICHITA, KANSAS 67203
http://www.srb1.com
315-264-8000
FAX 264-4621
E-mail: srb@srb1.com

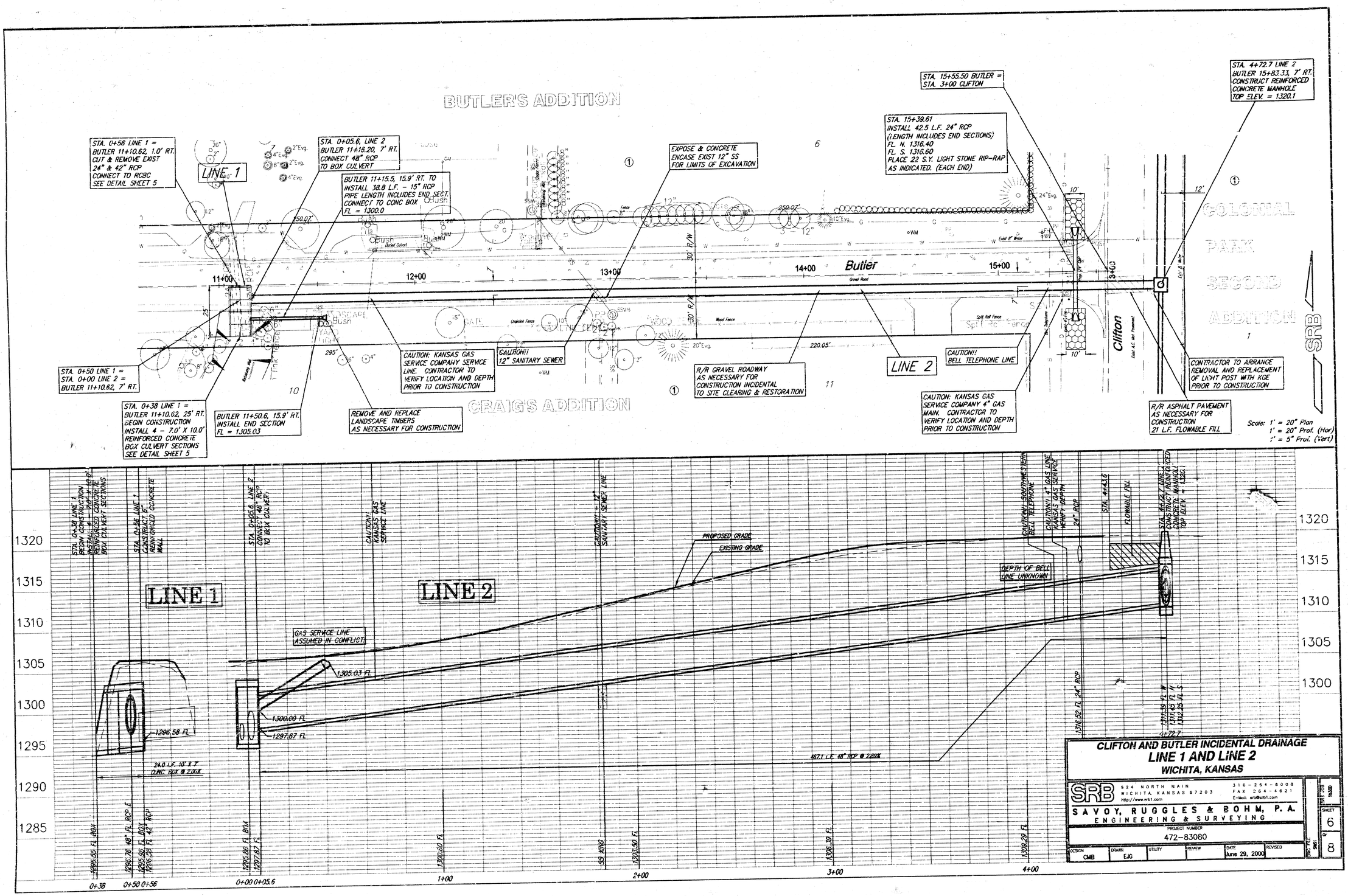
SAVOY, RUGGLES & BOHM, P. A.
ENGINEERING & SURVEYING

