

Howard County, Maryland – Department of Public Works

ROADWAY IMPROVEMENTS to HARPERS FARM ROAD and WILLOWBOTTOM DRIVE

CAPITAL PROJECT NO. J-4164

INDEX OF SHEETS

TITLE SHEET	1
PLAN SHEET – STA. 0+00 TO 8+50	2
PLAN SHEET – STA. 8+50 TO 15+50	3
PLAN SHEET – STA. 15+50 TO 23+87.15	4
TYPICAL SECTIONS AND MISC. DETAILS	5
PROFILE SHEET – STA. 3+00 TO 18+50	6
GRADING, EROS. & SED. CONTROL PLAN	7
GRADING, EROS. & SED. CONTROL DETAILS	8
SIGNING AND PAVEMENT MARKING PLAN	9
PAVEMENT MARKING, MILLING & RESURFACING PLANS	10-13
SIGNAL PLAN SHEET	14
MAINTENANCE OF TRAFFIC PLANS	15-17
CROSS SECTIONS	18-19

BENCHMARKS

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

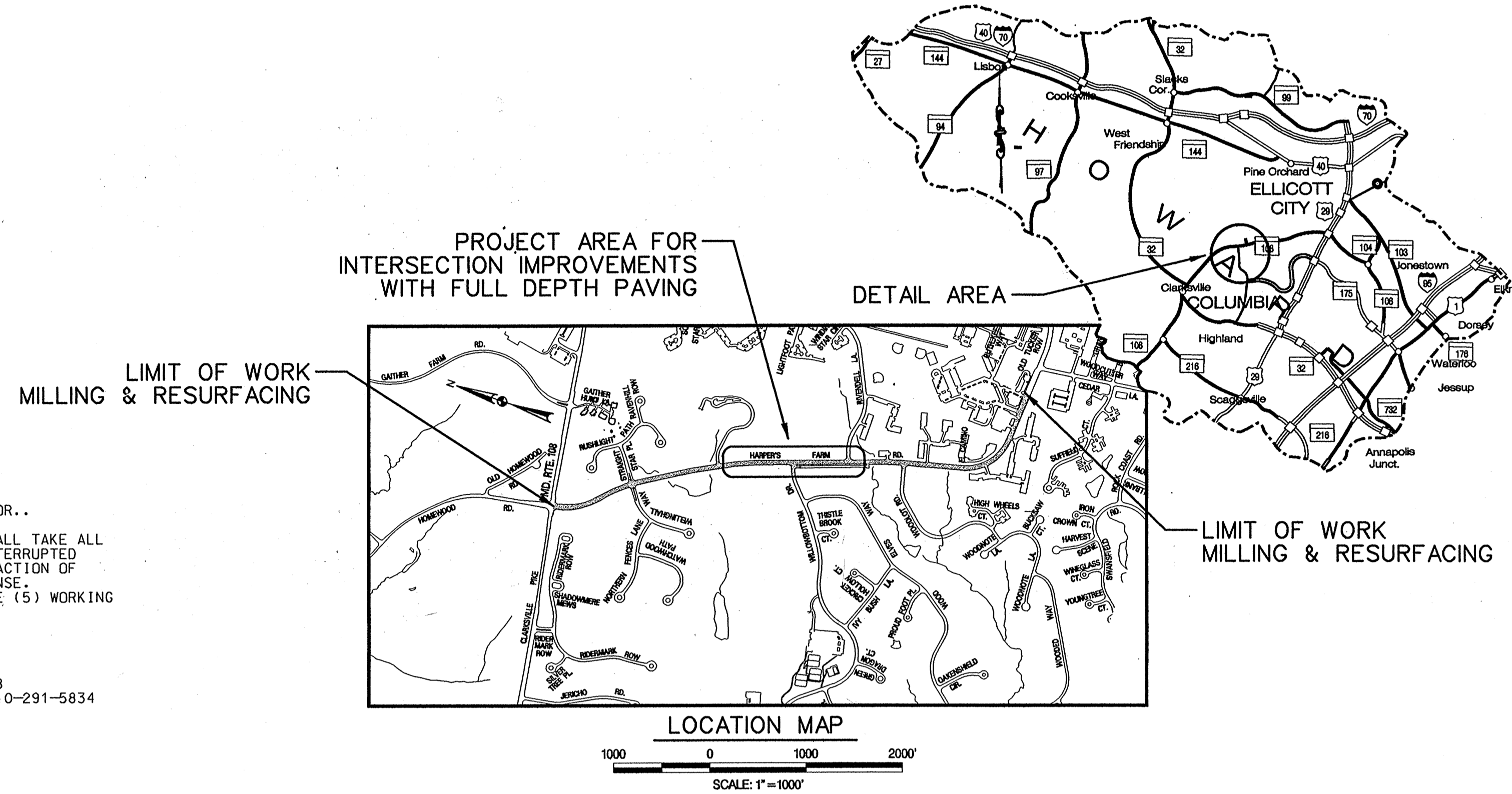
GENERAL NOTES

- 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 CONTRACTORS EXPENSE. CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITIES OR AGENCIES AT LEAST FIVE (5) WORKING DAYS BEFORE STARTING WORK SHOWN ON THESE PLANS:

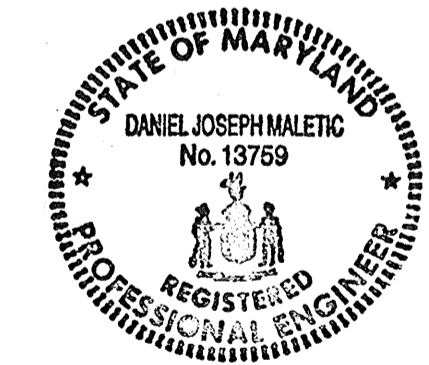
MISS UTILITY 1-800-257-7777
 CONSTRUCTION INSPECTION DIVISION, HOWARD COUNTY 410-313-1880
 STATE HIGHWAY ADMINISTRATION DISTRICT 7-0 301-624-8100
 BALTIMORE GAS & ELECTRIC COMPANY – UNDERGROUND ELECTRIC 410-855-6958
 BALTIMORE GAS & ELECTRIC COMPANY – GAS ENGINEERING & CONSTRUCTION 410-291-5834
 DISTRIBUTION 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 888-793-1800

THE CONTRACTOR SHALL CONTACT THE HOWARD COUNTY CONSTRUCTION INSPECTION DIVISION OF ENGINEERING FOR VERIFICATION AND/OR INFORMATION REGARDING:

- EXISTING/PROPOSED RIGHT-OF-WAY.
 - UTILITY RELOCATION.
 - MAINTENANCE OF TRAFFIC DURING CONSTRUCTION.
 - EROSION/SEDIMENT CONTROL CERTIFICATION AND PERMIT.
 - HORIZONTAL/VERTICAL CONTROL.
 - 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.



I hereby certify that to the best of my knowledge that this "As-Built" truly represents existing field conditions including but not limited to sizes, diameters, line and grade, and elevations, shown [X]



Daniel J. Maletic
 Maryland Registered Professional Engineer No. 13759

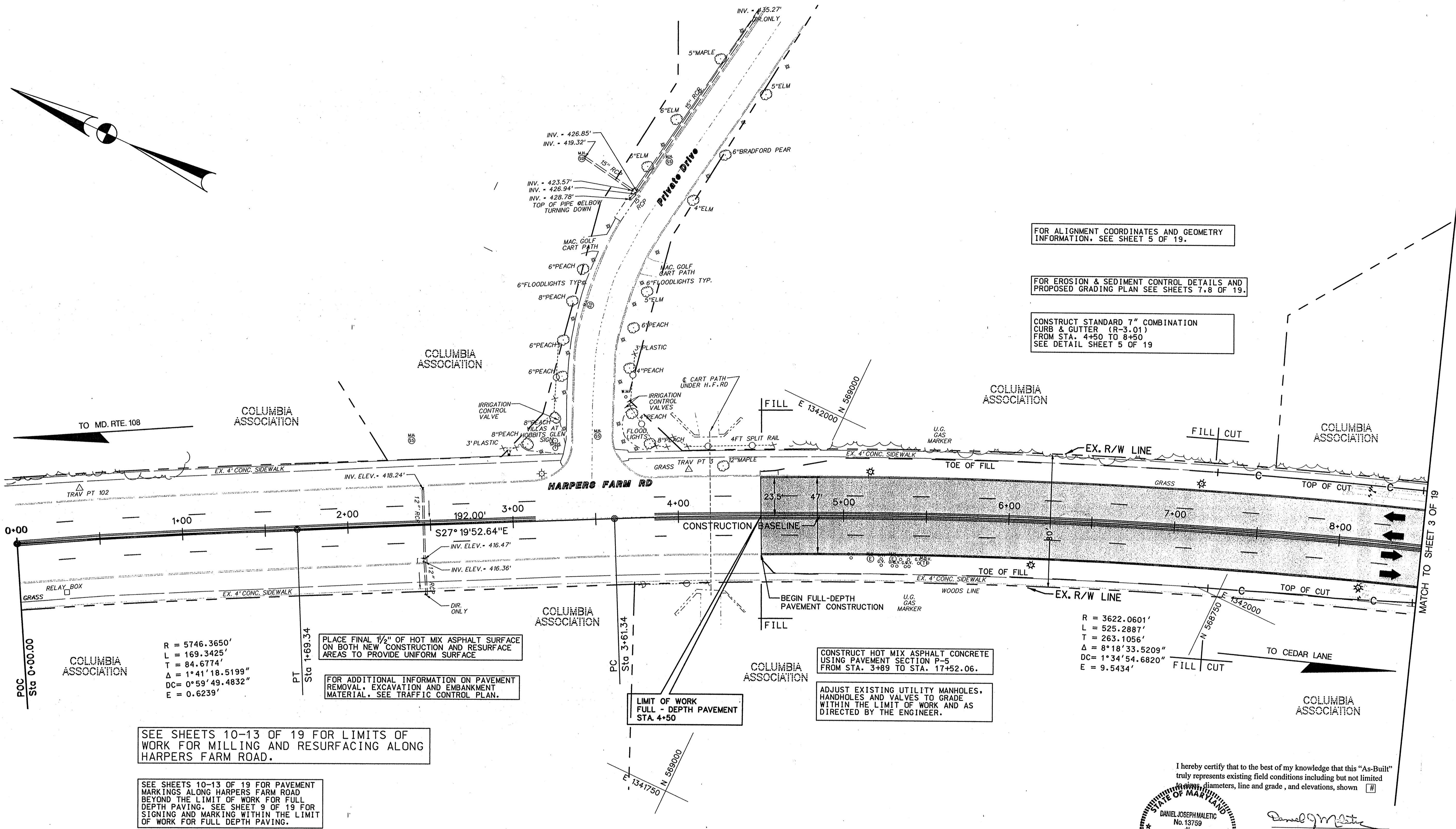
AS-BUILT
 April 2, 2001

REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.
Chief Schorman 4/13/01
 U.S. Natural Resources Conservation Service Date

THIS DEVELOPMENT IS APPROVED FOR EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
Chief Schorman 4/13/01
 Howard Soil Conservation District 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 Director of Public Works: <i>Samuel M. Dunder</i> 4/13/01 Chief, Bureau of Highways: <i>Samuel M. Dunder</i> 4-13-00	GPI Greenman-Pedersen, Inc. ENGINEERS, ARCHITECTS, PLANNERS, CONSTRUCTION ENGINEERS & INSPECTORS 14502 GREENVIEW DRIVE, SUITE 100, LAUREL, MD, 20706 WASH. (301) 470-2772 BALT. (410) 880-3055 FAX (301) 490-2649 www.gpinet.com		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
			DRN:	CHK:	DATE:	SCALE MAP NO. _____ BLOCK NO. _____	SHEET 1 OF 19			



FOR ALIGNMENT COORDINATES AND GEOMETRY INFORMATION, SEE SHEET 9 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.

LIMIT OF WORK FULL-DEPTH PAVEMENT STA. 4+50

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.

R = 3622.0601'
 L = 525.2887'
 T = 263.1056'
 Δ = 8°18'33.5209"
 DC = 1°34'54.6820"
 E = 9.5434'

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

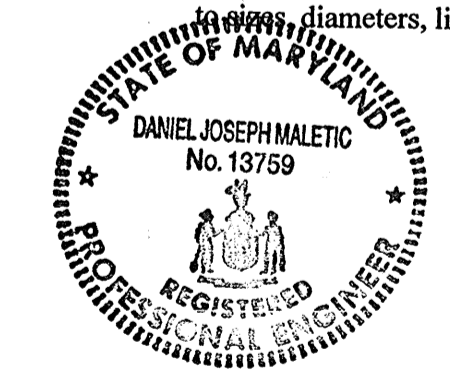
- | | | | |
|--|---|---|--|
| <ul style="list-style-type: none"> ⊠ ELECTRIC BOX ⊙ ELECTRIC MANHOLE ⊠ ELECTRIC POLE ⊠ STREET LIGHT ⊠ ELECTRIC TRANSFORMER ⊠ TRAFFIC SIGNAL POLE ⊠ TRAFFIC SIGNAL BOX ⊠ TRAFFIC SIGNAL CABINET ⊙ GAS MANHOLE ⊠ GAS TEST STATION ⊙ GAS VALVE OR METER ⊠ SANITARY CLEAN OUT ⊠ SANITARY MANHOLE ⊠ CURB INLET ⊠ GRATE INLET | <ul style="list-style-type: none"> ⊙ 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 | <ul style="list-style-type: none"> — G — G — WATER MAIN — W — W — SEWER MAIN — S — S — UTILITY STUB — D — D — STORM DRAIN — CATV — CATV — CABLE TELEVISION — E — E — ELECTRIC CABLES — T — T — TELEPHONE CABLES — A — A — AERIAL CABLES — — — — — ELECTRICAL CONDUIT | <ul style="list-style-type: none"> --- G --- G --- DATUM - DEPICTED ACCORDING TO UTILITY RECORD --- W --- W --- AATUR - ABANDONED ACCORDING TO UTILITY RECORD --- D --- D --- DATFI - DEPICTED ACCORDING TO FIELD INFORMATION --- A --- A --- AATFI - ABANDONED ACCORDING TO FIELD INFORMATION --- E --- E --- EDI - END OF ELECTRONIC INFORMATION --- N --- N --- NFL - NOT FIELD LOCATABLE |
|--|---|---|--|

LEGEND

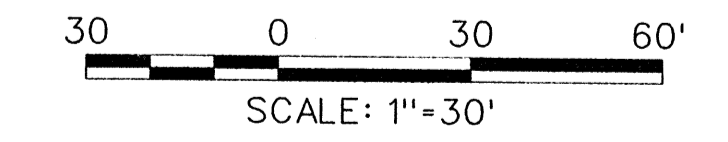
CONSTRUCT GRANULAR BASE PAVING SECTION: P-5

I hereby certify that to the best of my knowledge that this "As-Built" truly represents existing field conditions including but not limited to diameters, line and grade, and elevations, shown [#]

Daniel J. Maletic
 Daniel J. Maletic
 Maryland Registered Professional Engineer No. 13759



AS-BUILT
 April 2, 2001



DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

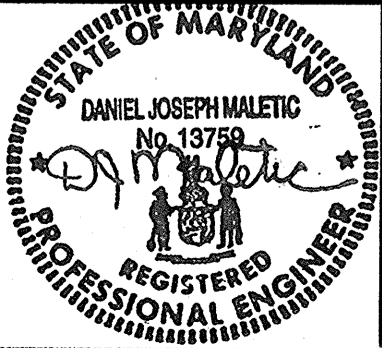
James J. Stewart 4/13/00
 DIRECTOR OF PUBLIC WORKS
 DATE

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

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

Ed Galia 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) 680-3055
 FAX: (301) 480-2949 www.gpiinc.com



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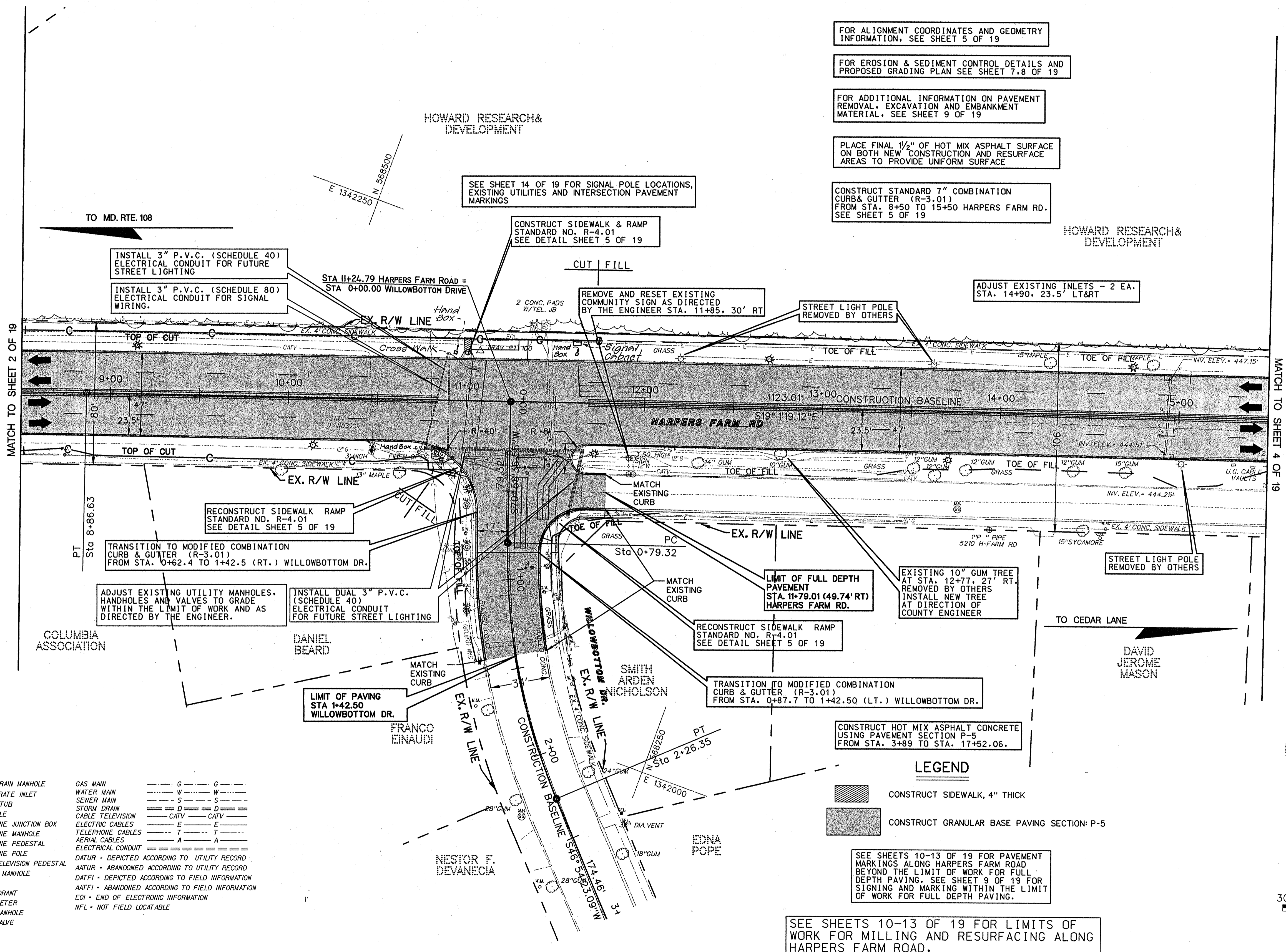
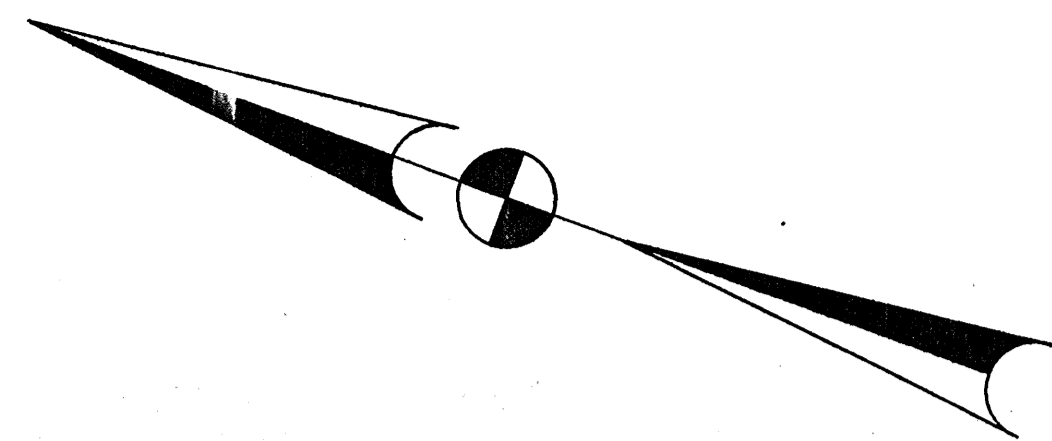
ROADWAY PLAN
 STA. 3+89 TO STA. 8+50

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

HOWARD RESEARCH & DEVELOPMENT

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.

STA 11+24.79 HARPERS FARM ROAD = STA 0+00.00 WILLOWBOTTOM DRIVE

CUT | FILL

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

STREET LIGHT POLE REMOVED BY OTHERS

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

TO MD. RTE. 108

MATCH TO SHEET 2 OF 19

MATCH TO SHEET 4 OF 19

COLUMBIA ASSOCIATION

DANIEL BEARD

FRANCO EINAUDI

NESTOR F. DEVANEZIA

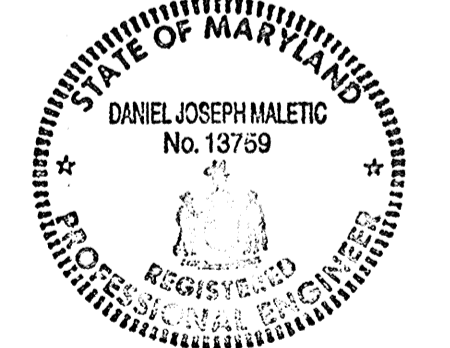
SMITH ARDEN NICHOLSON

EDNA POPE

DAVID JEROME MASON

TO CEDAR LANE

I hereby certify that to the best of my knowledge that this "As-Built" truly represents existing field conditions including but not limited to sizes, diameters, line and grade, and elevations, shown [#]



Daniel J. Maletic
Maryland Registered Professional Engineer No. 13759

UTILITY SYMBOL LEGEND

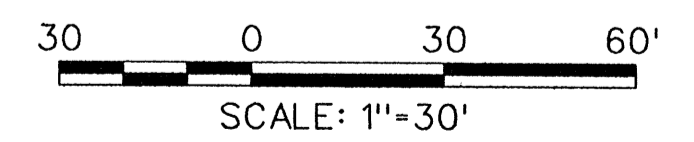
- ⊠ ELECTRIC BOX
- ⊙ ELECTRIC MANHOLE
- ⊠ ELECTRIC POLE
- ⊠ STREET LIGHT
- ⊠ ELECTRIC TRANSFORMER
- ⊠ TRAFFIC SIGNAL POLE
- ⊠ TRAFFIC SIGNAL CABINET
- ⊠ TRAFFIC SIGNAL CABINET
- ⊠ GAS MANHOLE
- ⊠ GAS TEST STATION
- ⊠ GAS VALVE OR METER
- ⊠ SANITARY CLEAN OUT
- ⊠ SANITARY MANHOLE
- ⊠ CURB INLET
- ⊠ GRATE 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
- GAS MAIN
- WATER MAIN
- SEWER MAIN
- STORM DRAIN
- CABLE TELEVISION
- ELECTRIC CABLES
- TELEPHONE CABLES
- 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
- EOI - END OF ELECTRONIC INFORMATION
- NFL - NOT FIELD LOCATABLE

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.



AS-BUILT
April 2, 2001

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

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

Robert W. ... 4-13-00
CHIEF, BUREAU OF HIGHWAYS DATE

... 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 20786
WASH. (301) 470-2772 BALT. (410) 880-3055
FAX: (301) 450-2649 www.gpinet.com

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

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

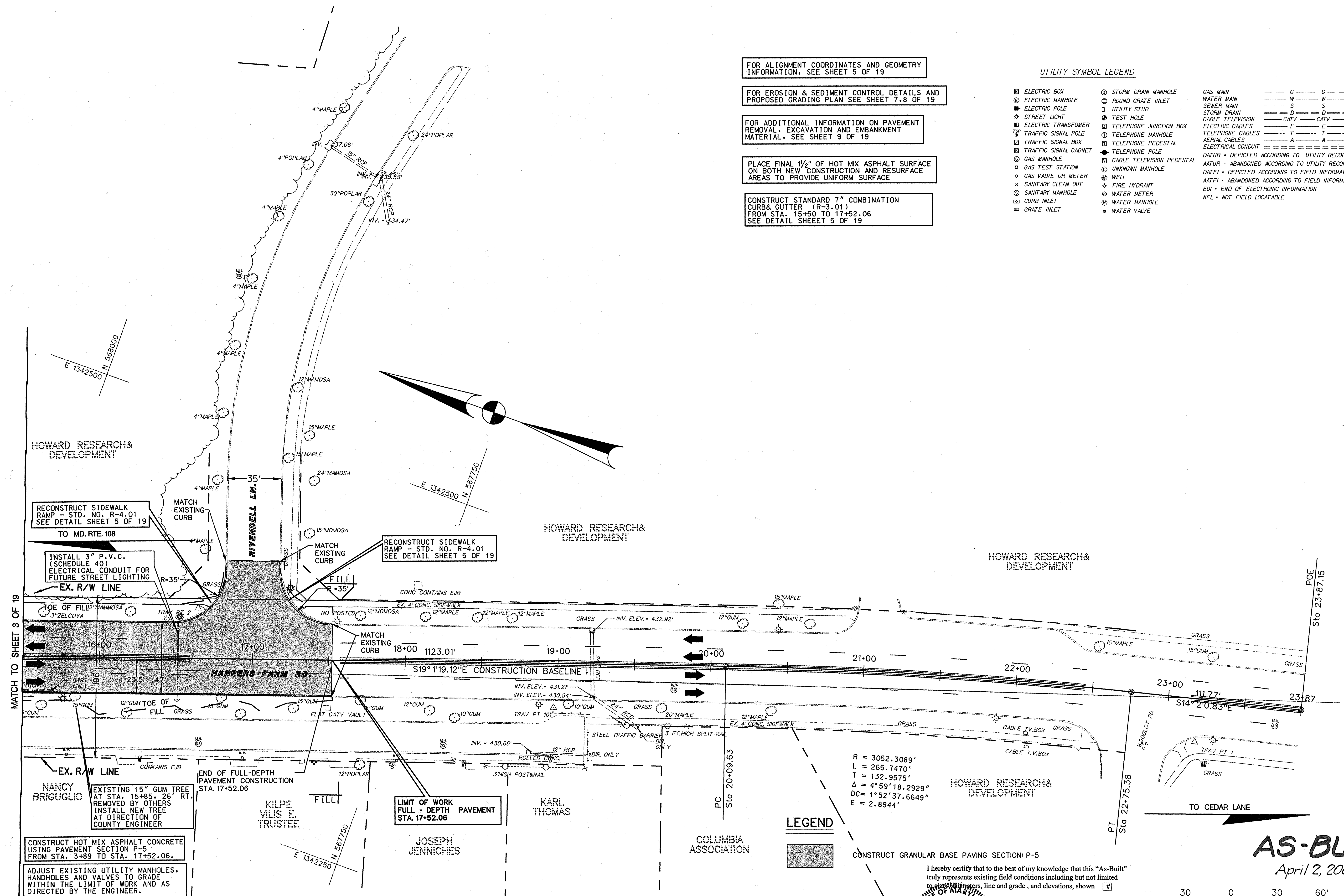
ROADWAY PLAN
STA. 8+50 TO STA. 15+50

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 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 1/2" 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. 15+50 TO 17+52.06 SEE DETAIL SHEET 5 OF 19

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
- T --- T --- TELEPHONE CONDUIT
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- AATUR - ABANDONED ACCORDING TO UTILITY RECORD
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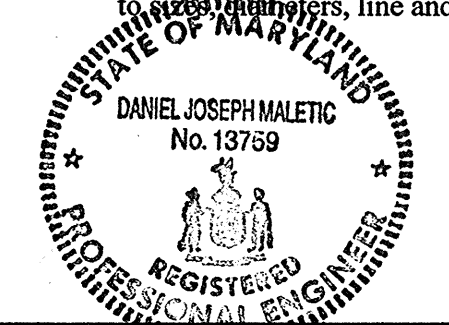
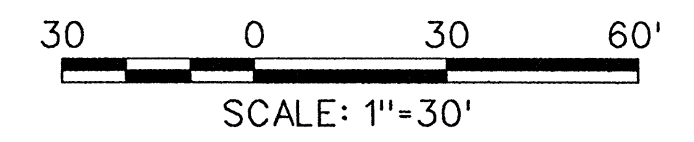
LEGEND



CONSTRUCT GRANULAR BASE PAVING SECTION: P-5

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

AS-BUILT
 April 2, 2001



Daniel J. Maletic
 Maryland Registered Professional Engineer No. 13759

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.

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

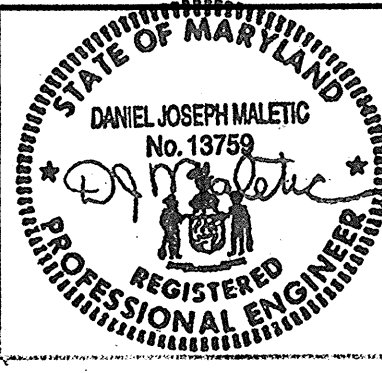
James J. New 4/13/00
 DIRECTOR OF PUBLIC WORKS DATE

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

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

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

GPI Greenman-Pedersen, Inc.
 ENGINEERS, ARCHITECTS, PLANNERS, CONSTRUCTION ENGINEERS & INSPECTORS
 1402 GREENVIEW DRIVE, SUITE 100, LAUREL, MD 20708
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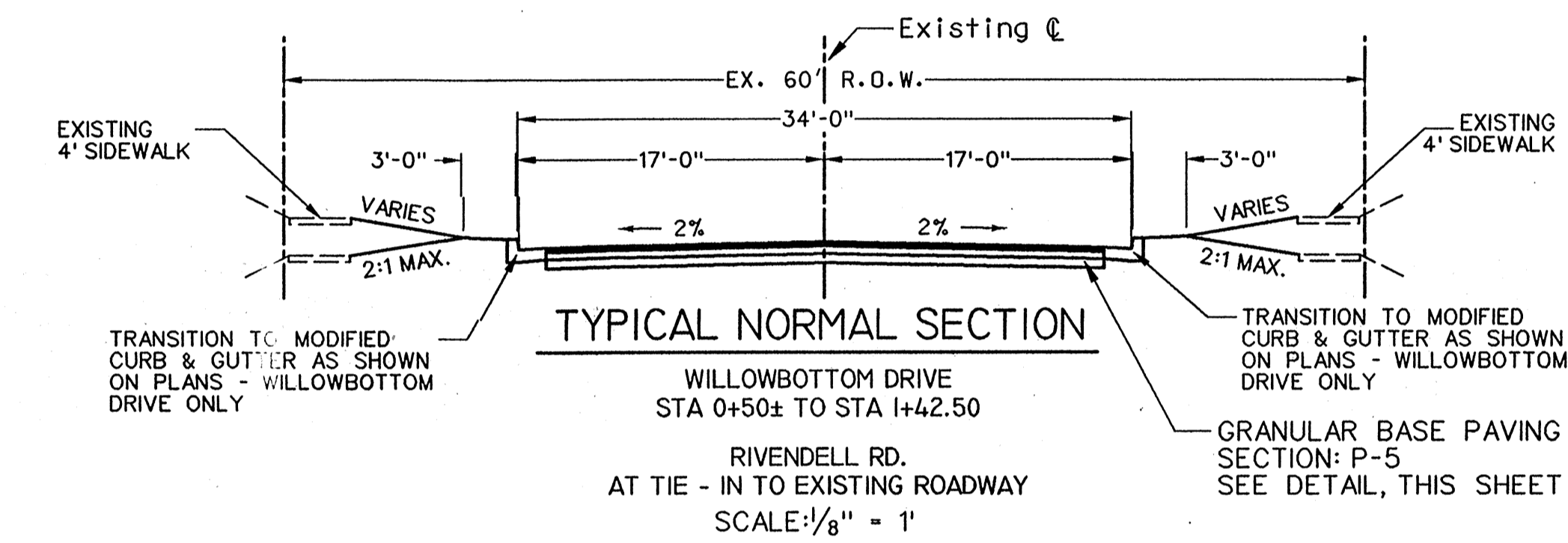
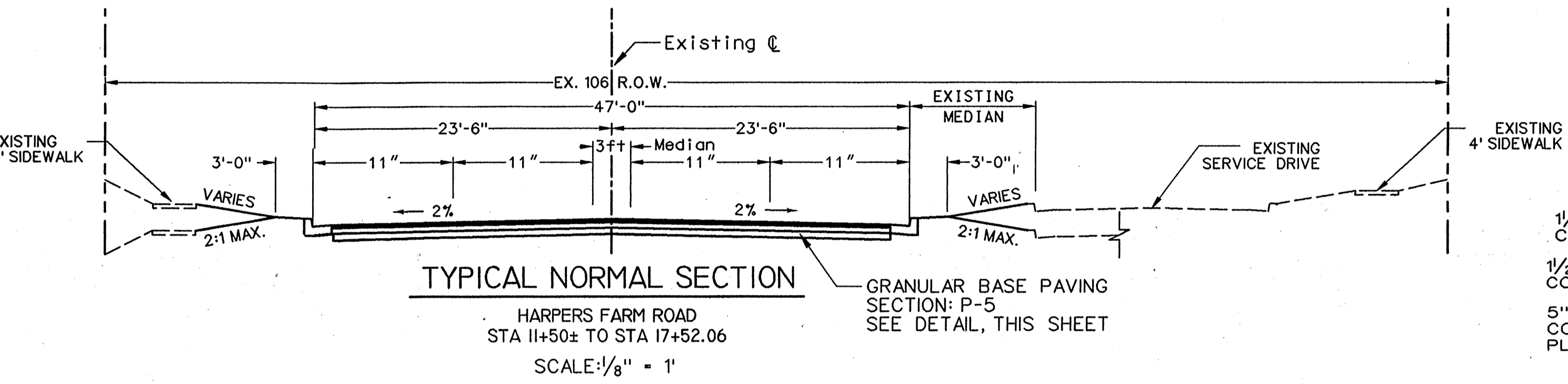
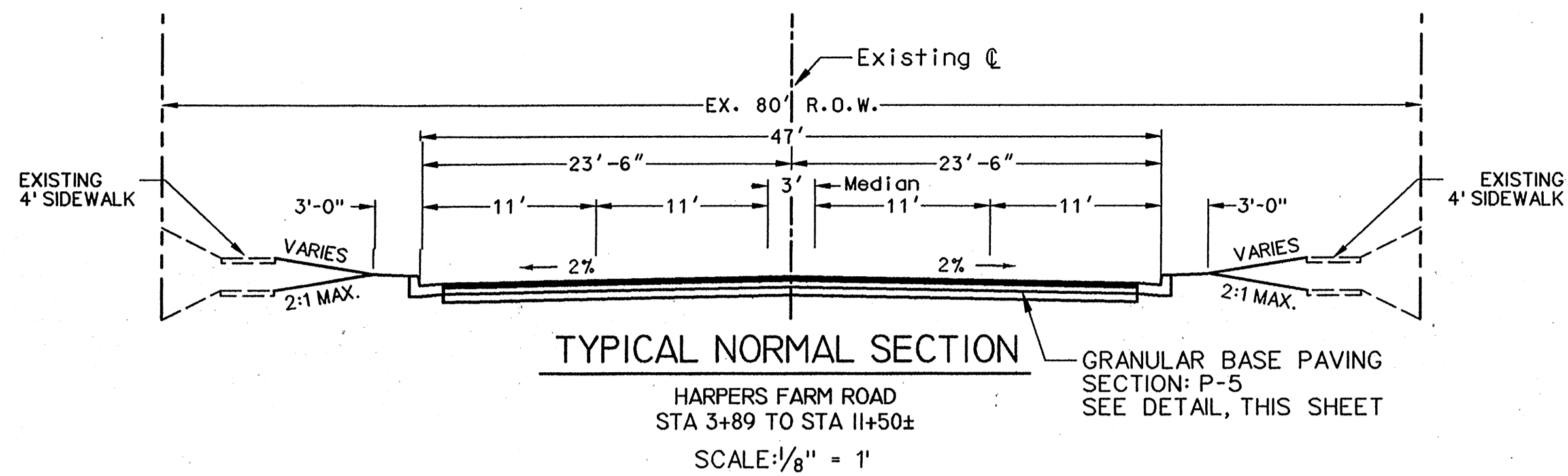
DES:	BY:	NO:	REVISION:	DATE:

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

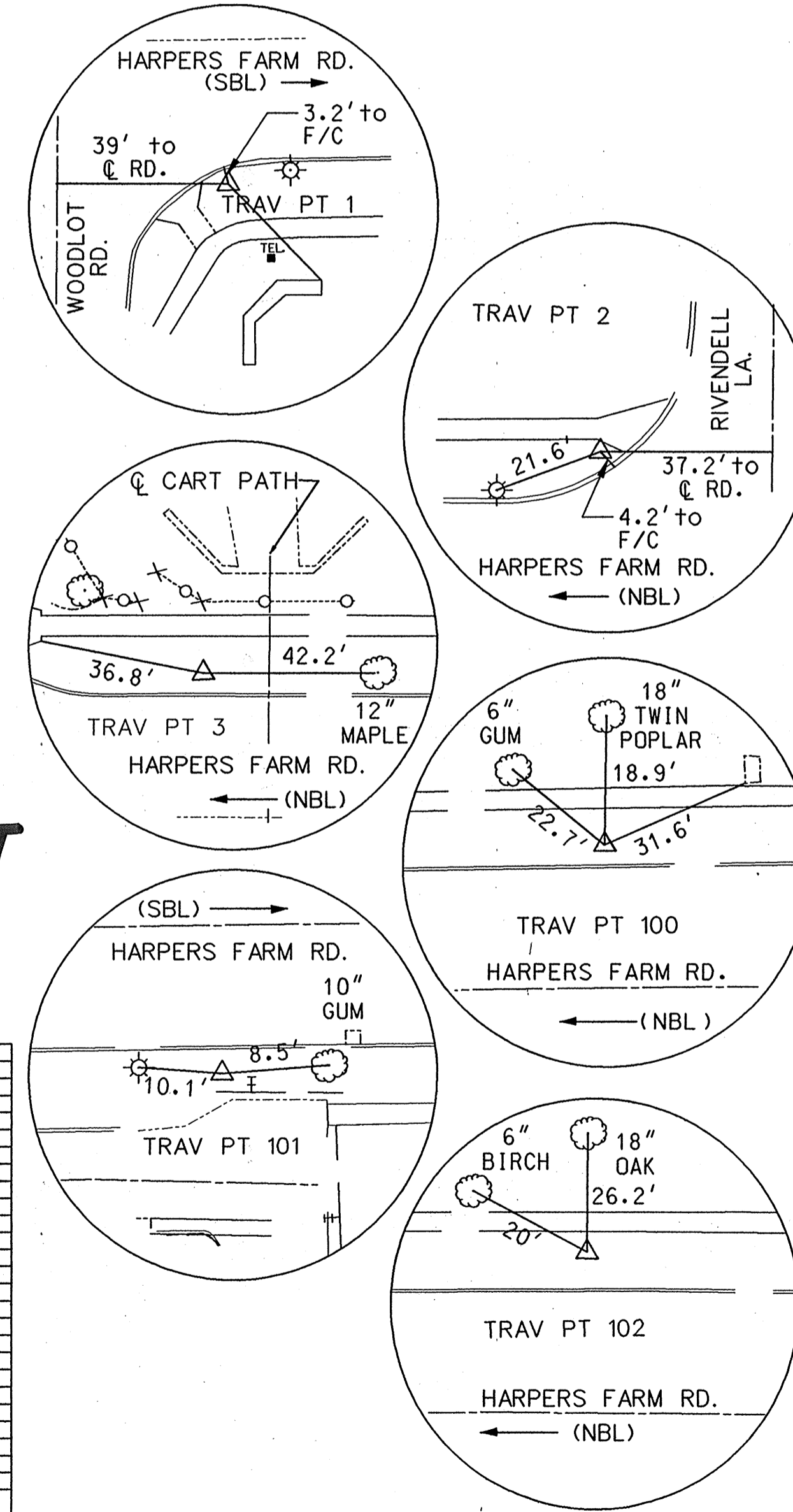
SCALE MAP NO. _____ BLOCK NO. _____

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

SCALE AS SHOWN
 SHEET 4 OF 19



TRAVERSE POINTS
NOT TO SCALE



I hereby certify that to the best of my knowledge that this "As-Built" truly represents existing field conditions including but not limited to sizes, diameters, line and grade, and elevations, shown []

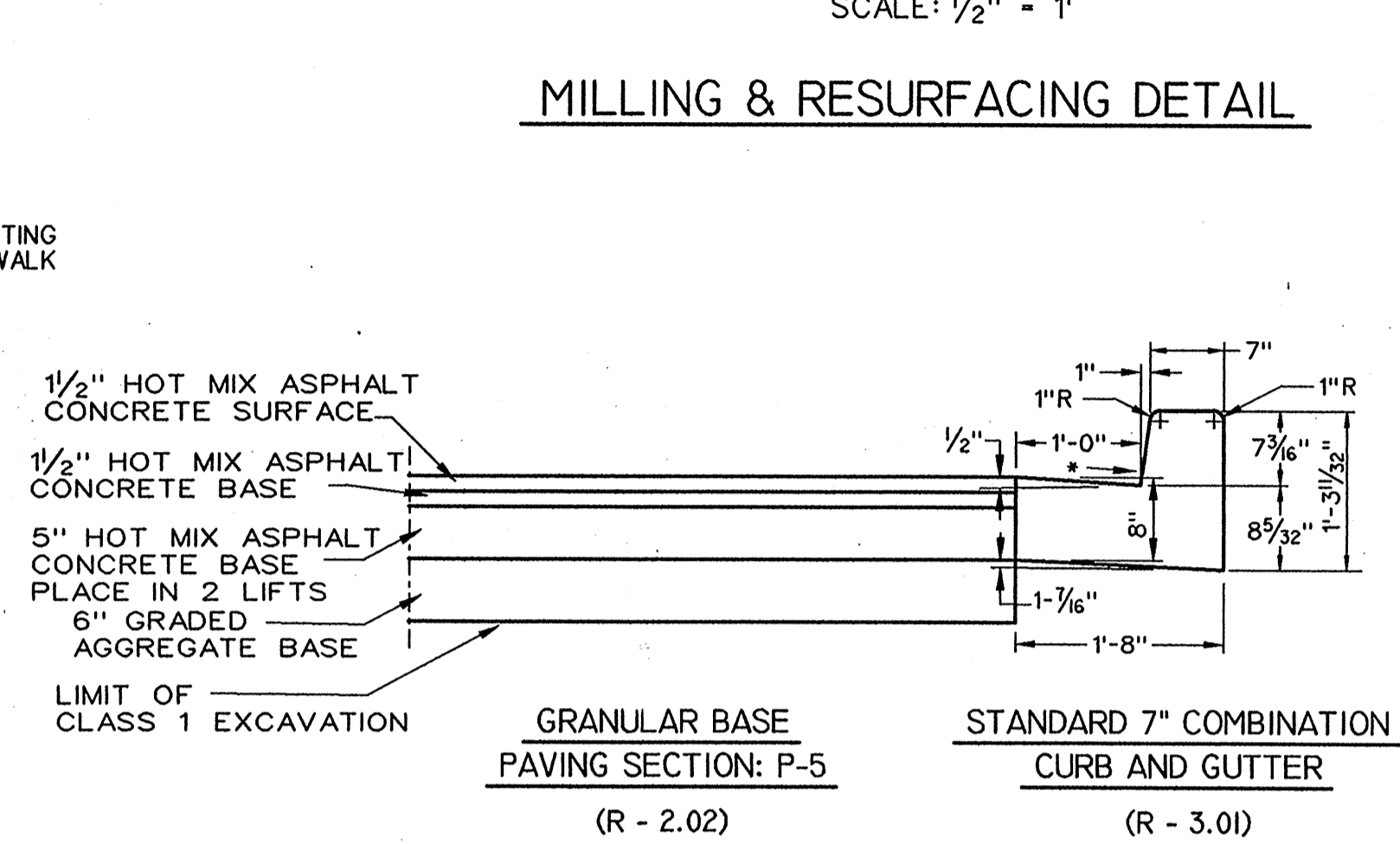
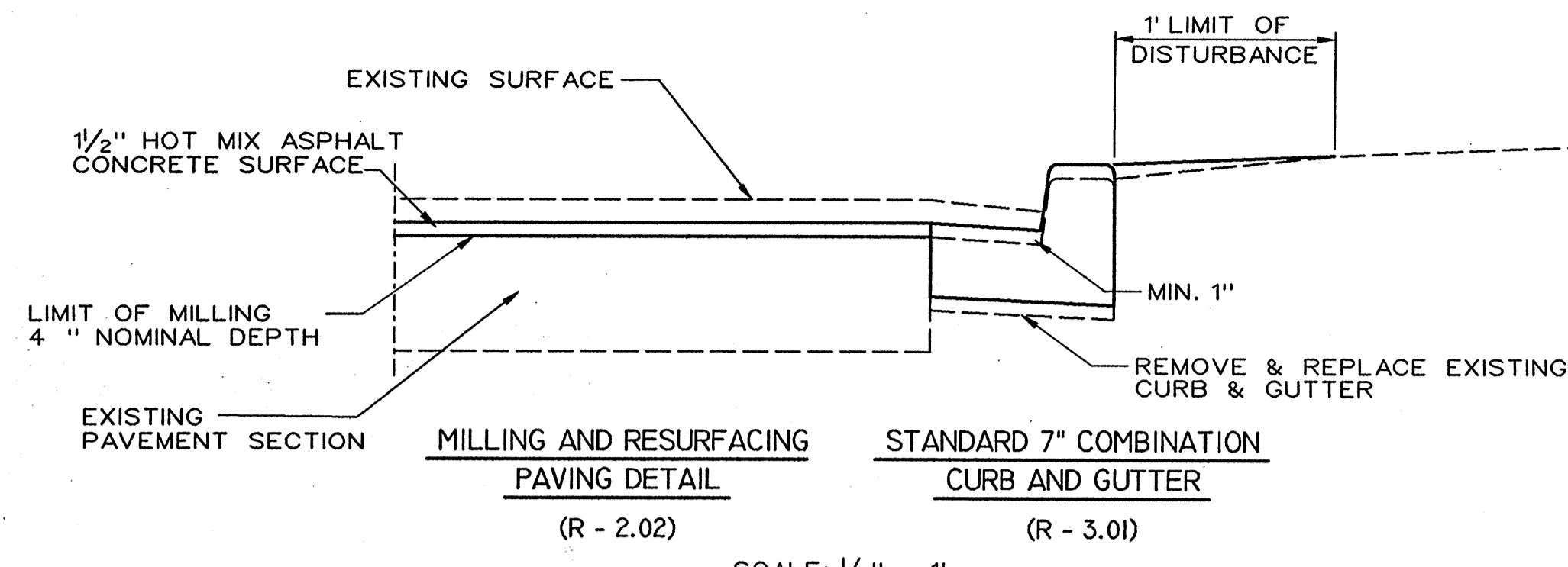
Daniel J. Maletic
No. 13759
Maryland Registered Professional Engineer No. 13759

COORDINATE GEOMETRY DATA

AS-BUILT
April 2, 2001

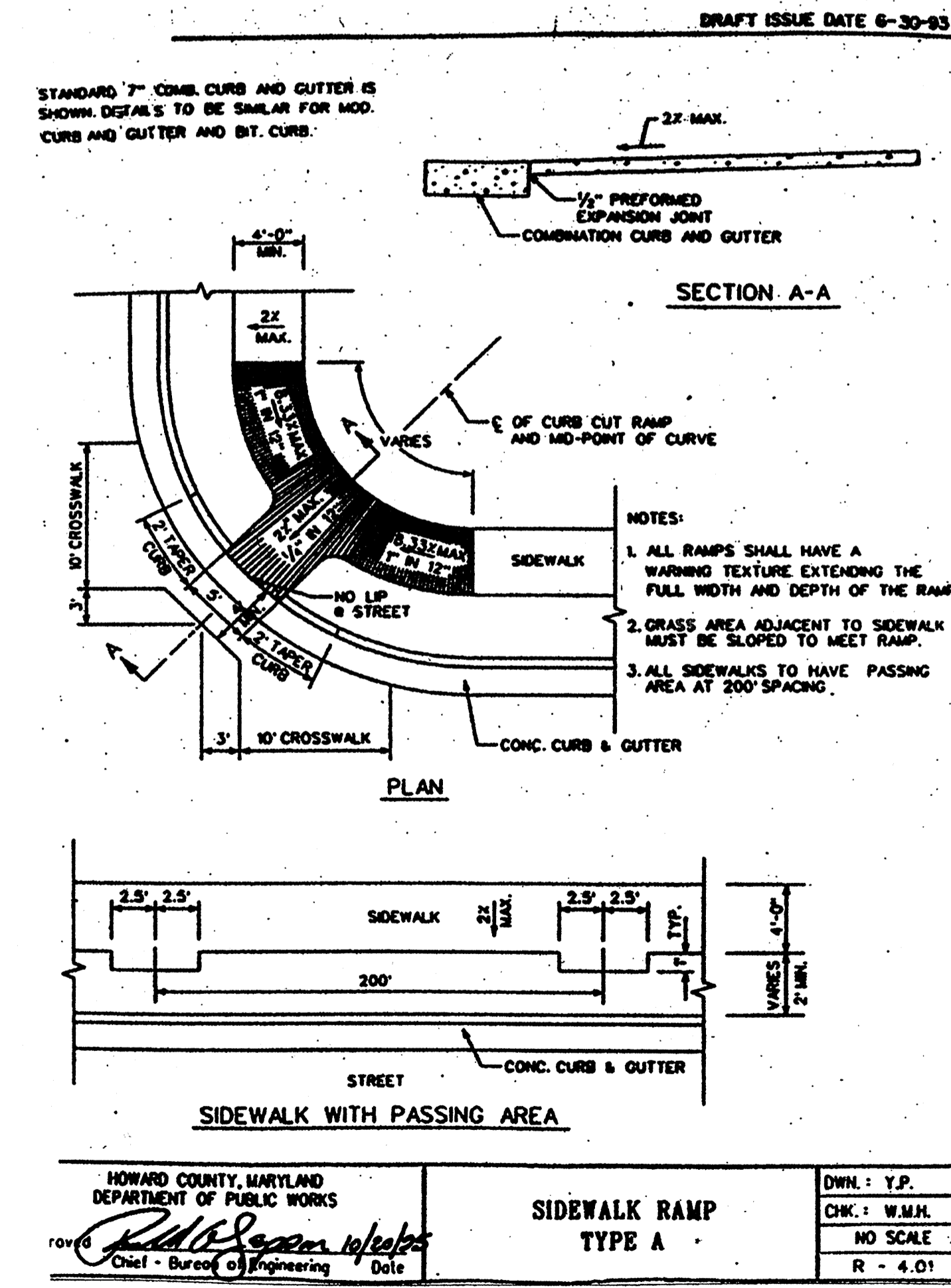
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2	567891.9635	1342376.3679	445.5800	TRAV
3	569070.9110	1341931.5628	436.1200	TRAV
4	569847.4548	1341423.7980	436.4600	TRAV
100	568417.0253	1342190.3770	465.6487	TRAV
101	567651.2329	1342394.0671	438.2519	TRAV
102	569398.8638	1341763.5349	429.6500	TRAV

STATION	PT	NORTH(Y)	EAST(X)
0+00.00	POB	569418.5071	1341717.2871
0+00.00	PC	569418.5069	1341717.2872
1+69.34	PT	569269.2360	1341797.2435
3+61.34	PC	569098.6739	1341885.3951
8+86.63	PT	568616.2012	1342091.9503
20+09.63	PC	567554.5175	1342457.9730
22+75.38	PT	567299.8311	1342533.5488
23+87.15	POE	567191.3980	1342560.6517
0+00.00	POB	568391.0480	1342169.5730
0+79.32	PC	568365.1952	1342094.5894
2+26.35	PT	568289.8936	1341969.5548
4+00.82	POE	568170.7010	1341842.1540



* SEE GUTTER PAN NOTE ON HOWARD COUNTY STANDARD DETAIL R-3.01 - THIS SHEET

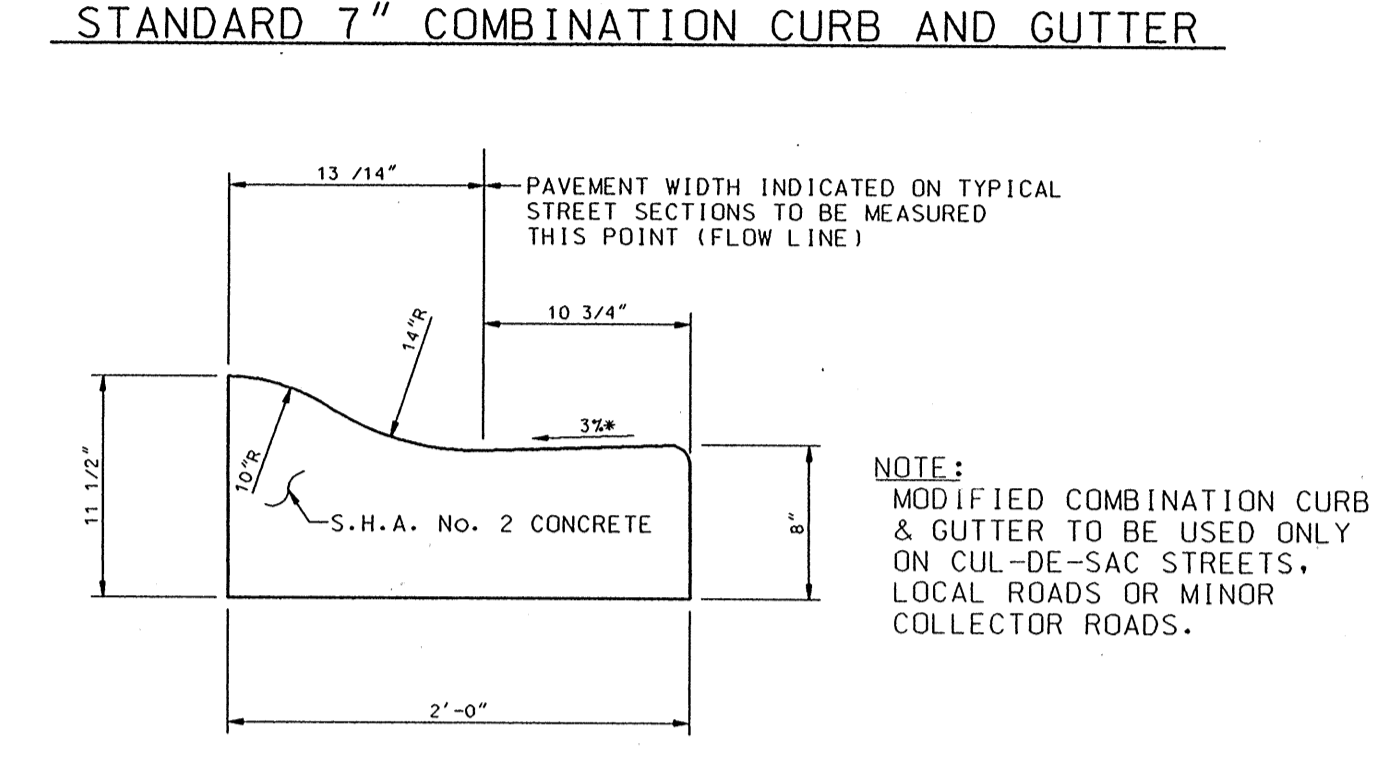
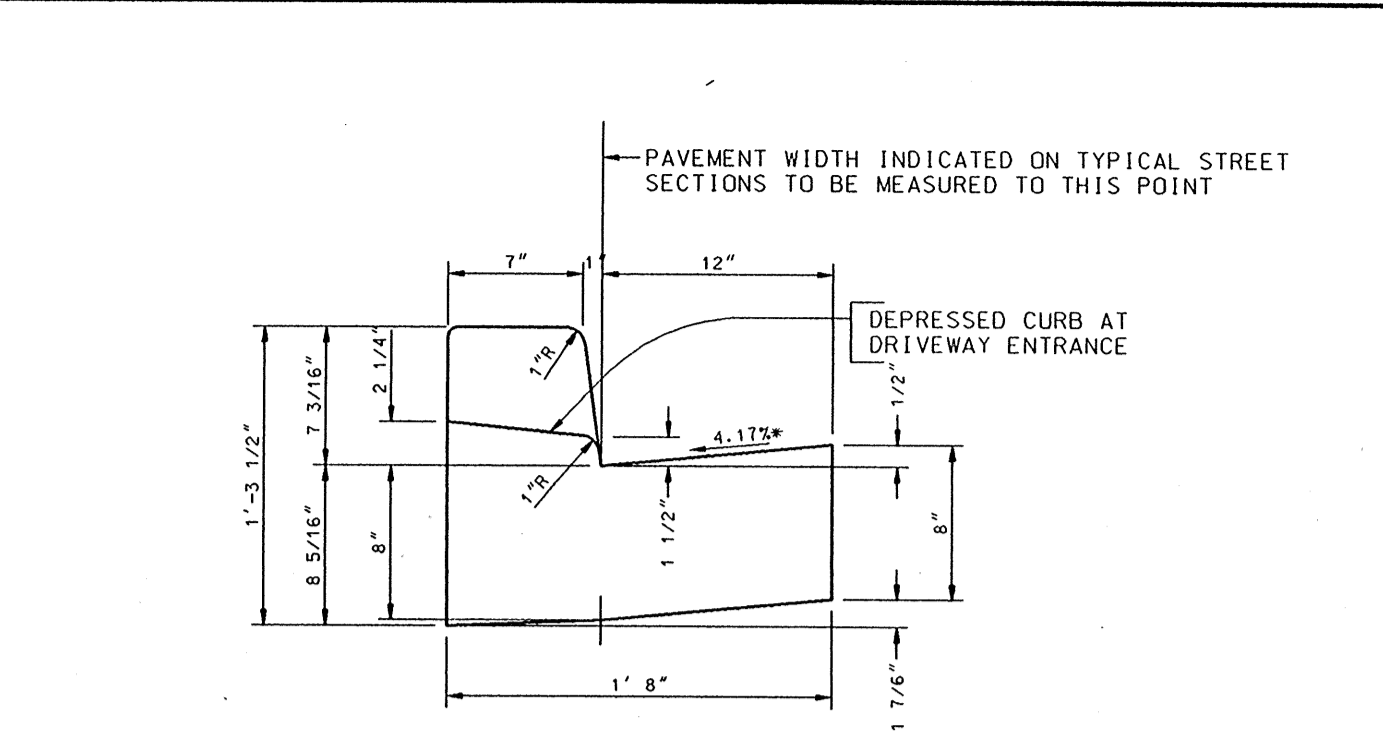
PAVING SECTION P-5 DETAIL



HOWARD COUNTY, MARYLAND
DEPARTMENT OF PUBLIC WORKS
Chief - Bureau of Engineering
Date

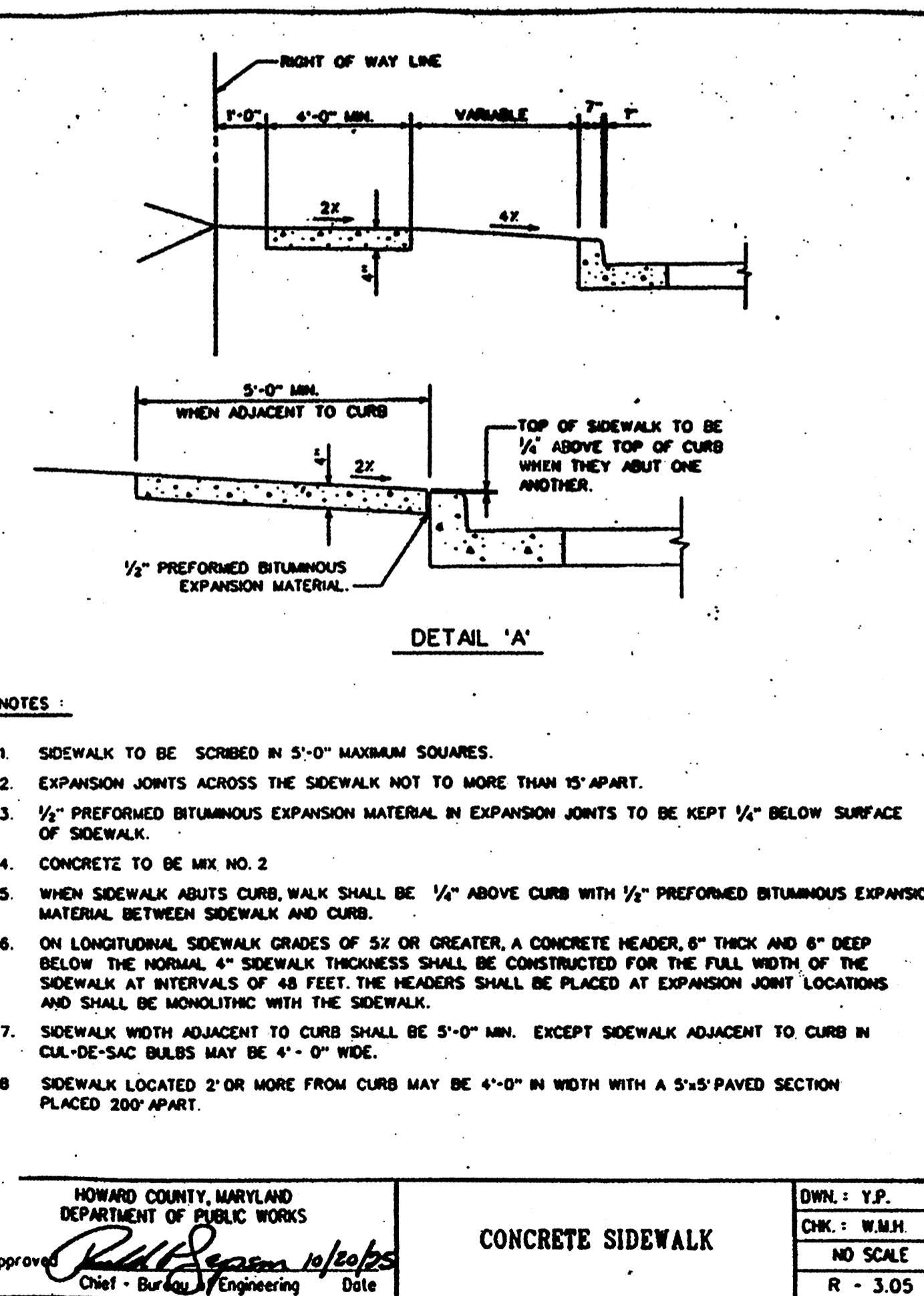
SIDEWALK RAMP TYPE A

DWN: J.P.
CHK: W.M.H.
NO SCALE
R - 4.01



* 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



HOWARD COUNTY, MARYLAND
DEPARTMENT OF PUBLIC WORKS
CONCRETE SIDEWALK

DWN: J.P.
CHK: W.M.H.
NO SCALE
R - 3.05

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

GPI Greenman-Pedersen, Inc.
ENGINEERS, ARCHITECTS, PLANNERS, CONSTRUCTION ENGINEERS & INSPECTORS
14522 GREENVIEW DRIVE, SUITE 100, LAUREL, MD, 20708
WASH. (301) 470-2772 BALT. (410) 880-3055
FAX: (301) 490-2648 www.gpinet.com

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

DES:	BY:	NO:	REVISION:	DATE:

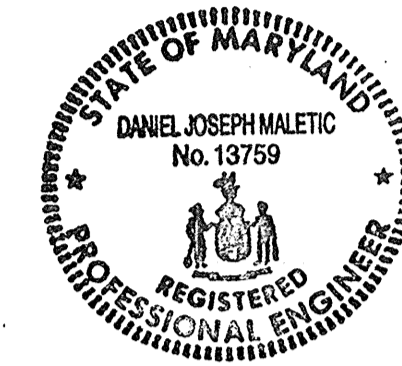
TYPICAL SECTIONS PAVING SECTIONS MISC. DETAILS

SCALE MAP NO. BLOCK NO.

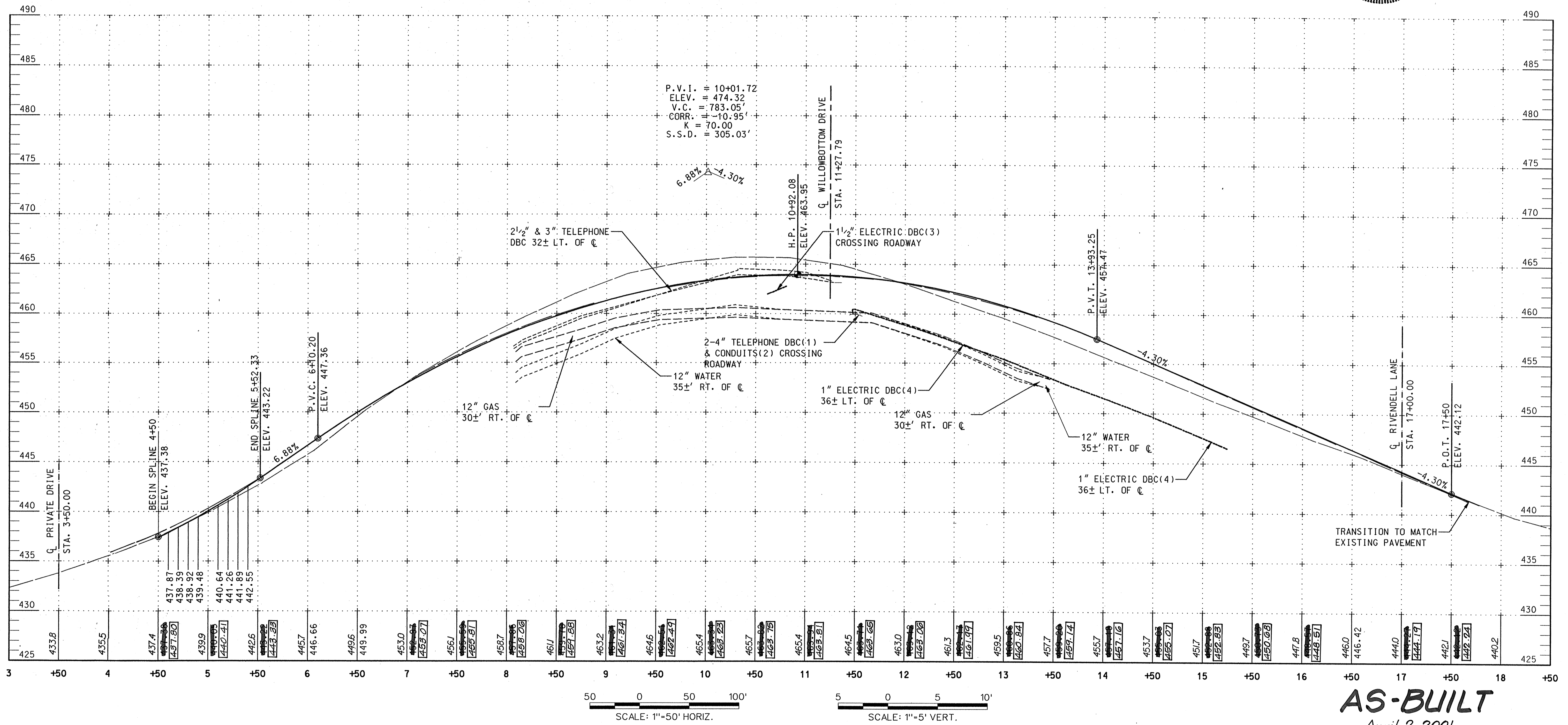
ROADWAY IMPROVEMENTS TO HARPER'S FARM ROAD & WILLOWBOTTOM DRIVE
HOWARD COUNTY, MARYLAND
CAPITAL PROJECT NO. J-4164

SCALE AS SHOWN
SHEET 5 OF 19

I hereby certify that to the best of my knowledge that this "As-Built" truly represents existing field conditions including but not limited to sizes, diameters, line and grade, and elevations, shown []



Daniel J. Maletic
 Daniel J. Maletic
 Maryland Registered Professional Engineer No. 13759



AS-BUILT
 April 2, 2001

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

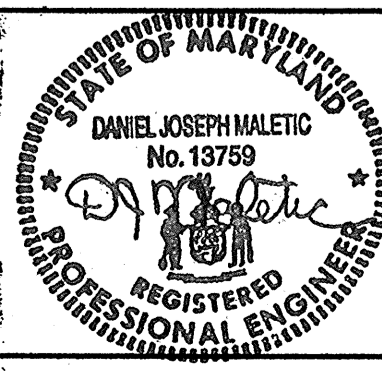
Ramon W. New 4/13/00
 DIRECTOR OF PUBLIC WORKS DATE

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

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

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

GPI Greenman-Pedersen, Inc.
 ENGINEERS, ARCHITECTS, PLANNERS, CONSTRUCTION ENGINEERS & INSPECTORS
 1482 GREENVIEW DRIVE, SUITE 100 LAUREL, MD, 20786
 WASH. (301) 470-2772 BALT. (410) 880-3355
 FAX: (301) 490-2649 www.gpinet.com



DES:	BY:	NO:	REVISION:	DATE:
DRN:				
CHK:				
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\es01hfrm.dgn
DATE: 15 APR 2000 15:43:03

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 1.

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.

- 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 West 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 Remove temporary traffic control devices and erosion control devices.
- 11.6 Place the final topsoil and seed on exposed ground not covered by paving, curb and gutter or sidewalk.

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 of 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.

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	2.4 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 ACTIVITY 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 UREA-FORM 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 THE PERIODS MARCH 1 - APRIL 30, AND AUGUST 1 - OCTOBER 15, SEED WITH 60 LBS/ACRE (1.4 LBS/1000 SQ. FT.) OF KENTUCKY 31 TALL FESCUE PER ACRES 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/ACRES 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.

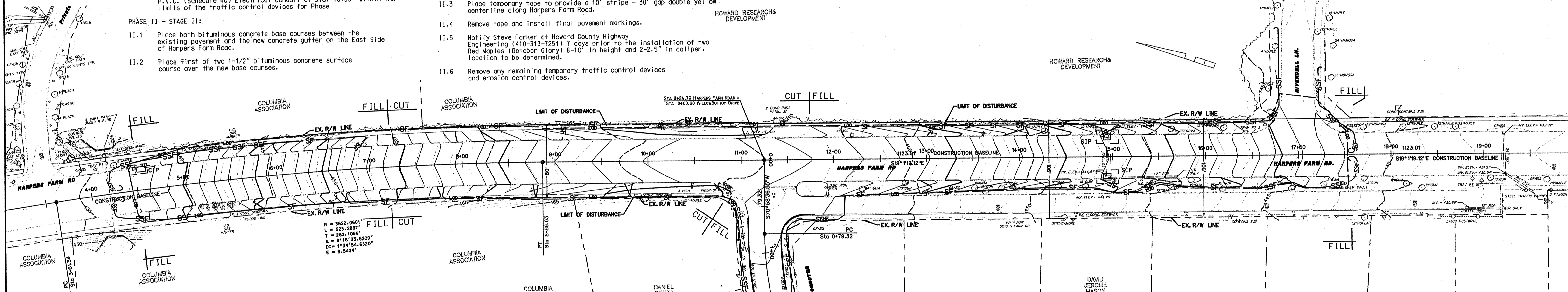
TEMPORARY SEEDING NOTES

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.)

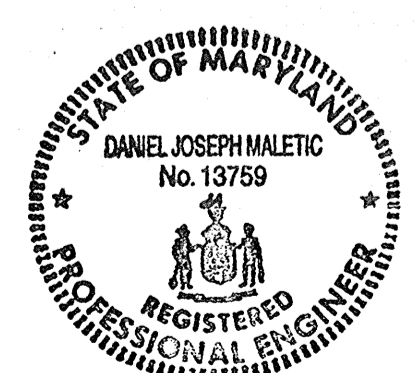
SEEDING: FOR PERIODS MARCH 1 - APRIL 30 AND FROM AUGUST 15 - OCTOBER 15, SEED WITH 2-1/2 BUSHEL PER ACRE OF ANNUAL RYE (3.2 LBS/1000 SQ. FT.). FOR THE PERIOD MAY 1 - AUGUST 14, SEED WITH 3 LBS/ACRE OF WEEPING LOVEGRASS (0.07 LBS/1000 LBS/SQ. FT.). FOR



STANDARD SYMBOLS

- SILT FENCE SF - SF
- SUPER SILT FENCE SSF - SSF
- LIMIT OF DISTURBANCE LOD
- STANDARD INLET PROTECTION SIP
- CURB INLET PROTECTION CIP
- STABILIZED CONSTRUCTION ENTRANCE SCE

I hereby certify that to the best of my knowledge that this "As-Built" truly represents existing field conditions including but not limited to sizes, diameters, line and grade, and elevations, shown



Daniel J. Maletic
Maryland Registered Professional Engineer No. 13759

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

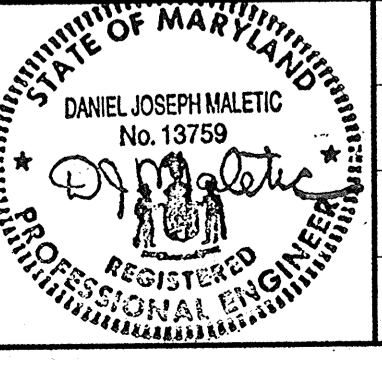
AS-BUILT
April 2, 2001

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 of Developer: [Signature]
DATE: 4/14/00

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 of Engineer: [Signature]
DATE: [Blank]

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
Director of Public Works: [Signature] 4/14/00
Chief, Bureau of Engineering: [Signature] 4/14/00
Chief, Bureau of Highways: [Signature] 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) 880-3055
FAX: (301) 490-2648 www.gpi.net



DES:	BY:	NO:	REVISION:	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 7 OF 19

FILE: n:\1998\98175\98175_04\dm\asthfm.dgn
DATE: 13 APR 2000 13:25:43

21.0 STANDARD AND SPECIFICATIONS FOR TOPSOIL

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

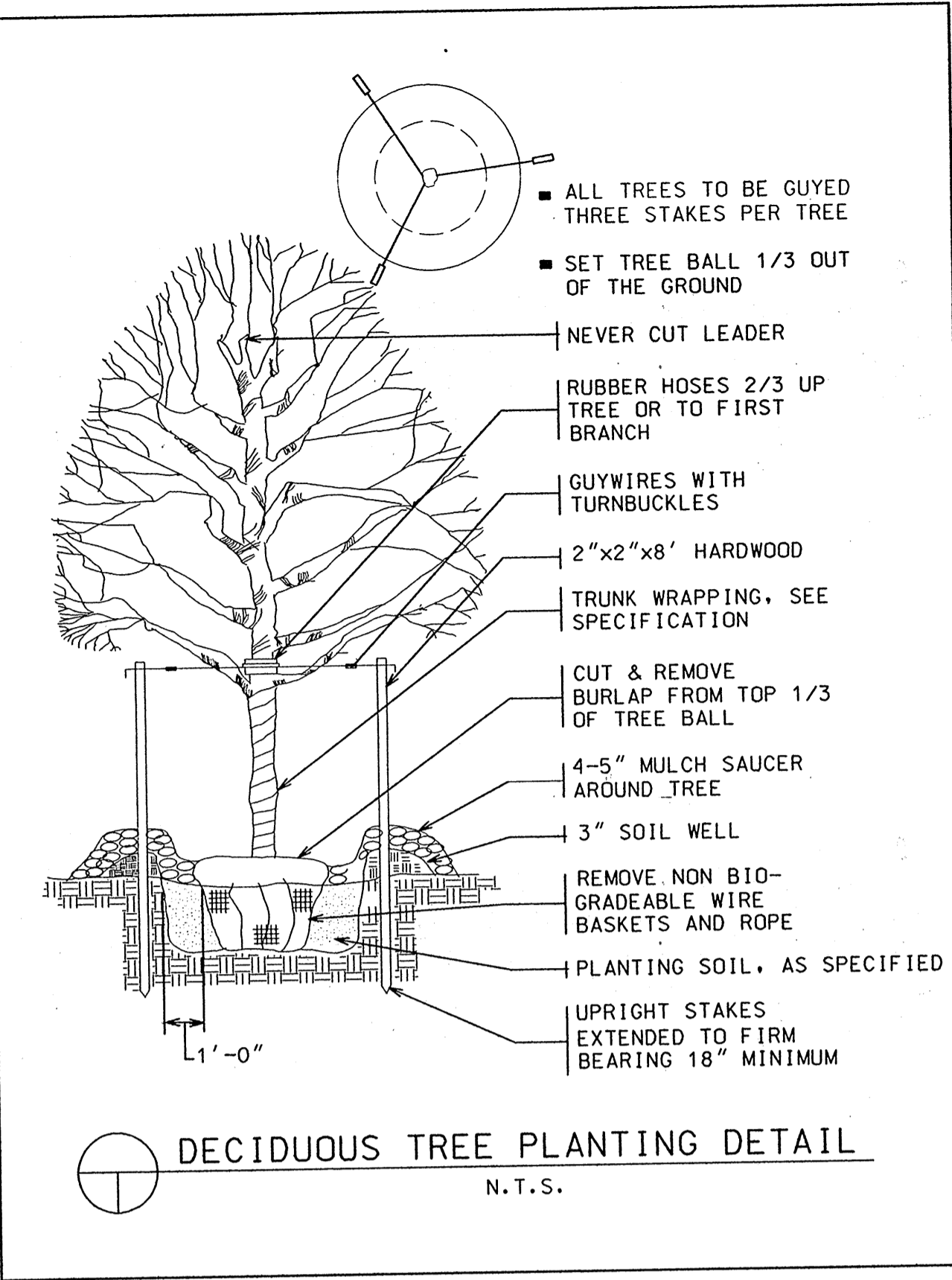
PURPOSE
TO PROVIDE A SUITABLE SOIL MEDIUM FOR VEGETATIVE GROWTH. SOILS OF CONCERN HAVE LOW MOISTURE CONTENT, LOW NUTRIENT LEVELS, LOW PH, MATERIALS TOXIC TO PLANTS, AND/OR UNACCEPTABLE SOIL GRADATION.

- CONDITIONS WHERE PRACTICE APPLIES**
- 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.
 - 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.

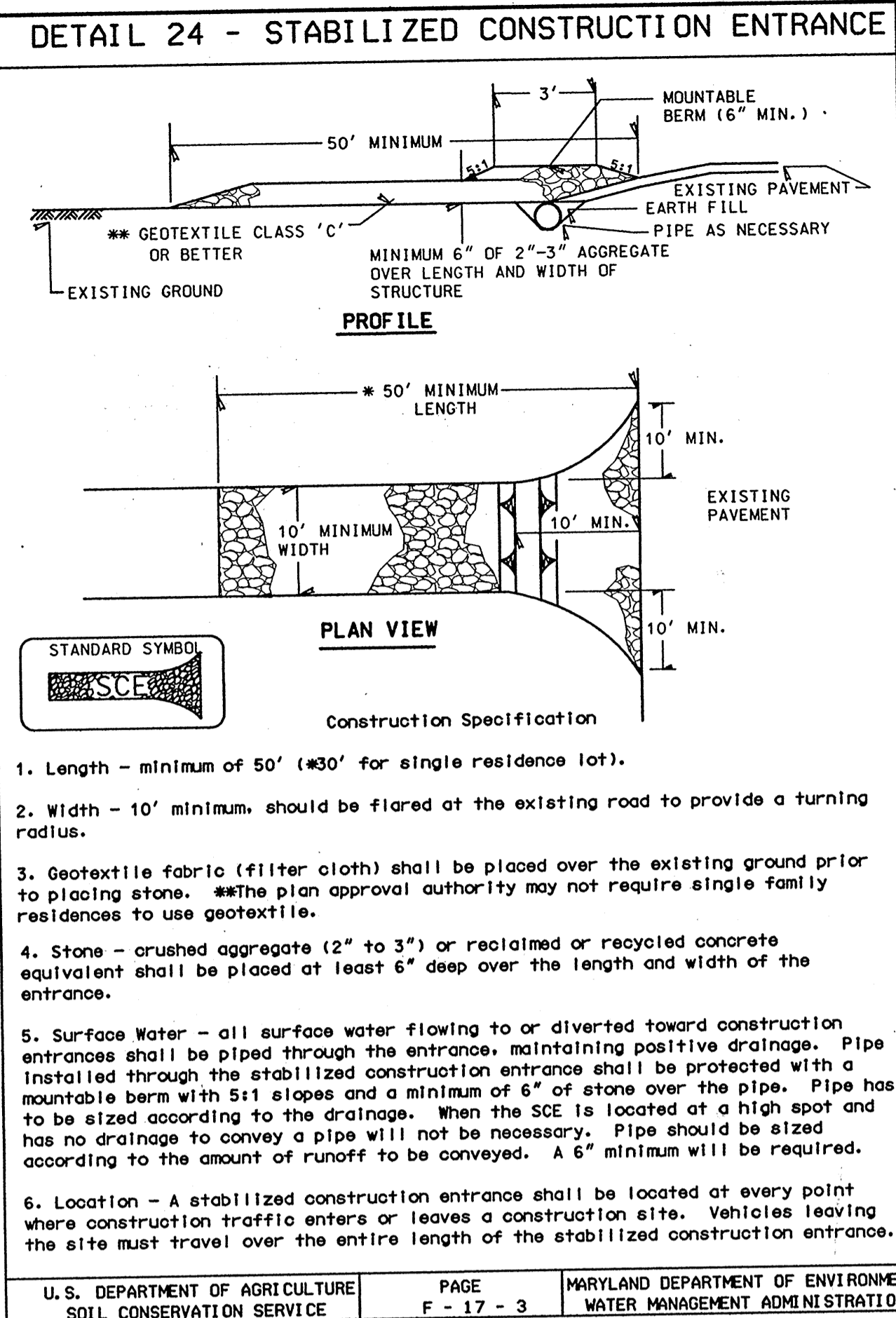
CONSTRUCTION AND MATERIAL SPECIFICATIONS

- 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, SLUGS, COARSE FRAGMENTS, GRAVEL, STICKS, ROOTS, TRASH, OR OTHER MATERIALS LARGER THAN 1/2" IN DIAMETER.
 - TOPSOIL MUST BE FREE OF PLANTS OR PLANT PARTS SUCH AS BERMUDA GRASS, QUACKGRASS, JOHNSONGRASS, NUTJESODE, POISON IVY, THISTLE, OR OTHERS AS SPECIFIED.
 - WHERE THE SUBSOIL IS EITHER HIGHLY ACIDIC OR COMPOSED OF HEAVY CLAYS, (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 1 - VEGETATIVE STABILIZATION METHODS AND MATERIALS.

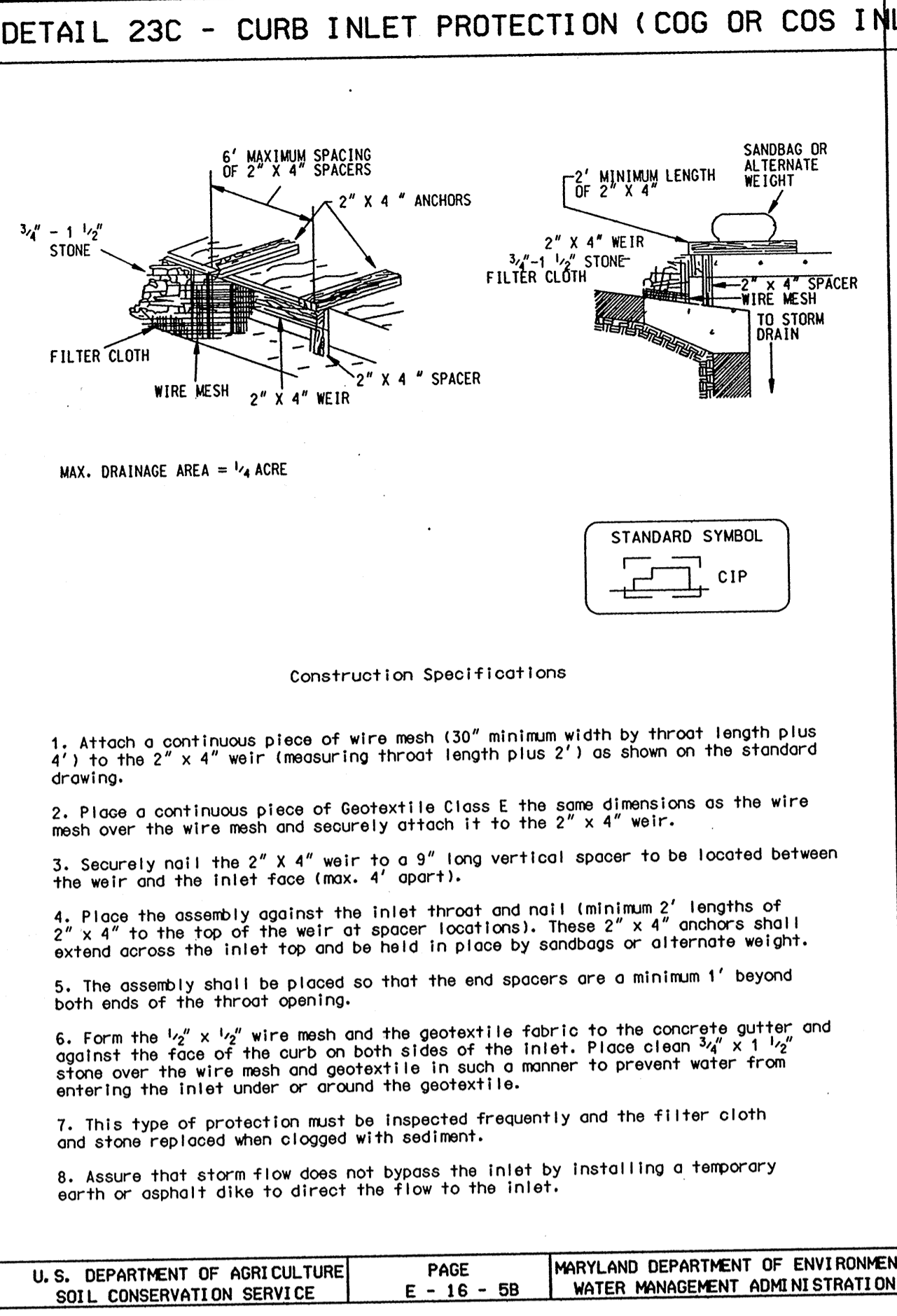
- FOR SITES HAVING DISTURBED AREAS OVER 5 ACRES:
 - ON SOIL MEETING TOPSOIL SPECIFICATIONS, OBTAIN TEST RESULTS DICTATING FERTILIZER AND LIME AMENDMENTS REQUIRED TO BRING THE SOIL INTO COMPLIANCE WITH THE FOLLOWING:
 - PH FOR TOPSOIL SHALL BE BETWEEN 6.0 AND 7.5. IF THE TESTED SOIL DEMONSTRATES A PH 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 SOD 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.
 - PLACE TOPSOIL (IF REQUIRED) AND APPLY SOIL AMENDMENTS AS SPECIFIED IN 20.0 VEGETATIVE STABILIZATION - SECTION 1 - VEGETATIVE STABILIZATION METHODS AND MATERIALS.
- 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 SODDING 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.
- 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.



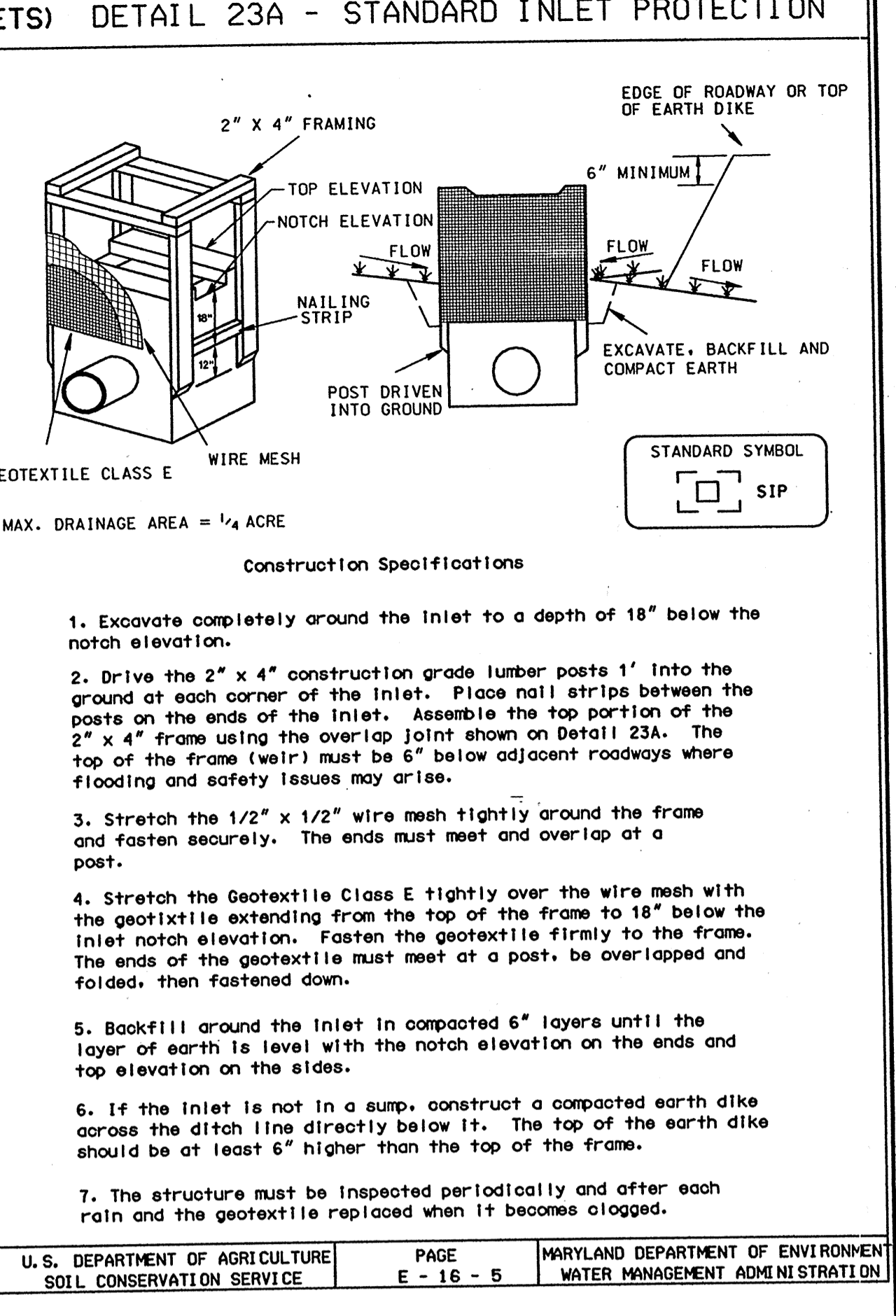
DECIDUOUS TREE PLANTING DETAIL
N.T.S.



U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE F-17-3 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION



U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE E-16-5B MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION



U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE E-16-5 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

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.

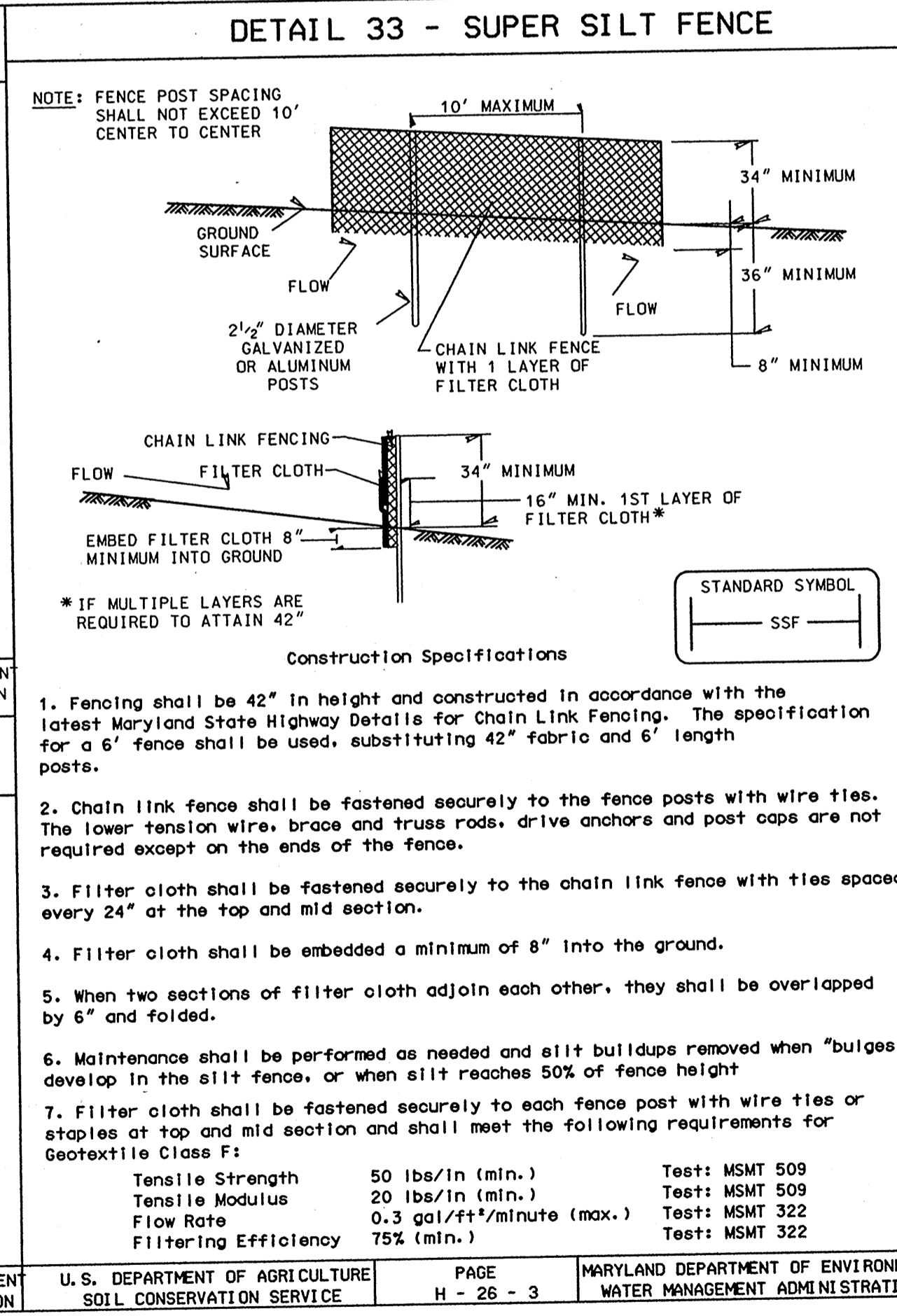
U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE E-15-3A MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

SUPER SILT FENCE

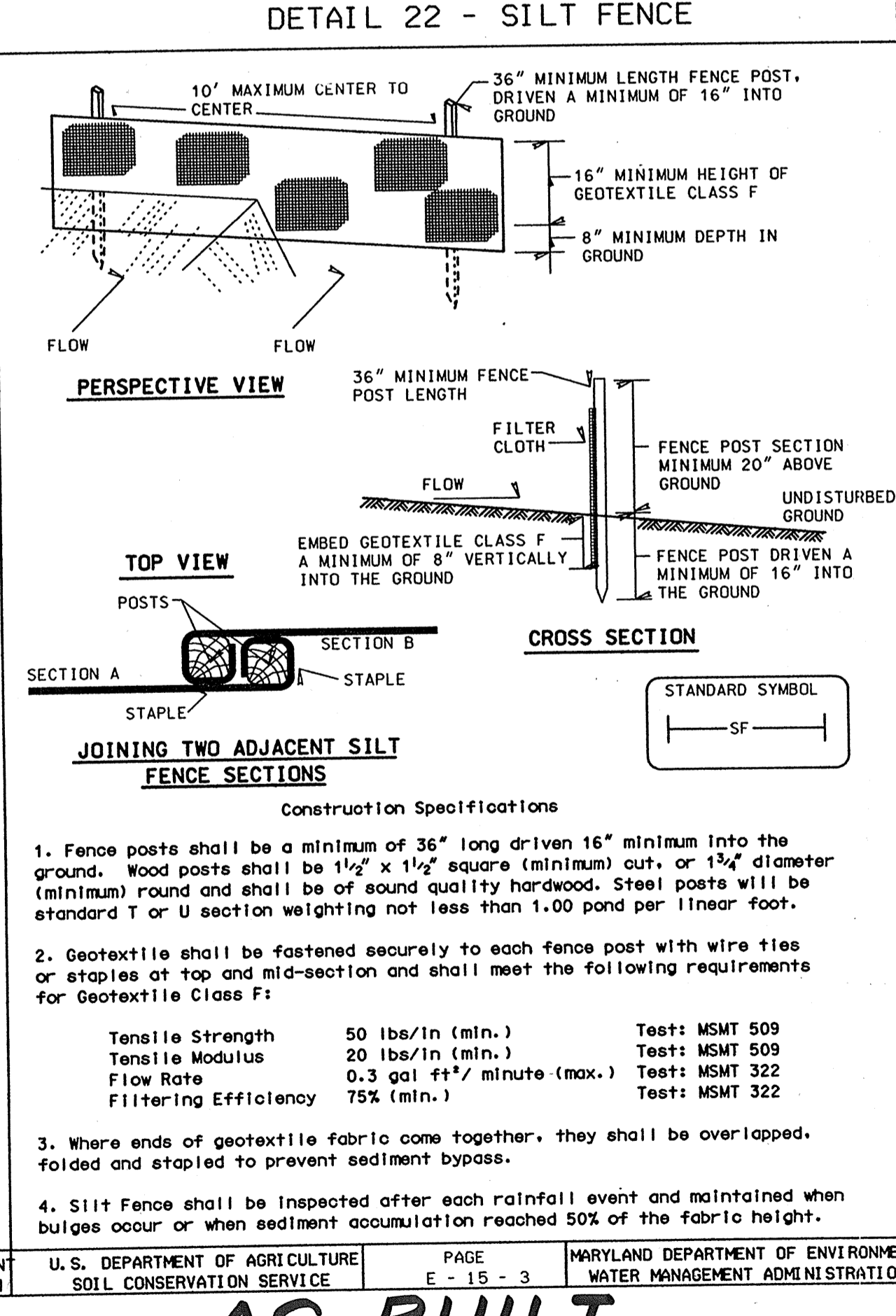
Design Criteria

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

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE H-26-3A MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION



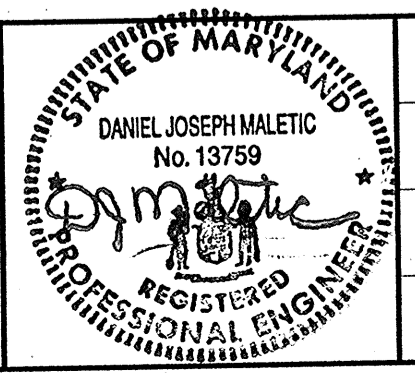
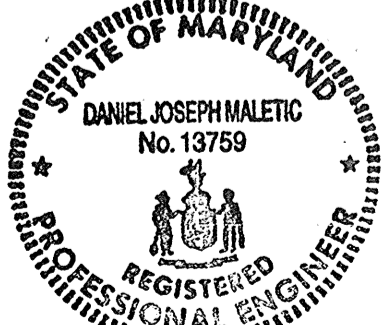
U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE H-26-3 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION



U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE E-15-3 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

REFERENCES: GUIDELINE SPECIFICATIONS, SOIL PREPARATION AND SODDING MD-VA, PUB. #1, COOPERATIVE EXTENSION SERVICE, UNIVERSITY OF MARYLAND AND VIRGINIA POLYTECHNIC INSTITUTES, REVISED 1973.

I hereby certify that to the best of my knowledge that this "As-Built" truly represents existing field conditions including but not limited to sizes, diameters, line and grade, and elevations, shown [Signature]
Daniel J. Maloic
Maryland Registered Professional Engineer No. 13759



DES:	BY:	NO:	REVISION:	DATE:

GRADING, EROSION AND SEDIMENT CONTROL PLAN DETAILS
SCALE MAP NO. _____ BLOCK NO. _____

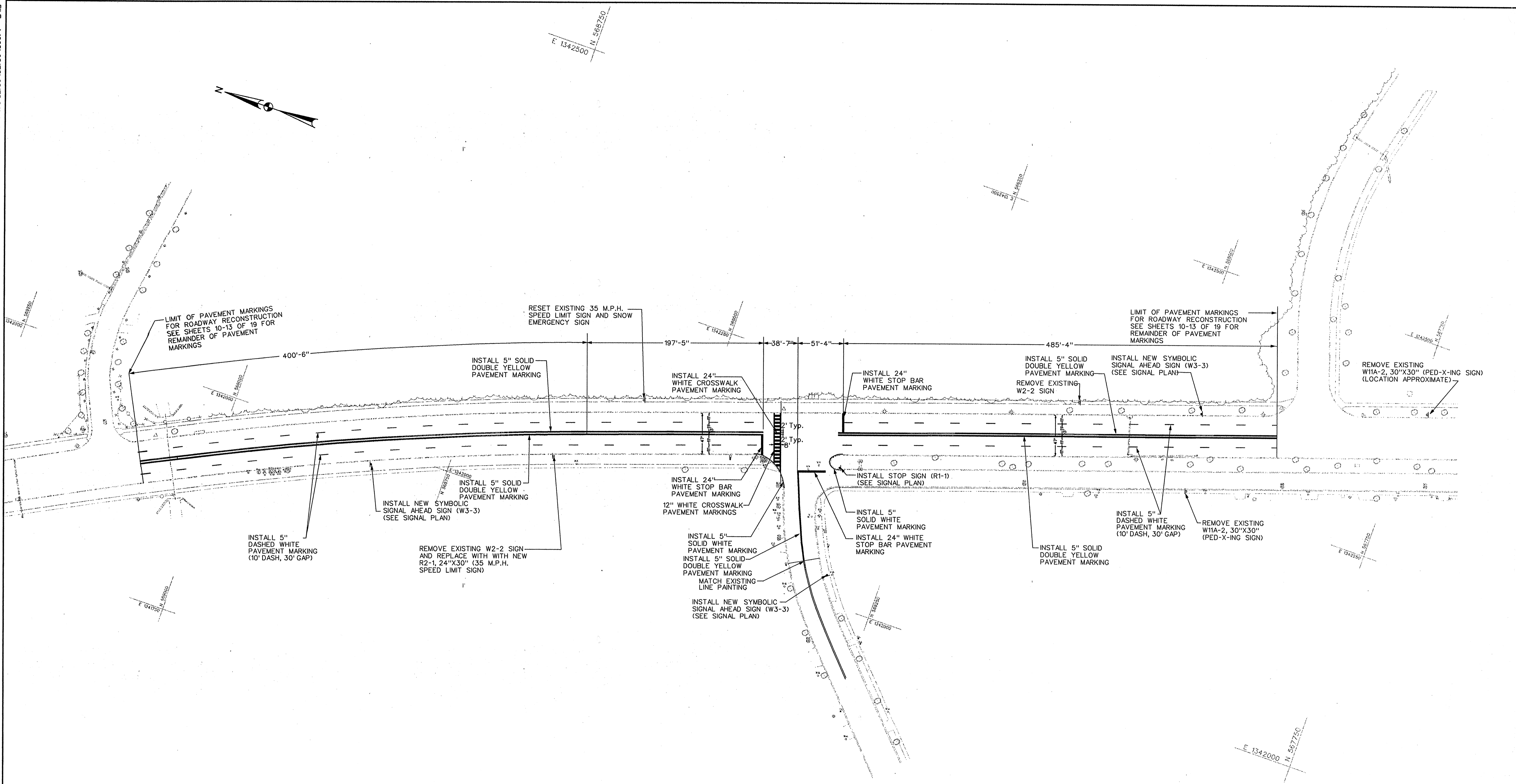
ROADWAY IMPROVEMENTS TO HARPERS FARM ROAD & WILLOWBOTTOM DRIVE
HOWARD COUNTY, MARYLAND
CAPITAL PROJECT NO. J-4164
SCALE AS SHOWN
SHEET 8 OF 19

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
4/14/00
4/14/00
4/14/00

GPI Greenman-Pedersen, Inc.
ENGINEERS, ARCHITECTS, PLANNERS, CONSTRUCTION ENGINEERS & INSPECTORS
1452 GREENVIEW DRIVE, SUITE 100, LAUREL, MD. 20706
WASH. (301) 470-2772 BALT. (410) 880-3265
FAX: (301) 490-2649 www.gpinet.com

AS-BUILT
April 2, 2001

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NOTES:

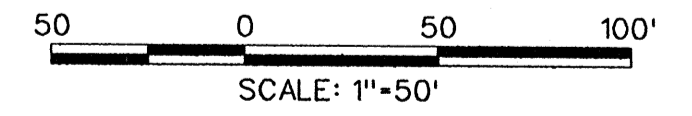
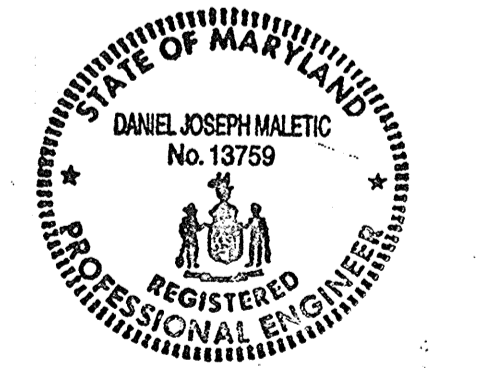
1. BAG OR COVER ALL EXISTING TRAFFIC SIGNS IN CONFLICT WITH TEMPORARY TRAFFIC CONTROL. UNCOVER WHEN DIRECTED BY THE COUNTY.
2. RELOCATE OR REMOVE, STORE AND RESET EXISTING SIGNS AS SHOWN ON THIS PLAN OR AS DIRECTED BY THE COUNTY.
3. WHEN THE NEW PAVEMENT SURFACE COURSE IS COMPLETE REMOVE ALL EXISTING 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

I hereby certify that to the best of my knowledge that this "As-Built" truly represents existing field conditions including but not limited to sizes, diameters, line and grade, and elevations, shown []

Daniel J. Maletic
 Daniel J. Maletic
 Maryland Registered Professional
 Engineer No. 13759



AS-BUILT
 April 2, 2001

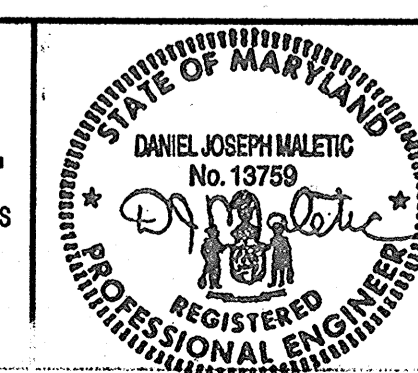
DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

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

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

Charles J. Pappas 4-13-00
 CHIEF, DIVISION OF TRANSPORTATION PROJECTS AND MAINTENANCE DATE

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



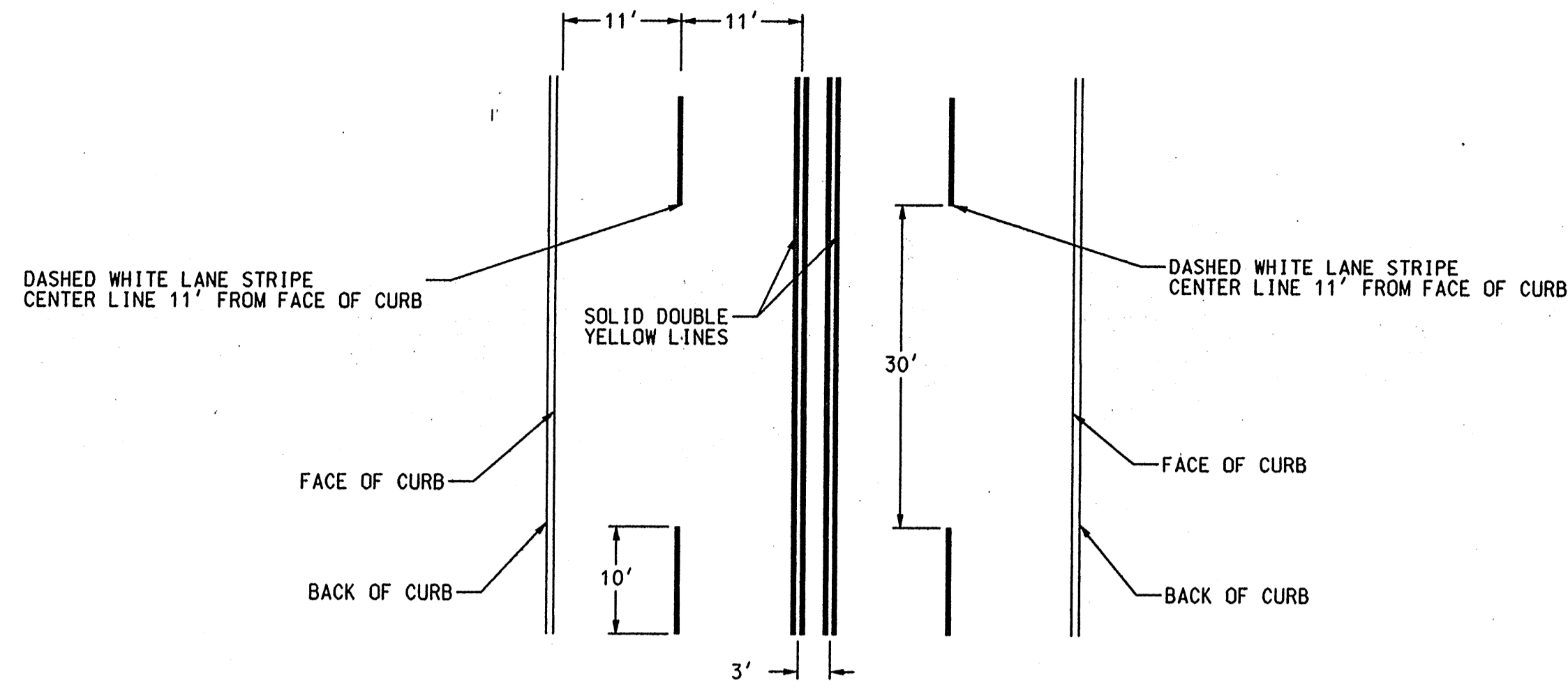
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DRN:				
CHK:				
DATE:				

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

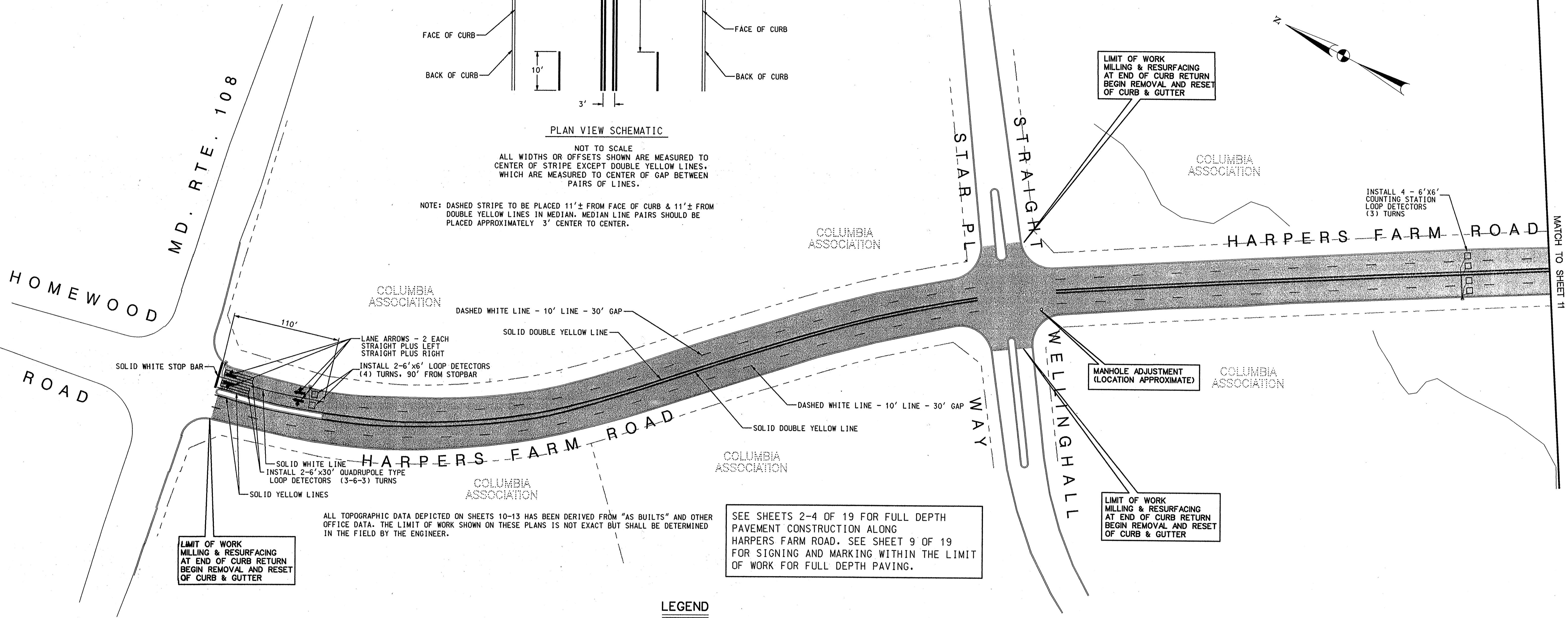
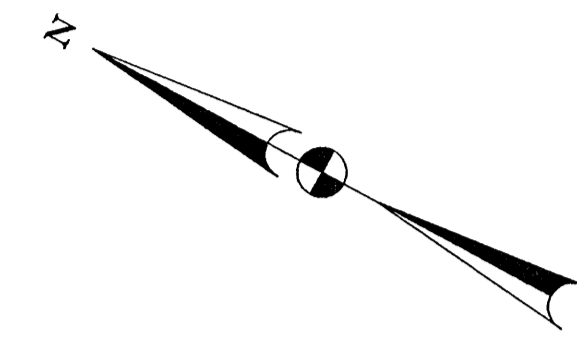
SCALE AS SHOWN
 SHEET 9 OF 19



PLAN VIEW SCHEMATIC

NOT TO SCALE
 ALL WIDTHS OR OFFSETS SHOWN ARE MEASURED TO CENTER OF STRIPE EXCEPT DOUBLE YELLOW LINES, WHICH ARE MEASURED TO CENTER OF GAP BETWEEN PAIRS OF LINES.

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.

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

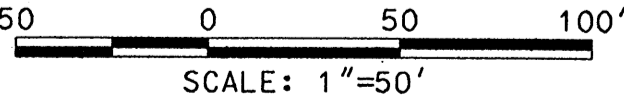
MILL 4" EXISTING SURFACE
 RESURFACE 1/2" BITUMINOUS SURFACE

I hereby certify that to the best of my knowledge that this "As-Built" truly represents existing field conditions including but not limited to sizes, diameters, line and grade, and elevations, shown [#]



Daniel J. Maletic
 Maryland Registered Professional Engineer No. 13759

AS-BUILT
 April 2, 2001



DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

James J. New 4/13/01
 DIRECTOR OF PUBLIC WORKS DATE

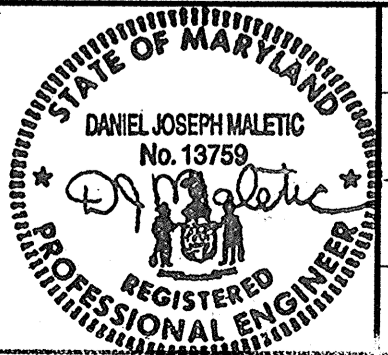
Paul J. Rapson 4/13/01
 CHIEF, BUREAU OF ENGINEERING DATE

Andrew M. Cavello 4-13-01
 CHIEF, BUREAU OF HIGHWAYS DATE

Erica 4/13/01
 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) 490-2648 www.gpinet.com



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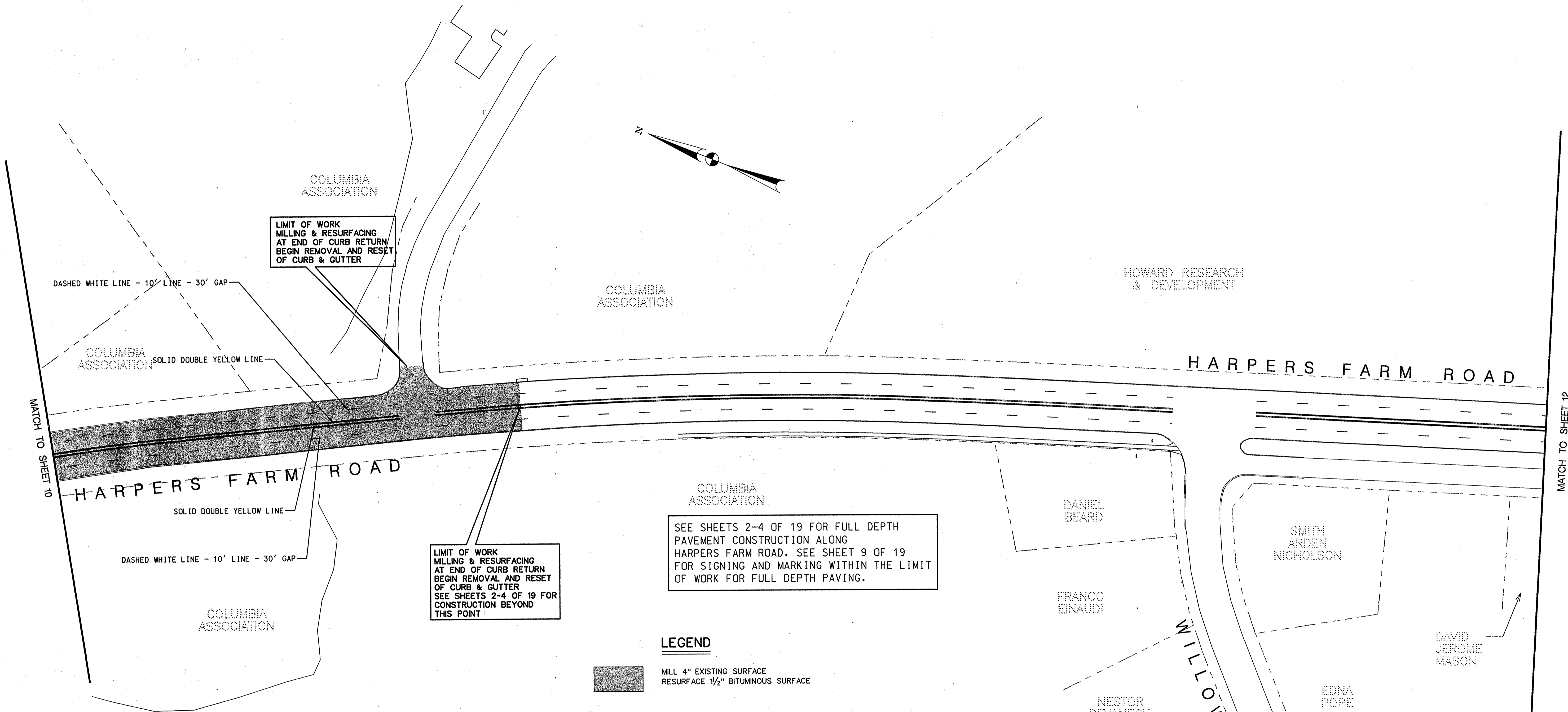
LANE MARKINGS &
 MILLING AND RESURFACING
 PLAN SHEET 1

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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DATE: 29 MAR 2000 11:23:08



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.

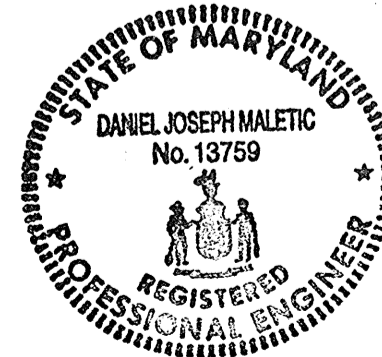
LEGEND

- 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.

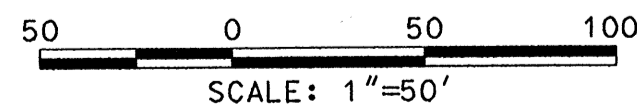
ALL TOPOGRAPHIC DATA DEPICTED ON SHEETS 10-13 HAS BEEN DERIVED FROM "AS BUILTS" AND OTHER
OFFICE DATA. THE LIMIT OF WORK SHOWN ON THESE PLANS IS NOT EXACT BUT SHALL BE DETERMINED
IN THE FIELD BY THE ENGINEER.

I hereby certify that to the best of my knowledge that this "As-Built"
truly represents existing field conditions including but not limited
to sizes, diameters, line and grade, and elevations, shown [initials]



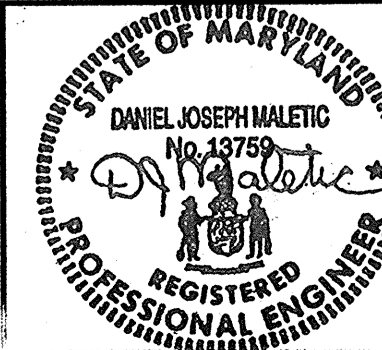
Daniel J. Maletic
Daniel J. Maletic
Maryland Registered Professional
Engineer No. 13759

AS-BUILT
April 2, 2001



DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
Lynn P. Elmer 4/13/00
DIRECTOR OF PUBLIC WORKS DATE
Michael M. Daniels 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) 480-2848 www.gpinet.com

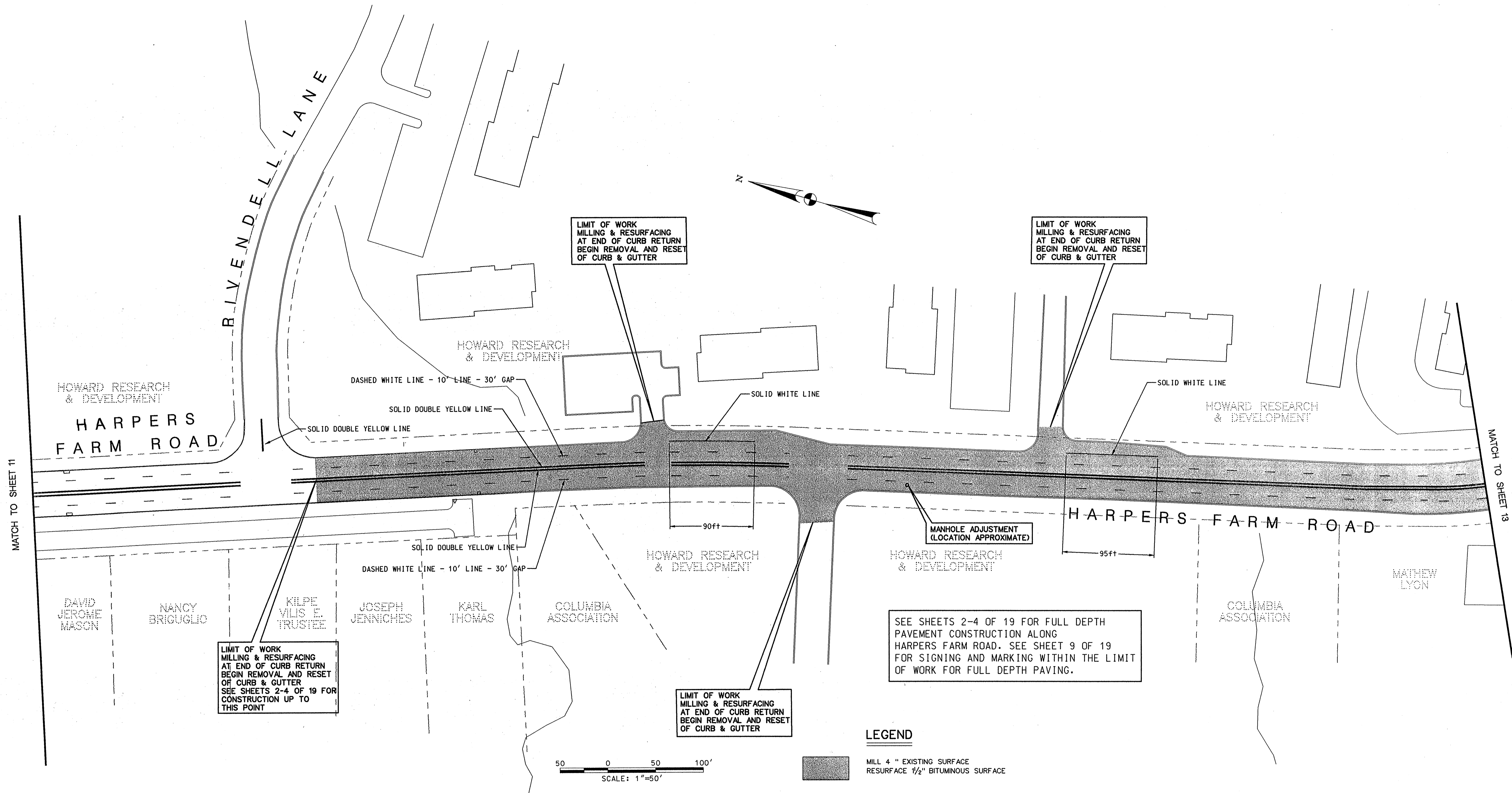


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CHK:				
DATE:				

LANE MARKINGS &
MILLING AND RESURFACING
PLAN SHEET 2
SCALE MAP NO. _____ BLOCK NO. _____

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

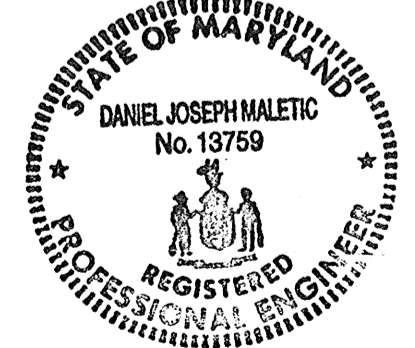
SCALE
AS
SHOWN
SHEET
11 OF 19



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.

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Daniel J. Maletic
 Daniel J. Maletic
 Maryland Registered Professional Engineer No. 13759

AS-BUILT
 April 2, 2001

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

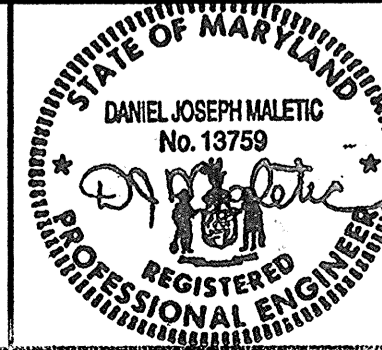
James J. ... 4/13/00
 DIRECTOR OF PUBLIC WORKS DATE

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

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

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

GPI Greenman-Pedersen, Inc.
 ENGINEERS, ARCHITECTS, PLANNERS, CONSTRUCTION ENGINEERS & INSPECTORS
 1432 GREENVIEW DRIVE, SUITE 100 LAUREL, MD. 20706
 WASH. (301) 479-2772 BALT. (410) 580-9255
 FAX: (301) 490-2649 www.gpinet.com



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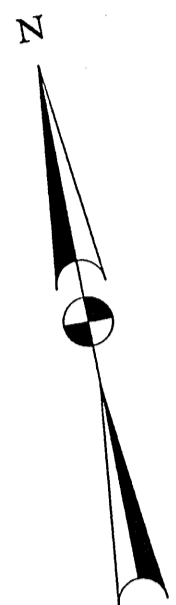
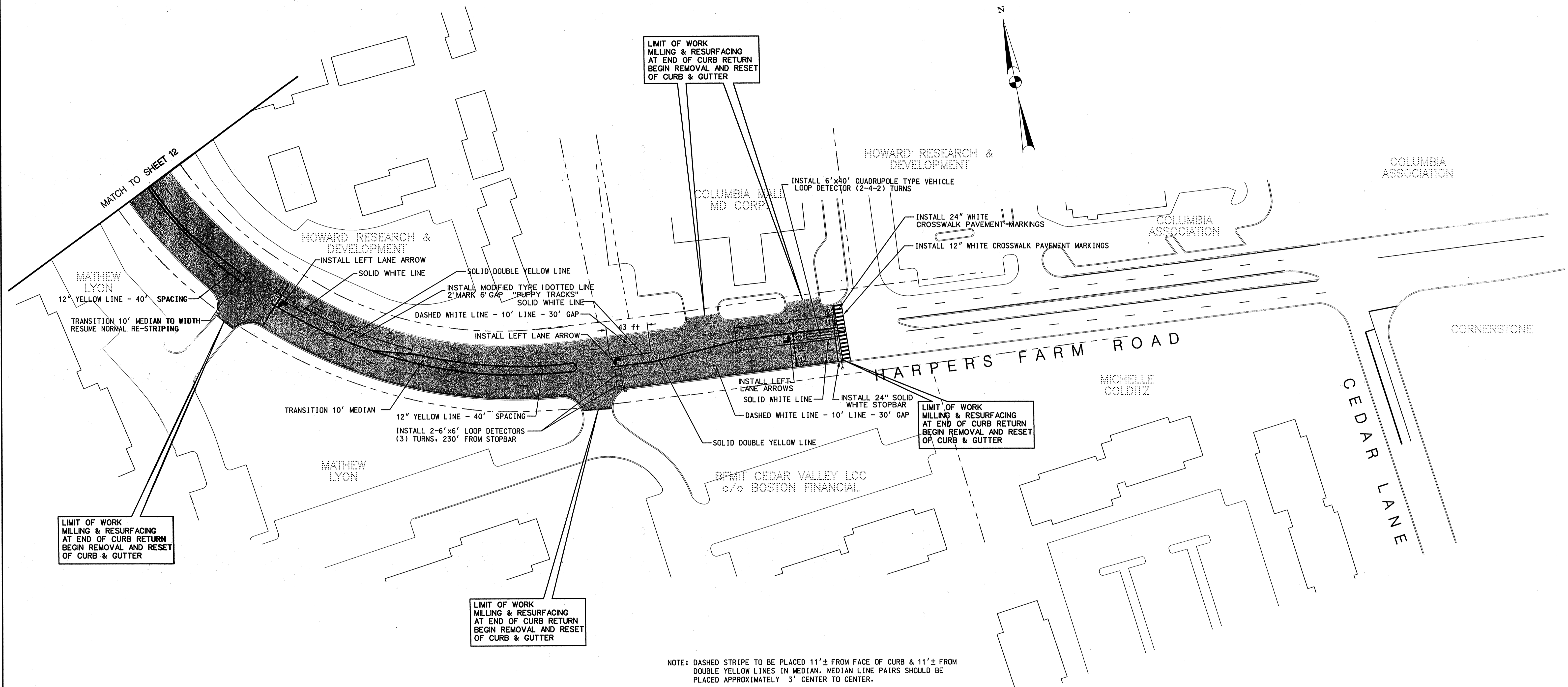
LANE MARKINGS &
 MILLING AND RESURFACING
 PLAN SHEET 3

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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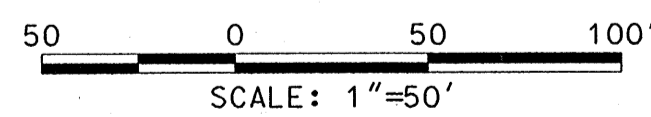


LEGEND

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

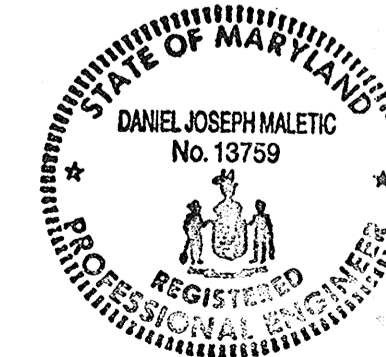
SEE SHEETS 2-4 OF 19 FOR FULL DEPTH PAVEMENT CONSTRUCTION ALONG HARPERS FARM ROAD. SEE SHEET 9 OF 19 FOR SIGNING AND MARKING WITHIN THE LIMIT OF WORK FOR FULL DEPTH PAVING.

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.

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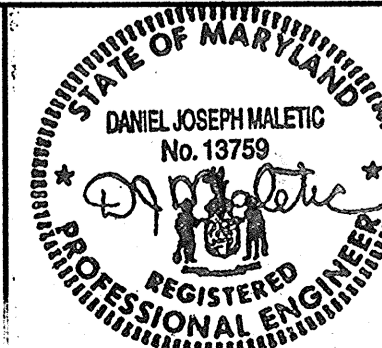


Daniel J. Maletic
 Daniel J. Maletic
 Maryland Registered Professional
 Engineer No. 13759

AS-BUILT
 April 2, 2001

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND
James M. New 4/13/01
 DIRECTOR OF PUBLIC WORKS DATE
Andrew M. Dunkle 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, 20706
 WASH. (301) 470-2772 BALT. (410) 880-3055
 FAX: (301) 490-2649 www.gpinet.com



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

LANE MARKINGS &
 MILLING AND RESURFACING
 PLAN SHEET 4
 * 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 13 OF 19

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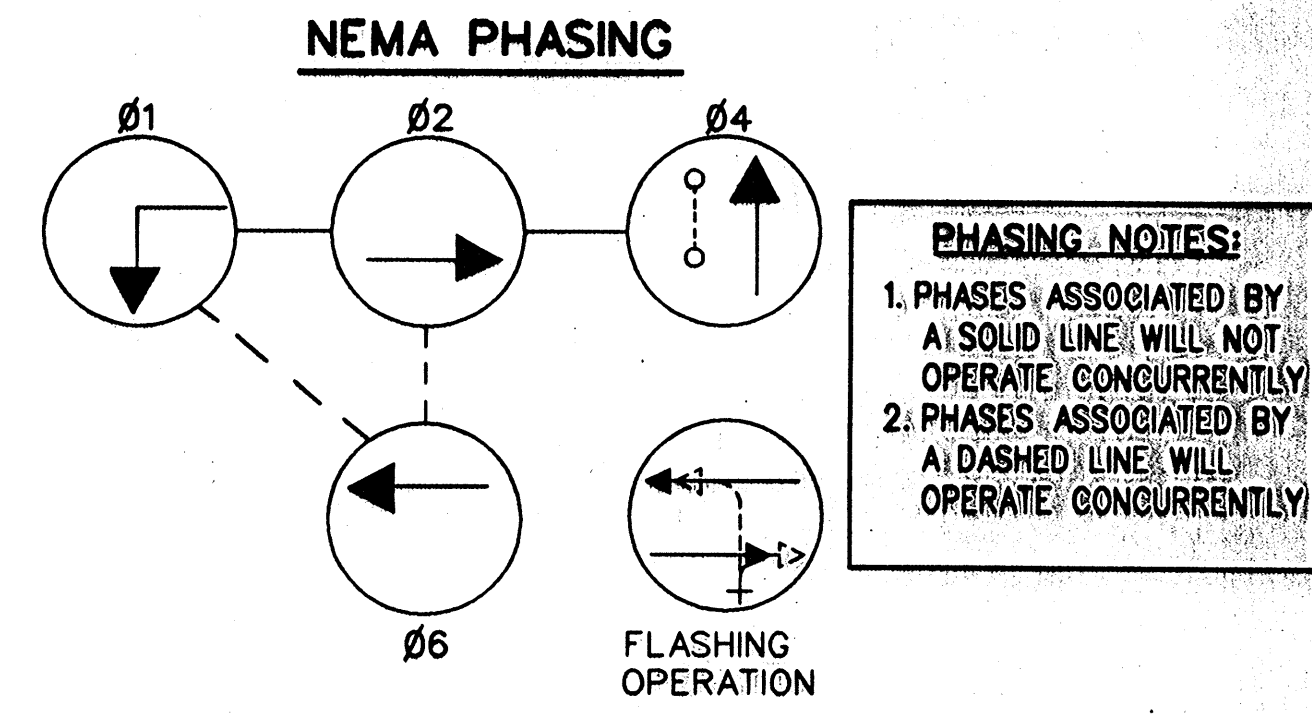
CONSTRUCTION DETAILS

- 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.

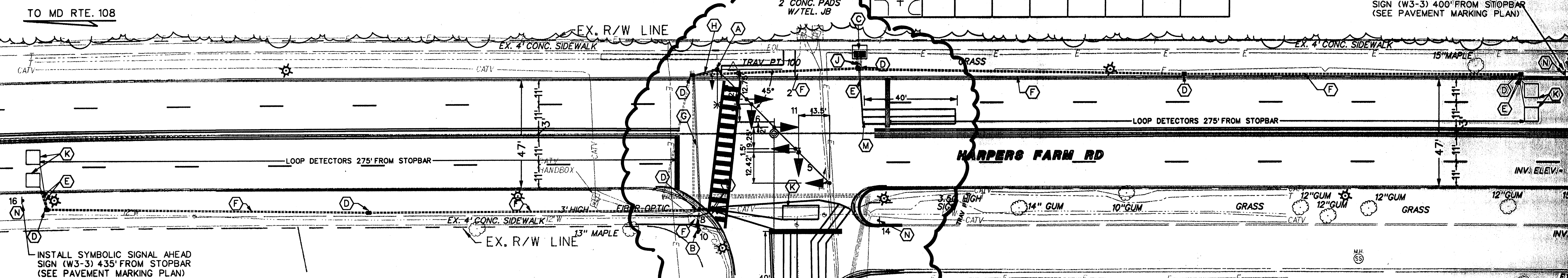
NOTES:

- 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	Y	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



INSTALL SYMBOLIC SIGNAL AHEAD SIGN (W3-3) 400' FROM STOPBAR (SEE PAVEMENT MARKING PLAN)

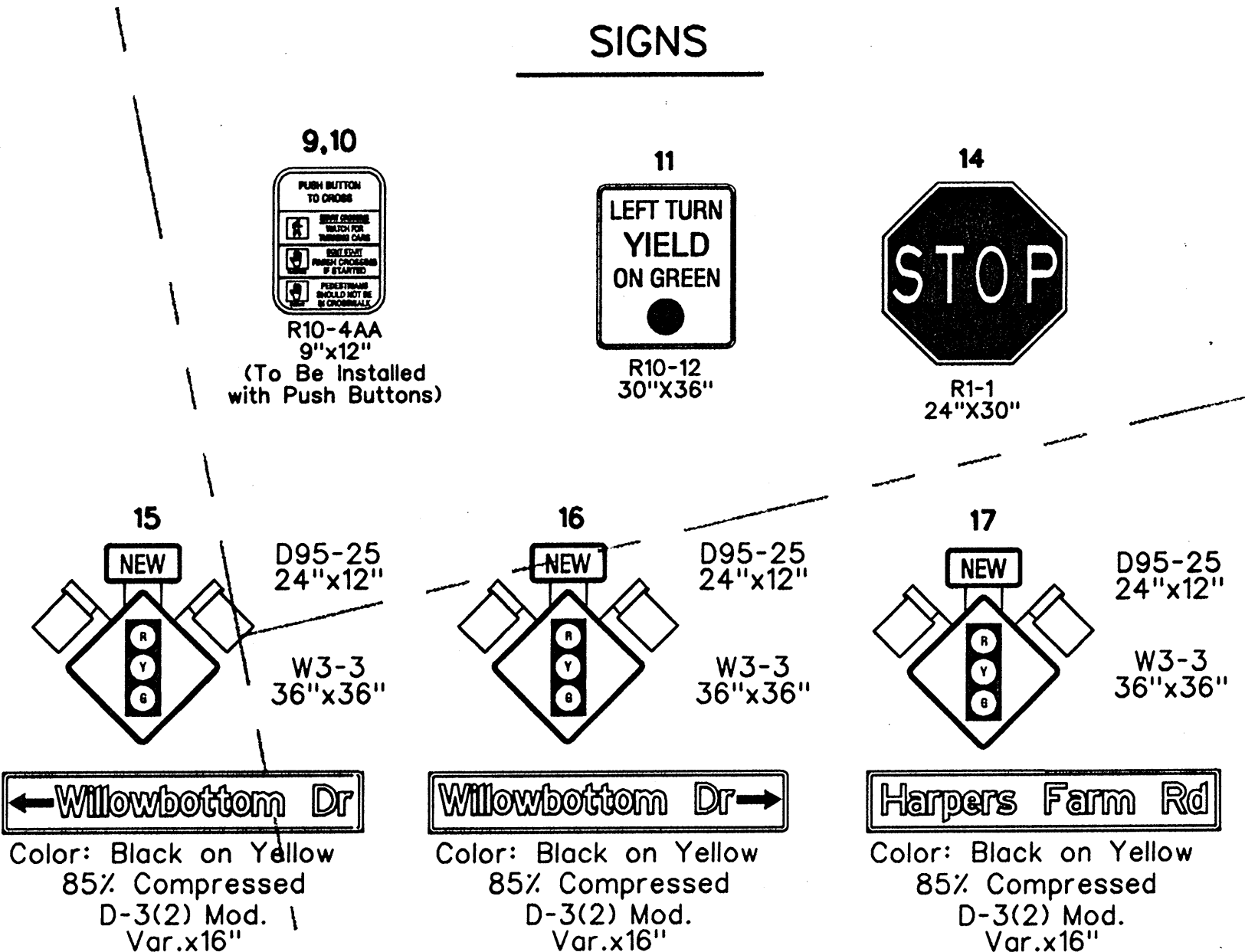


UTILITY LEGEND

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

SIGNAL LEGEND

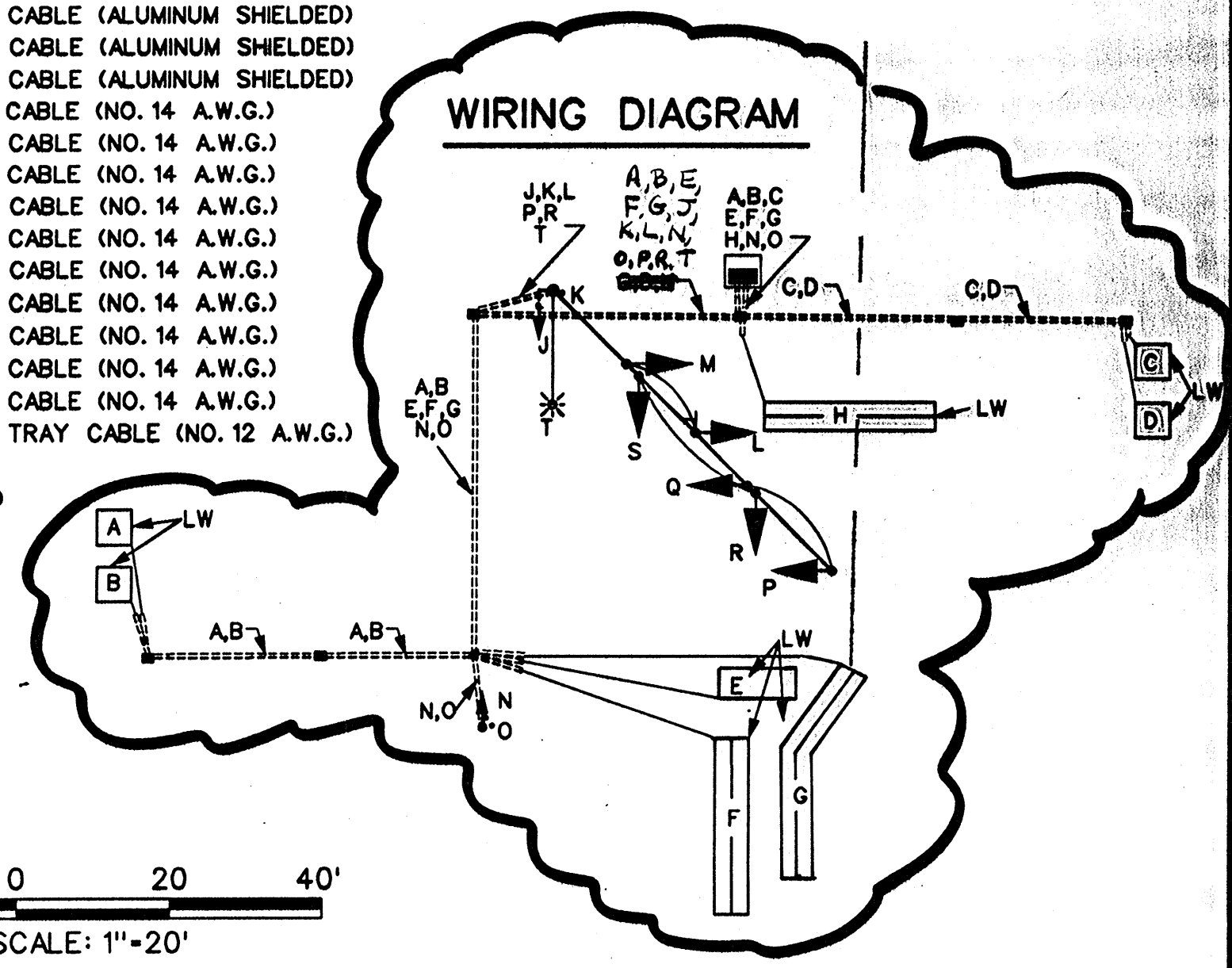
- | PROPOSED | EXISTING |
|--------------------------|--------------------------|
| ● MAST ARM | ○ MAST ARM |
| ▲ TRAFFIC SIGNAL HEAD | ○ TRAFFIC SIGNAL HEAD |
| ▲ PEDESTRIAN SIGNAL HEAD | ○ PEDESTRIAN SIGNAL HEAD |
| ▲ SIGN | ○ SIGN |
| ▲ STREET LIGHT | ○ STREET LIGHT |
| ■ HANDBOX | ○ HANDBOX |
| □ 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

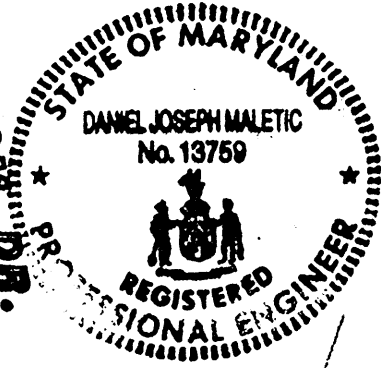
- A - 2 CONDUCTOR CABLE (ALUMINUM SHIELDED)
- B - 2 CONDUCTOR CABLE (ALUMINUM SHIELDED)
- C - 2 CONDUCTOR CABLE (ALUMINUM SHIELDED)
- D - 2 CONDUCTOR CABLE (ALUMINUM SHIELDED)
- E - 2 CONDUCTOR CABLE (ALUMINUM SHIELDED)
- F - 2 CONDUCTOR CABLE (ALUMINUM SHIELDED)
- G - 2 CONDUCTOR CABLE (ALUMINUM SHIELDED)
- 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

WIRING DIAGRAM

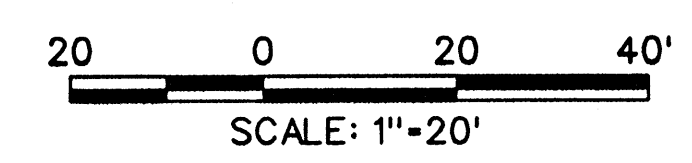


I hereby certify that to the best of my knowledge that this "As-Built" truly represents existing field conditions including but not limited to sizes, diameters, line and grade, and elevations, shown.

Daniel J. Maletic
Maryland Registered Professional Engineer No. 13759



AS-BUILT
April 2, 2001



DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

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

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

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

Carolina 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 20786
WASH. (301) 470-2772 BALT. (410) 888-3665
FAX (301) 490-2649 www.gpinc.com

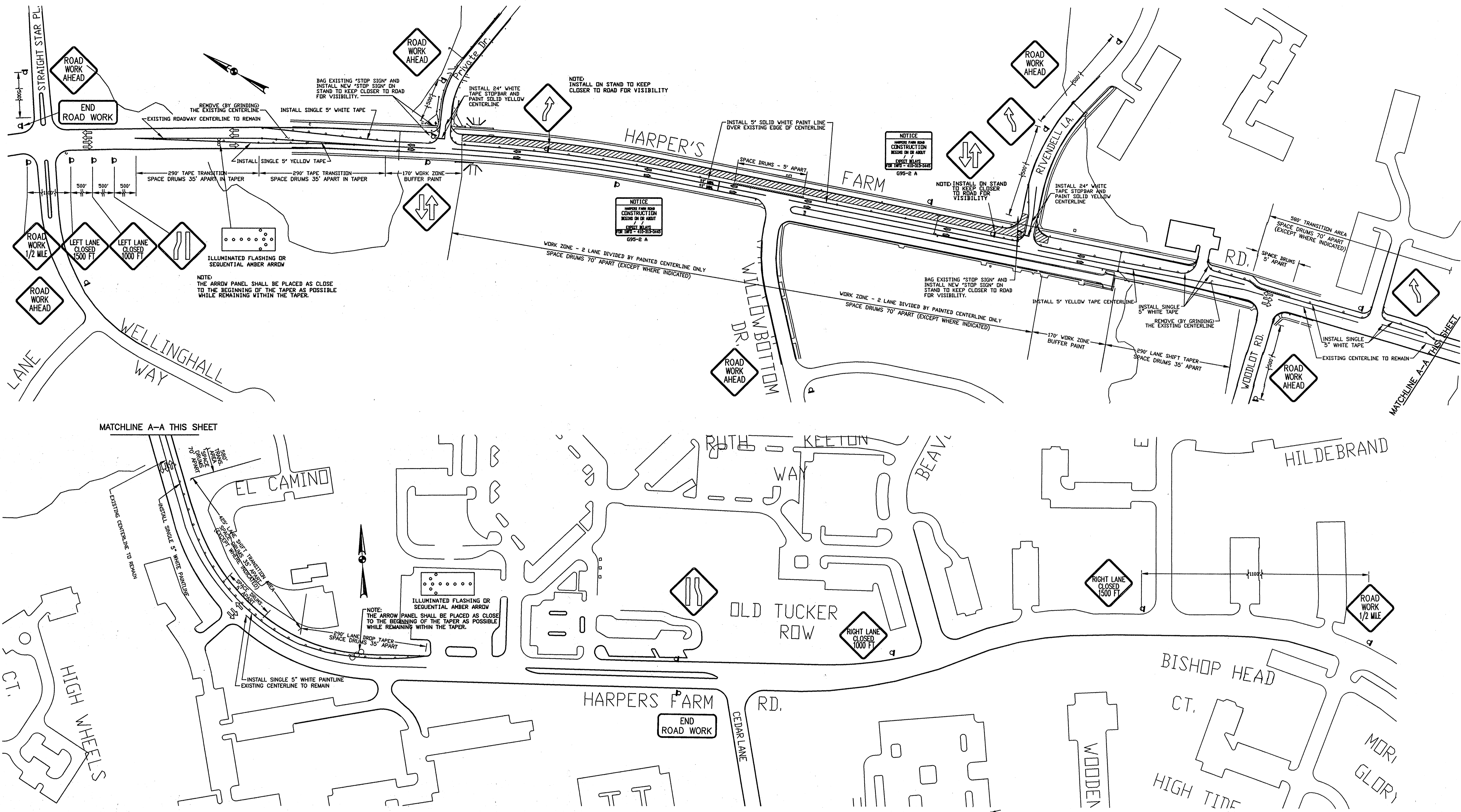
DES.	S.A.Y.	BY	NO.	REVISION	DATE
DRN.	S.A.Y.				
CHK.	C.R.				
DATE:	8/99				

Signal Plan

SCALE MAP NO. _____ BLOCK NO. _____

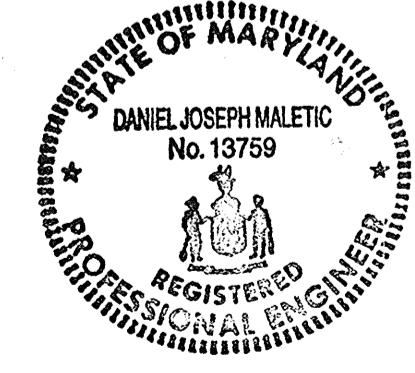
ROADWAY IMPROVEMENTS TO
HARPERS FARM ROAD & WILLOWBOTTOM DRIVE
HOWARD COUNTY, MARYLAND
CAPITAL PROJECT NO. J-4164

SCALE AS SHOWN
SHEET 14A OF 19



KEY:
 ○ CHANNELIZING DEVICES
 □ TRAFFIC CONTROL SIGN
 ▽ DIRECTION OF TRAFFIC
 ▨ WORK SITE
 ⬇ 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.

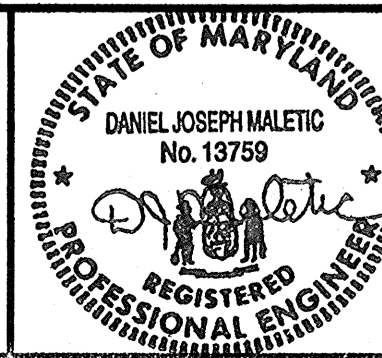


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 Daniel J. Maletic
 Maryland Registered Professional Engineer No. 13759

AS-BUILT
 April 2, 2001
 100 0 100 200'
 SCALE: 1"=100'

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND
 Director of Public Works: [Signature] 4/13/01
 Chief, Bureau of Engineering: [Signature] 4/13/01
 Chief, Bureau of Highways: [Signature] 4/13/01
 Chief, Bureau of Projects and Watershed Management: [Signature] 4/13/01

GPI Greenman-Pedersen, Inc.
 ENGINEERS, ARCHITECTS, PLANNERS, CONSTRUCTION ENGINEERS & INSPECTORS
 14302 GREENVIEW DRIVE, SUITE 100, LAUREL, MD. 20708
 WASH. (301) 470-2772 BALT. (410) 880-3035
 FAX: (301) 490-2649 www.gpinet.com

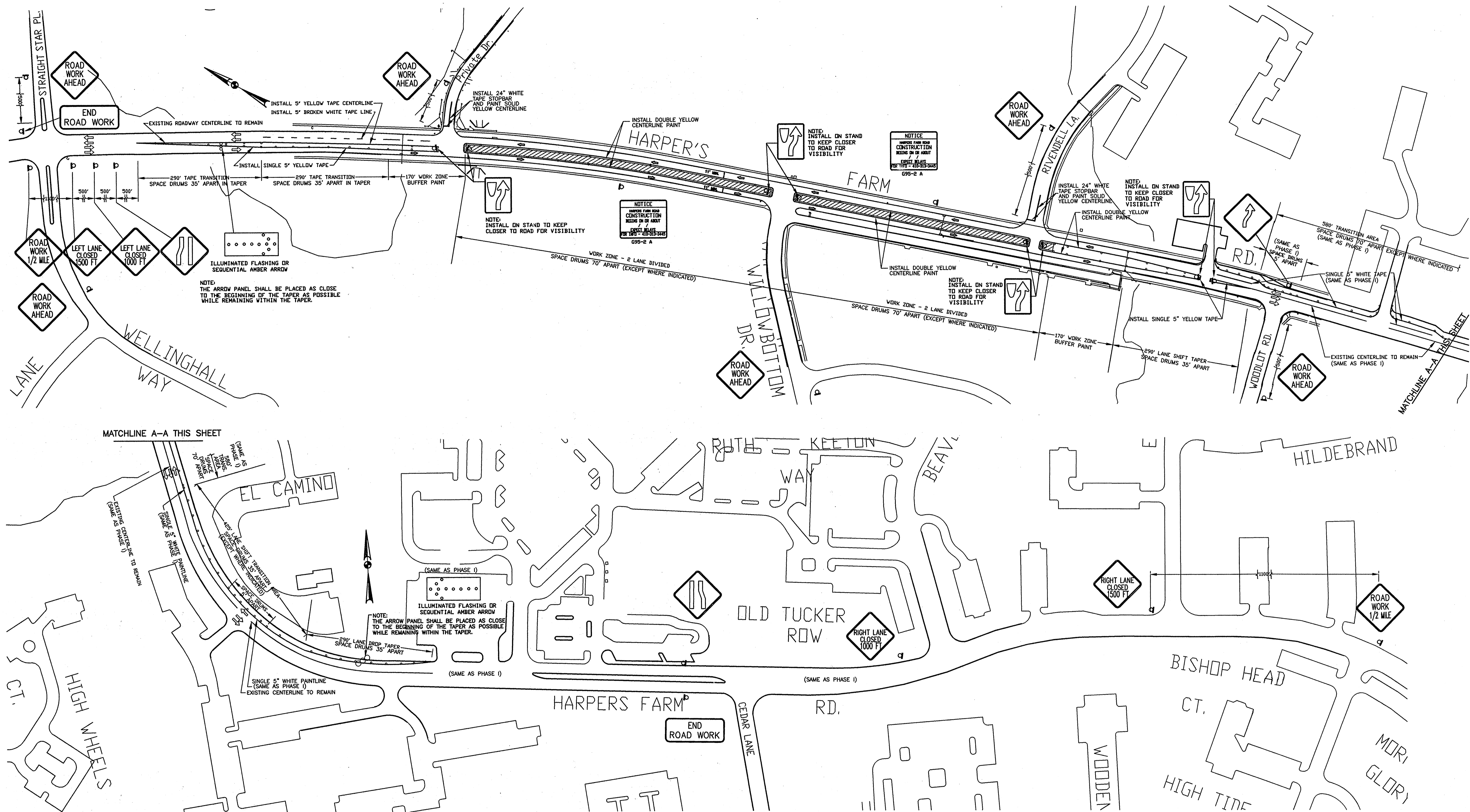


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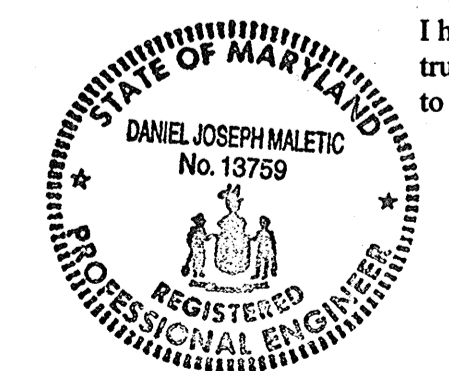
PHASE I MAINTENANCE OF TRAFFIC PLAN
 SCALE MAP NO. _____ BLOCK NO. _____

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

SCALE AS SHOWN
 SHEET 15 OF 19



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



I hereby certify that to the best of my knowledge that this "As-Built" truly represents existing field conditions including but not limited to sizes, diameters, line and grade, and elevations, shown [E].

Daniel J. Maletic
Daniel J. Maletic
Maryland Registered Professional Engineer No. 13759

AS-BUILT
April 2, 2001

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

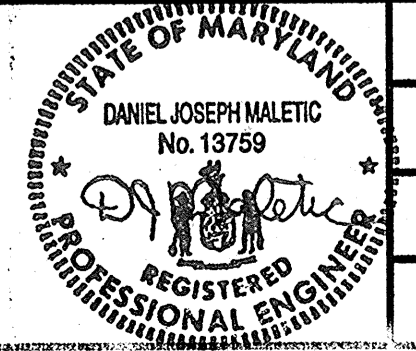
DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

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

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

Robert M. ... 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
VASH (301) 470-2772 BALT. (410) 880-3055
FAX (301) 490-2649 www.gpinet.com



DES.	BY	NO.	REVISION	DATE

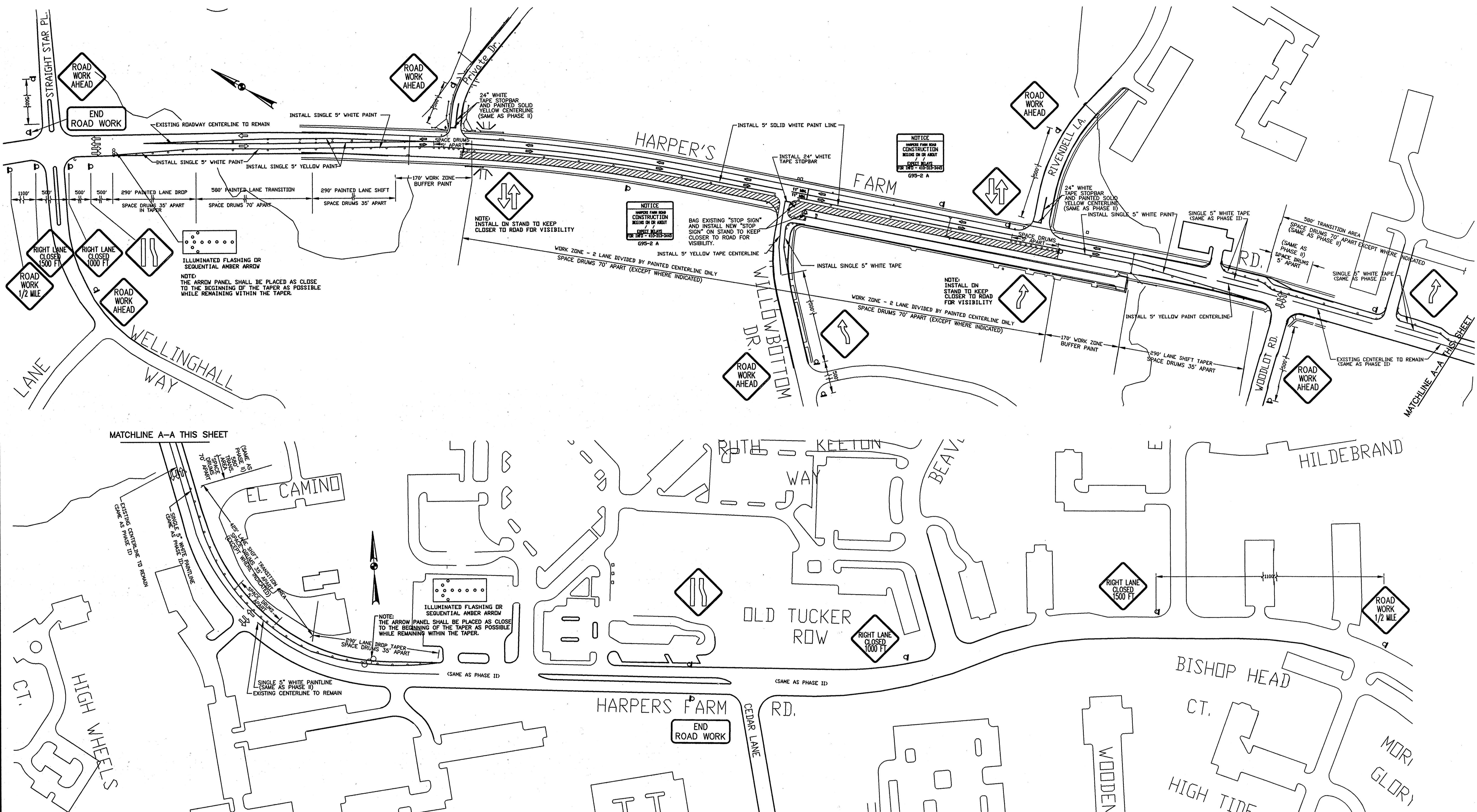
PHASE II
MAINTENANCE OF TRAFFIC PLAN

SCALE MAP NO. _____ BLOCK NO. _____

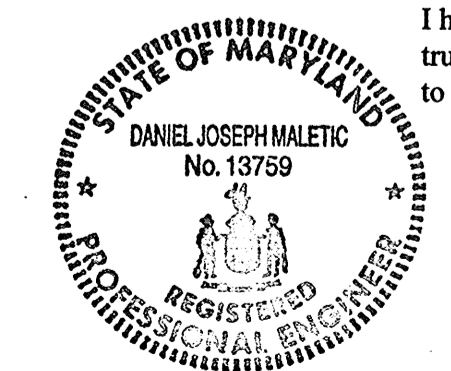
ROADWAY IMPROVEMENTS TO
HARPERS FARM RD. & WILLOWBOTTOM DR.
HOWARD COUNTY, MARYLAND
CAPITAL PROJECT NO. J-4164

SCALE AS SHOWN
SHEET 16 OF 19

FILE#FILES
DATE#DATE#
\$TIME#



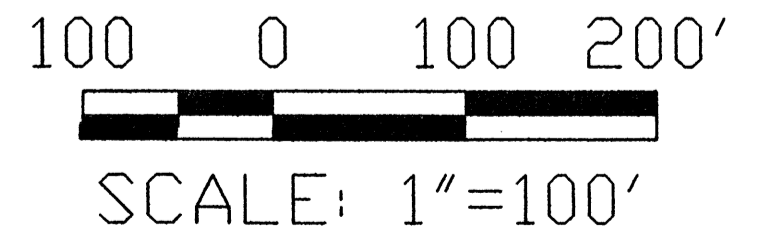
- KEY:**
- CHANNELIZING DEVICES
 - TRAFFIC CONTROL SIGN
 - DIRECTION OF TRAFFIC
 - WORK SITE
 - ARROW PANEL



I hereby certify that to the best of my knowledge that this "As-Built" truly represents existing field conditions including but not limited to sizes, diameters, line and grade, and elevations, shown [#]

Daniel J. Maletic
Daniel J. Maletic
Maryland Registered Professional
Engineer No. 13759

AS-BUILT
April 2, 2001



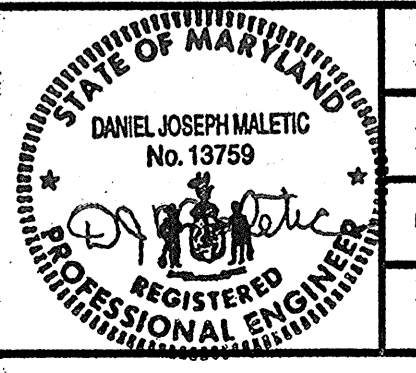
DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

James P. Stein 4/13/01
DIRECTOR OF PUBLIC WORKS DATE

Richard P. ... 4/13/01
CHIEF, BUREAU OF ENGINEERING DATE

... 4/13/01
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

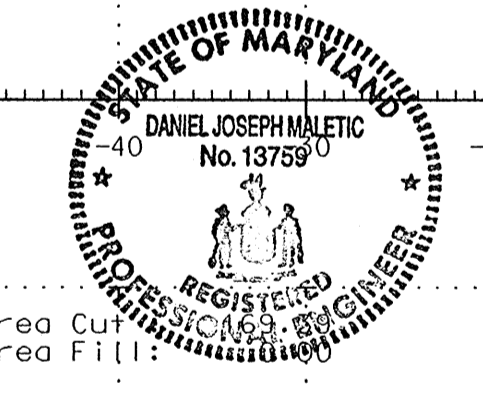
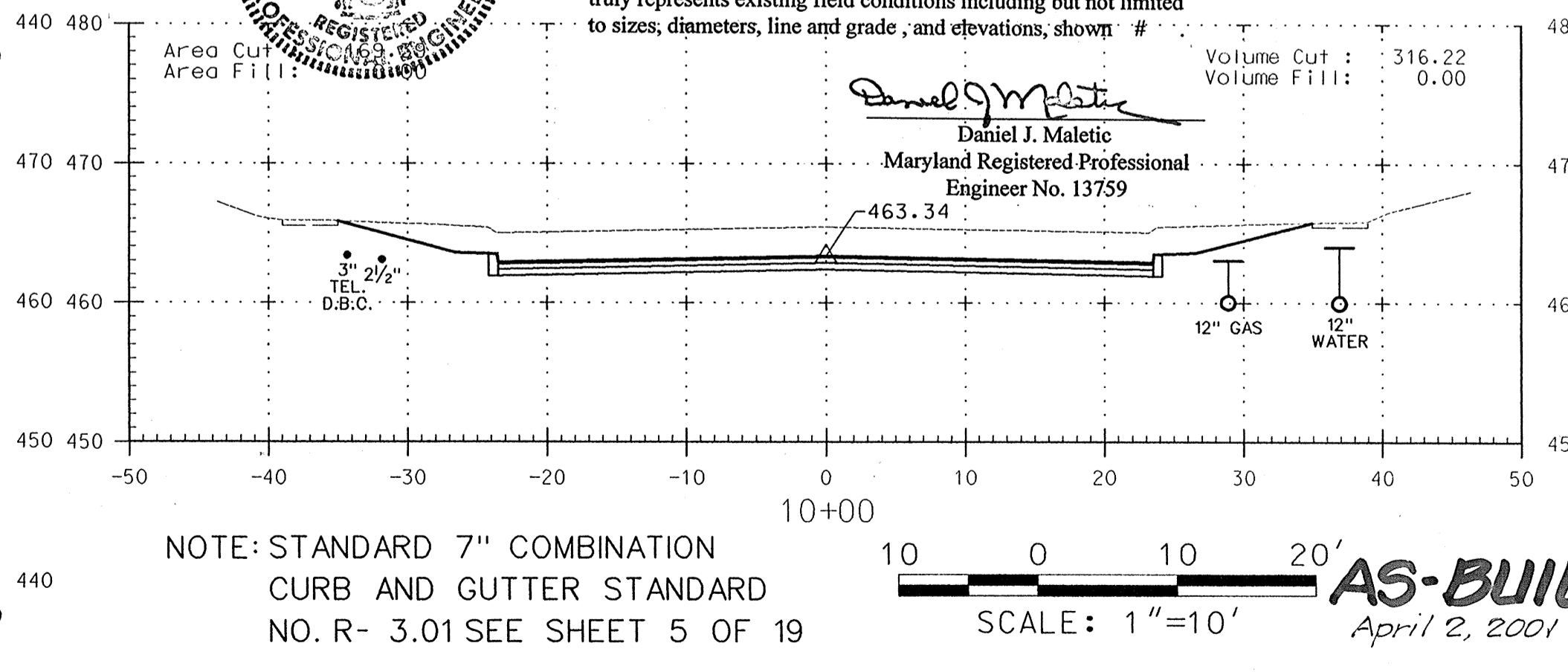
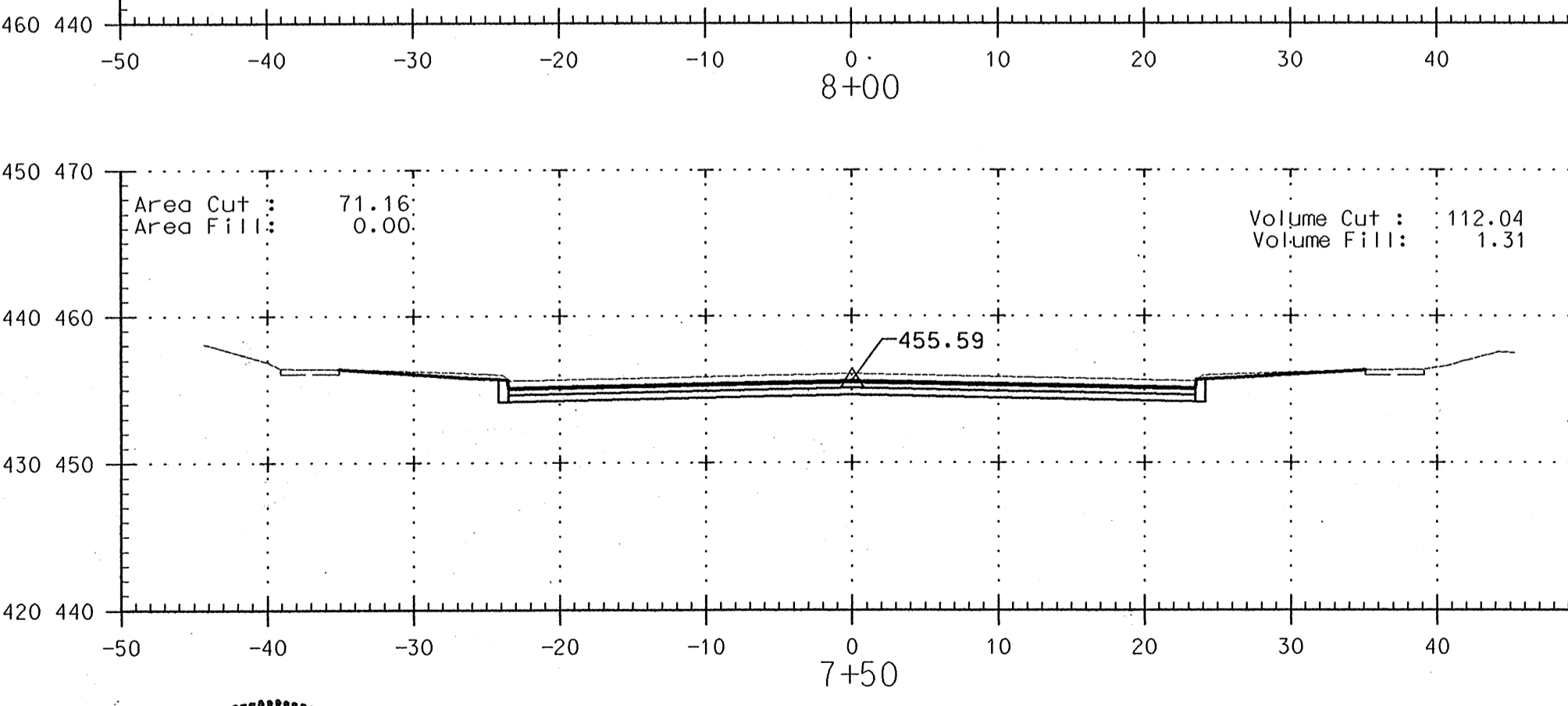
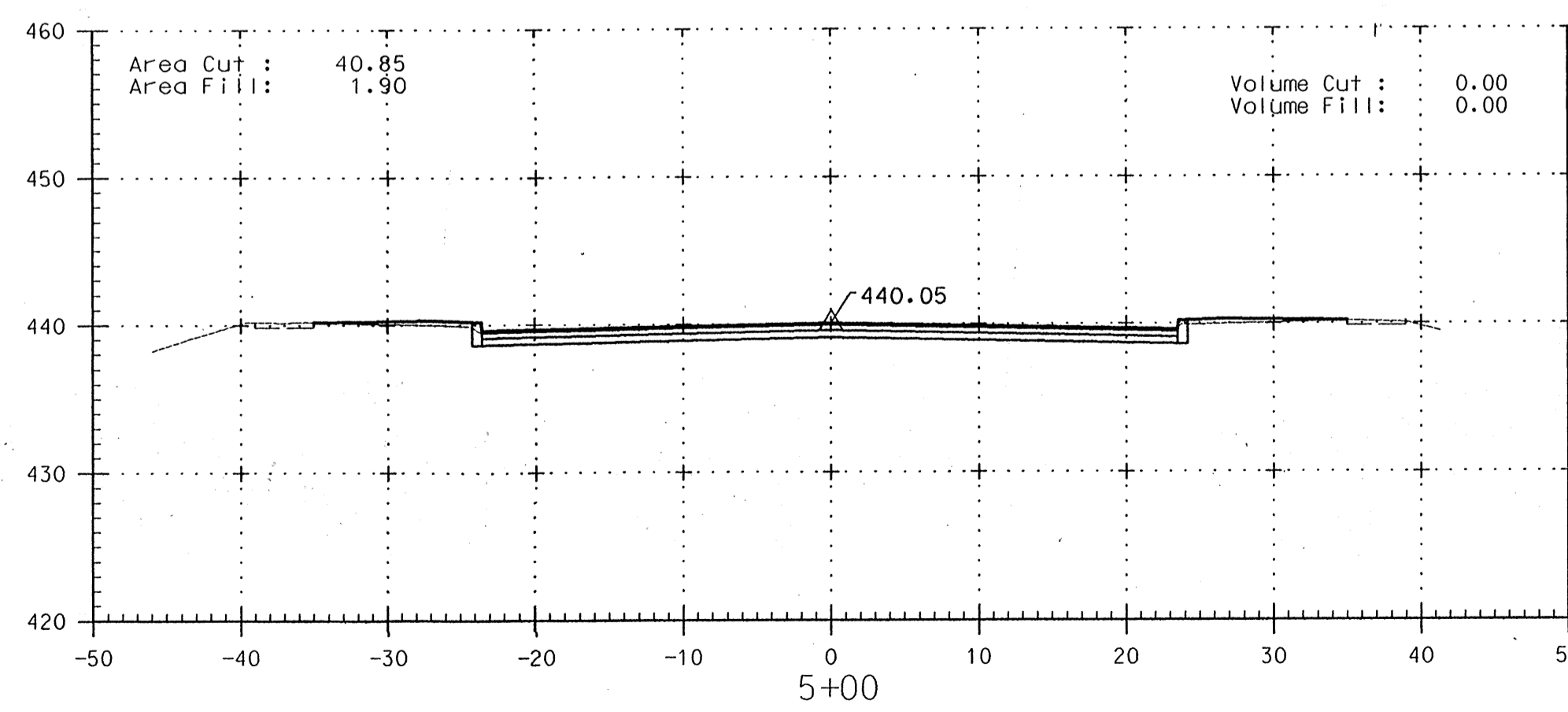
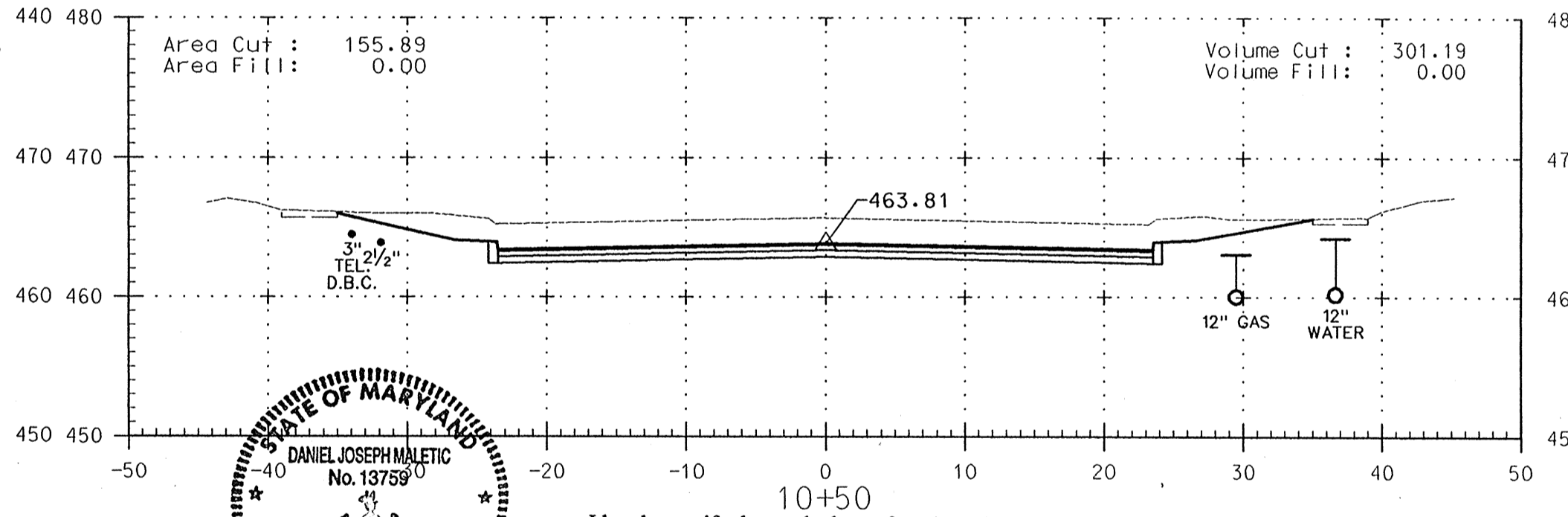
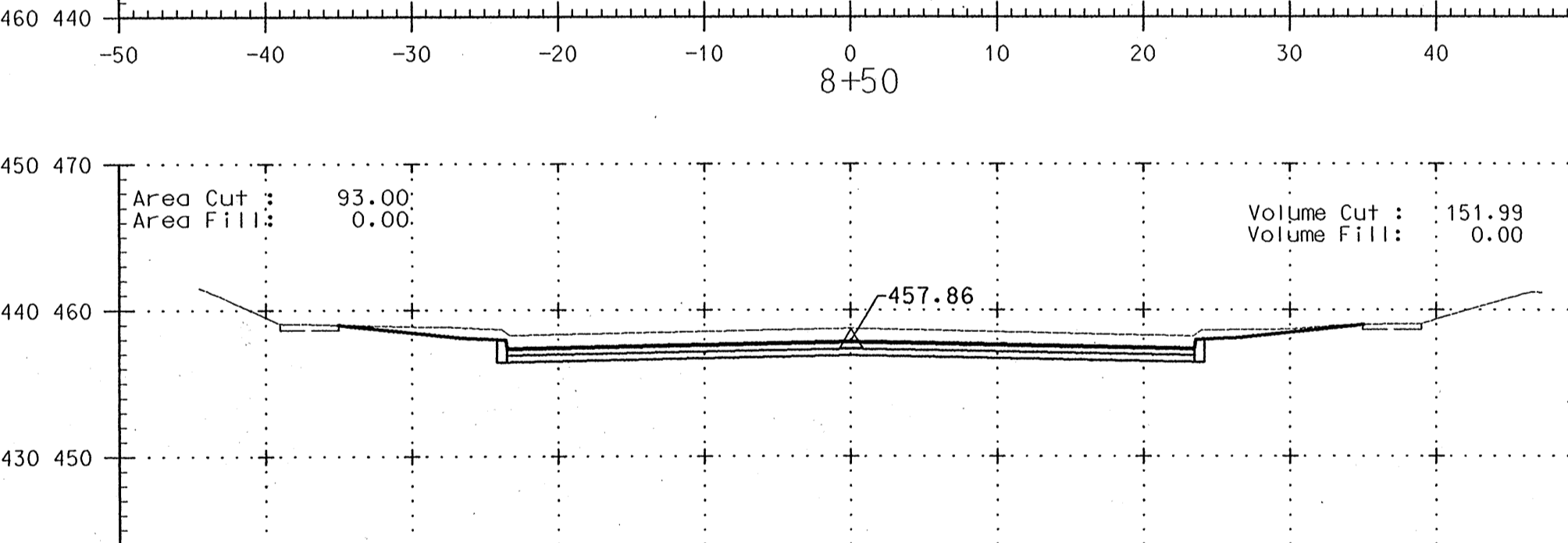
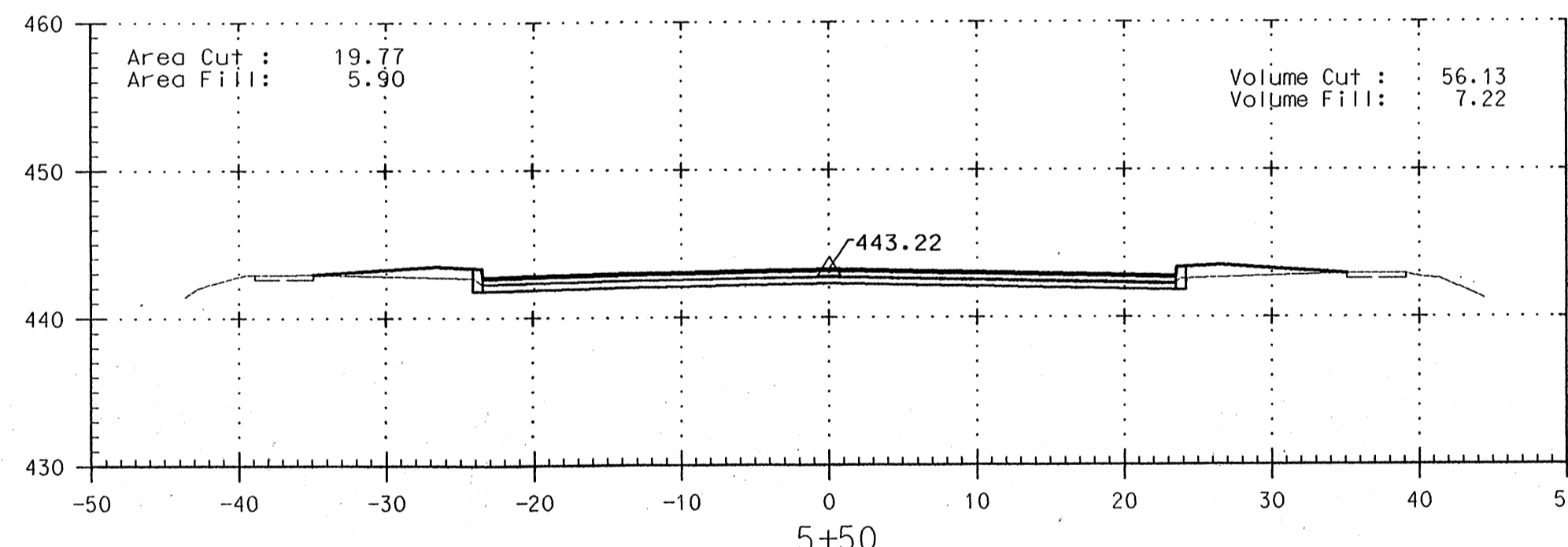
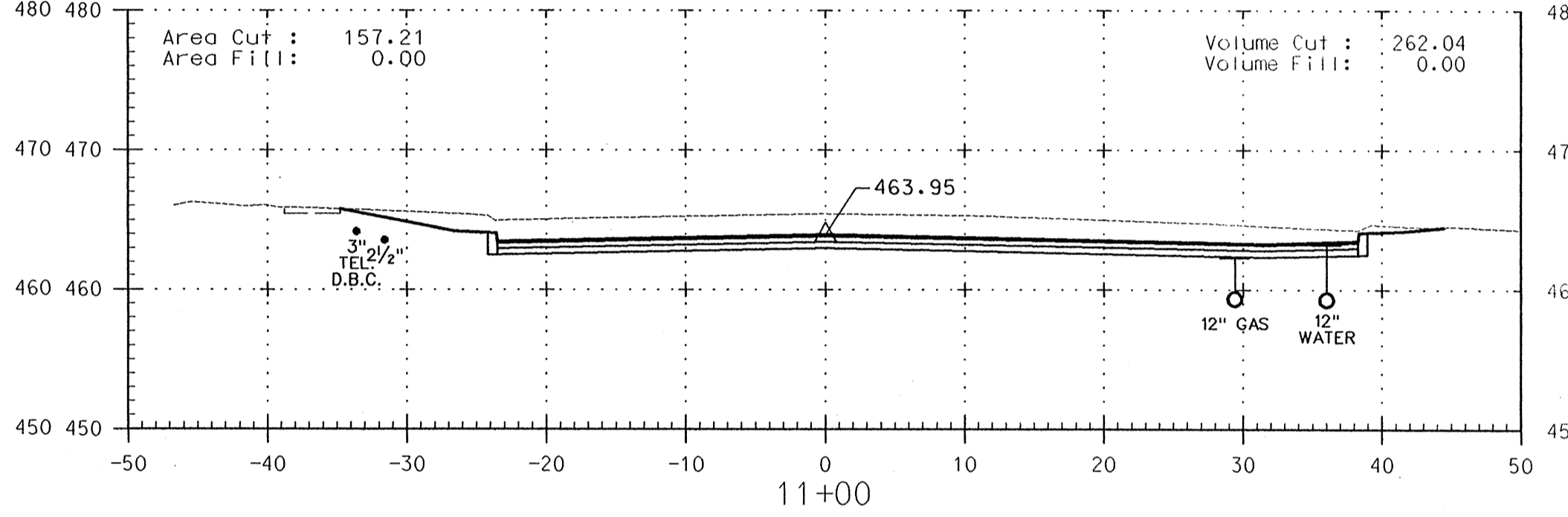
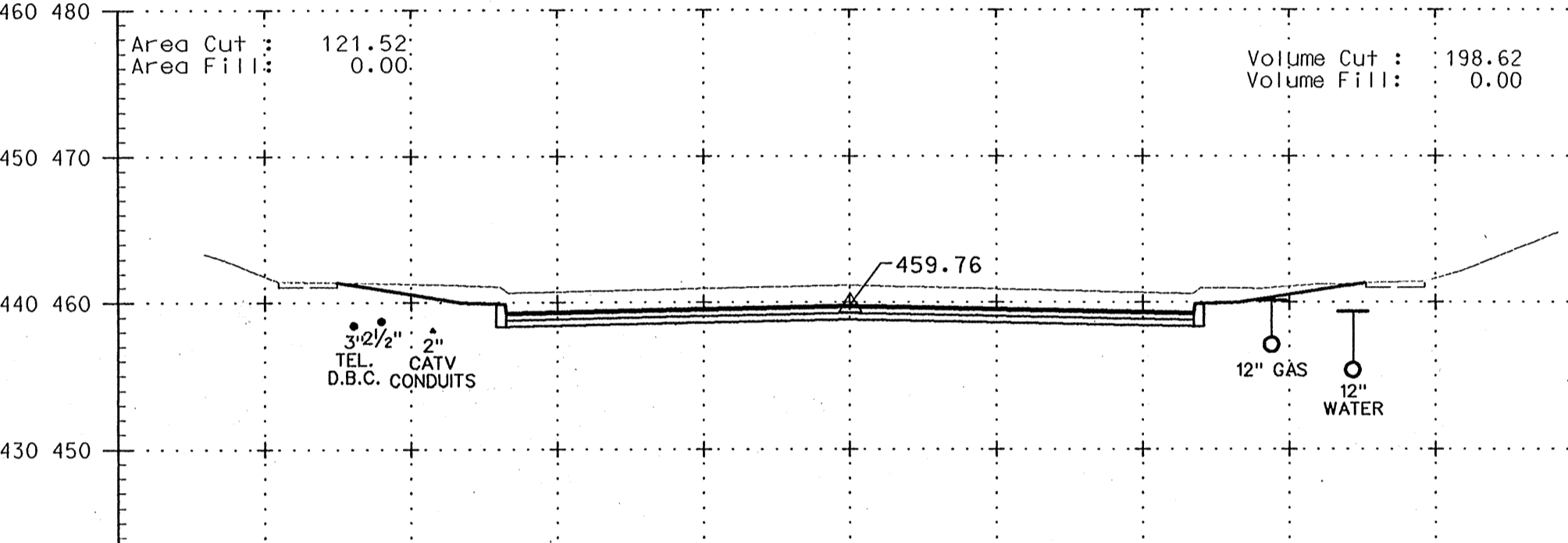
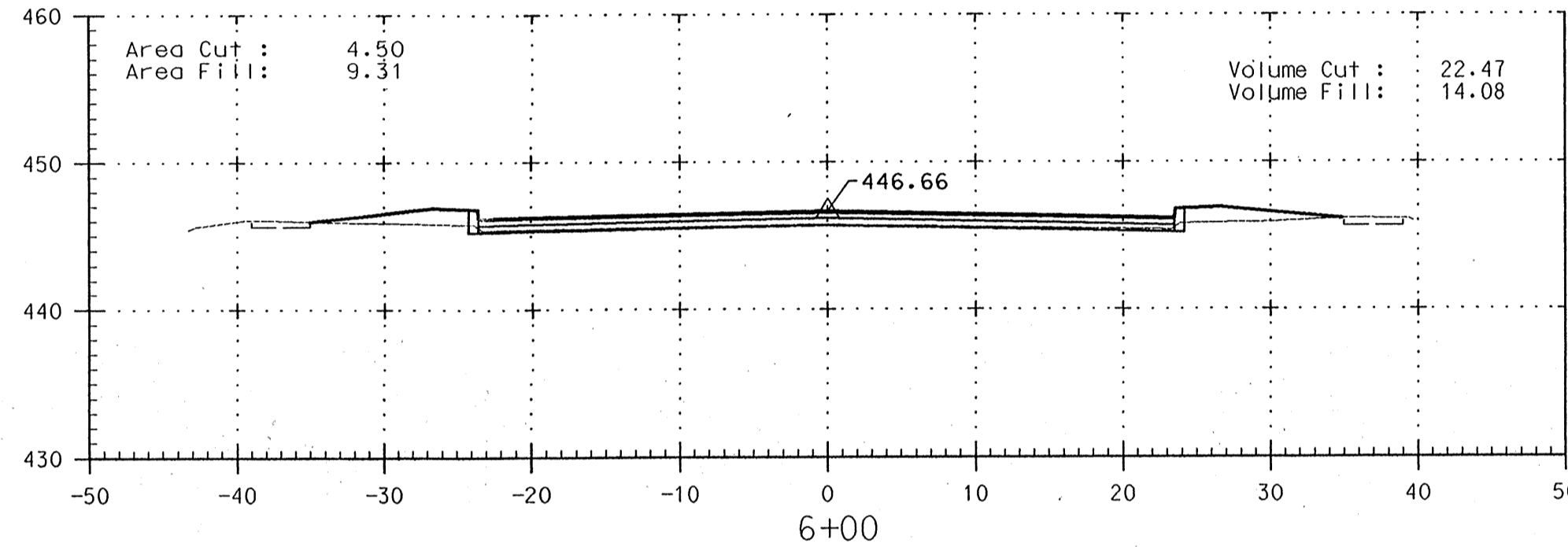
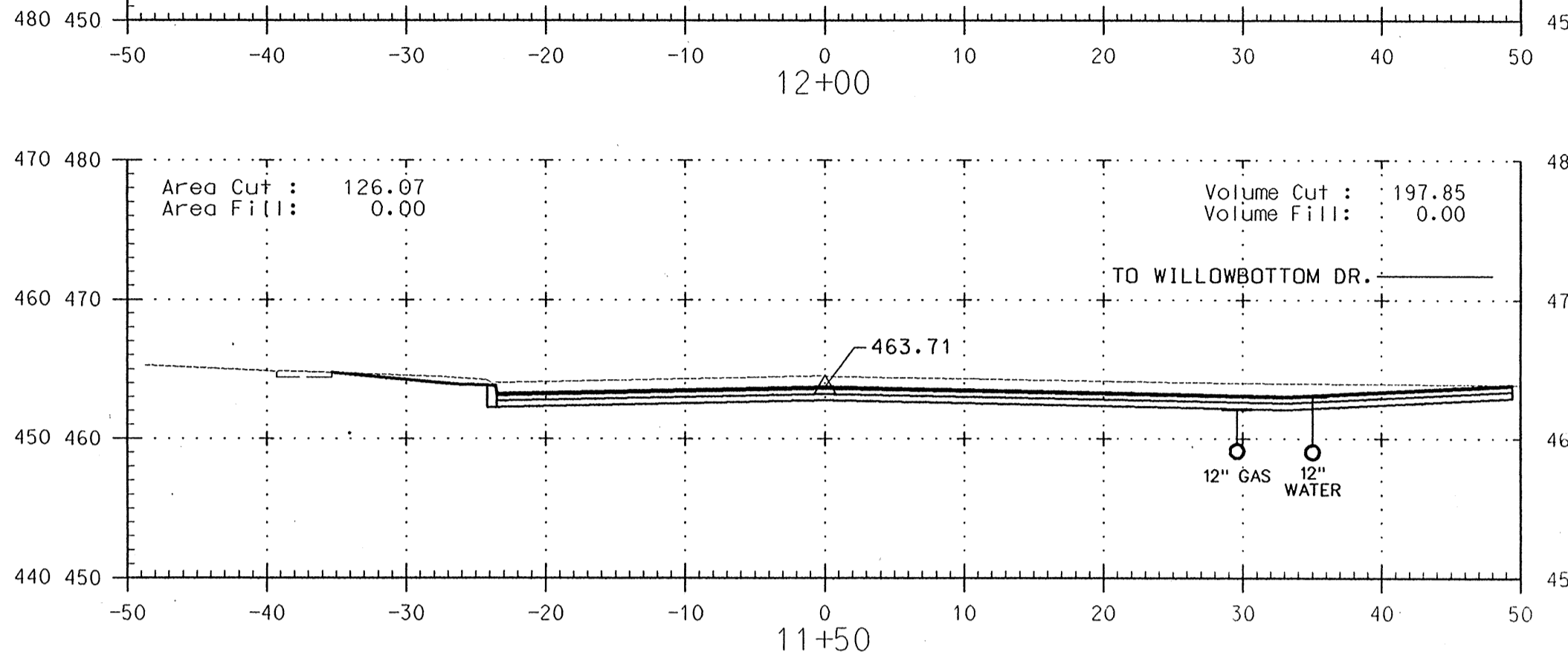
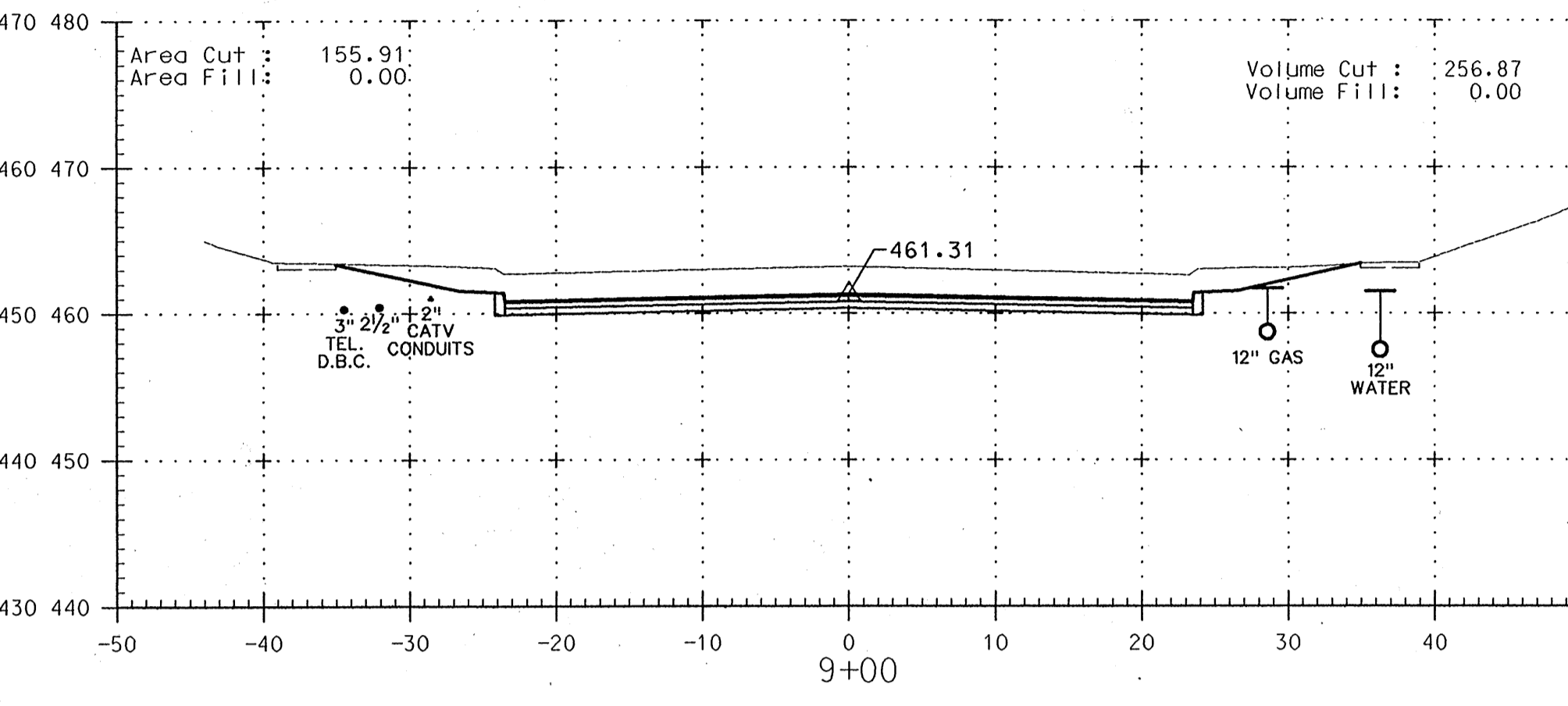
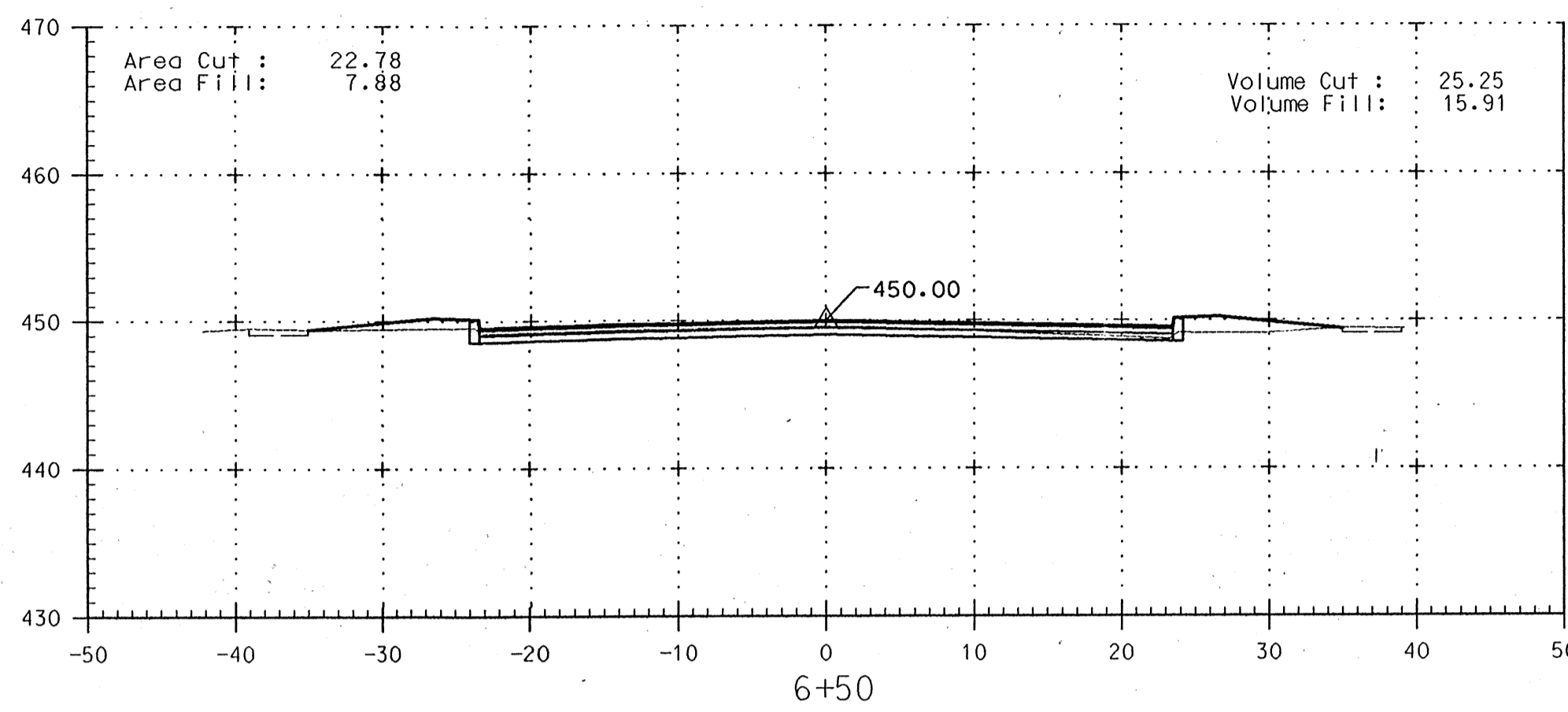
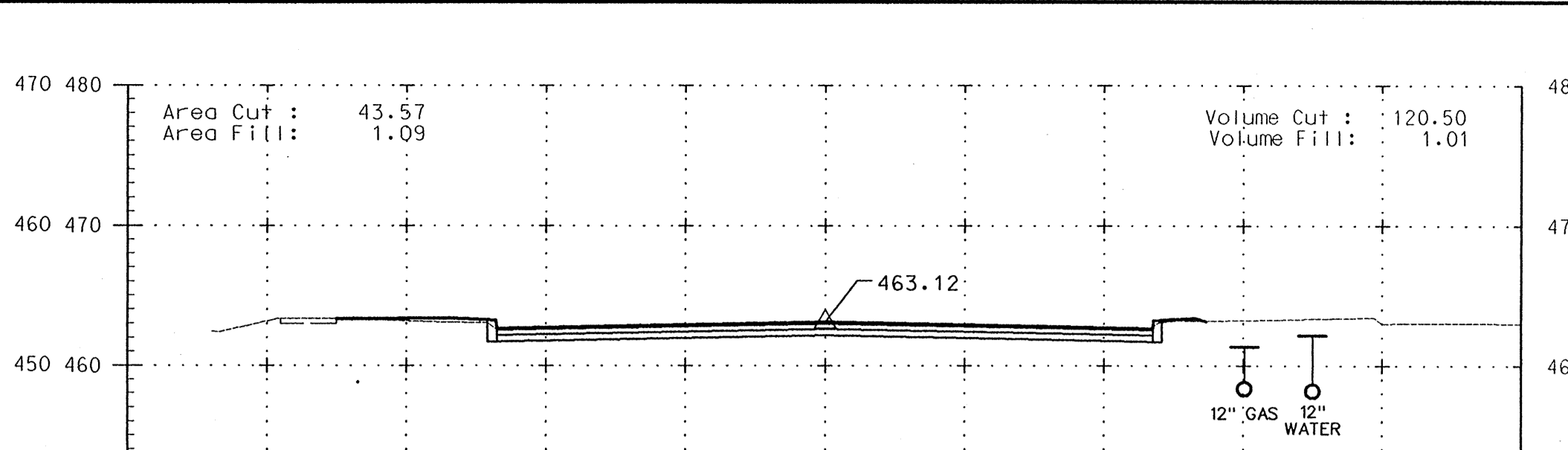
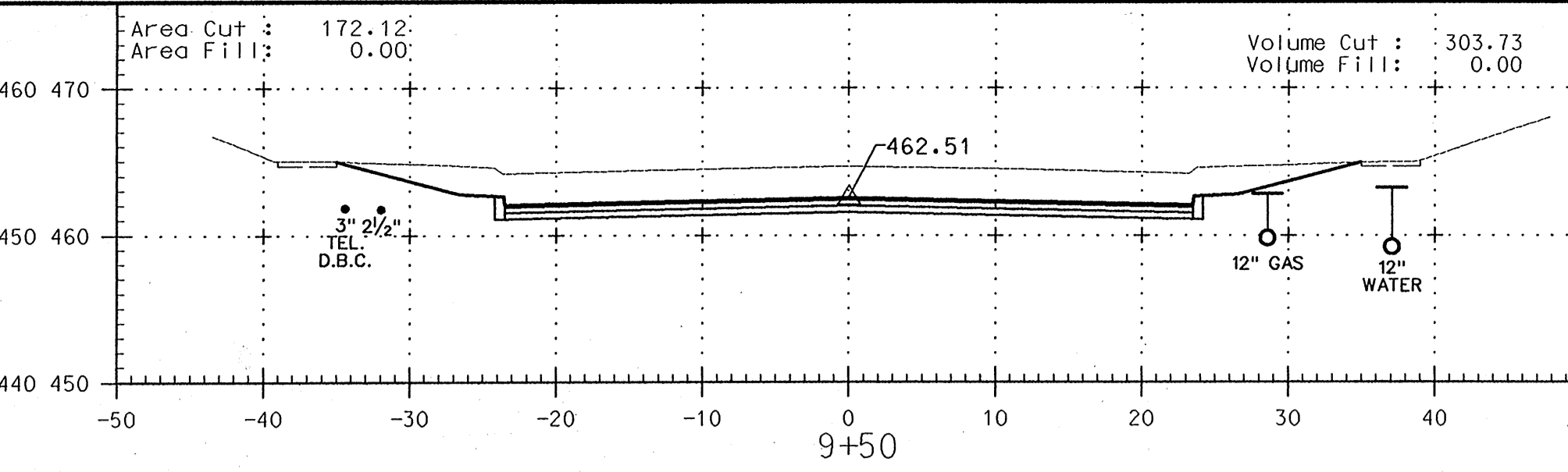
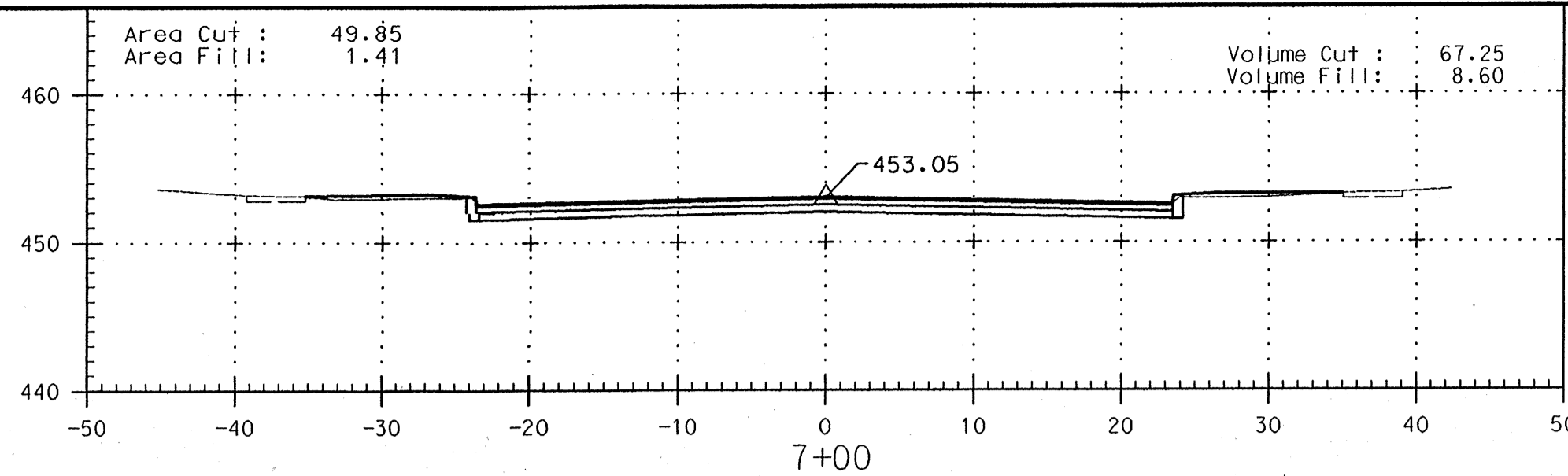
SCALE MAP NO. _____ BLOCK NO. _____

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

SCALE AS SHOWN
SHEET 17 OF 19

FILE#FILES
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\$TIME#

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DATE: 20 MAR 2000 20:30:25



I hereby certify that to the best of my knowledge that this "As-Built" truly represents existing field conditions including but not limited to sizes, diameters, line and grade, and elevations, shown #

Daniel J. Maletic
Daniel J. Maletic
Maryland Registered Professional Engineer No. 13759

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

SCALE: 1"=10'
AS-BUILT
April 2, 2001

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
4/13/00
DATE: 4/13/00

GPI Greenman-Pedersen, Inc.
ENGINEERS, ARCHITECTS, PLANNERS, CONSTRUCTION ENGINEERS & INSPECTORS
14502 GREENVIEW DRIVE, SUITE 100 LAUREL, MD. 20786
WASH. (301) 479-2772 BALT. (410) 882-3655
FAX: (301) 480-2648 www.gpnet.com

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

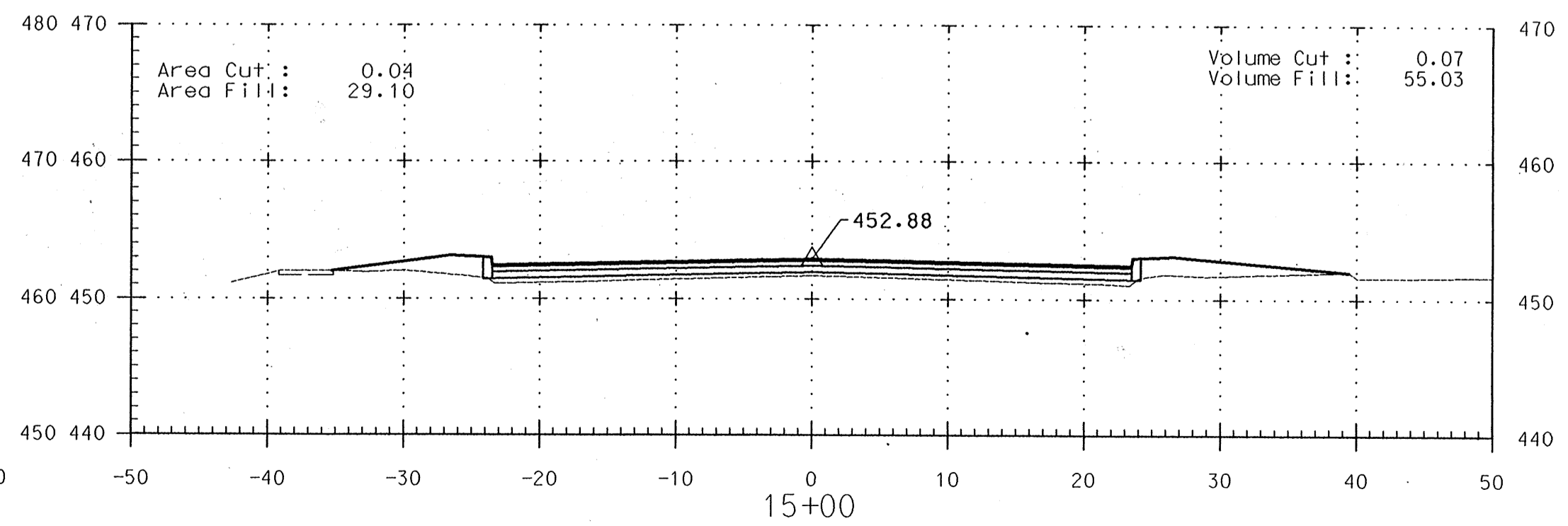
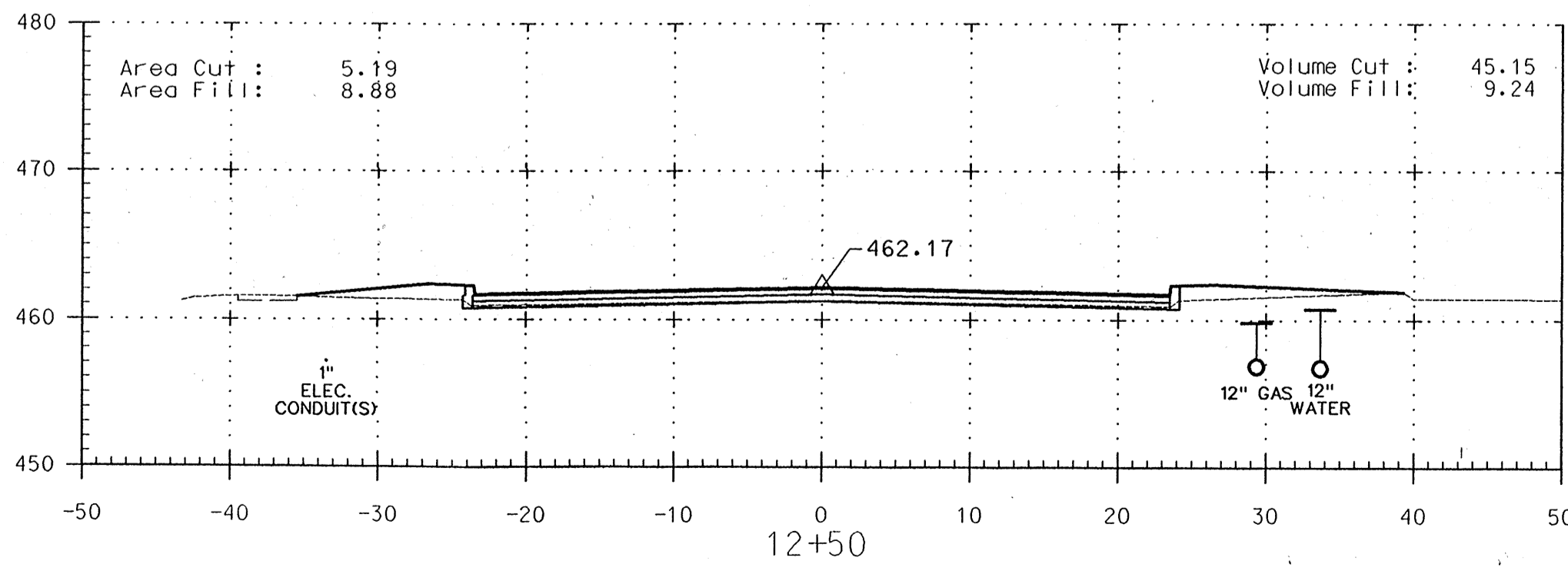
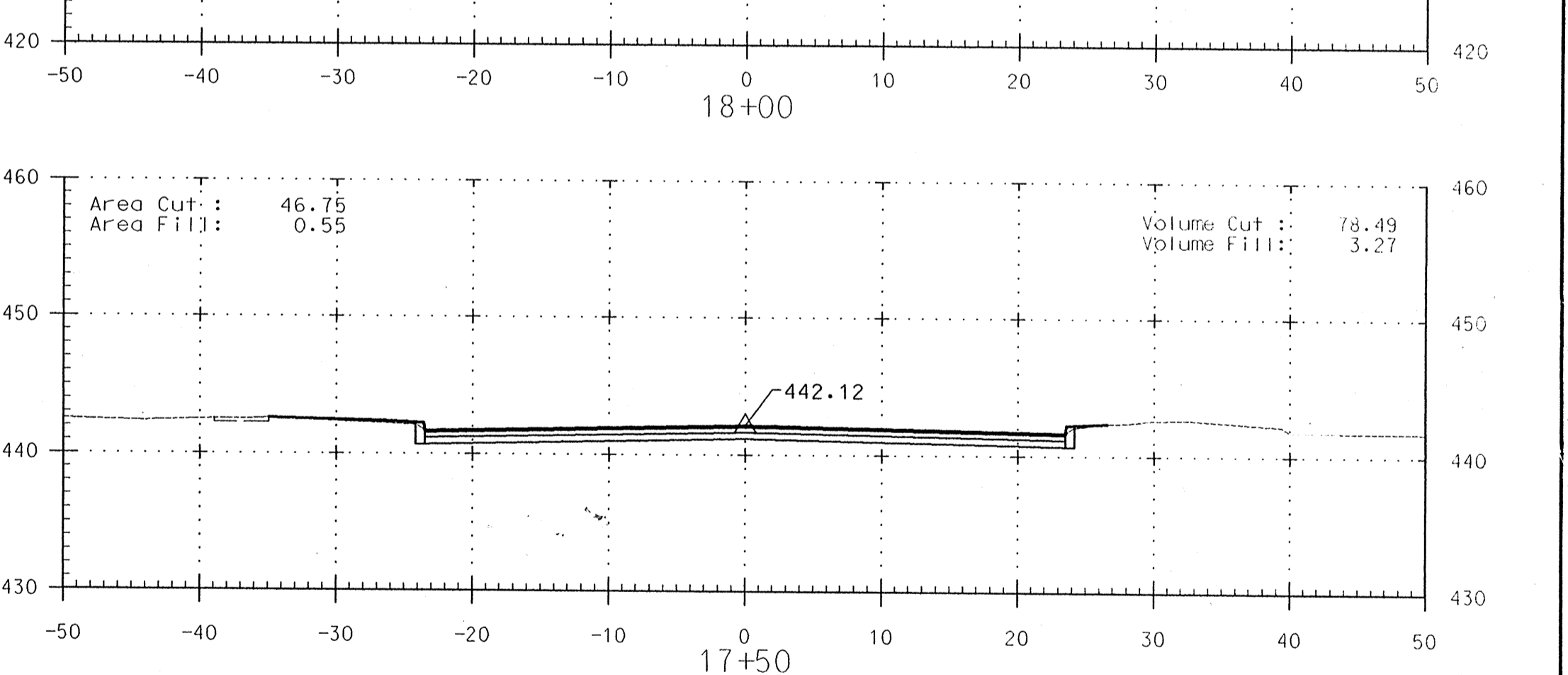
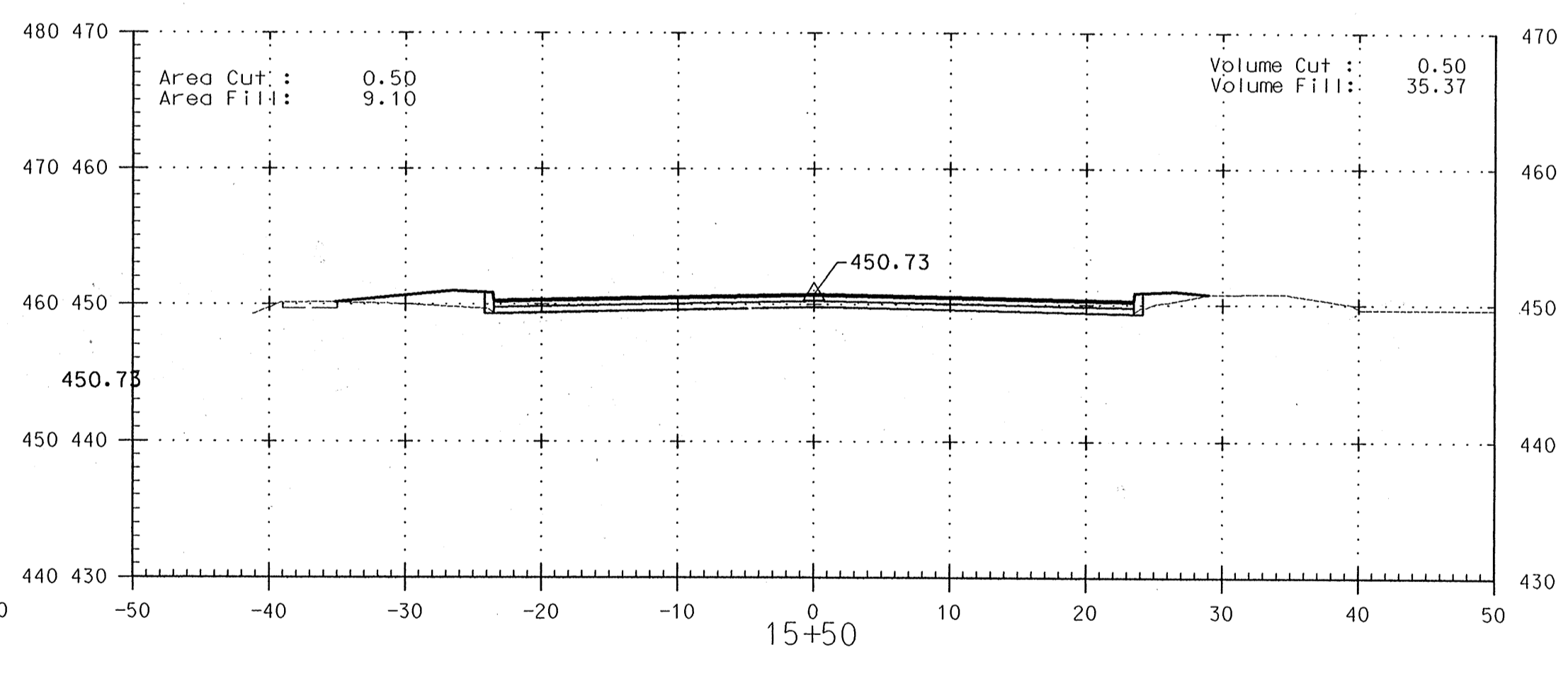
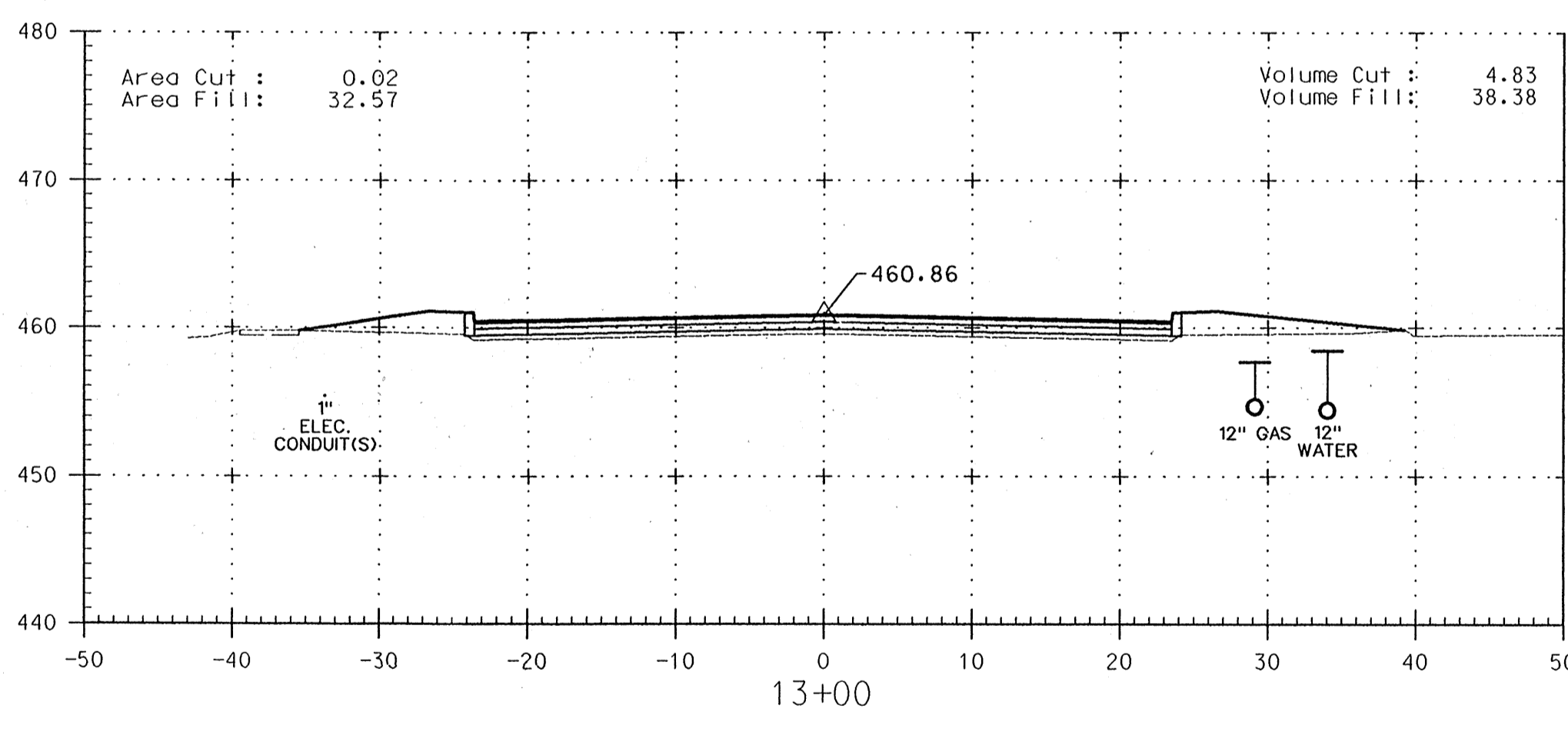
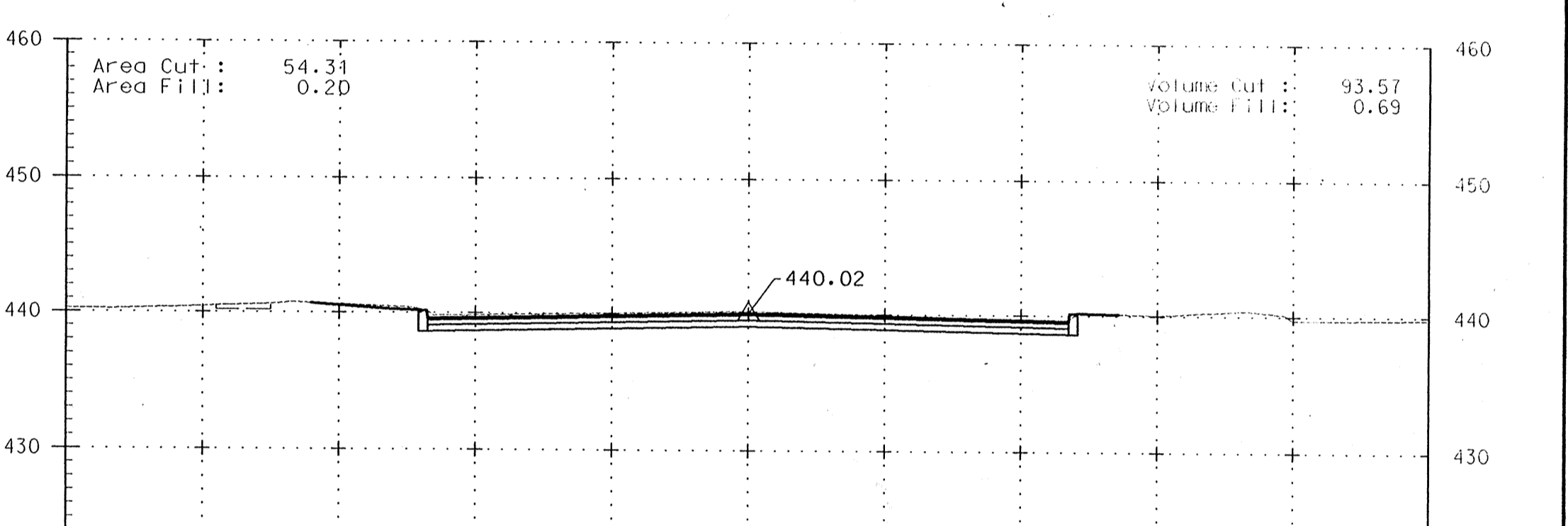
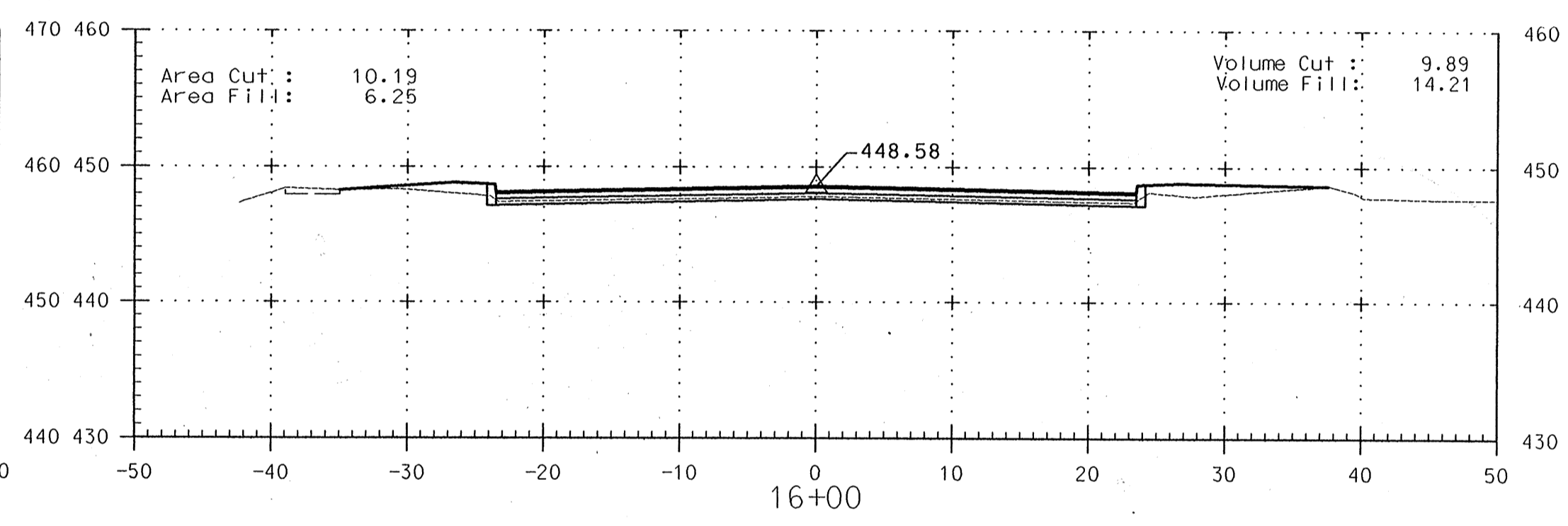
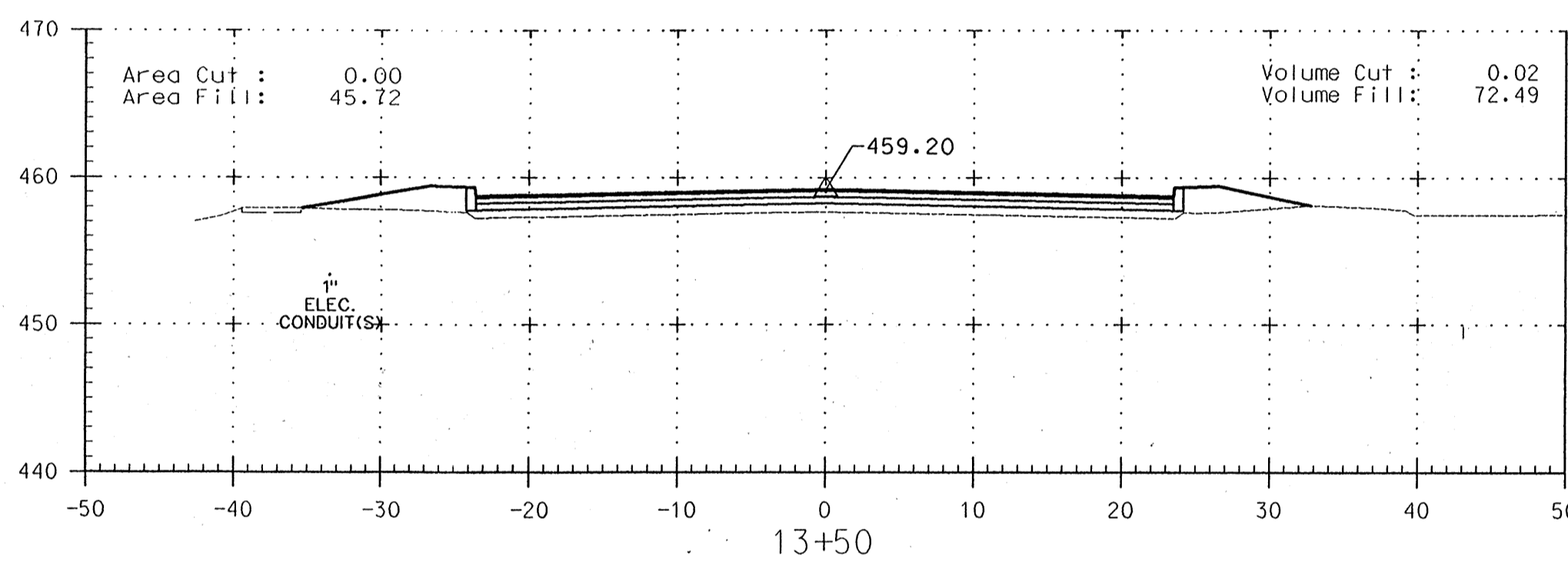
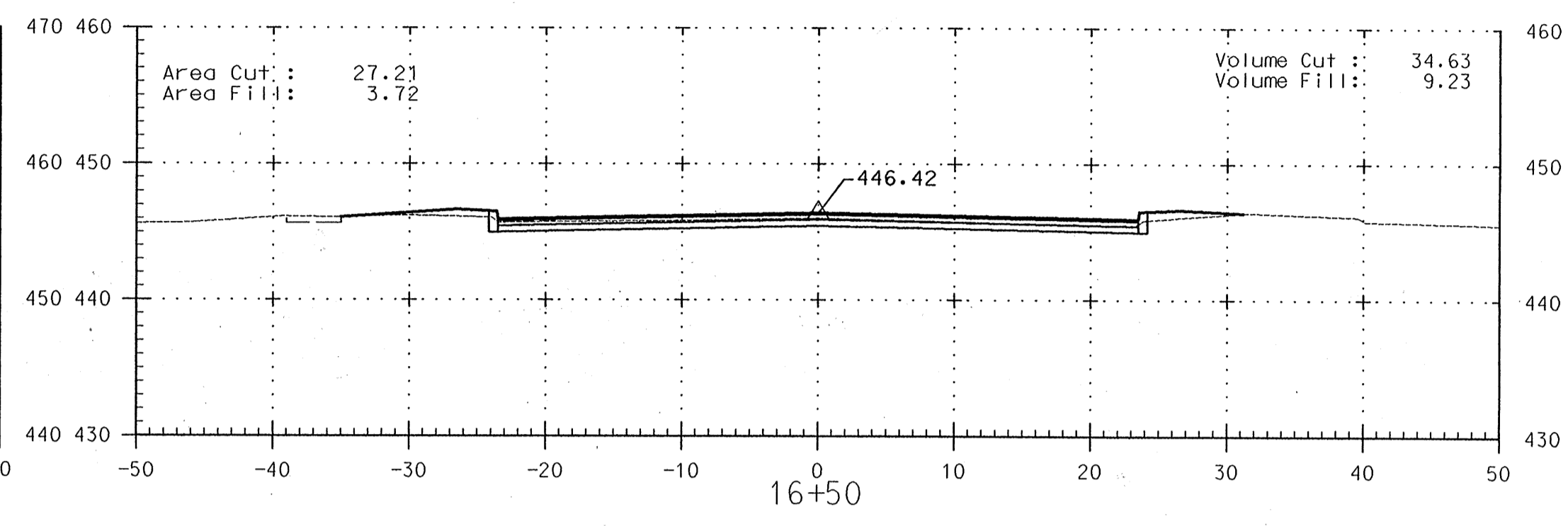
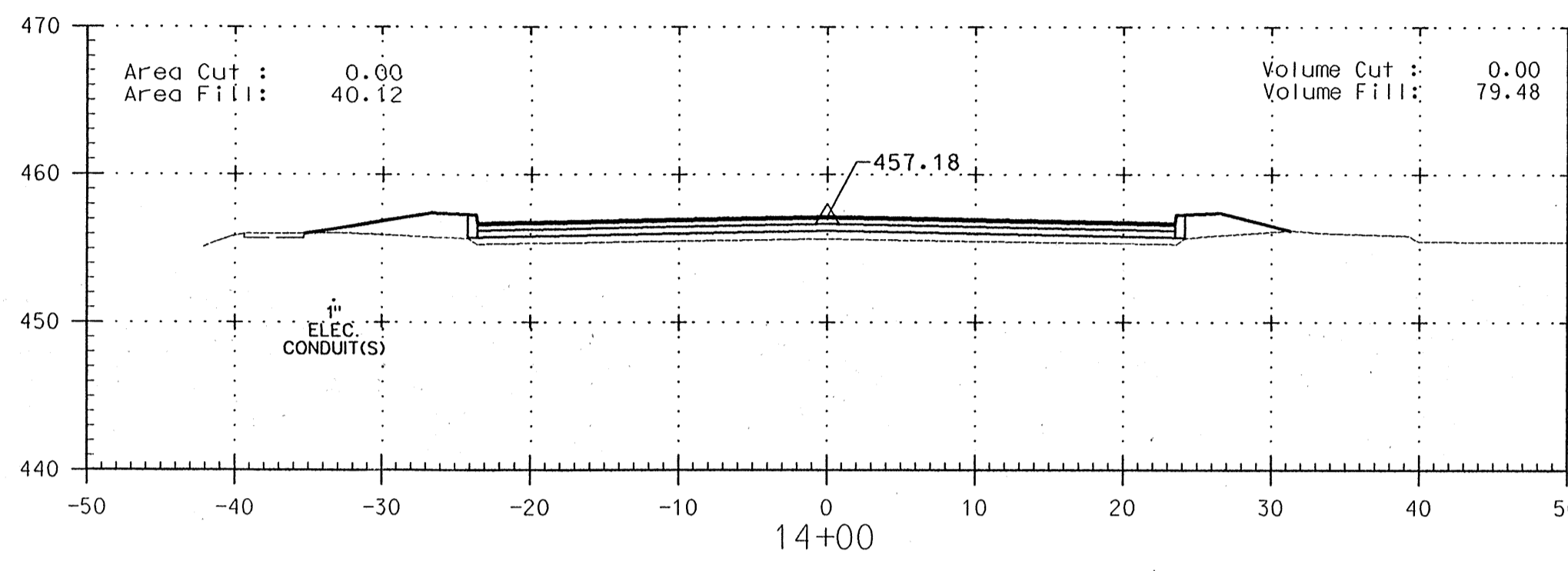
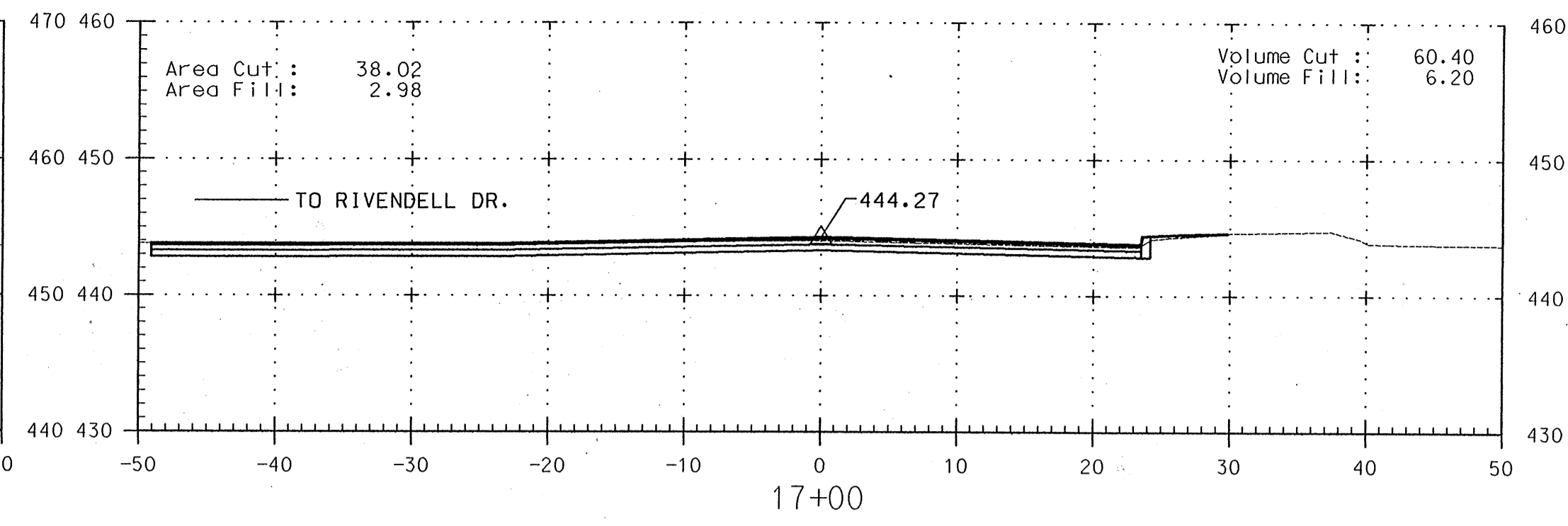
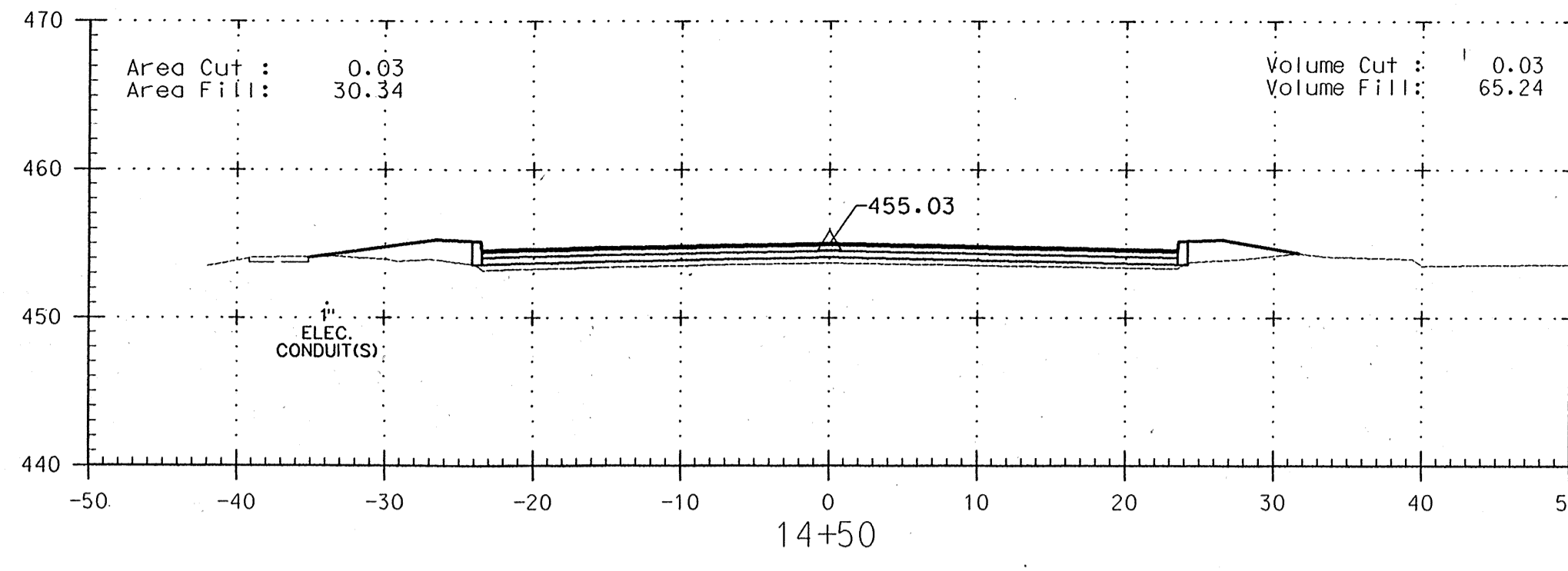
Cross Sections
Sheet 1
SCALE MAP NO. _____ BLOCK NO. _____

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

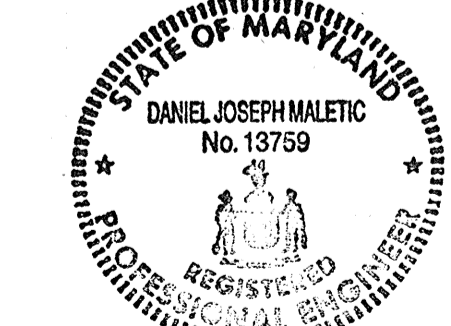
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SHEET 18 OF 19

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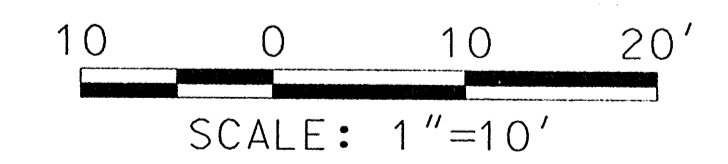
I hereby certify that to the best of my knowledge that this "As-Built" truly represents existing field conditions including but not limited to sizes, diameters, line and grade, and elevations, shown [#]



Daniel J. Maletic
Daniel J. Maletic
Maryland Registered Professional
Engineer No. 13759

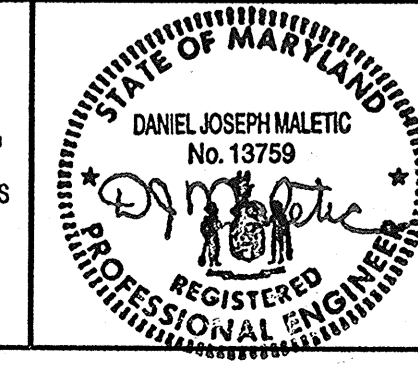
AS-BUILT
April 2, 2001

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. Lewis 4/13/00
DIRECTOR OF PUBLIC WORKS
DATE
Robert M. Gandy 4-13-00
CHIEF, BUREAU OF HIGHWAYS
DATE
G. J. Garcia 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. (800) 470-2772 BALT. (410) 880-3055
FAX (301) 490-2649 www.gpinet.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

SCALE AS SHOWN
SHEET 19 OF 19

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DATE: 20 MAR 2000 20:30:55