IMPROVEMENTS

TO

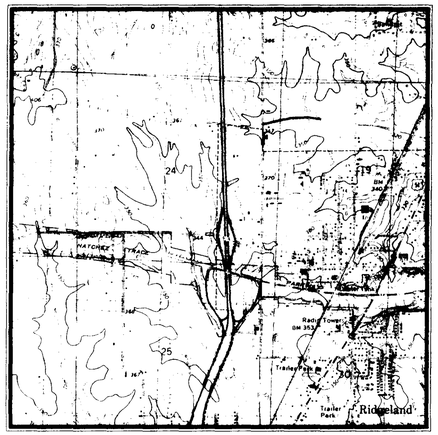
SANITARY SEWER SYSTEM

Steed Road and Sunnybrook Road

CITY OF RIDGELAND

MISSISSIPPI

SITE



VICINITY MAP
SCALE: 1"= 2000'

DEVELOPER: PAUL G. MOAK, JR.

P.O. BOX 1580
JACKSON, MISSISSIPPI 39215-1580
TELEPHONE (601) 352-2700

ENGINEER: ROBERT B. BARNES

4 OLD RIVER PLACE
JACKSON, MISSISSIPPI 39202
TELEPHONE (601) 353-7878

GENERAL NOTES

1. Construction and testing of all materials shall be in accordance with the City of Ridgeland Subdivision Ordinance, the regulationsof the Mississippi State Health Department, and the regulations of the Mississippi Department of Natural Resources.

2. Contractor shall be responsible for determining exact location of all existing utilities and shall contact any public and/or private utility company prior to construction.

3. The maximum infiltration and exfiltration rate for sanitary sewer lines shall be 200 gal. per inch of diameter per mile per 24 hours.

4. Manholes shall be waterproofed inside with an application of KOPPERS 300 M Coal Tar Epoxy or approved equal.

5. All sewers 24 inches or less will be laid with straight alignment between manholes and will be checked by laser and lamping methods.

6. All backfill will be of suitable material, hand tamped to within one (1) foot of the top of the pipe, and otherwise placed in such a manner as not to disturb the alignment of the pipe.

7. Inlet and outlet to manholes will be constructed in such a manner that the connection will be flexible and watertight and not damage the sewer main in the event of manhole settlement.

8. Before any backfill is placed, the sewer line shall be checked by, the Engineer for line, grade and workmanship. Before acceptance, each sectionline between manholes or such other length as determined by the Engineer to be suitable, shall be thoroughly inspected and any defects in workmanship shall be immediately corrected.

9. The completed gravity flow system shall be free of all mud, siltation and other foreign matter deposited or collected during construction. Flushing shall commence at the upstream end of the completed system and continue downstream manhole-to-manhole. Water used in flushing will not be permitted to enter into the existing system but shall be disposed of in a manner acceptable to the Engineer. Should the collected matter be sufficient in quantity to obstruct or affect the testing, flushing shall be accomplished prior to testing. Flushing will not be required in those sectors of the installed pipes and manholes where the exfiltration test has adequately cleaned the mains.

10. All items of work necessary for testing utility lines not shown as bid item are to be absorbed.

11. All water and sanitary sewer services to be marked at the property line with a 2" diameter creosote post or other acceptable marker. Services shall be 3' to 4' deep at the service markers.

12. All (100%) of the PVC gravity sewer pipe will be tested for excessive deflection after installation. A "go, no-go" mandrel that is sized such that it will not pass a deflection greater that 5% shall be used. The mandrel shall be drawn through the pipe by hand. Irregularities or obstructions encountered in the line shall be corrected by the Contractor at no cost to the owner.

13. Bedding for sewer pipe shall be class "C" in accordance with ASTM C12-74 (ANSI A106.2) or WPCF MOP No. 9 (ASCE MOP No. 37) for rigid pipe and Class III in accordance with ASTM D2321-74 (ANSI K65.171) for flexible pipe.

14. Sewer and water mains will have a minimum separation of ten (10) feet horizontally and 24" vertically with relation to each other.

