

GLADE CREEK COLLECTOR

PHASE ONE

NOTE:

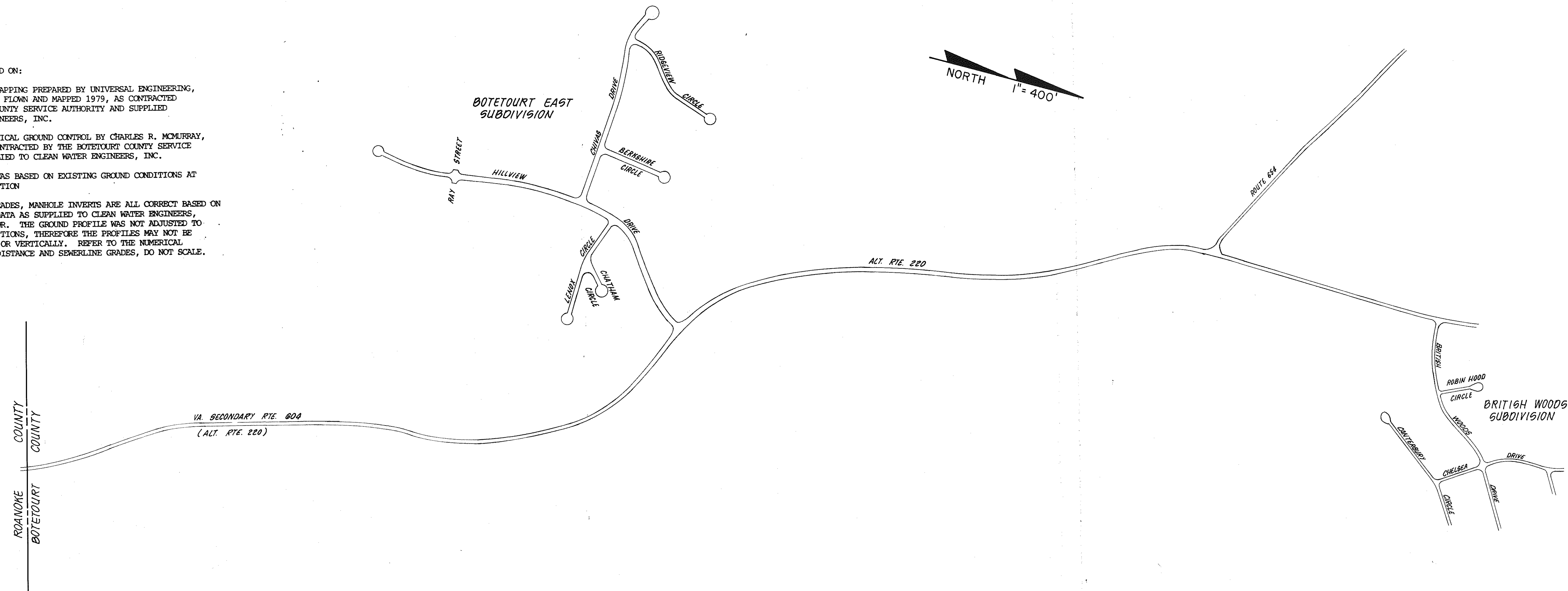
PLANS WERE PREPARED BASED ON:

AERIAL TOPOGRAPHY MAPPING PREPARED BY UNIVERSAL ENGINEERING, ROCKVILLE, MARYLAND FLOWN AND MAPPED 1979, AS CONTRACTED BY THE BOTETOURT COUNTY SERVICE AUTHORITY AND SUPPLIED TO CLEAN WATER ENGINEERS, INC.

HORIZONTAL AND VERTICAL GROUND CONTROL BY CHARLES R. McMURRAY, C.L.S., 1979, AS CONTRACTED BY THE BOTETOURT COUNTY SERVICE AUTHORITY AND SUPPLIED TO CLEAN WATER ENGINEERS, INC.

"AS-BUILT" INFORMATION WAS BASED ON EXISTING GROUND CONDITIONS AT COMPLETION OF CONSTRUCTION

PLAN VIEWS, SEWERLINE GRADES, MANHOLE INVERTS ARE ALL CORRECT BASED ON APPROVED "CUT-SHEET" DATA AS SUPPLIED TO CLEAN WATER ENGINEERS, INC., BY THE CONTRACTOR. THE GROUND PROFILE WAS NOT ADJUSTED TO REFLECT AS-BUILT CONDITIONS, THEREFORE THE PROFILES MAY NOT BE TO SCALE HORIZONTALLY OR VERTICALLY. REFER TO THE NUMERICAL NOTES FOR HORIZONTAL DISTANCE AND SEWERLINE GRADES, DO NOT SCALE.

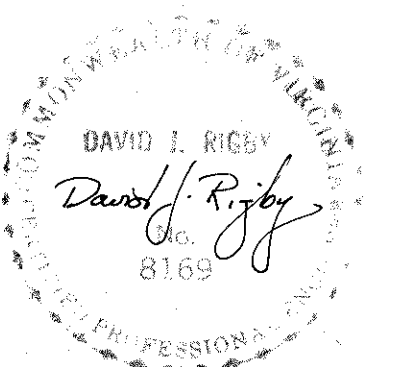


BOTETOURT COUNTY SERVICE

AUTHORITY

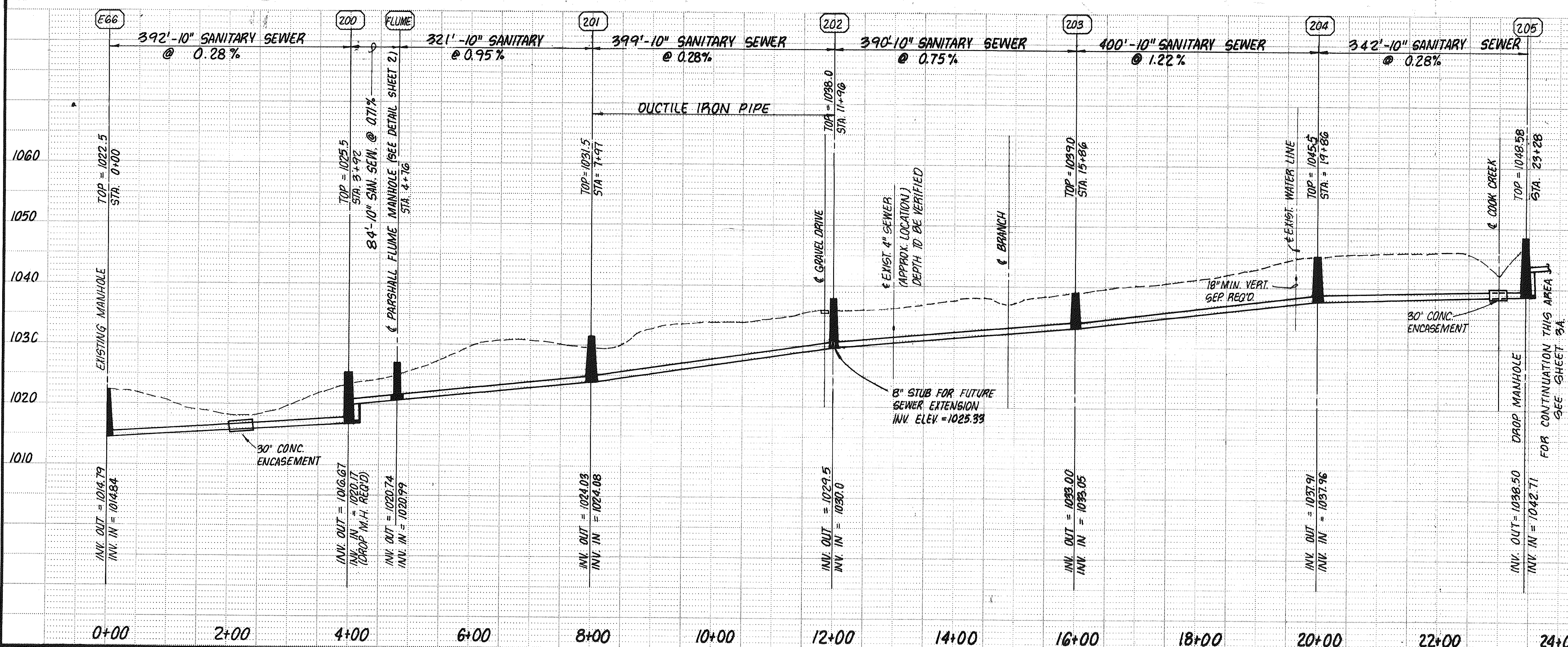
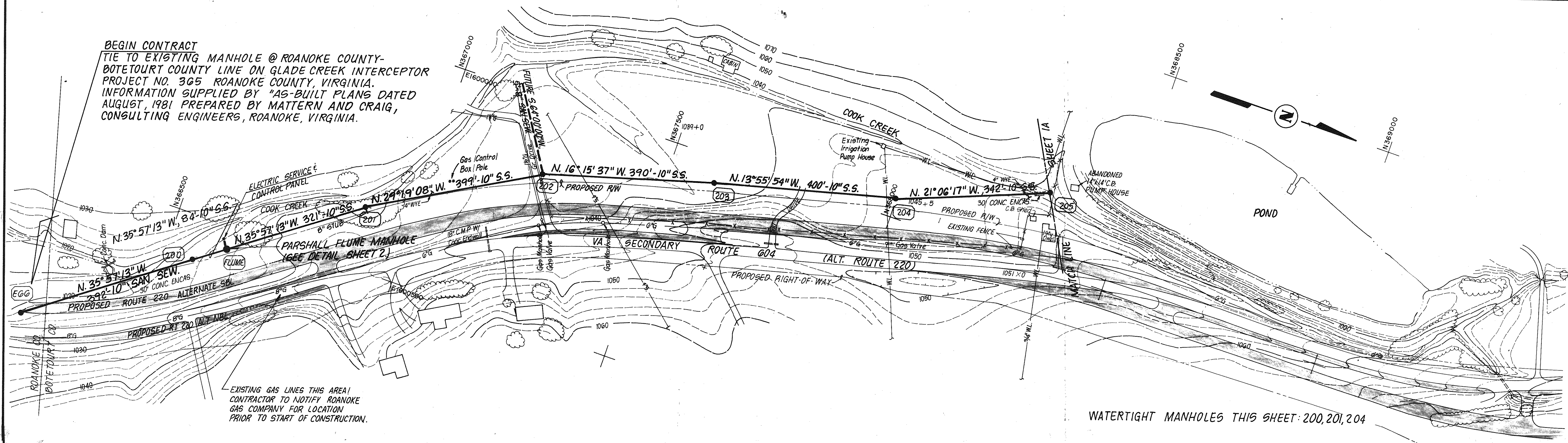
Clean Water Engineers, Inc.

Fincastle, Virginia



"AS BUILTS"

BEGIN CONTRACT
TIE TO EXISTING MANHOLE @ ROANOKE COUNTY-
BOTETOURT COUNTY LINE ON GLADE CREEK INTERCEPTOR
PROJECT NO. 365 ROANOKE COUNTY, VIRGINIA.
INFORMATION SUPPLIED BY "AS-BUILT" PLANS DATED
AUGUST, 1981 PREPARED BY MATTERN AND CRAIG,
CONSULTING ENGINEERS, ROANOKE, VIRGINIA.



GENERAL NOTES

VERTICAL CONTROL: NATIONAL GEODETIC VERTICAL DATUM, MEAN SEA LEVEL 1929. HORIZONTAL CONTROL: STATE PLANE COORDINATE SYSTEM.

THE LOCATION OF EXISTING UNDERGROUND UTILITIES ARE APPROXIMATE AND SHOULD BE VERIFIED BY CONTRACTOR PRIOR TO CONSTRUCTION. CONTRACTOR SHALL NOTIFY "MISS. UTILITY OF VIRGINIA" 1-800-552-7001, AT LEAST 48 HOURS IN ADVANCE OF EXCAVATION IN ORDER TO VERIFY LOCATION OF UNDERGROUND UTILITIES.

