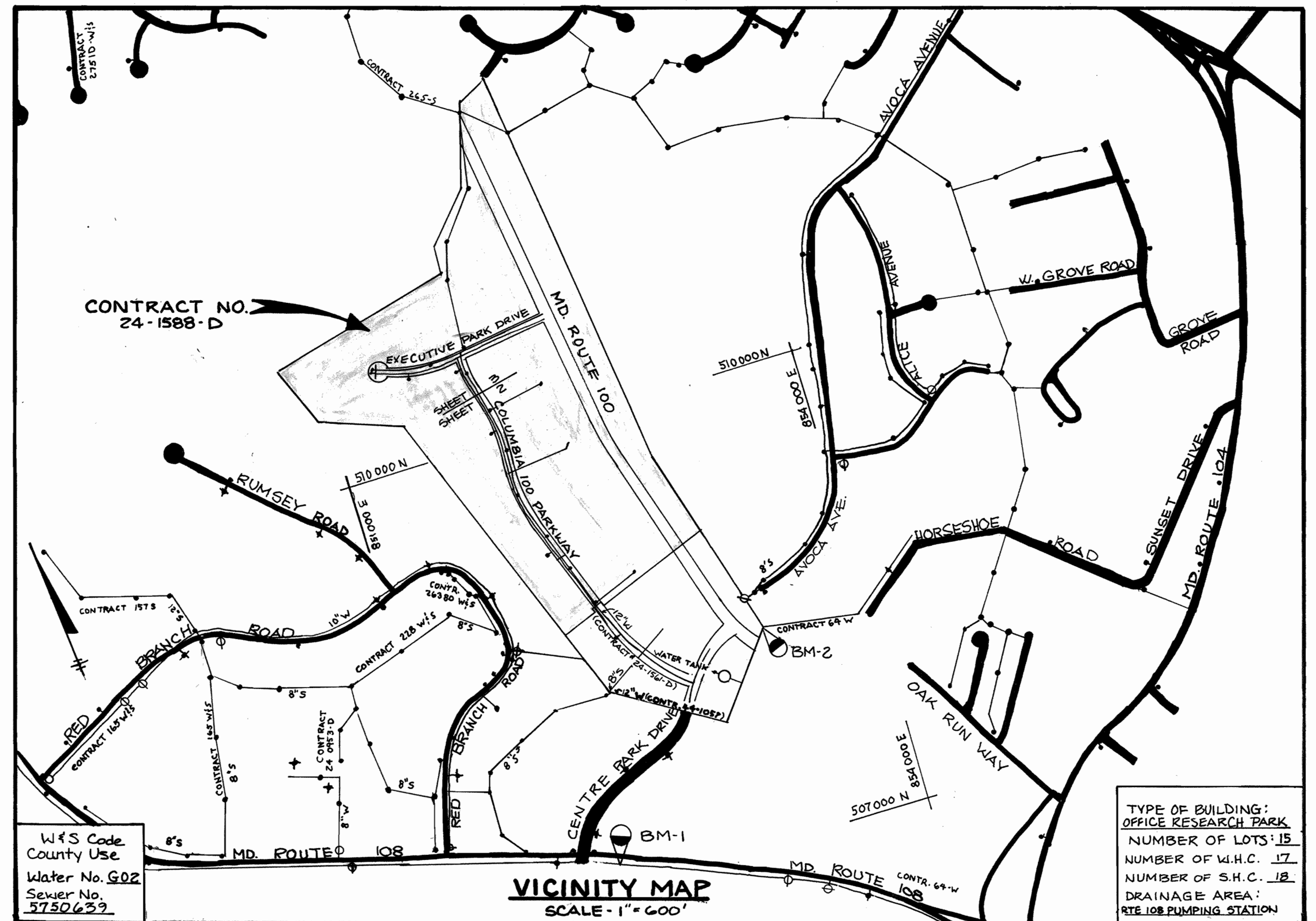


SHEET INDEX	
SHEET NO.	ITEM
1	TITLE SHEET
2	PLAN OF WATER AND SEWER MAINS
3	PLAN OF WATER AND SEWER MAINS
4	PROFILES OF WATER AND SEWER MAINS
5	PROFILES OF WATER AND SEWER MAINS
6	PROFILES OF SEWER MAINS & DETAILS

**BENCH MARKS**

BM 1  
 HO. CO. 274 3010-R ELEV. 482.29  
 34' REBAR 0.4' BELOW SURFACE,  
 34.7' SOUTH OF CURB, ON MARYLAND  
 RTE. 108 175' ± EAST OF E PHELPS  
 LUCK DRIVE.

BM 2  
 ELEV. 525.51  
 NAIL IN STONE @ PROPERTY CORNER  
 COLUMBIA 100 - OFFICE RESEARCH  
 PARK.



**GENERAL NOTES**

1. Approximate location of existing mains are shown. The contractor shall take all necessary precautions to protect existing mains and services and maintain uninterrupted supply. Any damage incurred shall be repaired immediately to the satisfaction of the Engineer at the Contractor's expense.
2. All horizontal controls are based on Maryland State Coordinates.
3. All vertical controls are based on U.S.G.S. data.
4. All pipe elevations shown are invert elevations.
5. Clear all utilities by a minimum of 6'.
6. For details not shown on the drawings, and for materials and construction methods, use Howard County Design Manual, Volume IV, Standard Specifications and Details for Construction. The Contractor shall have a copy of Volume IV on the job.
7. Where test pits have been made on existing utilities, they are noted by the symbol [ ] at the location of the test pit. A note or notes containing the results of the test pit or pits is included on the drawings. Existing utilities in the vicinity of the proposed work for which test pits have not been dug shall be verified by the contractor to his own satisfaction. Any damage to existing facilities due to the contractor's negligence shall be repaired at the contractor's expense.
8. Contractor shall notify the following utilities or agencies at least five working days before starting work shown on these plans:  
 State Highway Administration - 531-6533  
 Baltimore Gas & Electric Co.-Contractor Services - 850-4620  
 Baltimore Gas & Electric Co. - Under Ground Damage Control - 858-3004  
 Baltimore Gas & Electric Co. - Trouble Shooting - 298-9001  
 Miles Utility - 1-550-0100, C&P Telephone 1-800-257-7777  
 Colonial Pipe Line Co. - 795-1920  
 Bureau of Utilities, Howard County Department of Public Works - 992-2366
9. Trees and shrubs are to be protected from damage to maximum extent; Trees and shrubs located within the construction strips are not to be removed or damaged by the contractor.
10. Contractor shall remove trees, stumps and roots along line of excavation. Payment for such removal shall be included in the unit price bid for construction of the main.
11. All water mains to be D.I.P. Class F2 unless otherwise noted.
12. Tops of all water mains to have a minimum of 3'-1/2' cover unless otherwise noted.
13. Valves adjacent to tees shall be strapped to tees.
14. All fittings shall be buttressed or anchored with concrete in accordance with the standard Details unless otherwise provided for on the drawings.
15. Fire hydrants shall be set to the Bury line elevations shown on the drawings. All fire hydrants shall be strapped and buttressed with concrete in accordance with standard Details. Soil around the fire hydrant shall be compacted in accordance with Section 1003 the Standard Specifications.
16. The contractor shall not operate any water main valves on the existing water system.
17. All water house connections shall be for inside meter setting, unless otherwise noted on the plans or in the Specifications.
18. All sewer mains shall be C.S.P.X., R.C.S.P., V.C.P.X., A.C.P. class 2400 or P.V.C. unless otherwise noted.
19. The contractor shall provide a joint all sewer mains with 2'-0" of exterior manhole wall.
20. All manholes shall be 4'-0" inside diameter unless otherwise noted.
21. Force mains shall be D.I.P. only.
22. Manholes shown with 12" and 16" walls are for brick manholes only.
23. Manholes designated W.T. in plan and profile shall have water-tight frame and covers, standard Detail 68.52, where water-tight manhole frame and cover is used, set top of frame 1'-6" above finished grade unless otherwise noted on the drawings.
24. House(s) with the symbol "C.N.s" indicates that cellar cannot be served.

# COLUMBIA 100 OFFICE RESEARCH PARK SECTION 1 AREA 2 CONTRACT NO 24-1588-D HOWARD COUNTY, MARYLAND

SEDIMENT CONTROL MEASURES FOR THIS CONTRACT WILL BE IMPLEMENTED IN ACCORDANCE WITH SECTION 219 OF THE SPECIFICATIONS AND AS SHOWN ON F87-82 AND THIS PLAN.

HOWARD SOIL CONSERVATION DISTRICT:  
 REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.

*James M. Helm* 12-15-86  
 US SOIL CONSERVATION SERVICE DATE  
 THIS PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT

*Stephen L. Miller* 12-15-86  
 HOWARD SOIL CONSERVATION DISTRICT DATE

ITEM	QUANTITIES		MATERIAL SUPPLIER
	ESTIMATED	AS-BUILT	
TYPE B' DROP CONNECTION	10 V.F.	10 V.F.	LCP PLASTICS
8" D.I.P.	240 L.F.	236 L.F.	GRIFIN PIPE CO.
20" Steel Sleeve	214 L.F.	219 L.F.	PITTSBURGH PIPE
12" Water	2778 L.F.	2743 L.F.	GRIFIN PIPE CO.
8" Water	235 L.F.	221 L.F.	"
6" Water	195 L.F.	117 L.F.	"
Fire Hydrants (incl. gv)	8 Ea.	8 Ea.	M&H VALVE CO.
12" Valves	4 Ea.	4 Ea.	"
8" Valves	18 Ea.	18 Ea.	"
8" Sewer	4008 L.F.	3948 L.F.	LCP PLASTICS
6" S.H.C.	438 L.F.	463 L.F.	"
Manholes	221 V.F.	221 V.F.	ATLANTIC CONCRETE

DEPARTMENT OF PUBLIC WORKS  
 HOWARD COUNTY, MARYLAND

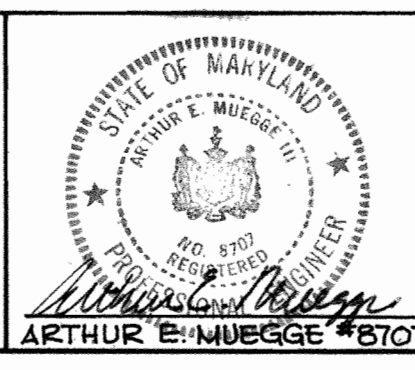
*James M. Helm* 12-22-86  
 DIRECTOR OF PUBLIC WORKS DATE

*Arthur E. Muegge* 12-22-86  
 CHIEF, BUREAU OF ENGINEERING DATE

*Robert M. Bringer* 12-19-86  
 CHIEF, BUREAU OF UTILITIES DATE

*William J. ...* 12-22-86  
 CHIEF, LAND DEVELOPMENT DIVISION DATE

THE RIEMER GROUP, INC.  
 3105 NORTH RIDGE ROAD  
 ELLICOTT CITY, MARYLAND



DES: J.K.B.			
DRN: D.D.B.			
CHK:			
DATE: 10-20-86	BY NO.	REVISION	DATE

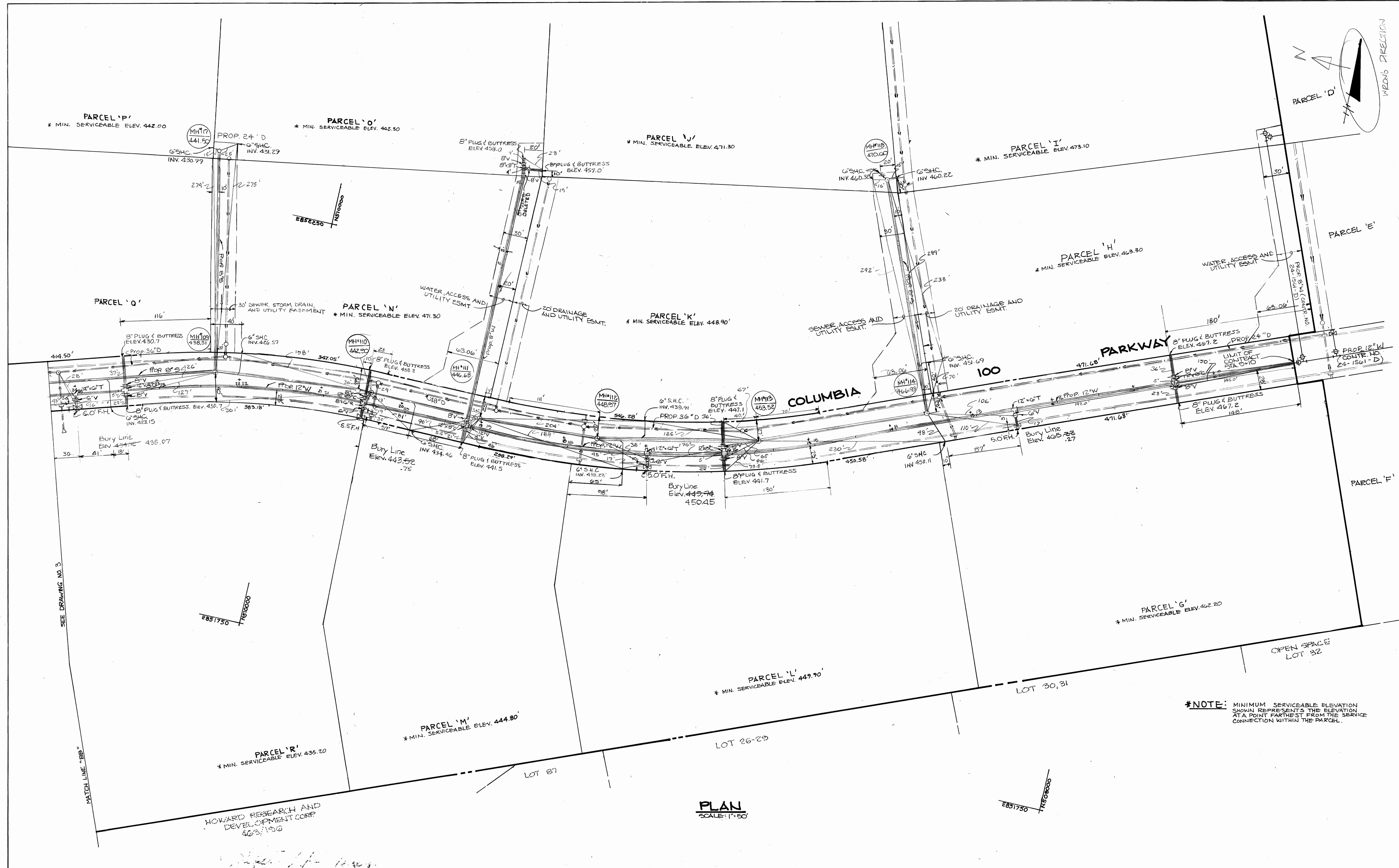
TITLE SHEET

600' SCALE MAP NO. 30 BLOCK NO.