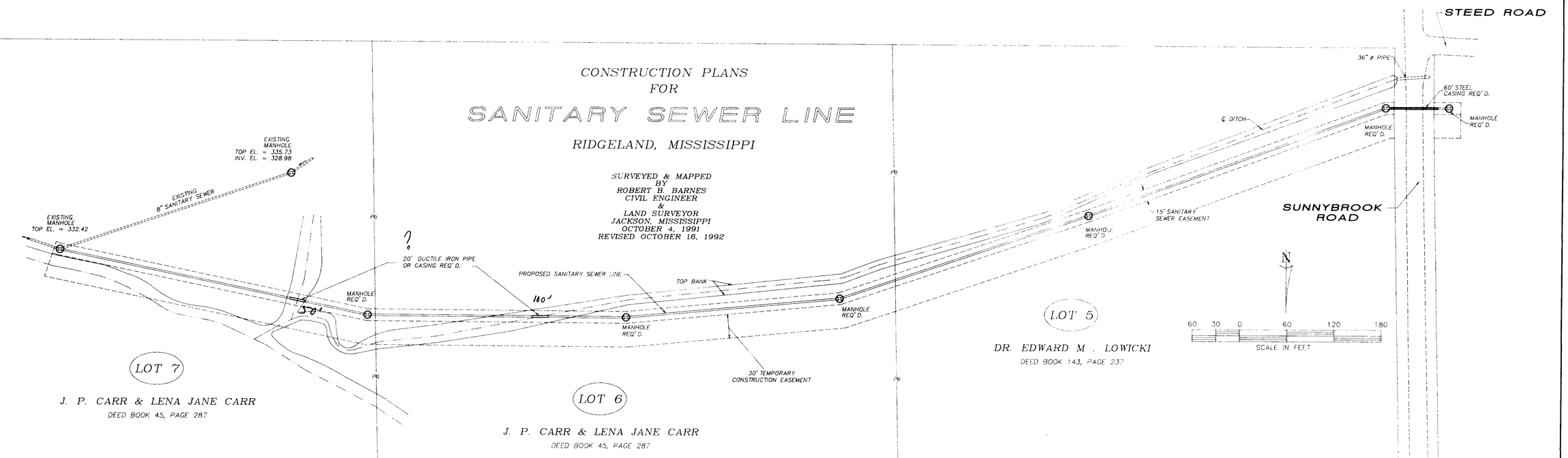
PWP-01928

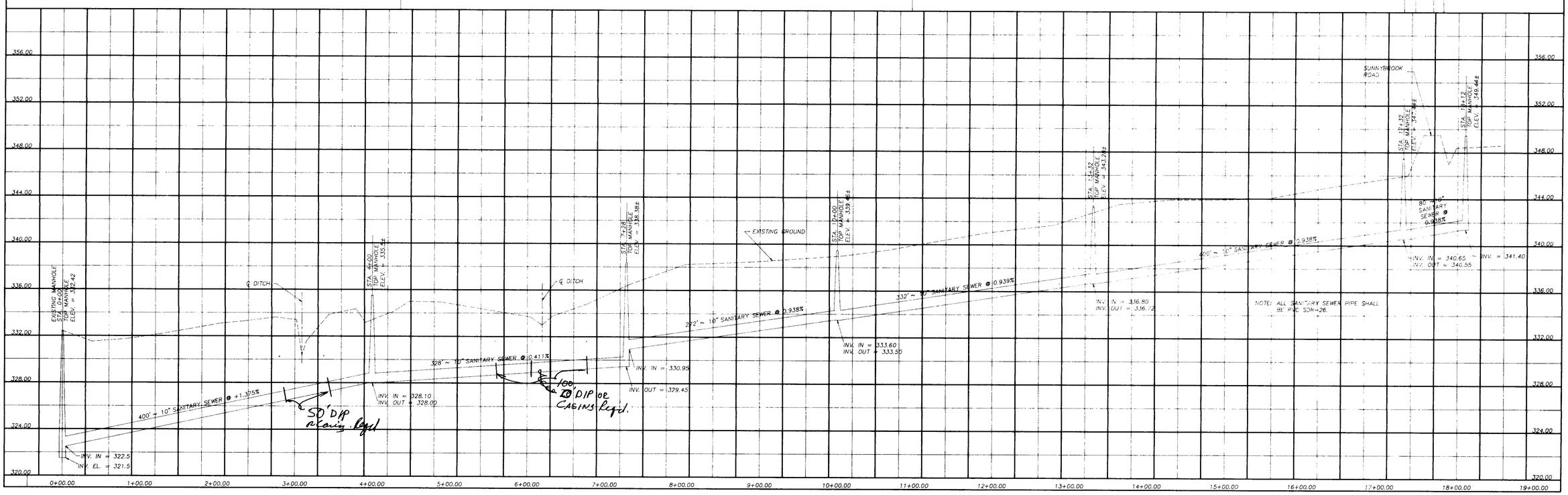
5446-06.DWG

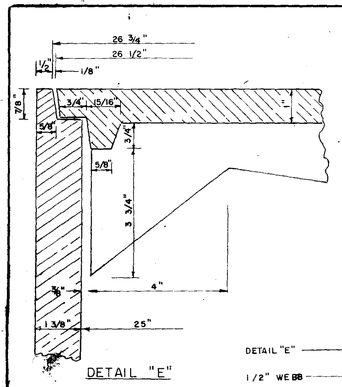
CONSTRUCTION PLANS
FOR
SANITARY SEWER LINE

RIDGELAND, MISSISSIPPI

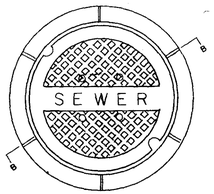
SURVEYED & MAPPED
BY
ROBERT B. BARNES
CIVIL ENGINEER
&
LAND SURVEYOR
JACKSON, MISSISSIPPI
OCTOBER 4, 1991
REVISED OCTOBER 16, 1992



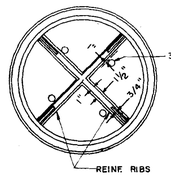




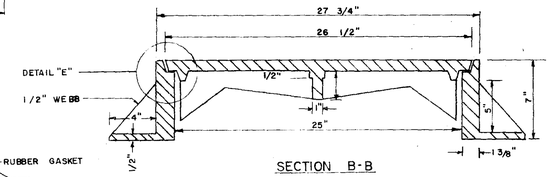
DETAIL "E"



TOP PLAN OF COVER

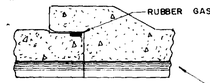


INVERTED PLAN OF COVER



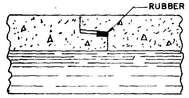
SECTION B-B

STANDARD MANHOLE CASTING

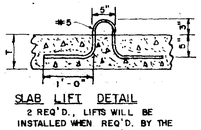


BELL & SPIGOT

DETAIL "A"

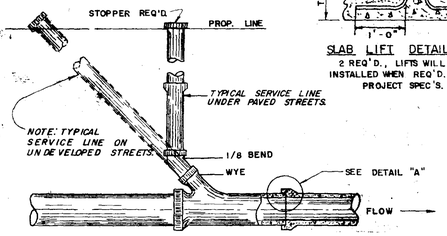


TONGUE & GROOVE

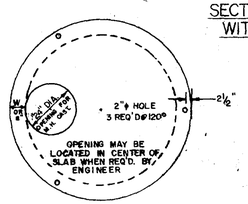


SLAB LIFT DETAIL

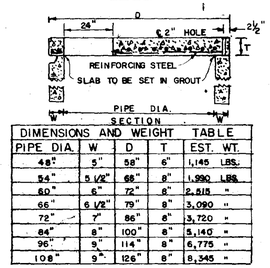
2 REQ'D., LIFTS WILL BE INSTALLED WHEN REQ'D. BY THE PROJECT SPEC'S.



TYPICAL SERVICE TO PROPERTY LINE

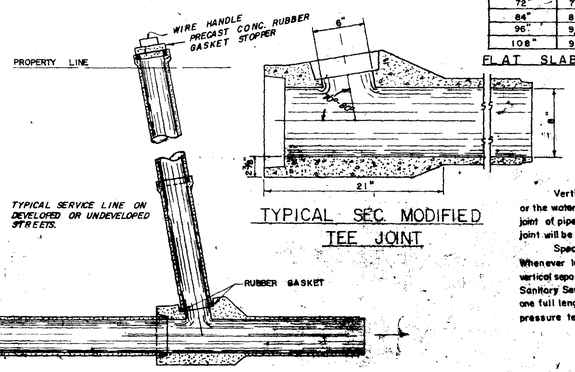


PLAN



DIMENSIONS AND WEIGHT TABLE				
PIPE DIA.	W	D	T	EST. WT.
48"	5"	58"	6"	1,145 LBS.
54"	5 1/2"	68"	8"	1,990 LBS.
60"	6"	72"	8"	2,515 "
66"	6 1/2"	79"	9"	3,090 "
72"	7"	86"	8"	3,720 "
84"	8"	100"	8"	5,140 "
96"	9"	114"	9"	6,775 "
108"	9"	126"	8"	8,345 "

