

Howard County, Maryland – Department of Public Works

ROADWAY IMPROVEMENTS to HARPERS FARM ROAD and WILLOWBOTTOM DRIVE

CAPITAL PROJECT NO. J-4164

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BENCHMARKS

NOTE: SEE SHEET 5 OF 19 FOR CONTROL POINTS, TRAVERSE TIES, COORDINATE DATA AND ROADWAY ALIGNMENT GEOMETRIC DATA.

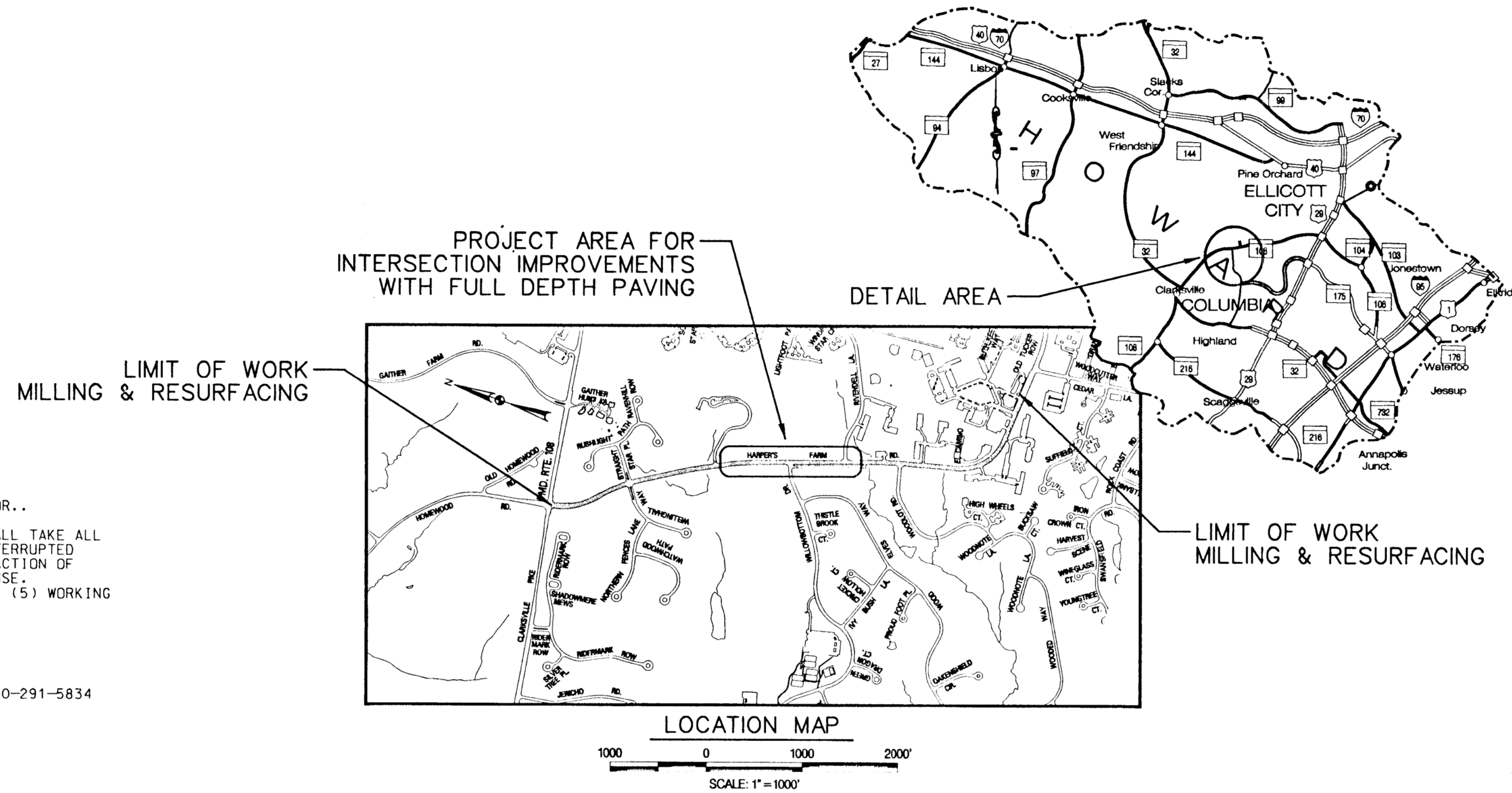
GENERAL NOTES

- ALL STATIONING AND DIMENSIONING ARE TO BE FIELD VERIFIED BY THE CONTRACTOR.
- APPROXIMATE LOCATIONS OF EXISTING UTILITIES ARE SHOWN. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT EXISTING UTILITIES AND TO MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED SHALL BE REPAIRED IMMEDIATELY TO THE SATISFACTION OF THE HOWARD COUNTY ENGINEER BY THE CONTRACTOR AND AT THE CONTRACTOR'S EXPENSE. CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITIES OR AGENCIES AT LEAST FIVE (5) WORKING DAYS BEFORE STARTING WORK SHOWN ON THESE PLANS:

MISS UTILITY 1-800-257-7777
 CONSTRUCTION INSPECTION DIVISION, HOWARD COUNTY 410-313-1880
 STATE HIGHWAY ADMINISTRATION DISTRICT 7-0 301-624-8100
 BALTIMORE GAS & ELECTRIC COMPANY – UNDERGROUND ELECTRIC 410-855-6958
 BALTIMORE GAS & ELECTRIC COMPANY – GAS ENGINEERING & CONSTRUCTION 410-291-5834
 DISTRIBUTION CUSTOMER SERVICE 685-0123
 ENGINEERING DAMAGE CONTROL 234-5621
 BELL ATLANTIC TELEPHONE 1-800-870-0000
 AMERICAN TELEPHONE & TELEGRAPH CABLE LOCATION DIVISION 393-3553
 COLONIAL PIPELINE COMPANY 781-4641
 BUREAU OF UTILITIES, HOWARD COUNTY 410-313-4900
 COMCAST CABLE 888-733-1800

THE CONTRACTOR SHALL CONTACT THE HOWARD COUNTY CONSTRUCTION INSPECTION DIVISION OF ENGINEERING FOR VERIFICATION AND/OR INFORMATION REGARDING:
 A. EXISTING/PROPOSED RIGHT-OF-WAY.
 B. UTILITY RELOCATION.
 C. MAINTENANCE OF TRAFFIC DURING CONSTRUCTION.
 D. EROSION/SEDIMENT CONTROL CERTIFICATION AND PERMIT.
 E. HORIZONTAL/VERTICAL CONTROL.
 F. GRADING PERMIT.

- PLACE REGULATION "ROAD WORK" AND WARNING SIGNS AS REQUIRED TO COMPLY WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) FOR HIGHWAY CONSTRUCTION AND MAINTENANCE OPERATIONS AT LIMIT OF WORK ALONG MD. RTE. 108. WHERE LIMIT OF WORK IN ALONG COUNTY ROADWAYS, COMPLY WITH HOWARD COUNTY STANDARD SPECIFICATIONS AND DETAILS.
- ALL GRADING SHALL BE LIMITED TO EXISTING 80' OR 106' R.O.W. INCLUDING SIDE SLOPES AND STABILIZATION. FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED IN ACCORDANCE WITH THE SEDIMENT CONTROL NOTES AND DETAILS ON SHEETS 7 & 8 OF 19.
- FOR DETAILS NOT SHOWN ON THESE DRAWINGS, AND FOR MATERIALS AND CONSTRUCTION METHODS, THE CONTRACTOR SHALL ABIDE BY THE HOWARD COUNTY STANDARDS AND SPECIFICATIONS. THE PROJECT INVITATION FOR BID BOOKLET, THE SPECIAL PROVISIONS AND THE MARYLAND STATE HIGHWAY ADMINISTRATION'S "BOOK OF STANDARDS FOR HIGHWAY AND INCIDENTAL STRUCTURES" AND "STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS." IN THE EVENT OF ANY DISCREPANCY BETWEEN THESE SOURCES, THE SPECIAL PROVISIONS SHALL GOVERN.
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MD SHA STANDARDS AND SPECIFICATIONS.
- STAGING AND STOCKPILE AREA WILL BE DETERMINED BY CONTRACTOR.



REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MET TECHNICAL REQUIREMENTS.
Chief, Soil Conservation District 4/13/00
 U.S. Natural Resources Conservation Service Date

THIS DEVELOPMENT IS APPROVED FOR EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
Bradley Schomberg 4/13/00
 Chief, Division of Transportation Projects and Watershed Management Date

Approved: For Storm Drainage Systems and Public Roads, Howard County Department of Public Works.
 Chief, Division of Transportation Projects and Watershed Management Date

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

Randy J. Levin 4/13/00
 DIRECTOR OF PUBLIC WORKS DATE
Christina M. O'Connell 4-13-00
 CHIEF, BUREAU OF HIGHWAYS DATE

GPI Greenman-Pedersen, Inc.
 ENGINEERS, ARCHITECTS, PLANNERS, CONSTRUCTION ENGINEERS & INSPECTORS
 14502 GREENVIEW DRIVE, SUITE 100, LAUREL, MD 20708
 WASH. (301) 470-2772 BALT. (410) 880-3055
 FAX (301) 490-2649 www.gpi.net



DES:	BY:	NO:	REVISION:	DATE:

TITLE SHEET

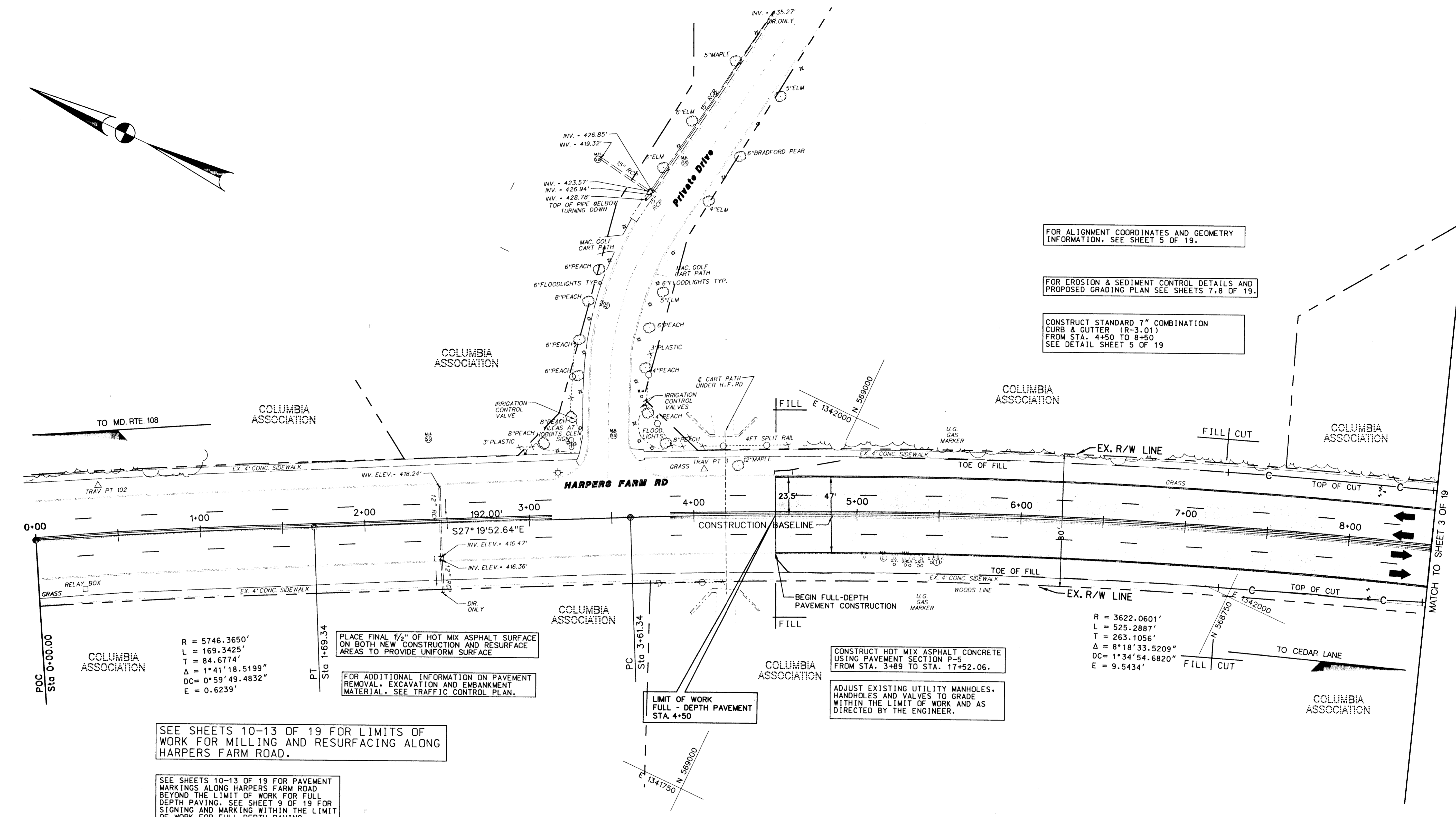
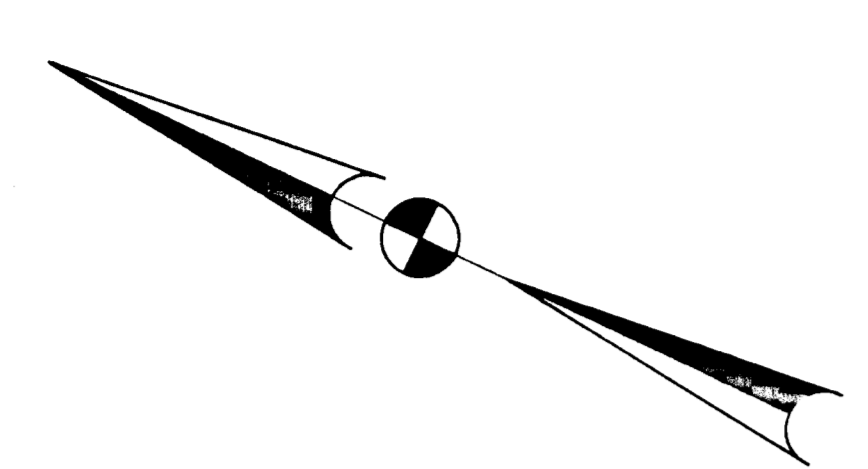
ROADWAY IMPROVEMENTS TO
 HARPERS FARM ROAD & WILLOWBOTTOM DRIVE
 HOWARD COUNTY, MARYLAND
 CAPITAL PROJECT NO. J-4164

SCALE AS SHOWN
 SHEET 1 OF 19

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 DATE: 20 MAR 2000 09:19:01

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FOR ALIGNMENT COORDINATES AND GEOMETRY INFORMATION, SEE SHEET 5 OF 19.

FOR EROSION & SEDIMENT CONTROL DETAILS AND PROPOSED GRADING PLAN SEE SHEETS 7,8 OF 19.

CONSTRUCT STANDARD 7" COMBINATION CURB & GUTTER (R-3.01) FROM STA. 4+50 TO 8+50 SEE DETAIL SHEET 5 OF 19

PLACE FINAL 1/2" OF HOT MIX ASPHALT SURFACE ON BOTH NEW CONSTRUCTION AND RESURFACE AREAS TO PROVIDE UNIFORM SURFACE

FOR ADDITIONAL INFORMATION ON PAVEMENT REMOVAL, EXCAVATION AND EMBANKMENT MATERIAL, SEE TRAFFIC CONTROL PLAN.

CONSTRUCT HOT MIX ASPHALT CONCRETE USING PAVEMENT SECTION P-5 FROM STA. 3+89 TO STA. 17+52.06.

ADJUST EXISTING UTILITY MANHOLES, HANDHOLES AND VALVES TO GRADE WITHIN THE LIMIT OF WORK AND AS DIRECTED BY THE ENGINEER.

SEE SHEETS 10-13 OF 19 FOR LIMITS OF WORK FOR MILLING AND RESURFACING ALONG HARPERS FARM ROAD.

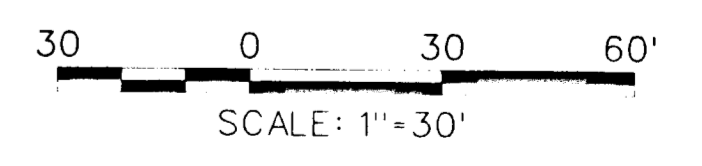
SEE SHEETS 10-13 OF 19 FOR PAVEMENT MARKINGS ALONG HARPERS FARM ROAD BEYOND THE LIMIT OF WORK FOR FULL DEPTH PAVING. SEE SHEET 9 OF 19 FOR SIGNING AND MARKING WITHIN THE LIMIT OF WORK FOR FULL DEPTH PAVING.

UTILITY SYMBOL LEGEND

- | | | | |
|--------------------------|-----------------------------|-----------------|--|
| □ ELECTRIC BOX | ⊕ STORM DRAIN MANHOLE | — G — G — | GAS MAIN |
| ⊙ ELECTRIC MANHOLE | ⊕ ROUND GRATE INLET | — W — W — | WATER MAIN |
| ⊙ ELECTRIC POLE | ⊕ UTILITY STUB | — S — S — | SEWER MAIN |
| ⊙ STREET LIGHT | ⊕ TLT HOLE | — D — D — | STORM DRAIN |
| ⊕ ELECTRIC TRANSFORMER | ⊕ TELEPHONE JUNCTION BOX | — CATV — CATV — | CABLE TELEVISION |
| ⊕ TRAFFIC SIGNAL POLE | ⊕ TELEPHONE MANHOLE | — E — E — | ELECTRIC CABLES |
| ⊕ TRAFFIC SIGNAL BOX | ⊕ TELEPHONE PEDESTAL | — T — T — | TELEPHONE CABLES |
| ⊕ TRAFFIC SIGNAL CABINET | ⊕ TELEPHONE POLE | — A — A — | AERIAL CABLES |
| ⊕ GAS MANHOLE | ⊕ CABLE TELEVISION PEDESTAL | ===== | ELECTRICAL CONDUIT |
| ⊕ GAS TEST STATION | ⊕ UNKNOWN MANHOLE | DATUR | • DEPICTED ACCORDING TO UTILITY RECORD |
| ⊕ GAS VALVE OR METER | ⊕ WELL | AATUR | • ABANDONED ACCORDING TO UTILITY RECORD |
| ⊕ SANITARY CLEAN OUT | ⊕ FIRE HYDRANT | DATFI | • DEPICTED ACCORDING TO FIELD INFORMATION |
| ⊕ SANITARY MANHOLE | ⊕ WATER METER | AATFI | • ABANDONED ACCORDING TO FIELD INFORMATION |
| ⊕ CURB INLET | ⊕ WATER MANHOLE | EDI | • END OF ELECTRONIC INFORMATION |
| ⊕ GRATE INLET | ⊕ WATER VALVE | NFL | • NOT FIELD LOCATABLE |

LEGEND

CONSTRUCT GRANULAR BASE PAVING SECTION: P-5



DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

Randy W. ... 4/13/00
 DIRECTOR OF PUBLIC WORKS DATE

Richard J. ... 4/13/00
 CHIEF, BUREAU OF ENGINEERING DATE

Charles M. ... 4-13-00
 CHIEF, BUREAU OF HIGHWAYS DATE

Ed ... 4/13/00
 CHIEF, DIVISION OF TRANSPORTATION PROJECTS AND WATERSHED MANAGEMENT DATE

GPI Greenman-Pedersen, Inc.
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 FAX: (301) 490-2648 www.gpi.net

STATE OF MARYLAND
 DANIEL JOSEPH WALEWICZ
 No. 13758
 REGISTERED PROFESSIONAL ENGINEER

DES.	BY	NO.	REVISION	DATE
DRN				
CHK				
DATE				

ROADWAY PLAN
 STA. 3+89 TO STA. 8+50

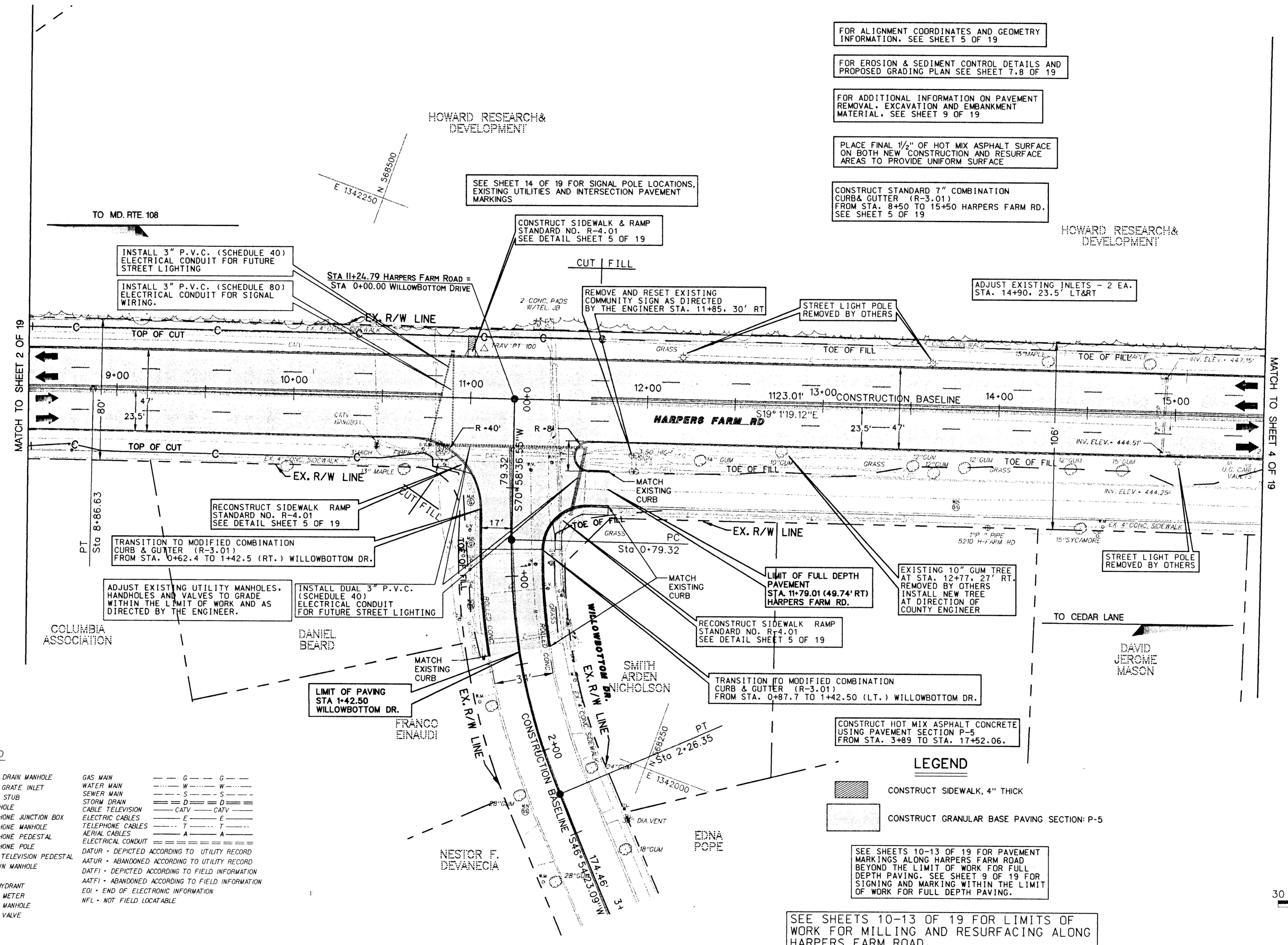
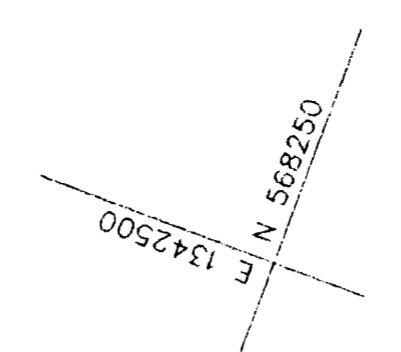
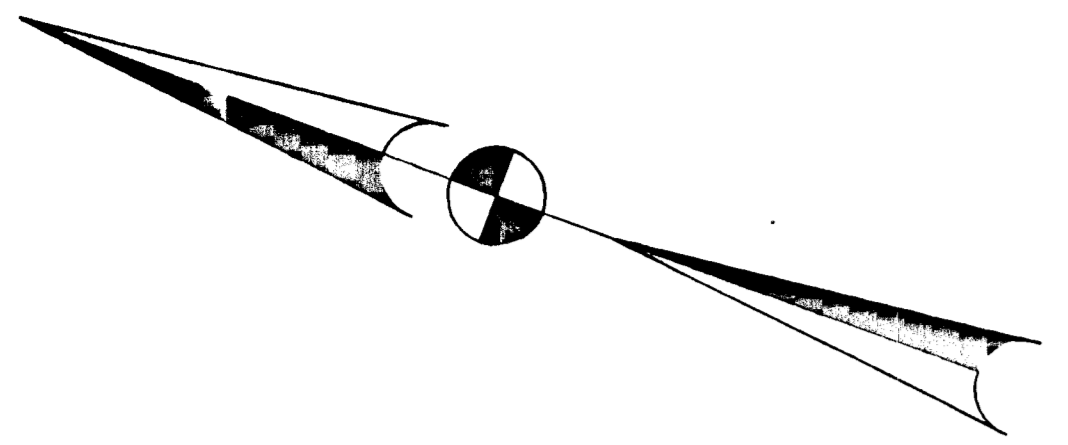
SCALE MAP NO. _____ BLOCK NO. _____

ROADWAY IMPROVEMENTS TO HARPERS FARM ROAD & WILLOWBOTTOM DRIVE
 HOWARD COUNTY, MARYLAND
 CAPITAL PROJECT NO. J-4164

SCALE AS SHOWN
 SHEET 2 OF 19

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FOR ALIGNMENT COORDINATES AND GEOMETRY INFORMATION, SEE SHEET 5 OF 19

FOR EROSION & SEDIMENT CONTROL DETAILS AND PROPOSED GRADING PLAN SEE SHEET 7.8 OF 19

FOR ADDITIONAL INFORMATION ON PAVEMENT REMOVAL, EXCAVATION AND EMBANKMENT MATERIAL, SEE SHEET 9 OF 19

PLACE FINAL 1/2" OF HOT MIX ASPHALT SURFACE ON BOTH NEW CONSTRUCTION AND RESURFACE AREAS TO PROVIDE UNIFORM SURFACE

CONSTRUCT STANDARD 7" COMBINATION CURB & GUTTER (R-3.01) FROM STA. 8+50 TO 15+50 HARPERS FARM RD. SEE SHEET 5 OF 19

SEE SHEET 14 OF 19 FOR SIGNAL POLE LOCATIONS, EXISTING UTILITIES AND INTERSECTION PAVEMENT MARKINGS

CONSTRUCT SIDEWALK & RAMP STANDARD NO. R-4.01 SEE DETAIL SHEET 5 OF 19

INSTALL 3" P.V.C. (SCHEDULE 40) ELECTRICAL CONDUIT FOR FUTURE STREET LIGHTING
 INSTALL 3" P.V.C. (SCHEDULE 80) ELECTRICAL CONDUIT FOR SIGNAL WIRING.

REMOVE AND RESET EXISTING COMMUNITY SIGN AS DIRECTED BY THE ENGINEER STA. 11+85.30' RT

ADJUST EXISTING INLETS - 2 EA. STA. 14+90.23.5' LT&RT

TRANSITION TO MODIFIED COMBINATION CURB & GUTTER (R-3.01) FROM STA. 0+62.4 TO 1+42.5 (RT.) WILLOWBOTTOM DR.

ADJUST EXISTING UTILITY MANHOLES, HANDHOLES AND VALVES TO GRADE WITHIN THE LIMIT OF WORK AND AS DIRECTED BY THE ENGINEER.

INSTALL DUAL 3" P.V.C. (SCHEDULE 40) ELECTRICAL CONDUIT FOR FUTURE STREET LIGHTING

LIMIT OF FULL DEPTH PAVEMENT STA. 11+79.01 (49.74' RT) HARPERS FARM RD.

EXISTING 10" GUM TREE AT STA. 12+77.27' RT. REMOVED BY OTHERS. INSTALL NEW TREE AT DIRECTION OF COUNTY ENGINEER

TRANSITION TO MODIFIED COMBINATION CURB & GUTTER (R-3.01) FROM STA. 0+87.7 TO 1+42.50 (LT.) WILLOWBOTTOM DR.

CONSTRUCT HOT MIX ASPHALT CONCRETE USING PAVEMENT SECTION P-5 FROM STA. 3+89 TO STA. 17+52.06.

UTILITY SYMBOL LEGEND

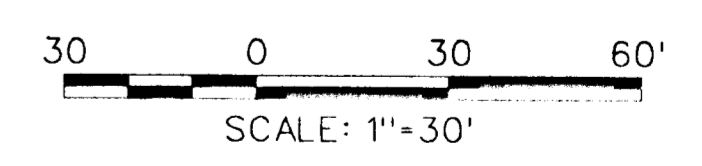
- | | | | |
|--------------------------|-----------------------------|-----------------|--------------------|
| ⊕ ELECTRIC BOX | ⊕ STORM DRAIN MANHOLE | — G — G — | GAS MAIN |
| ⊕ ELECTRIC MANHOLE | ⊕ ROUND GRATE INLET | — W — W — | WATER MAIN |
| ⊕ ELECTRIC POLE | ⊕ UTILITY STUB | — S — S — | SEWER MAIN |
| ⊕ STREET LIGHT | ⊕ TEST HOLE | — D — D — | STORM DRAIN |
| ⊕ ELECTRIC TRANSFORMER | ⊕ TELEPHONE JUNCTION BOX | — CATV — CATV — | CABLE TELEVISION |
| ⊕ TRAFFIC SIGNAL POLE | ⊕ TELEPHONE MANHOLE | — E — E — | ELECTRIC CABLES |
| ⊕ TRAFFIC SIGNAL BOX | ⊕ TELEPHONE PEDESTAL | — T — T — | TELEPHONE CABLES |
| ⊕ TRAFFIC SIGNAL CABINET | ⊕ TELEPHONE POLE | — A — A — | AERIAL CABLES |
| ⊕ GAS MANHOLE | ⊕ CABLE TELEVISION PEDESTAL | — A — A — | ELECTRICAL CONDUIT |
| ⊕ GAS TEST STATION | ⊕ UNKNOWN MANHOLE | | |
| ⊕ GAS VALVE OR METER | ⊕ WELL | | |
| ⊕ SANITARY CLEAN OUT | ⊕ FIRE HYDRANT | | |
| ⊕ SANITARY MANHOLE | ⊕ WATER METER | | |
| ⊕ CURB INLET | ⊕ WATER MANHOLE | | |
| ⊕ GRATE INLET | ⊕ WATER VALVE | | |

LEGEND

- CONSTRUCT SIDEWALK, 4" THICK
- CONSTRUCT GRANULAR BASE PAVING SECTION: P-5

SEE SHEETS 10-13 OF 19 FOR PAVEMENT MARKINGS ALONG HARPERS FARM ROAD BEYOND THE LIMIT OF WORK FOR FULL DEPTH PAVING. SEE SHEET 9 OF 19 FOR SIGNING AND MARKING WITHIN THE LIMIT OF WORK FOR FULL DEPTH PAVING.

SEE SHEETS 10-13 OF 19 FOR LIMITS OF WORK FOR MILLING AND RESURFACING ALONG HARPERS FARM ROAD.



DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

Robert M. Devaneck 4/13/00
 DIRECTOR OF PUBLIC WORKS DATE

Charles P. Sporn 4/13/00
 CHIEF, BUREAU OF ENGINEERING DATE

Robert M. Devaneck 4/13/00
 CHIEF, BUREAU OF HIGHWAYS DATE

Erica 4/13/00
 CHIEF, DIVISION OF TRANSPORTATION PROJECTS AND WATERFRESH MANAGEMENT DATE

GPI Greenman-Pedersen, Inc.
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 FAX: (301) 480-2848 www.gpinc.com

STATE OF MARYLAND
 DANIEL J. WALZ
 No. 13758
 REGISTERED PROFESSIONAL ENGINEER

DES:	BY:	NO:	REVISION:	DATE:

ROADWAY PLAN
 STA. 8+50 TO STA. 15+50

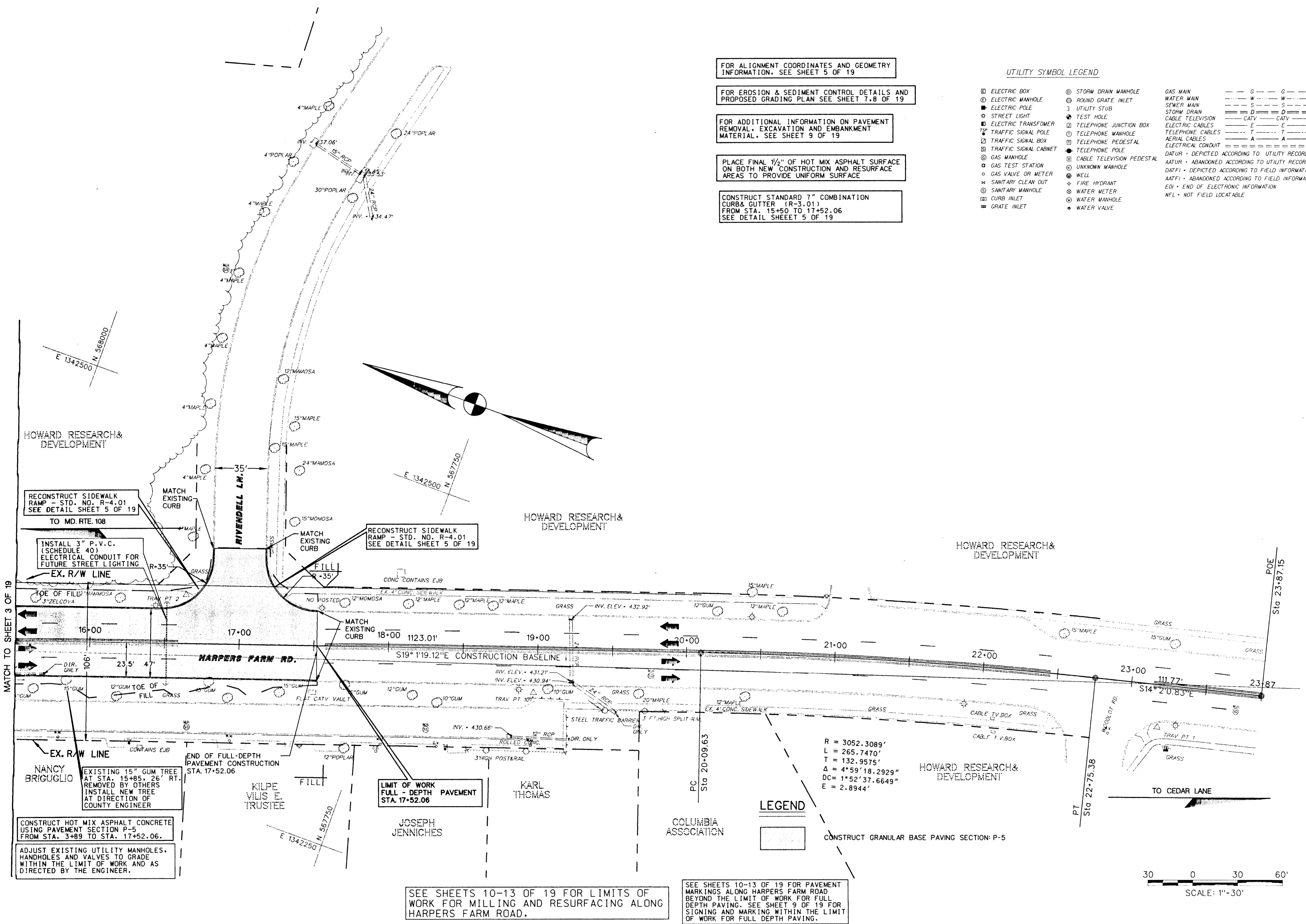
SCALE: 1" = 30'

ROADWAY IMPROVEMENTS TO HARPERS FARM ROAD & WILLOWBOTTOM DRIVE
 HOWARD COUNTY, MARYLAND
 CAPITAL PROJECT NO. J-4164

SCALE AS SHOWN
 SHEET 3 OF 19

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FOR ALIGNMENT COORDINATES AND GEOMETRY INFORMATION, SEE SHEET 5 OF 19

FOR EROSION & SEDIMENT CONTROL DETAILS AND PROPOSED GRADING PLAN SEE SHEET 7.8 OF 19

FOR ADDITIONAL INFORMATION ON PAVEMENT REMOVAL, EXCAVATION AND EMBANKMENT MATERIAL, SEE SHEET 9 OF 19

PLACE FINAL 1 1/2\"/>

CONSTRUCT STANDARD 7\"/>

- UTILITY SYMBOL LEGEND**
- ELECTRIC BOX
 - ⊙ ELECTRIC MANHOLE
 - ⊙ ELECTRIC POLE
 - ✱ STREET LIGHT
 - ⊠ ELECTRIC TRANSFORMER
 - ⊠ TRAFFIC SIGNAL POLE
 - ⊠ TRAFFIC SIGNAL BOX
 - ⊠ TRAFFIC SIGNAL CABINET
 - ⊙ GAS MANHOLE
 - ⊙ GAS TEST STATION
 - ⊙ GAS VALVE OR METER
 - ⊙ SANITARY CLEAN OUT
 - ⊙ SANITARY MANHOLE
 - ⊠ CURB INLET
 - ⊠ GRATE INLET
 - ⊙ STORM DRAIN MANHOLE
 - ⊙ ROUND GRATE INLET
 - ⊠ UTILITY STUB
 - ⊙ TEST HOLE
 - ⊠ TELEPHONE JUNCTION BOX
 - ⊠ TELEPHONE MANHOLE
 - ⊠ TELEPHONE PEDESTAL
 - ⊠ TELEPHONE POLE
 - ⊠ CABLE TELEVISION PEDESTAL
 - ⊠ UNKNOWN MANHOLE
 - ⊙ WELL
 - ⊙ FIRE HYDRANT
 - ⊙ WATER METER
 - ⊙ WATER MANHOLE
 - ⊙ WATER VALVE
 - G — G — GAS MAIN
 - W — W — WATER MAIN
 - S — S — SEWER MAIN
 - D — D — STORM DRAIN
 - CATV — CATV — CABLE TELEVISION
 - E — E — ELECTRIC CABLES
 - T — T — TELEPHONE CABLES
 - A — A — AERIAL CABLES
 - — — — — ELECTRICAL CONDUIT
- DATUR = DEPICTED ACCORDING TO UTILITY RECORD
 AATUR = ABANDONED ACCORDING TO UTILITY RECORD
 DATFI = DEPICTED ACCORDING TO FIELD INFORMATION
 AATFI = ABANDONED ACCORDING TO FIELD INFORMATION
 EDI = END OF ELECTRONIC INFORMATION
 NFL = NOT FIELD LOCATABLE

RECONSTRUCT SIDEWALK RAMP - STD. NO. R-4.01 SEE DETAIL SHEET 5 OF 19 TO MD. RTE. 108

INSTALL 3\"/>

RECONSTRUCT SIDEWALK RAMP - STD. NO. R-4.01 SEE DETAIL SHEET 5 OF 19

EXISTING 15\"/>

CONSTRUCT HOT MIX ASPHALT CONCRETE USING PAVEMENT SECTION P-5 FROM STA. 3+89 TO STA. 17+52.06.

