

SUPERVISED BY: RT CERVANTES
DESIGNED BY: D WINGER
CADD OPERATOR: S. CONLON
REVISED BY: _____
PLAN DATE: _____

PLAN	SURVEYED	DATE
NOTE BOOK	PLOTTED	BY
No. _____	ALIGNMENT CHECKED	
	RIGHT-OF-WAY CHECKED	



CERVANTES & ASSOCIATES, P.C.
10400 EATON PLACE, SUITE 210
FAIRFAX, VA 22030
(703) 681-4114

Engineers
Planners
Surveyors
Fairfax City, VA

UTILITY ADJUSTMENT QUANTITIES & NOTES

THIS SHEET FOR UTILITY RELOCATION

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT.

REVISED	FHWA REGION	STATE	FEDERAL AID PROJECT
	3	VA	

PROJECT NAME: Alt 220 Final Submittal
DATE: March 1993
TYPE: Rte 220 Utility Relocation
LOCATION: 15
TOTAL # SHEETS: Coverpages & Assoc
A/E FIRM: 1
OF SETS:

6220-080-107, C-501 SUMMARY OF WATER FACILITIES OWNED BY ROANOKE COUNTY P.S.A.						
SHEET NO	12"DI WATER MAIN	ADJUST EXIST. VALVE BOX	2" BLOW-OFF VALVE & BOX	ADJUST EXISTING WATER MANHOLE FRAME & COVER		
	L.F. 1	EA. 2	EA. 3	EA. 4		
(3)	554	1		2		
(4)	275		1			
(5)						
TOTAL	829	1	1	2		

6220-080-107, C-501 SUMMARY OF SANITARY SEWER FACILITIES OWNED BY ROANOKE COUNTY P.S.A.								
SHEET NO	4" SANITARY SERVICE LATERAL CONNECTION	8" DI SANITARY SEWER PIPE	10" DI SANITARY SEWER PIPE	SANITARY SEWER MANHOLE	MANHOLE FRAME & COVER WF&C-1	MANHOLE FRAME & COVER F&C-1	RECONSTRUCT EXISTING SANITARY MANHOLE	CONCRETE ENCASEMENT
	L.F. 5	L.F. 6	L.F. 6	L.F. 7	EA. 8	EA. 9	L.F. 10	L.F. 11
(3)	5	175	290	52	1	3	27	32
(4)			480	18	2	1	24	40
(5)								
TOTAL	5	175	770	70	3	4	51	72

6220-080-107, C-501 SUMMARY OF NATURAL GAS FACILITIES OWNED BY ROANOKE GAS COMPANY							
SHEET NO	INSTALL 2" GAS MAIN	INSTALL 3" GAS MAIN	INSTALL 8" GAS MAIN	INSTALL 2" GAS VALVE AND BOX	INSTALL GAS REGULATOR BOX	GAS REGULATOR PAD	
	L.F. 12	L.F. 12	L.F. 12	EA. 12	EA. 12	EA. 13	
(3)			672				
(4)	288	57		1	2	2	
(5)							
TOTAL	288	57	672	1	2	2	

GENERAL NOTES

1. THE CONTRACTOR SHALL PROTECT THE INTEGRITY OF THE EXISTING WATER, SANITARY SEWER AND GAS FACILITIES WITHIN THE PROJECT UNTIL THE PROPOSED WATER, SANITARY SEWER AND GAS FACILITIES ARE INSTALLED AND PLACED INTO OPERATION, AND THE EXISTING WATER, SANITARY SEWER AND GAS FACILITIES ARE ABANDONED.
2. THE LOCATIONS OF EXISTING WATER MAINS, WATER SERVICE LINES, SANITARY SEWER LINES, SANITARY SEWER SERVICE LATERALS, AND UNDERGROUND TELEPHONE, POWER AND GAS LINES ARE APPROXIMATE ONLY AND SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO EXCAVATION. THE CONTRACTOR SHALL ADJUST ALL SANITARY SEWER SERVICE LATERALS, WATER SERVICE LINES, AND GAS SERVICE LINES FOUND TO BE IN CONFLICT WITH PROPOSED CONSTRUCTION. QUANTITIES OF LATERAL MATERIALS AND SERVICE LINE MATERIALS SHOWN ON THE PLANS ARE ESTIMATED. ACTUAL MATERIAL NEEDED MAY VARY DEPENDING ON FIELD CONDITIONS. THE CONTRACTOR SHALL PROTECT EXISTING WATER, SANITARY SEWER, AND GAS FACILITIES WHILE LAYING PROPOSED STORM SEWER IN THE VICINITY OF THESE EXISTING FACILITIES.
3. THE SHEET REFERENCES MADE WITHIN THESE PLANS USING PARENTHESIS REFER TO THE CORRESPONDING SHEET OF THE UTILITY ADJUSTMENT PLANS. EXAMPLE:

SHEET (2) - REFERS TO SHEET 10(2)

4. UTILITIES DESIGNATED AS "TBA" AND/OR ~~///~~ ~~///~~ ARE TO BE ABANDONED. UTILITIES DESIGNATED AS "TBR" AND/OR ~~XX~~ ~~XX~~ ARE TO BE REMOVED.
5. THE RELOCATION AND ADJUSTMENT OF UTILITIES AND THE INSTALLATION OF PROPOSED UTILITIES SHALL BE PERFORMED PRIOR TO, OR CONCURRENT WITH THE ROADWAY CONSTRUCTION.

ROANOKE COUNTY - UTILITY NOTES

1. THE CONTRACTOR SHALL COORDINATE THE CHANGEOVER OF WATER FACILITIES WITH THE ROANOKE COUNTY UTILITY DEPARTMENT, AND SHALL NOTIFY THE UTILITY COORDINATOR, MR. KEN BOONE (TELE(703)387-6104)) FIVE DAYS PRIOR TO ANTICIPATED DATE OF CHANGEOVER. A REPRESENTATIVE OF THE UTILITY DEPARTMENT SHALL OPERATE ALL VALVES IN CONNECTION WITH CHANGEOVER OF WATER FACILITIES.
2. THE EXISTING 12" WATER MAIN BETWEEN RTE. 220 STA. 10+00± TO STA. 20+00± WILL BE SHUT DOWN FOR A PERIOD OF 2 CALENDAR WEEKS TO FACILITATE CONSTRUCTION ON THIS LINE. THE CONTRACTOR SHALL COORDINATE HIS WORK WITH ROANOKE COUNTY UTILITY DEPARTMENT (CONTACT MR. KEN BOONE (TELE(703)387-6104)) TO CONSTRUCT THE REQUIRED WATER MAIN RELOCATION DURING THIS TIME PERIOD.
3. A 12"x12" TEE AND 12" VALVE ARE TO BE INSTALLED BY ROANOKE COUNTY AT STA. 30+10± N.B.L. THE CONTRACTOR SHALL COORDINATE THE EXTENSION OF THE 12" WATER MAIN, AS SHOWN ON SHEET (4) WITH THE ROANOKE COUNTY UTILITY DEPARTMENT

COST RESPONSIBILITY FOR WATER FACILITIES

PROJECT COST 70.9%
ROANOKE COUNTY
P.S.A. COST 29.1%

COST RESPONSIBILITY FOR SANITARY SEWER FACILITIES

PROJECT COST 100%
ROANOKE COUNTY
P.S.A. COST 0%

COST RESPONSIBILITY FOR NATURAL GAS FACILITIES

PROJECT COST 100%
ROANOKE GAS COMPANY
COST 0%

WATER MATERIAL NOTES

- 1 WATER MAIN SHALL BE DUCTILE IRON SPECIAL CLASS 52. PIPE SHALL BE PUSH-ON JOINT WITH SINGLE THICKNESS CEMENT-MORTAR LINING AND SINGLE THICKNESS ASPHALTIC COATING. WATER MAIN FITTINGS SHALL BE DUCTILE IRON COMPACT OR GRAY IRON, MECHANICAL JOINT WITH SINGLE THICKNESS CEMENT-MORTAR LINING AND SINGLE THICKNESS ASPHALTIC COATING AND SHALL HAVE A PRESSURE RATING OF AT LEAST 350 PSI. BEDDING SHALL BE IN ACCORDANCE WITH VDOT STANDARD UB-1, TYPE 1. ALL BENDS, VALVES, SLEEVES, REDUCERS, TEES, PIPE, AND FITTINGS SHALL BE ANCHORED WITH REACTION BLOCKING IN ACCORDANCE WITH VDOT STANDARD RB-1 MODIFIED TO INCLUDE TIE RODS, OR SHALL BE FULLY RESTRAINED WITH A MECHANICAL JOINT RESTRAINING MECHANISM WHICH, WHEN ACTUATED, IMPARTS MULTIPLE WEDGING ACTION AGAINST THE PIPE. SEE SHEET (15) FOR LENGTHS OF PIPE (EXISTING AND PROPOSED) TO BE RESTRAINED. MECHANICAL JOINT RESTRAINING MECHANISMS SHALL NOT BE USED ON EXISTING AC OR PVC PIPE.
- 2 ADJUST EXISTING VALVE BOX SHALL BE IN ACCORDANCE WITH SECTIONS 510 AND 520 OF THE 1991 EDITION VDOT ROAD AND BRIDGE SPECIFICATIONS.
- 3 BLOW-OFF VALVE AND BOX SHALL BE IN ACCORDANCE WITH VDOT STANDARD BOV-1, TYPE "A".
- 4 ADJUST EXISTING WATER MANHOLE FRAME AND COVER SHALL BE IN ACCORDANCE WITH SECTIONS 510 AND 520 OF THE 1991 EDITION VDOT ROAD AND BRIDGE SPECIFICATIONS.

SANITARY SEWER MATERIAL NOTES

- 5 SANITARY SERVICE LATERAL CONNECTION SHALL BE POLYVINYL CHLORIDE (PVC) SDR-35, PUSH-ON JOINT WITH FLEXIBLE ELASTOMERIC SEALS IN ACCORDANCE WITH ASTM D 3139 (SOLVENT-WELD JOINTS NOT ACCEPTABLE). BEDDING SHALL BE VDOT STANDARD UB-1, TYPE 2.
- 6 DUCTILE IRON SANITARY SEWER PIPE SHALL BE PRESSURE CLASS 350 IN ACCORDANCE WITH AWWA C151. PIPE SHALL BE PUSH-ON JOINT WITH SINGLE THICKNESS CEMENT MORTAR LINING AND SINGLE THICKNESS ASPHALTIC COATING. BEDDING SHALL BE UB-1, TYPE 2.
- 7 SANITARY SEWER MANHOLE SHALL BE IN ACCORDANCE WITH VDOT STANDARD SMH-1.
- 8 MANHOLE FRAME AND COVER WF&C-1 SHALL BE IN ACCORDANCE WITH VDOT STANDARD WF&C-1
- 9 MANHOLE FRAME AND COVER F&C-1 SHALL BE IN ACCORDANCE WITH VDOT STANDARD F&C-1
- 10 RECONSTRUCT EXISTING SANITARY MANHOLE SHALL BE IN ACCORDANCE WITH DETAIL ON SHEET (15).
- 11 CONCRETE ENCASEMENT SHALL BE IN ACCORDANCE WITH VDOT STANDARD UB-1.

GAS MATERIAL NOTES

- 12 GAS FACILITIES SHALL BE IN ACCORDANCE WITH THE SPECIAL PROVISIONS.
- 13 GAS REGULATOR PAD WILL BE PAID FOR AT THE CONTRACT UNIT PRICE PER EACH, WHICH SHALL BE FULL COMPENSATION FOR EXCAVATION, BACKFILL WITH SUITABLE MATERIAL, COMPACTION, DISPOSAL OF SURPLUS OR UNSUITABLE MATERIAL, RESTORATION OF PAVING AND PROPERTY, AND FURNISHING ALL TOOLS, LABOR, EQUIPMENT AND INCIDENTALS NECESSARY TO COMPLETE THE WORK. GAS REGULATOR PAD SHALL BE IN ACCORDANCE WITH DETAIL ON SHEET (15).



Engineers
Planners
Surveyors

6220-011-104, C-502

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(703) 661-4111



Supervised by: RTG
Designed by: DW
CADD Operator: SC
Revised by: ---
Plan Date: ---

PLAN
NO. 1
DATE
BY
SURVEYED
PLOTTED
NOTE BOOK
ALIGNMENT CHECKED
RIGHT-OF-WAY CHECKED

1 DUCTILE IRON WATER MAIN 4" IN SIZE SHALL BE SPECIAL CLASS 51. DUCTILE IRON WATER MAIN 6" AND LARGER SHALL BE SPECIAL CLASS 52. PIPE SHALL BE PUSH-ON JOINT WITH SINGLE THICKNESS CEMENT-MORTAR LINING AND SINGLE THICKNESS ASPHALTIC COATING. WATER MAIN FITTINGS SHALL BE DUCTILE IRON COMPACT OR GRAY IRON, MECHANICAL JOINT WITH SINGLE THICKNESS CEMENT-MORTAR LINING AND SINGLE THICKNESS ASPHALTIC COATING AND SHALL HAVE A PRESSURE RATING OF AT LEAST 350 PSI. BEDDING SHALL BE IN ACCORDANCE WITH VDOT STANDARD UB-1, TYPE 1. ALL BENDS, VALVES, SLEEVES, REDUCERS, TEES, PIPE, AND FITTINGS SHALL BE ANCHORED WITH REACTION BLOCKING IN ACCORDANCE WITH VDOT STANDARD RB-1 OR SHALL BE FULLY RESTRAINED WITH A MECHANICAL JOINT RESTRAINING MECHANISM WHICH, WHEN ACTUATED, IMPARTS MULTIPLE WEDGING ACTION AGAINST THE PIPE. MECHANICAL JOINT RESTRAINING MECHANISMS SHALL BE USED AT THE TIE-INS TO THE EXISTING WATER MAINS, WHERE POSSIBLE, TO PROVIDE A MINIMAL AMOUNT OF DOWN TIME FOR THE WATER MAIN. SEE SHEET (15) FOR LENGTHS OF PIPE (EXISTING AND PROPOSED) TO BE RESTRAINED. MECHANICAL JOINT RESTRAINING MECHANISMS SHALL NOT BE USED ON EXISTING AC OR PVC PIPE.

2 GATE VALVES SHALL BE RESILIENT SEAT WITH MECHANICAL JOINT ENDS AND SHALL OPEN LEFT (COUNTER-CLOCKWISE) WITH A 2" OPERATING NUT AND SHALL HAVE A NON-RISING STEM AND A DOUBLE O-RING SEAL AND SHALL BE IN ACCORDANCE WITH AWWA C509. GATE VALVES SHALL HAVE A WORKING PRESSURE OF AT LEAST 200 PSI. VALVE BOXES SHALL BE IN ACCORDANCE WITH VDOT STANDARD VB-1, TYPE "B". APPROVED MANUFACTURERS OF GATE VALVES ARE: MUELLER CO., AMERICAN-DARLING AND KENNEDY VALVE.

3 TAPPING SLEEVES SHALL BE DUCTILE IRON, MECHANICAL JOINT WITH RUBBER END GASKETS AND SHALL HAVE A WORKING PRESSURE OF AT LEAST 200 PSI. TAPPING VALVES SHALL MEET THE SAME SPECIFICATIONS AS GATE VALVES EXCEPT THEY SHALL HAVE A FULL UNOBSTRUCTED OPENING TO RECEIVE A FULL SIZE SHELL CUTTER. TAPPING SLEEVES AND VALVES SHALL BE FURNISHED AS A COMPLETE COMPATIBLE UNIT AND SHALL BE FURNISHED BY THE SAME MANUFACTURER. APPROVED MANUFACTURERS ARE THE SAME AS FOR GATE VALVES. VALVE BOXES SHALL BE IN ACCORDANCE WITH VDOT STANDARD VB-1, TYPE "B".

4 FIRE HYDRANTS SHALL HAVE FULL 360 DEGREE REVOLVING HEADS AND BE OF THE SAFETY FLANGE BREAKAWAY TOP TYPE, AND BE IN ACCORDANCE WITH AWWA C-502. FIRE HYDRANTS SHALL HAVE A BARREL DIAMETER NO SMALLER THAN 7", A HYDRANT VALVE DIAMETER NO SMALLER THAN 5 1/4", A MINIMUM BURY DEPTH OF 3.5', AND SHALL BE EQUIPPED WITH TWO 2 1/2" HOSE NOZZLES, AND ONE 4 1/2" PUMPER NOZZLE. THREADS SHALL BE NATIONAL STANDARD THREAD. THE DIRECTION OF OPENING SHALL BE CAST ON THE HEAD OF THE HYDRANT AND SHALL BE COUNTER-CLOCKWISE. HYDRANTS SHALL BE EITHER MULLER CENTURION TYPE NO. A-423 OR AMERICAN DARLING TYPE B-62-B.

SUMMARY OF WATER FACILITIES OWNED BY BOTETOURT COUNTY						
SHEET NO.	4" DI WATER MAIN*	6" DI WATER MAIN	12" DI WATER MAIN	6" GATE VALVE & BOX	12"x12" TAPPING SLEEVE, VALVE & BOX	FIRE HYDRANT
	L.F. [1]	L.F. [1]	L.F. [1]	EA. [2]	EA. [3]	EA. [4]
(5)		6	162	1	1	1
(6)	255	6	360	1	1	1
(7)						
(8)						
(9)						
TOTAL	255	12	522	2	2	2

* 4" PRIVATE LINE - NOT INCLUDED IN PROJECT PRO-RATE

SUMMARY OF SANITARY SEWER FACILITIES OWNED BY BOTETOURT COUNTY									
SHEET NO.	10" SANITARY SEWER PIPE	SANITARY SEWER MANHOLE	MANHOLE FRAME & COVER WF&C-1	MANHOLE FRAME & COVER F&C-1	ADJUST EXIST. FRAME & COVER	RECONSTRUCT EXIST. SANITARY MANHOLE	RECONSTRUCT 4" SEWER CLEANOUT	RELOCATE SANITARY FLOW RECORDER	CONCRETE ENCASEMENT
	L.F. [5]	L.F. [6]	EA. [7]	EA. [8]	EA. [9]	L.F. [10]	L.F. [11]	EA. [12]	L.F. [13]
(5)	308	46		4			6	1	20
(6)	200	30	1	1					35
(7)									
(8)									30
(9)					1	9			
TOTAL	508	76	1	5	1	9	6	1	85

SUMMARY OF NATURAL GAS FACILITIES OWNED BY ROANOKE GAS COMPANY													
SHEET NO.	ADJUST EXIST. SMALL GAS VALVE BOX	INSTALL 3/4" GAS SERVICE LINE	INSTALL 1" GAS SERVICE LINE	INSTALL 2" GAS MAIN	INSTALL 4" GAS MAIN	INSTALL 6" GAS MAIN	INSTALL 8" GAS MAIN	INSTALL 3/4" GAS SERVICE VALVE AND BOX	INSTALL 4" GAS VALVE AND BOX	INSTALL 8" GAS VALVE AND BOX	INSTALL 3/4" GAS SERVICE REGULATOR	10" PVC ENCASE. PIPE	
	EA. [14]	L.F. [14]	L.F. [14]	L.F. [14]	L.F. [14]	L.F. [14]	L.F. [14]	EA. [14]	EA. [14]	EA. [14]	EA. [14]	L.F. [15]	
(5)	1	77			12		944		1	1			
(6)		27					1603	2			2		
(7)		120	111	235		235	499						
(8)	1					616						45	
(9)													
TOTAL	2	224	111	235	12	851	3046	2	1	1	2	45	

WATER MATERIAL NOTES

SANITARY SEWER MATERIAL NOTES

- 5 SANITARY SEWER PIPE SHALL BE POLYVINYLCHLORIDE (PVC) SDR-35, PUSH-ON JOINT WITH FLEXIBLE ELASTOMERIC SEALS IN ACCORDANCE WITH ASTM D 3139 (SOLVENT-WELD JOINTS NOT ACCEPTABLE). BEDDING SHALL BE VDOT STANDARD UB-1, TYPE 2.
- 6 SANITARY SEWER MANHOLE SHALL BE IN ACCORDANCE WITH VDOT STANDARD SMH-1.
- 7 MANHOLE FRAME AND COVER WF&C-1 SHALL BE IN ACCORDANCE WITH VDOT STANDARD WF&C-1
- 8 MANHOLE FRAME AND COVER F&C-1 SHALL BE IN ACCORDANCE WITH VDOT STANDARD F&C-1
- 9 ADJUST EXISTING FRAME AND COVER SHALL BE IN ACCORDANCE WITH SECTIONS 510 AND 520 OF THE 1991 EDITION OF THE VDOT ROAD AND BRIDGE SPECIFICATIONS.
- 10 RECONSTRUCT EXISTING SANITARY SEWER MANHOLE AND SAFETY SLAB SHALL BE IN ACCORDANCE WITH DETAIL ON SHEET (15).
- 11 RECONSTRUCT 4" SEWER CLEANOUT SHALL BE IN ACCORDANCE WITH VDOT STANDARD SCO-1, TYPE "A" AND SHALL BE PERFORMED AND PAID FOR IN ACCORDANCE WITH SECTION 510 OF THE 1991 EDITION OF THE VDOT ROAD AND BRIDGE SPECIFICATIONS.
- 12 RELOCATE SANITARY FLOW RECORDER SHALL BE IN ACCORDANCE WITH DETAIL ON SHEET (15).
- 13 CONCRETE ENCASEMENT SHALL BE IN ACCORDANCE WITH VDOT STANDARD UB-1.