FLAT SLAB MANHOLE TOP



TYPICAL SEC. MODIFIED TEE JOINT

TYPICAL SERVICE TO PROPERTY LINE WITH MODIFIED TEE JOINT

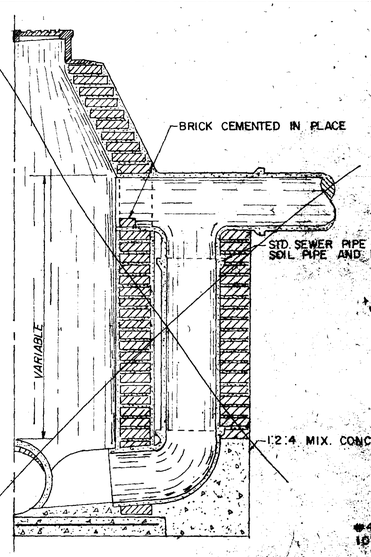
GENERAL NOTES CONTINUED

Vertical Seperation Continued

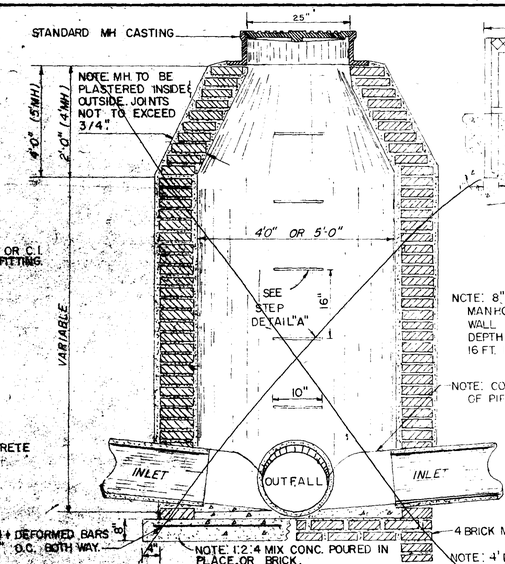
or the water shall be reconstructed to have one full length joint of pipe centered over the Sanitary Sewer so that each joint will be as far from the Sanitary Sewer as possible.

Special Conditions

Whenever local conditions prevent proper horizontal and vertical separation the Sanitary Sewer and the water main, the Sanitary Sewer shall be constructed of Cast Iron pipe with one full length joint centered at the crossing and both services pressure tested to insure watertightness.

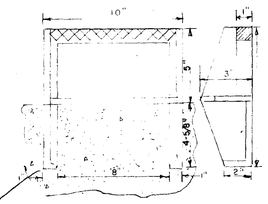


SECTION BRICK MANHOLE WITH DROP CONNECTION



SECTION BRICK MANHOLE

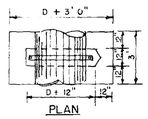
NOTE: 4' DIA. MANHOLE USED FOR 24" & SMALLER SEWERS
5' DIA. MANHOLE USED FOR 27" TO 42" SEWERS.



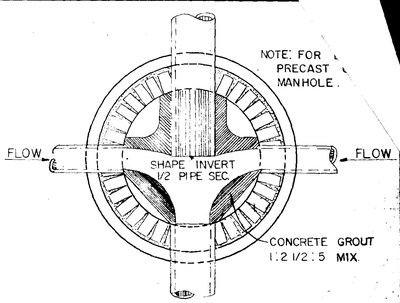
STEP DETAIL "A"

NOTE: 8" WALL THICKNESS REQ'D. FOR MANHOLE DEPTHS UNDER 16 FT., 13" WALL THICKNESS REQ'D. FOR EXTRA DEPTH PORTIONS OF M/H EXCEEDING 16 FT. DEPTH.

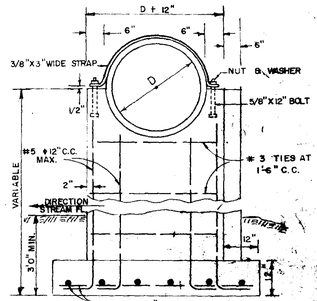
NOTE: CONCRETE GROUT FULL HEIGHT OF PIPE, SLOPE TO CENTER



PLAN

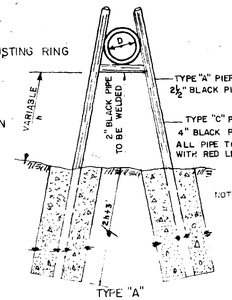


PLAN OF MANHOLE FLOW CHANNELS



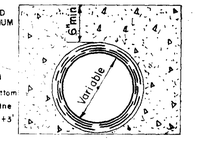
TYPE "B"

TYPICAL CONC. PIER DETAIL FOR SEWER DITCH CROSSINGS

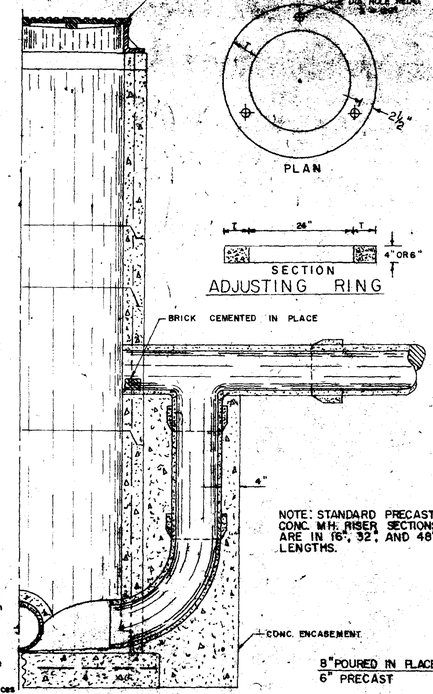


TYPE "A"

TYPICAL PIER DETAIL FOR SEWER DITCH CROSSINGS



TYPICAL DETAIL OF CONCRETE ENCASEMENT

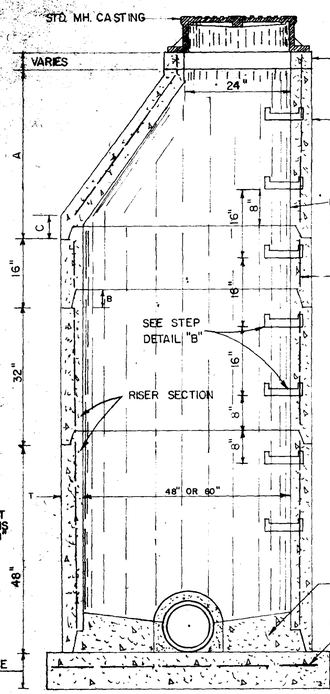


SECTION OF PRECAST CONCRETE MANHOLE WITH DROP CONN.

PLAN

SECTION

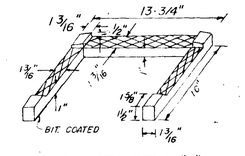
ADJUSTING RING



SECTION OF PRECAST CONCRETE MANHOLE

DIA.	A	B	C	T	APPROX. CONE WEIGHTS LBS.	APPROX. RISER WEIGHT LBS./FT.
48"	38"	3 1/2"	5"	5"	2075	870
60"	36"	5"	9"	6"	3455	1250

NOTE: MANHOLES TO BE EPOXY LINED ACCORDING TO CITY SPECIFICATIONS



CAST IRON STEP DETAIL "B"

Where soil at the elevation of the base of a manhole is unstable, the thickness and/or base area will be increased as directed by the Engineer.

Pipe joints formed by jute and hot poured bituminous compound are permissable only where special provisions are applicable.

Joints formed by rubber gasket plus refined plastic cement compound will be required by special provisions for outfall mains in flood plains.

