

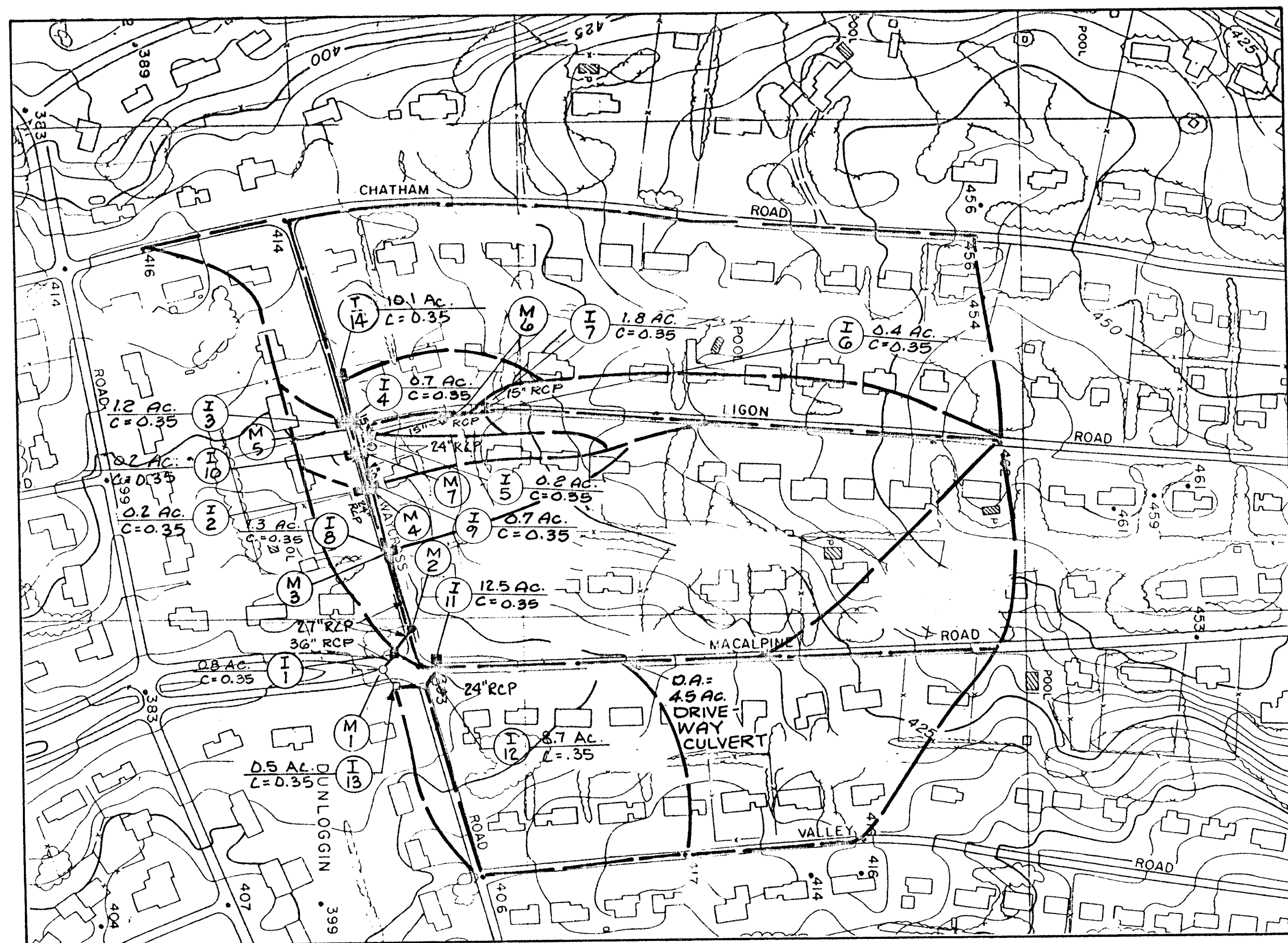
HOWARD COUNTY MARYLAND

DEPARTMENT OF PUBLIC WORKS

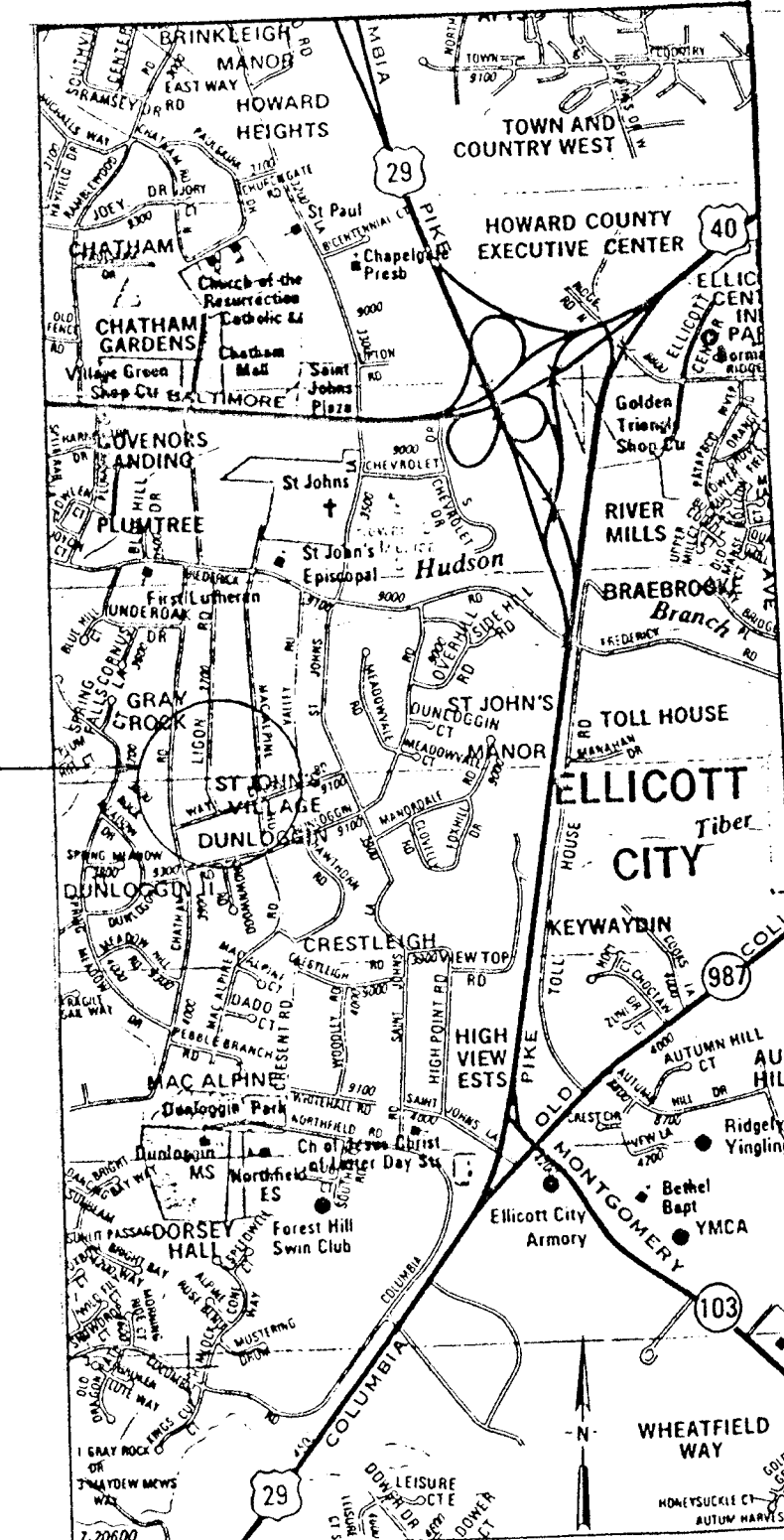
INDEX OF SHEETS

| SHEET NO. | DESCRIPTION |
|-----------|--------------------------|
| 1 | TITLE SHEET |
| 2 | PLAN |
| 3 | PLAN |
| 4 | STORM DRAIN PROFILES |
| 5 | WATER & SEWER RELOCATION |

NOTE: PROPOSED WATER AND SEWER ONLY ON SHEET 5.



DRAINAGE AREA MAP
SCALE: 1" = 200'



VICINITY MAP
SCALE: 1" = 2000'

- GENERAL NOTES**
- THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 FOR UNDERGROUND UTILITY LOCATIONS, AT LEAST FIVE DAYS PRIOR TO COMMENCEMENT OF WORK SHOWN ON THE PLANS.
 - ALL TOP ELEVATIONS FOR THE PROPOSED INLETS AND MANHOLES ARE APPROXIMATE, AND ARE TO BE VERIFIED IN THE FIELD BY THE CONTRACTOR AND THE ENGINEER.
 - THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE RESTORATION OF ALL EXISTING DRIVEWAYS DAMAGED DURING CONSTRUCTION. SEE MEASUREMENT AND PAYMENT IN SPECIAL PROVISIONS. EXISTING BITUMINOUS CONCRETE DRIVEWAYS SHALL BE RESTORED AS FOLLOWS:
 - 4-INCH DEPTH OF BITUMINOUS CONCRETE BASE COURSE
 - 1-INCH DEPTH OF BITUMINOUS CONCRETE SURFACE COURSE
 - THESE ARE TO BE PROTECTED FROM DAMAGE TO MAXIMUM EXTENT. THESE LOCATED WITHIN THE CONSTRUCTION STRIP ARE NOT TO BE REMOVED OR DAMAGED BY THE CONTRACTOR.
 - CONTRACTOR TO GRADE AROUND THE TOP OF THE PROPOSED INLETS IN ORDER TO PROVIDE POSITIVE DRAINAGE TO THE INLETS. LEAKS SHALL BE AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.
 - COORDINATES ARE BASED ON THE MARYLAND STATE GRID SYSTEM.
 - THE EXISTING UTILITIES AND CONDUITS SHOWN ON THE PLANS ARE FROM THE BEST AVAILABLE RECORDS AND SHALL BE VERIFIED BY THE CONTRACTOR TO HIS OWN SATISFACTION BEFORE STARTING CONSTRUCTION. NOTICES THE ENGINEER FOR THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS MAINTENANCE OR GUARANTEE THE ACCURACY OR COMPLETENESS OF THE INFORMATION SHOWN.
 - THE CONTRACTOR SHALL MAKE ALL NECESSARY PRECAUTIONS TO PROTECT EXISTING UTILITIES. ANY DAMAGE DUE TO THE CONTRACTOR'S NEGLIGENCE SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE. CLEAN ALL UTILITIES BY A MINIMUM OF 6-INCHES.
 - TEST PITS SHALL BE MADE AT ALL UTILITY CROSSINGS TO DETERMINE EXISTING HORIZONTAL AND VERTICAL ALIGNMENT OF UTILITIES. TEST PITS SHALL BE MADE A SUFFICIENT AHEAD OF TIME IN ADVANCE OF THE CONSTRUCTION OR TRENCHING OPERATION, IN ORDER TO ALLOW FOR NECESSARY ADJUSTMENTS.
 - WHERE TEST PITS HAVE BEEN MADE ON EXISTING UTILITIES, THEY ARE NOTED BY THE SYMBOL. THE RESULTS OF TEST PITS ARE INDICATED ON THE STORM DRAIN PROFILES.
 - ALL UTILITY TRENCHES MUST BE CLEARED BY 2-FEET, OR THE PROPOSED STORM DRAIN SHALL BE PLACED BY TUNNELING. ALL COSTS FOR TUNNELING ARE TO BE INCLUDED IN THE UNIT PRICE BID FOR FURNISHING AND LAYING THE STORM DRAIN PIPE.
 - ALL VERTICAL CURVES ARE BASED ON U.S.G.S. DATUM OF 1929.
 - ALL PIPE ELEVATIONS SHOWN ARE INVERT ELEVATIONS.
 - CONTRACTOR SHALL REMOVE TREES, STUMPS AND ROOTS ALONG LINE OF EXCAVATION AS DIRECTED BY THE ENGINEER. PAYMENT FOR SUCH REMOVAL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR FURNISHING AND LAYING STORM DRAIN PIPE.
 - PLACE SIGNAGE "WEEK WORK" AND WARNING SIGNS AS REQUIRED TO COMPLY WITH MARYLAND STATE HIGHWAY ADMINISTRATION MANUAL OF TRAFFIC CONTROL FOR HIGHWAY CONSTRUCTION AND MAINTENANCE OPERATIONS.
 - EXISTING WATER SERVICE LINES, THAT ARE IN CONFLICT WITH THE PROPOSED STORM DRAINAGE FACILITIES, SHALL BE ABANDONED BY THE CONTRACTOR.
 - FOR DETAILS NOT SHOWN ON THE DRAWINGS, AND FOR MATERIALS AND CONSTRUCTION METHODS, THE CONTRACTOR SHALL REFER TO THE HOWARD COUNTY DESIGN MANUAL VOLUME IV, "STORM DRAINAGE SPECIFICATIONS AND DETAILS FOR CONSTRUCTION" AND THE SPECIAL PROVISIONS. IN THE EVENT OF ANY DISCREPANCY BETWEEN THESE TWO SOURCES, THE SPECIAL PROVISIONS SHALL GOVERN.
 - EXISTING FENCES, WALLS, SIGNS AND OBJECTS DISTURBED BY THE WORK SHALL BE RECONSTRUCTED OR REPLACED IN KIND.
 - ALL SLOPES AND/OR EXPOSED AREAS SHALL RECEIVE 3-INCH DEPTH OF TOPSOIL, AND SEEDING EXCEPT, WHERE OTHERWISE INDICATED ON THE PLANS, OR AS DIRECTED BY THE ENGINEER.
 - LOCATION POINTS FOR INLETS, MANHOLES AND STRUCTURES:

| | HORIZONTAL LOC. | VERTICAL LOC. |
|------------------|---------------------|---------------|
| CELESTIAL INLETS | CENTER FACE OF CURB | TOP OF CURB |
| CELESTIAL INLETS | CENTER OF GRATE | TOP OF GRATE |
| MANHOLES | CENTER OF COVER | TOP OF COVER |
| MANHOLES | CENTER OF WALL | TOP OF WALL |
 - THE CONTRACTOR SHALL LOCATE EXISTING UTILITIES A MINIMUM OF TWO FEET IN ADVANCE OF CONSTRUCTION OPERATIONS IN VICINITY OF UTILITIES. COST SHALL BE INCLUDED IN THE UNIT PRICE BID FOR STORM DRAIN TRENCHES.
 - STANDARD DETAILS FOR THIS CONTRACT SHALL BE THE HOWARD COUNTY STANDARD DETAILS AS SUPPLEMENTED BY THE MARYLAND STATE HIGHWAY ADMINISTRATION STANDARD DETAILS.
 - THE CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITIES OR AGENCIES AT LEAST FIVE (5) DAYS BEFORE STARTING WORK SHOWN HEREIN: MISS UTILITY 1-800-257-7777, BALTIMORE GAS & ELECTRIC CO., UNDERGROUND GAS DISTRIBUTION ENGINEERING DEPARTMENT 234-5691, BALTIMORE GAS & ELECTRIC CO., UNDERGROUND GAS DISTRIBUTION ENGINEERING 234-5693, CHESAPEAKE AND POTOMAC TELEPHONE CO. 725-9976, CENTRAL PIPELINE COMPANY 781-4641, HOWARD COUNTY BUREAU OF UTILITIES 313-4800, CONSTRUCTION INSPECTOR/ENGINEER DIVISION 792-7272, HOWARD COUNTY TRAFFIC DIVISION 880-3450.
 - ALL STORM DRAIN INVERTS ARE TO BE FULLY DEVELOPED.

Reviewed for Howard County S.C.D. and meets technical requirements.

[Signature] 2/18/92
U.S. SOIL CONSERVATION SERVICE DATE

This development plan is approved for soil erosion and sediment control by the Howard County Soil Conservation District.

Approved: *[Signature]* 2/17/92
HOWARD COUNTY S.C.D. DATE

ENGINEER'S CERTIFICATION

I certify that this plan for erosion & sediment control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard County Soil Conservation District.

[Signature] Date: 9-19-91
GREENMAN-PEDERSEN, INC.
14504 Greenview Drive
Laurel, MD 20708

DEVELOPER'S CERTIFICATION

"I/We certify that all development and construction will be done according to this plan, and that any responsible personnel involved in the construction project will have a Certificate of Attendance at a Department of The Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I also authorize periodic on-site inspection by the Howard Soil Conservation District."

[Signature] 4-9-92
WILLIAM E. RILEY, CHIEF
BUREAU OF ENGINEERING
DEPARTMENT OF PUBLIC WORKS

LEGEND

| | |
|--------------------------|--|
| PROPOSED SWALE | |
| PROPOSED BITUMINOUS CURB | |
| DRIVEWAYS TO BE ADJUSTED | |

C231/231

STORM DRAINAGE IMPROVEMENTS DUNLOGGIN AREA CAPITAL PROJECT NO. D-1077

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

[Signature] 2/18/92
DIRECTOR OF PUBLIC WORKS DATE

[Signature] 2/18/92
CHIEF, BUREAU OF ENGINEERING DATE

[Signature] 2/18/92
CHIEF, BUREAU OF HIGHWAYS DATE

GPI GREENMAN • PEDERSEN, INC.
CONSULTING ENGINEERS
14504 GREENVIEW DRIVE, SUITE 100, LAUREL, MD 20708
(301) 470-7772, (301) 680-0025, (301) 680-6003



DES: PAH

DRN: SMC

CHK: KJB

DATE: 12/6/91

BY NO.

REVISION

DATE

CAPITAL PROJECT D-1077

600' SCALE MAP NO. 24 BLOCK NO. 16, 17

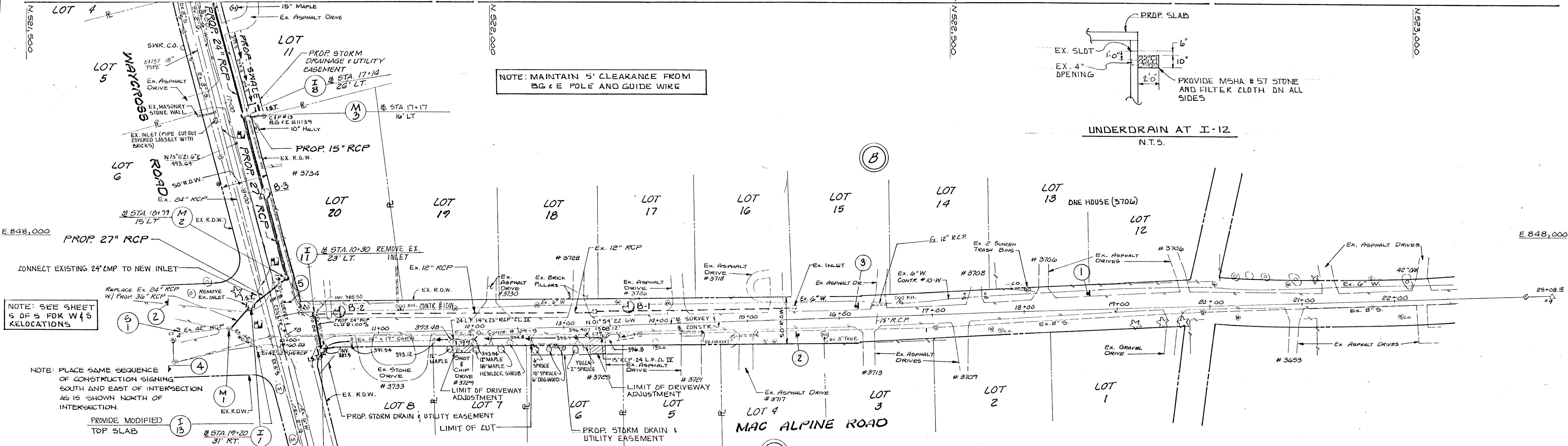
STORM DRAINAGE IMPROVEMENTS

DUNLOGGIN AREA

ELECTION DISTRICT ELLICOTT CITY NO. 2

SCALE AS SHOWN

SHEET 1 OF 5

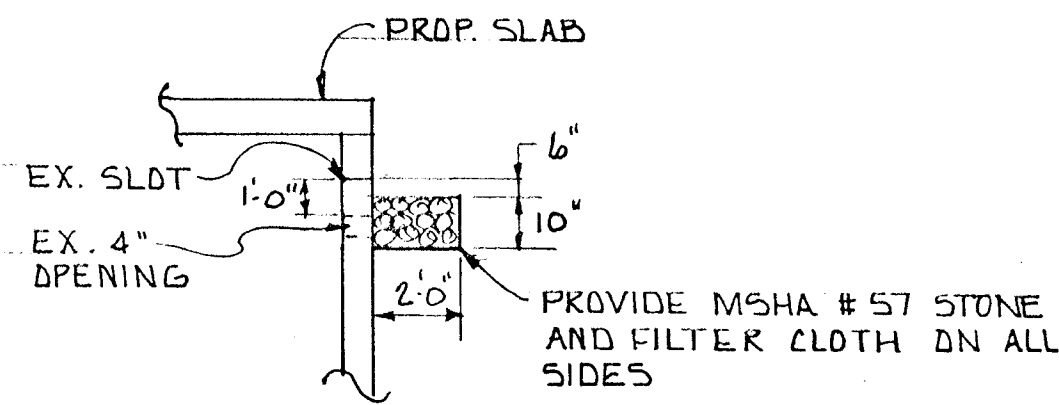


NOTE: SEE SHEET 5 OF 5 FOR W & S RELOCATIONS

NOTE: PLACE SAME SEQUENCE OF CONSTRUCTION SIGNING SOUTH AND EAST OF INTERSECTION AS IS SHOWN NORTH OF INTERSECTION

RCP PIPE CLASSES SHOWN ON PROFILE SHEET 4 OF 5.

NOTE: MAINTAIN 5' CLEARANCE FROM BG & E POLE AND GUIDE WIRE



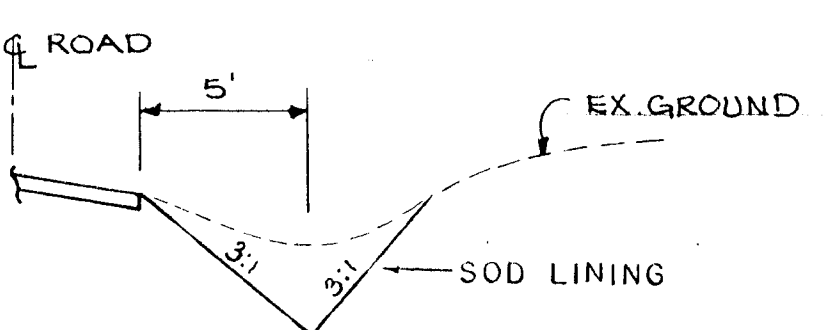
UNDERDRAIN AT I-12
N.T.S.

- NOTES FOR I-12
- REPAIR INLET AFTER REMOVING 15" RCP. POINT ENTIRE INLET AS NECESSARY.
 - EXCAVATE DOWN TO EXISTING 6" I.D. ON EAST SIDE OF INLET AND REPAIR THE CONNECTION AS DIRECTED BY THE ENGINEER.
 - PROVIDE BACKFILL, TOPSOIL AND SOD AROUND INLET AS DIRECTED BY THE ENGINEER.

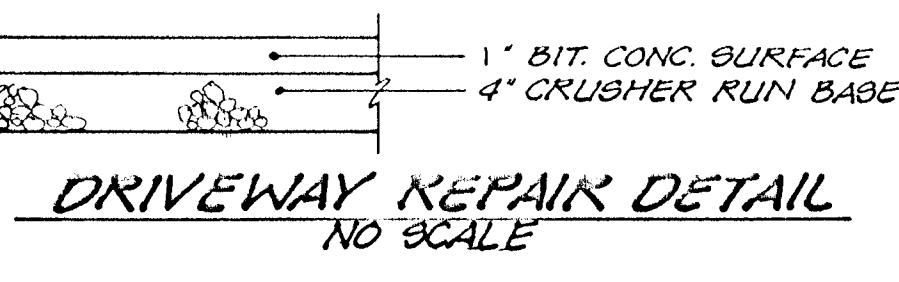
- SEQUENCE OF CONSTRUCTION
- CONTACT THE BUREAU OF CONSTRUCTION AT 792-7272.
 - NOTIFY THE HOWARD COUNTY DEPARTMENT OF LICENSES AND PERMITS INSPECTOR 48 HOURS BEFORE BEGINNING WORK.
 - INSTALL TEMPORARY TRAFFIC SIGNS FOR MAINTENANCE OF TRAFFIC.
 - INSTALL TEMPORARY SEDIMENT CONTROL MEASURES AS SHOWN ON THE PLANS.
 - INSTALL PROPOSED W & S ADJUSTMENTS AND STORM DRAIN SYSTEM.
 - STABILIZE ALL DISTURBED AREAS.
 - MAINTAIN DISTURBED AREAS WHICH HAVE BEEN STABILIZED TO ENSURE THAT EROSION DOES NOT OCCUR.

