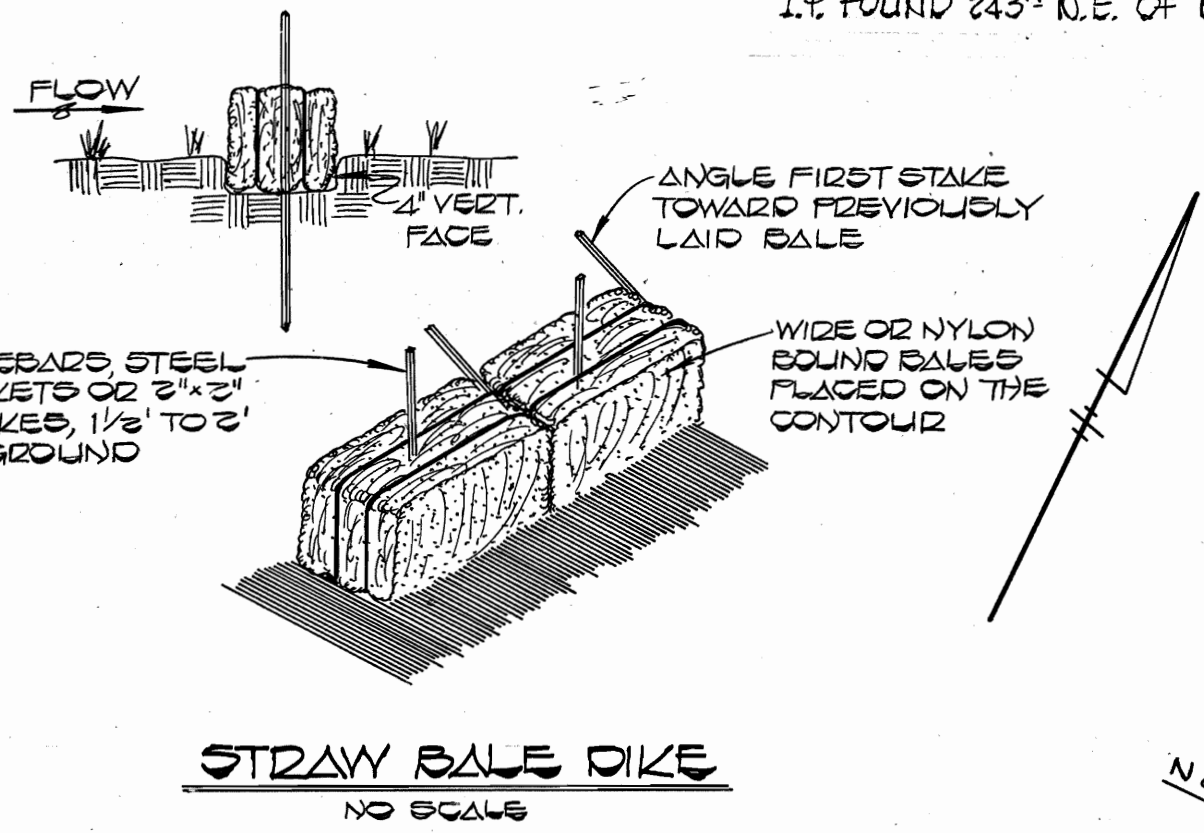


**SEWER HOUSE CONNECTION
INVERT ELEVATIONS
AT PROPERTY LINES**

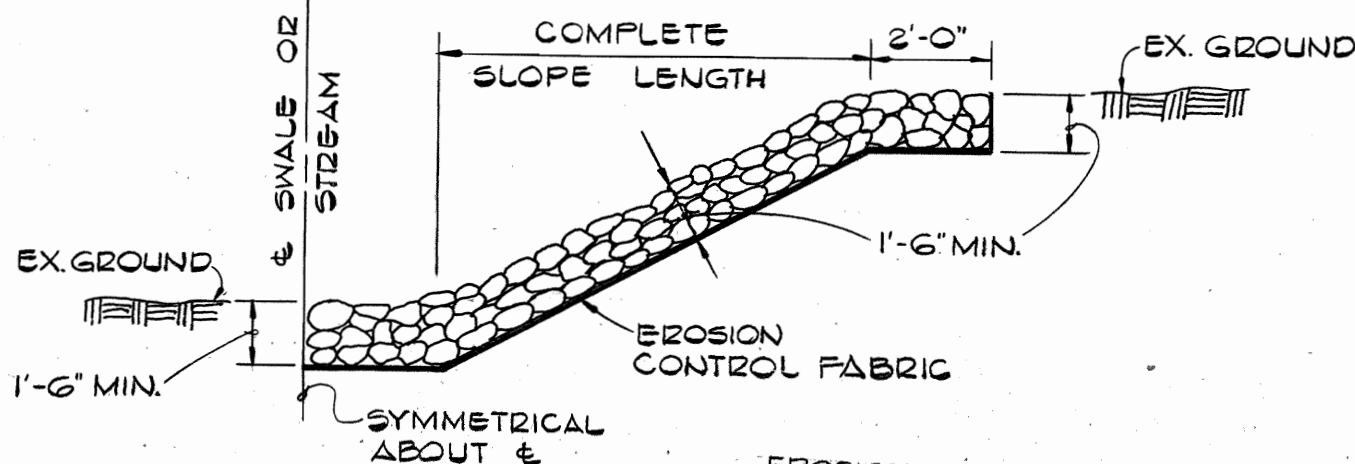
STATION	LOT	INVERT
0+34 LT	56	296.32
EX. MA#10 TO EX. MA#11		
0+49 LT	57	304.32
1+30 LT	56	305.19
2+28 LT	56	306.37
EX. MA#11 TO EX. MA#12		
0+15 LT	70	329.43
1+00 LT	71	332.05
1+45 RT	53	333.56
MA#5 LT	72/73	335.16
MA#5 RT	52	335.58
MA#3 TO MA#4		
0+98 LT	69	324.11
1+50 RT	54	326.20
MA#2 TO MA#3		
MA#2 LT	65/66	310.04
0+35 LT	67	315.91
1+50 LT	68	316.91
MA#1 TO MA#2		
0+53 LT	60	295.14
0+64 RT	59	295.76
MA#8 LT	65/66	310.04
EX. MA#25 TO EX. MA#22		
0+12 RT	64	284.57
1+18 RT	63	280.72
2+18 RT	62	276.84