Horizontal Separation:

Whenever possible, Sanitary Sewer should be laid a minimum of 10' horizontally from any existing or proposed water main. Should local conditions prevent a lateral seperation of 10', a Sanitary Sewer may be laid closer than 10' to a water main if: (A) It is laid in a separate trench, (B) It is laid in same trench with the water mains located at one side on a bench of undisturbed earth. (C) In either case the crown of the Sanitary Sewer will be at least 18" below the invert of the water main.

Vertical Separation

Whenever a Sanitary Sewer must cross under a water main, the Sanitary Sewer shall be laid at an elevation so that the top of the Sanitary Sewer is 18" below the invert of the water main. When local conditions will not permit this clearance, the water main shall be relocated to permit this clearance. (See Continuation at Left)

STANDARD DETAILS FOR CONSTRUCTION

SANITARY SEWERS & APPURTENANCES

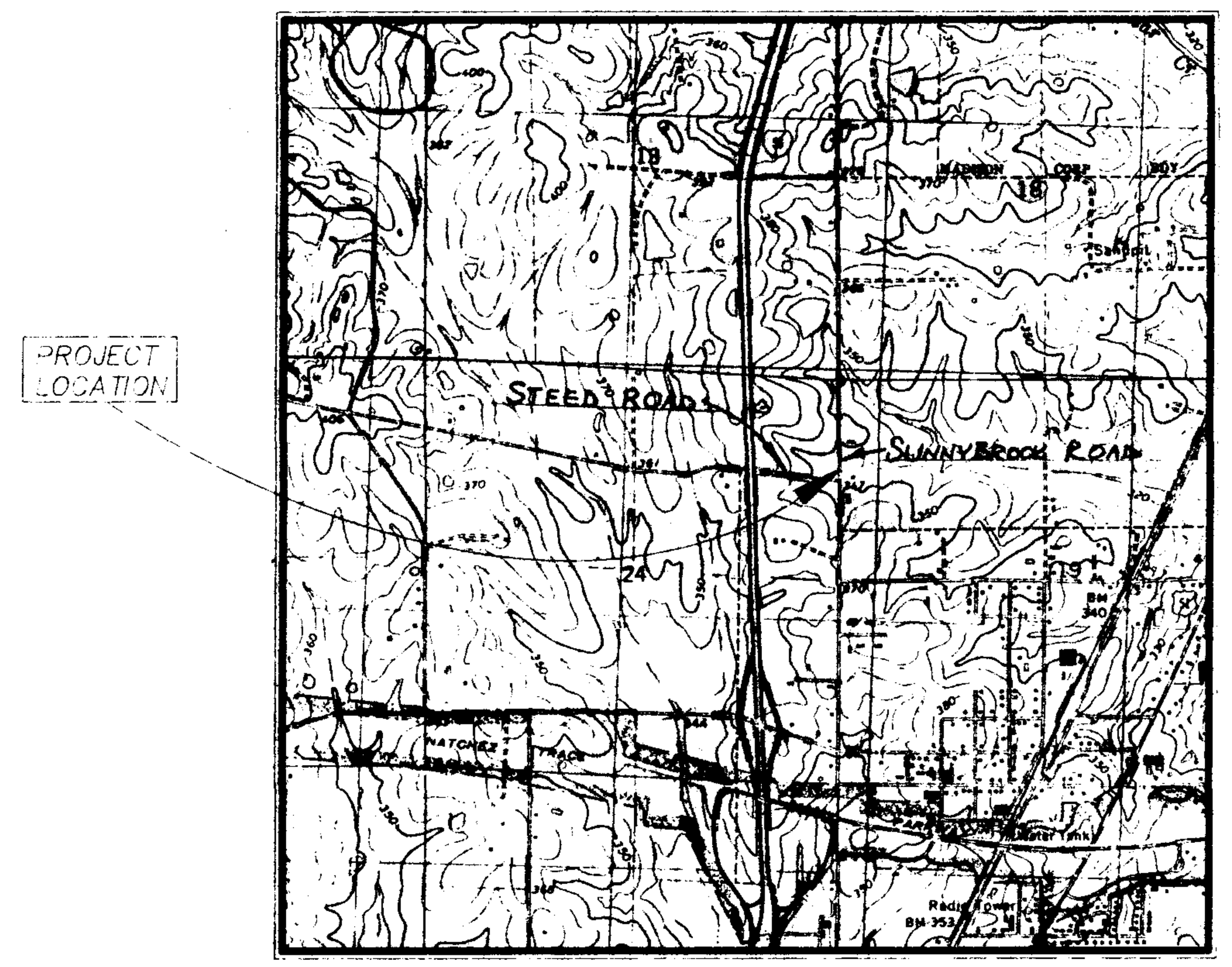
ROBERT B. BARNES
CIV... ENGINEER
JACKSON, MISS

	AS NOTED	SHEET NO.	

CONSTRUCTION PLANS FOR

SANITARY SEWER LINE

CITY OF RIDGELAND
MADISON COUNTY, MISSISSIPPI



LOCATION MAP

PREPARED
BY
ROBERT B. BARNES
CIVIL ENGINEER
&
LAND SURVEYOR
4 OLD RIVER PLACE
JACKSON, MISSISSIPPI 39202
TELEPHONE (601) 353-7878

GENERAL NOTES:

1. Underground improvements shown in these plans are determined from surface evidence and maps obtained from various entities. No excavation was performed. Users of these plans should satisfy themselves as to whether the information shown hereon is correct and complete.

2. Elevations are based on M.S.L. datum.

3. Tops of all sanitary sewer manholes to be adjusted on job site as necessary to match finish grade.

4. Construction and testing of all materials shall be in accordance with the standard subdivision specifications of the City of Ridgeland, Mississippi.

5. The maximum infiltration and exfiltration rate for sanitary sewer lines shall be 200 gal. per inch of diameter per mile per 24 hours.

6. Manholes shall be waterproofed inside with an application of KOPPERS 300 M Coal Tar Epoxy or approved equal.

7. All sewers 24 inches or less will be laid with straight alignment between manholes and will be checked by laser and lamping methods.

8. All backfill will be of suitable material, hand tamped to within one (1) foot of the top of the pipe, and otherwise placed in such a manner as not to disturb the alignment of the pipe.

9. Inlet and outlet to manholes will be constructed in such a manner that the connection will be flexible and water tight and not damage the sewer main in the event of manhole settlement.

10. Before any backfill is placed, the sewer line shall be checked by the Engineer for line, grade and workmanship. Before acceptance, each section of line between manholes or such other length as determined by the Engineer to be suitable, shall be thoroughly inspected and any defects in workmanship shall be immediately corrected.

11. The completed gravity flow system shall be free of all mud, siltation and other foreign matter deposited or collected during construction. Flushing shall commence at the upstream end of the completed system and continue downstream manhole-to-manhole. Water used in flushing will not be permitted to enter into the existing system but shall be disposed of in a manner acceptable to the Engineer. Should the collected matter be sufficient in quantity to obstruct or affect the testing, flushing shall be accomplished prior to testing. Flushing will not be required in those sectors of the installed pipes and manholes where the exfiltration test has adequately cleaned the mains.