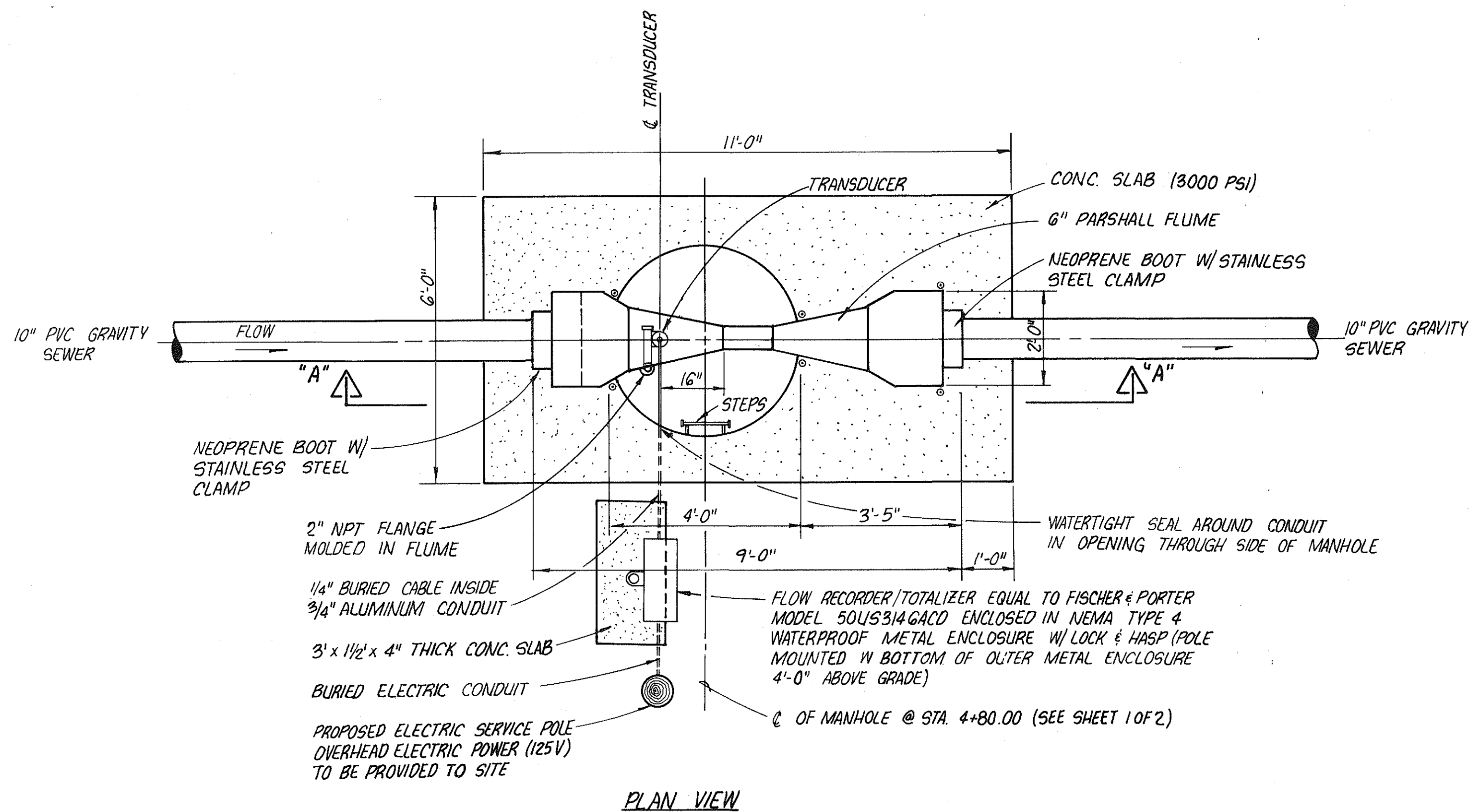
EXISTING SURFACES DISTURBED BY CONTRACTOR'S WORK SHALL BE RESTORED TO THEIR PRESENT CONDITION.

CONTRACTOR SHALL PERFORM WORK IN SUCH A MANNER AS TO MINIMIZE THE EROSION OF SOILS.

THERE SHALL BE 10' MINIMUM HORIZONTAL SEPARATION BETWEEN WATER AND SEWER LINES AND 10' MINIMUM VERTICAL SEPARATION WHERE SPECIFIED.

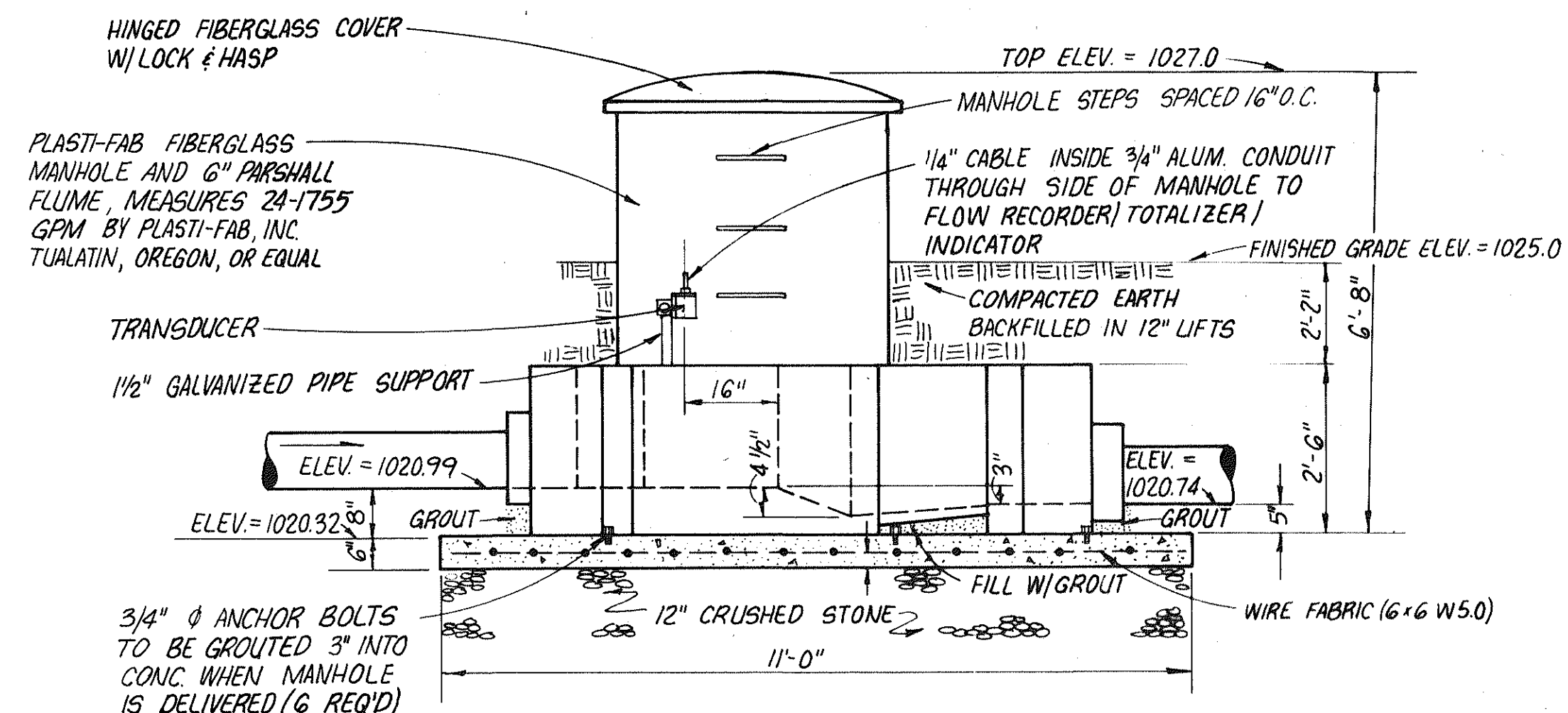
PROJECT #8681
J.P. TURNER & BROS., INC. SALEM, VA. SPRING 1981.

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PARSHALL FLUME MANHOLE

SCALE: 1/2" = 1'-0"



SCHEDULE OF EQUIPMENT

FIBERGLASS MANHOLE -

4' DIAMETER FIBERGLASS MANHOLE MEETING REQUIREMENTS OF ANSI/ASTM D-3753 "STANDARD SPECIFICATIONS FOR FIBER-REINFORCED MANHOLES," AS MANUFACTURED BY PLASTI-FAB, INC., TUALATIN, OREGON, OR EQUAL

FLOW METER - (W/ RECORDER/TOTALIZER)

ULTRASONIC OPEN CHANNEL FLOW METER EQUAL TO FISCHER & PORTER MODEL 50US3146ACD WITH PIPE MOUNTED TRANSDUCER, TRANSMITTER, 7 DIGIT TOTALIZER, AND 12 INCH DIAMETER CIRCULAR CHART RECORDER WITH 7 DAY CHART DRIVE. THE 18 1/4" x 14 1/2" x 6" x 1" RECORDER/TRANSMITTER ENCLOSURE SHALL BE INSTALLED INSIDE A NEMA TYPE 4 WATERPROOF METAL ENCLOSURE TO PROTECT AGAINST FLOODING AND VANDALISM.

6" PARSHALL FLUME -

SHALL BE FIBERGLASS MANUFACTURED BY PLASTI-FAB, INC., TUALATIN, OREGON, OR EQUAL

SUPPORT POLE - (FOR RECORDER/TOTALIZER ENCLOSURE)

2 1/2" GALVANIZED PIPE

NOTE: CONTRACTOR SHALL OBTAIN START-UP AND CALIBRATION SERVICES BY MANUFACTURERS REPRESENTATIVE FOR A MAXIMUM OF 2 DAYS ONSITE FOR THE FLOW METER EQUIPMENT.

NOTE:

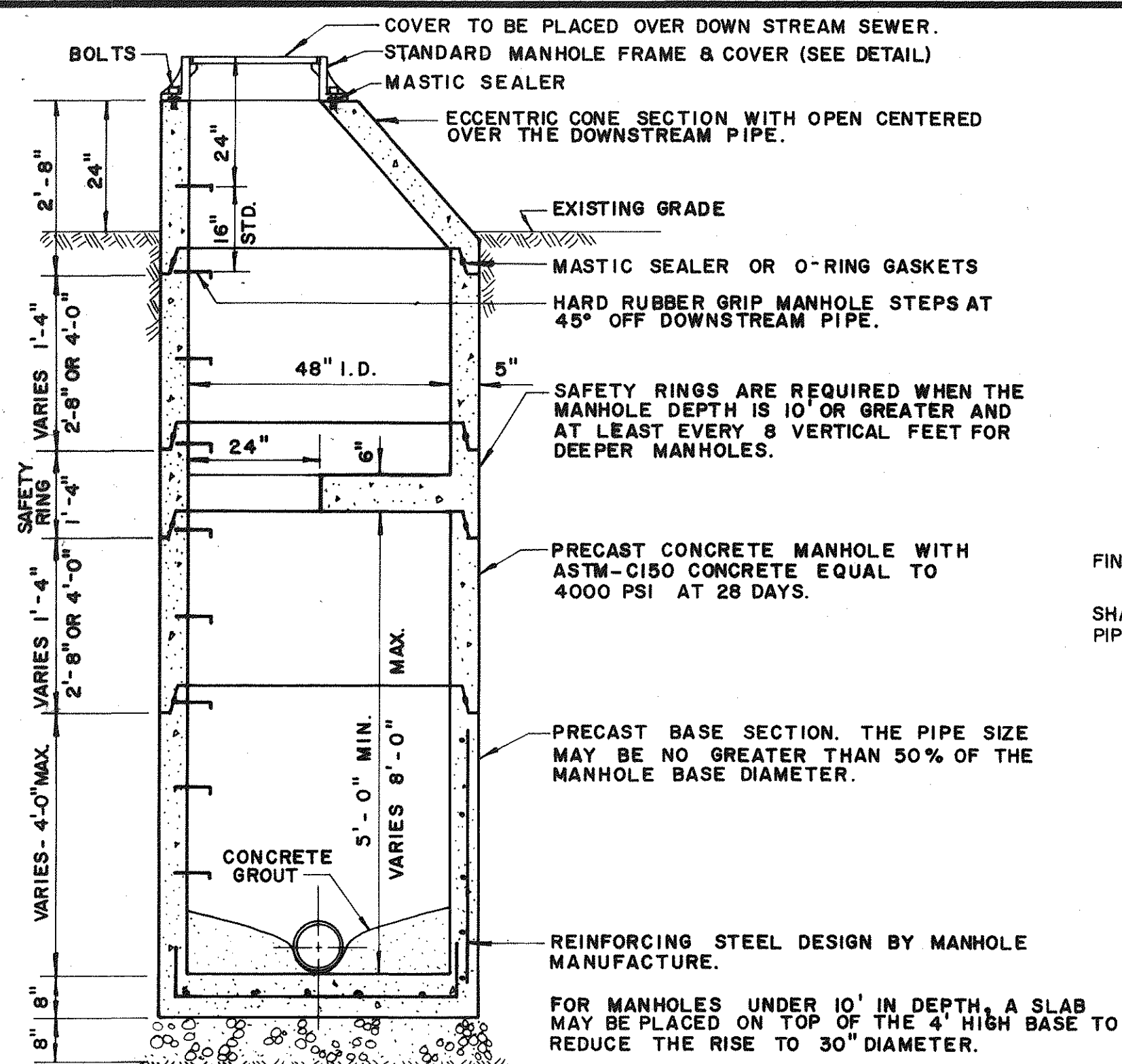
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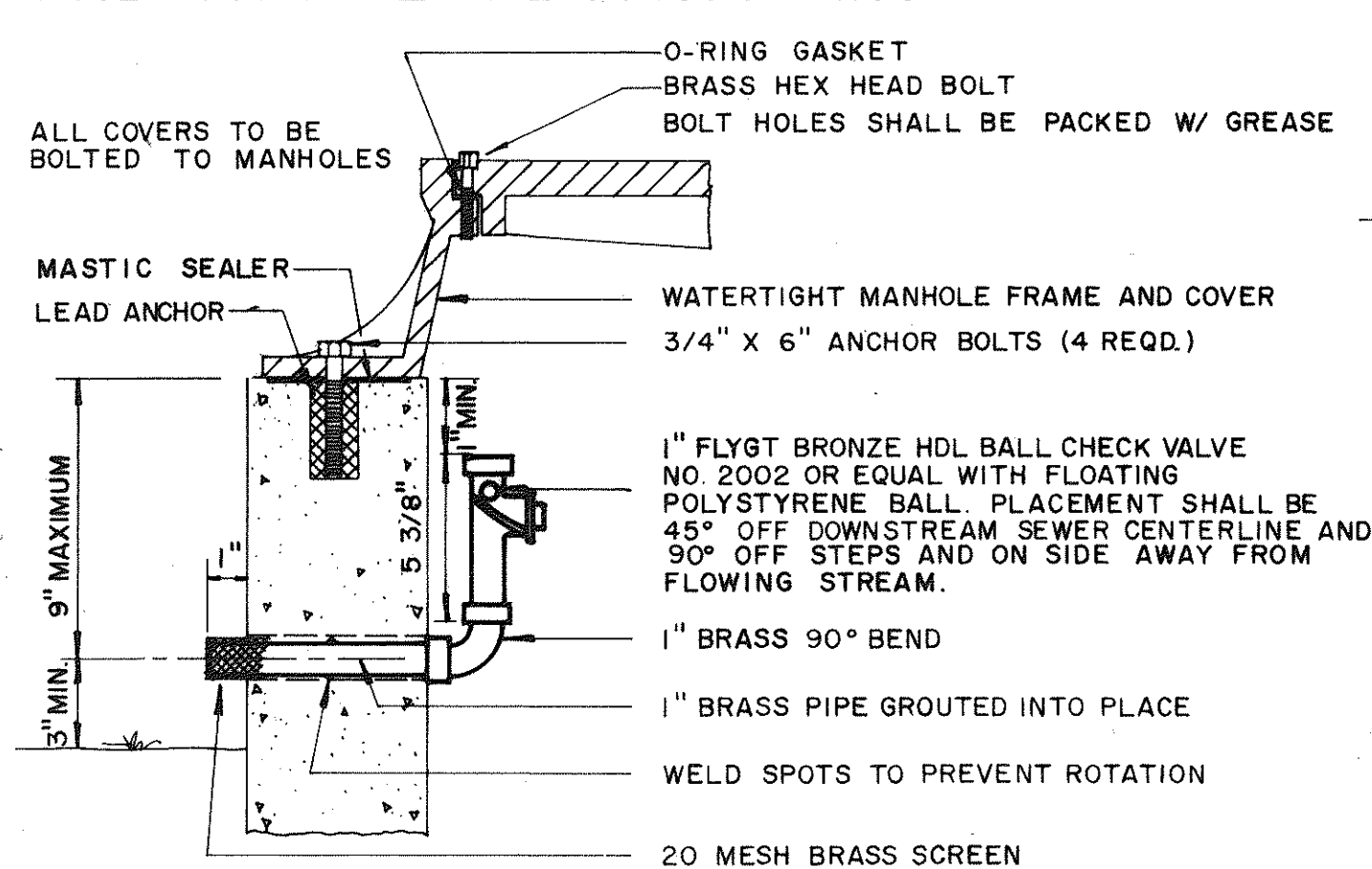
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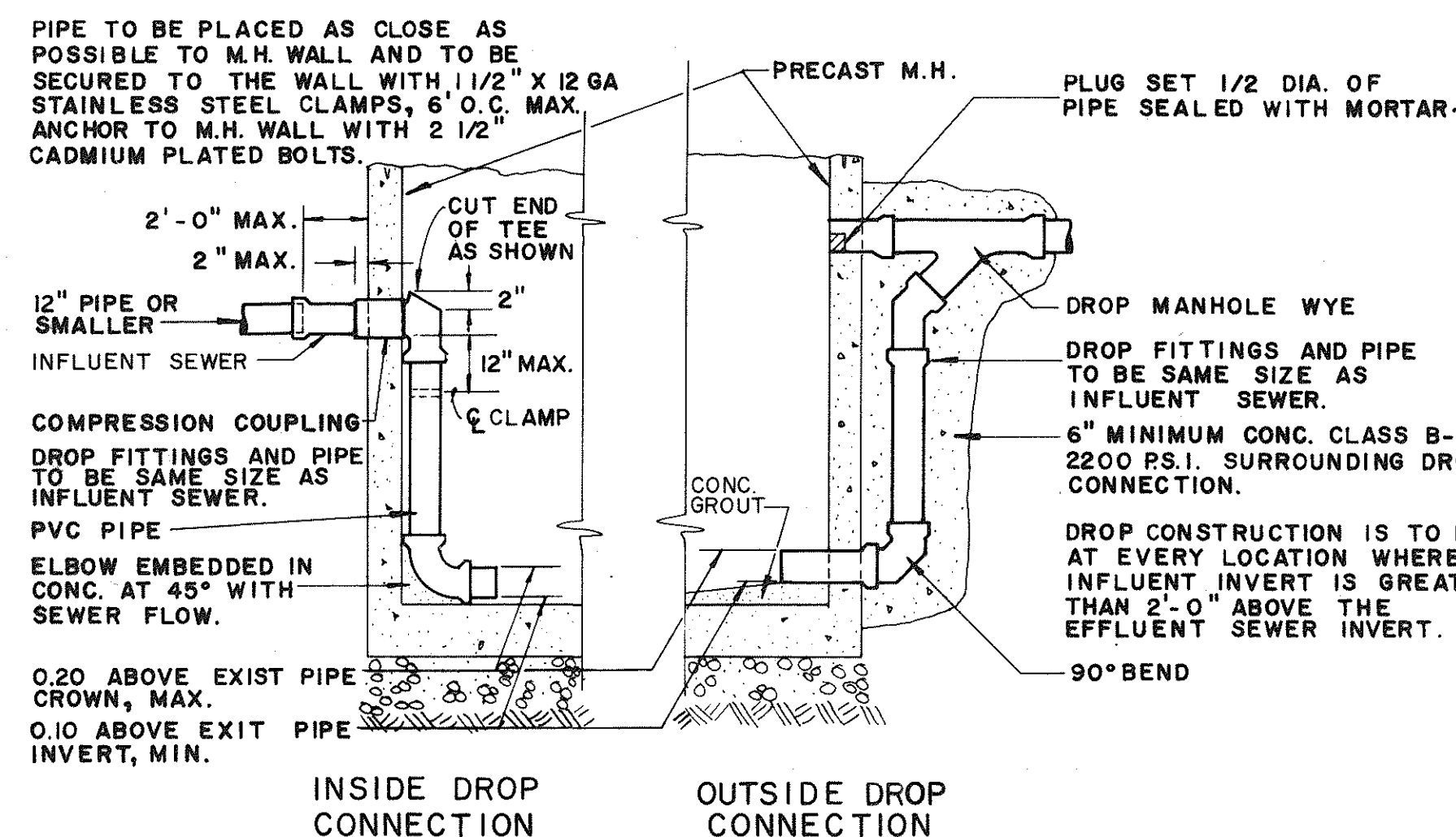
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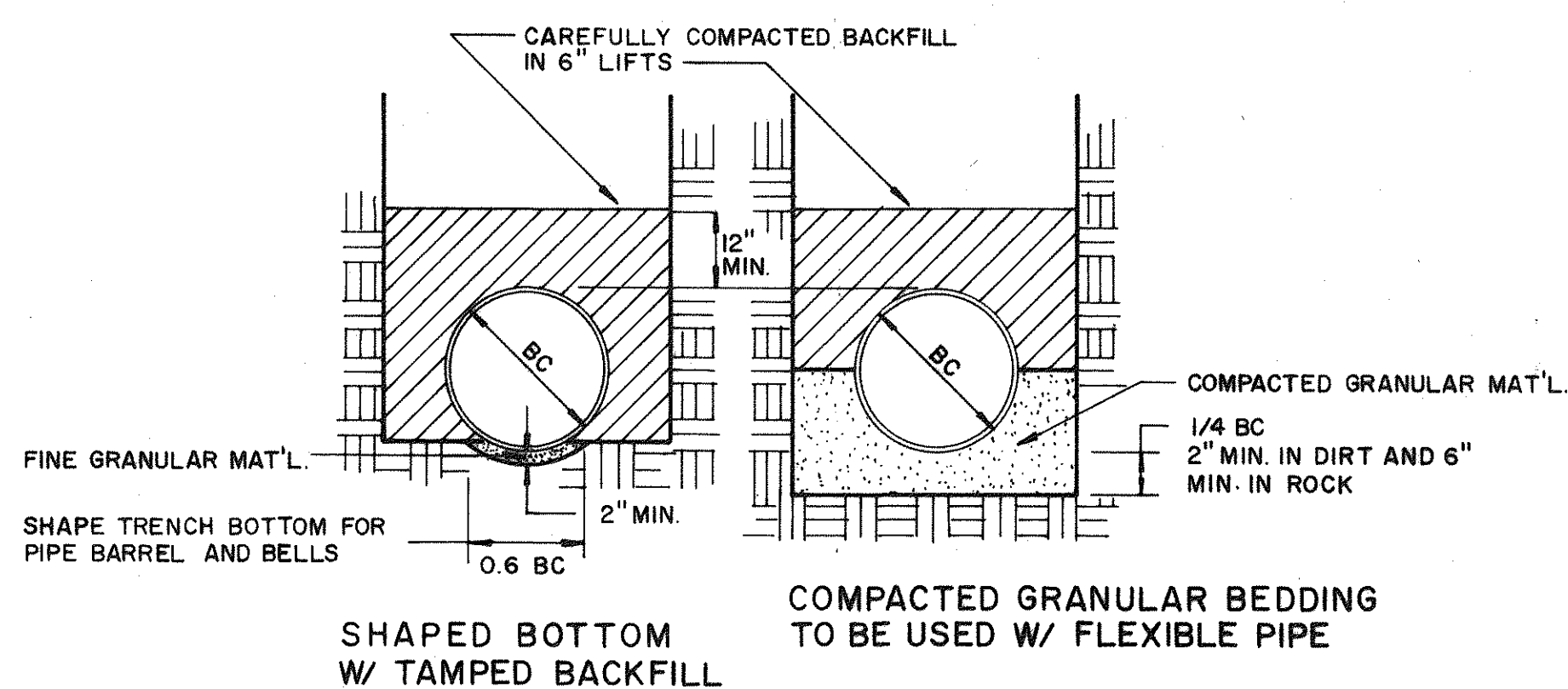
PRECAST ECCENTRIC MANHOLE



WATERTIGHT MANHOLE VENT DETAIL

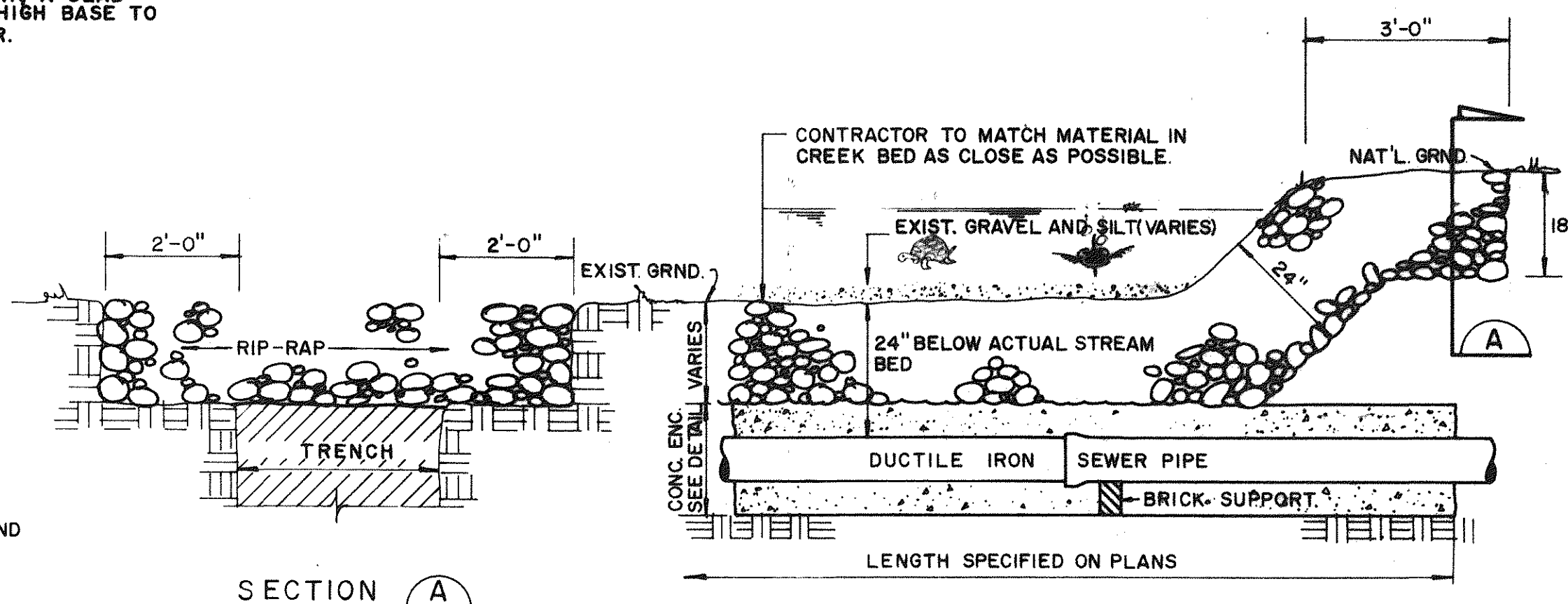


DROP CONSTRUCTION AT STANDARD MANHOLE



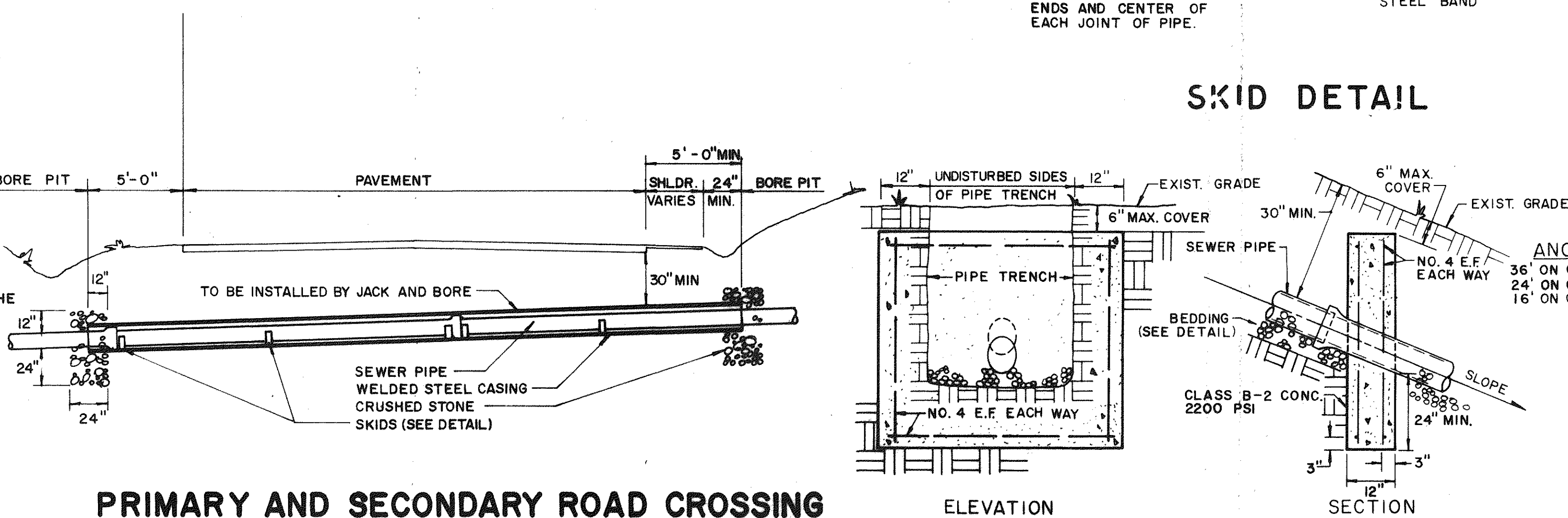
THE CONTRACTOR SHALL CHOOSE ONE OF THESE METHODS OF PIPE BEDDING UNLESS OTHERWISE DIRECTED BY THE ENGINEER