GAS MATERIAL NOTES

- 14 GAS FACILITIES SHALL BE IN ACCORDANCE WITH THE SPECIAL PROVISIONS.
- 15 10" PVC ENCASEMENT PIPE SHALL BE IN ACCORDANCE WITH DETAIL ON SHEET (14).

BOTETOURT COUNTY UTILITY NOTES

THE CONTRACTOR SHALL COORDINATE THE CHANGEOVER OF WATER FACILITIES WITH THE COUNTY OF BOTETOURT, DEPARTMENT OF PUBLIC WORKS, AND SHALL NOTIFY THE COUNTY ENGINEER, MR. KEVIN R. SHEARER, (TELE (703) 473-8316)) FIVE DAYS PRIOR TO ANTICIPATED DATE OF CHANGEOVER. A REPRESENTATIVE OF THE DEPARTMENT OF PUBLIC WORKS SHALL BE PRESENT DURING THE OPERATION OF ALL VALVES IN CONNECTION WITH CHANGEOVER OF WATER FACILITIES.



POWER POLES PROPERTY OF APPALACHIAN POWER CO., ROANOKE, VA.
UNDERGROUND CABLE PROPERTY OF CHESAPEAKE & POTOMAC TELE. CO., ROANOKE, VA.
TELEPHONE POLES PROPERTY OF CHESAPEAKE & POTOMAC TELE. CO., ROANOKE, VA.
GAS LINE PROPERTY OF ROANOKE GAS CO., ROANOKE, VA.
TELEPHONE POLES PROPERTY OF ROANOKE-BOTETOURT TELEPHONE CO., DALEVILLE, VA.
COX CABLE VISION, ROANOKE, VA.
BOTETOURT CABLE VISION
WATER AND SEWER LINES PROPERTY OF ROANOKE COUNTY UTILITY DEPARTMENT

Fairfax City, VA

Engineers
Planners
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FAIRFAX, VA 22031
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PLAN	SURVEYED	BY	DATE
	FLIPPED		
NOTE BOOK	ALIGNMENT CHECKED		
No. _____	RIGHT-OF-WAY CHECKED		

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT.

REVISED	FHWA REGION	STATE	FEDERAL AID PROJECT	ROUTE	STATE PROJECT	SHEET NO.
	3	VA		220	6220-080-107, RW-201 6220-080-107, C-501	10(3)

NBL
DELTA=49°39'45"RT.
D=6'
T=441.87'
L=827.71'
R=954.93'
P.C. 18+02.53
P.T. 22+44.40
P.T. 26+30.24

SBL
DELTA=49°39'45"RT.
D=5.623134'
T=471.49'
L=883.18'
R=1018.93'
P.C. 15+02.53
P.T. 22+74.01
P.T. 26+85.71
V=56 MPH

SMH 1001.08 TOP
993.02 IN
992.76 OUT

200' +02.53

LARGE CONC. SPRING
WITH METAL COVER
ELEV 996.9 OUTLET

5-STRAND BARB WIRE

1-WIRE 20' CLEAR
#208-65

F & W COMMUNITY DEVELOPMENT CORPORATION

D.B. 963 PG. 128 87.668 AC.
D.B. 962 PG. 639 142.800 AC.
D.B. 962 PG. 651 200.000 AC.

TOTAL = 430.468 AC.

RAMP "A"
DELTA=88°10'17"LT.
D=29°55'22"
T=185.46'
L=294.66'
R=191.48'
P.C. 9+11.40
P.T. 10+96.86
P.T. 12+06.06

130 L.F. 10" DI SANITARY SEWER PIPE

872 L.F. INSTALL 8" GAS MAIN

11 L.F. SANITARY SEWER MANHOLE
MANHOLE FRAME & COVER F&C-1

PROF. MH #59A
CONNECT TO EX. 10" SANITARY SEWER

160 L.F. 10" DI SANITARY SEWER PIPE

SEE PROFILE SHEET (10)

PROF. DRAIN DITCH
PROF. LOW FLOW CHANNEL

15 L.F. RECONSTRUCT EXISTING SANITARY MANHOLE
ROTATE MANHOLE TOP TO
ELIMINATE CONFLICT W/GUARDRAIL
CONNECT TO EXISTING
SANITARY MANHOLE

175 L.F. 8" DI SANITARY SEWER PIPE

SEE PROFILE SHEET (10)

CONNECT TO EXISTING 12" WATER MAIN

5 L.F. 4" SANITARY
SERVICE LATERAL
CONNECTION

SEE PROFILE SHEET (10) 4" PLUG

16 L.F. SANITARY SEWER MANHOLE
MANHOLE FRAME AND COVER F&C-1

PROF. MH #61A

TRUSTEES OF THE BONSAK
BAPTIST CHURCH
D.B. 716 PG. 463
P.B. 8 PG. 5

29' 5.00 AC.
+51 RELOC CONN
END CONN 608
STA. 14+00

DELTA=37°23'20"LT.
D=33'
T=58.75'
L=113.30'
R=173.624'
PC 11+72.24
PT 12+30.99
PT 12+85.54

CONNIE W. WATKINS
DB 1330 PG 349
0.53 AC

SCALE: 1" = 50'

0 50 100

PLAN NO. PROJECT FILE NO. SHEET NO.

6220-080-107 10(3)

EXIST. RTE. 460 WBL
DELTA=0°25'47"LT.
D=0.25070'
T=85.70'
L=171.41'
R=22854.32'
P.C. 209+11.95
P.T. 209+97.65
P.T. 210+83.36

1- TYPE I CROSS-OVER REQ'D.

210

6220-080-107, PE-101
6220-080-107, RW-201

BEG. PROJ. 6220-080-107, C-501

STA. 10+09.77

P.O.T. 211+95.79 WBL RTE. 460
P.I. 9+97.77 SBL
DELTA=88°00'00"LT.

P.O.T. 212+59.83 WBL RTE. 460
P.I. 10+00.00 SUR. @
DELTA=88°00'00"LT.

IN PL. 91'-15" CONC. PIPE
TO BE REMOVED

#208-529 WITH LIGHT

EXIST. SIGN ISLAND
IN PL. 89'-18" CONC. PIPE
1' CONC. HEADWALL
1-WIRE 30' CLEAR
EXIST. DROP INLET

DROP INLET

PAVED GUTTER

APCO 208-156
METAL SIGNAL POLE & CONC. BASE

ADJUST EXISTING
VALVE BOX

APCO 208-155

CONC. R/W MON.

CONC. TELE CABLE MARKER
FIELD ENTR.

CONC. R/W MON.

CONC. R/W MON.

CONC. R/W MON.

CONC. R/W MON.

CONC. R/W MON.

CONC. R/W MON.

CONC. R/W MON.

CONC. R/W MON.

CONC. R/W MON.

CONC. R/W MON.

CONC. R/W MON.

CONC. R/W MON.

CONC. R/W MON.

CONC. R/W MON.

CONC. R/W MON.

CONC. R/W MON.

FIGURES IN BRACKETS AND DOT-DASHED LINES DENOTE PERMANENT EASEMENT.

* PERMANENT EASEMENT REQD. FOR CONSTRUCTION AND MAINTENANCE OF
PROPOSED DRAINAGE STRUCTURES AND INLET & OUTLET DITCHES.

HATCHED AREAS DENOTE AREAS
TO BE FILLED IN

CROSS-HATCHED AREAS DENOTE
AREAS OF PAVEMENT DEMOLITION

POWER POLES PROPERTY OF APPALACHIAN POWER CO. ROANOKE, VA.
TELEPHONE POLES PROPERTY OF CHESAPEAKE & POTOMAC TELE. CO. ROANOKE, VA.
GAS LINE PROPERTY OF ROANOKE GAS CO. ROANOKE, VA.
SEWER LINE PROPERTY OF ROANOKE COUNTY UTILITY DEPT.
WATER LINE PROPERTY OF ROANOKE COUNTY UTILITY DEPT.

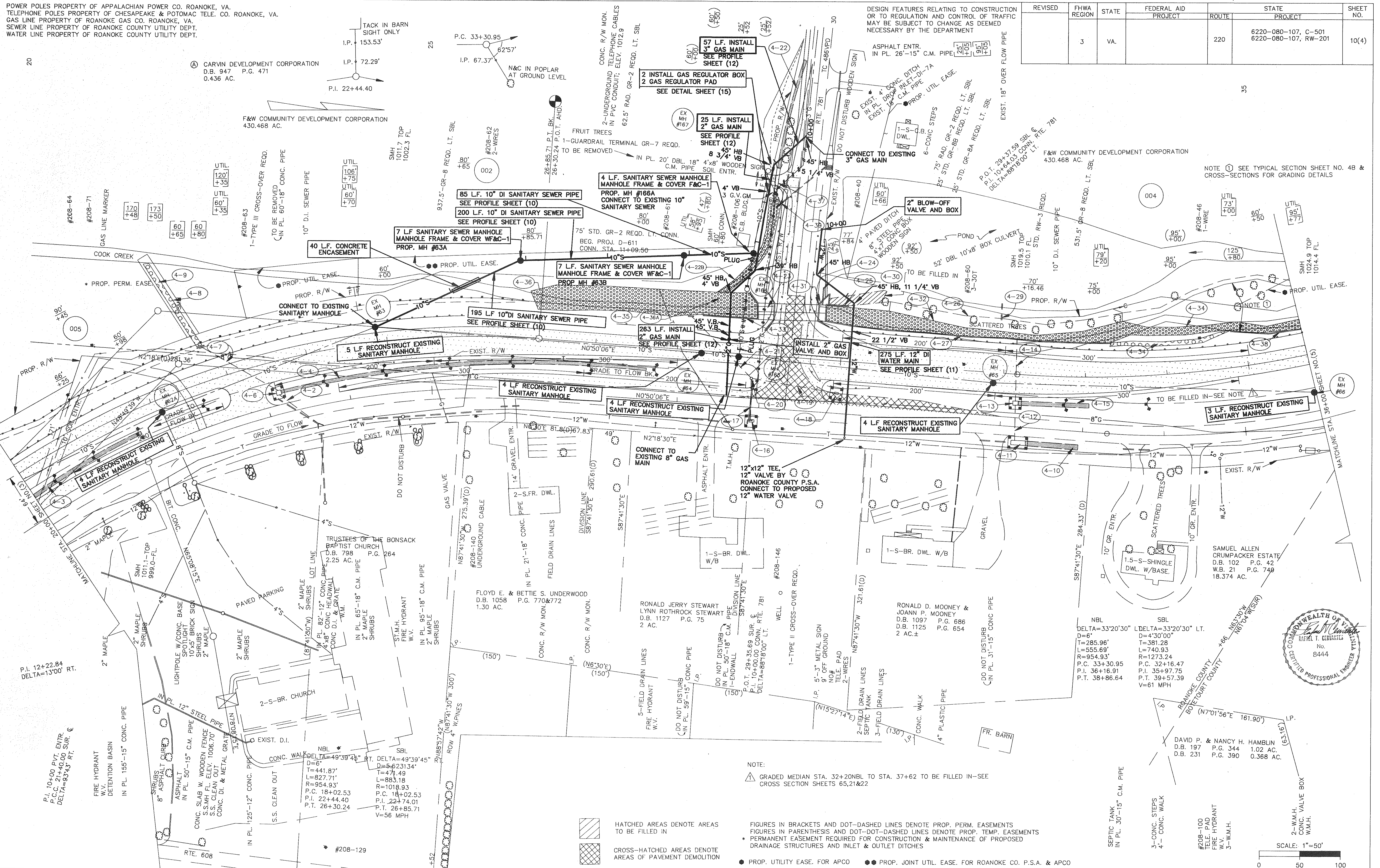
① CARVIN DEVELOPMENT CORPORATION
D.B. 947 P.G. 471
0.436 AC.

F&W COMMUNITY DEVELOPMENT CORPORATION
430.468 AC.

DESIGN FEATURES RELATING TO CONSTRUCTION
OR TO REGULATION AND CONTROL OF TRAFFIC
MAY BE SUBJECT TO CHANGE AS DEEMED
NECESSARY BY THE DEPARTMENT

REVISED	FHWA REGION	STATE	FEDERAL AID PROJECT	ROUTE	STATE PROJECT	SHEET NO.
	3	VA.		220	6220-080-107, C-501 6220-080-107, RW-201	10(4)

NOTE ① SEE TYPICAL SECTION SHEET NO. 48 &
CROSS-SECTIONS FOR GRADING DETAILS

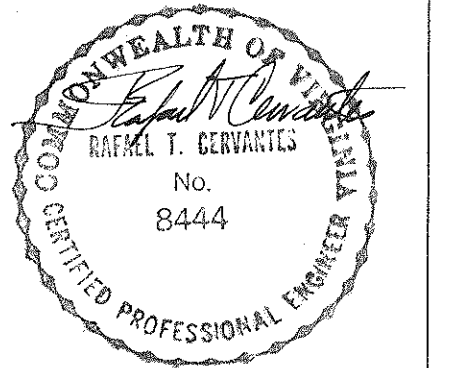


NOTE:

GRADED MEDIAN STA. 32+20NBL TO STA. 37+62 TO BE FILLED IN-SEE
CROSS SECTION SHEETS 65,21&22

FIGURES IN BRACKETS AND DOT-DASHED LINES DENOTE PROP. PERM. EASEMENTS
FIGURES IN PARENTHESES AND DOT-DOT-DASHED LINES DENOTE PROP. TEMP. EASEMENTS
* PERMANENT EASEMENT REQUIRED FOR CONSTRUCTION & MAINTENANCE OF PROPOSED
DRAINAGE STRUCTURES AND INLET & OUTLET DITCHES

● PROP. UTILITY EASE. FOR APCO ●● PROP. JOINT UTIL. EASE. FOR ROANOKE CO. P.S.A. & APCO



SCALE: 1"=50'

POWER POLES PROPERTY OF APPALACHIAN POWER CO. ROANOKE, VA
TELEPHONE POLES PROPERTY OF CHESAPEAKE & POTOMAC TELEPHONE CO. ROANOKE, VA.
GAS LINES PROPERTY OF ROANOKE GAS CO., ROANOKE, VA.
SEWER LINES PROPERTY OF MURRAY ORCHARDS INC. RTE. 11 BOX 672 ROANOKE, VA.
WATER AND SEWER LINES PROPERTY OF ROANOKE CO. UTILITY DEPT. AND BOTETOURT CO.

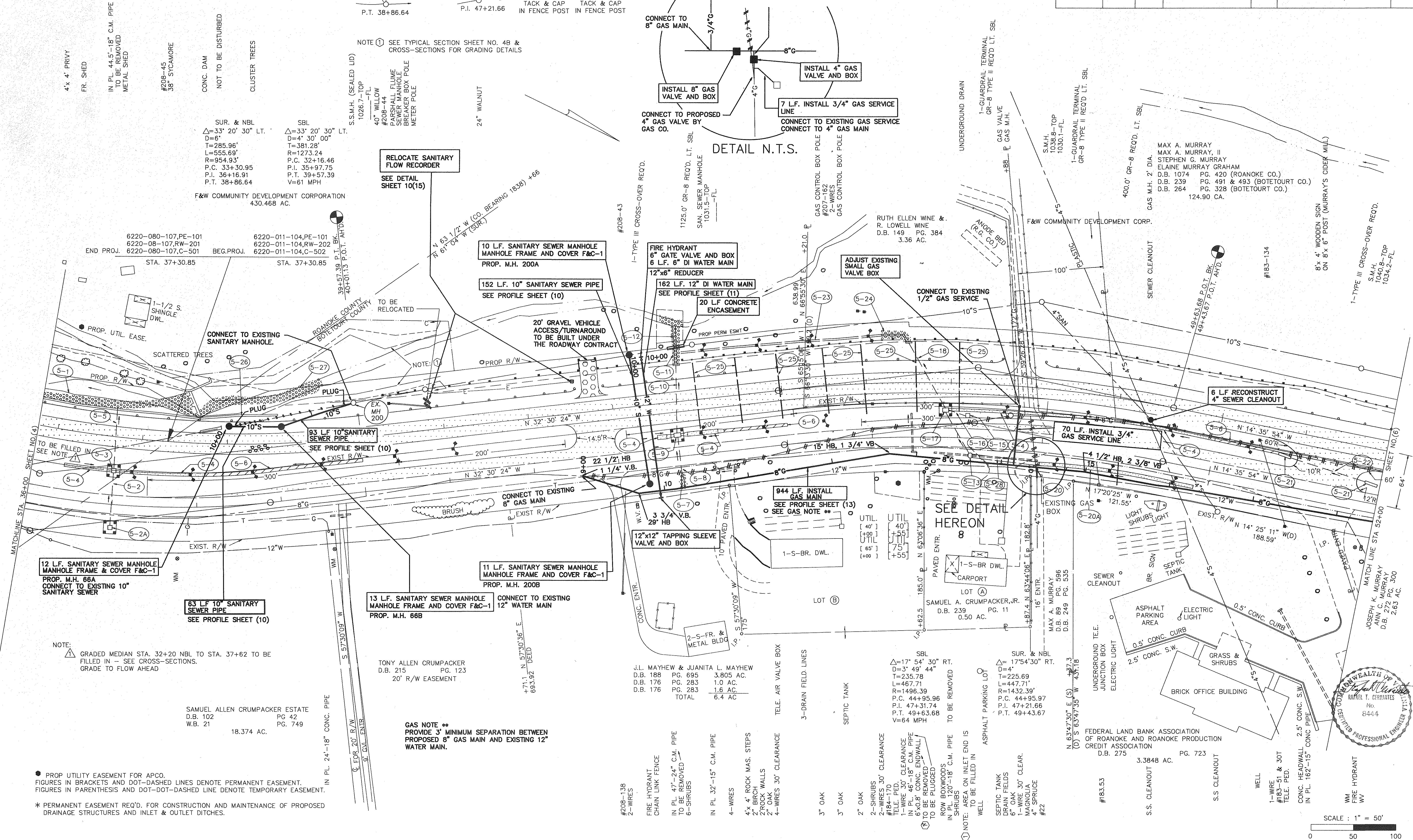
DESIGN FEATURES RELATING TO CONSTRUCTION
OR TO REGULATION AND CONTROL OF TRAFFIC
MAY BE SUBJECT TO CHANGE AS DEEMED
NECESSARY BY THE DEPARTMENT.