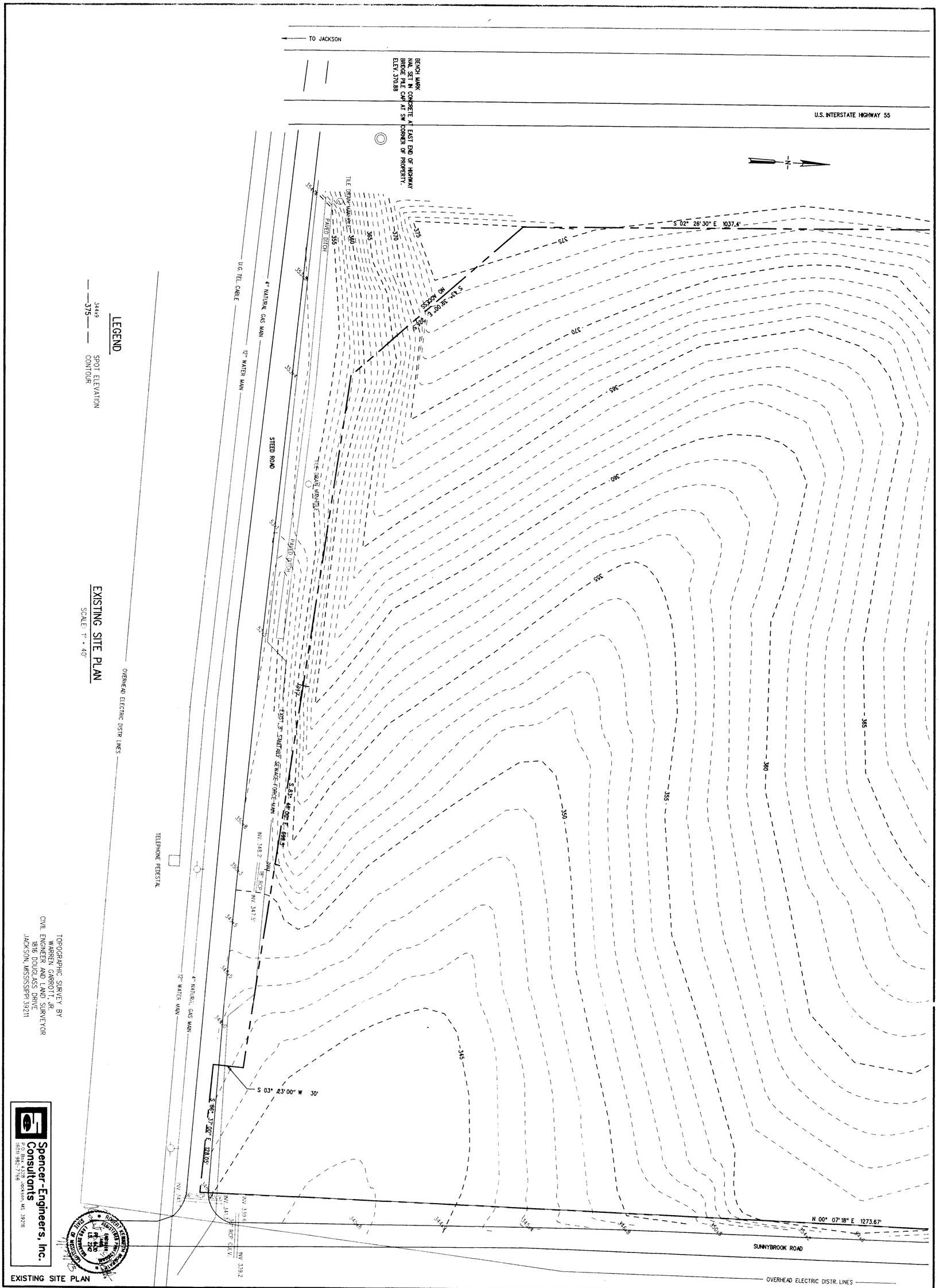
12. All items of work necessary for testing utility lines not shown as bid items are to be absorbed.

13. All (100%) of the PVC gravity sewer pipe used will be tested for excessive deflection after installation. A "go, no-go" mandrel that is sized such that it will not pass a deflection greater than 5% shall be used. The mandrel shall be drawn through the pipe by hand. Irregularities or obstructions encountered in the line shall be corrected by the Contractor. Sewer lines to be SDR 26.

14. Bedding for sewer pipe shall be class "C" in accordance with ASTM C12-74 (ANSI A106.2) or WPCF MOP No. 9 (ASCE MOP NO. 37) for rigid pipe and Class III in accordance with ASTM D2321-74 (ANSI K65.171) for flexible pipe.

15. Sewer and water mains will have minimum separation of ten (10) feet horizontally and 24" vertically with relation to each other.

5446-15.DWG
SHEET 1



TOPOGRAPHIC SURVEY BY
WARREN GARROTT, JR.
CIVIL ENGINEER AND LAND SURVEYOR
1816 DOUGLASS DRIVE
JACKSON, MISSISSIPPI 39211

Spencer-Engineers, Inc.
Consultants
P.O. Box 4328 Jackson, MS 39216
(601) 982-7766