PROJECT NUMBER
472-83080

DESIGN	DRAWN	UTILITY	REVIEW	DATE	REVISED
CMB	EJG			July 3, 2000	

Staff Initials: Bar Details

SHEET 5 of 8



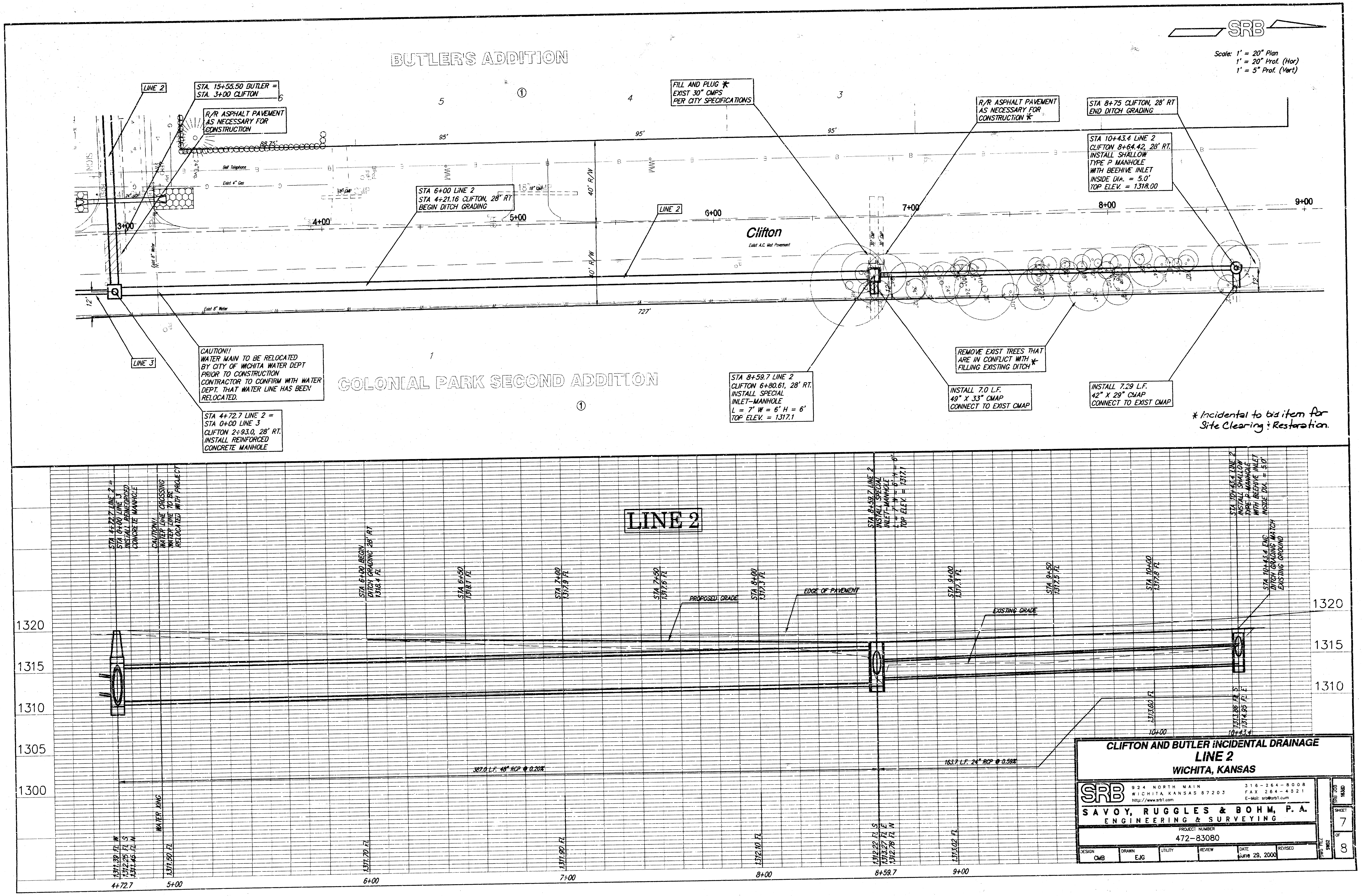
CLIFTON AND BUTLER INCIDENTAL DRAINAGE
LINE 1 AND LINE 2
WICHITA, KANSAS

SRB
924 NORTH MAIN
WICHITA, KANSAS 67203
http://www.srb1.com
316-264-8008
FAX 264-4621
E-Mail: srb@srb1.com
SAVOY, RUGGLES & BOHM, P.A.
ENGINEERING & SURVEYING