ADJUST EXISTING UTILITY MANHOLES, HANDHOLES AND VALVES TO GRADE WITHIN THE LIMIT OF WORK AND AS DIRECTED BY THE ENGINEER.

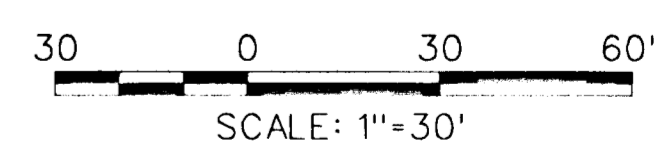
LIMIT OF WORK FULL-DEPTH PAVEMENT STA. 17+52.06

R = 3052.3089'
 L = 265.7470'
 T = 132.9575'
 Δ = 4°59'18.2929"
 DC = 1°52'37.6649"
 E = 2.8944'

LEGEND

CONSTRUCT GRANULAR BASE PAVING SECTION: P-5

SEE SHEETS 10-13 OF 19 FOR LIMITS OF WORK BEYOND THE LIMIT OF WORK FOR FULL DEPTH PAVING. SEE SHEET 9 OF 19 FOR SIGNING AND MARKING WITHIN THE LIMIT OF WORK FOR FULL DEPTH PAVING.



DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

Laura J. New 4/13/00
 DIRECTOR OF PUBLIC WORKS DATE

Paul D. Seppan 4/13/00
 CHIEF, BUREAU OF ENGINEERING DATE

Salvatore 4/13/00
 CHIEF, DIVISION OF TRANSPORTATION PROJECTS AND WATER/ROAD MANAGEMENT DATE

GPI Greenman-Pedersen, Inc.
 ENGINEERS, ARCHITECTS, PLANNERS, CONSTRUCTION ENGINEERS & INSPECTORS
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 FAX (301) 480-2648 www.gpinet.com

STATE OF MARYLAND
 DANIEL JOSEPH MAUTIC
 No. 13759
 REGISTERED PROFESSIONAL ENGINEER

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

ROADWAY PLAN STA. 15+50 TO STA. 17+52.06

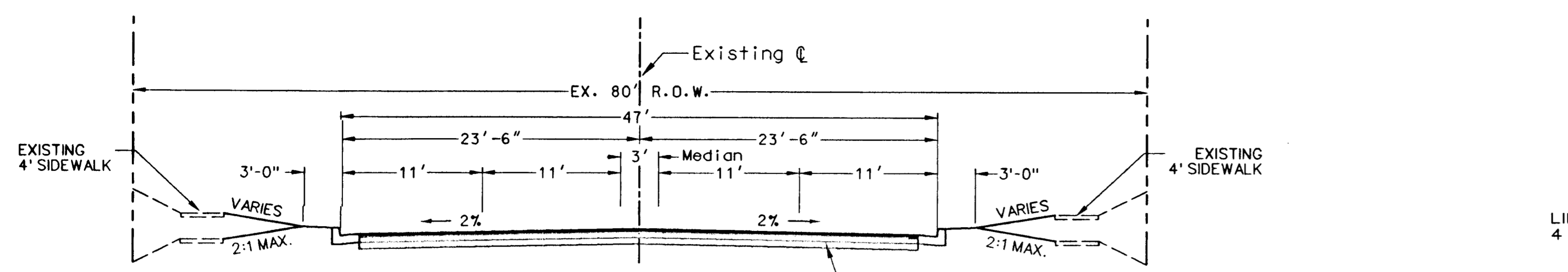
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ROADWAY IMPROVEMENTS TO HARPERS FARM ROAD & WILLOWBOTTOM DRIVE
 HOWARD COUNTY, MARYLAND
 CAPITAL PROJECT NO. J-4164

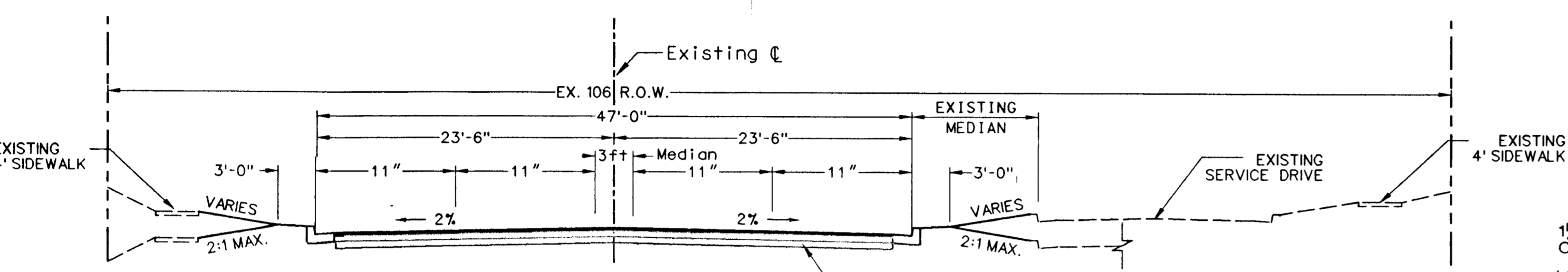
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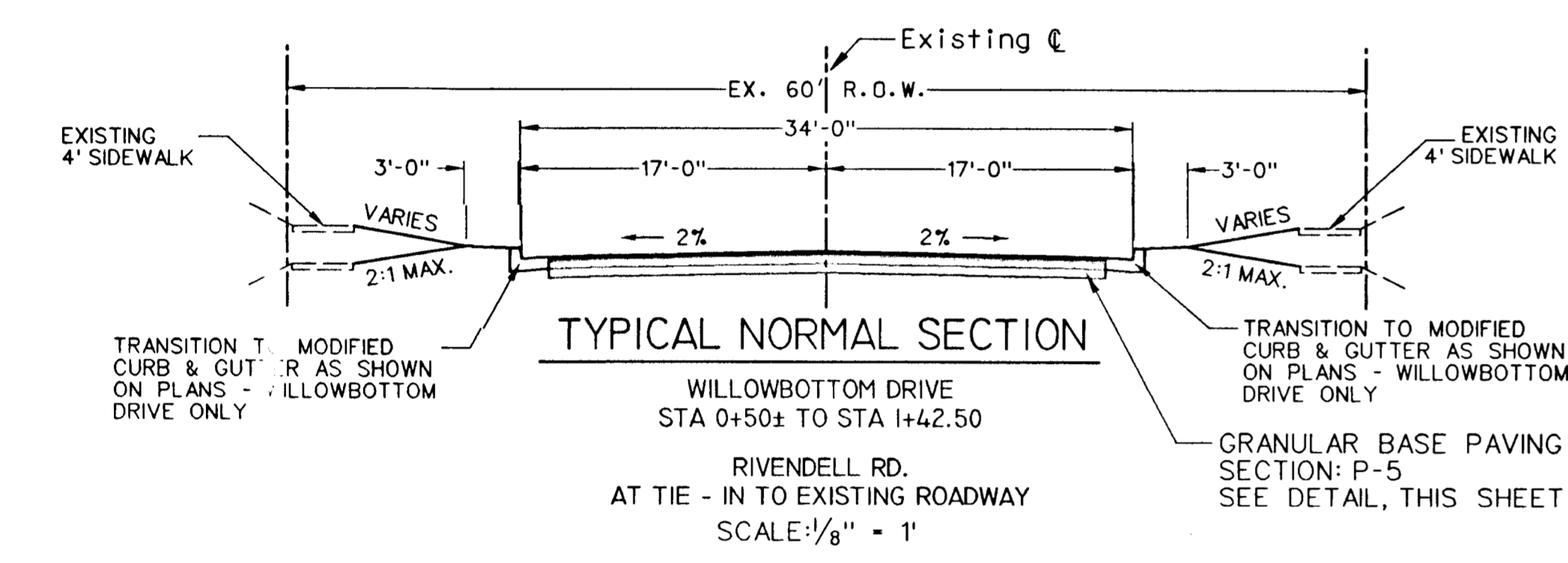
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TYPICAL NORMAL SECTION
 HARPER'S FARM ROAD
 STA 3+89 TO STA 11+50±
 SCALE: 1/8" = 1'

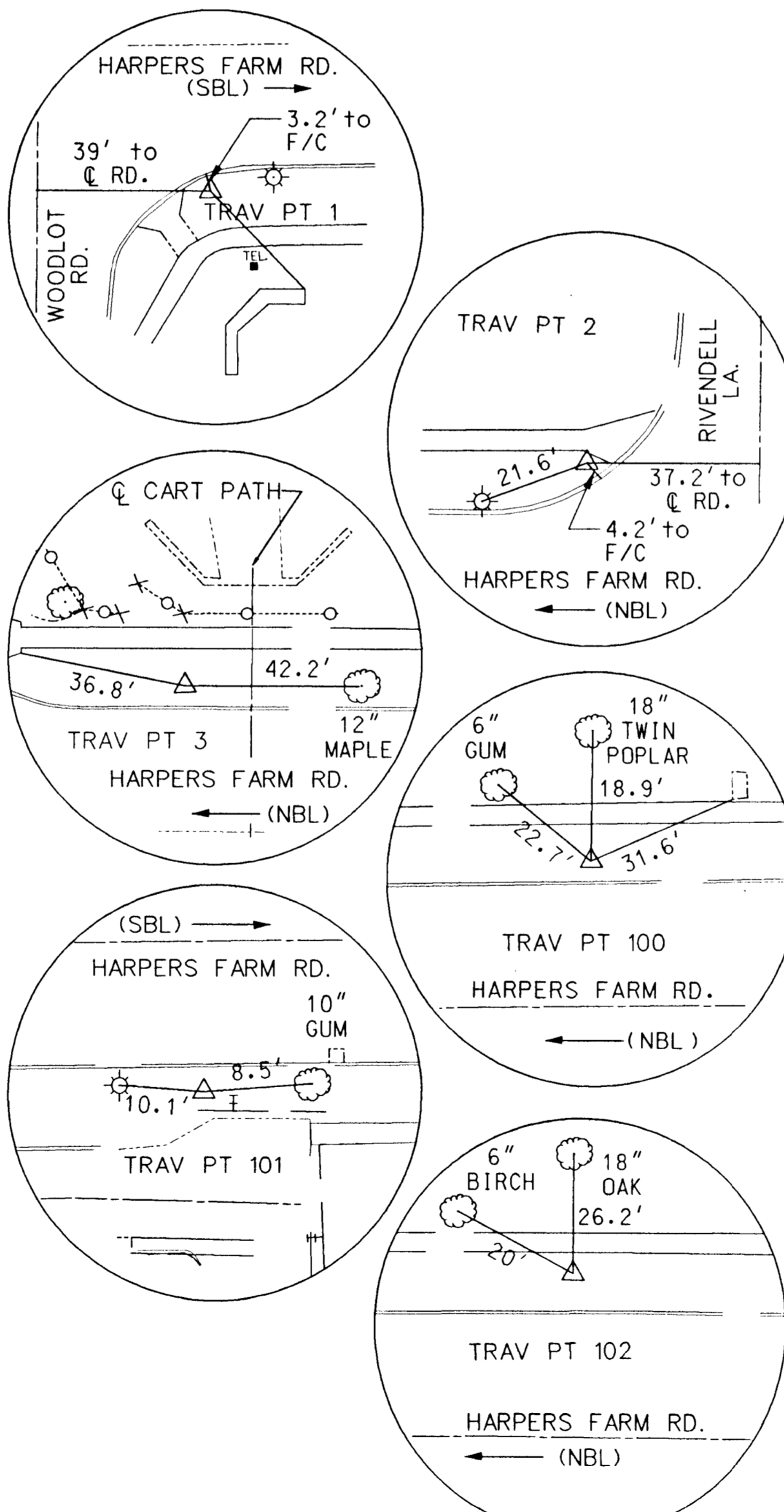


TYPICAL NORMAL SECTION
 HARPER'S FARM ROAD
 STA 11+50± TO STA 17+52.06
 SCALE: 1/8" = 1'



TYPICAL NORMAL SECTION
 WILLOWBOTTOM DRIVE
 STA 0+50± TO STA 1+42.50
 SCALE: 1/8" = 1'

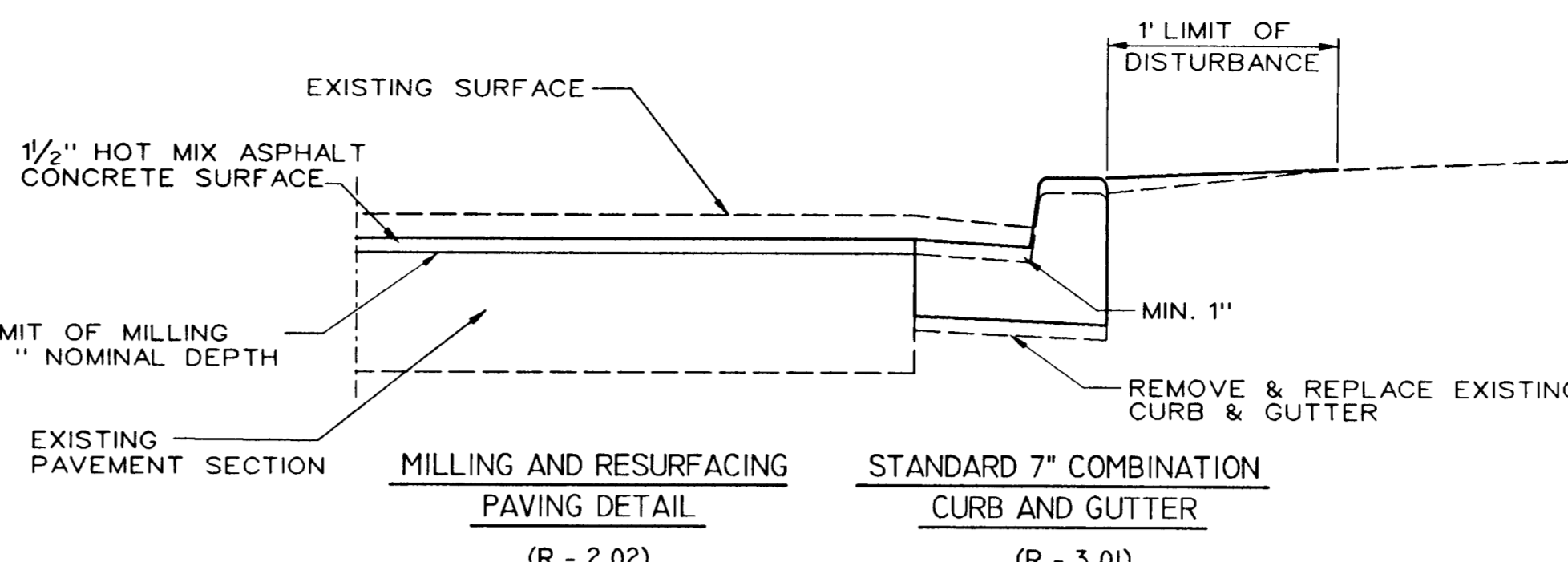
TRAVERSE POINTS
 NOT TO SCALE



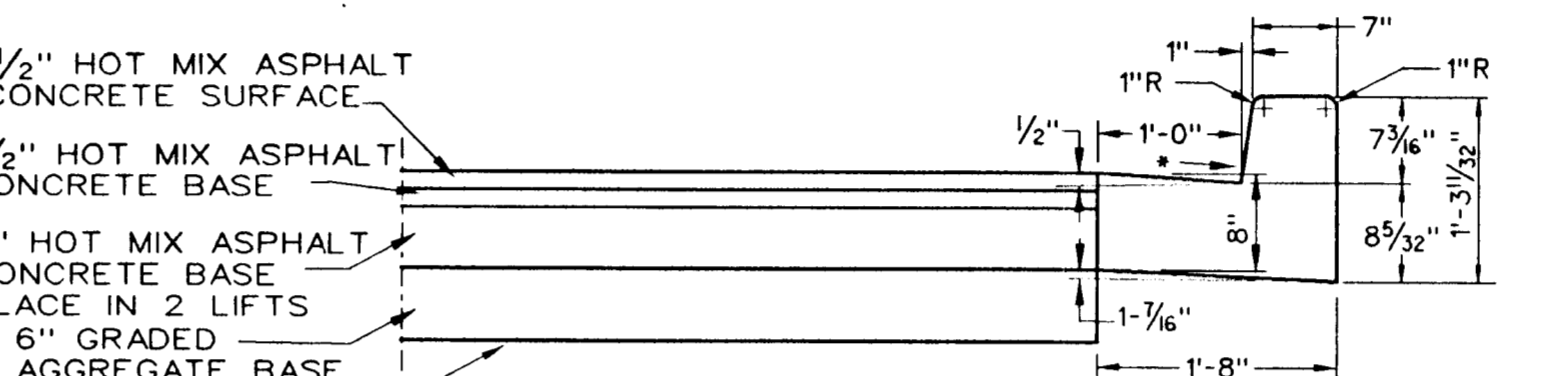
COORDINATE GEOMETRY DATA

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2	567891.9635	1342576.3679	445.5800	TRAV
3	569070.9110	1341931.5828	436.1200	TRAV
4	569847.4548	1341423.7980	436.4600	TRAV
100	568417.0253	1342190.3770	465.6487	TRAV
101	567651.2399	1342394.0671	458.2519	TRAV
102	569398.8638	1341763.5349	429.6500	TRAV

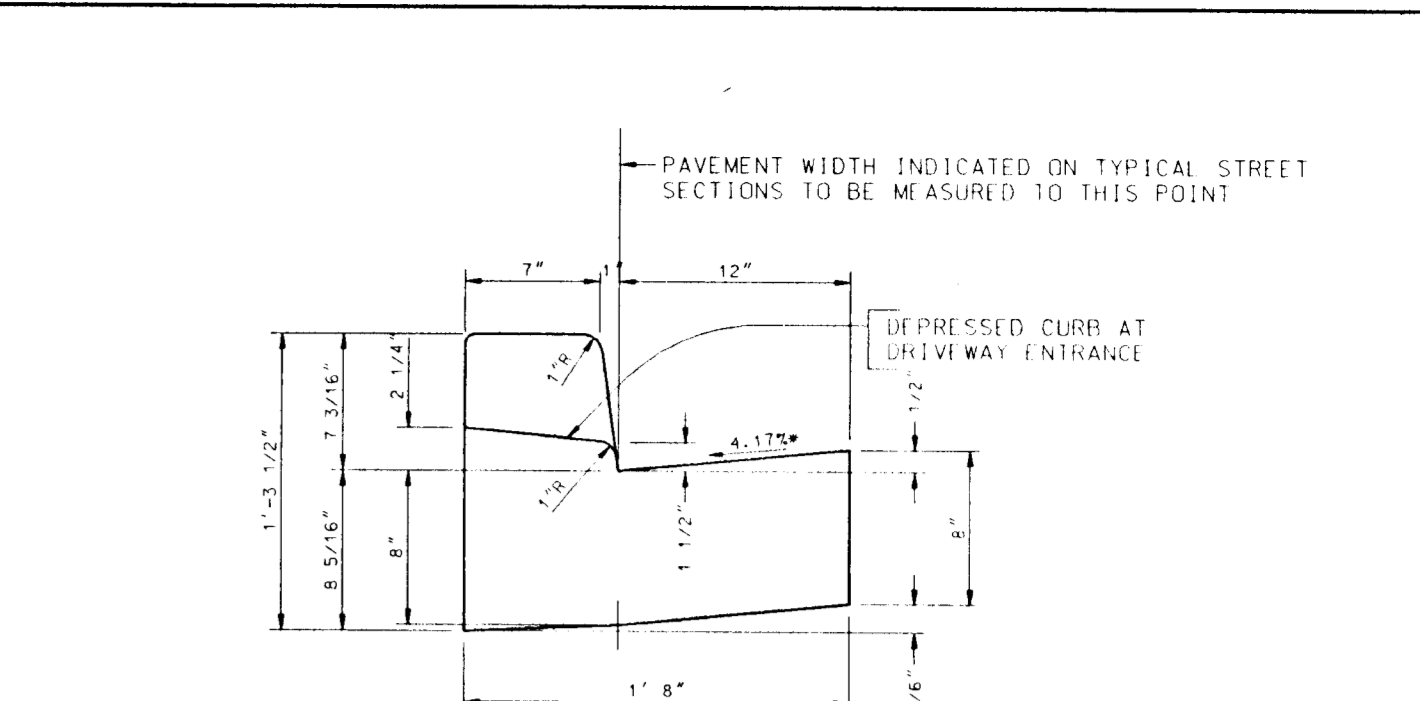
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0+00.00	PDB		
0+00.00	PC		
1+69.34	PT		
3+61.34	PC		
8+86.63	PT		
20+09.63	PC		
22+75.38	PT		
23+87.15	PDE		
0+00.00	PDB		
0+79.32	PC		
2+26.35	PT		
4+00.82	PDE		



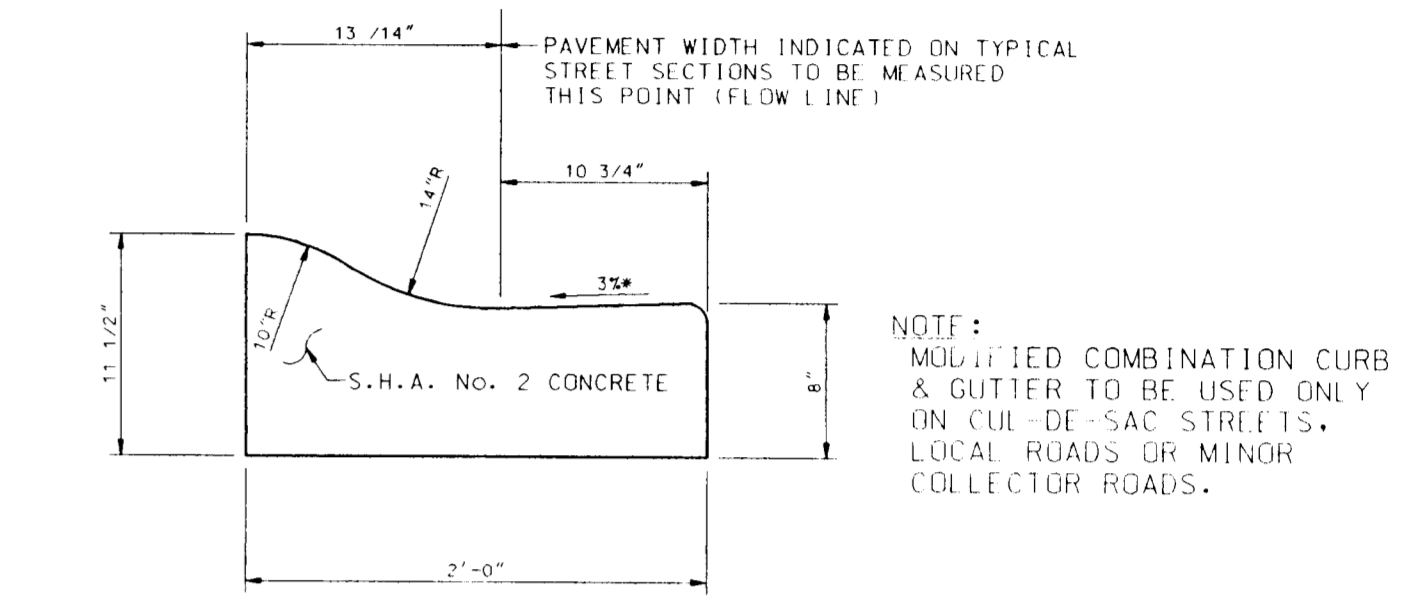
MILLING & RESURFACING DETAIL
 SCALE: 1/2" = 1'



PAVING SECTION P-5 DETAIL
 SCALE: 1/2" = 1'



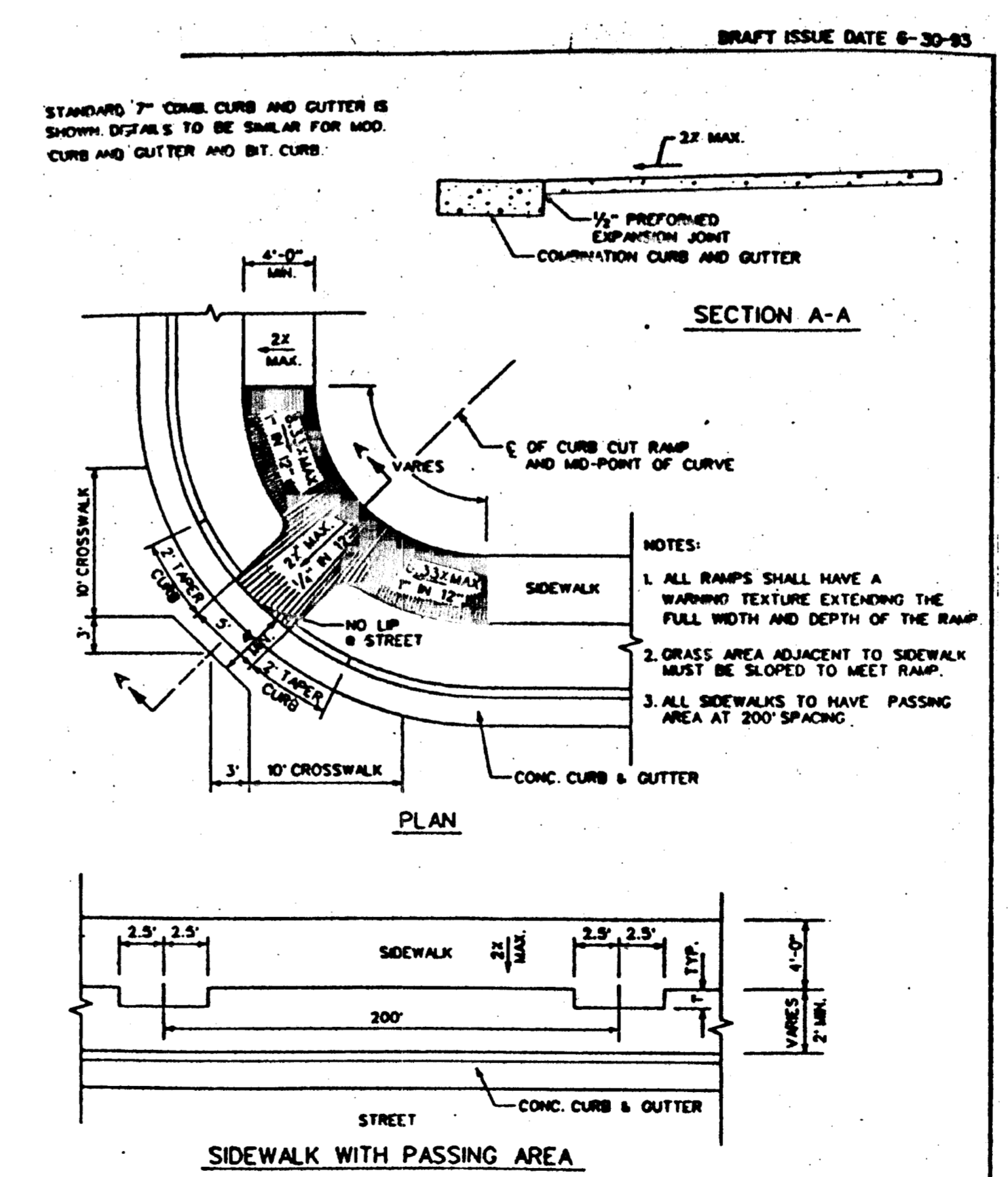
STANDARD 7" COMBINATION CURB AND GUTTER



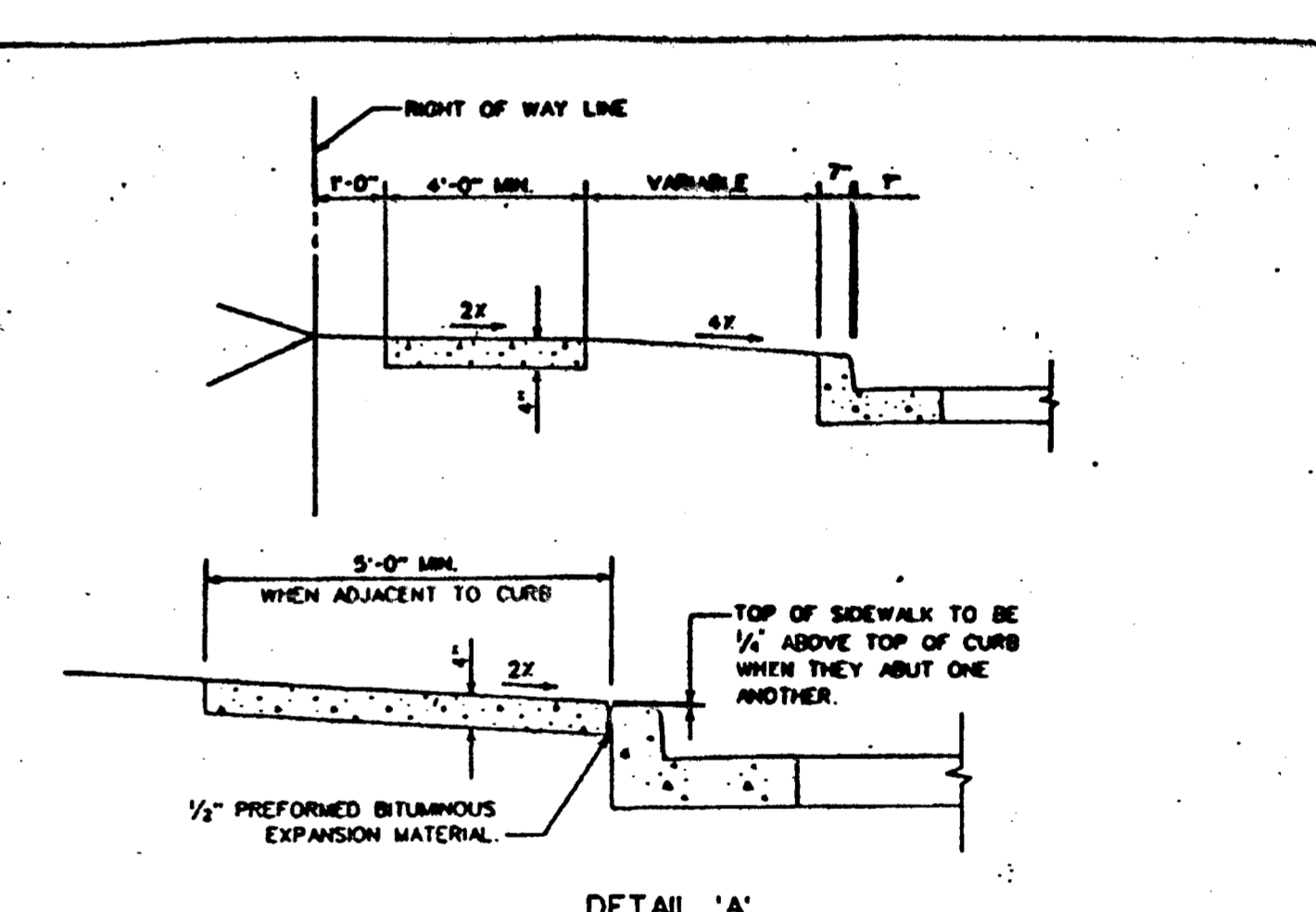
MODIFIED COMBINATION CURB AND GUTTER

* GUTTER PAN AT THE MEDIAN EDGE OF INTERMEDIATE ARTERIALS OR THE HIGH SIDE OF SUPERELEVATED SECTIONS SHALL BE SLOPED AT THE SAME RATE AND IN THE SAME DIRECTION AS THE PAVEMENT. MATCH PAVEMENT CROSS SLOPE WHEN CURB IS LOCATED ON THE LOW SIDE OF SUPERELEVATED SECTION AND THE RATE OF SUPERELEVATION IS GREATER THAN 3% FOR MODIFIED CURB & GUTTER.