BEDDING DETAIL FIRST CLASS—CLASS B BEDDING

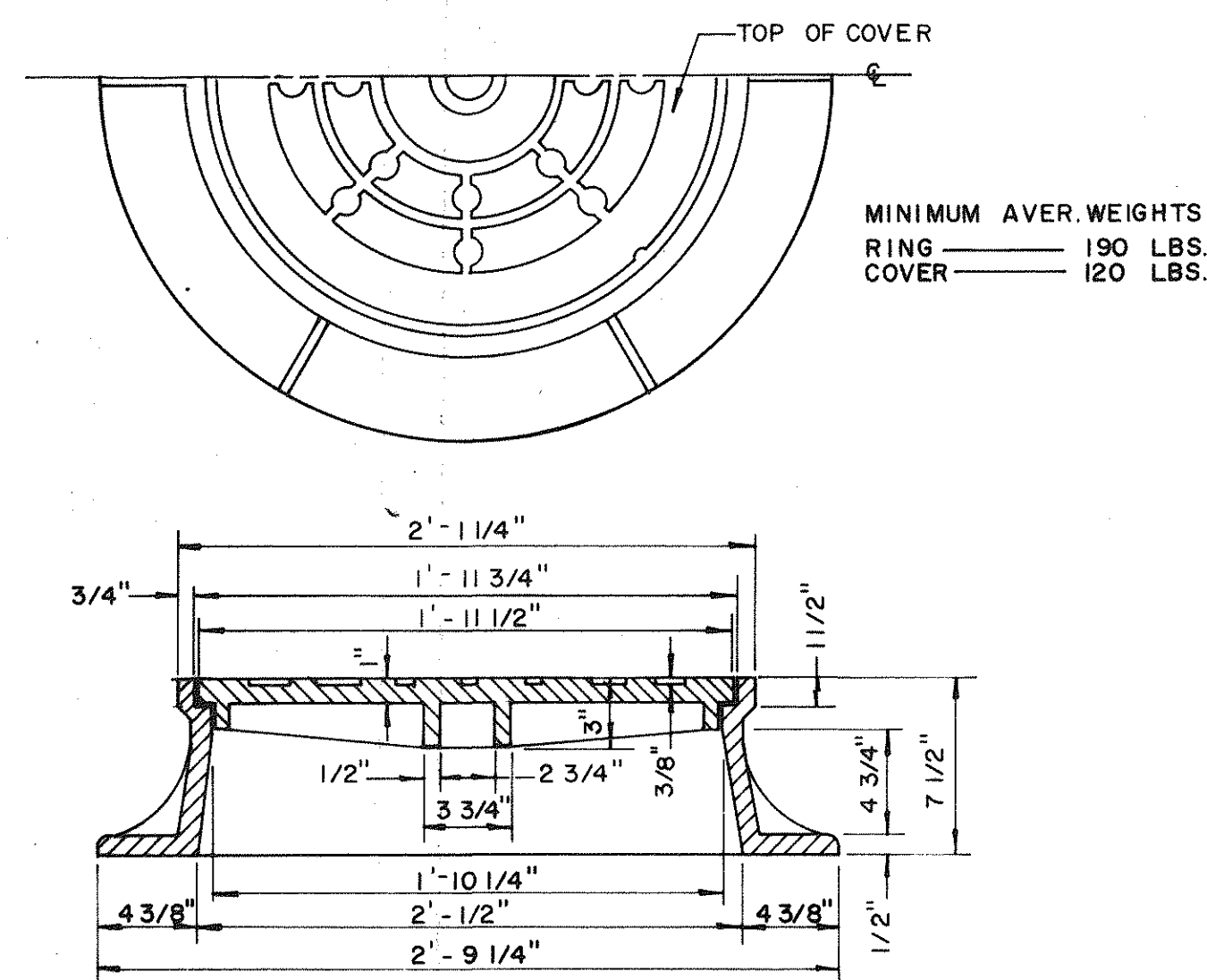


NOTE: AFTER CONSTR. OF EACH CREEK CROSSING THE LINES SHALL BE TESTED FOR INFILTRATION IN ACCORDANCE WITH THE SPECIFICATIONS WITH ZERO INFILTRATION. SHOULD INFILTRATION BE PRESENT, THE CONTRACTOR SHALL RECONSTRUCT THE CROSSING UNTIL ZERO INFILTRATION IS OBTAINED.

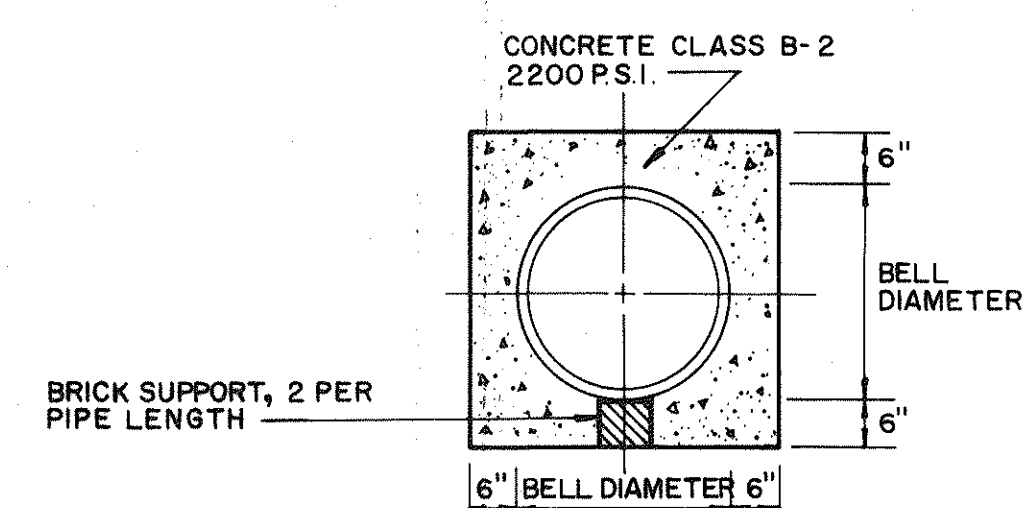
TYPICAL CREEK CROSSING AND BANK PROTECTION



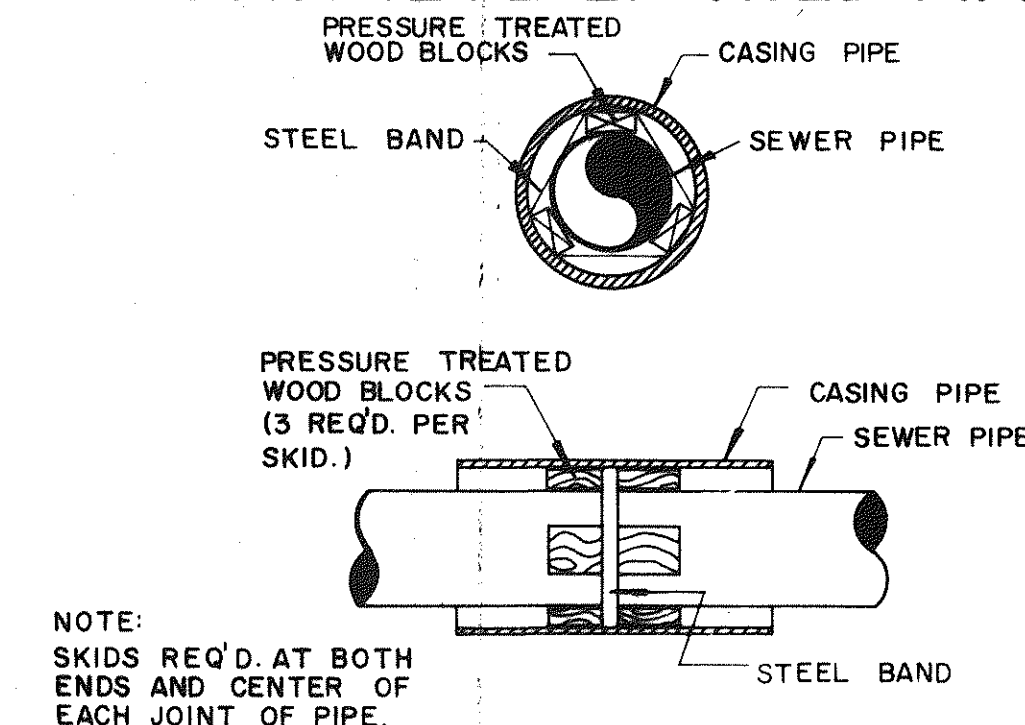
PRIMARY AND SECONDARY ROAD CROSSING



STANDARD MANHOLE COVER



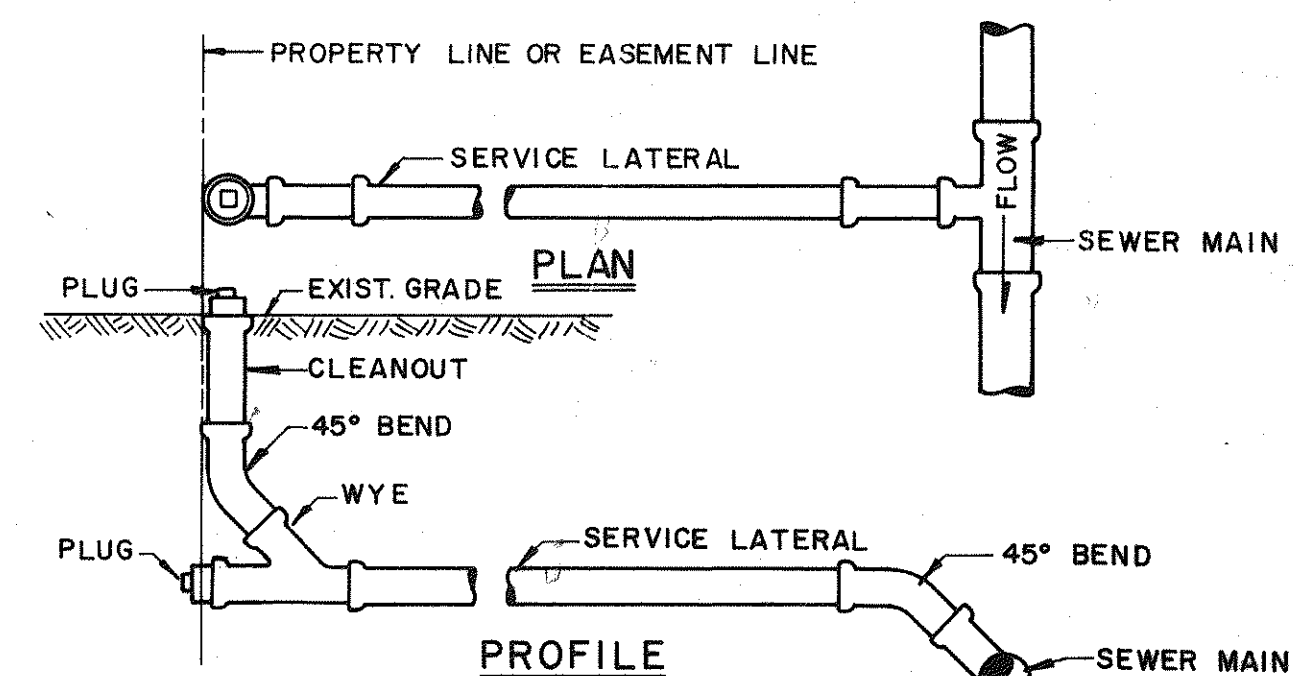
CONCRETE ENCASED PIPE



NOTE: SKIDS REQ'D. AT BOTH ENDS AND CENTER OF EACH JOINT OF PIPE.

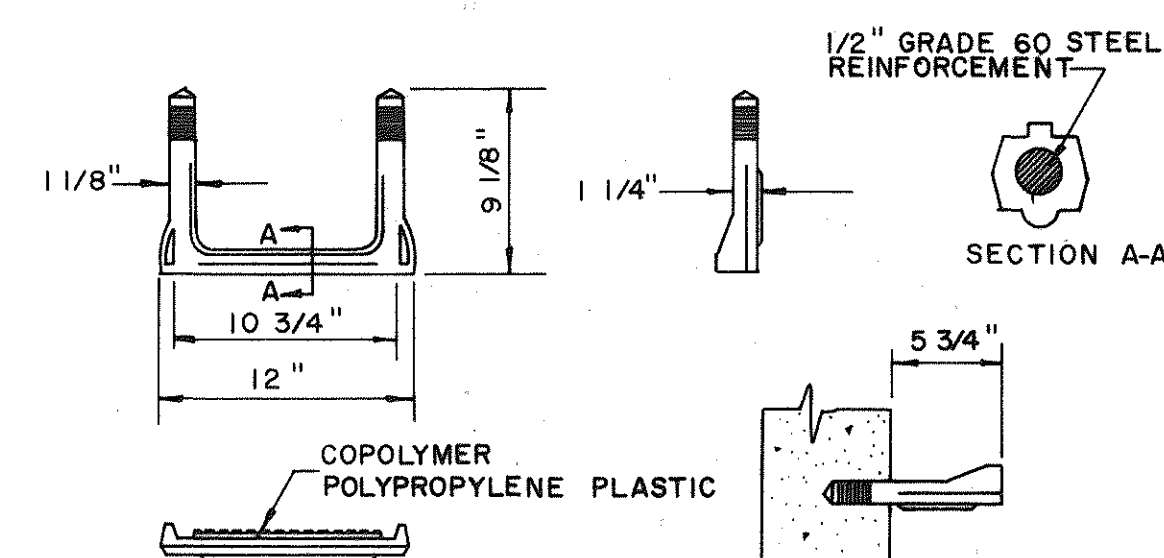
SKID DETAIL

CONCRETE ANCHOR DETAIL



FOR RESIDENTIAL CONNECTIONS LATERAL PIPES SHALL BE 4" DIA. FOR COMMERCIAL CONNECTIONS THE LATERAL SIZE SHALL BE SPECIFIED ON THE PLANS BY THE ENGINEER.

TYPICAL SERVICE CONNECTION



MANHOLE STEP DETAIL

NOTE:

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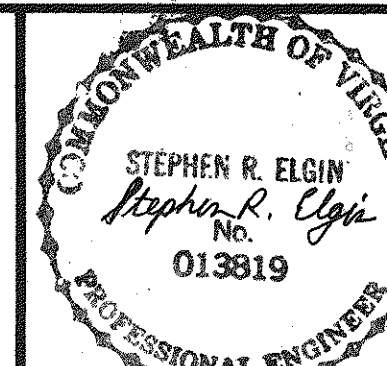
Designed: DJR
Drafted: CFA
Checked: JMD
Approved: DJR

Clean Water Engineers, Inc.

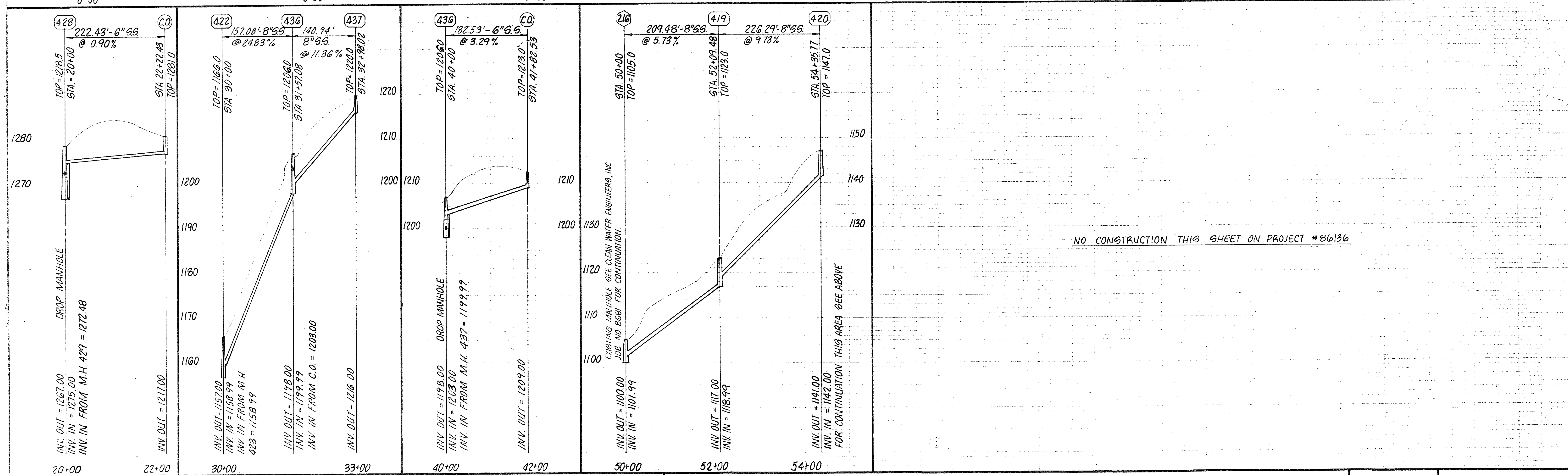
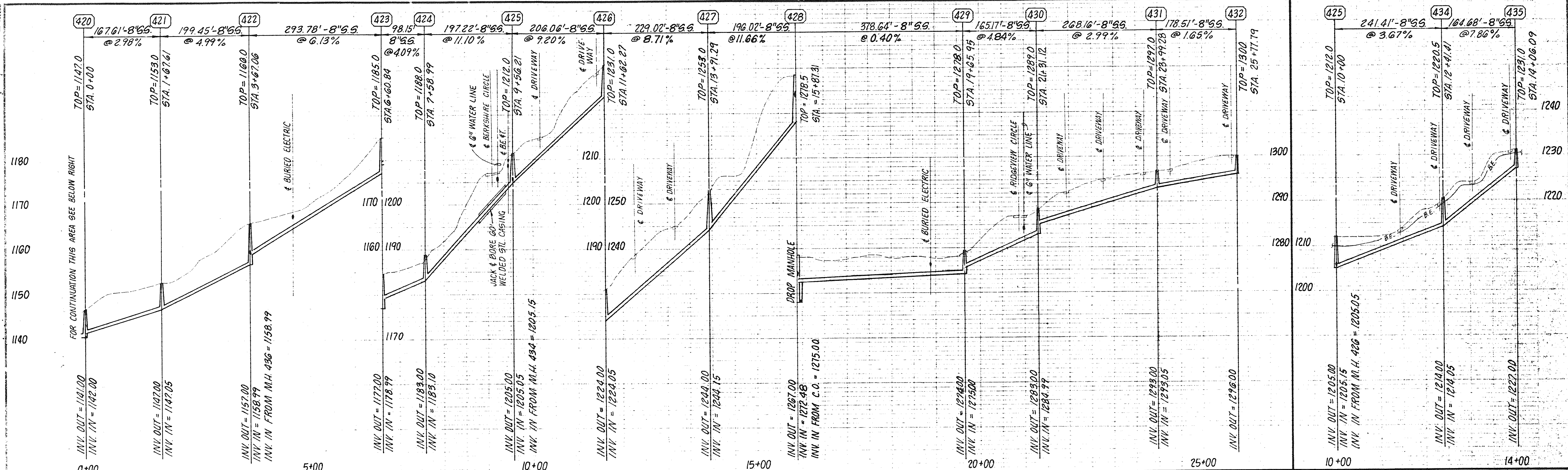
Fincastle, Virginia

SEWER DETAILS
GLADE CREEK COLLECTORS
PHASE I- REVISED
BOTETOURT COUNTY SERVICE AUTHORITY

"AS BUILTS"



Sheet: 3 of 3
Scale: NONE
Date: AUG. 1986
Project: 8681



NO CONSTRUCTION THIS SHEET ON PROJECT #86136

ALL COVERS TO BE BOLTED TO MANHOLES

MASTIC SEALER

LEAD ANCHOR

5" MIN

9" MAXIMUM

5 3/8"

1" MIN

1" BRASS 90° BEND

20 MESH BRASS SCREEN

WELD SPOTS TO PREVENT ROTATION

1" BRASS PIPE GROUTED INTO PLACE

90° OFF STEPS AND ON SIDE AWAY FROM FLOWING STREAM

45° OFF DOWNSTREAM SEWER CENTERLINE A

POLYSTYRENE BALL PLACEMENT SHALL BE

NO. 4002 OR EQUAL WITH FLOATING

1" FLYGT BRONZE HDL BALL CHECK VALVE

3/4" x 6" ANCHOR BOLTS (4 REQ.)

WATERTIGHT MANHOLE FRAME AND COVER

O-RING GASKET

BRASS HEX HEAD BOLT

BOLT HOLES SHALL BE PACKED W/ GREASE

PIPE TO BE PLACED AS CLOSE AS POSSIBLE TO M.H. WALL AND TO BE SECURED TO THE WALL WITH 1/2" X 12 GA STAINLESS STEEL CLAMPS, 6" O.C. MAX. ANCHOR TO M.H. WALL WITH 2 1/2" CADMIUM PLATED BOLTS.

2'-0" MAX.
2" MAX.

12" PIPE OR SMALLER
INFLUENT SEWER

COMPRESSION COUPLING
DROP FITTINGS AND PIPE TO BE SAME SIZE AS INFLUENT SEWER.

PVC PIPE
ELBOW EMBEDDED IN CONC. AT 45° WITH SEWER FLOW.

0.20 ABOVE EXIST PIPE CROWN, MAX.
0.10 ABOVE EXIST PIPE INVERT, MIN.

CUT END OF TEE AS SHOWN
2"
12" MAX.
C CLAMP

CONC. GROUT

PRECAST M.H.

PLUG SET 1/2 DIA. OF PIPE SEALED WITH MORTAR

DROP MANHOLE WYE
DROP FITTINGS AND PIPE TO BE SAME SIZE AS INFLUENT SEWER.
6" MINIMUM CONC. CLASS B-2200 P.S.I. SURROUNDING DROP CONNECTION.

DROP CONSTRUCTION IS TO AT EVERY LOCATION WHERE INFLUENT INVERT IS GREATER THAN 2'-0" ABOVE THE EFFLUENT SEWER INVERT.

90° BEND

INSIDE DROP CONNECTION

OUTSIDE DROP CONNECTION

SECTION A

2'-0"

2'-0"

EXIST GRND

RIP-RAP

TRENCH

CONC. ENC. (SEE DETAIL VARIES)

24" BELOW ACTUAL STREAM BED

EXIST. GRAVEL AND SILT (VARIES)

24"

DUCTILE IRON SEWER PIPE

BRICK SUPPORT

NAT'L GRND

3'-0"

LENGTH SPECIFIED ON PLANS

Technical drawing of a manhole cover and frame assembly, showing a top view and a side view with dimensions.

Top View Dimensions:

- Overall diameter: 2' - 11 1/4"
- Inner circular opening diameter: 1' - 11 3/4"
- Distance from center to the start of the frame: 1' - 11 1/2"
- Radius of the cover: 4 3/8"

Side View Dimensions:

- Overall height of the assembly: 7 1/2"
- Height of the cover: 4 3/4"
- Height of the frame: 1 1/2"
- Height of the gap between the cover and the frame: 3/8"
- Height of the frame base: 1/2"
- Height of the frame base: 2 3/4"
- Height of the frame base: 3 3/4"
- Height of the frame base: 1' - 10 1/4"
- Height of the frame base: 2' - 1 1/2"
- Height of the frame base: 2' - 9 1/4"
- Height of the frame base: 4 3/8"

Legend:

- MINIMUM AVER WEIGHTS
- RING — 190 LBS
- COVER — 120 LBS

Diagram illustrating the cross-section of a concrete bell section. The section is labeled "CONCRETE CLASS B-2 2200PSI". The outer diameter is 6" and the inner diameter is 6". The thickness of the concrete wall is 1". The diagram shows a circular cross-section with a central hole. The outer diameter is 6" and the inner diameter is 6". The thickness of the concrete wall is 1". The diagram shows a circular cross-section with a central hole. The outer diameter is 6" and the inner diameter is 6". The thickness of the concrete wall is 1".

Diagram illustrating the application of pressure-treated wood blocks to a sewer pipe joint.

The diagram shows a cross-section of a sewer pipe (labeled "SEWER PIPE") and a casing pipe (labeled "CASING PIPE"). The joint between the pipes is reinforced with pressure-treated wood blocks (labeled "PRESSURE TREATED WOOD BLOCKS"). A steel band (labeled "STEEL BAND") is applied around the joint to secure the blocks.

NOTE: SKIDS REQ'D AT BOTH ENDS AND CENTER OF EACH JOINT OF PIPE

12" UNDISTURBED SIDES OF PIPE TRENCH

EXIST GRADE

6" MAX COVER

30" MIN

SEWER PIPE

6" MAX COVER

EXIST GRADE

NO. 4 E.F. EACH WAY

PIPE TRENCH

BEDDING (SEE DETAIL)

CLASS B-2 CONC. 2200 PSI

24" MIN.

SLOPE

3" 3"

12"

ELEVATION

SECTION

AN 36" ON 24" ON 16" ON

— PROPERTY LINE OR EASEMENT LINE

SERVICE LATERAL

PLAN

PLUG

EXIST GRADE

CLEANOUT

45° BEND

WYE

PLUG

SERVICE LATERAL

45° BEND

PROFILE

SEWER MAIN

SEWER MAIN

FOR RESIDENTIAL CONNECTIONS LATERAL PIPES SHALL BE 4 DIA. FOR COMMERCIAL CONNECTIONS THE LATERAL SIZE SHALL BE SPECIFIED ON THE PLANS BY THE ENGINEER

Technical drawing of a U-shaped component, likely a bracket or support. The drawing includes the following details:

- Top View:** Shows a U-shaped profile with a total width of 12 inches and a depth of 10 3/4 inches. The thickness of the material is 1/8 inch. A section line A-A is indicated.
- Side View:** Shows the component's height as 9 5/8 inches and its thickness as 1/4 inch.
- Section A-A:** A cross-sectional view showing a circular hole with a diameter of 5 3/4 inches. The hole is reinforced with 1/2" grade 60 steel reinforcement.
- Material:** The main body is labeled as COPOLYMER POLYPROPYLENE PLASTIC.