PROJECT NUMBER 472-83080

DESIGN	DRAWN	UTILITY	REVIEW	DATE	REVISED
CMB	EJG			June 29, 2000	

SHEET 6 OF 8 SHEETS



CLIFTON AND BUTLER INCIDENTAL DRAINAGE
LINE 2
WICHITA, KANSAS

SRB
924 NORTH MAIN
WICHITA, KANSAS 67203
http://www.srb1.com
316-264-8008
FAX 264-4321
E-Mail: srb@srb1.com

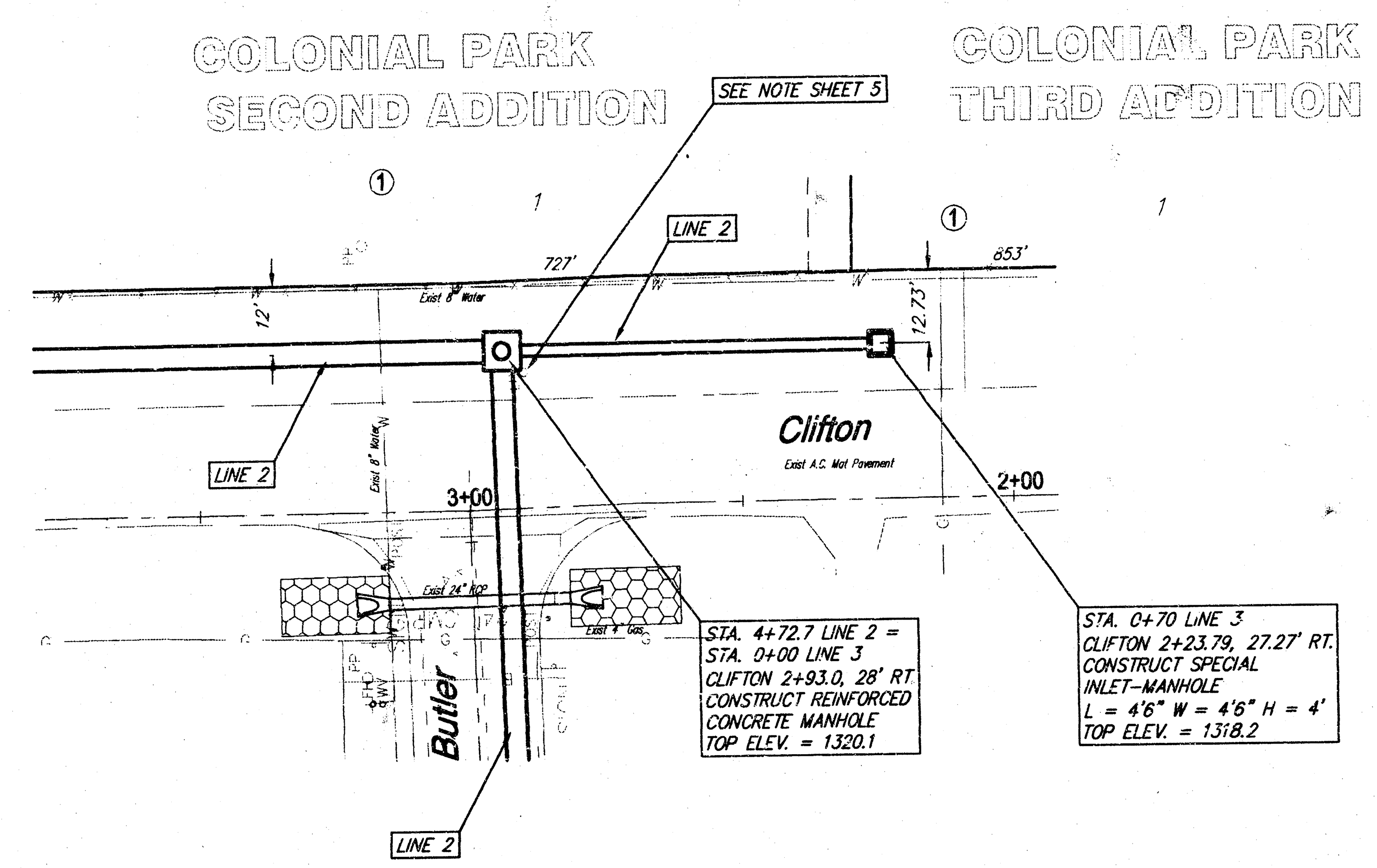
SAVOY, RUGGLES & BOHM, P.A.
ENGINEERING & SURVEYING