BENCH MARKS

B.M.#2 ELEV. 349.61
 RR. SPIKE IN 18" TREE, 50' LT. OF E. STA. 19+25+
 COVERED FLY WAY.
 B.M.#5 ELEV. 316.78
 I.P. FOUND 243' N.E. OF EX. 3AN. MA#2.

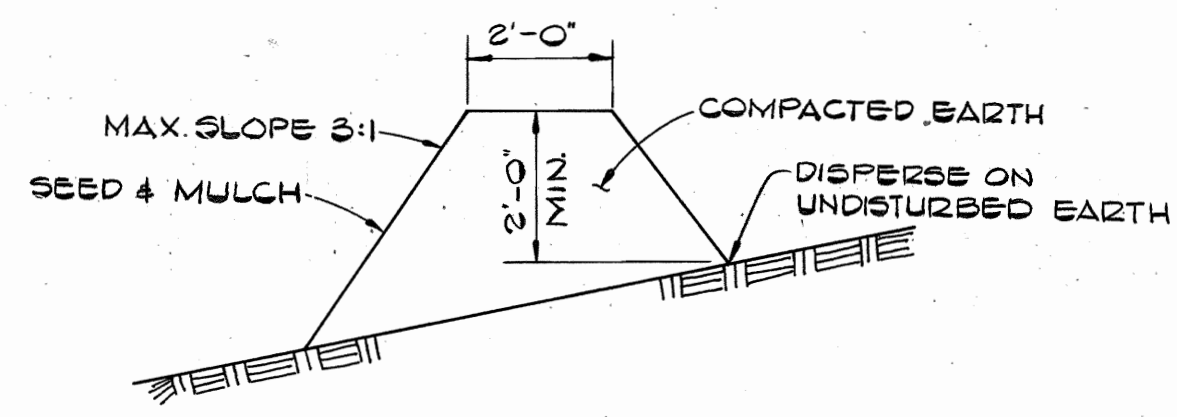


RIP RAP TO CONSIST OF DENSE ROCKS OF RANDOM SHAPE AND SIZE, RESISTANT TO THE ACTION OF AIR AND WATER AND SUITABLE FOR BANK PROTECTION. ALL ROCKS TO WEIGH A MINIMUM OF 75 POUNDS.



EROSION CONTROL FABRIC SHALL BE POLY FILTER-X AS MANUFACTURED BY CARTRIDGE MILLS, INC. OR PERMEALINER M-1195 AS MANUFACTURED BY STAFF INDUSTRIES, INC. OR EQUAL.

UNGRADED RIP RAP DETAIL
NO SCALE



DIVERSION BERMS ARE REQUIRED EVERY 250 FEET ON CONTINUOUS SLOPES OF 4% OR GREATER. THE BERMS SHALL CONFORM TO THE TYPICAL SECTION SHOWN HEREON. THEY SHALL BE CONSTRUCTED ACROSS THE CONSTRUCTION AREA IMMEDIATELY AFTER THE BACKFILLING OF THE PIPE TRENCH AND PRIOR TO PLACING STABILIZATION IN ORDER TO PREVENT EROSION OF THE BACKFILLED AREAS.

TEMPORARY EARTH DIVERSION BERM
NO SCALE

SEDIMENT CONTROL MEASURES FOR THIS CONTRACT WILL BE IMPLEMENTED IN ACCORDANCE WITH ARTICLE 18 OF THESE SPECIFICATIONS AND AS SHOWN ON THE GRADING AND SEDIMENT CONTROL PLAN F-24-127.