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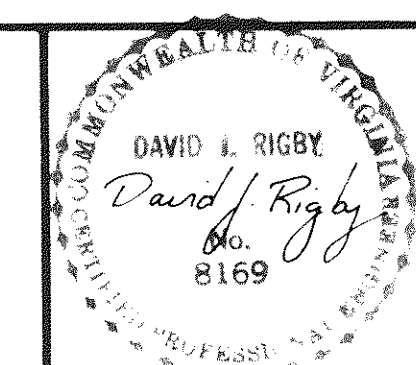
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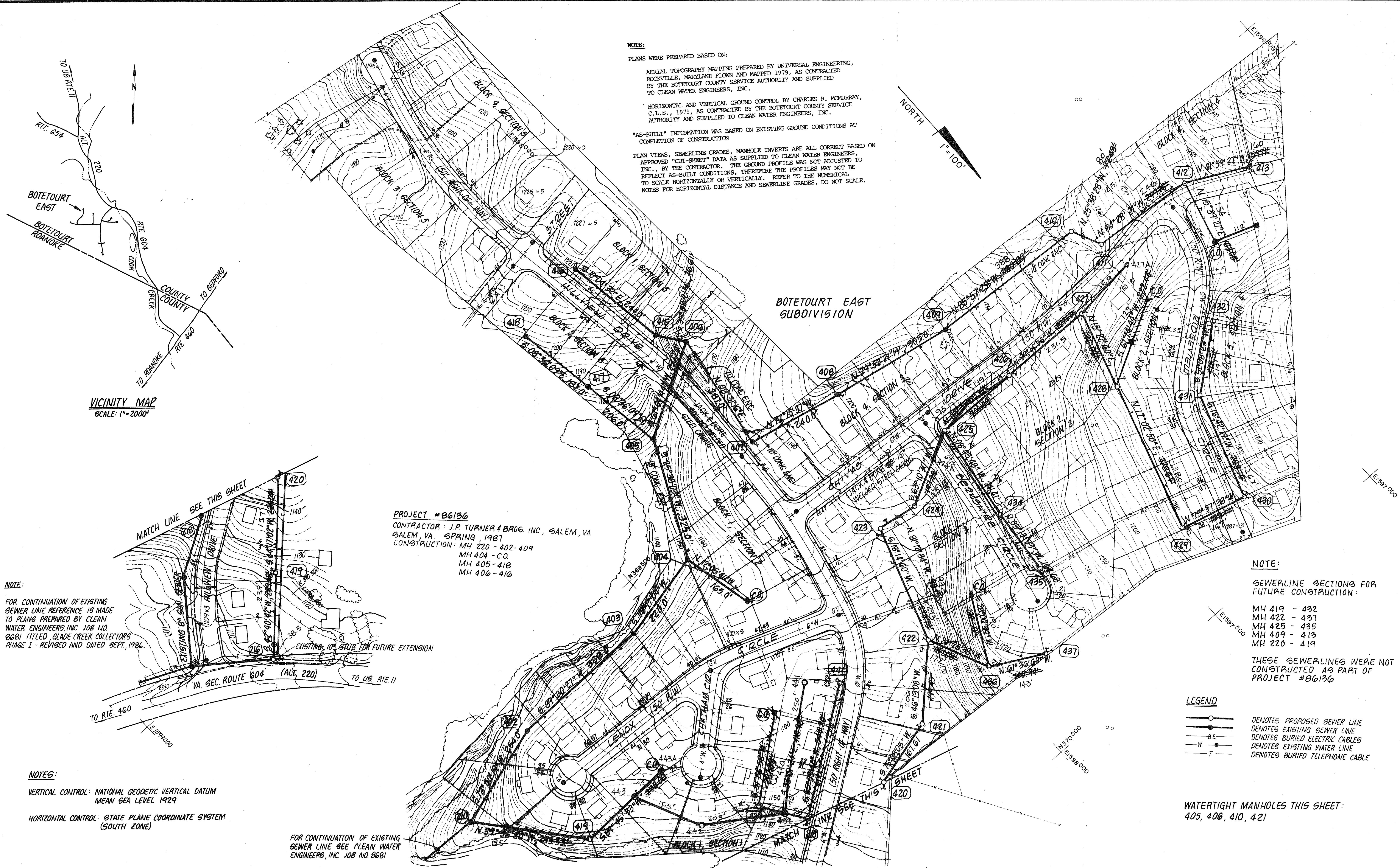
Clean Water Engineers, Inc.
Fincastle, Virginia

SEWER DETAILS
BOTETOURT EAST SUBDIVISION
SEWER EXTENSION
BOTETOURT COUNTY, VIRGINIA

"AS BUILTS"



Sheet: 4 of 4
Scale: NONE
Date: NOV., 1986
Project: 86136



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VICINITY MAP
SCALE: 1"=2000'

NOTE:
FOR CONTINUATION OF EXISTING SEWER LINE REFERENCE IS MADE TO PLANS PREPARED BY CLEAN WATER ENGINEERS, INC. JOB NO. 8681 TITLED, GLADE CREEK COLLECTORS PHASE I - REVISED AND DATED SEPT, 1986.

PROJECT #86136
CONTRACTOR: J.P. TURNER & BROS. INC., SALEM, VA
SALEM, VA. SPRING, 1987
CONSTRUCTION: MH 220 - 402 - 409
MH 404 - C.O.
MH 405 - 418
MH 406 - 416

NOTE:
SEWERLINE SECTIONS FOR FUTURE CONSTRUCTION:
MH 419 - 432
MH 422 - 431
MH 425 - 435
MH 409 - 413
MH 220 - 419
THESE SEWERLINES WERE NOT CONSTRUCTED AS PART OF PROJECT #86136

LEGEND
—○— DENOTES PROPOSED SEWER LINE
—○— DENOTES EXISTING SEWER LINE
—B.E.— DENOTES BURIED ELECTRIC CABLES
—W.— DENOTES EXISTING WATER LINE
—T.— DENOTES BURIED TELEPHONE CABLE

NOTES:
VERTICAL CONTROL: NATIONAL GEODETIC VERTICAL DATUM
MEAN SEA LEVEL 1929
HORIZONTAL CONTROL: STATE PLANE COORDINATE SYSTEM
(SOUTH ZONE)

FOR CONTINUATION OF EXISTING SEWER LINE SEE CLEAN WATER ENGINEERS, INC. JOB NO. 8681

WATERTIGHT MANHOLES THIS SHEET:
405, 406, 410, 421

Designed: DJR
Drafted: CFA
Checked: JMD
Approved: DJR

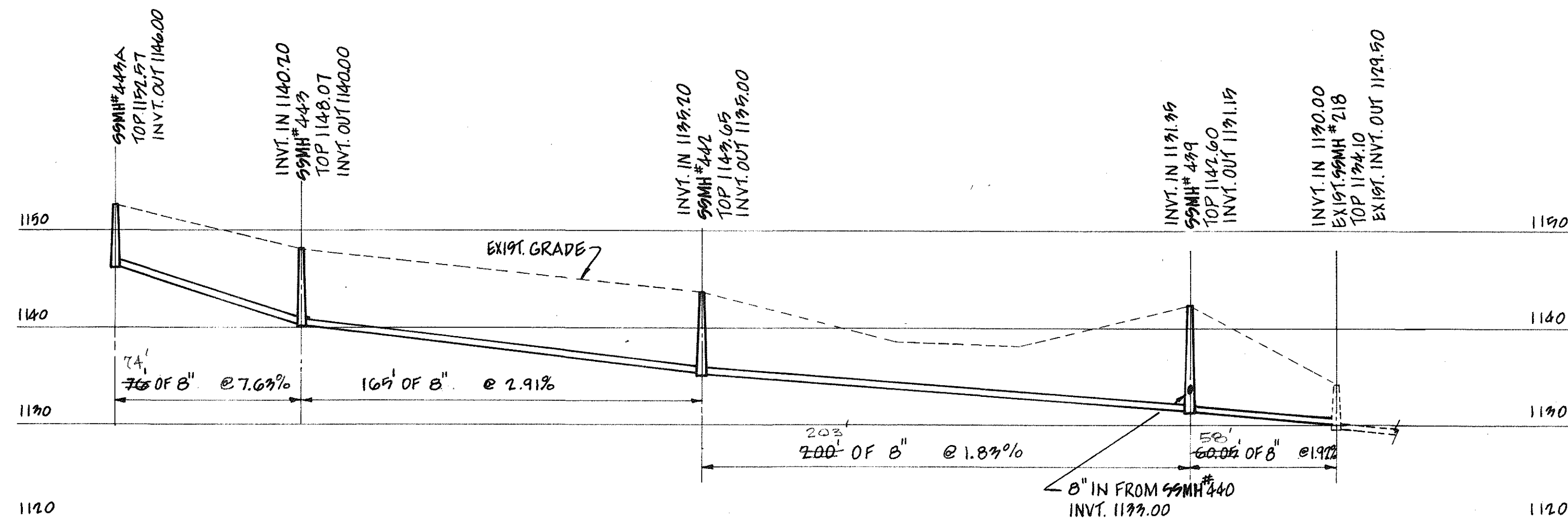
Clean Water Engineers, Inc.
Fincastle, Virginia

BOTETOURT EAST SUBDIVISION
SEWER EXTENSION
BOTETOURT COUNTY, VIRGINIA

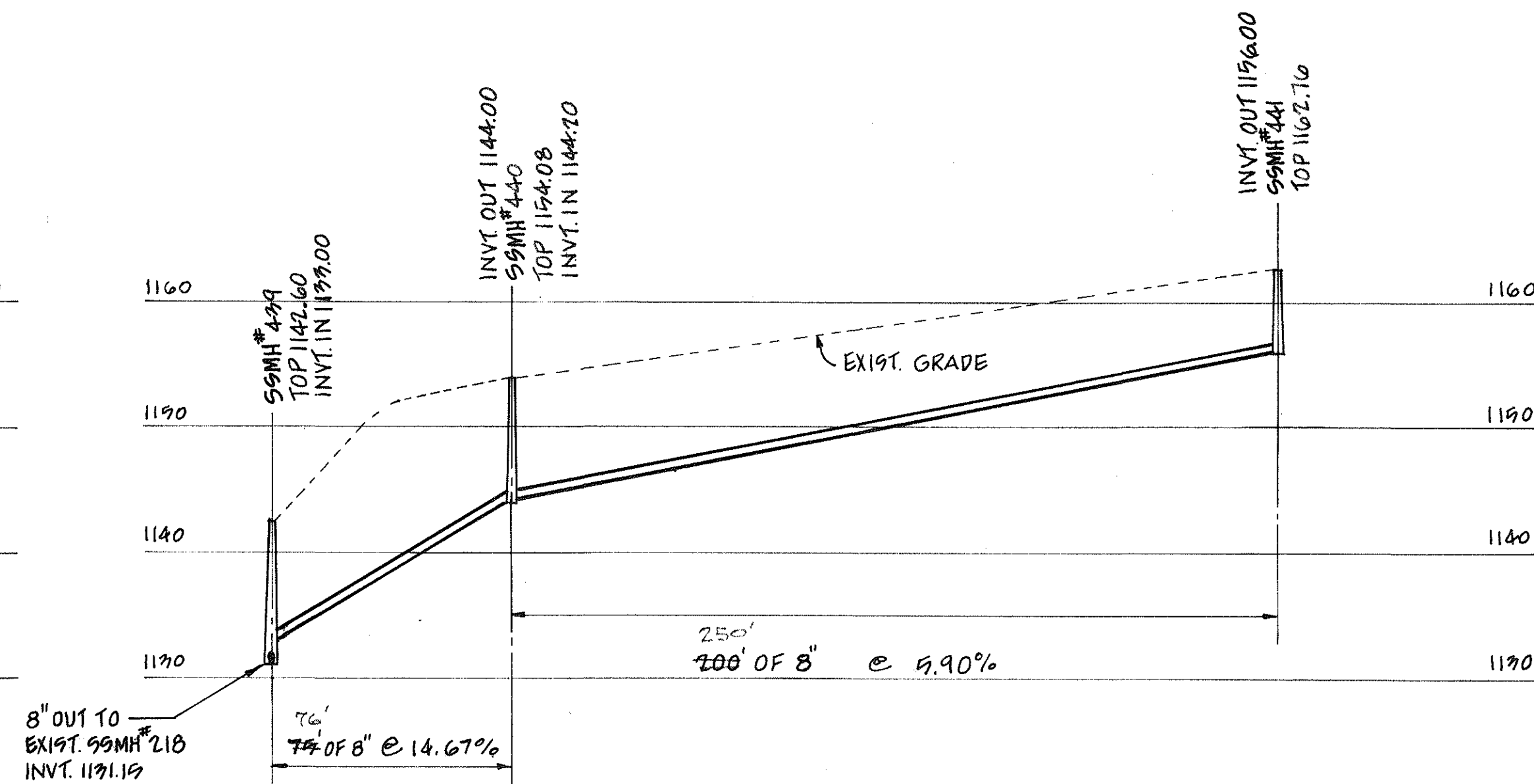
REV 4287
Phase I-B
"AS BUILTS"

David R. Raby

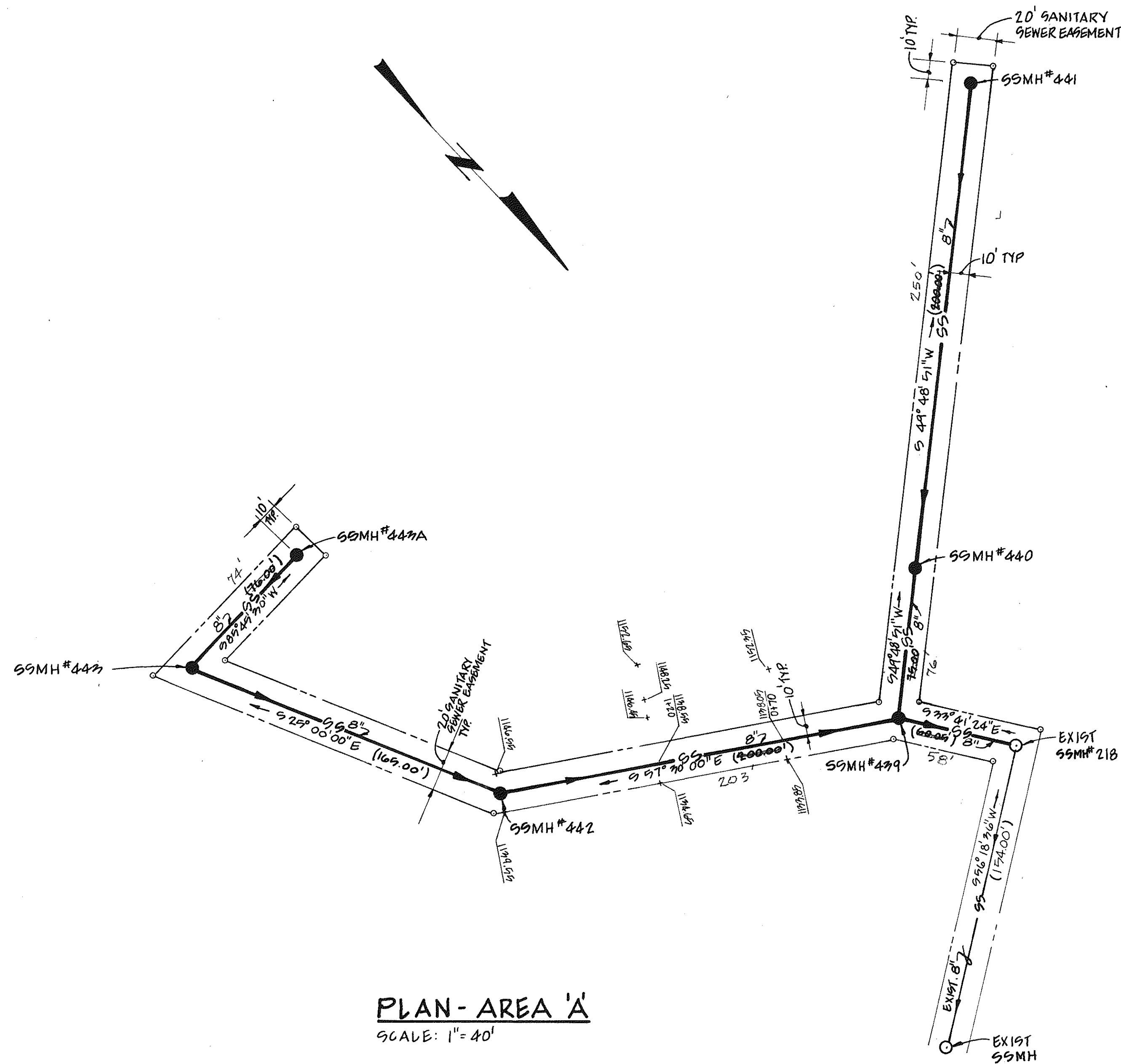
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Scale: 1"=100'
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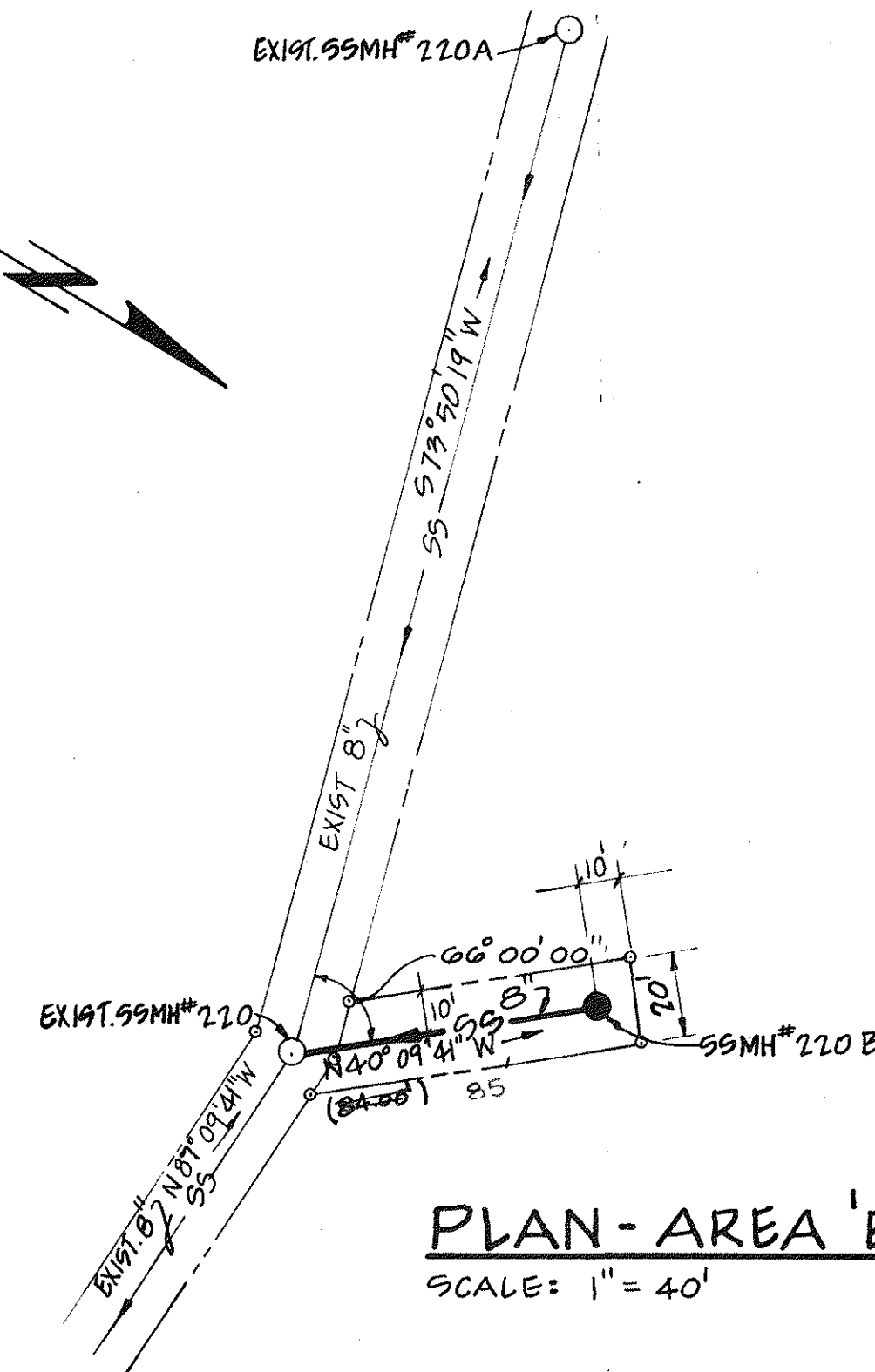
PROFILE
SSMH#443A TO EXIST. SSMH#218
SCALE: 1" = 10' VERT.
1" = 40' HORIZ.



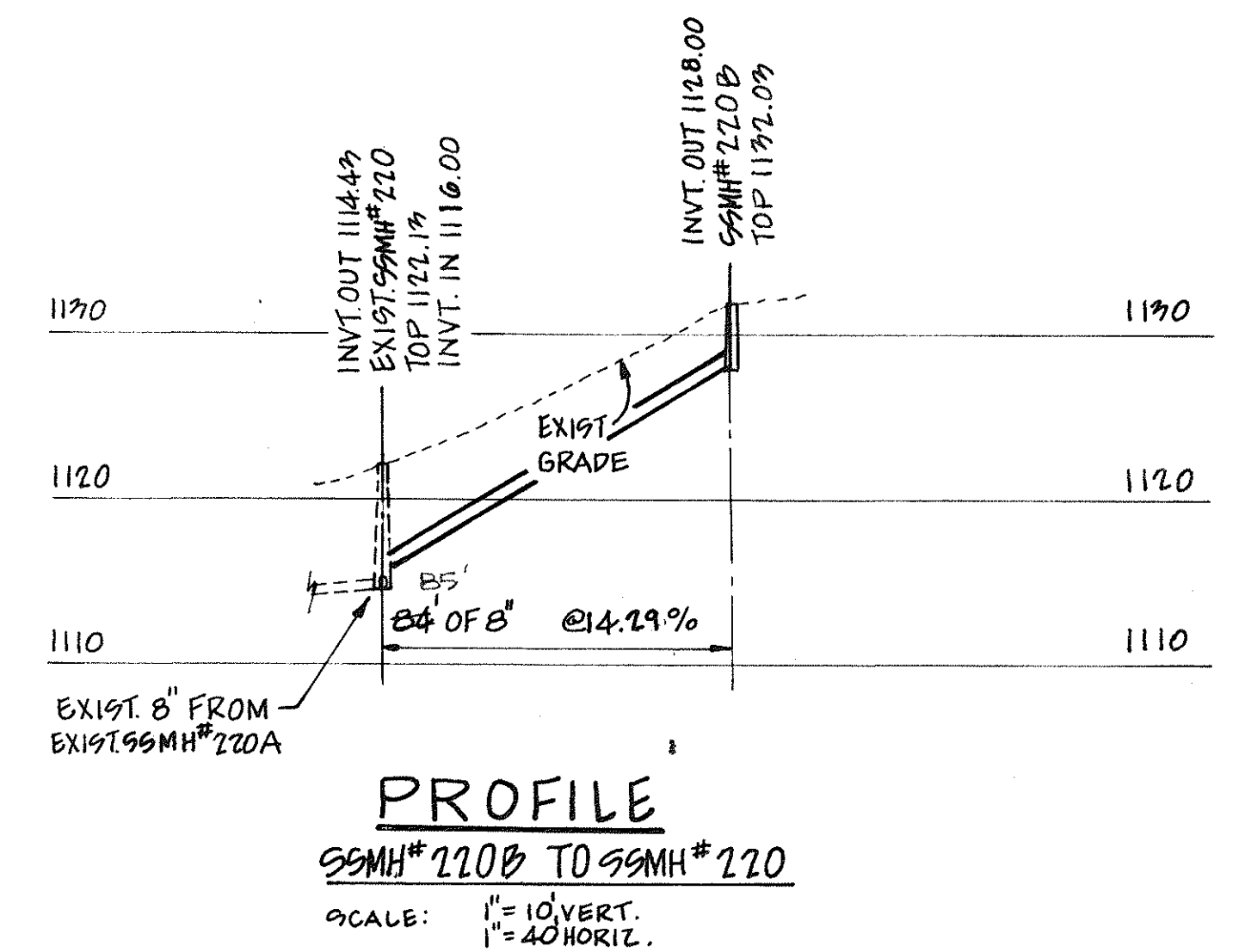
PROFILE
SSMH#441 TO SSMH#439



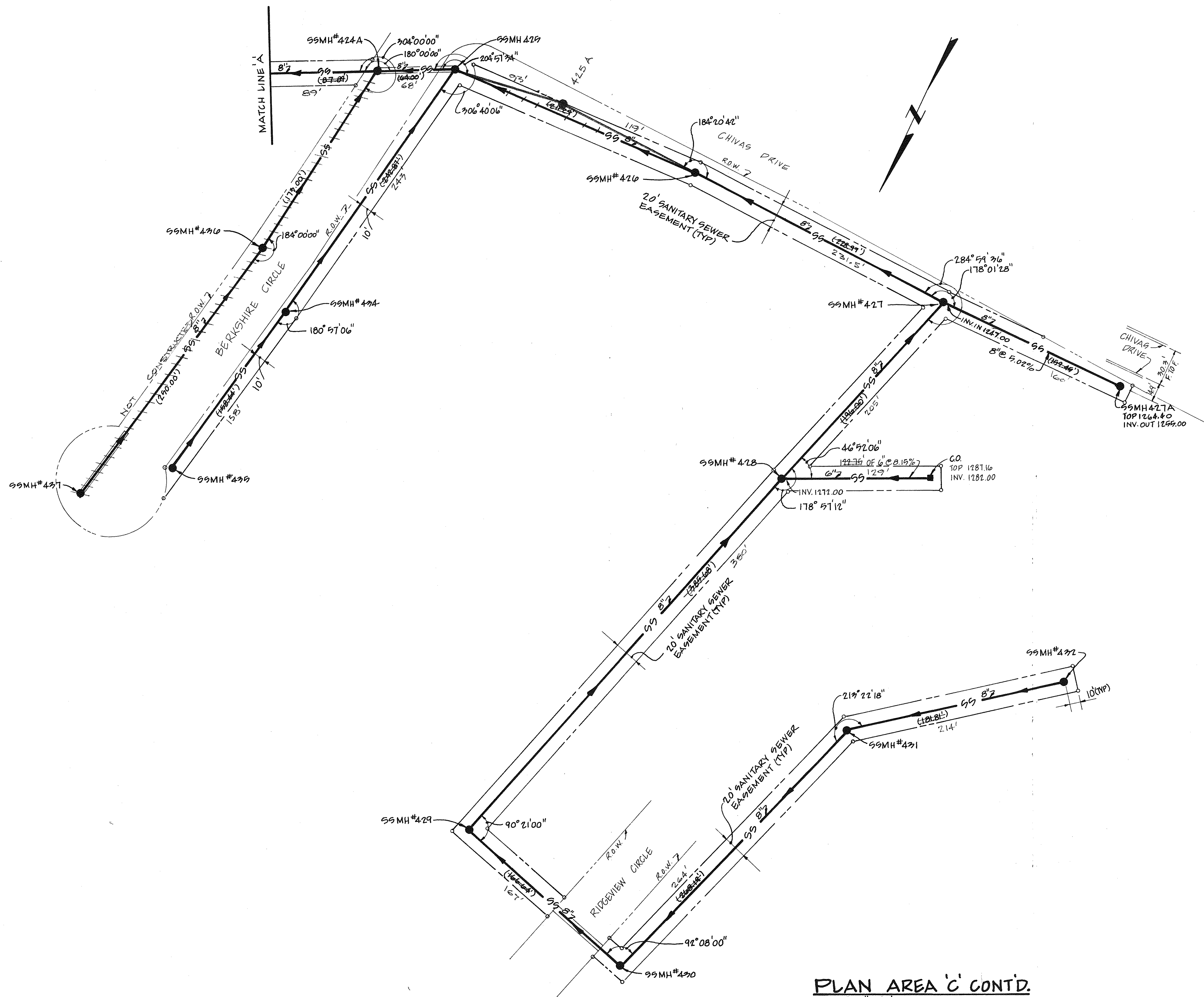
PLAN - AREA 'A'
SCALE: 1" = 40'