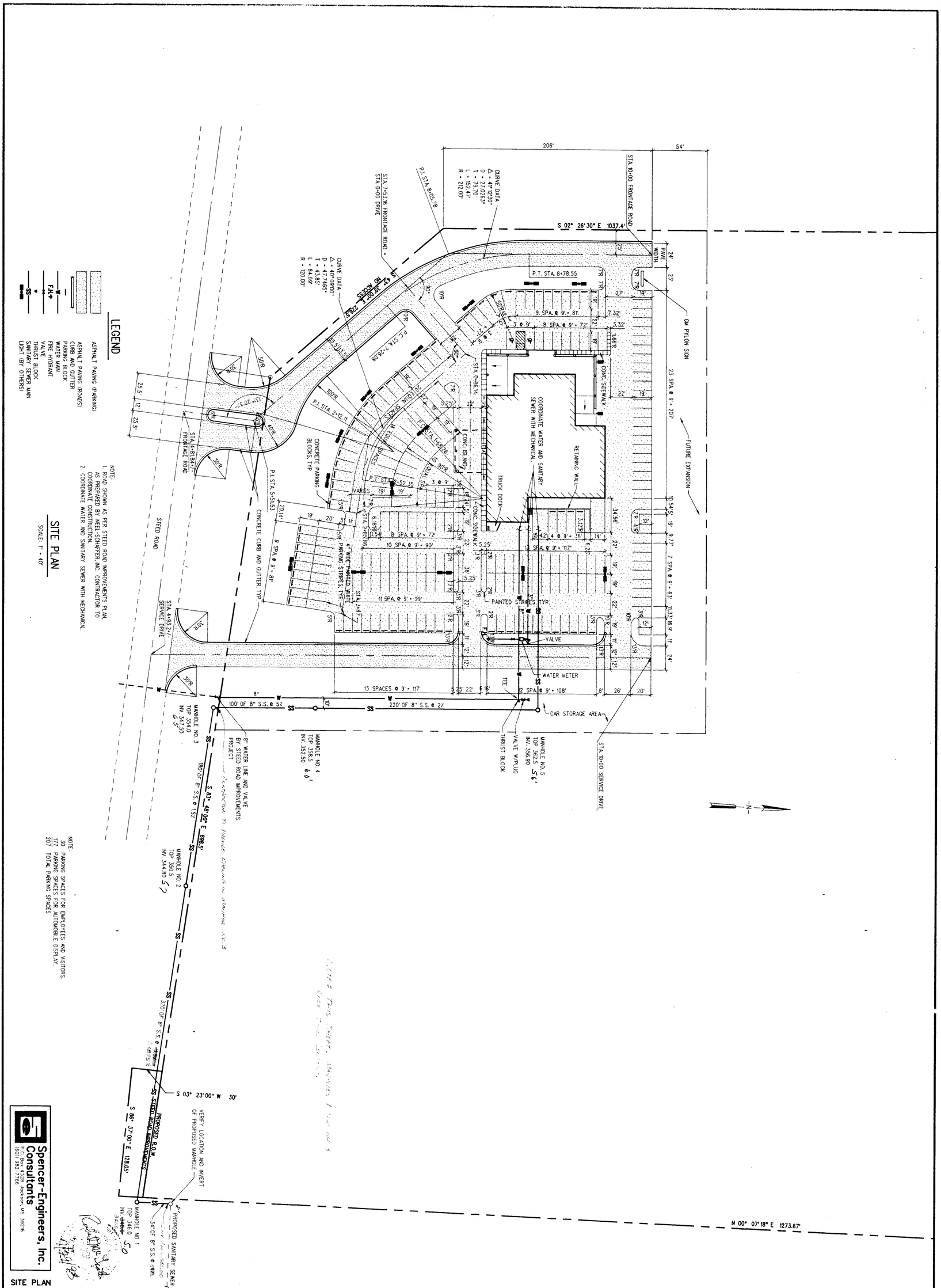
EXISTING SITE PLAN

Sheet Number : C1 of Sheets

NEW FACILITY FOR:
PAUL MOAK of MADISON
RIDGELAND, MISSISSIPPI

Project No.: 91141
Date: 25 JULY 1993
Drawn: JMB
Checked: RKM
Revisions:

Dean/Dale and Dean architects
a professional association
Member: The American Institute of Architects
P.O. Box 4685 Jackson, MS 39216 1301 Mirror Lake Plaza 2829 Lakeland Drive 39208 (601) 939-7717



Spencer-Engineers, Inc.
Consultants
P.O. Box 4328 Jackson, MS 39216
(601) 982-7766

SITE PLAN

Sheet Number : C2
of Sheets

NEW FACILITY FOR:
PAUL MOAK of MADISON
RIDGELAND, MISSISSIPPI

Project No.: 91141
Date: 25 JULY 1993
Drawn: JMB
Checked: RKM
Revisions:

Dean/Dale and Dean architects
a professional association
Member: The American Institute of Architects
P.O. Box 4685 Jackson, MS 39216 1301 Mirror Lake Plaza 2829 Lakeland Drive 39208 (601) 939-7717