HOWARD COUNTY, MARLAND DEPARTMENT OF PUBLIC WORKS
 COMBINATION CURB AND GUTTER
 NO SCALE R - 3.01



SECTION A-A
 PLAN
 SIDEWALK WITH PASSING AREA
 HOWARD COUNTY, MARYLAND DEPARTMENT OF PUBLIC WORKS
 Chief - Bureau of Engineering Date

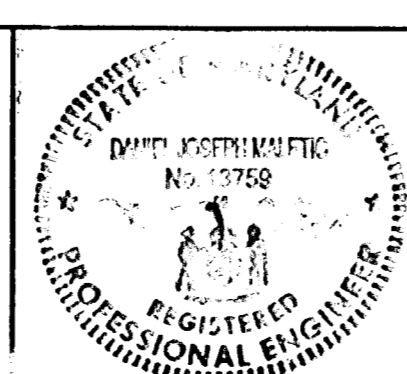


NOTES:
 1. ALL RAMPS SHALL HAVE A WARNING TEXTURE EXTENDING THE FULL WIDTH AND DEPTH OF THE RAMP.
 2. GRASS AREA ADJACENT TO SIDEWALK MUST BE SLOPED TO MEET RAMP.
 3. ALL SIDEWALKS TO HAVE PASSING AREA AT 200' SPACING.

HOWARD COUNTY, MARYLAND DEPARTMENT OF PUBLIC WORKS
 CONCRETE SIDEWALK
 NO SCALE R - 3.05

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND
 James J. New 4/13/00
 Chief, Bureau of Highways
 Chad H. Pearson 4/13/00
 Chief, Bureau of Engineering
 Chief, Division of Transportation
 PROJECTS AND MAINTENANCE

GPI Greenman-Pedersen, Inc.
 ENGINEERS, ARCHITECTS, PLANNERS, CONSTRUCTION ENGINEERS & INSPECTORS
 1402 GREENVIEW DRIVE, SUITE 100, LAUREL, MD, 20706
 WASH (301) 470-2772 BALT. (410) 880-3055
 FAX: (301) 490-2649 www.gpi.net



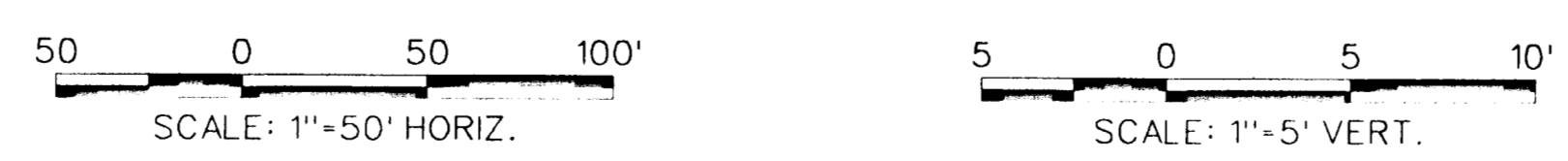
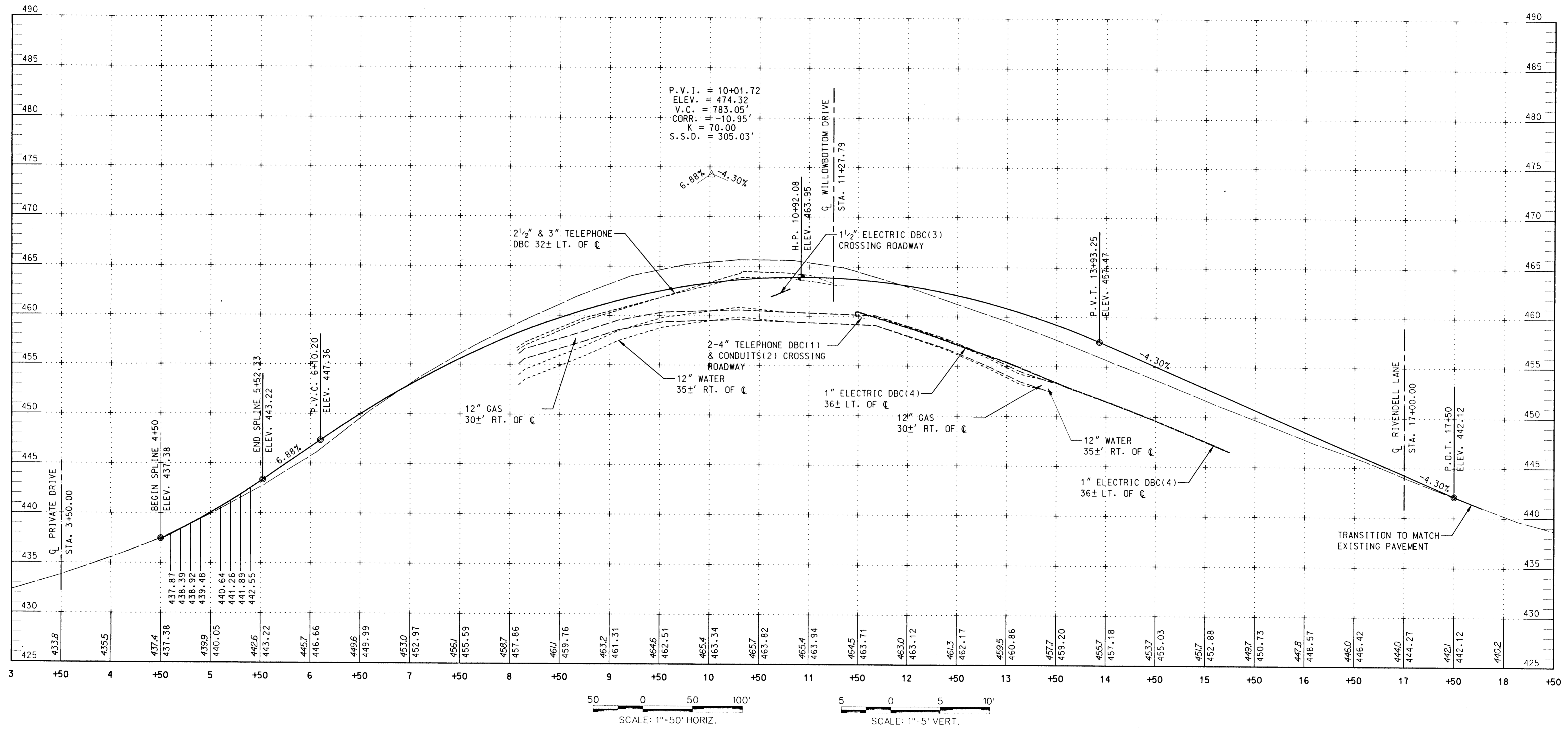
DES:	BY:	NO:	REVISION:	DATE:

TYPICAL SECTIONS
 PAVING SECTIONS
 MISC. DETAILS
 SCALE: MAP 1/8" = 1' BLOCK NO.

ROADWAY IMPROVEMENTS TO HARPER'S FARM ROAD & WILLOWBOTTOM DRIVE
 HOWARD COUNTY, MARYLAND
 CAPITAL PROJECT NO. J-4164
 SCALE AS SHOWN
 SHEET 5 OF 19

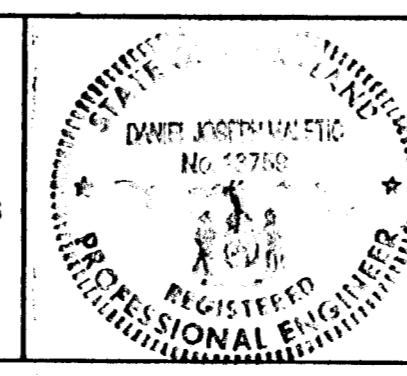
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 DATE: 20 MAR 2000 20:36:05



DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND
 James J. New 4/13/00
 DIRECTOR OF PUBLIC WORKS DATE
 Andrew M. Chalker 4-13-00
 CHIEF, BUREAU OF HIGHWAYS DATE
 4/13/00
 CHIEF, DIVISION OF TRANSPORTATION PROJECTS AND WATERSHED MANAGEMENT

GPI Greenman-Pedersen, Inc.
 ENGINEERS, ARCHITECTS, PLANNERS, CONSTRUCTION ENGINEERS & INSPECTORS
 14502 GREENVIEW DRIVE, SUITE 100, LAUREL, MD. 20708
 WASH. (301) 470-2772 BALT. (410) 880-3055
 FAX (301) 490-2649 www.gpinet.com



DES:	BY:	NO:	REVISION:	DATE:

PROFILE SHEET
 STA. 3+00 TO STA. 18+50
 SCALE MAP NO. _____ BLOCK NO. _____

ROADWAY IMPROVEMENTS TO
 HARPERS FARM ROAD & WILLOWBOTTOM DRIVE
 HOWARD COUNTY, MARYLAND
 CAPITAL PROJECT NO. J-4164

SCALE AS SHOWN
 SHEET 6 OF 19

FILE: n:\1998\98175\98175.04\dgn\pr01a_fm.dgn
 DATE: 20 MAR 2000 20:36:05

FILE: n:\1998\98175\98175.04\dgn\es01hfrm.dgn
 DATE: 13 APR 2000 13:54:03

NOTES: ALL EROSION & SEDIMENT CONTROL DEVICES AND DETAILS, AS SHOWN ON THESE PLANS, ARE TO BE INSTALLED BEFORE THE REMOVAL OF CURB AND GUTTER AND PAVEMENT. TO REMAIN UNTIL AFTER, AND REQUIRE THE PERMISSION OF THE INSPECTOR TO PROCEED AFTER CONTROLS ARE ESTABLISHED, BUT BEFORE GRADING.

THE PLACEMENT OF THE STABILIZED CONSTRUCTION ENTRANCE IS TO BE LOCATED AT THE INTERFACE OF CONSTRUCTION TRAFFIC BETWEEN DISTURBED AND UNDISTURBED GROUND. AT THE DISCRETION OF THE CONTRACTOR WITH THE APPROVAL OF THE INSPECTOR PLACE A STABILIZED CONSTRUCTION ENTRANCE IN ACCORDANCE WITH EACH OF THE FOLLOWING PHASES OF CONSTRUCTION.

THE SEQUENCE OF CONSTRUCTION FROM THE MAINTENANCE OF TRAFFIC PLAN IS REPEATED HERE FOR THE CONVENIENCE OF THE CONTRACTOR AND THE INSPECTOR.

PHASE I - STAGE I:

- 1.1 There is B.G.E. Bell Telephone, fiber-optic cable, and conduit underground in the work area. Call MISS UTILITY five days before starting work.
- 1.2 Obtain Grading Permit and permission from Howard County Sediment Control Inspector to proceed.
- 1.3 Set up signing, temporary pavement striping and channelizing devices as shown on the traffic control plans. Bag or cover all existing signs to remain after construction that conflict with temporary traffic control.
- 1.4 Remove the existing curb and gutter along the East Side of Harpers Farm Road from the Limits of Work shown on the plans. Excavate and backfill pavement to correct depth as shown on the plans. Utilize great care and hand digging along the east side of Harpers Farm Road from Sta. 9+00 to 11+00, the buried cable is only 2.10' to top of cover.
- 1.5 Place 3-Inch P.V.C. (Schedule 80) and (Schedule 40) Electrical Conduit at Sta. 10+90 and single 3-Inch P.V.C. (Schedule 40) Electrical Conduit at Sta. 16+35 within the limits of the traffic control devices for Phase I - Stage I.

- 11.3 Obtain permission from the Inspector to proceed.
- 11.4 Remove and replace the existing temporary pavement striping to the appropriate temporary configuration for Phase III - Stage I of construction.
- 11.5 Remove and relocate temporary traffic control devices and erosion control devices according to Phase III - Stage I of construction.

PHASE III - STAGE I:

- 1.1 Set up signing, temporary pavement striping and channelizing devices as shown on the plans. Bag or cover all existing signs to remain after construction that conflict with temporary traffic control.
- 1.2 Remove the existing curb and gutter along the West Side of Harpers Farm Road from the Limits of Work shown on the plans. Excavate and backfill pavement to correct depth as shown on the plans.
- 1.3 Place remaining 3-Inch P.V.C. (Schedule 80) and 3-Inch P.V.C. (Schedule 40) Electrical Conduit at Sta. 10+90 and single 3-Inch P.V.C. (Schedule 40) Electrical Conduit at Sta. 16+35. Install dual 3-Inch P.V.C. (Schedule 40) Electrical Conduit at Willowbottom Dr. Sta. 0+37 and Sta. 0+50, Offset 36' RT.

PHASE III - STAGE II:

- 11.1 Form and place new curb and gutter along the West Side of Harpers Farm Road.
- 11.2 Place both bituminous concrete base courses between the existing pavement and the new concrete gutter on the East Side of Harpers Farm Road.
- 11.3 Place first of two 1-1/2" bituminous concrete surface course over the new base courses.
- 11.4 Obtain permission from the Inspector to proceed.
- 11.5 Place the final topsoil and seed on exposed ground not covered by paving, curb and gutter or sidewalk.
- 11.6 Remove and replace the existing temporary pavement striping to the appropriate temporary configuration for Phase II - Stage I of construction.
- 11.7 Remove and relocate temporary traffic control devices and erosion control devices according to Phase II - Stage I of construction.

PHASE IV - STAGE I:

- 1.1 Conduct Signal Work in accordance with construction details on the Signal Plan.

PHASE IV - STAGE II:

- 11.1 Notify Bob Snyder at State Highway Administration (SHA) (410-787-7631) 7 days prior to the Loop detector replacement at the Harpers Farm Road approach at the MD 108 traffic signal. SHA will have a technician on site.
- 11.2 Place final 1-1/2" bituminous concrete surface course over the first surface course and install the final pavement markings.
- 11.3 Place temporary tape to provide a 10' stripe - 30' gap double yellow centerline along Harpers Farm Road.
- 11.4 Remove tape and install final pavement markings.
- 11.5 Notify Steve Parker at Howard County Highway Engineering (410-313-7251) 7 days prior to the installation of two Red Maples (October Glory) 8-10' in height and 2-2.5" in caliper, location to be determined.
- 11.6 Remove any remaining temporary traffic control devices and erosion control devices.

PHASE I - STAGE II:

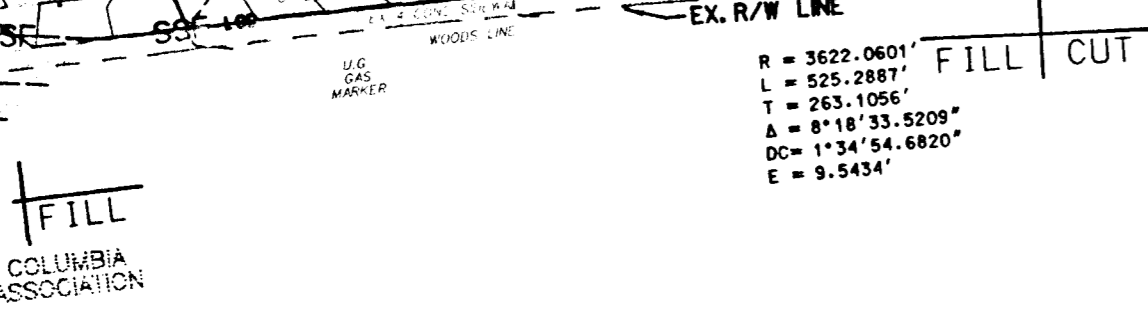
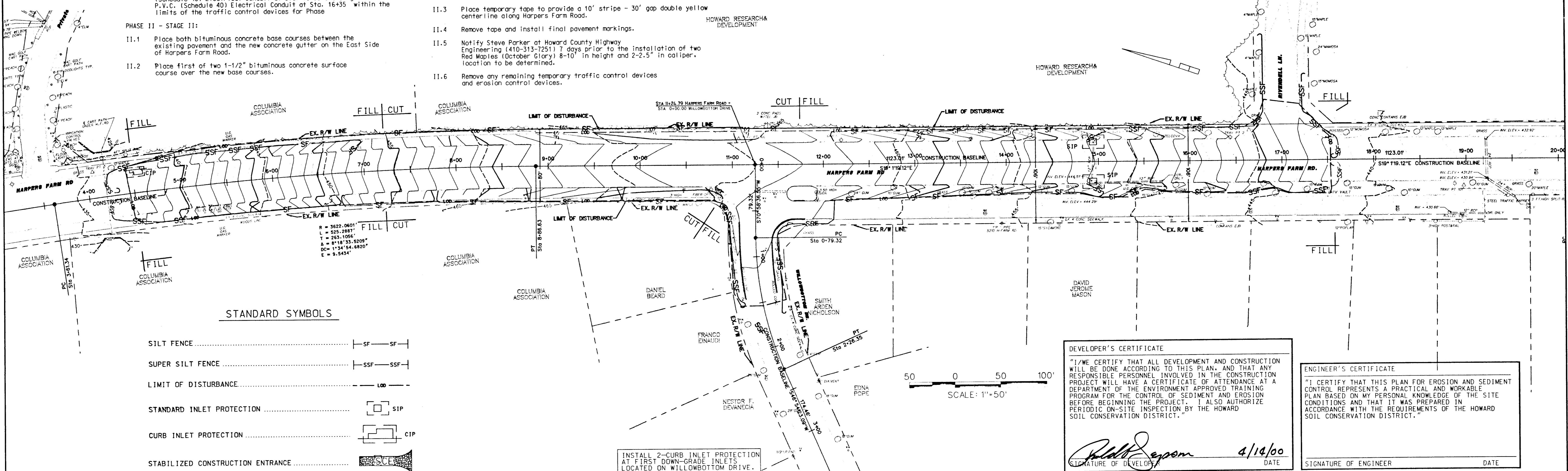
- 11.1 Form and place new curb and gutter along the East Side of Harpers Farm Road.
- 11.2 Place both bituminous concrete base courses between the existing pavement and the new concrete gutter on the East Side of Harpers Farm Road.
- 11.3 Place first of two 1-1/2" bituminous concrete surface course over the new base courses.
- 11.4 Obtain permission from the Inspector to proceed.
- 11.5 Place the final topsoil and seed on exposed ground not covered by paving, curb and gutter or sidewalk.
- 11.6 Remove and replace the existing temporary pavement striping to the appropriate temporary configuration for Phase II - Stage I of construction.
- 11.7 Remove and relocate temporary traffic control devices and erosion control devices according to Phase II - Stage I of construction.

PHASE II - STAGE I:

- 1.1 Set up signing, temporary pavement striping and channelizing devices as shown on the plans. Bag or cover all existing signs to remain after construction that conflict with temporary traffic control.
- 1.2 Excavate and backfill pavement to correct depth as shown on the plans along the center portion of Harpers Farm Road within the Limits of Work shown on the plans.
- 1.3 Place 3-Inch P.V.C. (Schedule 80) and 3-Inch P.V.C. (Schedule 40) Electrical Conduit at Sta. 10+90 and single 3-Inch P.V.C. (Schedule 40) Electrical Conduit at Sta. 16+35 within the limits of the traffic control devices for Phase II - Stage I.

PHASE II - STAGE II:

- 11.1 Place both bituminous concrete base courses between the existing pavement and the new concrete gutter on the East Side of Harpers Farm Road.
- 11.2 Place first of two 1-1/2" bituminous concrete surface course over the new base courses.



STANDARD SYMBOLS

SILT FENCE	SF	SF
SUPER SILT FENCE	SSF	SSF
LIMIT OF DISTURBANCE	-----	LOD	LOD
STANDARD INLET PROTECTION	[Symbol]	SIP	SIP
CURB INLET PROTECTION	[Symbol]	CIP	CIP
STABILIZED CONSTRUCTION ENTRANCE	[Symbol]	SC	SC

INSTALL 2-CURB INLET PROTECTION AT FIRST DOWN-GRADE INLETS LOCATED ON WILLOWBOTTOM DRIVE.

SEDIMENT CONTROL NOTES

1. A MINIMUM OF 24 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY OFFICE OF INSPECTIONS AND PERMITS PRIOR TO THE START OF ANY CONSTRUCTION (410-313-1855).
2. ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE 1994 MARYLAND STANDARD AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL.
3. FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN: A.) 7 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES AND ALL OTHER SLOPES STEEPER THAN 3:1, B.) 14 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
4. 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.
5. ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDINGS (SEC. 51), SOD (SEC. 54), TEMPORARY SEEDING (SEC. 50), AND MULCHING (SEC. 52). TEMPORARY STABILIZATION WITH MULCH ALONE SHALL ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR THE PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.
6. ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMISSION FOR THE REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
7. SITE ANALYSIS:

TOTAL AREA OF SITE	6.8 ACRES
AREA DISTURBED	1.8 ACRES
AREA TO BE REMOVED OR PAVED	1.4 ACRES
AREA TO BE VEGETATIVELY STABILIZED	0.4 ACRES
TOTAL CUT	2020 CU. YDS.
TOTAL FILL	542 CU. YDS.
OFFSITE WASTE/BORROW AREA LOCATION	TO BE DETERMINED BY CONTRACTOR (SITE WITH A CURRENT ACTIVE GRADING PERMIT)
8. ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVE FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
9. ADDITIONAL SEDIMENT CONTROLS MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY INSPECTOR.
10. ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES, APPROVAL OF THE INSPECTION AGENCY SHALL BE REQUESTED UPON THE 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.
11. PLACE STABILIZED CONSTRUCTION ENTRANCE WHERE DIRECTED BY THE COUNTY. USE STABILIZED CONSTRUCTION ENTRANCE AS STAGING AREA WHENEVER PRACTICAL.
12. PLACE EROSION CONTROL MATTING IN AREA DISTURBED FOR CURB AND GUTTER AND SIDEWALK RAMPS. THE SEDIMENT CONTROL INSPECTOR MAY INCLUDE OTHER AREAS.

**HOWARD SOIL CONSERVATION DISTRICT
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, DISKING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING. IF NOT PREVIOUSLY LOOSENED.

SOIL AMENDMENTS: IN LIEU OF SOIL TEST RECOMMENDATIONS, USE ONE OF THE FOLLOWING SCHEDULES:
 1. PREFERRED - APPLY 2 TONS/ACRES DOLOMITIC LIMESTONE (92 LBS/1000 SQ. FT.) AND 600 LBS/ACRE 10-10-10 FERTILIZER (14 LBS/1000 SQ. FT.) BEFORE SEEDING. HARROW OR DISK INTO UPPER THREE INCHES OF SOIL. AT TIME OF SEEDING, APPLY 400 LBS/ACRE 30-0-0 UREAFORM FERTILIZER (9 LBS/1000 SQ. FT.)
 2. ACCEPTABLE - APPLY 2 TONS/ACRES DOLOMITIC LIMESTONE (92 LBS/1000 SQ. FT.) AND 1000 LBS/ACRE 10-10-10 FERTILIZER (23 LBS/1000 SQ. FT.) BEFORE SEEDING. HARROW OR DISK INTO UPPER THREE INCHES OF SOIL.

SEEDING: FOR PERIODS MARCH 1 - APRIL 30, AND AUGUST 1 - OCTOBER 15, SEED WITH 60 LBS/ACRE (14.4 LBS/1000 SQ. FT.) OF KENTUCKY 31 TALL FESCUE PER ACRE AND 2 LBS/ACRE (0.05 LBS/1000 SQ. FT.) OF WEEPING LOVEGRASS. DURING THE PERIOD OF OCTOBER 16 - FEBRUARY 28, PROTECT SITE BY: OPTION 1 - TWO TONS PER ACRES 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 30 TALL FESCUE AND MULCH WITH 2 TONS/ACRE WELL ANCHORED STRAW.

MULCHING: APPLY 1-1/2 TO 2 TONS PER ACRE (70 - 90 LBS/1000 SQ. FT.) OF UNROTTED SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 218 GALLONS PER ACRE (5 GAL/1000 SQ. FT.) OF EMULSIFIED ASPHALT ON FLAT AREAS. ON SLOPE 8 FEET OR HIGHER, USE 348 GALLONS PER ACRE (8 GAL/1000 SQ. FT.) FOR ANCHORING.

MAINTENANCE: INSPECT ALL SEEDING AREAS AND MAKE NEEDED REPAIRS, REPLACEMENTS AND RESEEDINGS.

TEMPORARY SEEDING NOTES

APPLY TO GRADED OR CLEARED AREAS LIKELY TO BE RE-DISTURBED WHERE A SHORT-TERM VEGETATIVE COVER IS NEEDED.

SEEDBED PREPARATION: LOOSEN UPPER THREE INCHES OF SOIL BY RAKING, DISKING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING. IF NOT PREVIOUSLY LOOSENED.

SOIL AMENDMENTS: APPLY 600 LBS/ACRE 10-10-10 FERTILIZER (14 LBS/1000 SQ. FT.)

SEEDING: FOR PERIODS MARCH 1 - APRIL 30 AND FROM AUGUST 15 - OCTOBER 15, SEED WITH 2-1/2 BUSHEL PER ACRE OF ANNUAL RYE (3.2 LBS/1000 SQ. FT.). FOR THE PERIOD MAY 1 - AUGUST 14, SEED WITH 3 LBS/ACRE OF WEEPING LOVEGRASS (0.07 LBS/1000 LBS/SQ. FT.). FOR

DEVELOPER'S CERTIFICATE

"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] 4/14/00
 SIGNATURE OF DEVELOPER DATE

ENGINEER'S CERTIFICATE

"I CERTIFY THAT THIS PLAN FOR EROSION AND 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 SOIL CONSERVATION DISTRICT."

[Signature] _____
 SIGNATURE OF ENGINEER DATE

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

[Signature] 4/14/00
 DATE

GPI Greenman-Pedersen, Inc.
 ENGINEERS, ARCHITECTS, PLANNERS, CONSTRUCTION ENGINEERS & INSPECTORS
 14502 GREENVIEW DRIVE, SUITE 100, LAUREL, MD 20708
 WASH. (301) 470-2772 BALT. (410) 860-3665
 FAX: (301) 490-2649 www.gpinet.com

STATE OF MARYLAND
 DANIEL JOSEPH MALETIC
 No. 13759
 REGISTERED PROFESSIONAL ENGINEER

DES:		DATE:	
DRN:			
CHK:			
DATE:			

GRADING, EROSION AND SEDIMENT CONTROL PLAN

SCALE MAP NO. _____ BLOCK NO. _____

ROADWAY IMPROVEMENTS TO HARPERS FARM ROAD & WILLOWBOTTOM DRIVE
 HOWARD COUNTY, MARYLAND
 CAPITAL PROJECT NO. J-4164

SCALE AS SHOWN
 SHEET 2 OF 2

FILE # 1998-08175-04 VgnVest1111m.dgn
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21.0 STANDARD AND SPECIFICATIONS FOR TOPSOIL

DEFINITION
PLACEMENT OF TOPSOIL OVER A PREPARED SUBSOIL PRIOR TO ESTABLISHMENT OF PERMANENT VEGETATION.

PURPOSE
TO PROVIDE A SUITABLE SOIL MEDIUM FOR VEGETATIVE GROWTH. SOILS OF CONCERN HAVE LOW MOISTURE CONTENT, LOW NUTRIENT LEVELS, LOW PH, MATERIALS TOXIC TO PLANTS, AND/OR UNACCEPTABLE SOIL GRADATION.

CONDITIONS WHERE PRACTICE APPLIES
I. THIS PRACTICE IS LIMITED TO AREAS HAVING 2:1 OR FLATTER SLOPES WHERE:

- THE TEXTURE OF THE EXPOSED SUBSOIL/PARENT MATERIAL IS NOT ADEQUATE TO PRODUCE VEGETATIVE GROWTH.
- THE SOIL MATERIAL IS SO SHALLOW THAT THE ROOTING ZONE IS NOT DEEP ENOUGH TO SUPPORT PLANTS OR FURNISH CONTINUING SUPPLIES OF MOISTURE AND PLANT NUTRIENTS.
- THE ORIGINAL SOIL TO BE VEGETATED CONTAINS MATERIAL TOXIC TO PLANT GROWTH.
- THE SOIL IS SO ACIDIC THAT TREATMENT WITH LIMESTONE IS NOT FEASIBLE.

II. FOR THE PURPOSE OF THESE STANDARDS AND SPECIFICATIONS, AREAS HAVING SLOPES STEEPER THAN 2:1 REQUIRE SPECIAL CONSIDERATION AND DESIGN FOR ADEQUATE STABILIZATION. AREAS HAVING SLOPES STEEPER THAN 2:1 SHALL HAVE THE APPROPRIATE STABILIZATION SHOWN ON THE PLANS.

CONSTRUCTION AND MATERIAL SPECIFICATIONS

- TOPSOIL SALVAGED FROM THE EXISTING SITE MAY BE USED PROVIDED THAT IT MEETS THE STANDARDS AS SET FORTH IN THESE SPECIFICATIONS. TYPICALLY, THE DEPTH OF TOPSOIL TO BE SALVAGED FOR A GIVEN SOIL TYPE CAN BE FOUND IN THE REPRESENTATIVE SOIL PROFILE SECTION IN THE SOIL SURVEY PUBLISHED BY USDA-SCS IN COOPERATION WITH MARYLAND AGRICULTURAL EXPERIMENTAL STATION.
- TOPSOIL SPECIFICATIONS - SOIL TO BE USED AS TOPSOIL MUST MEET THE FOLLOWING:
 - TOPSOIL SHALL BE A LOAM, SANDY LOAM, CLAY LOAM, SILT LOAM, SANDY CLAY LOAM, LOAMY SAND. OTHER SOILS MAY BE USED IF RECOMMENDED BY AN AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY. REGARDLESS, TOPSOIL SHALL NOT BE A MIXTURE OF CONTRASTING TEXTURED SUBSOILS AND SHALL CONTAIN LESS THAN 5% BY VOLUME OF CINDERS, STONES, SLAG, COARSE FRAGMENTS, GRAVEL, STICKS, ROOTS, TRASH, OR OTHER MATERIALS LARGER THAN 1 1/2" IN DIAMETER.
 - TOPSOIL MUST BE FREE OF PLANTS OR PLANT PARTS SUCH AS BERMOUDA GRASS, QUACKGRASS, JOHNSONGRASS, NUTSEDGE, POISON IVY, THISTLE, OR OTHERS AS SPECIFIED.
 - WHERE THE SUBSOIL IS EITHER HIGHLY ACIDIC OR COMPOSED OF HEAVY CLAYS, 1 GROUND LIMESTONE SHALL BE SPREAD AT THE RATE OF 4-8 TONS/ACRE (200-400 POUNDS PER 1,000 SQUARE FEET) PRIOR TO THE PLACEMENT OF TOPSOIL. LIME SHALL BE DISTRIBUTED UNIFORMLY OVER DESIGNATED AREAS AND WORKED INTO THE SOIL IN CONJUNCTION WITH TILLAGE OPERATIONS AS DESCRIBED IN THE FOLLOWING PROCEDURES.
- FOR SITES HAVING DISTURBED AREAS UNDER 5 ACRES PLACE TOPSOIL (IF REQUIRED) AND APPLY SOIL AMENDMENTS AS SPECIFIED IN 20.0 VEGETATIVE - STABILIZATION - SECTION I - VEGETATIVE STABILIZATION METHODS AND MATERIALS.
- FOR SITES HAVING DISTURBED AREAS OVER 5 ACRES:
 - ON SOIL MEETING TOPSOIL SPECIFICATIONS, OBTAIN TEST RESULTS DICTATING FERTILIZER AND LIME AMENDMENTS REQUIRED TO BRING THE SOIL INTO COMPLIANCE WITH THE FOLLOWING:
 - PH FOR TOPSOIL SHALL BE BETWEEN 6.0 AND 7.5. IF THE TESTED SOIL DEMONSTRATES A PH OF LESS THAN 6.0, SUFFICIENT LIME SHALL BE PRESCRIBED TO RAISE THE PH TO 6.5 OR HIGHER.
 - ORGANIC CONTENT OF TOPSOIL SHALL BE NOT LESS THAN 1.5 PERCENT BY WEIGHT.
 - TOPSOIL HAVING SOLUBLE SALT CONTENT GREATER THAN 500 PARTS PER MILLION SHALL NOT BE USED.
 - NO SOO OR SEED SHALL BE PLACED ON SOIL WHICH HAS BEEN TREATED WITH SOIL STERILANTS OR CHEMICALS USED FOR WEED CONTROL UNTIL SUFFICIENT TIME HAS ELAPSED (14 DAYS MIN.) TO PERMIT DISSIPATION OF PHYTO-TOXIC MATERIALS.

NOTE: TOPSOIL SUBSTITUTES OR AMENDMENTS, AS RECOMMENDED BY A QUALIFIED AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY, MAY BE USED IN LIEU OF NATURAL TOPSOIL.

- PLACE TOPSOIL (IF REQUIRED) AND APPLY SOIL AMENDMENTS AS SPECIFIED IN 20.0 VEGETATIVE STABILIZATION - SECTION I - VEGETATIVE STABILIZATION METHODS AND MATERIALS.