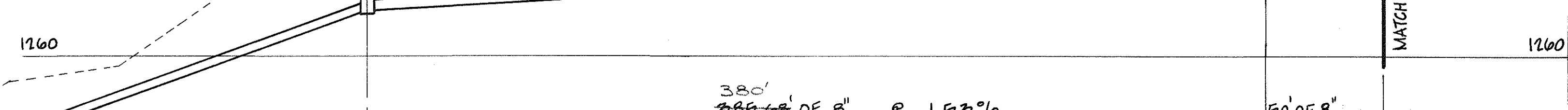
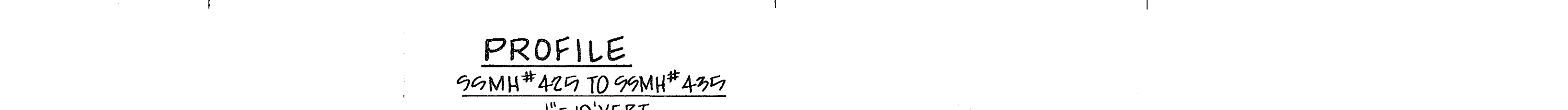
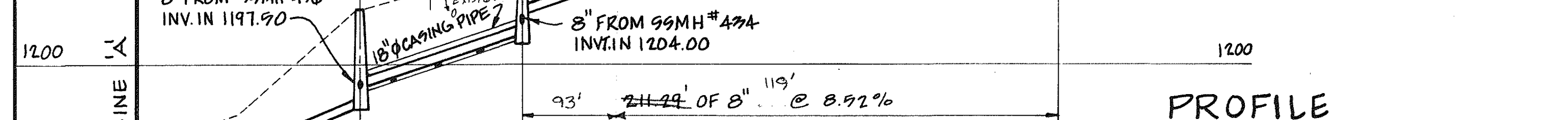
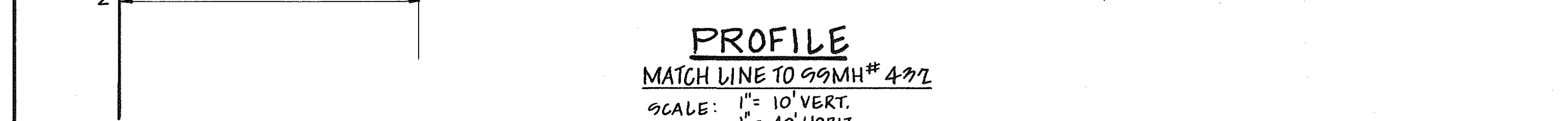
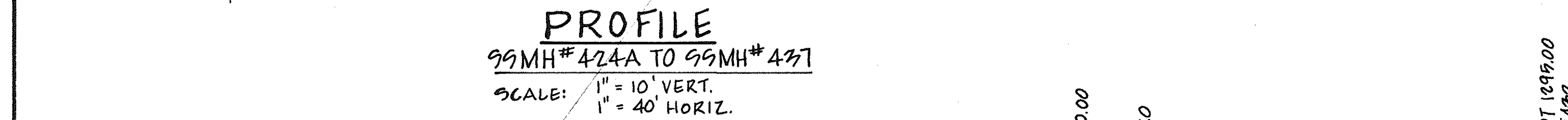
PLAN - AREA 'B'
SCALE: 1" = 40'

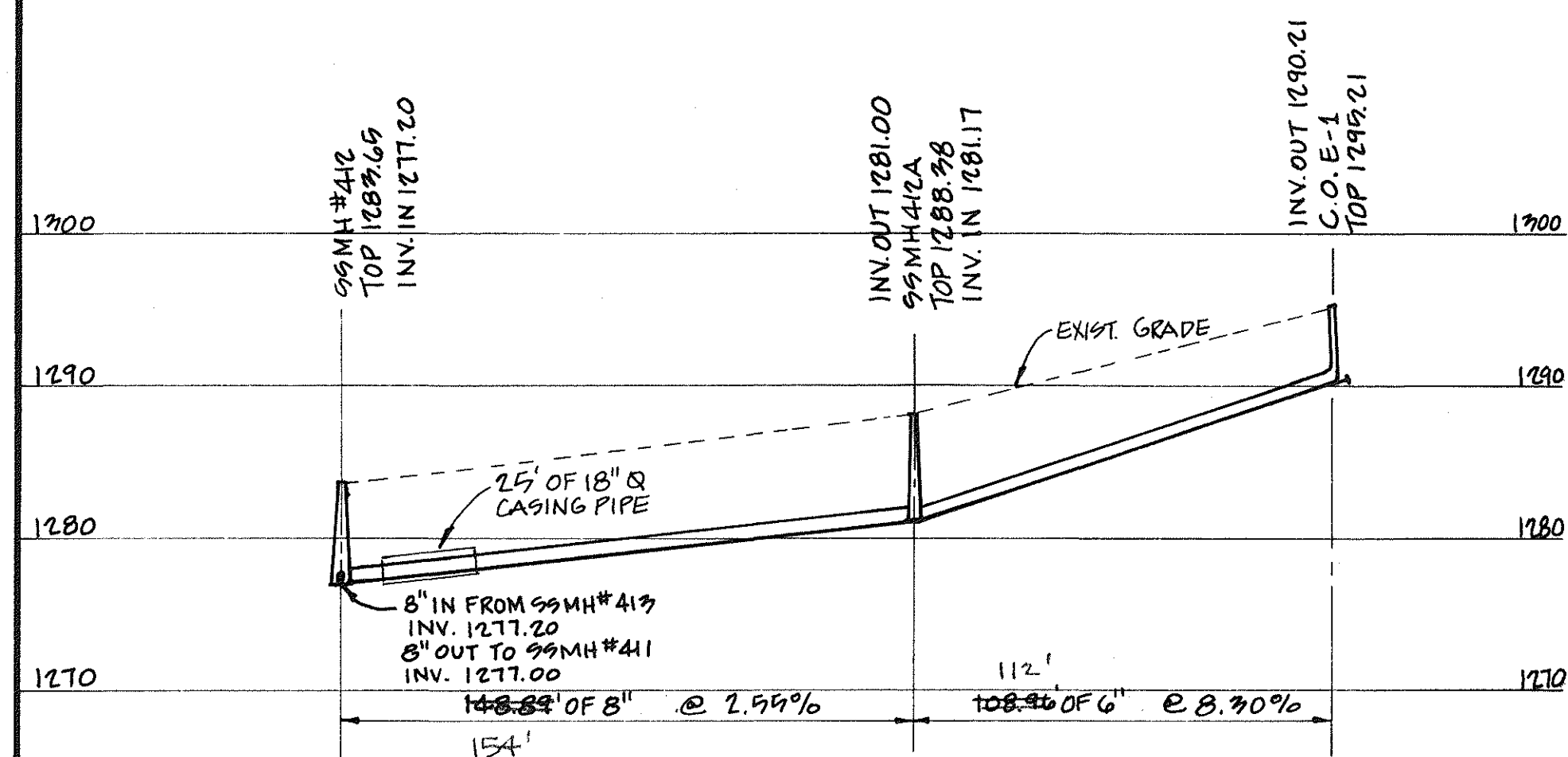


PROFILE
SSMH#220B TO SSMH#220
SCALE: 1" = 10' VERT.
1" = 40' HORIZ.

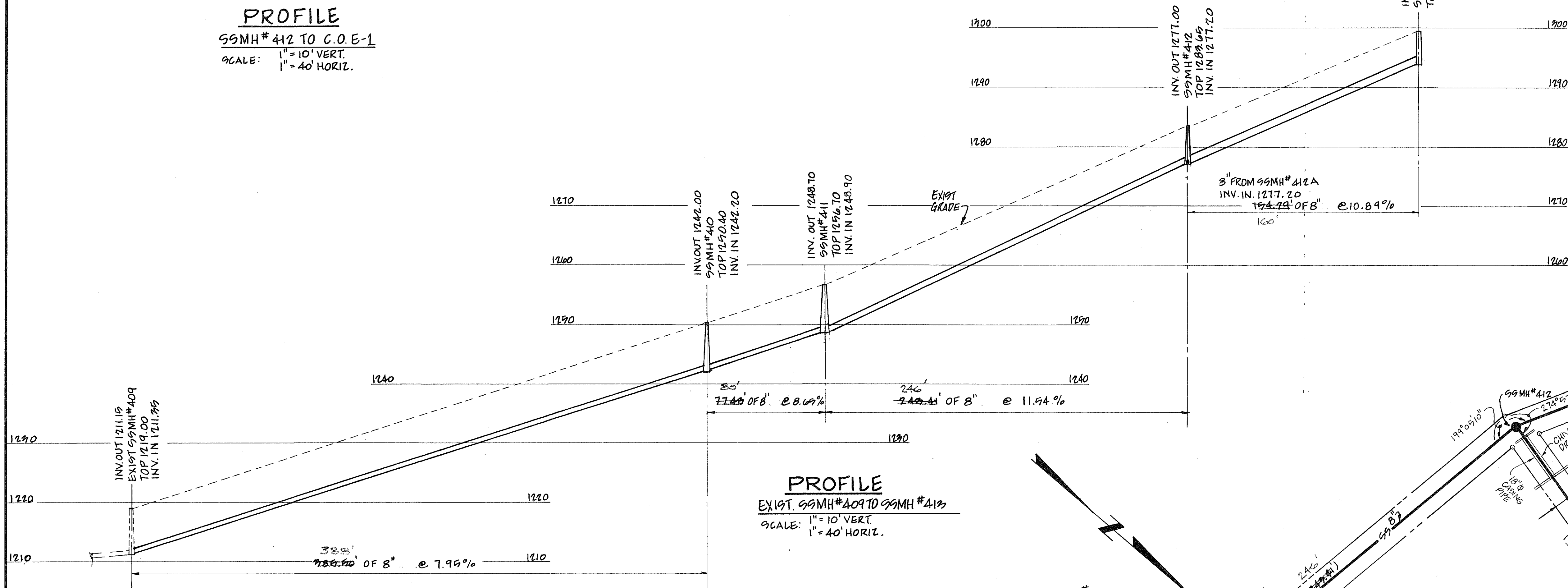


PLAN AREA 'C' CONT'D.
 SCALE: 1" = 40'

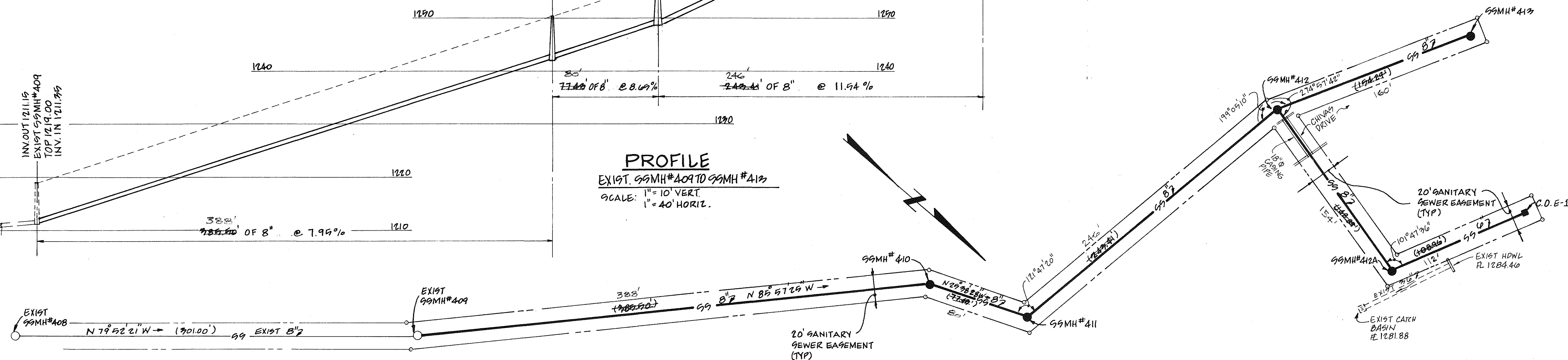




PROFILE
 99MH#412 TO C.O.E-1
 SCALE: 1" = 10' VERT.
 1" = 40' HORIZ.



PROFILE
 EXIST. 99MH#409 TO 99MH#412
 SCALE: 1" = 10' VERT.
 1" = 40' HORIZ.



PLAN AREA 'D'
 SCALE: 1" = 40'