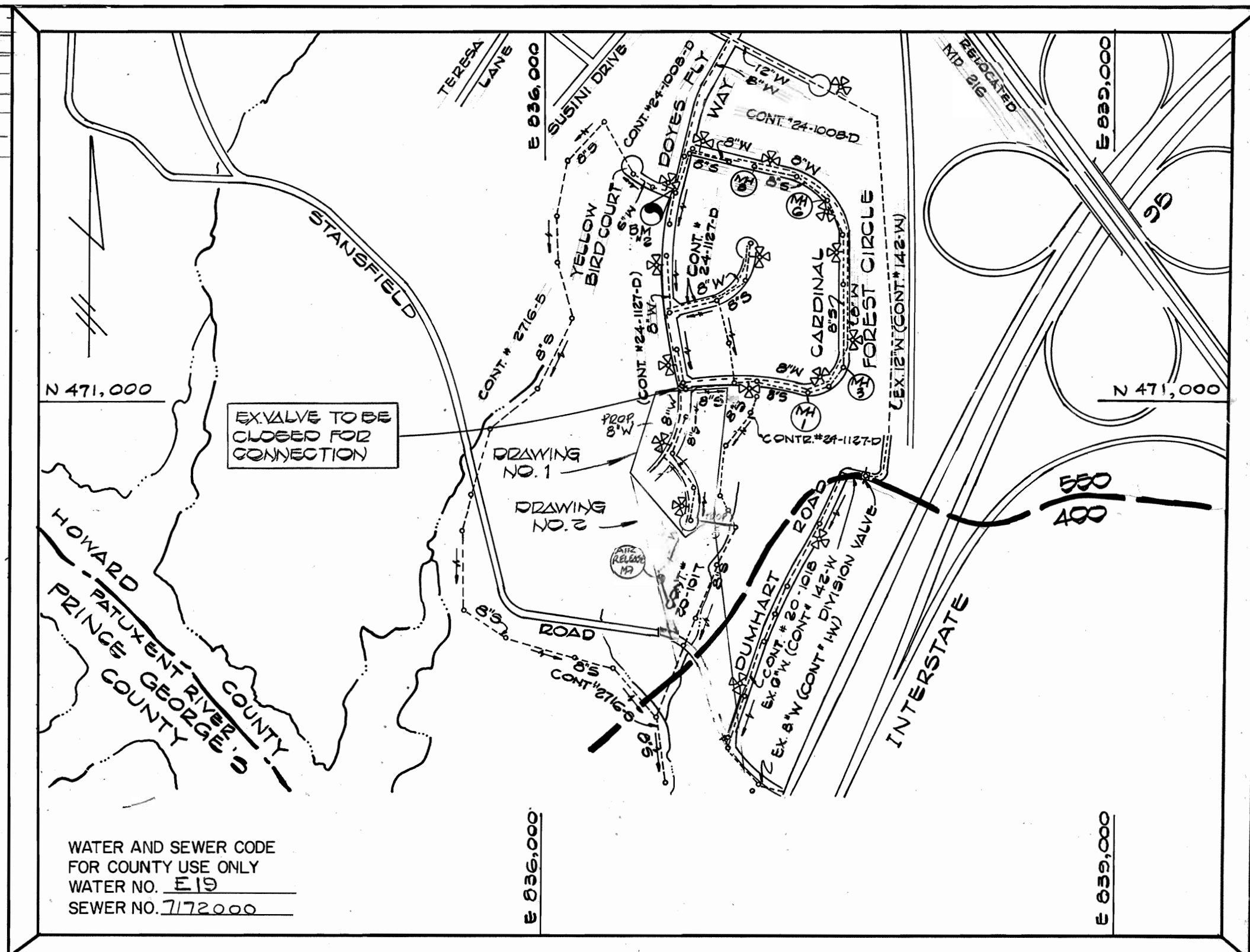
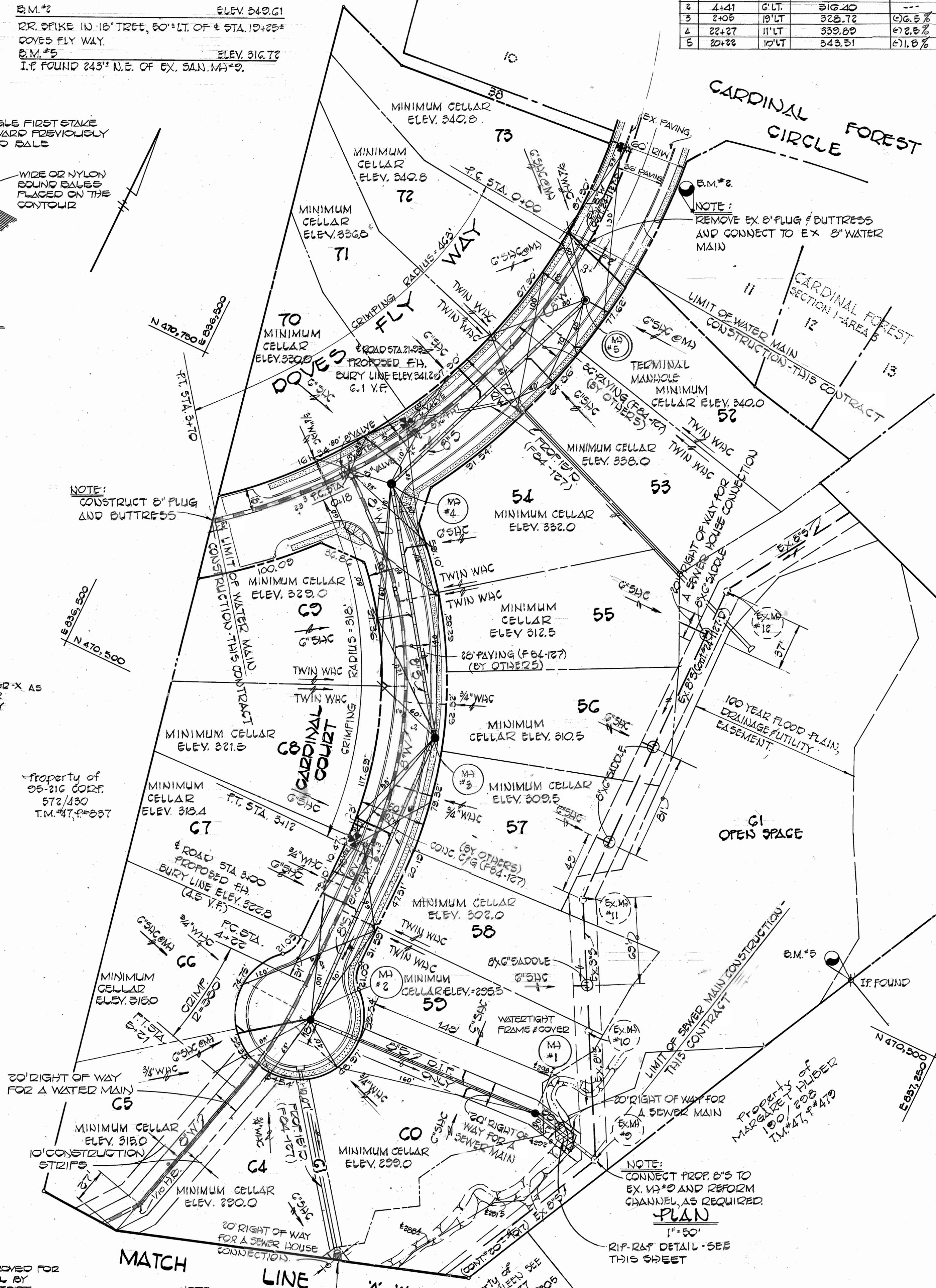
REVIEWED FOR HOWARD COUNTY SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS
 DATE: 6-1-84
 U.S. SOIL CONSERVATION SERVICE