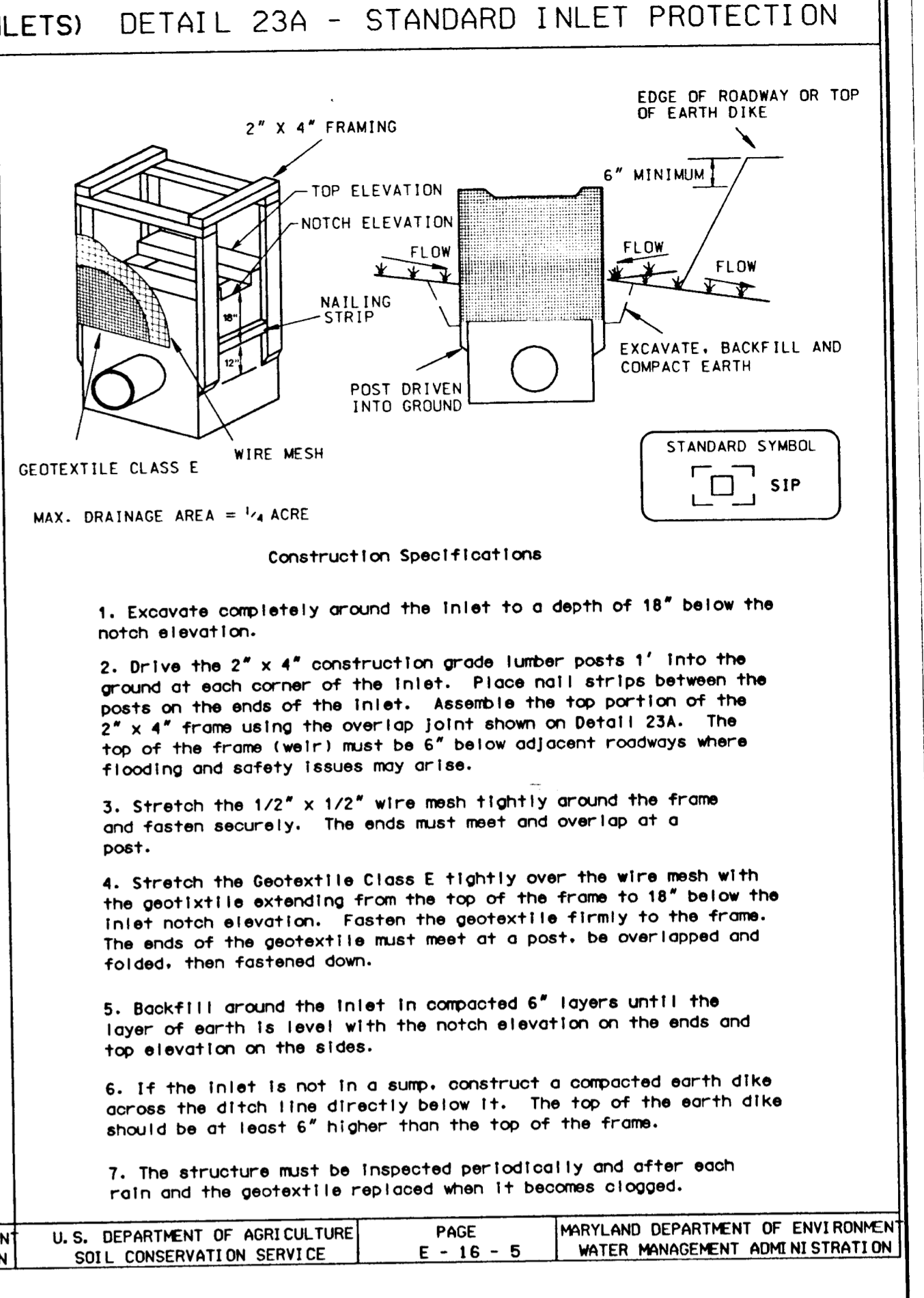
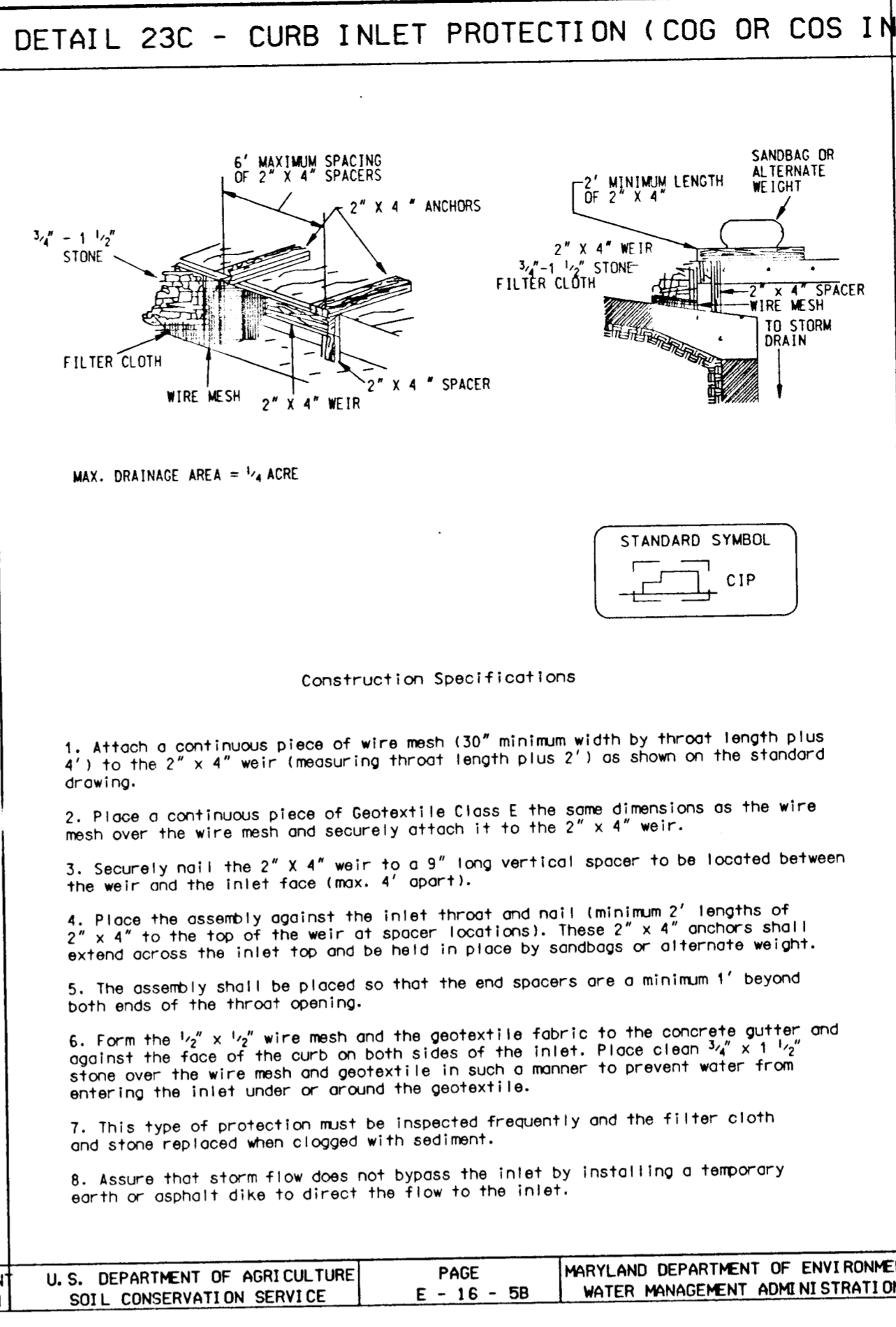
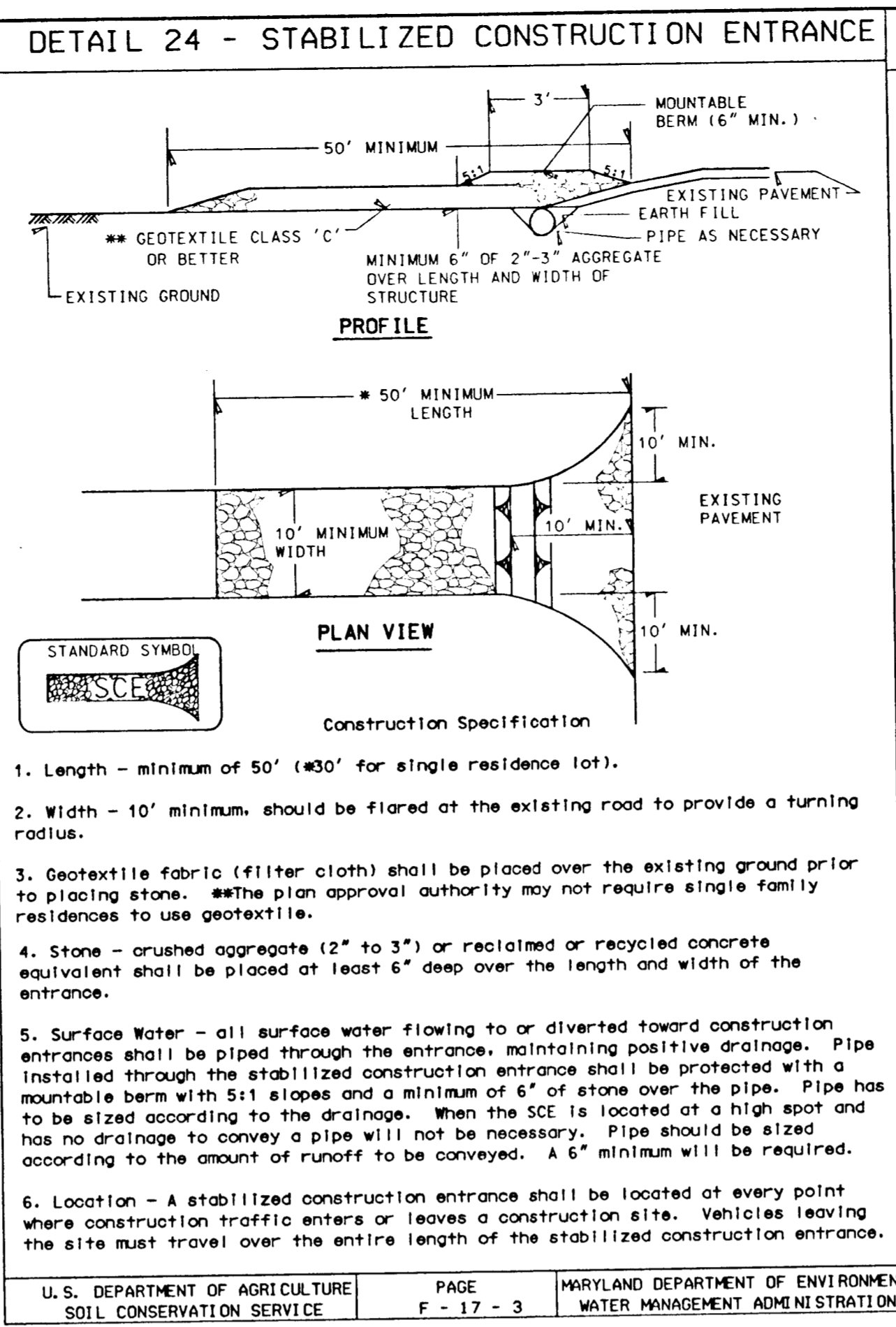
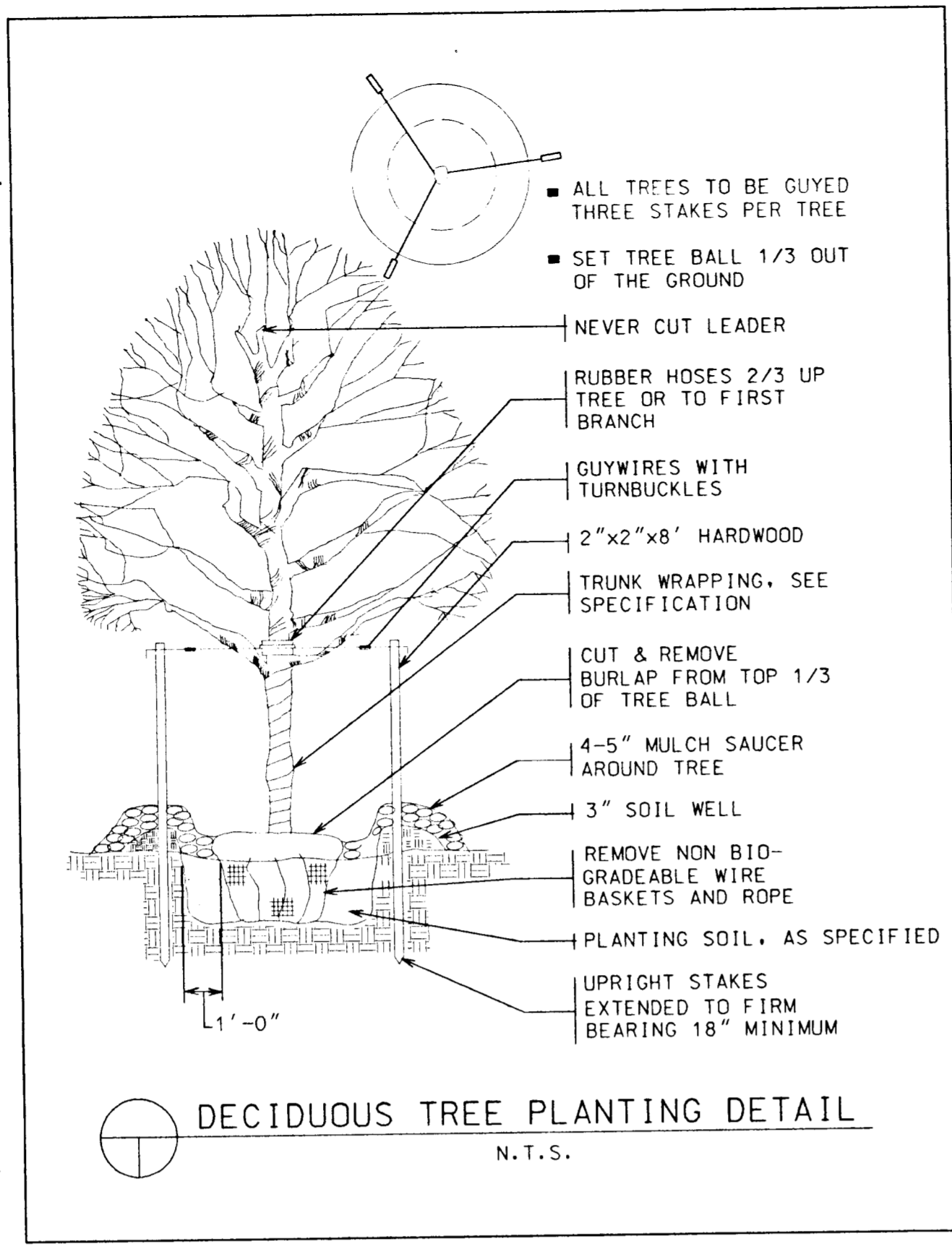
VI. TOPSOIL APPLICATION

- WHEN TOPSOILING, MAINTAIN NEEDED EROSION AND SEDIMENT CONTROL PRACTICES SUCH AS DIVERSIONS, GRADE STABILIZATION STRUCTURES, EARTH DIKES, SLOPE SILT FENCE AND SEDIMENT TRAPS AND BASINS.
 - GRADES ON THE AREAS TO BE TOPSOILED, WHICH HAVE BEEN PREVIOUSLY ESTABLISHED, SHALL BE MAINTAINED, ALBERT 4" - 8" HIGHER IN ELEVATION.
 - TOPSOIL SHALL BE UNIFORMLY DISTRIBUTED IN A 4" - 8" LAYER AND LIGHTLY COMPACTED TO A MINIMUM THICKNESS OF 4". SPREADING SHALL BE PERFORMED IN SUCH A MANNER THAT SOODING OR SEEDING CAN PROCEED WITH A MINIMUM OF RESULTING. FROM TOPSOILING OR OTHER OPERATIONS SHALL BE CORRECTED IN ORDER TO ADDITIONAL SOIL PREPARATION AND TILLAGE. ANY IRREGULARITIES IN THE SURFACE PREVENT THE FORMATION OF DEPRESSIONS OR WATER POCKETS.
 - TOPSOIL SHALL NOT BE PLACED WHILE THE TOPSOIL OR SUBSOIL IS IN A FROZEN OR MUDDY CONDITION. WHEN THE SUBSOIL IS EXCESSIVELY WET OR IN A CONDITION THAT MAY OTHERWISE BE DETRIMENTAL TO PROPER GRADING AND SEEDBED PREPARATION.

VI. ALTERNATIVE FOR PERMANENT SEEDING - INSTEAD OF APPLYING THE FULL AMOUNTS OF LIME AND COMMERCIAL FERTILIZER, COMPOSTED SLUDGE AND AMENDMENTS MAY BE APPLIED AS SPECIFIED BELOW:

- COMPOSTED SLUDGE MATERIAL FOR USE AS A SOIL CONDITIONER FOR SITES HAVING DISTURBED AREAS OVER 5 ACRES SHALL BE TESTED TO PRESCRIBE AMENDMENTS AND FOR SITES HAVING DISTURBED AREAS UNDER 5 ACRES SHALL CONFORM TO THE FOLLOWING REQUIREMENTS:
 - COMPOSTED SLUDGE SHALL BE SUPPLIED BY, OR ORIGINATE FROM, A PERSON OR PERSONS THAT ARE PERMITTED (AT THE TIME OF ACQUISITION OF THE COMPOST) BY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT UNDER COMAR 26.04.06.
 - COMPOSTED SLUDGE SHALL CONTAIN AT LEAST 1 PERCENT NITROGEN, 1.5 PERCENT PHOSPHORUS, AND 0.2 PERCENT POTASSIUM AND HAVE A PH OF 7.0 TO 8.0. IF COMPOST DOES NOT MEET THESE REQUIREMENTS, THE APPROPRIATE CONSTITUENTS MUST BE ADDED TO MEET THE REQUIREMENTS PRIOR TO USE.
 - COMPOSTED SLUDGE SHALL BE APPLIED AT A RATE OF 1 TON/1,000 SQUARE FEET.
- COMPOSTED SLUDGE SHALL BE AMENDED WITH A POTASSIUM FERTILIZER APPLIED AT THE RATE OF 4 LB/1,000 SQUARE FEET, AND 1/3 THE NORMAL LIME APPLICATION RATE.

REFERENCES: GUIDELINE SPECIFICATIONS, SOIL PREPARATION AND SOODING NO-V-4, PUB. #1, COOPERATIVE EXTENSION SERVICE, UNIVERSITY OF MARYLAND AND VIRGINIA POLYTECHNIC INSTITUTES, REVISED 1973.



SILT FENCE

Silt Fence Design Criteria

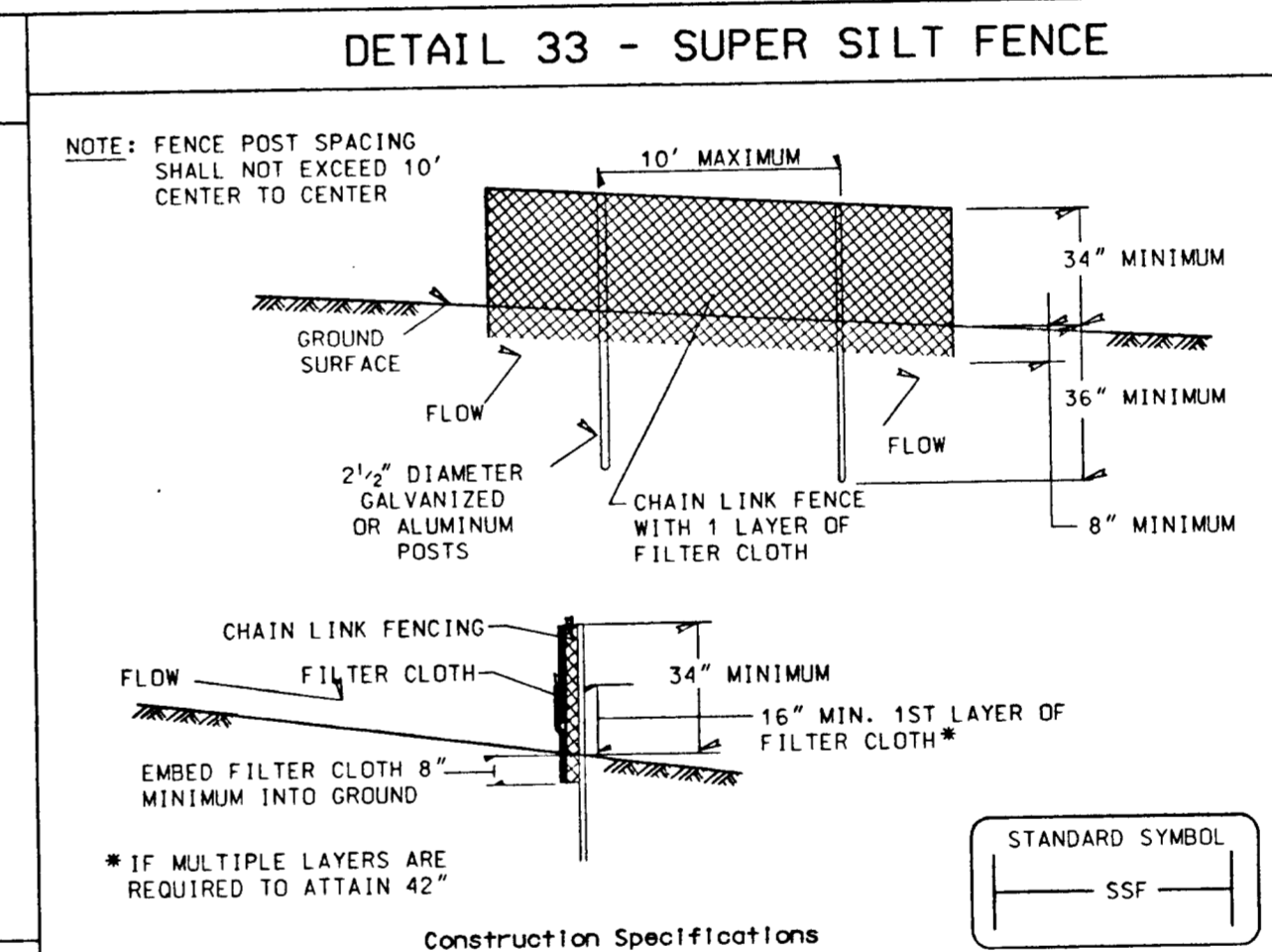
Slope Steepness	(Maximum) Slope Length	(Maximum) Silt Fence Length
Flatter than 50:1	unlimited	unlimited
50:1 to 10:1	125 feet	1,000 feet
10:1 to 5:1	100 feet	750 feet
5:1 to 3:1	60 feet	500 feet
3:1 to 2:1	40 feet	250 feet
2:1 and steeper	20 feet	125 feet

Note: In areas of less than 2% slope and sandy soils (USDA general classification system, soil Class A) maximum slope length and silt fence length will be unlimited. In these areas a silt fence may be the only perimeter control required.

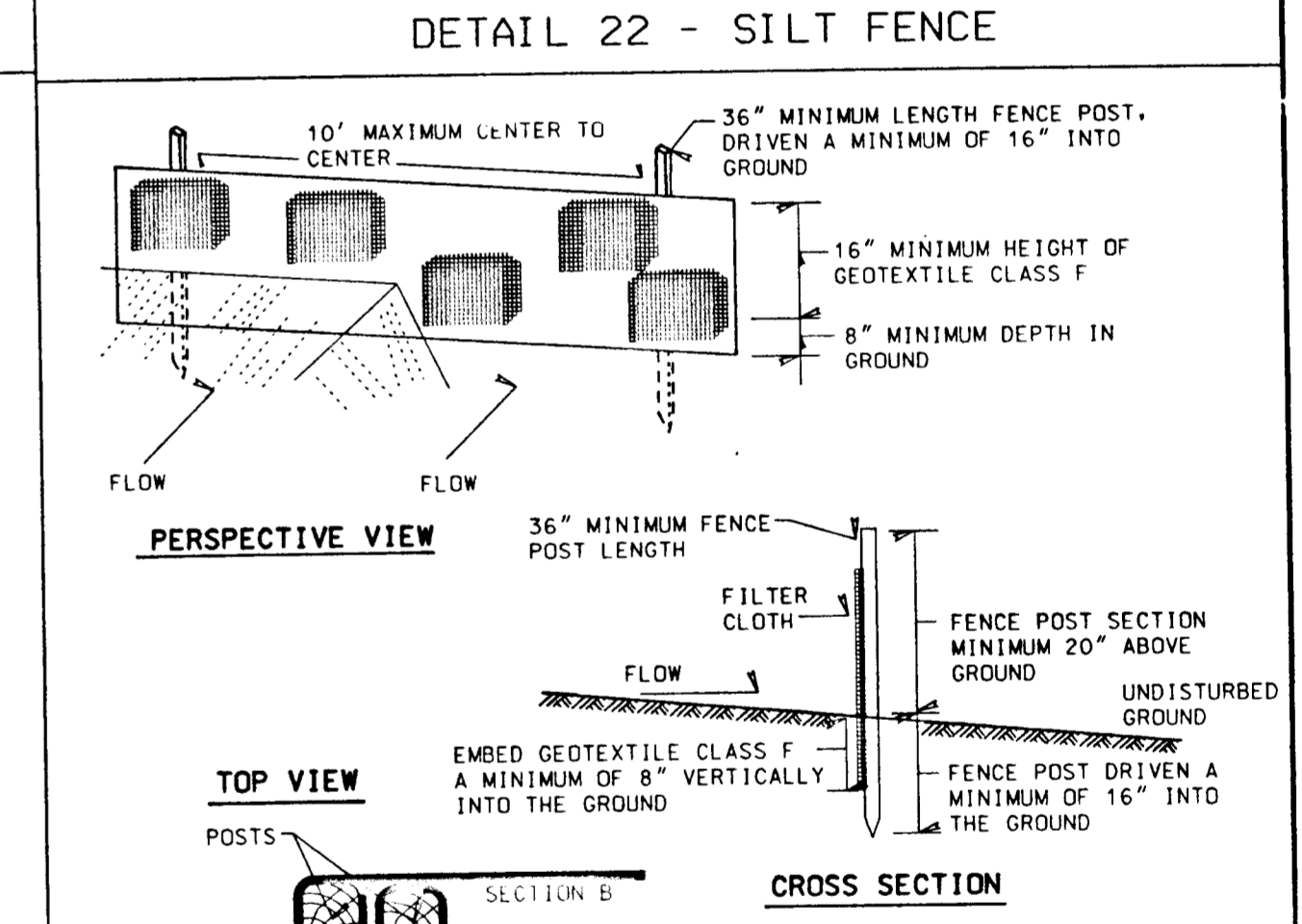
SUPER SILT FENCE

Design Criteria

Slope	Slope Steepness	Slope Length (maximum)	Silt Fence Length (maximum)
0 - 10%	0 - 10:1	Unlimited	Unlimited
10 - 20%	10:1 - 5:1	200 feet	1,500 feet
20 - 33%	5:1 - 3:1	100 feet	1,000 feet
33 - 50%	3:1 - 2:1	100 feet	500 feet
50% +	2:1 +	50 feet	250 feet



DETAIL 22 - SILT FENCE



DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

4/14/00
4/14/00

GPI Greenman-Pedersen, Inc.
ENGINEERS, ARCHITECTS, PLANNERS, CONSTRUCTION ENGINEERS & INSPECTORS
14502 GREENVIEW DRIVE, SUITE 100, LAUREL, MD 20708
WASH. (301) 470-2772 BALT. (410) 880-3065
FAX (301) 490-2648 www.gpinc.com

DANIEL JOSEPH MALLET
No. 13759
REGISTERED PROFESSIONAL ENGINEER

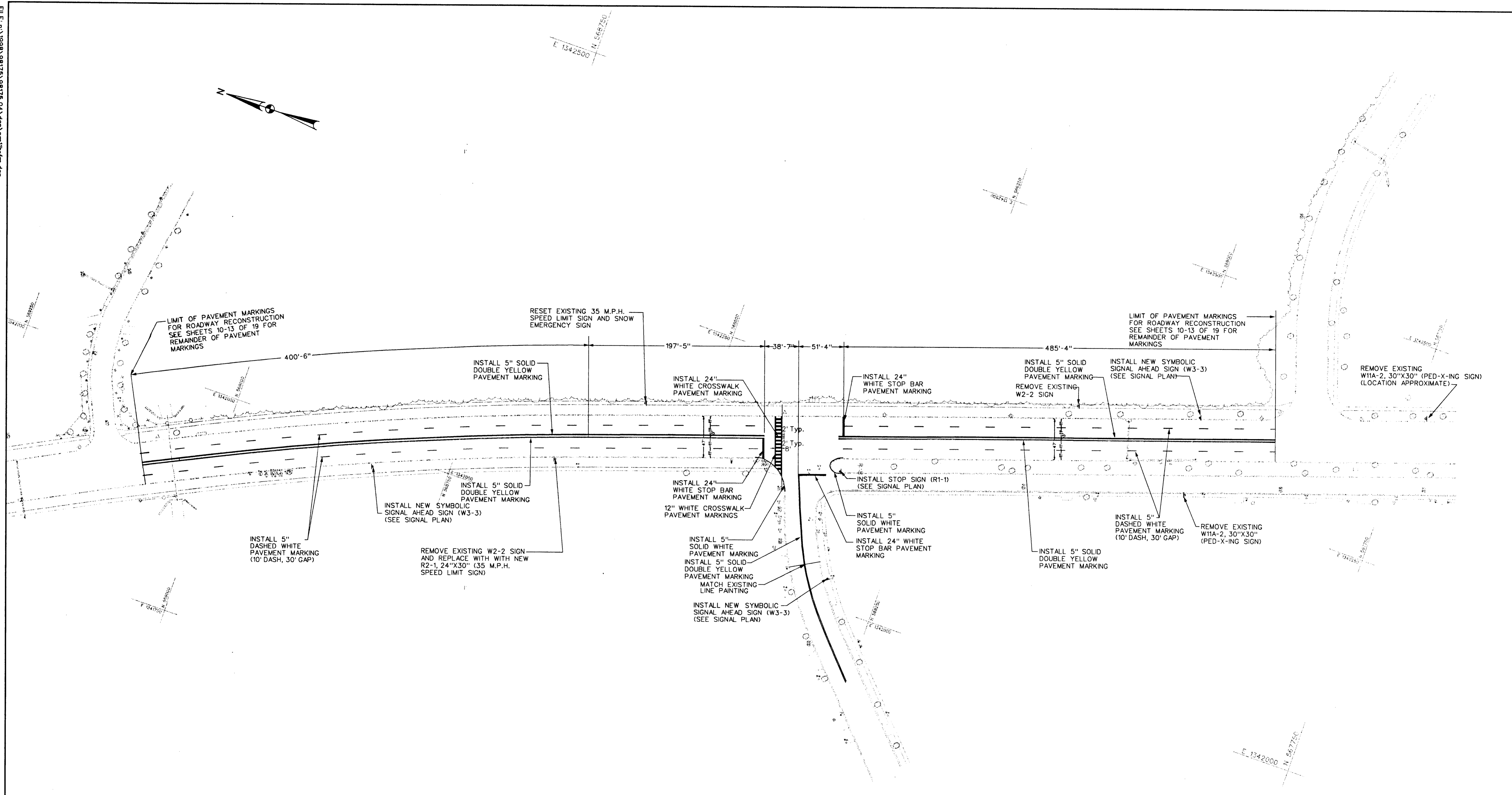
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GRADING, EROSION AND SEDIMENT CONTROL PLAN DETAILS

SCALE AS SHOWN
SHEET 18 OF 19

ROADWAY IMPROVEMENTS TO HARPERS FARM ROAD & WILLOWBOTTOM DRIVE
HOWARD COUNTY, MARYLAND
CAPITAL PROJECT NO. J-4164

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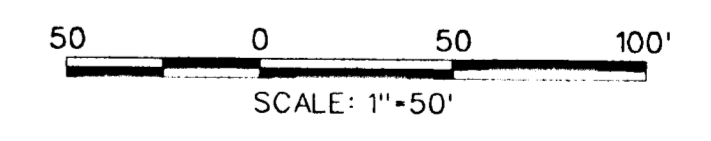


NOTES:

1. BAG OR COVER ALL EXISTING TRAFFIC SIGNS IN CONFLICT WITH TEMPORARY TRAFFIC CONTROL. UNCOVER WHEN DIRECTED BY THE COUNTY.
2. RELOCATE OR REMOVE, STORE AND RESET EXISTING SIGNS AS SHOWN ON THIS PLAN OR AS DIRECTED BY THE COUNTY.
3. WHEN THE NEW PAVEMENT SURFACE COURSE IS COMPLETE REMOVE ALL EXISTING STRIPING WITHIN THE LIMITS SHOWN ON THIS PLAN OR AS DIRECTED BY THE COUNTY AND REPLACE WITH NEW STRIPING. IF POSSIBLE ALL STRIPING WORK SHOULD BE DONE IN ONE DAY. IF STRIPING WORK CANNOT BE COMPLETED IN ONE DAY, THE PLACEMENT OF NEW STRIPING AT THE END OF THE WORK DAY SHALL NOT CONFLICT WITH EXISTING STRIPING.

LEGEND:

- ◻ EXISTING SIGN
- ◻ PROPOSED SIGN



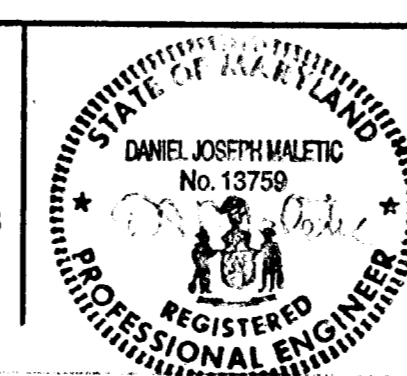
DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

James M. ... 4/13/00
 DIRECTOR OF PUBLIC WORKS DATE

Charles ... 4/13/00
 CHIEF, BUREAU OF ENGINEERING DATE

... 4/13/00
 CHIEF, BUREAU OF HIGHWAYS DATE

GPI Greenman-Pedersen, Inc.
 ENGINEERS, ARCHITECTS, PLANNERS, CONSTRUCTION ENGINEERS & INSPECTORS
 1400 GREENVIEW DRIVE, SUITE 100, LAUREL, MD 20708
 WASH. (301) 470-2772 BALT. (410) 800-3055
 FAX: (301) 460-2649 www.gpi.com



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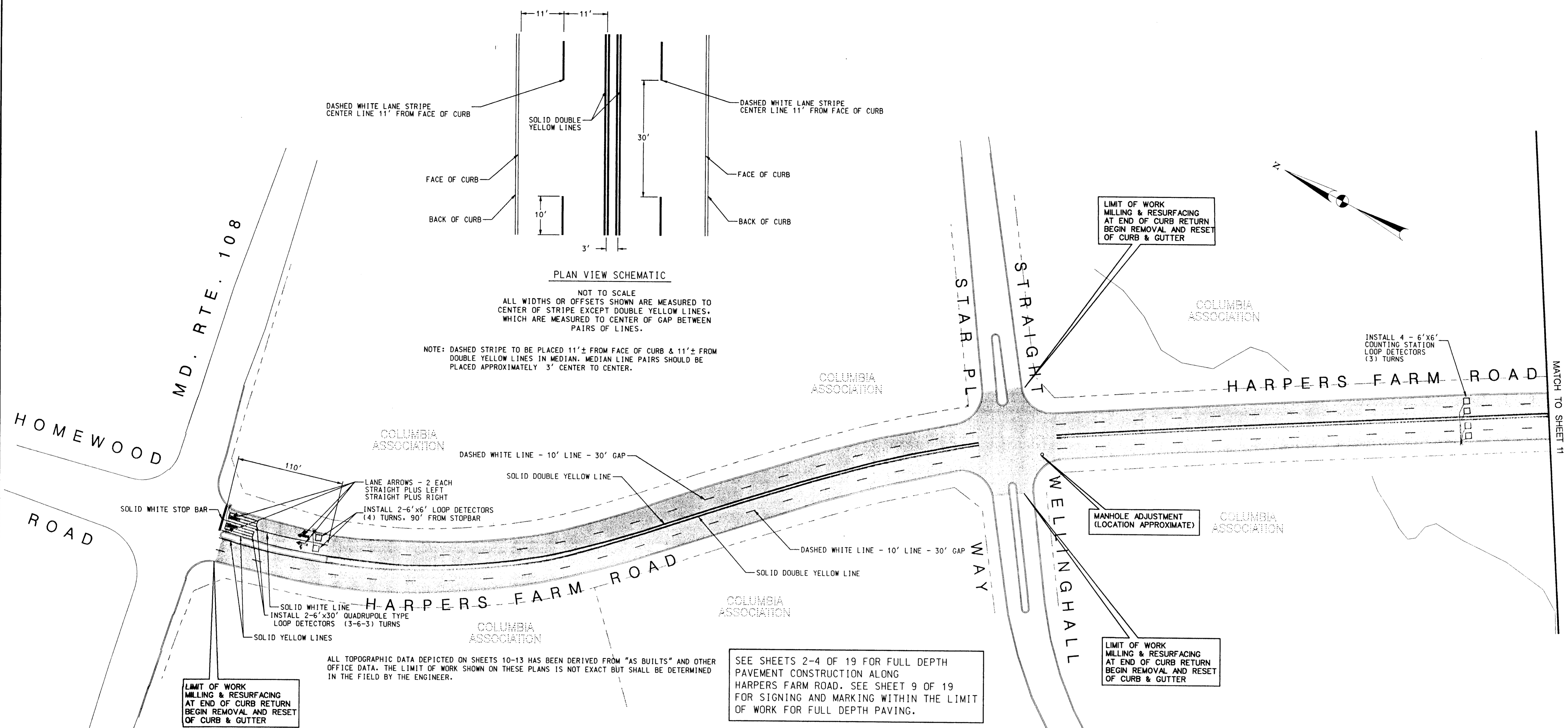
SIGNING & PAVEMENT MARKING PLAN

SCALE MAP NO. _____ BLOCK NO. _____

ROADWAY IMPROVEMENTS TO HARPERS FARM ROAD & WILLOWBOTTOM DRIVE
 HOWARD COUNTY, MARYLAND
 CAPITAL PROJECT NO. J-4164

SCALE AS SHOWN
 SHEET 9 OF 19

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LIMIT OF WORK MILLING & RESURFACING AT END OF CURB RETURN BEGIN REMOVAL AND RESET OF CURB & GUTTER

ALL TOPOGRAPHIC DATA DEPICTED ON SHEETS 10-13 HAS BEEN DERIVED FROM "AS BUILTS" AND OTHER OFFICE DATA. THE LIMIT OF WORK SHOWN ON THESE PLANS IS NOT EXACT BUT SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.