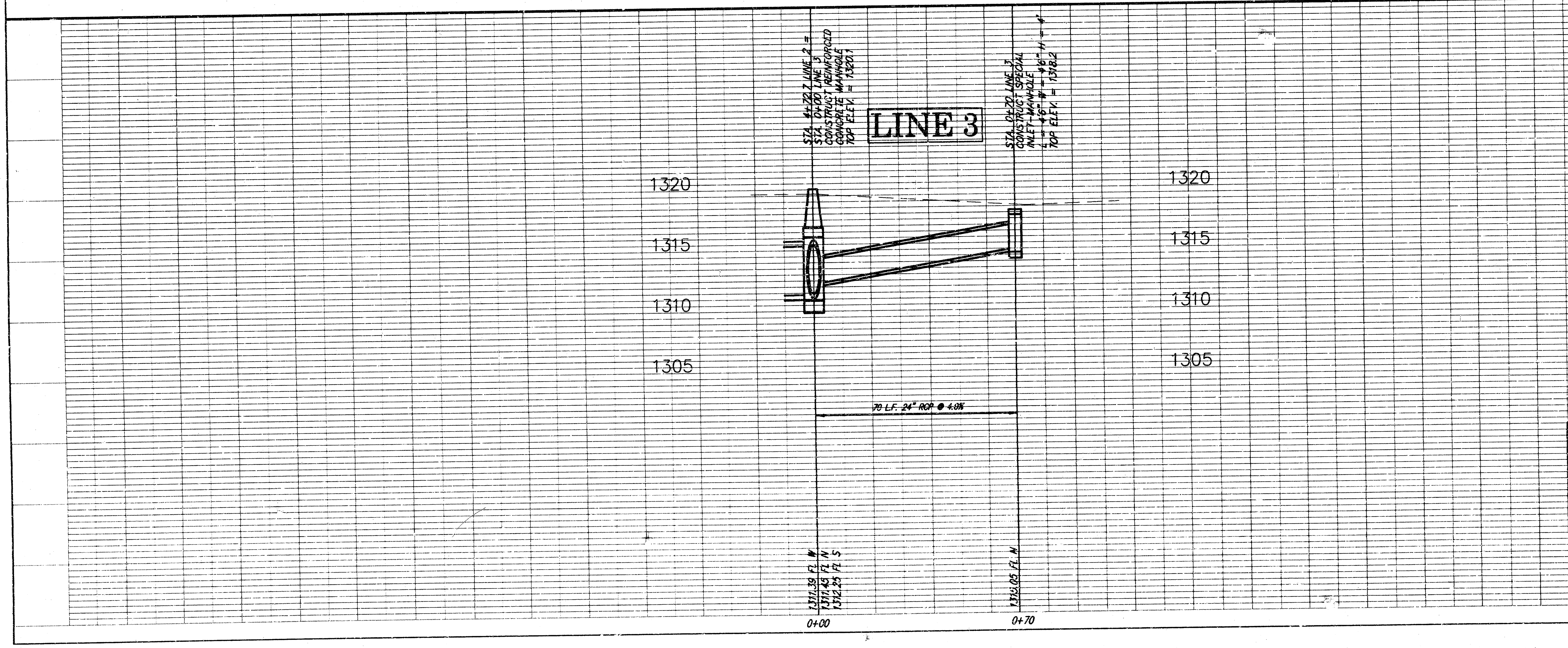
PROJECT NUMBER 472-83080

DESIGN	DRAWN	UTILITY	REVIEW	DATE	REVISED
CMB	EJG			June 29, 2000	

SHEET 7 OF 8

Scale: 1" = 20' Plan
1" = 20' Prof. (Hor)
1" = 5' Prof. (Vert)





CLIFTON AND BUTLER INCIDENTAL DRAINAGE
LINE 3
WICHITA, KANSAS

SRB
924 NORTH MAIN
WICHITA KANSAS 67203
http://www.srb1.com
316-264-8008
FAX 264-4621
E-Mail: srb@srb1.com

SAVOY, RUGGLES & BOHM, P.A.
ENGINEERING & SURVEYING

PROJECT NUMBER
472-83080

DESIGN	DRAWN	UTILITY	REVIEW	DATE	REVISED
CMB	EJG			June 29, 2000	

DWG FILE SWS3
SRB JOB 16380
SHEET 8 OF 8