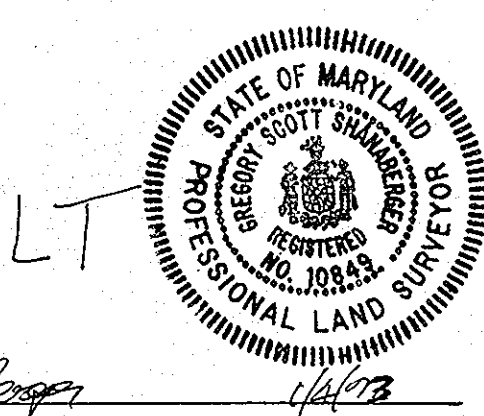
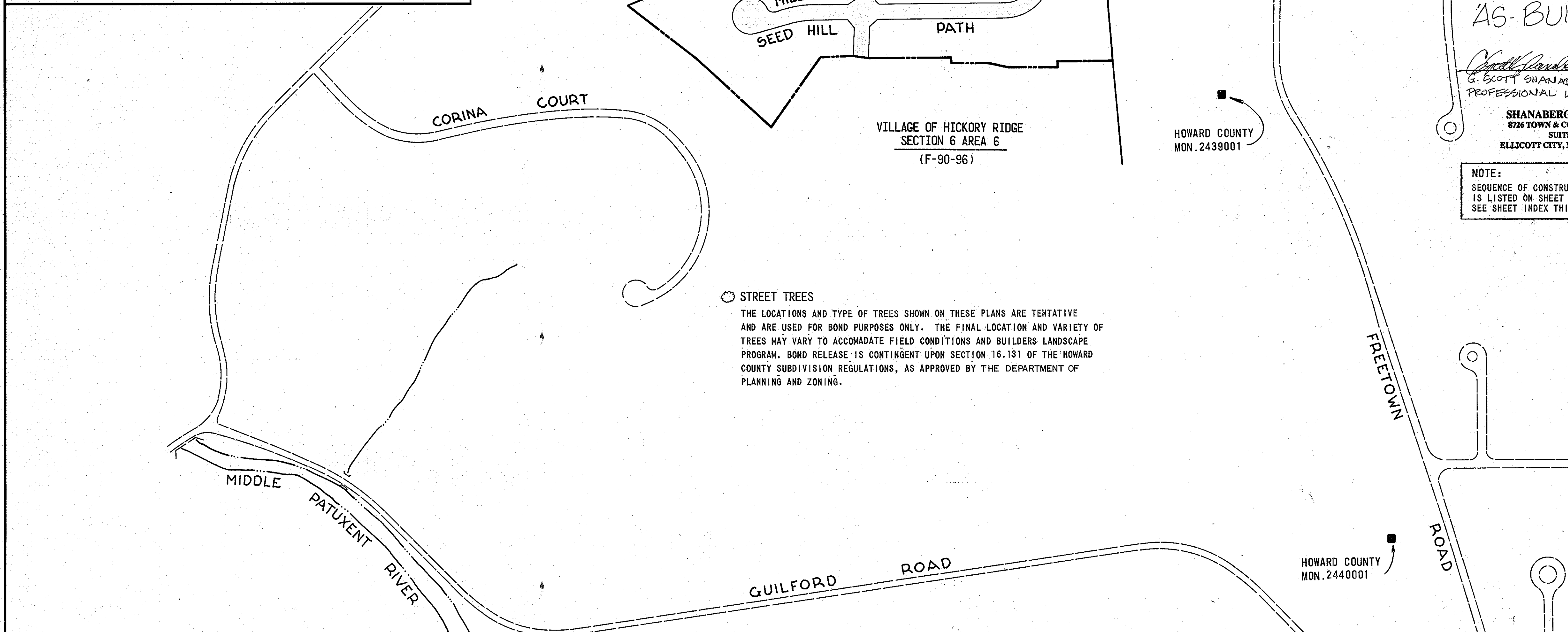
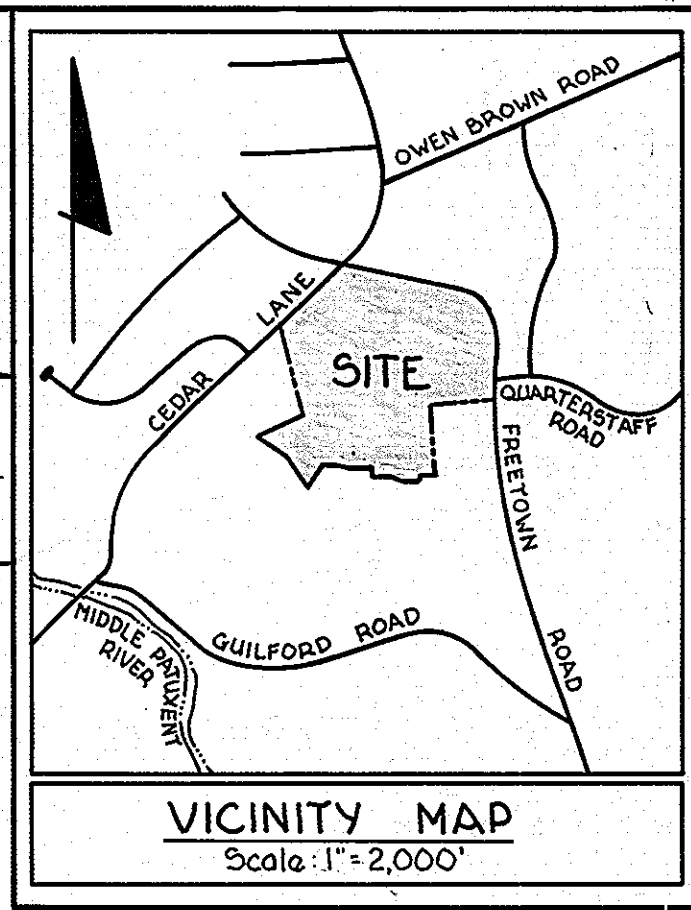


SHEET INDEX	
NO.	DESCRIPTION
1	TITLE SHEET
2	QUARTERSTAFF ROAD-PLAN AND PROFILE
3	QUARTERSTAFF ROAD, STRAY CAMEL WAY-PLAN AND PROFILE
4	MILLET SEED HILL, STEAMBOAT LANDING-PLAN AND PROFILE
5	GLASS TUMBLER PATH-PLAN AND PROFILE
6	SWM POND 2 STORM DRAIN OUTFALL-PLAN AND PROFILE
7	ROADWAY DETAILS, TREE PLANTING DETAILS
8	ROADWAY AND STORM DRAIN DETAILS-QUARTERSTAFF ROAD PROFILE
9	ROADWAY DETAILS
10	STORM DRAIN DETAILS
11	STORM DRAIN PROFILES
12	STORM DRAIN PROFILES
13	STORM DRAIN DRAINAGE AREA MAP
14	SEDIMENT CONTROL DRAINAGE AREA MAP-SEQUENCE OF CONSTRUCTION.
15	SEDIMENT CONTROL PLAN-POND 2 STORM DRAIN OUTFALL PHASE ONE, ALSO PHASE TWO.
16	GRADING AND SEDIMENT CONTROL PLAN-PHASE ONE
17	GRADING AND SEDIMENT CONTROL PLAN-PHASE ONE
18	GRADING AND SEDIMENT CONTROL PLAN-PHASE ONE
19	GRADING AND SEDIMENT CONTROL PLAN-PHASE ONE
20	GRADING AND SEDIMENT CONTROL PLAN-PHASE TWO
21	GRADING AND SEDIMENT CONTROL PLAN-PHASE TWO
22	SEDIMENT CONTROL DETAILS
23	POND RISERS 1 AND 2 - INTERIM SWM.
24	SITE PLAN, SPILLWAY, DAM PROFILE, POND NO.1
25	RISER DETAILS, POND NO.1
26	SITE PLAN, SPILLWAY, DAM PROFILE, POND NO.2
27	RISER DETAILS, POND NO.2
28	CONSTRUCTION STAKEOUT PONDS 1 AND 2
29	CONSTRUCTION SPECIFICATIONS PONDS 1 AND 2

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 DATE: 3/23/90
 APPROVED: DEPARTMENT OF PLANNING AND ZONING
 DATE: 3/20/90



AS-BUILT

G. SCOTT SHANABERGER
 PROFESSIONAL L.S. # 10849

SHANABERGER & LANE
 8726 TOWN & COUNTRY BLVD.
 SUITE 104
 BELLICOTT CITY, MARYLAND 21043

NOTE:
 SEQUENCE OF CONSTRUCTION IS LISTED ON SHEET 14.
 SEE SHEET INDEX THIS SHEET.

- GENERAL NOTES**
- ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH HOWARD COUNTY STANDARDS, SPECIFICATIONS AND DETAILS FOR CONSTRUCTION.
 - ALL UTILITY COMPANIES SHALL BE NOTIFIED 24 HOURS IN ADVANCE OF CONSTRUCTION.
 - ALL INLETS SHALL BE HOWARD COUNTY STANDARD UNLESS OTHERWISE SHOWN.
 - ALL STREET CURB RETURNS SHALL HAVE A 30.0' RADIUS UNLESS OTHERWISE NOTED.
 - STORM DRAIN TRENCHES WITHIN ROAD RIGHTS-OF-WAY SHALL BE BACKFILLED AND COMPACTED IN ACCORDANCE WITH HOWARD COUNTY ROAD CODE.
 - APPROXIMATE LOCATION OF EXISTING UTILITIES ARE SHOWN. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND TO MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED DUE TO CONTRACTOR'S OPERATIONS SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE.
 - THE CONTRACTOR SHALL TEST PIT EXISTING UTILITIES WHERE DIRECTED BY THE ENGINEER A MINIMUM OF TWO WEEKS IN ADVANCE OF ANY CONSTRUCTION.
 - TEMPORARY COMPACTED 18" HIGH EARTH FILL DIVERSION DIKES SHALL BE CONSTRUCTED ABOVE THE LIPS OF FILL SLOPES ON THE R.O.W. CONCURRENTLY WITH THE INITIAL GRADING AND DIRECTED TO UNDISTURBED SOO AREAS AT THE END OF EACH DAY.
 - CONTRACTOR TO NOTIFY THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS AND PERMITS AT LEAST 3 DAYS BEFORE STARTING WORK SHOWN ON THESE DRAWINGS, TELEPHONE NO. 992-2486.
 - ALL DISTURBED SLOPE AREAS TO BE STABILIZED AS SOON AS GRADING IS COMPLETED.
 - ALL REINFORCED CONCRETE FOR STORM DRAIN STRUCTURES SHALL HAVE A MINIMUM OF 28 DAYS STRENGTH OF 3500 P.S.I.
 - ALL SWALES AND SLOPES SHALL BE PERMANENTLY SEEDED. SEE THE SEED SPECIFICATIONS ON SHEET-15.
 - TRAFFIC CONTROL DEVICES AND THEIR INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, 1988 REVISED EDITION.
 - STABIENKA (FILTER CLOTH T-100) OR EQUAL SHALL BE PLACED UNDER ALL STONE RIP-RAP (FULL WIDTH AND LENGTH OF STONE).
 - STONE FOR RIP-RAP SHALL BE AS SPECIFIED ON THE DRAWINGS. ALL RIP-RAP SHALL BE UNPAVED.
 - USE BARRIER CURB STD. DETAIL R3.03 FOR ALL CUL-DE-SAC LANDSCAPE ISLANDS.

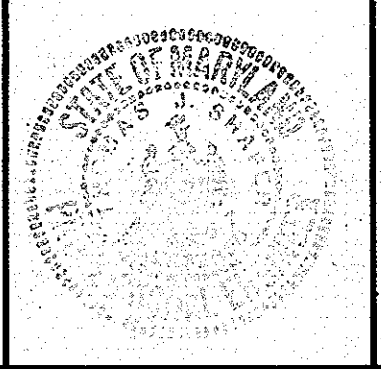
STREET TREES
 THE LOCATIONS AND TYPE OF TREES SHOWN ON THESE PLANS ARE TENTATIVE AND ARE USED FOR BOND PURPOSES ONLY. THE FINAL LOCATION AND VARIETY OF TREES MAY VARY TO ACCOMMODATE FIELD CONDITIONS AND BUILDERS LANDSCAPE PROGRAM. BOND RELEASE IS CONTINGENT UPON SECTION 16.131 OF THE HOWARD COUNTY SUBDIVISION REGULATIONS, AS APPROVED BY THE DEPARTMENT OF PLANNING AND ZONING.

STREET LIGHT LEGEND

SYMBOL	TYPE	HEIGHT	FIXTURE
⊙	150 WATT HPS	25' BRONZE ALUMINUM	PENDANT
⊙	100 WATT HPS	14' FIBERGLASS BRONZE	MODERN

LOCATION MAP
 Scale: 1" = 200'

WHITMAN, REQUARDT AND ASSOCIATES
 - Engineers -
 2315 SAINT PAUL STREET
 BALTIMORE, MARYLAND 21218
 Thomas J. Shafer
 THOMAS J. SHAFER
 Registered Engineer NO. 8457



OWNER AND DEVELOPER
 THE HOWARD RESEARCH AND DEVELOPMENT LAND COMPANY
 COLUMBIA, MARYLAND

BENCH MARKS
 HOWARD CO. MON. #2439001 ELEV. 418.615
 HUB & TACK EDGE WEST PAVEMENT FREETOWN ROAD AT INTERSECTION WITH QUARTERSTAFF ROAD.
 HOWARD CO. MON. #2440001 ELEV. 420.849
 HUB & TACK 60' SOUTH OF C&P POLE #162272 AND 8' EAST EDGE OF PAVEMENT FREETOWN ROAD.

DATE	NO.	REVISION
3-23-90	1	ADD STREET LIGHT LEGEND

VILLAGE OF HICKORY RIDGE
 SECTION 6 AREA 5
 ROAD CONSTRUCTION PLANS.
 OWNER AND DEVELOPER
 THE HOWARD RESEARCH AND DEVELOPMENT LAND COMPANY
 COLUMBIA, MARYLAND
 5TH ELECTION DISTRICT OF HOWARD COUNTY, MARYLAND

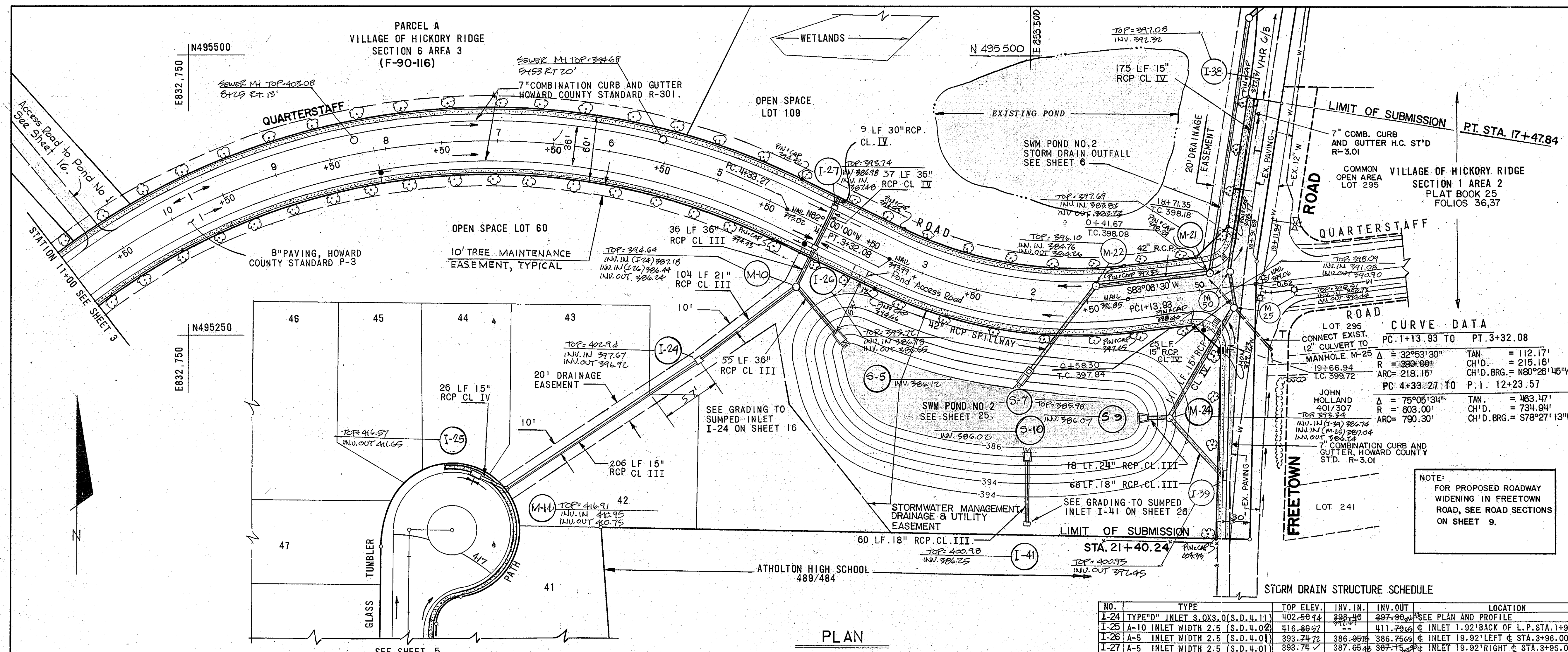
DATE: NOV. 10, 1989 SHEET 1 of 23 SCALE: AS SHOWN

F-90-97

PARCEL A
VILLAGE OF HICKORY RIDGE
SECTION 6 ARFA 3
(F-90-116)

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Donald J. Deason 3/22/90
 CHIEF, LAND DEVELOPMENT DIVISION DATE
Franklin W. McLeod 3/20/90
 CHIEF, BUREAU OF HIGHWAYS DATE
William E. Rouse 3-20-90
 CHIEF, BUREAU OF ENGINEERING DATE
 APPROVED: DEPARTMENT OF PLANNING AND ZONING
Mark V. Taylor 3/23/90
 CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT DATE

NOTE:
FOR STORM DRAIN
PROFILES SEE SHEETS 11 AND 12.
AG-BUILT
Scott S. Lawrence DATE 4/19/90
 PROFESSIONAL L.S. #10249
 SHANABERGER & LANE
 8726 TOWN & COUNTRY BLVD.
 SUITE 104
 ELLICOTT CITY, MARYLAND 21043



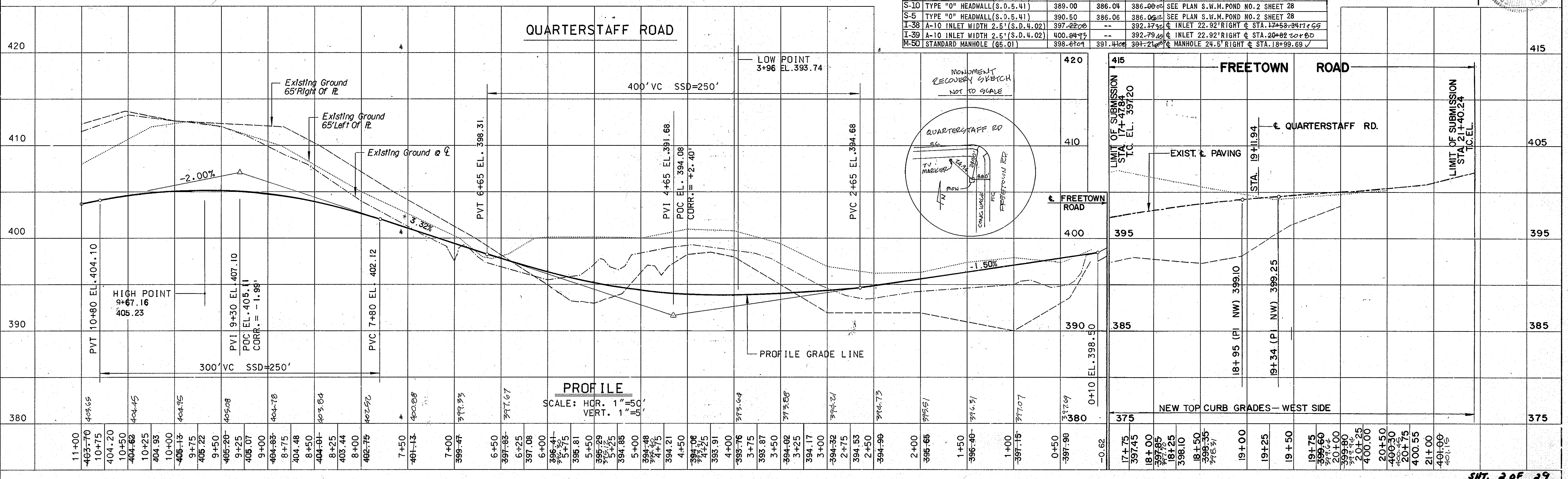
CURVE DATA

CONNECT EXIST. TO PT. 3+32.08	PC: 1+13.93 TO PT. 3+32.08	$\Delta = 32^{\circ}53'30''$	TAN = 112.17'
MANHOLE M-25	$R = 389.00'$	CH'D. = 215.16'	CH'D. BRG. = N80°26'45"W
PC: 4+33.27 TO PT. 11+23.57	$\Delta = 75^{\circ}05'30''$	TAN = 143.17'	
JOHN HOLLAND 401/307	$R = 603.00'$	CH'D. = 734.94'	
TOP 373.23	ARC = 790.30'	CH'D. BRG. = S78°27'13"W	

STORM DRAIN STRUCTURE SCHEDULE

NO.	TYPE	TOP ELEV.	INV. IN.	INV. OUT	LOCATION
I-24	TYPE "D" INLET 3.0X3.0(S.D.4.11)	402.50	398.40	397.90	SEE PLAN AND PROFILE
I-25	A-10 INLET WIDTH 2.5 (S.D.4.02)	416.80	411.79	411.79	INLET 1.92' BACK OF L.P. STA. 1+91.20 ✓
I-26	A-5 INLET WIDTH 2.5 (S.D.4.01)	393.74	386.95	386.75	INLET 19.92' LEFT @ STA. 3+96.00 ✓
I-27	A-5 INLET WIDTH 2.5 (S.D.4.01)	393.74	387.65	387.15	INLET 19.92' RIGHT @ STA. 3+96.00 ✓
I-41	TYPE "D" INLET (S.D.4.11)	401.00	386.35	386.35	SEE PLAN S.W.M. POND NO. 2 SHEET 28
M-10	STANDARD MANHOLE (G 5.02)	394.00	387.60	386.25	INLET 5.0' LEFT @ STA. 3+96.00 ✓
M-11	STANDARD MANHOLE (G 5.01)	417.30	411.62	411.62	M.H. 8.0' BACK OF L.P. STA. 2+19.54 ✓
M-24	STANDARD MANHOLE (G 5.01)	393.40	386.56	386.16	SEE PLAN S.W.M. POND NO. 2 SHEET 28
M-25	STANDARD MANHOLE (G 5.01)	397.80	388.00	387.80	M.H. 18' LEFT @ STA. 0+20 ✓
S-9	TYPE "O" HEADWALL (S.D.5.41)	389.56	386.06	386.06	SEE PLAN S.W.M. POND NO. 2 SHEET 28
S-10	TYPE "O" HEADWALL (S.D.5.41)	389.00	386.04	386.04	SEE PLAN S.W.M. POND NO. 2 SHEET 28
S-5	TYPE "O" HEADWALL (S.D.5.41)	390.50	386.06	386.06	SEE PLAN S.W.M. POND NO. 2 SHEET 28
I-38	A-10 INLET WIDTH 2.5 (S.D.4.02)	397.22	392.17	392.17	INLET 22.92' RIGHT @ STA. 17+53.84 ✓
I-39	A-10 INLET WIDTH 2.5 (S.D.4.02)	400.84	392.79	392.79	INLET 22.92' RIGHT @ STA. 20+82.20 ✓
M-50	STANDARD MANHOLE (G 5.01)	398.61	391.41	391.21	MANHOLE 24.5' RIGHT @ STA. 18+99.69 ✓

PLAN
SCALE: 1" = 50'



PROFILE
SCALE: HOR. 1" = 50'
VERT. 1" = 5'

THOMAS J. SHAFER
REGISTERED ENGINEER
NO. 8457

-- STORM DRAIN STRUCTURE SCHEDULE --

NO.	TYPE	TOP ELEV.	INV. IN	INV. OUT	LOCATION
I-8	TYPE 1D INLET 3.0'x3.0'(S.D.4.11)	384.83	376.70	388.38	SEE PLAN S.W.M Pond No. 1 SW 23
I-9	A-10 INLET WIDTH 3.0'(S.D.4.02)	400.44	389.25	388.05	INLET 18.82' RIGHT OF STA. 12+65.19
I-10	A-5 INLET WIDTH 2.5'(S.D.4.01)	389.06	389.31	388.81	INLET 17.17' RIGHT OF STA. 13+75.36
I-11	A-5 INLET WIDTH 2.5'(S.D.4.01)	401.83	392.20	392.00	INLET 16.32' RIGHT OF STA. 15+17
I-12	A-5 INLET WIDTH 2.5'(S.D.4.01)	412.44	406.48	406.23	INLET 15.22' RIGHT OF STA. 17+80
I-13	A-5 INLET WIDTH 2.5'(S.D.4.01)	412.44	407.70	407.50	INLET 15.22' LEFT OF STA. 17+80
I-14	A-5 INLET WIDTH 2.5'(S.D.4.01)	413.27	402.87	402.67	INLET 15.22' LEFT OF STA. 18+55
I-15	A-10 INLET WIDTH 2.5'(S.D.4.02)	389.86	389.71	389.50	INLET 16.22' LEFT OF STA. 13+75.36
M-6	STD. 4'-0" BRICK MANHOLE (65.01)	389.80	389.86	389.71	INLET 16.22' RIGHT OF STA. 14+57
M-7	STD. 4'-0" BRICK MANHOLE (65.01)	408.02	387.19	386.99	INLET 17.17' RIGHT OF STA. 16+44
M-8	STD. 4'-0" BRICK MANHOLE (65.01)	411.36	410.21	399.05	INLET 18.82' RIGHT OF STA. 0+25 (MILLET SEED HILL)

* With Deflectors

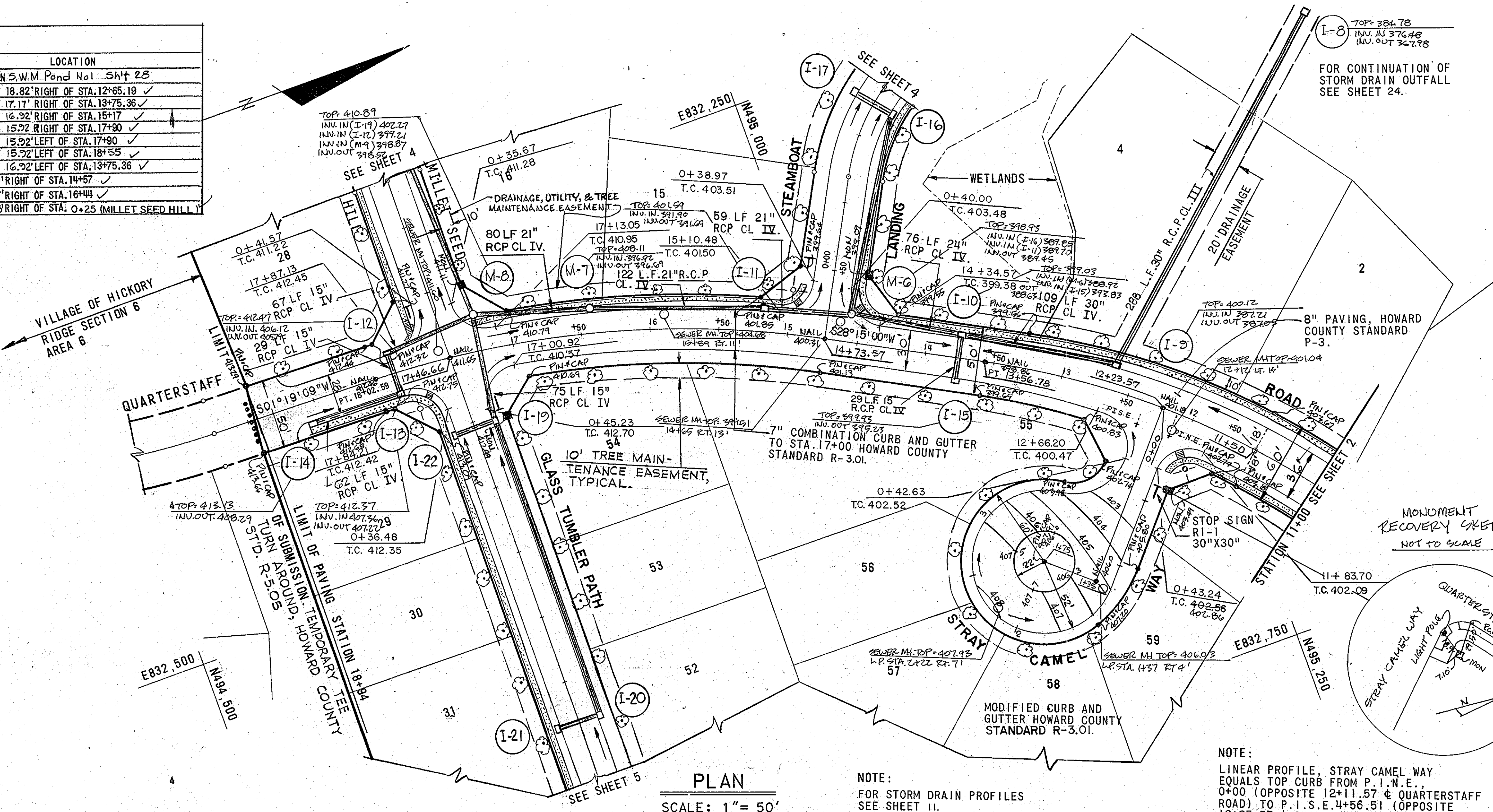
CURVE DATA

P.C. 4+33.27 TO P.T. 12+23.57

Δ = 75°05'34"	TAN = 463.47
R = 603.00'	CH'D. = 734.94
ARC. = 790.30'	CH'D. BRG. = S78°27'13"W
P.I. 12+23.57 TO P.T. 13+56.78	
Δ = 12°39'26"	TAN = 66.88'
R = 603.00'	CH'D. = 132.94'
ARC. = 133.21'	CH'D. BRG. = S34°34'43"W
P.C. & P.I. 14+73.57 TO P.I. 17+46.66	
Δ = 22°21'11"	TAN. = 138.30'
R = 700.00'	CH'D. = 271.36'
ARC. = 273.09'	CH'D. BRG. = S17°04'25"W
P.I. 17+46.66 TO P.T. 18+02.59	
Δ = 04°34'40"	TAN. = 27.98'
R = 700.00'	CH'D. = 55.91'
ARC. = 55.93'	CH'D. BRG. = S03°36'29"W

CURB TRANSITION, 36' WIDTH TO 30' WIDTH

☉ STA. 11+50 TO ☉ STA. 13+43.81 (NORTH SIDE CURB).
☉ STA. 11+50 TO ☉ STA. 13+78.61 (SOUTH SIDE CURB).



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Donald J. Eason 3/23/90
 CHIEF, LAND DEVELOPMENT DIVISION
Lawrence W. McLeod 3/20/90
 CHIEF, BUREAU OF HIGHWAYS
William B. Ray 3-22-90
 CHIEF, BUREAU OF ENGINEERING

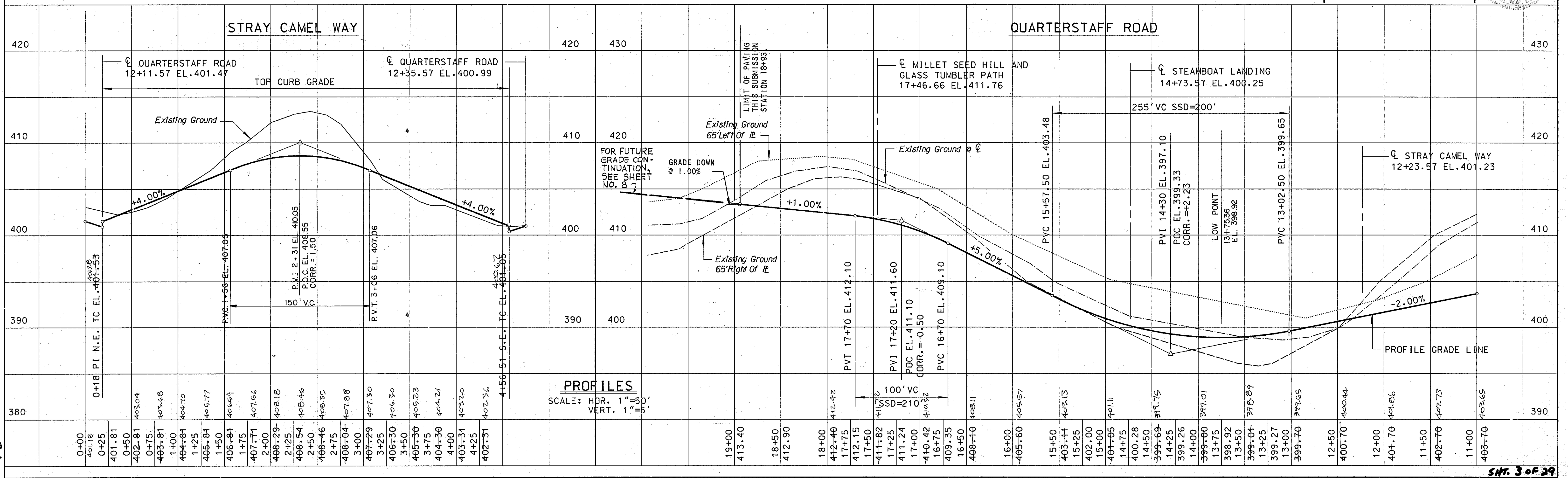
APPROVED: DEPARTMENT OF PLANNING AND ZONING
Mark A. Taylor 3/27/90
 CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT

AG-BUILT

Shanaberger & Lane
 G. W. SHANABERGER
 PROFESSIONAL LAND SURVEYOR
 LICENSE NO. 110849

SHANABERGER & LANE
 8726 TOWN & COUNTRY BLVD.
 SUITE 104
 ELLICOTT CITY, MARYLAND 21043

REV. DATE	REV. NO.	REVISION DESCRIPTION
		COLUMBIA 5TH ELECTION DISTRICT HOWARD COUNTY MARYLAND
		OWNER AND DEVELOPER THE HOWARD RESEARCH AND DEVELOPMENT LAND COMPANY
		PROJECT AREA: VILLAGE OF HICKORY RIDGE SECTION 6 AREA 5
		PROJECT TITLE: PLAN AND PROFILE QUARTERSTAFF ROAD STA. 11+00 TO STA. 19+00
		SCALE: As Shown DATE: Nov. 10, 1989
		WHITMAN, REQUARDT AND ASSOCIATES ENGINEERS BALTIMORE, MARYLAND 21218
		<i>Thomas J. Shafer</i> THOMAS J. SHAFER REGISTERED ENGINEER NO. 8457



CURVE DATA
 PC 1+36.32 TO PT. 2+69.92
 $\Delta = 18^{\circ}08'58''$ TAN = 67.36'
 $R = 421.75'$ CH'D. = 133.04'
 ARC = 133.60' CH'D. BRG. = $S81^{\circ}29'10''W$

MONUMENT
RECOVERY SKETCH
NOT TO SCALE

NOTE:
FOR STORM DRAIN PROFILES
SEE SHEET 11.

MONUMENT
RECOVERY SKETCH
NOT TO SCALE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

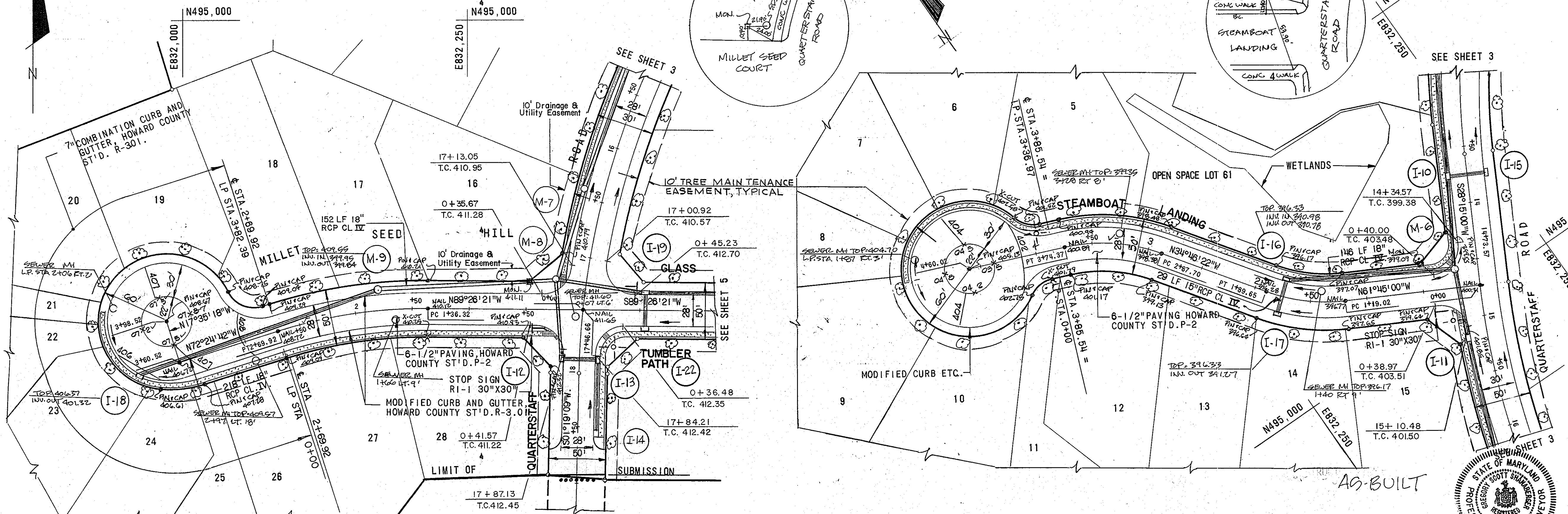
Thomas J. Shafer 3/23/90
 CHIEF, LAND DEVELOPMENT DIVISION DATE
Franklin W. Welton 3/20/90
 CHIEF, BUREAU OF HIGHWAYS DATE
James E. Ray 3-24-90
 CHIEF, BUREAU OF ENGINEERING DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Mark S. J. Boyle 4/2/90
 CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT DATE

CURVE DATA

PC 1+19.02 TO PT 1+89.65
 $\Delta = 26^{\circ}56'38''$ TAN = 35.98'
 $R = 150.00'$ CH'D. = 89.98'
 ARC = 70.63' CH'D. BRG. = $N48^{\circ}15'41''W$
 PC 2+87.70 TO PT 3+74.37
 $\Delta = 33^{\circ}06'15''$ TAN = 44.58'
 $R = 150.00'$ CH'D. = 85.47'
 ARC = 86.67' CH'D. BRG. = $N51^{\circ}19'29''W$



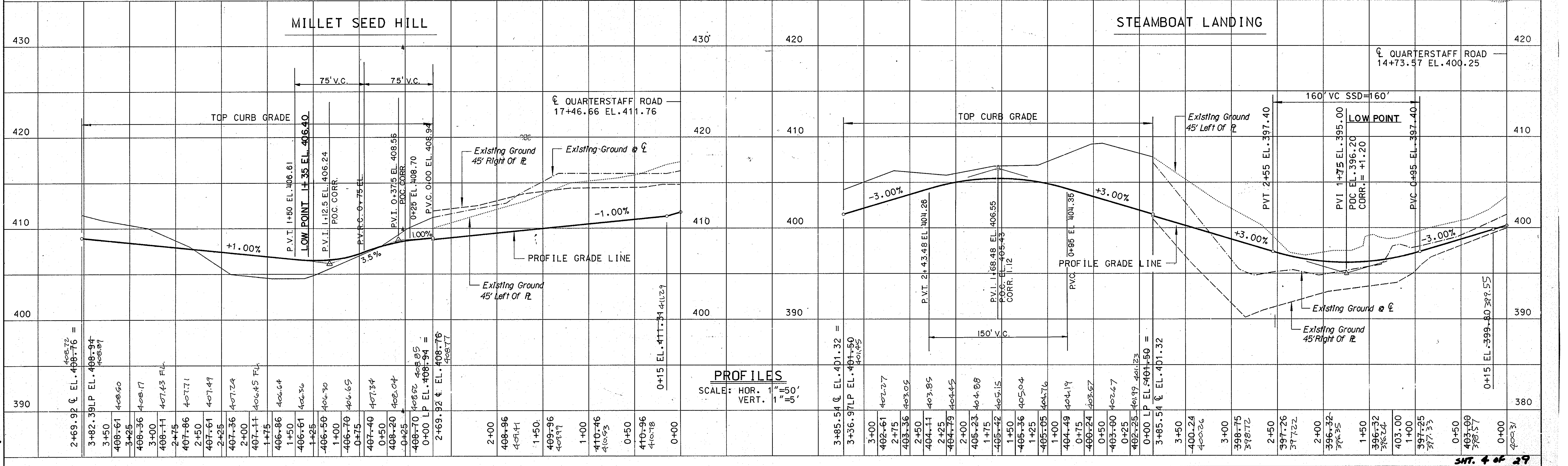
PLAN
 SCALE: 1" = 50'

NO.	TYPE	TOP ELEV.	INV. IN.	INV. OUT	LOCATION
I-16	A-5 INLET WIDTH 2.5' (S.D. 4.0')	396.34	391.21	390.9678	INLET 16.36' RIGHT @ STA. 1+75 ✓
I-17	A-5 INLET WIDTH 2.5' (S.D. 4.0')	396.34	391.27	391.27	INLET 16.36' LEFT @ STA. 1+75 ✓
I-18	A-10 INLET WIDTH 2.5' (S.D. 4.0')	406.4037	401.4037	401.4037	INLET 1.22' BACK L.P. STA. 1+35 ✓
M-9	STANDARD MANHOLE (8 5.0')	410.00	400.29	400.08	@ MH. 17' RIGHT @ STA. 1+78.50 ✓

PLAN
 SCALE: 1" = 50'

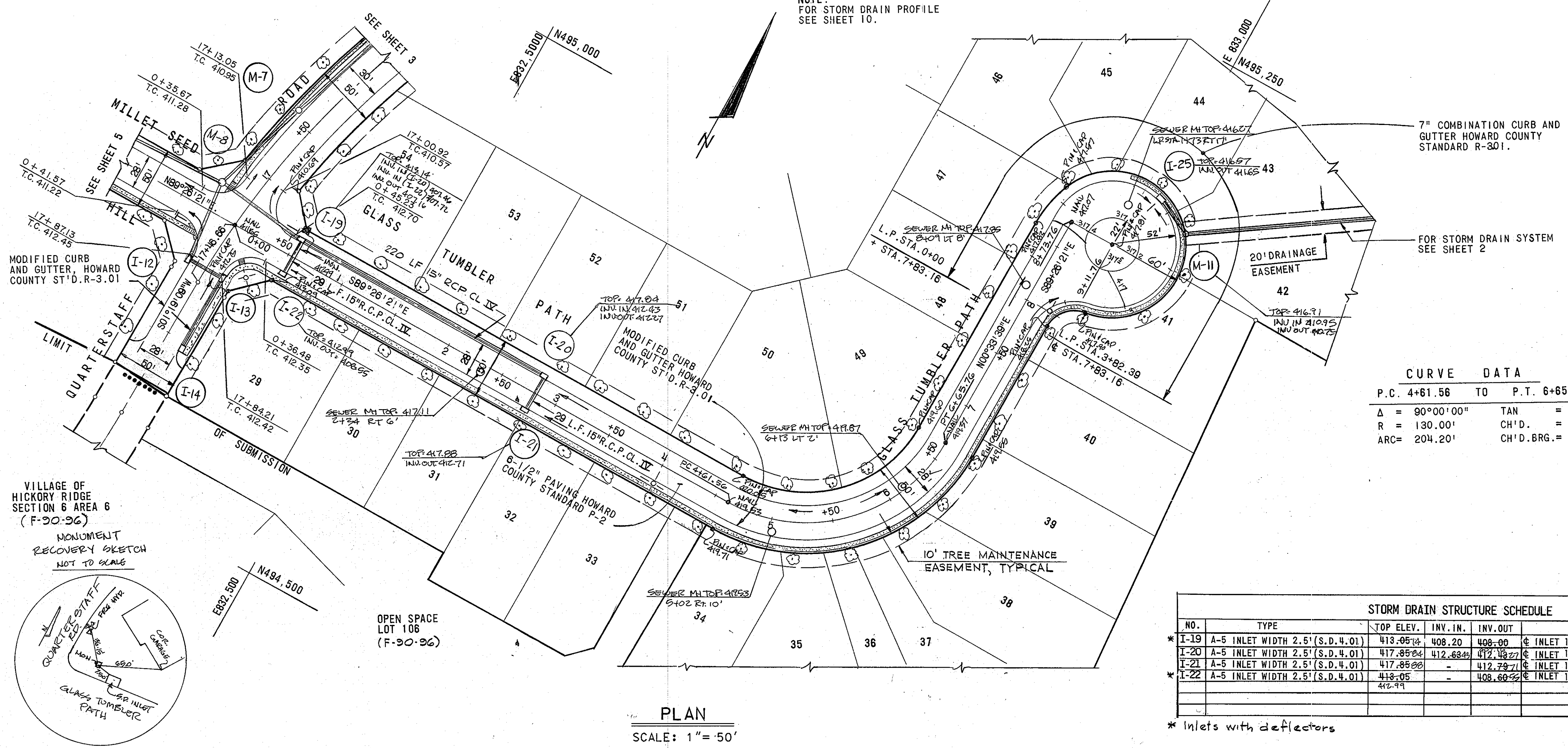
Shanaberger & Lane
 G. BOYD SHANABERGER
 PROFESSIONAL LAND SURVEYOR
 LICENSE NO. 10843
 DATE
SHANABERGER & LANE
 876 TOWN & COUNTRY BLVD.
 SUITE 104
 ELLICOTT CITY, MARYLAND 21043

REV. DATE	REV. NO.	REVISION DESCRIPTION
COLUMBIA		
5TH ELECTION DISTRICT HOWARD COUNTY MARYLAND		
OWNER AND DEVELOPER THE HOWARD RESEARCH AND DEVELOPMENT LAND COMPANY		
PROJECT AREA: VILLAGE OF HICKORY RIDGE SECTION 6 AREA 5		
PROJECT TITLE: PLAN AND PROFILE MILLET SEED HILL AND STEAMBOAT LANDING		
SCALE: As Shown	DATE: Nov 19, 1989	
WHITMAN, REQUARDT AND ASSOCIATES ENGINEERS BALTIMORE, MARYLAND 21218		
<i>Thomas J. Shafer</i>		
THOMAS J. SHAFER REGISTERED ENGINEER NO. 8457		



PROFILES
 SCALE: HOR. 1" = 50'
 VERT. 1" = 5'

NOTE:
FOR STORM DRAIN PROFILE
SEE SHEET 10.