COLUMBIA 100 OFFICE RESEARCH PARK  
 SECTION 1 AREA 2  
 2ND ELECTION DISTRICT  
 HOWARD COUNTY MARYLAND  
 CONTRACT NO. 24-1588-D

SCALE AS SHOWN

SHEET 1 OF 7

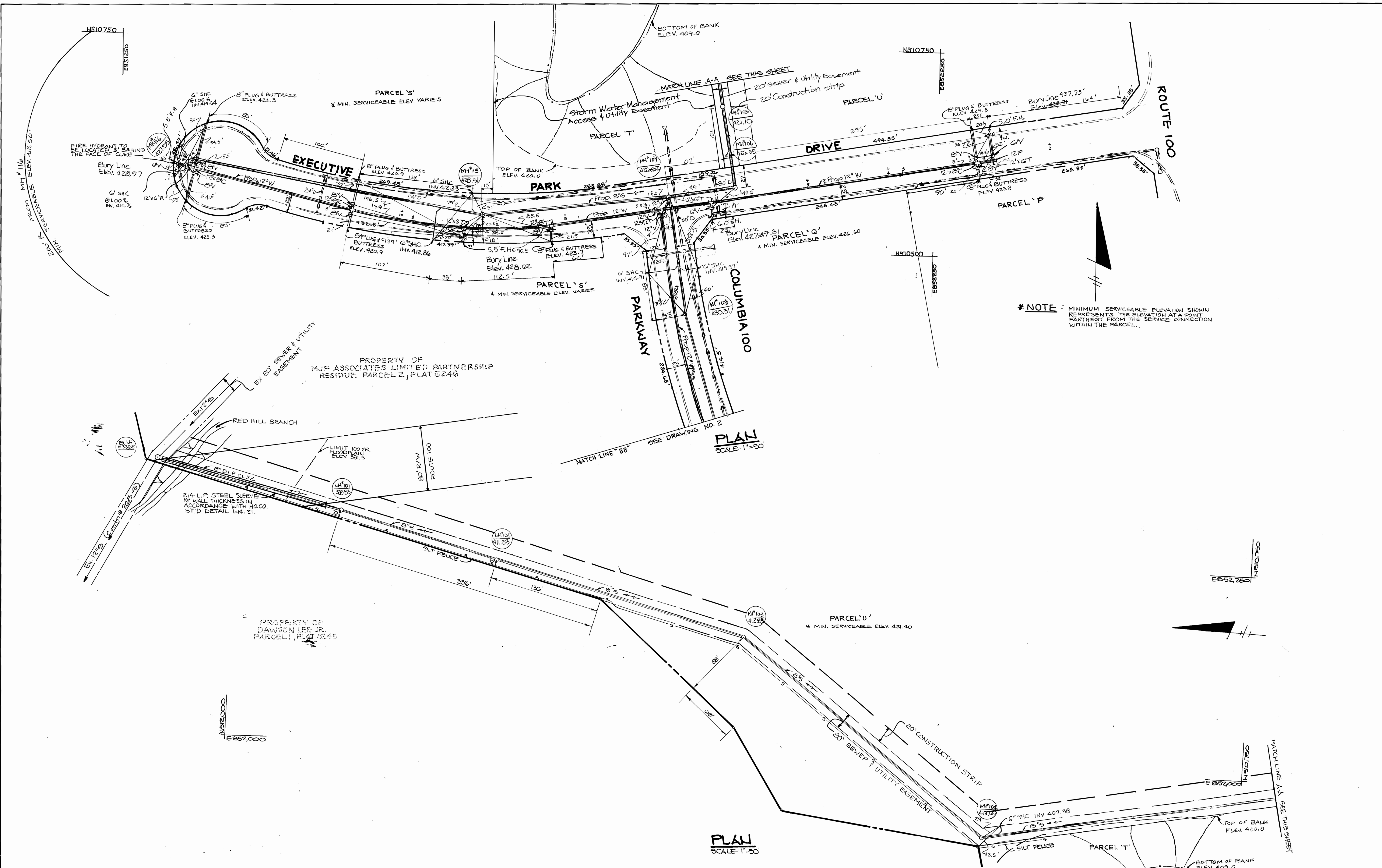


**\*NOTE:** MINIMUM SERVICEABLE ELEVATION SHOWN REPRESENTS THE ELEVATION AT A POINT FARTHEST FROM THE SERVICE CONNECTION WITHIN THE PARCEL.

**PLAN**  
SCALE: 1"=50'

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND DIRECTOR OF PUBLIC WORKS: <i>Robert Beninger</i> DATE: 12-19-86 CHIEF, BUREAU OF UTILITIES: <i>Robert Beninger</i> DATE:		THE RIEMER GROUP, INC. 3105 NORTH RIDGE ROAD ELLICOTT CITY, MARYLAND CHIEF, LAND DEVELOPMENT DIVISION: <i>Arthur E. Wiegge</i> DATE:		DES: JKB DRN: D.D.B. CHK: DATE: 10-25-86 BY NO. REVISION DATE		PLAN OF WATER & SEWER MAIN 600' SCALE MAP NO. 30 BLOCK NO.		COLUMBIA 100 OFFICE RESEARCH PARK SECTION I AREA 2 2ND ELECTION DISTRICT HOWARD COUNTY MARYLAND CONTRACT NO. 24-1588-D		SCALE AS SHOWN SHEET 2 OF 7
--	--	---	--	--	--	---	--	--	--	--------------------------------

AS-BUILT G. WALLACE 2/17/88 DECEMBER 5, 1986



\* NOTE: MINIMUM SERVICEABLE ELEVATION SHOWN REPRESENTS THE ELEVATION AT A POINT FARTHEST FROM THE SERVICE CONNECTION WITHIN THE PARCEL.

DEPARTMENT OF PUBLIC WORKS  
 HOWARD COUNTY, MARYLAND

*James M. Lewis* 12-23-86  
 DIRECTOR OF PUBLIC WORKS DATE

*Robert H. Brunner* 12-19-86  
 CHIEF, BUREAU OF UTILITIES DATE

*Michael E. Kelly* 12-22-86  
 CHIEF, BUREAU OF ENGINEERING DATE

*Arthur E. Muegge* 12-22-86  
 CHIEF, LAND DEVELOPMENT DIVISION DATE

THE RIEMER GROUP, INC.  
 3105 NORTH RIDGE ROAD  
 ELLICOTT CITY, MARYLAND

ARTHUR E. MUEGGE # 8707

DES: J.K.B.	
DRN: DDB	
CHK:	
DATE: 10-20-86	
BY NO.	
REVISION	
DATE	

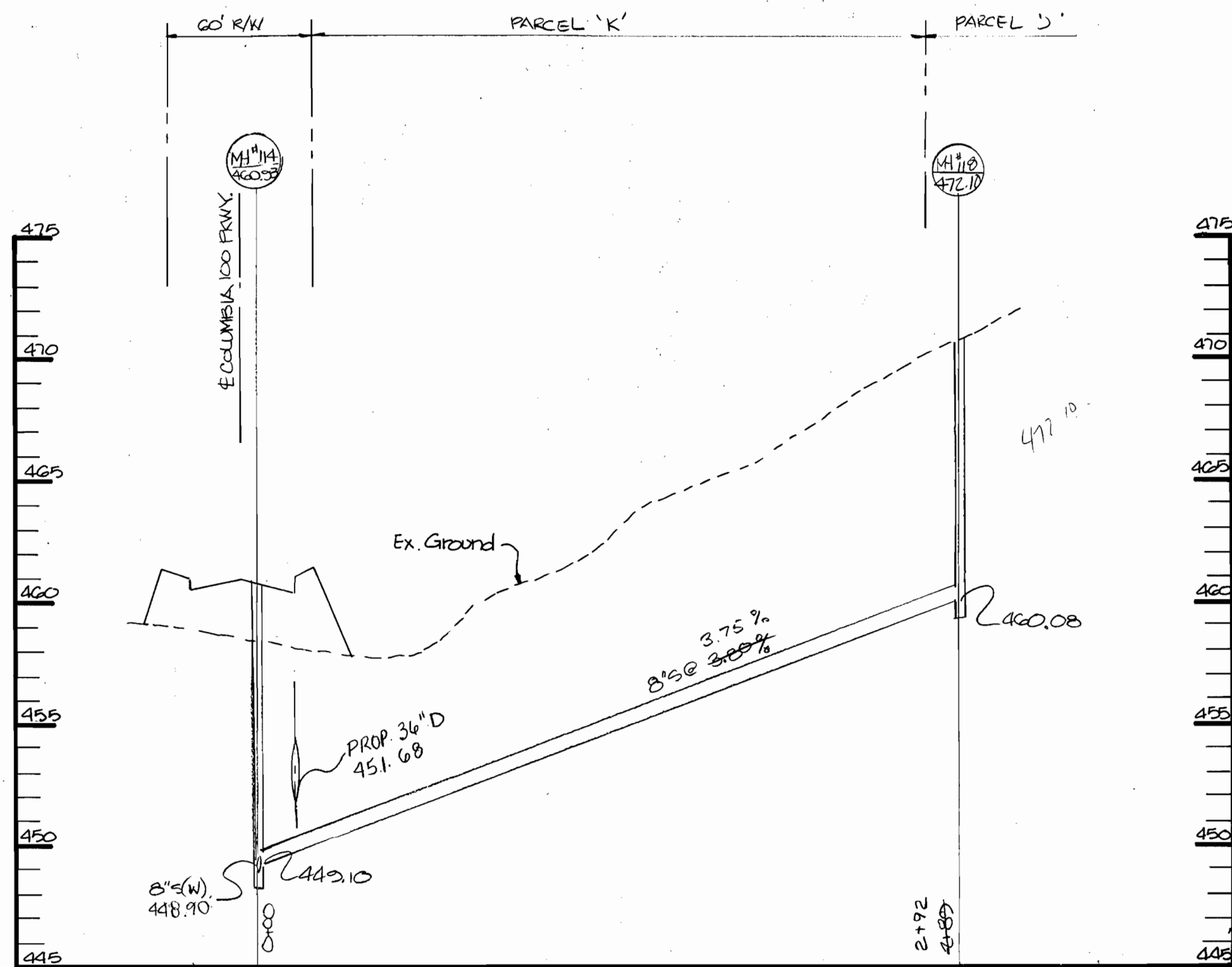
PLAN OF  
 WATER AND SEWER MAINS

600' SCALE MAP NO. 30 BLOCK NO.

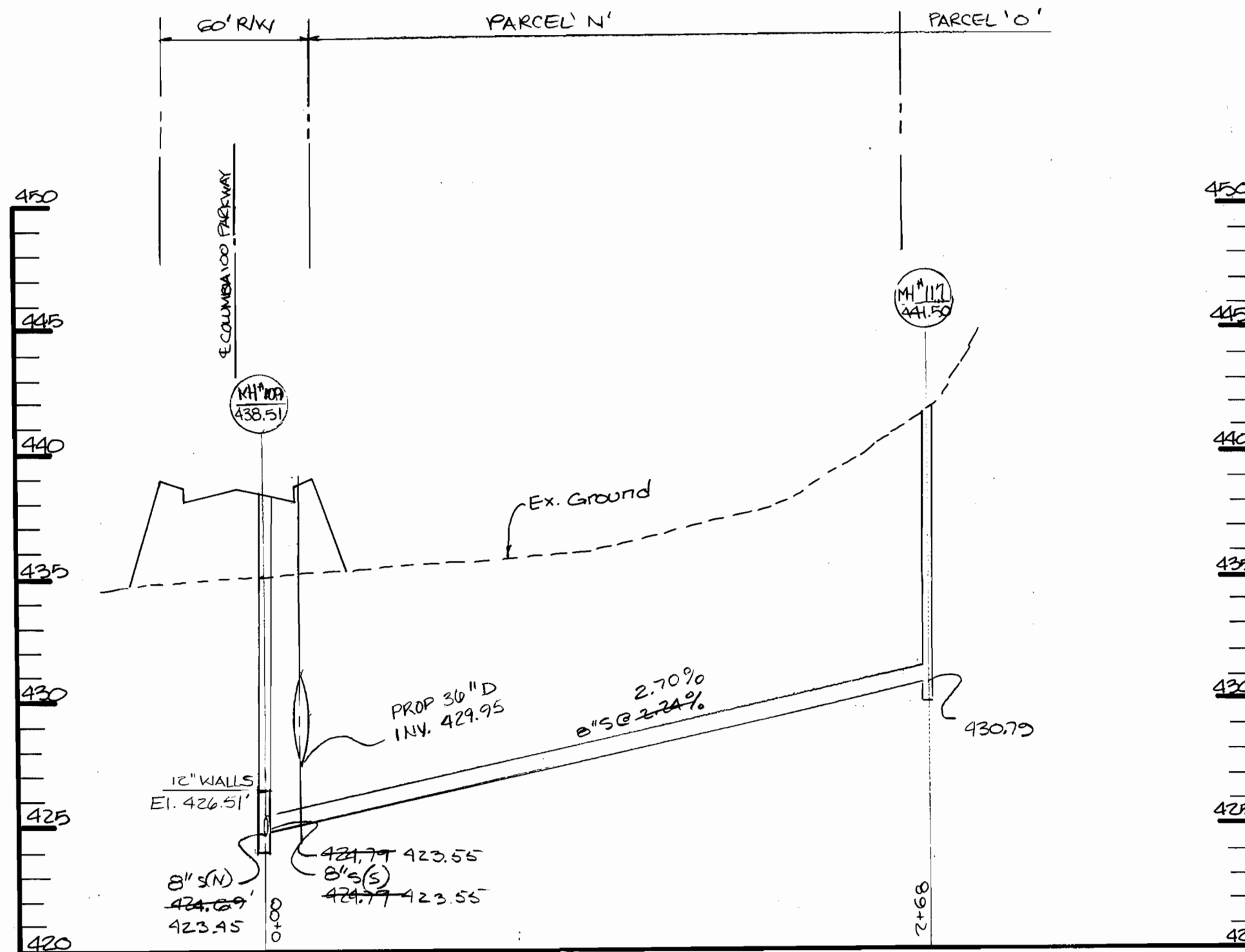
COLUMBIA 100 OFFICE RESEARCH PARK  
 SECTION I, AREA-2  
 2ND ELECTION DISTRICT  
 HOWARD COUNTY MARYLAND  
 CONTRACT NO. 24-1588-D