THIS DEVELOPMENT PLAN IS APPROVED FOR EROSION AND SEDIMENT CONTROL BY HOWARD COUNTY SOIL CONSERVATION DISTRICT
 APPROVED: Robert Z. Fisher 6-1-84
 HOWARD COUNTY SOIL CONSERVATION DISTRICT

NOTE: CONTRACTOR SHALL REMOVE EX. RIP RAP IF EXISTING

SEWER MANHOLE LOCATIONS

NO.	ROAD STA.	DIST.	TRIM ELEVATION	SLOPE
1	---	---	1'-0" ABOVE EX. GRD.	---
2	4+41	6' LT.	316.40	---
3	2+05	18' LT.	328.72	0.6.8%
4	22+27	11' LT.	339.89	0.2.8%
5	20+32	10' LT.	343.51	0.1.8%



TYPE OF BUILDING: RESIDENTIAL
 NO. OF LOTS: 21
 NO. OF WATER HOUSE CONN.: 21
 NO. OF SEWER HOUSE CONN.: 21
 DRAINAGE AREA: PATUXENT

VICINITY MAP
SCALE: 1" = 600'

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.C. & G.S. DATUM.
- ALL PIPE ELEVATIONS SHOWN ARE INVERT ELEVATIONS.
- CLEAR ALL UTILITIES BY A MINIMUM OF 6". CLEAR ALL POLES BY 2'-0" MINIMUM OR TUNNEL AS REQUIRED ANY COST INCURRED TO THE CONTRACTOR FOR TUNNELING OR BRACING AT POLES SHALL BE INCLUDED IN THE UNIT PRICES BID FOR CONSTRUCTION OF THE MAIN.
- FOR DETAILS NOT SHOWN ON THE DRAWINGS USE HOWARD COUNTY STANDARD DETAILS.
- FOR MATERIALS AND CONSTRUCTION METHODS USE HOWARD COUNTY STANDARD SPECIFICATIONS.
- CONTRACTOR SHALL LOCATE EXISTING UTILITIES A MINIMUM OF TWO (2) WEEKS IN ADVANCE OF CONSTRUCTION OPERATIONS IN THE VICINITY OF PROPOSED UTILITIES AT HIS OWN EXPENSE.
- CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITIES OR AGENCIES AT LEAST FIVE (5) WORKING DAYS BEFORE STARTING WORK SHOWN ON THESE PLANS:
 - BALTIMORE GAS AND ELECTRIC CO. - UNDERGROUND ELECTRIC DISTRIBUTION CUSTOMER SERVICE - (685-0123)
 - BALTIMORE GAS AND ELECTRIC CO. - UNDERGROUND GAS DISTRIBUTION CUSTOMER SERVICE - (685-0123)
 - ENGINEERING "DAMAGE CONTROL" - (234-5621)
 - MISS UTILITY - (1-559-0100)
 - CHESAPEAKE AND POTOMAC TELEPHONE CO. - (725-9976)
 - BUREAU OF UTILITIES, HOWARD COUNTY - (992-2366)
- TREES ARE TO BE PROTECTED FROM DAMAGE TO MAXIMUM EXTENT. TREES LOCATED WITHIN THE CONSTRUCTION STRIP ARE NOT TO BE REMOVED OR DAMAGED BY THE CONTRACTOR.
- CONTRACTOR SHALL REMOVE TREES, STUMPS AND ROOTS ALONG THE LINE OF EXCAVATION AS DIRECTED BY THE ENGINEER. PAYMENT FOR SUCH REMOVAL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE CONSTRUCTION OF THE MAIN.
- PLACE REGULATION MEN WORKING AND WARNING SIGNS AS REQUIRED TO COMPLY WITH MARYLAND STATE HIGHWAY ADMINISTRATION MANUAL OF TRAFFIC CONTROL FOR HIGHWAY CONSTRUCTION AND MAINTENANCE OPERATION.
- ALL WATER MAINS TO BE INSTALLED D.I.P. UNLESS OTHERWISE NOTED.
- TOP OF WATER MAINS SHALL HAVE A MINIMUM OF 3'-6" COVER UNLESS OTHERWISE NOTED.
- VALVES ADJACENT TO TEE SHALL BE STRAPPED TO TEES.
- BLOCK ALL FITTINGS WITH CONCRETE.
- BURY LINE ELEVATIONS ON FIRE HYDRANTS SHALL BE SET TO THE ELEVATIONS SHOWN ON THE DRAWINGS. ALL FIRE HYDRANTS SHALL BE STRAPPED AND BUTTRESSED WITH CONCRETE IN ACCORDANCE WITH STANDARD DETAILS. SOIL AROUND THE FIRE HYDRANTS TO BE COMPACTED IN ACCORDANCE WITH SECTION 1003 OF THE STANDARD SPECIFICATIONS.
- ALL WATER HOUSE CONNECTIONS SHALL BE FOR AN INSIDE METER SETTING.
- THE CONTRACTOR SHALL NOT OPERATE ANY WATER MAIN VALVES ON THE EXISTING SYSTEM.
- ALL SEWER MAINS SHALL BE C.S.P.X., V.C.P.X., A.C.P. CLASS 2400 OR PVC UNLESS OTHERWISE NOTED.
- THE CONTRACTOR SHALL PROVIDE A JOINT IN ALL SEWER MAINS WITHIN 2'-0" OF EXTERIOR MANHOLE WALL.
- MANHOLES SHOWN WITH 12" AND 18" WALLS ARE BRICK MANHOLES ONLY.
- WATER MAINS AND WATER HOUSE CONNECTION LINES MUST BE PLACED SO AS TO HAVE AT LEAST ONE (1) FOOT SEPARATION FROM THE SEWER MAIN OR SEWER HOUSE CONNECTION AS THEY PASS ABOUT IT.
- ALL COPPER WATER HOUSE CONNECTIONS - UTILIZE FLARED TYPE FITTINGS ONLY.
- WATERTIGHT MANHOLE FRAME AND COVER SHALL BE IN ACCORDANCE WITH DETAIL 65.52 AND SHALL BE SET 1'-6" ABOVE FINISHED GRADE.

QUANTITIES

ITEM	EST'D	AS-BUILT	SUPPLIER
8" SEWER	302 L.F.	881	BEL-AIR
6" SEWER	505 L.F.	555	BEL-AIR
MANHOLES	5 EA.	5 EA.	
8" WATER	1441 L.F.	1389	BEL-AIR
6" WATER	20 L.F.	20	
FIRE HYD.	3 EA.	3 EA.	
1" WVC	140 L.F.	140	
3/4" WVC	355 L.F.	351	
8" VALVES	3 EA.	3 EA.	
AIR RELEASE VALVE	1 EA.	1 EA.	
6" F.F. VALVES	3 EA.	3 EA.	
8" X 6" SADDLES	7 EA.	7 EA.	

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

DATE: 6-1-84
 CHIEF, BUREAU OF UTILITIES

DATE: 6-1-84
 CHIEF, LAND DEVELOPMENT DIVISION

FISHER, COLLINS, AND CARTER, INC.
 CONSULTING ENGINEERS AND LAND SURVEYORS
 8388 COURT AVENUE
 ELLICOTT CITY, MARYLAND 21043
 461-2855

DATE: 6-1-84
 TERRILL A. FISHER

DES. D.B.S.	DRN. D.B.S.	CHK. T.A.F.	DATE

PLAN & DETAILS
 WATER AND SEWER MAINS

600' SCALE MAP NO. 47
 BLOCK NO.