REVISED	FHWA REGION	STATE	FEDERAL AID PROJECT	ROUTE	STATE PROJECT	SHEET NO.
	3	VA.		220	6220-080-107, C-501 6220-011-104, C-502 6220-011-104, RW-202 6220-080-107, RW-201	10(5)

Cervantes & Associates, P.C.
10400 EATON PLACE SUITE 210
FAIRFAX, VA 22030
(703) 891-4114

Engineers
Planners
Surveyors

FAIRFAX CITY, VA



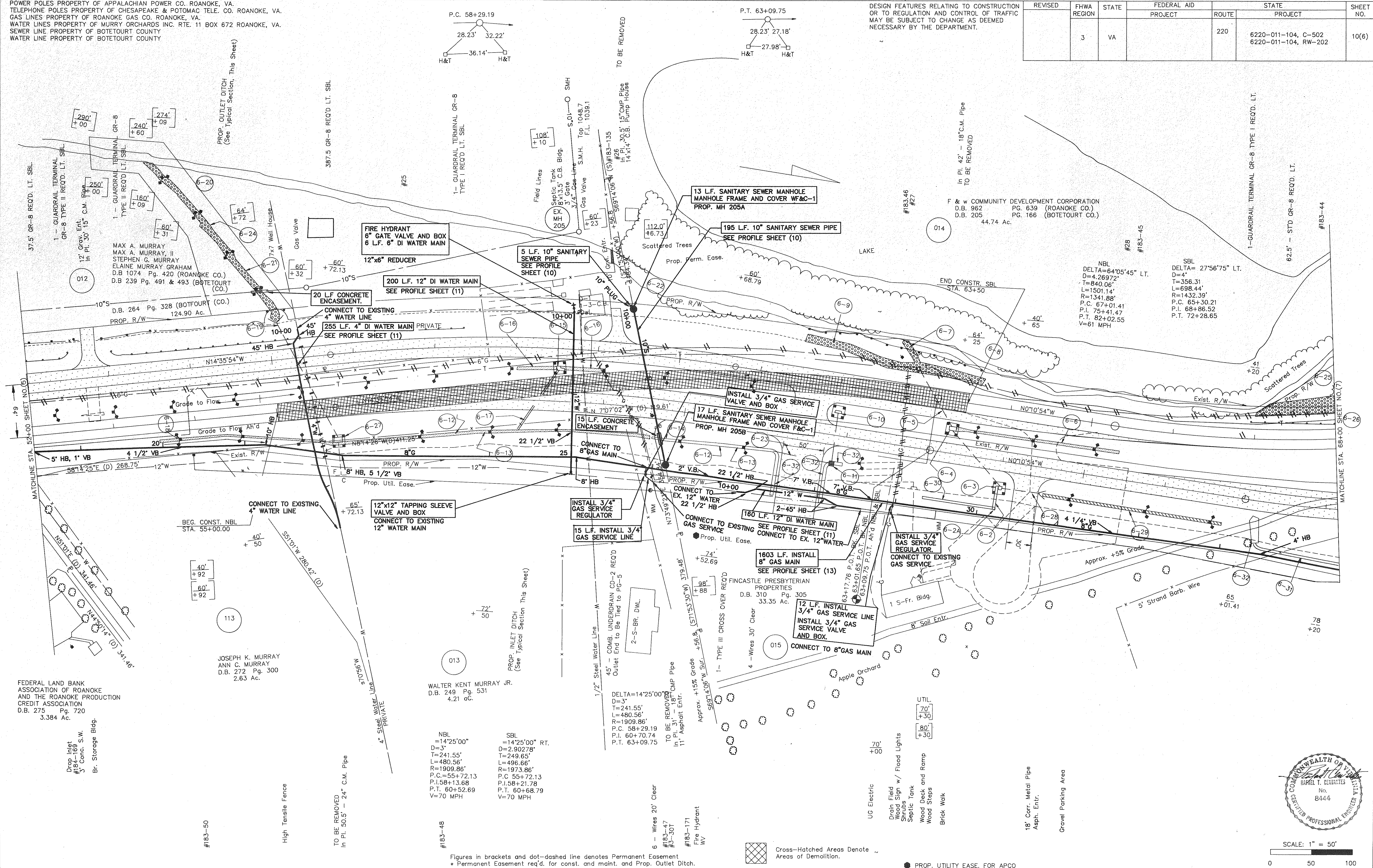
REVISED	FHWA REGION	STATE	FEDERAL AID PROJECT	ROUTE	STATE PROJECT	SHEET NO.
	3	VA		220	6220-011-104, C-502 6220-011-104, RW-202	10(6)

Engineers
Planners
Surveyors

CERVANTES & ASSOCIATES, P.C.
10400 EATON PLACE SUITE 210
FAIRFAX, VA 22030
(703) 881-4141



SUPERVISED BY
DESIGNED BY
CHECKED BY
REVISIONS
PLAN DATE



FEDERAL LAND BANK
ASSOCIATION OF ROANOKE
AND THE ROANOKE PRODUCTION
CREDIT ASSOCIATION
D.B. 275 Pg. 720
3.384 Ac.

Drop Inlet
#184-169
3\"/>

JOSEPH K. MURRAY
ANN C. MURRAY
D.B. 272 Pg. 300
2.63 Ac.

WALTER KENT MURRAY JR.
D.B. 249 Pg. 531
4.21 ac.

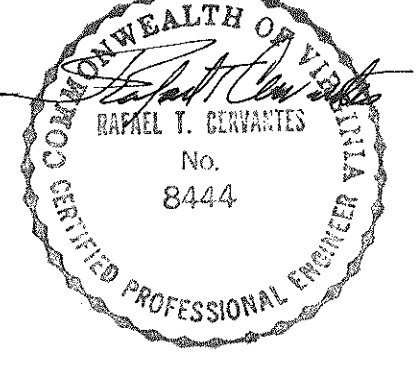
NBL
D=14'25\"/>

SBL
D=14'25\"/>

DELTA=14'25\"/>

Cross-Hatched Areas Denote
Areas of Demolition.

PROP. UTILITY EASE. FOR APCO



SCALE: 1" = 50'

POWER POLES PROPERTY OF APPALACHIAN POWER CO. ROANOKE, VA.
TELEPHONE POLES PROPERTY OF CHEASAPEAKE & POTOMAC TELEPHONE CO. ROANOKE, VA.
GAS LINES PROPERTY OF ROANOKE GAS CO. ROANOKE, VA.
SEWER LINE PROPERTY OF BOTETOURT COUNTY
WATER LINE PROPERTY OF BOTETOURT COUNTY

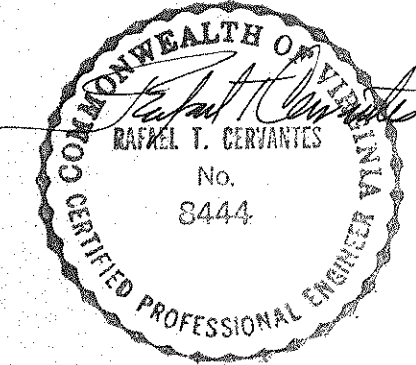
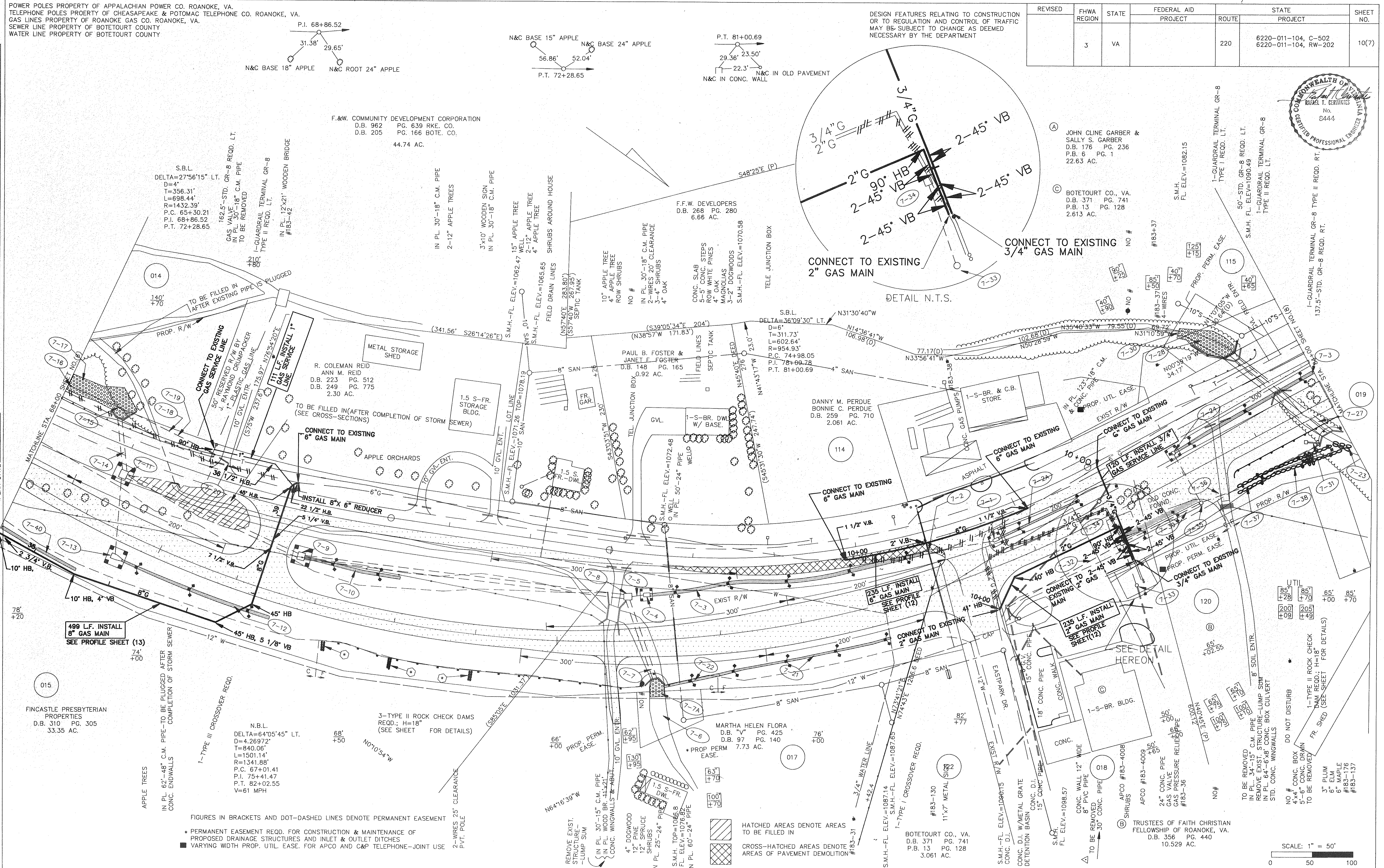
REVISED	FHWA REGION	STATE	FEDERAL AID PROJECT	ROUTE	STATE PROJECT	SHEET NO.
	3	VA		220	6220-011-104, C-502 6220-011-104, RW-202	10(7)

CERVANTES & ASSOCIATES, P.C.
10000 RIVER ROAD, SUITE 210
FAIRFAX, VA 22033
(703) 881-4114

Engineers
Planners
Surveyors

Supervised by
DESIGNED BY
CADD OPERATOR
REVIEWED BY
PLAN DATE

Fairfax City, VA



A JOHN CLINE GARBER & SALLY S. GARBER
D.B. 176 PG. 236
P.B. 6 PG. 1
22.63 AC.

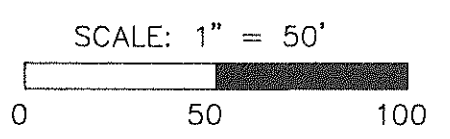
C BOTETOURT CO., VA.
D.B. 371 PG. 741
P.B. 13 PG. 128
2.613 AC.

1-GUARDRAIL TERMINAL GR-8 TYPE I REQ. LT.
50'-STD. GR-8 REQ. LT.
1-GUARDRAIL TERMINAL GR-8 TYPE II REQ. LT.
137.5'-STD. GR-8 REQ. RT.

UTIL
85' +28
85' +29
65' +00
85' +70

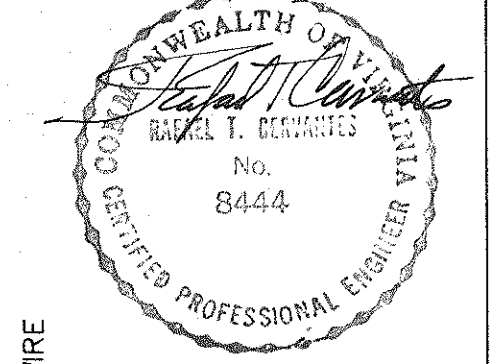
1-TYPE II ROCK CHECK DAM REQ.; H=18" (SEE SHEET FOR DETAILS)
FR. SHED (SEE SHEET FOR DETAILS)

DO NOT DISTURB
NO # 4x4 CONC. BOX 5'-6" CONC. DRAIN TO BE REMOVED
3" PLUM 6" MAPLE #83-176 #83-157

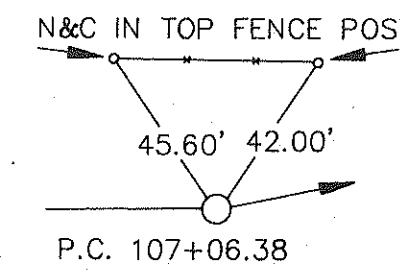
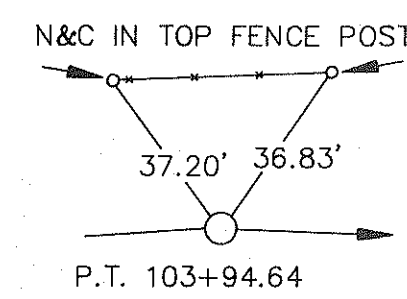


DESIGN FEATURES RELATING TO CONSTRUCTION
OR TO REGULATION AND CONTROL OF TRAFFIC
MAY BE SUBJECT TO CHANGE AS DEEMED
NECESSARY BY THE DEPARTMENT

SUPERVISED BY _____
DESIGNED BY _____
CADD OPERATOR _____



POWER POLES PROPERTY OF APPALACHIAN POWER CO., ROANOKE, VA.
TELEPHONE POLES PROPERTY OF CHESAPEAKE & POTOMAC TELE. CO., ROANOKE, VA.
GAS LINE PROPERTY OF ROANOKE GAS CO., ROANOKE, VA.



DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT.

REVISED	FHWA REGION	STATE	FEDERAL AID PROJECT	ROUTE	STATE PROJECT	SHEET NO.
	3	VA		220	6220-011-104, C-502 6220-011-104,RW-202	10(9)

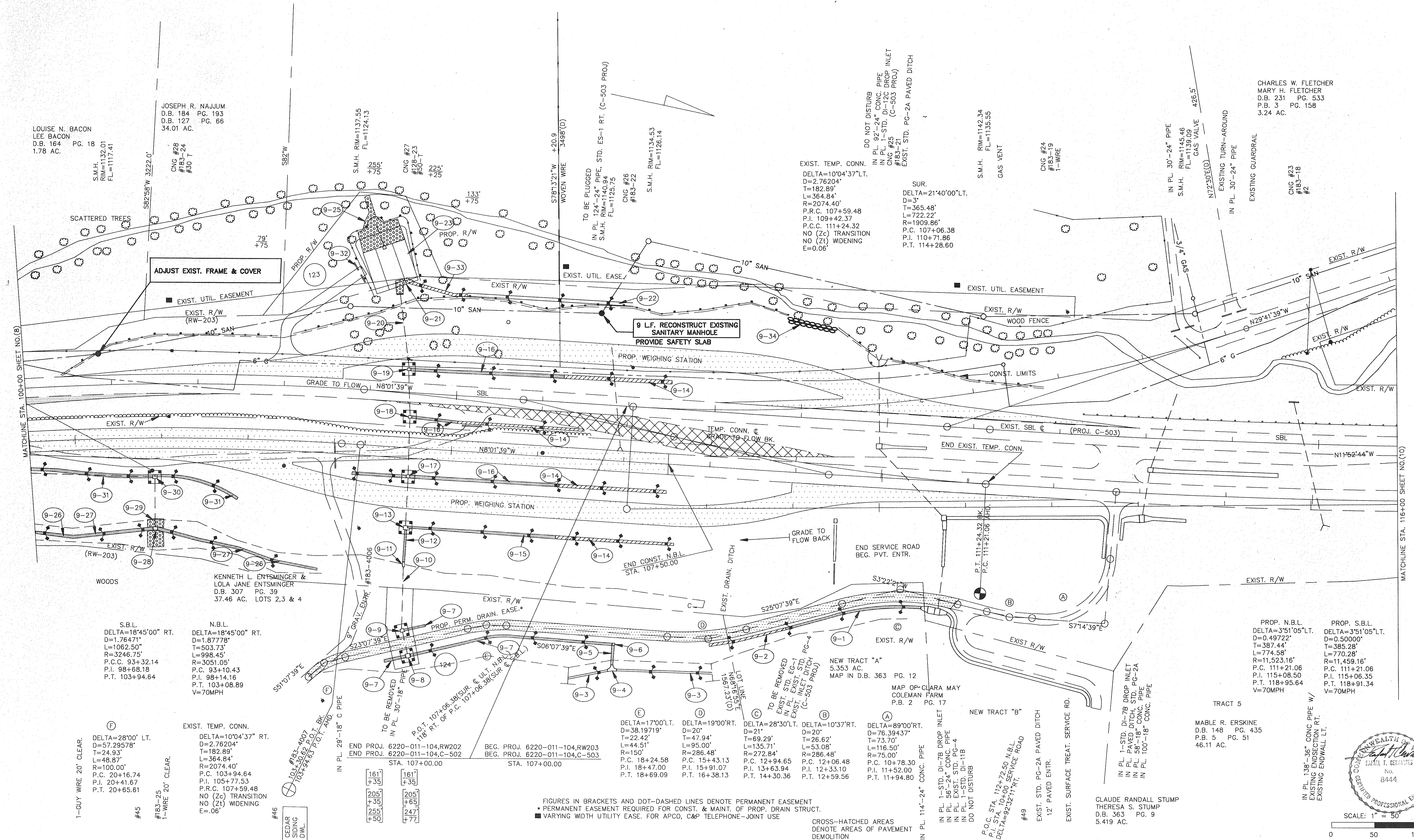
Engineers
Planners
Surveyors

Engineers
Planners
Surveyors

CERVANTES & ASSOCIATES, P.C.
10400 EATON PLACE SUITE 210
FAIRFAX, VA 22030
(703) 981-4111



SUPERVISED BY
DESIGNED BY
CADD OPERATOR
REVISED BY
PLAN DATE



FIGURES IN BRACKETS AND DOT-DASHED LINES DENOTE PERMANENT EASEMENT
* PERMANENT EASEMENT REQUIRED FOR CONST. & MAINT. OF PROP. DRAIN STRUCT.
■ VARYING WIDTH UTILITY EASE. FOR APCO, C&P TELEPHONE-JOINT USE

CROSS-HATCHED AREAS
DENOTE AREAS OF PAVEMENT
DEMOLITION



SCALE: 1" = 50'