PLAN
SCALE: 1" = 50'

CURVE DATA

P.C. 4+61.56	TO	P.T. 6+65.76
$\Delta = 90^{\circ}00'00''$	TAN	= 130.00'
R = 130.00'	CH'D.	= 183.85'
ARC = 204.20'	CH'D. BRG.	= $N45^{\circ}33'39''E$

STORM DRAIN STRUCTURE SCHEDULE

NO.	TYPE	TOP ELEV.	INV. IN.	INV. OUT	LOCATION
* I-19	A-5 INLET WIDTH 2.5' (S.D. 4.0)	413.0574	408.20	408.00	INLET 16.36' LEFT @ STA. 0+55 ✓
I-20	A-5 INLET WIDTH 2.5' (S.D. 4.0)	417.8504	412.6848	412.4827	INLET 16.36' LEFT @ STA. 2+80 ✓
I-21	A-5 INLET WIDTH 2.5' (S.D. 4.0)	417.8500	-	412.7877	INLET 16.36' RIGHT @ STA. 2+80 ✓
* I-22	A-5 INLET WIDTH 2.5' (S.D. 4.0)	418.05	-	408.6022	INLET 16.36' RIGHT @ STA. 0+55 ✓

* Inlets with deflectors

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Small 3/23/90
 DATE
 Chief, LAND DEVELOPMENT DIVISION
Lawrence W. Weiland 3/20/90
 DATE
 Chief, BUREAU OF HIGHWAYS
William R. Brown 3-26-90
 DATE
 Chief, BUREAU OF ENGINEERING

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Paul 3/27/90
 DATE
 Chief, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT

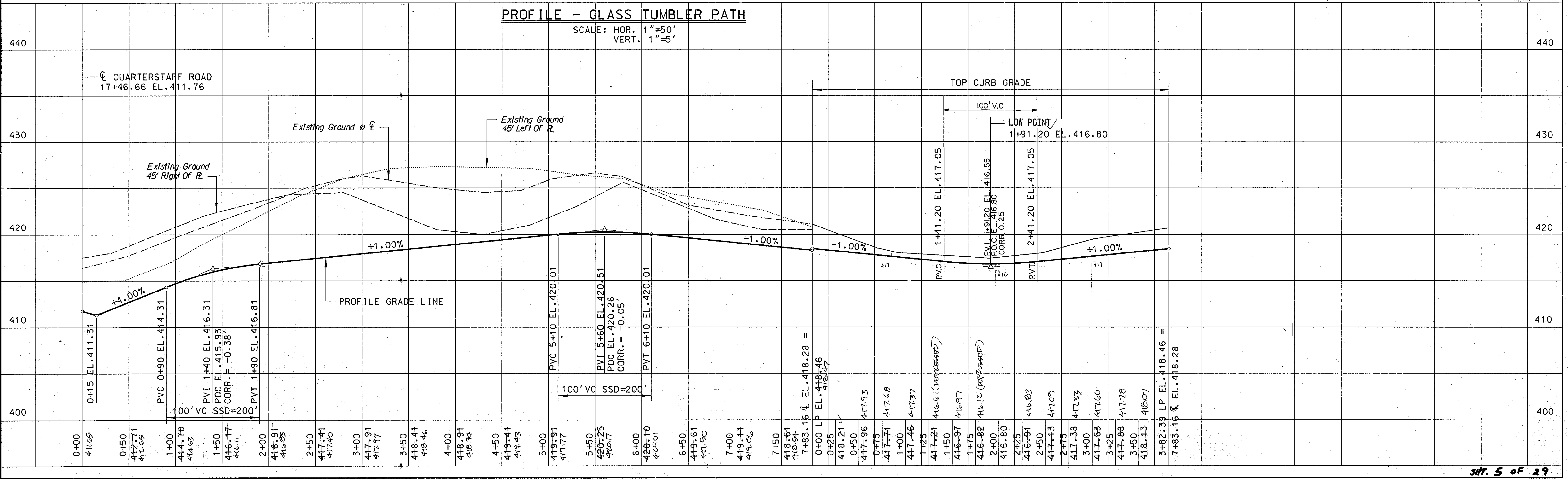
AS-BUILT

SHANABERGER & LANE
 8726 TOWN & COUNTRY BLVD.
 SUITE 104
 ELLICOTT CITY, MARYLAND 21143

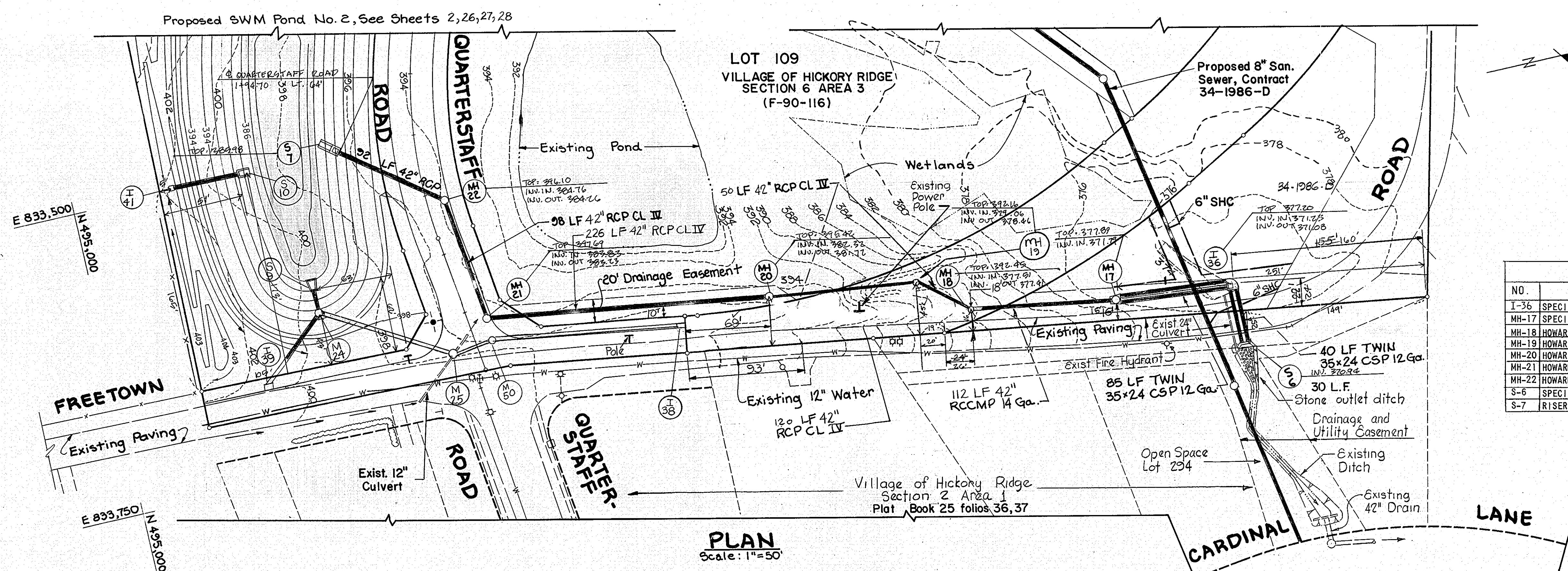
REV. DATE	REV. NO.	REVISION DESCRIPTION
		COLUMBIA 5TH ELECTION DISTRICT HOWARD COUNTY MARYLAND
		OWNER AND DEVELOPER THE HOWARD RESEARCH AND DEVELOPMENT LAND COMPANY
		PROJECT AREA: VILLAGE OF HICKORY RIDGE SECTION 6 AREA 5
		PROJECT TITLE: PLAN AND PROFILE GLASS TUMBLER PATH
		SCALE: As Shown DATE: Nov 10, 1989
		WHITMAN, REQUARD AND ASSOCIATES ENGINEERS BALTIMORE, MARYLAND 21218
		<i>Thomas J. Shafer</i> THOMAS J. SHAFER REGISTERED ENGINEER NO. 8457

PROFILE - GLASS TUMBLER PATH

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

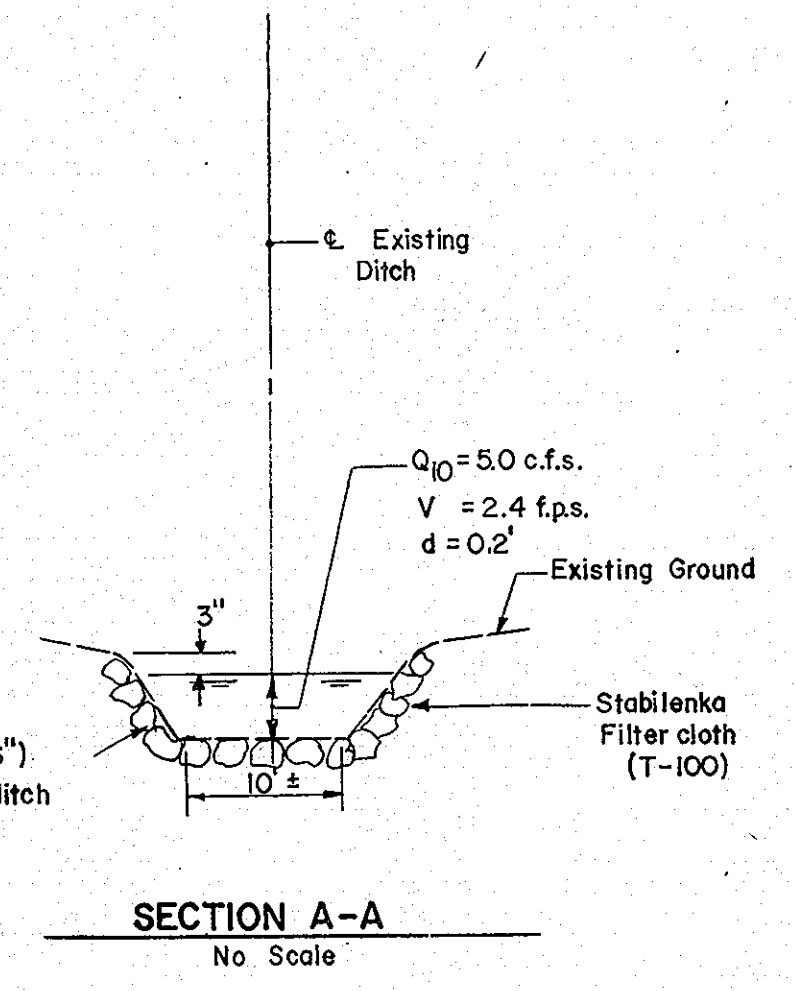
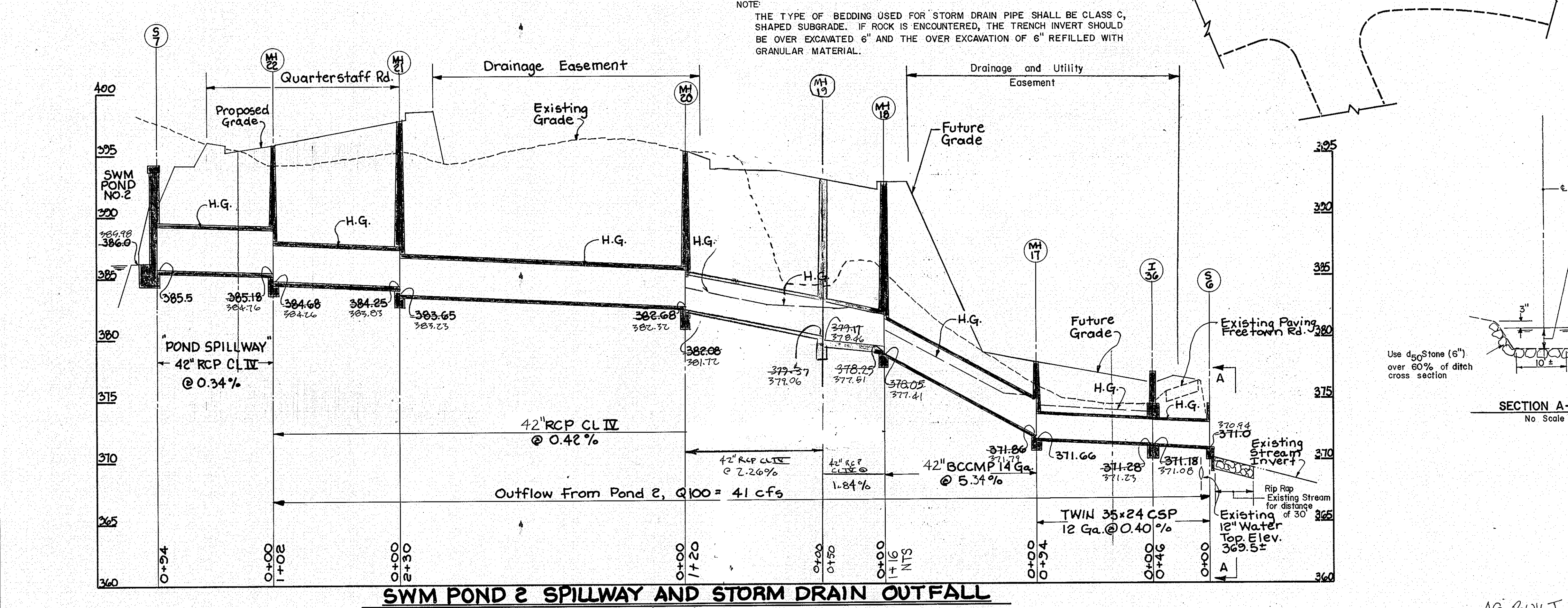


APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Paul D. ... 3/23/90
 CHIEF, LAND DEVELOPMENT DIVISION DATE
Francis W. Weiland 3/20/90
 CHIEF, BUREAU OF HIGHWAYS DATE
... 3-20-90
 CHIEF, BUREAU OF ENGINEERING DATE
 APPROVED: DEPARTMENT OF PLANNING AND ZONING
... 3/27/90
 CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT DATE



STORM DRAIN STRUCTURE SCHEDULE

NO.	TYPE	TOP EL.	INV. IN.	INV. OUT.	LOCATION
I-36	SPECIAL, SEE SHEET 10	377.00	371.20	371.10	SEE PLAN AND PROFILE
MH-17	SPECIAL, SEE SHEET 10	378.00	371.80	371.66	SEE PLAN AND PROFILE
MH-18	HOWARD COUNTY ST'D.G 5.03	392.50	378.25	378.05	SEE PLAN AND PROFILE
MH-19	HOWARD COUNTY ST'D.G 5.03	39	377.9	377.9	SEE PLAN AND PROFILE
MH-20	HOWARD COUNTY ST'D.G 5.03	395.20	382.68	382.08	SEE PLAN AND PROFILE
MH-21	HOWARD COUNTY ST'D.G 5.03	397.63	384.25	383.65	€ MH 14 RIGHT € STA. 0+40
MH-22	HOWARD COUNTY ST'D.G 5.03	395.95	385.18	384.68	€ MH 14 RIGHT € STA. 1+42
S-6	SPECIAL, SEE SHEET 10	374.50	371.00	371.00	SEE PLAN AND PROFILE
S-7	RISER SEE SWM SHEET 27	392.50		385.50	SEE SWM PLAN SHEET 28



REV. DATE	REV. NO.	REVISION DESCRIPTION
8-1-90	1	Revise location of MH 19 that Profile

COLUMBIA
 5TH ELECTION DISTRICT
 HOWARD COUNTY MARYLAND
 OWNER AND DEVELOPER
 THE HOWARD RESEARCH
 AND DEVELOPMENT LAND COMPANY
 PROJECT AREA:
 VILLAGE OF HICKORY RIDGE
 SECTION 6 AREA 5
 PROJECT TITLE:
 STORM WATER MANAGEMENT POND NO. 2
 STORM DRAIN OUTFALL
 SCALE: AS SHOWN DATE: Nov 10, 1989
 WHITMAN, REQUARDT AND ASSOCIATES
 ENGINEERS
 BALTIMORE, MARYLAND 21218
Thomas J. Shafer
 THOMAS J. SHAFER
 REGISTERED ENGINEER
 NO. 8457

BY THE 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 CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I WILL 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."
Joseph H. Necker, Jr.
 JOSEPH H. NECKER, JR.
 DATE: 11-9-89

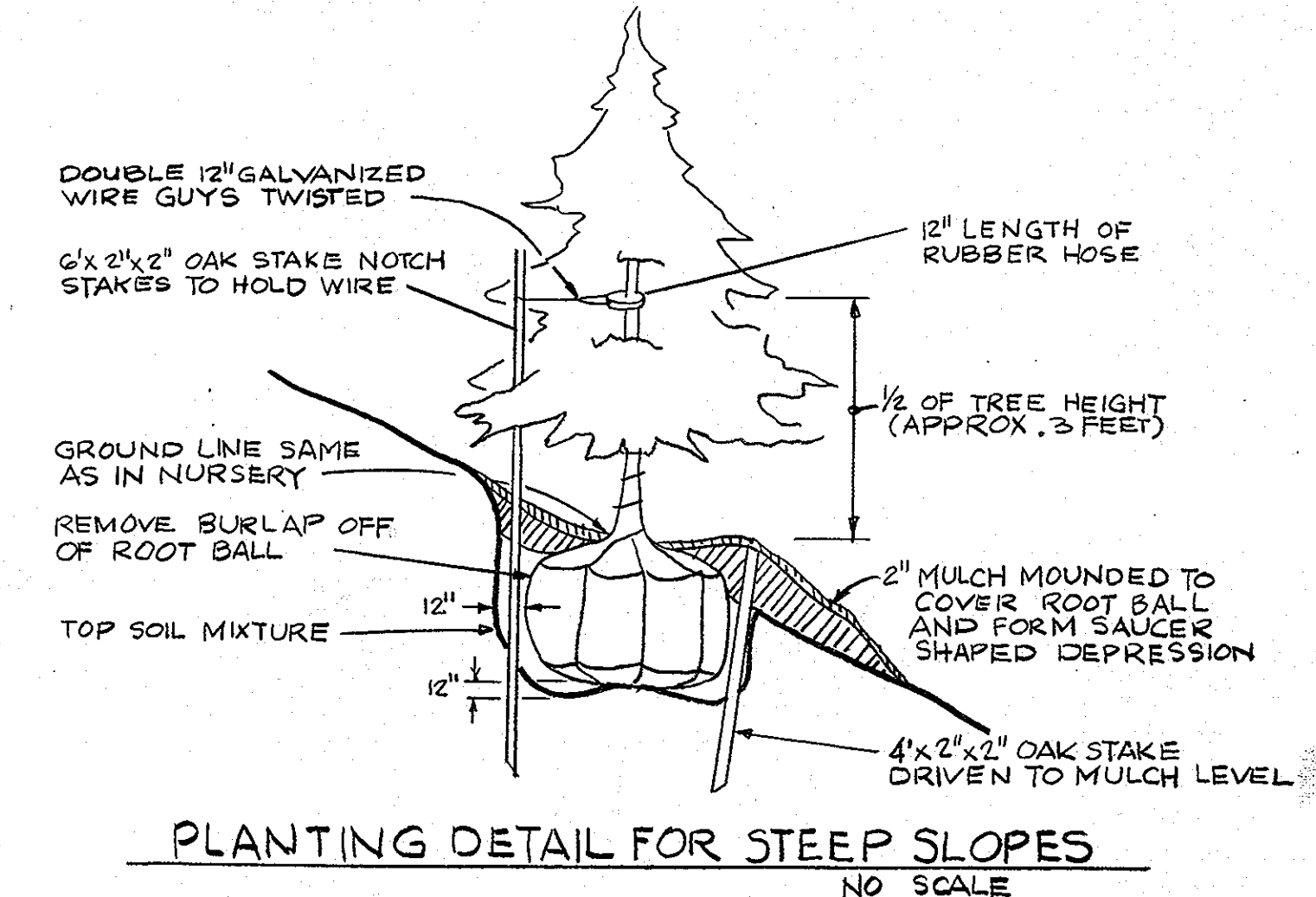
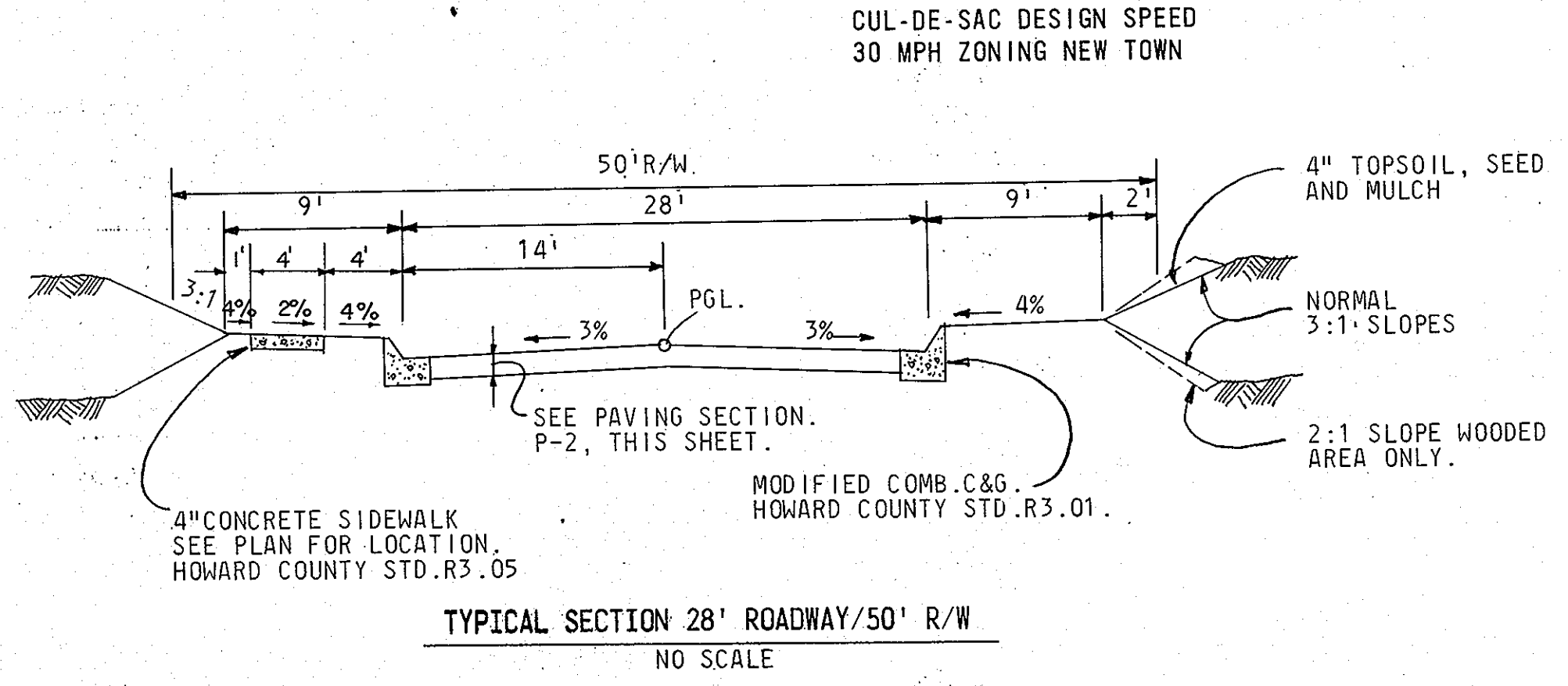
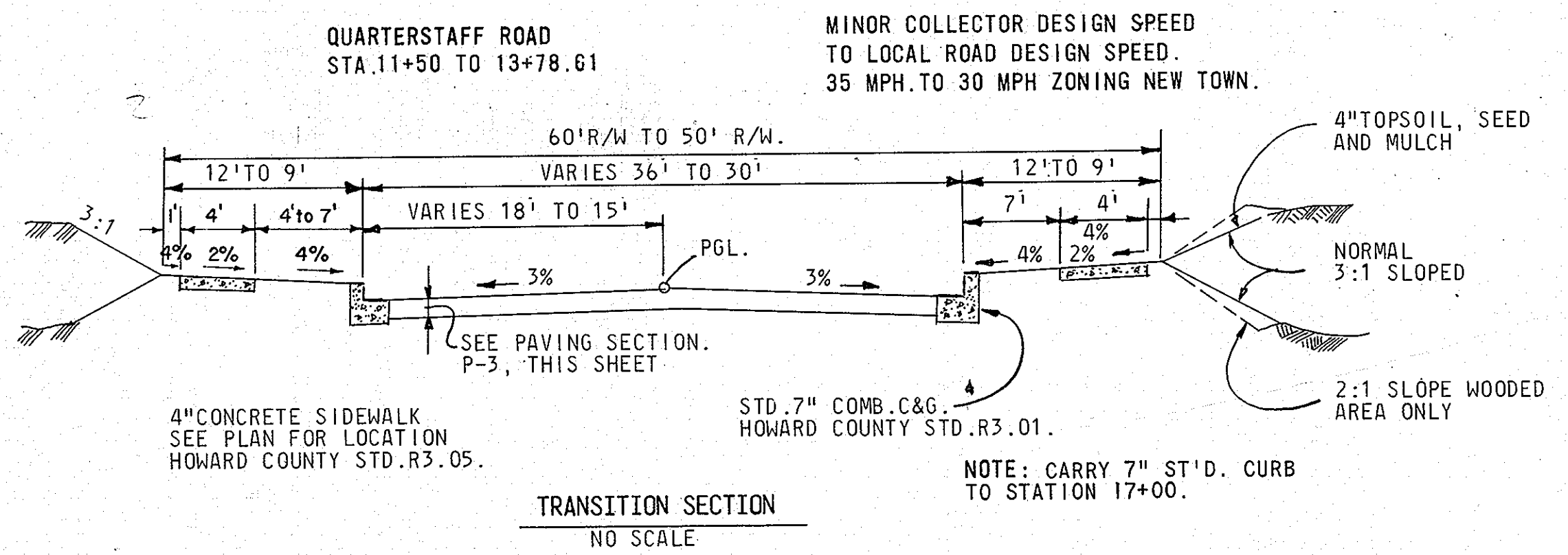
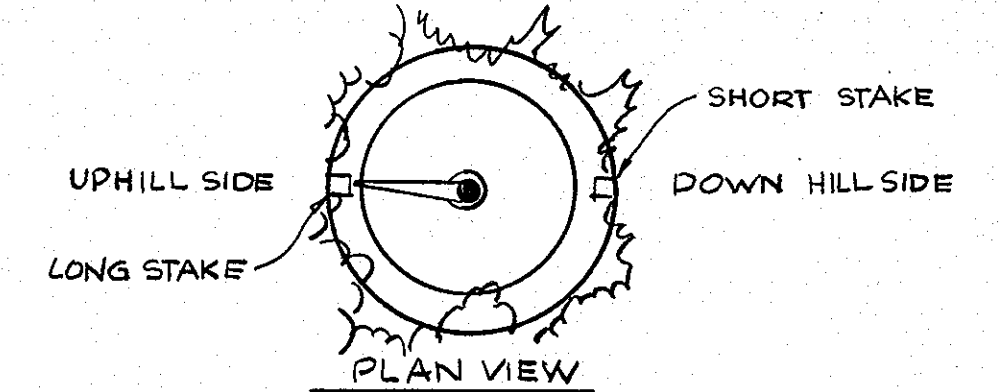
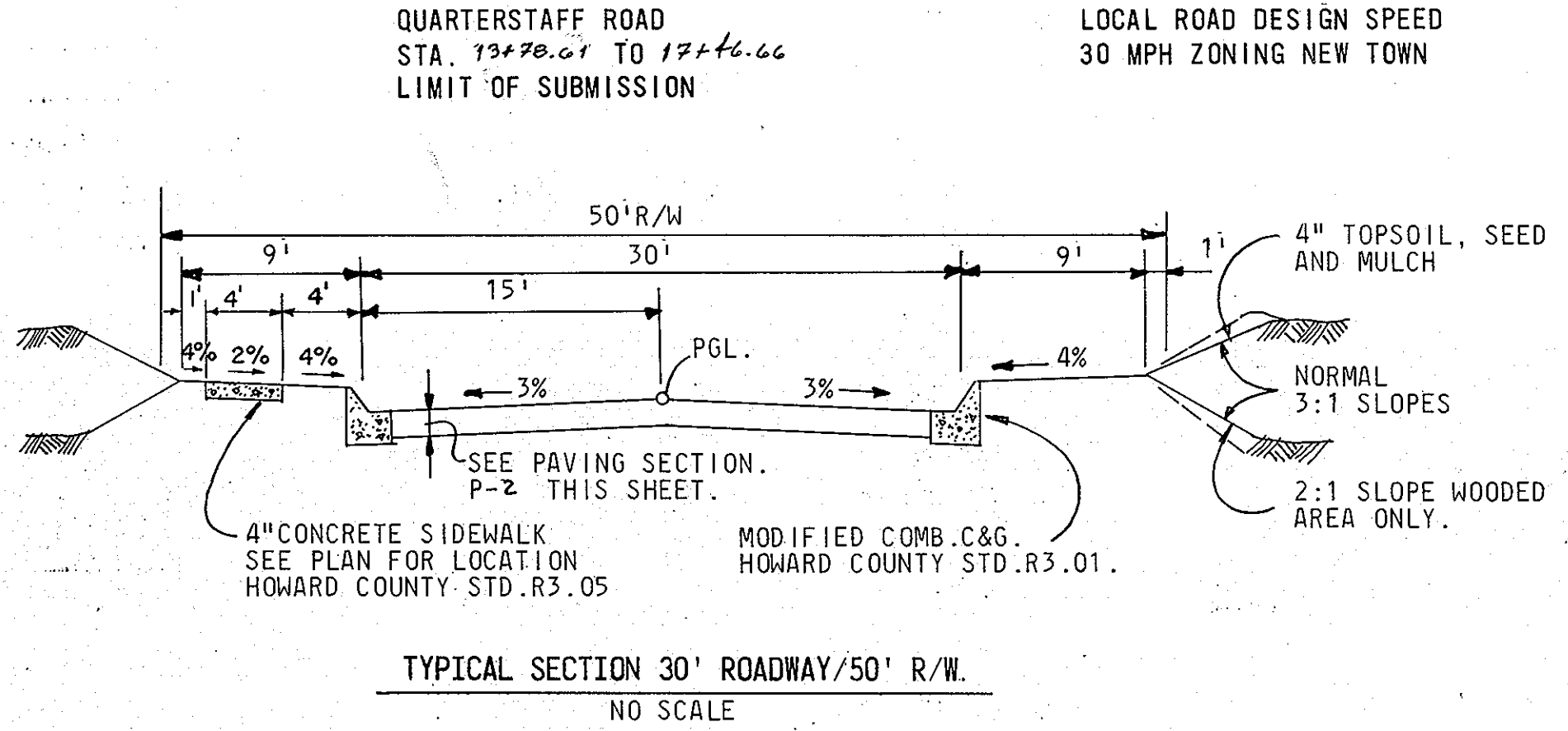
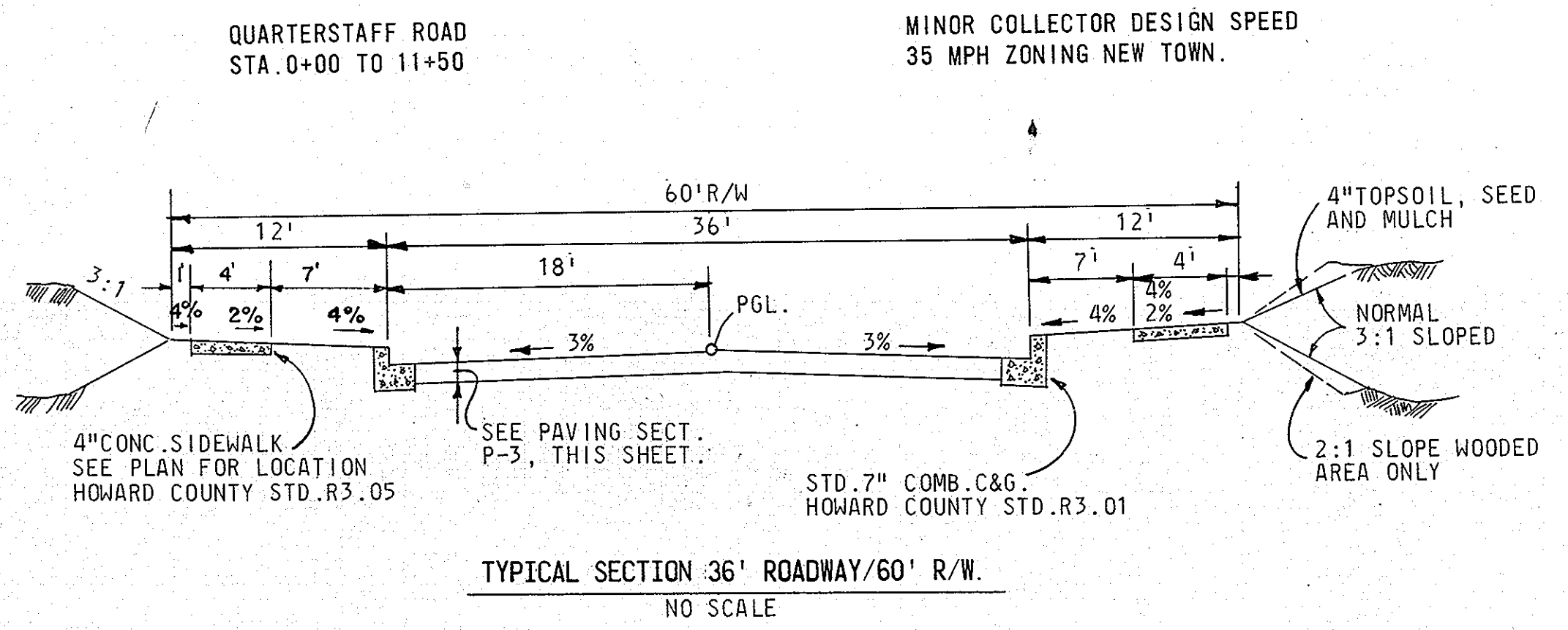
THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.
J. Helms
 U.S. SOIL CONSERVATION SERVICE
 DATE: 3/12/90
 THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.
Robert W. Ziehm
 HOWARD SOIL CONSERVATION DISTRICT
 DATE: 3/12/90

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 MUST PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."
Thomas J. Shafer
 THOMAS J. SHAFER
 Registration No. 8457
 DATE: 11-10-89

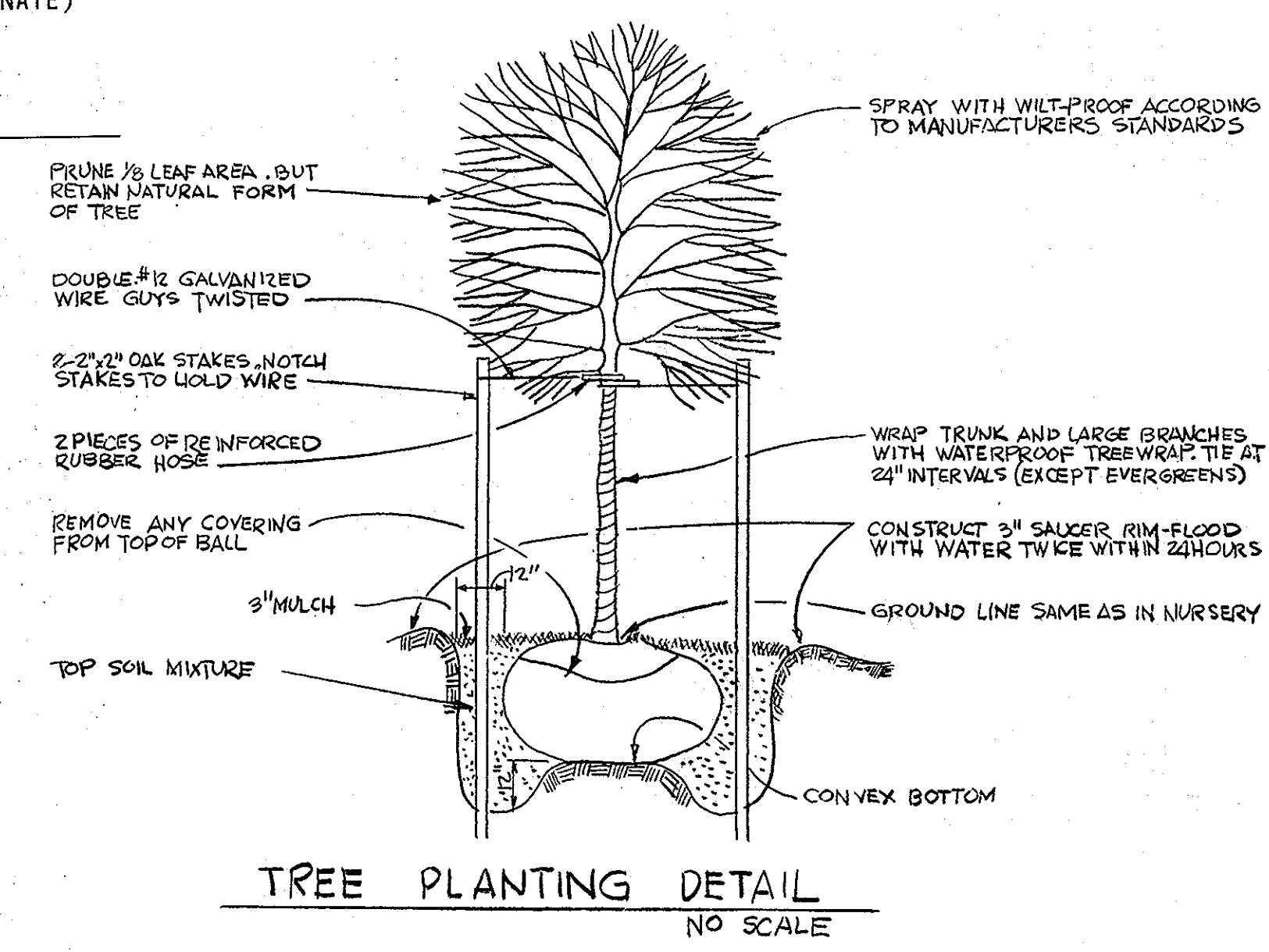
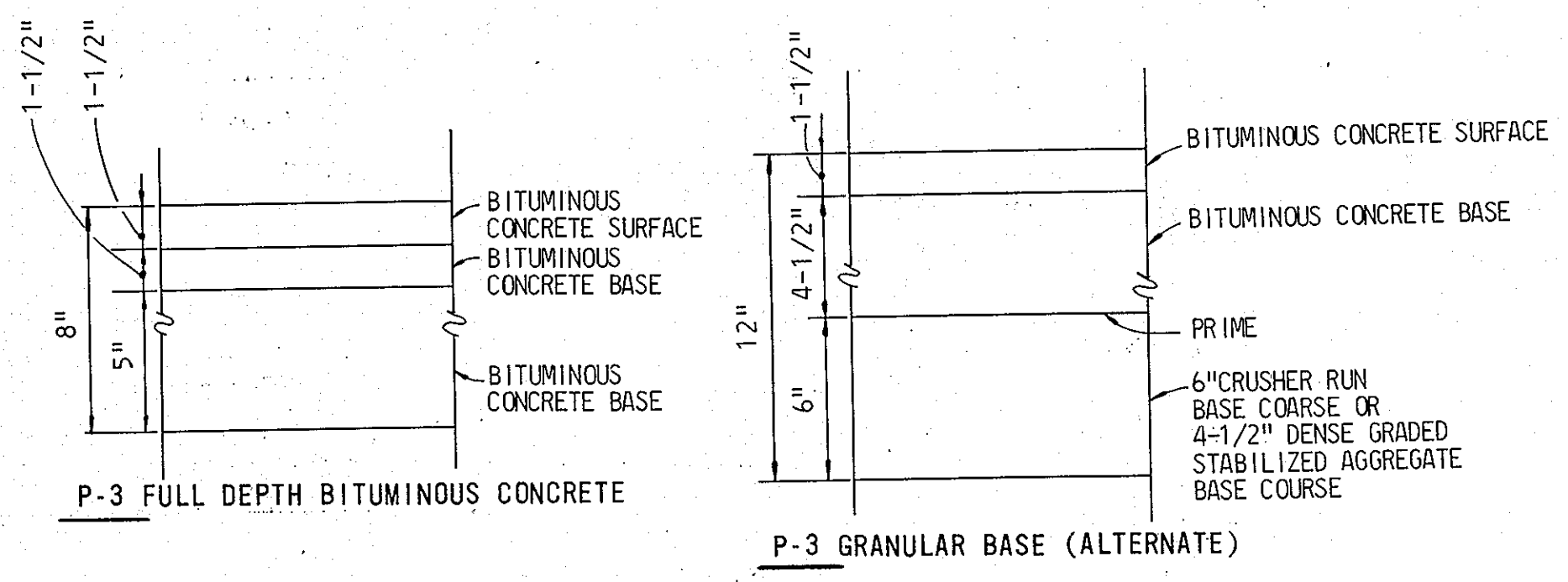
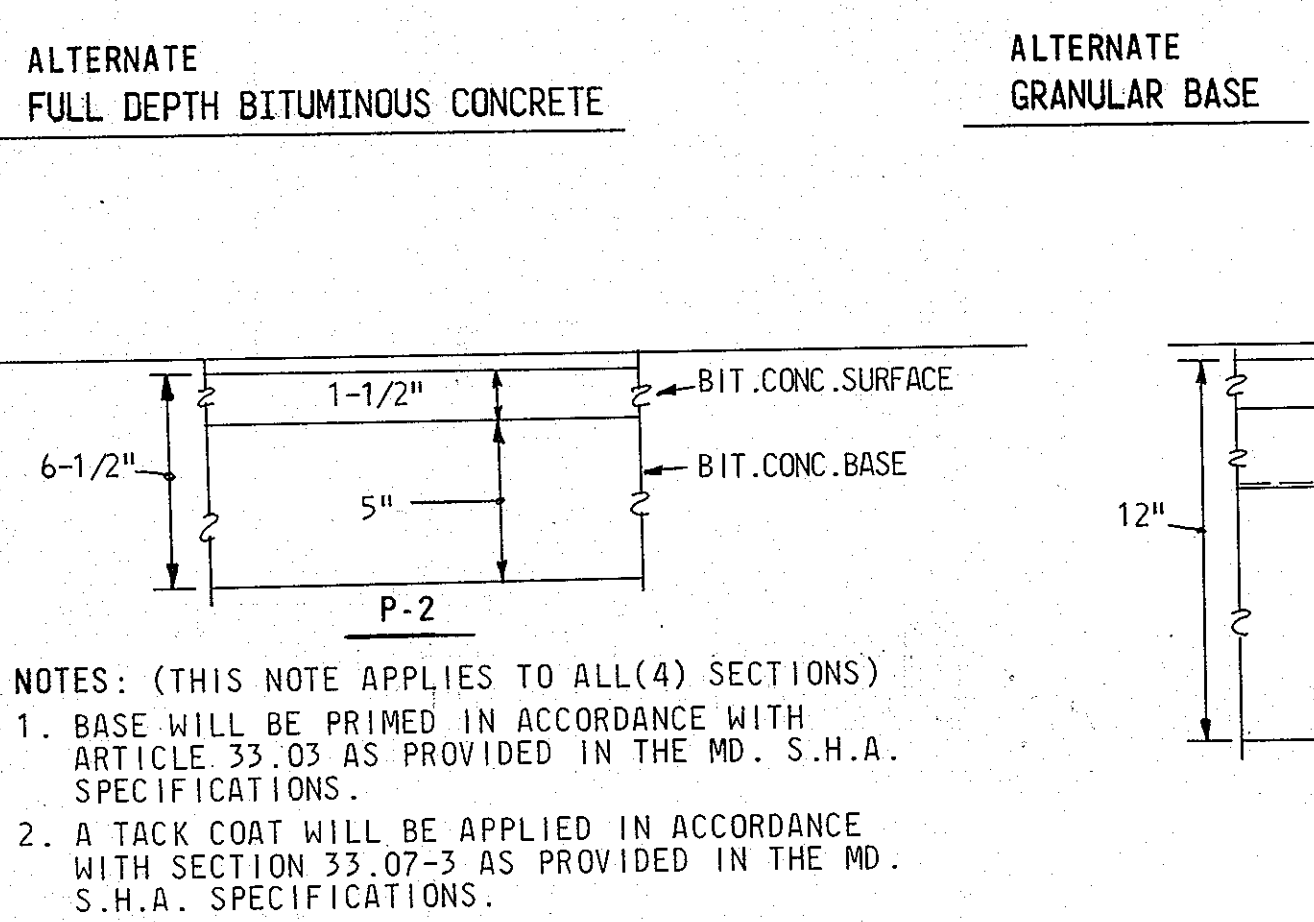