SCALE: 1" = 50'

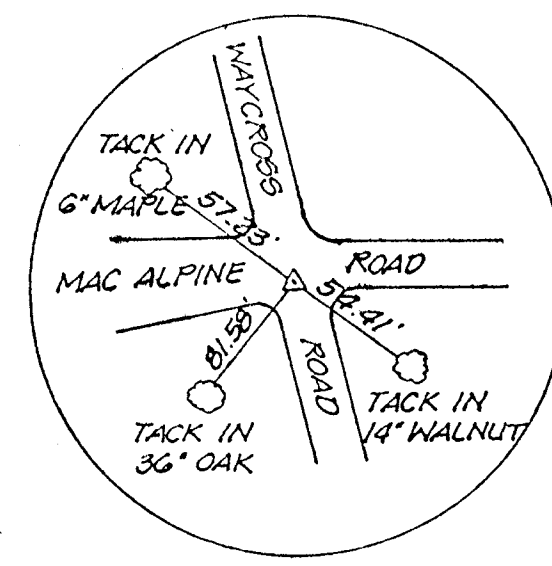
TYPICAL SECTION - WAYCROSS ROAD
SWALE - STA. 16+31 RT. TO STA. 17+11 KT.
NO SCALE (SEE PLAN FOR LOCATION)



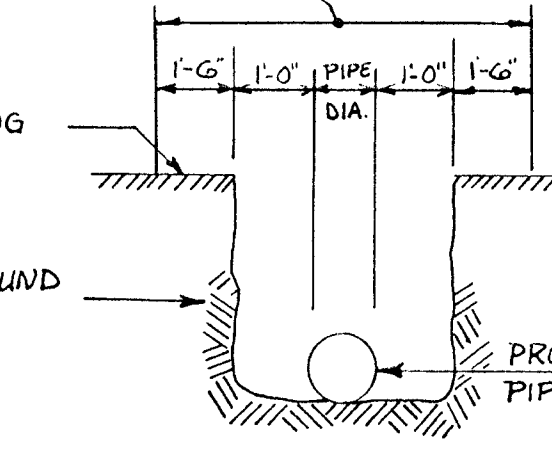
TYPICAL SECTION - MAC ALPINE ROAD
SWALE - STA. 10+39 RT. TO STA. 13+77 RT.
NO SCALE (SEE PLAN FOR LOCATION)



TRAVERSE POINT #8
ELEV. 372.75



LIMIT OF PAYMENT FOR PAVEMENT REPAIR (SEE STANDARD G-4.0)



TYPICAL TRENCH IN ROADWAY
N.T.S.

SEDIMENT CONTROL NOTES

- Minimum of 24 hours notice must be given to the Howard County Office of Inspection and Permits prior to the start of any construction (992-2437).
- All vegetative and structural practices are to be installed according to the provisions of this plan and are to be in conformance with the 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL.
- Following initial soil disturbance or redistribution, permanent or temporary stabilization shall be completed within: a) 7 calendar days for all perimeter sediment control structures, dikes, perimeter slopes and all slopes greater than 3:1, b) 14 days as to all other disturbed or graded areas on the project site.
- All sediment traps/basins shown must be fenced and warning signs posted around their perimeter in accordance with Vol. 1, Chapter 12, of the HOWARD COUNTY DESIGN MANUAL, Storm Drainage.
- All disturbed areas must be stabilized within the time period specified above in accordance with the 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for permanent seedings (Sec. 53) and sod (Sec. 54), temporary seedings (Sec. 50) and mulching (Sec. 52). Temporary stabilization with mulch alone can only be done when recommended seeding dates do not allow for proper germination and establishment of grasses.
- All sediment control structures are to remain in place and are to be maintained in operative condition until permission for their removal has been obtained from the Howard County Sediment Control Inspector.
- Site Analysis:

| | | |
|------------------------------------|-----|---------|
| Total Area of Site | N/A | Acres |
| Area Disturbed | 0.5 | Acres |
| Area to be roofed or paved | 0.3 | Acres |
| Area to be vegetatively stabilized | 0.2 | Acres |
| Total Cut | 230 | cu. yds |
| Total Fill | 50 | cu. yds |

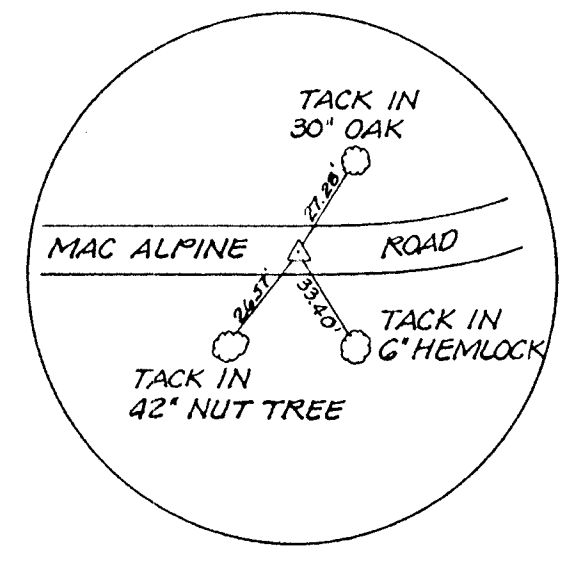
 Off-site borrow area location must be Pre-Approved by the Sediment Control Inspector.
- Any sediment control practice which is disturbed by grading activity for placement of utilities must be repaired on the same day of disturbance.
- Additional sediment controls must be provided, if deemed necessary by the HOWARD COUNTY DEPT. sediment control inspector.
- On all sites with disturbed areas in excess of 2 acres, approval of the inspection agency shall be requested upon completion of installation of perimeter erosion and sediment controls, but before proceeding with any other earth disturbance or grading. Other building or grading inspection approvals may not be authorized until this initial approval by the inspection agency is made.
- Trench work is to be limited to 3 pipe lengths or that which can be stabilized at the end of each working day, which ever is less.

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: Loosen upper three inches of soil by raking, discing or other acceptable means before seeding, if not previously loosened.
- Soil Amendments: In lieu of soil test recommendations, use one of the following schedules:
- Preferred - Apply 2 tons per acre dolomitic limestone (92 lbs/1000 sq ft) and 600 lbs per acre 10-10-10 fertilizer (14 lbs/1000 sq ft) before seeding. Harrow or disc into upper three inches of soil. At time of seeding, apply 400 lbs per acre 30-0-0 ureaform fertilizer (9 lbs/1000 sq ft).
 - Acceptable - Apply 2 tons per acre dolomitic limestone (92 lbs/1000 sq ft) and 1000 lbs per acre 10-10-10 fertilizer (23 lbs/1000 sq ft) before seeding. Harrow or disc into upper three inches of soil.
- Seeding - For the periods March 1 thru April 30, and August 1 thru October 15, seed with 60 lbs per acre (1.4 lbs/1000 sq ft) of Kentucky 31 Tall Fescue. For the period May 1 thru July 31, seed with 60 lbs Kentucky 31 Tall Fescue per acre and 2 lbs per acre (.05 lbs/1000 sq ft) of weeping lovegrass. During the period of October 16 thru February 28, project site by: Option (1) 2 tons per acre of well anchored straw mulch and seed as soon as possible in the spring. Option (2) Use sod. Option (3) Seed with 60 lbs/acre Kentucky 31 Tall Fescue and mulch with 2 tons/acre well anchored straw.
- Mulching - Apply 1 1/2 to 2 tons per acre (70 to 90 lbs/1000 sq ft) of unrotted small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 2 1/2 gallons per acre (5 gal/1000 sq ft) of emulsified asphalt on flat areas. On slopes 8 ft or higher, use 3 1/2 gallons per acre (8 gal/1000 sq ft) for anchoring. Maintenance - Inspect all seeded areas and make needed repairs, replacements and reseedings.

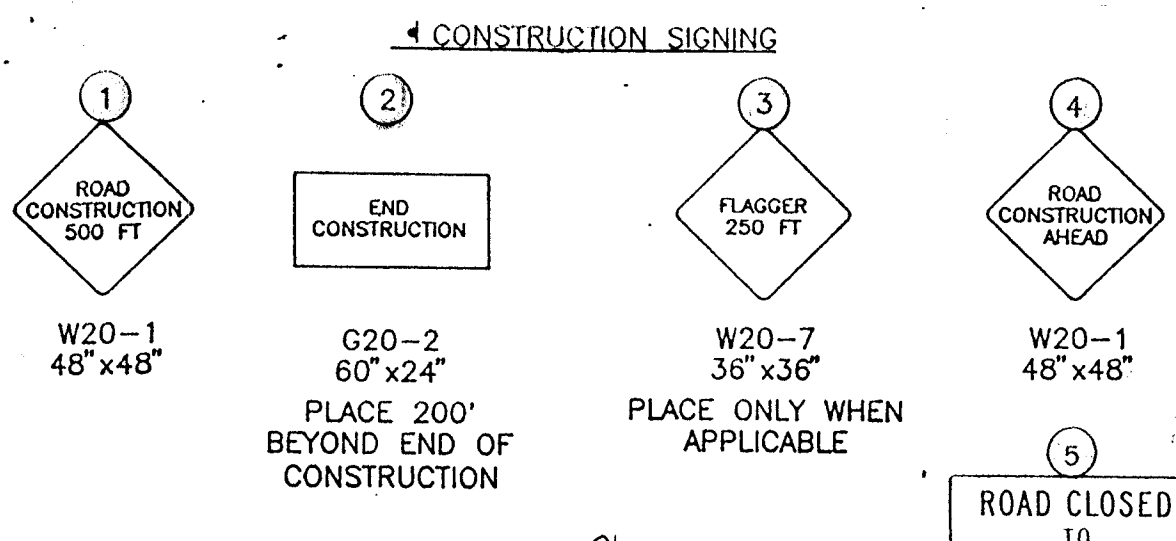
TEMPORARY SEEDING NOTES

- Apply to graded or cleared areas likely to be redistributed where a short-term vegetative cover is needed.
- Seedbed Preparation: Loosen upper three inches of soil by raking, discing or other acceptable means before seeding, if not previously loosened.
- Soil Amendments: Apply 60 lbs per acre 10-10-10 fertilizer (14 lbs/1000 sq ft).
- Seeding: For periods March 1 thru April 30 and from August 15 thru November 15, seed with 2 1/2 bushel per acre of annual rye (3.2 lbs/1000 sq ft). For the period May 1 thru period November 16 thru February 28, project site by applying 2 tons per acre of well anchored straw mulch and seed as soon as possible in the spring, or use sod.
- Mulching: Apply 1 1/2 to 2 tons per acre (70 to 90 lbs/1000 sq ft) of unrotted small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 2 1/2 gal per acre (5 gal/1000 sq ft) of emulsified asphalt on flat areas. On slopes 8 ft or higher, use 3 1/2 gal per acre (8 gal/1000 sq ft) for anchoring.
- Refer to the 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for rate and methods not covered.



TRAVERSE POINT #9
ELEV. 451.50

NOTE:
1. ROADWAYS AND DRIVEWAYS SHALL BE RESTORED AT ALL CROSSINGS IN ACCORDANCE WITH THE "REPAIR DETAILS". TRENCH WIDTHS SHALL NOT EXCEED THAT SHOWN IN THE "TRENCH DETAIL".