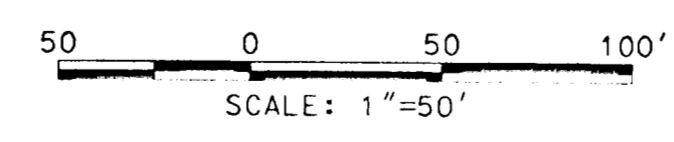
SEE SHEETS 2-4 OF 19 FOR FULL DEPTH PAVEMENT CONSTRUCTION ALONG HARPERS FARM ROAD. SEE SHEET 9 OF 19 FOR SIGNING AND MARKING WITHIN THE LIMIT OF WORK FOR FULL DEPTH PAVING.

LIMIT OF WORK MILLING & RESURFACING AT END OF CURB RETURN BEGIN REMOVAL AND RESET OF CURB & GUTTER

MANHOLE ADJUSTMENT (LOCATION APPROXIMATE)

LIMIT OF WORK MILLING & RESURFACING AT END OF CURB RETURN BEGIN REMOVAL AND RESET OF CURB & GUTTER

INSTALL 4 - 6'x6' COUNTING STATION LOOP DETECTORS (3) TURNS



DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

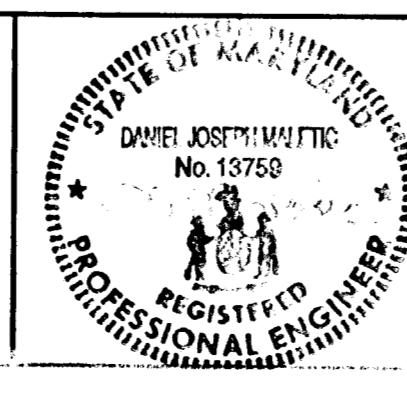
James P. Ull 4/13/00
 DIRECTOR OF PUBLIC WORKS DATE

Andrew M. Danek 4-15-00
 CHIEF, BUREAU OF HIGHWAYS DATE

Chad R. Seaman 4/13/00
 CHIEF, BUREAU OF ENGINEERING DATE

Rucavia 4/13/00
 CHIEF, DIVISION OF TRANSPORTATION PROJECTS AND WATERSHED MANAGEMENT DATE

GPI Greenman-Pedersen, Inc.
 ENGINEERS, ARCHITECTS, PLANNERS, CONSTRUCTION ENGINEERS & INSPECTORS
 14502 GREENVIEW DRIVE, SUITE 100, LAUREL, MD. 20708
 WASH. (301) 470-2772 BALT. (410) 980-3065
 FAX: (301) 480-2640 www.gpi.com



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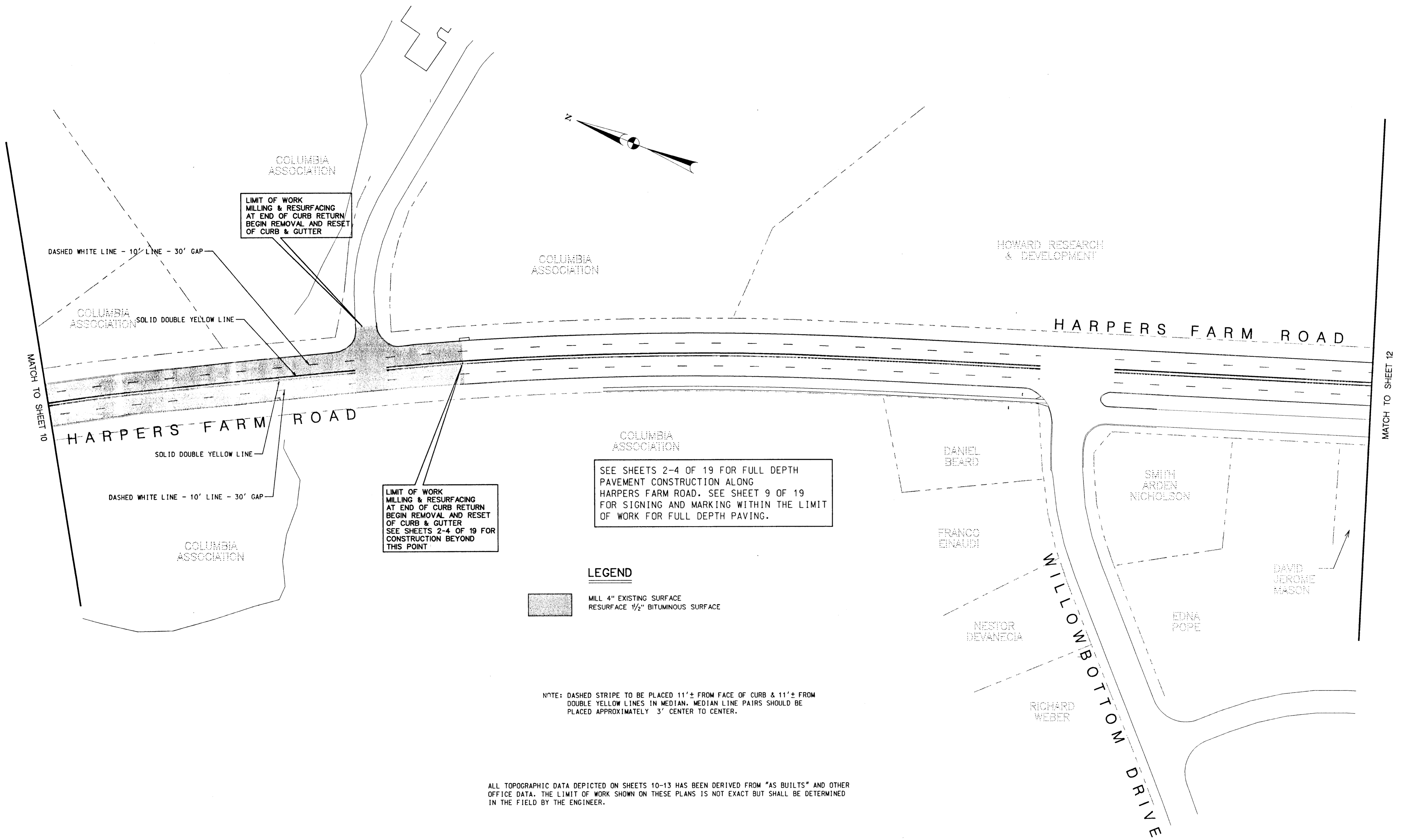
LANE MARKINGS & MILLING AND RESURFACING
 PLAN SHEET 1

SCALE MAP NO. _____ BLOCK NO. _____

ROADWAY IMPROVEMENTS TO HARPERS FARM ROAD & WILLOWBOTTOM DRIVE
 HOWARD COUNTY, MARYLAND
 CAPITAL PROJECT NO. J-4164

SCALE AS SHOWN
 SHEET 10 OF 19

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LIMIT OF WORK
 MILLING & RESURFACING
 AT END OF CURB RETURN
 BEGIN REMOVAL AND RESET
 OF CURB & GUTTER

LIMIT OF WORK
 MILLING & RESURFACING
 AT END OF CURB RETURN
 BEGIN REMOVAL AND RESET
 OF CURB & GUTTER
 SEE SHEETS 2-4 OF 19 FOR
 CONSTRUCTION BEYOND
 THIS POINT

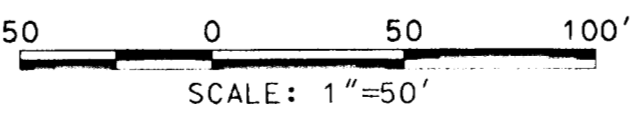
SEE SHEETS 2-4 OF 19 FOR FULL DEPTH
 PAVEMENT CONSTRUCTION ALONG
 HARPERS FARM ROAD. SEE SHEET 9 OF 19
 FOR SIGNING AND MARKING WITHIN THE LIMIT
 OF WORK FOR FULL DEPTH PAVING.

LEGEND

- MILL 4" EXISTING SURFACE
RESURFACE 1/2" BITUMINOUS SURFACE

NOTE: DASHED STRIPE TO BE PLACED 11'± FROM FACE OF CURB & 11'± FROM
 DOUBLE YELLOW LINES IN MEDIAN. MEDIAN LINE PAIRS SHOULD BE
 PLACED APPROXIMATELY 3' CENTER TO CENTER.

ALL TOPOGRAPHIC DATA DEPICTED ON SHEETS 10-13 HAS BEEN DERIVED FROM "AS BUILTS" AND OTHER
 OFFICE DATA. THE LIMIT OF WORK SHOWN ON THESE PLANS IS NOT EXACT BUT SHALL BE DETERMINED
 IN THE FIELD BY THE ENGINEER.



DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

James P. [Signature] 4/13/00
 DIRECTOR OF PUBLIC WORKS DATE

Chad [Signature] 4/13/00
 CHIEF, BUREAU OF ENGINEERING DATE

Michael M. [Signature] 4-13-00
 CHIEF, BUREAU OF HIGHWAYS DATE

Basala 4/13/00
 SUPERVISOR OF TRANSPORTATION DATE

GPI Greenman-Pedersen, Inc.
 ENGINEERS, ARCHITECTS, PLANNERS, CONSTRUCTION ENGINEERS & INSPECTORS
 14602 GREENVIEW DRIVE, SUITE 100, LAUREL, MD, 20708
 WASH. (301) 470-2172 BALT. (410) 880-3055
 FAX: (301) 460-2640 www.gpi.com



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LANE MARKINGS &
 MILLING AND RESURFACING
 PLAN SHEET 2

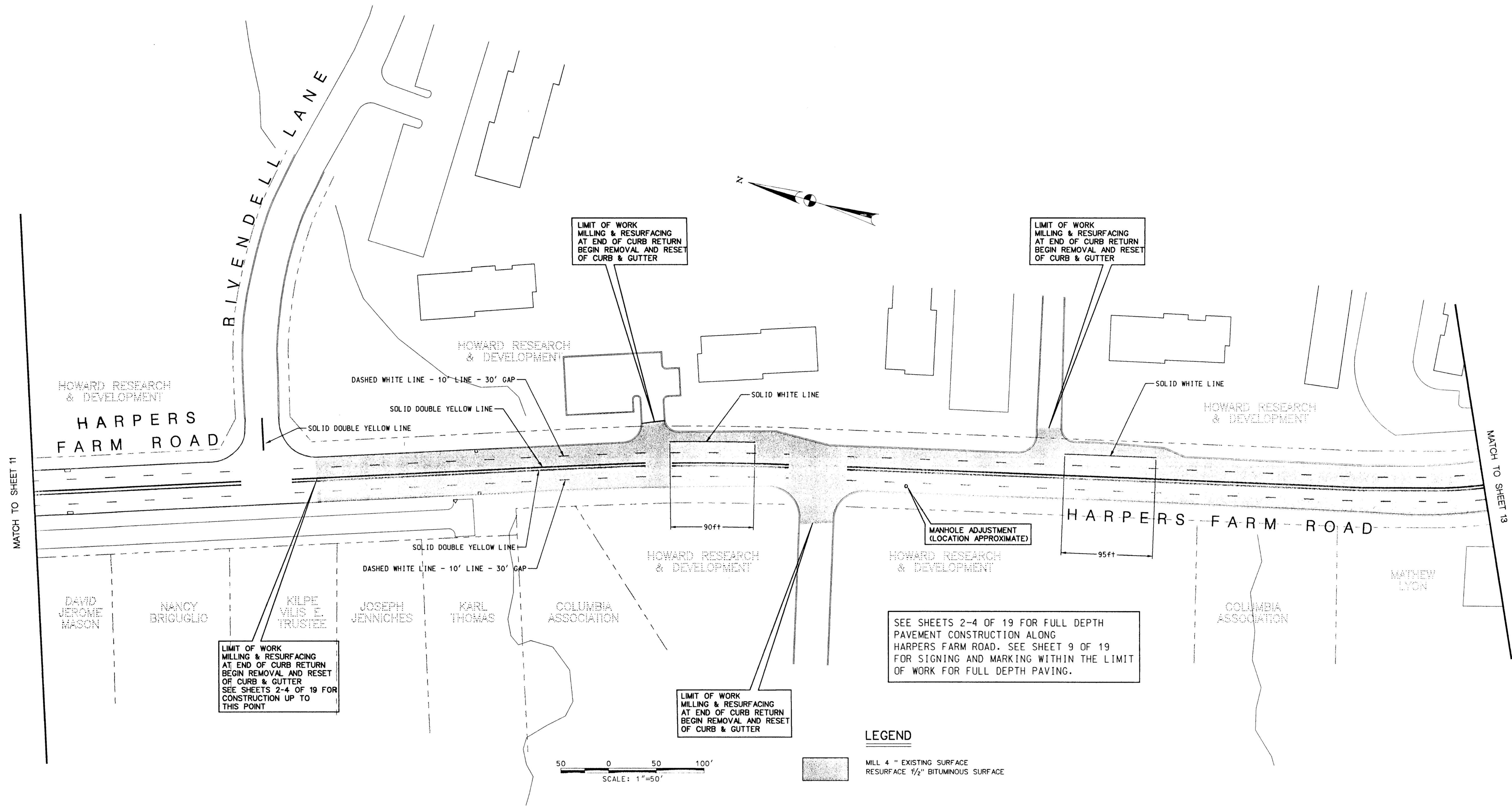
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ROADWAY IMPROVEMENTS TO
 HARPERS FARM ROAD & WILLOWBOTTOM DRIVE
 HOWARD COUNTY, MARYLAND
 CAPITAL PROJECT NO. J-4164

SCALE
 AS
 SHOWN

SHEET
 11 OF 19

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ALL TOPOGRAPHIC DATA DEPICTED ON SHEETS 10-13 HAS BEEN DERIVED FROM "AS BUILTS" AND OTHER OFFICE DATA. THE LIMIT OF WORK SHOWN ON THESE PLANS IS NOT EXACT BUT SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.

NOTE: DASHED STRIPE TO BE PLACED 11'± FROM FACE OF CURB & 11'± FROM DOUBLE YELLOW LINES IN MEDIAN. MEDIAN LINE PAIRS SHOULD BE PLACED APPROXIMATELY 3' CENTER TO CENTER.

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND
 Director of Public Works: James J. [Signature] 4/13/00
 Chief, Bureau of Highways: Robert M. [Signature] 4-13-00
 Chief, Bureau of Engineering: [Signature] 4/13/00
 Chief, Division of Transportation Projects and Watershed Management: [Signature] 4/13/00

GPI Greenman-Pedersen, Inc.
 ENGINEERS, ARCHITECTS, PLANNERS, CONSTRUCTION ENGINEERS & INSPECTORS
 14502 GREENVIEW DRIVE, SUITE 100, LAUREL, MD, 20708
 WASH. (301) 470-2772 BALT. (410) 880-3055
 FAX (301) 480-2649 www.gpinet.com



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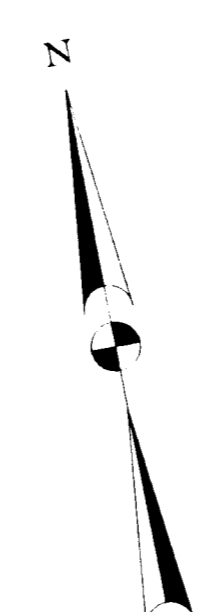
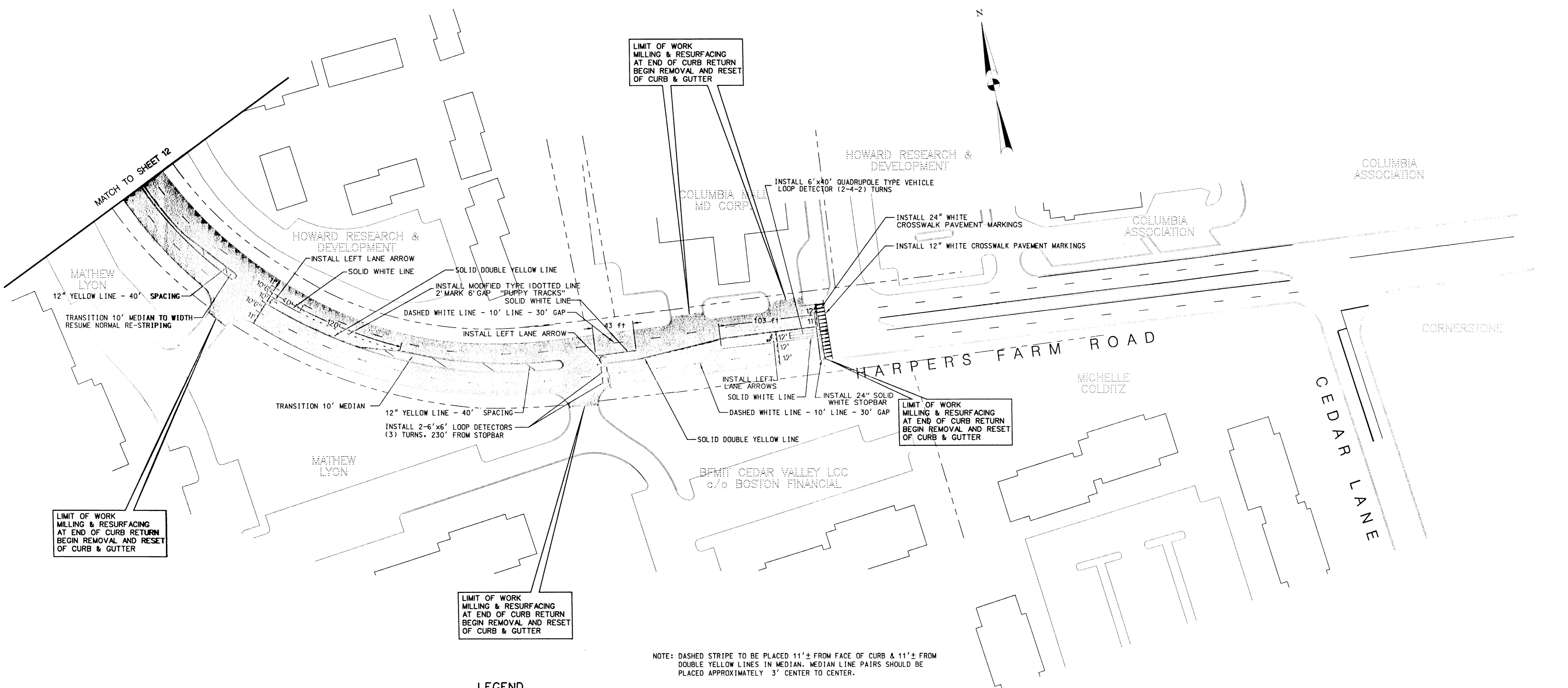
LANE MARKINGS & MILLING AND RESURFACING
 PLAN SHEET 3
 SCALE: MAP NO. _____ BLOCK NO. _____

ROADWAY IMPROVEMENTS TO HARPERS FARM ROAD & WILLOWBOTTOM DRIVE
 HOWARD COUNTY, MARYLAND
 CAPITAL PROJECT NO. J-4164

SCALE AS SHOWN
 SHEET 12 OF 19

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LIMIT OF WORK
 MILLING & RESURFACING
 AT END OF CURB RETURN
 BEGIN REMOVAL AND RESET
 OF CURB & GUTTER

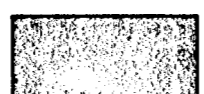

LIMIT OF WORK
 MILLING & RESURFACING
 AT END OF CURB RETURN
 BEGIN REMOVAL AND RESET
 OF CURB & GUTTER

LIMIT OF WORK
 MILLING & RESURFACING
 AT END OF CURB RETURN
 BEGIN REMOVAL AND RESET
 OF CURB & GUTTER

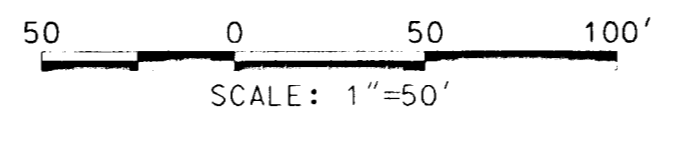
LIMIT OF WORK
 MILLING & RESURFACING
 AT END OF CURB RETURN
 BEGIN REMOVAL AND RESET
 OF CURB & GUTTER

NOTE: DASHED STRIPE TO BE PLACED 11'± FROM FACE OF CURB & 11'± FROM DOUBLE YELLOW LINES IN MEDIAN. MEDIAN LINE PAIRS SHOULD BE PLACED APPROXIMATELY 3' CENTER TO CENTER.

LEGEND

 MILL 4" EXISTING SURFACE
 RESURFACE 1/2" BITUMINOUS SURFACE

SEE SHEETS 2-4 OF 19 FOR FULL DEPTH PAVEMENT CONSTRUCTION ALONG HARPERS FARM ROAD. SEE SHEET 9 OF 19 FOR SIGNING AND MARKING WITHIN THE LIMIT OF WORK FOR FULL DEPTH PAVING.



ALL TOPOGRAPHIC DATA DEPICTED ON SHEETS 10-13 HAS BEEN DERIVED FROM "AS BUILTS" AND OTHER OFFICE DATA. THE LIMIT OF WORK SHOWN ON THESE PLANS IS NOT EXACT BUT SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

James M. Nease 4/13/00
 DIRECTOR OF PUBLIC WORKS

Richard M. Daniels 4-15-00
 CHIEF, BUREAU OF HIGHWAYS

Richard A. Johnson 4/13/00
 CHIEF, BUREAU OF ENGINEERING

Ellecaia 4/13/00
 CHIEF, BUREAU OF PUBLIC UTILITIES

GPI Greenman-Pedersen, Inc.
 ENGINEERS, ARCHITECTS, PLANNERS, CONSTRUCTION ENGINEERS & INSPECTORS
 14502 GREENVIEW DRIVE, SUITE 100, LAUREL, MD 20708
 WASH. (301) 470-2772 BALT. (410) 880-3055
 FAX: (301) 490-2649 www.gpinet.com



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LANE MARKINGS &
 MILLING AND RESURFACING
 PLAN SHEET 4

ROADWAY IMPROVEMENTS TO
 HARPERS FARM ROAD & WILLOWBOTTOM DRIVE
 HOWARD COUNTY, MARYLAND
 CAPITAL PROJECT NO. J-4164

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 DATE: 05 APR 2000 13:27:22

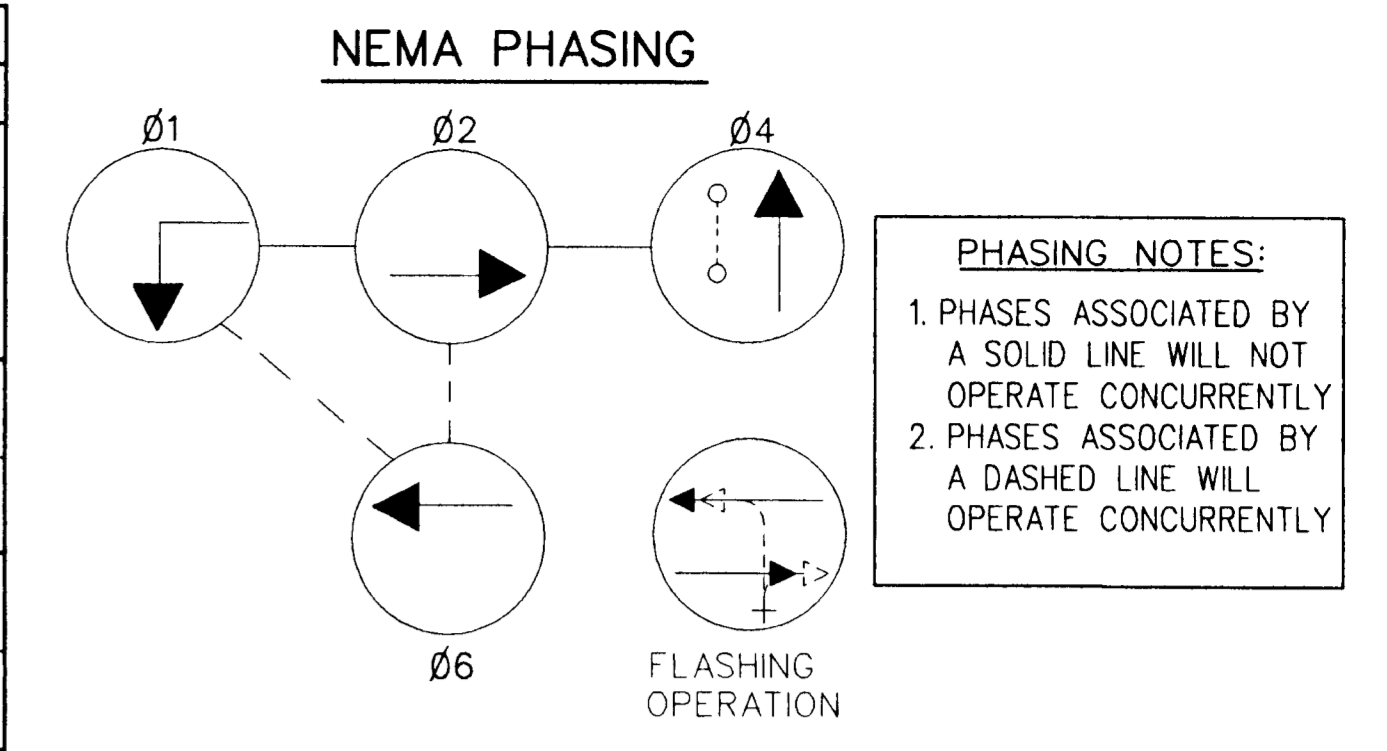
CONSTRUCTION DETAILS

- A. INSTALL 27-FOOT STEEL POLE, 70-FOOT MASTARM, 15-FOOT STREET LIGHT ARM AND 250 WATT HPS VAPOR CUTOFF LUMINAIRE, PEDESTRIAN SIGNAL, PUSHBUTTON, SIGNS, TRAFFIC SIGNAL HEADS, CONCRETE FOUNDATION AND GROUND ROD (NOTE: ONE 3-INCH P.V.C. 90-DEGREE ELBOW).
- B. INSTALL 8' PEDESTAL POLE WITH PEDESTRIAN SIGNAL, PUSHBUTTON, SIGN, CONCRETE FOUNDATION AND GROUND ROD (NOTE: ONE 2-INCH P.V.C. 90-DEGREE ELBOW).
- C. INSTALL BASE MOUNTED CABINET AND NEMA CONTROLLER, CONCRETE FOUNDATION, GROUND ROD AND ALL NECESSARY EQUIPMENT FOR AN ELECTRICAL SERVICE INCLUDING TWO NEMA TYPE 4 - 30 AMP STAINLESS STEEL DISCONNECT SWITCHES WITH TRAY (NOTE: TWO 4-INCH P.V.C. 90-DEGREE ELBOWS AND ONE 2-INCH P.V.C. 90-DEGREE ELBOW STUBBED OUT FOR PHONE LINE).
- D. INSTALL HANDBOX.
- E. INSTALL 1-INCH GALVANIZED STEEL ELECTRICAL CONDUIT FOR LOOP DETECTOR SLEEVE.
- F. INSTALL 2-INCH P.V.C. (SCHEDULE 80) ELECTRICAL CONDUIT (TRENCHED).
- G. 3-INCH P.V.C. (SCHEDULE 80) ELECTRICAL CONDUIT (PUSHED) (INSTALLED BY OTHERS)
- H. INSTALL 3-INCH P.V.C. (SCHEDULE 80) ELECTRICAL CONDUIT (TRENCHED).
- J. INSTALL 4-INCH P.V.C. (SCHEDULE 80) ELECTRICAL CONDUIT (TRENCHED).
- K. INSTALL 6-FOOT x 6-FOOT LOOP DETECTOR (3 TURNS)
- L. INSTALL 6-FOOT x 27-FOOT QUADRUPOLE TYPE VEHICLE LOOP DETECTOR (2-4-2 TURNS).
- M. INSTALL 6-FOOT x 40-FOOT QUADRUPOLE TYPE VEHICLE LOOP DETECTOR (2-4-2 TURNS).
- N. INSTALL GROUND MOUNTED SIGN. EXACT LOCATION TO BE DETERMINED BY THE ENGINEER.

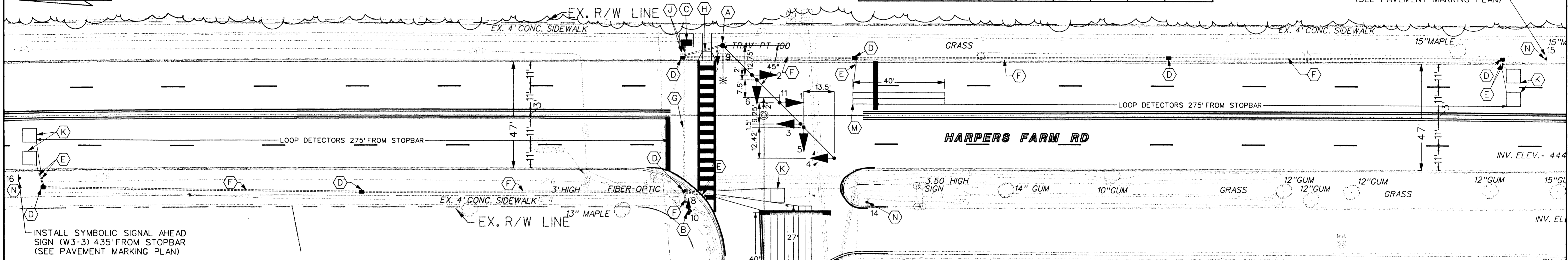
NOTES:

- 1. ALL POLE, SIGNAL HEAD AND DETECTOR LOCATIONS TO BE VERIFIED BY HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS PERSONNEL BEFORE INSTALLATION BY CONTRACTOR.
- 2. CONTRACTOR SHALL VERIFY LOCATION OF ALL UTILITIES BEFORE STARTING CONSTRUCTION AND HAND EXCAVATE OR TEST PIT ALL UTILITY CROSSINGS.
- 3. 3-INCH P.V.C. (SCHEDULE 80) ELECTRICAL CONDUIT (PUSHED), TO BE INSTALLED BY OTHERS. (SEE SHEET 3 OF 19)

PHASE AND SEQUENCE DIAGRAM	SIGNAL HEADS						
	1	2	3	4	5	6	7,8
PHASE 1-6	G	G	R	R	R	R	H
PHASE 1-6 CHANGE	←G	←Y	←R	←R	←R	←R	←H
PHASE 2-6	G	G	G	G	R	R	H
PHASE 2-6 CHANGE	←Y	←Y	←Y	←Y	←R	←R	←H
PHASE 4	R	R	R	R	G	G	M
PED-CLEAR	R	R	R	R	G	G	FH
PHASE 4 CHANGE	←R	←R	←R	←R	←Y	←Y	←H
FLASH OPER.	FL Y	FL Y	FL Y	FL Y	FL R	FL R	OFF



TO MD RTE. 108

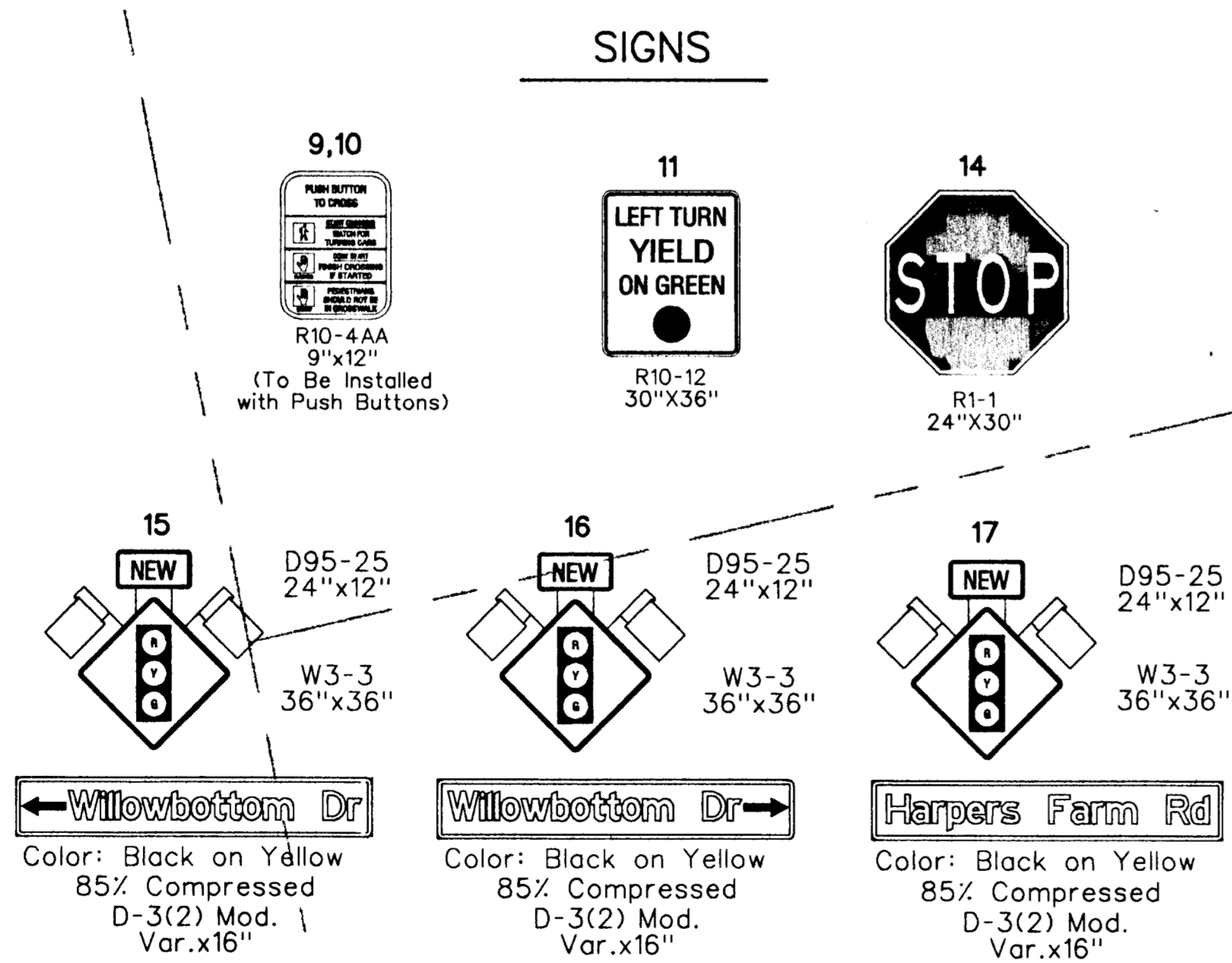


UTILITY LEGEND

- G --- G --- GAS MAIN
- W --- W --- WATER MAIN
- S --- S --- SEWER MAIN
- D --- D --- STORM DRAIN
- CATV --- CATV --- CABLE TELEVISION
- E --- E --- ELECTRIC CABLES
- T --- T --- TELEPHONE CABLES
- A --- A --- AERIAL CABLES