SHANABERGER & LANE
 5725 TOWN & COUNTRY BLVD.
 SUITE 104
 ELLICOTT CITY, MARYLAND 21118

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Donald J. Sporn 3/23/90
 CHIEF, LAND DEVELOPMENT DIVISION DATE
Drumville W. Welstead 3/20/90
 CHIEF, BUREAU OF HIGHWAYS DATE
William R. Ryan 3-26-90
 CHIEF, BUREAU OF ENGINEERING DATE
 APPROVED: DEPARTMENT OF PLANNING AND ZONING
David J. Taylor 3/23/90
 CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT DATE
 #KS



QUANTITY OF TREES	COMMON NAME	BOTANICAL NAME	HEIGHT
220	PIN OAK	QUERCUS PALUSTRIS	40'



REV. DATE	REV. NO.	REVISION DESCRIPTION
8-1-90	1	Rev. Stationing & Paving Section on 30' Roadway

COLUMBIA
 5TH ELECTION DISTRICT
 HOWARD COUNTY MARYLAND

OWNER AND DEVELOPER
 THE HOWARD RESEARCH
 AND DEVELOPMENT LAND COMPANY

PROJECT AREA:
 VILLAGE OF HICKORY RIDGE
 SECTION 6 AREA 5

PROJECT TITLE:
 ROADWAY DETAILS

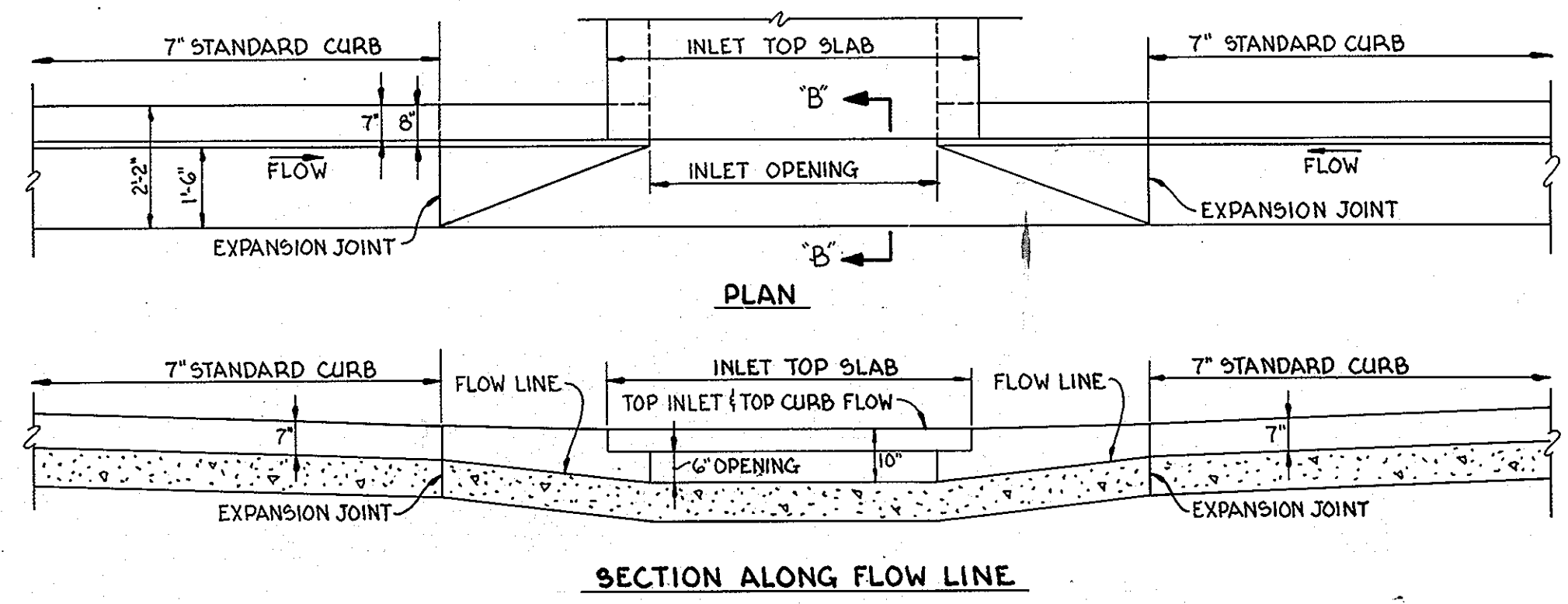
SCALE: AS SHOWN DATE: Nov 10, 1989

WHITMAN, REQUARDT AND ASSOCIATES
 ENGINEERS
 BALTIMORE, MARYLAND 21218

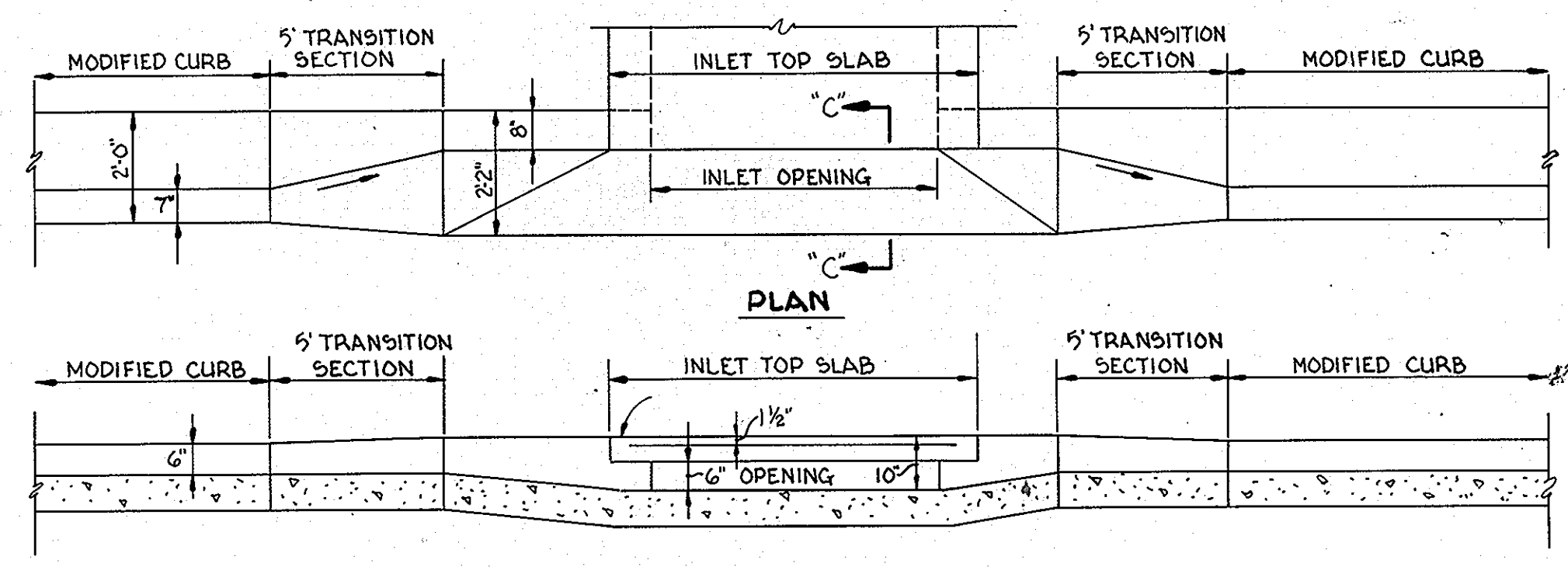
Thomas J. Shafer
 THOMAS J. SHAFER
 REGISTERED ENGINEER
 NO. 8457

SHT. 7 OF 29

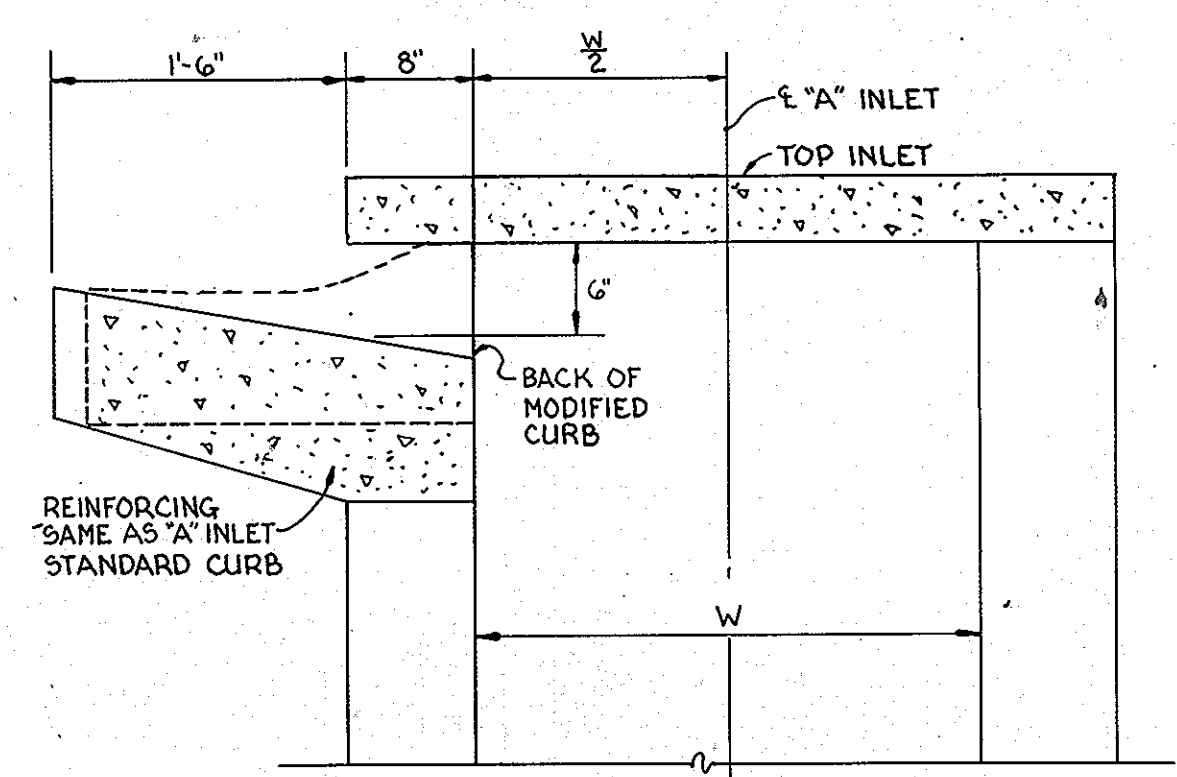
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Donald J. Sisson 3/23/90
 CHIEF, LAND DEVELOPMENT DIVISION DATE
Francis W. Welsch 3/20/90
 CHIEF, BUREAU OF HIGHWAYS DATE
Wesley S. Reed 3-24-90
 CHIEF, BUREAU OF ENGINEERING DATE
 APPROVED: DEPARTMENT OF PLANNING AND ZONING
Mark S. Langley 3/23/90
 CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT DATE



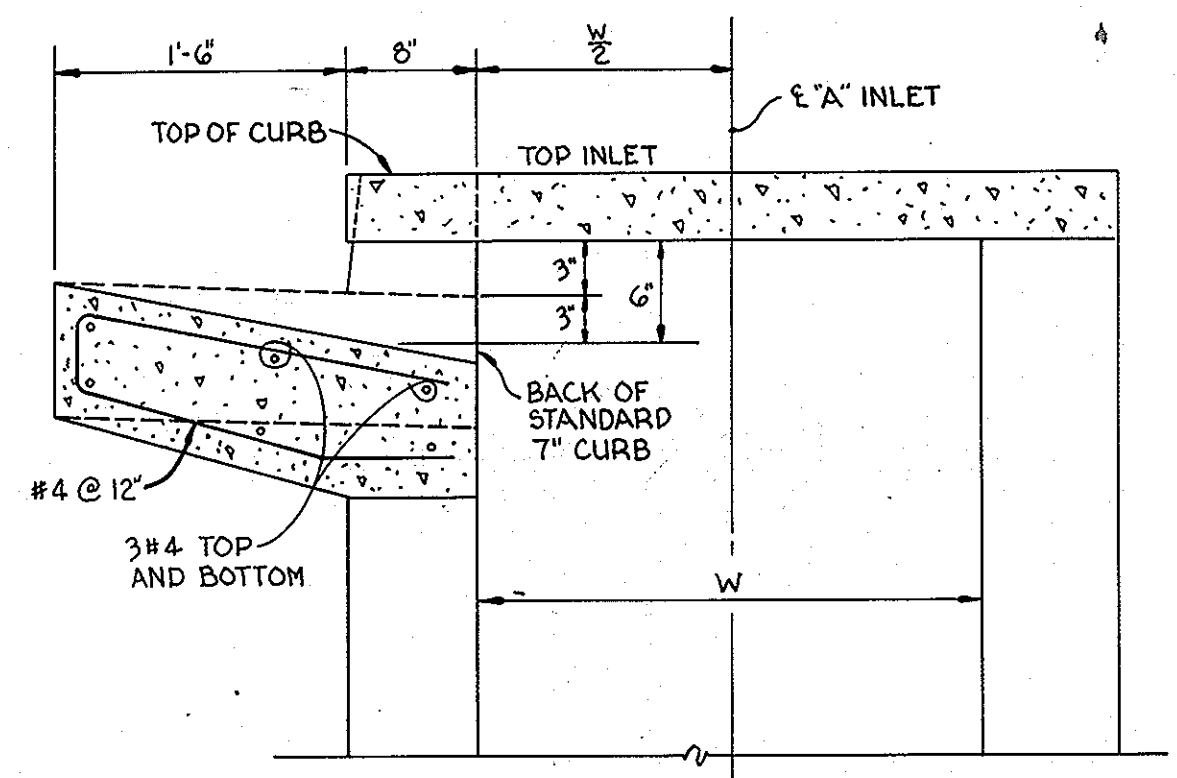
SECTION ALONG FLOW LINE
SUMPED "A" INLETS - STANDARD CURB



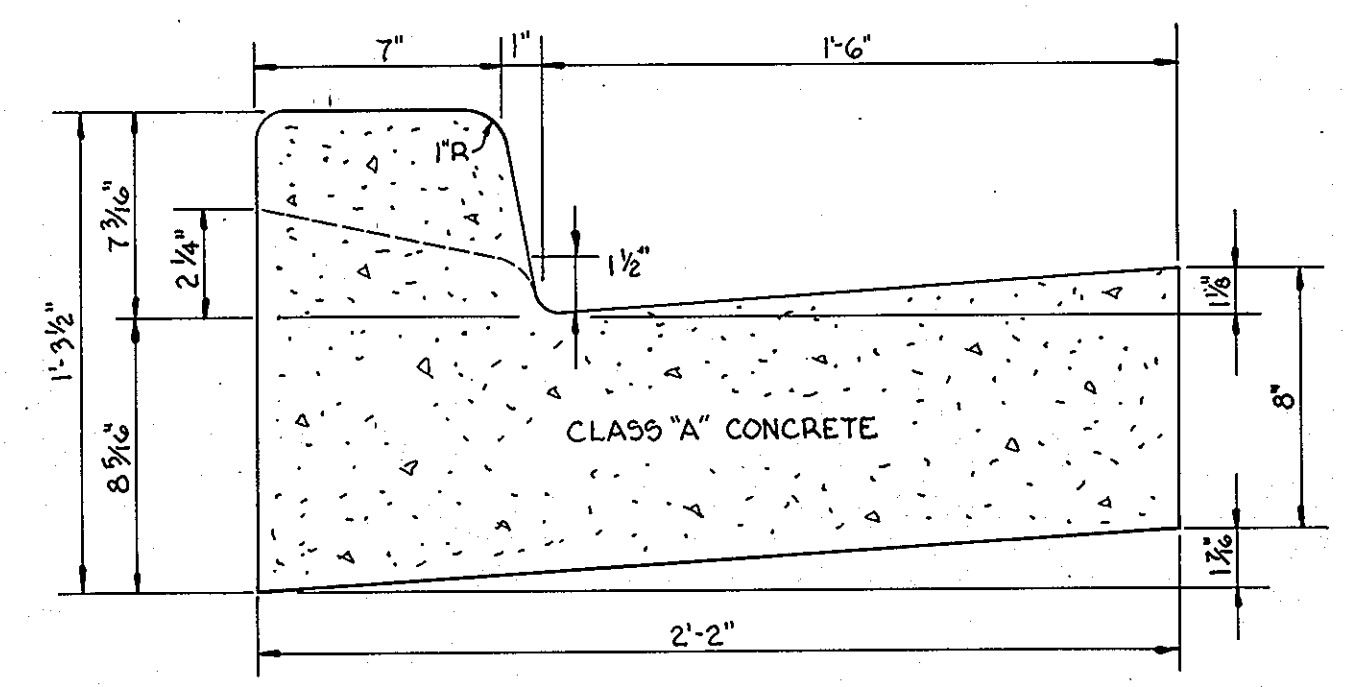
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"A" INLETS - MODIFIED CURB



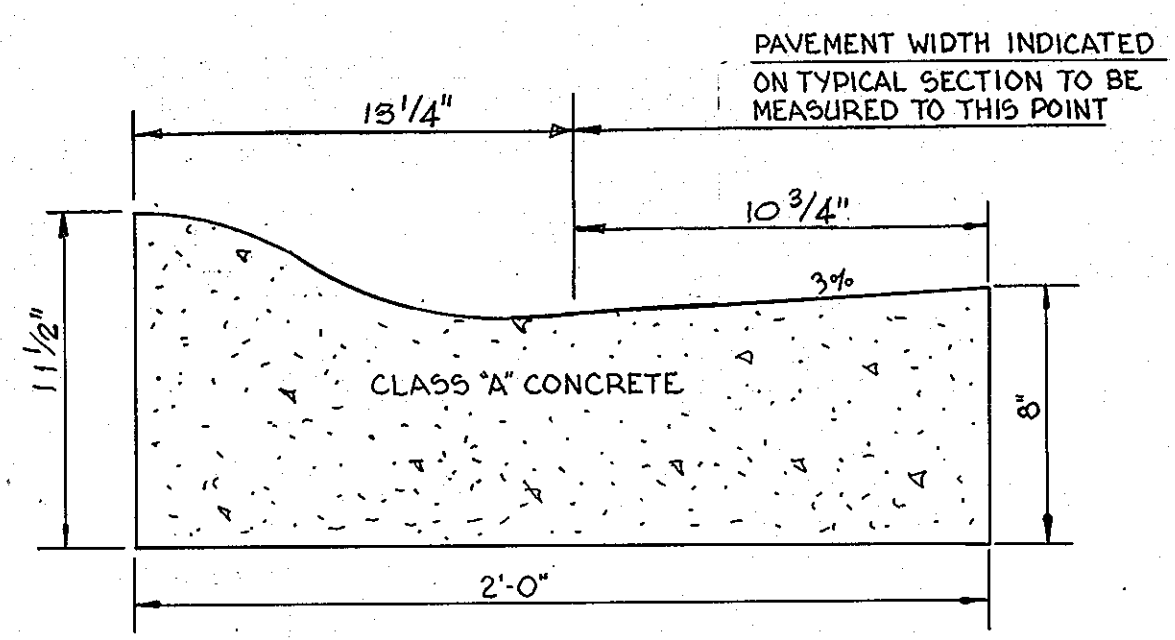
SECTION "C-C"
"A" INLET MODIFIED CURB



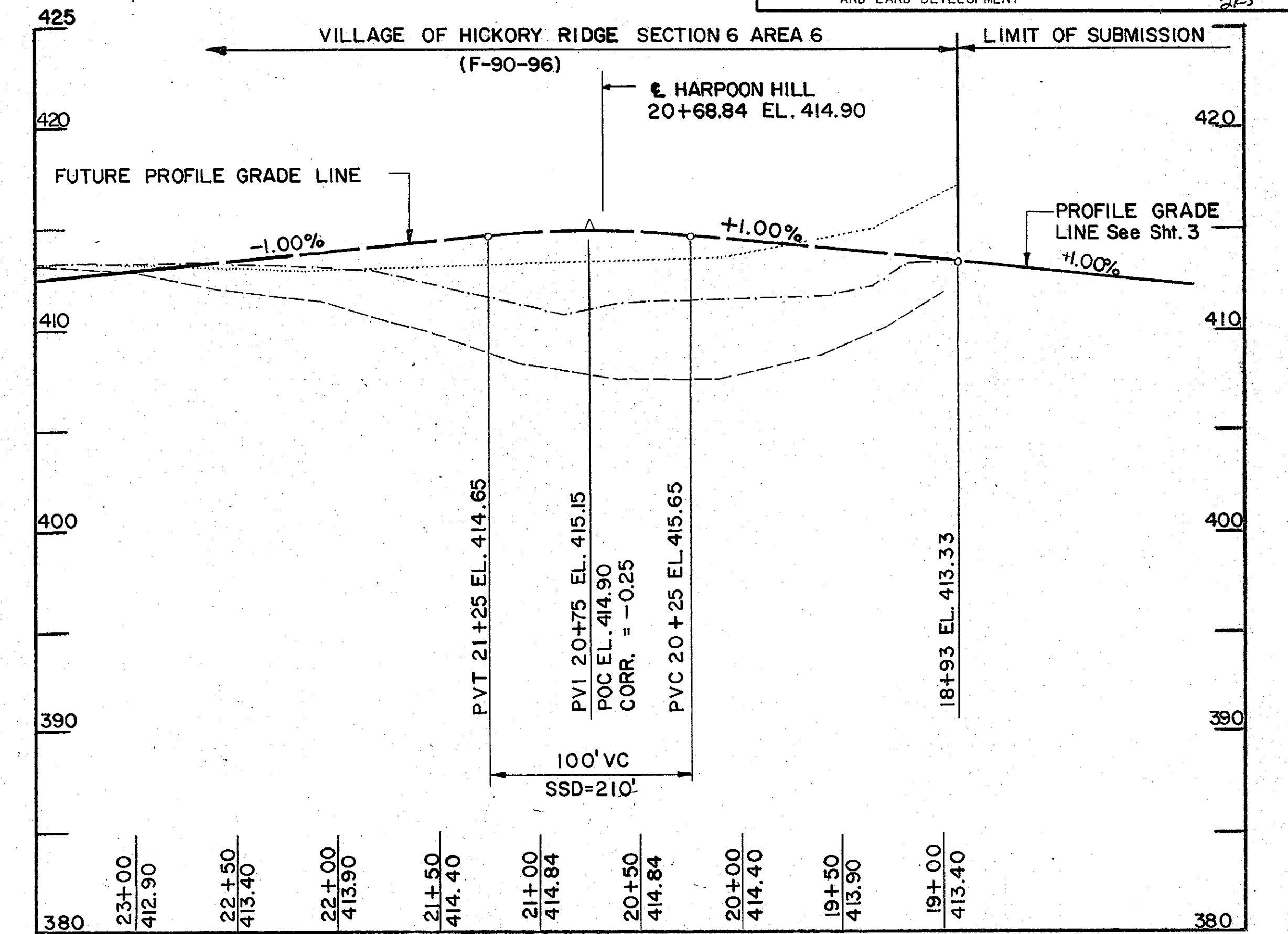
SECTION "B-B"
"A" INLET STANDARD CURB



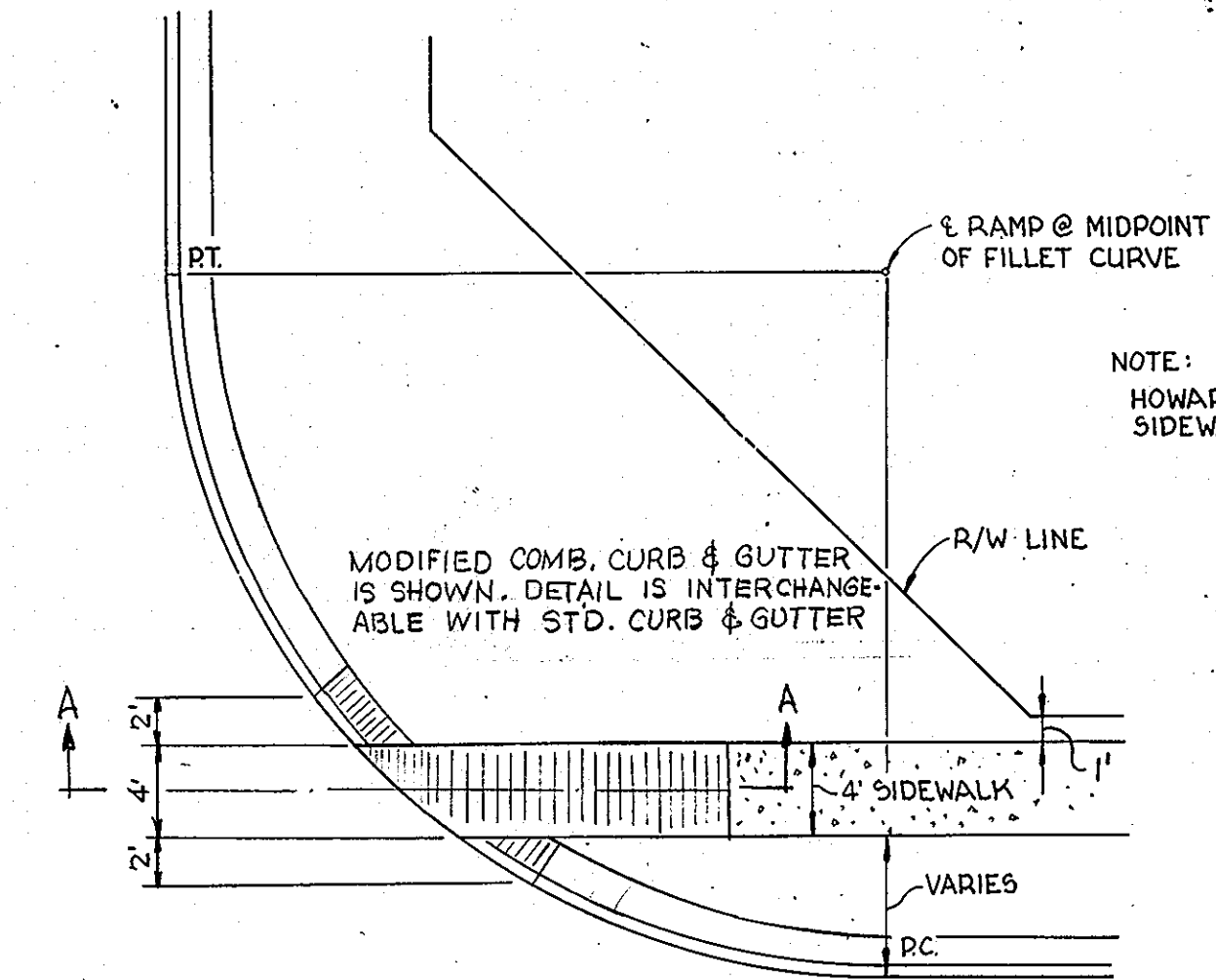
STANDARD 7" COMBINATION CURB & GUTTER
 No Scale



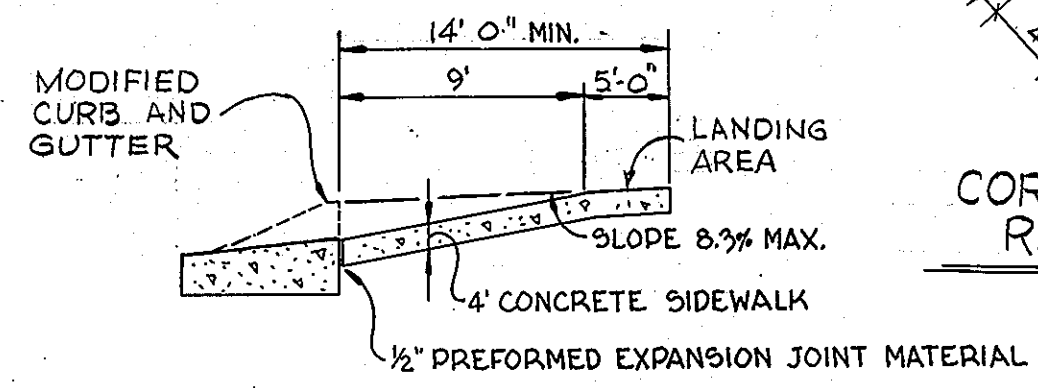
MODIFIED COMBINATION CURB & GUTTER
 No Scale



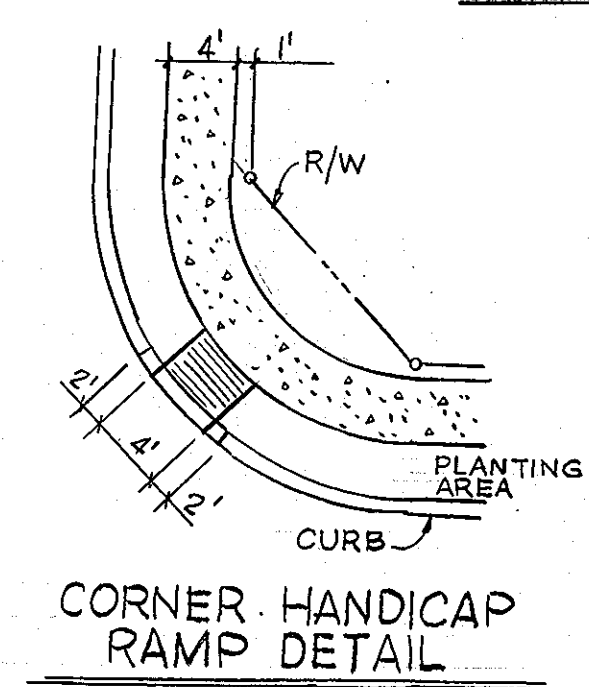
QUARTERSTAFF ROAD PROFILE
 SCALE: 1" = 50' 1" = 5'



HANDICAP RAMP DETAIL
 No Scale



SECTION "A-A"



CORNER HANDICAP RAMP DETAIL

REV. DATE	REV. NO.	REVISION DESCRIPTION
COLUMBIA 5TH ELECTION DISTRICT HOWARD COUNTY MARYLAND		
OWNER AND DEVELOPER THE HOWARD RESEARCH AND DEVELOPMENT LAND COMPANY		
PROJECT AREA: VILLAGE OF HICKORY RIDGE SECTION 6 AREA 5		
PROJECT TITLE: ROADWAY AND STORM DRAIN DETAILS		
SCALE: AS SHOWN		DATE: Nov. 10, 1989
WHITMAN, REQUARDT AND ASSOCIATES ENGINEERS BALTIMORE, MARYLAND 21218		
<i>Thomas J. Shafer</i> THOMAS J. SHAFER REGISTERED ENGINEER NO. 8457		

42

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

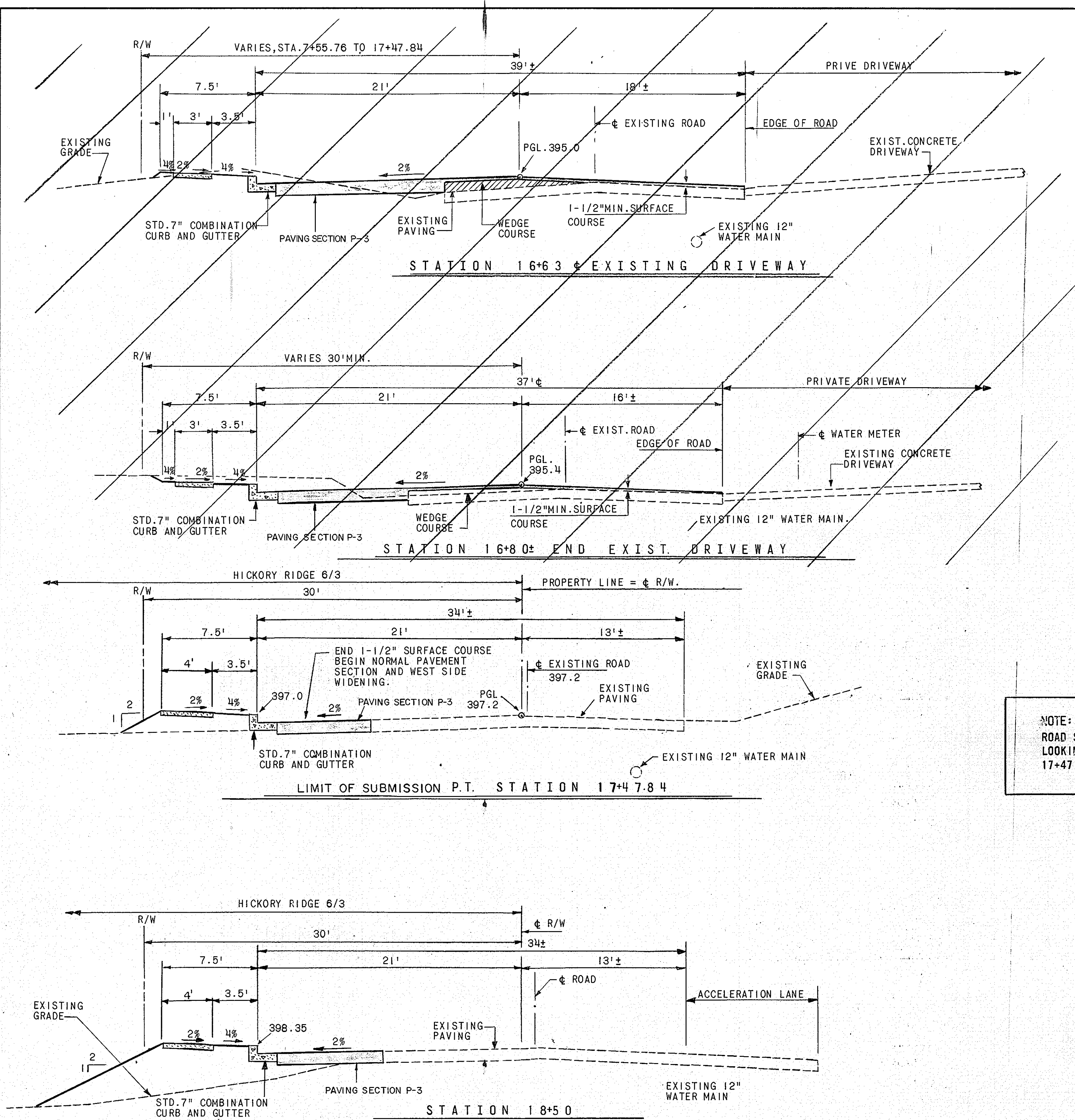
Paul D. Seaman 3/23/90
 CHIEF, LAND DEVELOPMENT DIVISION DATE

William W. Wallace 3/20/90
 CHIEF, BUREAU OF HIGHWAYS DATE

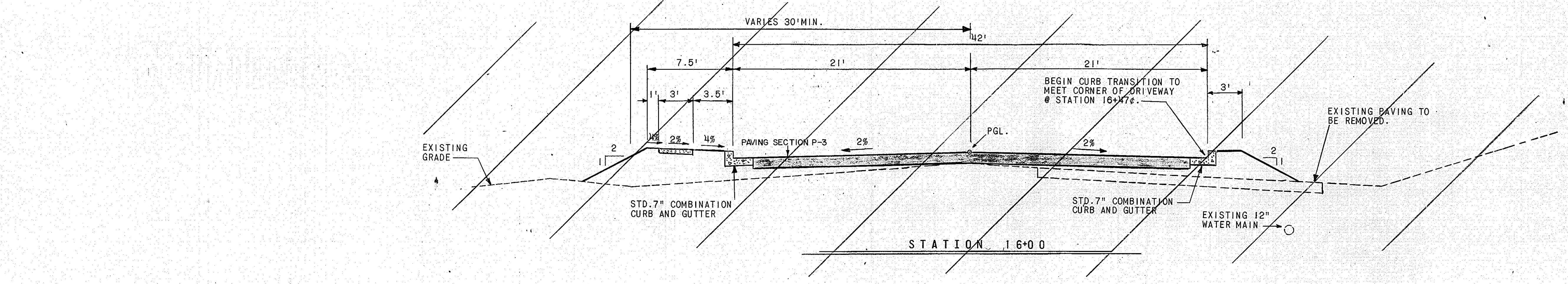
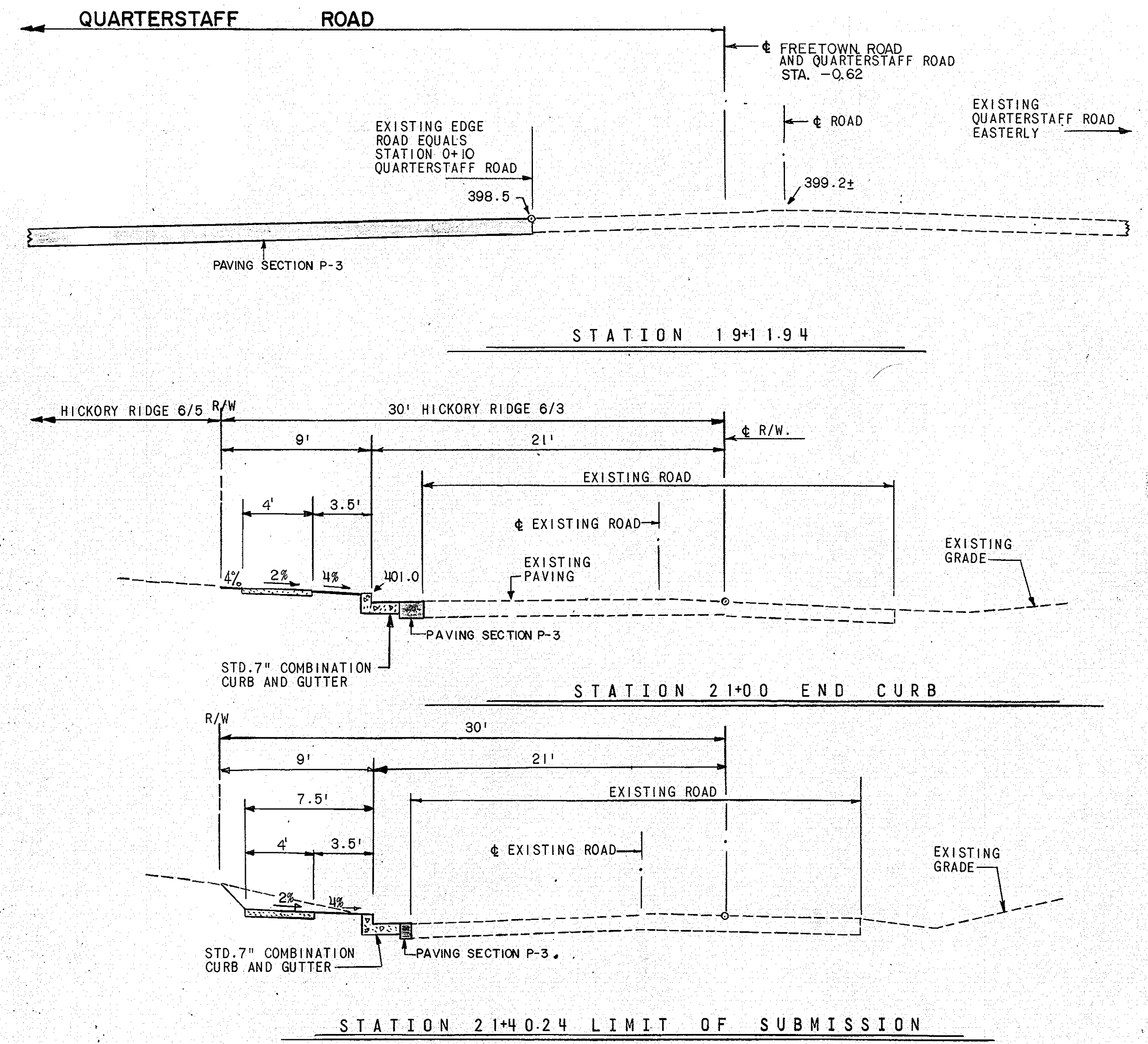
William W. Wallace 3-24-90
 CHIEF, BUREAU OF ENGINEERING DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Thomas J. Shafer 3/27/90
 CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT DATE