SEE SHEET 3 FOR MAINTENANCE OF TRAFFIC NOTES

Mount On Moveable Barricade, Place 60" x 30" Only Where Applicable.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Director of Public Works: [Signature] DATE: 12/16/91
Chief, Bureau of Engineering: [Signature] DATE: 2/16/92
Chief, Roads, Bridges & Storm Drainage Division: [Signature] DATE: 2/16/92
Chief, Bureau of Highways: [Signature] DATE: 2/16/92

GREENMAN - PEDERSEN, INC.
CONSULTING ENGINEERS

14504 GREENVIEW DRIVE, SUITE 100, LAUREL, MD 20770
(301) 470-7772, (301) 900-3008, (301) 200-6003

Professional Engineer Seal: [Seal]

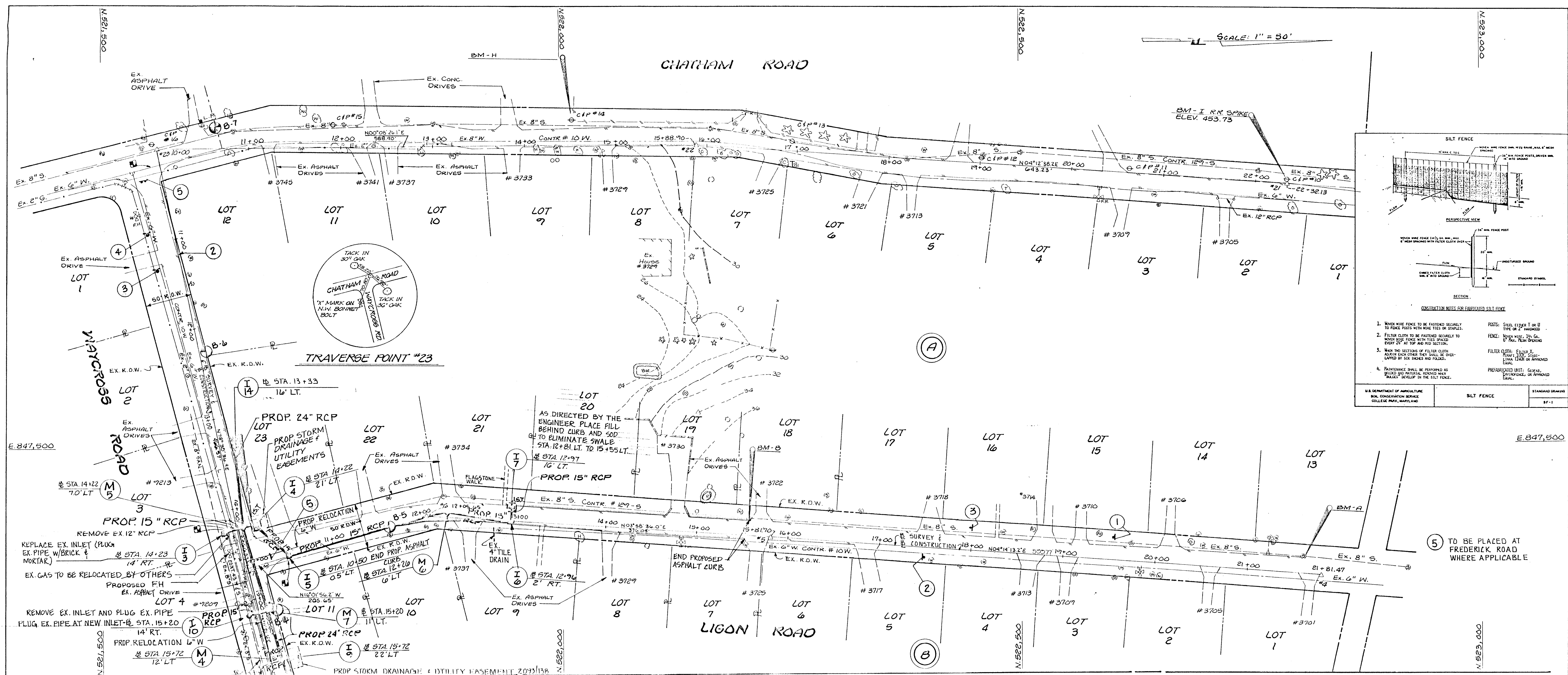
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|---------------|----------|------|--|
| DES: PAH | | | |
| DRN: SMC | | | |
| CHK: KJB | | | |
| DATE: 12/6/91 | | | |
| BY: NO. | REVISION | DATE | |

CAPITAL PROJECT D-1077

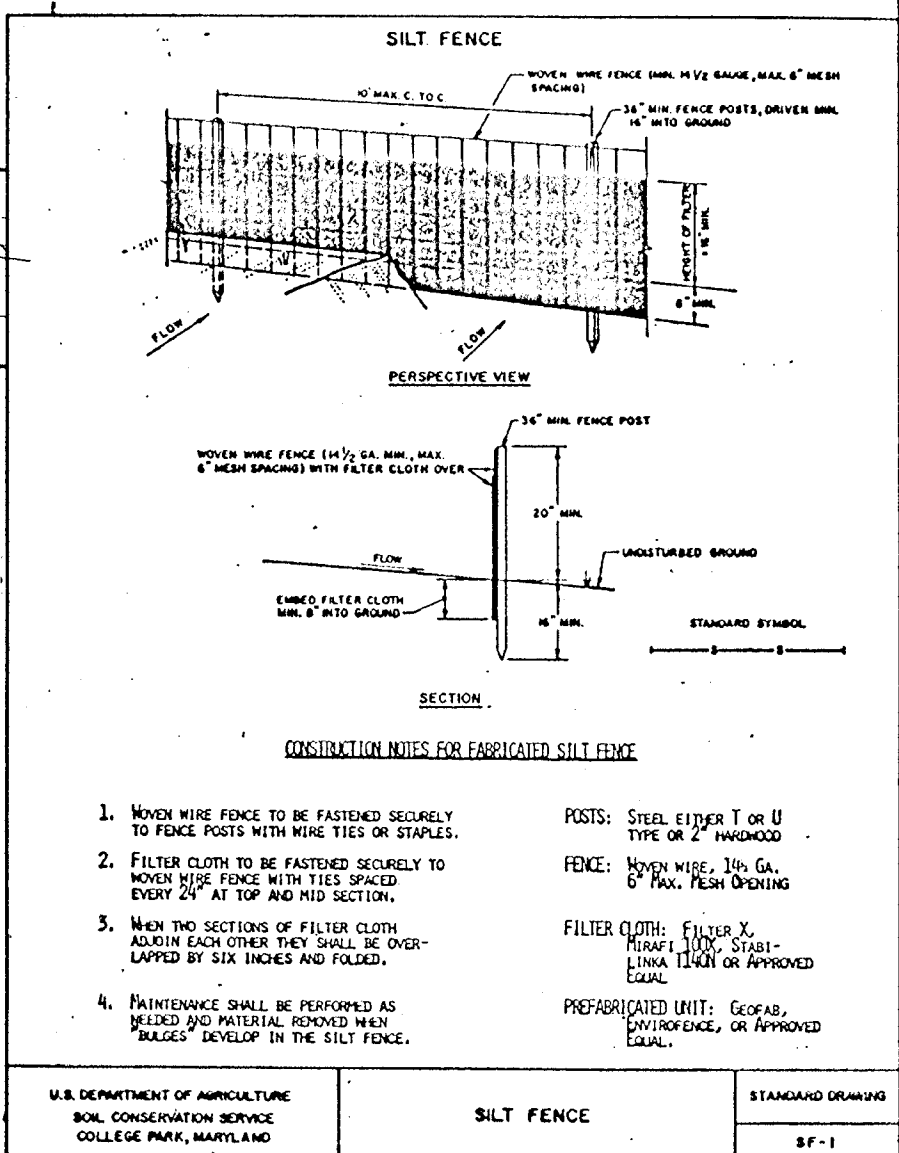
600 SCALE MAP NO. 24 BLOCK NO. 16, 17

STORM DRAINAGE IMPROVEMENTS
DUNLOGGIN
PLAN
ELECTION DISTRICT ELLICOTT CITY NO. 2

SCALE AS SHOWN
SHEET 2 OF 5

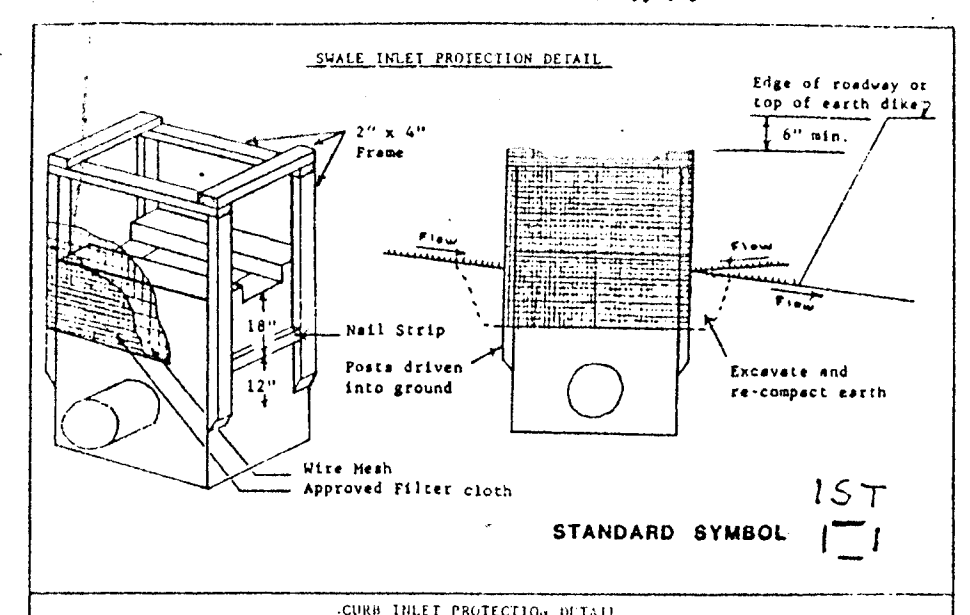


SCALE: 1" = 50'



RCP PIPE CLASSES SHOWN ON PROFILES SHEET 4 OF 5

PROP. 15" RCP
PROP. 24" RCP



NOTE: SEE SHEET 5 OF 6 FOR W/S RELOCATION

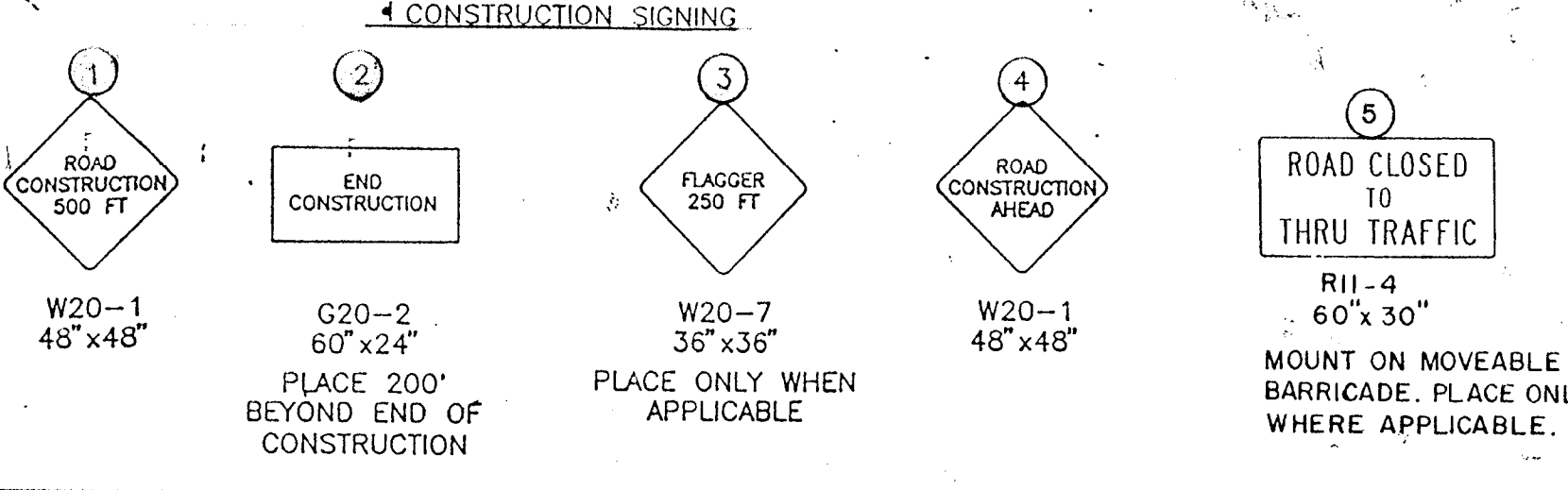
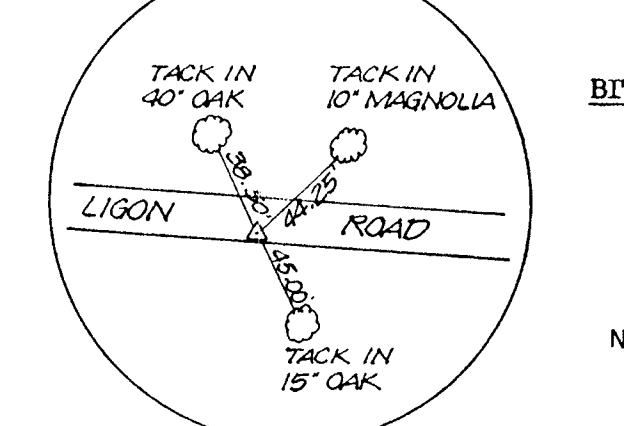
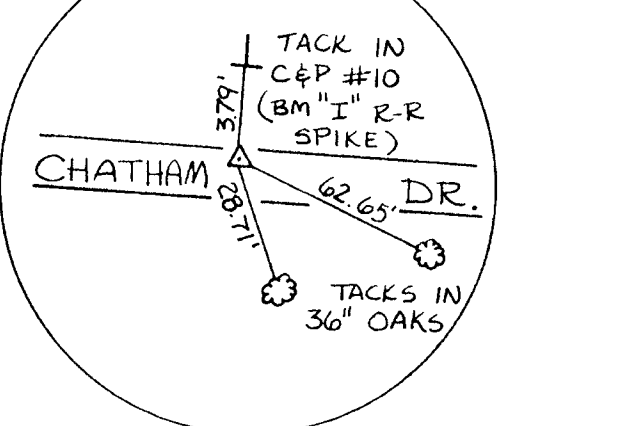
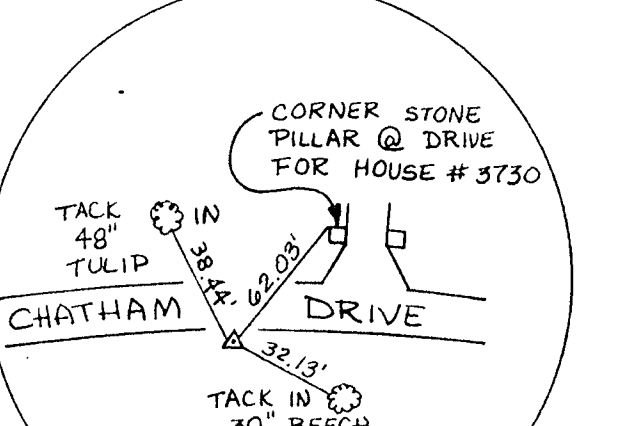
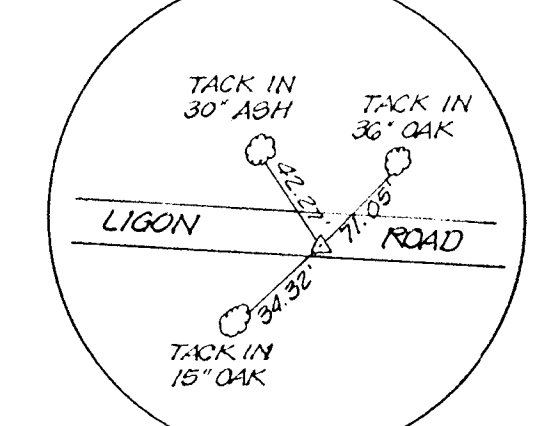
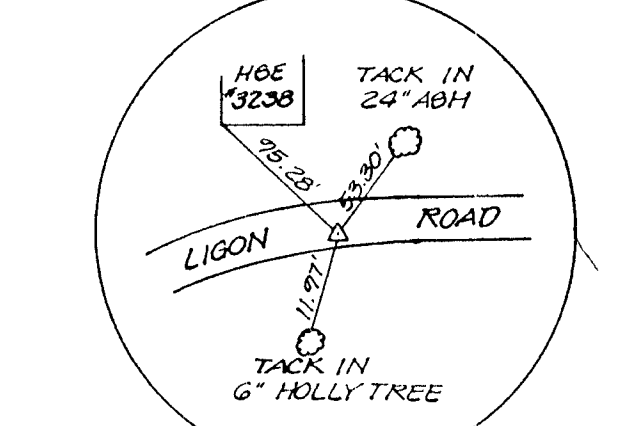
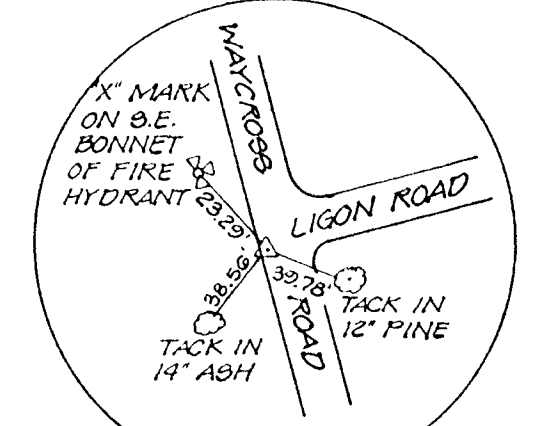
BITUMINOUS CURB REMOVAL SCHEDULE - LIGON ROAD