SCALE AS SHOWN  
 SHEET 3 OF 7

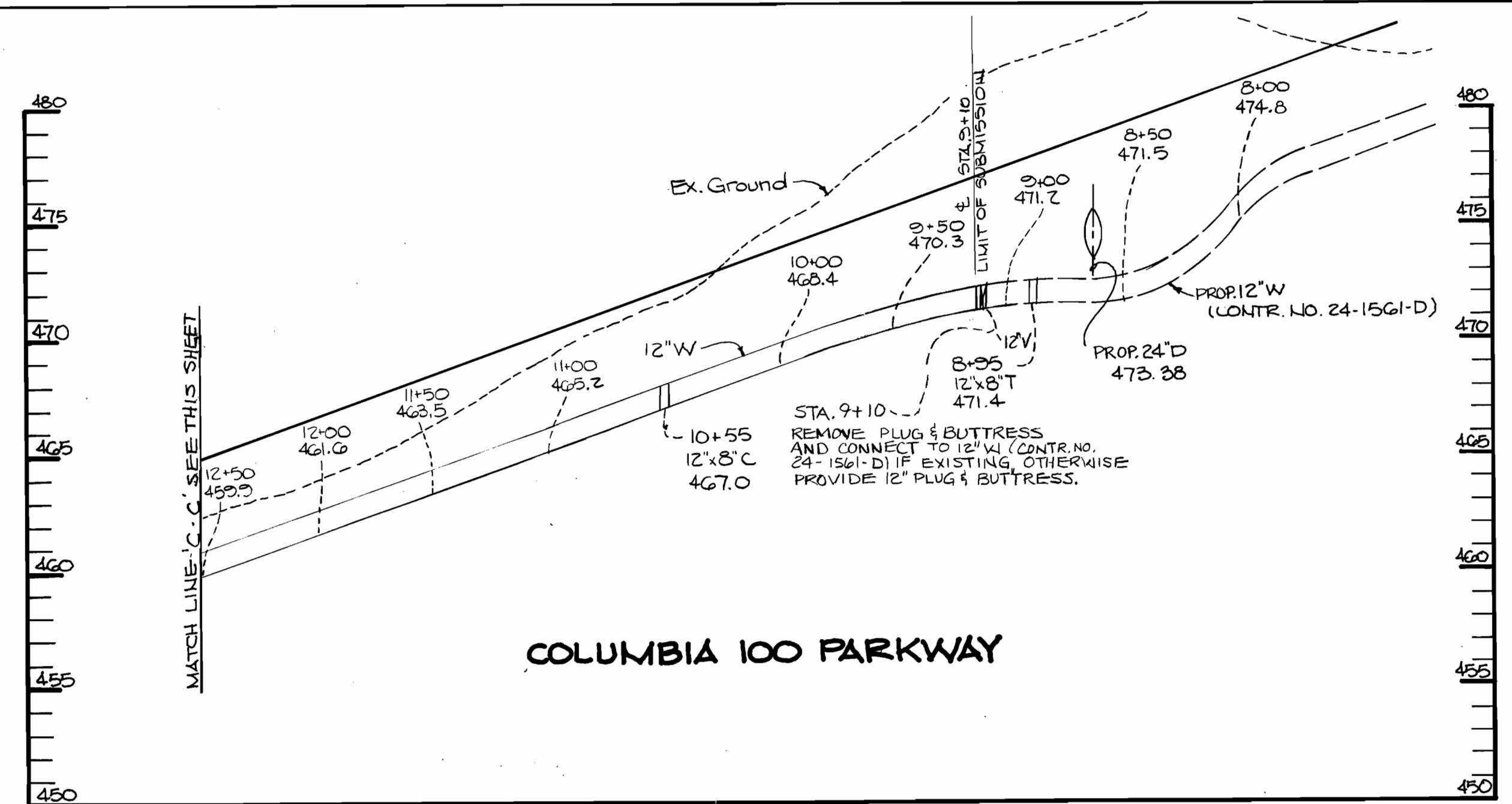
AS-BUILT G. WALLACE 2/17/88 DECEMBER 2, 1986



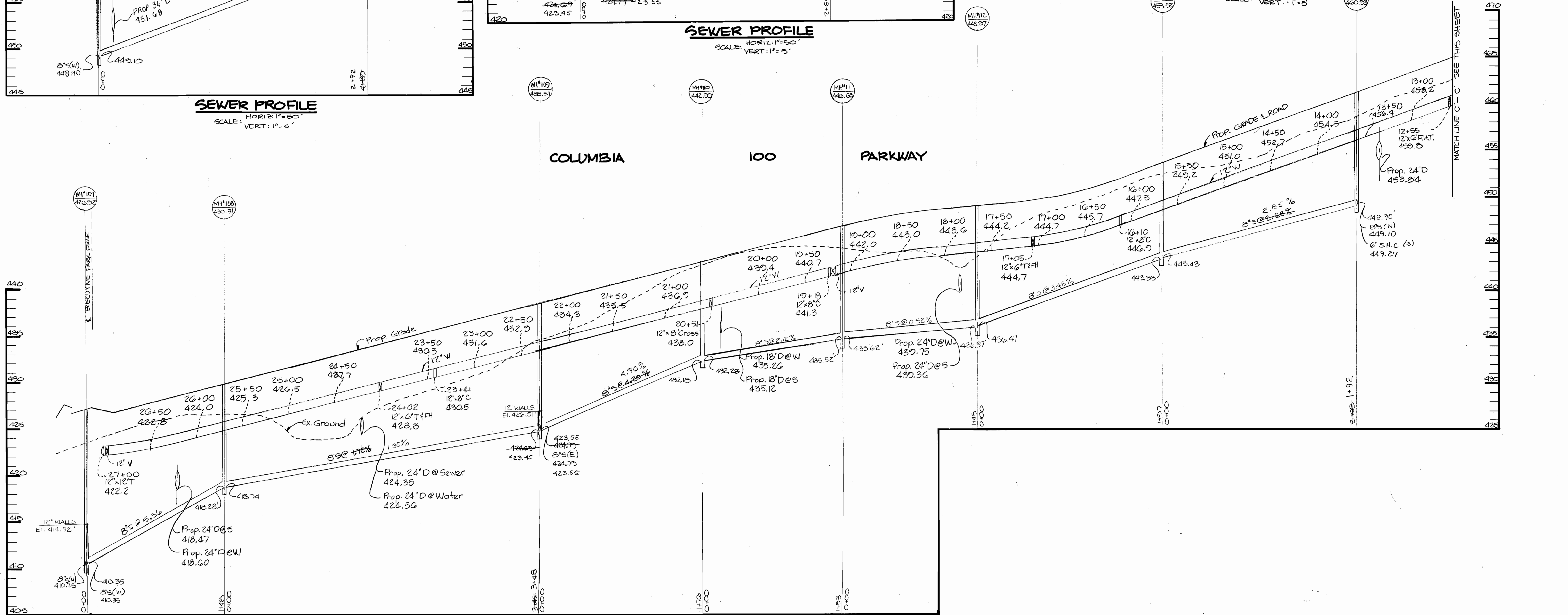
**SEWER PROFILE**  
SCALE: HORIZ. 1"=50'  
VERT. 1"=5'



**SEWER PROFILE**  
SCALE: HORIZ. 1"=50'  
VERT. 1"=5'



**WATER PROFILE**  
SCALE: HORIZ. 1"=50'  
VERT. 1"=5'



**WATER AND SEWER PROFILE**  
SCALE: HORIZ. 1"=50'  
VERT. 1"=5'

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

*Robert W. Buehler* 12/28/86  
DIRECTOR OF PUBLIC WORKS DATE

*Robert W. Buehler* 12-19-86  
CHIEF BUREAU OF UTILITIES DATE

*Arthur E. Muegge* 12-22-86  
CHIEF BUREAU OF ENGINEERING DATE

*Arthur E. Muegge* 12-22-86  
CHIEF LAND DEVELOPMENT DIVISION DATE

THE RIEMER GROUP INC.  
3105 N. RIDGE ROAD  
ELLICOTT CITY, MARYLAND 21043

DATE: 10-28-86 BY NO. REVISION DATE

DES: DAM				
DRN: F.D.M.				
CHK:				
DATE: 10-28-86	BY	NO.	REVISION	DATE

PROFILES OF WATER AND SEWER MAINS

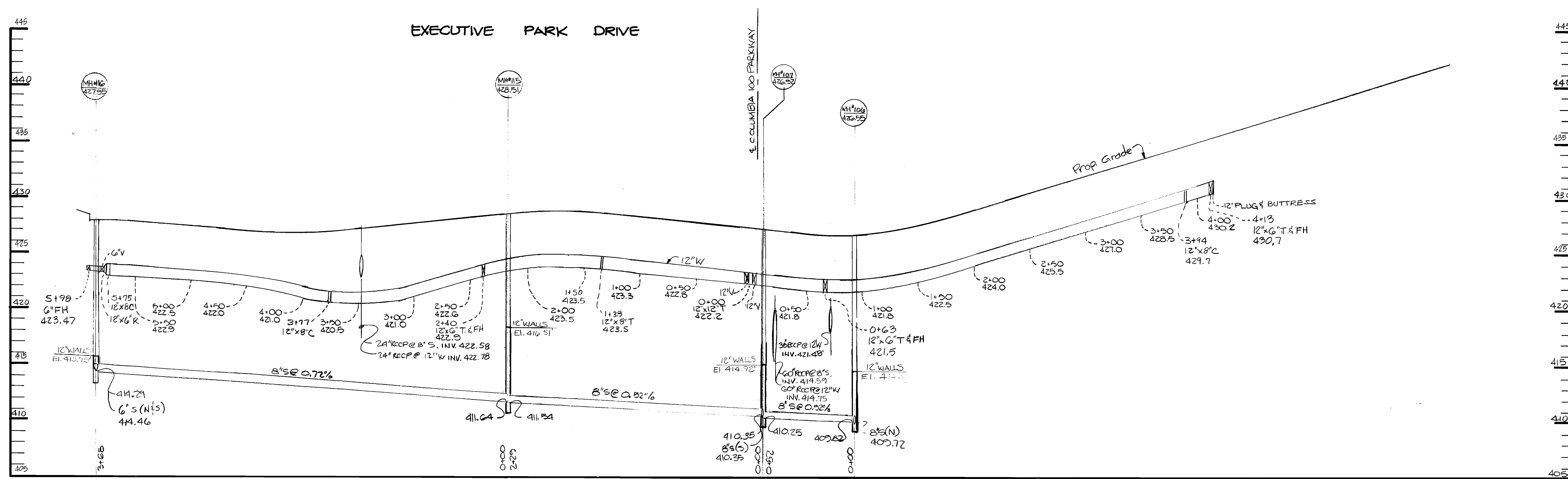
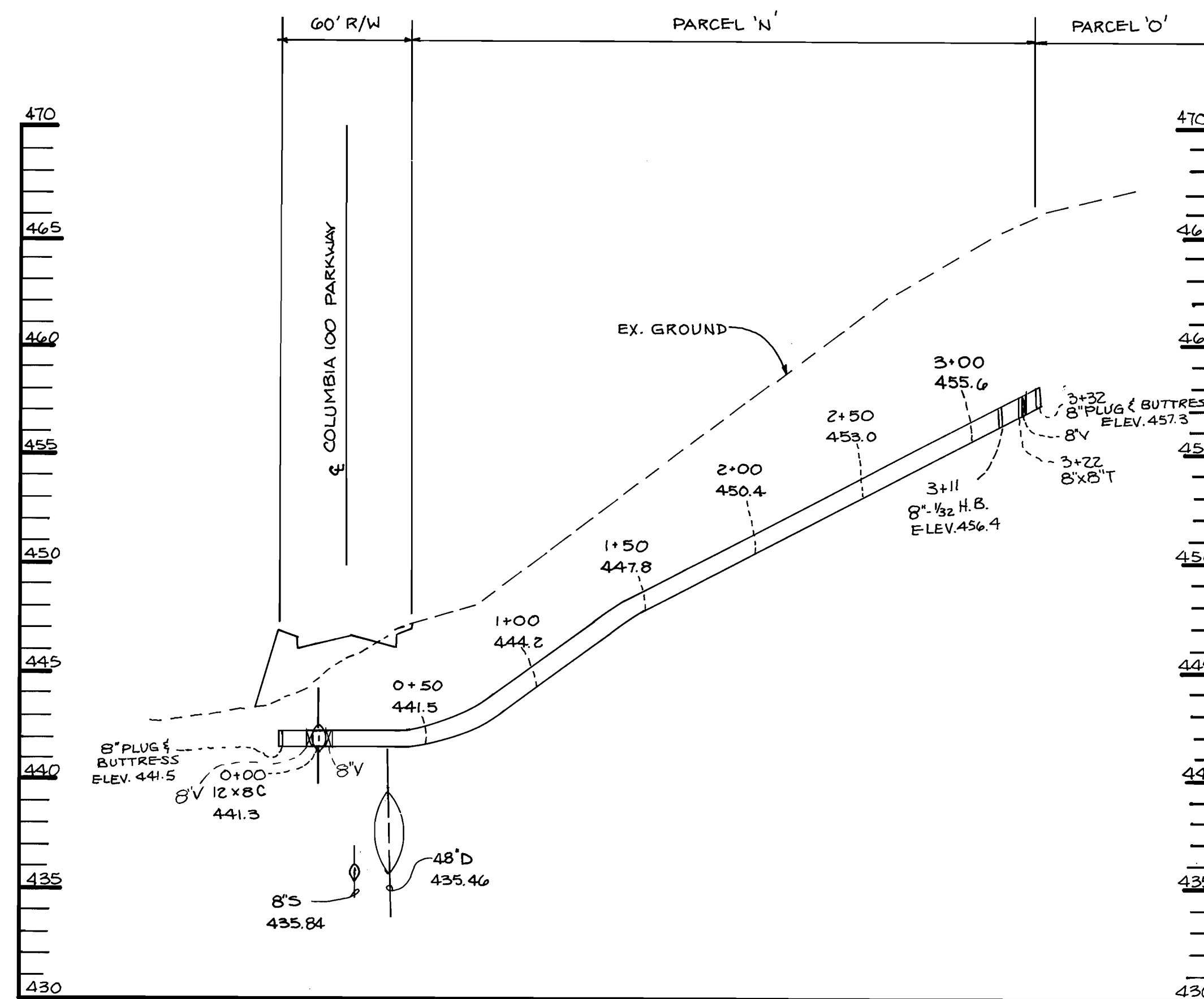
600' SCALE MAP NO. \_\_\_\_\_ BLOCK NO. \_\_\_\_\_

COLUMBIA 100 OFFICE RESEARCH PARK  
SECTION 1, AREA 2  
2ND ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND  
CONTRACT NO. 24-1588-D

SCALE AS SHOWN

SHEET 4 OF 7

AS-BUILT G. WALLACE 2/17/88



**WATER & SEWER PROFILE**  
 SCALE: HORIZ - 1" = 50'  
 VERT - 1" = 5'

DEPARTMENT OF PUBLIC WORKS  
 HOWARD COUNTY, MARYLAND

*James M. ...* 12-23-86  
 DIRECTOR, PUBLIC WORKS DATE

*Robert H. ...* 12-19-86  
 CHIEF, BUREAU OF UTILITIES DATE

*...* 12-22-86  
 CHIEF, BUREAU OF ENGINEERING DATE

CHIEF, LAND DEVELOPMENT DIVISION - DATE

THE RIEMER GROUP, INC.  
 3105 N. RIDGE ROAD  
 ELLICOTT CITY, MARYLAND 21043

*Arthur ...*  
 ARTUR ...