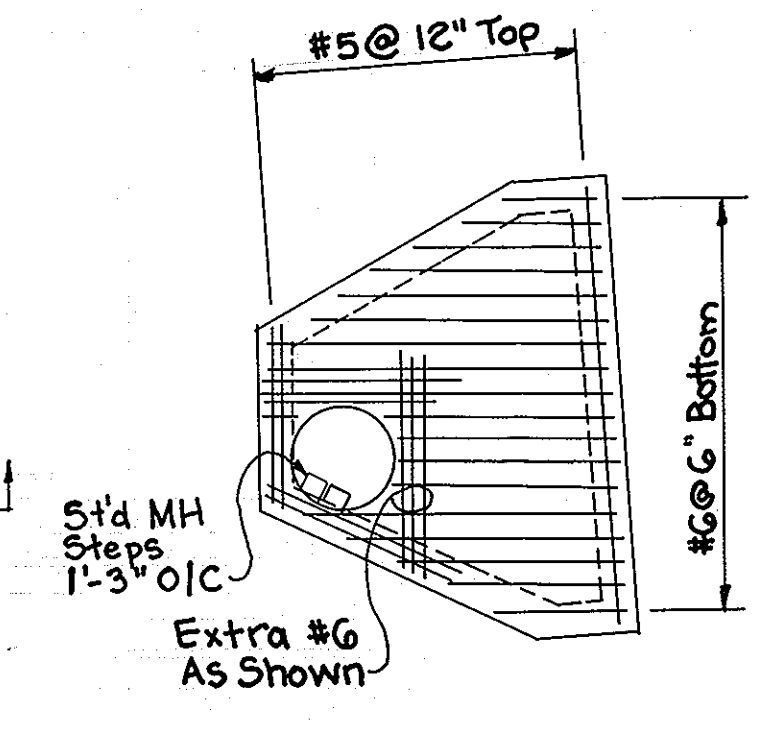
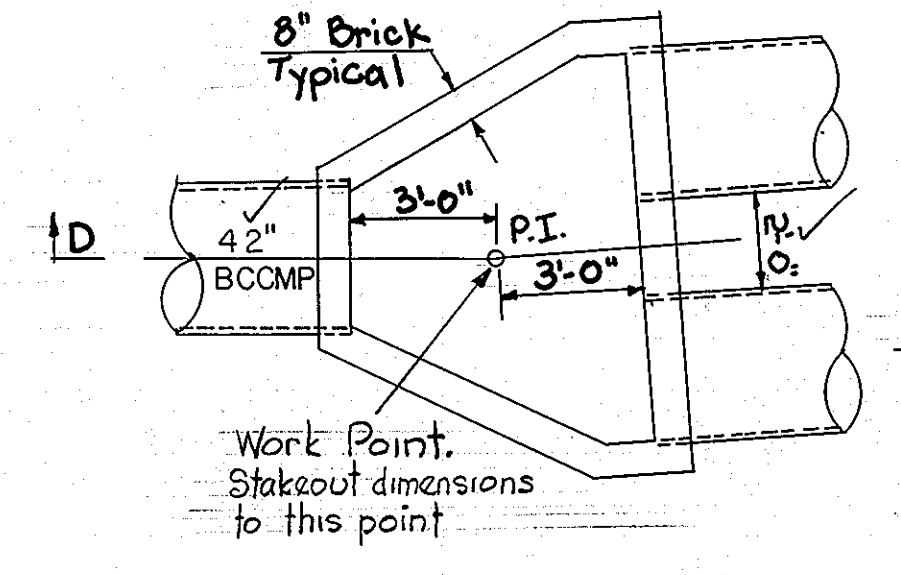
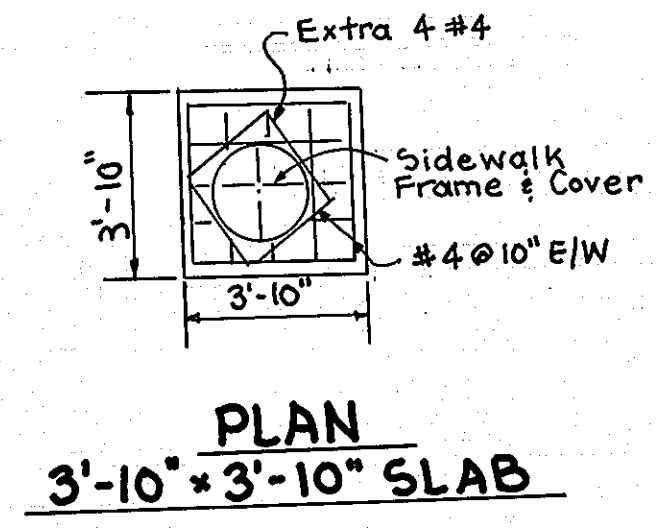
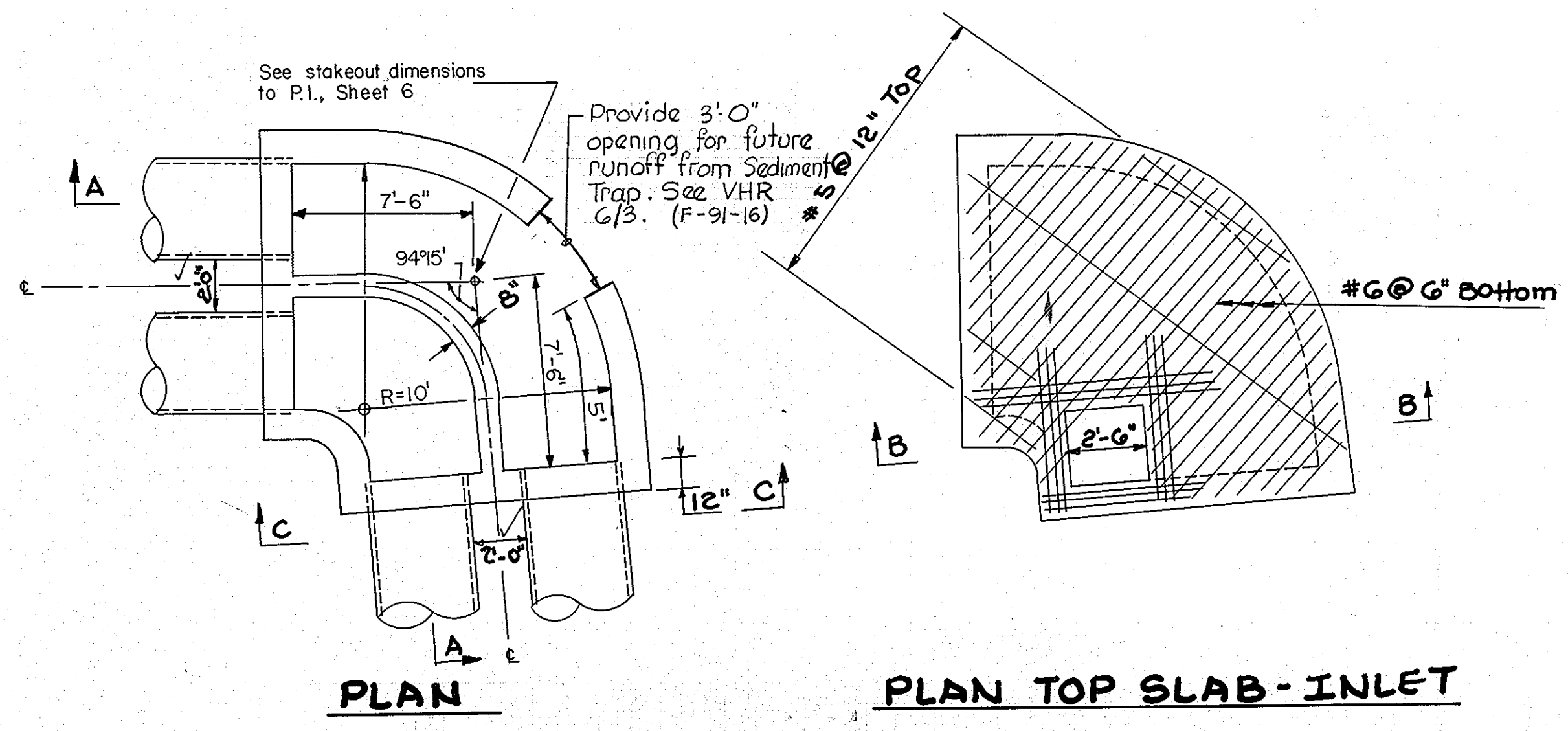


NOTE:
 ROAD SECTIONS ARE SHOWN
 LOOKING BACK AT STATION
 17+47.84.

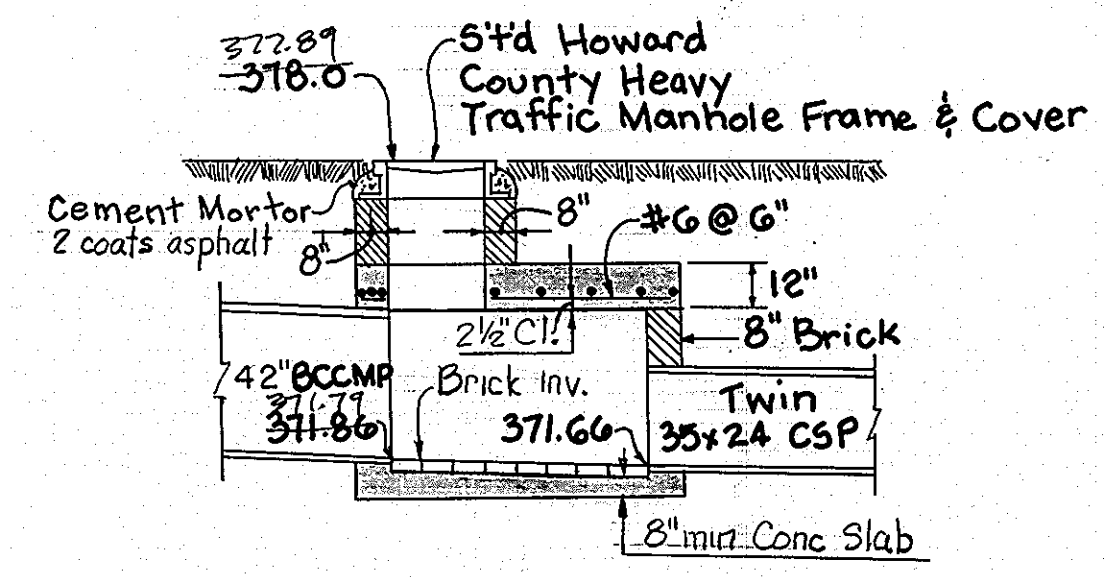
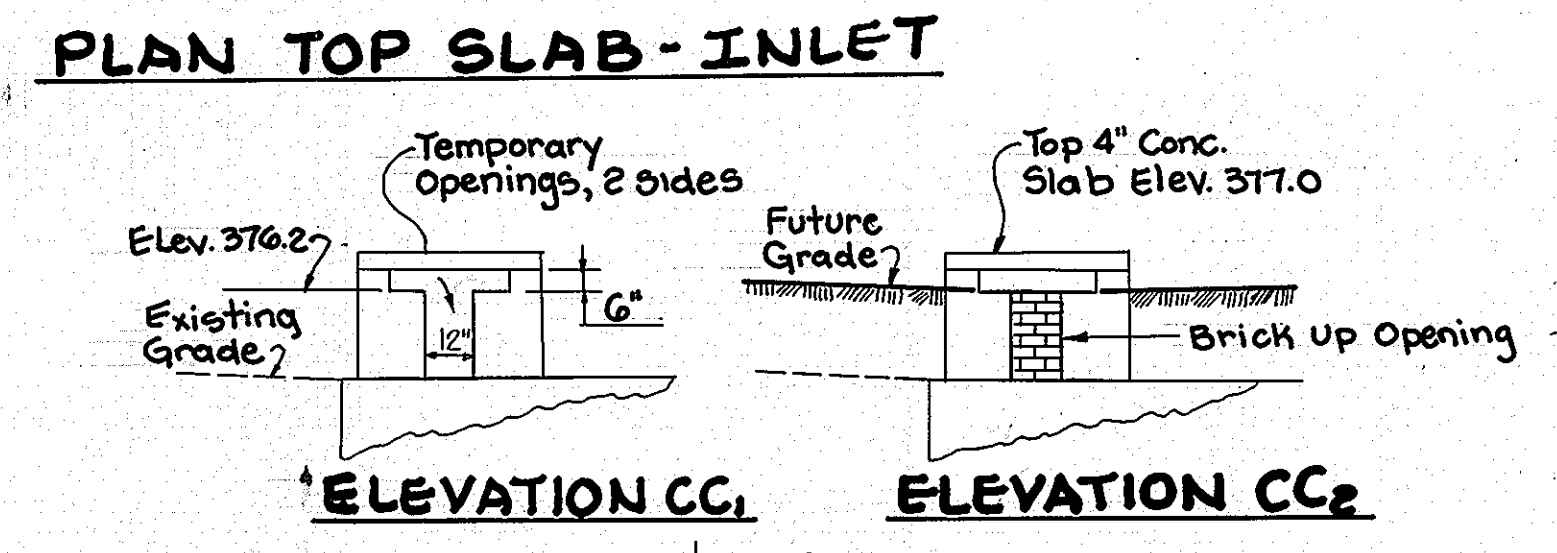


REV. DATE	REV. NO.	REVISION DESCRIPTION
COLUMBIA		
5TH ELECTION DISTRICT HOWARD COUNTY MARYLAND		
OWNER AND DEVELOPER THE HOWARD RESEARCH AND DEVELOPMENT LAND COMPANY		
PROJECT AREA: VILLAGE OF HICKORY RIDGE SECTION 6 AREA 5		
PROJECT TITLE: ROADWAY DETAILS FREETOWN ROAD		
SCALE: 1" = 5'		DATE:
WHITMAN, REQUARDT AND ASSOCIATES ENGINEERS BALTIMORE, MARYLAND 21218		
<i>Thomas J. Shafer</i> THOMAS J. SHAFER REGISTERED ENGINEER NO. 8457		

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Small 3/23/90
 CHIEF, LAND DEVELOPMENT DIVISION DATE
Draville W. Welwood 3/20/90
 CHIEF, BUREAU OF HIGHWAYS DATE
William S. Gony 3-24-90
 CHIEF, BUREAU OF ENGINEERING DATE
 APPROVED: DEPARTMENT OF PLANNING AND ZONING
Frank J. Daniel 4/23/90
 CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT DATE
 JES

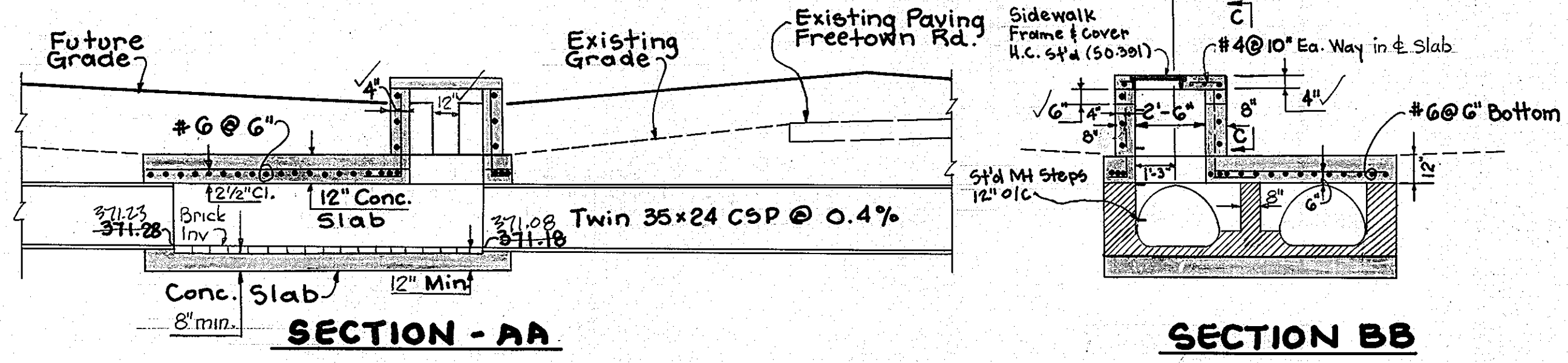


NOTE:
 This Structure Shall Be Constructed Initially As shown In Elevation CC.

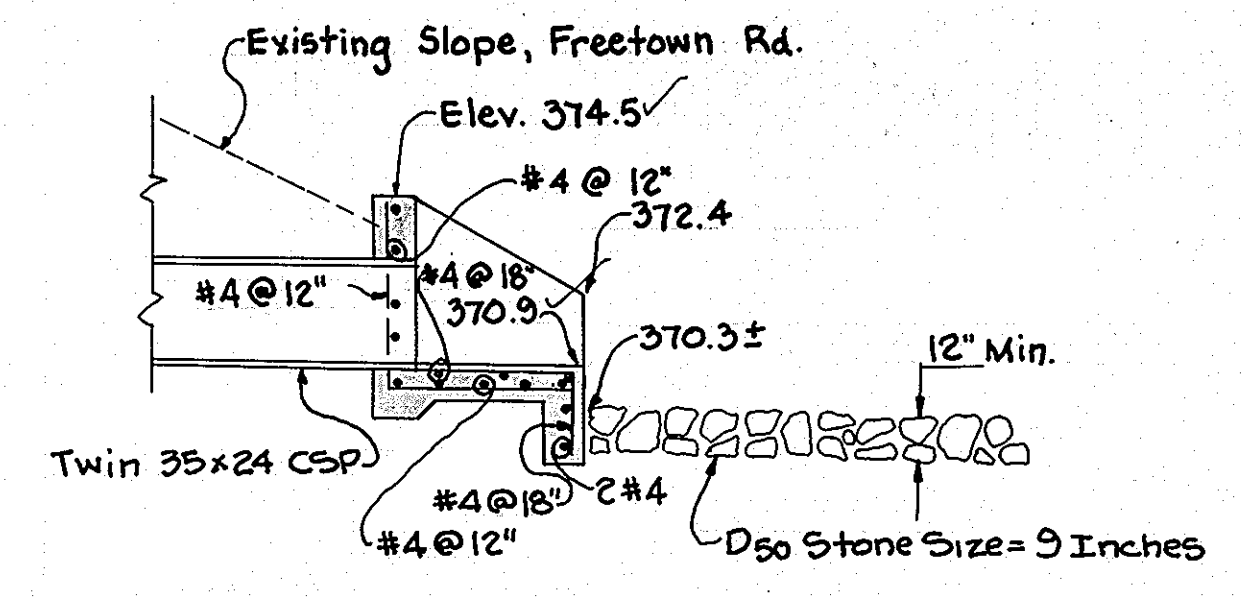
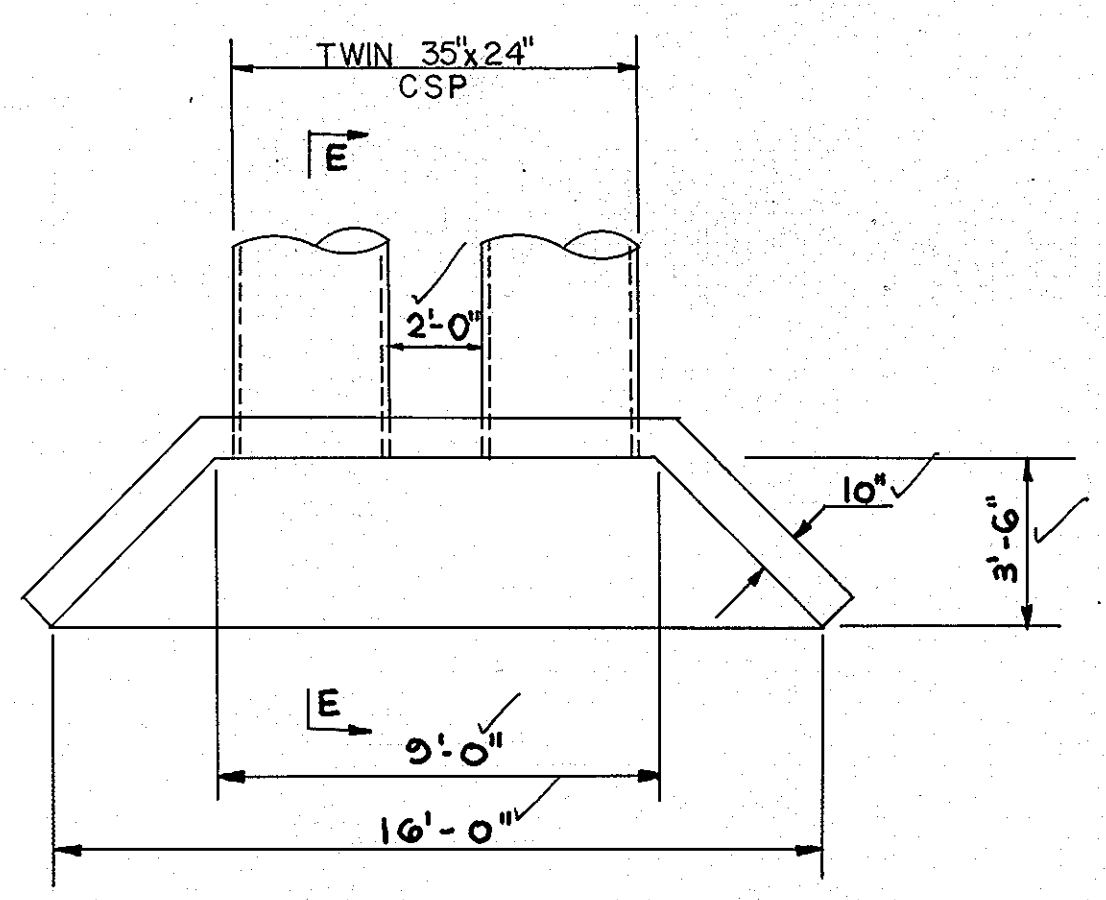


DETAIL MH-17
 Scale: 1/4" = 1'-0"

NOTE:
 THESE STRUCTURES SHOULD CONFORM TO STANDARDS AS SHOWN IN HOWARD COUNTY STANDARD DETAILS 1.01 AND 1.02.



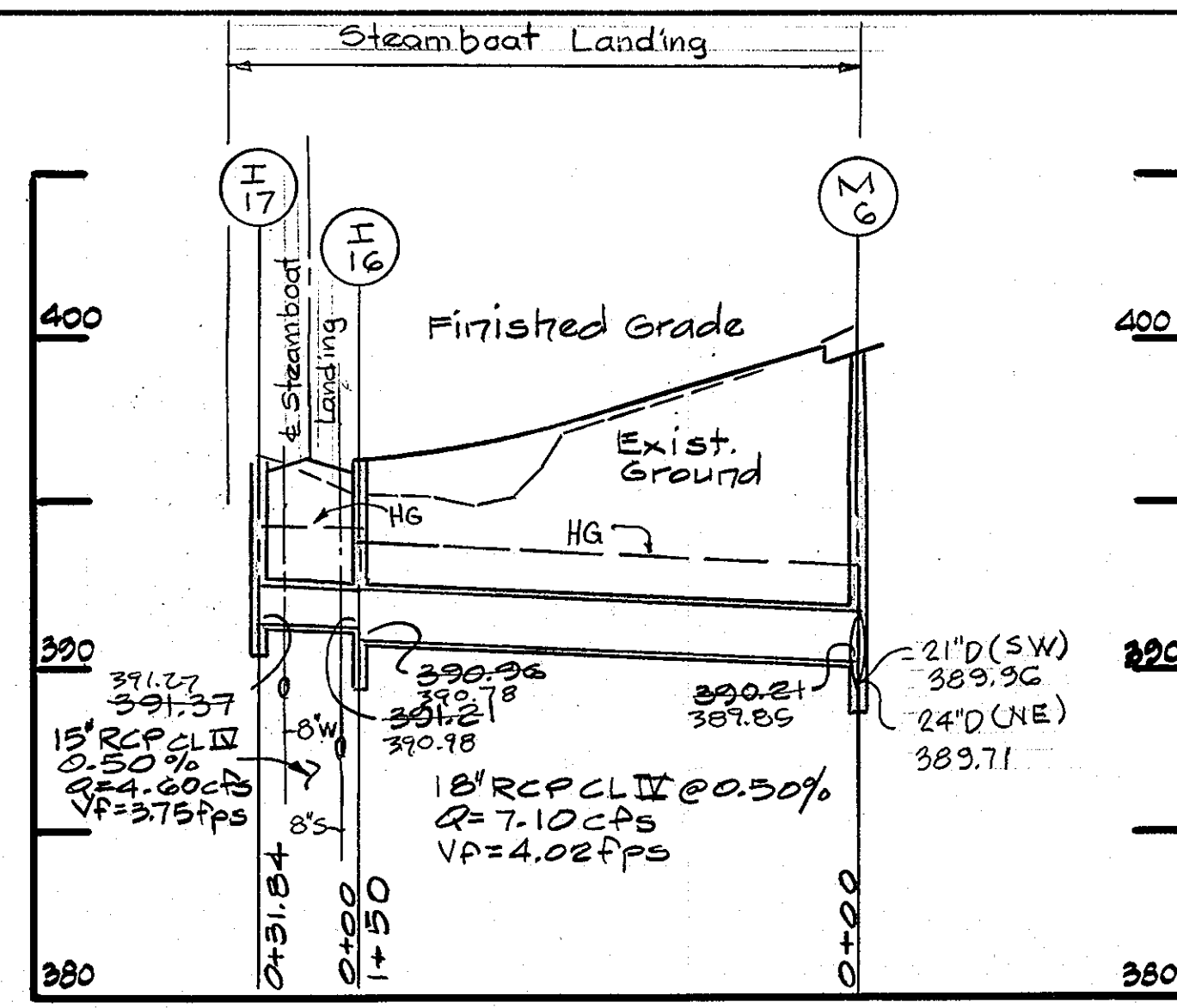
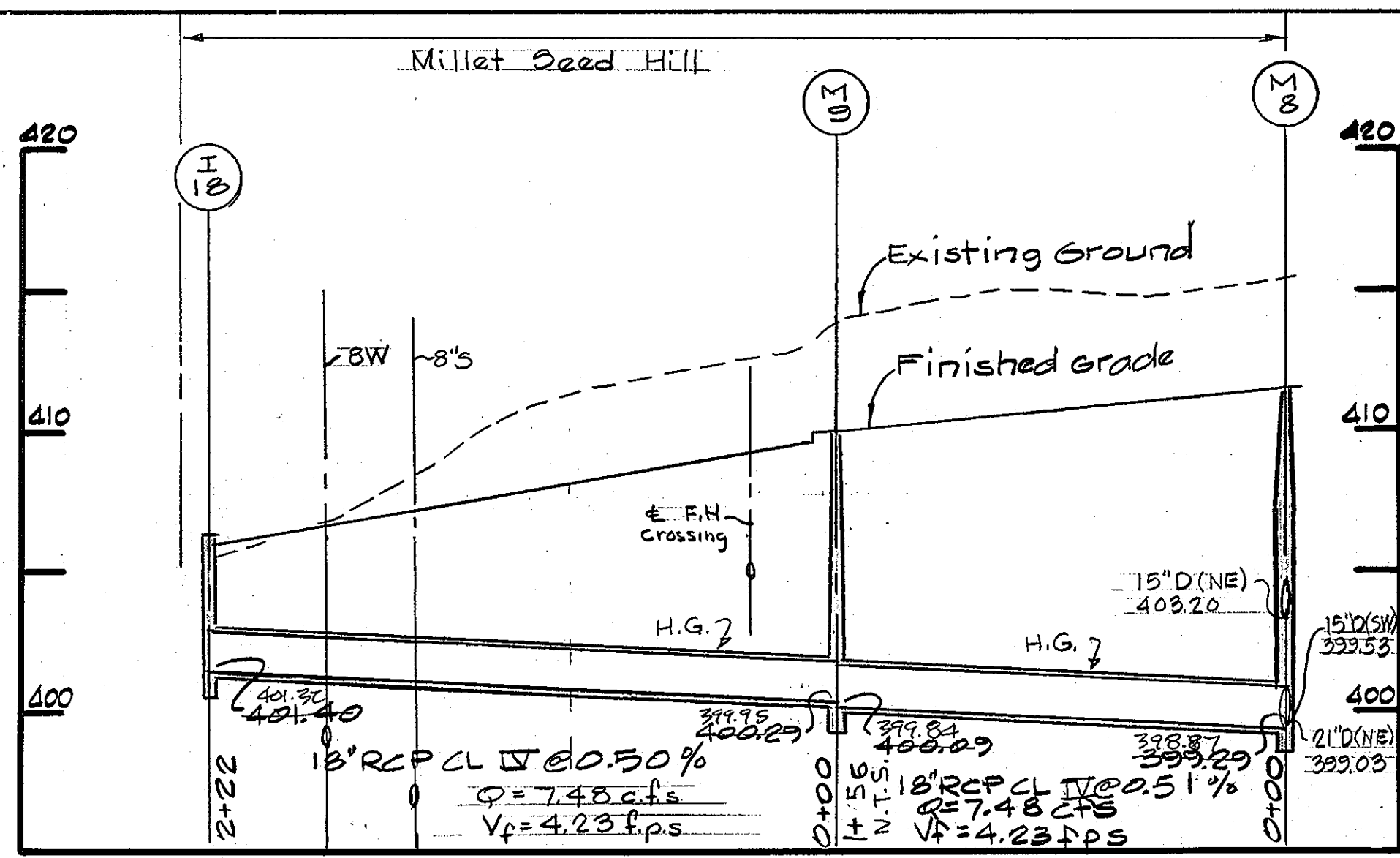
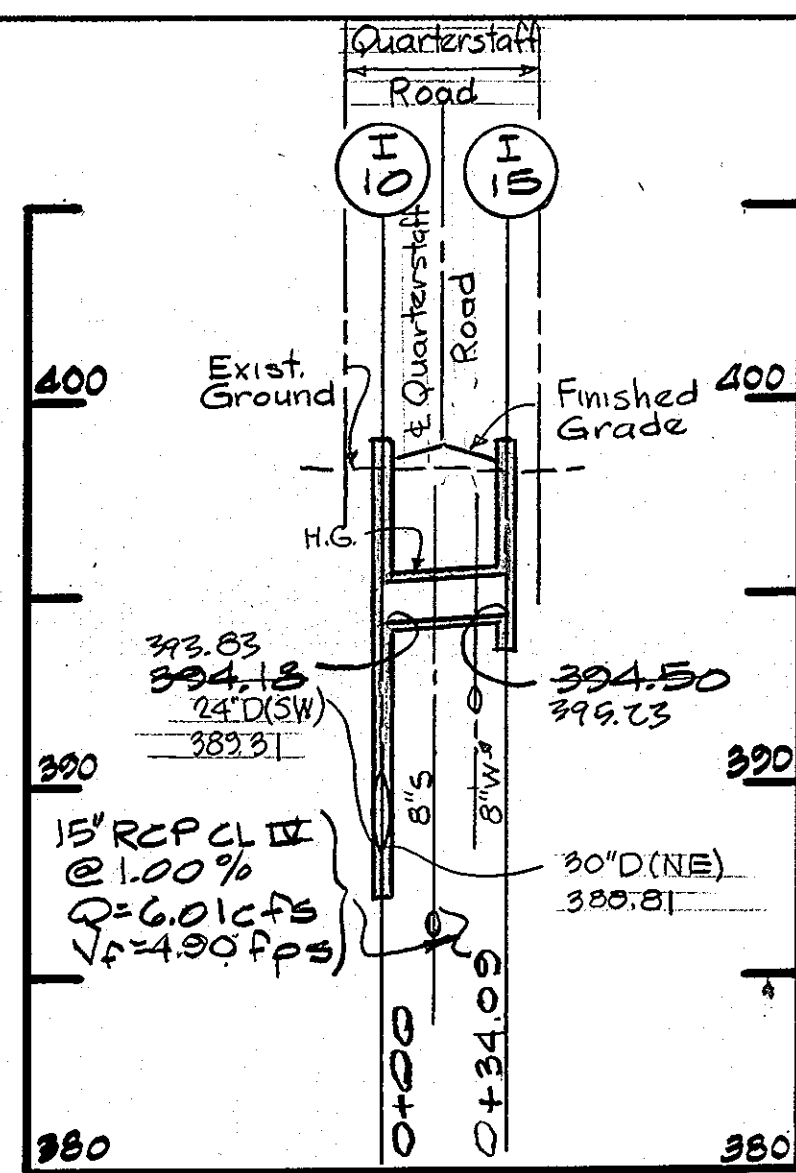
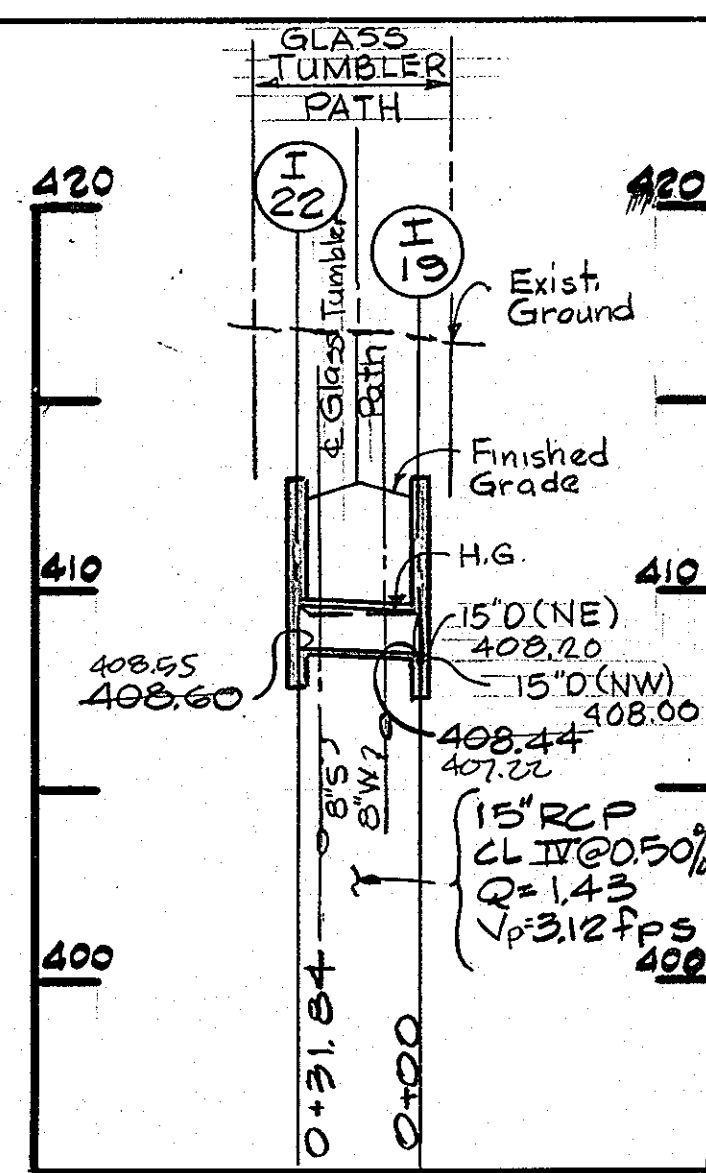
DETAIL I-36+
 Scale: 1/4" = 1'-0"



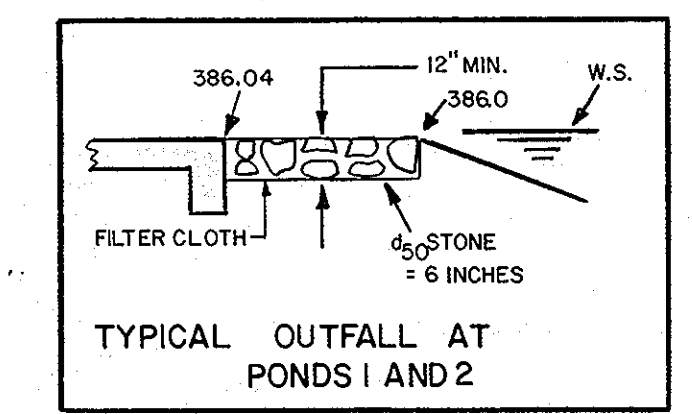
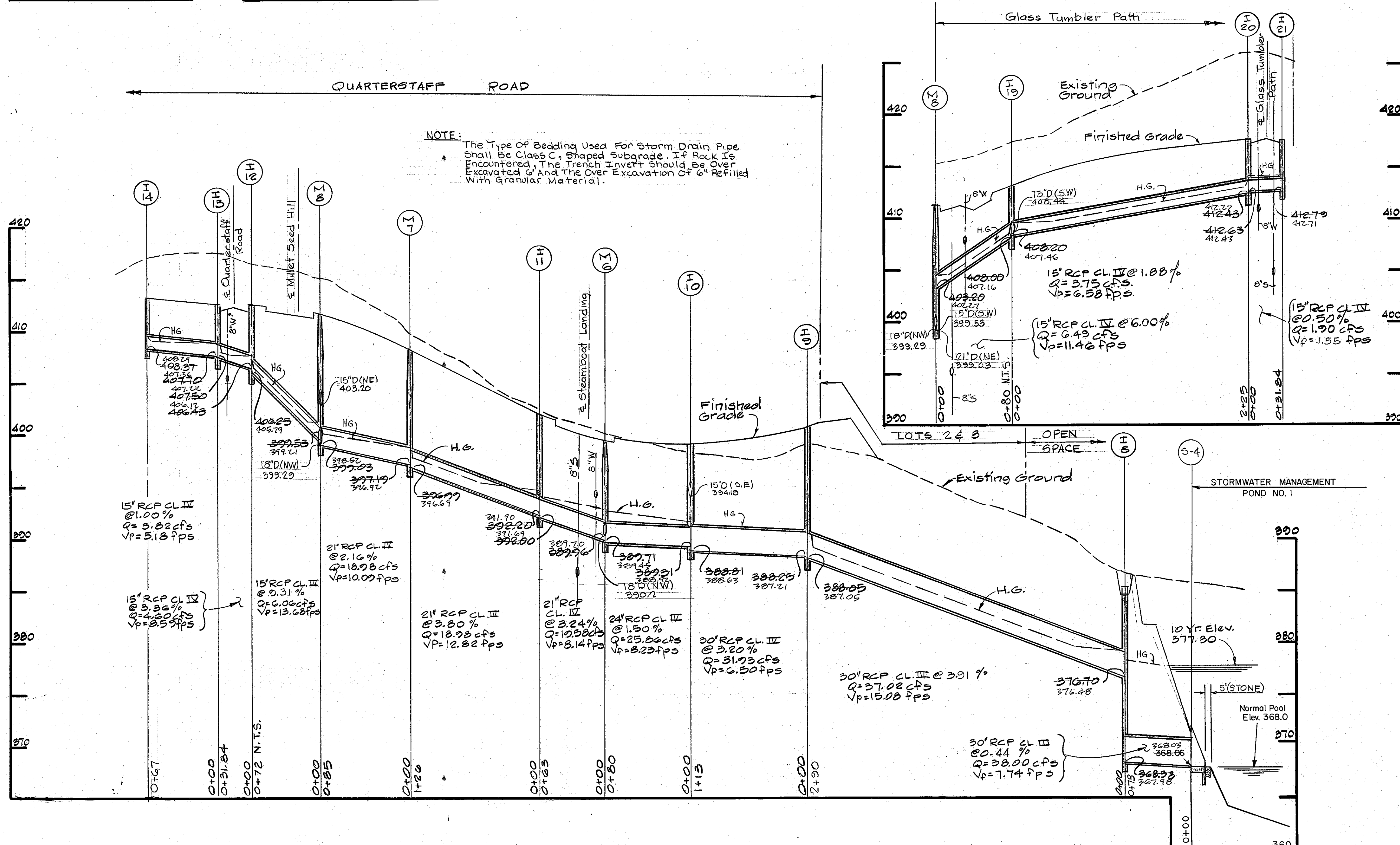
AS-BUILT
 SHANABERGER & LANE
 PROFESSIONAL LAND SURVEYORS
 1/6/93 DATE

SHANABERGER & LANE
 8726 TOWN & COUNTRY BLVD.
 SUITE 104
 ELLICOTT CITY, MARYLAND 21043

REV. DATE	REV. NO.	REVISION DESCRIPTION
COLUMBIA 5TH ELECTION DISTRICT HOWARD COUNTY MARYLAND		
OWNER AND DEVELOPER THE HOWARD RESEARCH AND DEVELOPMENT LAND COMPANY		
PROJECT AREA: VILLAGE OF HICKORY RIDGE SECTION 6 AREA 5		
PROJECT TITLE: STORM DRAIN PROFILES		
SCALE: AS SHOWN		DATE: Nov. 10, 1989
WHITMAN, REQUARDT AND ASSOCIATES ENGINEERS BALTIMORE, MARYLAND 21218		
<i>Thomas J. Shafer</i> THOMAS J. SHAFER REGISTERED ENGINEER NO. 8457		



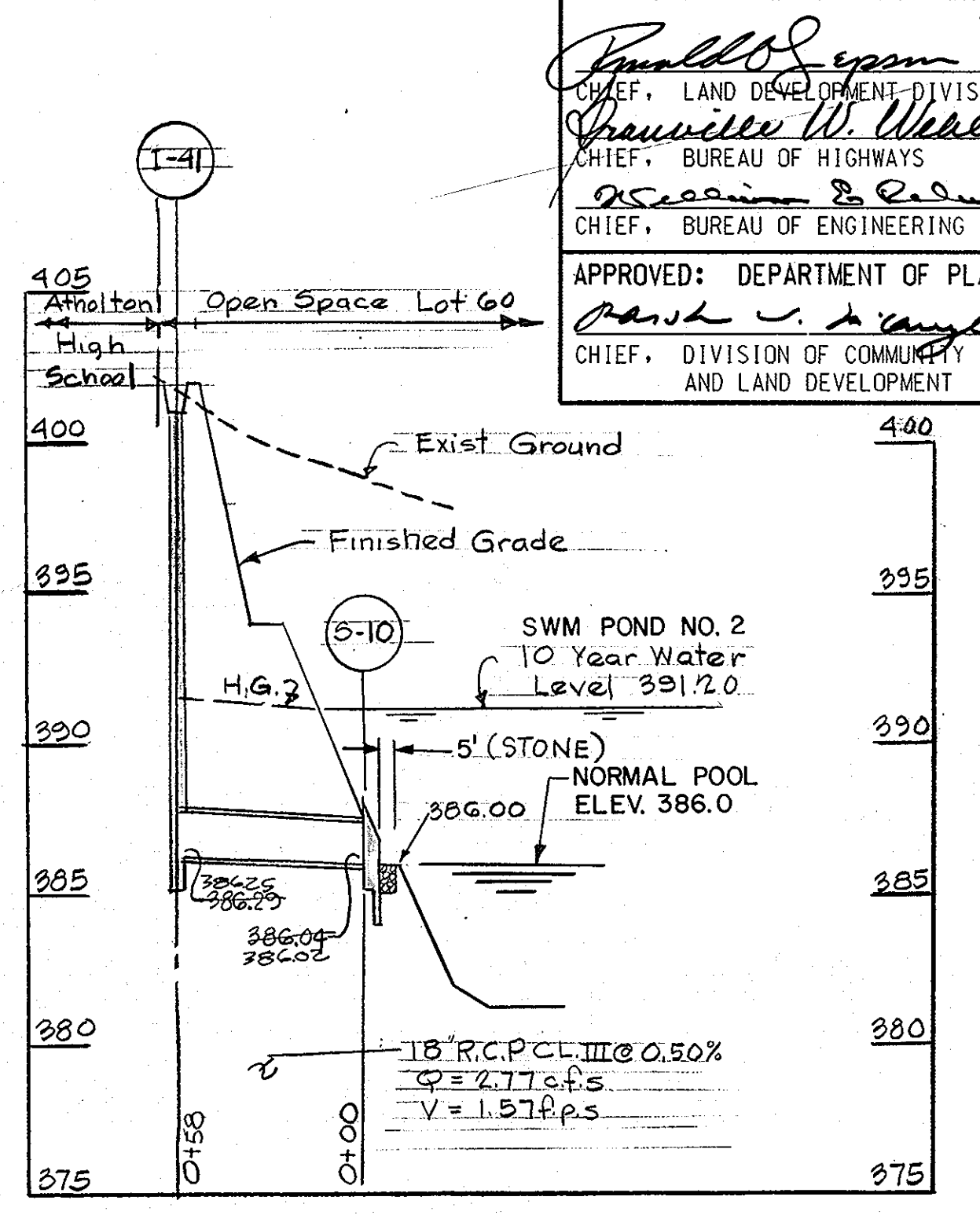
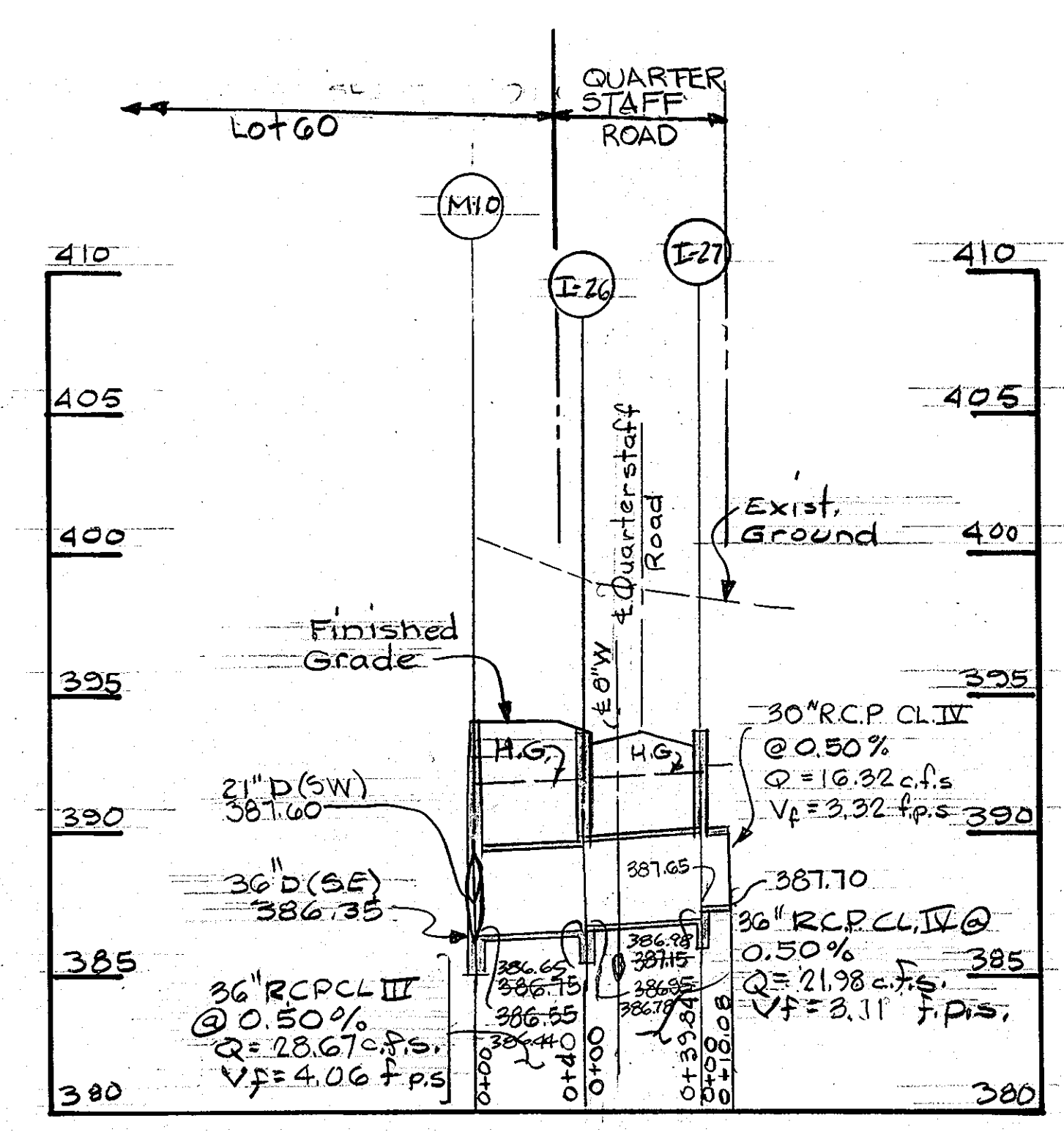
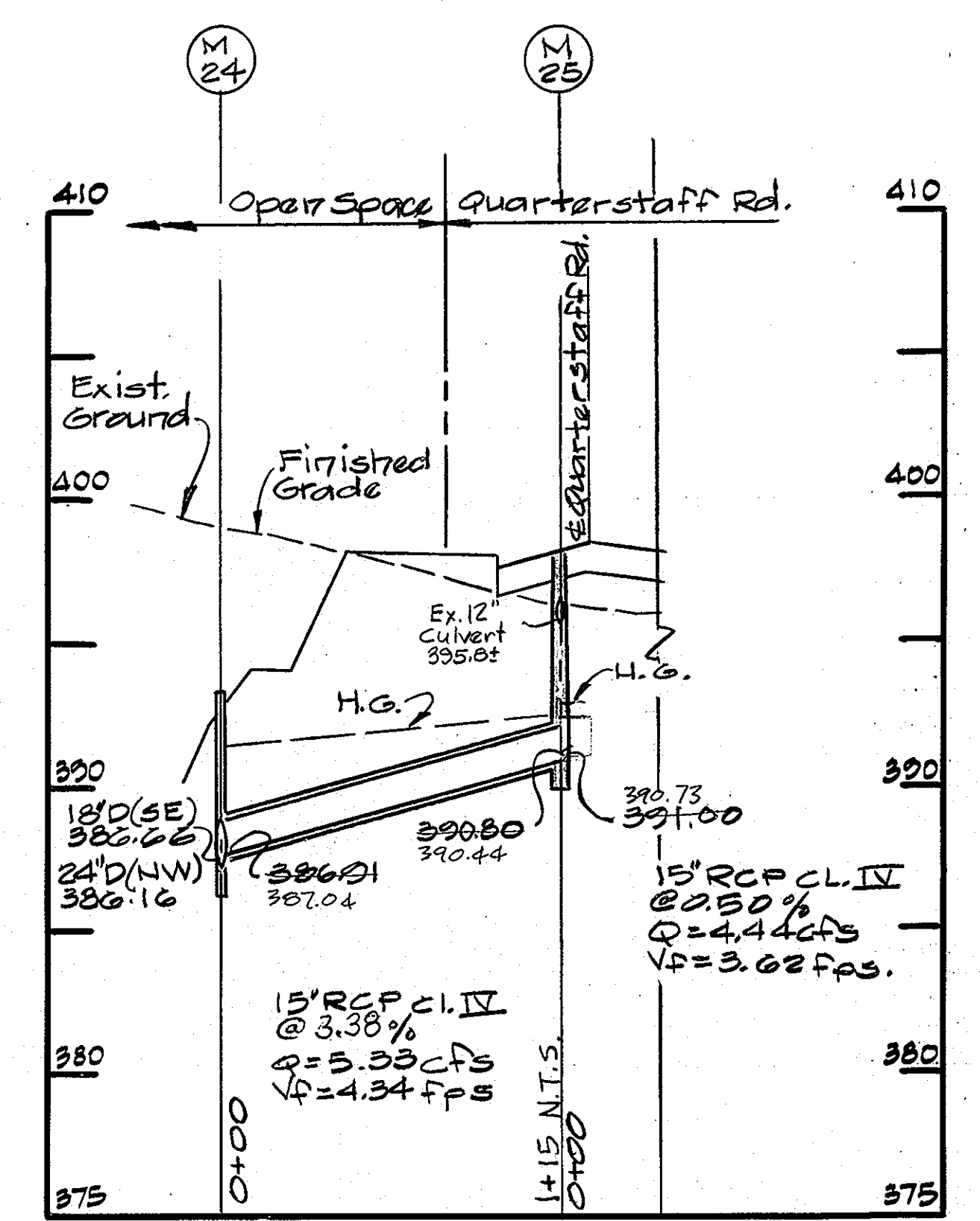
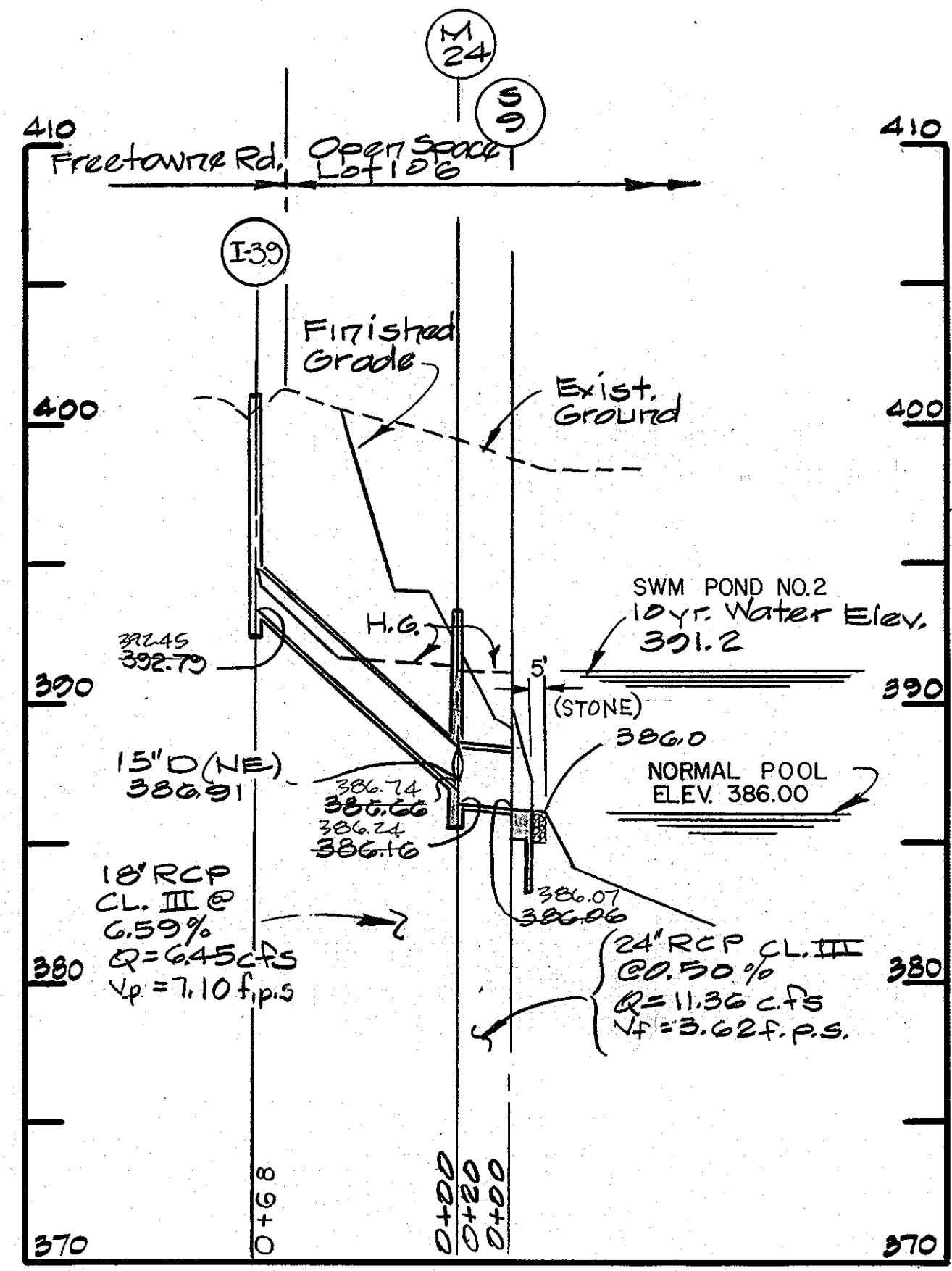
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Donald Eason 3/23/90
 CHIEF, LAND DEVELOPMENT DIVISION DATE
Lawrence W. Weiland 3/22/90
 CHIEF, BUREAU OF HIGHWAYS DATE
James R. Kelly 3-22-90
 CHIEF, BUREAU OF ENGINEERING DATE
 APPROVED: DEPARTMENT OF PLANNING AND ZONING
Mark J. Taylor 3/23/90
 CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT DATE



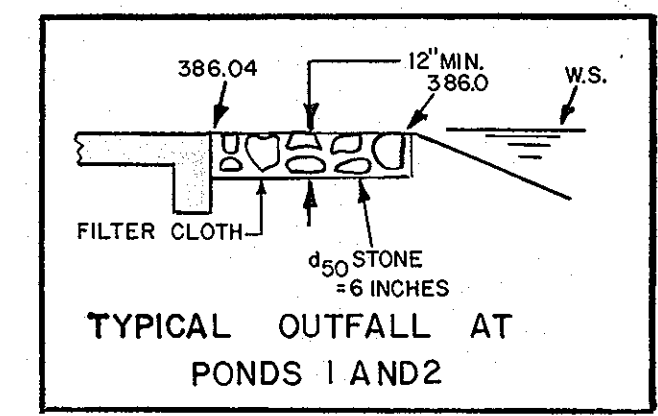
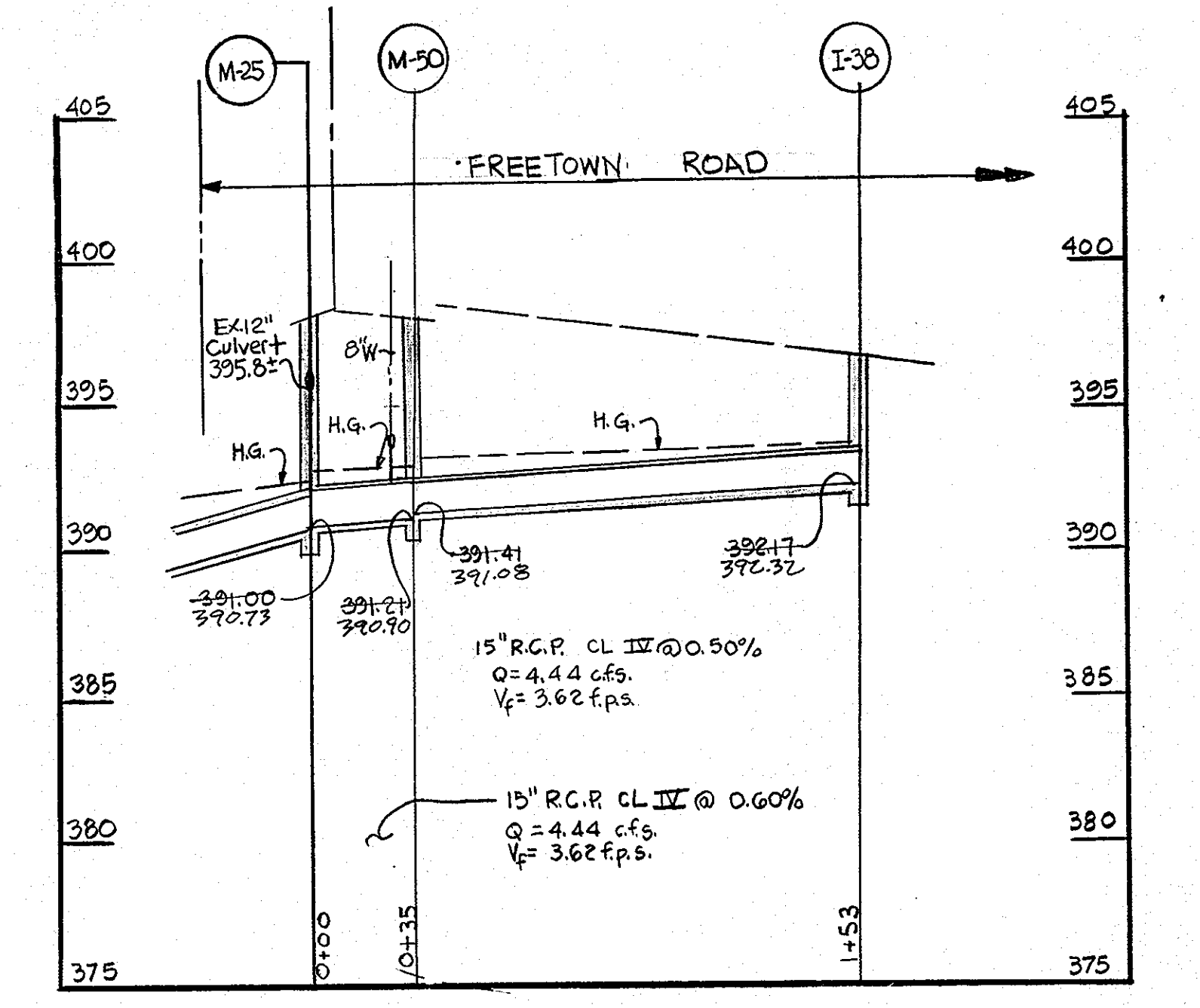
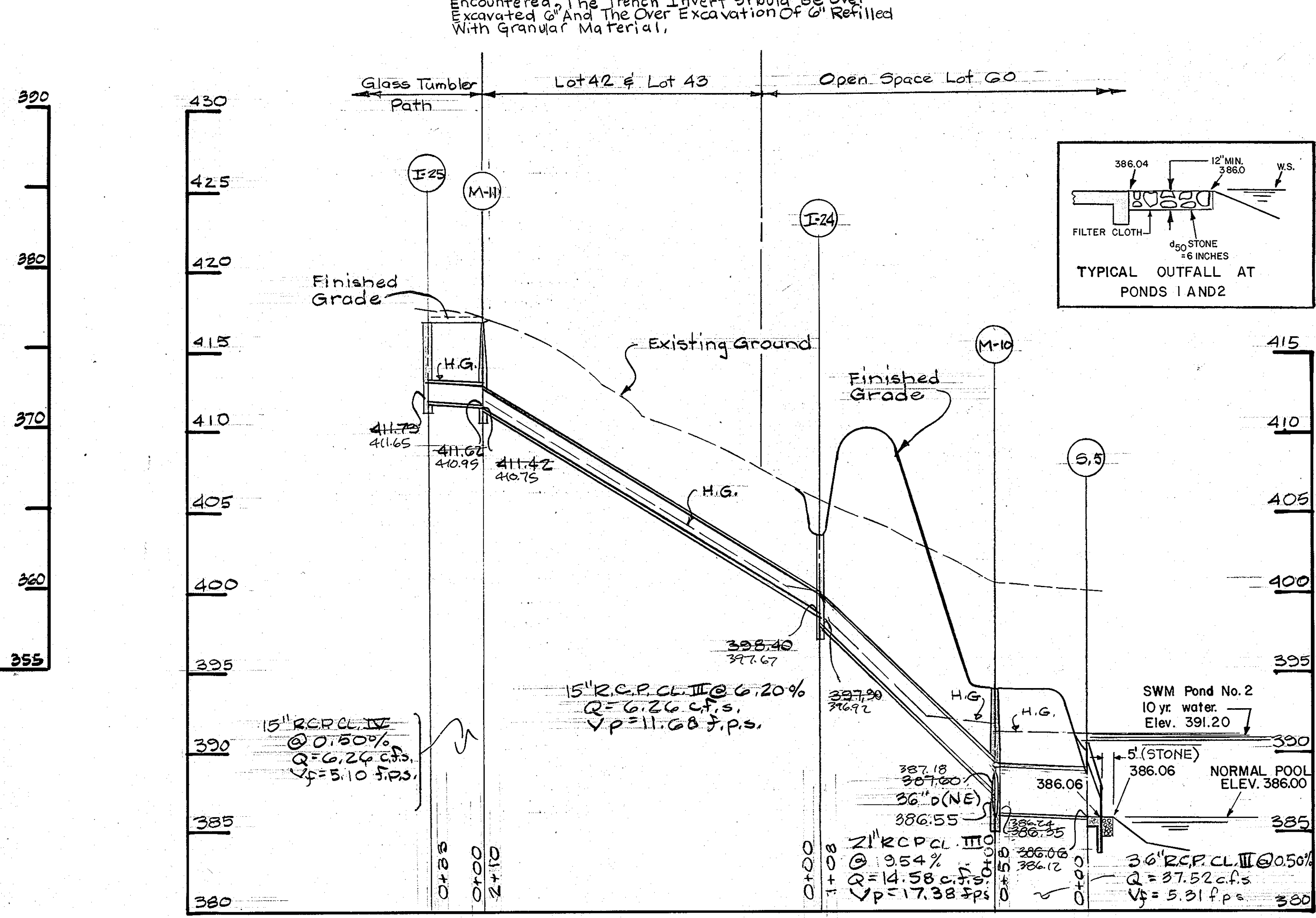
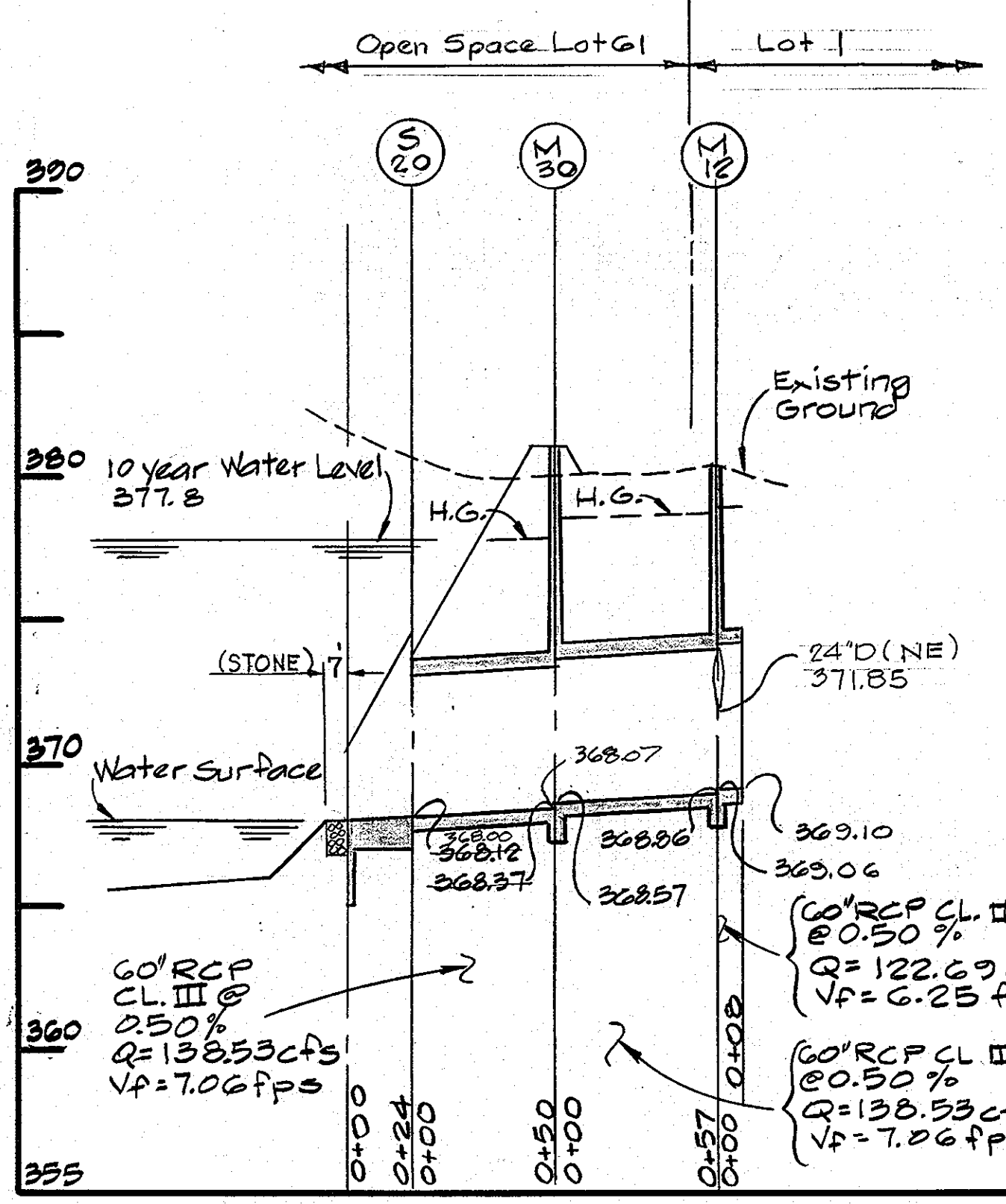
AG-BUILT
Scott Shanaberger 1/2/93
 A. SCOTT SHANABERGER DATE
 PROFESSIONAL L.S. # 10249
SHANABERGER & LANE
 8726 TOWN & COUNTRY BLVD.
 SUITE 104
 ELLICOTT CITY, MARYLAND 21043

REV. DATE	REV. NO.	REVISION DESCRIPTION
COLUMBIA		
5TH ELECTION DISTRICT HOWARD COUNTY MARYLAND		
OWNER AND DEVELOPER THE HOWARD RESEARCH AND DEVELOPMENT LAND COMPANY		
PROJECT AREA: VILLAGE OF HICKORY RIDGE SECTION 6 AREA 5		
PROJECT TITLE: STORM DRAIN PROFILES		
SCALE: 1" = 50', 1" = 5'		DATE: Nov 10, 1989
WHITMAN, REQUARDT AND ASSOCIATES ENGINEERS BALTIMORE, MARYLAND 21218		
<i>Thomas J. Shafer</i> THOMAS J. SHAFER REGISTERED ENGINEER NO. 8457		

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 DATE 3/23/90
 CHIEF, LAND DEVELOPMENT DIVISION
 DATE 9/20/96
 CHIEF, BUREAU OF HIGHWAYS
 DATE 3/22/90
 CHIEF, BUREAU OF ENGINEERING
 DATE
 APPROVED: DEPARTMENT OF PLANNING AND ZONING
 DATE 3/23/90
 CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT
 DATE 4/5



NOTE: The Type of Bedding Used For Storm Drain Pipe Shall be Class C, Shaped Subgrade. If Rock is encountered, The Trench Invert Should be Over Excavated and The Over Excavation of Retilled With granular Material.



REV. DATE	REV. NO.	REVISION DESCRIPTION
COLUMBIA 5TH ELECTION DISTRICT HOWARD COUNTY MARYLAND		
OWNER AND DEVELOPER THE HOWARD RESEARCH AND DEVELOPMENT LAND COMPANY		
PROJECT AREA: VILLAGE OF HICKORY RIDGE SECTION 6 AREA 5		
PROJECT TITLE: STORM DRAIN PROFILES		
SCALE: 1" = 50', 1" = 5'		DATE: Nov 10, 1989
WHITMAN, REQUARDT AND ASSOCIATES ENGINEERS BALTIMORE, MARYLAND 21218		
<i>Thomas J. Shaper</i> THOMAS J. SHAPER REGISTERED ENGINEER NO. 8457		

SHANBERGER & LANE
 8726 TOWN & COUNTRY BLVD.
 SUITE 104
 ELLICOTT CITY, MARYLAND 21118

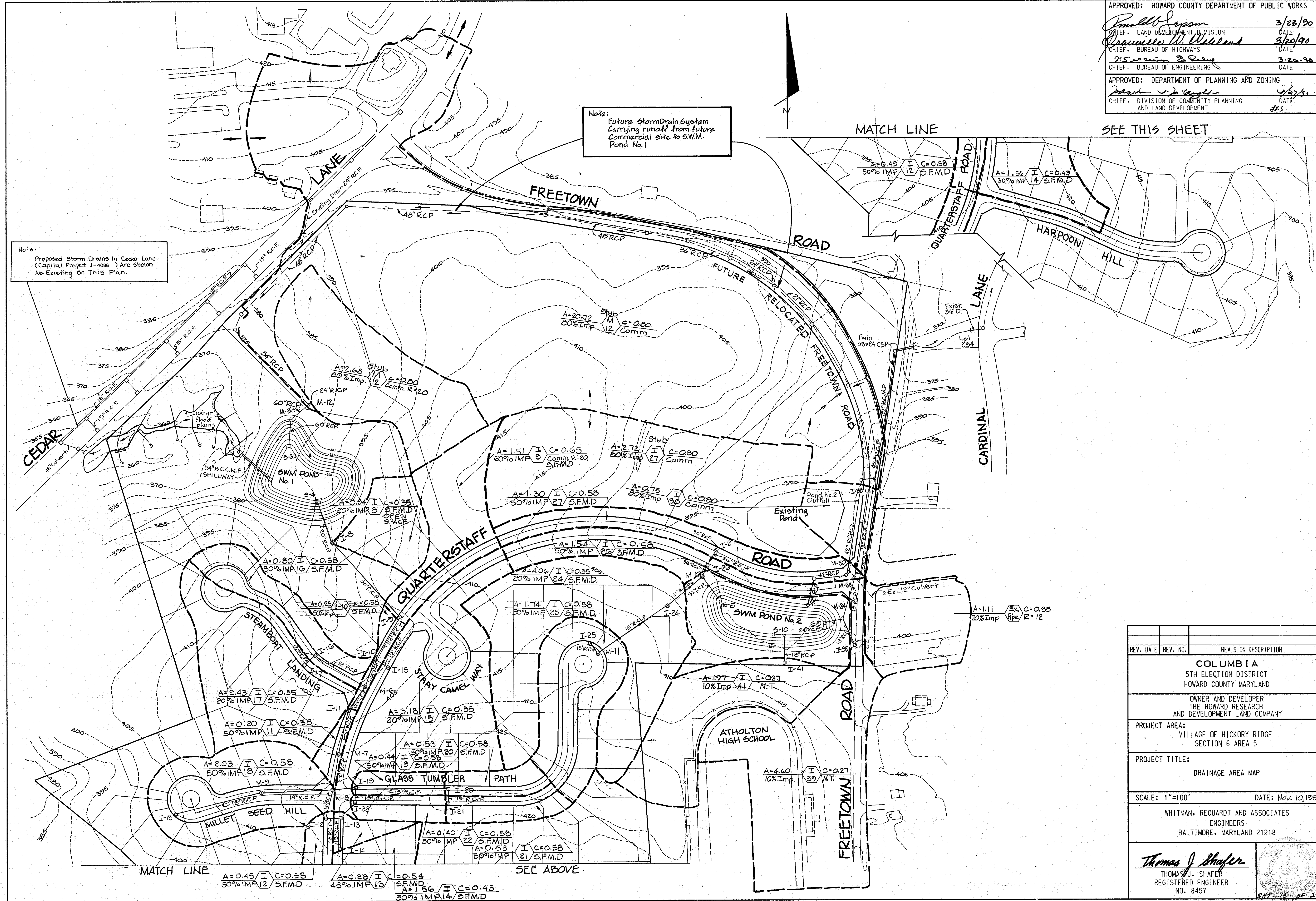
Scott Shanaberger
 G. SCOTT SHANBERGER
 PROFESSIONAL L.S. #10049



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Small's System 3/23/90
 CHIEF, LAND DEVELOPMENT DIVISION DATE
Draville W. Welland 3/20/90
 CHIEF, BUREAU OF HIGHWAYS DATE
W. S. ... 3-26-90
 CHIEF, BUREAU OF ENGINEERING DATE
 APPROVED: DEPARTMENT OF PLANNING AND ZONING
... 3/23/90
 CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT DATE

Note:
 Future Storm Drain System
 Carrying runoff from future
 Commercial site to S.W.M.
 Pond No. 1

Note:
 Proposed Storm Drains in Cedar Lane
 (Capital Project J-4086) Are Shown
 As Existing On This Plan.



MATCH LINE SEE THIS SHEET

REV. DATE	REV. NO.	REVISION DESCRIPTION
		COLUMBIA 5TH ELECTION DISTRICT HOWARD COUNTY MARYLAND
		OWNER AND DEVELOPER THE HOWARD RESEARCH AND DEVELOPMENT LAND COMPANY
		PROJECT AREA: VILLAGE OF HICKORY RIDGE SECTION 6. AREA 5
		PROJECT TITLE: DRAINAGE AREA MAP
		SCALE: 1"=100' DATE: Nov. 10, 1989
		WHITMAN, REQUARDT AND ASSOCIATES ENGINEERS BALTIMORE, MARYLAND 21218
		<i>Thomas J. Shafer</i> THOMAS J. SHAFER REGISTERED ENGINEER NO. 8457

42

LIMIT OF WETLANDS SHALL BE FLAGGED AND THE LIMIT OF DISTURBANCE SHALL BE CLEARLY MARKED TO AVOID WETLANDS.

SEQUENCE OF CONSTRUCTION

PHASE ONE (See Drawings 15,16,17,18 And 19).

1. OBTAIN GRADING PERMIT.
2. PLACE STABILIZED CONSTRUCTION ENTRANCE (SEE SHEET 16).
3. CLEAR AND GRUB AREAS FOR SEDIMENT CONTROL FACILITIES ONLY.
4. INSTALL DIKES, STONE FILTERS, SILT FENCES, AND TRAP NO. 1. CONSTRUCT THE PERIMETER DIKE BETWEEN THE FUTURE FREETOWN ROAD RELOCATION AND QUARTERSTAFF ROAD, (SEE SHEET 18).
5. CONSTRUCT THE STORM DRAIN OUTFALL AND 42" SPILLWAY FOR POND NO. 2. MAINTAIN DRAINAGE AT EXISTING 12" CULVERT AT FREETOWN AND QUARTERSTAFF ROADS.
6. CONSTRUCT POND NO. 2. THE TEMPORARY DIKE ALONG THE SOUTH SIDE OF QUARTERSTAFF ROAD SHALL DIRECT UPSTREAM RUNOFF TO POND 2 UNTIL PROPOSED GRADES DICTATE OTHERWISE.
- * 7. CONSTRUCT THE 54" SPILLWAY AND POND NO. 1. SEE ALTERNATE SEQUENCE NOTES BELOW.
8. CONSTRUCT THE PERIMETER DITCH FROM POND 1 TO LIMIT SHOWN (AT END POINT OF PERIMETER DIKE, SEE SHEETS 18 AND 19). THE PERIMETER DITCH SHALL BE 5' AND 4" FLAT BOTTOM DITCH WITH 2:1 SIDE SLOPES AND MINIMUM DEPTH OF 1.5 FEET.
9. STRIP AND GRADE THE SITE.
10. INSTALL UTILITIES AND STORM DRAINS. EXCEPT THE STORM DRAIN WHICH CONNECTS THE EXISTING 12" CULVERT AT FREETOWN ROAD. (S-9 TO M-25 TO I-38, I-39). MAINTAIN STONE CONSTRUCTION ENTRANCE.

PHASE TWO (See Drawings 20 And 21)

12. CLEAR AND GRUB AND INSTALL NEW DIKE AND STONE FILTERS ALONG WEST SIDE OF OPEN SPACE AND WETLAND AREA AND FREETOWN ROAD RELOCATION BETWEEN FREETOWN ROAD RELOCATION AND QUARTERSTAFF ROAD. (SEE SHEET 20).
13. INSTALL NEW PERIMETER DIKE JUST WEST OF EXISTING PERIMETER DIKE.
14. CLEAR, GRUB AND STRIP BETWEEN THE NEW DIKES. THE EXISTING PERIMETER DIKE WILL BE REMOVED DURING THIS OPERATION.
15. WHEN PROPOSED GRADE IS REACHED, THE PERIMETER DIKE SHALL BE MOVED TO THE FINAL PERIMETER DIKE LOCATION.
16. REMOVE THE DIKE AND MOUND ALONG NORTH SIDE OF QUARTERSTAFF ROAD AND STABILIZE THE GRADED AREAS.
17. CONSTRUCT THE STORM DRAIN (S-9 TO M-25 TO I-38, I-39). SEE SHEET 15.
18. COMPLETE THE ROADWAY CONSTRUCTION AND STABILIZE ALL GRADED AND DISTURBED AREAS.
19. AFTER INSPECTION AND APPROVAL BY THE SEDIMENT CONTROL INSPECTOR, THE SILT FENCES ALONG THE STORM DRAIN OUTFALL (POND 2) MAY BE REMOVED.
20. ALL OTHER SEDIMENT CONTROLS SHALL REMAIN IN PLACE.

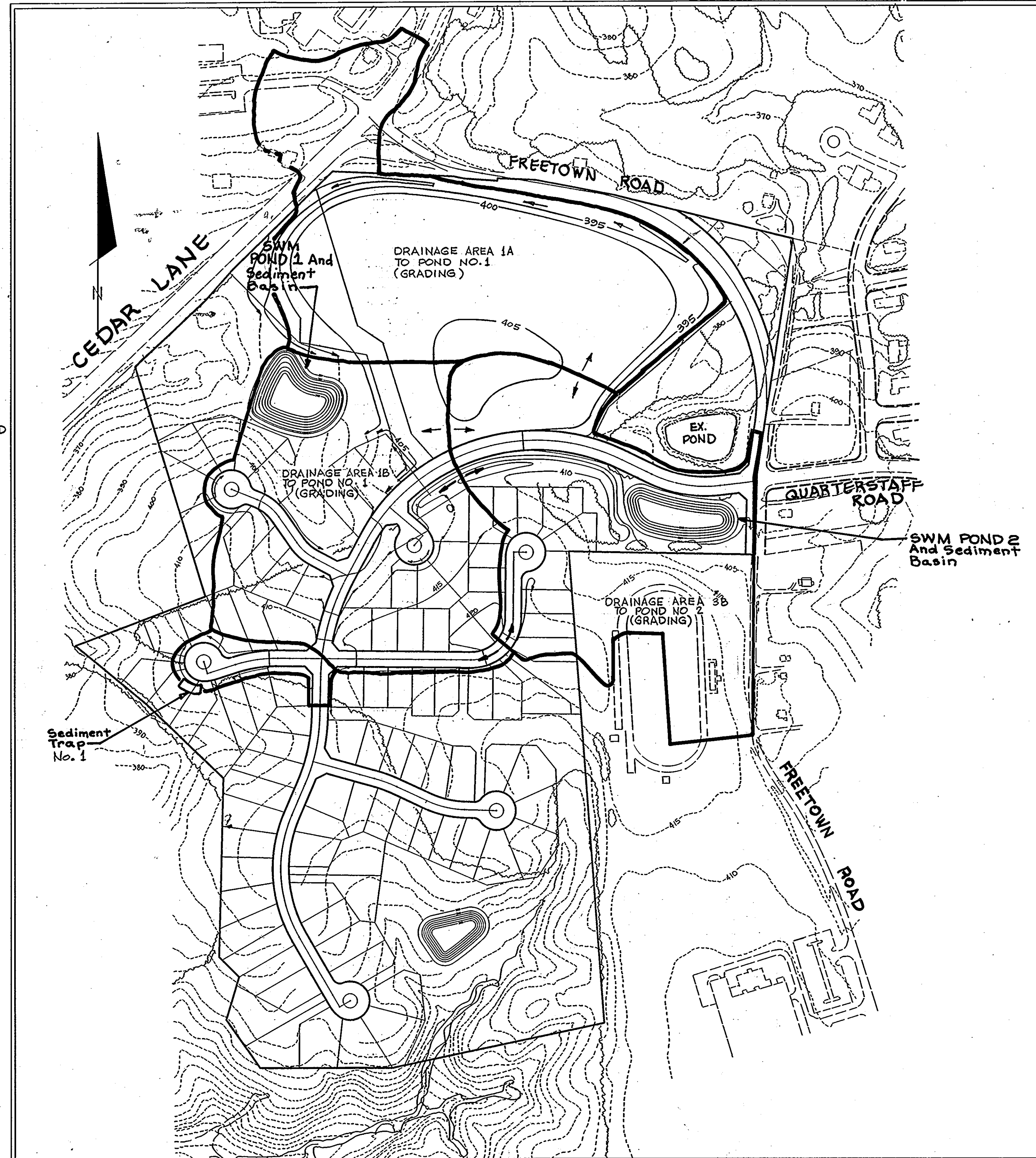
***ALTERNATE SEQUENCE OF CONSTRUCTION NOTES**

TEMPORARY 30" SPILLWAY AND ASSOCIATED APPURTENANCES SHALL BE INSTALLED ONLY IF ALL WETLAND PERMITS HAVE NOT BEEN OBTAINED AT THE TIME OF CONSTRUCTION. OTHERWISE CONSTRUCT 54" PRINCIPAL SPILLWAY ONLY. CONSULT PROJECT ENGINEER PRIOR TO CONSTRUCTION.

7a) INSTALL TEMPORARY 30" SPILLWAY FOR SEDIMENT CONTROL.

7b) BULKHEAD 54" B.C.M.P. AS SHOWN AND PROVIDE TEMPORARY ORIFICE COVERING IN RISER STRUCTURE. FOLLOW DETAILS ON SHEET 24 AND 25.

7c) TEMPORARY SPILLWAY SHALL BE REMOVED WHEN SEDIMENT BASIN IS CONVERTED TO SWM POND. CONSULT ENGINEER PRIOR TO CONSTRUCTION OF TEMPORARY SPILLWAY.



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Paul B. Blum 3/23/90
 CHIEF, LAND DEVELOPMENT DIVISION DATE
Charles W. Weiland 3/20/90
 CHIEF, BUREAU OF HIGHWAYS DATE
William S. Ryan 3-24-90
 CHIEF, BUREAU OF ENGINEERING DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
David L. Taylor 3/23/90
 CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT DATE

SEDIMENT CONTROL - INTERIM SWM

Drainage Area Pond 1 = 37.2 Acres
 Drainage Area Pond 2 = 16.2 Acres
 Drainage Area Trap 1 = 1.3 Acres

3-23-90	1	Revised sequence notes.
REV. DATE	REV. NO.	REVISION DESCRIPTION
COLUMBIA 5TH ELECTION DISTRICT HOWARD COUNTY MARYLAND		
OWNER AND DEVELOPER THE HOWARD RESEARCH AND DEVELOPMENT LAND COMPANY		
PROJECT AREA: VILLAGE OF HICKORY RIDGE SECTION 6 AREA 5		
PROJECT TITLE: SEDIMENT CONTROL DRAINAGE AREA MAP		
SCALE: 1" = 200'		DATE: Nov 10, 1989
WHITMAN, REQUARDT AND ASSOCIATES ENGINEERS BALTIMORE, MARYLAND 21218		
<i>Thomas J. Shafer</i> THOMAS J. SHAFER REGISTERED ENGINEER NO. 8457		STATE OF MARYLAND REGISTERED PROFESSIONAL ENGINEER NO. 8457 SHEET 14 OF 29

REVIEWED FOR HOWARD S.C.D. AND MEETS THE TECHNICAL REQUIREMENTS.
J. Kelly 3/12/90
 U.S. SOIL CONSERVATION SERVICE DATE

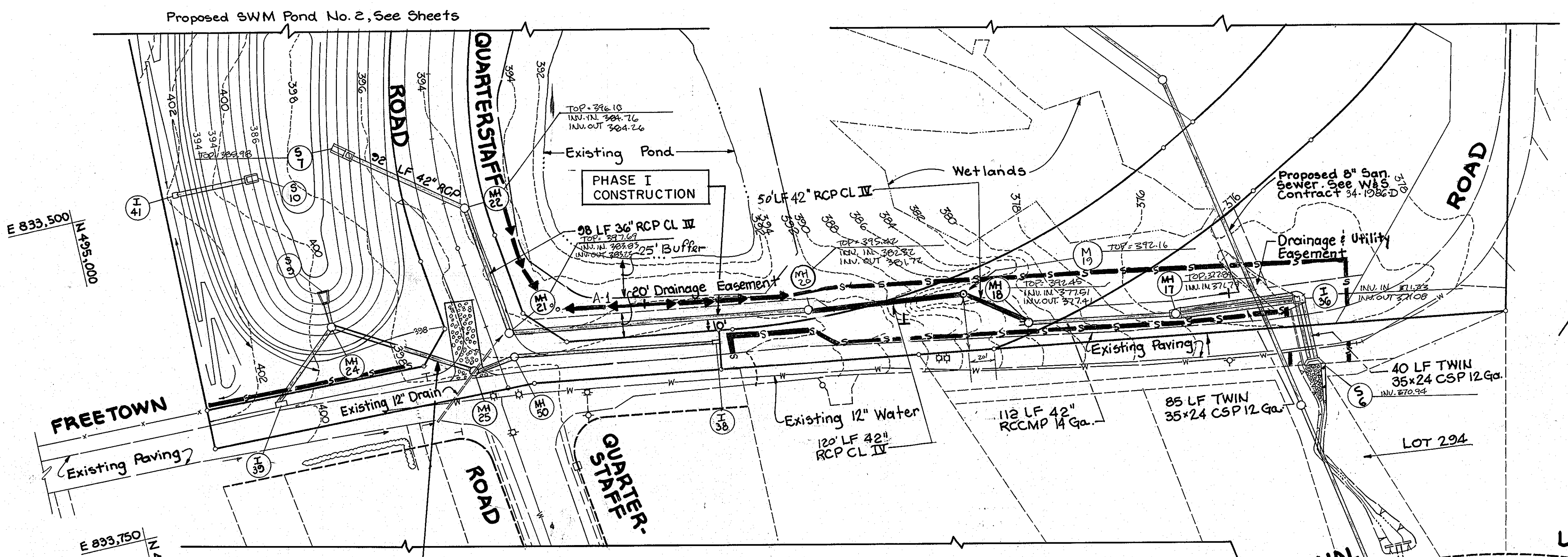
BY THE DEVELOPER:
 "I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."
Robert W. Ziehm 3/12/90
 HOWARD S.C.D. DATE

BY THE ENGINEER:
 "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."
Thomas J. Shafer 11-9-89
 THOMAS J. SHAFER P.E. NO. 8457 DATE

BY THE DEVELOPER:
Joseph H. Necker Jr. 11-9-89
 JOSEPH H. NECKER JR. DATE

Donald J. Soren 3/23/90
 CHIEF, LAND DEVELOPMENT DIVISION DATE
Lawrence W. Winkler 3/20/90
 CHIEF, BUREAU OF HIGHWAYS DATE
James E. Raley 3-26-90
 CHIEF, BUREAU OF ENGINEERING DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Mark J. S. ... 3/23/90
 CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT DATE

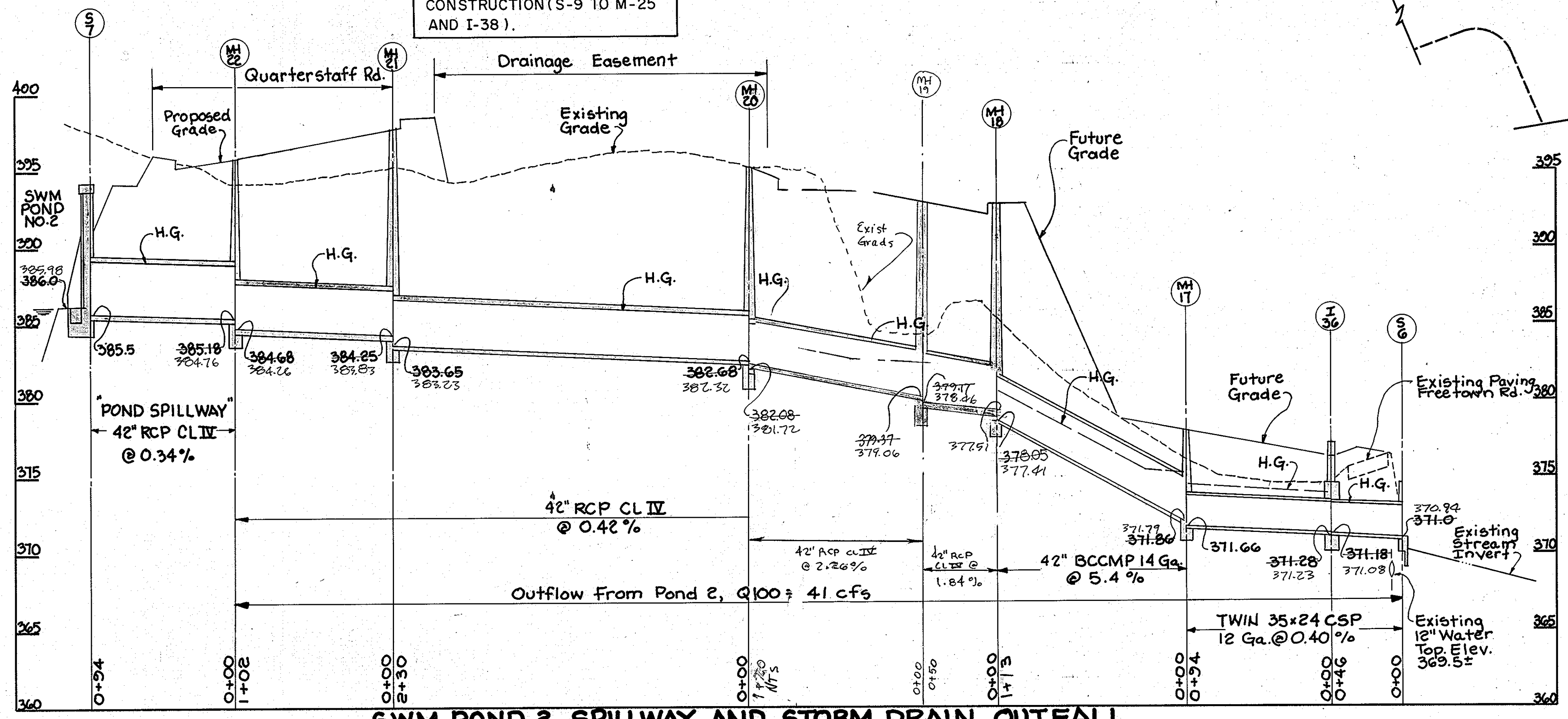


STORM DRAIN STRUCTURE SCHEDULE					
NO.	TYPE	TOP EL.	INV. IN.	INV. OUT.	LOCATION
I-36	SPECIAL, SEE SHEET	377.00	371.28	371.18	SEE PLAN AND PROFILE
MH-17	SPECIAL, SEE SHEET	378.00	371.86	371.66	SEE PLAN AND PROFILE
MH-18	HOWARD COUNTY ST'D. 6 5.03	394.10	378.12	377.96	SEE PLAN AND PROFILE
MH-19	HOWARD COUNTY ST'D. 6 5.03	395.50	381.85	381.35	SEE PLAN AND PROFILE
MH-20	HOWARD COUNTY ST'D. 6 5.03	395.00	382.66	382.08	SEE PLAN AND PROFILE
MH-21	HOWARD COUNTY ST'D. 6 5.03	397.50	384.25	383.65	SEE PLAN AND PROFILE
MH-22	HOWARD COUNTY ST'D. 6 5.03	396.10	395.18	384.68	SEE PLAN AND PROFILE
S-6	SPECIAL, SEE SHEET	374.50	-	371.00	SEE PLAN AND PROFILE
S-7	RISER SEE SWM SHEET	392.50	-	387.50	SEE SWM PLAN SHEET

PHASE 2 CONSTRUCTION. MAINTAIN STONE ENTRANCE DURING STORM DRAIN CONSTRUCTION (S-9 TO M-25 AND I-38).

PLAN Scale: 1"=50'

SEDIMENT CONTROL
 PHASE 1 CONSTRUCTION - POND 2 OUTFALL S-6 TO S-7
 PHASE 2 CONSTRUCTION - S-9 TO M-25 TO I-38 AND I-39.



SWM POND 2 SPILLWAY AND STORM DRAIN OUTFALL SCALE: 1"=50' 1"=5'

BY THE DEVELOPER:
 "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 NATURAL RESOURCES 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."
John H. Necker, Jr. 11-9-89

REVIEWED FOR HOWARD S.C.D. AND MEETS TECHNICAL REQUIREMENTS.
Robert W. Zielinski 3/12/90
 U.S. SOIL CONSERVATION SERVICE DATE
 THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
 HOWARD S.C.D. DATE

BY THE ENGINEER:
 "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."
Thomas J. Shafer 11-10-89
 DATE

AS-BUILT

G. SCOTT SHANBERGER PROFESSIONAL L.S. # 10849 DATE

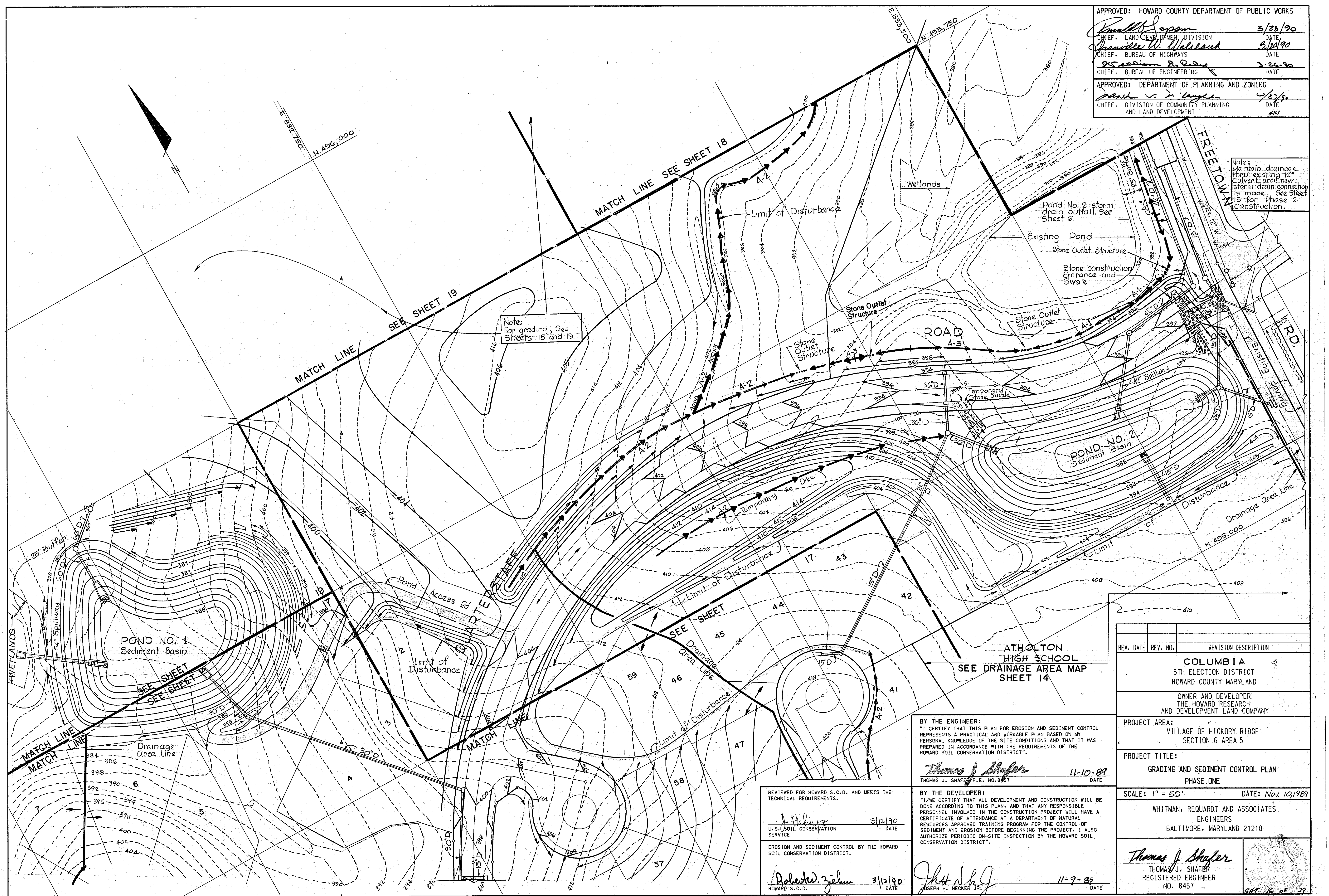
SHANBERGER & LANE
 8726 TOWN & COUNTRY BLVD.
 SUITE 104
 ELICOTT CITY, MARYLAND 21043

REV. DATE	REV. NO.	REVISION DESCRIPTION
8-1-90	1	Revise Location of MH 19 PLAN & PROFILE
COLUMBIA 5TH ELECTION DISTRICT HOWARD COUNTY MARYLAND		
OWNER AND DEVELOPER THE HOWARD RESEARCH AND DEVELOPMENT LAND COMPANY		
PROJECT AREA: VILLAGE OF HICKORY RIDGE SECTION 6 AREA 5		
PROJECT TITLE: SEDIMENT CONTROL PLAN PHASE ONE AND PHASE TWO		
SCALE: AS SHOWN		DATE: Nov. 10, 1989
WHITMAN, REQUARDT, AND ASSOCIATES ENGINEERS BALTIMORE, MARYLAND 21218		
<i>Thomas J. Shafer</i> THOMAS J. SHAFER REGISTERED ENGINEER NO. 8457		

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Donald J. Seppin 3/23/90
 CHIEF, LAND DEVELOPMENT DIVISION DATE
Frank W. Wellwood 3/24/90
 CHIEF, BUREAU OF HIGHWAYS DATE
Richard R. Quinn 3-26-90
 CHIEF, BUREAU OF ENGINEERING DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Frank W. Wellwood 3/27/90
 CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT DATE

Note: Maintain drainage thru existing 12" Culvert until new storm drain connection is made. See Sheet 15 for Phase 2 Construction.



Note: For grading, See Sheets 18 and 19.

REV. DATE	REV. NO.	REVISION DESCRIPTION

COLUMBIA
 5TH ELECTION DISTRICT
 HOWARD COUNTY MARYLAND

OWNER AND DEVELOPER
 THE HOWARD RESEARCH
 AND DEVELOPMENT LAND COMPANY

PROJECT AREA:
 VILLAGE OF HICKORY RIDGE
 SECTION 6 AREA 5

PROJECT TITLE:
 GRADING AND SEDIMENT CONTROL PLAN
 PHASE ONE

SCALE: 1" = 50' DATE: Nov. 10, 1989

WHITMAN, REQUARDT AND ASSOCIATES
 ENGINEERS
 BALTIMORE, MARYLAND 21218

Thomas J. Shafer
 THOMAS J. SHAFER
 REGISTERED ENGINEER
 NO. 8457

BY THE ENGINEER:
 "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".
Thomas J. Shafer 11-10-89
 THOMAS J. SHAFER P.E. NO. 8457 DATE

BY THE DEVELOPER:
 "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 NATURAL RESOURCES 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".
Joseph H. Necker Jr. 11-9-89
 JOSEPH H. NECKER JR. DATE

REVIEWED FOR HOWARD S.C.D. AND MEETS THE TECHNICAL REQUIREMENTS.
J. Helms 3/12/90
 U.S. SOIL CONSERVATION SERVICE DATE

EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
Robert W. Zielinski 3/12/90
 HOWARD S.C.D. DATE

42

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

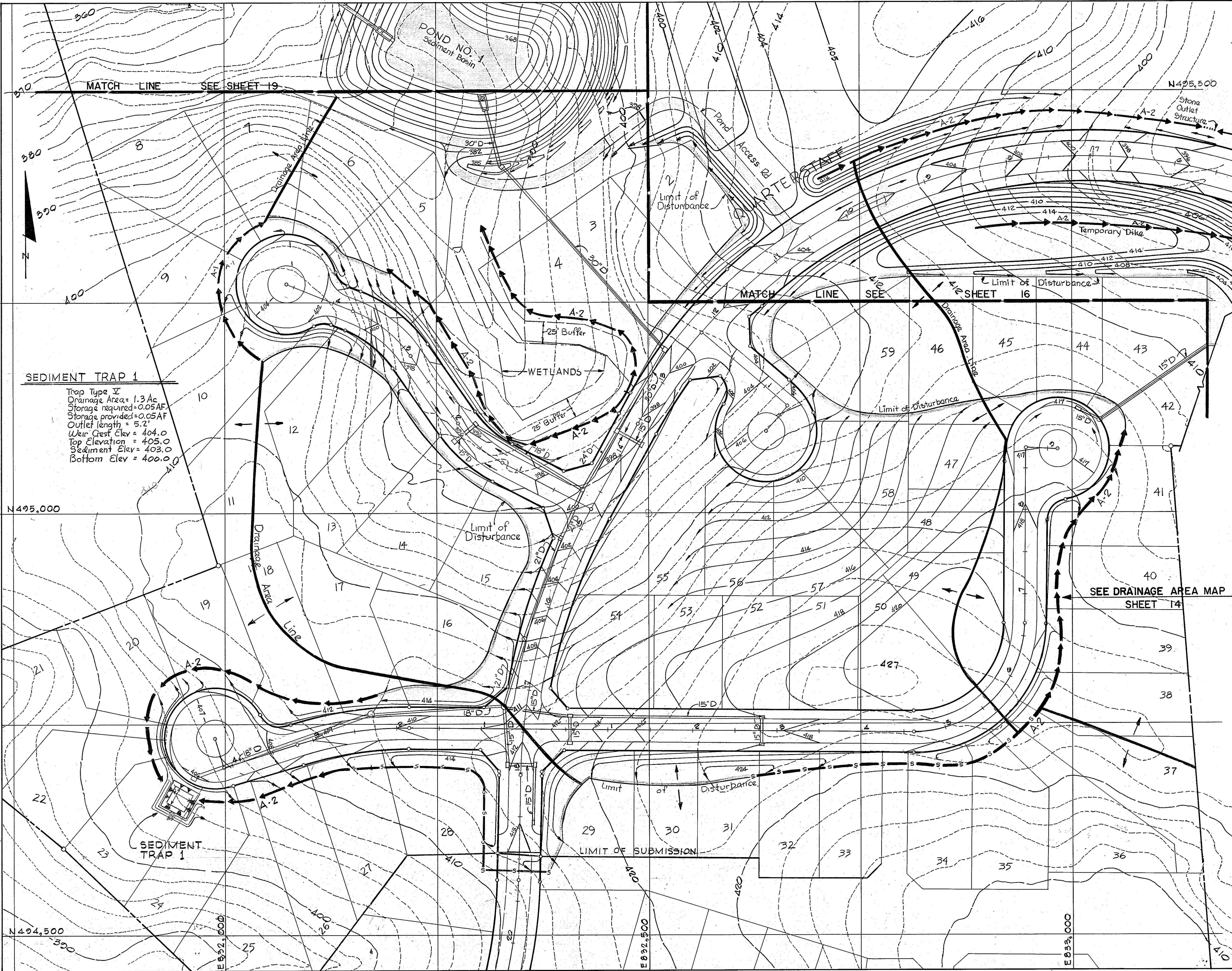
Donald Eason 3/23/90
 CHIEF, LAND DEVELOPMENT DIVISION DATE

Lawrence W. Weiland 3/20/90
 CHIEF, BUREAU OF HIGHWAYS DATE

Thomas J. Shafer 3-26-90
 CHIEF, BUREAU OF ENGINEERS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Joseph S. Necker, Jr. 4/23/90
 CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT DATE



SEDIMENT TRAP 1

Trap Type V
 Drainage Area = 1.3 Ac
 Storage required = 0.05 AF
 Storage provided = 0.05 AF
 Outlet length = 5.2'
 Weir Crest Elev = 404.0
 Top Elevation = 405.0
 Sediment Elev = 403.0
 Bottom Elev = 400.0

REVIEWED FOR HOWARD S.C.D. AND MEETS THE TECHNICAL REQUIREMENTS.

J. Helm 3/12/90
 U.S. SOIL CONSERVATION SERVICE DATE

EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

Robert W. Zielon 3/12/90
 HOWARD S.C.D. DATE

BY THE ENGINEER:

"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".

Thomas J. Shafer 11-10-89
 THOMAS J. SHAFER P.E. NO. 8457 DATE

BY THE DEVELOPER:

"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 NATURAL RESOURCES 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".

Joseph H. Necker, Jr. 11-9-89
 JOSEPH H. NECKER, JR. DATE

REV. DATE	REV. NO.	REVISION DESCRIPTION
		COLUMBIA 5TH. ELECTION DISTRICT HOWARD COUNTY, MARYLAND
		OWNER AND DEVELOPER THE HOWARD RESEARCH AND DEVELOPMENT LAND COMPANY
		PROJECT AREA: VILLAGE OF HICKORY RIDGE SECTION 6 AREA 5
		PROJECT TITLE: GRADING AND SEDIMENT CONTROL PLAN PHASE ONE
		SCALE: 1" = 50' DATE: 11/10/89
		WHITMAN, REQUARDT AND ASSOCIATES Engineers BALTIMORE, MARYLAND 21218

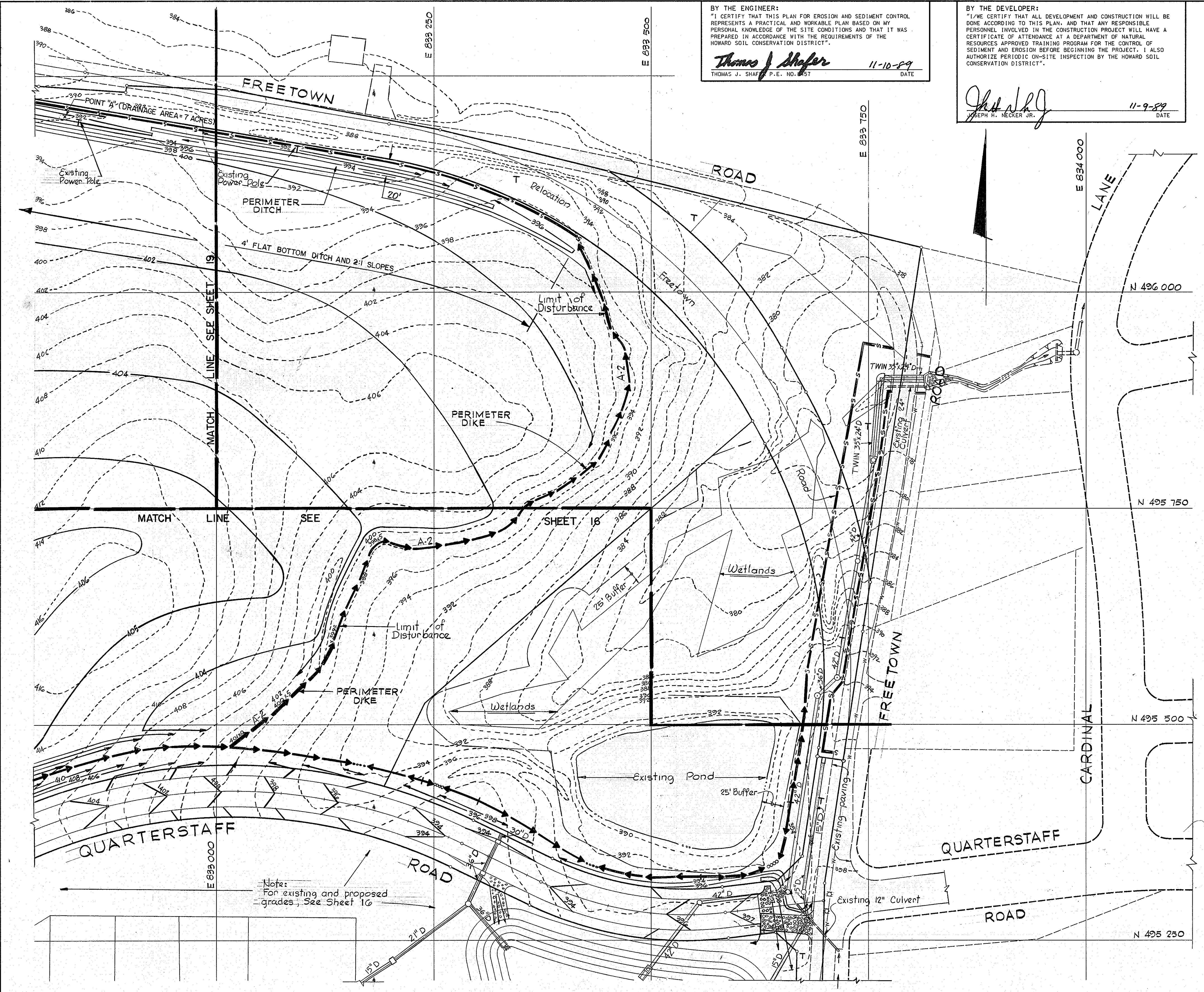
Thomas J. Shafer
 THOMAS J. SHAFER
 REGISTERED ENGINEER
 NO. 8457

BY THE ENGINEER:
 "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."
Thomas J. Shafer 11-10-89
 THOMAS J. SHAFER P.E. NO. 8457 DATE

BY THE DEVELOPER:
 "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 NATURAL RESOURCES 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."
Joseph H. Necker Jr. 11-9-89
 JOSEPH H. NECKER JR. DATE

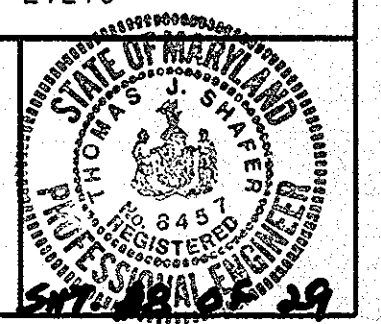
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Charles W. Weiland 3/23/90
 CHIEF, LAND DEVELOPMENT DIVISION DATE
James W. Weiland 3/20/90
 CHIEF, BUREAU OF HIGHWAYS DATE
James W. Weiland 3-26-90
 CHIEF, BUREAU OF ENGINEERING DATE
 APPROVED: DEPARTMENT OF PLANNING AND ZONING
Mark S. Ziemer 3/27/90
 CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT DATE

REVIEWED FOR HOWARD S.C.D. AND MEETS THE TECHNICAL REQUIREMENTS.
J. Helms 3/12/90
 U.S. SOIL CONSERVATION SERVICE DATE
 THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
Robert W. Zielin 3/12/90
 HOWARD S.C.D. DATE



Note: For existing and proposed grades, see Sheet 16

REV. DATE	REV. NO.	REVISION DESCRIPTION
COLUMBIA 5TH ELECTION DISTRICT HOWARD COUNTY MARYLAND OWNER AND DEVELOPER THE HOWARD RESEARCH AND DEVELOPMENT LAND COMPANY PROJECT AREA: VILLAGE OF HICKORY RIDGE SECTION 6 AREA 5 PROJECT TITLE: GRADING AND SEDIMENT CONTROL PLAN PHASE ONE SCALE: 1" = 50' DATE: Nov. 10, 1989 WHITMAN, REQUARDT AND ASSOCIATES ENGINEERS BALTIMORE, MARYLAND 21218 <i>Thomas J. Shafer</i> THOMAS J. SHAFER REGISTERED ENGINEER NO. 8457		



42

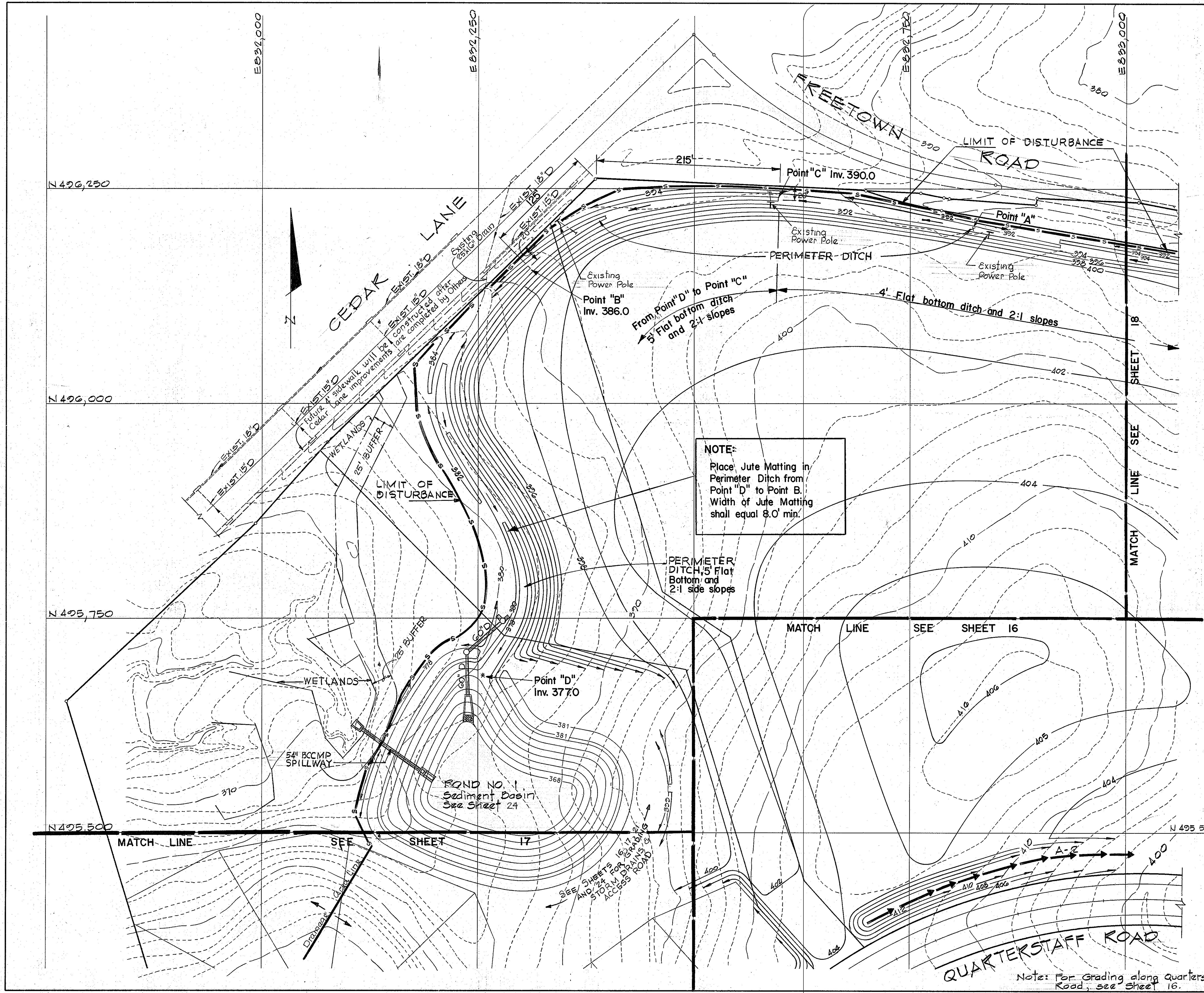
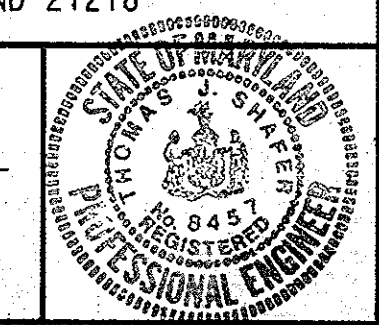
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Donald J. Eason 3/23/90
 CHIEF, LAND DEVELOPMENT DIVISION DATE
Lawrence W. Wilkerson 3/20/90
 CHIEF, BUREAU OF HIGHWAYS DATE
William P. Rags 3-20-90
 CHIEF, BUREAU OF ENGINEERING DATE
 APPROVED: DEPARTMENT OF PLANNING AND ZONING
Paul J. Dwyer
 CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT DATE

REVIEWED FOR HOWARD S.C.D. AND MEETS THE TECHNICAL REQUIREMENTS.
J. Helms 3/12/90
 U.S. SOIL CONSERVATION SERVICE DATE
 THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
Robert W. Ziehm 3/12/90
 HOWARD S.C.D. DATE

BY THE DEVELOPER:
 "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 NATURAL RESOURCES 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."
Joseph H. Necker Jr. 11-9-89
 JOSEPH H. NECKER JR. DATE

BY THE ENGINEER:
 "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."
Thomas J. Shafer 11-10-89
 THOMAS J. SHAFER, P.E. NO. 8457 DATE

REV. DATE	REV. NO.	REVISION DESCRIPTION
COLUMBIA 5TH ELECTION DISTRICT HOWARD COUNTY MARYLAND OWNER AND DEVELOPER THE HOWARD RESEARCH AND DEVELOPMENT LAND COMPANY PROJECT AREA: VILLAGE OF HICKORY RIDGE SECTION 6 AREA 5 PROJECT TITLE: GRADING AND SEDIMENT CONTROL PLAN PHASE ONE SCALE: 1" = 50' DATE: Nov. 10, 1989 WHITMAN, REQUARDT AND ASSOCIATES ENGINEERS BALTIMORE, MARYLAND 21218 <i>Thomas J. Shafer</i> THOMAS J. SHAFER REGISTERED ENGINEER NO. 8457		



NOTE:
 Place Jute Matting in Perimeter Ditch from Point "D" to Point B. Width of Jute Matting shall equal 8.0' min.

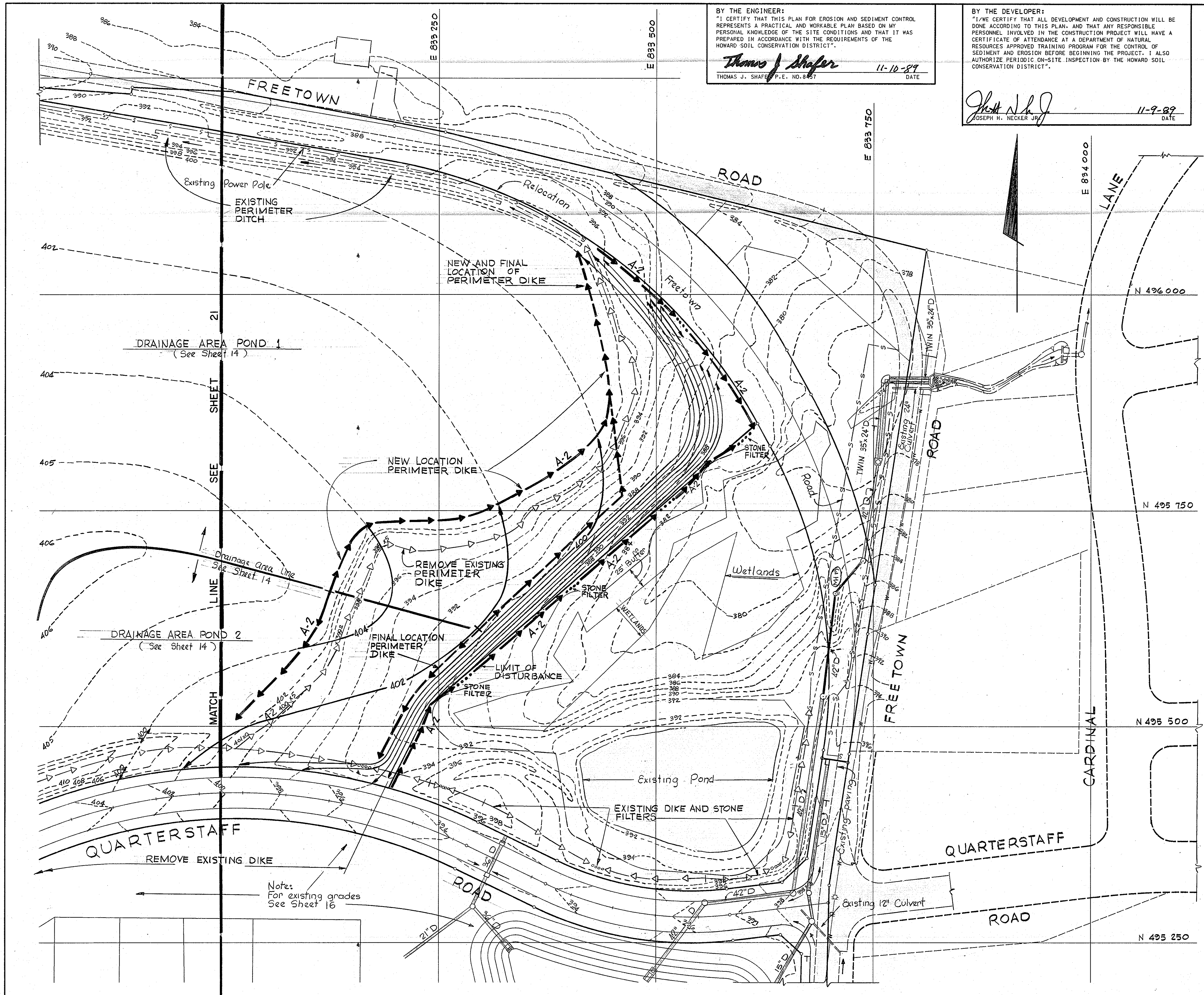
Note: For Grading along Quarterstaff Road, see Sheet 16.

BY THE ENGINEER:
 "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".
Thomas J. Shafer
 THOMAS J. SHAFER, P.E. NO. 8457
 11-10-89
 DATE

BY THE DEVELOPER:
 "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 NATURAL RESOURCES 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".
Joseph H. Necker Jr.
 JOSEPH H. NECKER JR.
 11-9-89
 DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Donald D. Seaman 3/23/90
 CHIEF, LAND DEVELOPMENT DIVISION DATE
Drayville W. Welstead 3/20/90
 CHIEF, BUREAU OF HIGHWAYS DATE
William B. Brady 3-26-90
 CHIEF, BUREAU OF ENGINEERING DATE
 APPROVED: DEPARTMENT OF PLANNING AND ZONING
Mark S. Taylor 02/2/90
 CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT DATE

REVIEWED FOR HOWARD S.C.D. AND MEETS THE TECHNICAL REQUIREMENTS.
J. Helms 3/12/90
 U.S. SOIL CONSERVATION SERVICE DATE
 THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
Robert W. Zehner 3/12/90
 HOWARD S.C.D. DATE



REV. NO.	REV. DATE	REVISION DESCRIPTION
1	8-1-90	Revise Location of MH 19
COLUMBIA 5TH ELECTION DISTRICT HOWARD COUNTY MARYLAND OWNER AND DEVELOPER THE HOWARD RESEARCH AND DEVELOPMENT LAND COMPANY PROJECT AREA: VILLAGE OF HICKORY RIDGE SECTION 6 AREA 5 PROJECT TITLE: GRADING AND SEDIMENT CONTROL PLAN PHASE TWO SCALE: 1" = 50' DATE: Nov. 10, 1989 WHITMAN, REQUARDT AND ASSOCIATES ENGINEERS BALTIMORE, MARYLAND 21218		
		<i>Thomas J. Shafer</i> THOMAS J. SHAFER REGISTERED ENGINEER NO. 8457

42

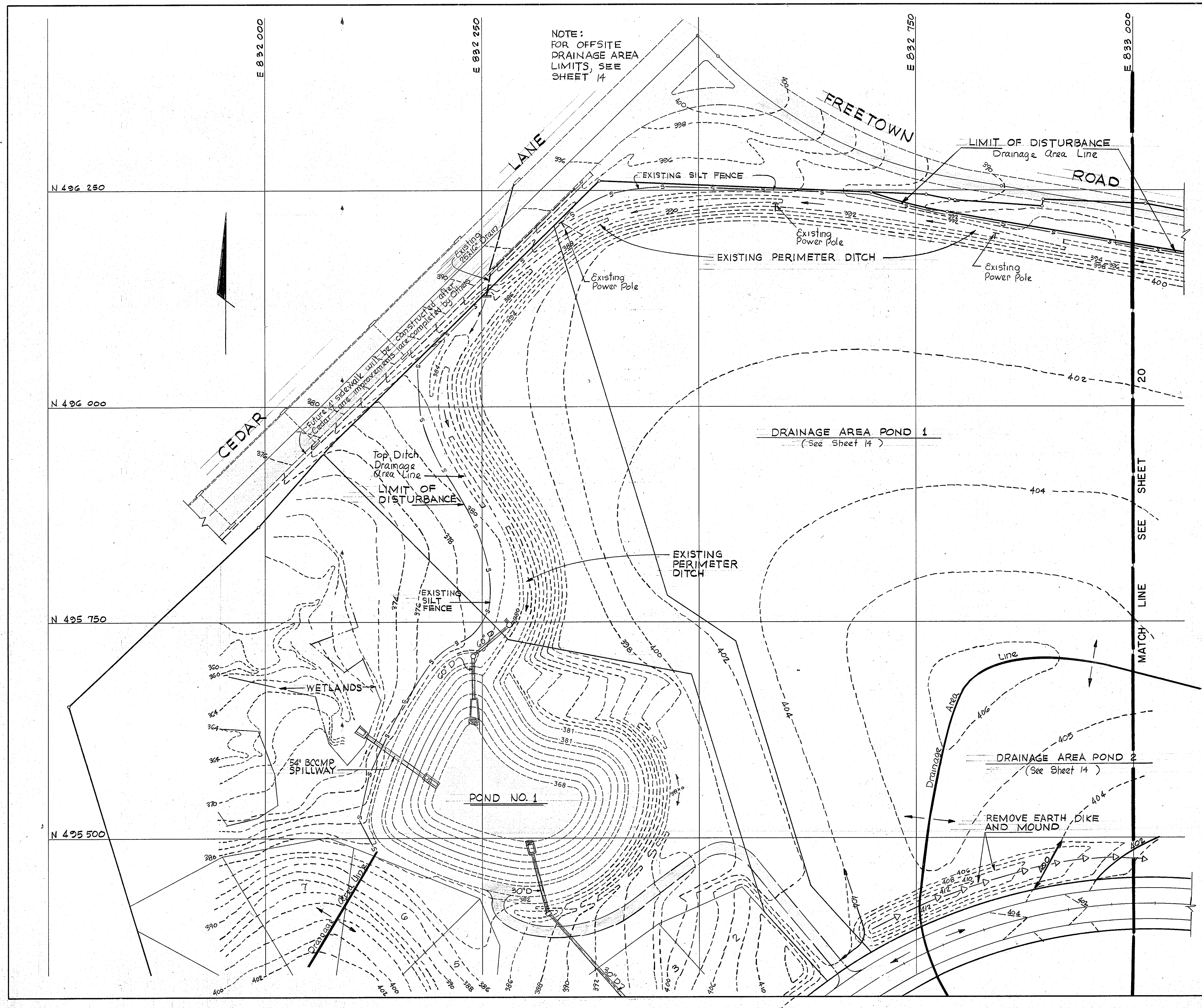
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
James L. Spain 3/23/90
 CHIEF, LAND DEVELOPMENT DIVISION DATE
Francisco W. Wallace 3/20/90
 CHIEF, BUREAU OF HIGHWAYS DATE
William S. Brown 3-26-90
 CHIEF, BUREAU OF ENGINEERING DATE
 APPROVED: DEPARTMENT OF PLANNING AND ZONING
Mark V. J. Wright 4/23/91
 CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT DATE
 AUC

REVIEWED FOR HOWARD S.C.D. AND MEETS THE TECHNICAL REQUIREMENTS.
J. Helms 3/12/90
 U.S. SOIL CONSERVATION SERVICE DATE
 THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
Robert W. Zielhuis 3/12/90
 HOWARD S.C.D. DATE

BY THE DEVELOPER:
 "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 NATURAL RESOURCES 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".
Joseph H. Necker Jr. 11-9-89
 JOSEPH H. NECKER JR. DATE

BY THE ENGINEER:
 "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".
Thomas J. Shafer 11-10-89
 THOMAS J. SHAFER, P.E., NO. 8457 DATE

REV. DATE	REV. NO.	REVISION DESCRIPTION
COLUMBIA 5TH ELECTION DISTRICT HOWARD COUNTY MARYLAND OWNER AND DEVELOPER THE HOWARD RESEARCH AND DEVELOPMENT LAND COMPANY PROJECT AREA: VILLAGE OF HICKORY RIDGE SECTION 6 AREA 5 PROJECT TITLE: GRADING AND SEDIMENT CONTROL PLAN PHASE TWO SCALE: 1" = 50' DATE: Nov 10, 1989 WHITMAN, REQUARDT AND ASSOCIATES ENGINEERS BALTIMORE, MARYLAND 21218 <i>Thomas J. Shafer</i> THOMAS J. SHAFER REGISTERED ENGINEER NO. 8457		



NOTE:
 FOR OFFSITE
 DRAINAGE AREA
 LIMITS, SEE
 SHEET 14

42

SEDIMENT CONTROL NOTES

- A minimum of 24 hours notice must be given to the Howard County Office of Inspection and Permits prior to the start of any construction. (992-2437)
- All vegetative and structural practices are to be installed according to the provisions of this plan and are to be in conformance with the 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL.
- Following initial soil disturbance or redistribution, permanent or temporary stabilization shall be completed within: a) 7 calendar days for all perimeter sediment control structures, dikes, perimeter slopes and all slopes greater than 3:1, b) 14 days as to all other disturbed or graded areas on the project site.
- All sediment traps/basins shown must be fenced and warning signs posted around their perimeter in accordance with Vol. 1, Chapter 12, of the HOWARD COUNTY DESIGN MANUAL, Storm Drainage.
- All disturbed areas must be stabilized within the time period specified above in accordance with the 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for permanent seedings (Sec. 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.
- All sediment control structures are to remain in place and are to be maintained in operative condition until permission for their removal has been obtained from the Howard County Sediment Control Inspector.
- Site Analysis:
 Total Area of Site: 53 Acres
 Area Disturbed: 20 Acres
 Area to be roofed or paved: 4 Acres
 Area to be vegetatively stabilized: 26 Acres
 Total Cut: 190,000 Cu. yds
 Total Fill: 190,000 Cu. yds
 Offsite waste/borrow area location: _____
- Any sediment control practice which is disturbed by grading activity for placement of utilities must be repaired on the same day of disturbance.
- Additional sediment controls must be provided, if deemed necessary by the Howard County DPW sediment control inspector.
- On all sites with disturbed areas in excess of 2 acres, approval of the inspection agency shall be requested upon completion of installation of perimeter erosion and sediment controls, but before proceeding with any other earth disturbance or grading. Other building or grading inspection approvals may not be authorized until this initial approval by the inspection agency is made.

PERMANENT SEEDING NOTES

Apply to graded or cleared areas not subject to immediate further disturbance where a permanent long-lived vegetative cover is needed.

Seedbed Preparation: Loosen upper three inches of soil by raking, discing or other acceptable means before seeding, if not previously loosened.

Soil Amendments: In lieu of soil test recommendations, use one of the following schedules:

- Preferred - Apply 2 tons per acre dolomitic limestone (92 lbs/1000 square ft) and 600 lbs per acre 10-10-10 fertilizer (14 lbs/1000 sq ft) before seeding. Harrow or disc into upper three inches of soil. At time of seeding, apply 400 lbs per acre 30-0-0 ureaform fertilizer (9 lbs/1000 sq ft).
- Acceptable - Apply 2 tons per acre dolomitic limestone (92 lbs/1000 sq ft) and 1000 lbs per acre 10-10-10 fertilizer (23 lbs/1000 sq ft) before seeding. Harrow or disc into upper three inches of soil.

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

Mulching - Apply 1 1/2 to 2 tons per acre (70 to 90 lbs/1000 sq ft) of rotted 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 seeded areas and make needed repairs, replacements and reseedings.

TEMPORARY SEEDING NOTES

Apply to graded or cleared areas likely to be redistributed where a short-term vegetative cover is needed.

Seedbed Preparation: Loosen upper three inches of soil by raking, discing or other acceptable means before seeding, if not previously loosened.

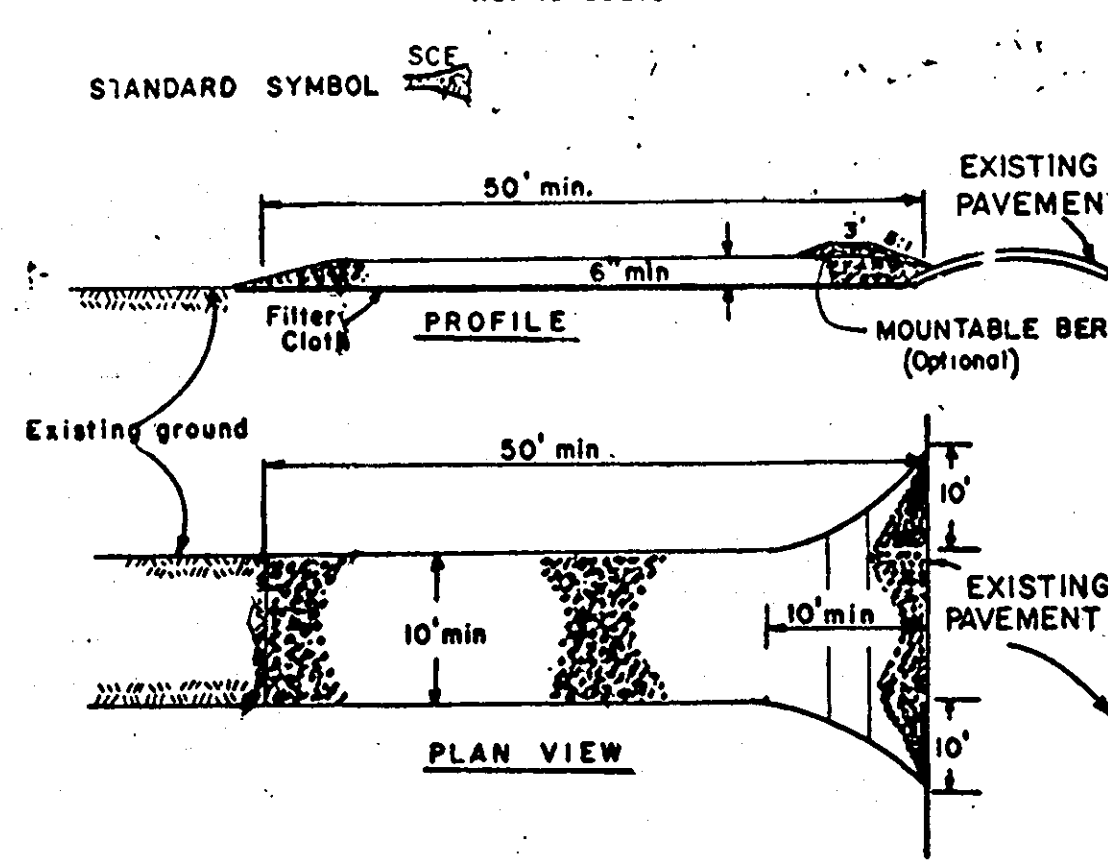
Soil Amendments: Apply 600 lbs per acre 10-10-10 fertilizer. (14 lbs/1000 sq ft)

Seeding - For periods March 1 thru April 30 and from August 15 thru November 15, seed with 2 1/2 bushel per acre of annual rye (3.2 lbs/1000 sq ft). For the period May 1 thru 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 rotted 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 rate and methods not covered.

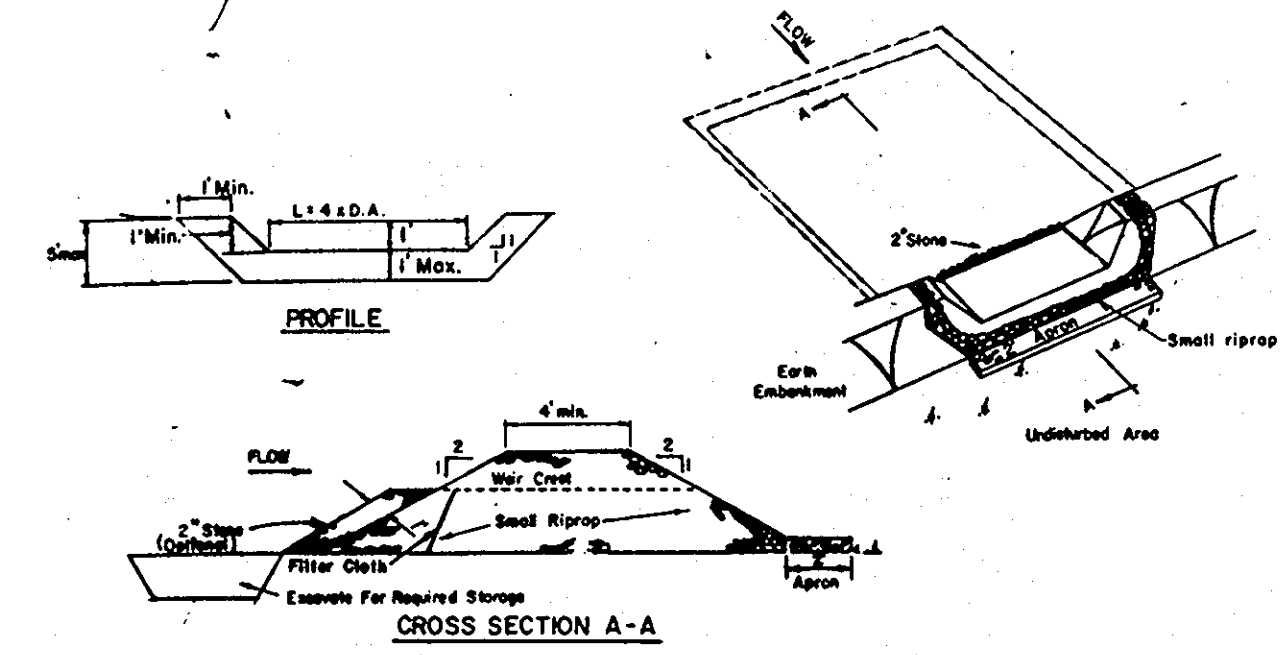
STABILIZED CONSTRUCTION ENTRANCE
not to scale



CONSTRUCTION SPECIFICATIONS

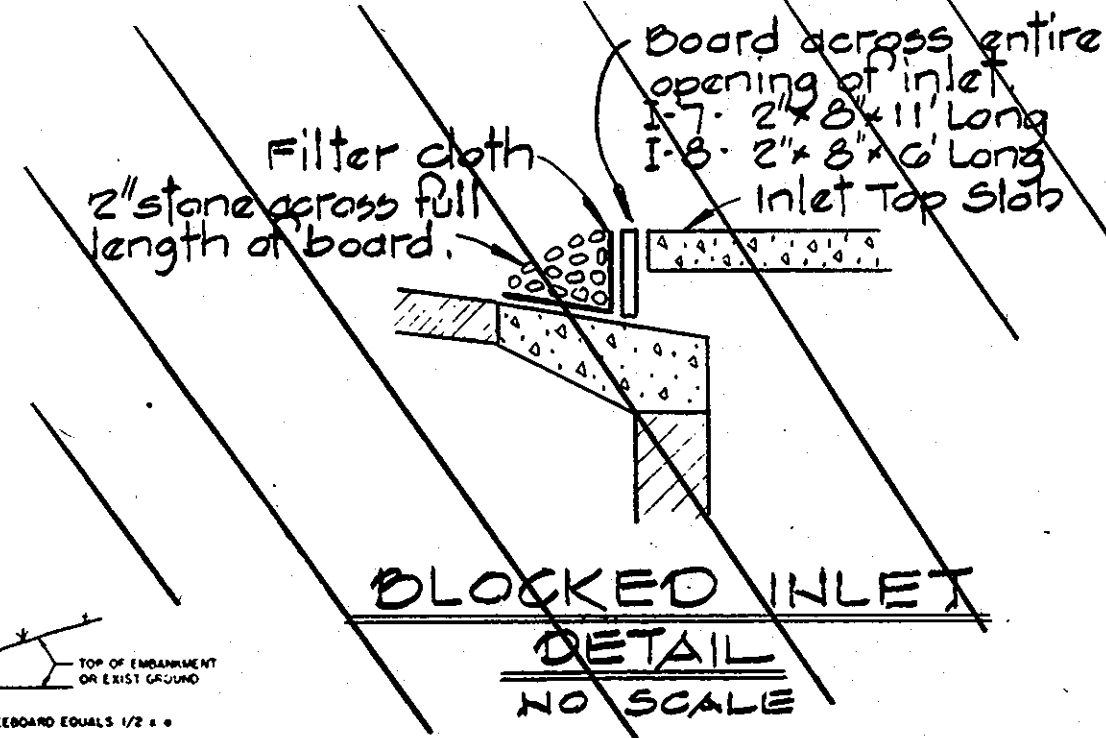
- Stone Size - Use 2" stone, or reclaimed or recycled concrete equivalent.
- Length - As required, but not less than 50 feet (except on a single residential lot where a 30 foot minimum length would apply).
- Thickness - Not less than six (6) inches.
- Width - Ten (10) foot minimum, but not less than the full width at points where ingress or egress occurs.
- Filter Cloth - Will be placed over the entire area prior to placing of stone. Filter will not be required on a single family residence lot.
- Surface Water - All surface water flowing or diverted toward construction entrances shall be piped across the entrance. If piping is impractical, a mounatable berm with 5:1 slopes will be permitted.
- Maintenance - The entrance shall be maintained in a condition which will prevent tracking or flowing of sediment onto public rights-of-way. This may require periodic top dressing with additional stone as conditions demand and repair and/or cleanout of any measures used to trap sediment. All sediment spilled, dropped, washed or tracked onto public rights-of-way must be removed immediately.
- Washing - Wheels shall be cleaned to remove sediment prior to entrance onto public rights-of-way. When washing is required, it shall be done on an area stabilized with stone and which drains into an approved sediment trapping device.
- Periodic inspection and needed maintenance shall be provided after each rain.

STONE OUTLET SEDIMENT TRAP ST-V

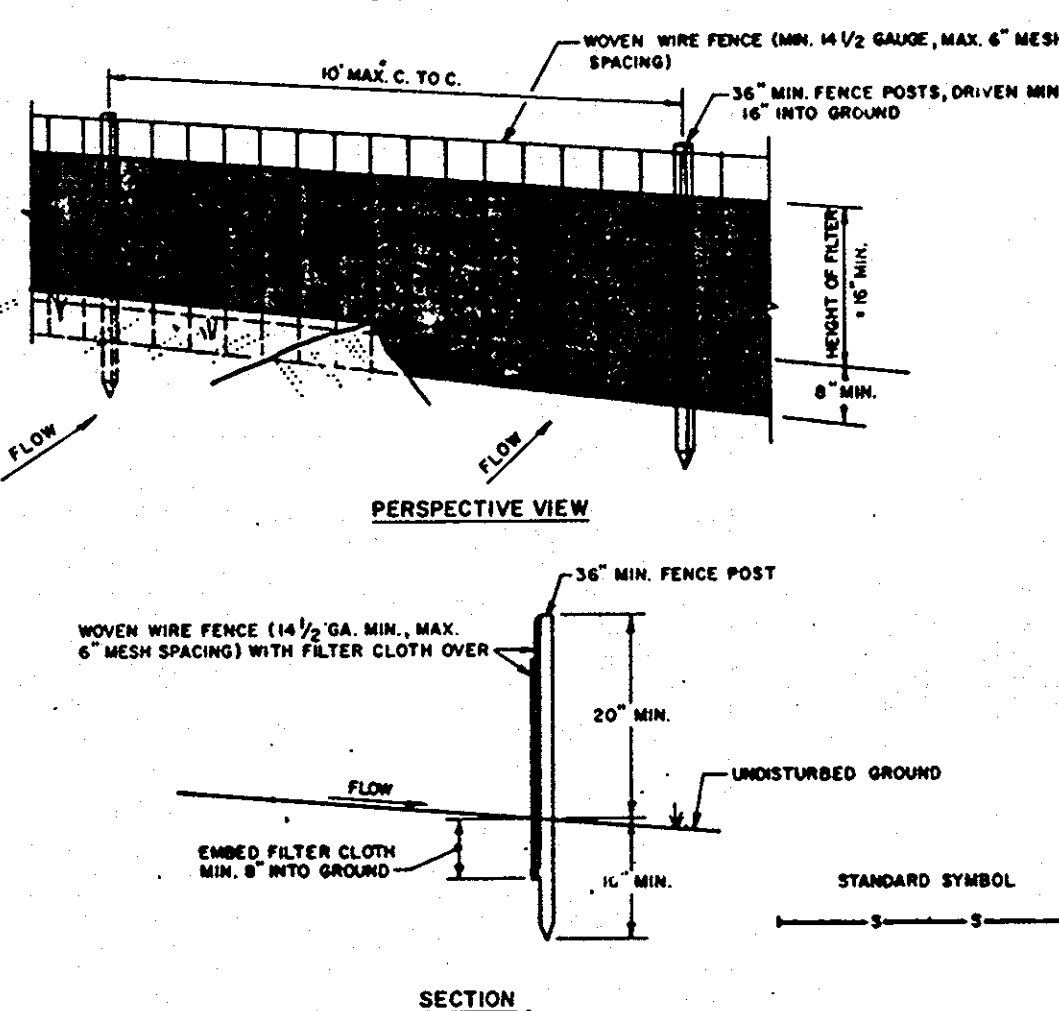


CONSTRUCTION SPECIFICATIONS FOR ST-V

- Area under embankment shall be cleared, grubbed and stripped of any vegetation and root mat. The pool area shall be cleared.
- The fill material for the embankment shall be free of roots and other woody vegetation as well as over-sized stones, rocks, organic material or other objectionable material. The embankment shall be compacted by traversing with equipment while it is being constructed.
- All cut and fill slopes shall be 2:1 or flatter.
- The stone used in the outlet shall be small riprap 4"-8" along with a 1" thickness of 2" aggregate placed on the up-grade side on the small riprap embedded filter cloth in the riprap.
- Sediment shall be removed and trap restored to its original dimensions when the sediment has accumulated to 1/2 the design depth of the trap.
- The structure shall be inspected after each rain and repairs made as needed.
- Construction operations shall be carried out in such a manner that erosion and water pollution is minimized.
- The structure shall be removed and the area stabilized when the drainage area has been properly stabilized.



SILT FENCE



CONSTRUCTION NOTES FOR FABRICATED SILT FENCE

- Woven wire fence to be fastened securely to fence posts with wire ties or staples.
- Filter cloth to be fastened securely to woven wire fence with ties spaced every 24" at top and mid section.
- When two sections of filter cloth adjoin each other they shall be overlapped by six inches and folded.
- Maintenance shall be performed as needed and material removed when "bulges" develop in the silt fence.

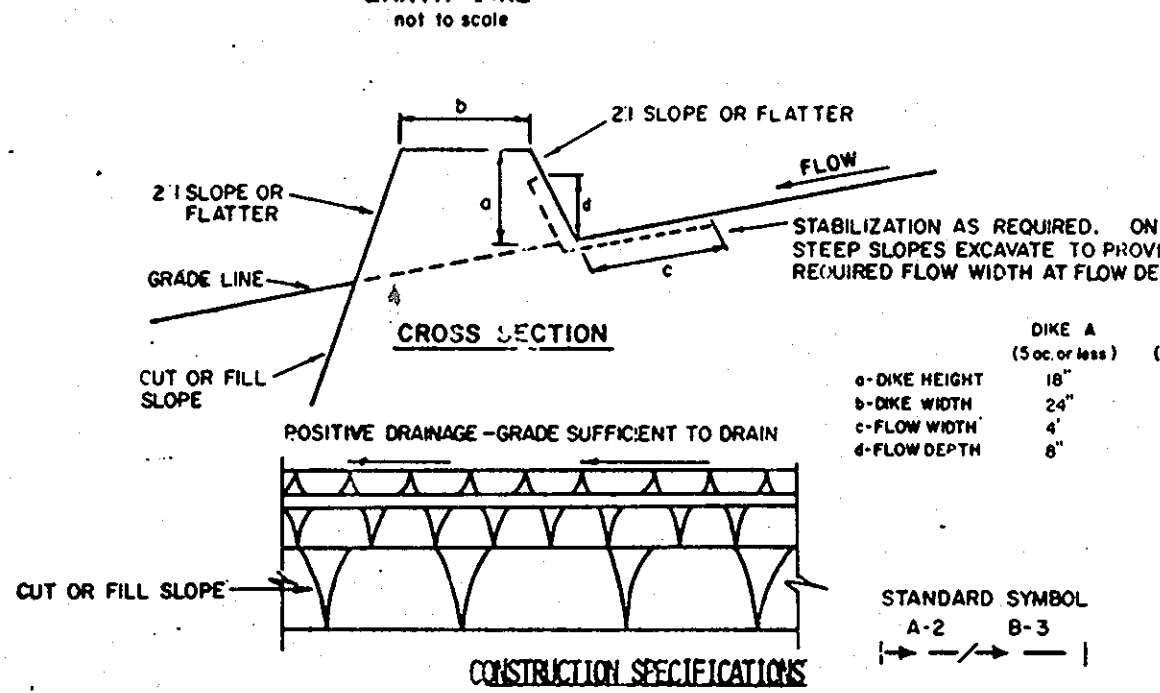
POSTS: STEEL EITHER T OR U TYPE OR 2" HARDWOOD

FENCE: WOVEN WIRE, 14 GA. 6" MAX. MESH OPENING

FILTER CLOTH: FILTER X, HIRAFI 1000, STABILINA 1000 OR APPROVED EQUAL

PREFABRICATED UNIT: GEOPAF, CIVINFENCE, OR APPROVED EQUAL

EARTH DIKE
not to scale



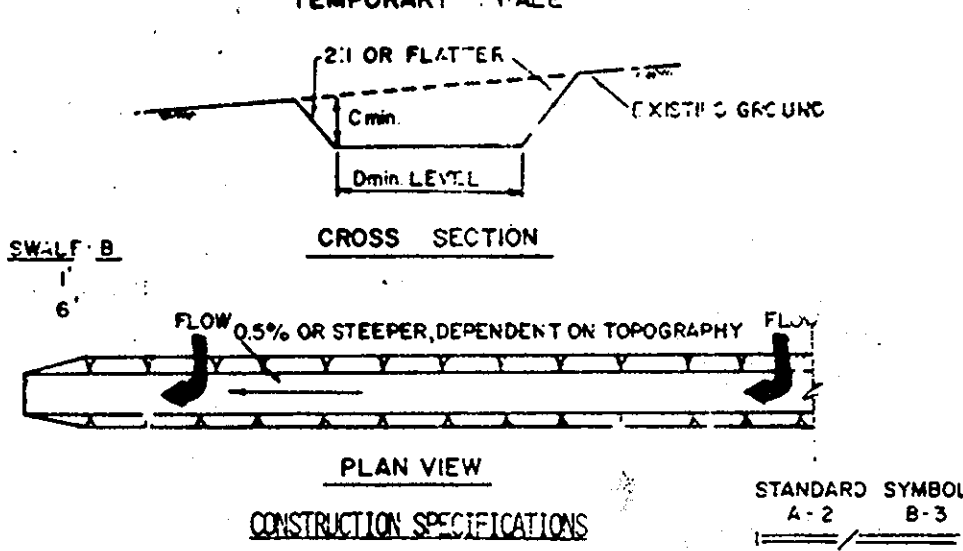
- All dikes shall be compacted by earth moving equipment.
- All dikes shall have positive drainage to an outlet.
- Top width may be wider and side slopes may be flatter if desired to facilitate crossing by construction traffic.
- Field location should be adjusted as needed to utilize a stabilized safe outlet.
- Earth dikes shall have an outlet that functions with a minimum of erosion. Runoff shall be conveyed to a sediment trapping device such as a sediment trap or sediment basin where either the dike channel or the drainage area above the dike are not adequately stabilized.
- Stabilization shall be: (A) in accordance with standard specifications for seed and straw mulch or straw mulch if not in seeding season, (B) FLOW CHANNEL AS PER THE CHART BELOW.

FLOW CHANNEL STABILIZATION

TYPE OF TREATMENT	CHANNEL GROUP	DIKE A	DIKE B
1	5-3.0%	SEED AND STRAW MULCH	SEED AND STRAW MULCH
2	3.1-5.0%	SEED USING JUTE, OR EXCELISOR; SOG; 2" STONE	SEED USING JUTE OR EXCELISOR
3	5.1-8.0%	SEED WITH JUTE, OR SOG; 2" STONE	LINED RIP-RAP 4-8"
4	8.1-20%	LINED RIP-RAP 4-8"	ENGINEERING DESIGN

A. STONE TO BE 2 INCH STONE, OR RECYCLED CONCRETE EQUIVALENT, IN A LAYER AT LEAST 3 INCHES IN THICKNESS AND BE PRESSED INTO THE SOIL WITH CONSTRUCTION EQUIPMENT.
 B. RIP-RAP TO BE 4-8 INCHES IN A LAYER AT LEAST 8 INCHES THICKNESS AND PRESSED INTO THE SOIL.
 C. APPROVED EQUIVALENTS CAN BE SUBSTITUTED FOR ANY OF THE ABOVE MATERIALS.
 7. PERIODIC INSPECTION AND REQUIRED MAINTENANCE MUST BE PROVIDED AFTER EACH RAIN EVENT.

TEMPORARY SWALE



CONSTRUCTION SPECIFICATIONS

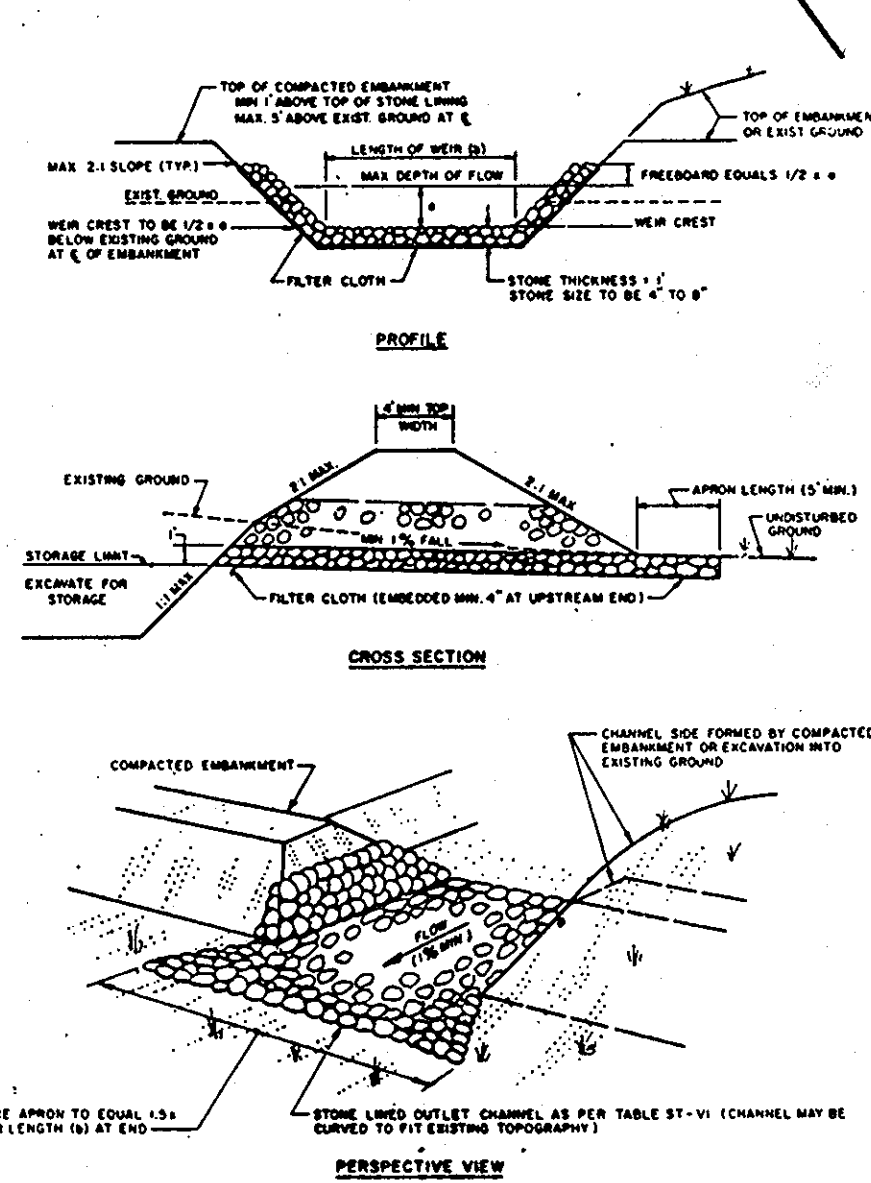
- ALL TEMPORARY SWALES SHALL HAVE UNINTERRUPTED POSITIVE GRADE TO AN OUTLET.
- DIVERTED RUNOFF FROM A DISTURBED AREA SHALL BE CONVEYED TO A SEDIMENT TRAPPING DEVICE.
- DIVERTED RUNOFF FROM AN UNDISTURBED AREA SHALL OUTLET DIRECTLY INTO AN UNDISTURBED STABILIZED AREA AT NON-EROSIVE VELOCITY.
- ALL TREES, BRUSH, STUMPS, OBSTRUCTIONS, AND OTHER OBJECTS/ABLE MATERIAL SHALL BE REMOVED AND DISPOSED OF SO AS NOT TO INTERFERE WITH THE PROPER FUNCTIONING OF THE SWALE.
- THE SWALE SHALL BE EXCAVATED OR SHAPED TO LINE, GRADE, AND CROSS SECTION AS REQUIRED TO MEET THE CRITERIA SPECIFIED HEREIN AND BE FREE OF BANK PROJECTIONS OR OTHER IRREGULARITIES WHICH WILL IMPED NORMAL FLOW.
- FILLS SHALL BE COMPACTED BY EARTH MOVING EQUIPMENT.
- ALL EARTH REMOVED AND NOT NEEDED ON CONSTRUCTION SHALL BE PLACED SO THAT IT WILL NOT INTERFERE WITH THE FUNCTIONING OF THE SWALE.
- STABILIZATION SHALL BE AS PER THE CHART BELOW:

FLOW CHANNEL STABILIZATION

TYPE OF TREATMENT	CHANNEL GROUP	A (5 AC OR LESS)	B (5 AC - 10 AC)
1	0.5-3.0%	SEED AND STRAW MULCH	SEED AND STRAW MULCH
2	3.1-5.0%	SEED USING JUTE OR EXCELISOR	SEED USING JUTE OR EXCELISOR
3	5.1-8.0%	SEED WITH JUTE OR EXCELISOR; SOG	LINED RIP-RAP 4-8"
4	8.1-20%	LINED 4-8" RIP-RAP	ENGINEERING DESIGN

9. PERIODIC INSPECTION AND REQUIRED MAINTENANCE MUST BE PROVIDED AFTER EACH RAIN EVENT.

TRIPRAP OUTLET SEDIMENT TRAP ST-VI



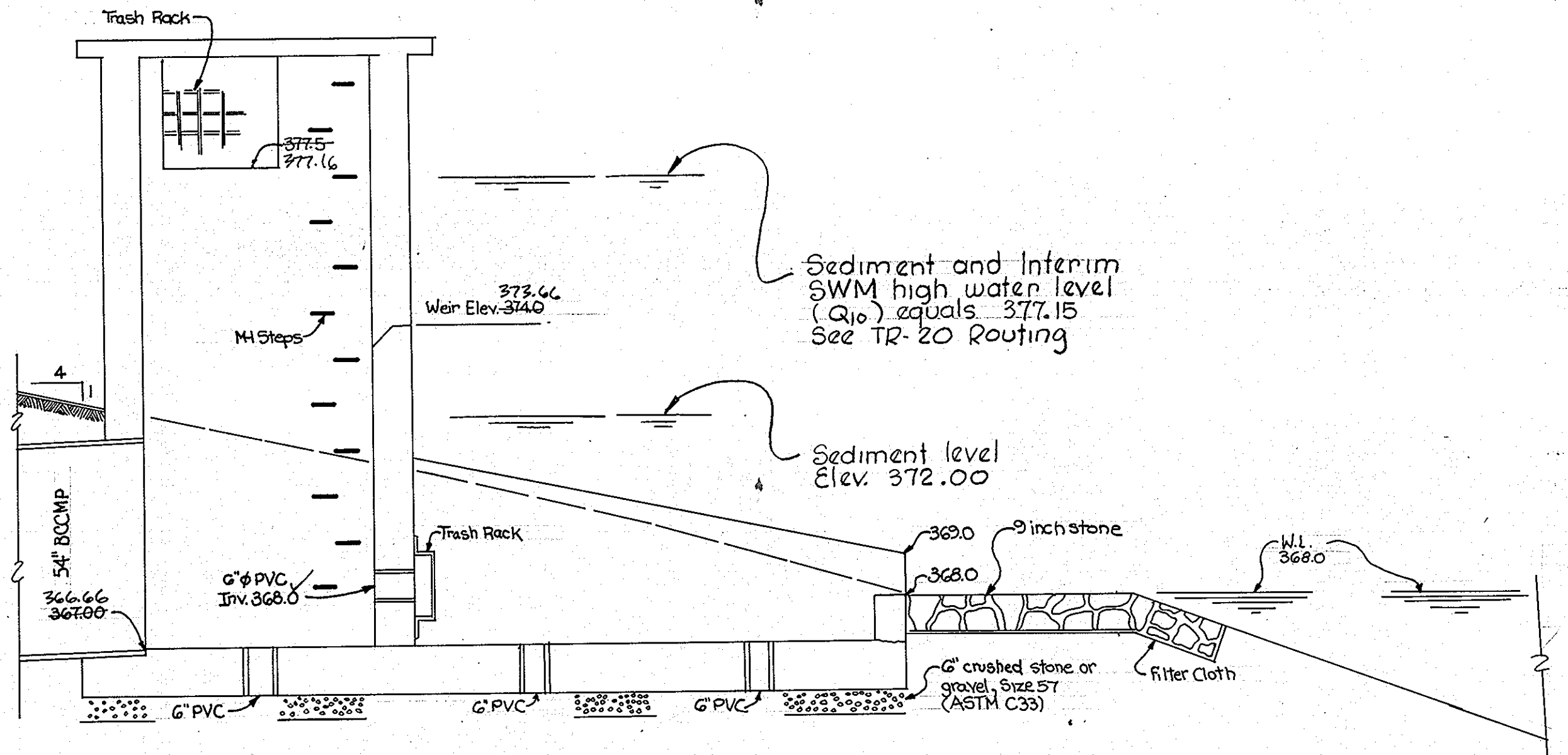
CONSTRUCTION SPECIFICATIONS FOR ST-VI

- The area under embankment shall be cleared, grubbed and stripped of any vegetation and root mat. The pool area shall be cleared.
- The fill material for the embankment shall be free of roots or other woody vegetation as well as over-sized stones, rocks, organic material or other objectionable material. The embankment shall be compacted by traversing with equipment while it is being constructed. Maximum height of embankment shall be five (5) feet, measured at centerline of embankment.
- All fill slopes shall be 2:1 or flatter; cut slopes 1:1 or flatter.
- Elevation of the top of any dike directing water into trap must equal or exceed the height of embankment.
- Storage area provided shall be figured by computing the volume available behind the outlet channel up to an elevation of one (1) foot below the level weir crest.
- Filter cloth shall be placed over the bottom and sides of the outlet channel prior to placement of stone. Sections of fabric must overlap at least one (1) foot thick layer of the (2) inch or finer aggregate shall be placed on the upstream face of the outlet.
- Stone used in the outlet channel shall be four (4) to eight (8) inches (riprap). To provide a filtering effect, a layer of filter cloth shall be embedded one (1) foot back into the upstream face of the outlet stone or a one (1) foot thick layer of the (2) inch or finer aggregate shall be placed on the upstream face of the outlet.
- Sediment shall be removed and trap restored to its original dimensions when the sediment has accumulated to 1/2 the design depth of the trap. Removed sediment shall be deposited in a suitable area and in such a manner that it will not erode.
- The structure shall be inspected after each rain and repaired as needed.
- Construction operations shall be carried out in such a manner that erosion and water pollution are minimized.
- The structure shall be removed and the area stabilized when the drainage area has been properly stabilized.
- Drainage area for this practice is limited to 15 acres or less.

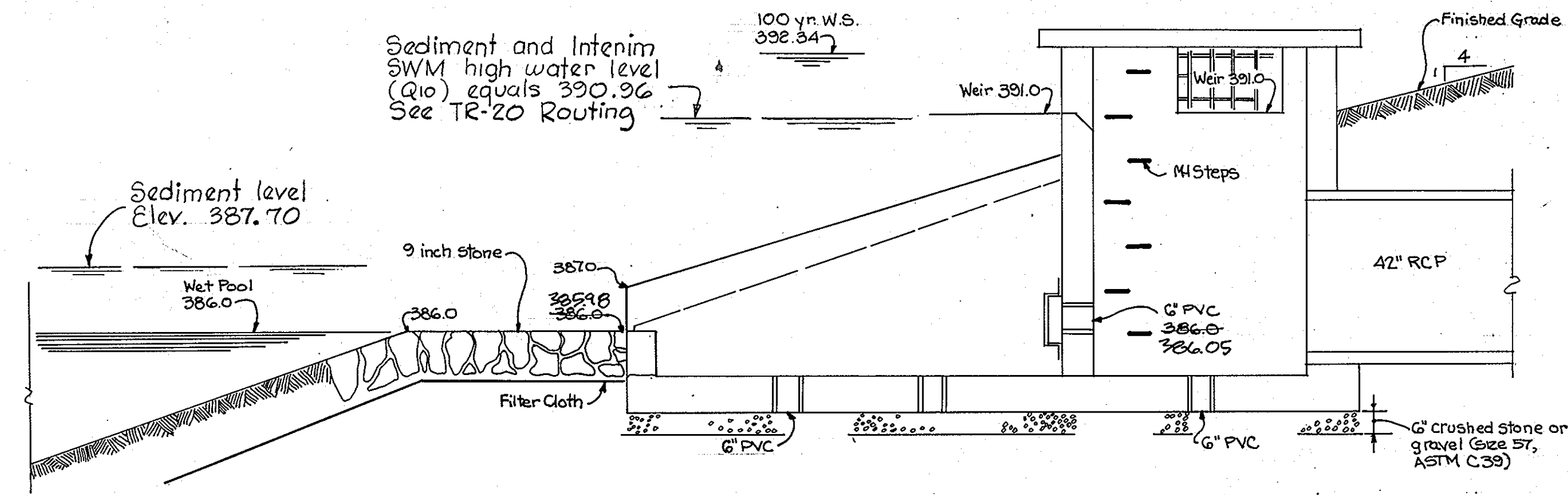
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 [Signature] 3/23/90
 CHIEF, LAND DEVELOPMENT DIVISION
 [Signature] 3/23/90
 CHIEF, BUREAU OF HIGHWAYS
 [Signature] 3-26-90
 CHIEF, BUREAU OF ENGINEERING
 APPROVED: DEPARTMENT OF PLANNING AND ZONING
 [Signature] 3/23/90
 CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT
 [Signature] 3/23/90

REV. DATE	REV. NO.	REVISION-DESCRIPTION
C O L U M B I A 5TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND		
OWNER AND DEVELOPER THE HOWARD RESEARCH AND DEVELOPMENT LAND COMPANY		
PROJECT AREA: VILLAGE OF HICKORY RIDGE SECTION 6 AREA 5		
PROJECT TITLE: SEDIMENT CONTROL DETAILS		
SCALE: No Scale		DATE: 11/10/89
WHITMAN, REQUARDT AND ASSOCIATES Engineers BALTIMORE, MARYLAND 21218		
[Signature] THOMAS J. SHAFER Registered Engineer No. 8457		[Seal]

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 3/23/90
 DATE
 CHIEF, LAND DEVELOPMENT DIVISION
 3/20/90
 DATE
 CHIEF, BUREAU OF HIGHWAYS
 3-26-90
 DATE
 CHIEF, BUREAU OF ENGINEERING
 DATE
 APPROVED: DEPARTMENT OF PLANNING AND ZONING
 3/23/90
 DATE
 CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT
 LKS



RISER STRUCTURE POND NO. 1
 Scale: 3/8" = 1'-0"



RISER STRUCTURE POND NO. 2
 Scale: 3/8" = 1'-0"

AS-BUILT



Scott Shanaberger
 SCOTT SHANABERGER
 PROFESSIONAL L.S. # 10849
 1/2/93
 DATE

SHANABERGER & LANE
 8726 TOWN & COUNTRY BLVD.
 SUITE 104
 ELLICOTT CITY, MARYLAND 21843

REV. DATE	REV. NO.	REVISION DESCRIPTION
		COLUMBIA 5TH ELECTION DISTRICT HOWARD COUNTY MARYLAND
		OWNER AND DEVELOPER THE HOWARD RESEARCH AND DEVELOPMENT LAND COMPANY
		PROJECT AREA: VILLAGE OF HICKORY RIDGE SECTION 6 AREA 5
		PROJECT TITLE: SEDIMENT CONTROL INTERIM SWM. PONDS 1 AND 2
		SCALE: AS SHOWN DATE: Nov. 10, 1989
		WHITMAN, REQUARDT AND ASSOCIATES ENGINEERS BALTIMORE, MARYLAND 21218
		Thomas J. Shafer THOMAS J. SHAFER REGISTERED ENGINEER NO. 8457