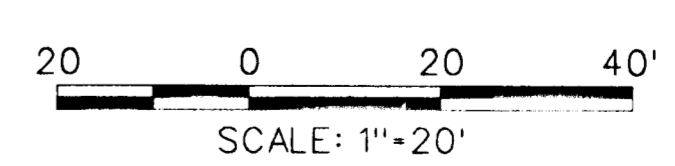
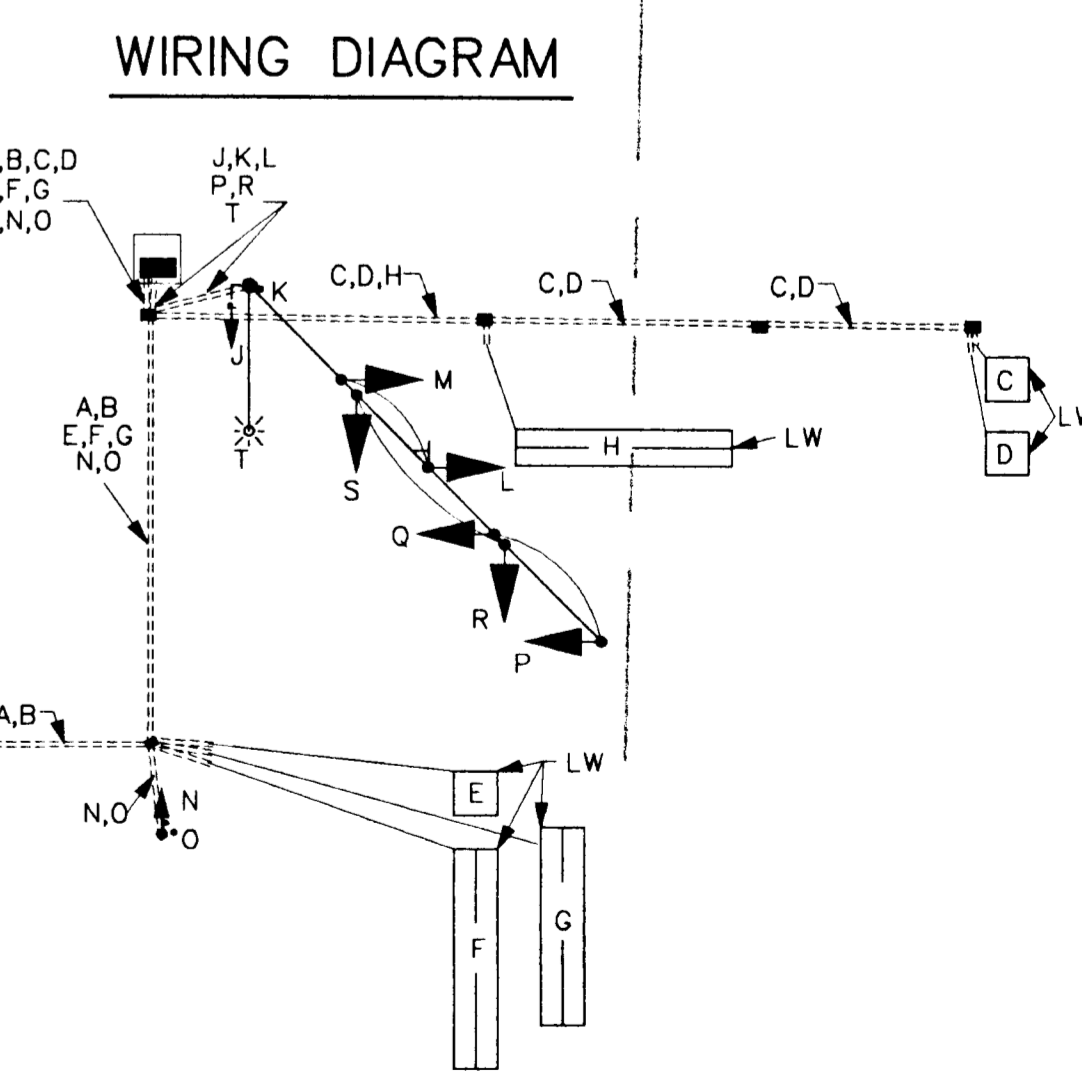
SIGNAL LEGEND

PROPOSED	EXISTING
● MAST ARM	○ MAST ARM
● STEEL POLE	○ STEEL POLE
▲ TRAFFIC SIGNAL HEAD	○ TRAFFIC SIGNAL HEAD
▲ PEDESTRIAN SIGNAL HEAD	○ PEDESTRIAN SIGNAL HEAD
T SIGN	T SIGN
* STREET LIGHT	* STREET LIGHT
□ HANDBOX	□ HANDBOX
□ CONDUIT	□ CONDUIT
□ LOOP DETECTOR	□ LOOP DETECTOR
□ CONTROLLER	□ CONTROLLER
□ CONTROLLER WITH PAD	□ CONTROLLER WITH PAD
○ WOOD POLE	○ WOOD POLE
○ FIRE HYDRANT	○ FIRE HYDRANT
○ MANHOLE	○ MANHOLE
● W.V. WATER VALVE	● W.V. WATER VALVE
● G.V. GAS VALVE	● G.V. GAS VALVE



WIRING LEGEND

- A- 2 CONDUCTOR CABLE (ALUMINUM SHIELDED)
- B- 2 CONDUCTOR CABLE (ALUMINUM SHIELDED)
- C- 2 CONDUCTOR CABLE (ALUMINUM SHIELDED)
- D- 2 CONDUCTOR CABLE (ALUMINUM SHIELDED)
- E- 2 CONDUCTOR CABLE (ALUMINUM SHIELDED)
- F- 2 CONDUCTOR CABLE (ALUMINUM SHIELDED)
- G- 2 CONDUCTOR CABLE (ALUMINUM SHIELDED)
- H- 2 CONDUCTOR CABLE (ALUMINUM SHIELDED)
- J- 3 CONDUCTOR CABLE (NO. 14 A.W.G.)
- K- 2 CONDUCTOR CABLE (NO. 14 A.W.G.)
- L- 7 CONDUCTOR CABLE (NO. 14 A.W.G.)
- M- 5 CONDUCTOR CABLE (NO. 14 A.W.G.)
- N- 3 CONDUCTOR CABLE (NO. 14 A.W.G.)
- O- 2 CONDUCTOR CABLE (NO. 14 A.W.G.)
- P- 7 CONDUCTOR CABLE (NO. 14 A.W.G.)
- Q- 5 CONDUCTOR CABLE (NO. 14 A.W.G.)
- R- 7 CONDUCTOR CABLE (NO. 14 A.W.G.)
- S- 5 CONDUCTOR CABLE (NO. 14 A.W.G.)
- T- 2 CONDUCTOR TRAY CABLE (NO. 12 A.W.G.)
- LW - LOOP WIRE
- PF - POWER FEED



DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

James J. Slu 4/13/00
 DIRECTOR OF PUBLIC WORKS DATE

John P. Szymon 4/13/00
 CHIEF, BUREAU OF ENGINEERING DATE

Andrew M. Conkle 4/13/00
 CHIEF, BUREAU OF HIGHWAYS DATE

Macalica 4/13/00
 CHIEF, DIVISION OF INFRASTRUCTURE PROJECTS AND MAINTENANCE MANAGEMENT DATE

GPI Greenman-Pedersen, Inc.
 ENGINEERS, ARCHITECTS, PLANNERS, CONSTRUCTION ENGINEERS & INSPECTORS
 14502 GREENVIEW DRIVE, SUITE 100, LAUREL, MD. 20708
 WASH. (301) 470-2772 BALT. (410) 880-3355
 FAX: (301) 480-2649 www.gpi.com

STATE OF MARYLAND
 DANIEL JOSEPH MALETIC
 No. 13759
 REGISTERED PROFESSIONAL ENGINEER

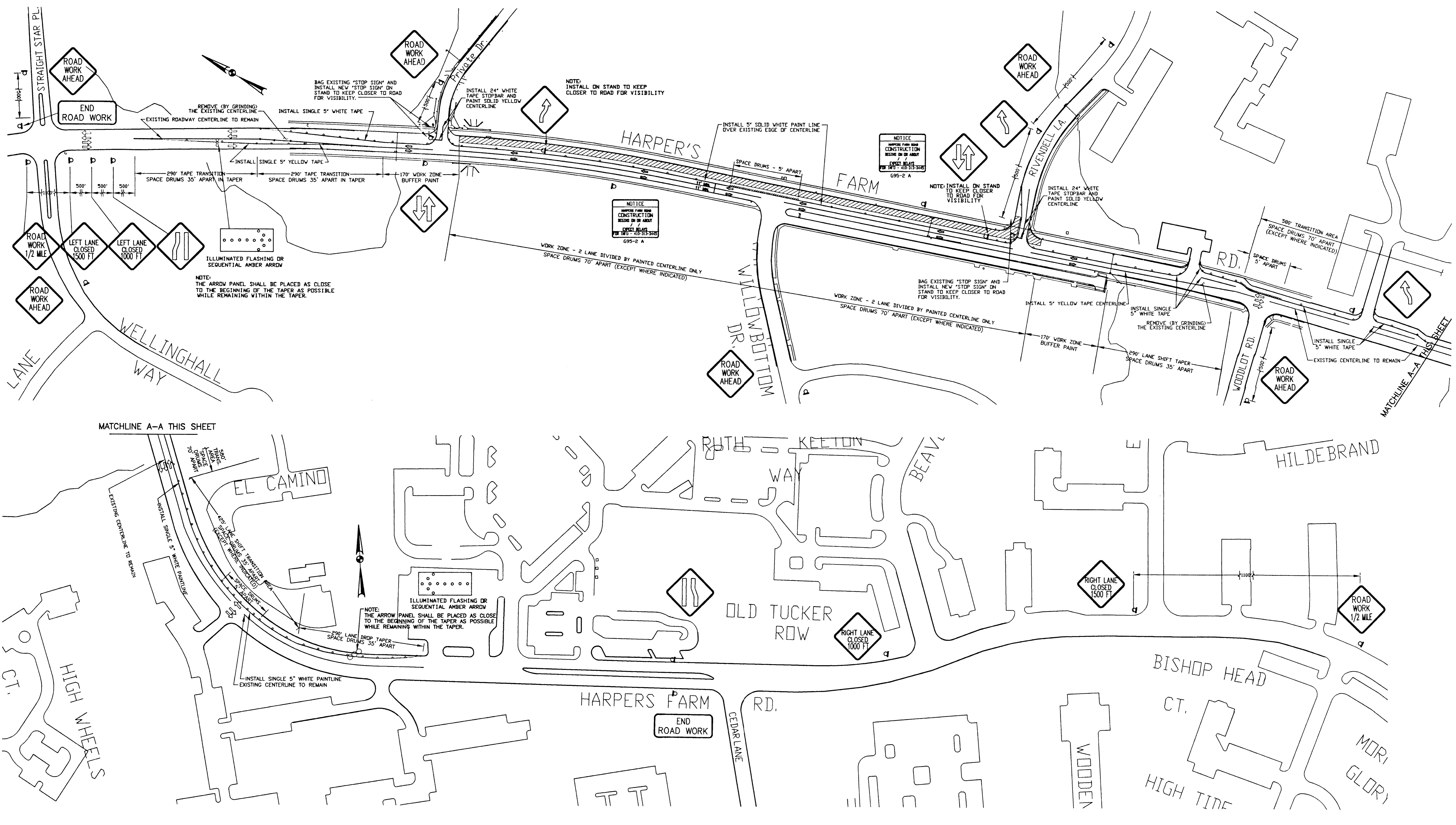
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DRN: S.A.Y.				
CHK: C.R.				
DATE: 8/99				

Signal Plan

SCALE: MAP NO. _____ BLOCK NO. _____

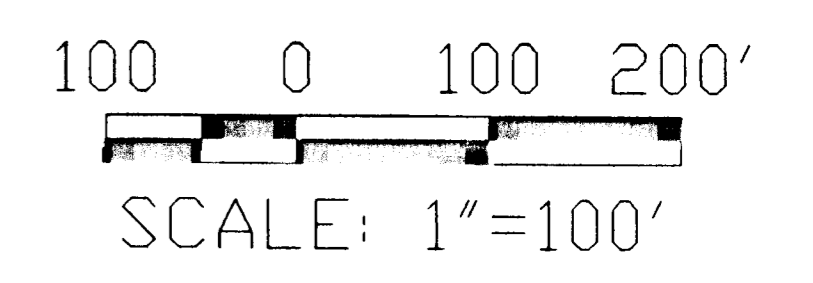
ROADWAY IMPROVEMENTS TO
 HARPERS FARM ROAD & WILLOWBOTTOM DRIVE
 HOWARD COUNTY, MARYLAND
 CAPITAL PROJECT NO. J-4164

SCALE AS SHOWN
 SHEET 14 OF 19



KEY:
 ○ CHANNELIZING DEVICES
 D TRAFFIC CONTROL SIGN
 ▨ DIRECTION OF TRAFFIC
 [] WORK SITE
 8 ARROW PANEL

NOTE:
 THE TWO (2) G95-2A SIGNS "NOTICE HARPERS FARM ROAD CONSTRUCTION BEGINS ON OR ABOUT _____ EXPECT DELAYS FOR INFO CALL 410-313-3445" MUST BE INSTALLED TWO WEEKS PRIOR TO CONTRACTOR BEGINNING ANY WORK ON HARPERS FARM ROAD.



DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

Andrew M. Cawley 4/13/00
 DIRECTOR OF PUBLIC WORKS DATE

John P. Seppan 4/13/00
 CHIEF, BUREAU OF ENGINEERING DATE

Sal Calcia 4/13/00
 CHIEF, DIVISION OF TRANSPORTATION PROJECTS AND WATERSHED MANAGEMENT DATE

GPI Greenman-Pedersen, Inc.
 ENGINEERS, ARCHITECTS, PLANNERS, CONSTRUCTION ENGINEERS & INSPECTORS
 14502 GREENVIEW DRIVE, SUITE 100, LAUREL, MD. 20788
 WASH. (301) 470-2772 BALT. (410) 880-3055
 FAX (301) 490-2649 www.gpinet.com



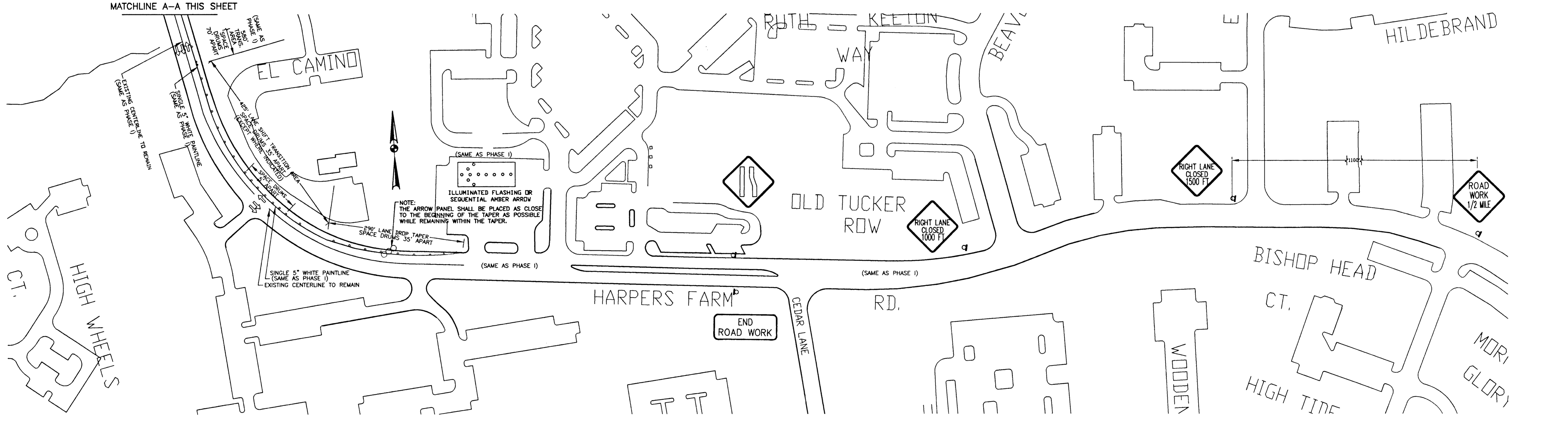
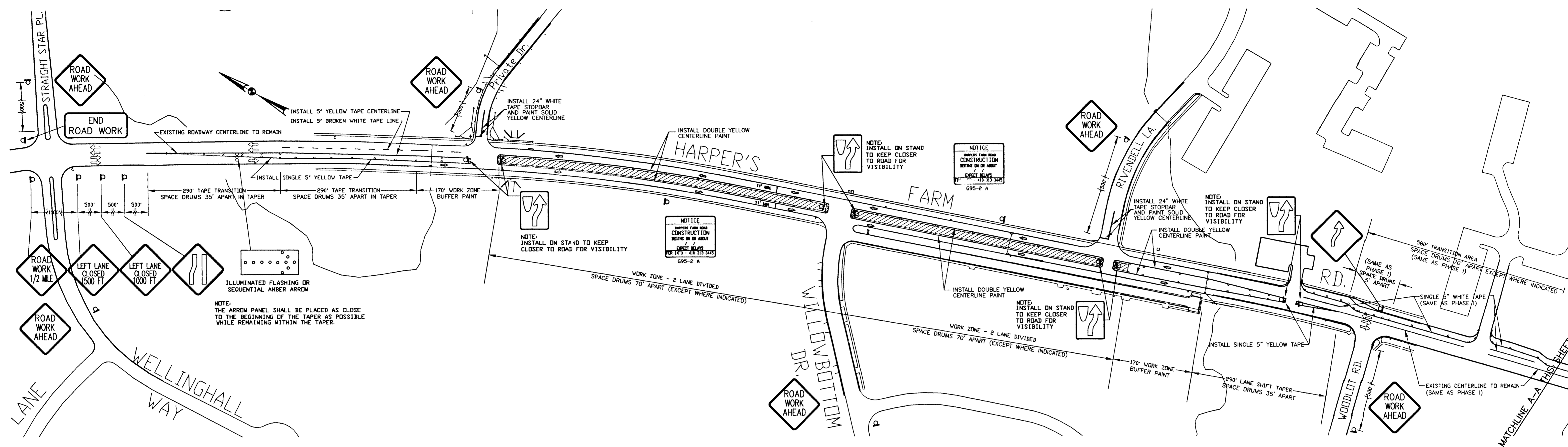
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DRN:				
CHK:				
DATE:				

**PHASE I
 MAINTENANCE OF TRAFFIC
 PLAN**

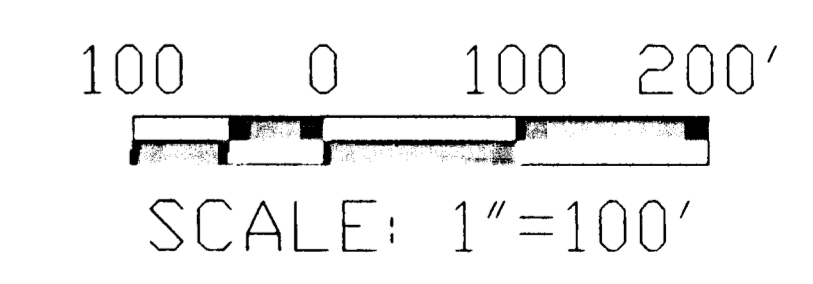
**ROADWAY IMPROVEMENTS TO
 HARPERS FARM RD. & WILLOWBOTTOM DR.
 HOWARD COUNTY, MARYLAND
 CAPITAL PROJECT NO. J-4164**

SCALE AS SHOWN
 SHEET 15 OF 19

FILED IN DATE: STAGES

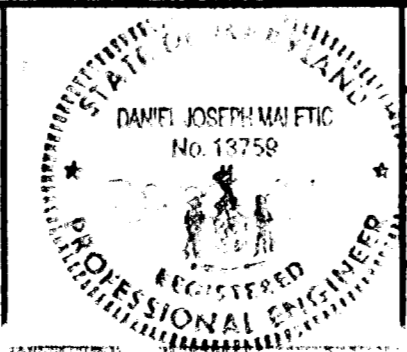


KEY:
 ○ CHANNELIZING DEVICES
 □ TRAFFIC CONTROL SIGN
 → DIRECTION OF TRAFFIC
 ▨ WORK SITE
 ○ ARROW PANEL



DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND
 Director of Public Works: *[Signature]* 4/13/00
 Chief, Bureau of Engineering: *[Signature]* 4/13/00
 Chief, Bureau of Highways: *[Signature]* 4-0-00
 Chief, Division of Transportation: *[Signature]* 4/13/00

GPI Greenman-Pedersen, Inc.
 ENGINEERS, ARCHITECTS, PLANNERS, CONSTRUCTION ENGINEERS & INSPECTORS
 14502 GREENVIEW DRIVE, SUITE 100, LAUREL, MD. 20708
 WASH. (301) 470-2772 BALT. (410) 880-3055
 FAX: (301) 490-2649 www.gpinet.com

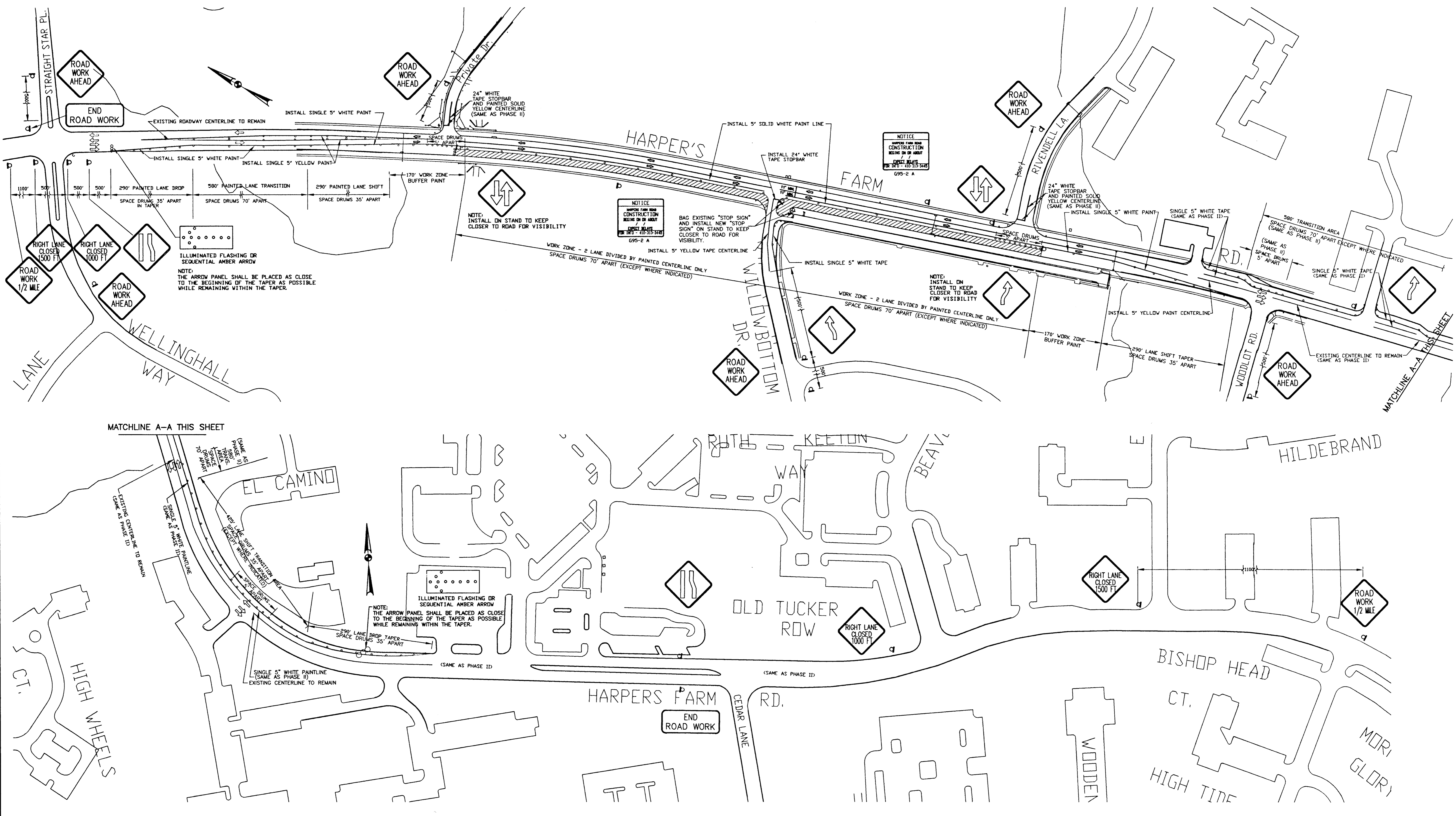


DES.	BY	NO.	REVISION	DATE
DRN:				
CHK:				
DATE:				

PHASE II
MAINTENANCE OF TRAFFIC PLAN
 SCALE MAP NO. _____ BLOCK NO. _____

ROADWAY IMPROVEMENTS TO HARPERS FARM RD. & WILLOWBOTTOM DR.
 HOWARD COUNTY, MARYLAND
 CAPITAL PROJECT NO. J-4164

SCALE AS SHOWN
 SHEET 16 OF 19



KEY:
 CHANNELIZING DEVICES
 TRAFFIC CONTROL SIGN
 DIRECTION OF TRAFFIC
 WORK SITE
 ARROW PANEL

100 0 100 200'
 SCALE: 1"=100'

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

James P. Stuenkel 4/13/00
 DIRECTOR OF PUBLIC WORKS DATE

John P. Pappas 4/13/00
 CHIEF, BUREAU OF ENGINEERING DATE

Bob Alia 4/13/00
 CHIEF, DIVISION OF TRANSPORTATION PROJECTS AND WATERSHED MANAGEMENT DATE

GPI Greenman-Pedersen, Inc.
 ENGINEERS, ARCHITECTS, PLANNERS, CONSTRUCTION ENGINEERS & INSPECTORS
 14502 GREENVIEW DRIVE, SUITE 100, LAUREL, MD 20708
 WASH. (301) 470-2772 BALT. (410) 880-3055
 FAX (301) 490-2649 www.gpinet.com



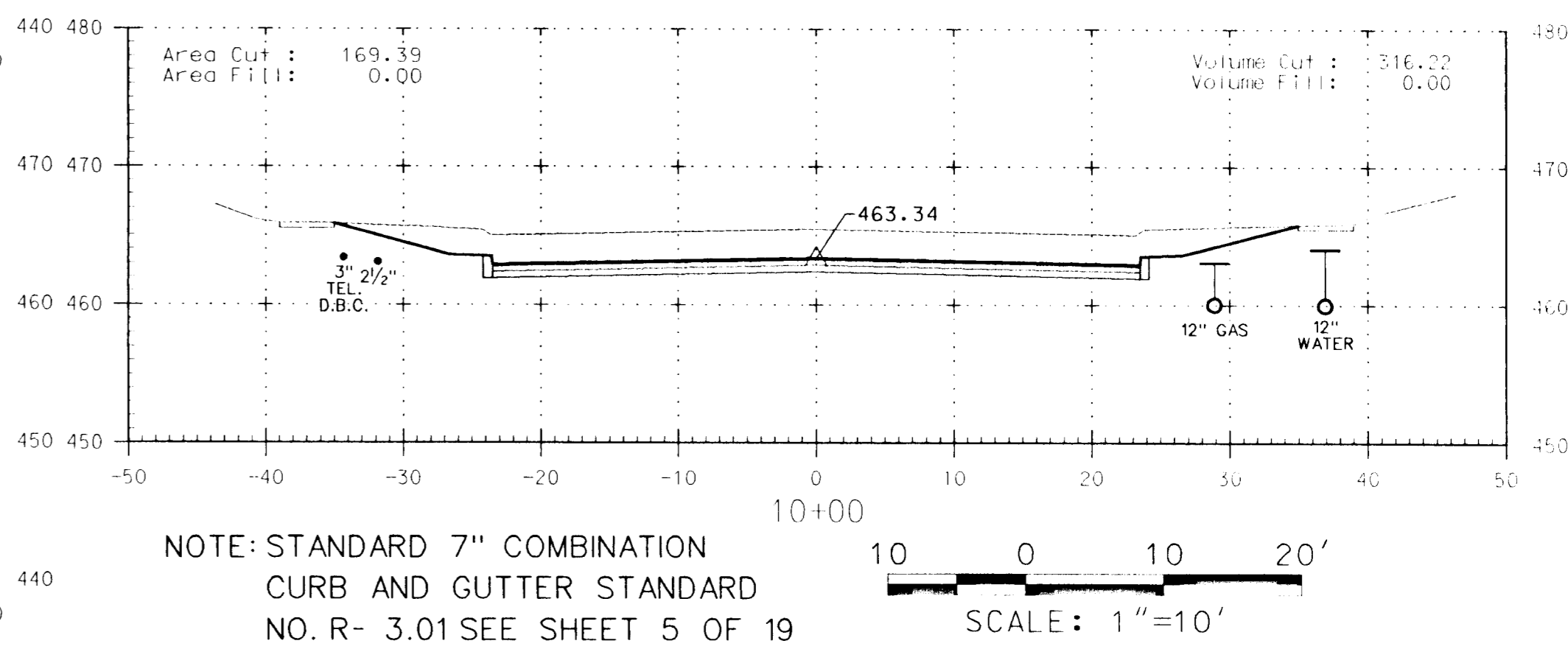
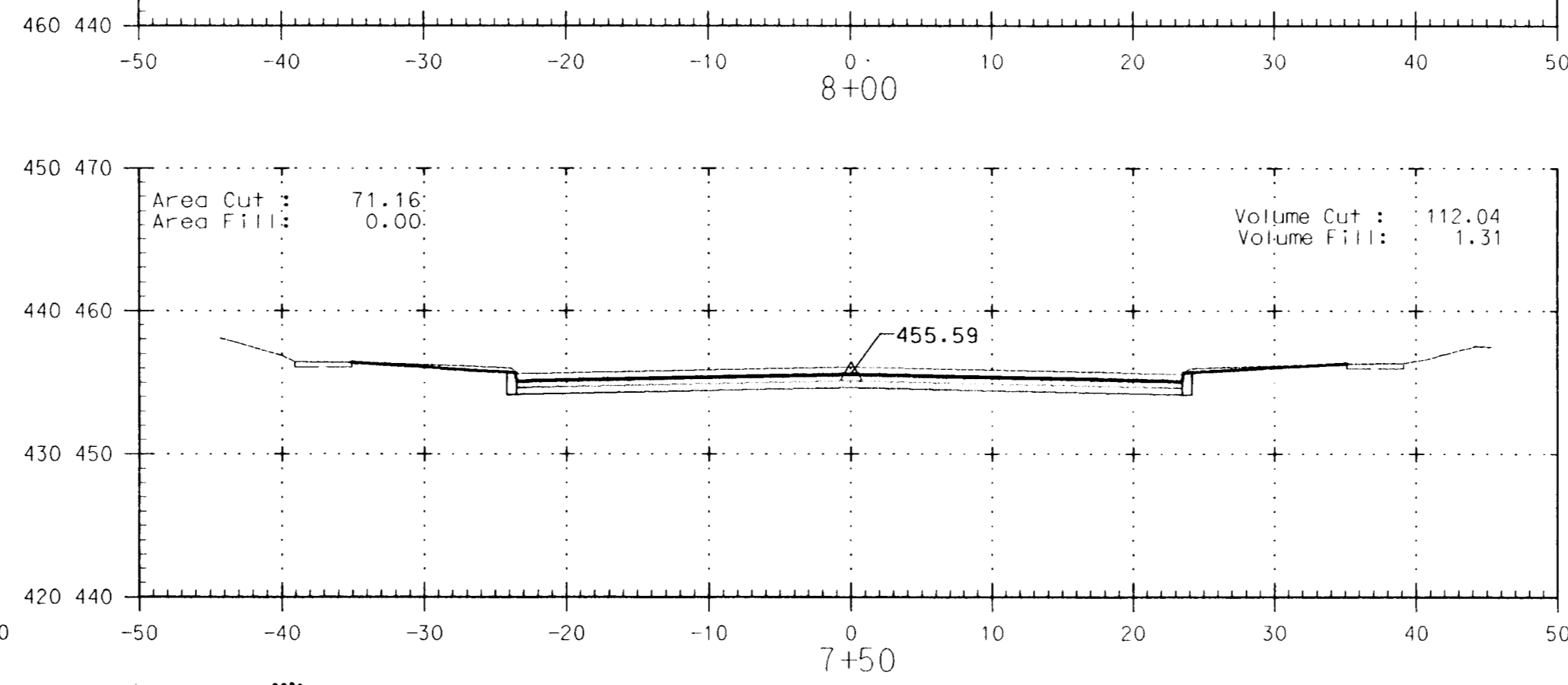
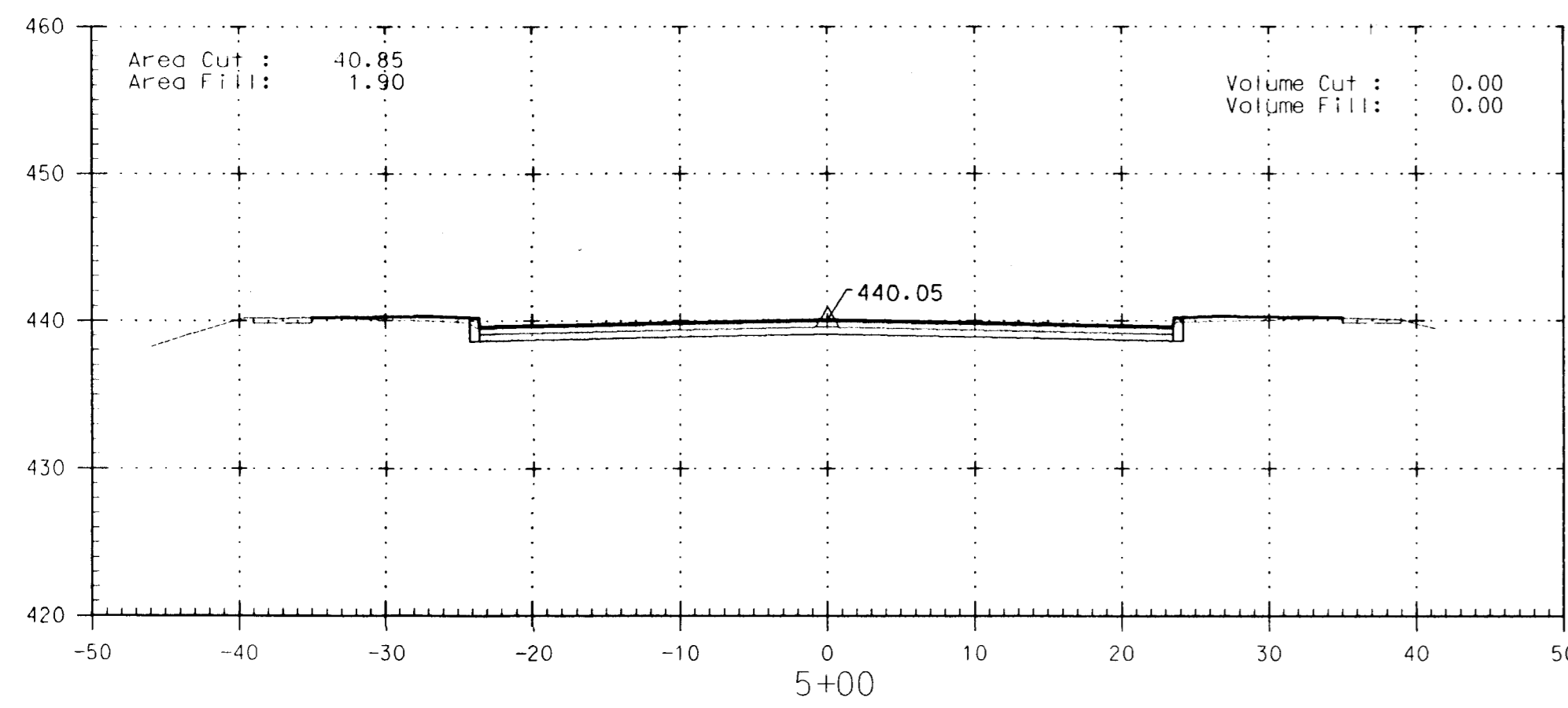
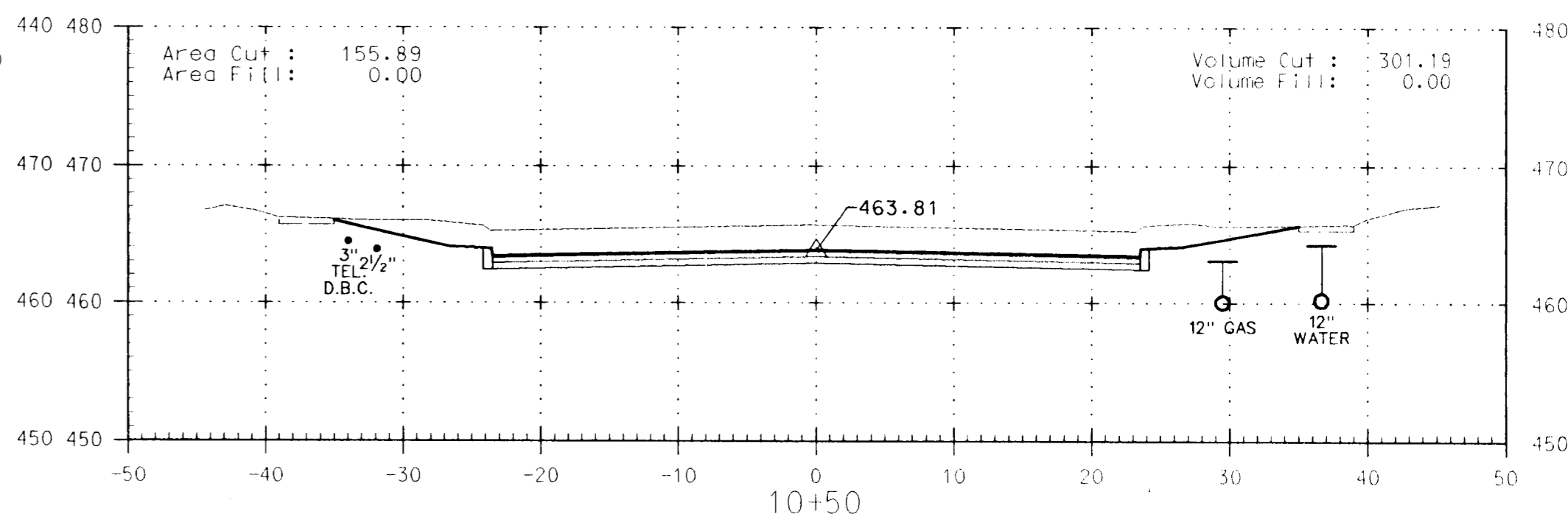
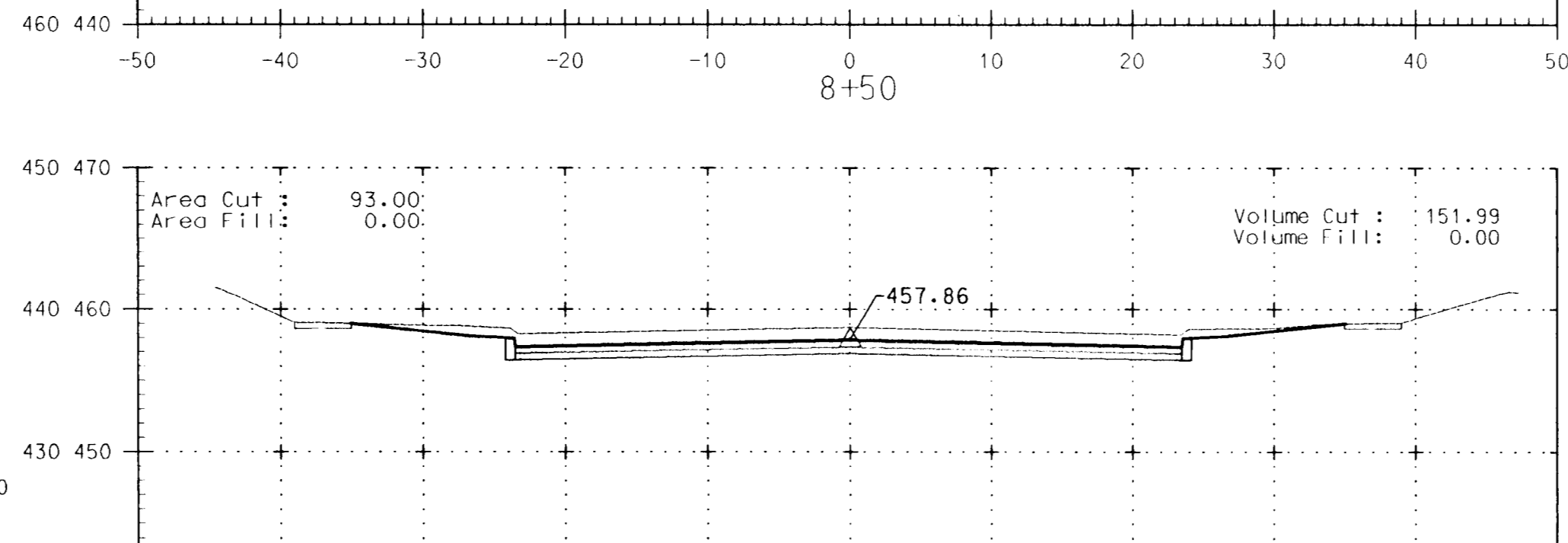
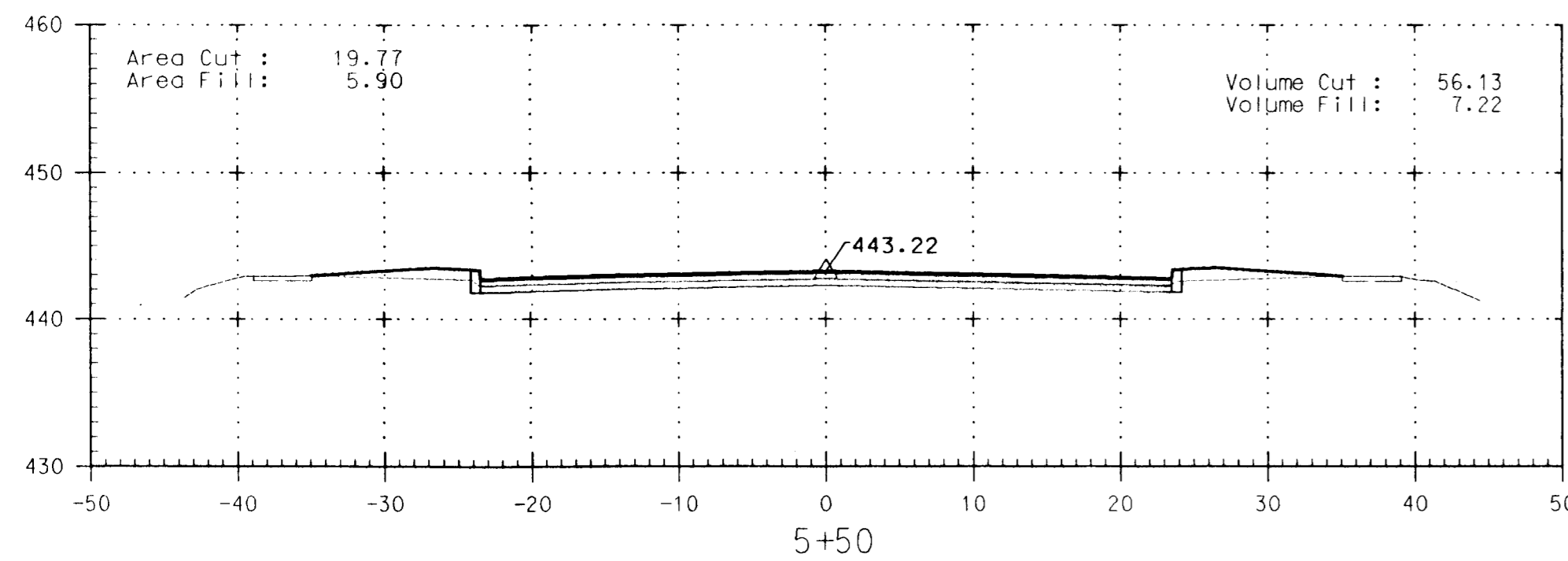
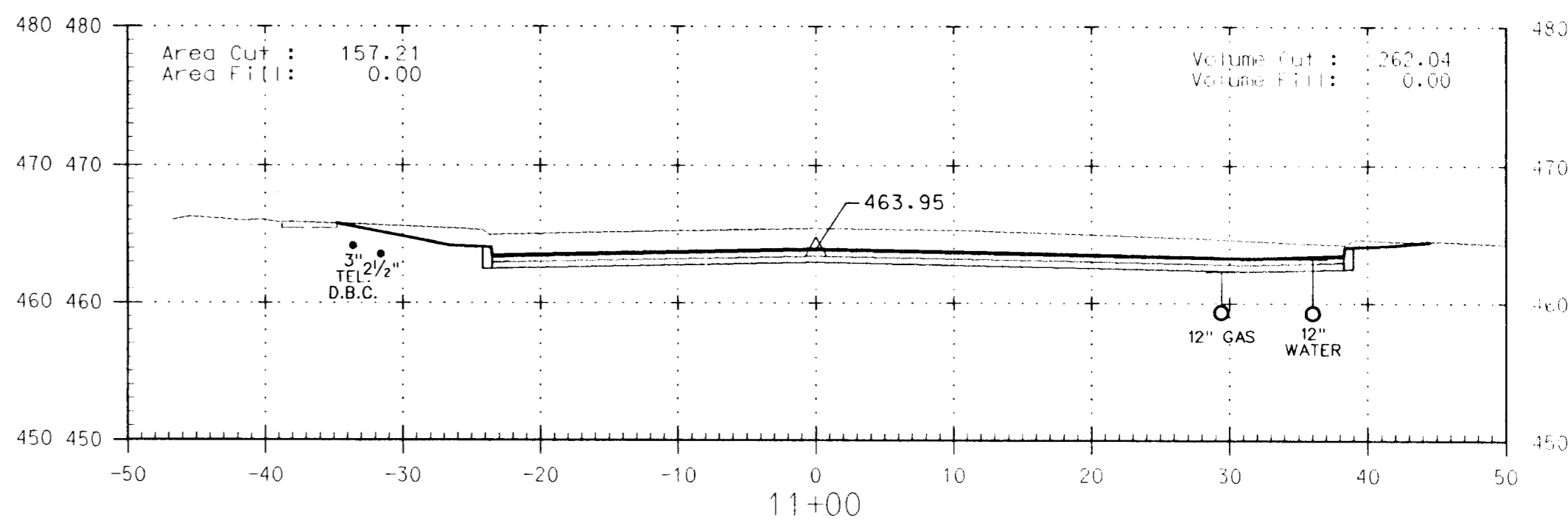
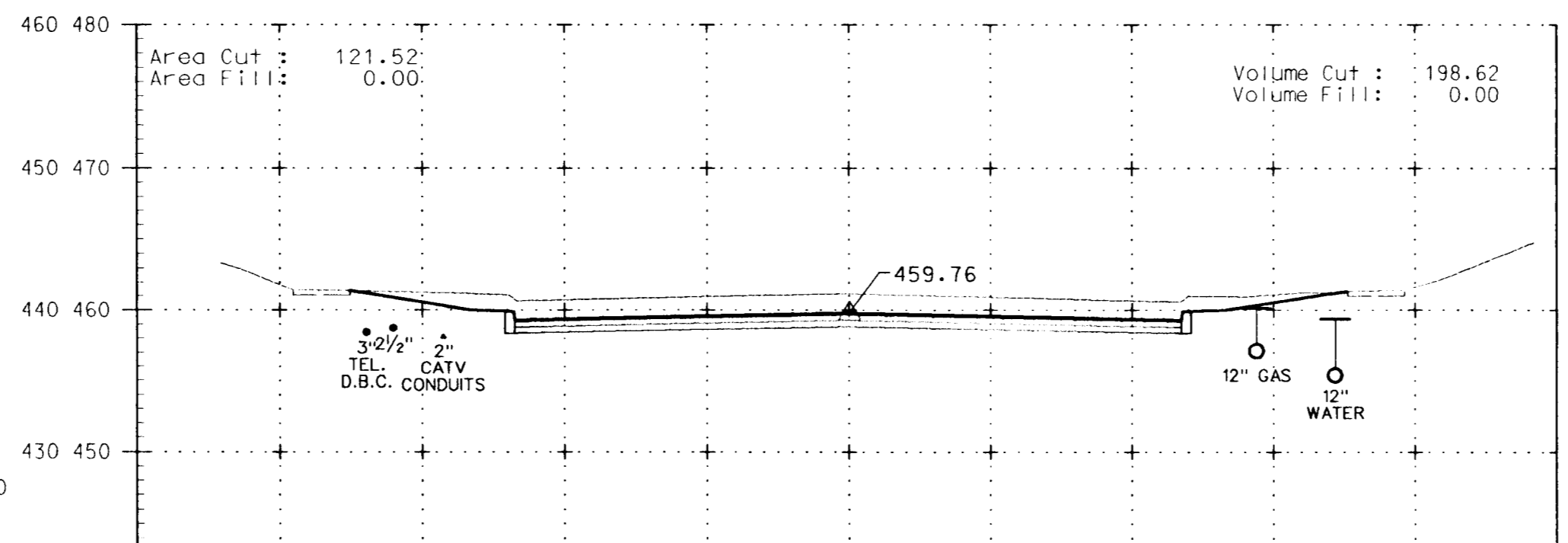
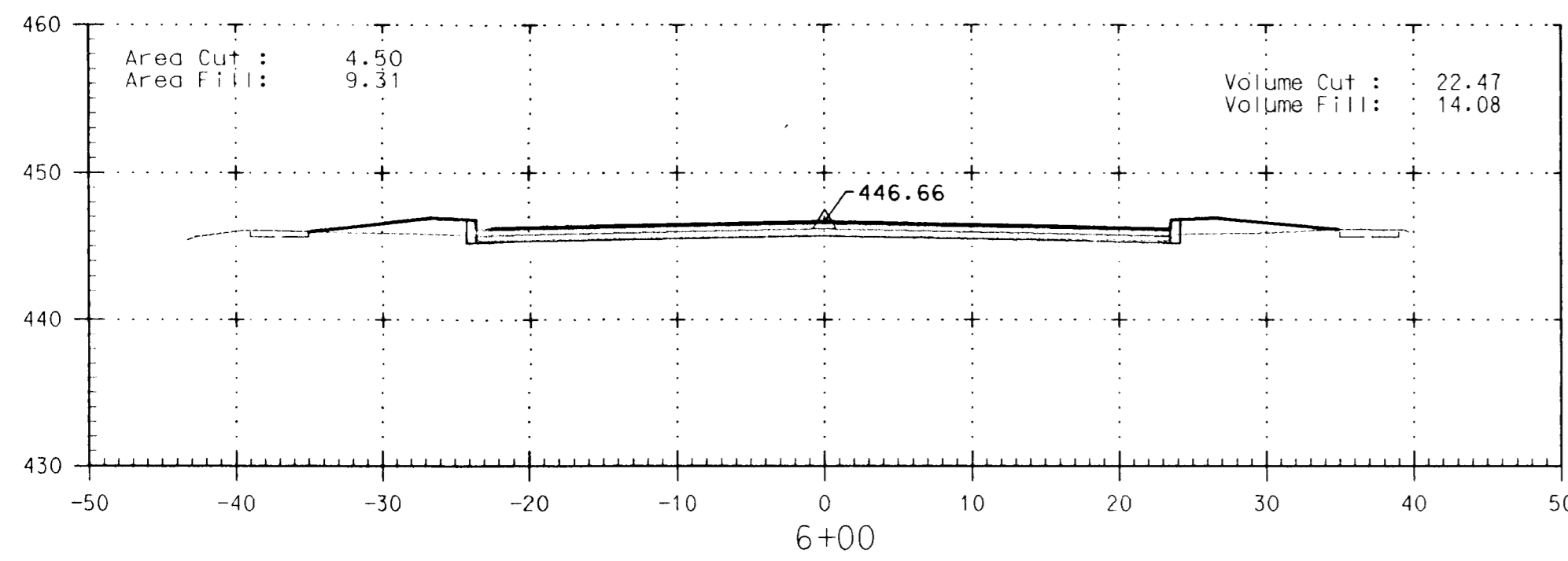
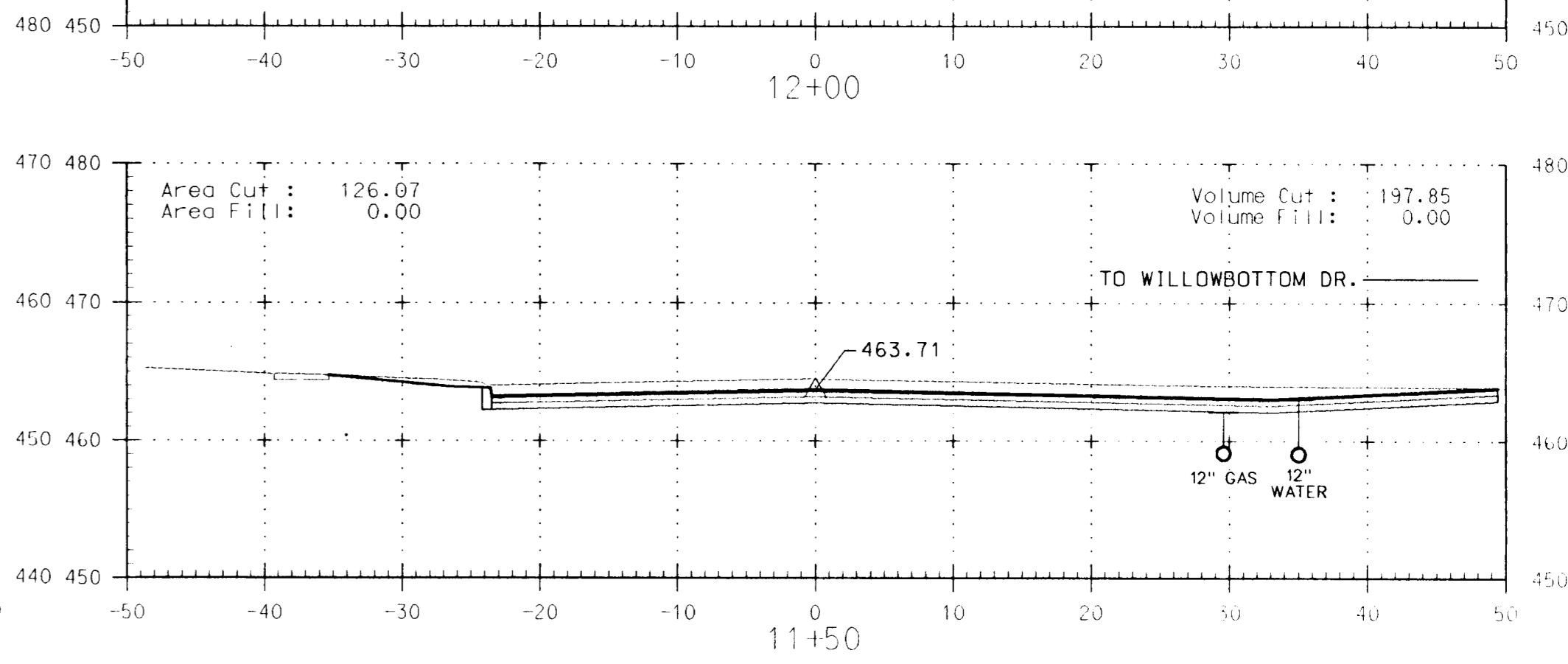
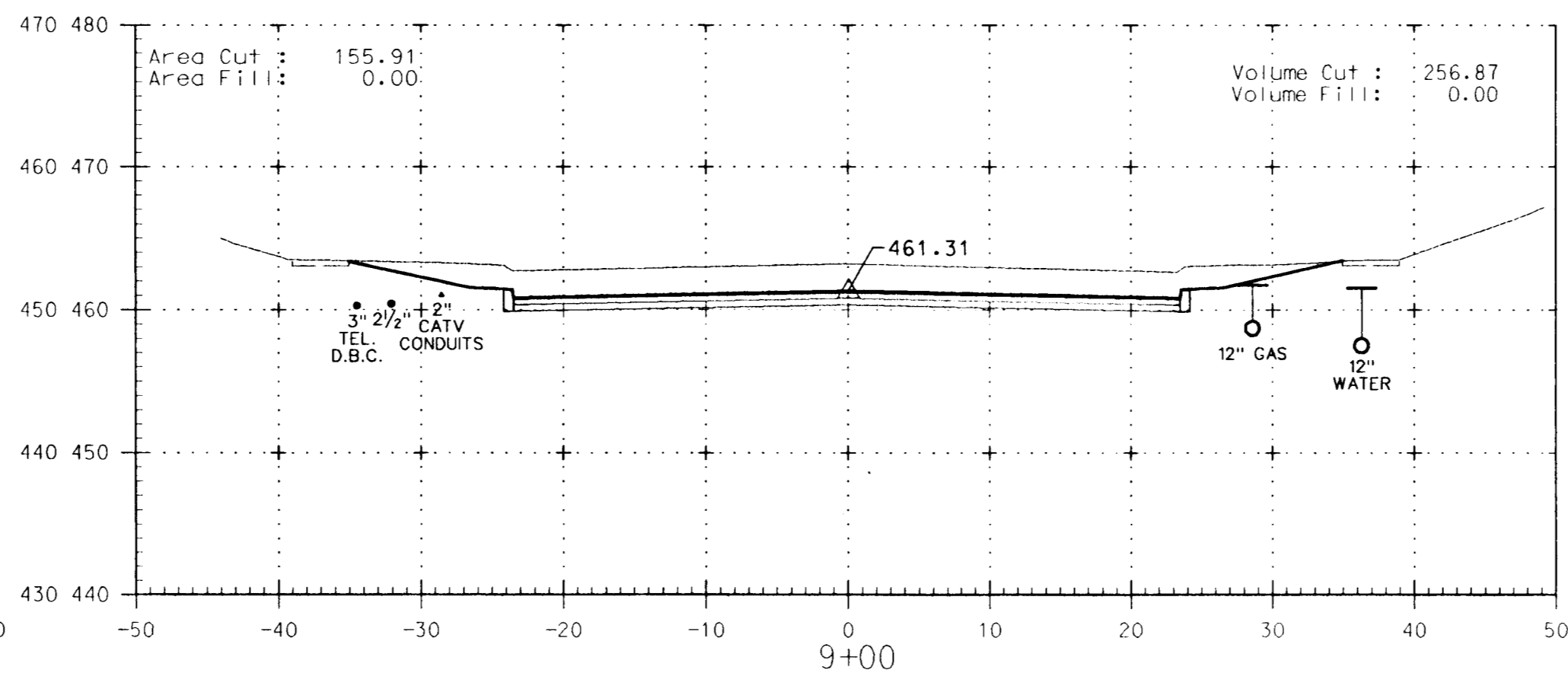
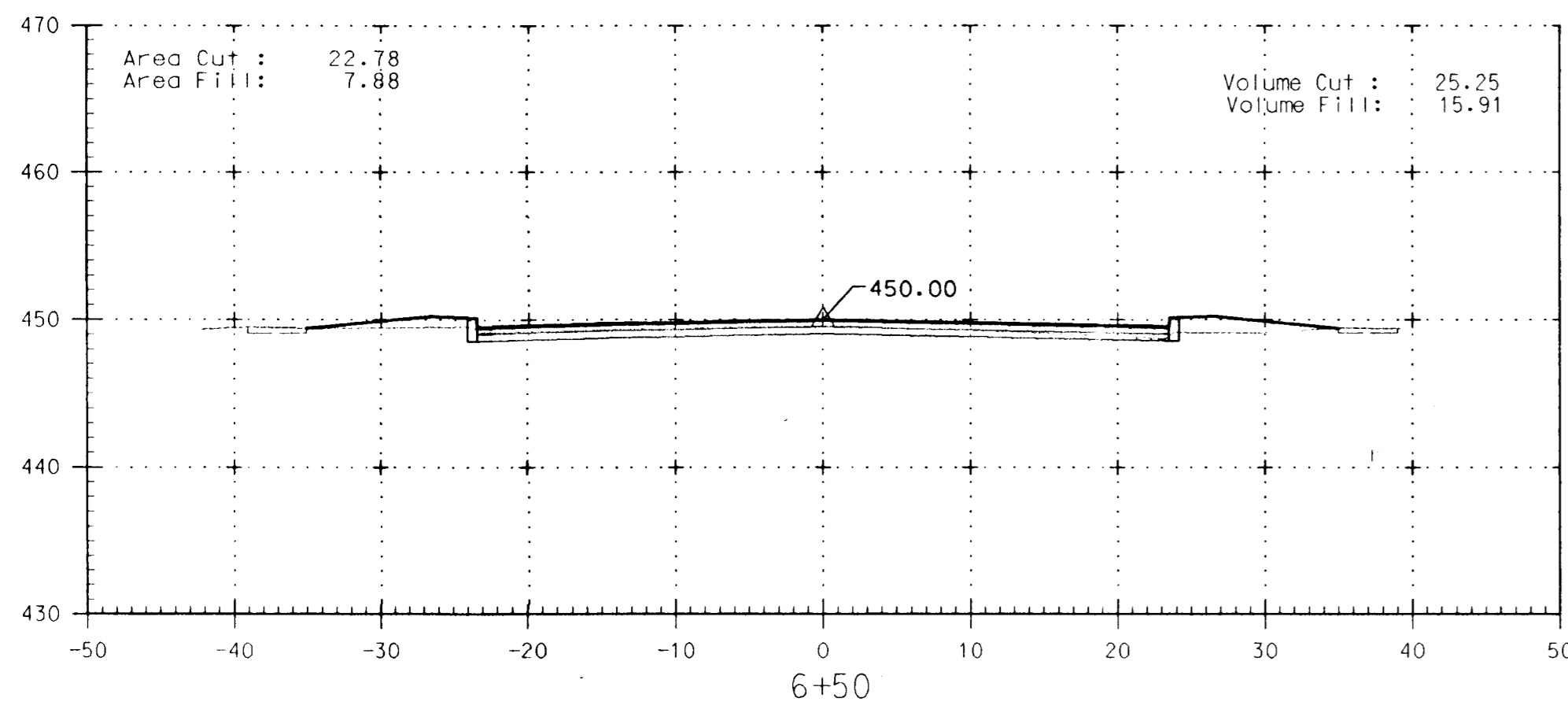
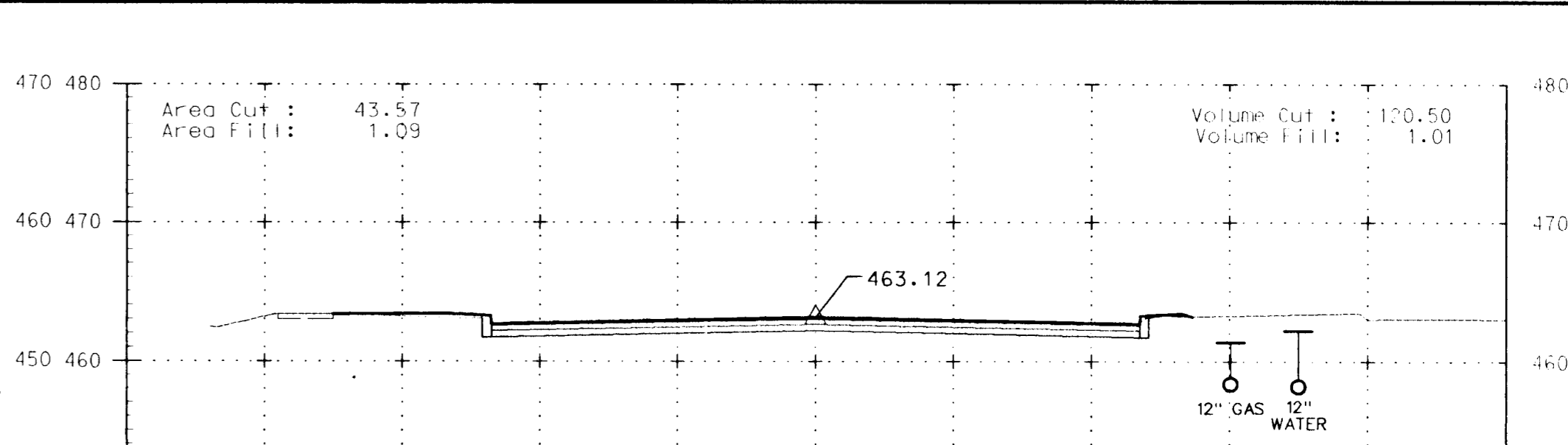
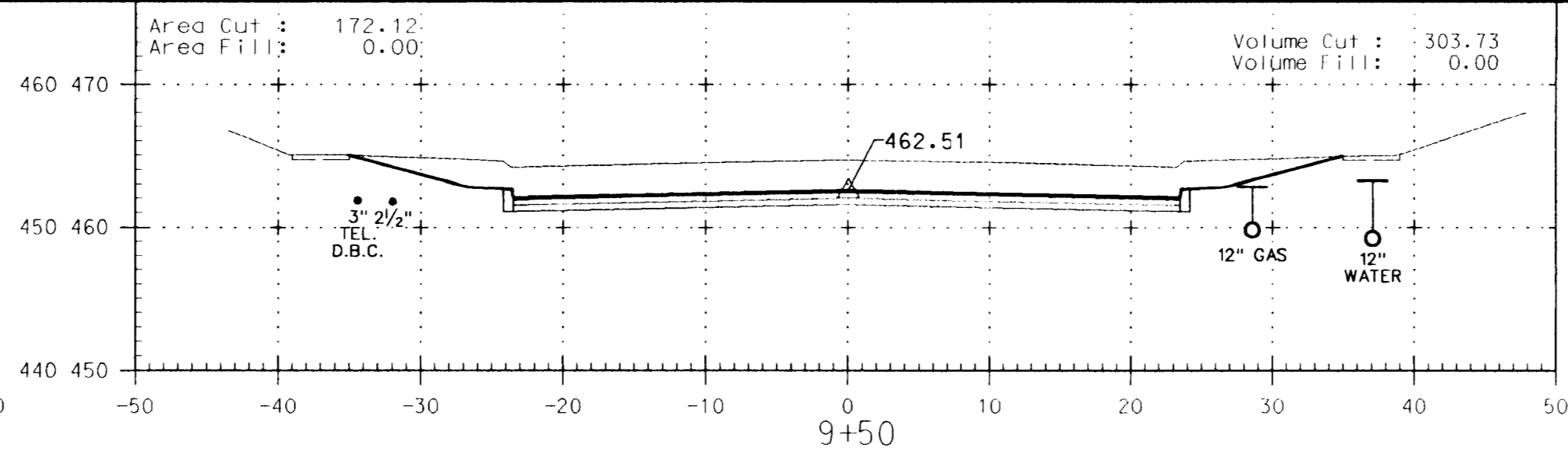
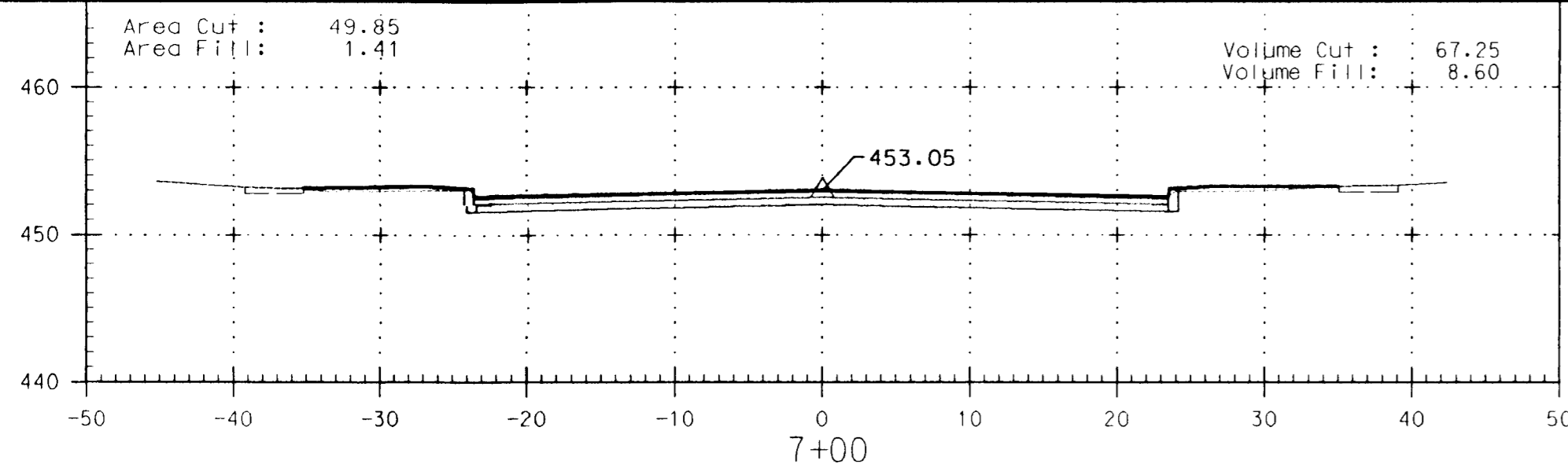
DES:	BY:	NO:	REVISION:	DATE:
DRN:				
CHK:				
DATE:				

**PHASE III
 MAINTENANCE OF TRAFFIC PLAN**

SCALE MAP NO. _____ BLOCK NO. _____

**ROADWAY IMPROVEMENTS TO
 HARPERS FARM RD. & WILLOWBOTTOM DR.**
 HOWARD COUNTY, MARYLAND
 CAPITAL PROJECT NO. J-4164

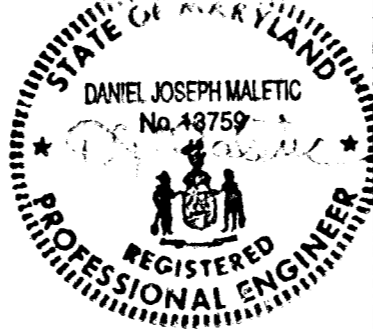
SCALE AS SHOWN
 SHEET 17 OF 19



NOTE: STANDARD 7" COMBINATION CURB AND GUTTER STANDARD
 NO. R- 3.01 SEE SHEET 5 OF 19
 SCALE: 1"=10'

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND
 Director: *James J. Shum* 4/13/00
 Chief, Bureau of Engineering: *Richard J. Brown* 4/13/00
 Chief, Bureau of Highways: *Andrew M. Danville* 4-13-00
 Chief, Bureau of Transportation Projects and Watershed Management: *Erica Colia* 4/13/00

GPI Greenman-Pedersen, Inc.
 ENGINEERS, ARCHITECTS, PLANNERS, CONSTRUCTION ENGINEERS & INSPECTORS
 1402 GREENWICH DRIVE, SUITE 100, LAUREL, MD. 20708
 WASH. (301) 470-2772 BALT. (410) 880-3055
 FAX: (301) 480-2648 www.gpinc.com