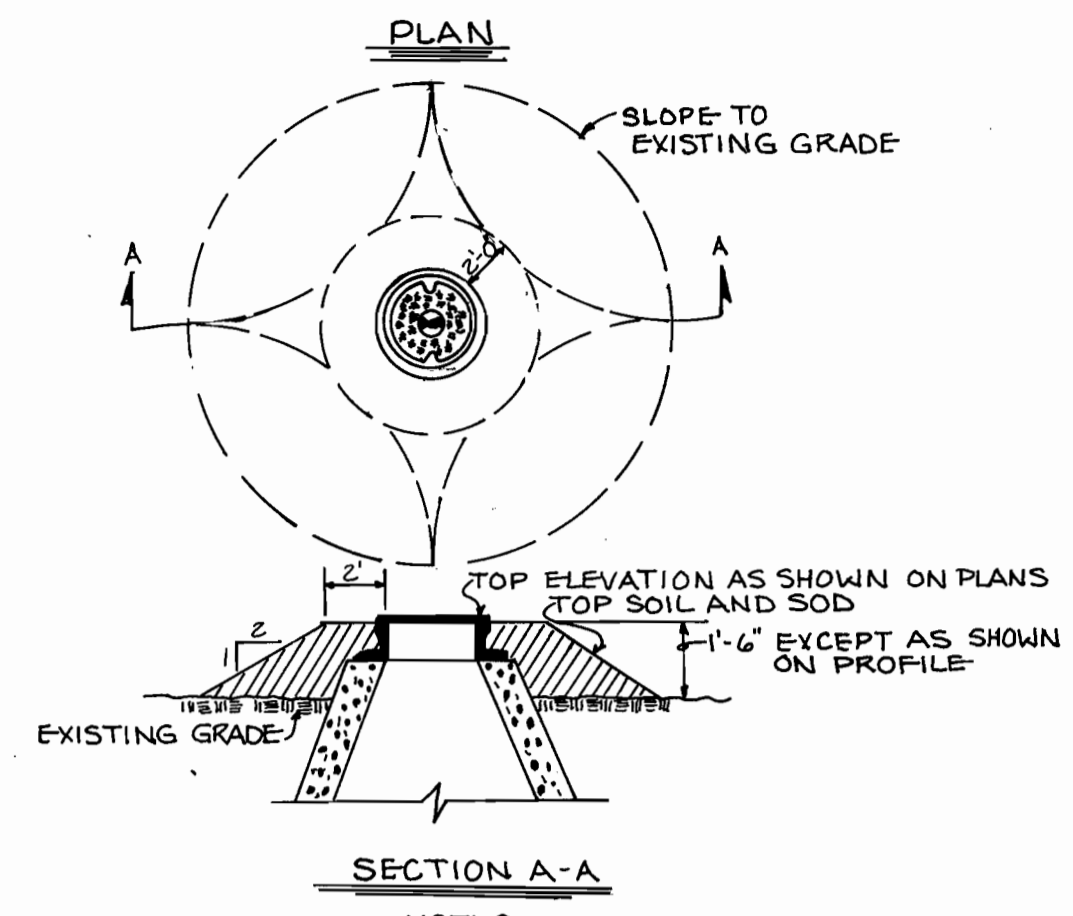
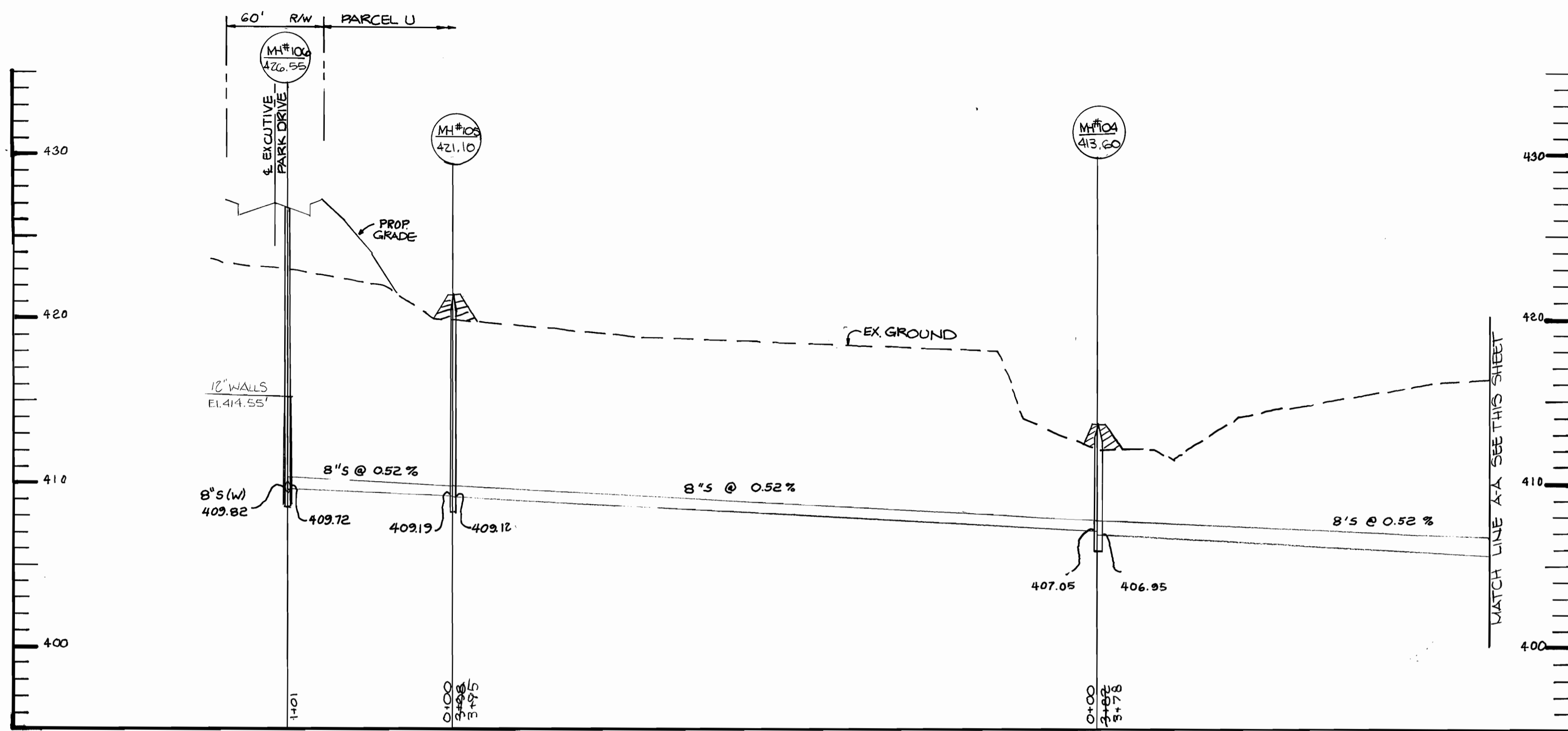
DES: OAM					
DRN: F.O.M.					
CHK:					
DATE: 10-29-86	BY:	NO.	REVISION	DATE	

PROFILES OF WATER AND SEWER MAINS

600' SCALE MAP NO. 30 BLOCK NO.

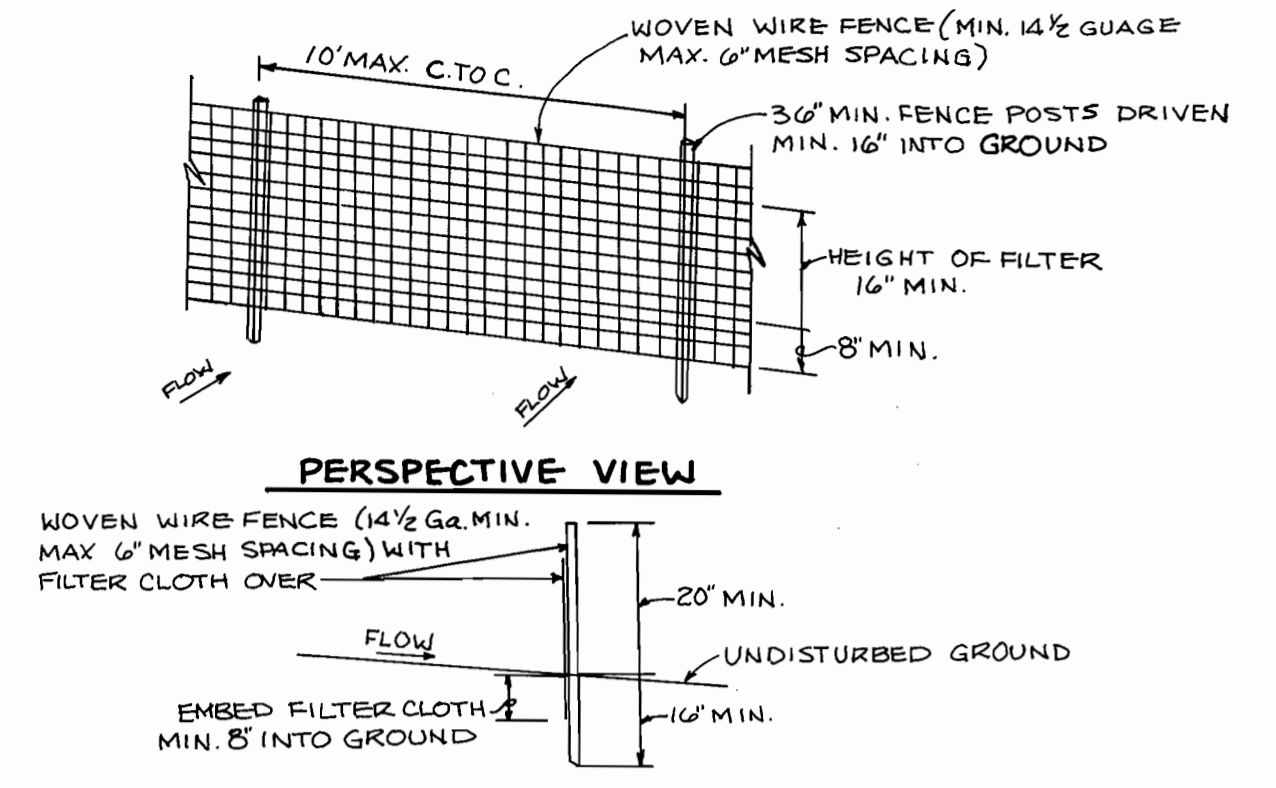
COLUMBIA 100 OFFICE RESEARCH PARK  
 SECTION 1 AREA 2  
 2ND ELECTION DISTRICT  
 HOWARD COUNTY, MARYLAND  
 CONTRACT NO. 24-1588-D

SCALE AS SHOWN  
 SHEET 5 OF 7



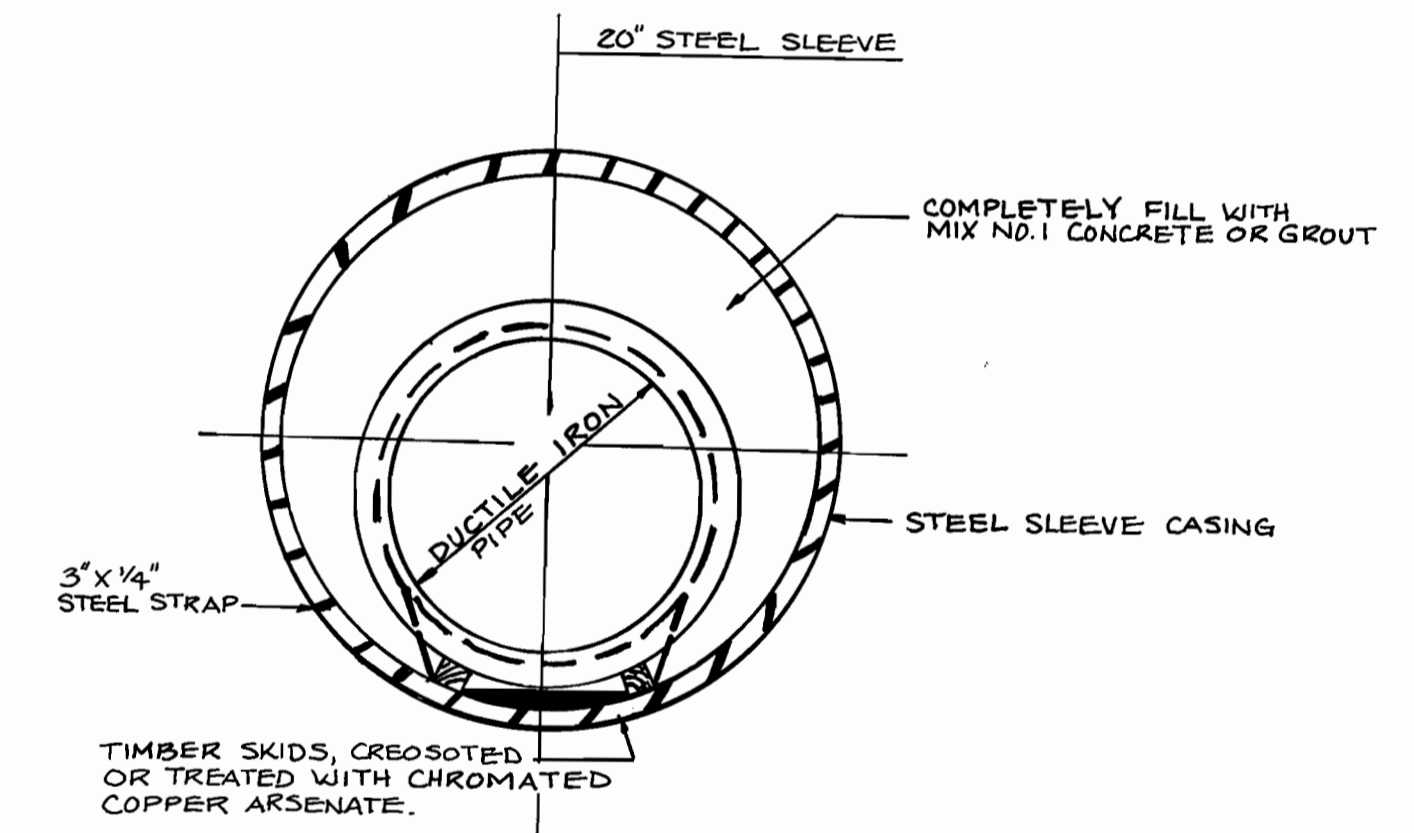
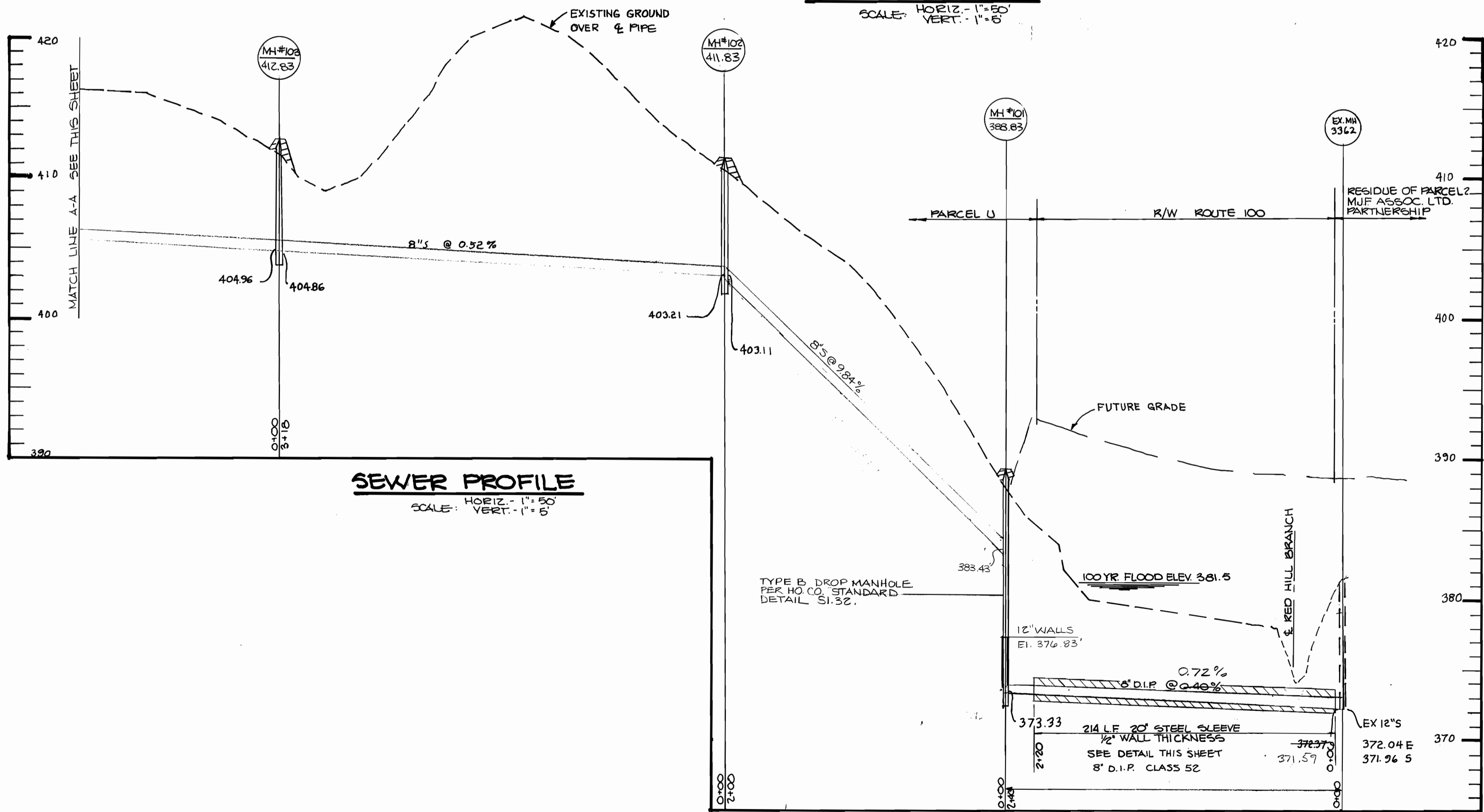
- NOTES**
1. ALL MANHOLE FRAME AND COVERS SHALL BE FLUSH WITH GRADE EXCEPT WHEN SHOWN ON PROFILE TO BE SET HIGHER THAN GRADE.
  2. MANHOLE FRAME AND COVERS TO BE SET HIGHER THAN GRADE SHALL BE SET IN ACCORDANCE WITH THIS DETAIL.
  3. MANHOLE FRAMES AND COVERS TO BE SET HIGHER THAN 1'-6" SHALL BE SET AS NOTED ON THE PROFILE AND IN ACCORDANCE WITH THIS DETAIL.