CONSTRUCTION PLANS
FOR

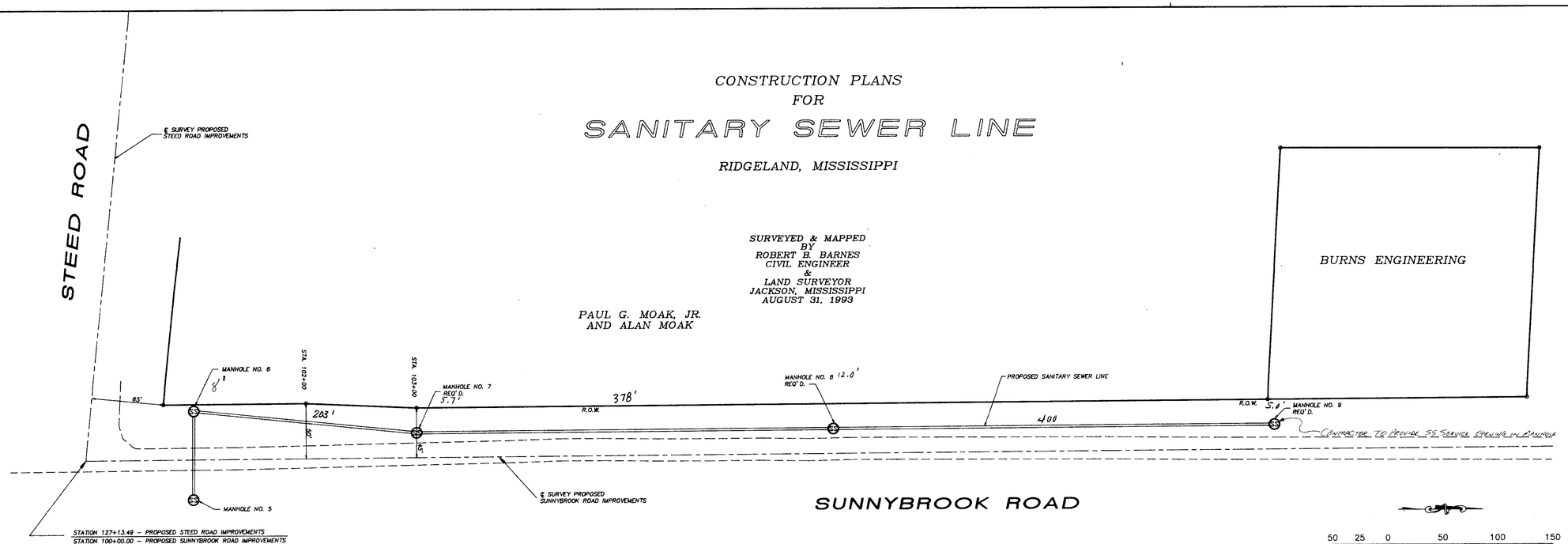
SANITARY SEWER LINE

RIDGELAND, MISSISSIPPI

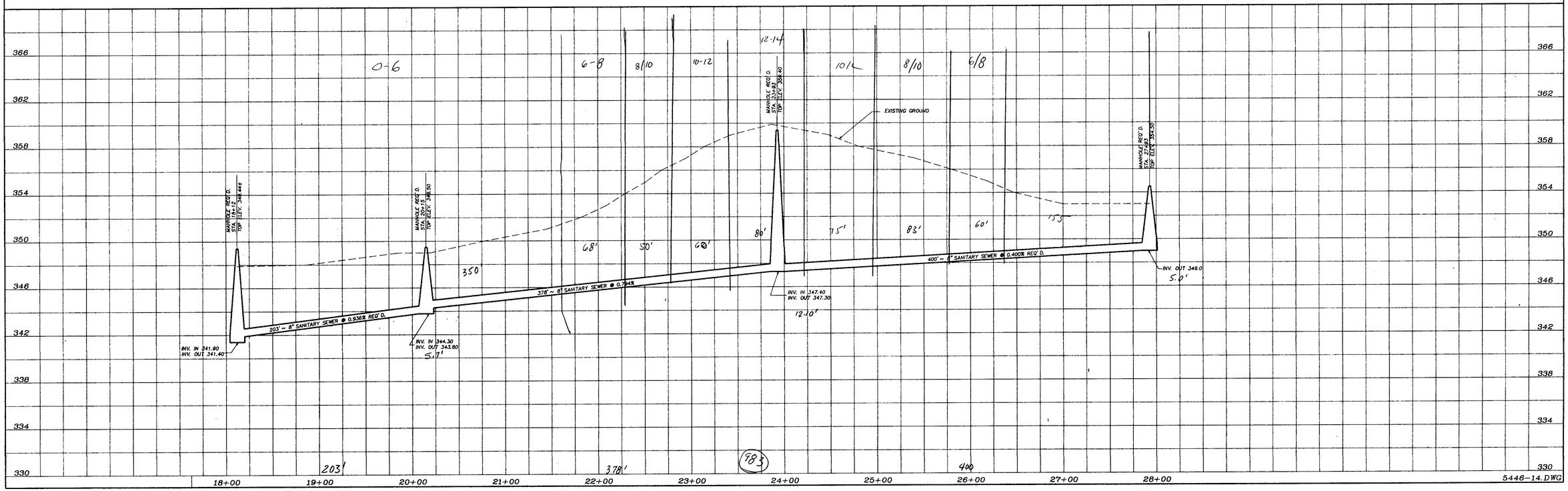
SURVEYED & MAPPED
BY
ROBERT B. BARNES
CIVIL ENGINEER
&
LAND SURVEYOR
JACKSON, MISSISSIPPI
AUGUST 31, 1993

PAUL G. MOAK, JR.
AND ALAN MOAK

BURNS ENGINEERING



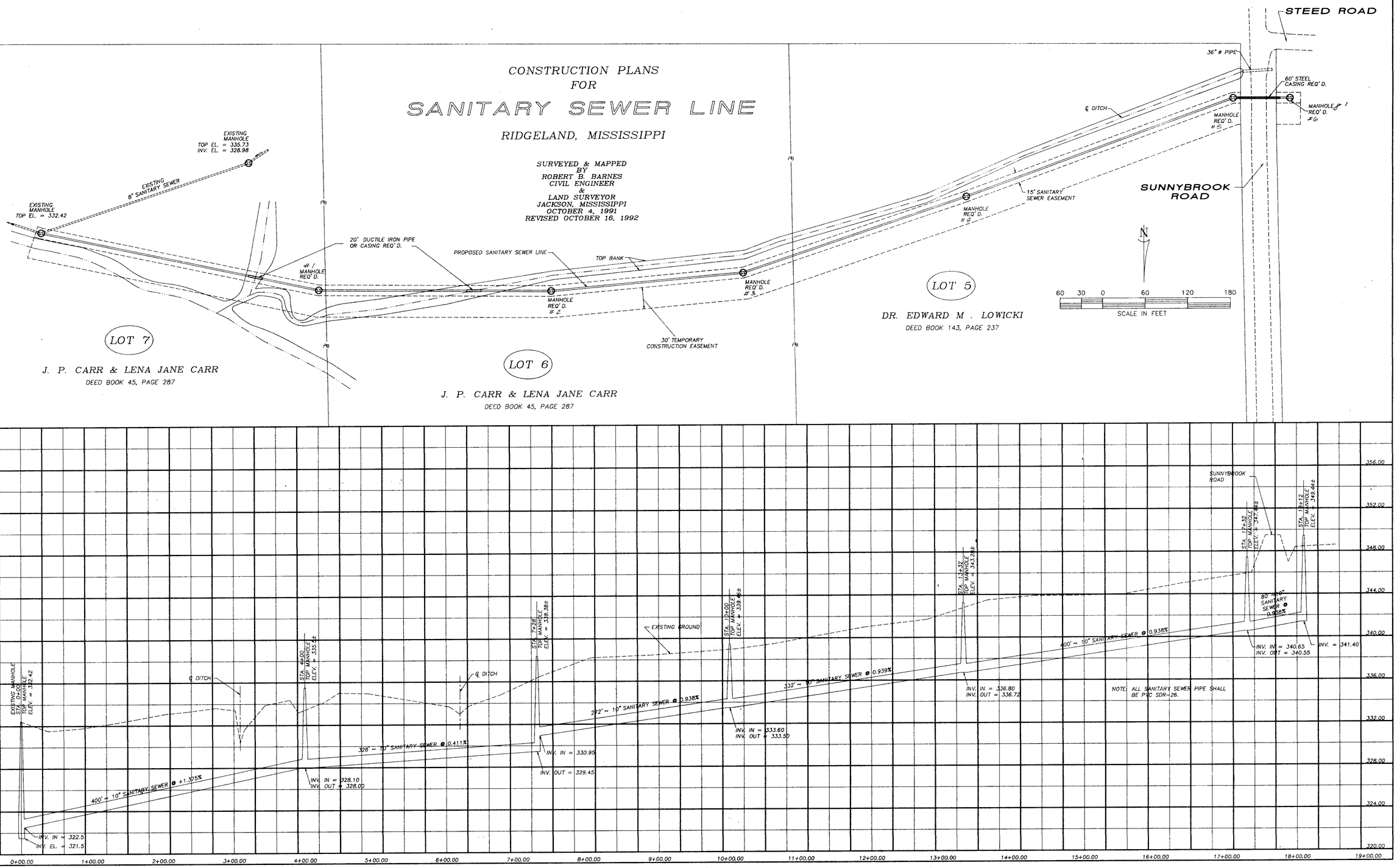
DR. EDWARD M. LOWICKI
DEED BOOK 143, PAGE 237

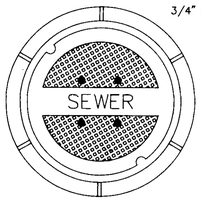


CONSTRUCTION PLANS FOR SANITARY SEWER LINE

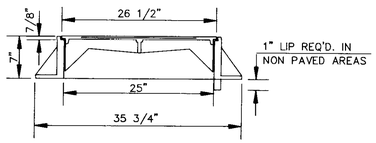
RIDGELAND, MISSISSIPPI

SURVEYED & MAPPED
BY
ROBERT B. BARNES
CIVIL ENGINEER
&
LAND SURVEYOR
JACKSON, MISSISSIPPI
OCTOBER 4, 1991
REVISED OCTOBER 16, 1992



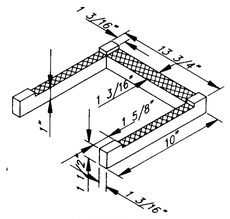


TOP PLAN OF COVER



SECTION

FRAME & COVER WEIGHT 420 LBS.

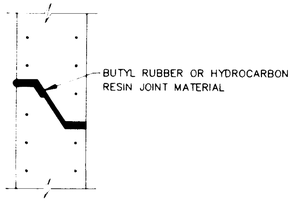


DETAIL "B"

STANDARD MANHOLE FRAME AND COVER

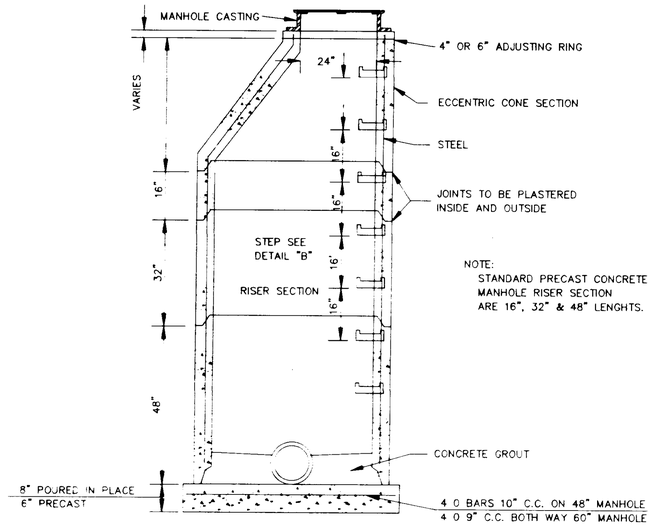
N.T.S.

[redacted]



TYPICAL PRECAST CONCRETE MANHOLE JOINT DETAIL

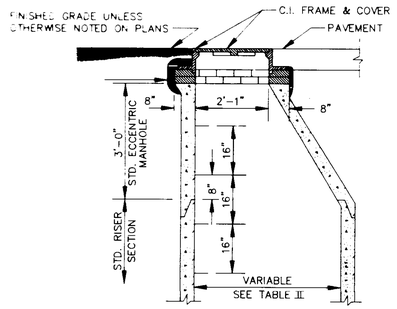
N.T.S.



NOTE:
STANDARD PRECAST CONCRETE MANHOLE RISER SECTION ARE 16", 32" & 48" LENGHTS.

SECTION OF PRECAST CONCRETE MANHOLE

N.T.S.



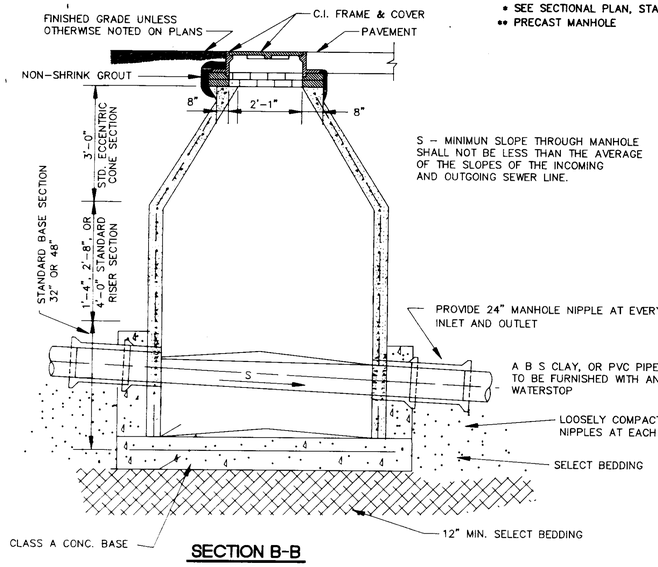
NOTE:
DETAILS FOR RISER & BASE SECTIONS ARE SAME AS SHOWN IN SECTIONS A-A B-B.

STANDARD ECCENTRIC CONE FOR ALL DIAMETER MANHOLES

N.T.S.

TABLE II GOVERNING DIMENSIONS FOR MANHOLES			
PIPE SIZE	Δ ANGLE	BASE DIAMETER **	"R" *
8" THRU 12"	0° TO 90°	4'	1'- 6"
15"	0° TO 60°	4'	1'- 10"
15"	60° TO 90°	4'	1'- 10"
18"	0° TO 60°	4'	2'- 3"
18"	60° TO 90°	4'	1'- 10"
21"	0° TO 60°	4'	2'- 7"
21"	60° TO 90°	5'	2'- 4"
24"	0° TO 45°	4'	3'- 0"
24"	45° TO 90°	5'	2'- 3"
30"	0° TO 60°	5'	3'- 9"
30"	60° TO 90°	6'	2'- 8"
36"	0° TO 60°	6'	4'- 6"
36"	60° TO 90°	7'	3'- 11"
42"	0° TO 60°	7'	5'- 3"
42"	60° TO 90°	8'	4'- 7"
48"	0° TO 60°	8'	6'- 0"
48"	60° TO 90°	9'	5'- 3"

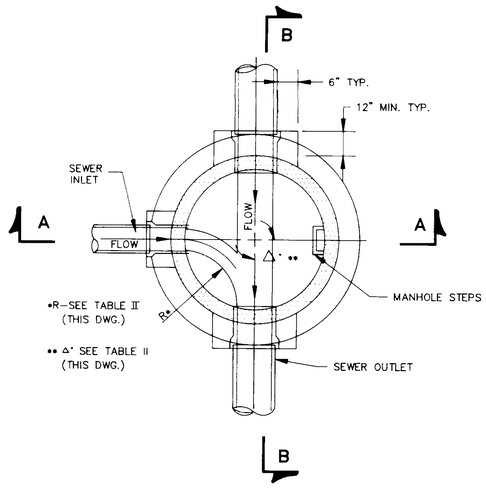
* SEE SECTIONAL PLAN, STANDARD MANHOLE
** PRECAST MANHOLE



S - MINIMUN SLOPE THROUGH MANHOLE SHALL NOT BE LESS THAN THE AVERAGE OF THE SLOPES OF THE INCOMING AND OUTGOING SEWER LINE.

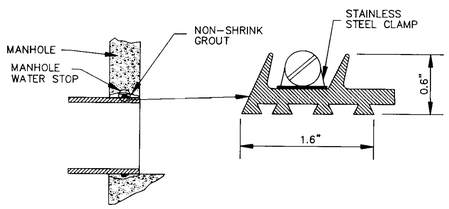
SECTION B-B

N.T.S.



SECTIONAL PLAN STANDARD MANHOLE

N.T.S.



TYPICAL MANHOLE WATER STOP FOR ABS, CLAY OR PVC PIPE

EXISTING AND "STRADDLE" MANHOLES
N.T.S.

ROBERT B. BARNES
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JACKSON, MISSISSIPPI 39202

DSGN:		DRAWING NO.
DRWN:		
CHKD:		OF
SCALE:		