RIGHT ONLY
STA 12 + 65 TO STA 13 + 95
STA 14 + 15 TO STA 15 + 55
TOTAL LENGTH = 270'

BITUMINOUS CURB INSTALLATION SCHEDULE - LIGON ROAD

LEFT
STA 12 + 09 TO STA 13 + 60
RIGHT
STA 10 + 52 TO STA 15 + 55
TOTAL LENGTH = 774'

NOTE: CONTRACTOR SHALL PROVIDE FILL, TOPSOIL AND SOIL BEHIND ALL NEW CURB TO PROVIDE POSITIVE DRAINAGE OVER THE CURB AS DIRECTED BY THE ENGINEER.



MAINTENANCE OF TRAFFIC NOTES

- NO LANE CLOSURES WILL BE ALLOWED OVERNIGHT.
- ONE LANE OF TRAFFIC SHALL BE MAINTAINED ON MACALPINE ROAD AT ALL TIMES.
- WHEN ROADS ARE TEMPORARILY CLOSED, PROVIDE TYPE 3 BARRICADES AT THE POINT OF CLOSURE IN ADDITION TO THE "ROAD CLOSED" SIGN AT THE NEAREST INTERSECTION.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Director of Public Works
Chief, Bureau of Engineering
Chief, Bureau of Storm Drainage

DATE: 2-14-92
DATE: 4/10/92

GREENMAN • PEDERSEN, INC.
CONSULTING ENGINEERS

14504 GREENVIEW DRIVE, SUITE 100, LAUREL, MD 20708
(301) 470-2772, (301) 800-0385, (301) 800-0333

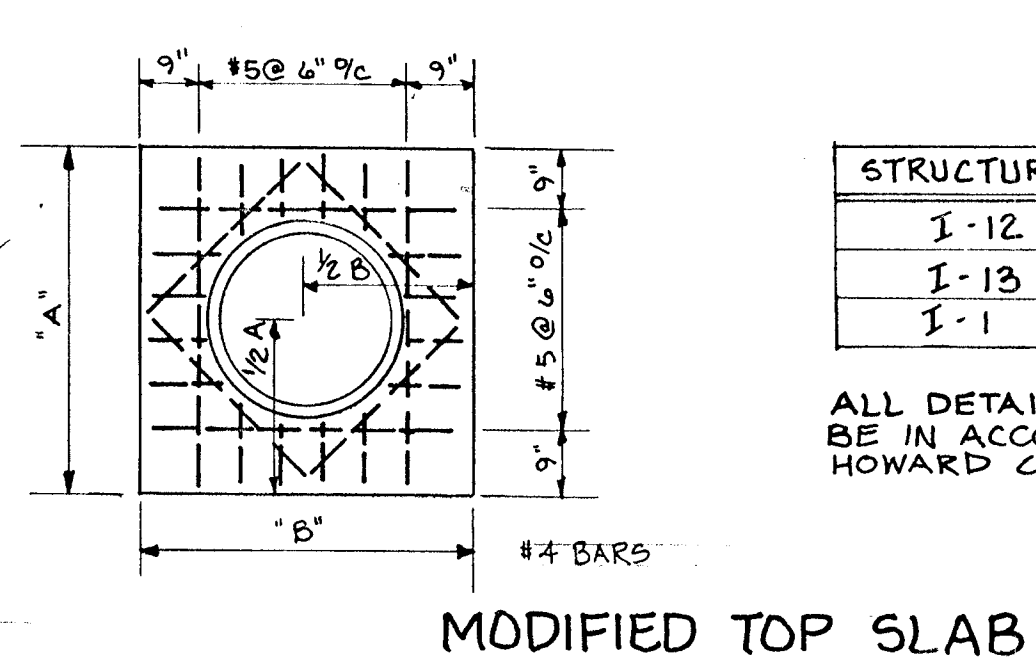
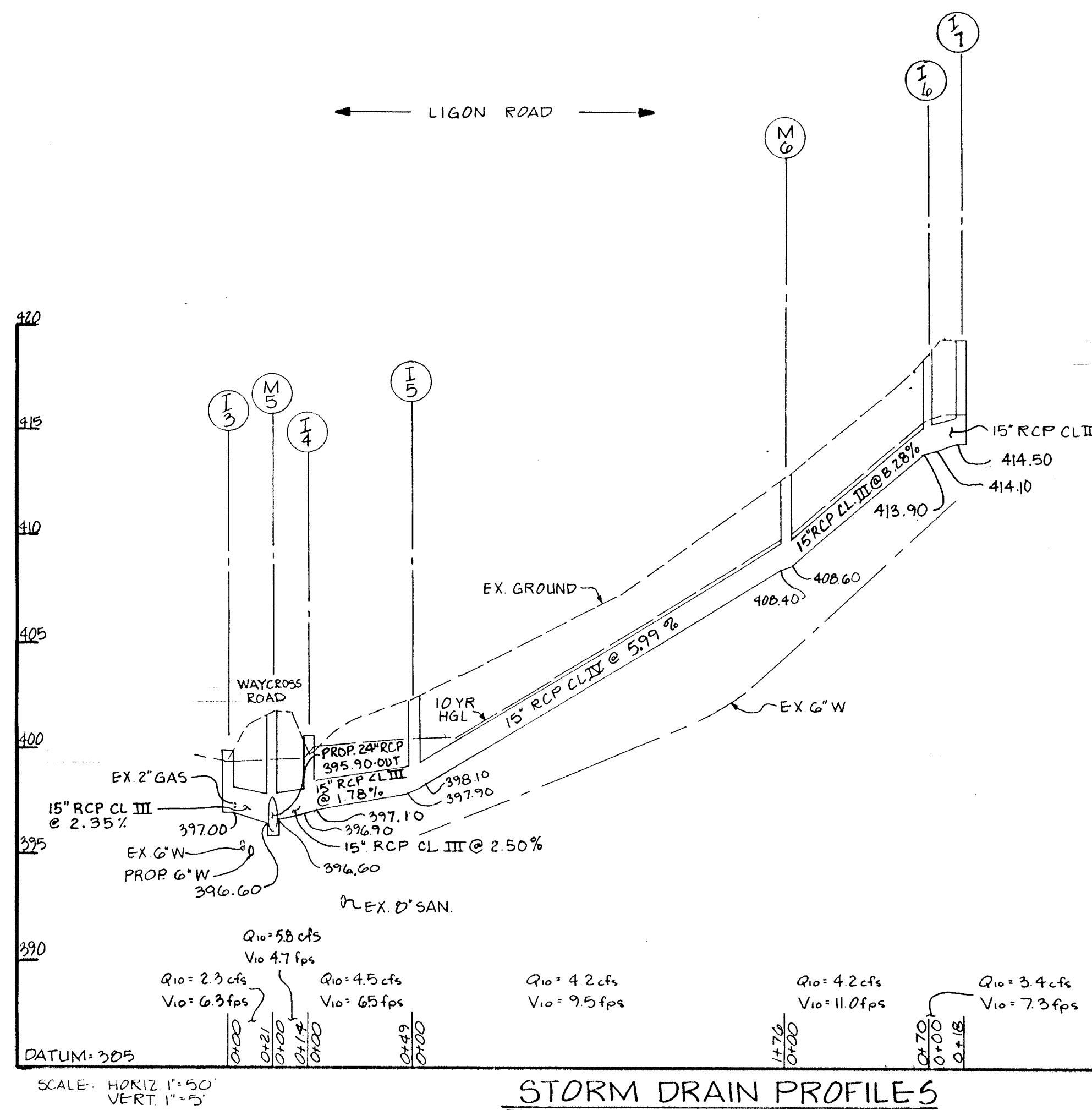
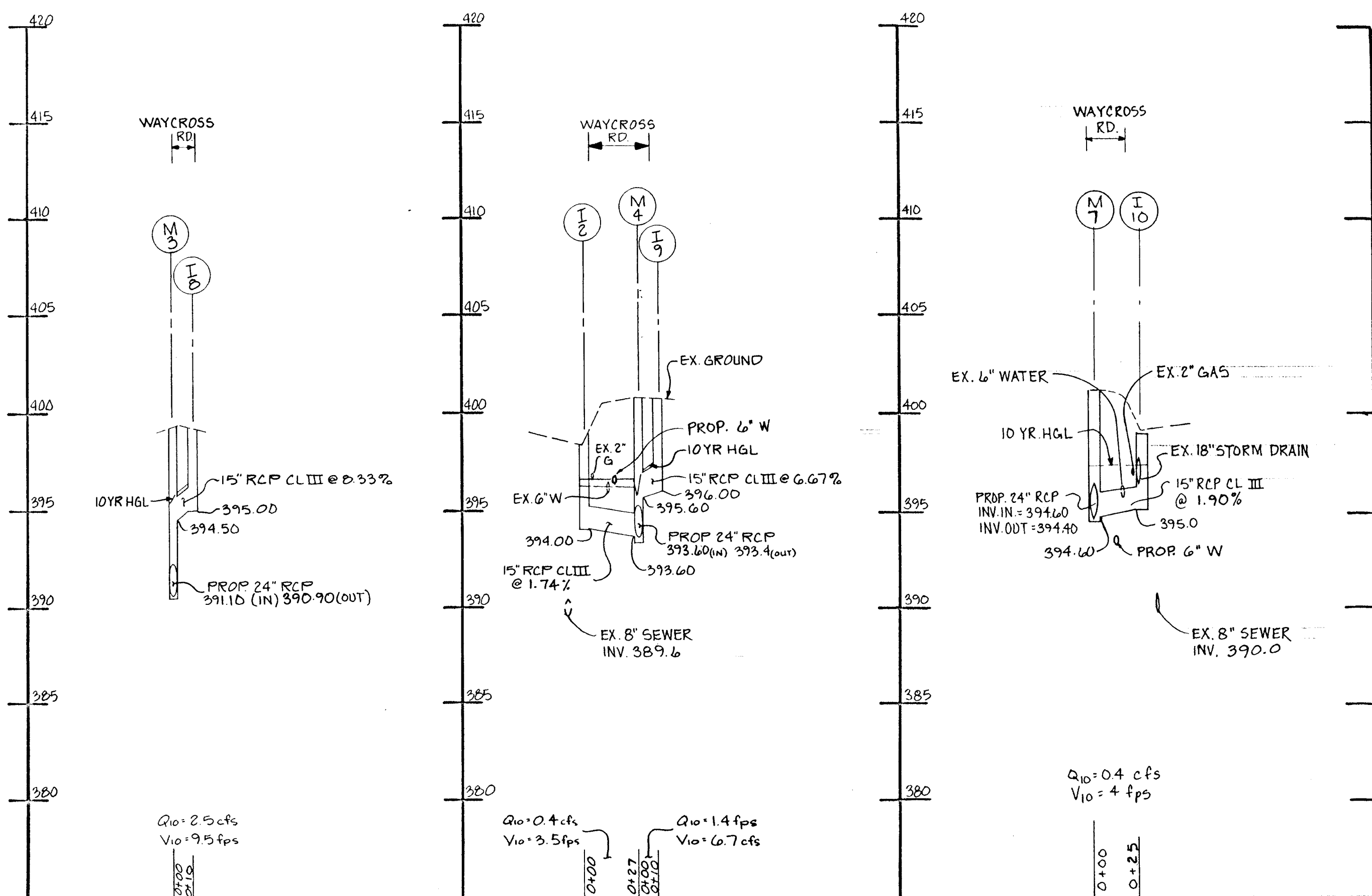
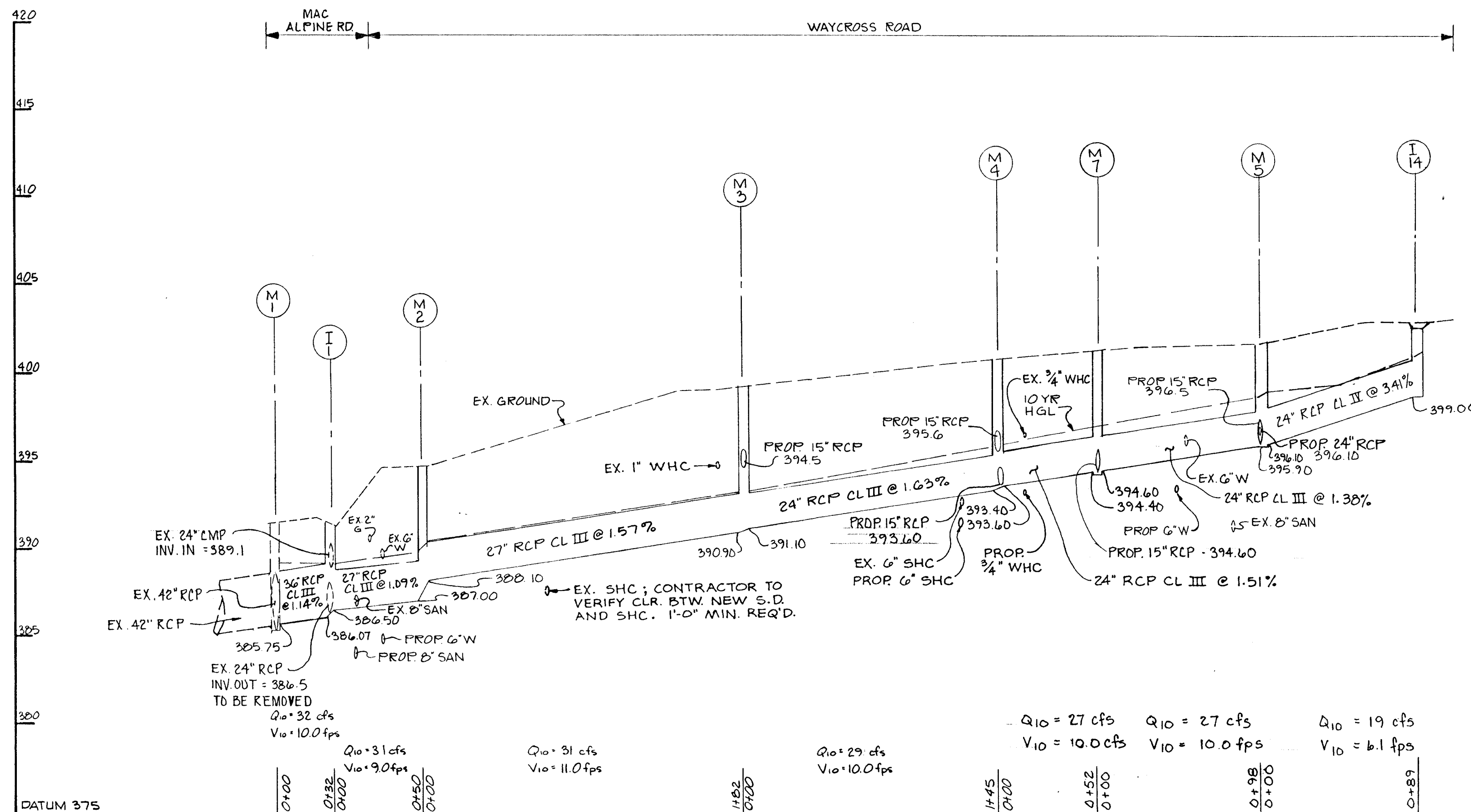
| | | |
|---------------|---|---------|
| DES: PAH | RELOCATE 6" W AT LIGON ROAD WEST OF PROPOSED INLET 15 | 4/11/92 |
| DRN: SMC | | |
| CHK: KJB | | |
| DATE: 12/6/91 | | |
| BY: NO | REVISION | DATE |

CAPITAL PROJECT D-1077

600' SCALE MAP NO. 24 BLOCK NO. 16, 17

STORM DRAINAGE IMPROVEMENTS
DUNLOGGIN
PLAN
ELECTION DISTRICT ELLICOTT CITY NO. 2

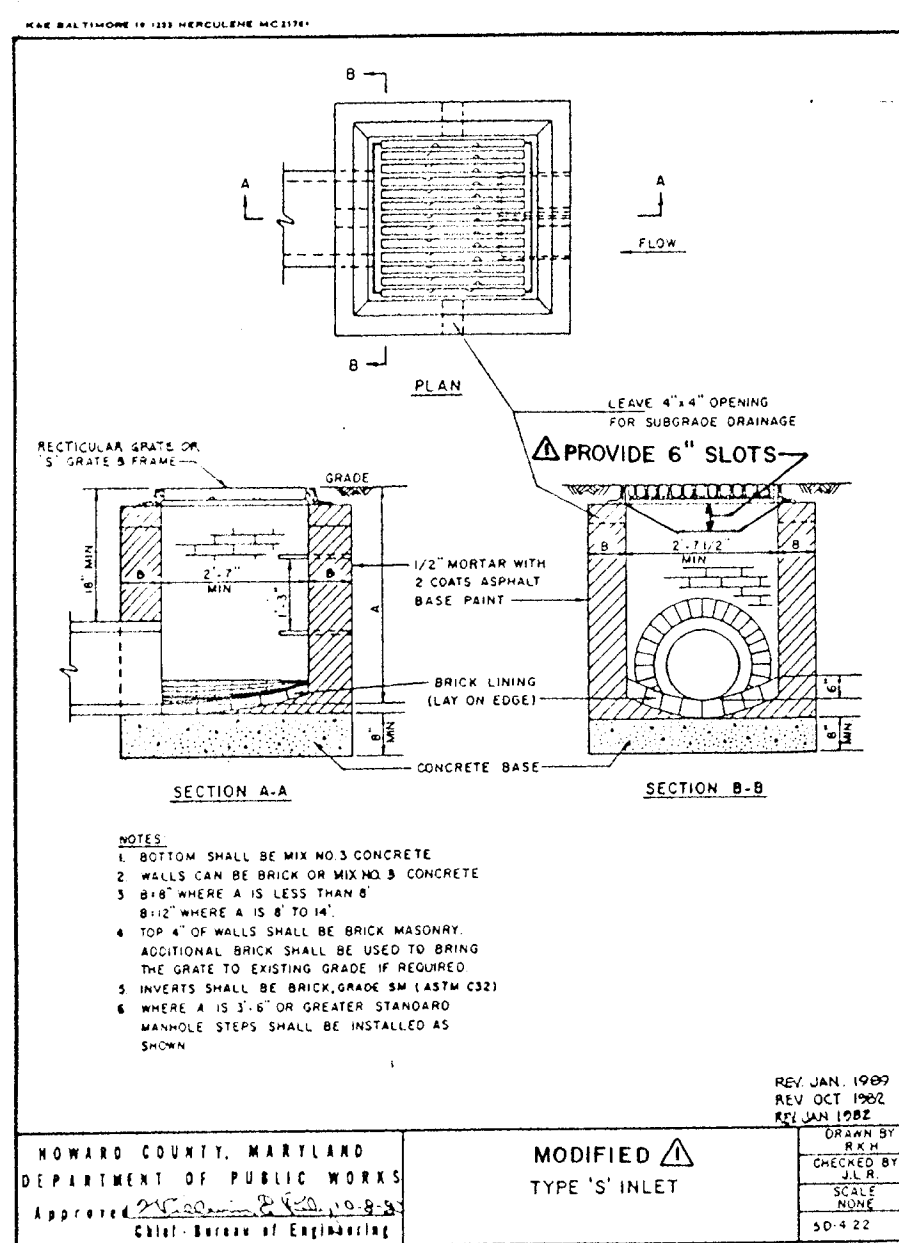
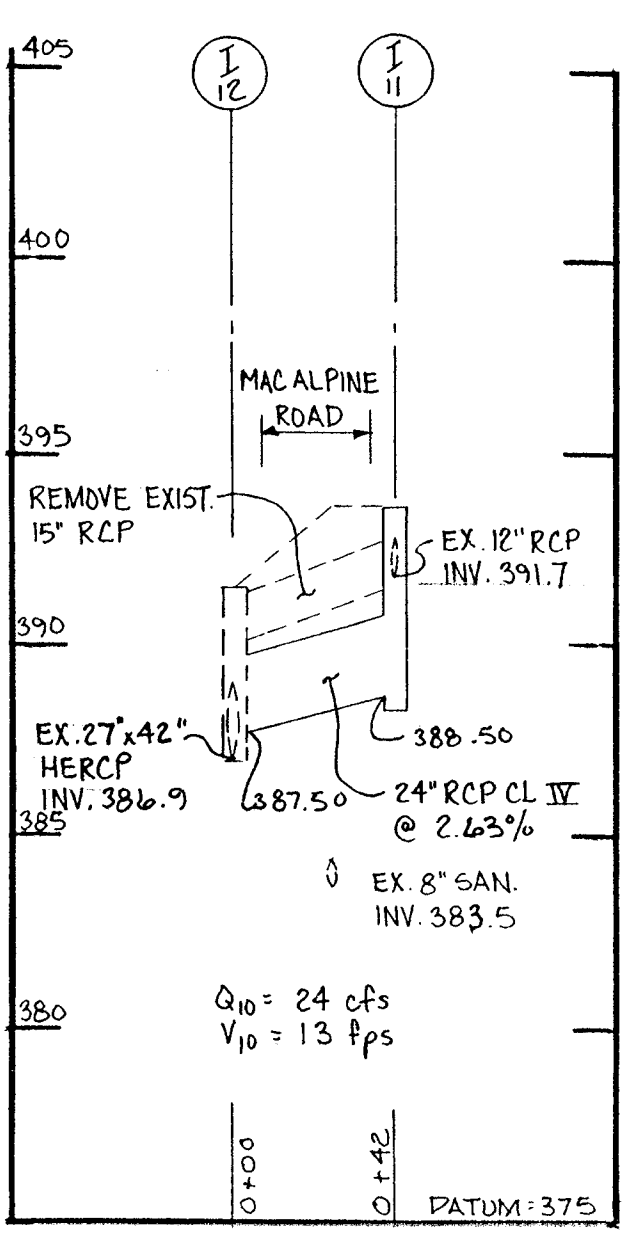
SCALE AS SHOWN
SHEET 3 OF 5



| STRUCTURE | A | B |
|-----------|--------|-------|
| I-12 | 4'-4" | 5'-4" |
| I-13 | 5'-10" | 5'-9" |
| I-1 | 5'-4" | 5'-4" |

ALL DETAILS NOT SHOWN SHALL BE IN ACCORDANCE WITH HOWARD COUNTY STANDARD SD 4.11

MODIFIED TOP SLAB



| SIZE | TYPE | CLASS | LENGTH |
|-----------|------|-------|--------|
| 14" X 23" | RCP | IV | 24' |
| 15" | RCP | III | 208' |
| 15" | RCP | IV | 196' |
| 24" | RCP | III | 283' |
| 24" | RCP | IV | 123' |
| 27" | RCP | III | 224' |
| 36" | RCP | III | 28' |

NOTE: ALL PIPE SLOPES DETERMINED AFTER SUBTRACTING 4' FROM THE INDICATED LENGTH OF PIPE RUN.

| NUMBER | TYPE | ELEVATION | | | REMARKS |
|--------|--------------------------|-----------|---------|----------|--|
| | | TOP | INV. IN | INV. OUT | |
| I1 | D INLET | 391.20 | 386.50 | 386.07 | 5'-4" SQUARE SLOTS IN NORTH, SOUTH, AND WEST SIDES. SEE THIS SHEET FOR TOP SLAB. |
| I2 | YARD INLET | 398.20 | -- | 394.00 | HO. CO. STD. DETAIL SD. 4.11 |
| I3 | S INLET | 399.40 | -- | 397.00 | HO. CO. MODIFIED STD. DETAIL SD. 4.22 (THIS SHEET) |
| I4 | MOD. S. INLET | 400.50 | 397.10 | 396.40 | SLOTS IN NORTH AND WEST SIDES - SEE DETAIL THIS SHEET |
| I5 | S COMB. DOUBLE INLET | 403.03 | 398.10 | 397.90 | HO. CO. STD. DETAIL SD. 4.34 |
| I6 | S COMB. INLET | 413.90 | 414.10 | 413.90 | HO. CO. STD. DETAIL SD. 4.32 |
| I7 | S COMB. DOUBLE INLET | 419.56 | -- | 414.50 | HO. CO. STD. DETAIL SD. 4.34 |
| I8 | D INLET | 399.00 | -- | 395.00 | SLOTS IN NORTH AND WEST SIDES - SEE DETAIL THIS SHEET |
| I9 | S INLET | 400.74 | -- | 396.00 | HO. CO. MODIFIED STD. DETAIL SD 4.22 (THIS SHEET) |
| I10 | YARD INLET | 398.90 | -- | 395.00 | HO. CO. STD. DET. SD 4.14 |
| I11 | MOD. S INLET | 393.40 | 391.70 | 388.50 | SLOT IN NORTH SIDE - SEE DETAIL THIS SHEET |
| I12 | EXIST. MOD. K INLET | -- | 387.50 | -- | PROVIDE TOP SLAB-SEE DETAIL THIS SHEET. SEE SHEET 2 FOR ADDITIONAL CONSTRUCTION NOTES. |
| I13 | EXIST. MOD K INLET | -- | -- | -- | PROVIDE TOP SLAB-SEE DETAIL THIS SHEET |
| I14 | MOD S INLET | 402.80 | -- | 399.00 | SEE DETAIL THIS SHEET |
| M1 | EXIST. MH | 391.50 | 385.75 | 385.25 | EXISTING STRUCTURE |
| M2 | 5'-0" STD. PRECAST MH | 394.80 | 388.10 | 387.00 | SEE HO. CO. STD. DETAIL G5.13 |
| M3 | 5'-0" STD. PRECAST MH | 399.30 | 391.10 | 390.90 | SEE HO. CO. STD. DETAIL G5.13 |
| M4 | 4'-0" STD. PRECAST MH | 400.80 | 393.60 | 393.40 | SEE HO. CO. STD. DETAIL G5.12 |
| M5 | 4'-0" SHALLOW PRECAST MH | 401.80 | 396.10 | 395.90 | SEE HO. CO. STD. DETAIL G5.12 |
| M6 | 4'-0" SHALLOW PRECAST MH | 412.80 | 408.60 | 408.40 | SEE HO. CO. STD. DETAIL G5.12 |
| M7 | 4'-0" STD. PRECAST MH | 401.20 | 394.60 | 394.40 | SEE HO. CO. STD. DETAIL G5.12 |

NOTE: All inlet grates shall be reticular type per SC - 4.93.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

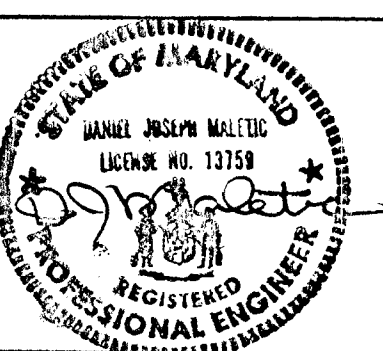
James M. ... 2/18/92
DIRECTOR OF PUBLIC WORKS DATE

... 2/14/92
CHIEF, BUREAU OF ENGINEERING DATE

... 2/18/92
CHIEF, BUREAU OF HIGHWAYS DATE

GREENMAN • PEDERSEN, INC.
CONSULTING ENGINEERS

14504 GREENVIEW DRIVE, SUITE 100, LAUREL, MD 20708
(301) 470-7772, (301) 630-3035, (301) 209-6333



| | | | | |
|--------------|----|----|----------|------|
| DES: MW | BY | NO | REVISION | DATE |
| DRN: AJU | | | | |
| CHK: PAH | | | | |
| DATE 12/6/91 | | | | |

CAPITAL PROJECT D-1077

600' SCALE MAP NO. 24 BLOCK NO. 16, 17

STORM DRAIN IMPROVEMENTS
DUNLOGGIN
STORM DRAIN PROFILES
ELECTION DISTRICT ELLICOTT CITY NO 2

SCALE AS SHOWN
SHEET 4 OF 5

PART I

- ALL WATER MAINS TO BE D.I.P. CLASS 52 UNLESS OTHERWISE NOTED.
- TOPS OF ALL WATER MAINS TO HAVE A MINIMUM OF 3'-1/2" COVER UNLESS OTHERWISE NOTED.
- VALVES ADJACENT TO TEES SHALL BE STRAPPED TO TEES.
- 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 1000 OF THE STANDARD SPECIFICATIONS.
- THE CONTRACTOR SHALL NOT OPERATE ANY WATER MAIN VALVES ON THE EXISTING WATER SYSTEM.
- COORDINATE ABANDONMENT AND TIE IN WITH BUREAU OF UTILITIES FIVE WORKING DAYS PRIOR TO SCHEDULED WORK.

PART II

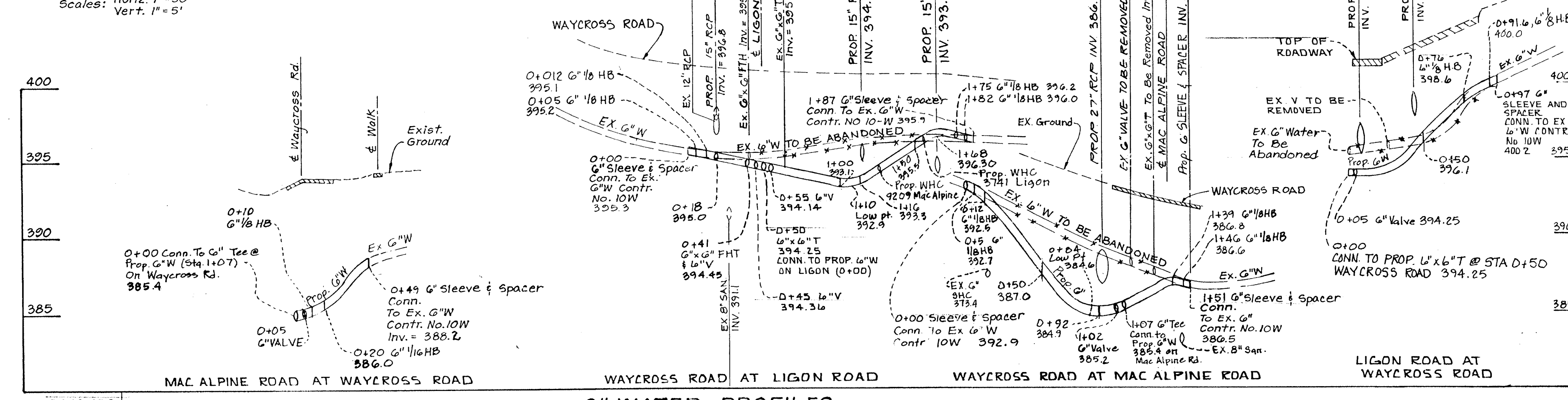
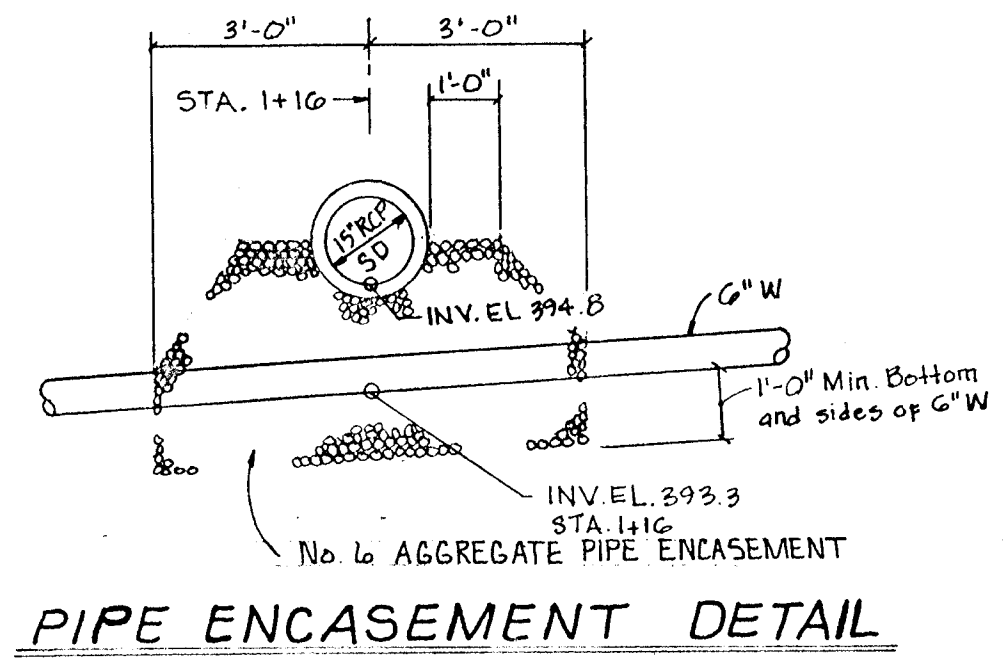
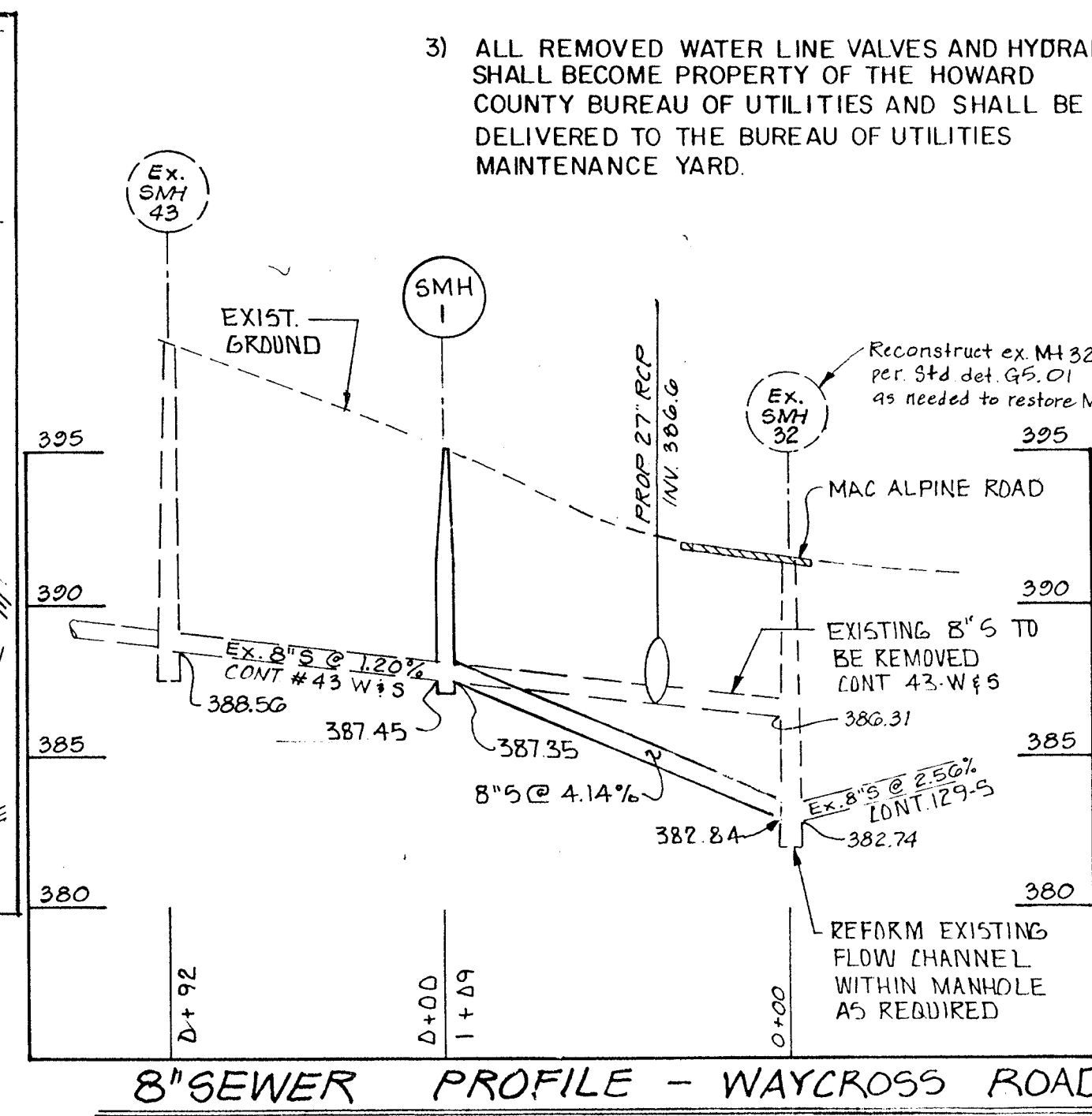
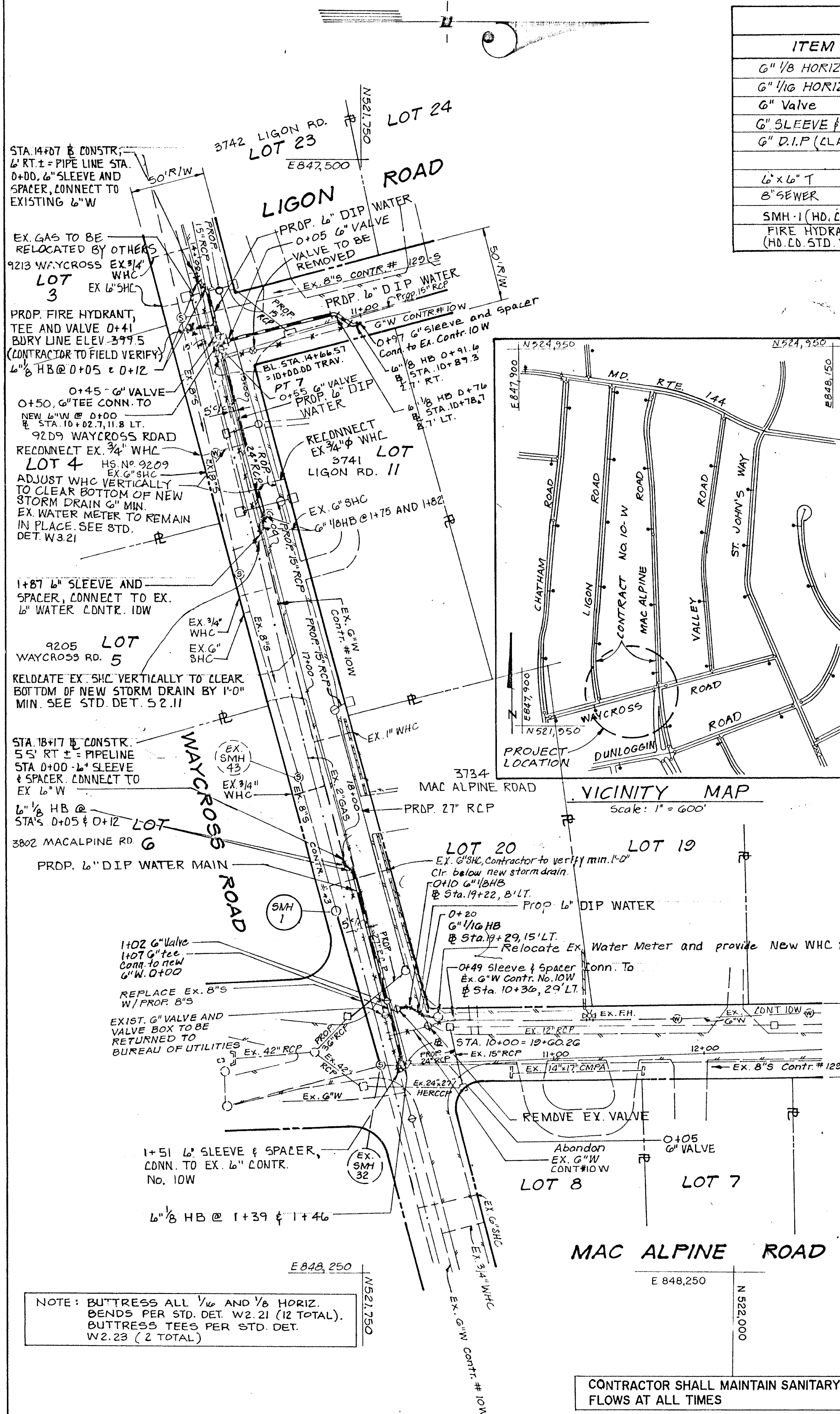
- ALL SEWER MAINS SHALL BE C.S.P., R.C.S.P., V.C.P., OR P.V.C. UNLESS OTHERWISE NOTED.
- THE CONTRACTOR SHALL PROVIDE A JOINT IN ALL SEWER MAINS WITHIN 2'-0" OF EXTERIOR MANHOLE WALL.
- ALL MANHOLES SHALL BE 4'-0" INSIDE DIAMETER UNLESS OTHERWISE NOTED.
- FORCE MAINS SHALL BE D.I.P. ONLY.
- MANHOLES SHOWN WITH 12" AND 16" WALLS ARE FOR BRICK MANHOLES ONLY.
- MANHOLES DESIGNATED W.T. IN PLAN AND PROFILE SHALL HAVE WATERTIGHT FRAMES AND COVERS, STANDARD DETAIL G5.52, WHERE WATERTIGHT MANHOLE FRAME AND COVER IS USED, SET TOP OF FRAME 1'-6" ABOVE FINISHED GRADE UNLESS OTHERWISE NOTED IN THE DRAWINGS.
- COORDINATE ABANDONMENT AND TIE IN WITH BUREAU OF UTILITIES FIVE WORKING DAYS PRIOR TO SCHEDULED WORK.

PART III

- 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 4" CLEAR ALL POLES BY 2'-0" MINIMUM OR TUNNEL AS REQUIRED. THE OWNER HAS CONTACTED THE UTILITY COMPANIES AND HAS MADE ARRANGEMENTS FOR BRACING OF POLES AS SHOWN ON THE DRAWINGS. IN THE EVENT THE CONTRACTOR'S WORK REQUIRES THE BRACING OF ADDITIONAL POLES, ANY COST INCURRED BY THE OWNER FOR THE BRACING OF ADDITIONAL POLES SHALL BE DEDUCTED FROM MONEY OWED THE CONTRACTOR. THE CONTRACTOR SHALL COORDINATE WITH THE UTILITY COMPANIES TO SCHEDULE THE BRACING OF THE POLES.
- FOR DETAILS NOT SHOWN ON THE DRAWINGS, AND FOR MATERIALS AND CONSTRUCTION METHODS, USE HOWARD COUNTY DESIGN MANUAL VOLUME II STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION. THE CONTRACTOR SHALL HAVE A COPY OF VOLUME II ON THE JOB SITE.
- WHERE TESTS 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 LOCATED BY THE CONTRACTOR TWO WEEKS IN ADVANCE OF CONSTRUCTION OPERATIONS AT HIS OWN EXPENSE.
- CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITY COMPANIES OR AGENCIES AT LEAST FIVE WORKING DAYS BEFORE STARTING WORK SHOWN ON THESE PLANS:
 - STATE HIGHWAY ADMINISTRATION - 531-5533
 - BALTIMORE GAS & ELECTRIC CO. - CONTRACTOR SERVICES - 850-4620
 - BALTIMORE GAS & ELECTRIC CO. - UNDERGROUND DAMAGE CONTROL - 859-9004
 - BALTIMORE GAS & ELECTRIC CO. - TROUBLE SHOOTING - 298-9001
 - MISS. UTILITY - 1-800-257-7777
 - COLONIAL PIPELINE CO. - 757-1370
 - BUREAU OF UTILITIES HOWARD COUNTY DEPT. OF PUBLIC WORKS - 313-4900
- TREES AND SHRUBS ARE TO BE PROTECTED FROM DAMAGE TO MAXIMUM EXTENT. TREES AND SHRUBS LOCATED WITHIN THE CONSTRUCTION STRIP 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.

| QUANTITIES | | |
|---------------------------------|--------------------|-------------------|
| ITEM | ESTIMATED AS-BUILT | MATERIAL/SUPPLIER |
| 6" 1/8 HORIZ. BEND | 11 | |
| 6" 1/8 HORIZ. BEND | 1 | |
| 6" Valve | 5 | |
| 6" SLEEVE & SPACER | 6 | |
| 6" D.I.P. (CLASS 52) | 484 L.F. | |
| 6"x6" T | 2 | |
| 8" SEWER | 109 L.F. | |
| SMH-1 (HD. LD. STD. 6-5-12) | 1 | |
| FIRE HYDRANT (HD. LD. STD. W11) | 1 | |

- NOTES:
- SEE SHEETS 28 & 3 FOR LOCATION OF TEST PITS AND BORINGS.
 - SEE SHEETS 2 & 3 FOR HORIZONTAL AND VERTICAL CONTROL.
 - ALL REMOVED WATER LINE VALVES AND HYDRANTS SHALL BECOME PROPERTY OF THE HOWARD COUNTY BUREAU OF UTILITIES AND SHALL BE DELIVERED TO THE BUREAU OF UTILITIES MAINTENANCE YARD.



NOTE: BUTTRESS ALL 1/8 AND 1/8 HORIZ. BENDS PER STD. DET. W2.21 (2 TOTAL). BUTTRESS TEES PER STD. DET. W2.23 (2 TOTAL)

CONTRACTOR SHALL MAINTAIN SANITARY FLOWS AT ALL TIMES

NOTE: THE CONTRACTOR SHALL TEST PIT THE EXISTING WATERMAIN TO DETERMINE ITS EXACT LOCATION. SEE PLAN FOR PROPOSED OFFSET DIMENSION FROM EXISTING WATERMAIN TO PROPOSED WATERMAIN.

CONTRACTOR NOTE: CONTRACTOR SHALL TEST PIT ALL SEWER AND WATER HOUSE CONNECTIONS TO DETERMINE IF THEIR RELOCATION IS NECESSARY. IF RELOCATION IS NECESSARY, THE CONTRACTOR SHALL NOTIFY HOWARD CO. PRIOR TO RELOCATING PIPE.

WATER & SEWER IMPROVEMENTS

SCALE: 1" = 50'

THIS IS PAGE 3A OF CONTRACT NO. 43 W+S
THIS IS PAGE 9A AND 21A CONTRACT NO. 10W

| | |
|---------------|---------------|
| DES: DMC | DATE: 12/6/91 |
| DRN: DMC | BY: NO. |
| CHK: KJB | NO. |
| DATE: 12/6/91 | REVISION |
| DATE: | REVISION |

AMEND SHEET TO EXISTING CONTRACT 10-W
AMEND SHEET TO EXISTING CONTRACT 43- W & S.
CAPITAL PROJECT D-1077

STORM DRAINAGE IMPROVEMENTS
DUNLOGGIN
WATER & SEWER RELOCATION
ELECTION DISTRICT ELLICOTT CITY NO 2

SCALE AS SHOWN
SHEET 5 OF 5

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Robert M. Beisinger 2-18-92
CHIEF, BUREAU OF UTILITIES

DATE: 2-14-92
CHIEF, UTILITY DESIGN DIVISION

GREENMAN • PEDERSEN, INC.
CONSULTING ENGINEERS

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BRUNING 69150