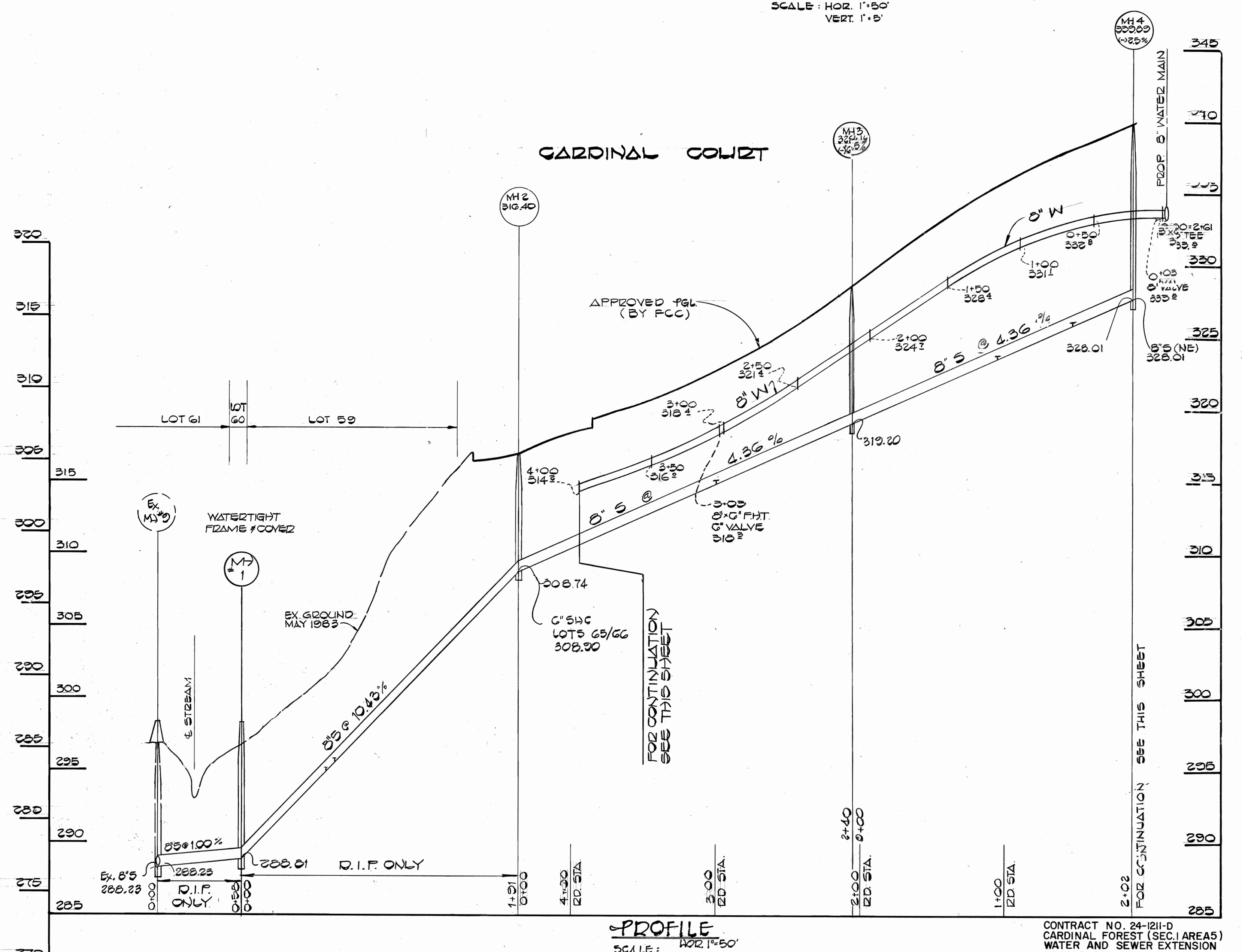
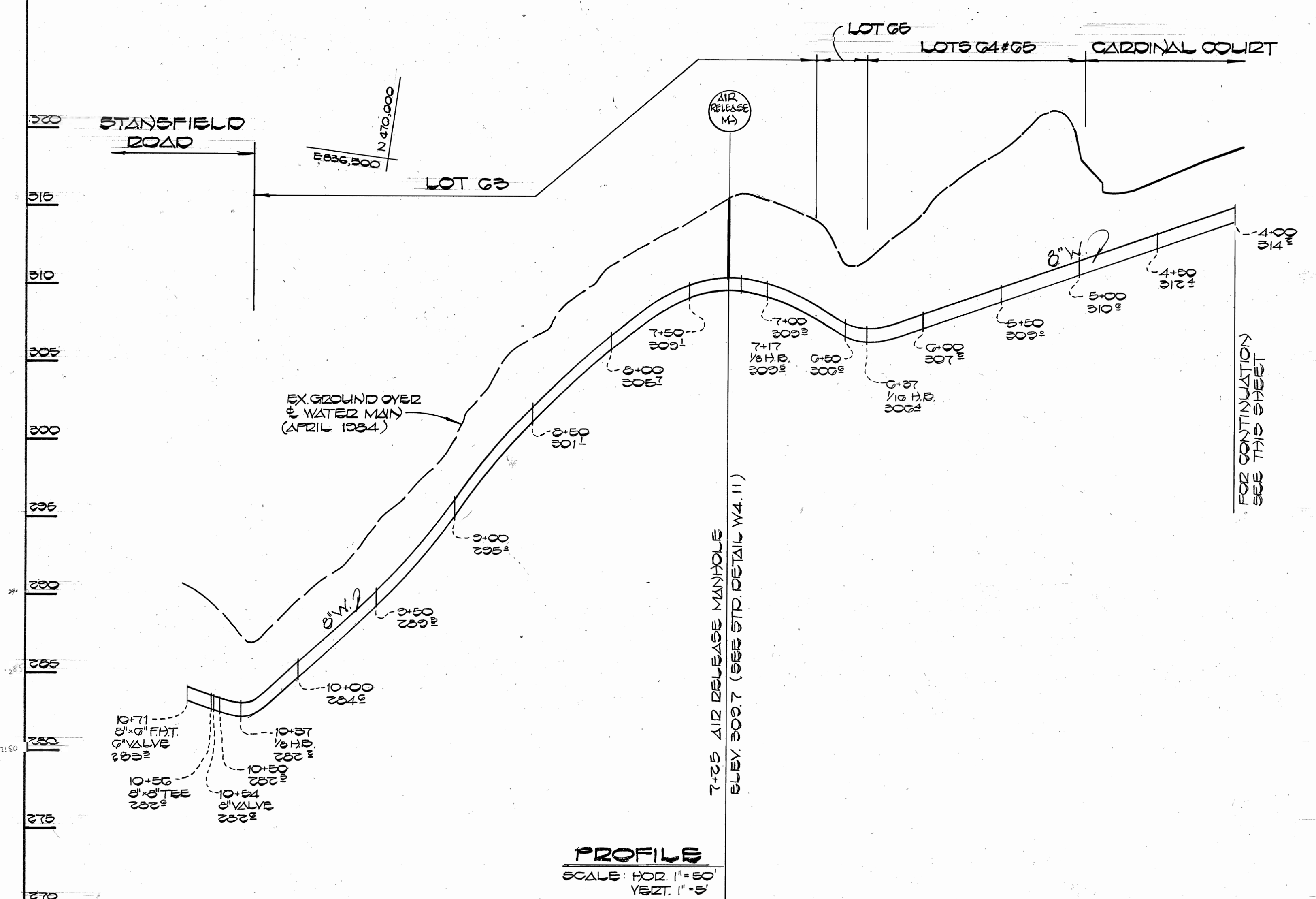
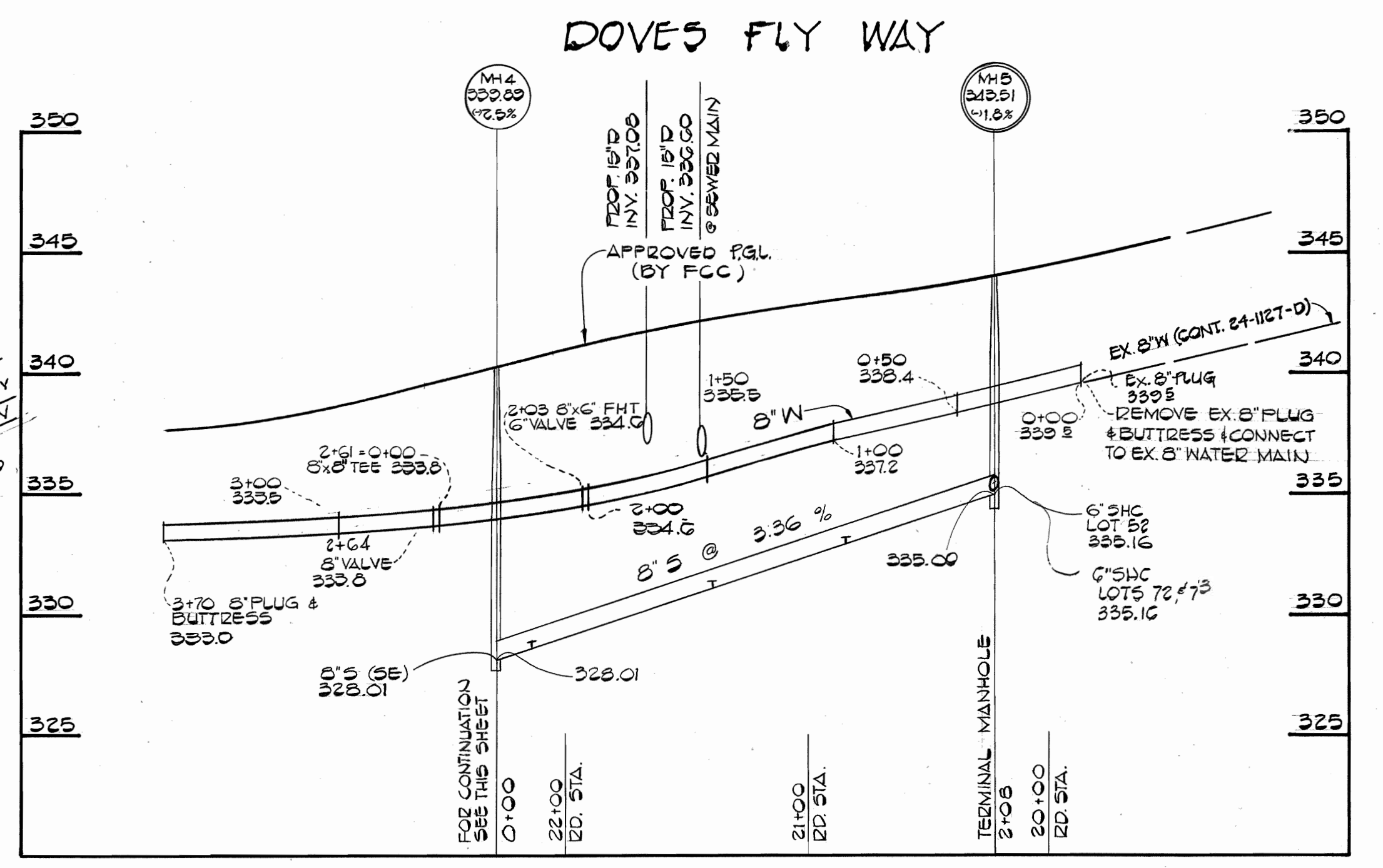
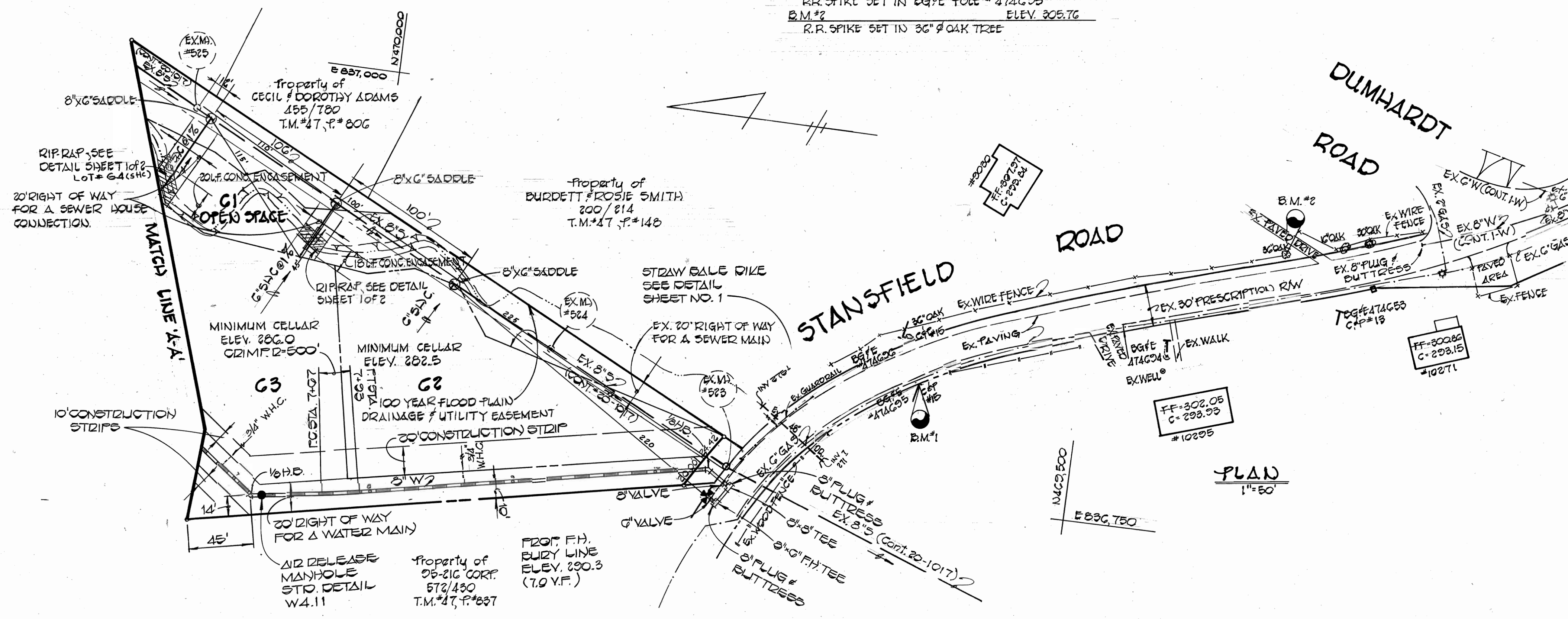
CARDINAL FOREST
 SECTION I AREA 5
 CONTRACT NO. 24-1211-D
 SIXTH ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
 SHEET 1 OF 2

AS-BUILT DECEMBER 11, 1984

BENCH MARKS

B.M.#1	ELEV. 288.85
R.R. SPIKE SET IN 8"X8" POLE #474695	
B.M.#2	ELEV. 308.76
R.R. SPIKE SET IN 3"X4" OAK TREE	



DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

FISHER, COLLINS, AND CARTER, INC.
CONSULTING ENGINEERS AND LAND SURVEYORS



DES:	
DRN:	
CHK:	
DATE:	
BY:	
NO.:	
REVISION:	
DATE:	

PLAN & PROFILES
WATER AND SEWER MAINS

CARDINAL FOREST
SECTION I AREA 5
CONTRACT NO. 24-1211-D
SIXTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND