GENERAL NOTES

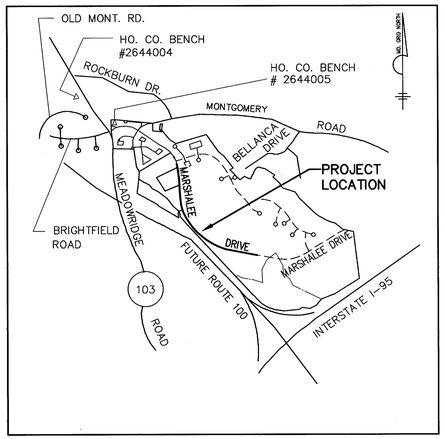
1. All construction shall be in accordance with the latest Standards and Specifications of Howard County, plus MSHA Standards & Specifications as applicable.
2. The Contractor shall notify the Department of Public Works/Bureau of Engineering/ Construction Inspection Division at (410) 313–1880 at least five (5) working days prior to the start of work.
3. The Contractor shall notify "Miss Utility" at 1–800–257–7777 at least forty–eight (48) hours prior to any excavation work.
4. Project Background:
   Location: Elkridge, Maryland
   Tax Map: 37
   Election District: 1st
5. Traffic control devices, markings, and signing shall be in accordance with the latest edition of the Manual on Uniform Traffic Control Devices (MUTCD). All street and regulatory signs shall be in place prior to the placement of any asphalt.
6. Any damage caused by the Contractor to existing public right–of–way, existing paving, existing curb and gutter, existing utilities, etc. shall be corrected at the Contractor's expense.
7. The existing utilities shown hereon are located from construction drawings of record. The approximate location of exiting utilities are shown for the Contractor's information and convenience. The Contractor shall locate existing utilities to his own satisfaction and well in advance of any construction activities. Additionally, the Contractor shall take all necessary precautions to protect all existing utilities and maintain uninterrupted service.
8. Horizontal and vertical datums are related to the Maryland State Plane Coordinate System as projected from Howard County Control Station No. 2644004 and Howard County Control Station No. 2644005 (NAD 27).
9. All hydraulic data is for the 10–year storm unless otherwise noted.
10. All fill areas shall be compacted to a minimum of 95% of the maximum dry density as determined and verified in accordance with AASHTO T–180.
11. All sediment and erosion control measures established under SDP 95–77 will remain in place for the construction of the J–4136 Capital Project. The Contractor will be responsible for the continued maintenance of existing sediment control devices and for removal of the sediment controls in place from the construction completed under SDP 95–77. The plans for SPD 95–77 are available for inspection by contacting the Division of Transportation Projects and Watershed Management at (410) 313–2014.

BENCHMARKS

Howard County Monument #2644005 Elevation 416.981
Description: Concrete Monument 0.2' below surface South side Montgomery Road East of Meadow Ridge Road.
Howard County Monument #2644004 Elevation 402.135
Description: Concrete Monument 0.1' below surface SW corner of intersection Rt. 103 and Old Montgomery Road.

HOWARD COUNTY, MARYLAND DEPARTMENT OF PUBLIC WORKS

MARSHALEE DRIVE CAPITAL PROJECT J–4136



LOCATION MAP
NO SCALE

INDEX OF DRAWINGS

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 11/13/95
CHIEF, BUREAU OF ENGINEERING — DATE 11/13/95
CHIEF, BUREAU OF HIGHWAYS — DATE 11-13-95
CHIEF, DIVISION OF TRANSPORTATION PROJECTS AND WATERSHED MANAGEMENT — DATE 11/13/95

NOLAN ASSOCIATES, INC.
ENGINEERS – CIVIL/STRUCTURAL/INSPECTIONS
4785 DORSEY HALL DRIVE
SUITE 124
ELLICOTT CITY, MARYLAND 21042
PHONE: (410) 995–3651 FAX: (410) 995–1363

STATE OF MARYLAND — JOHN STANLEY MILLER — No. 18559 — REGISTERED PROFESSIONAL ENGINEER

DES: J.S.N.	
DRN: SMI/RPS	
CHK: C.S.N.	
DATE: NOV. 1995	

BY	NO.	REVISION	DATE
SMI	⚠	ADDED SHEET 16A	2/26/96
BAC	⚠	FIELD VERIFIED DATA ADDED	7/00

TITLE SHEET

600' SCALE MAP NO. _____ BLOCK NO. _____

MARSHALEE DRIVE
CAPITAL PROJECT J–4136
ELECTION DISTRICT NO. 1
ELLICOTT CITY, MARYLAND

SCALE AS SHOWN

SHEET 1 OF 19

1785

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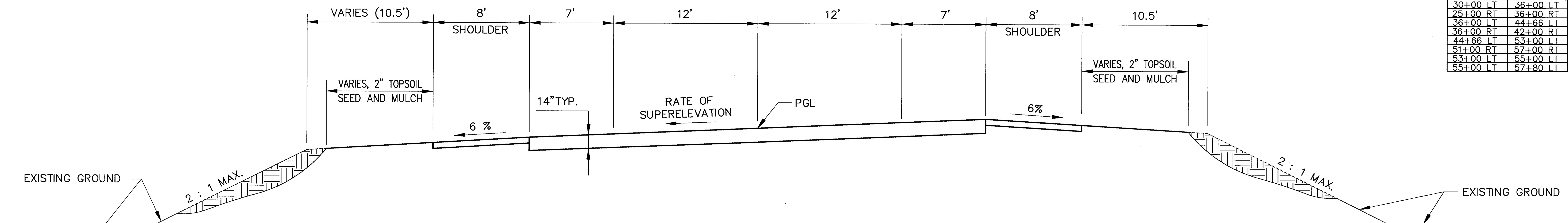
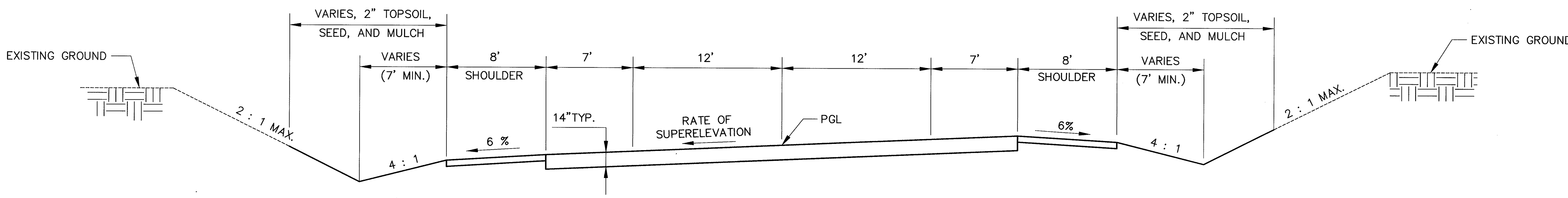
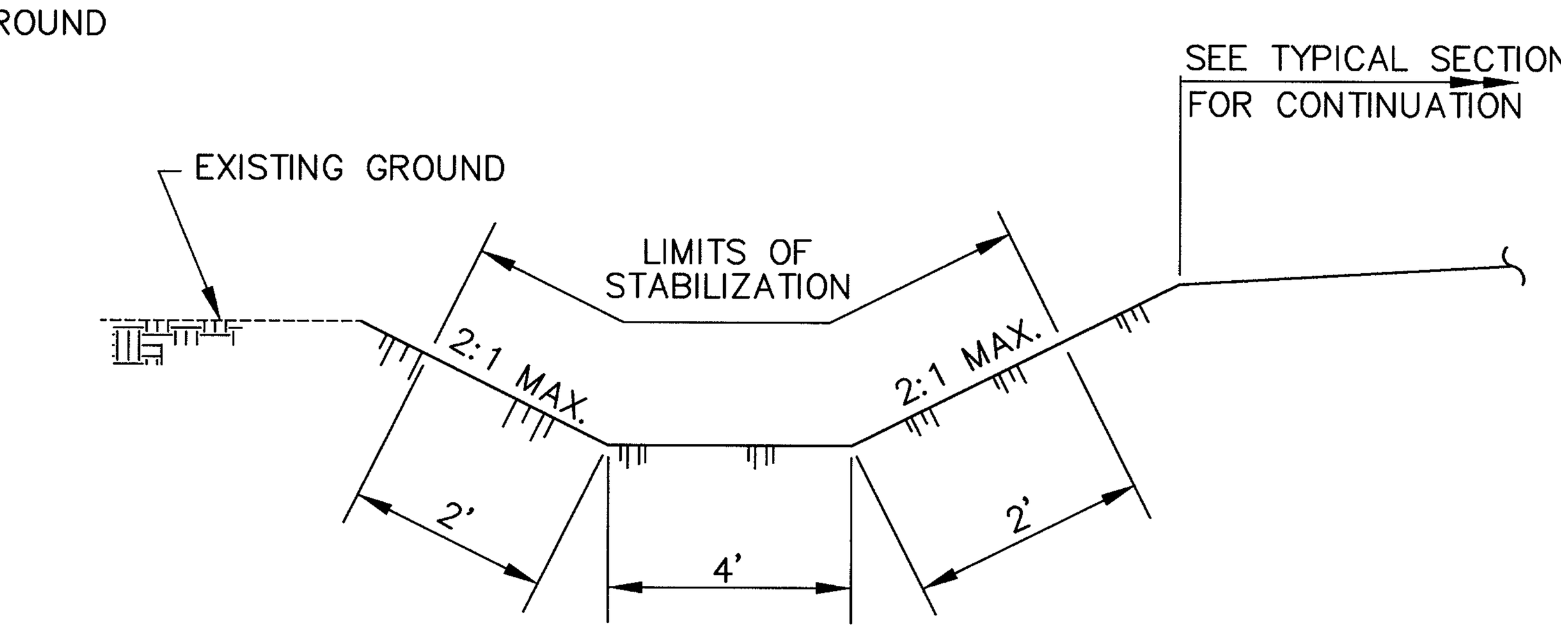
SIDE DITCH STABILIZATION SCHEDULE					
FROM	TO	SOIL STABILIZATION MATTING NO. MATTING WIDTHS (4')	AREA	RIPRAP CLASS	RIPRAP AREA
30+00 LT	36+00 LT	2	533 S.Y.	----	----
25+00 RT	36+00 RT	2	978 S.Y.	----	----
36+00 LT	44+66 LT	2	866 S.Y.	----	----
36+00 RT	42+00 RT	2	533 S.Y.	----	----
44+66 LT	53+00 LT	2	741 S.Y.	----	----
51+00 RT	57+00 RT	2	533 S.Y.	----	----
53+00 LT	55+00 LT	----	----	I	133 S.Y.
55+00 LT	57+80 LT	----	----	I	250 S.Y.



TYPICAL SUPERELEVATED FILL SECTION
1"=5'-0"

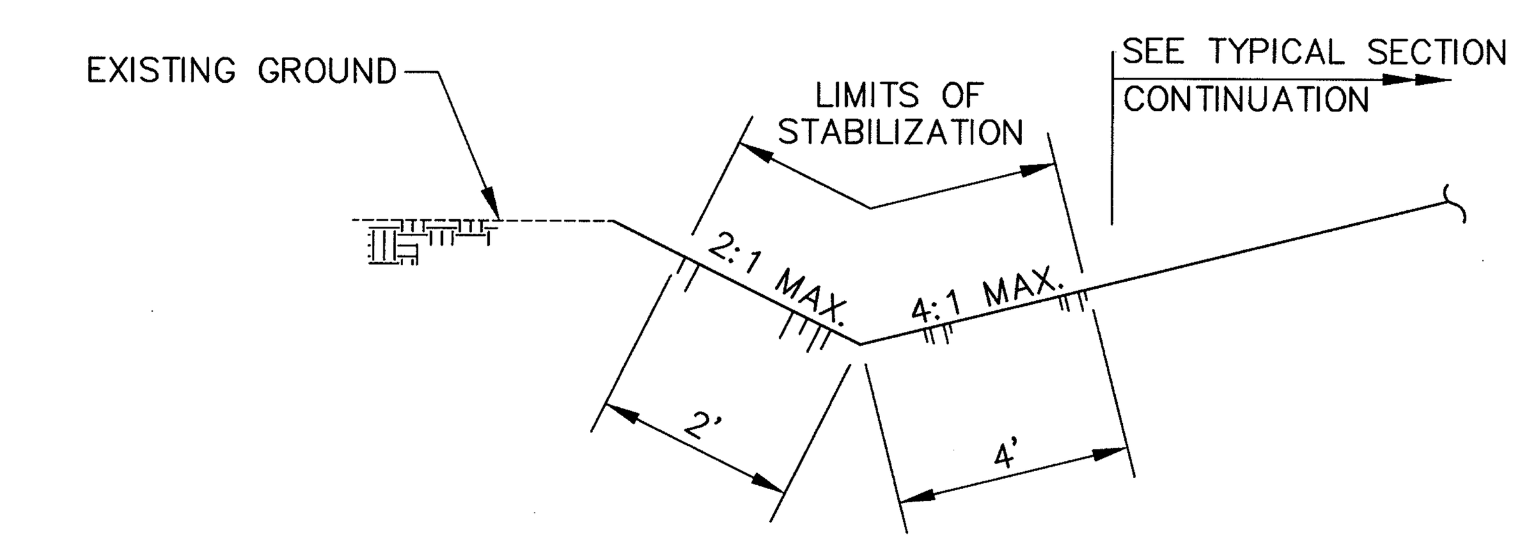


TYPICAL SUPERELEVATED CUT SECTION
1"=5'-0"



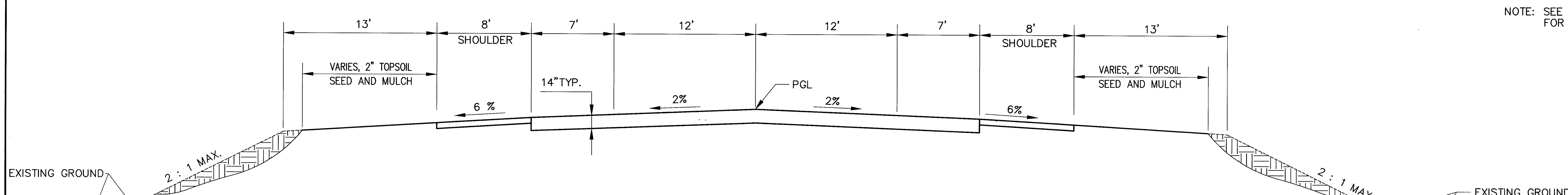
NOTE: SEE SIDE DITCH STABILIZATION SCHEDULE FOR TYPE OF STABILIZATION TO BE USED.

PROPOSED SIDE DITCH IN FILL
SCALE: NONE

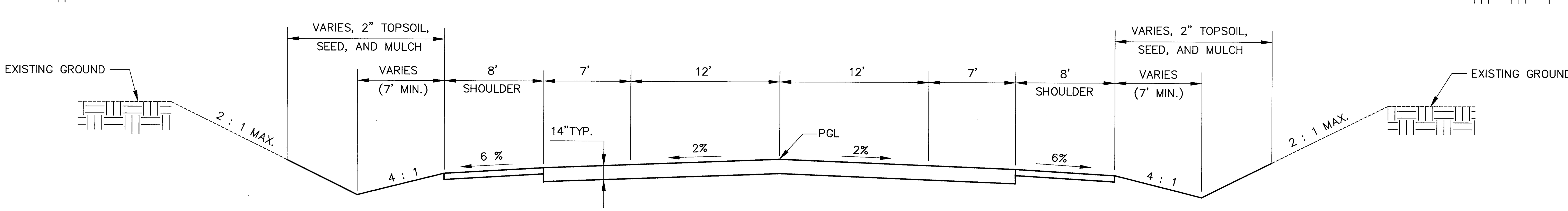


NOTE: SEE SIDE DITCH STABILIZATION SCHEDULE FOR TYPE OF STABILIZATION TO BE USED.

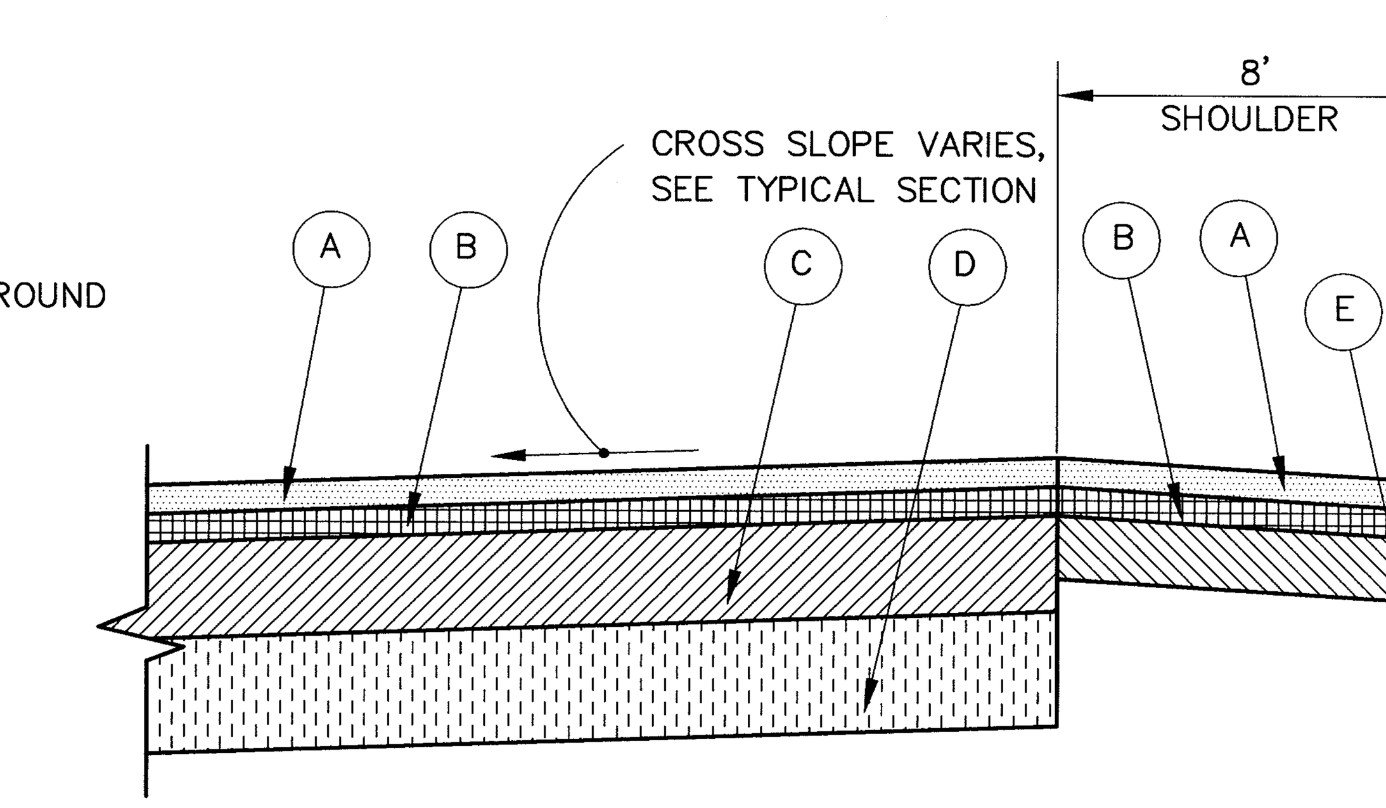
PROPOSED SIDE DITCH IN CUT
SCALE: NONE



TYPICAL TANGENT FILL SECTION
1"=5'-0"



TYPICAL TANGENT CUT SECTION
1"=5'-0"



- (A) 1 1/2" BITUMINOUS CONCRETE SURFACE (SF)
- (B) 1 1/2" BITUMINOUS CONCRETE SURFACE (BI)
- (C) 5" BITUMINOUS CONCRETE BASE (BI)
- (D) 6" GRADED AGGREGATE BASE (GAB)
- (E) 3" GRADED AGGREGATE BASE (GAB)

TYPICAL PAVING SECTION
N.T.S.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 11/13/95
CHIEF, BUREAU OF ENGINEERING — DATE 11/13/95
CHIEF, BUREAU OF HIGHWAYS — DATE 11-13-95
CHIEF, DIVISION OF TRANSPORTATION PROJECTS AND WATERSHED MANAGEMENT — DATE 11/13/95

NOLAN ASSOCIATES, INC.
ENGINEERS – CIVIL/STRUCTURAL/INSPECTIONS
4785 DORSEY HALL DRIVE
SUITE 124
ELLICOTT CITY, MARYLAND 21042
PHONE: (410) 995-3651 FAX: (410) 995-1363

DES: J.S.N.
DRN: SMI/RPS
CHK: C.S.N.
DATE: NOV. 1995

BY	NO.	REVISION	DATE

TYPICAL SECTIONS & SIDE DITCH STABILIZATION SCHEDULE

600' SCALE MAP NO.________ BLOCK NO.________

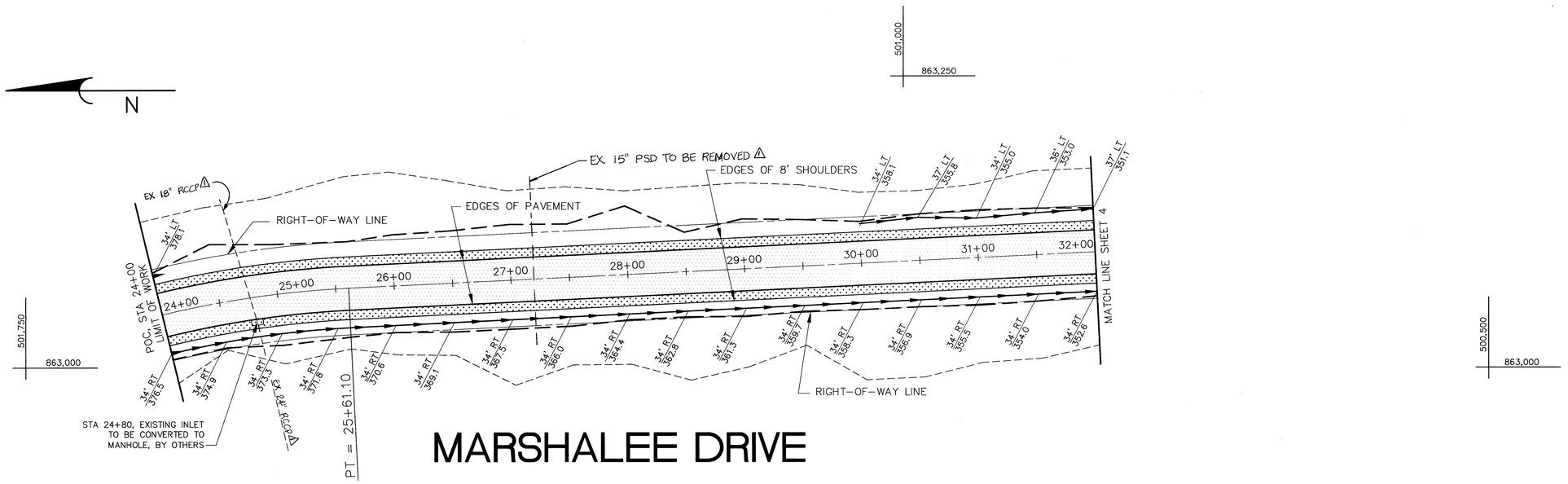
MARSHALEE DRIVE
CAPITAL PROJECT J-4136
ELECTION DISTRICT NO. 1
ELLICOTT CITY, MARYLAND

SCALE AS SHOWN

SHEET 2 OF 19

1785

COORDINATES		
STATION	NORTHING	EASTING
P.T. 25+61.11	501474.204	863068.174



MARSHALEE DRIVE

PLAN
SCALE: 1"=50'

LEGEND

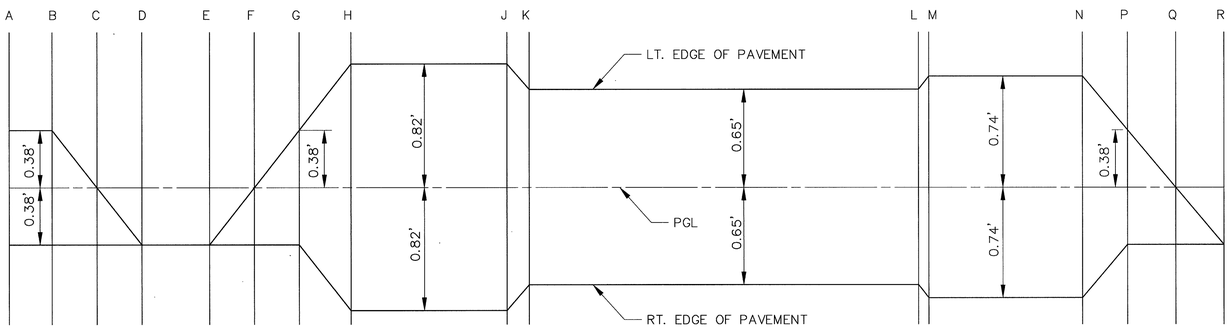
- GRADING LIMITS FROM ORIGINAL GRADING CONTRACT, SDP 95-77
- GRADING LIMITS
- DITCH & FLOW DIRECTION

DITCH OFFSET
DITCH ELEVATION

Δ = 53°24'23"
D = 6°44'26.45"
R = 850.00'
T = 427.57'
L = 792.30'
E = 91.48'
S/E = 2.00%
PC STA 17+68.80

NOTES

FOR STRIPING PLAN, SEE SHEET 15.
FOR DITCH STABILIZATION SCHEDULE, SEE SHEET 2.
FOR TYPICAL SECTIONS, SEE SHEET 2.
FOR GENERAL NOTES, SEE SHEET 1.



SUPERELEVATION DIAGRAM
NOT TO SCALE

SUPERELEVATION TRANSITION TABLE
STA 24+00 TO STA 57+83

A	24+00	FULL SUPERELEVATION, 2.00%, LIMIT OF WORK
B	25+19.43	FULL SUPERELEVATION, 2.00%, BEGIN TRANSITION
C	26+44.43	HALF LEVEL SECTION
D	27+69.43	NORMAL CORWN, END TRANSITION
E	29+57.76	NORMAL CROWN, BEGIN TRANSITION
F	30+82.76	HALF LEVEL SECTION
G	32+07.76	INCLINED PLANE
H	33+51.51	FULL SUPERELEVATION 4.31%
J	37+86.01	FULL SUPERELEVATION, 4.31%, BEGIN TRANSITION
K	38+47.89	END TRANSITION, FULL SUPERELEVATION, 3.41%
L	49+32.60	FULL SUPERELEVATION, 3.41%, BEGIN TRANSITION
M	49+61.36	END TRANSITION, FULL SUPERELEVATION, 3.87%
N	53+89.25	BEGIN TRANSITION, FULL SUPERELEVATION 3.87%
P	55+14.69	INCLINED PLANE
Q	56+48.84	HALF LEVEL SECTION
R	57+83	NORMAL CROWN, END TRANSITION, STA 57+83.

1785

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DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 11/3/95
CHIEF, BUREAU OF ENGINEERING — DATE 11/13/95
CHIEF, BUREAU OF HIGHWAYS — DATE 11-13-95
CHIEF, DIVISION OF TRANSPORTATION PROJECTS AND WATERSHED MANAGEMENT — DATE 11/13/95

NOLAN ASSOCIATES, INC.
ENGINEERS - CIVIL/STRUCTURAL/INSPECTIONS
4785 DORSEY HALL DRIVE
SUITE 124
ELLICOTT CITY, MARYLAND 21042
PHONE: (410) 995-3651 FAX: (410) 995-1363

STATE OF MARYLAND — JOHN STANLEY NOLAN — No. 16559 — REGISTERED PROFESSIONAL ENGINEER

DES:	J.S.N.
DRN:	SMI/RPS
CHK:	C.S.N.
DATE:	NOV. 1995

BY	NO.	REVISION	DATE
J.S.N.	⚠	SHOWING S.D. SYSTEM AT STA. 24+80± AND PIPE SLOPE DRAIN (P.S.D.) AT 27+25± (TO BE REMOVED).	11/15/95

PLAN
STA 24+00 TO STA 32+00
SUPERELEVATION DIAGRAM
& TRANSITION TABLE

600' SCALE MAP NO._____ BLOCK NO._____

MARSHALEE DRIVE
CAPITAL PROJECT J-4136
ELECTION DISTRICT NO. 1
ELLICOTT CITY, MARYLAND

SCALE AS SHOWN

SHEET 3 OF 19

COORDINATES		
STATION	NORTHING	EASTING
P.C. 32+61.93	500774.193	863102.020
P.C.C. 38+16.96	500242.147	863244.571

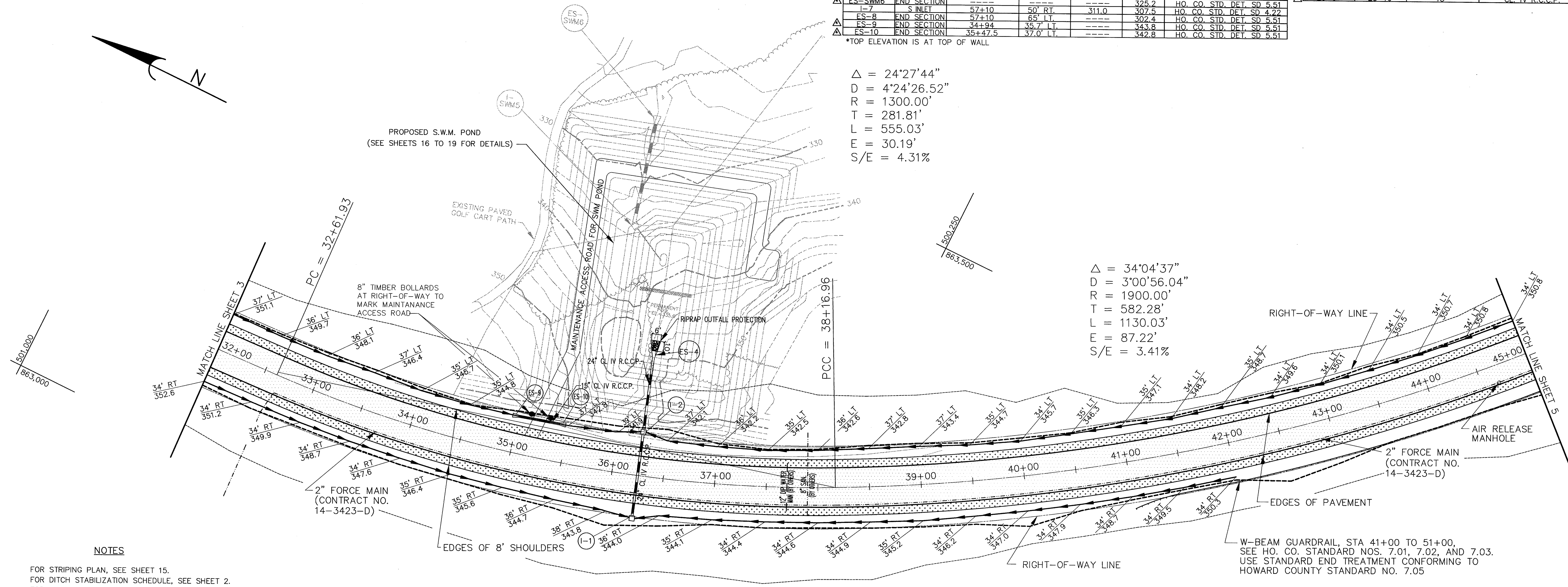
STRUCTURE SCHEDULE

	NO.	TYPE	STATION	OFFSET	*TOP ELEV	INV. OUT	REMARKS
△4	I-1	S INLET	36+25	39' RT.	343.4	338.4	HO. CO. STD. DET. SD 4.22
△4	I-2	S INLET	36+25	40' LT.	341.5	328.4	HO. CO. STD. DET. SD 4.12
	3	----	----	----	----	----	NOT USED
△4	ES-4	END SECTION	36+25	110' LT.	----	328.0	HO. CO. STD. DET. SD 5.51
△4	I-SWM5	----	----	----	340.4	326.9	SEE SHEET NOS. 16-18
△4	ES-SWM6	END SECTION	----	----	----	325.2	HO. CO. STD. DET. SD 5.51
	I-7	S INLET	57+10	50' RT.	311.0	307.5	HO. CO. STD. DET. SD 4.22
	ES-8	END SECTION	57+10	65' LT.	----	302.4	HO. CO. STD. DET. SD 5.51
△4	ES-9	END SECTION	34+94	35.7' LT.	----	343.8	HO. CO. STD. DET. SD 5.51
△4	ES-10	END SECTION	35+47.5	37.0' LT.	----	342.8	HO. CO. STD. DET. SD 5.51

*TOP ELEVATION IS AT TOP OF WALL

PIPE SCHEDULE

	FROM	TO	SIZE	TYPE	LENGTH
△4	I-1	I-2	24"	CL. IV R.C.C.P.	79'
△4	I-2	ES-4	24"	CL. IV R.C.C.P.	71'
	I-7	ES-8	18"	CL. IV R.C.C.P.	107'
△4	I-SWM5	ES-SWM6	36"	ASTM C361, CLASS C-25	102'
△4	ES-9	ES-10	15"	CL. IV R.C.C.P.	42'



NOTES

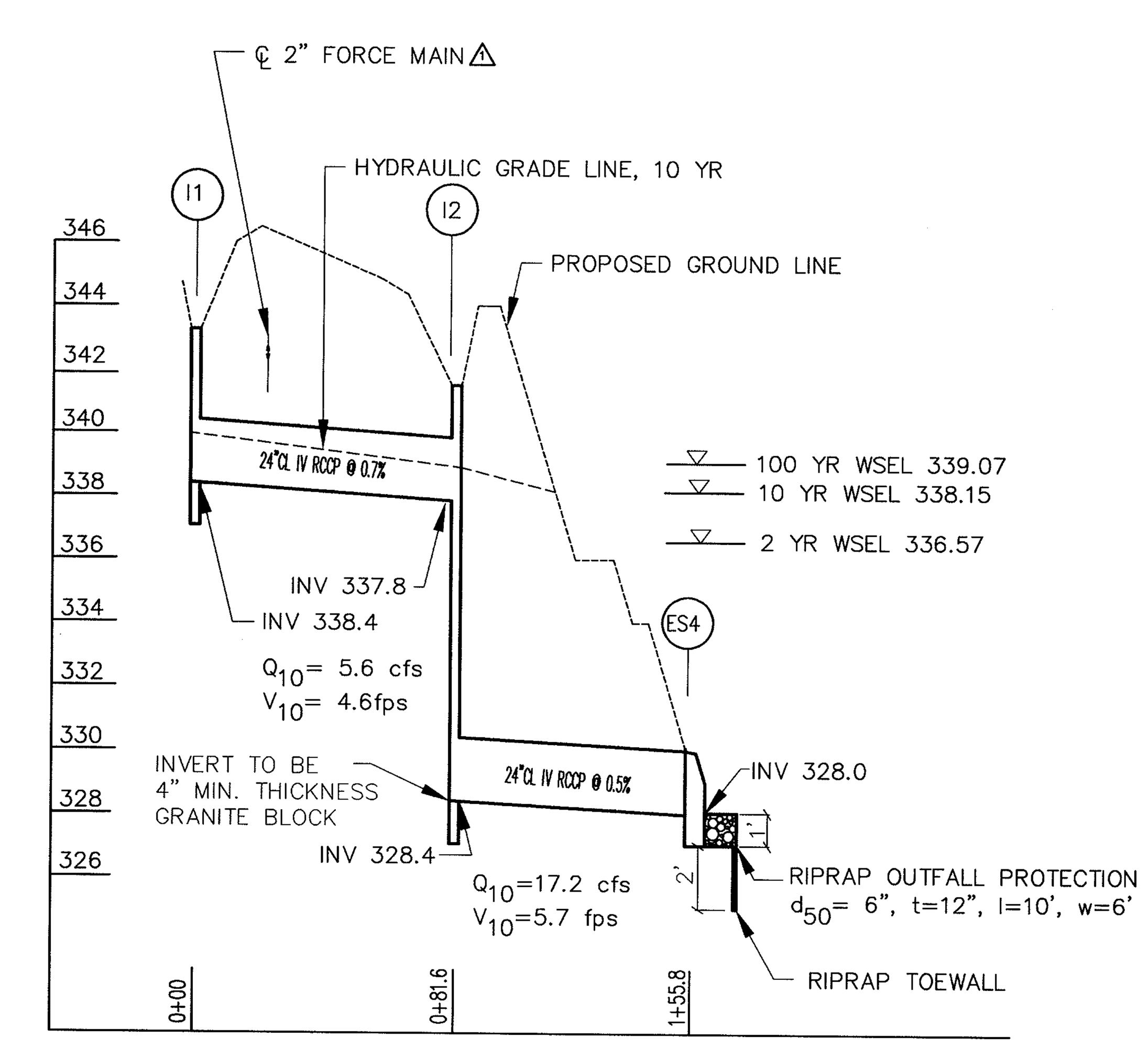
FOR STRIPING PLAN, SEE SHEET 15.
FOR DITCH STABILIZATION SCHEDULE, SEE SHEET 2.
FOR TYPICAL SECTIONS, SEE SHEET 2.
FOR SUPERELEVATION DIAGRAM, SEE SHEET 3.
FOR GENERAL NOTES, SEE SHEET 1.

MARSHALEE DRIVE

LEGEND

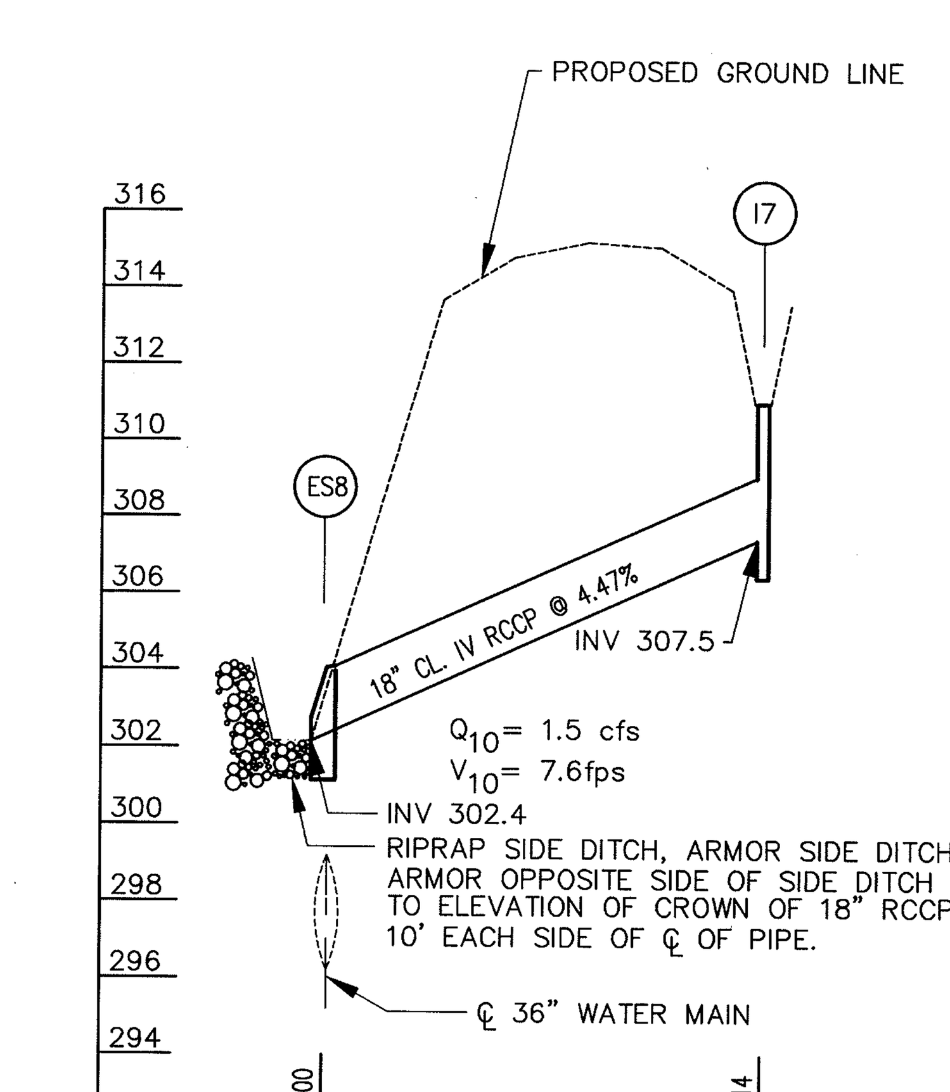
GRADING LIMITS FROM ORIGINAL GRADING CONTRACT, SDP 95-77
GRADING LIMITS
DITCH & FLOW DIRECTION
DITCH OFFSET / DITCH ELEVATION

PLAN
SCALE: 1"=50'



STORM DRAIN PROFILE, STA 36+25

SCALE: 1"=50' HORIZ.
SCALE: 1"=5' VERT.



STORM DRAIN PROFILE, STA 57+10

SCALE: 1"=50' HORIZ.
SCALE: 1"=5' VERT.

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND	NOLAN ASSOCIATES, INC.	DES: J.S.N.	BY	NO.	REVISION	DATE	PLAN	MARSHALEE DRIVE	SCALE AS SHOWN
DIRECTOR OF PUBLIC WORKS 12/13/95 DATE	ENGINEERS – CIVIL/STRUCTURAL/INSPECTIONS	DRN: SMI/RPS	J.S.N.	△	LOCATION OF 2" FORCE MAIN OF STORM DRAIN PROFILE	11/15/95	STA 32+00 TO STA 45+00	CAPITAL PROJECT J-4136	
CHIEF, BUREAU OF ENGINEERING 12/13/95 DATE	4785 DORSEY HALL DRIVE SUITE 124	CHK: C.S.N.	J.S.N.	△	SHEET REISSUED DUE TO SWM POND REVISIONS	12/12/95	STRUCTURE & PIPE SCHEDULES	ELECTION DISTRICT NO. 1	SHEET 4 OF 19
CHIEF, BUREAU OF HIGHWAYS 12-13-95 DATE	ELLICOTT CITY, MARYLAND 21042	DATE: NOV. 1995					& STORM DRAIN PROFILES	ELLICOTT CITY, MARYLAND	
CHIEF, DIVISION OF TRANSPORTATION PROJECTS AND WATERSHED MANAGEMENT 12/13/95 DATE	PHONE: (410) 995-3651 FAX: (410) 995-1363						600' SCALE MAP NO.___ BLOCK NO.___		

STATE OF MARYLAND JOHN STANLEY NOLAN NO. 16559 REGISTERED PROFESSIONAL ENGINEER

1785

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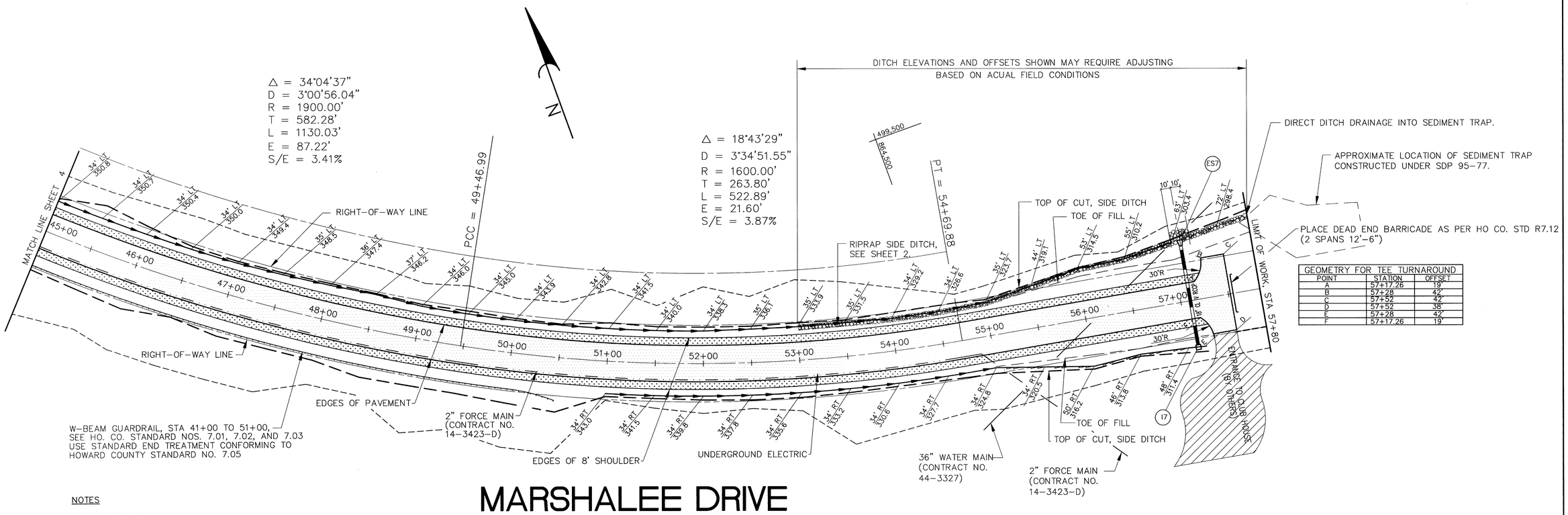
COORDINATES		
STATION	NORTHING	EASTING
P.C.C. 49+46.99	499444.831	864021.772
P.T. 54+69.88	499272.508	864513.007



GEOMETRY FOR TEE TURNAROUND		
POINT	STATION	OFFSET
A	57+17.26	19'
B	57+28	42'
C	57+52	42'
D	57+52	38'
E	57+28	42'
F	57+17.26	19'

MARSHALEE DRIVE

PLAN

SCALE: 1"=50'

NOTES

FOR STRIPING PLAN, SEE SHEET 15
FOR DITCH STABILIZATION SCHEDULE, SEE SHEET 2
FOR TYPICAL SECTIONS, SEE SHEET 2
FOR SUPERELEVATION DIAGRAM, SEE SHEET 3
FOR GENERAL NOTES, SEE SHEET 1

LEGEND

- GRADING LIMITS FROM ORIGINAL GRADING CONTRACT, SDP 95-77
- GRADING LIMITS
- DITCH & FLOW DIRECTION, CUT SECTION (DITCH OFFSET / DITCH ELEVATION)
- DITCH & FLOW DIRECTION, FILL SECTION (DITCH OFFSET / DITCH ELEVATION)

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 11/3/95
CHIEF, BUREAU OF ENGINEERING — DATE 11/13/95
CHIEF, BUREAU OF HIGHWAYS — DATE 11-13-95
CHIEF, DIVISION OF TRANSPORTATION PROJECTS AND WATERSHED MANAGEMENT — DATE 11/13/95

NOLAN ASSOCIATES, INC.
ENGINEERS - CIVIL/STRUCTURAL/INSPECTIONS
4785 DORSEY HALL DRIVE
SUITE 124
ELLICOTT CITY, MARYLAND 21042
PHONE: (410) 995-3651 FAX: (410) 995-1363

DES: J.S.N.				
DRN: SMI/RPS				
CHK: C.S.N.				
DATE: OCT. 1995	BY	NO.	REVISION	DATE

600' SCALE MAP NO. _____ BLOCK NO. _____

PLAN
STA 45+00 TO STA 57+80

MARSHALEE DRIVE
CAPITAL PROJECT J-4136
ELECTION DISTRICT NO. 1
ELLICOTT CITY, MARYLAND

SCALE AS SHOWN

SHEET 5 OF 19

1785

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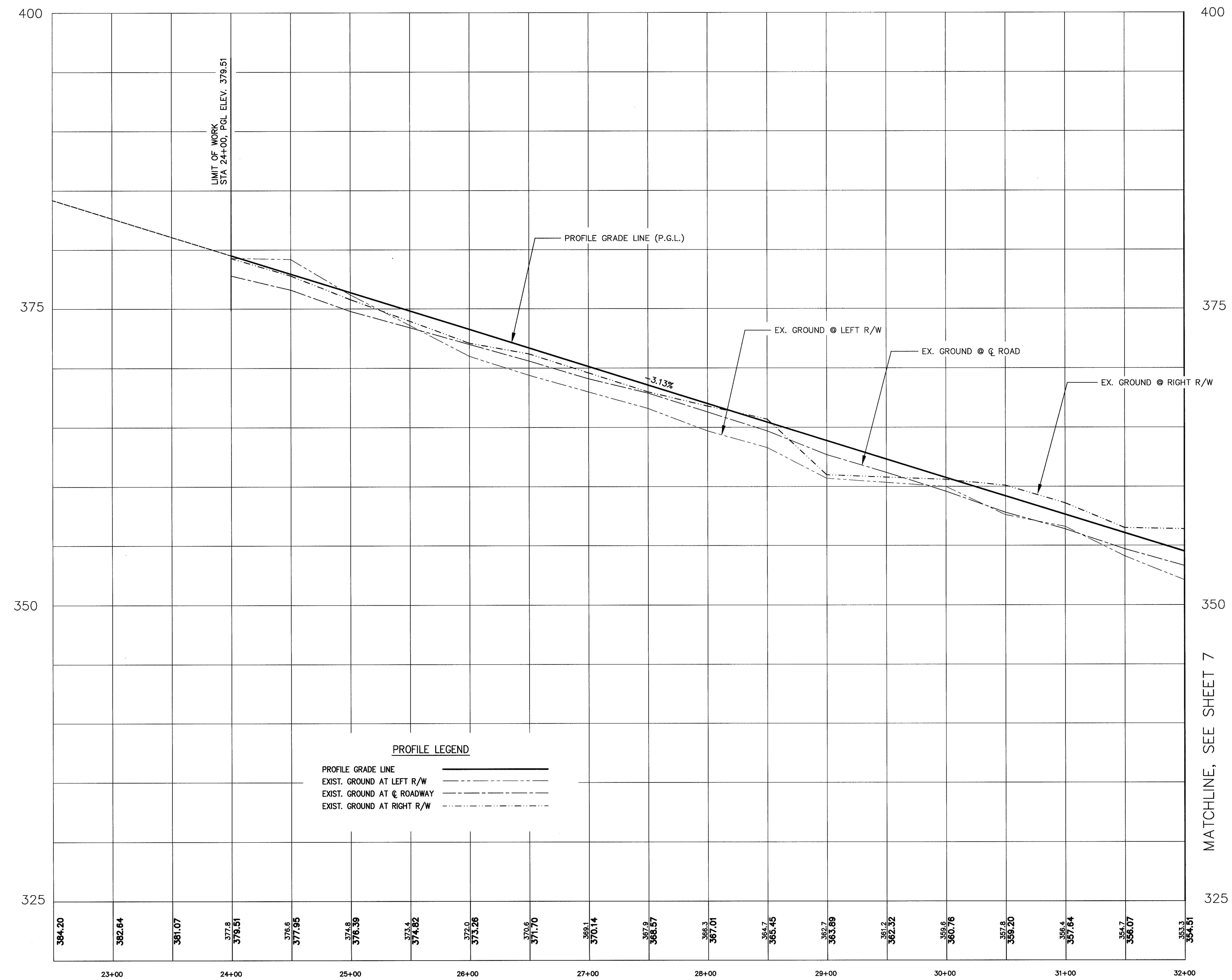

R/W LEFT			379.3	379.2	376.2	366.2	371.0	369.4	368.0	366.6	364.7	363.3	360.7	360.7	360.0	357.6	356.6	354.1	352.1
R/W RIGHT			379.3	377.8	375.8	371.8	372.1	371.2	369.6	368.0	366.8	365.7	361.0	360.6	360.6	360.1	358.6	356.5	356.4

1785

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DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS	DATE 11/13/95	CHIEF, BUREAU OF ENGINEERING	DATE 11/13/95
CHIEF, BUREAU OF HIGHWAYS	DATE 11-13-95	CHIEF, DIVISION OF TRANSPORTATION PROJECTS AND WATERSHED MANAGEMENT	DATE 11/13/95

NOLAN ASSOCIATES, INC.
ENGINEERS – CIVIL/STRUCTURAL/INSPECTIONS
4785 DORSEY HALL DRIVE
SUITE 124
ELLICOTT CITY, MARYLAND 21042
PHONE: (410) 995-3651 FAX: (410) 995-1363

STATE OF MARYLAND
JOHN STANLEY NOLAN
NO. 16559
REGISTERED
PROFESSIONAL ENGINEER

DES: J.S.N.
DRN: SMI/RPS
CHK: C.S.N.
DATE: NOV. 1995

BY	NO.	REVISION	DATE

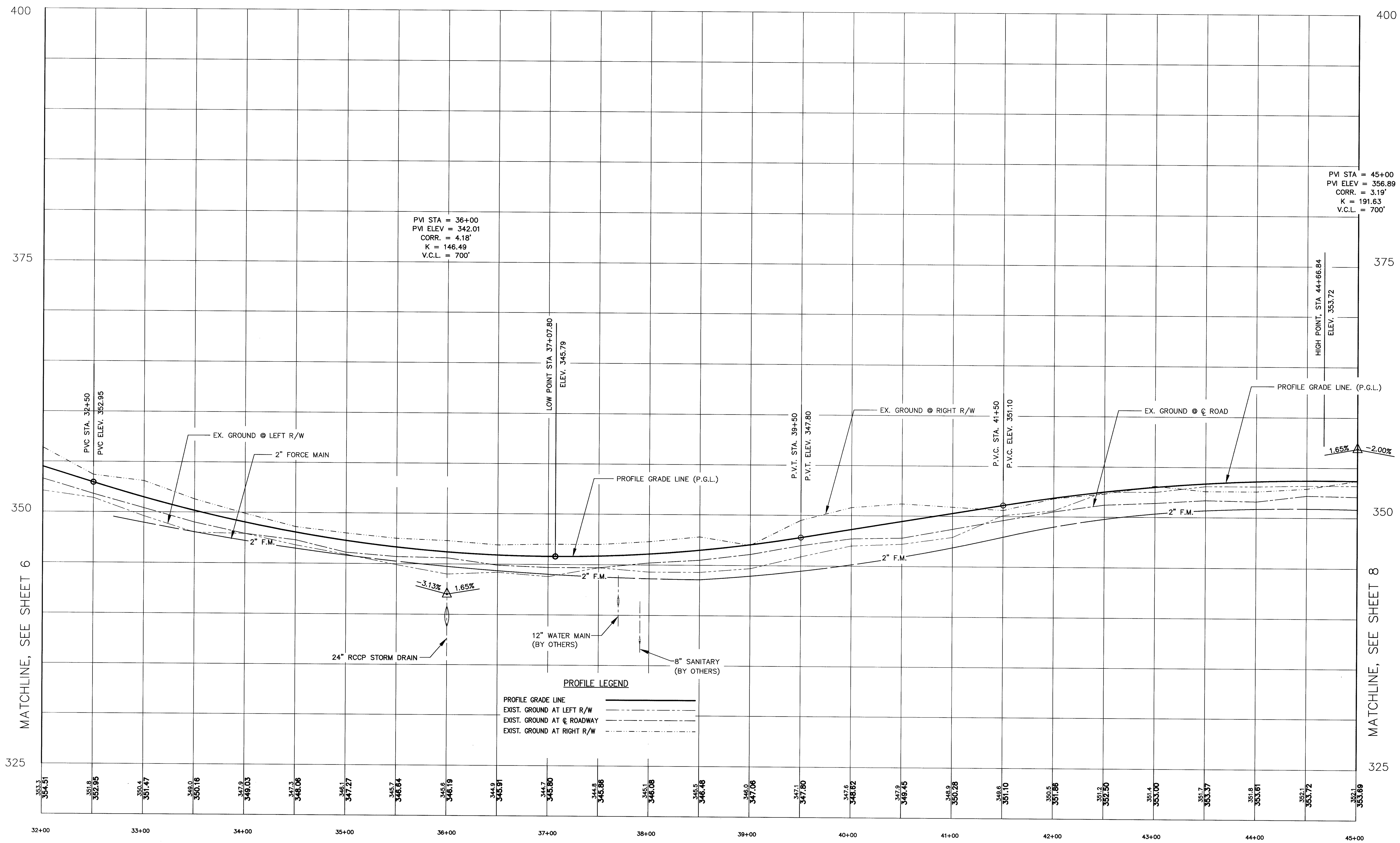
ROADWAY PROFILE
STA 24+00 TO 32+00

600' SCALE MAP NO.________ BLOCK NO.________

MARSHALEE DRIVE
CAPITAL PROJECT J-4136
ELECTION DISTRICT NO. 1
ELLICOTT CITY, MARYLAND

SCALE:
1"=50' HORIZ.
1"=5' VERT.

SHEET 6 OF 19



R/W LEFT	352.1	351.4	349.6	348.0	347.9	346.8	345.9	344.9	344.0	344.8	343.8	344.7	344.3	344.3	344.7	345.9	347.0	347.2	347.9	350.1	350.6	352.5	352.3	353.1	353.1	353.2	353.2
R/W RIGHT	356.4	353.7	353.1	351.3	349.9	348.6	348.0	347.5	347.3	346.9	347.0	347.0	347.3	347.8	347.0	349.5	350.8	351.2	350.9	350.6	351.8	352.3	353.1	352.6	352.6	352.9	353.7

1785

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DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 11/13/95
CHIEF, BUREAU OF ENGINEERING — DATE 11/13/95
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PHONE: (410) 995-3651 FAX: (410) 995-1363

STATE OF MARYLAND — JOHN STANLEY NOLAN — No. 16559 — REGISTERED PROFESSIONAL ENGINEER

DES: J.S.N.
DRN: SMI/RPS
CHK: C.S.N.
DATE: NOV. 1995

BY	NO.	REVISION	DATE

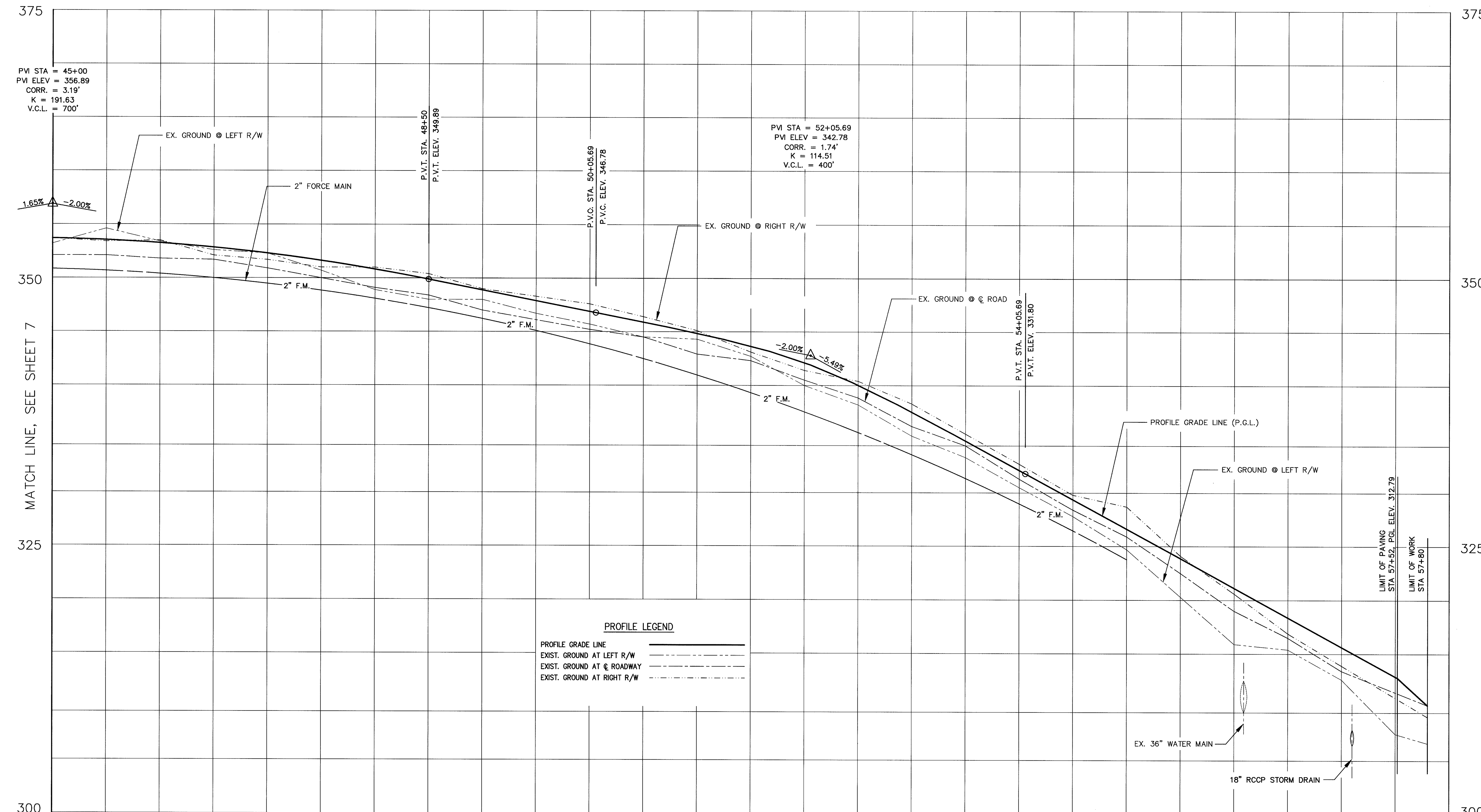
ROADWAY PROFILE
STA 32+00 TO 45+00

600' SCALE MAP NO.______ BLOCK NO.______

MARSHALEE DRIVE
CAPITAL PROJECT J-4136
ELECTION DISTRICT NO. 1
ELLICOTT CITY, MARYLAND

SCALE:
1"=50' HORIZ.
1"=5' VERT.

SHEET 7 OF 19



Station	Exist. ℄	Proposed	R/W LEFT	R/W RIGHT
45+00	352.1	353.69	353.2	353.7
	352.1	353.54	354.6	353.4
46+00	351.8	353.26	353.4	353.5
	351.7	352.85	352.6	352.1
47+00	350.9	352.30	352.3	351.7
	349.7	351.63	350.7	351.0
48+00	349.2	350.83	348.9	351.0
	348.2	349.89	348.0	350.4
49+00	347.2	348.89	348.0	349.0
	346.1	347.89	346.8	348.3
50+00	345.4	346.89	345.7	347.6
	344.4	345.81	344.5	346.4
51+00	343.0	344.50	344.3	345.1
	342.3	342.98	342.7	343.1
52+00	340.5	341.25	340.0	341.4
	338.5	339.29	338.2	340.4
53+00	336.2	337.11	335.3	338.3
	333.4	334.72	333.3	335.5
54+00	331.3	332.11	330.5	332.7
	328.4	329.36	327.8	329.8
55+00	325.9	326.63	324.7	328.7
	322.5	323.88	320.3	324.1
56+00	319.0	321.14	315.9	320.6
	316.6	318.39	315.4	316.9
57+00	313.6	315.65	312.6	313.9
	311.4	312.90	307.5	310.9

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DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 11/13/95
CHIEF, BUREAU OF ENGINEERING — DATE 11/13/95
CHIEF, BUREAU OF HIGHWAYS — DATE 11-13-95
CHIEF, DIVISION OF TRANSPORTATION PROJECTS AND WATERSHED MANAGEMENT — DATE 11/13/95

NOLAN ASSOCIATES, INC.
ENGINEERS – CIVIL/STRUCTURAL/INSPECTIONS
4785 DORSEY HALL DRIVE
SUITE 124
ELLICOTT CITY, MARYLAND 21042
PHONE: (410) 995-3651 FAX: (410) 995-1363

STATE OF MARYLAND — JOHN STANLEY NOLAN — NO. 16559 — REGISTERED PROFESSIONAL ENGINEER

DES: J.S.N.
DRN: SMI/RPS
CHK: C.S.N.
DATE: NOV. 1995

BY	NO.	REVISION	DATE

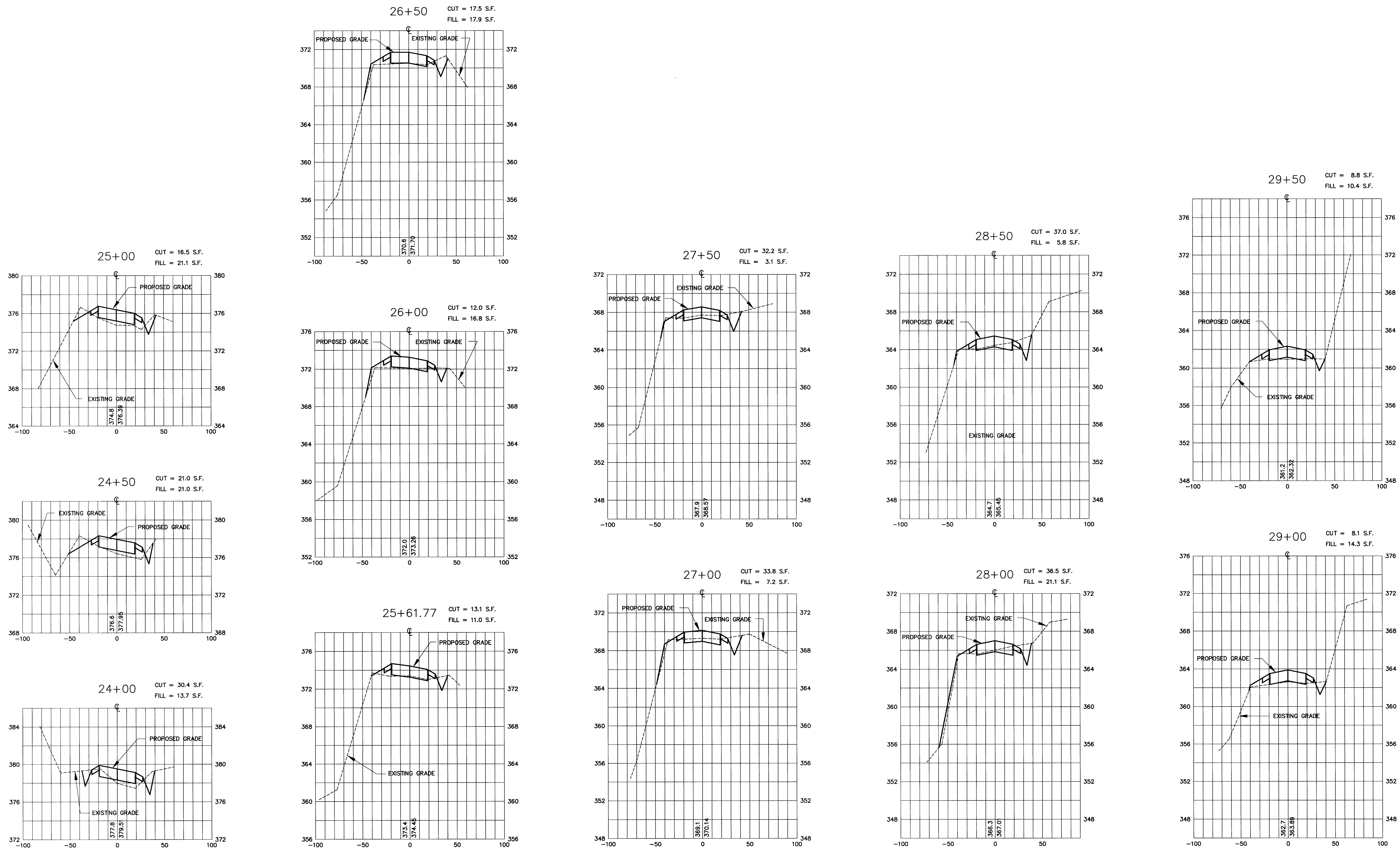
ROADWAY PROFILE
STA 45+00 TO 57+80

600' SCALE MAP NO.________ BLOCK NO.________

MARSHALEE DRIVE
CAPITAL PROJECT J-4136
ELECTION DISTRICT NO. 1
ELLICOTT CITY, MARYLAND

SCALE:
1"=50' HORIZ.
1"=5' VERT.

SHEET 8 OF 19



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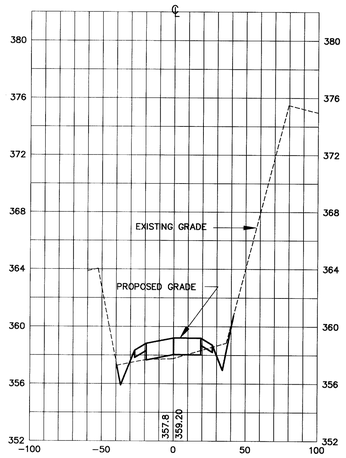
DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND	NOLAN ASSOCIATES, INC.	DES: J.S.N.	CROSS SECTIONS	MARSHALEE DRIVE	1"=50' HORIZ.
DIRECTOR OF PUBLIC WORKS 11/13/95 DATE — CHIEF, BUREAU OF ENGINEERING 11/13/95 DATE	ENGINEERS – CIVIL/STRUCTURAL/INSPECTIONS	DRN: SMI/RPS	STA. 24+00 TO 29+50	CAPITAL PROJECT J-4136	1"=5' VERT.
CHIEF, BUREAU OF HIGHWAYS 11-13-95 DATE — CHIEF, DIVISION OF TRANSPORTATION PROJECTS AND WATERSHED MANAGEMENT 11/13/95 DATE	4785 DORSEY HALL DRIVE SUITE 124 ELLICOTT CITY, MARYLAND 21042	CHK: C.S.N.		ELECTION DISTRICT NO. 1	SHEET 9 OF 19
	PHONE: (410) 995-3651 FAX: (410) 995-1363	DATE: NOV. 1995	600' SCALE MAP NO.____ BLOCK NO.____	ELLICOTT CITY, MARYLAND	

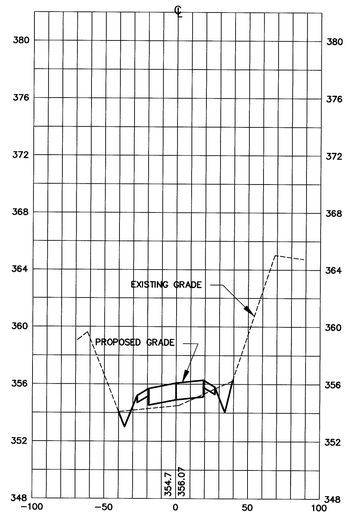
STATE OF MARYLAND — JOHN STANLEY NOLAN — No. 16559 — REGISTERED PROFESSIONAL ENGINEER

BY	NO.	REVISION	DATE

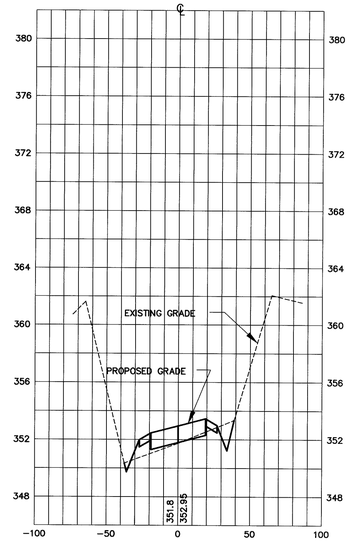
30+50 CUT = 19.8 S.F. FILL = 6.0 S.F.



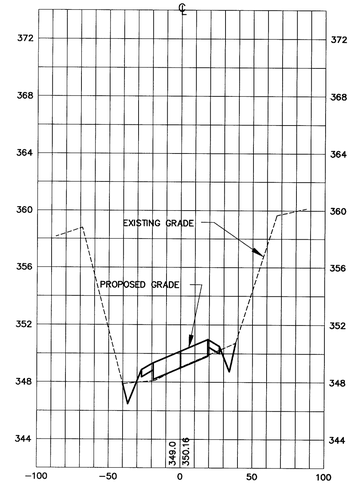
31+50 CUT = 18.1 S.F. FILL = 18.4 S.F.



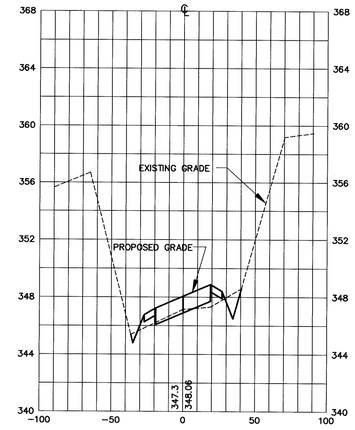
32+50 CUT = 15.8 S.F. FILL = 14.2 S.F.



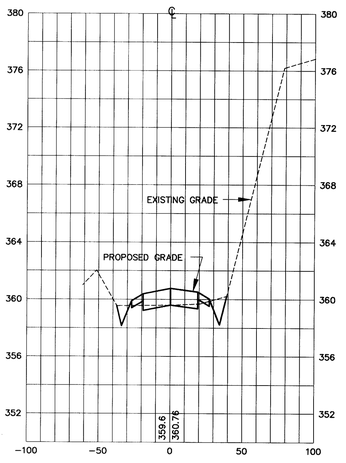
33+50 CUT = 17.5 S.F. FILL = 8.8 S.F.



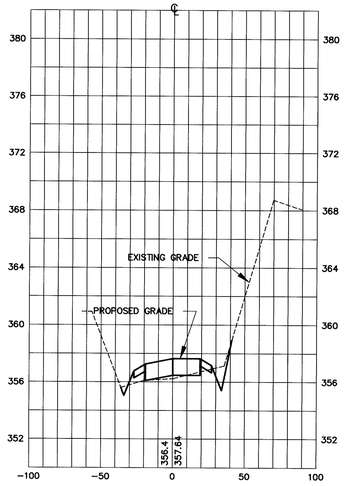
34+50 CUT = 19.1 S.F. FILL = 8.2 S.F.



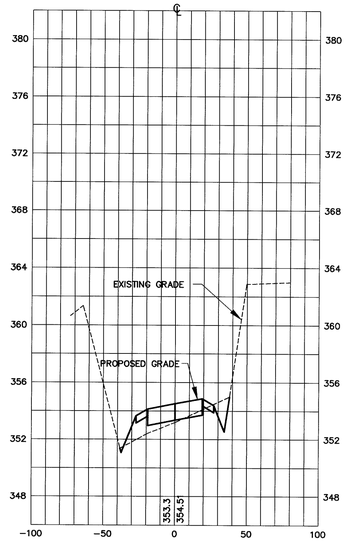
30+00 CUT = 25.2 S.F. FILL = 1.7 S.F.



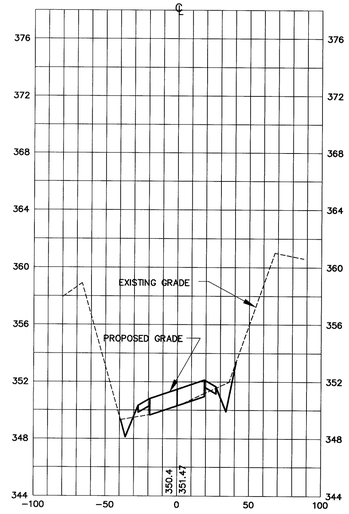
31+00 CUT = 13.0 S.F. FILL = 10.7 S.F.



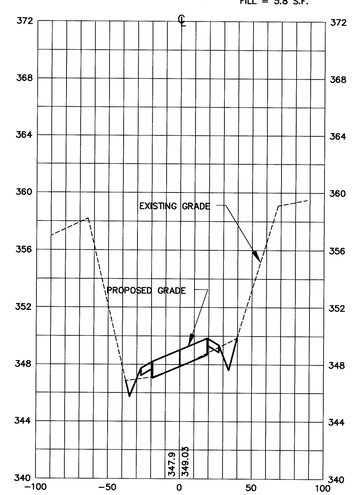
32+00 CUT = 19.1 S.F. FILL = 23.8 S.F.



33+00 CUT = 21.3 S.F. FILL = 6.4 S.F.



34+00 CUT = 18.5 S.F. FILL = 5.8 S.F.



1181

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 11/13/95
CHIEF, BUREAU OF ENGINEERING — DATE 11/13/95
CHIEF, BUREAU OF HIGHWAYS — DATE 11-13-95
CHIEF, DIVISION OF TRANSPORTATION PROJECTS AND WATERSHED MANAGEMENT — DATE 11/10/95

NOLAN ASSOCIATES, INC.
ENGINEERS – CIVIL/STRUCTURAL/INSPECTIONS
4785 DORSEY HALL DRIVE
SUITE 124
ELLICOTT CITY, MARYLAND 21042
PHONE: (410) 995-3651 FAX: (410) 995-1363

STATE OF MARYLAND — JOHN STANLEY NOLAN — No. 16559 — REGISTERED PROFESSIONAL ENGINEER

DES: J.S.N.
DRN: SMI/RPS
CHK: C.S.N.
DATE: NOV. 1995

BY	NO.	REVISION	DATE

CROSS SECTIONS
STA. 30+00 TO 34+50

600' SCALE MAP NO. _____ BLOCK NO. _____

MARSHALEE DRIVE
CAPITAL PROJECT J-4136
ELECTION DISTRICT NO. 1
ELLICOTT CITY, MARYLAND

1"=50' HORIZ.
1"=5' VERT.

SHEET 10 OF 19

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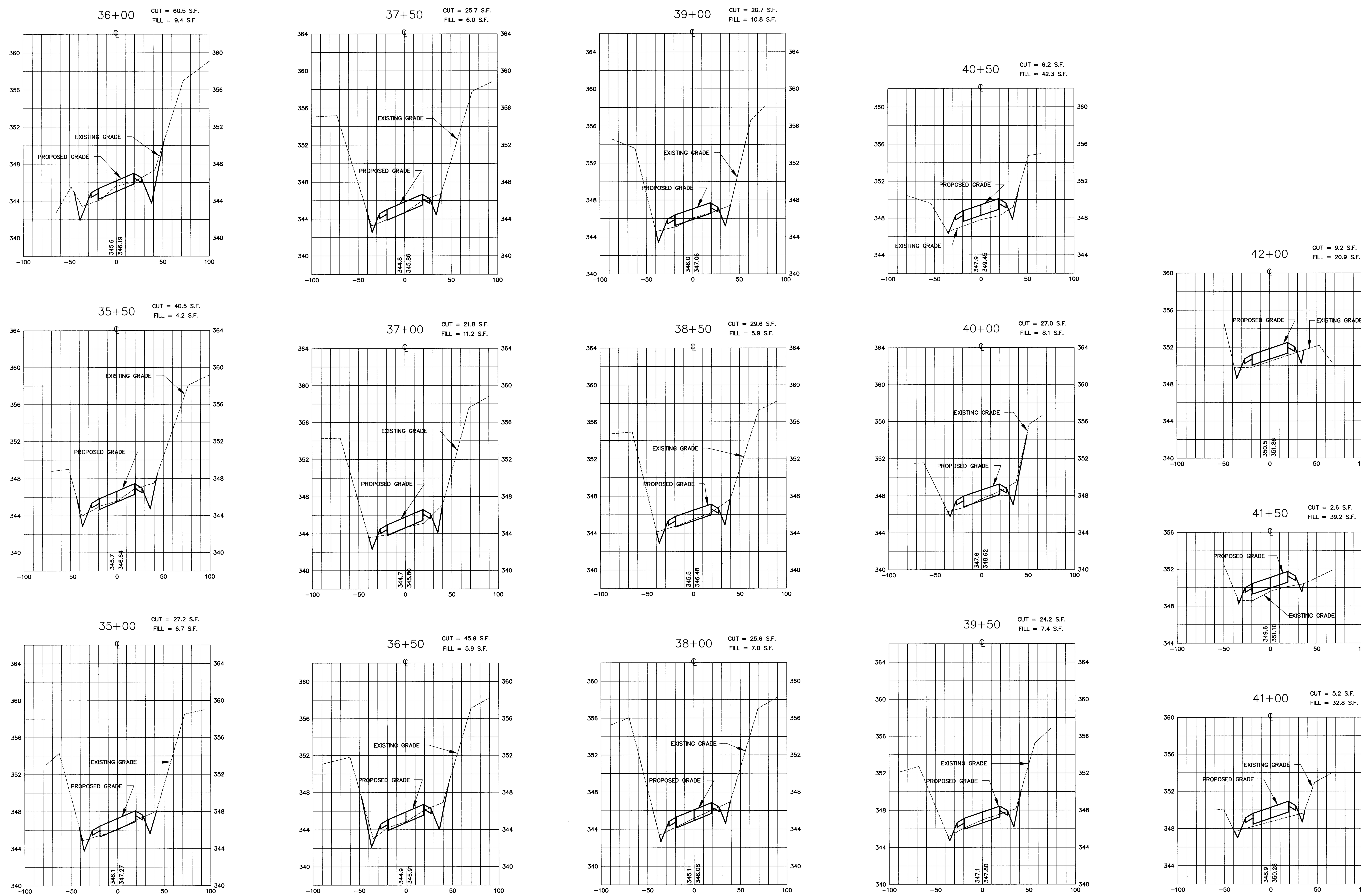

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 11/13/95
CHIEF, BUREAU OF ENGINEERING — DATE 11/13/95
CHIEF, BUREAU OF HIGHWAYS — DATE 11-13-95
CHIEF, DIVISION OF TRANSPORTATION PROJECTS AND WATERSHED MANAGEMENT — DATE 11/13/95

NOLAN ASSOCIATES, INC.
ENGINEERS – CIVIL/STRUCTURAL/INSPECTIONS
4785 DORSEY HALL DRIVE
SUITE 124
ELLICOTT CITY, MARYLAND 21042
PHONE: (410) 995-3651 FAX: (410) 995-1363

STATE OF MARYLAND — JOHN STANLEY NOLAN — No. 16559 — REGISTERED PROFESSIONAL ENGINEER

DES: J.S.N.				
DRN: SMI/RPS				
CHK: C.S.N.				
DATE: NOV. 1995	BY	NO.	REVISION	DATE

CROSS SECTIONS
STA. 35+00 TO 42+00

600' SCALE MAP NO.________ BLOCK NO.________

MARSHALEE DRIVE
CAPITAL PROJECT J-4136
ELECTION DISTRICT NO. 1
ELLICOTT CITY, MARYLAND

1"=50' HORIZ.
1"=5' VERT.

SHEET 11 OF 19

1785

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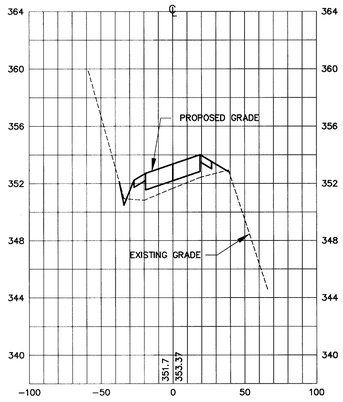
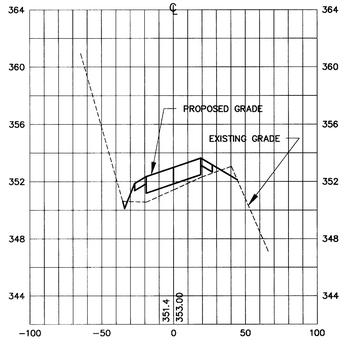
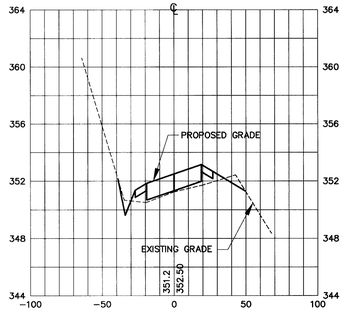
43+50 CUT = 1.2 S.F. FILL = 44.4 S.F.



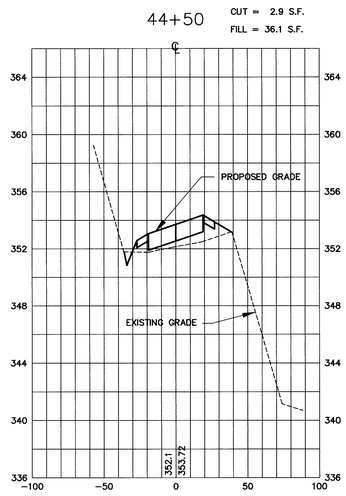
43+00 CUT = 4.6 S.F. FILL = 32.8 S.F.



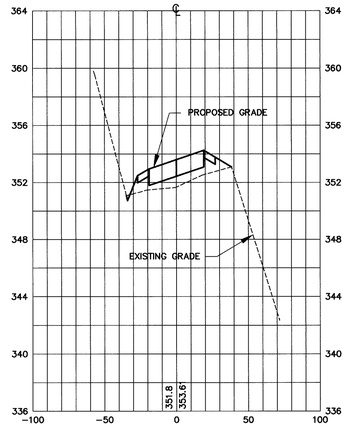
42+50 CUT = 9.5 S.F. FILL = 19.6 S.F.



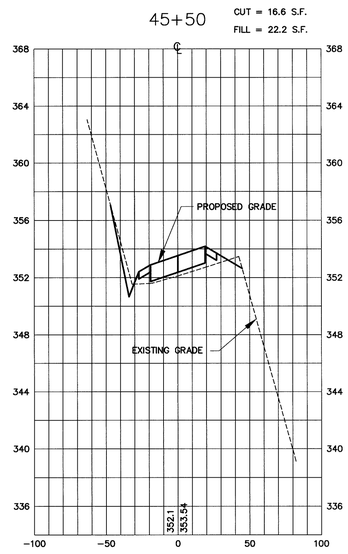
44+50 CUT = 2.9 S.F. FILL = 36.1 S.F.



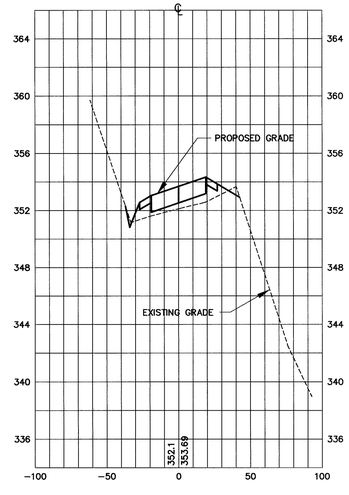
44+00 CUT = 0.5 S.F. FILL = 45.0 S.F.



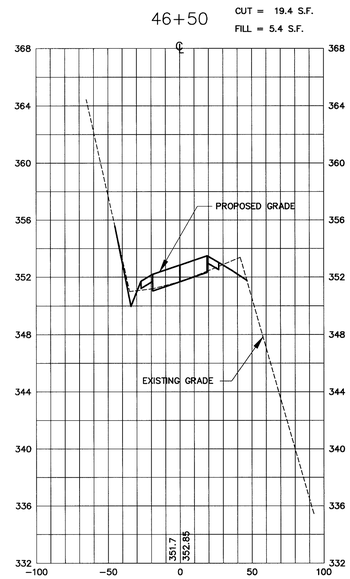
45+50 CUT = 16.6 S.F. FILL = 22.2 S.F.



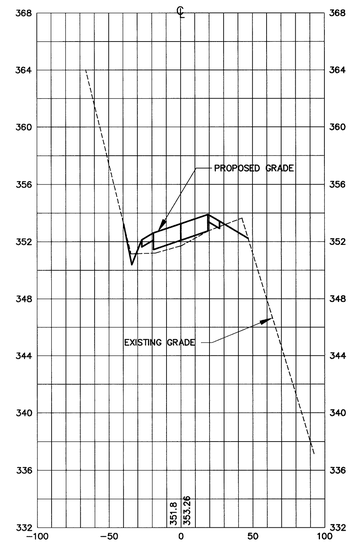
45+00 CUT = 3.5 S.F. FILL = 36.3 S.F.



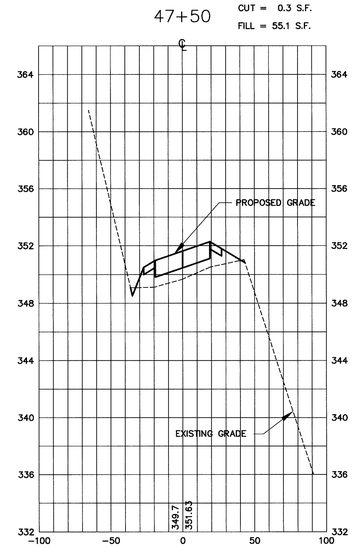
46+50 CUT = 19.4 S.F. FILL = 5.4 S.F.



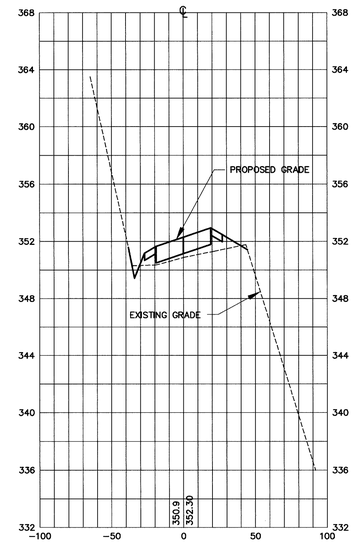
46+00 CUT = 12.2 S.F. FILL = 20.6 S.F.



47+50 CUT = 0.3 S.F. FILL = 55.1 S.F.



47+00 CUT = 3.2 S.F. FILL = 31.4 S.F.



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DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 11/13/95
CHIEF, BUREAU OF ENGINEERING — DATE 11/13/95
CHIEF, BUREAU OF HIGHWAYS — DATE 11-13-95
CHIEF, DIVISION OF TRANSPORTATION PROJECTS AND WATERSHED MANAGEMENT — DATE 11/13/95

NOLAN ASSOCIATES, INC.
ENGINEERS – CIVIL/STRUCTURAL/INSPECTIONS
4785 DORSEY HALL DRIVE
SUITE 124
ELLICOTT CITY, MARYLAND 21042
PHONE: (410) 995-3651 FAX: (410) 995-1363

STATE OF MARYLAND — JOHN STANLEY NOLAN — NO. 16559 — REGISTERED PROFESSIONAL ENGINEER

DES: J.S.N.				
DRN: SMI/RPS				
CHK: C.S.N.				
DATE: NOV. 1995	BY	NO.	REVISION	DATE

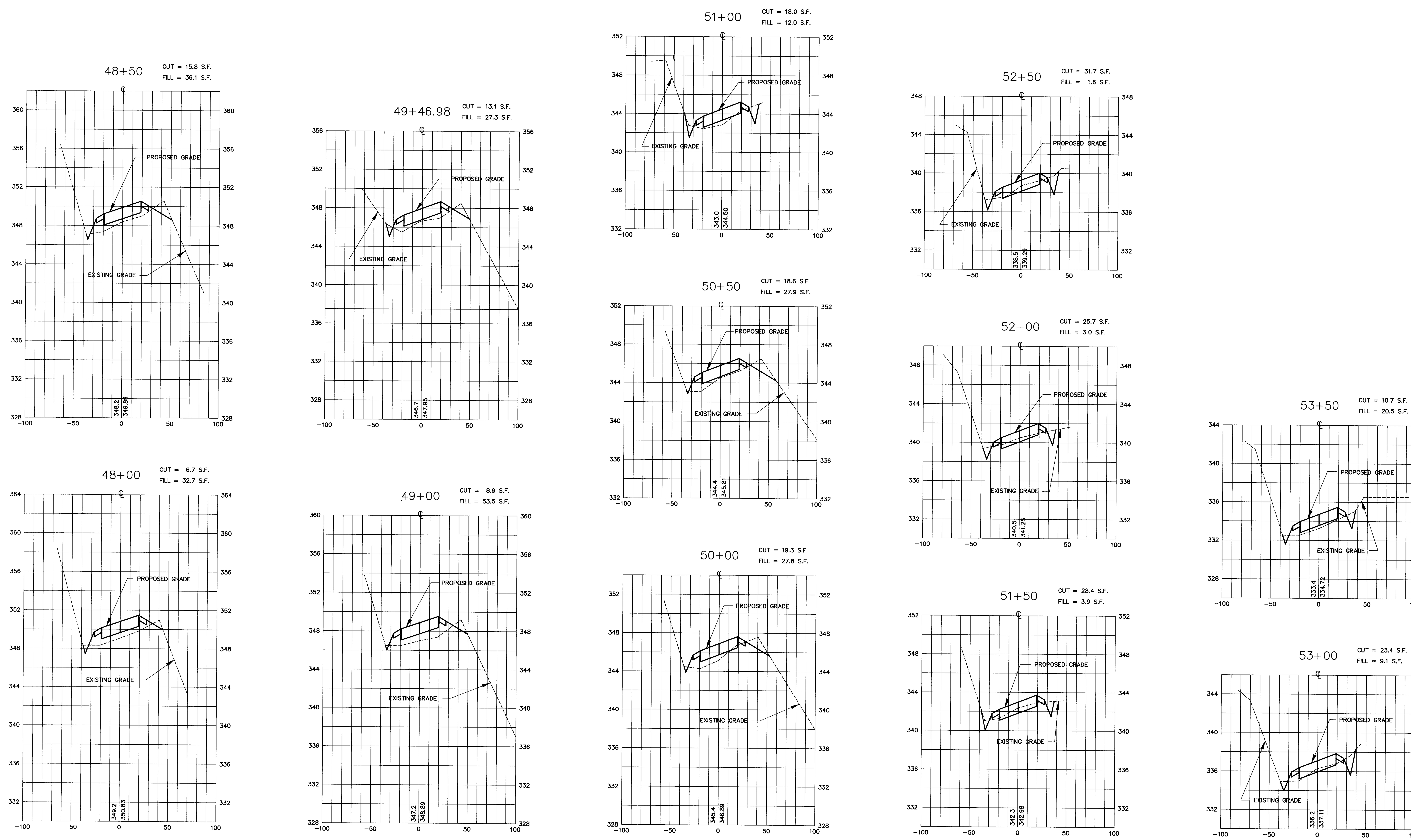
CROSS SECTIONS
STA. 42+50 TO 47+50

600' SCALE MAP NO. _____ BLOCK NO. _____

MARSHALEE DRIVE
CAPITAL PROJECT J-4136
ELECTION DISTRICT NO. 1
ELLICOTT CITY, MARYLAND

1"=50' HORIZ.
1"=5' VERT.

SHEET 12 OF 19



DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND	
DIRECTOR OF PUBLIC WORKS 11/13/95 DATE	CHIEF, BUREAU OF ENGINEERING 11/13/95 DATE
CHIEF, BUREAU OF HIGHWAYS 11-13-95 DATE	CHIEF, DIVISION OF TRANSPORTATION PROJECTS AND WATERSHED MANAGEMENT 11/13/95 DATE

NOLAN ASSOCIATES, INC.
ENGINEERS – CIVIL/STRUCTURAL/INSPECTIONS
4785 DORSEY HALL DRIVE
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ELLICOTT CITY, MARYLAND 21042
PHONE: (410) 995-3651 FAX: (410) 995-1363

STATE OF MARYLAND — JOHN STANLEY NOLAN — No. 16559 — REGISTERED PROFESSIONAL ENGINEER

DES: J.S.N.
DRN: SMI/RPS
CHK: C.S.N.
DATE: NOV. 1995

BY	NO.	REVISION	DATE

CROSS SECTIONS
STA. 48+00 TO 53+50

600' SCALE MAP NO.________ BLOCK NO.________

MARSHALEE DRIVE
CAPITAL PROJECT J-4136
ELECTION DISTRICT NO. 1
ELLICOTT CITY, MARYLAND

1"=50' HORIZ.
1"=5' VERT.

SHEET 13 OF 19

1785

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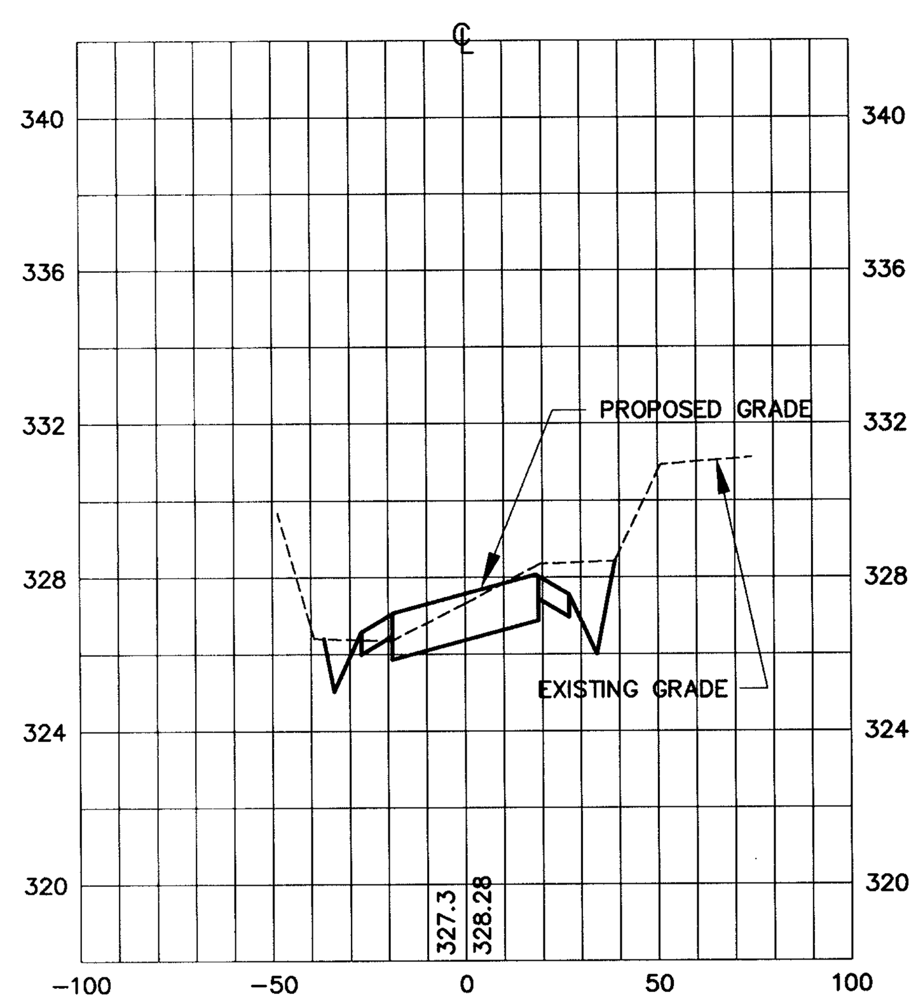
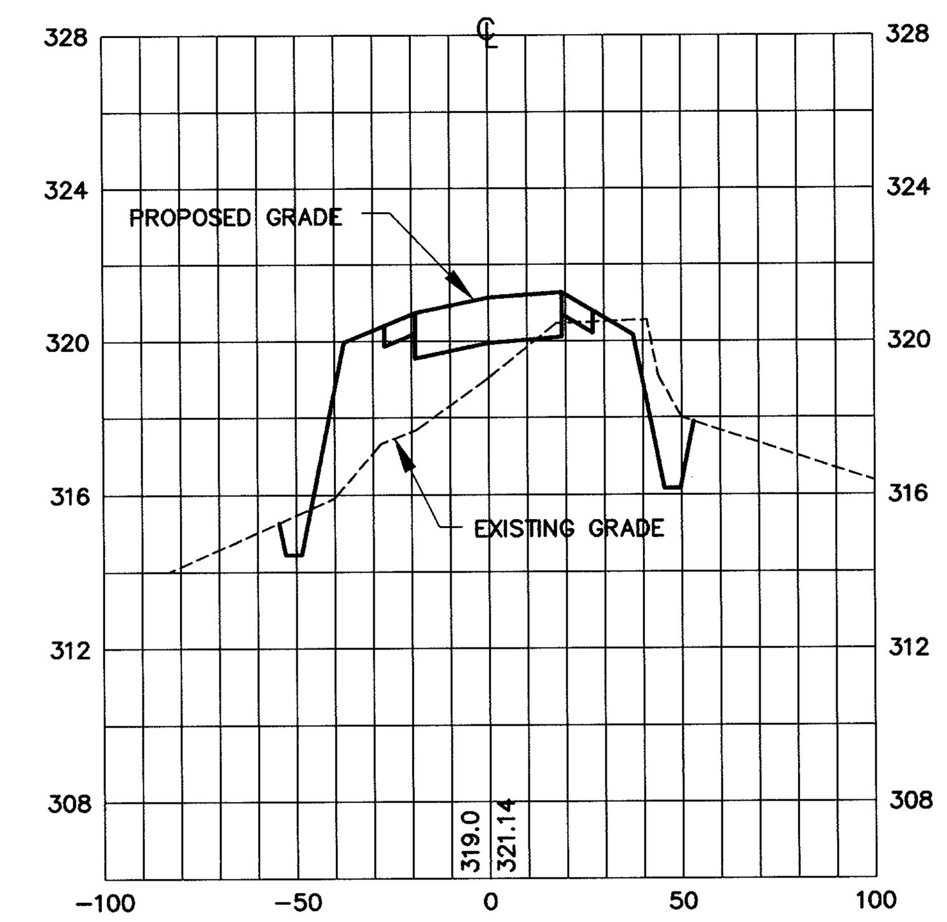
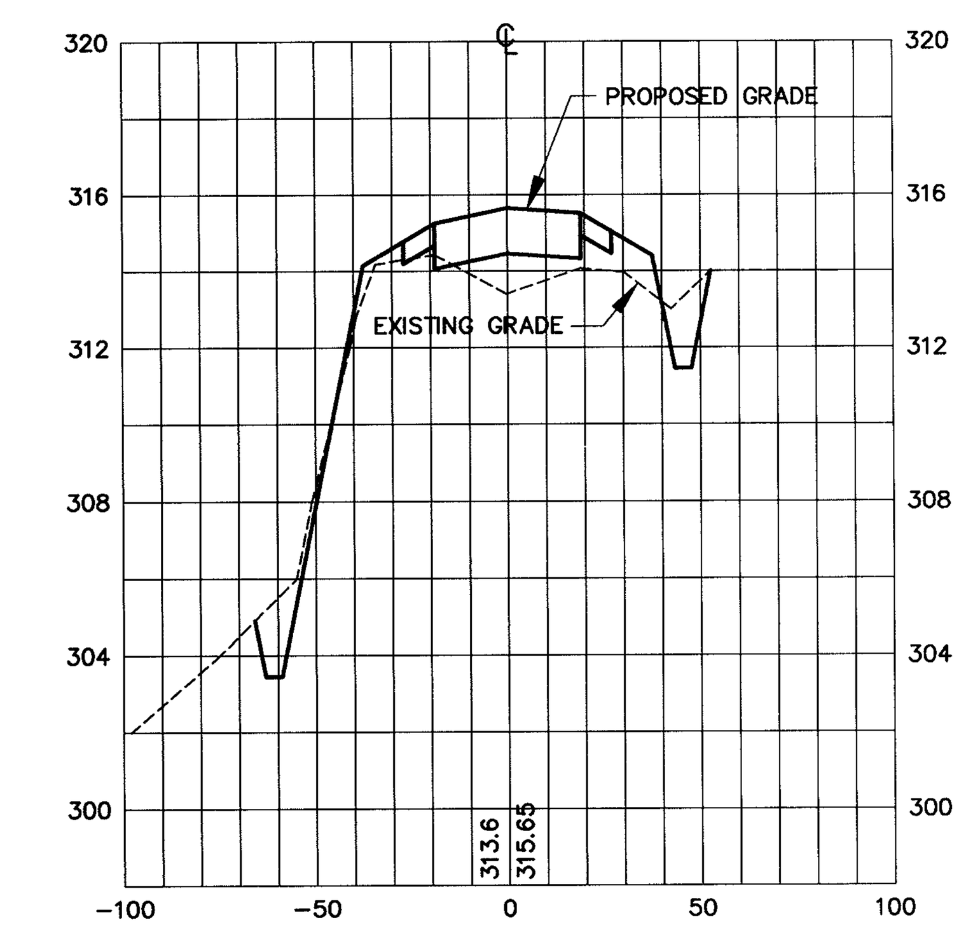
54+69.88 CUT = 75.4 S.F. FILL = 0.9 S.F.



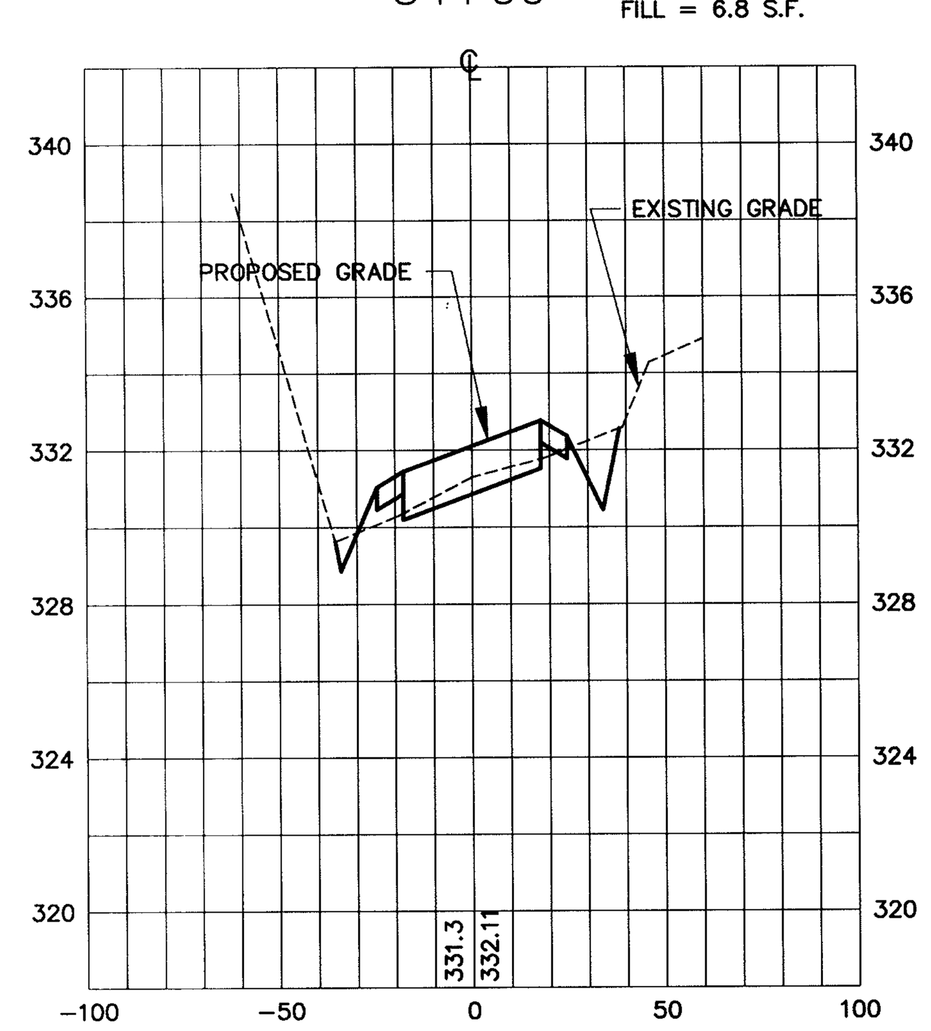
56+00 CUT = 28.0 S.F. FILL = 105.6 S.F.



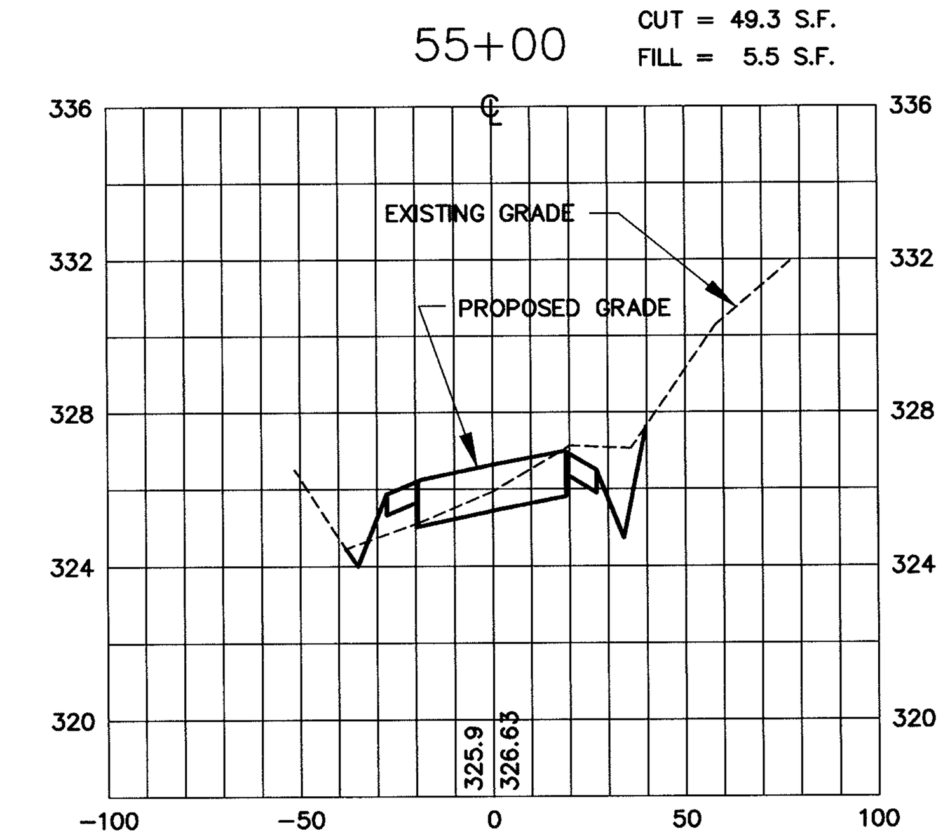
57+00 CUT = 28.4 S.F. FILL = 46.6 S.F.



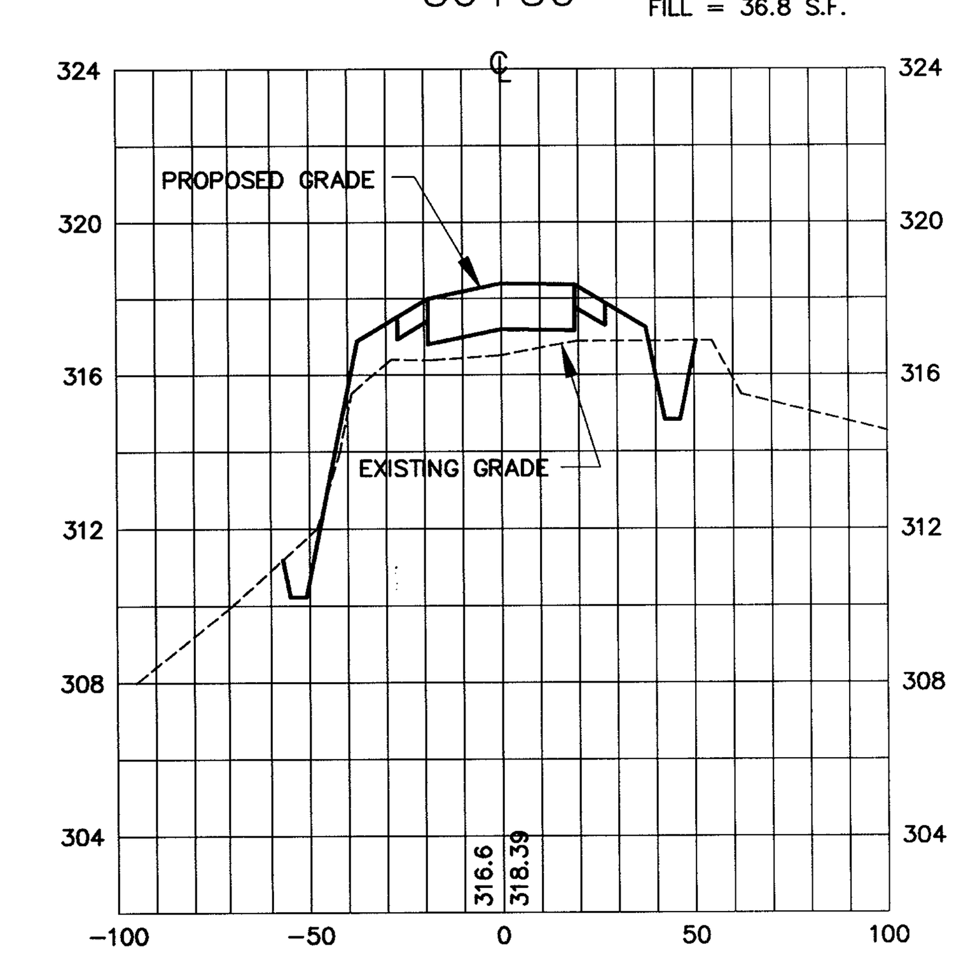
54+00 CUT = 25.3 S.F. FILL = 6.8 S.F.



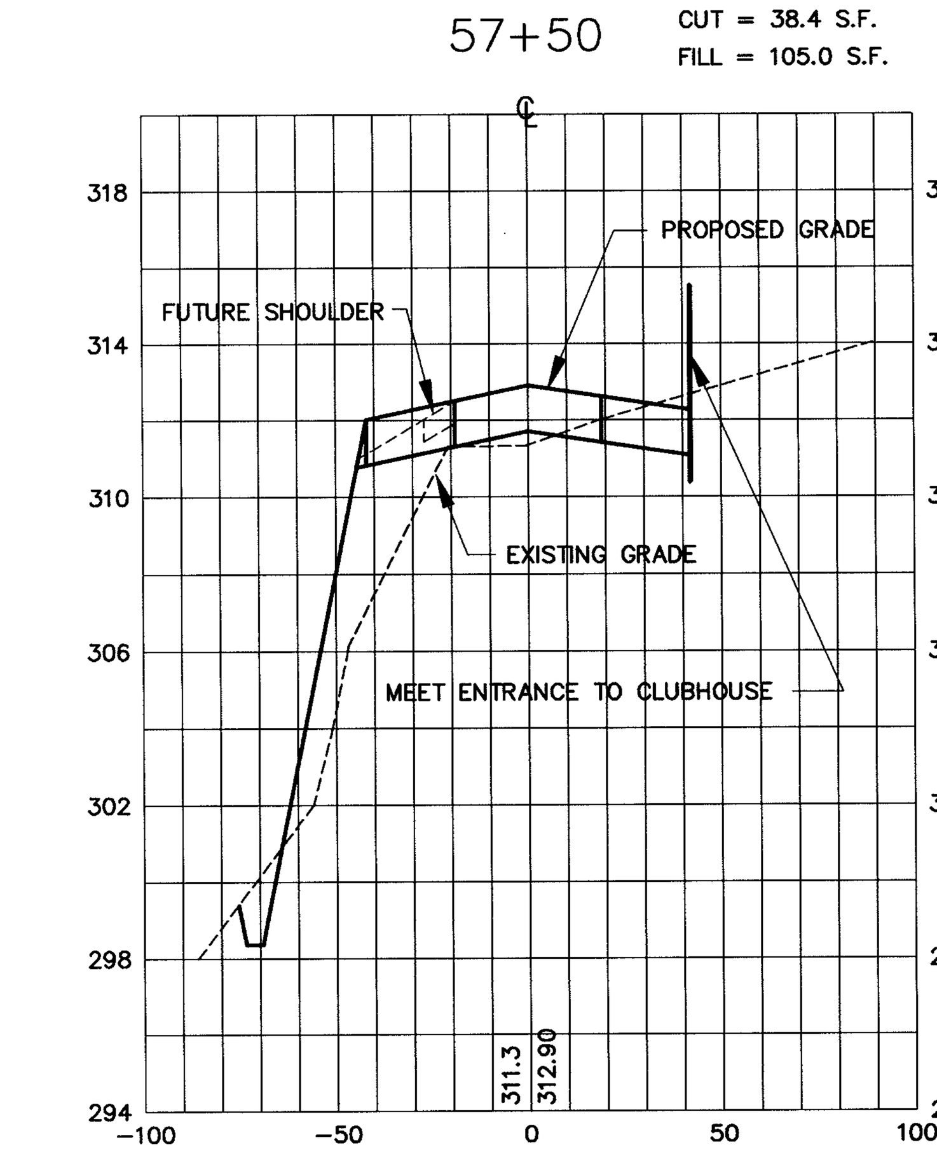
55+00 CUT = 49.3 S.F. FILL = 5.5 S.F.



56+50 CUT = 25.7 S.F. FILL = 36.8 S.F.



57+50 CUT = 38.4 S.F. FILL = 105.0 S.F.



1785

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 11/13/95
CHIEF, BUREAU OF ENGINEERING — DATE 11/13/95
CHIEF, BUREAU OF HIGHWAYS — DATE 11-13-95
CHIEF, DIVISION OF TRANSPORTATION PROJECTS AND WATERSHED MANAGEMENT — DATE 11/13/95

NOLAN ASSOCIATES, INC.
ENGINEERS – CIVIL/STRUCTURAL/INSPECTIONS
4785 DORSEY HALL DRIVE
SUITE 124
ELLICOTT CITY, MARYLAND 21042
PHONE: (410) 995-3651 FAX: (410) 995-1363

STATE OF MARYLAND — JOHN STANLEY NOLAN — No. 16559 — REGISTERED PROFESSIONAL ENGINEER

DES: J.S.N.
DRN: SMI/RPS
CHK: C.S.N.
DATE: NOV. 1995

BY	NO.	REVISION	DATE

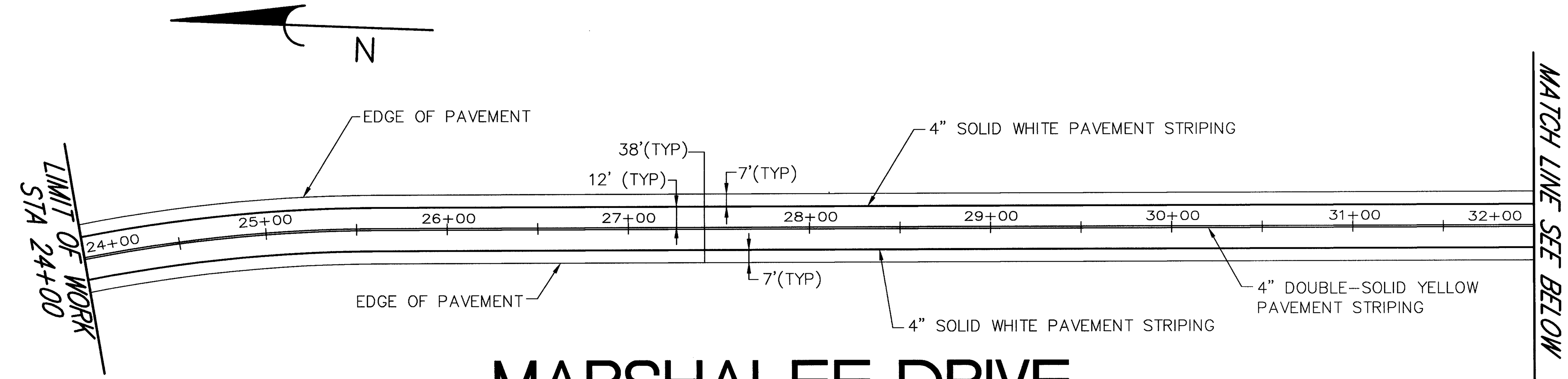
CROSS SECTIONS
STA. 54+00 TO 57+50

600' SCALE MAP NO. _____ BLOCK NO. _____

MARSHALEE DRIVE
CAPITAL PROJECT J-4136
ELECTION DISTRICT NO. 1
ELLICOTT CITY, MARYLAND

SCALE: 1"=50' HORIZ. 1"=5' VERT.

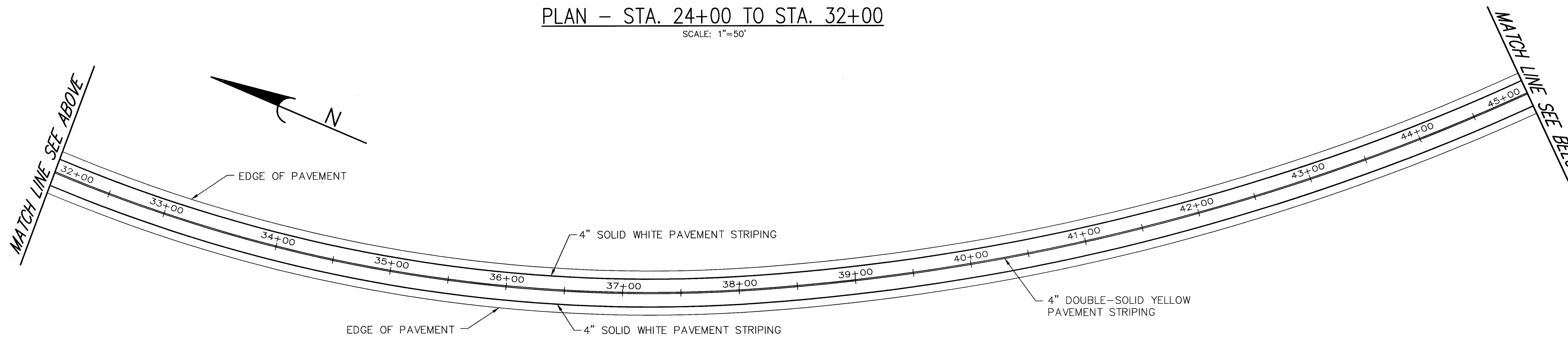
SHEET 14 OF 19



MARSHALEE DRIVE

PLAN – STA. 24+00 TO STA. 32+00

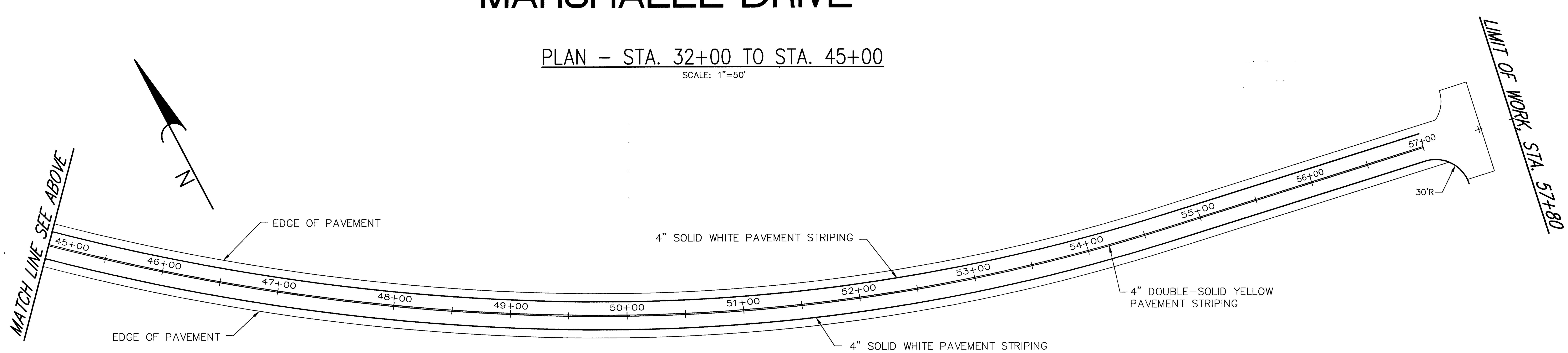
SCALE: 1"=50'



MARSHALEE DRIVE

PLAN – STA. 32+00 TO STA. 45+00

SCALE: 1"=50'



MARSHALEE DRIVE

PLAN – STA. 45+00 TO STA. 57+80

SCALE: 1"=50'

1785

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 11/13/95
CHIEF, BUREAU OF ENGINEERING — DATE 11/13/95
CHIEF, BUREAU OF HIGHWAYS — DATE 11-13-95
CHIEF, DIVISION OF TRANSPORTATION PROJECTS AND WATERSHED MANAGEMENT — DATE 11/13/95

NOLAN ASSOCIATES, INC.
ENGINEERS – CIVIL/STRUCTURAL/INSPECTIONS
4785 DORSEY HALL DRIVE
SUITE 124
ELLICOTT CITY, MARYLAND 21042
PHONE: (410) 995-3651 FAX: (410) 995-1363

DES: J.S.N.
DRN: SMI/RPS
CHK: C.S.N.
DATE: NOV. 1995

BY	NO.	REVISION	DATE

PAVEMENT STRIPING PLAN

600' SCALE MAP NO.________ BLOCK NO.________

MARSHALEE DRIVE
CAPITAL PROJECT J-4136
ELECTION DISTRICT NO. 1
ELLICOTT CITY, MARYLAND

SCALE AS SHOWN

SHEET 15 OF 19

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SPECIFICATIONS

These specifications are appropriate to all ponds within the scope of the Standard for practice MD-378. All references to ASTM and AASHTO specifications apply to the most recent version.

Site Preparation

Areas designated for borrow areas, embankment, and structural works shall be cleared, grubbed and stripped of topsoil. All trees, vegetation, roots, and other objectionable material shall be removed. Channel banks and sharp breaks shall be sloped to no steeper than 1:1.

Areas to be covered by the reservoir will be cleared of all trees, brush, logs, fences, rubbish and other objectionable material unless otherwise designated on the plans. Trees, brush and stumps shall be cut approximately level with the ground surface. for dry stormwater management ponds, a minimum of a 50 foot radius around the inlet structure shall be cleared.

All cleared and grubbed material shall be disposed of outside and below the limits of the dam

other designated areas.

Earth Fill

Material: The fill material shall be taken from approved designated borrow areas. It shall be free of roots, stumps, wood, rubbish, stones greater than 6" frozen or other objectionable materials. Fill material for the center of the embankment and cut off trench shall conform to Unified Soil Classification GC, SC, CH, or CL. Consideration may be given to the use of other materials in the embankment if design and construction are supervised by a geotechnical engineer.

Placement: Areas on which fill is to be placed shall be scarified prior to placement of fill. Fill materials shall be placed in maximum 8 inch thick (before compaction) layers which are to be continuous over the entire length of the fill. The most permeable borrow material shall be placed in the downstream portions of the embankment. The principal spillway must be installed concurrently with fill placement and not excavated into the embankment.

Compaction: The movement of the hauling and spreading equipment over the fill shall be controlled so that the entire surface of each lift shall be traversed by not less than one tread track of the equipment or compaction shall be achieved by a minimum of four complete passes of a sheepsfoot, rubber tired or vibratory roller. Fill material shall contain sufficient moisture such that the required degree of compaction will be obtained with the equipment used. The fill material shall contain sufficient moisture so that if formed into a ball it will not crumble yet not be so wet that water can be squeezed out.

Where a minimum required density is specified, it shall not be less than 95% of maximum dry density with a moisture content within ± 2% of the optimum. Each layer of fill shall be compacted as necessary to obtain that density, and is to be certified by the Engineer at the time of construction. All compaction is to be determined by AASHTO Method T-99.

Cut Off Trench: The cutoff trench shall be excavated into impervious material along or parallel to the centerline of the embankment as shown on the plans. The bottom width of the trench shall be governed by the equipment used for excavation, with the minimum width being four feet. The depth shall be at least four feet below existing grade or as shown on the plans. The side slopes of the trench shall be 1 to 1 or flatter. The backfill shall be compacted with construction equipment, rollers, or hand tampers to assure maximum density and minimum permeability.

Structure Backfill

Backfill adjacent to pipes or structures shall be of the type and quality conforming to that specified for the adjoining fill material. The fill shall be placed in horizontal layers not to exceed four inches in thickness and compacted by hand tampers or other manually directed compaction equipment. The material needs to fill completely all spaces under and adjacent to the pipe. At no time during the backfilling operation shall driven equipment be allowed to operate closer than four feet, measured horizontally, to any part of a structure. Under no circumstances shall equipment be driven over any part of a concrete structure or pipe, unless there is a compacted fill of 24' or greater over the structure or pipe.

Pipe Conduits

All pipes shall be circular in cross section.

Corrugated Metal Pipe: All of the following criteria shall apply for corrugated metal pipe:

Reinforced Concrete Pipe: All of the following criteria shall apply for reinforced concrete pipe:

1. Materials – Reinforced concrete pipe shall have bell and spigot joints with rubber gaskets and shall equal or exceed ASTM Designation C-361.
2. Bedding – All reinforced concrete pipe conduits shall be laid in a concrete bedding for their entire length. This bedding shall consist of high slump concrete placed under the pipe and up the sides of the pipe at least 10% of its outside diameter with a minimum thickness of 3 inches, or as shown on the drawings.
3. Laying pipe – Bell and spigot pipe shall be placed with the bell end upstream. Joints shall be made in accordance with recommendations of the manufacturer of the material. After the joints are sealed for the entire line, the bedding shall be placed so that all spaces under the pipe are filled. Care shall be exercised to prevent any deviation from the original line and grade of the pipe. The first joint must be located within 2 feet from the riser.
4. Backfilling shall conform to "Structure Backfill."
5. Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

Polyvinyl Chloride (PVC) Pipe: All the following criteria shall apply for polyvinyl chloride (PVC) pipe:

1. Materials – PVC pipe shall be PVC-1120 or PVC 1220 conforming to ASTM D-1785 or ASTM D-2241
2. Joints and connections to anti-seep collars shall be completely watertight.
3. Bedding – The pipe shall be firmly and uniformly bedded throughout its entire length. Where rock or soft, spongy or other unstable soil is encountered, all such material shall be removed and replaced with suitable earth compacted to provide adequate support.
4. Backfilling shall conform to "Structure Backfill."
5. Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

Concrete

Concrete shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 608, Mix No. 3.

Rock Riprap

Rock riprap shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 905.

The riprap shall be placed to the required thickness in one operation. The rock shall be delivered and placed in a manner that will insure the riprap in place shall be reasonably homogeneous with the larger rocks uniformly distributed and firmly in contact one to another with the smaller rocks filling the voids between the larger rocks. Filter cloth shall be placed under all riprap and shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 919.12.

Care of Water during Construction

All work on permanent structures shall be carried out in areas free from water. The Contractor shall construct and maintain all temporary dikes, levees, cofferdams, drainage channels, and stream diversions necessary to protect the areas to be occupied by the permanent works. The contractor shall also furnish, install, operate, and maintain all necessary pumping and other equipment required for removal of water from the various parts of the work and for maintaining the excavations, foundation, and other parts of the work free from water as required or directed by the engineer for constructing each part of the work. After having served their purpose, all temporary protective works shall be removed or leveled and graded to the extent required to prevent obstruction in any degree whatsoever of the flow of water to the spillway or outlet works and so as not to interfere in any way with the operation or maintenance of the structure. Stream diversions shall be maintained until the full flow can be passed through the permanent works. The removal of water from the required excavation and the foundation shall be accomplished in a manner and to the extent that will maintain stability of the excavated slopes and bottom of required excavations and will allow satisfactory performance of all construction operations. During the placing and compacting of material in required excavations, the water level at the locations being refilled shall be maintained below the bottom of the excavation. Such locations may require draining the water to sumps from which the water shall be pumped.

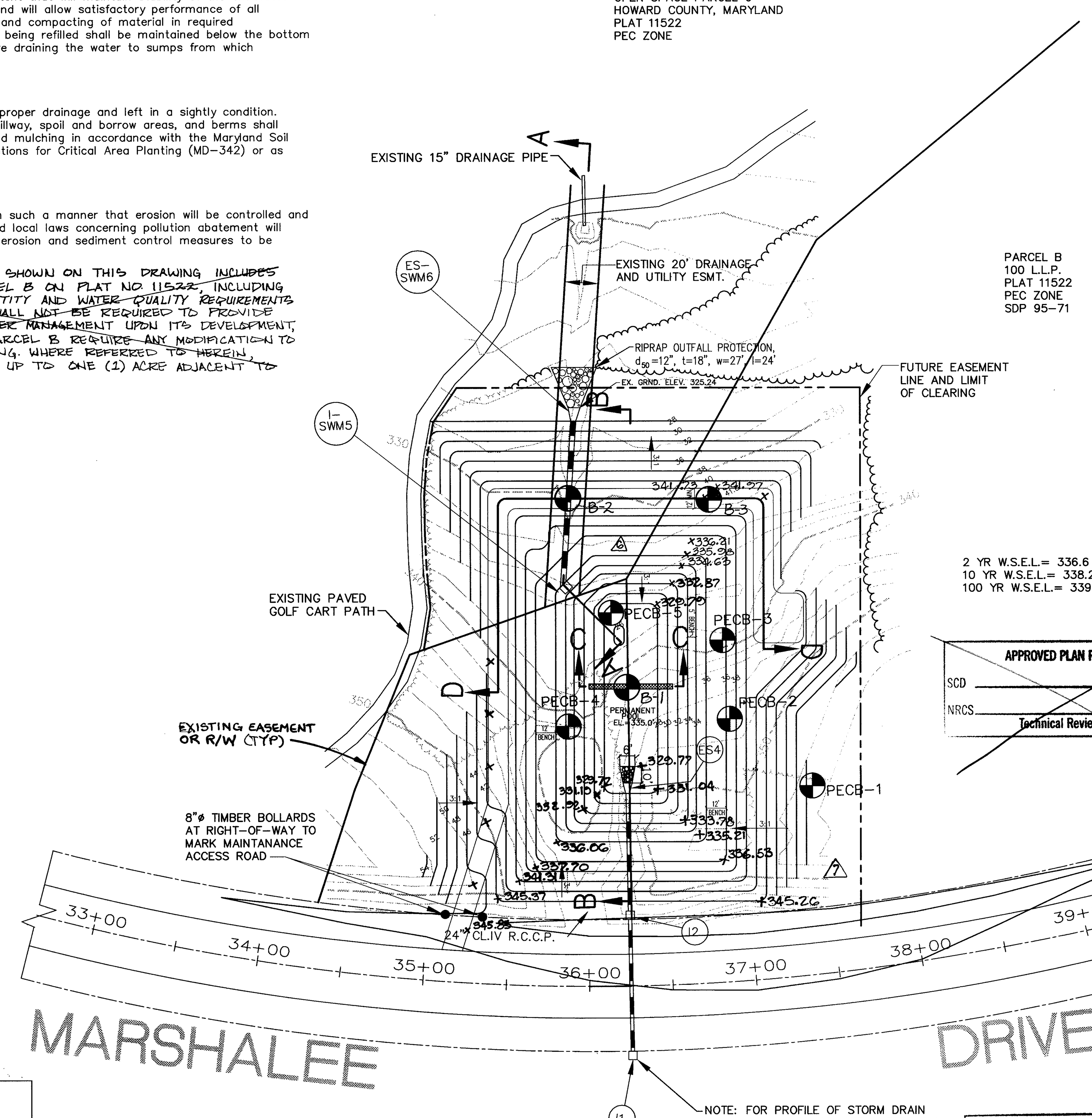
Stabilization

All borrow areas shall be graded to provide proper drainage and left in a sightly condition. All exposed surfaces of the embankment, spillway, spoil and borrow areas, and berms shall be stabilized by seeding, liming, fertilizing and mulching in accordance with the Maryland Soil Conservation Service Standards and Specifications for Critical Area Planting (MD-342) or as shown on the accompanying drawings.

Erosion and Sediment Control

Construction operations will be carried out in such a manner that erosion will be controlled and water and air pollution minimized. State and local laws concerning pollution abatement will be followed. Construction plans shall detail erosion and sediment control measures to be employed during the construction process.

5 THE STORMWATER MANAGEMENT POND SHOWN ON THIS DRAWING INCLUDES STORMWATER MANAGEMENT FOR PARCEL B ON PLAT NO. 11522, INCLUDING SATISFACTION OF THE WATER QUANTITY AND WATER QUALITY REQUIREMENTS FOR SAID PARCEL B. PARCEL B SHALL NOT BE REQUIRED TO PROVIDE FOR ANY FURTHER SUCH STORMWATER MANAGEMENT UPON ITS DEVELOPMENT, NOR SHALL THE DEVELOPMENT OF PARCEL B REQUIRE ANY MODIFICATION TO THE POND SHOWN ON THIS DRAWING. WHERE REFERRED TO HEREIN, PARCEL B INCLUDES THE AREA OF UP TO ONE (1) ACRE ADJACENT TO PARCEL B.



APPROVED PLAN REVISION	
SCD	
NRCS	
Technical Review	Date

Reviewed for HOWARD S.C.D. Name and meets Technical Requirements Date 2/28/96 Signature USDA, NATURAL RESOURCES CONS. SERVICE

STORMWATER MANAGEMENT POND PLAN VIEW

SCALE: 1"=50'

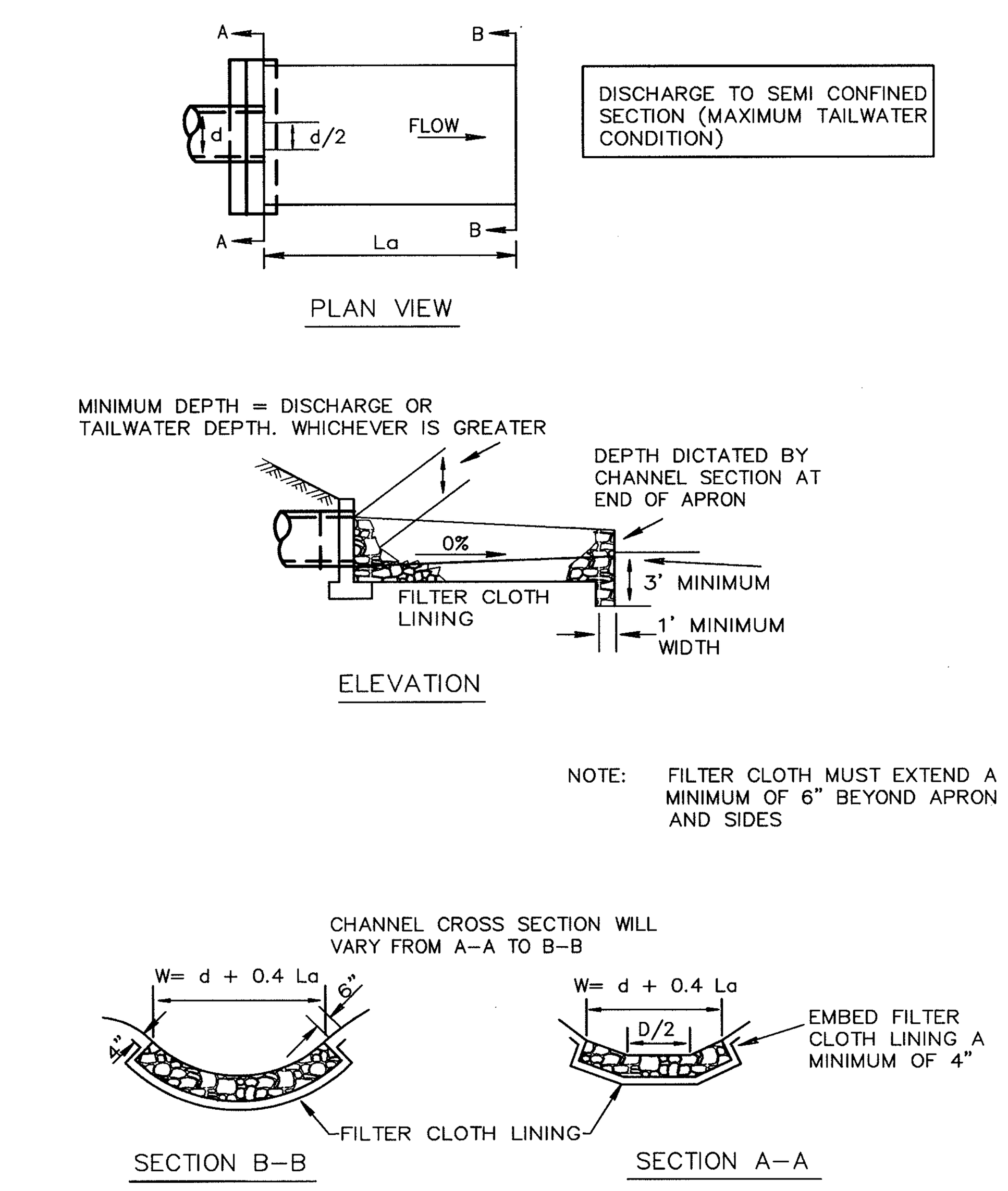
HAZARD CLASS: TYPE "A"
SWM TYPE: RETENTION
WATER QUALITY: RETENTION
POND OWNER: HOWARD COUNTY DPW
MAINTENANCE RESPONSIBILITY: HOWARD COUNTY DPW

POND SUMMARY TABLE

DRAINAGE AREA TO FACILITY = 16.71 ACRES (0.0261 Sq.Mi.)

STORM	2 YEAR	10 YEAR	100 YEAR
ALLOWABLE RELEASE RATE	6.7 cfs	31.2 cfs	68.42 cfs
COMPUTED INFLOW TO FACILITY	43 cfs	76 cfs	112 cfs
DISCHARGE FROM FACILITY	6 cfs	27 cfs	72 cfs
STORAGE ELEVATION	336.6 ft	338.2 ft	339.1 ft
STORAGE VOLUME	1.65 Ac Ft	2.55 Ac Ft	3.15 Ac Ft

DETAIL 25 – ROCK OUTLET PROTECTION I



U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE F - 18 - 8	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

ROCK OUTLET PROTECTION

Construction Specifications

1. The subgrade for the filter, rip-rap, or gabion shall be prepared to the required lines and grades. Any fill required in the subgrade shall be compacted to a density of approximately that of the surrounding undisturbed material.
2. The rock or gravel shall conform to the specified grading limits when installed respectively in the rip-rap or filter.
3. Geotextile shall be protected from punching, cutting, or tearing. Any damage other than an occasional small hole shall be repaired by placing another piece of geotextile over the damaged part or by completely replacing the geotextile. All overlaps whether for repairs or for joining two pieces of geotextile shall be a minimum of one foot.
4. Stone for the rip-rap or gabion outlets may be placed by equipment. They shall be constructed to the full course thickness in one operation and in such a manner as to avoid displacement of underlying materials. The stone for rip-rap or gabion outlets shall be delivered and placed in a manner that will ensure that it is reasonably homogeneous with the smaller stones and spalls filling the voids between the larger stones. Rip-rap shall be placed in a manner to prevent damage to the filter blanket or geotextile. Hand placement will be required to the extent necessary to prevent damage to the permanent works.
5. The stone shall be placed so that it blends in with the existing ground. If the stone is placed too high then the flow will be forced out of the channel and scour adjacent to the stone will occur.

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

Approved [signature] Date 2/28/96
Howard S.C.D.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE F - 18 - 8A	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 12/13/95
CHIEF, BUREAU OF ENGINEERING — DATE 12/13/95
CHIEF, BUREAU OF HIGHWAYS — DATE 12-13-95
CHIEF, DIVISION OF TRANSPORTATION PROJECTS AND WATERSHED MANAGEMENT — DATE 12/13/95

NOLAN ASSOCIATES, INC.
ENGINEERS – CIVIL/STRUCTURAL/INSPECTIONS
4785 DORSEY HALL DRIVE
SUITE 124
ELLICOTT CITY, MARYLAND 21042
PHONE: (410) 995-3651 FAX: (410) 995-1363

STATE OF MARYLAND PROFESSIONAL ENGINEER No. 16559 REGISTERED

DES: J.S.N.
DRN: SMI/RPS
CHK: C.S.N.
DATE: NOV. 1995

BY	NO.	REVISION	DATE
J.S.N.	4	SHEET REISSUED DUE TO SWM POND REVISIONS	12/12/95
J.S.N.	5	ADDED NOTE/DELETED NOTE	1/18/96
SMI	6	ADDED SOIL BORINGS B-1, B-2, B-3	2/26/96
BAC	7	FIELD VERIFIED DATA ADDED	7/00

STORMWATER MANAGEMENT POND
PLAN VIEW,
SPECIFICATIONS &
DETAILS

600' SCALE MAP NO.______ BLOCK NO.______

MARSHALEE DRIVE
CAPITAL PROJECT J-4136
ELECTION DISTRICT NO. 1
ELLICOTT CITY, MARYLAND

SCALE: AS SHOWN

1785

SOIL BORING PECB-1
NOT AVAILABLE

HARFORD DRILLING AND TESTING, INC — Bel Air, Maryland

Project Name: CENTER 9560 · HDT Job No.: 93011.D
Date Started: 1-26-93 · Date Completed: 1-26-93 · Boring No.: PECB-2
Boring Location: · Groundwater at 0 Hrs.: Dry 9.7
Elevation: 349.1 · Total Depth: 15' · Groundwater at 24 Hrs.: Dry 9.3
Drilled By: DALE PRICE · Equipment: ATV
NO WATER ENCOUNTERED

Strata Depth	Sample Depth	No.	Blows/6"	Rec	Description (Color, Moisture, Proportions)
	0-1.5	1	2 8	7/18	Brown, moist, med dense, silt, some sand, trace clay, trace organics (0.0'-1.0') (ML)
2.5'					Orange-brown, moist, medium dense sand, some clayey silt (SM)
5.0'	3.5-5	2	3 7	12/18	Light brown, moist to very moist, very loose to medium dense sand, trace to little silt, and gravel (SM)
	8.5-10	3	2	8/18	
15.0'	13.5-15	4	5 8	13/18	"

BOH 15'

Standard Penetration Test: Driving 2-inch O.D. Sampler with 140-pound hammer freely falling 30 inches.
Addendum No. 1 (November 15, 1995) 4-02

HARFORD DRILLING AND TESTING, INC — Bel Air, Maryland

Project Name: CENTER 9560 · HDT Job No.: 93011.D
Date Started: 2-19-93 · Date Completed: 2-19-93 · Boring No.: PECB-3
Boring Location: · Groundwater at 0 Hrs.: Dry 5.0
Elevation: 341.1 · Total Depth: 15' · Groundwater at 24 Hrs.: Dry 5.3
Drilled By: DALE PRICE · Equipment: ATV
TOPSOIL N/A

Strata Depth	Sample Depth	No.	Blows/6"	Rec	Description (Color, Moisture, Proportions)
	0-1.5	1	2 3 5	9/18	
	3.5-5	2	4 5	14/18	Orange-brown to white, moist to very moist, loose to medium dense sand, little to some gravel, trace to little silt (SM)
	8.5-10	3	8 12 19	15/18	
13.5					
15.0	13.5-15	4	9 10 13	14/18	White, moist, medium dense, fine sand, little clayey silt (SM)

BOH 15'

Standard Penetration Test: Driving 2-inch O.D. Sampler with 140-pound hammer freely falling 30 inches.
Addendum No. 1 (November 15, 1995) 4-03

HARFORD DRILLING AND TESTING, INC — Bel Air, Maryland

Project Name: CENTER 9560 · HDT Job No.: 93011.D
Date Started: 1-26-93 · Date Completed: 1-26-93 · Boring No.: PECB-4
Boring Location: · Groundwater at 0 Hrs.: Dry 9.2
Elevation: 355.3 · Total Depth: 15' · Groundwater at 24 Hrs.: Dry 8.7
Drilled By: DALE PRICE · Equipment: ATV
NO WATER ENCOUNTERED

Strata Depth	Sample Depth	No.	Blows/6"	Rec	Description (Color, Moisture, Proportions)
	0-1.5	1	4 6 8	10/18	Light brown, medium dense sand, little silt, trace to little gravel (SM)
	3.5-5.0	2	5 8 12	12/18	
	8.5-10	3	11 8 6	10/18	
15.0	13.5-15	4	4 9 6	12/18	

BOH 15'

Standard Penetration Test: Driving 2-inch O.D. Sampler with 140-pound hammer freely falling 30 inches.
Addendum No. 1 (November 15, 1995) 4-04

HARFORD DRILLING AND TESTING, INC — Bel Air, Maryland

Project Name: CENTER 9560 · HDT Job No.: 93011.D
Date Started: 2-19-93 · Date Completed: 2-19-93 · Boring No.: PECB-5
Boring Location: · Groundwater at 0 Hrs.: Dry 10.4
Elevation: 335.6 · Total Depth: 15' · Groundwater at 24 Hrs.: 10.6 TOB?
Drilled By: DALE PRICE · Equipment: ATV
WATER ON RODS @ 12' · 3" TOPSOIL

Strata Depth	Sample Depth	No.	Blows/6"	Rec	Description (Color, Moisture, Proportions)
	0-1.5	1	1 2 2	8/18	Brown, very moist, soft, clayey silt, little sand (ML)
2.5					Light brown, moist, med dense, sand, little gravel, trace silt (SM)
	3.5-5	2	5 6 7	12/18	
7.0					White, moist, dense, silt and fine sand (ML)
	8.5-10	3	10 19 23	15/18	
12.0					Light brown, wet, dense, sand, some clayey silt (SM)
15.0	13.5-15	4	11 17 19	14/18	

BOH 15'

Standard Penetration Test: Driving 2-inch O.D. Sampler with 140-pound hammer freely falling 30 inches.
Addendum No. 1 (November 15, 1995) 4-05

HILLIS – CARNES ENGINEERING ASSOCIATES, INC. — RECORD OF SOIL EXPLORATION (Page 1 of 1)

Project Name: MARSHALEE DRIVE · Location: · Boring #: B-1 · Job #: 95127M
Datum: · Surf. Elev.: · Date Started: 2-5-96
SAMPLER — Hammer Wt.: 140 Lbs. · Hammer Drop: 30 Inches · Pipe Size: 2 Inches OD
Hole Diameter: 6" · Rock Core Dia.: X · Boring Method: HSA
Foreman: WILBUR MASSEY · Inspector: · Date Completed: 2-5-96

ELEV.	SOIL DESCRIPTION (Color, Moisture, Density, Size, Proportion)	STRA. DEPTH	DEPTH SCALE	CON	BLOWS 6"	NO.	REC.
	SURFACE		0.0				
	BR, DRY, LOOSE, SILTY SAND	1.0'		D	2-3-3	1	18"
	Brown, DRY, MED. Dense, med. SAND w/ of SILT, Some GRAVEL	9.0'	5	D	8-10-14	2	14"
	Tan & BR, DRY, Dense, SILT and Very FINE SAND	12.0'	10	D	9-15-17	3	15"
	BR, DRY to WET, Med. Dense to Dense, Med. SAND	20.0'	15	D	6-10-15	4	14"
			20	D	10-15-20	5	16"
	BOTTOM OF TEST HOLE = 20.0'						

BORING & SAMPLING NOTES: X Asphalt OR 4" Topsoil · Groundwater encountered at 18.0' Feet while drilling · ___ No groundwater encountered while drilling · Bag samples: From To 4.0-9.0 — #1; 9.0-12.0 — #2; 12.0-20' — #3 · Caved? = 5.5' · NO Backfilled at Completion · ✓ Backfilled after 24 Hours

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED. PT-PRESSED SHELBY TUBE; CA-CONTINUOUS FLIGHT AUGER; RC-ROCK CORE
SAMPLE CONDITIONS: D-DISINTEGRATED; I-INTACT; U-UNDISTURBED; L-LOST
GROUND WATER DEPTH: AT COMPLETION DRY FT.; AFTER 24 hrs. DRY FT.; AFTER Caved @ 5.5' FT.
BORING METHOD: HSA-HOLLOW STEM AUGERS; CFA-CONT. FLIGHT AUGERS; DC-DRIVING CASING; MD-MUD DRILLING
STANDARD PENETRATION TEST-DRIVING 2" OD SAMPLER 1" WITH 140# HAMMER FALLING 30":COUNT MADE AT 6" INTERVALS

HILLIS – CARNES ENGINEERING ASSOCIATES, INC. — RECORD OF SOIL EXPLORATION (Page 1 of 1)

Project Name: MARSHALEE DRIVE · Location: · Boring #: B-2 · Job #: 95127M
Datum: · Surf. Elev.: · Date Started: 2-6-96
SAMPLER — Hammer Wt.: 140 Lbs. · Hammer Drop: 30 Inches · Pipe Size: 2 Inches OD
Hole Diameter: 6" · Rock Core Dia.: X · Boring Method: HSA
Foreman: WILBUR MASSEY · Inspector: · Date Completed: 2-6-96

ELEV.	SOIL DESCRIPTION (Color, Moisture, Density, Size, Proportion)	STRA. DEPTH	DEPTH SCALE	CON	BLOWS 6"	NO.	REC.
	SURFACE	0.0	0.0				
	BR, MOIST, LOOSE, Clayey SAND w/t of GRAVEL	6.0'		D	3-2-5	1	14"
	BROWN, WET, LOOSE, Med. to COARSE SAND	9.5	5	D	1-3-3	2	14"
	BR, TAN, GRAY, DRY, Very STIFF SILT w/t of FINE SAND	16.0	10	Z	5-5-6	3	16"
	GREEN & GRAY, DRY, Very STIFF SILT w/ Some Small Rock FRAGMENTS	20.0	15	I	3-7-9	4	18"
			20	I	7-13-15	5	18"
	BOTTOM OF TEST HOLE = 20.0'						

BORING & SAMPLING NOTES: Asphalt OR 4" Topsoil · Groundwater encountered at ___ Feet while drilling · ✓ No groundwater encountered while drilling · Bag samples: From To 1.0-6.0' #1; 16.0-18.5 #2 · Caved? = 7.0' · offset 15' towards B-3 because of Ditch · NO Backfilled at Completion · ___ Backfilled after ___ Hours

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED. PT-PRESSED SHELBY TUBE; CA-CONTINUOUS FLIGHT AUGER; RC-ROCK CORE
SAMPLE CONDITIONS: D-DISINTEGRATED; I-INTACT; U-UNDISTURBED; L-LOST
GROUND WATER DEPTH: AT COMPLETION DRY FT.; AFTER 7.0' @ 24 Hours FT.; AFTER ___ FT.
BORING METHOD: HSA-HOLLOW STEM AUGERS; CFA-CONT. FLIGHT AUGERS; DC-DRIVING CASING; MD-MUD DRILLING
STANDARD PENETRATION TEST-DRIVING 2" OD SAMPLER 1" WITH 140# HAMMER FALLING 30":COUNT MADE AT 6" INTERVALS

HILLIS – CARNES ENGINEERING ASSOCIATES, INC. — RECORD OF SOIL EXPLORATION (Page 1 of 1)

Project Name: MARSHALEE DRIVE · Location: · Boring #: B-3 · Job #: 95127M
Datum: · Surf. Elev.: · Date Started: 2-5-96
SAMPLER — Hammer Wt.: 140 Lbs. · Hammer Drop: 30 Inches · Pipe Size: 2 Inches OD
Hole Diameter: 6" · Rock Core Dia.: X · Boring Method: HSA
Foreman: WILBUR MASSEY · Inspector: · Date Completed: 2-5-96

ELEV.	SOIL DESCRIPTION (Color, Moisture, Density, Size, Proportion)	STRA. DEPTH	DEPTH SCALE	CON	BLOWS 6"	NO.	REC.
	SURFACE		0.0				
	BR, DRY, LOOSE, SILTY SAND w/s GRAVEL	2.0'		D	2-2-2	1	14"
	BROWN, DRY to WET, med. Dense, Med. SAND w/ Some GRAVEL	18.0'	5	D	6-7-9	2	10"
				D	7-12-8	3	13"
			10	D	6-8-8	4	12"
	TAN & BR, MOIST, STIFF, FINE Sandy SILT	20.0'	15	I	2-4-10	5	14"
	BOTTOM OF TEST HOLE = 20.0'		20				

Stamp: Reviewed for HOWARD S.C.D. and meets Technical Requirements. Date 2/28/96. USDA, NATURAL RESOURCES CONS. SERVICE

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT. Approved: Date 2/28/96 Howard S.C.D.

BORING & SAMPLING NOTES: X Asphalt OR 4" Topsoil · Groundwater encountered at 8.0' Feet while drilling · ___ No groundwater encountered while drilling · Bag samples: N/A · Caved? = 6.0' · ___ Backfilled at Completion · ✓ Backfilled after 24 Hours

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED. PT-PRESSED SHELBY TUBE; CA-CONTINUOUS FLIGHT AUGER; RC-ROCK CORE
SAMPLE CONDITIONS: D-DISINTEGRATED; I-INTACT; U-UNDISTURBED; L-LOST
GROUND WATER DEPTH: AT COMPLETION DRY FT.; AFTER 24 hrs. DRY FT.; AFTER Caved = 6.0' FT.
BORING METHOD: HSA-HOLLOW STEM AUGERS; CFA-CONT. FLIGHT AUGERS; DC-DRIVING CASING; MD-MUD DRILLING
STANDARD PENETRATION TEST-DRIVING 2" OD SAMPLER 1" WITH 140# HAMMER FALLING 30":COUNT MADE AT 6" INTERVALS

1785

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 2/20/96
CHIEF, BUREAU OF ENGINEERING — DATE 2/28/96
CHIEF, BUREAU OF HIGHWAYS — DATE 2-27-96
CHIEF, DIVISION OF TRANSPORTATION PROJECTS AND WATERSHED MANAGEMENT — DATE 2/27/96

NOLAN ASSOCIATES, INC.
ENGINEERS – CIVIL/STRUCTURAL/INSPECTIONS
4785 DORSEY HALL DRIVE
SUITE 124
ELLICOTT CITY, MARYLAND 21042
PHONE: (410) 995-3651 FAX: (410) 995-1363

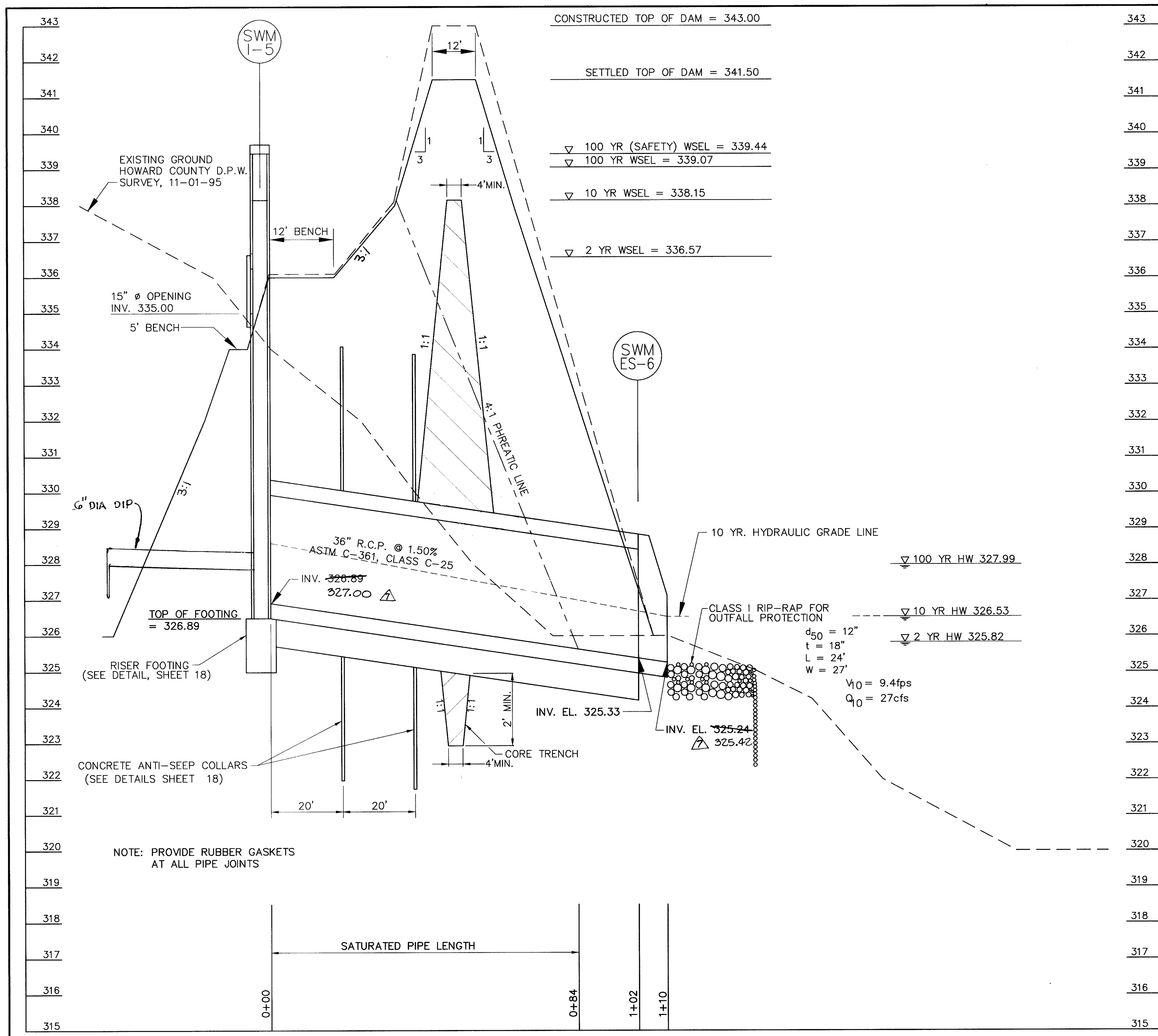
DES: J.S.N. · DRN: SMI · CHK: C.S.N. · DATE: NOV. 1995

BY	NO.	REVISION	DATE
J.S.N.	△	SHEET REISSUED DUE TO SWM POND REVISIONS	12/12/95
S.M.I.	△	ADDED SHEET FOR SOIL BORING LOGS	2/26/96

STORMWATER MANAGEMENT POND
SOIL BORING LOGS
600' SCALE MAP NO. ___ BLOCK NO. ___

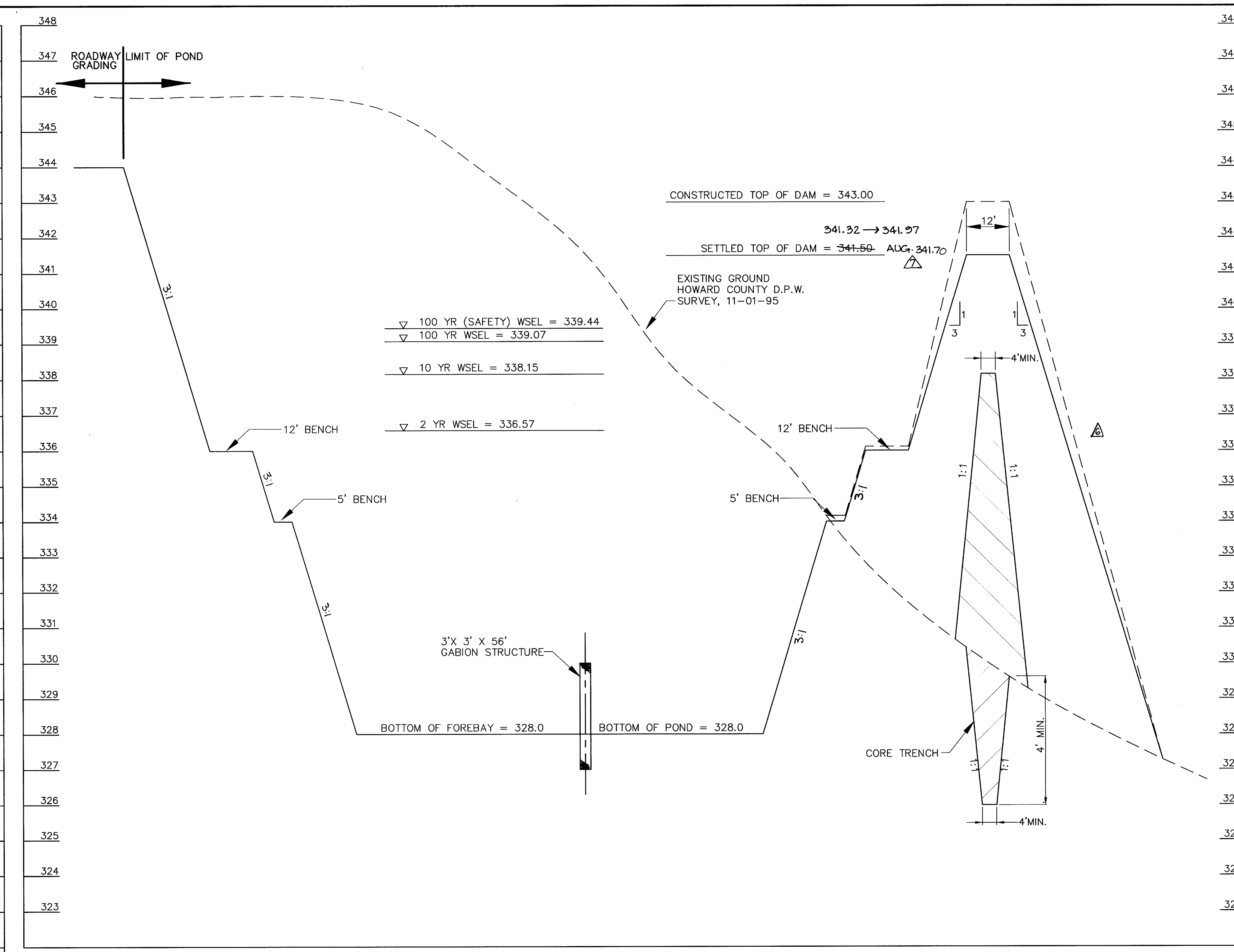
MARSHALEE DRIVE
CAPITAL PROJECT J-4136
ELECTION DISTRICT NO. 1
ELLICOTT CITY, MARYLAND

SCALE: AS SHOWN
SHEET 16A OF 19



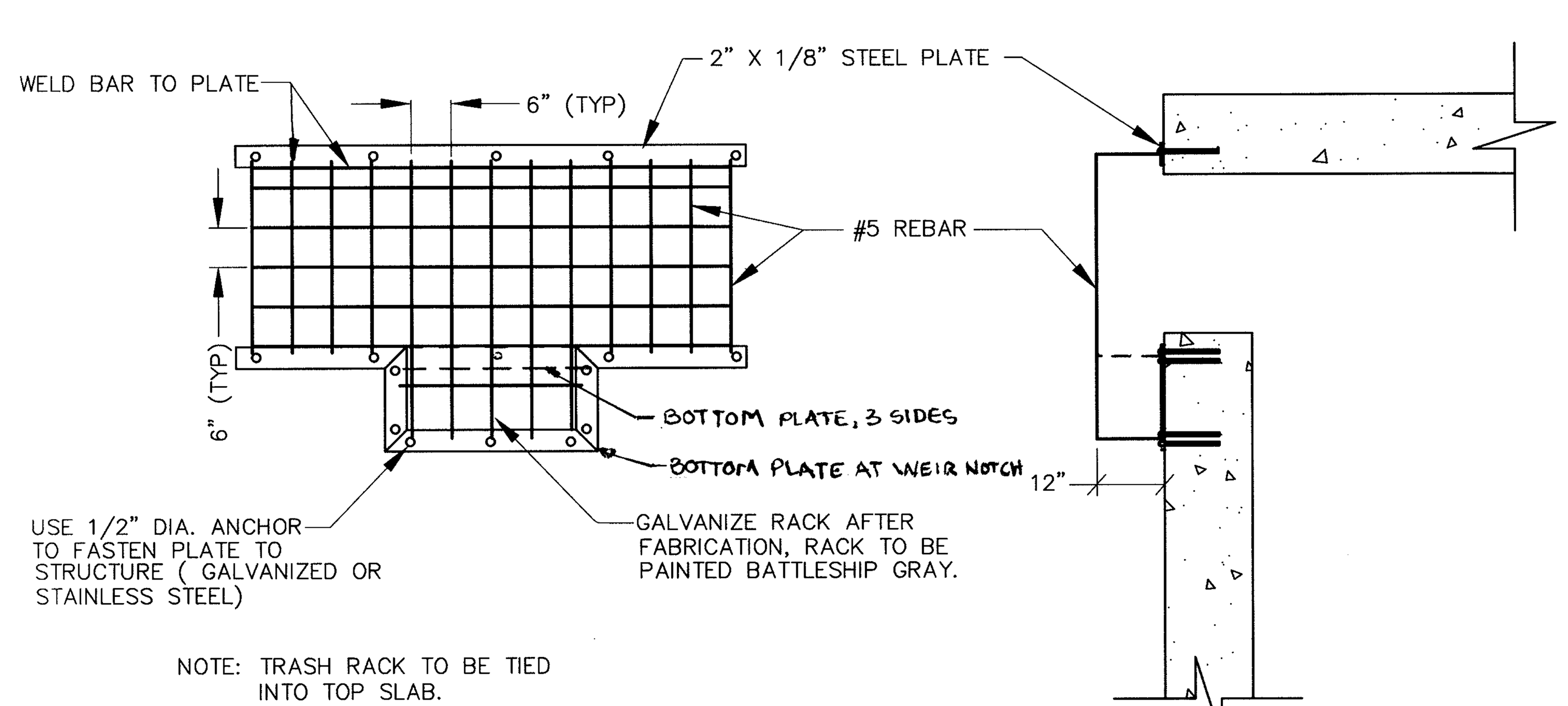
PROFILE ALONG ℄ OF PRINCIPLE SPILLWAY A–A

SCALE: HORIZ. 1"=20'
VERT. 1"=2'



PROFILE ALONG ℄ OF POND B–B

SCALE: HORIZ. 1"=20'
VERT. 1"=2'



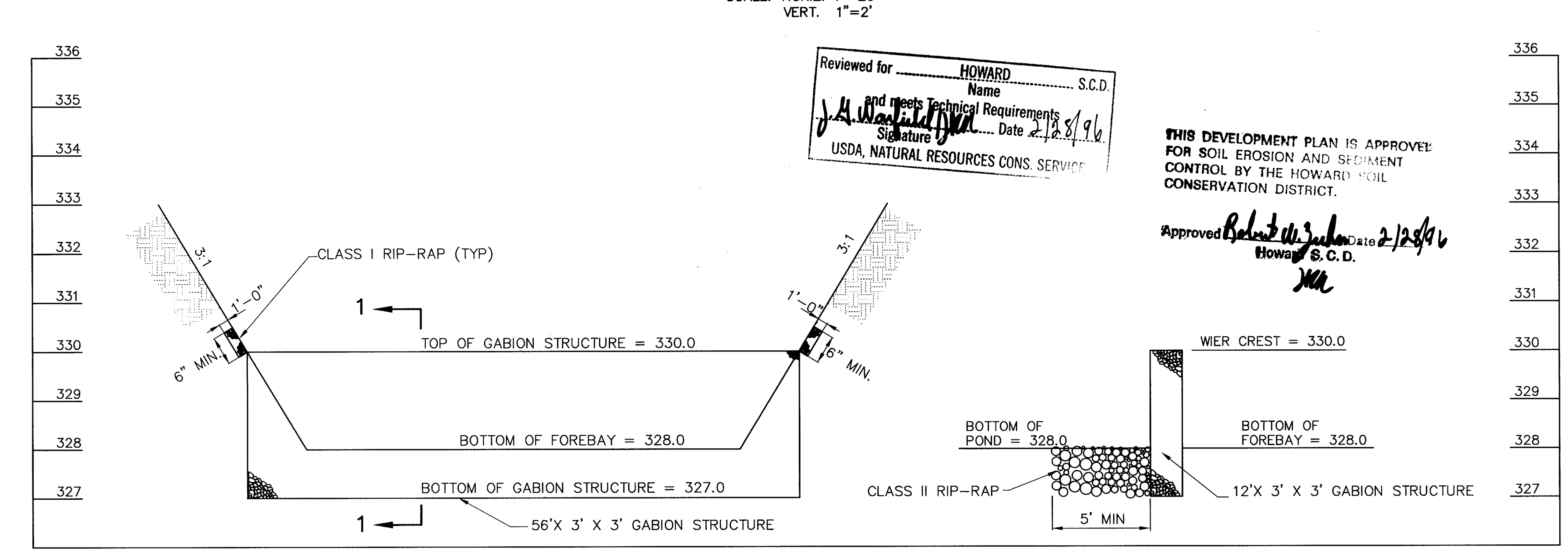
TRASH RACK DETAILS

(N.T.S.)

Reviewed for HOWARD S.C.D.
and meets Technical Requirements
Signature Date 2/28/96
USDA, NATURAL RESOURCES CONS. SERVICE

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

Approved Date 2/28/96
Howard S.C.D.



WATER QUALITY FOREBAY PROFILE C–C

SCALE: HORIZ. 1"=10'
VERT. 1"=2'

SECTION 1–1

SCALE: HORIZ. 1"=10'
VERT. 1"=2'

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 12/13/95
CHIEF, BUREAU OF ENGINEERING — DATE 12/13/95
CHIEF, BUREAU OF HIGHWAYS — DATE 12-13-95
CHIEF, DIVISION OF TRANSPORTATION PROJECTS AND WATERSHED MANAGEMENT — DATE 12/13/95

NOLAN ASSOCIATES, INC.
ENGINEERS – CIVIL/STRUCTURAL/INSPECTIONS
4785 DORSEY HALL DRIVE
SUITE 124
ELLICOTT CITY, MARYLAND 21042
PHONE: (410) 995-3651 FAX: (410) 995-1363

STATE OF MARYLAND — JOHN STANLEY NOLAN — REGISTERED PROFESSIONAL ENGINEER

DES: J.S.N.
DRN: SMI/RPS
CHK: C.S.N.
DATE: NOV. 1995

BY	NO.	REVISION	DATE
BAC	3	FIELD VERIFIED DATA ADDED	7/00
SMI	2	ADDED SLOPE LABELS	
J.S.N.	1	SHEET REISSUED DUE TO SWM POND REVISIONS	12/12/95

STORMWATER MANAGEMENT POND
PROFILES & DETAILS

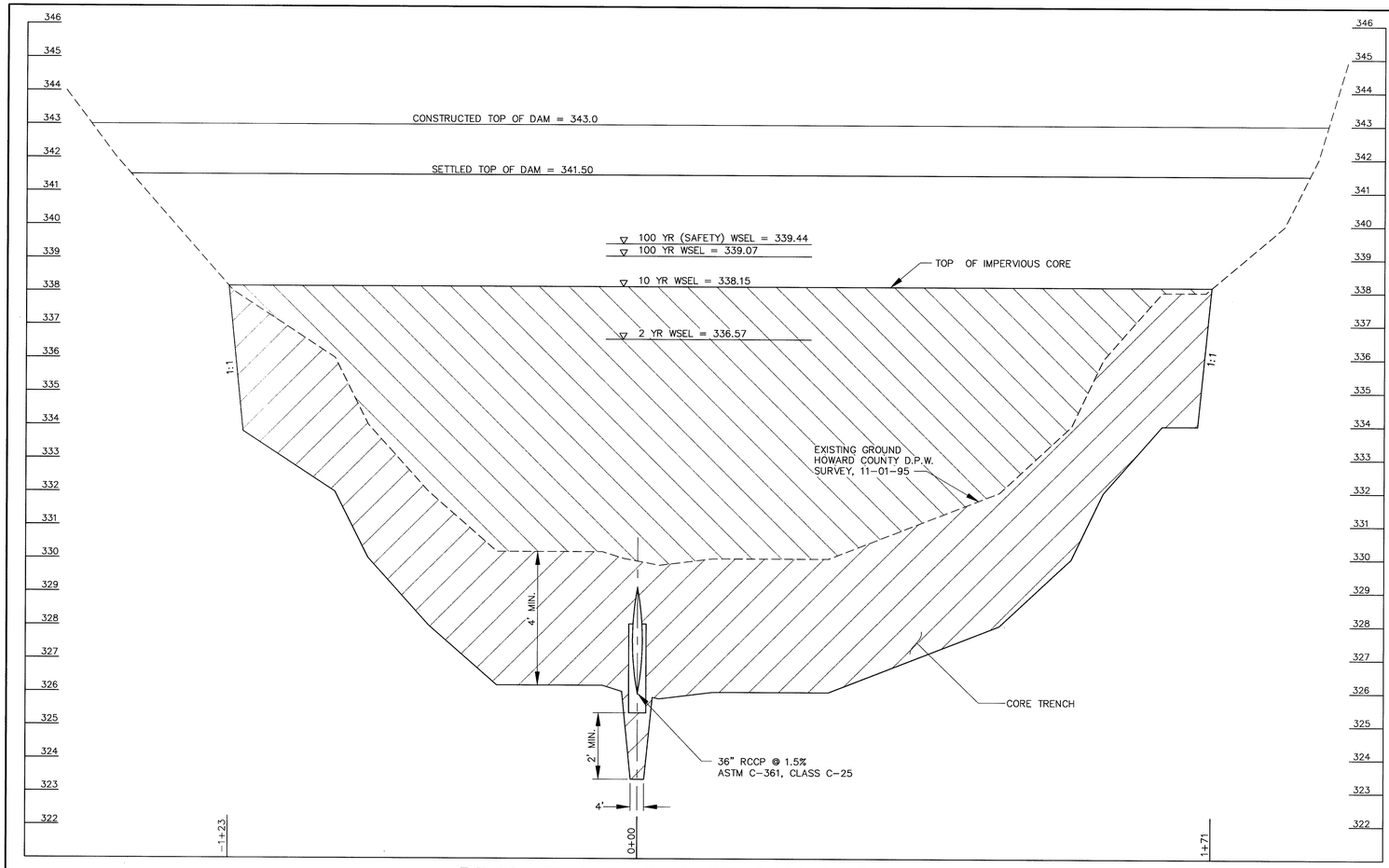
600' SCALE MAP NO.________ BLOCK NO.________

MARSHALEE DRIVE
CAPITAL PROJECT J-4136
ELECTION DISTRICT NO. 1
ELLICOTT CITY, MARYLAND

SCALE AS SHOWN

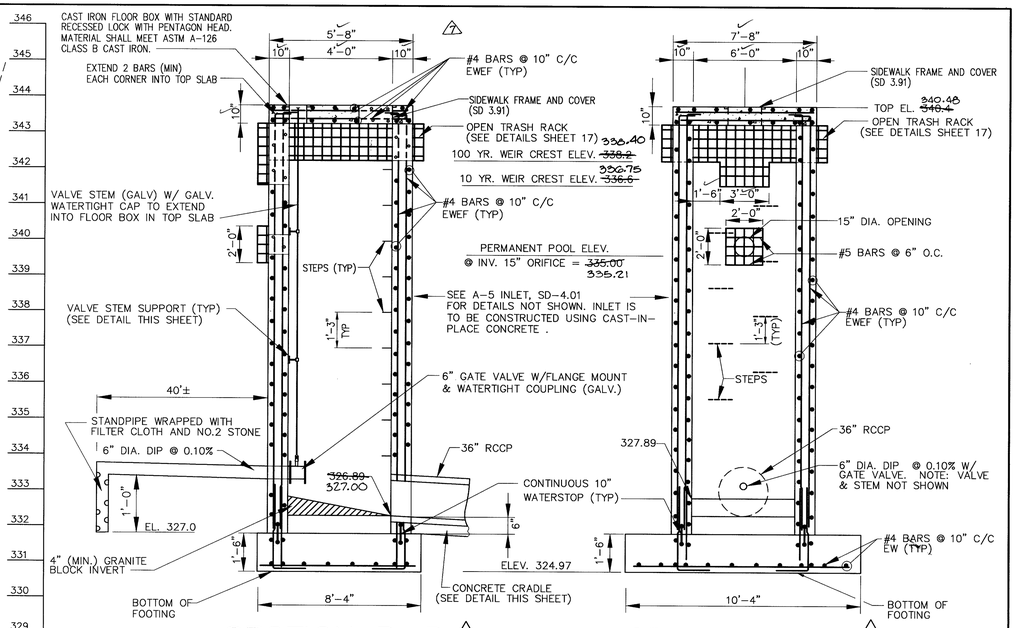
SHEET 17 OF 19

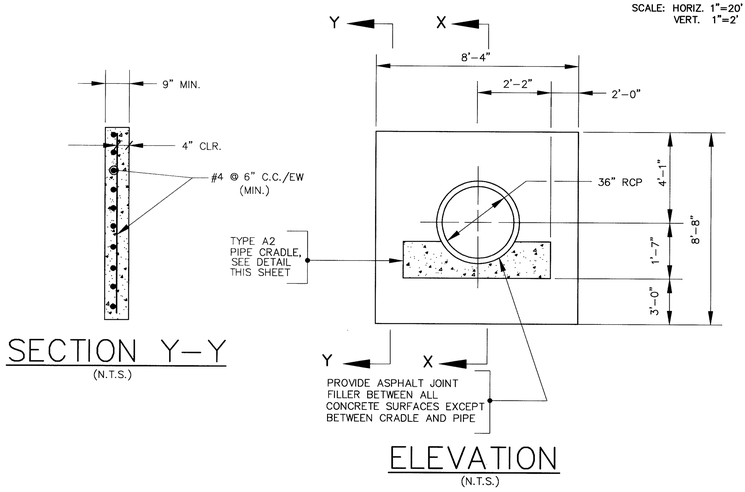
1785

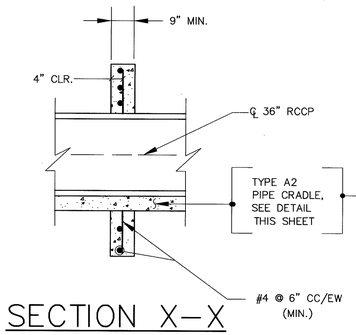


PROFILE ALONG ℄ OF DAM D-D

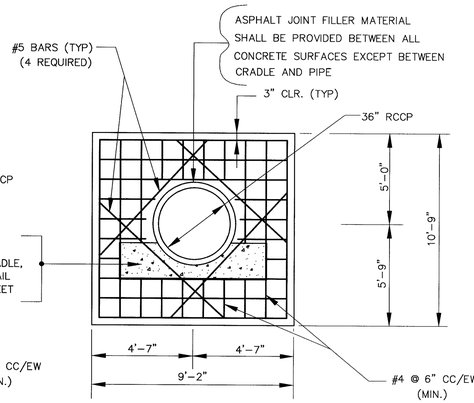
SCALE: HORIZ. 1"=20'
VERT. 1"=2'

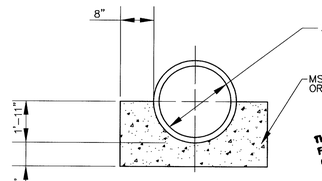






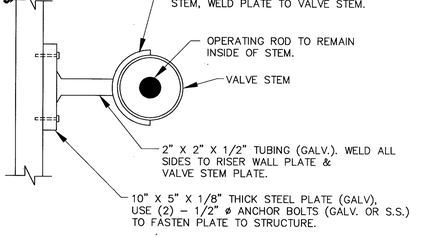
NOTE: COLLARS SHALL BE PLACED A MINIMUM OF 2'-0" FROM PIPE JOINTS.





THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
Approved ... Date 2/29/96
Howard S.C.D.

Reviewed for HOWARD S.C.D. Name and meets Technical Requirements ... Date 2/29/96 Signature
USDA, NATURAL RESOURCES CONS. SERVICE



NOTES

1. CONCRETE SHALL CONFORM TO MARYLAND D.O.T. S.H.A. STANDARD SPEC'S FOR CONSTRUCTION AND MATERIALS, MIX NO.6, EXCEPT THAT TY.III CEMENT AND A.S.T.M. C33 NO.8 COARSE AGG. SHALL BE USED.
2. ALL PIPES CONNECTING TO RISER SHALL HAVE WATERTIGHT CONNECTIONS.
3. RISER SHALL BE CONSTRUCTED USING CAST-IN-PLACE CONCRETE.
4. ALL REINFORCING STEEL TO HAVE A MIN. OF 2" OF COVER UNLESS NOTED OTHERWISE.

TYPICAL DETAILS AT ANTI-SEEP COLLARS

(N.T.S.)

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 12/18/95
CHIEF, BUREAU OF ENGINEERING — DATE 12/18/95
CHIEF, BUREAU OF HIGHWAYS — DATE 1-16-96
CHIEF, DIVISION OF TRANSPORTATION PROJECTS AND WATERSHED MANAGEMENT — DATE 12/18/95

NOLAN ASSOCIATES, INC.
ENGINEERS - CIVIL/STRUCTURAL/INSPECTIONS
4785 DORSEY HALL DRIVE
SUITE 124
ELLICOTT CITY, MARYLAND 21042
PHONE: (410) 995-3651 FAX: (410) 995-1363

STATE OF MARYLAND — JOSEPH STANLEY NOLAN — No. 18559 — REGISTERED PROFESSIONAL ENGINEER

DES: J.S.N.
DRN: SMI/RPS
CHK: C.S.N.
DATE: NOV. 1995

BY	NO.	REVISION	DATE
PAC	7	FIELD VERIFIED DATA ADDED	7/00
J.S.N.	6	REVISIONS TO RISER STRUCTURE	12/18/95
J.S.N.	5	SHEET REISSUED DUE TO SWM POND REVISIONS	12/12/95

STORMWATER MANAGEMENT POND
PROFILES

600' SCALE MAP NO. _____ BLOCK NO. _____

MARSHALEE DRIVE
CAPITAL PROJECT J-4136
ELECTION DISTRICT NO. 1
ELLICOTT CITY, MARYLAND

SCALE AS SHOWN

SHEET 18 OF 19

1785

G:\USERS\CNDA\PROJECTS\ATEMPT8

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 per acre dolomitic limestone (92 lbs/1000 sq. ft.) and 600 lbs per acre 10-10-10 fertilizer (14 lbs/1000 sq. ft.) before seeding. Harrow or disk into upper three inches of soil. At time of seeding, apply 400 lbs per acre 30-0-0 ureaform fertilizer (9 lbs/1000 sq. ft.)

2. Acceptable--Apply 2 tons per acre dolomitic limestone (92 lbs/1000 sq. ft.) and 1000 lbs. per acre 10-10-10 fertilizer (23 lbs/1000 sq. ft.) before seeding. Harrow or disk into upper three inches of soil.

Seeding--For the periods March 1 thru April 30, and August 1 thru October 15, seed with 60 lbs per acre (1.4 lbs/1000 sq. ft.) of Kentucky 31 Tall Fescue. For the period May 1 thru July 31, seed with 60 lbs Kentucky 31 Tall Fescue per acre and 2 lbs per acre (.05 lbs/1000 sq. ft.) of weeping lovegrass. During the period of October 16 thru February 28, protect site by: Option (1) - 2 tons per acre of will anchored straw mulch and seed as soon as possible in the spring. Option (2) - Use sod. Option (3) - Seed with 60 lbs/acre Kentucky 31 Tall Fescue and mulch with 2 tons/acre well anchored straw.

Mulching--Apply 1-1/2 to 2 tons per acre (70 to 90 lbs/1000 sq. ft.) of unrotted small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gallons per acre (5 gal/1000 sq. ft.) of emulsified asphalt on flat areas. On slopes 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 redisturbed 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 per acre 10-10-10 fertilizer (14 lbs/1000 sq. ft.).

Seeding--For periods March 1 thru April 30 and from August 15 thru October 15, seed with 2-1/2 bushel per acre of annual rye (3.2 lbs/1000 sq. ft.). For the period May 1 thru August 14, seed with 3 lbs per acre of weeping lovegrass (.07 lbs/1000 sq. ft.). For the period November 16 thru February 28, protect site by applying 2 tons per acre of well anchored straw mulch and seed as soon as possible in the spring, or use sod.

Mulching--Apply 1-1/2 to 2 tons per acre (70 to 90 lbs/1000 sq. ft.) of unrotted weed free small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gal per acre (5 gal/1000 sq. ft.) of emulsified asphalt on flat areas. On slopes 8 ft. or higher, use 348 gal per acre (8 gal/1000 sq. ft.) for anchoring.

Refer to the 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for additional rates and methods not covered.

STANDARD SEDIMENT CONTROL NOTES

1. A minimum of 48 hours notice must be given to the Howard County Department of Inspections, Licenses and Permits, Sediment Control Division prior to the start of any construction, (313-1850).

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 most current "MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL", and revisions thereto.

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 slopes greater 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 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for permanent seeding (Sec.51), sod (Sec. 54), temporary seeding (Sec. 50) and mulching (Sec. 52). Temporary stabilization with mulch alone can only be done when recommended seeding dates do not allow for proper germination and establishment of grasses.

6. All sediment control structures are to remain in place and are to be maintained in operative condition until permission for their removal has been obtained from the Howard County Sediment Control Inspector.

7. Site Analysis

Total Area of Site	1.6 Acres
Area Disturbed	1.5 Acres
Area to be roofed of paved	0.0 Acres
Area to be vegetatively stabilized	1.5 Acres
Total Cut	13,000 Cu. Yds.
Total Fill	2,000 Cu. Yds.

Offsite Waste/Borrow Area Location To Be Determined By Contractor

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 control must be provided, if deemed necessary by the Howard County Sediment Control Inspector.

10. On all sites with disturbed areas in excess of 2 acres, approval of the inspection agency shall be requested upon completion of installation of perimeter erosion and sediment controls, but before proceeding with any other earth disturbance or grading. Other building or grading inspection approvals may not be authorized until this initial approval by the inspection agency is made.

11. Trenches for the construction of utilities is limited to three pipe lengths or that which can be backfilled and stabilized within one working day, whichever is shorter.

NOTE: THIS PLAN FOR SEDIMENT AND EROSION CONTROL USE ONLY.

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

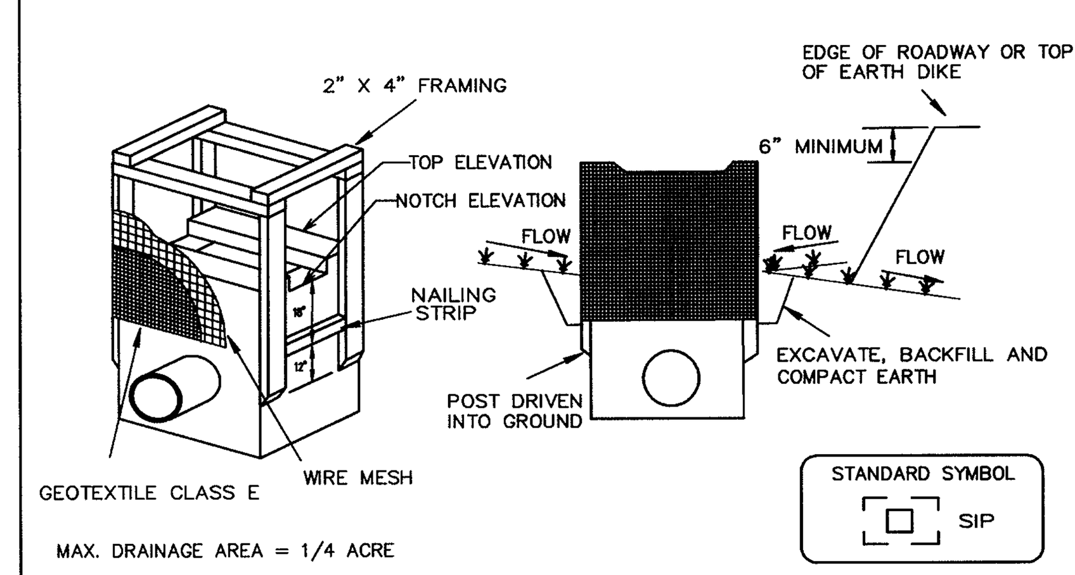
Note: In areas of less than 2% slope and sandy soils (USDA general classification system, soil Class A) maximum slope length and silt fence length will be unlimited. In these areas a silt fence may be the only perimeter control required.

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

SEQUENCE OF CONSTRUCTION

1. Obtain grading permit for the project. (2 Days)
2. Inspect sediment controls installed under SDP 95-77 and correct any deficiencies found to the satisfaction of the sediment control inspector. (2 Days)
3. Construct and stabilize ditches and place roadway paving. (2 Months) ⚠4
4. Install sediment controls as shown for pond construction. (2 Days)
5. Construct stormwater management pond. (1 Month)
6. After stormwater management pond is stabilized and permission is granted by the sediment control inspector, remove sediment controls placed for the stormwater management pond and stabilize any remaining disturbed areas. (2 Days)
7. After permission is granted by the sediment control inspector, remove sediment controls placed for the roadway platform grading under SDP 95-77. (2 Days)

DETAIL 23A - STANDARD INLET PROTECTION



MAX. DRAINAGE AREA = 1/4 ACRE

Construction Specifications

1. Excavate completely around the inlet to a depth of 18" below the notch elevation.

2. Drive the 2" x 4" construction grade lumber posts 1' into the ground at each corner of the inlet. Place nail strips between the posts on the ends of the inlet. Assemble the top portion of the 2" x 4" frame using the overlap joint shown on Detail 23A. The top of the frame (weir) must be 6" below adjacent roadways where flooding and safety issues may arise.

3. Stretch the 1/2" x 1/2" wire mesh tightly around the frame and fasten securely. The ends must meet and overlap at a post.

4. Stretch the Geotextile Class E tightly over the wire mesh with the geotixtile extending from the top of the frame to 18" below the inlet notch elevation. Fasten the geotextile firmly to the frame. The ends of the geotextile must meet at a post, be overlapped and folded, then fastened down.

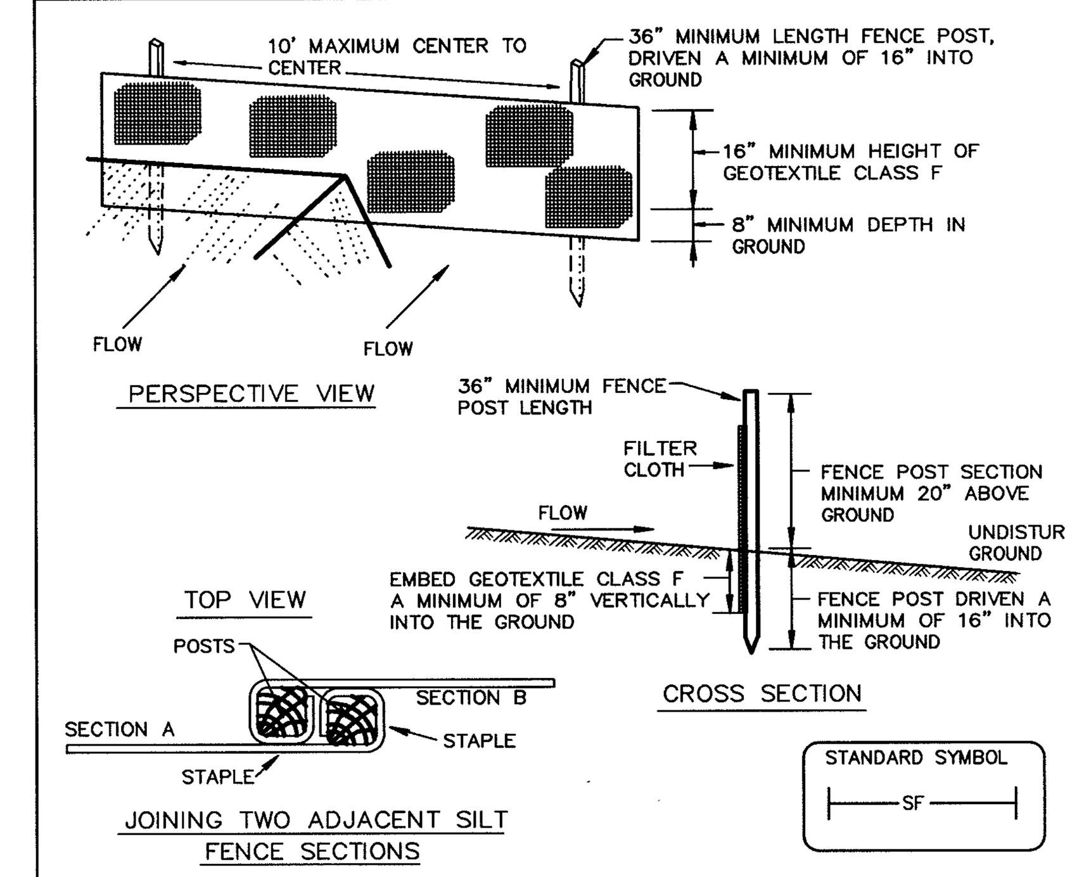
5. Backfill around the inlet in compacted 6" layers until the layer of earth is level with the notch elevation on the ends and top elevation on the sides.

6. If the inlet is not in a sump, construct a compacted earth dike across the ditch line directly below it. The top of the earth dike should be at least 6" higher than the top of the frame.

7. The structure must be inspected periodically and after each rain and the geotextile replaced when it becomes clogged.

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

DETAIL 22 - SILT FENCE



Construction Specifications

1. Fence posts shall be a minimum of 36" long driven 16" minimum into the ground. Wood posts shall be 11/2" x 11/2" square (minimum) cut, or 13/4" diameter (minimum) round and shall be of sound quality hardwood. Steel posts will be standard T or U section weighting not less than 1.00 pond per linear foot.

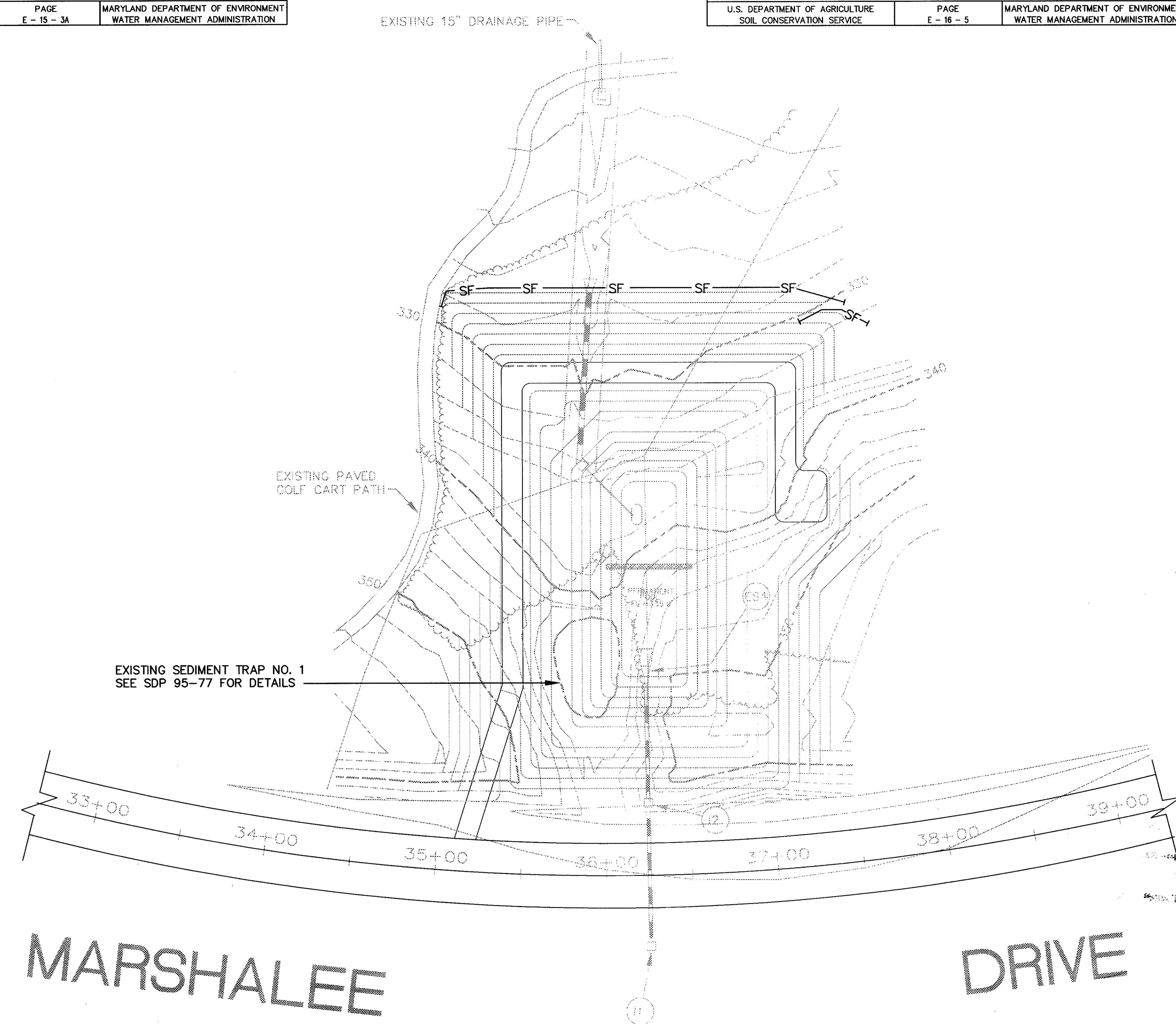
2. Geotextile shall be fastened securely to each fence post with wire ties or staples at top and mid-section and shall meet the following requirements for Geotextile Class F:

Tensile Strength	50 lbs/in (min.)	Test: MSMT 509
Tensile Modulus	20 lbs/in (min.)	Test: MSMT 509
Flow Rate	0.3 gal ft ²/ minute (max.)	Test: MSMT 322
Filtering Efficiency	75% (min.)	Test: MSMT 322

3. Where ends of geotextile fabric come together, they shall be overlapped, folded and stapled to prevent sediment bypass.

4. Silt Fence shall be inspected after each rainfall event and maintained when bulges occur or when sediment accumulation reached 50% of the fabric height.

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



STORMWATER MANAGEMENT POND
PLAN VIEW
SCALE: 1"=50'

By the Owner/Developer:

"I/We certify that all development and/or construction will be done according to these plans, 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 shall engage a registered professional engineer to supervise pond construction and provide the Howard Soil Conservation District with an "as-built" plan of the pond within 30 days of completion. I also authorize periodic on-site inspections by the Howard Soil Conservation District."

[signature] 12/13/95
Signature of Owner/Developer — Date
Print name below signature

By the Engineer:

"I certify that this plan for pond construction, erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions. This plan was prepared in accordance with the requirements of the Howard Soil Conservation District. I have notified the developer that he/she must engage a registered professional engineer to supervise pond construction and provide the Howard Soil Conservation District with an "as-built" plan of the pond within 30 days of completion."

[signature] John S. Nolan 12/13/95
Signature of Engineer — Date
Print name below signature

These plans have been reviewed for the Howard Soil Conservation District and meet the technical requirements for small pond construction, soil erosion and sediment constrol.

[signature] 2/28/96
Natural Resources Conservation Service — Date

These plans for small pond construction, soil erosion and sediment control meet the requirements of the Howard Soil Conservation District

[signature] 2/28/96
Howard S.C.D. — Date

AS-BUILT CERTIFICATION

I hereby certify that the facility shown on this plan was constructed as shwon on the "as-built" plans and meets the approved plans and specifications.

Signature — Date — PE No.

Certify means to state or declare a professional opinion based upon onsite inspections and material tests which are conducted during construction. The onsite inspections and material tests are those inspections and tests deemed sufficient and appropriate by commonly accepted engineering standards. Certify does not mean or imply a guarantee by the engineer nor does an engineer's certification releive any other party from meeting requirements imposed by contract, employment, or other means, including meeting commonly accepted industry practices.

OPERATION, MAINTENANCE AND INSPECTION

Inspection of the pond(s) shown hereon shall be performed at least annually, in accordance with the checklist and requirements contained within USDA, SCS "Standards and Specifications For Ponds" (MD-378). The pond owner(s) and any heirs, successors, or assigns shall be responsible for the safety of the pond and the continued operation, surveillance, inspection, and maintenance thereof. The pond owner(s) shall promptly notify the Soil Conservation District of any unusual observations that may be indications of distress such as excessive seepage, turbid seepage, sliding or slumping.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

[signature] 12/13/95 — DIRECTOR OF PUBLIC WORKS — DATE
[signature] 12/13/95 — CHIEF, BUREAU OF ENGINEERING — DATE
[signature] 12-13-95 — CHIEF, BUREAU OF HIGHWAYS — DATE
[signature] 12/13/95 — CHIEF, DIVISION OF TRANSPORTATION PROJECTS AND WATERSHED MANAGEMENT — DATE

NOLAN ASSOCIATES, INC.
ENGINEERS - CIVIL/STRUCTURAL/INSPECTIONS
4785 DORSEY HALL DRIVE
SUITE 124
ELLICOTT CITY, MARYLAND 21042
PHONE: (410) 995-3651 FAX: (410) 995-1363

STATE OF MARYLAND — JOHN STANLEY NOLAN — NO. 16559 — REGISTERED PROFESSIONAL ENGINEER

DES: J.S.N.	J.S.N.	⚠4	SHEET REISSUED DUE TO POND REVISIONS	12/12/95
DRN: SMI/RPS				
CHK: C.S.N.				
DATE: NOV. 1995	BY	NO.	REVISION	DATE

STORMWATER MANAGEMENT POND
SEDIMENT CONTROL
PLAN AND DETAILS
600' SCALE MAP NO.________ BLOCK NO.________

MARSHALEE DRIVE
CAPITAL PROJECT J-4136
ELECTION DISTRICT NO. 1
ELLICOTT CITY, MARYLAND

SCALE: AS SHOWN

1785

G:\USERS\...OLAN\P...JO...30V...SECPLN19