REVISED	FHWA REGION	STATE	FEDERAL AID PROJECT	ROUTE	STATE PROJECT	SHEET NO.
	3	VA		220	6220-080-107,C-501 6220-011-104,C-502	10(10)

CEVANTES & ASSOCIATES, P.C.
10400 LATCH PLAZA, SUITE 210
FALLS CHURCH, VA 22044
(703) 881-4114

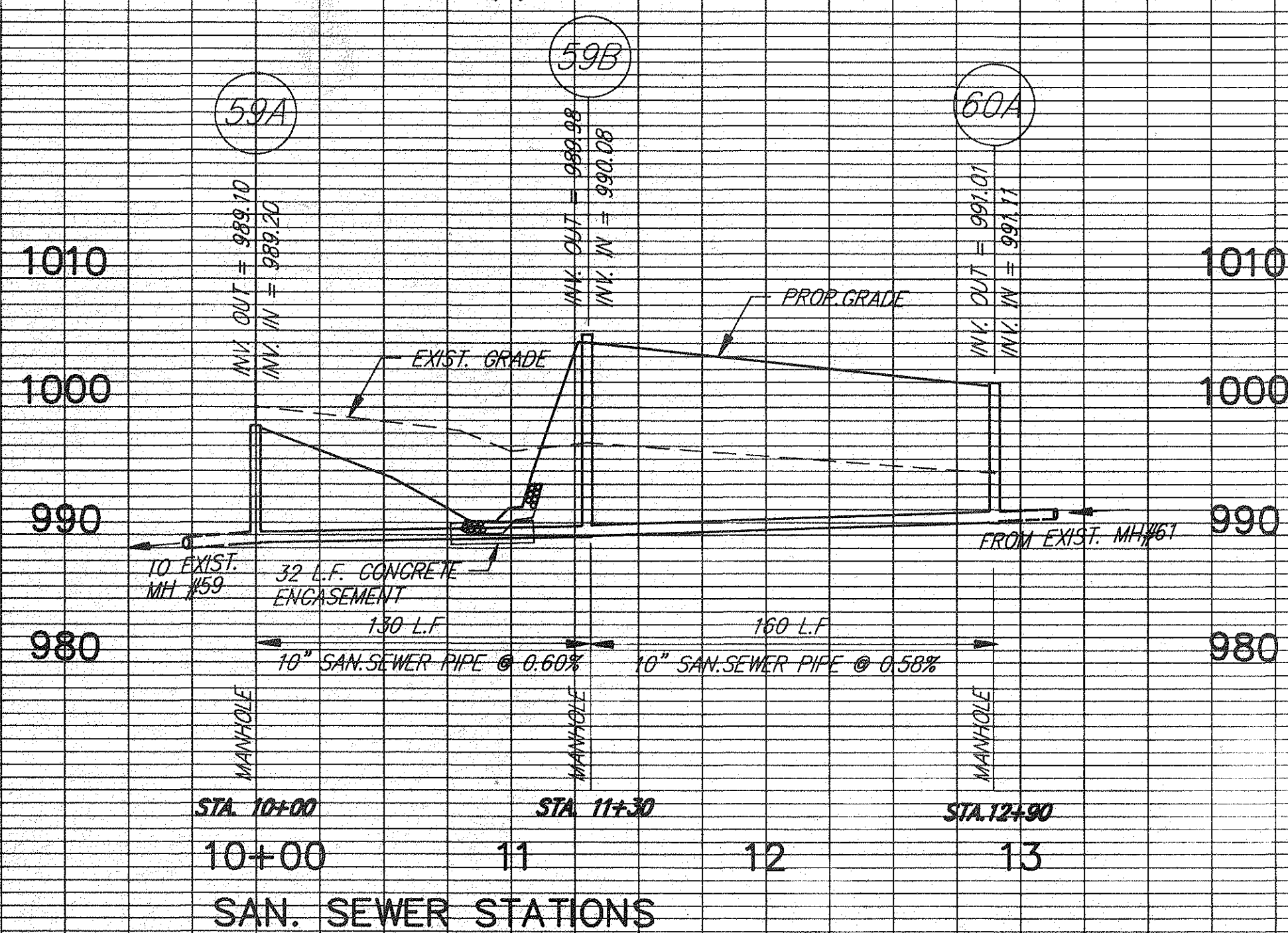
Engineers
Planners
Surveyors

FAIRFAX CITY, VA

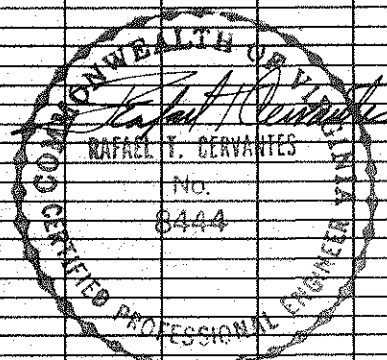
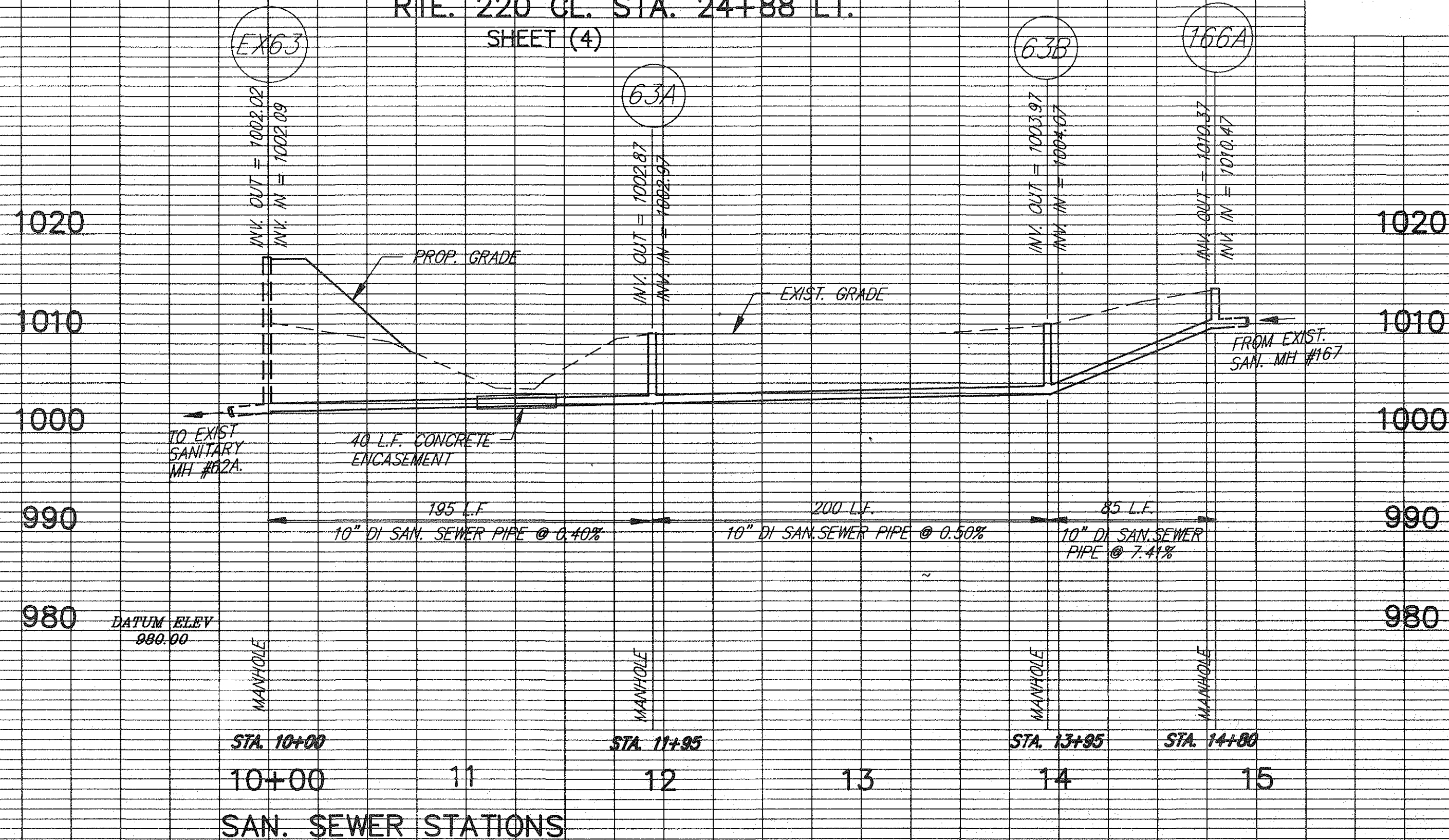
SUPERVISED BY: _____
DESIGNED BY: _____
CADD OPERATOR: _____
REVISED BY: _____
PLAN DATE: _____

PLAN SURVEYED BY: _____ DATE: _____
NOTE BOOK PLOTTED BY: _____
ALIGNMENT CHECKED BY: _____
RIGHT-OF-WAY CHECKED BY: _____

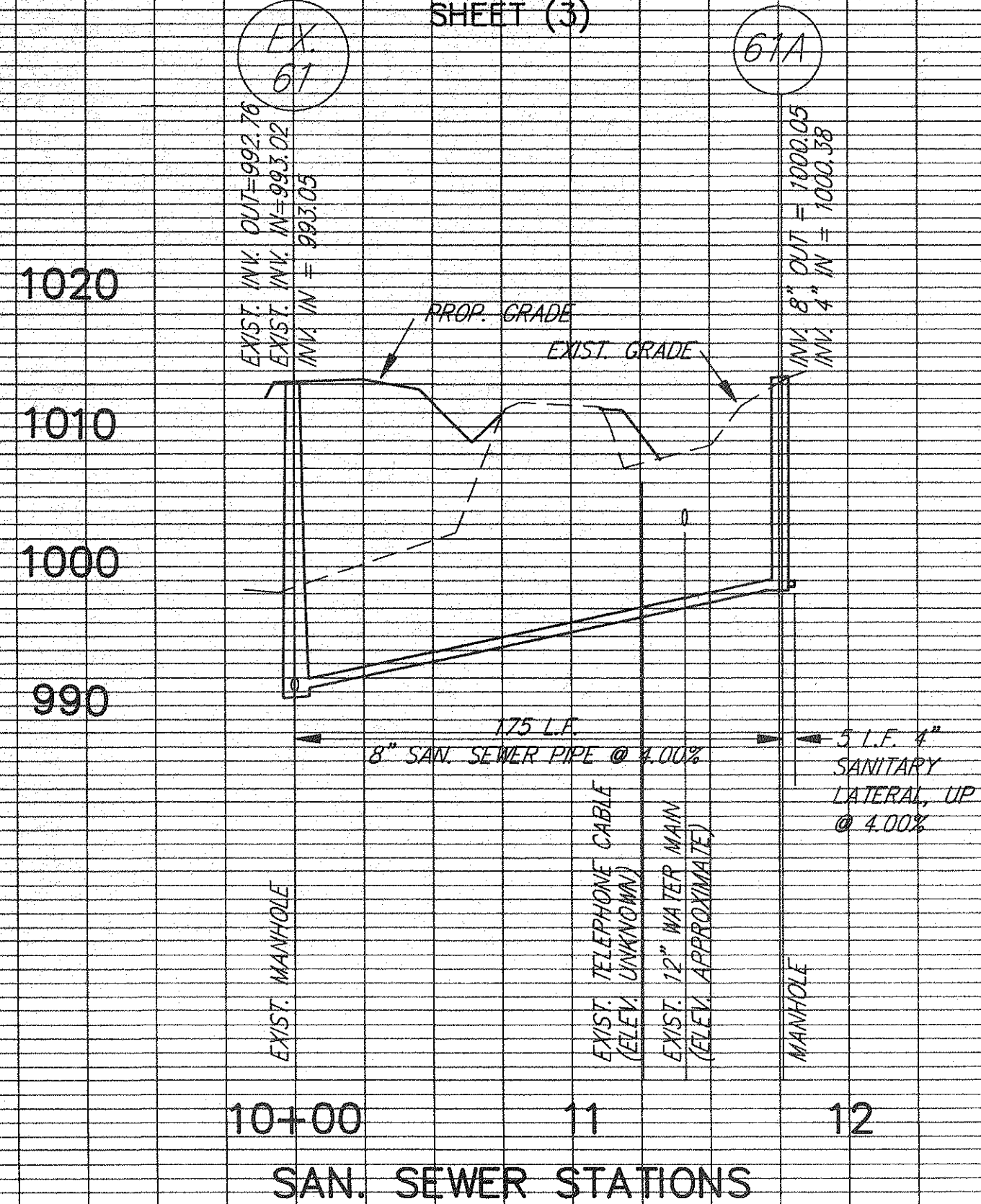
UTILITY OWNER: ROANOKE COUNTY UTILITY DEPARTMENT
290 L.F. 10" D.I. SAN. SEWER PIPE
32 L.F. 12" CONCRETE ENCASEMENT
SAN. SEWER STA. 10+00 =
ROUTE 220 C STA. 13+07 LT.
SHEET (3)



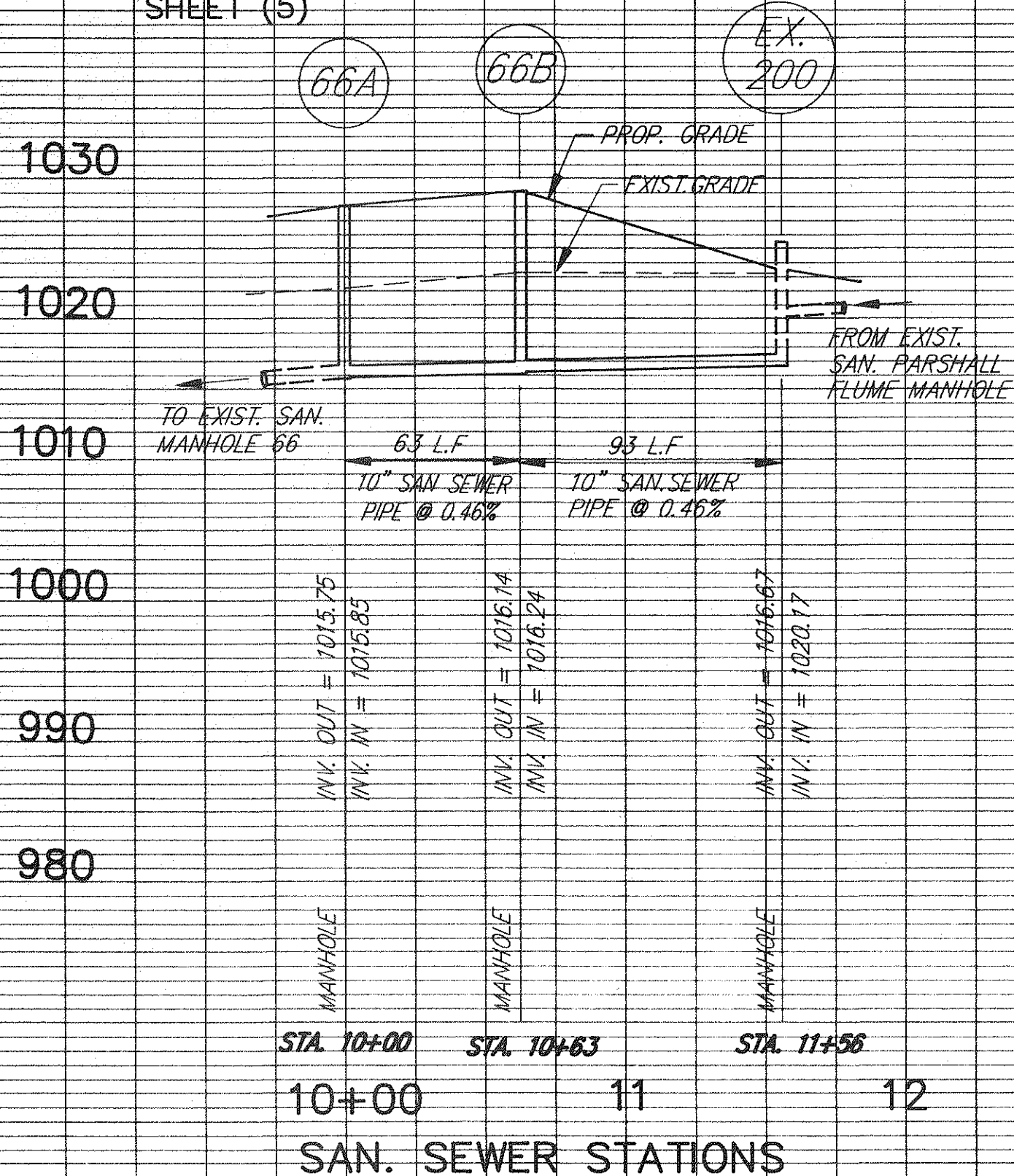
UTILITY OWNER: ROANOKE COUNTY UTILITY DEPT.
480 L.F. 10" SAN. SEWER PIPE
40 L.F. CONCRETE ENCASEMENT
SAN. SEWER STA. 10+00 =
RTE. 220 CL. STA. 24+88 LT.
SHEET (4)



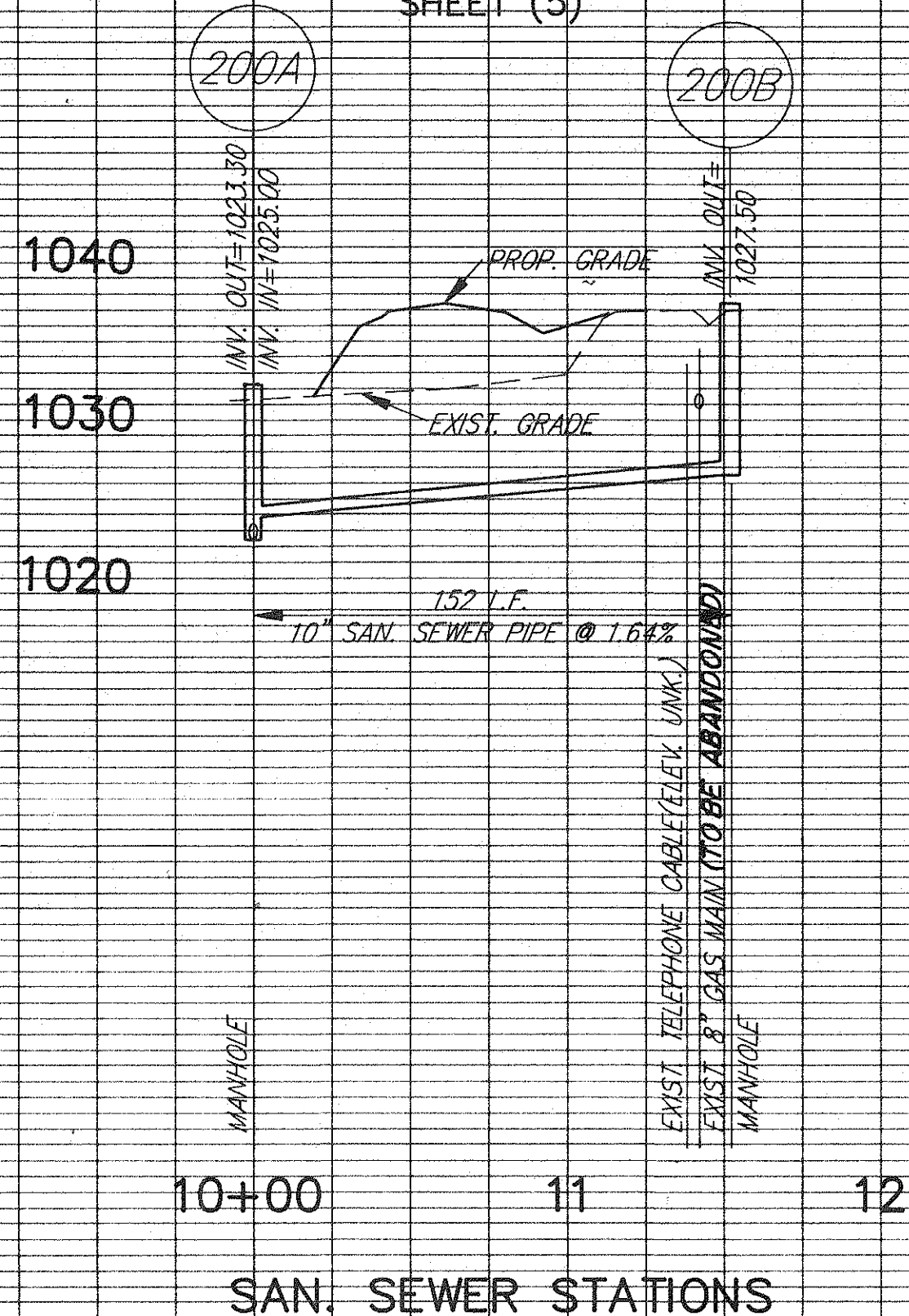
UTILITY OWNER: ROANOKE COUNTY UTILITY DEPARTMENT
175 L.F. 8" SAN. SEWER PIPE
SAN. SEWER STA. 10+00 =
RTE. 220 SBL C 17+50 LT.
SHEET (3)



UTILITY OWNER: BOTETOURT COUNTY
156 L.F. 10" SAN. SEWER PIPE
SAN. SEWER STA. 10+00 =
ROUTE 220 STA. 38+02 LT.
SHEET (5)

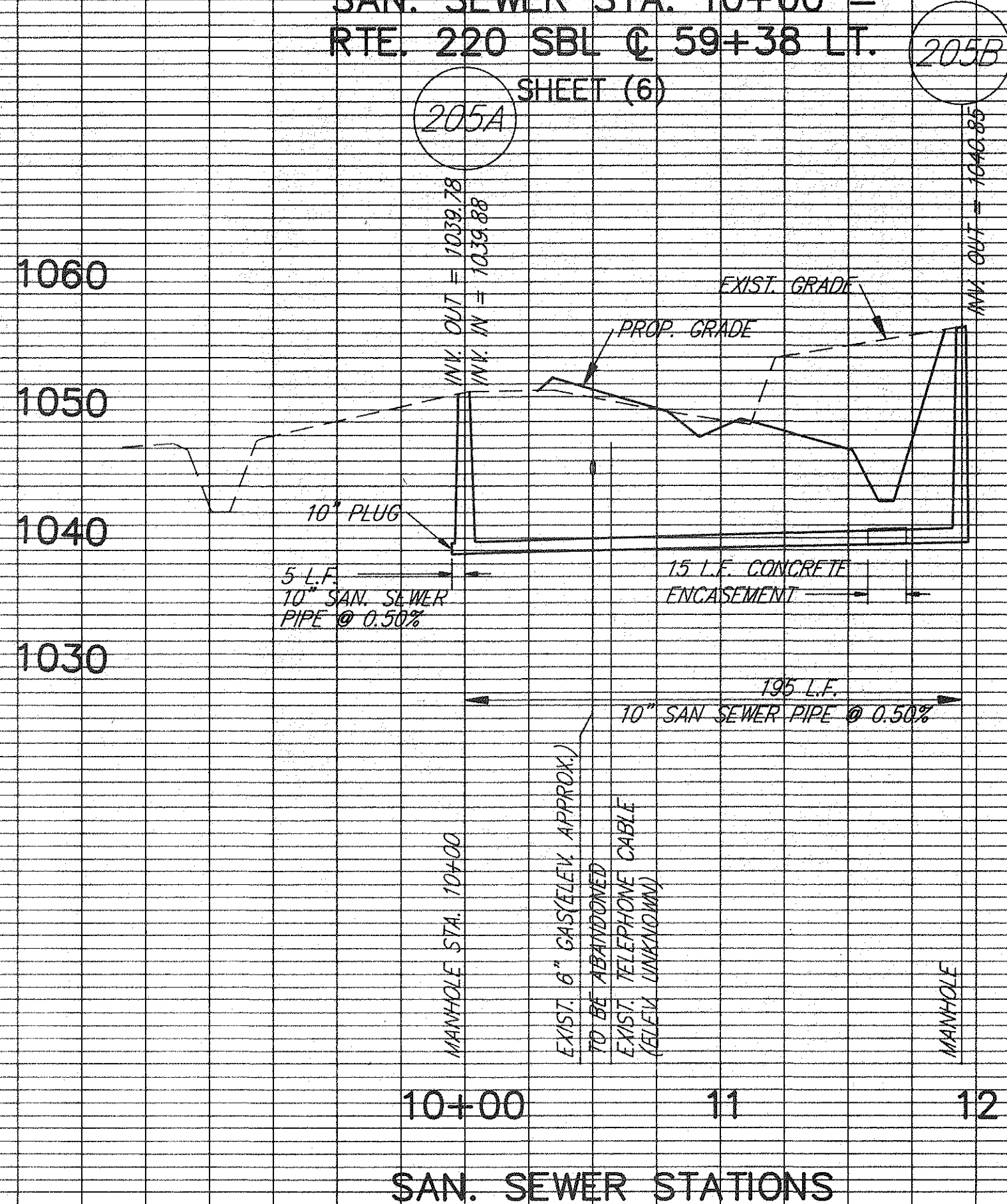


UTILITY OWNER: BOTETOURT COUNTY
152 L.F. 10" SAN. SEWER PIPE
SAN. SEWER STA. 10+00 =
ROUTE 220 SBL C 43+30 LT.
SHEET (5)



UTILITY OWNER: BOTETOURT COUNTY

195 L.F. 10" SAN. SEWER PIPE
SAN. SEWER STA. 10+00 =
RTE. 220 SBL C 59+38 LT.
SHEET (6)



Engineers
Planners
Surveyors

CERVANTES & ASSOCIATES, P.C.
1060 LYON PLACE SUITE 210
FALLS CHURCH, VA 22044
(703) 681-4113

FAIRFAX CITY, VA

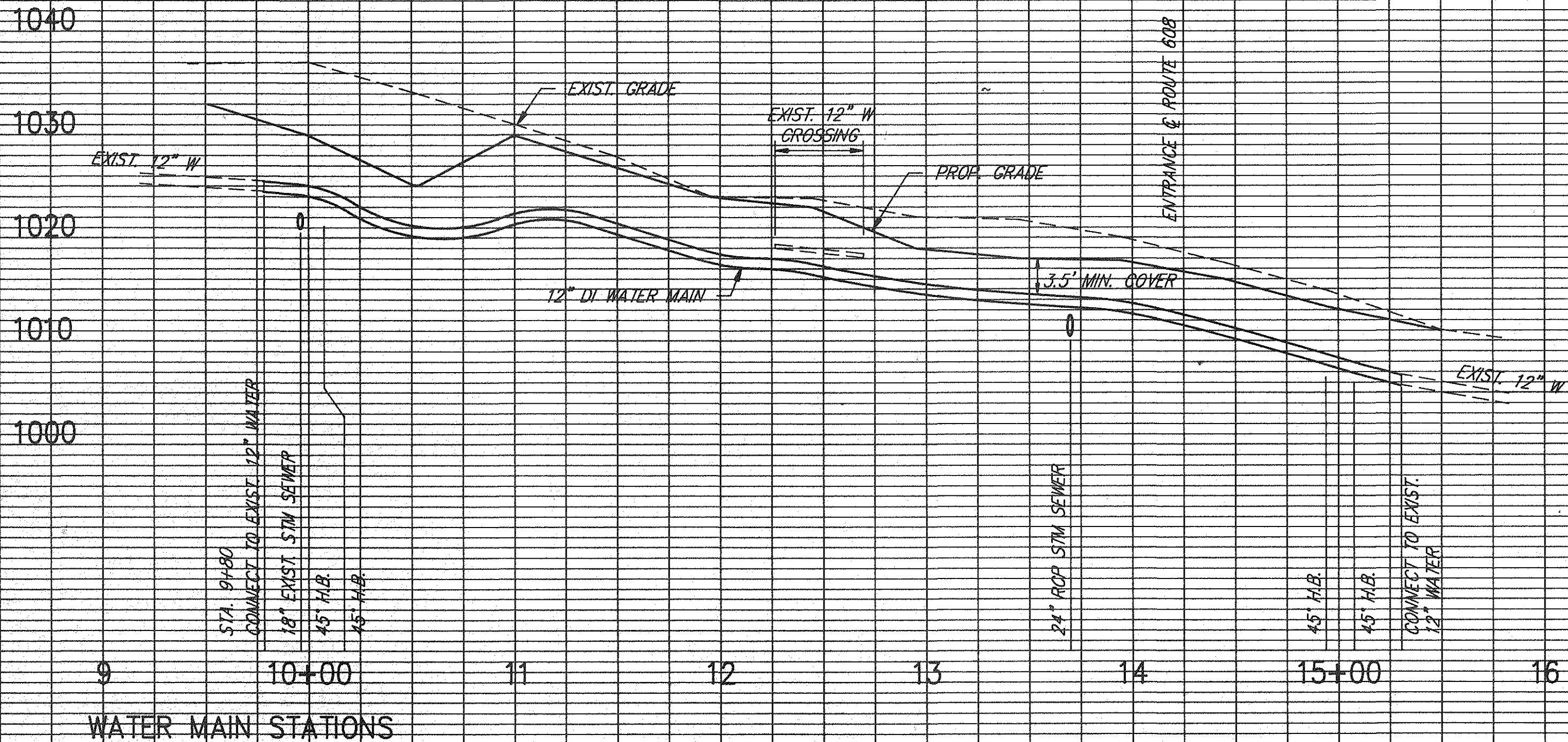
Engineers
Planners
Surveyors

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT.

REVISED	FHWA REGION	STATE	FEDERAL AID PROJECT	ROUTE	STATE PROJECT	SHEET NO.
JUNE 22, 1992	3	VA		220	6220-080-107, C-501 6220-011-104, C-502	10(11)

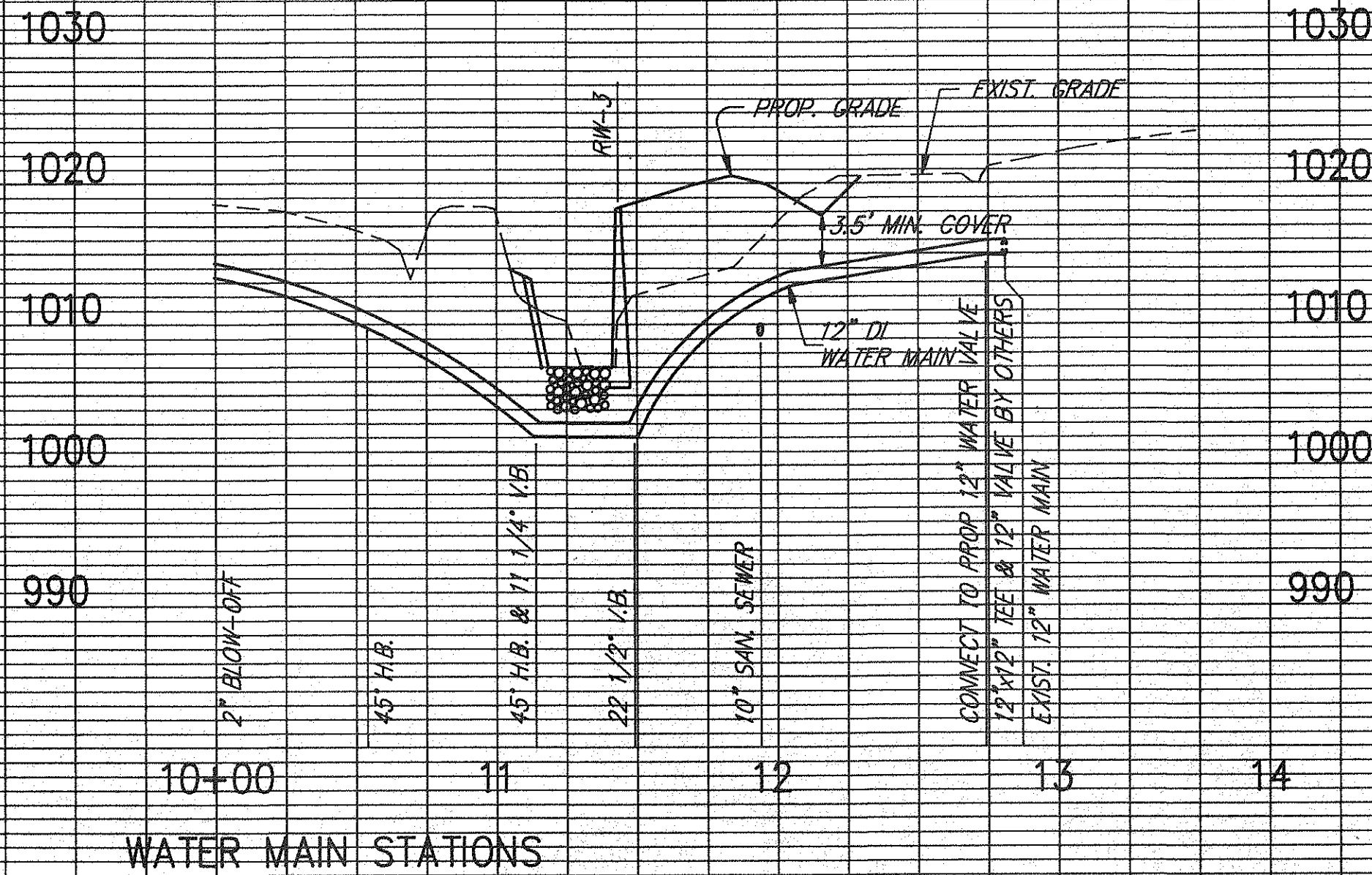
UTILITY OWNER: ROANOKE COUNTY UTILITY DEPARTMENT

554 L.F. 12" DI WATER MAIN
WATER MAIN STA. 9+80 =
ROUTE 220 NBL C STA. 11+86
SHEET (3)

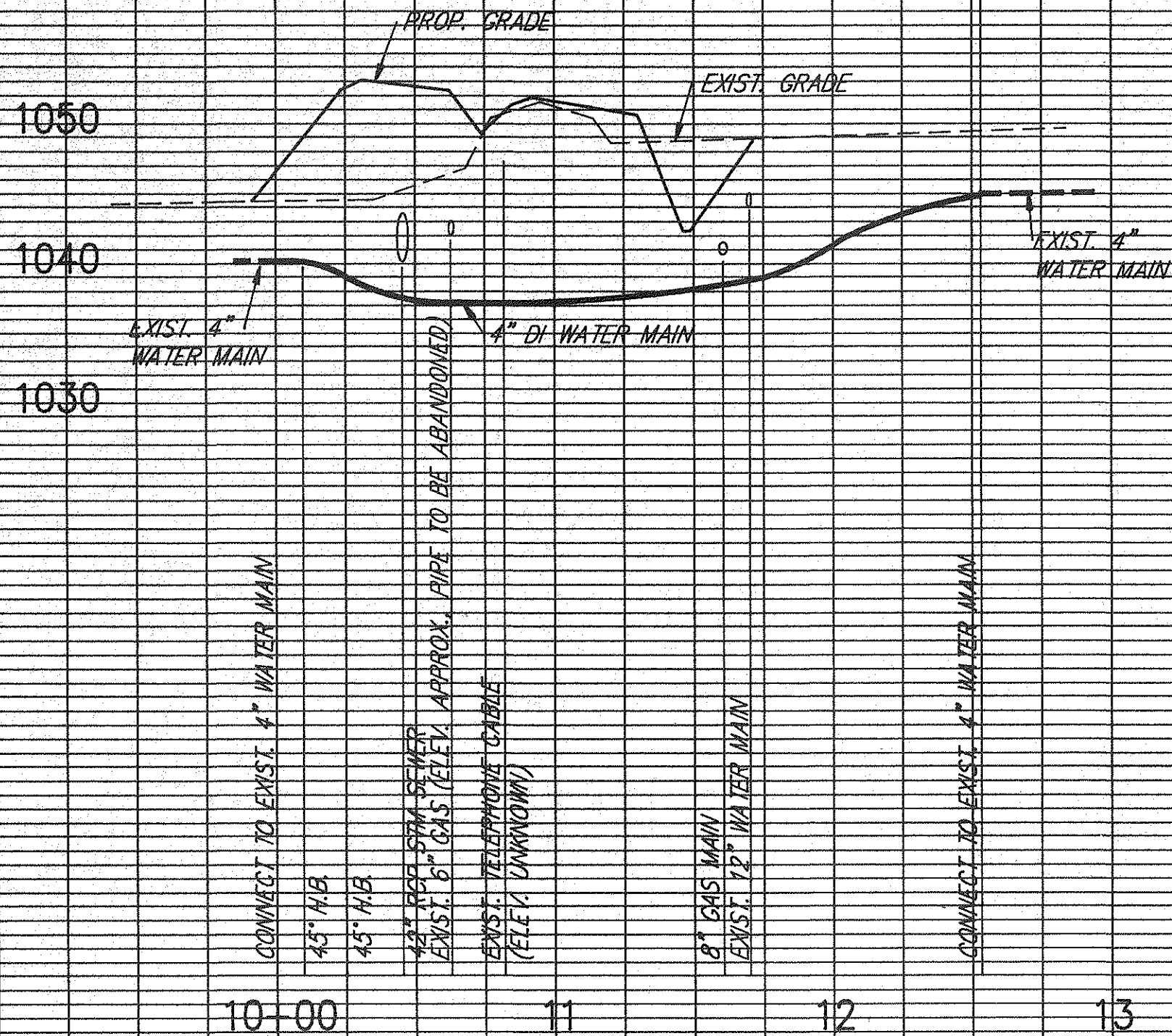


UTILITY OWNER: ROANOKE COUNTY UTILITY DEPARTMENT

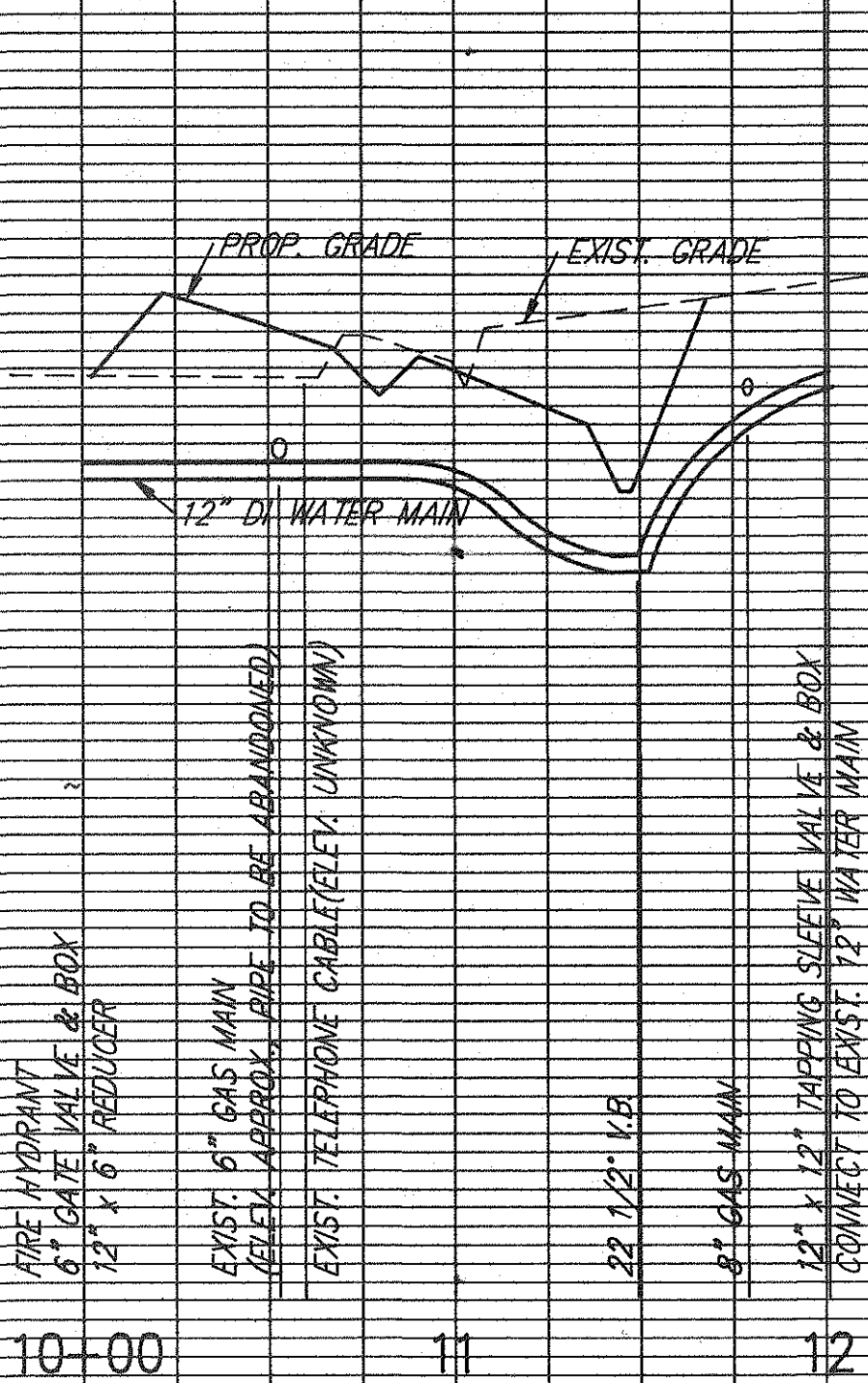
275 L.F. 12" DI WATER MAIN
WATER MAIN STA. 10+00 =
ROUTE 220 SBL C STA. 29+65
SHEET (4)



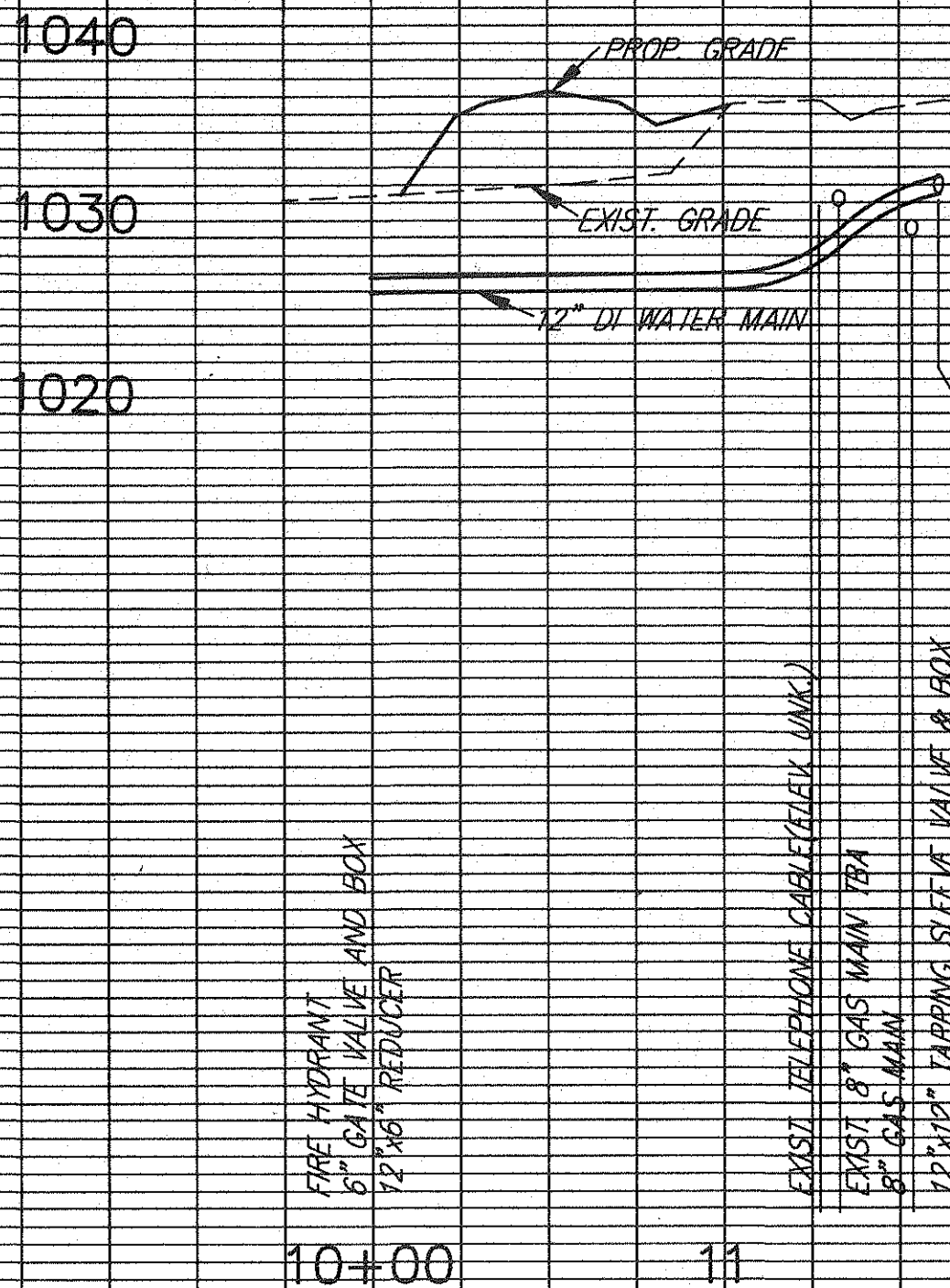
UTILITY OWNER: BOTETOURT COUNTY
255 L.F. 4" DI WATER MAIN
WATER MAIN STA. 10+00 =
RTE. 220 SBL C STA. 55+36 RT.
SHEET (6)



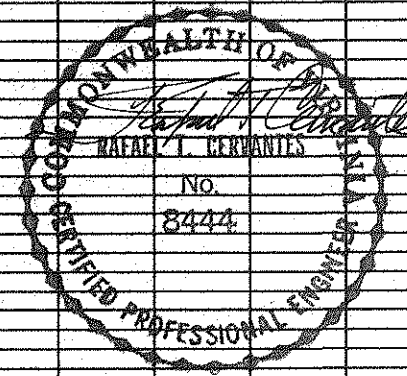
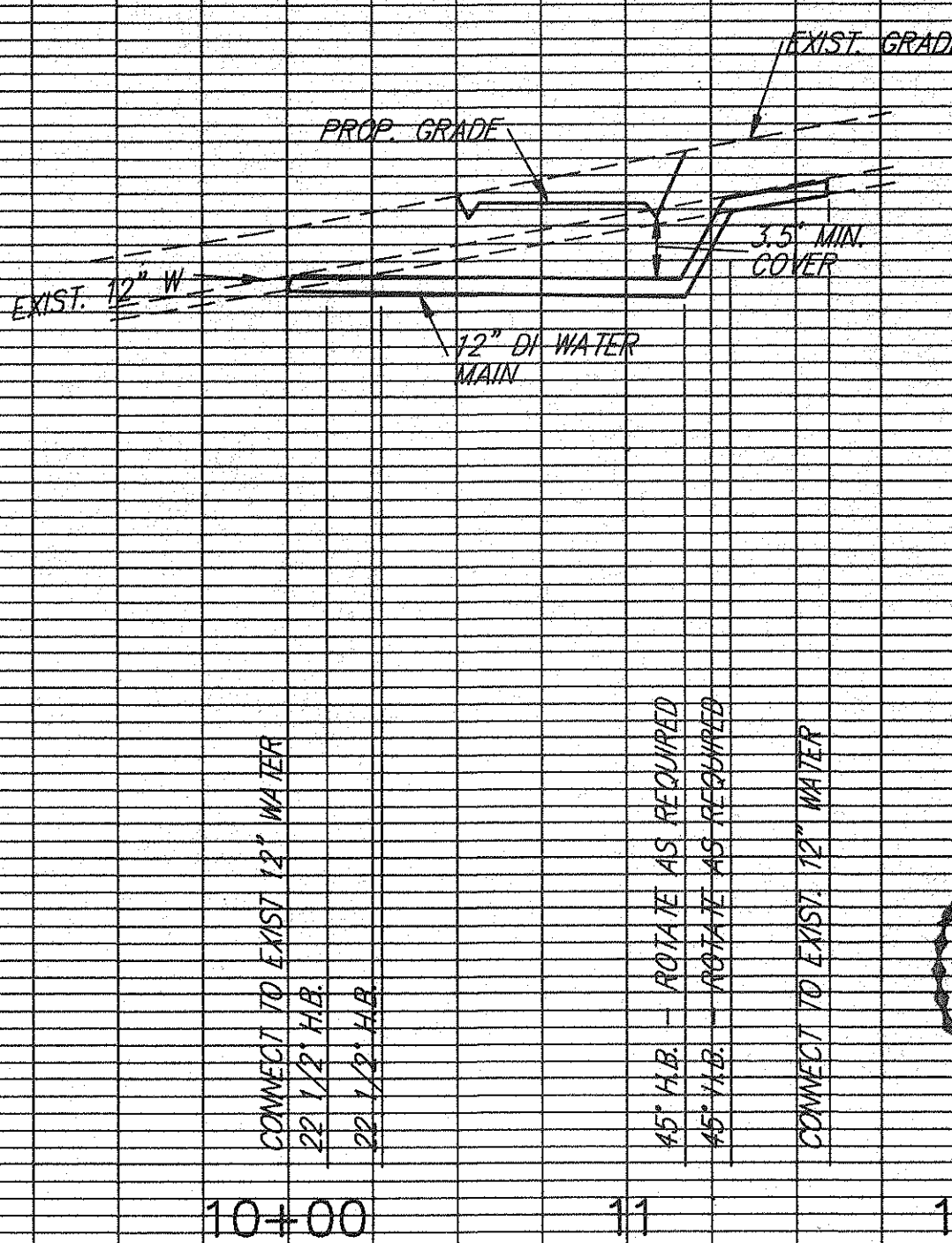
UTILITY OWNER: BOTETOURT COUNTY
200 L.F. 12" DI WATER MAIN
WATER MAIN STA. 10+00 =
RTE. 220 SBL C STA. 58+70 LT.
SHEET (6)



UTILITY OWNER: BOTETOURT COUNTY
162 L.F. 12" DI WATER MAIN
WATER MAIN STA. 10+00 =
ROUTE 220 SBL C STA. 43+40 LT.
SHEET (5)



UTILITY OWNER: BOTETOURT COUNTY
160 L.F. 12" DI WATER MAIN
WATER MAIN STA. 10+00 =
ROUTE 220 NBL C STA. 60+77 RT.
SHEET (6)



Engineers
Planners
Surveyors

CERVANTES & ASSOCIATES, P.C.
10400 ECHO PLAGE SUITE 210
FALLS CHURCH, VA 22044
(703) 881-4114



Supervised By: _____
Designed By: _____
CADD Operator: _____
Revised By: _____
Plan Date: _____

PLAN

SUPPLIED
PLOTTED

BY

DATE

NOTE BOOK
ALIGNMENT CHECKED
No. _____

RIGHT-OF-WAY CHECKED

DESIGN FEATURES RELATING TO CONSTRUCTION
OR TO REGULATION AND CONTROL OF TRAFFIC
MAY BE SUBJECT TO CHANGE AS DEEMED
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REVISED	FHWA REGION	STATE	FEDERAL AID PROJECT	ROUTE	STATE PROJECT	SHEET NO. NO.
JUNE 22, 1992	3	VA.		220	6220-080-107, C-501 6220-011-104, C-502	10(12)

672 L.F. INSTALL 8" GAS MAIN
GAS MAIN STA. 10+00 =
ROUTE 220 SBL & STA. 11+78 LT.
SHEET (3)

263 L.F. INSTALL 2" GAS MAIN
57 L.F. INSTALL 3" GAS MAIN
GAS MAIN STA. 10+00 =
ROUTE 220 SBL & STA. 29+37 LT.
SHEET (4)

235 L.F. INSTALL 6" GAS MAIN
GAS MAIN STA. 10+00 =
RTE. 220 NBL & STA. 78+69 LT.
SHEET (7)

235 L.F. INSTALL 2" GAS MAIN
GAS MAIN STA. 10+00 =
RTE. 220 NBL & STA. 80+32 RT.
SHEET (7)

435 L.F. INSTALL 6" GAS MAIN
GAS MAIN STA. 10+00 =
RTE. 220 SBL & STA. 95+02 LT.
SHEET (8)

GASPROF1.DWG / 4-23-93 / FINAL SUBMITTAL

PLAN NO.	PROJECT	FILE NO.	SHEET NO.
A	6220-080-107 6220-011-104		10(12)

A&A DOCUMENT NO. DOC-NO SUB

Engineers
Planners
Surveyors

CURVANTES & ASSOCIATES, P.C.
10400 EATON PLACE, SUITE 210
FALLS CHURCH, VA 22044
(703) 941-4411

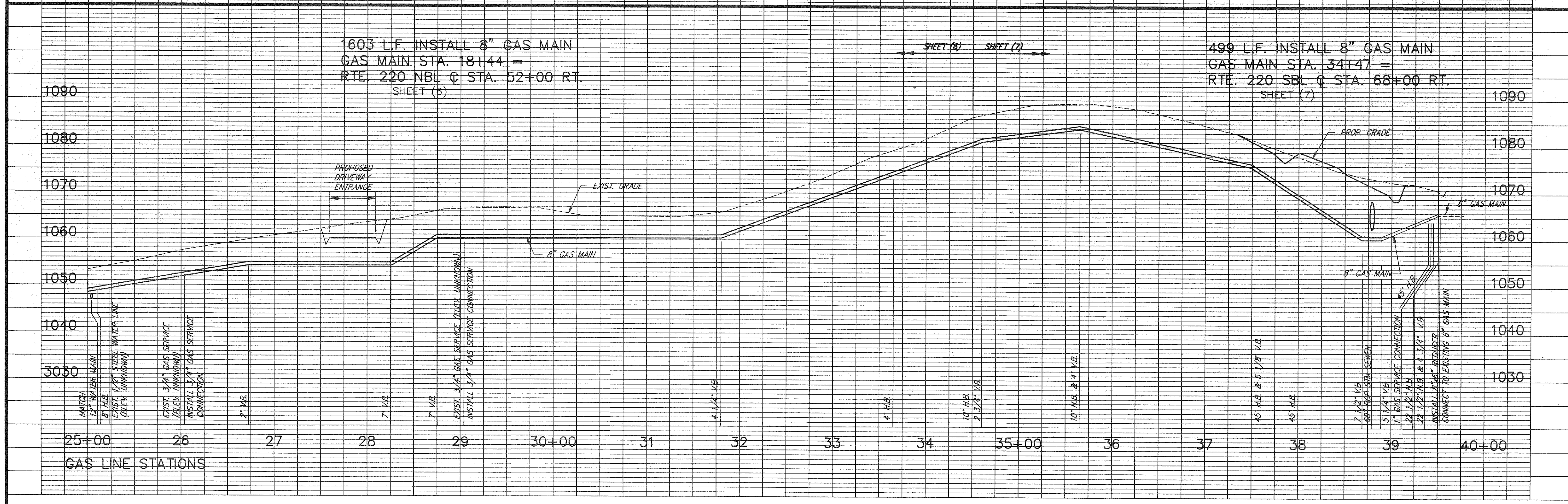
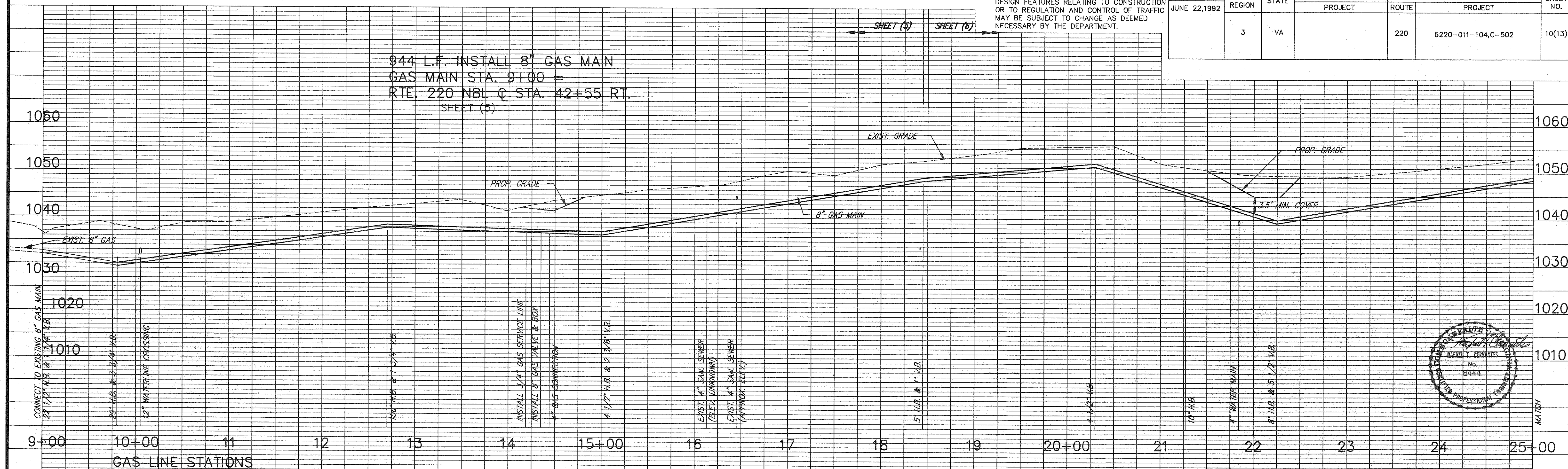
SUPERVISED BY: _____
DESIGNED BY: _____
CADD OPERATOR: _____
REVISED BY: _____
PLAN DATE: _____

PLAN SURVEYED BY: _____ DATE: _____
NOTED BY: _____
NOTE BOOK ALIGNMENT CHECKED BY: _____
No. _____ RIGHT-OF-WAY CHECKED BY: _____

Fallax City, VA

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT.

REVISED	FHWA	STATE	FEDERAL AID	STATE	SHEET NO.
JUNE 22, 1992	REGION		PROJECT	ROUTE	PROJECT
	3	VA		220	6220-011-104, C-502

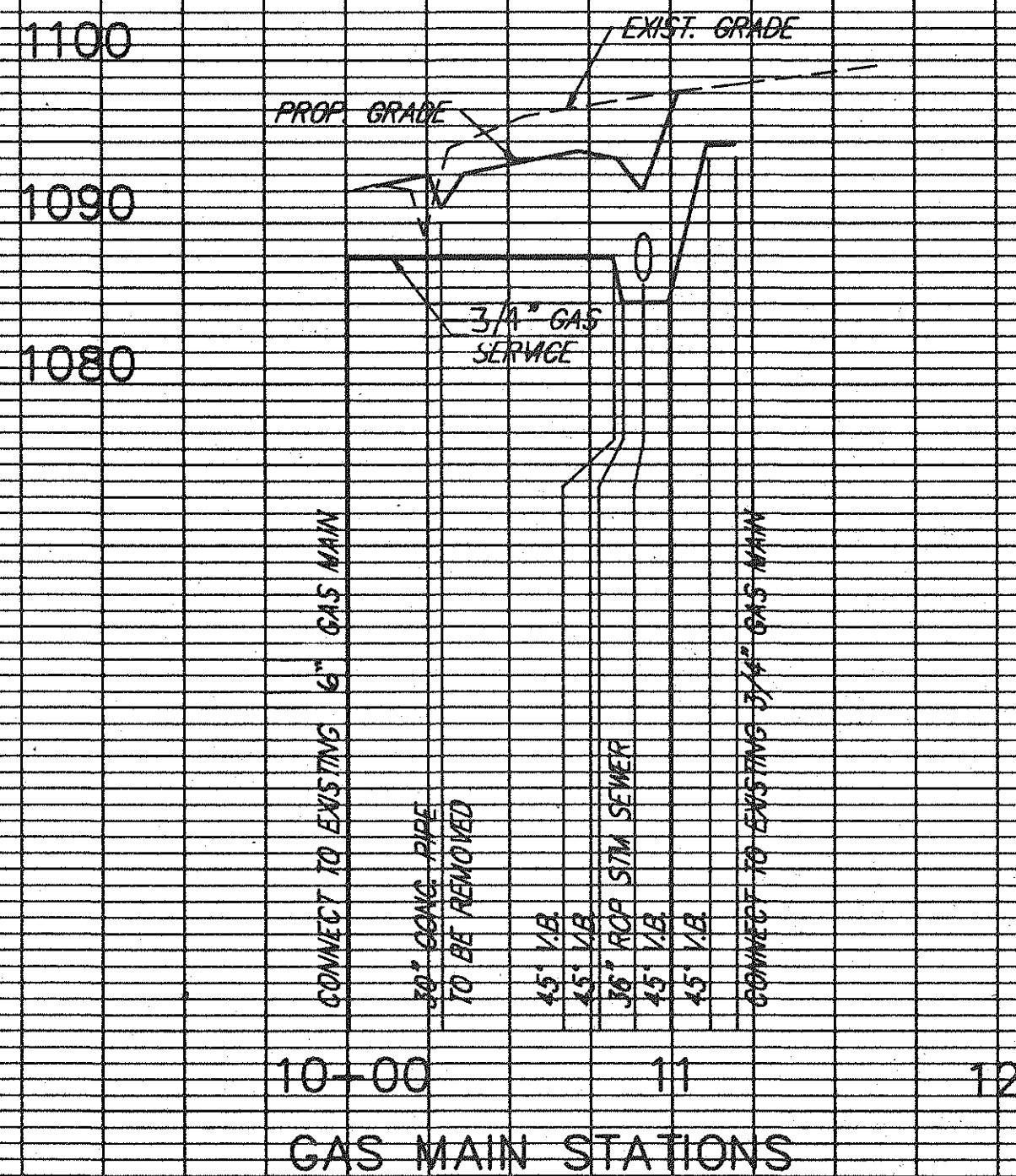
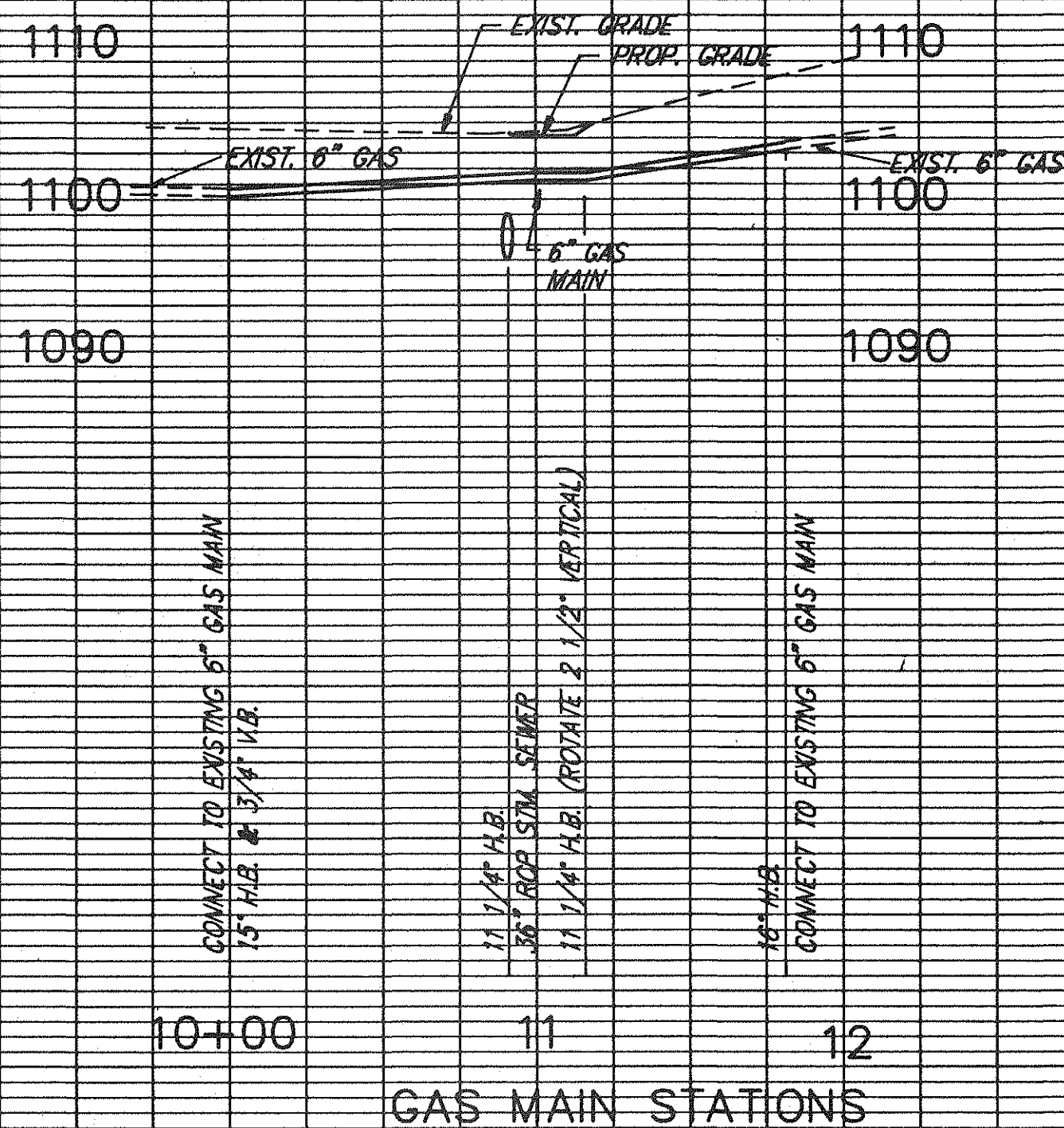
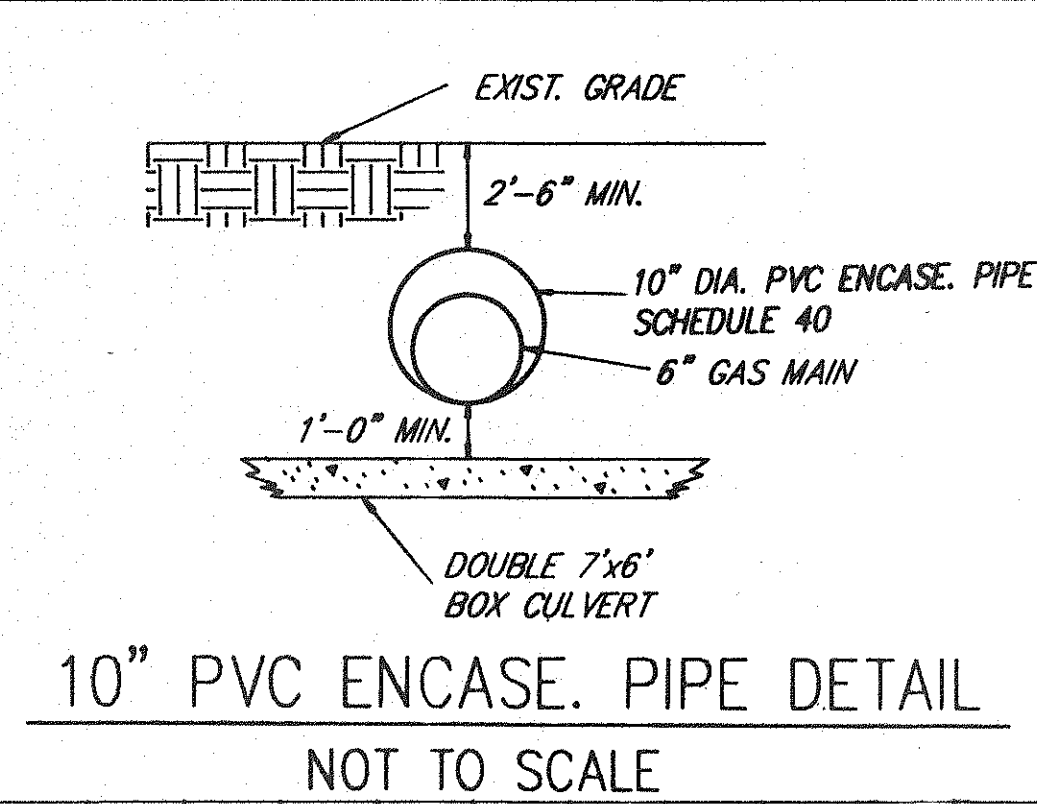


DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT.

REVISED	FHWA REGION	STATE	FEDERAL AID PROJECT	ROUTE	STATE PROJECT	SHEET NO.
JUNE 22, 1992	3	VA		220	6220-011-104, C-502	10(14)

181 L.F. INSTALL 6" GAS MAIN
GAS MAIN STA. 10+00 =
RTE. 220 NBL Q STA. 88+03 LT.
SHEET (8)

120 L.F. INSTALL 3/4" GAS SERVICE LINE
GAS SERVICE STA. 10+00 =
RTE. 220 NBL Q STA. 81+10 AHD. LT.
SHEET (7)



Palix City, VA

Engineers
Planners
Surveyors

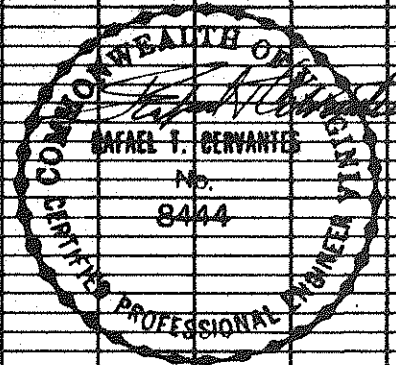
CERVANTES & ASSOCIATES, P.C.

10400 EATON PLAZA SUITE 210
FALLS CHURCH, VA 22044
(703) 991-4114

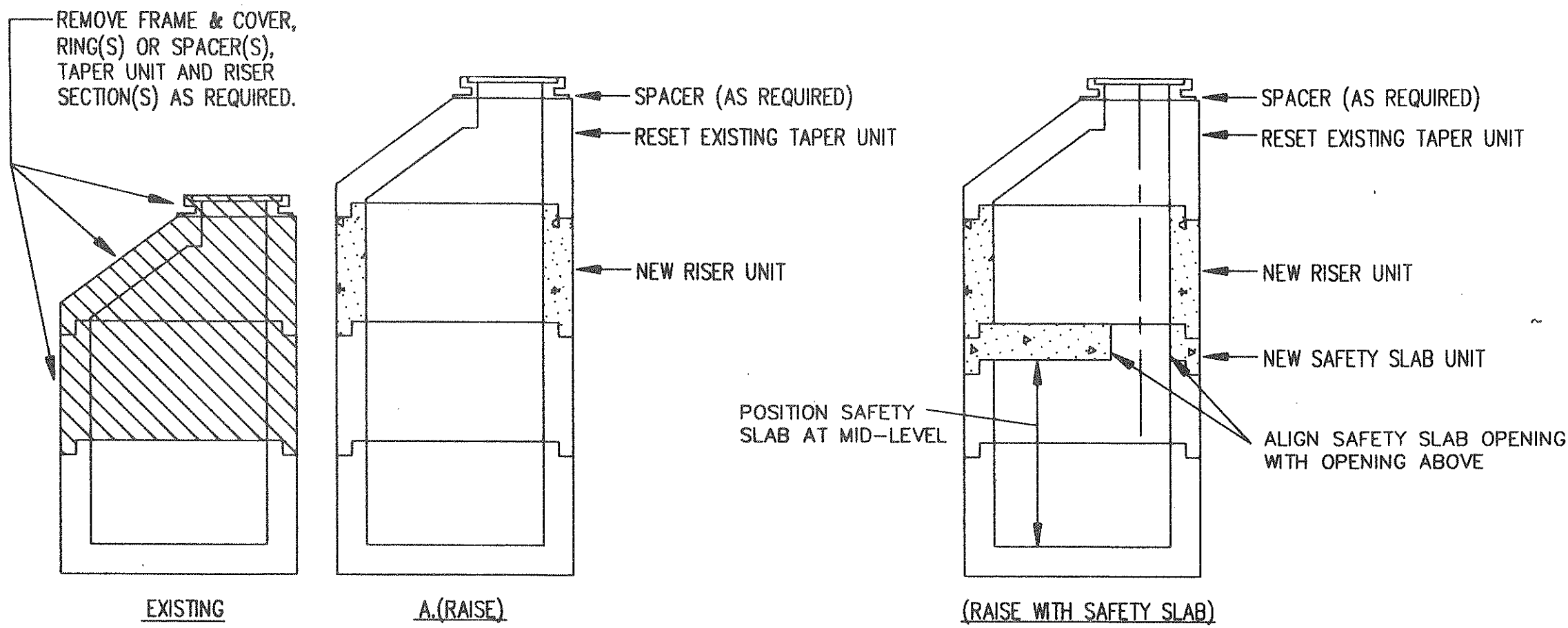


SUPERVISED BY: _____
DESIGNED BY: _____
CADD OPERATOR: _____
REVISED BY: _____
PLAN DATE: _____

PLAN SURVEYED BY: _____ DATE: _____
NOTE BOOK PLOTTED BY: _____
RIGHT-OF-WAY CHECKED BY: _____



RECONSTRUCT EXISTING SANITARY MANHOLE



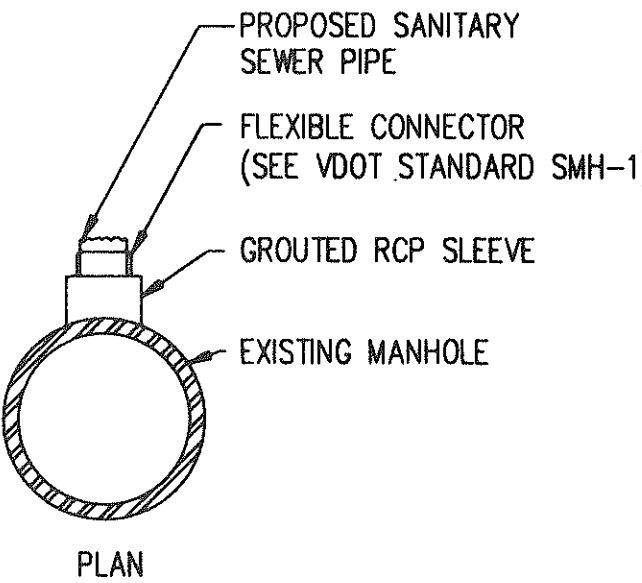
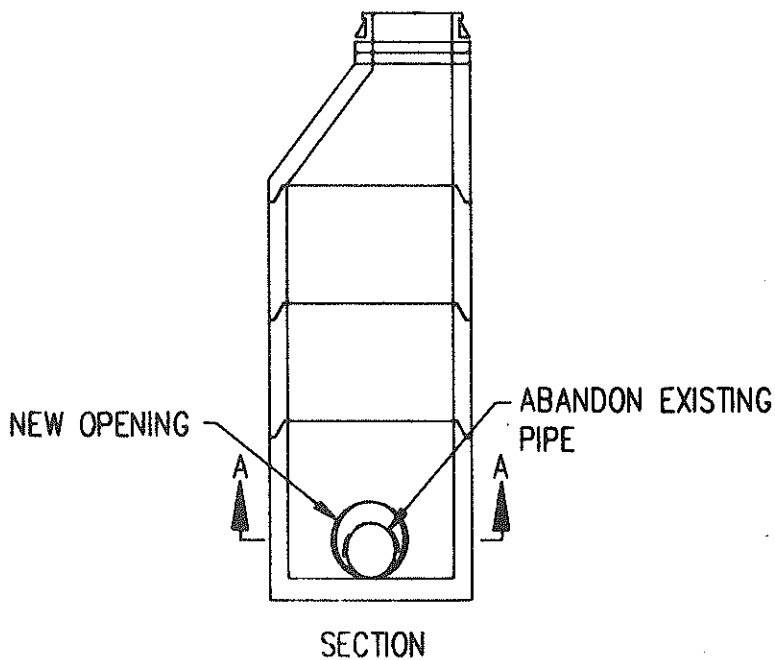
NO SCALE

A. RAISE EXISTING MANHOLE:

1. CONTRACTOR SHALL REMOVE EXISTING FRAME & COVER, ADJUSTING RINGS OR SPACERS AND TAPER UNIT OR FLAT SLAB TOP.
2. CONTRACTOR SHALL ADD RISER UNIT(S) STANDARD R-1 AS REQUIRED TO BRING THE EXISTING MANHOLE TO THE APPROPRIATE HEIGHT.
3. CONTRACTOR SHALL REUSE THE EXISTING TAPER UNIT OR FLAT SLAB TOP WHERE POSSIBLE EXCEPT WHERE OTHERWISE NOTED IN THE PLANS. WHERE THE EXISTING TAPER UNIT OR FLAT SLAB TOP HAS BEEN DAMAGED DURING REMOVAL, OR THE CONTRACTOR HAS BEEN DIRECTED TO REPLACE THE EXISTING TAPER UNIT OR FLAT SLAB TOP DUE TO DESIGN CONSIDERATIONS, THE CONTRACTOR SHALL FURNISH AND INSTALL NEW TAPER UNIT OR FLAT SLAB TOP.
4. CONTRACTOR SHALL INSTALL UNITS SO THAT NEW STEPS ST-1 ARE ALIGNED WITH THE STEPS OF EXISTING MANHOLE.
5. CONTRACTOR SHALL RESET EXISTING FRAME AND COVER, WITH SPACER UNITS T-MH-2 AS REQUIRED TO MEET THE PROPOSED FINAL GRADE. THE HEIGHT OF ADJUSTMENT MADE WITH SPACERS SHALL NOT EXCEED 12 INCHES.
6. CONTRACTOR SHALL COORDINATE MANHOLE RECONSTRUCTION WITH FILL OPERATIONS SO THAT THE RECONSTRUCTED MANHOLE PROJECTS NO MORE THAN FIVE FEET ABOVE GRADE AT ANY TIME DURING CONSTRUCTION.
7. CONTRACTOR SHALL PROVIDE SAFETY SLAB UNIT AT MID ELEVATION OF RECONSTRUCTED MANHOLE WHERE NOTED IN THE PLAN.

CONNECT TO EXISTING MANHOLE

NO SCALE



1. ABANDON EXISTING PIPE OPENING.
2. PROVIDE NEW PIPE OPENING.
3. INSERT AND GROUT NEW RCP, CLASS III, SLEEVE.
4. INSERT NEW FLEXIBLE CONNECTOR.
5. PROVIDE RESHAPING OF INVERT IN ACCORDANCE WITH VDOT STANDARD IS-1.

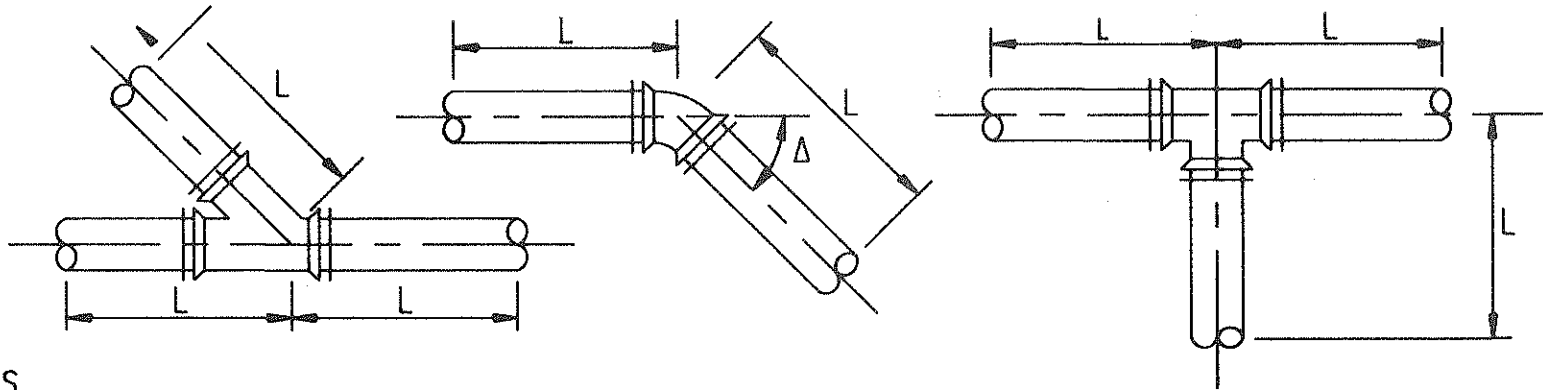
DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

REVISED	FHWA REGION	STATE	FEDERAL AID PROJECT	ROUTE	STATE PROJECT	SHEET NO.
	3	VA.		220	6220-080-107, C-501 6220-011-104, C-502 6220-011-104, RW-202 6220-080-107, RW-201	10(15)

MECHANICAL RESTRAINING DEVICE DETAILS AND NOTES

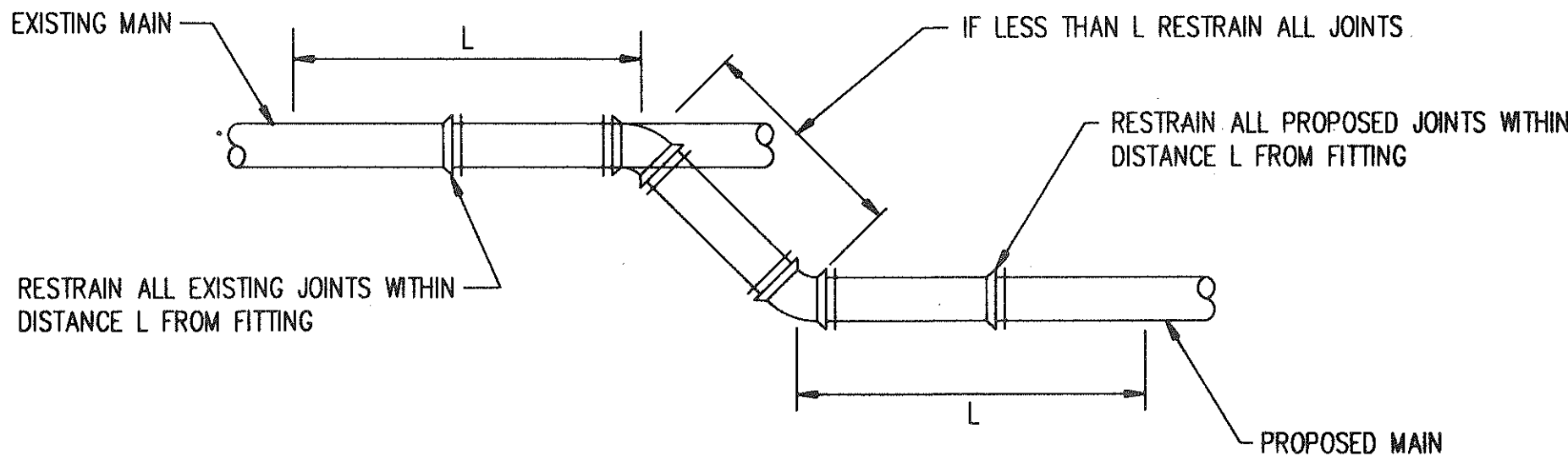
NOTE:

1. RESTRAINED LENGTH BASED ON INTERNAL PRESSURE OF 196 PSI, 3.5' OF COVER AND UNIFIED SOIL CLASSIFICATION "MH".
2. VALVES, TEES, PLUGS AND REDUCERS SHALL BE RESTRAINED BASED ON RESTRAINED LENGTH FOR 90° BENDS UNLESS OTHERWISE NOTED.
3. EXISTING PIPE ADJACENT TO PROPOSED BENDS, WYES, VALVES, TEES, AND PLUGS SHALL BE UNCOVERED AND THE JOINTS RESTRAINED FOR THE LENGTHS INDICATED, WITH A MECHANICAL JOINT RESTRAINING MECHANISM WHICH, WHEN ACTUATED, IMPARTS MULTIPLE WEDGING ACTION AGAINST THE PIPE. IF THE EXISTING PIPE IS UNABLE TO ACCEPT THE MECHANICAL JOINT RESTRAINING MECHANISM, THE EXISTING PIPE SHALL BE REPLACED WITH DUCTILE IRON WATER MAIN IN ACCORDANCE WITH MATERIAL NOTE [1] ON SHEET(1). MECHANICAL JOINT RESTRAINING MECHANISMS SHALL NOT BE USED ON EXISTING POLYVINYLCHLORIDE(PVC) OR ASBESTOS CEMENT (AC) PIPE.

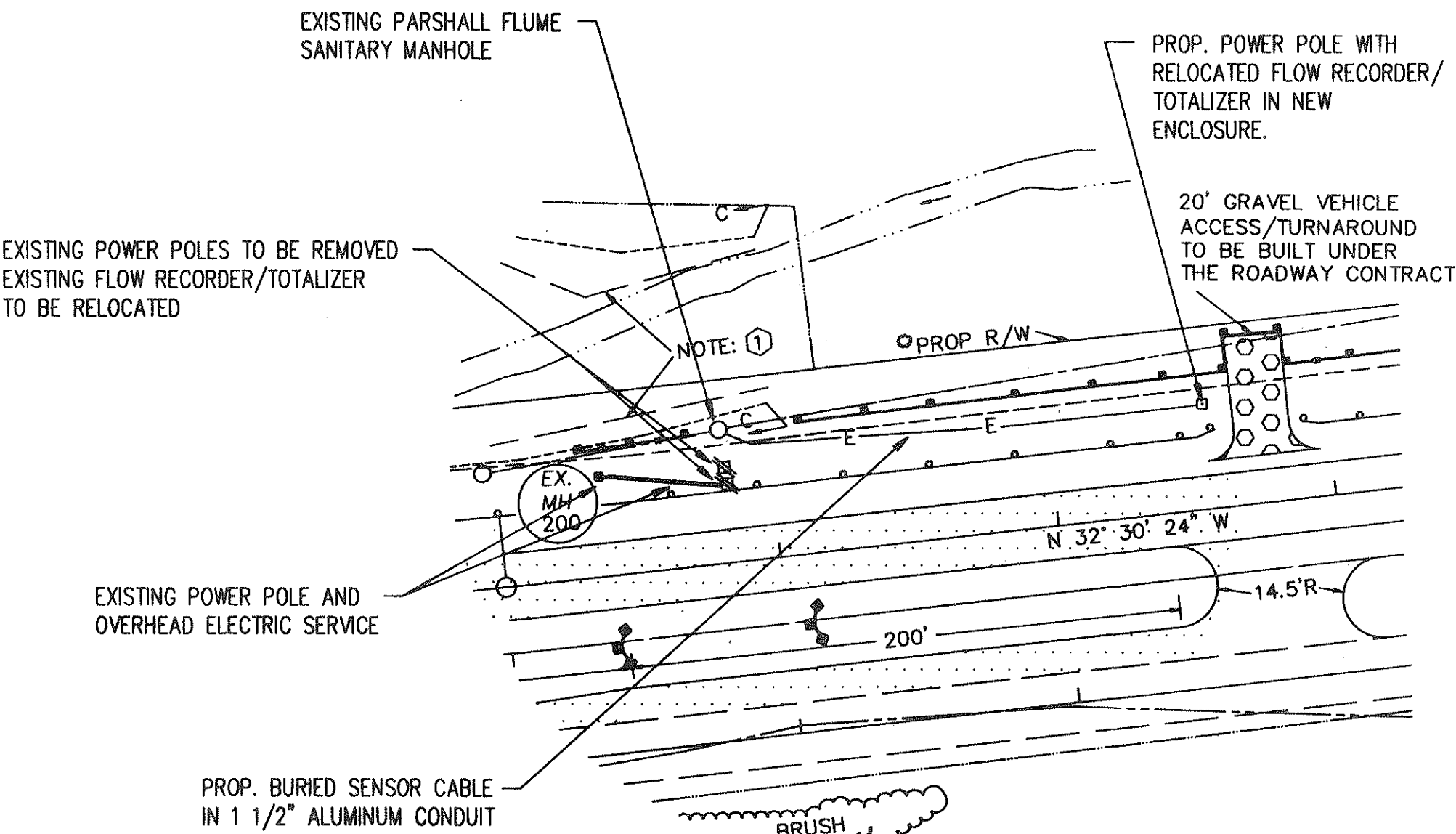


PIPE SIZE	MINIMUM LENGTH OF PIPE WITH RESTRAINED JOINTS (L)							
	Δ=90°		Δ=45°		Δ=22 1/2°		Δ=11 1/4°	
	HORIZ.	VERT.	HORIZ.	VERT.	HORIZ.	VERT.	HORIZ.	VERT.
4"	21'	30'	9'	12'	4'	6'	2'	3'
12"	56'	77'	23'	32'	11'	15'	5'	8'

RESTRAINING DEVICE EXAMPLE



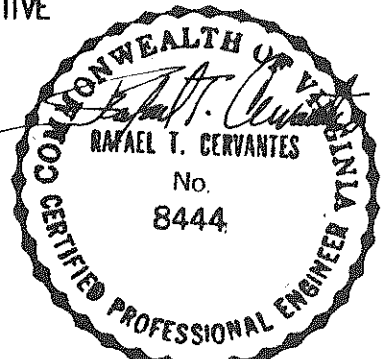
RELOCATE SANITARY FLOW RECORDER



DETAIL FROM SHEET 10(5)

SCALE: 1" = 50'

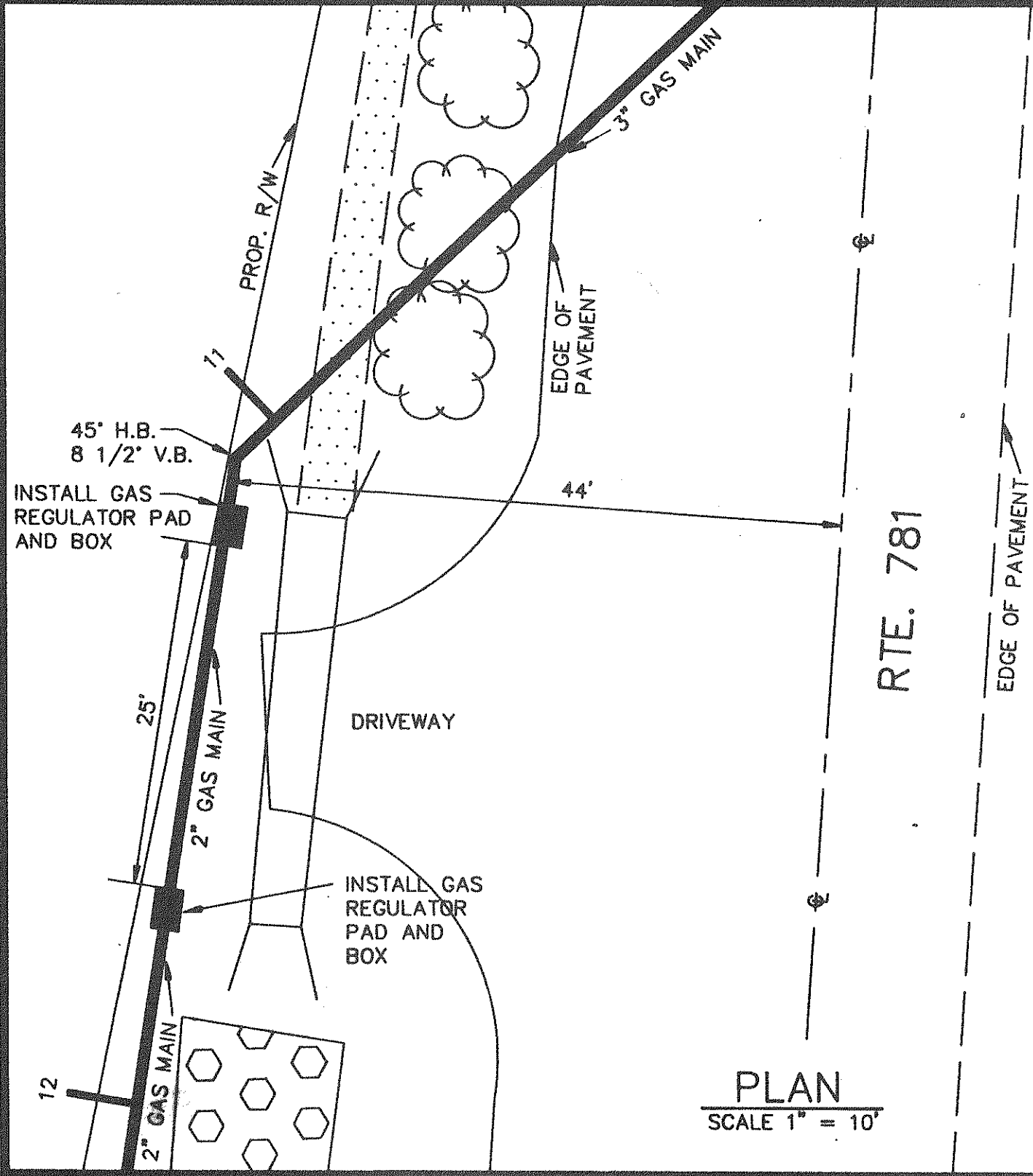
1. THE RELOCATION OF THE FLOW RECORDER SHALL BE COORDINATED WITH THE COUNTY OF BOTETOURT, COUNTY ENGINEER, KEVIN SHEARER, (TELE(703)473-8316)). THE COUNTY ENGINEER SHALL BE NOTIFIED 5 WORKING DAYS PRIOR TO THE RELOCATION OF THE FLOW RECORDER.
2. CONTRACTOR SHALL FURNISH AND INSTALL A NEW POWER POLE AT THE LOCATION SHOWN, AND SHALL MOUNT THE EXISTING FLOW RECORDER/TOTALIZER (ISCO MODEL 3210) ON THE NEW POLE IN A NEW ENCLOSURE. THE NEW ENCLOSURE SHALL BE A NEMA 4X 24"x24"x12", HOFFMAN MODEL 24H2412GQRLP OR Tanco EQUIVALENT, MOUNTED 4' ABOVE FINISH GRADE.
3. CONTRACTOR SHALL FURNISH AND INSTALL A BURIED SENSOR CABLE IN 1 1/2" ALUMINUM CONDUIT, CONNECTING THE RELOCATED FLOW RECORDER TO THE PARSHALL FLUME MANHOLE. CABLE TO BE ISCO EXTENSION CABLE WITH SCREW ON CONNECTORS OR COMPATIBLE EQUIVALENT. CONDUIT OPENINGS TO BE SEALED AND WATERTIGHT.
4. CONTRACTOR SHALL PROVIDE ELECTRIC SERVICE TO THE NEW FLOW RECORDER/TOTALIZER, THROUGH THE APPROPRIATE POWER COMPANY.
5. THE CONTRACTOR SHALL HAVE A MANUFACTURERS REPRESENTATIVE INSPECT THE INSTALLATION OF THE FLOW RECORDER/TOTALIZER AND CALIBRATE THE MECHANISM.
6. RELOCATION OF THE SANITARY FLOW RECORDER WILL BE MEASURED IN UNITS EACH AND WILL BE PAID FOR AT THE CONTRACT UNIT PRICE PER EACH. THIS PRICE SHALL INCLUDE EXCAVATION, BACKFILL WITH SUITABLE MATERIAL, DISPOSAL OF UNSUITABLE MATERIAL, RECONNECTING ELECTRICAL COMPONENTS FOR ELECTRICAL AND ELECTRONIC ITEMS, REVISING WIRING DIAGRAMS OR SCHEMATICS, RESTORING DISTURBED AREAS AND ITEMS 1 THROUGH 5 ABOVE.



SUPERVISED BY: JB-SUPER
DESIGNED BY: JB-DESIGN
CADD OPERATOR: JB-CADD
REVISED BY: JB-DATE
PLAN DATE: JB-DATE

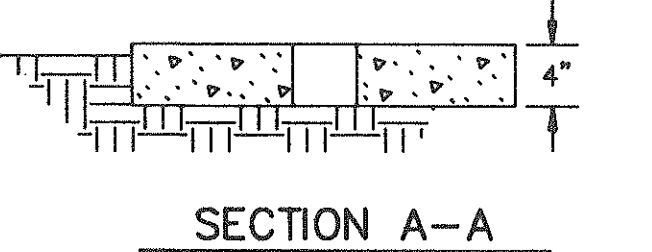
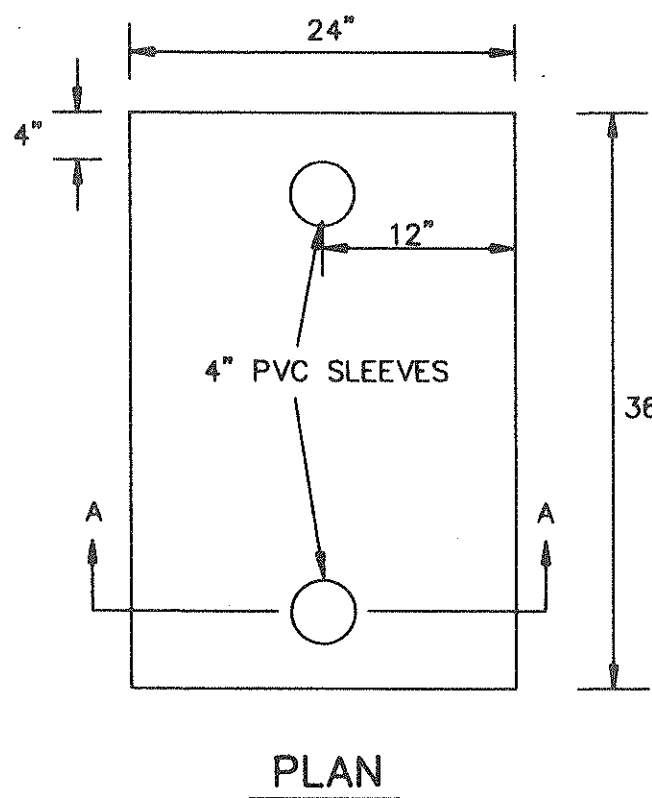
Engineers
Planners
Surveyors

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1040 EAST PLAZA SUITE 20
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(703) 861-4114



GAS REGULATOR PAD

(TYPICAL)



CONCRETE: CLASS A-3