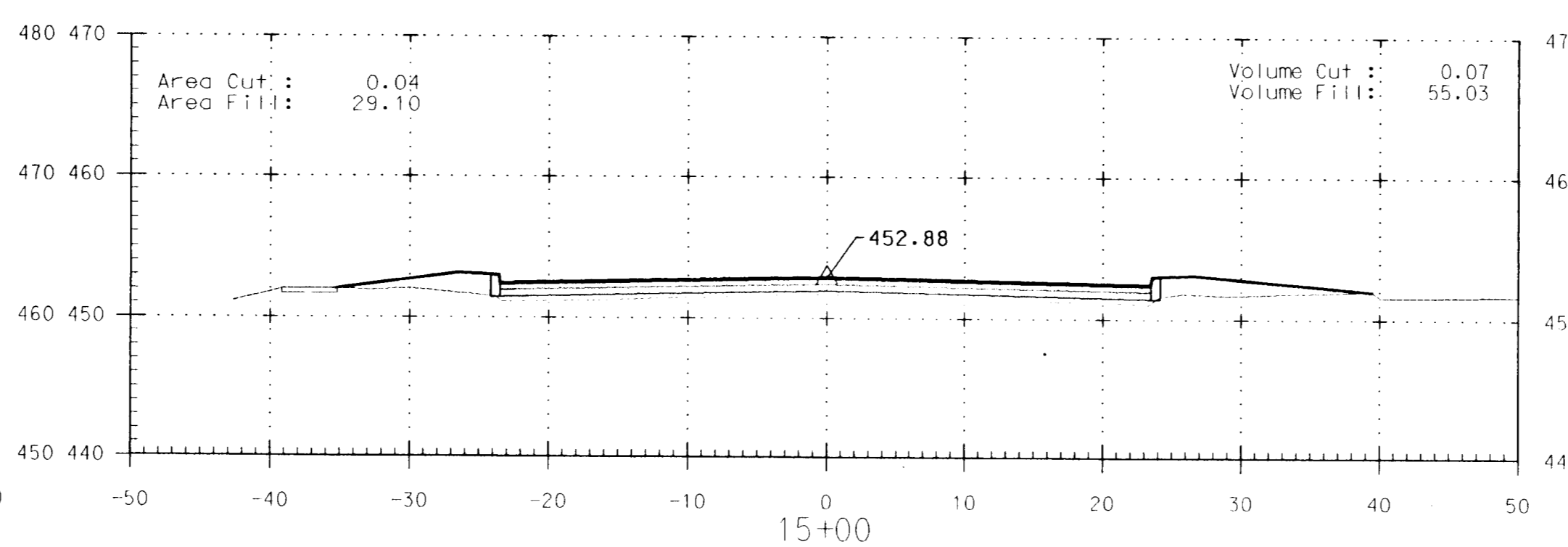
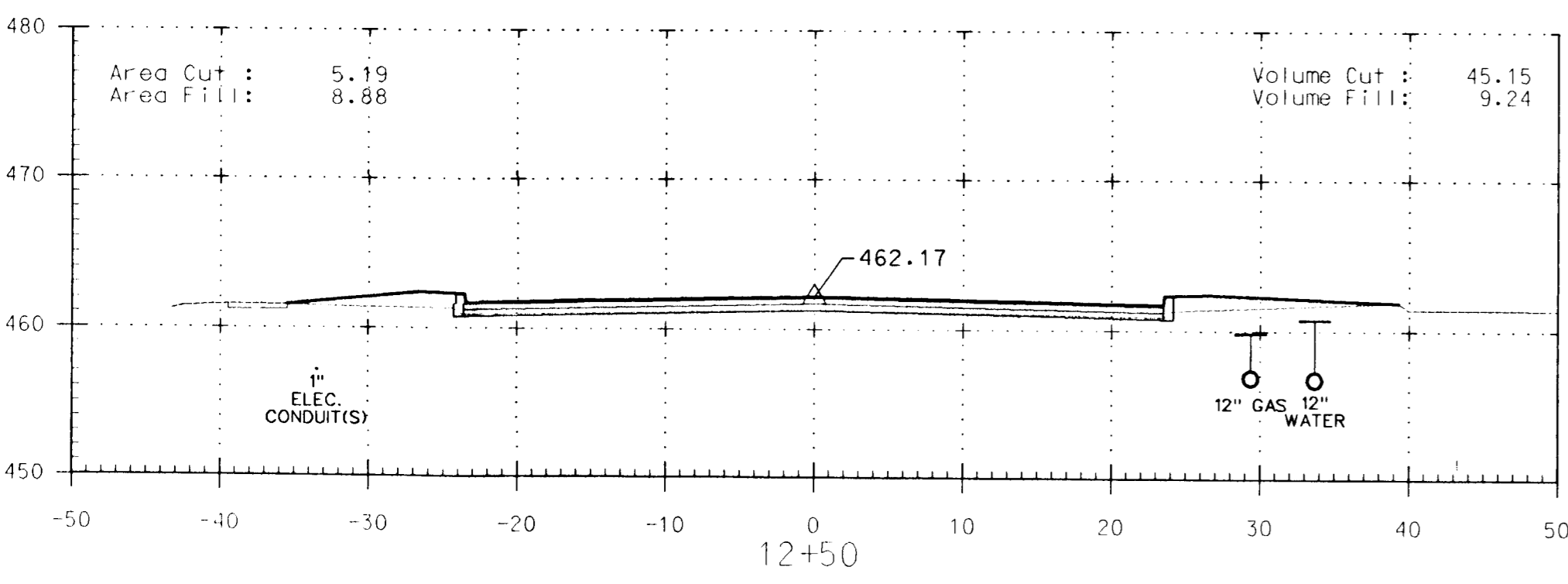
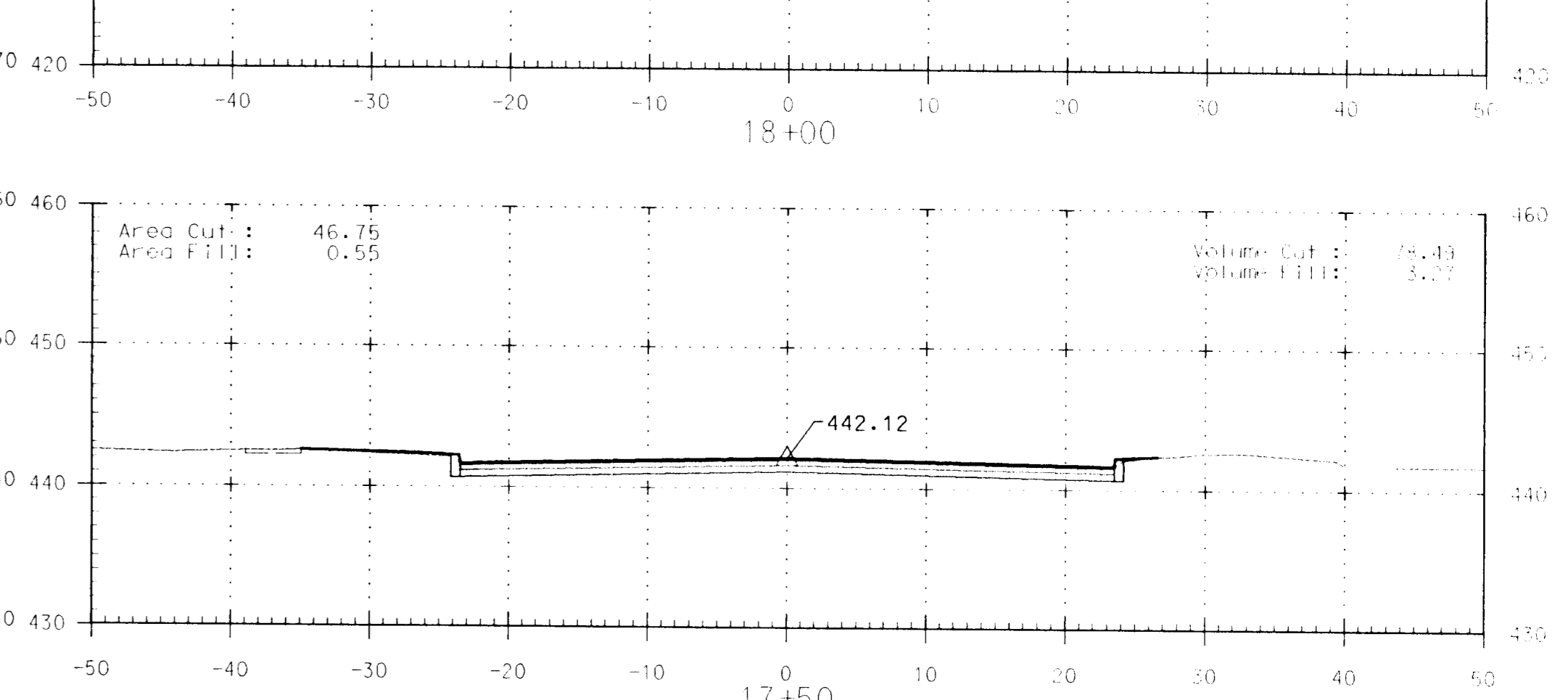
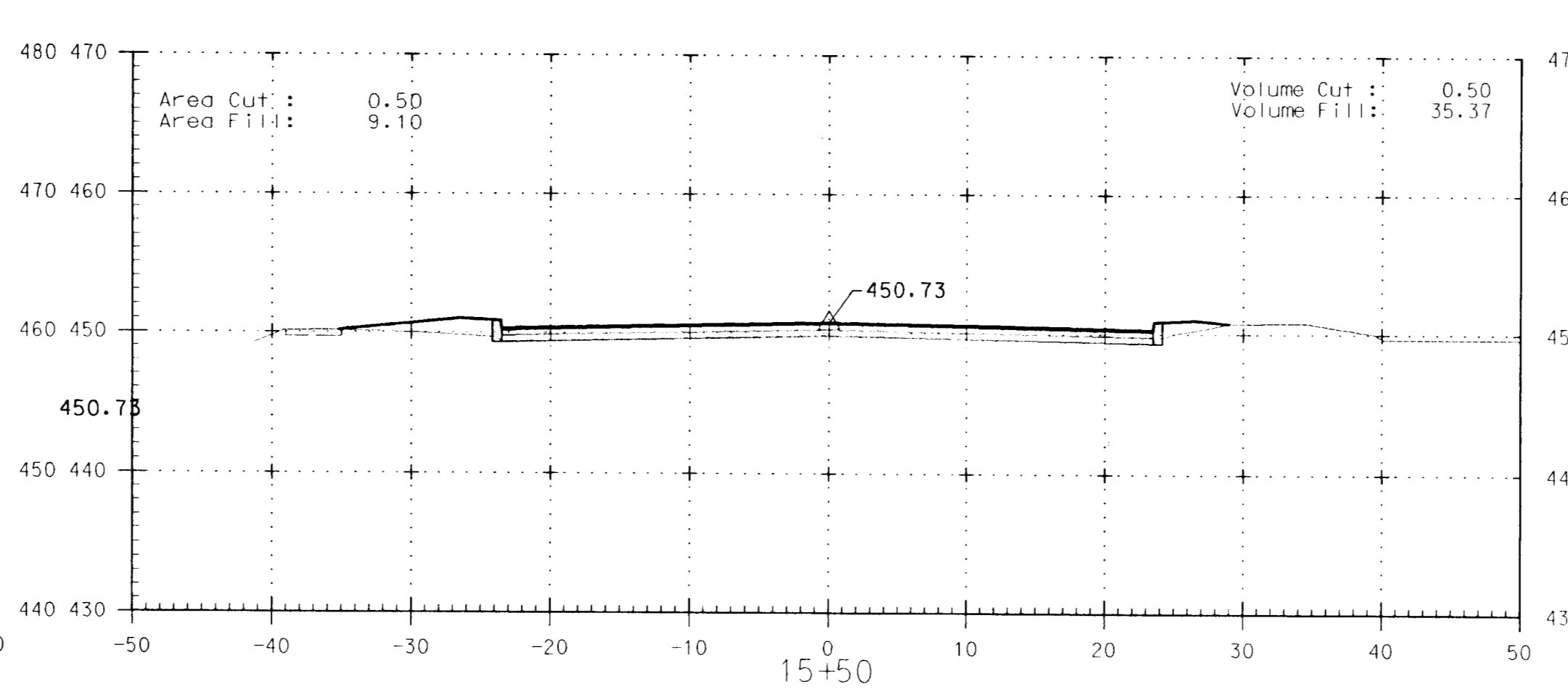
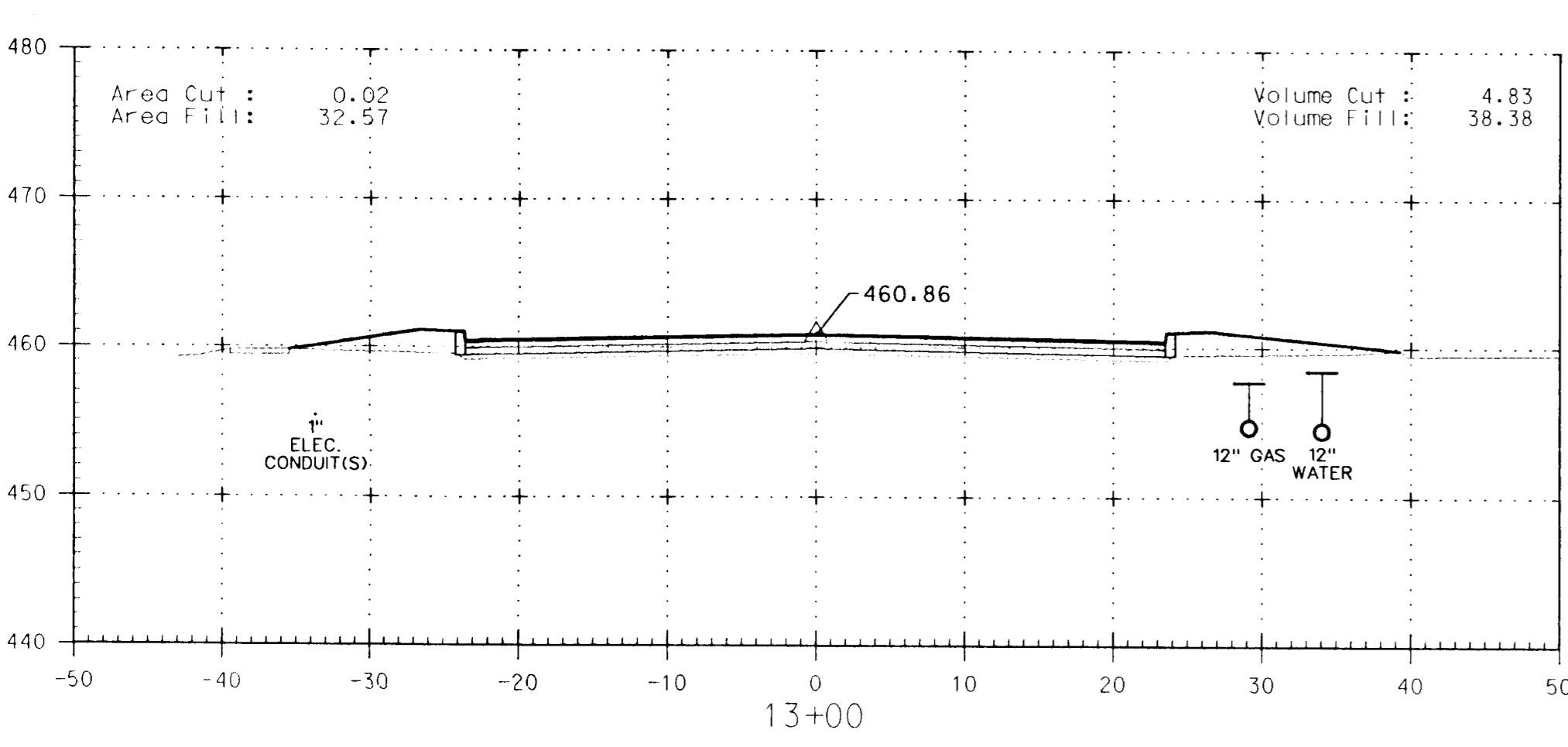
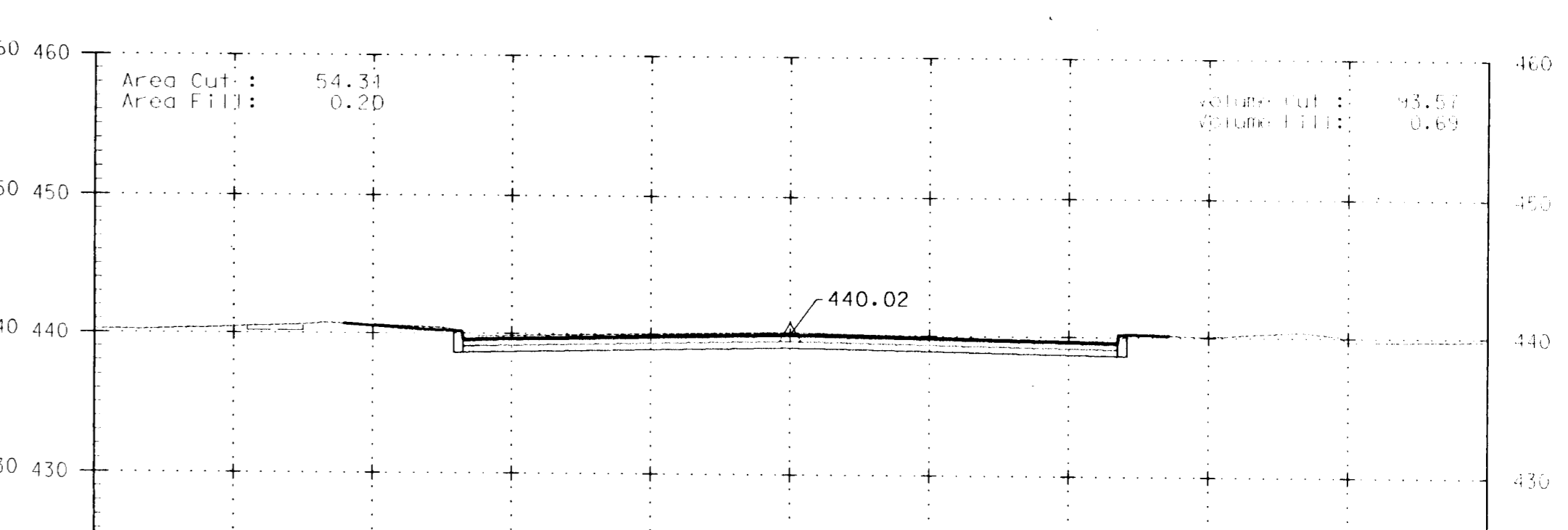
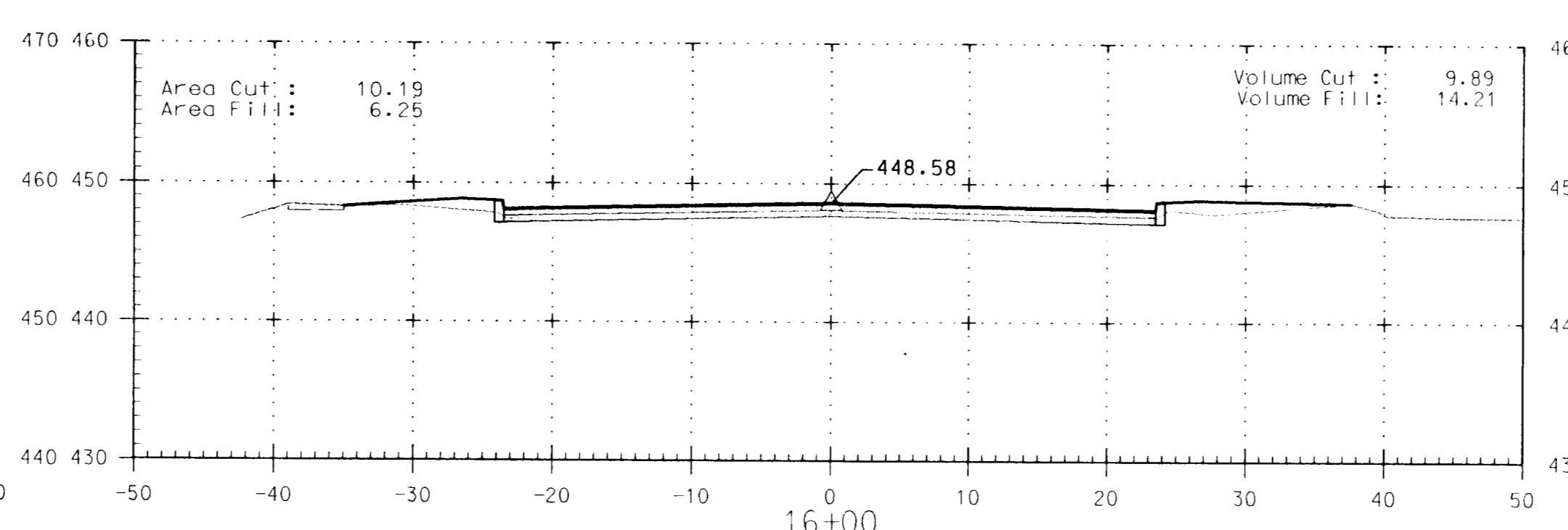
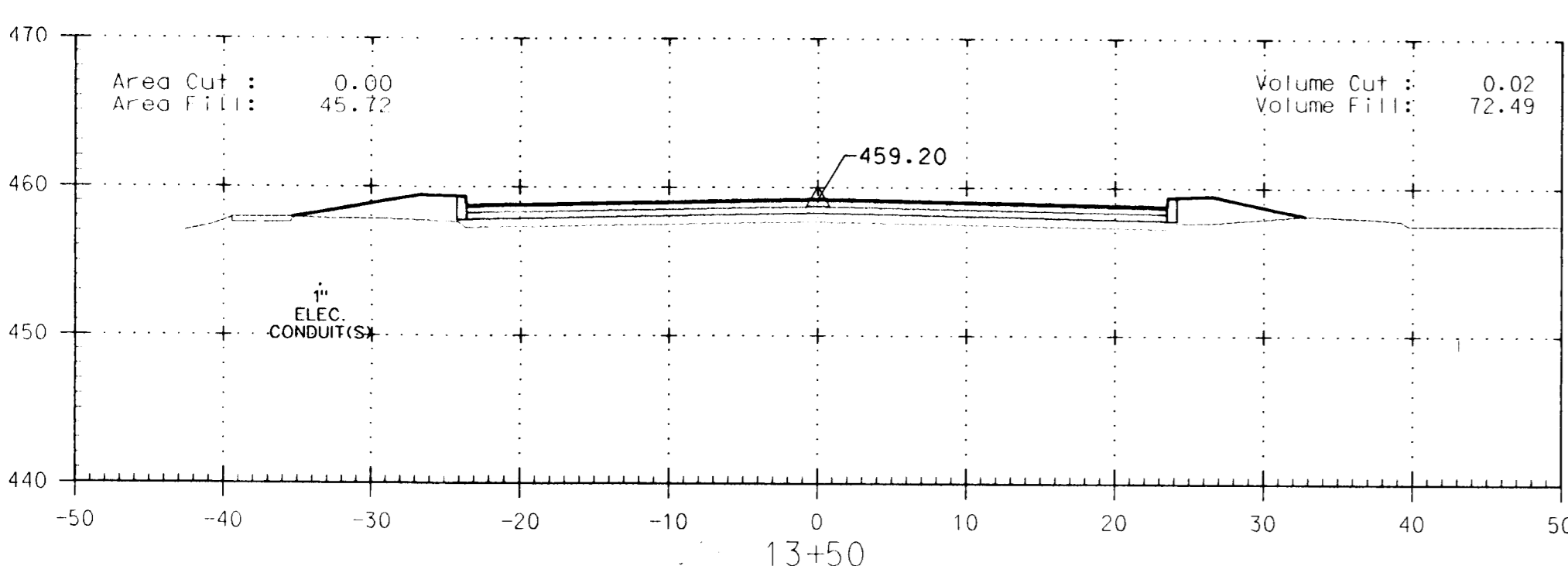
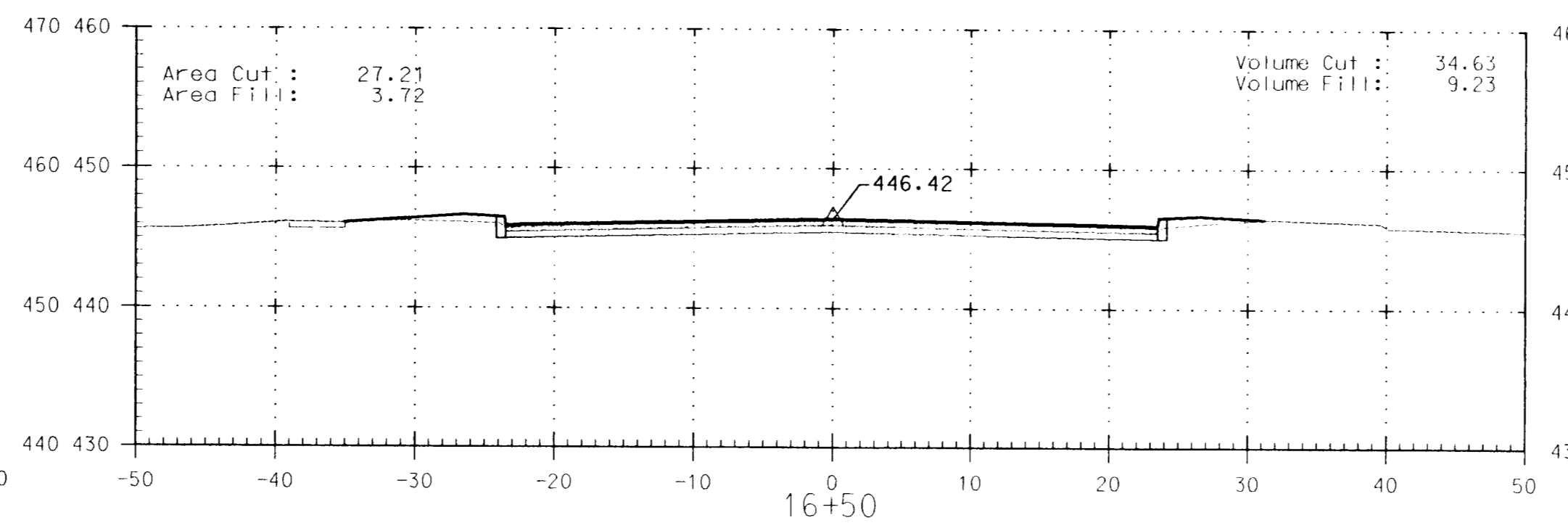
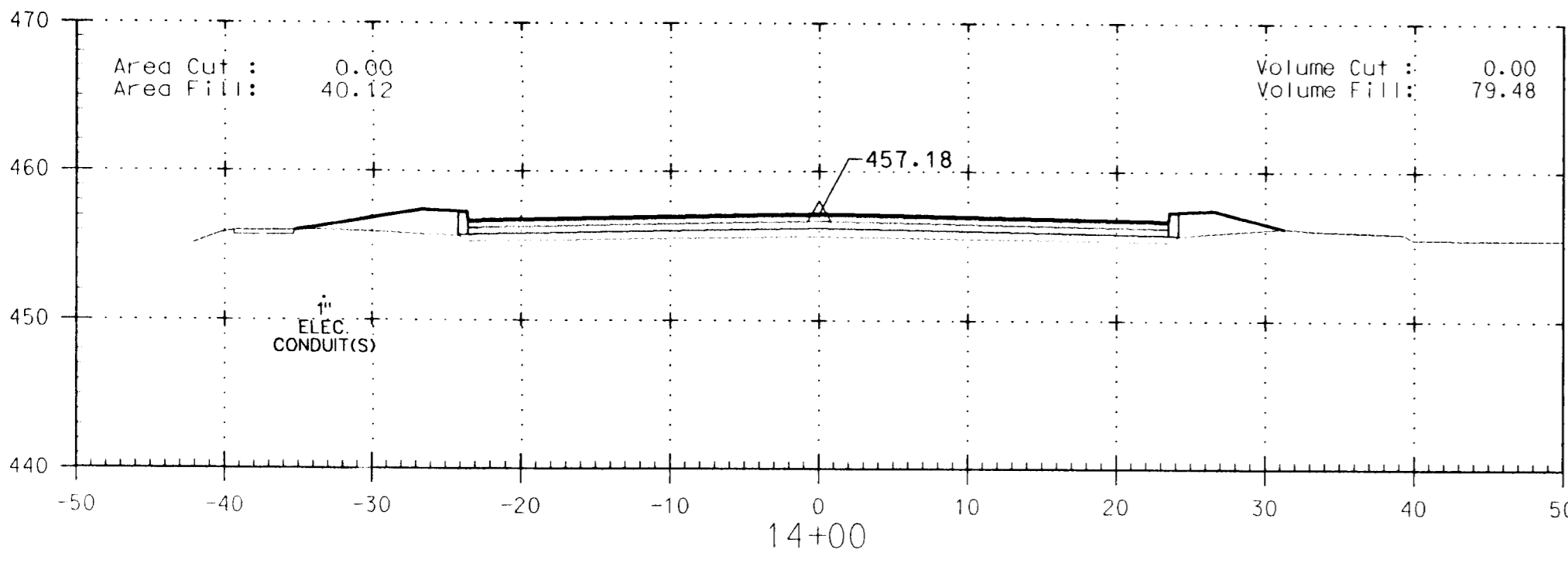
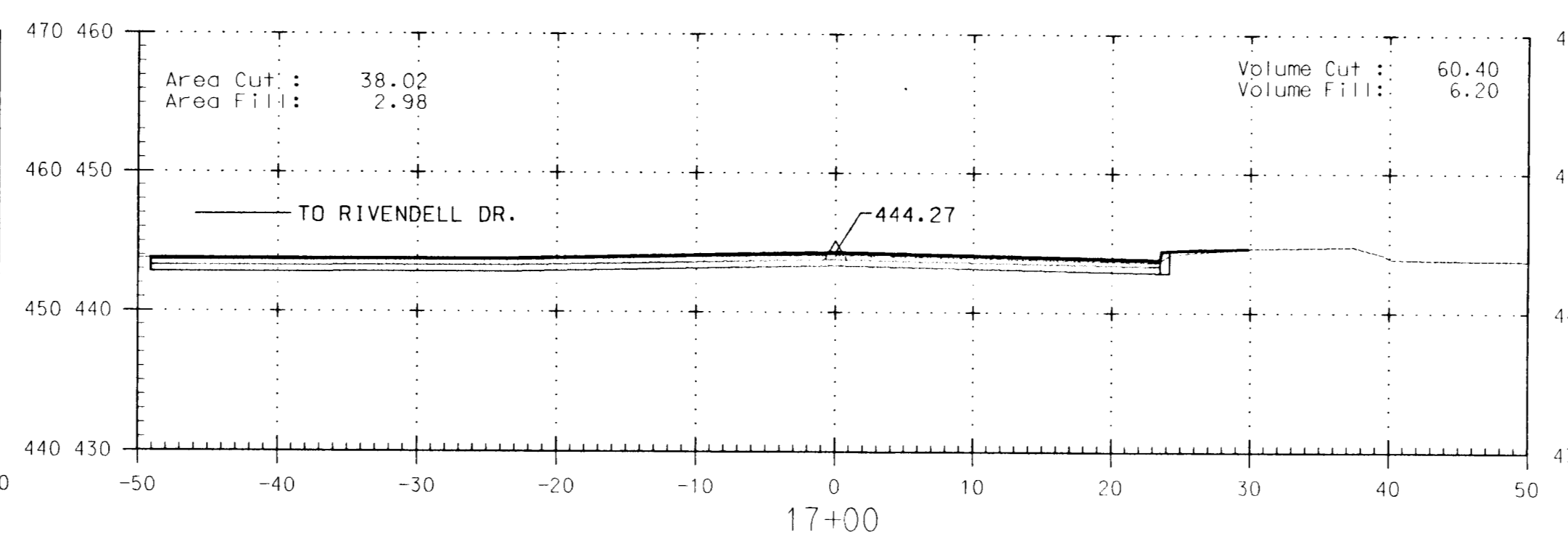
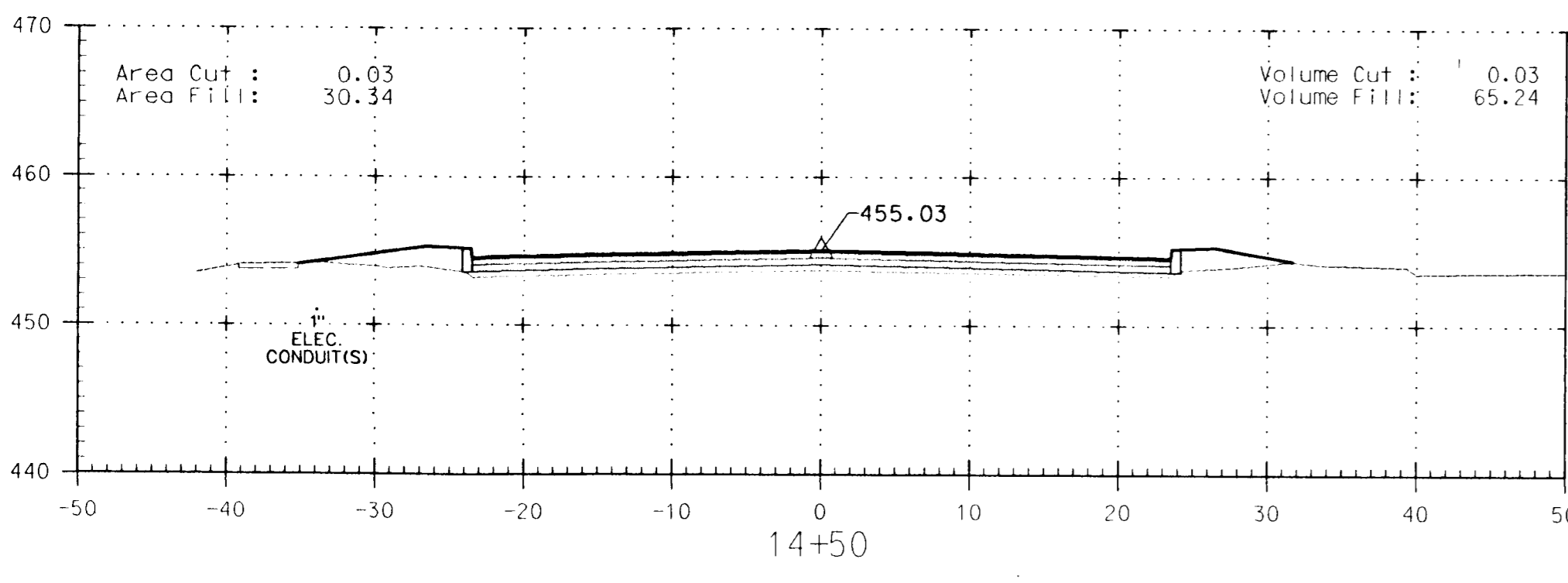
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DRN:				
CHK:				
DATE:				

Cross Sections
 Sheet 1
 SCALE MAP NO. _____ BLOCK NO. _____

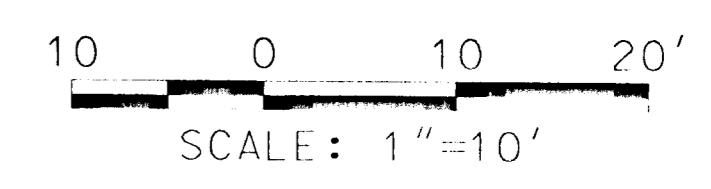
ROADWAY IMPROVEMENTS TO
 HARPERS FARM ROAD & WILLOWBOTTOM DRIVE
 HOWARD COUNTY, MARYLAND
 CAPITAL PROJECT NO. J-4164

SCALE AS SHOWN
 SHEET 1
 18 OF 19

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DATE: 20 MAR 2000 20:30:55



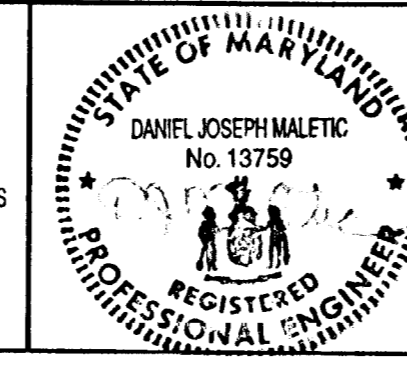
NOTE: STANDARD 7" COMBINATION CURB AND GUTTER STANDARD
NO. R- 3.01 SEE SHEET 5 OF 19



DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
James J. Chen 4/13/00
DIRECTOR OF PUBLIC WORKS
Robert M. Quake 4-13-00
CHIEF, BUREAU OF HIGHWAYS

4/13/00
DATE
4/13/00
DATE

GPI Greenman-Pedersen, Inc.
ENGINEERS, ARCHITECTS, PLANNERS, CONSTRUCTION ENGINEERS & INSPECTORS
14502 GREENVIEW DRIVE, SUITE 100, LAUREL, MD. 20708
WASH. (301) 470-2772 BALT. (410) 880-3055
FAX (301) 490-2649 www.gpinc.com



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

Cross Sections
Sheet 2

SCALE MAP NO. _____ BLOCK NO. _____

ROADWAY IMPROVEMENTS TO
HARPERS FARM ROAD & WILLOWBOTTOM DRIVE
HOWARD COUNTY, MARYLAND
CAPITAL PROJECT NO. J-4164

DATE: 4/13/00
DRAWN BY: [Signature]
CHECKED BY: [Signature]
SCALE: 1\"/>

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