**BACKFILL AT MANHOLES**  
 NO SCALE



- CONSTRUCTION NOTES FOR FABRICATED SILT FENCE**
1. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES.
  2. FILTER CLOTH TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID-SECTION.
  3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY SIX INCHES AND FOLDED.
  4. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.
- POST STEEL EITHER T OR U TYPE OR 2" HARDWOOD FENCE WOVEN WIRE, 14 GA. 6" MAX. MESH SPACING  
 FILTER CLOTH: FILTER X, MIRAFL 100X, STABILUNKA T140N OR EQUAL  
 PREFABRICATED UNIT: GEOFAB, ENVIROFENCE, OR APPROVED EQUAL.

**SILT FENCE**  
 NO SCALE



DEPARTMENT OF PUBLIC WORKS  
 HOWARD COUNTY, MARYLAND

*James M. ...*  
 DIRECTOR OF PUBLIC WORKS  
 DATE: 12-19-86

*Robert M. ...*  
 CHIEF BUREAU OF UTILITIES  
 DATE: 12-19-86

THE RIEMER GROUP, INC.  
 3105 N. RIDGE ROAD  
 ELLICOTT CITY, MARYLAND 21043

*Arthur E. Muegge*  
 ARTHUR E. MUEGGE  
 DATE: 10-29-86

DES: DAM			
DRN: S.V.W.			
CHK:			
DATE: 10-29-86			
BY NO.		REVISION	

PROFILES OF SEWER MAINS & DETAILS

600' SCALE MAP NO. 30 BLOCK NO.

COLUMBIA 100 OFFICE RESEARCH PARK  
 SECTION I, AREA 2  
 2ND ELECTION DISTRICT  
 HOWARD COUNTY, MARYLAND  
 CONTRACT NO. 24-1588-D

SCALE AS SHOWN  
 SHEET 6 OF 7

1. ALL SEWER LINES SHALL BE CONSTRUCTED A MINIMUM OF 42" COVER BELOW EXISTING GRADE.
2. DISCONTINUED SEWER LINES SHALL BE JOINED WITH A SINGLE OR TWO (2) FEET COVER GAP BY A 2" ADVERTISED NEOPRENE GASKET. SIMPLE BUMP JOINTS ARE NOT TO BE USED.
3. ALL SEWER LINES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL, VOLUME 1, STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION.
4. APPROXIMATE LOCATION OF EXISTING UTILITIES ARE SHOWN. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED DUE TO CONTRACTOR'S OPERATION SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE.
5. THE CONTRACTOR SHALL TEST ALL EXISTING UTILITIES AT LEAST FIVE (5) DAYS BEFORE STARTING WORK SHOWN ON THESE DRAWINGS TO VERIFY THEIR LOCATION AND DEPTH. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY IF LOCATION OF UTILITIES IS OTHER THAN SHOWN.
6. CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITIES AT LEAST FIVE (5) DAYS BEFORE STARTING WORK ON THESE DRAWINGS:

MISS UTILITY 1-800-257-7777  
 C&P TELEPHONE COMPANY 725-9976  
 HOWARD COUNTY BUREAU OF UTILITIES 992-2366  
 AT&T CABLE LOCATION DIVISION 393-3553  
 BALTIMORE GAS AND ELECTRIC COMPANY 685-0123  
 STATE HIGHWAY ADMINISTRATION 531-5533  
 HOWARD COUNTY CONSTRUCTION/INSPECTION SURVEY DIVISION (24 HOURS NOTICE PRIOR TO COMMENCEMENT OF WORK) 792-7272

7. ALL EXCATS SHALL BE CONSTRUCTED IN ACCORDANCE WITH HOWARD COUNTY STANDARDS.
8. ALL PIPE ELEVATIONS SHOWN ARE INVERT ELEVATIONS.
9. THE CONTRACTOR SHALL PROVIDE A JOINT IN ALL SEWER MAINS WITHIN 2'-0" OF EXTERIOR MANHOLE WALLS.
10. PROFILE STATIONS SHALL BE ADJUSTED AS NECESSARY TO CONFORM TO PLAN DIMENSIONS.
11. NO PIPE SHALL BE LAID UNTIL LINES OF EXCAVATION HAVE BEEN BROUGHT TO SURFACE.
12. PHOTO TAKEN FROM FIELD MAY BE DATED 1986.
13. ALL PLAN DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
14. ALL STORM DRAIN PIPE BEDDING SHALL BE AS SHOWN IN DETAIL G2.01 (SPONGE IN ROCK OR FRENCH IN EARTH AS DETERMINED BY FIELD CONDITIONS) IN VOLUME IV OF HOWARD COUNTY DESIGN MANUAL UNLESS OTHERWISE DIRECTED BY THE ENGINEER OR AS SHOWN ON THE DRAWINGS.
15. THE DEVELOPER IS RESPONSIBLE FOR THE ACQUISITION OF ALL EASEMENTS, RIGHTS AND/OR RIGHTS-OF-WAY THAT MAY BE REQUIRED FOR THE SEDIMENT AND EROSION CONTROL PRACTICES, STORM WATER MANAGEMENT PRACTICES AND THE DISBURSAL OF STORM WATER INTO OR ACROSS ADJACENT OR DOWNSTREAM PROPERTIES ENCLOSED BY THIS PLAN. HE IS ALSO RESPONSIBLE FOR THE ACQUISITION OF ALL EASEMENTS, RIGHTS AND/OR RIGHTS-OF-WAY THAT MAY BE REQUIRED FOR GRADING AND/OR WORK ON ADJACENT PROPERTIES ENCLOSED BY THIS PLAN.

PERMANENT SEEDING NOTES

Apply to graded or cleared areas not subject to immediate further disturbance where a permanent long-lived vegetative cover is needed.

Seedbed Preparation: Expose upper three inches of soil by raking, disking or other acceptable means before seeding.

Soil Amendments: Apply 0-20-20 fertilizer at the rate of 600 lbs. per acre, banded or disked in and 0-20-20 fertilizer into the soil to a minimum depth of 2" on all non-erosion areas. Will be dugged and leveled with a York rake. At the time of seeding, apply 500 lbs. of 30-0-0 ureaform fertilizer and 500 lbs. of 10-20-20 or equivalent fertilizer per acre.

Seeding: For the period March 1 thru April 30, and August 1 thru October 31, seed with 50 lbs. per acre (1 1/2 tons) of a mixture of certified 'Meadow' Kentucky bluegrass, common Kentucky bluegrass @ 40 lbs. per acre (1 1/2 tons) and 50 lbs. per acre of Pennlawn or Jamestown @ 20 lbs. per acre (1/2 ton) for the period May 1 thru July 31, seed with 40-40-20 mix as specified above and 2 lbs. per acre (0.05 lbs./1000 sq.ft.) of weeping lovegrass. During the period of October 1 thru February 28, provide six (6) tons per acre of well-anchored straw mulch and seed as soon as possible in the spring. Option 2) For seed, Option 3) seed with 40-40-20 mix specified above and mulch with 2 tons per acre well-anchored straw.

Mulching: Apply 3 to 7 tons per acre (90 to 90 lbs./1000 sq.ft.) of unrotted small grain straw immediately after seeding. Anchor mulch immediately after application using wood anchoring tool or 218 gallons per acre (5 gal/1000 sq.ft.) of emulsified asphalt on flat areas. On slopes 8 lbs. or higher, use 36 gal. per acre (8 gal./1000 sq.ft.) for anchoring.

Maintenance: Inspect all seeded areas and make needed repairs, replacements and adjustments.

TEMPORARY SEEDING NOTES

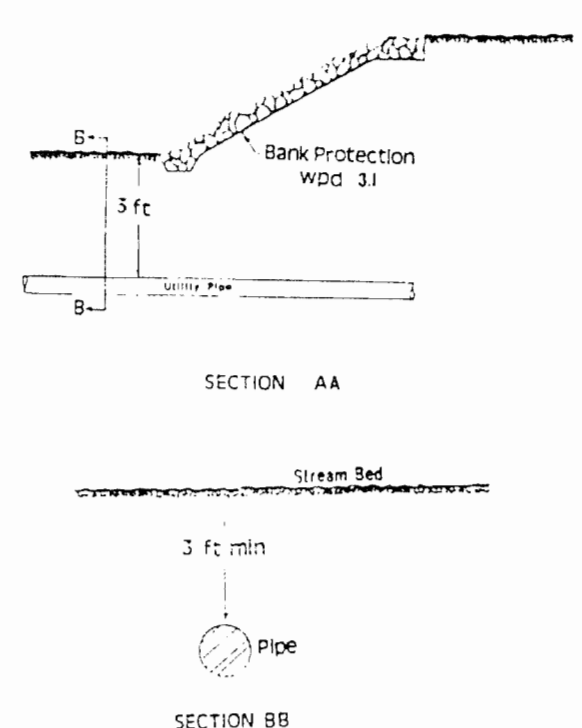
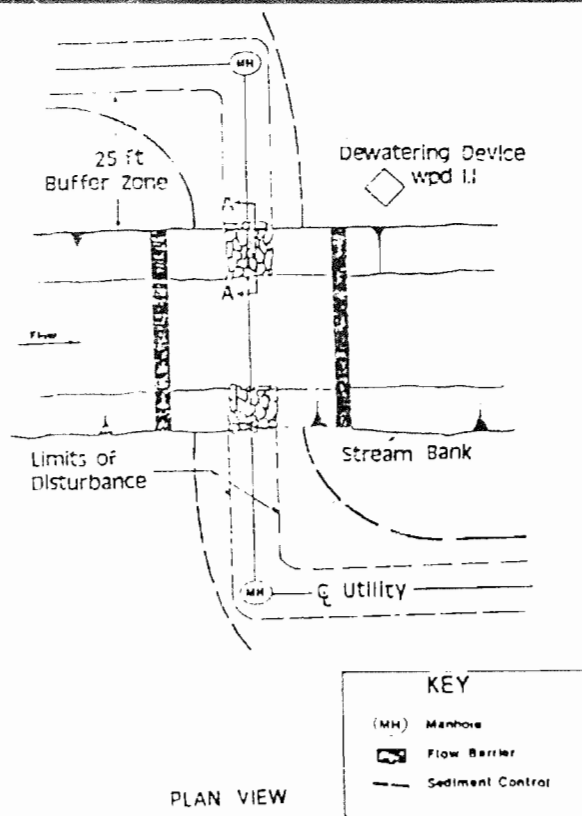
Apply to graded or cleared areas likely to be redisturbed where a short-term vegetative cover is needed.

Seedbed Preparation: Expose upper three inches of soil by raking, disking or other acceptable means before seeding.

Soil Amendments: Apply 600 lbs. per acre (10-10-10 fertilizer (14 lbs./1000 sq.ft.) where soil is highly acidic, apply dolomitic limestone at the rate of 2 tons per acre.

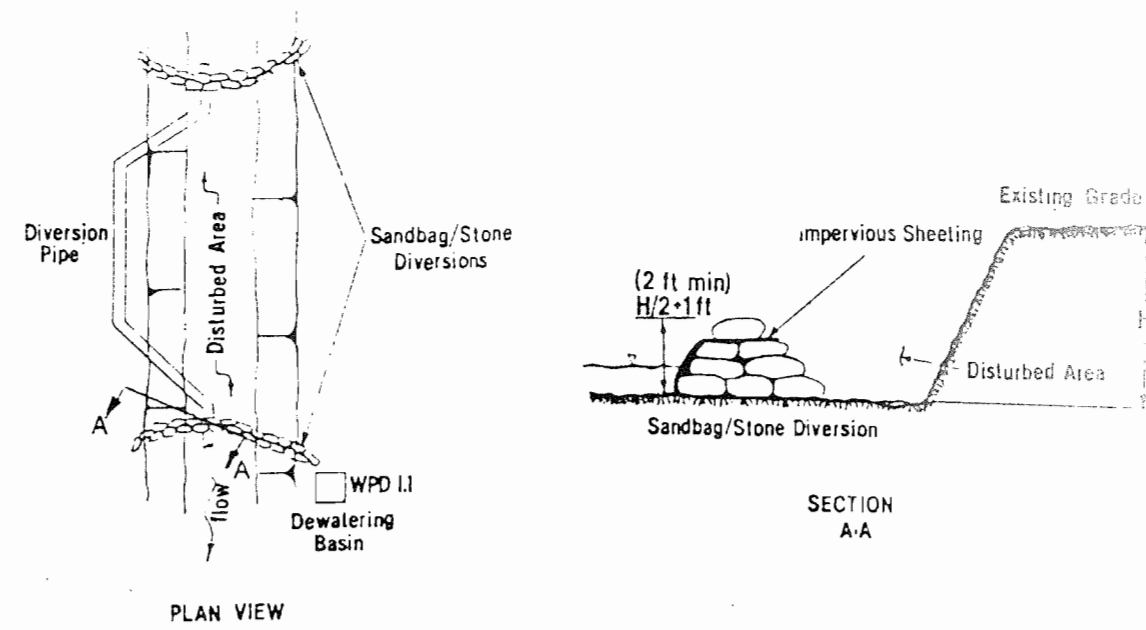
Seeding: For period March 1 thru April 30 and from August 15 thru November 31, seed with 100 lbs. per acre of annual ryegrass (2 lbs./1000 sq.ft.). For the period May 1 thru August 31, seed with 3 lbs. per acre of weeping lovegrass (0.1 lbs./1000 sq.ft.). For the period November 1 thru February 28, provide six (6) tons per acre of well-anchored straw mulch and seed as soon as possible in the spring, or use seed.

Mulching: Apply 3 to 4 tons per acre (90 to 90 lbs./1000 sq.ft.) of unrotted small grain straw immediately after seeding. Anchor mulch immediately after application using wood anchoring tool or 218 gal. per acre (5 gal./1000 sq.ft.) of emulsified asphalt on flat areas. On slopes, 8 lbs. or higher, use 36 gal. per acre (8 gal./1000 sq.ft.) for anchoring.



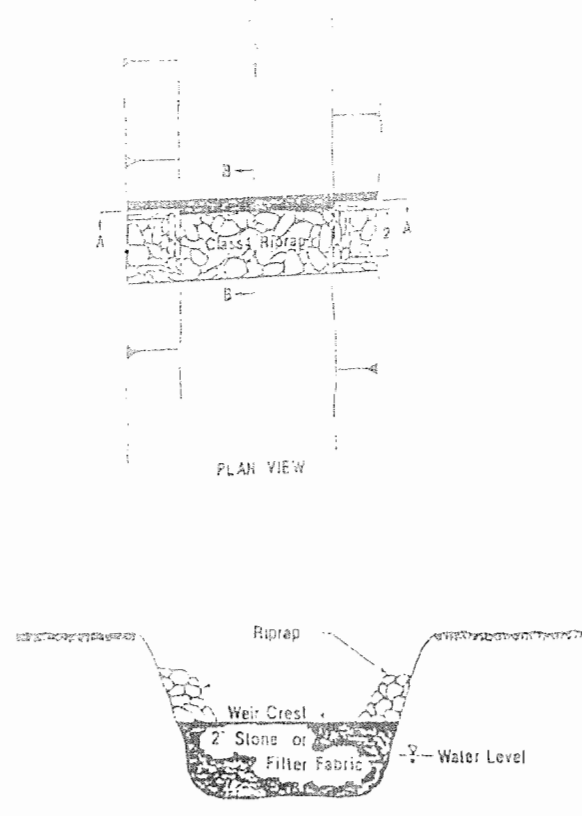
UTILITY CROSSING NO SCALE

1. Description: This work shall consist of installing erosion control devices in and adjacent to temporary stream construction such as utility crossings.
- 1.1. Construction Requirements:
  1. All erosion and sediment control devices shall be installed as the first order of work.
  2. The contractor shall insure that a continuous perimeter control barrier is in place to prevent pollutants entering the water.
  3. Excavated material and subsoil shall be kept separate and replaced in their natural order.
  4. All excavated materials shall be placed on the upland side of the excavation.
  5. All construction shall take place during stream flow. The length of construction time shall be limited to a maximum of 3 days for each crossing.
  6. All utility crossings shall be placed at least 10 feet beneath the stream bed unless an alternative section is specifically approved by the Administration.
  7. The contractor may elect to construct the utility crossing in two stages. In this case, a MRA approved flow barrier may be constructed to keep the construction area dry.
  8. Sediment control devices are to remain in place until all disturbed areas are stabilized in accordance with an approved sediment and erosion control plan and the inspecting authority approves their removal.



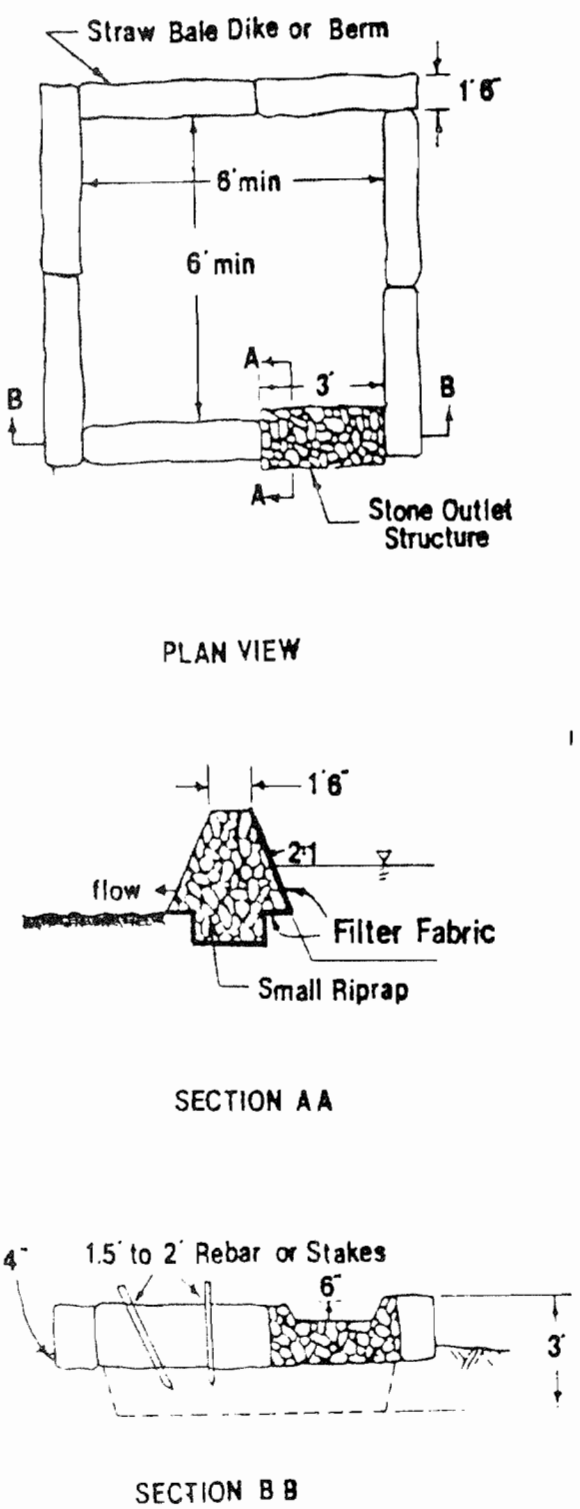
1. Description: The work shall consist of installing a flow diversion structure when construct or activities take place within the stream channel such as culvert construction or culvert replacement.
- 1.1. Material Specifications:
  1. Sandbags: Sandbags shall consist of materials which are resistant to ultraviolet radiation, tearing and puncture and woven tightly enough to prevent leakage of fill material (i.e., sand, fine gravel, etc.).
  2. Stones: Stone shall be washed and have a minimum diameter of 6 inches.
  3. Sheeting: Sheeting shall consist of polyethylene or other material which is impervious and resistant to puncture and tearing.
- 1.1.1. Construction Requirements:
  1. All erosion and sediment control devices shall be installed as the first order of work.
  2. The height of the sandbag/stone diversion structure shall be one half the distance from the stream bed to the bank plus one foot, as indicated in section AA.
  3. All excavated materials shall be disposed of in a SCD approved disposal area outside the 100-year floodplain unless otherwise approved on the plans by the MRA.
  4. All dewatering of the construction area shall be pumped to a dewatering basin (Plate WPD.1) or otherwise approved on the plans by the MRA.
  5. Sheeting shall be overlapped a minimum of 18 inches.
  6. The diversion pipe shall have a minimum diameter of sufficient size to convey the normal stream flow.
  7. If necessary, silt fence or strawbales shall be installed around the perimeter of the work area.
  8. Sediment control devices are to remain in place until all disturbed areas are stabilized and the inspecting authority approves their removal.

DIVERSION PIPE NO SCALE



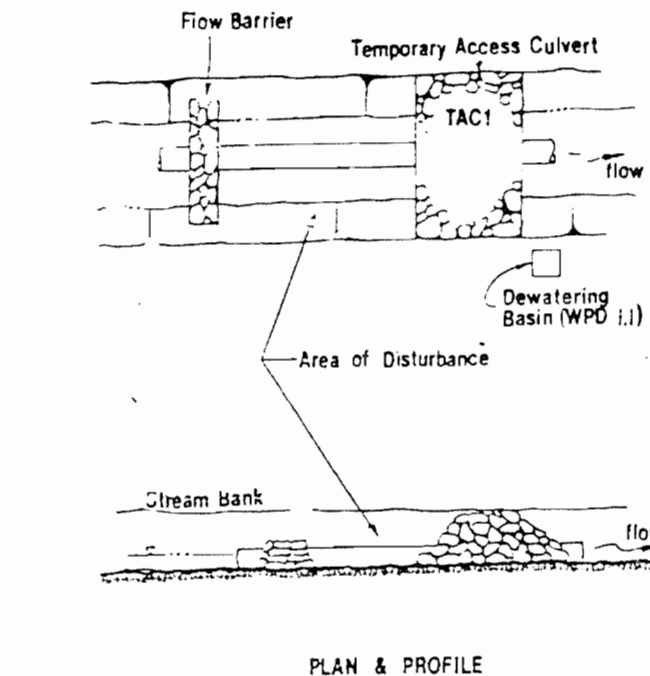
1. Description: The work shall consist of installing a flow diversion structure when construct or activities take place within the stream channel such as culvert construction or culvert replacement.
- 1.1. Material Specifications:
  1. Sandbags: Sandbags shall consist of materials which are resistant to ultraviolet radiation, tearing and puncture and woven tightly enough to prevent leakage of fill material (i.e., sand, fine gravel, etc.).
  2. Stones: Stone shall be washed and have a minimum diameter of 6 inches.
  3. Sheeting: Sheeting shall consist of polyethylene or other material which is impervious and resistant to puncture and tearing.
- 1.1.1. Construction Requirements:
  1. All erosion and sediment control devices shall be installed as the first order of work.
  2. The height of the sandbag/stone diversion structure shall be one half the distance from the stream bed to the bank plus one foot, as indicated in section AA.
  3. All excavated materials shall be disposed of in a SCD approved disposal area outside the 100-year floodplain unless otherwise approved on the plans by the MRA.
  4. All dewatering of the construction area shall be pumped to a dewatering basin (Plate WPD.1) or otherwise approved on the plans by the MRA.
  5. Sheeting shall be overlapped a minimum of 18 inches.
  6. The diversion pipe shall have a minimum diameter of sufficient size to convey the normal stream flow.
  7. If necessary, silt fence or strawbales shall be installed around the perimeter of the work area.
  8. Sediment control devices are to remain in place until all disturbed areas are stabilized and the inspecting authority approves their removal.

IN-STREAM STONE DIKE NO SCALE



DEWATERING BASIN NO SCALE

1. Description: The work shall consist of the construction of a dewatering basin for the purpose of receiving sediment-laden water pumped from a construction site to allow filtration before the water re-enters the waterway.
- 1.1. Material Specifications:
  1. Riprap: Riprap shall consist of 4-8 inch washed stone or gravel.
  2. Filter Fabric: The filter cloth shall be a woven or nonwoven fabric consisting only of continuous chain polymeric filaments or yarns of polyester. The fabric shall be inert to commonly encountered chemicals, hydrocarbons, mildew, and rot resistant. No. 6 stone (ASTM D 37) may be used on the lower face for filtering instead of fabric.
  3. Strawbales: Strawbales shall meet the criteria as specified in the Maryland Standards and Specifications for Soil Erosion and Sediment Control.
- 1.1.1. Construction Requirements:
  1. The contractor shall install all sediment and erosion control devices as the first order of business.
  2. Excavated materials shall be stored such that sediments are prevented from entering the waterways (i.e., sediment perimeter controls may be necessary).
  3. Excavated subsoil and topsoil shall be kept separate and replaced in their natural order.
  4. Any dewatering of the construction area shall be filtered through a dewatering basin prior to entering the waterway.
  5. The dewatering basin shall be excavated to a minimum depth of 3 feet.
  6. Once the dewatering basin becomes filled to 1/2 of the excavated depth, accumulated sediment shall be removed and disposed of in a SCD approved disposal area outside the 100-year floodplain unless otherwise approved on the plans by the MRA.
  7. Sediment control devices are to remain in place until all disturbed areas are stabilized and the inspecting authority approves their removal. All ground contours shall be returned to their original condition unless specifically approved otherwise by the Administration.

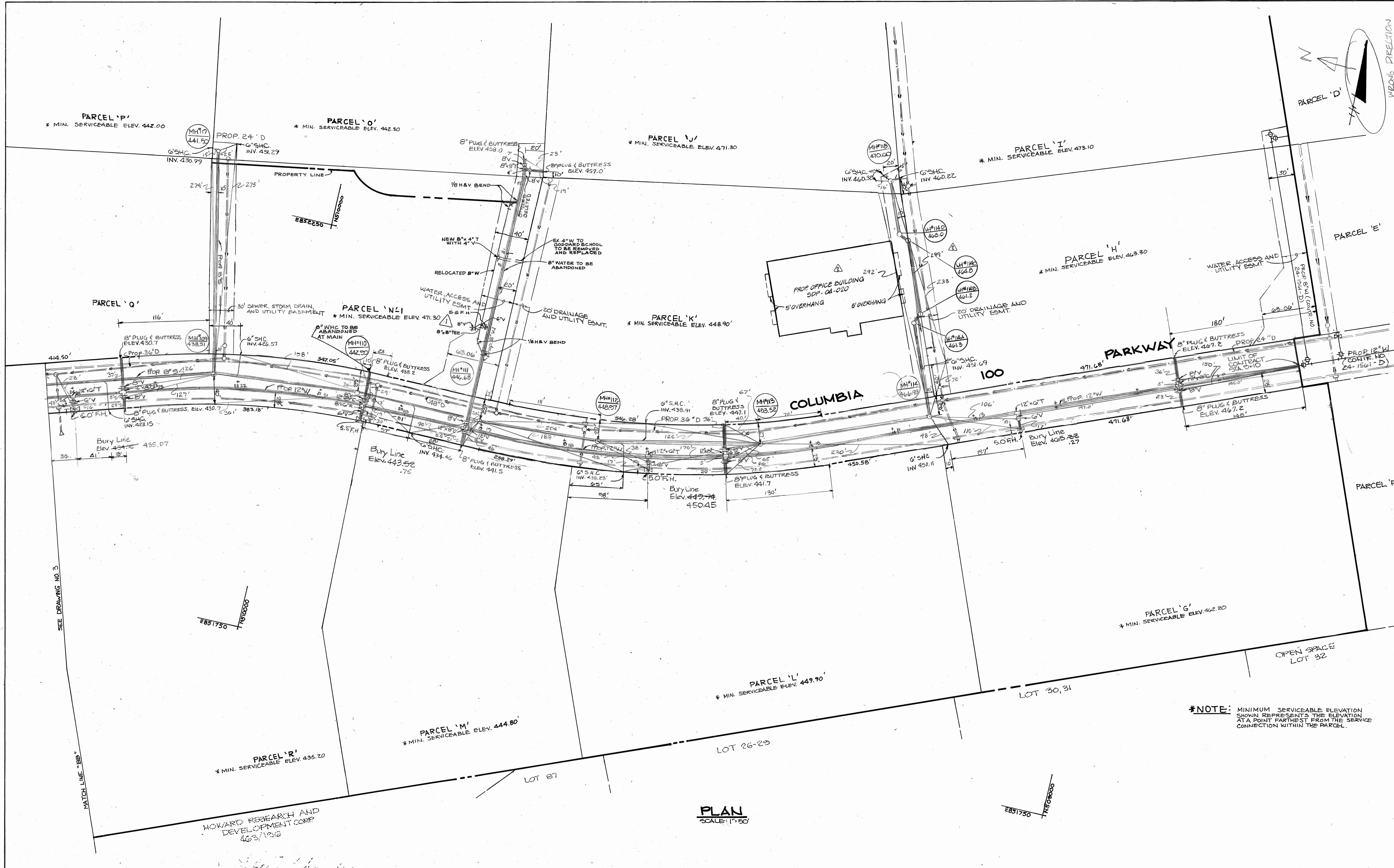


CULVERT PIPE WITH ACCESS NO SCALE

1. Description: The work shall consist of installing a flow diversion structure in conjunction with a temporary culvert crossing during in-stream construction such as utility crossings.
- 1.1. Construction Requirements:
  1. All erosion and sediment control devices shall be installed as the first order of business.
  2. Pipes must be sized to accommodate normal stream flow.
  3. The flow barrier shall be constructed of sandbags, washed riprap, or other approved material as per WPD.3. The materials shall be sized to withstand normal stream flow velocities.
  4. All dewatering of the construction area shall be pumped to a dewatering basin (WPD.1) prior to re-entering the stream.
  5. The temporary culvert crossing shall be constructed in accordance with Standard Detail (TAC-1), 1987 Maryland Standards and Specifications for Sediment and Erosion Control.
  6. Sediment control devices shall remain in place until all disturbed areas have been stabilized in accordance with an approved sediment and erosion control plan and the inspecting authority approves their removal.

SEQUENCE OF CONSTRUCTION FOR UTILITY STREAM CROSSING

1. INSTALL IN-STREAM STONE DIKE, DOWN STREAM OF CROSSING.
2. INSTALL TEMPORARY ACCESS CULVERT PIPE UPSTREAM OF CROSSING.
3. INSTALL DIVERSION PIPE.
4. INSTALL PIPE IN ACCORDANCE WITH UTILITY CROSSING DETAIL.
5. STABILIZE DISTURBED AREA IN ACCORDANCE WITH PERMANENT SEEDING NOTES.
6. UPON APPROVAL OF SEDIMENT CONTROL INSPECTOR REMOVE ALL SEDIMENT CONTROLS.
7. STABILIZE DISTURBED AREA IN ACCORDANCE WITH PERMANENT SEEDING NOTES.



**\*NOTE:** MINIMUM SERVICEABLE ELEVATION SHOWN REPRESENTS THE ELEVATION AT A POINT FARTHEST FROM THE SERVICE CONNECTION WITHIN THE PARCEL.

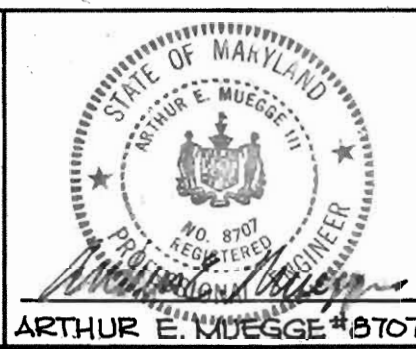
**PLAN**  
SCALE: 1"=50'

**DEPARTMENT OF PUBLIC WORKS**  
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS: *Robert Beumer*  
DATE: 12-19-86  
CHIEF, BUREAU OF UTILITIES

CHIEF, BUREAU OF ENGINEERING: *William J. ...*  
DATE: ...  
CHIEF, LAND DEVELOPMENT DIVISION: *...*  
DATE: ...

**THE RIEMER GROUP, INC.**  
3105 NORTH RIDGE ROAD  
ELLIGOTT CITY, MARYLAND



DES: JKB				
DRN: D.D.B.				
CHK:	WAD	ADDED & WASHHOLD BETWEEN MH 113 & MH 110	3-24-86	
	CJR	ADDED P.H. VALVE, 8" X 8" TEE, 8" X 4" T & REVISE ALIGNMENT	11-01-99	
DATE: 10-25-86	BY: NO.	REVISION	DATE	

**PLAN OF WATER & SEWER MAIN**

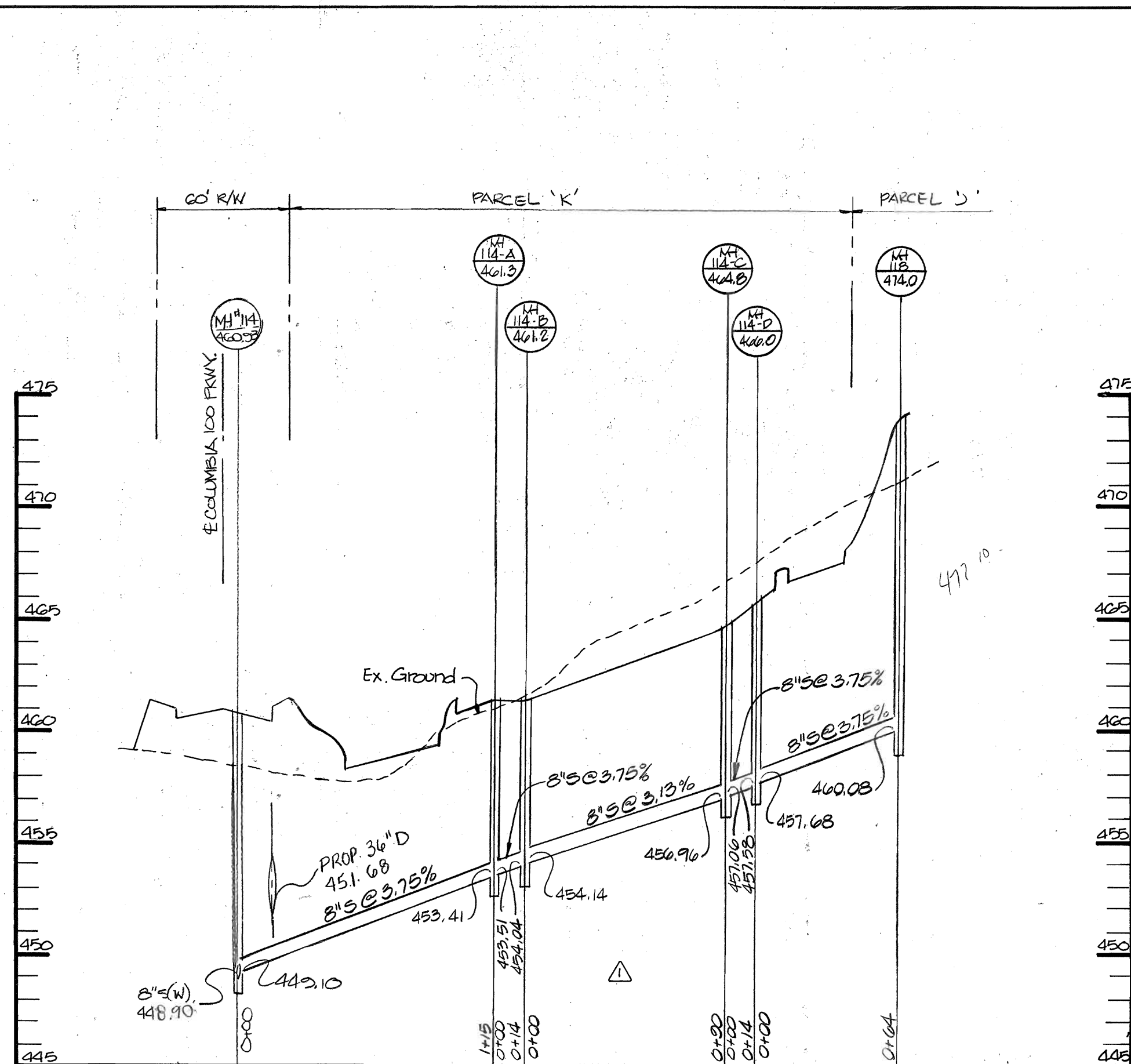
600' SCALE MAP NO. 30 BLOCK NO.

**COLUMBIA 100 OFFICE RESEARCH PARK**  
SECTION 1 AREA 2  
2ND ELECTION DISTRICT  
HOWARD COUNTY MARYLAND  
CONTRACT NO. 24-1588-D

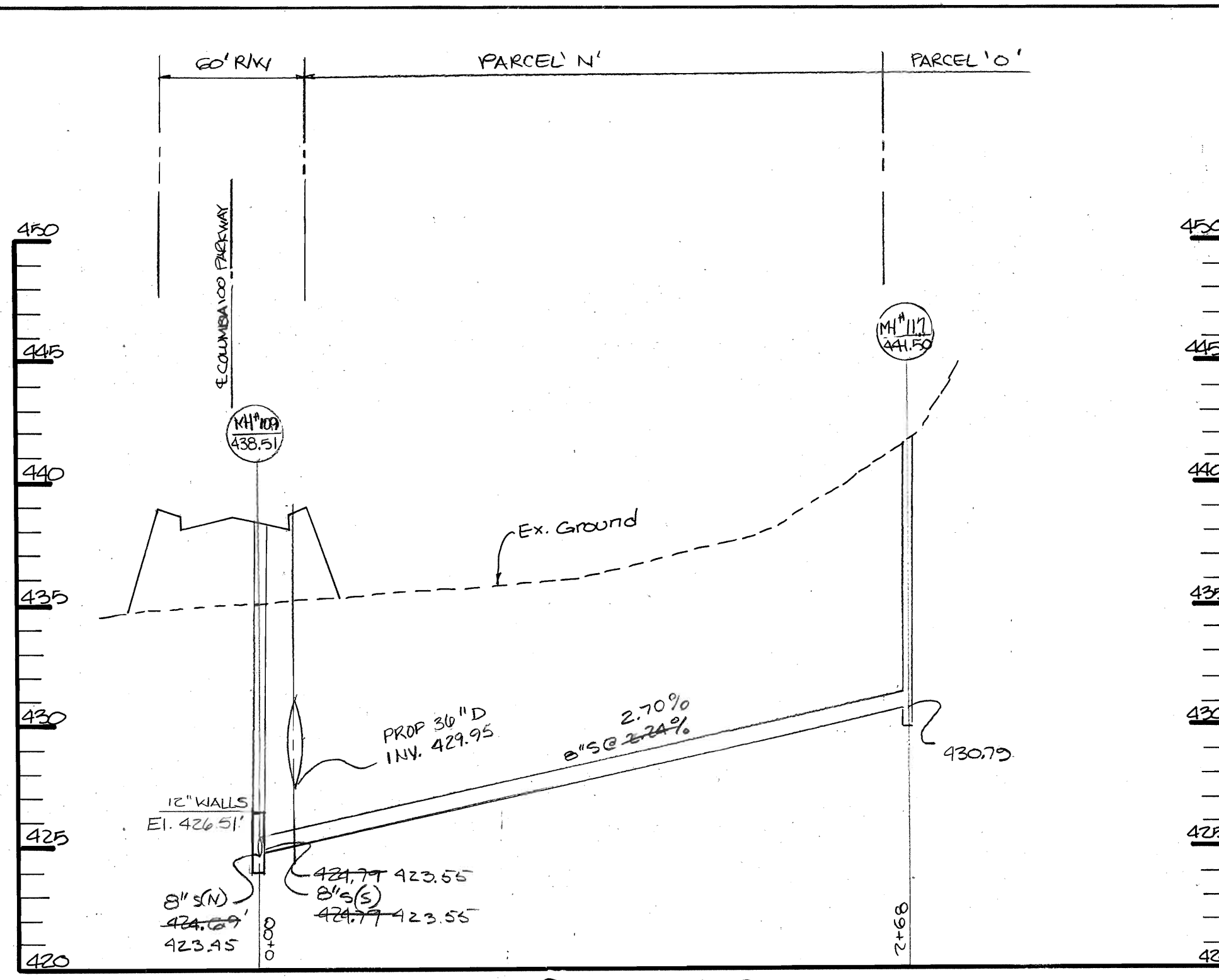
SCALE AS SHOWN  
SHEET 2 OF 7

AS-BUILT G. WALLACE 2/17/88 DECEMBER 5, 1986

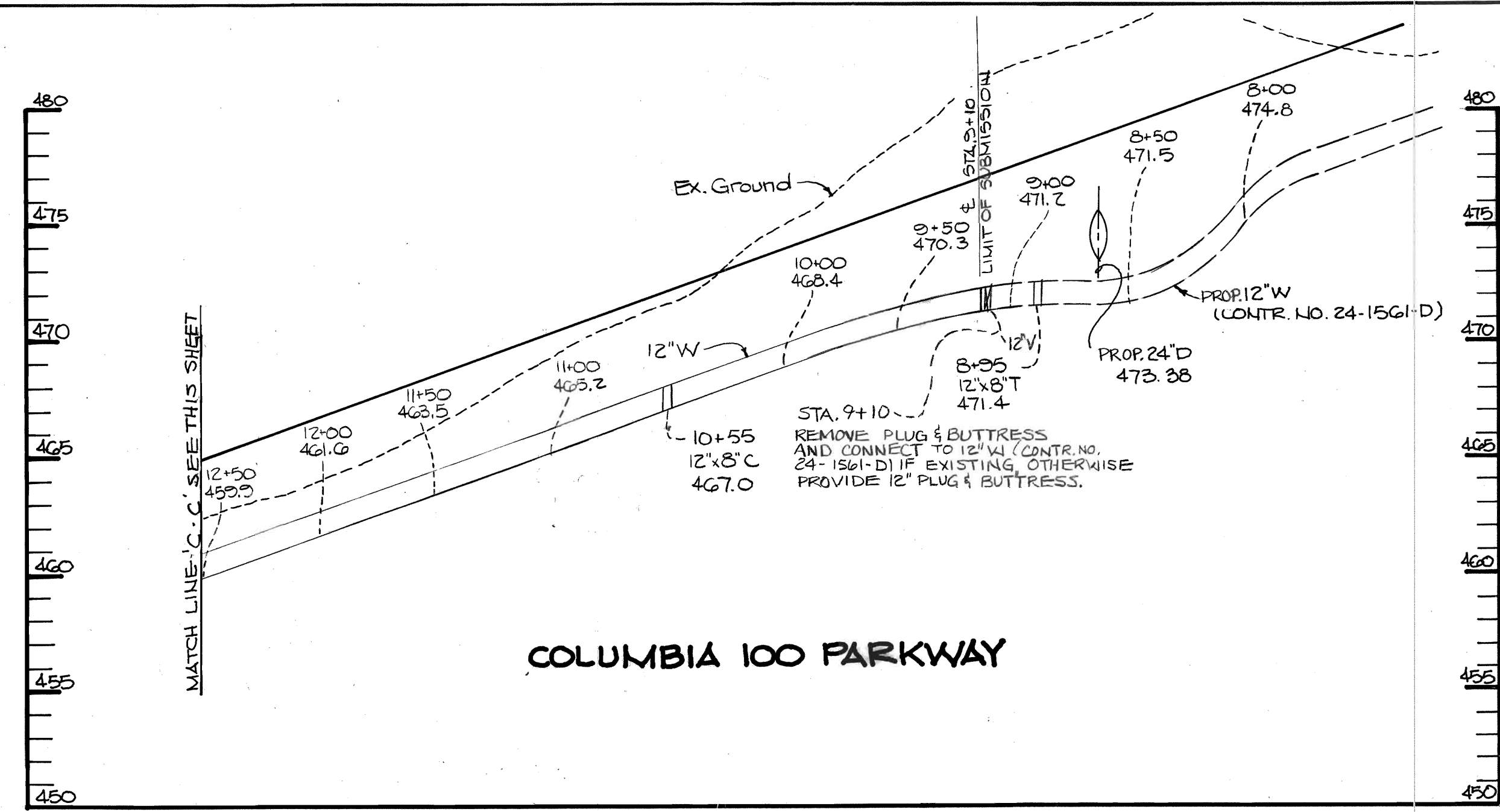




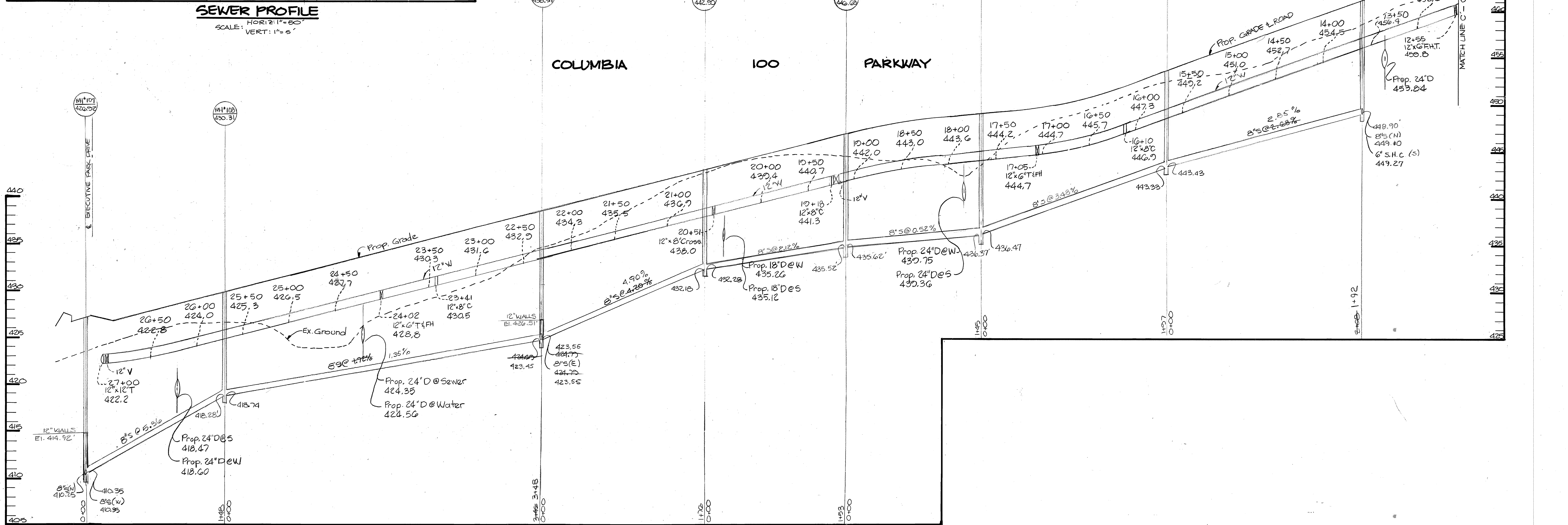
**SEWER PROFILE**  
SCALE: HORIZ: 1"=50'  
VERT: 1"=5'



**SEWER PROFILE**  
SCALE: HORIZ: 1"=50'  
VERT: 1"=5'



**WATER PROFILE**  
SCALE: HORIZ: 1"=50'  
VERT: 1"=5'



**WATER AND SEWER PROFILE**  
SCALE: HORIZ: 1"=50'  
VERT: 1"=5'

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

*Richard A. Brown* 12/23/86  
DIRECTOR OF PUBLIC WORKS DATE

*Robert B. Brown* 12-19-86  
CHIEF BUREAU OF UTILITIES DATE

*William E. Reed* 12-22-86  
CHIEF BUREAU OF ENGINEERING DATE

*William E. Reed* 12-22-86  
CHIEF LAND DEVELOPMENT DIVISION DATE

THE RIEMER GROUP INC.  
3105 N. RIDGE ROAD  
ELLCOTT CITY, MARYLAND 21043

*Arthur E. Muegge*  
ARTHUR E. MUEGGE

DES: DAM			
DRN: F.D.M.			
CHK:			
DATE: 10-29-86	BY: LAD	NO. 1	REVISION: REVISED SEWER PROFILE
			DATE: 3-24-89

PROFILES OF WATER AND SEWER MAINS

600' SCALE MAP NO. \_\_\_\_\_ BLOCK NO. \_\_\_\_\_

COLUMBIA 100 OFFICE RESEARCH PARK  
SECTION 1, AREA 2  
2ND ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND  
CONTRACT NO. 24-1588-D

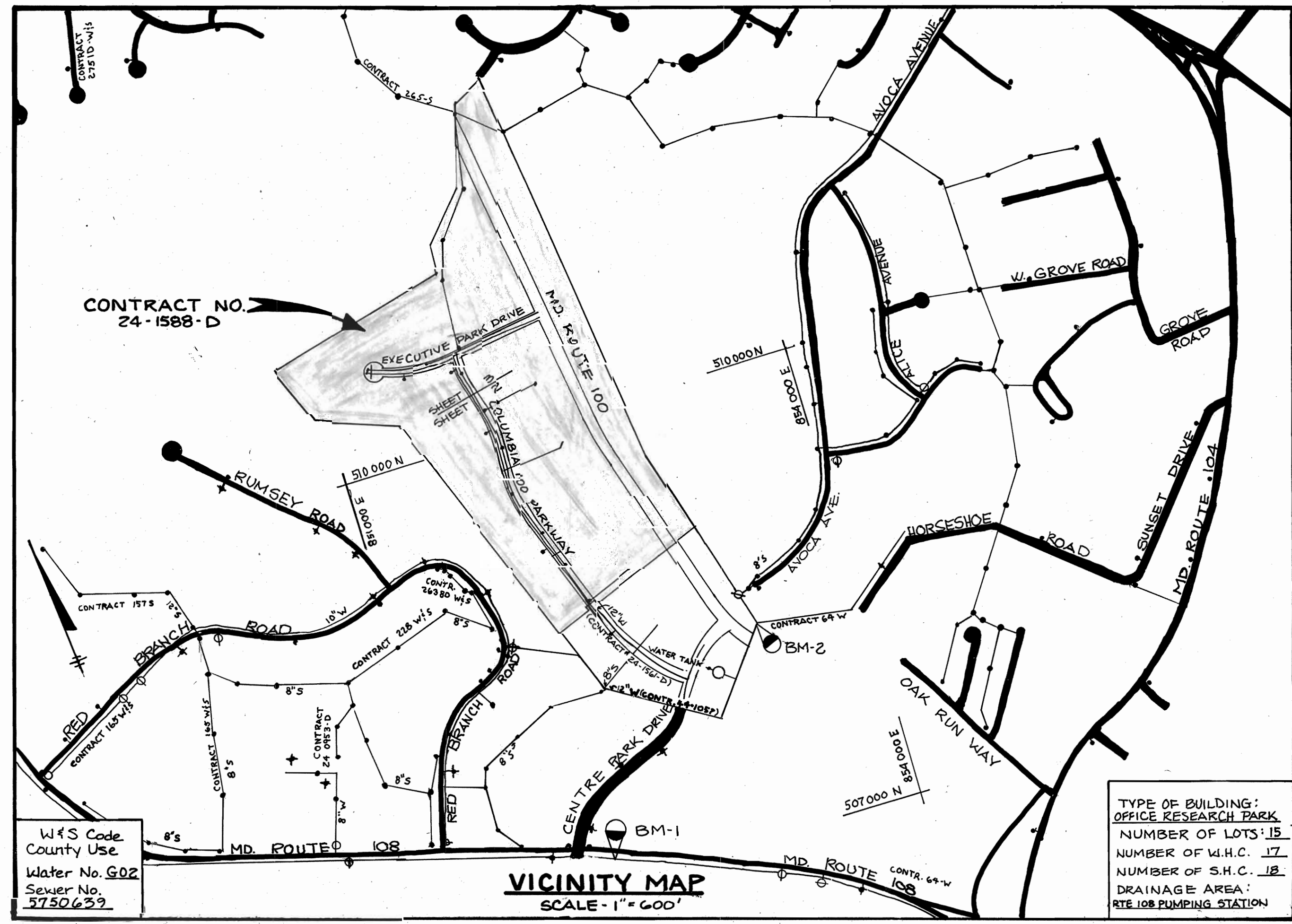
SCALE AS SHOWN  
SHEET 4 OF 7

SHEET INDEX	
SHEET NO.	ITEM
1	TITLE SHEET
2	PLAN OF WATER AND SEWER MAINS
3	PLAN OF WATER AND SEWER MAINS
4	PROFILES OF WATER AND SEWER MAINS
5	PROFILES OF WATER AND SEWER MAINS
6	PROFILES OF SEWER MAINS & DETAILS

**BENCH MARKS**

BM 1  
 HO. CO. 2743010-R ELEV. 482.29  
 3/4" REBAR 0.4' BELOW SURFACE,  
 34.7' SOUTH OF CURB ON MARYLAND  
 RTE. 108 175' ± EAST OF F. PHELPS  
 LLOYD DRIVE.

BM 2  
 ELEV. 525.51  
 NAIL IN STONE @ PROPERTY CORNER  
 COLUMBIA 100 - OFFICE RESEARCH  
 PARK.



# COLUMBIA 100 OFFICE RESEARCH PARK SECTION 1 AREA 2 CONTRACT NO 24-1588-D HOWARD COUNTY, MARYLAND

### GENERAL NOTES

- Approximate location of existing mains are shown. The contractor shall take all necessary precautions to protect existing mains and services and maintain uninterrupted supply. Any damage incurred shall be repaired immediately to the satisfaction of the Engineer at the Contractor's expense.
- All horizontal controls are based on Maryland State Coordinates.
- All vertical controls are based on U.S.G.S. data.
- All pipe elevations shown are invert elevations.
- Clear all utilities by a minimum of 6'.
- For details not shown on the drawings, and for materials and construction methods, use Howard County Design Manual, Volume IV, Standard Specifications and Details for Construction. The Contractor shall have a copy of Volume IV on the job.
- Where test pits have been made on existing utilities, they are noted by the symbol at the location of the test pit. A note or notes containing the results of the test pit or pits is included on the drawings. Existing utilities in the vicinity of the proposed work for which test pits have not been dug shall be verified by the contractor to his own satisfaction. Any damage to existing facilities due to the contractor's negligence shall be repaired at the contractor's expense.
- Contractor shall notify the following utilities or agencies at least five working days before starting work shown on these plans:
  - State Highway Administration - 581-5533
  - Baltimore Gas & Electric Co - Contractor Services - 850-4620
  - Baltimore Gas & Electric Co - Under Ground Damage Control - 850-3004
  - Baltimore Gas & Electric Co - Trouble Shooting - 238-3001
  - Miss Utility - 1-800-0100, C&P Telephone 1-800-257-7777
  - Colonial Pipe Line Co. - 795-1820
  - Bureau of Utilities, Howard County Department of Public Works - 992-2366
- Trees and shrubs are to be protected from damage to maximum extent. Trees and shrubs located within the construction strips are not to be removed or damaged by the contractor.
- Contractor shall remove trees, stumps and roots along line of excavation. Payment for such removal shall be included in the unit price bid for construction of the main.
- All water mains to be D.I.P. Class B2 unless otherwise noted.
- Tops of all water mains to have a minimum of 3-1/2' cover unless otherwise noted.
- Valves adjacent to trees shall be strapped to trees.
- All fittings shall be buttressed or anchored with concrete in accordance with the standard Details unless otherwise provided for on the drawings.
- Fire hydrants shall be set to the Bury line elevations shown on the drawings. All fire hydrants shall be strapped and buttressed with concrete in accordance with standard Details. Soil around the fire hydrant shall be compacted in accordance with section 1003 of the Standard Specifications.
- The contractor shall not operate any water main valves on the existing water system.
- All water house connections shall be for inside meter setting unless otherwise noted on the plans or in the Specifications.
- All sewer mains shall be C.S.P.X., R.C.P., V.C.P.X., A.C.P. class 2400 or P.V.C. unless otherwise noted.
- The contractor shall provide a joint all sewer mains with 2'-0" of exterior manhole wall.
- All manholes shall be 4'-0" inside diameter unless otherwise noted.
- Force mains shall be D.I.P. only.
- Manholes shown with 12" and 18" walls are for brick manholes only.
- Manholes designated W.T. in plan and profile shall have watertight frame and covers, standard Detail 08.52. Where watertight manhole frame and cover is used, set top of frame 1'-0" above finished grade unless otherwise noted on the drawings.
- House(s) with the symbol "C.N.S." indicates that cellar cannot be served.

SEDIMENT CONTROL MEASURES FOR THIS CONTRACT WILL BE IMPLEMENTED IN ACCORDANCE WITH SECTION 219 OF THE SPECIFICATIONS AND AS SHOWN ON F87-82 AND THIS PLAN.

HOWARD SOIL CONSERVATION DISTRICT:  
 REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.

*James M. Helm* 12-15-86  
 US SOIL CONSERVATION SERVICE DATE  
 THIS PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT

*Stephen L. Fisher* 12-15-86  
 HOWARD SOIL CONSERVATION DISTRICT DATE

ITEM	QUANTITIES		MATERIAL SUPPLIER
	ESTIMATED	AS-BUILT	
TYPE B' DROP CONNECTION	10 V.F.	10 V.F.	LCP PLASTICS
8" D.I.P.	240 L.F.	236 L.F.	GRIFFIN PIPE CO.
20" Steel Sleeve	214 L.F.	219 L.F.	PITTSBURGH PIPE
12" Water	2778 L.F.	2743 L.F.	GRIFFIN PIPE CO.
8" Water	235 L.F.	821 L.F.	"
6" Water	195 L.F.	117 L.F.	"
Fire Hydrants (incl. cov.)	8 Ea.	8 Ea.	M&H VALVE CO.
12" Valves	4 Ea.	4 Ea.	"
8" Valves	18 Ea.	18 Ea.	"
8" Sewer	4120 L.F.	3948 L.F.	LCP PLASTICS
6" SHC	438 L.F.	433 L.F.	"
Manholes	221 V.F.	223 V.F.	ATLANTIC CONCRETE

PARCELS 'G' THRU 'V'

DEPARTMENT OF PUBLIC WORKS  
 HOWARD COUNTY, MARYLAND

*James M. Helm* 12-22-86  
 DIRECTOR OF PUBLIC WORKS DATE

*Richard M. Reinger* 12-19-86  
 CHIEF, BUREAU OF UTILITIES DATE

THE RIEMER GROUP, INC.  
 3105 NORTH RIDGE ROAD  
 ELLICOTT CITY, MARYLAND



DES: J.K.B.			
DRN: D.D.B.			
CHK:			
DATE: 10-20-86	BY: NO.	REVISION	DATE
		REVISED 0" SEWER QUANTITY	9-24-88

TITLE SHEET

600' SCALE MAP NO. 30 BLOCK NO.

COLUMBIA 100 OFFICE RESEARCH PARK  
 SECTION 1 AREA 2  
 2ND ELECTION DISTRICT  
 HOWARD COUNTY MARYLAND  
 CONTRACT NO. 24-1588-D

SCALE AS SHOWN  
 SHEET 1 OF 7