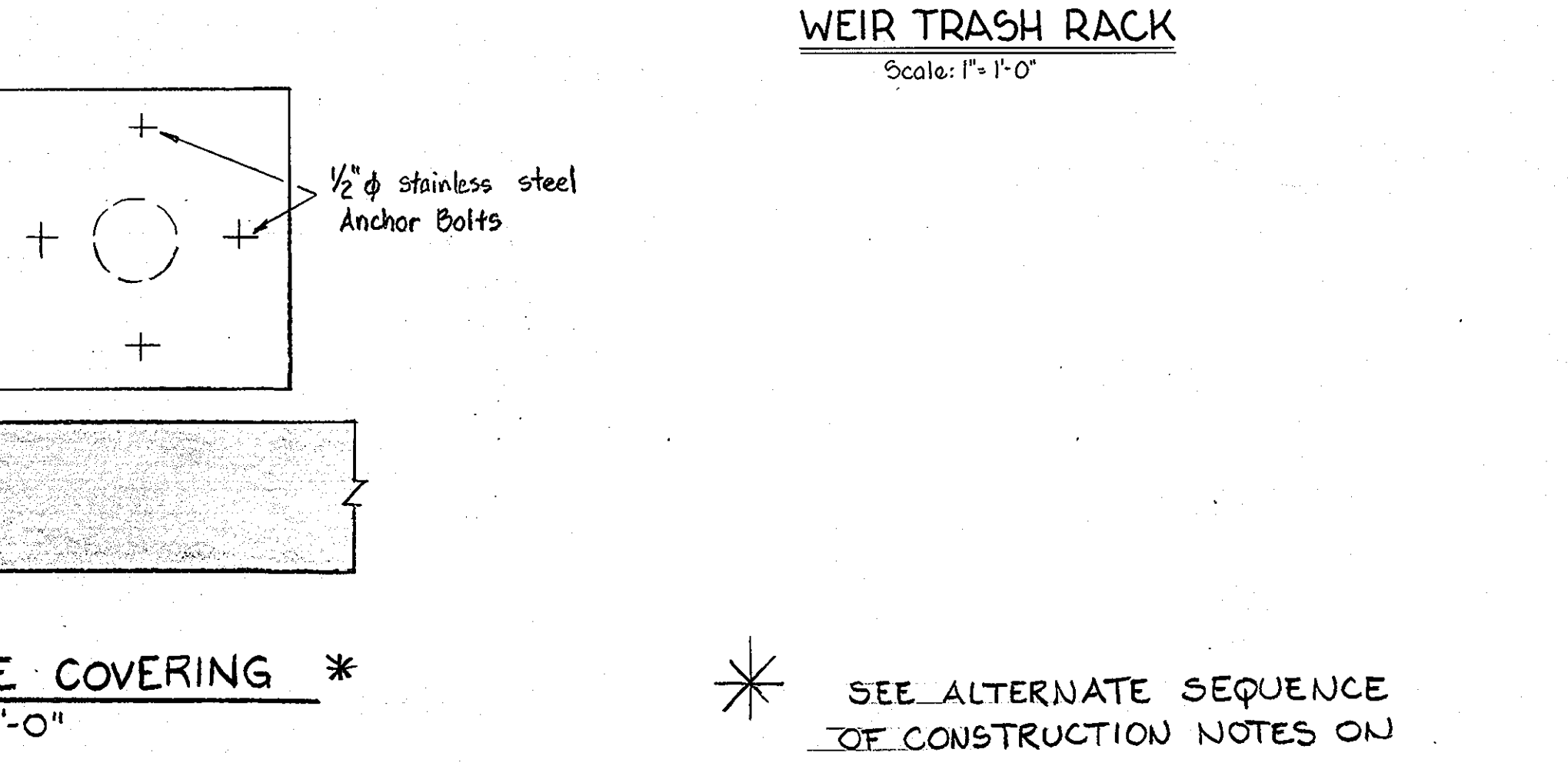
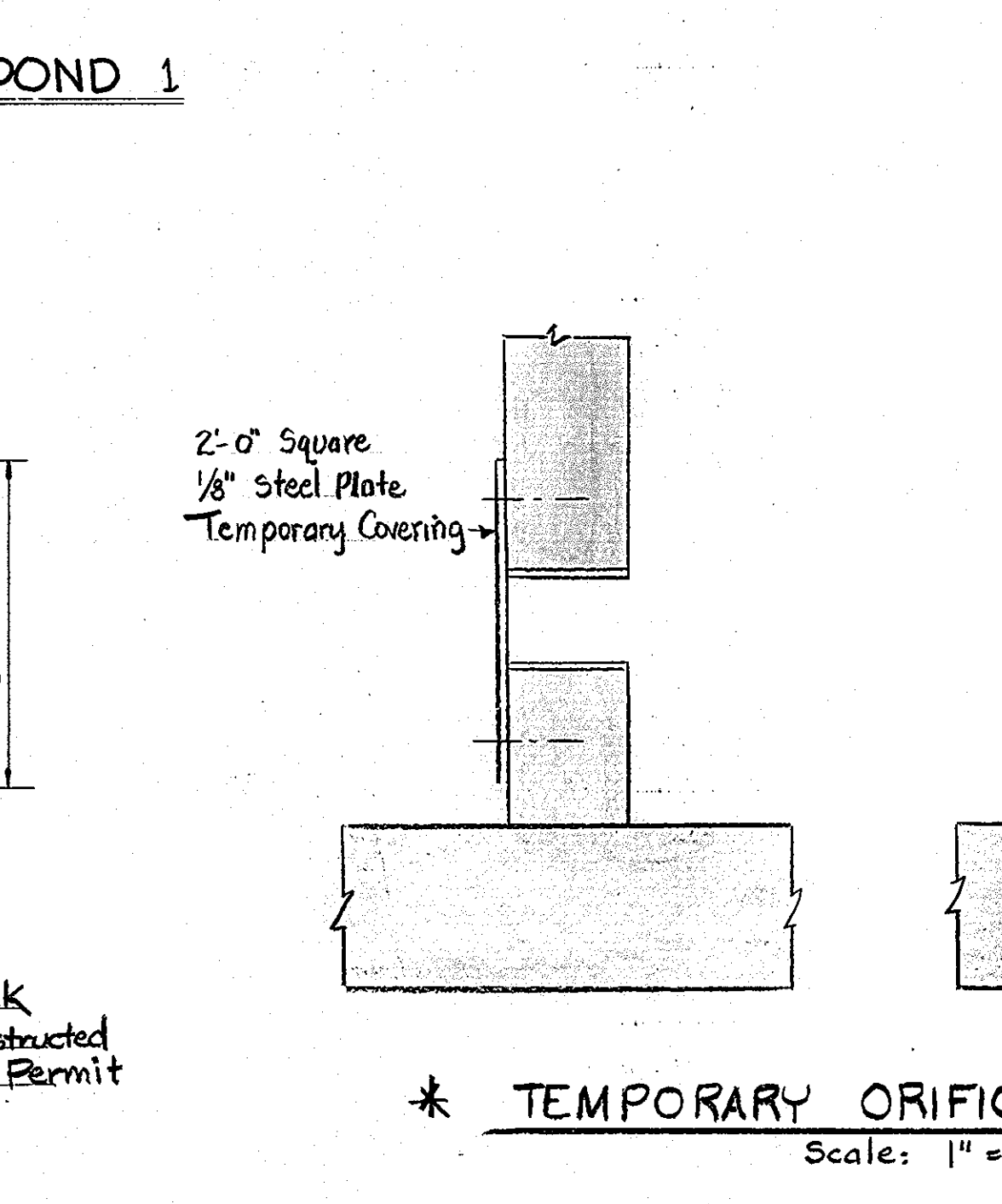
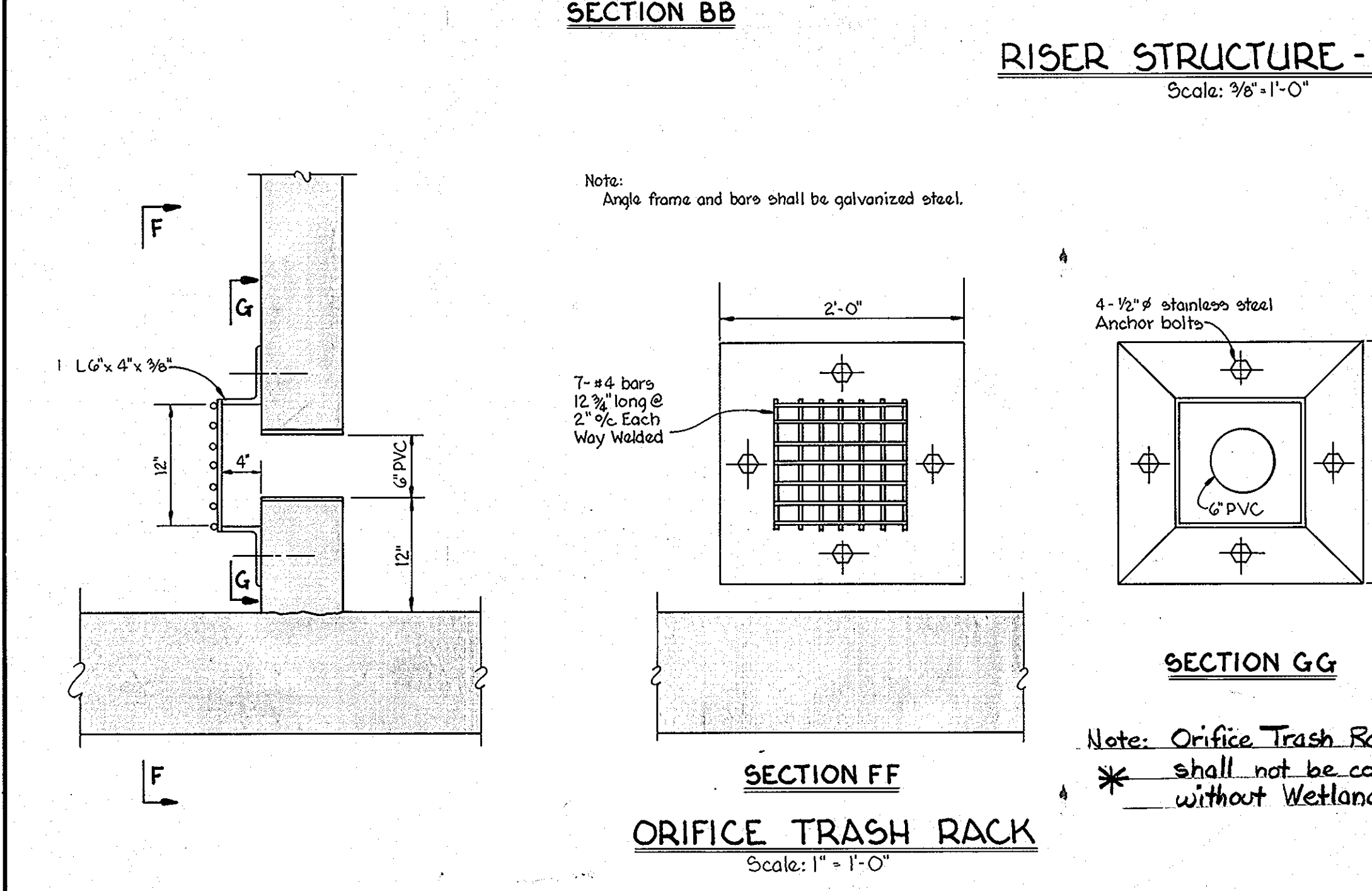
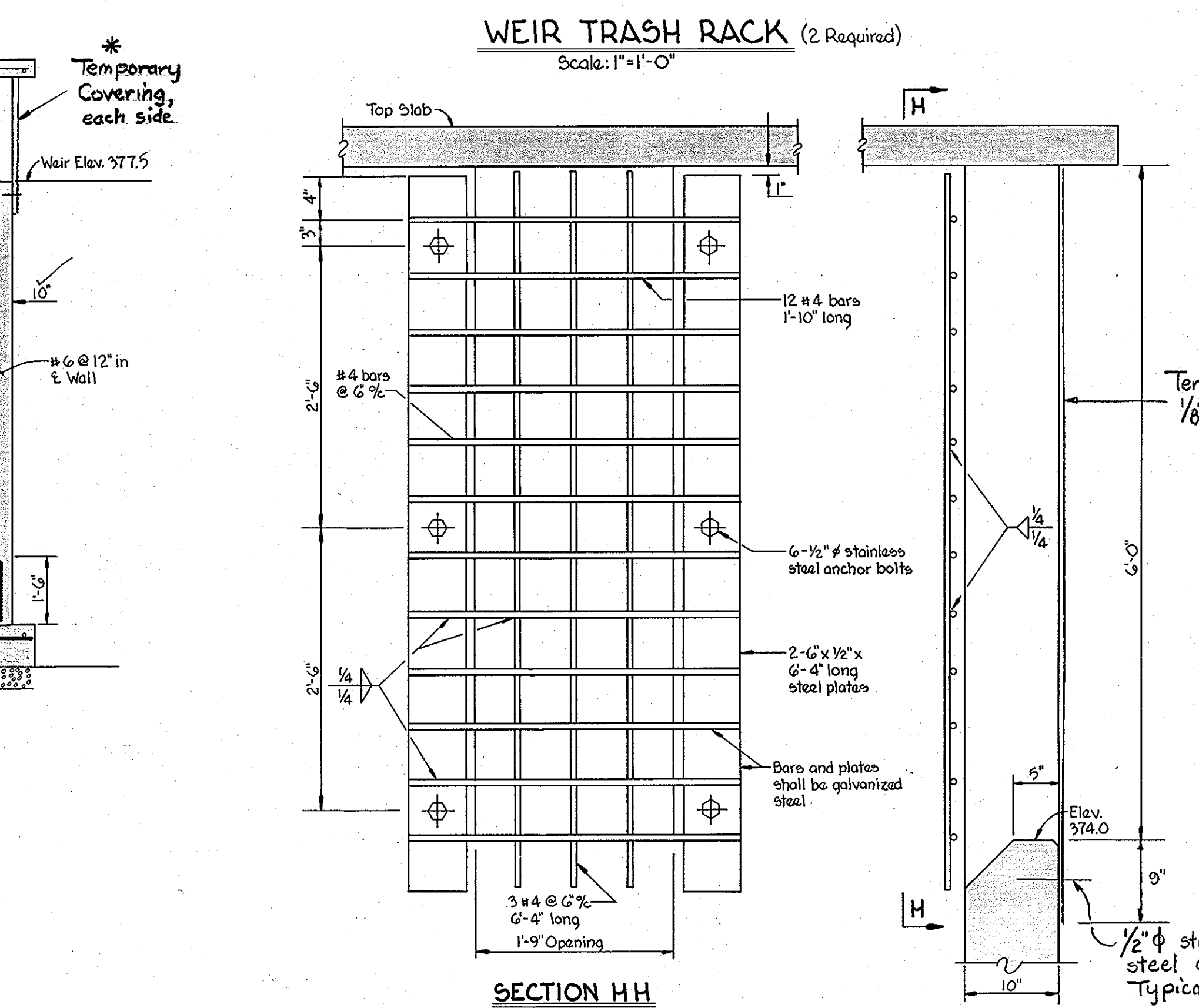
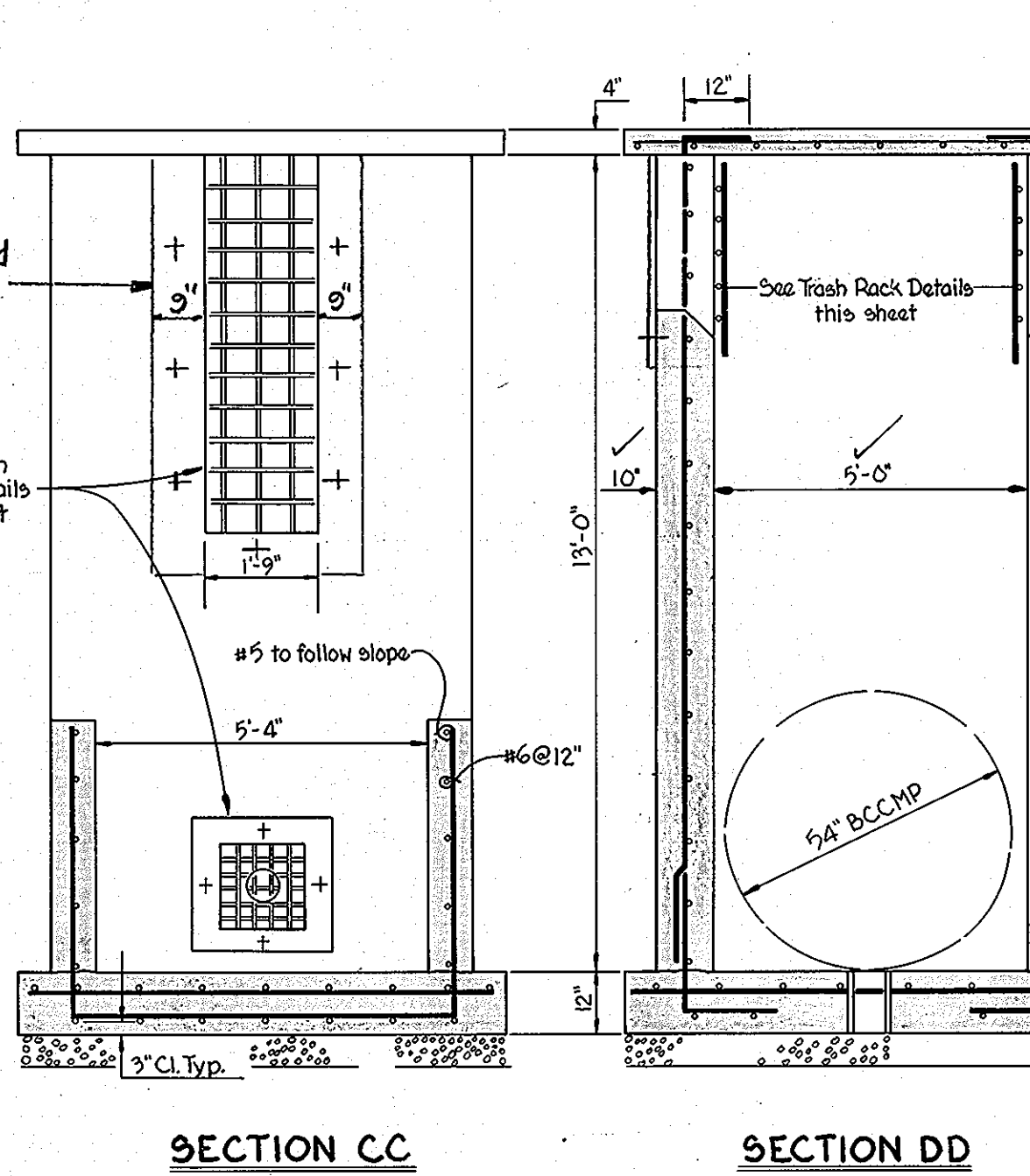
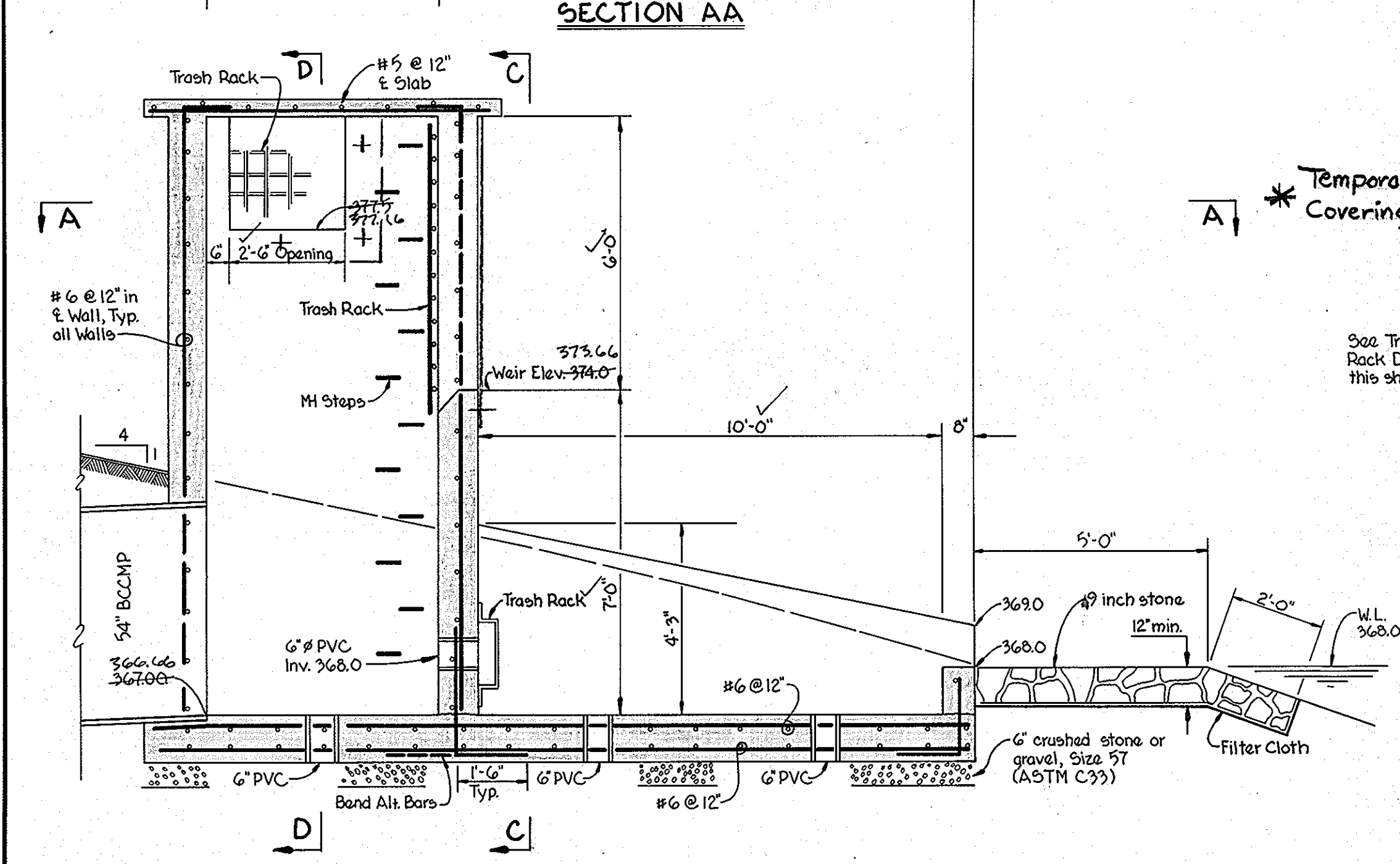
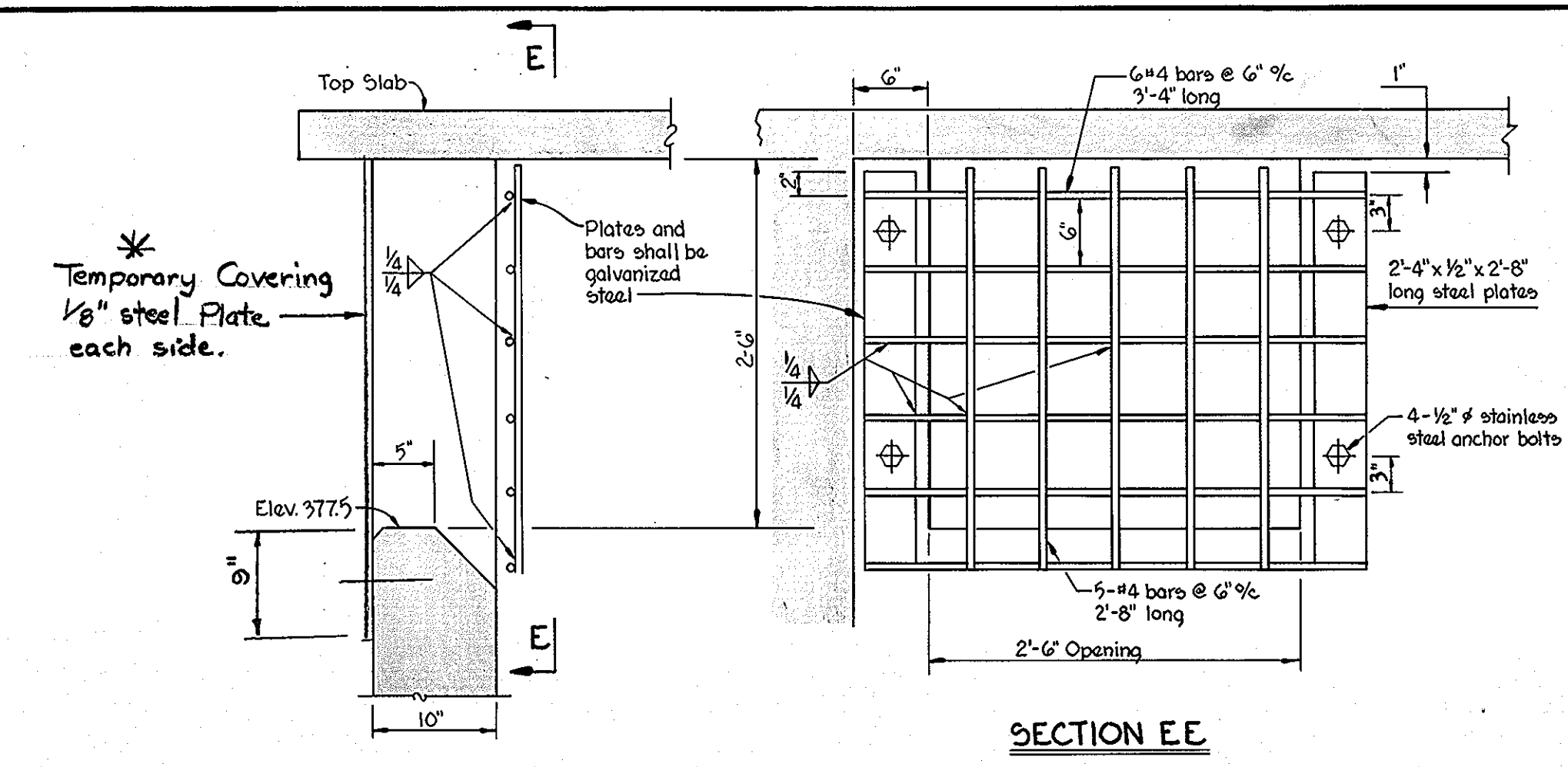
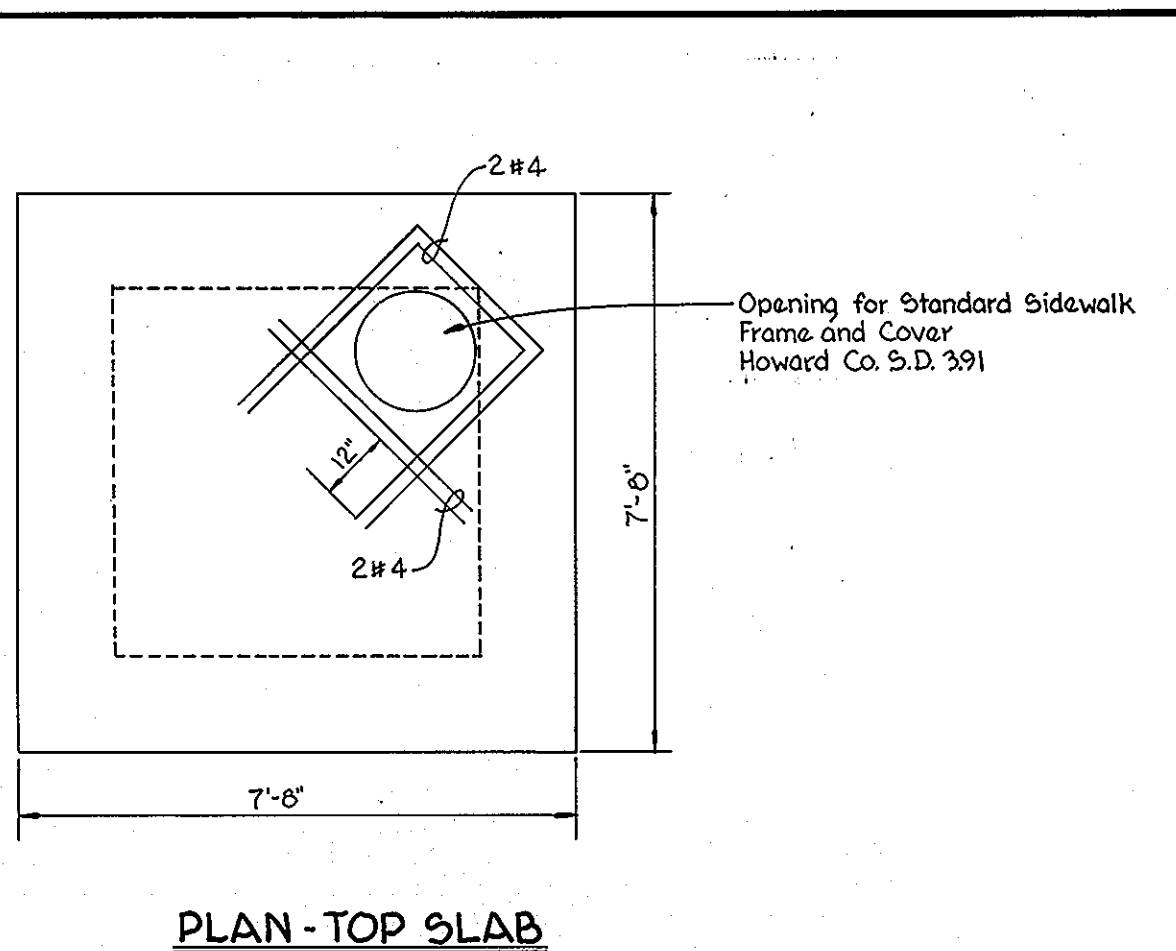
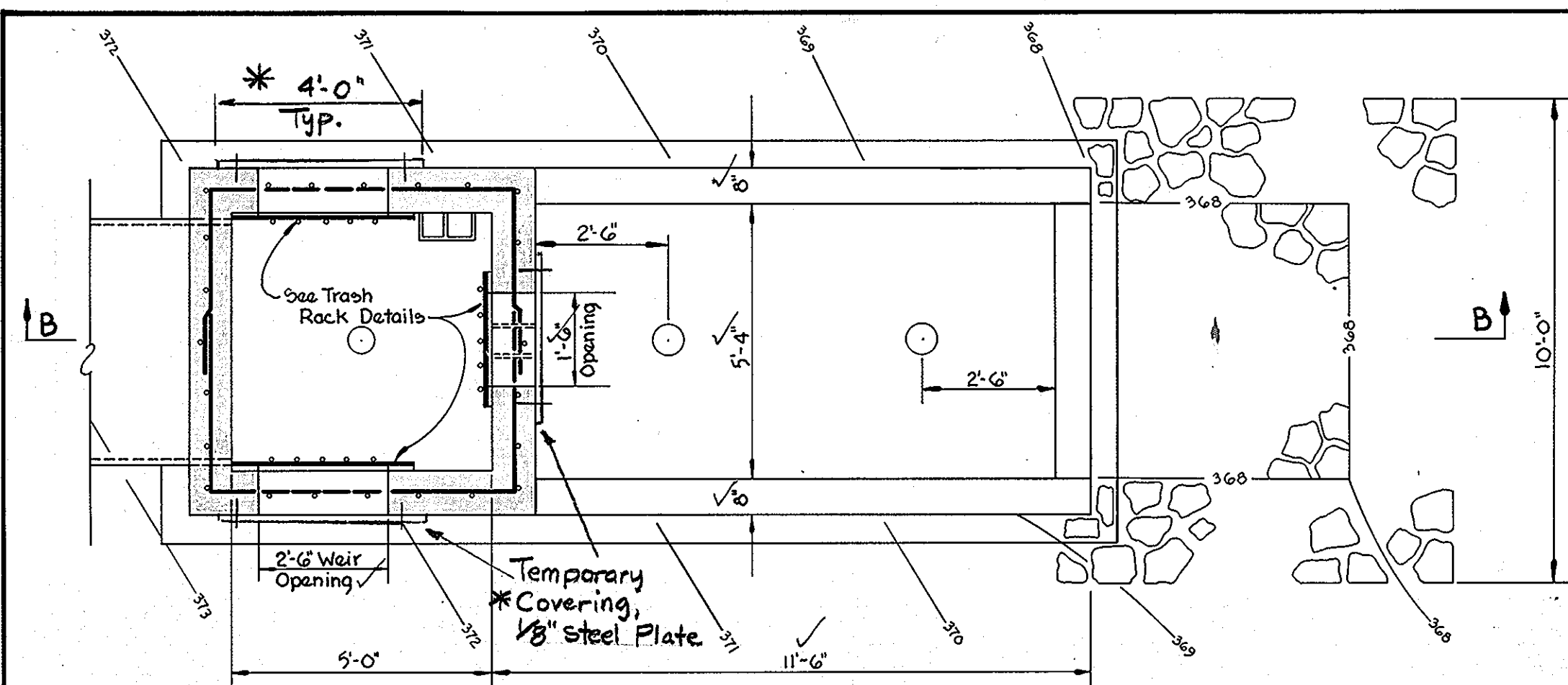
BY THE DEVELOPER:
 "I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."
 Joseph H. Necker Jr.
 11-9-89
 DATE

REVIEWED FOR HOWARD S.C.D. AND MEETS TECHNICAL REQUIREMENTS.
 J. Haberitz
 3/12/90
 DATE
 U.S. SOIL CONSERVATION SERVICE
 THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
 Robert J. Zecher
 3/12/90
 DATE
 HOWARD S.C.D.

BY THE ENGINEER:
 "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."
 Thomas J. Shafer
 11-10-89
 DATE

42

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Donald J. Ryan 3/23/90
 CHIEF, LAND DEVELOPMENT DIVISION DATE
Lawrence W. Wilstead 3/20/90
 CHIEF, BUREAU OF HIGHWAYS DATE
William E. P. ... 3-26-90
 CHIEF, BUREAU OF ENGINEERING DATE
 APPROVED: DEPARTMENT OF PLANNING AND ZONING
Mark J. ... 3/27/90
 CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT DATE



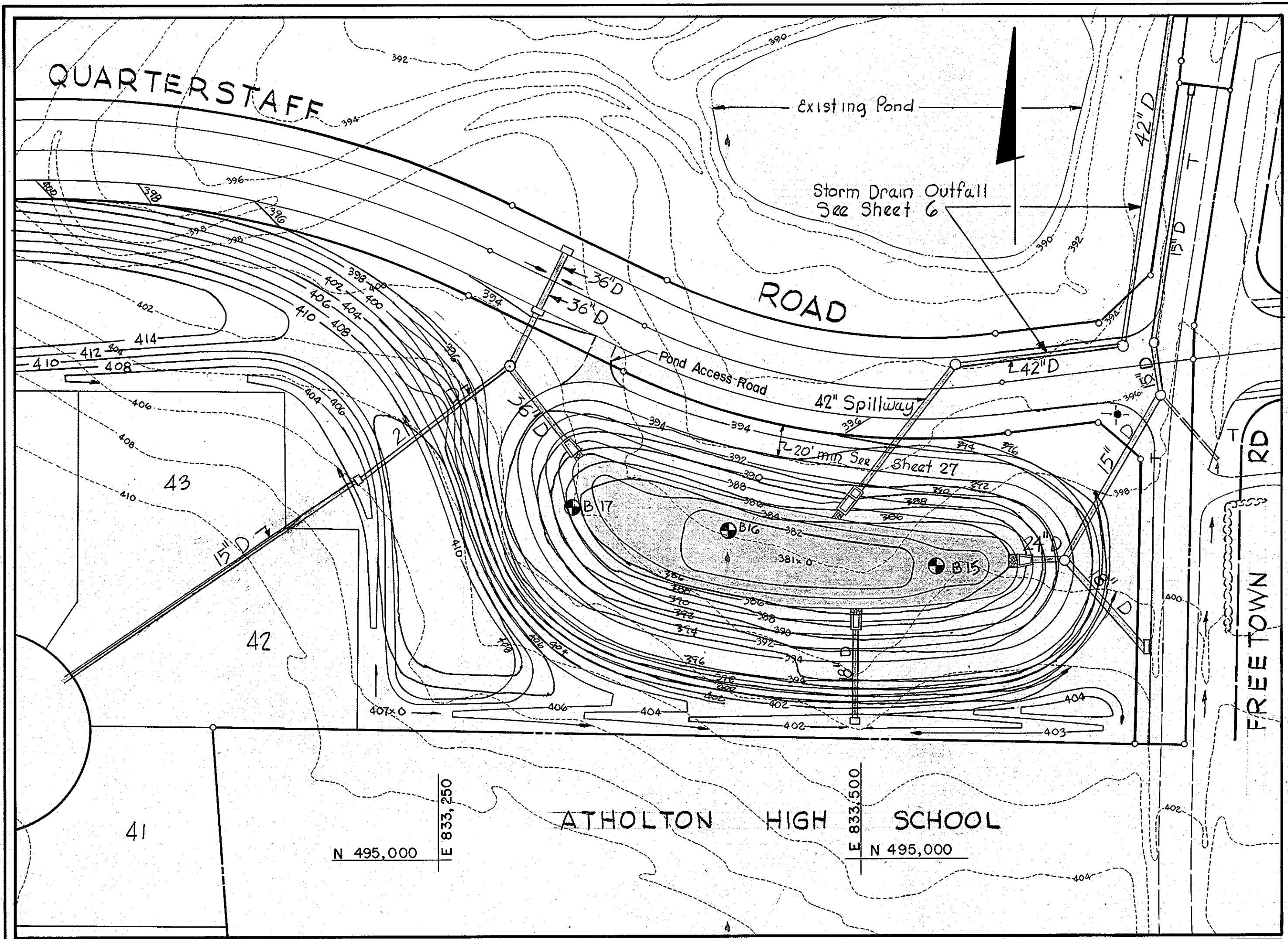
BY THE DEVELOPER:
 "I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I WILL 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."
Joseph H. Necker, Jr. 11-2-89
 JOSEPH H. NECKER, JR. DATE

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.
J. Helms 3/12/90
 U.S. SOIL CONSERVATION SERVICE DATE
 THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.
Robert W. Ziehm 3/12/90
 HOWARD SOIL CONSERVATION DISTRICT DATE

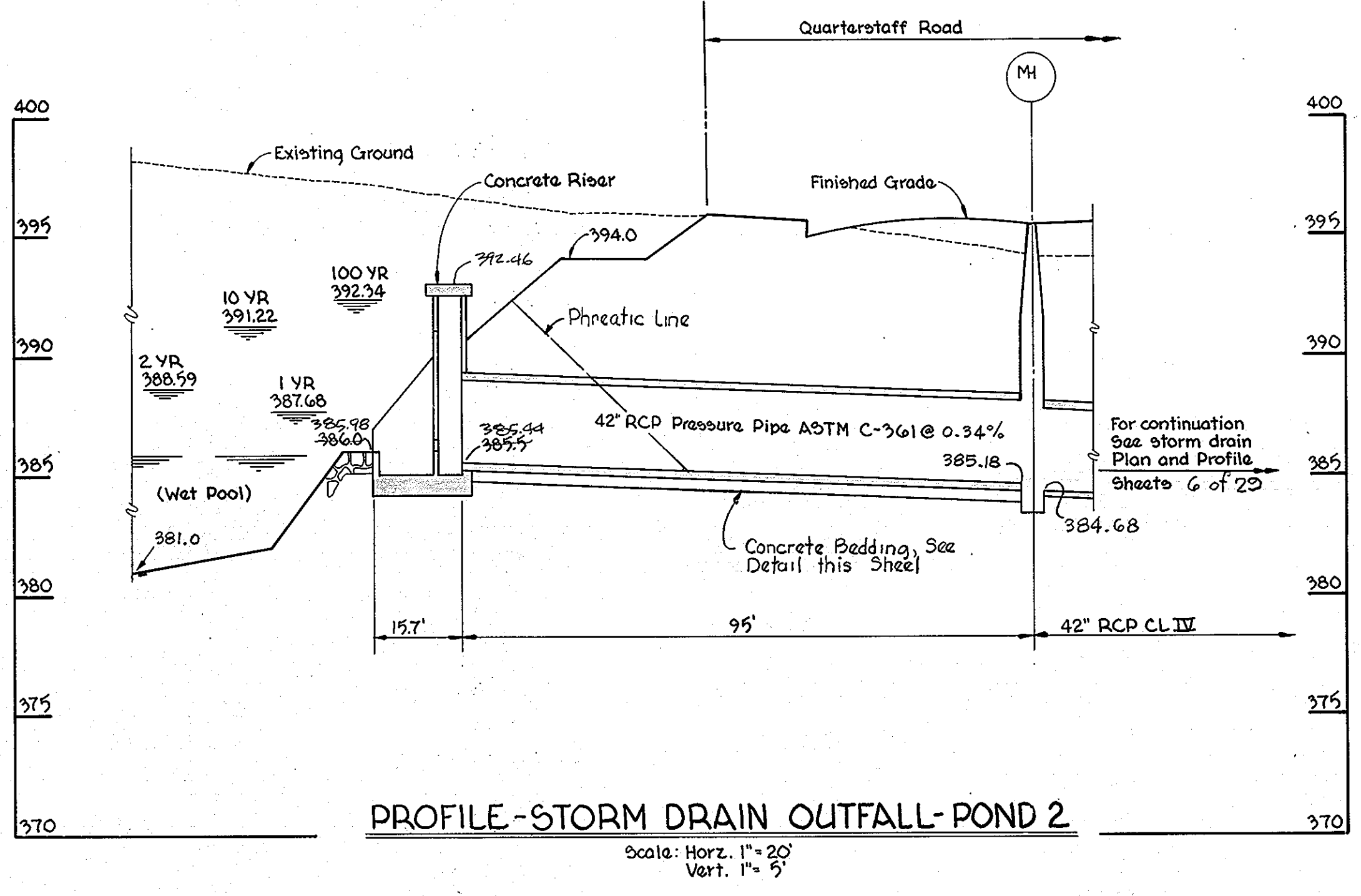
BY THE ENGINEER:
 "I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE MUST PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."
Thomas J. Shafer 11-10-89
 THOMAS J. SHAFER DATE
 Registration No. 8457

AS-BUILT
Scott Shanaberger
 G. SCOTT SHANABERGER
 PROFESSIONAL LAND SURVEYOR
 LICENSE NO. 10249
 DATE
 SHANABERGER & LANE
 8726 TOWN & COUNTRY BLVD.
 SUITE 104
 ELLICOTT CITY, MARYLAND 21043

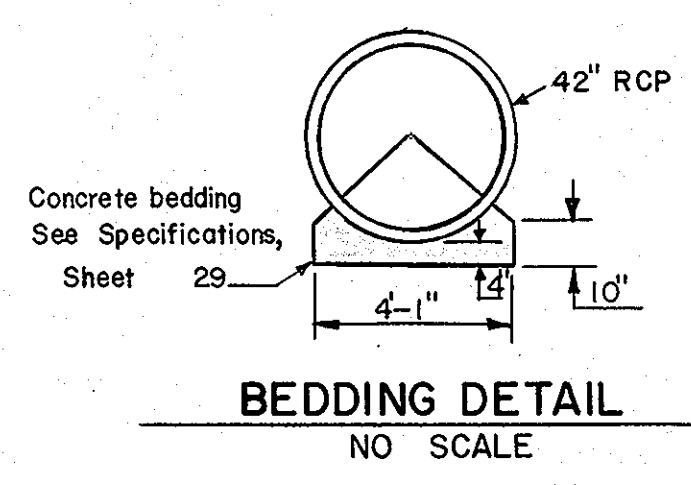
Mar 20 1990	TEMPORARY CONSTRUCTION WITHOUT WETLAND PERMIT	
DATE	REV. NO.	REVISION DESCRIPTION
		COLUMBIA 5TH. ELECTION DISTRICT HOWARD COUNTY, MARYLAND
		OWNER AND DEVELOPER THE HOWARD RESEARCH AND DEVELOPMENT LAND COMPANY
		PROJECT AREA: VILLAGE OF HICKORY RIDGE SECTION 6 AREA 5
		PROJECT TITLE: STORMWATER MANAGEMENT POND 1
SCALE: As Shown	DATE: Nov 10, 1989	
WHITMAN, REQUARDT AND ASSOCIATES Engineers BALTIMORE, MARYLAND 21218		
<i>Thomas J. Shafer</i> THOMAS J. SHAFER Registered Engineer No. 8457		



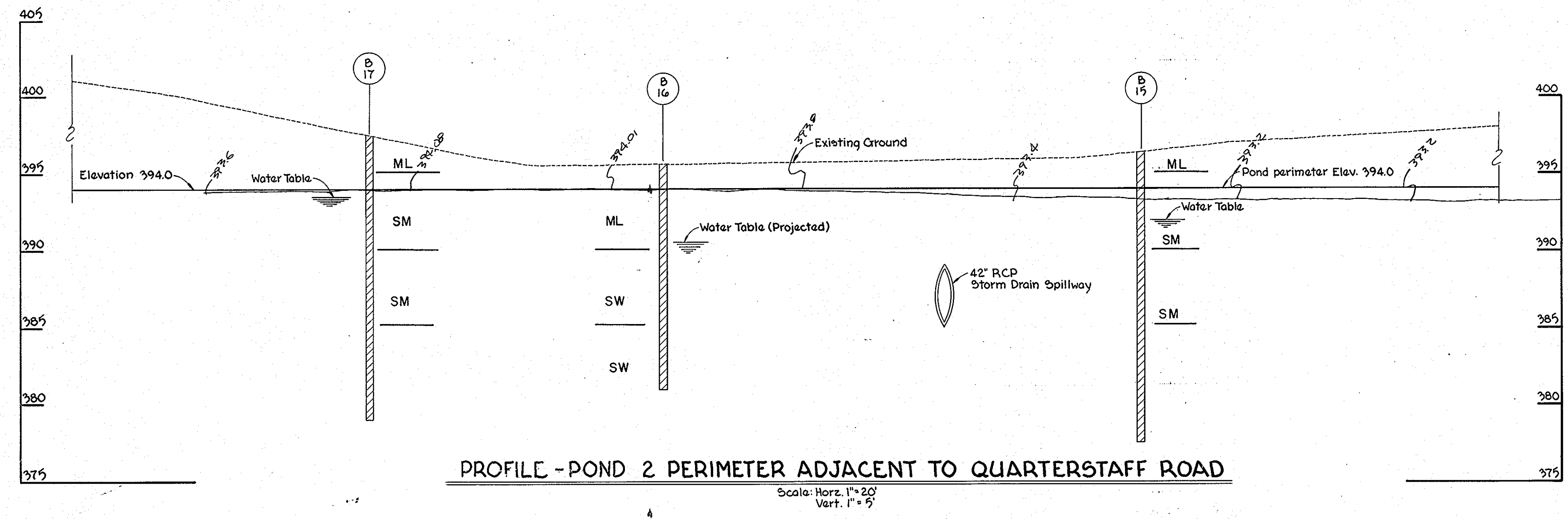
SITE PLAN - SWM POND 2
Scale: 1" = 50'



PROFILE - STORM DRAIN OUTFALL - POND 2
Scale: Horiz. 1" = 20'
Vert. 1" = 5'



BEDDING DETAIL
NO SCALE



PROFILE - POND 2 PERIMETER ADJACENT TO QUARTERSTAFF ROAD
Scale: Horiz. 1" = 20'
Vert. 1" = 5'

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS	DATE
<i>[Signature]</i>	3/23/90
CHIEF, LAND DEVELOPMENT DIVISION	DATE
<i>[Signature]</i>	3/20/90
CHIEF, BUREAU OF HIGHWAYS	DATE
<i>[Signature]</i>	3-26-90
CHIEF, BUREAU OF ENGINEERING	DATE
<i>[Signature]</i>	3/23/90
APPROVED: DEPARTMENT OF PLANNING AND ZONING	DATE
<i>[Signature]</i>	3/23/90
CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT	DATE
<i>[Signature]</i>	3/23/90

AS-BUILT

G. SCOTT SHANABERGER
PROFESSIONAL L.S.# 10849

SHANABERGER & LANE
8726 TOWN & COUNTRY BLVD.
SUITE 104
ELLCOTT CITY, MARYLAND 21043

DATE	REV. NO.	REVISION DESCRIPTION
		COLUMBIA 5TH. ELECTION DISTRICT HOWARD COUNTY, MARYLAND
		OWNER AND DEVELOPER THE HOWARD RESEARCH AND DEVELOPMENT LAND COMPANY
		PROJECT AREA: VILLAGE OF HICKORY RIDGE SECTION 6 AREA 5
		PROJECT TITLE: STORMWATER MANAGEMENT POND NO. 2
		SCALE: As Shown DATE: Nov 10, 1989
		WHITMAN, REQUARDT AND ASSOCIATES Engineers BALTIMORE, MARYLAND 21218
		<i>[Signature]</i> THOMAS J. SHAFER Registered Engineer No. 8457

BY THE 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 NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I WILL 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]
JOSEPH H. NECKER, JR.
DATE: 11-9-89

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.

[Signature]
U.S. SOIL CONSERVATION SERVICE
DATE: 3/12/90

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

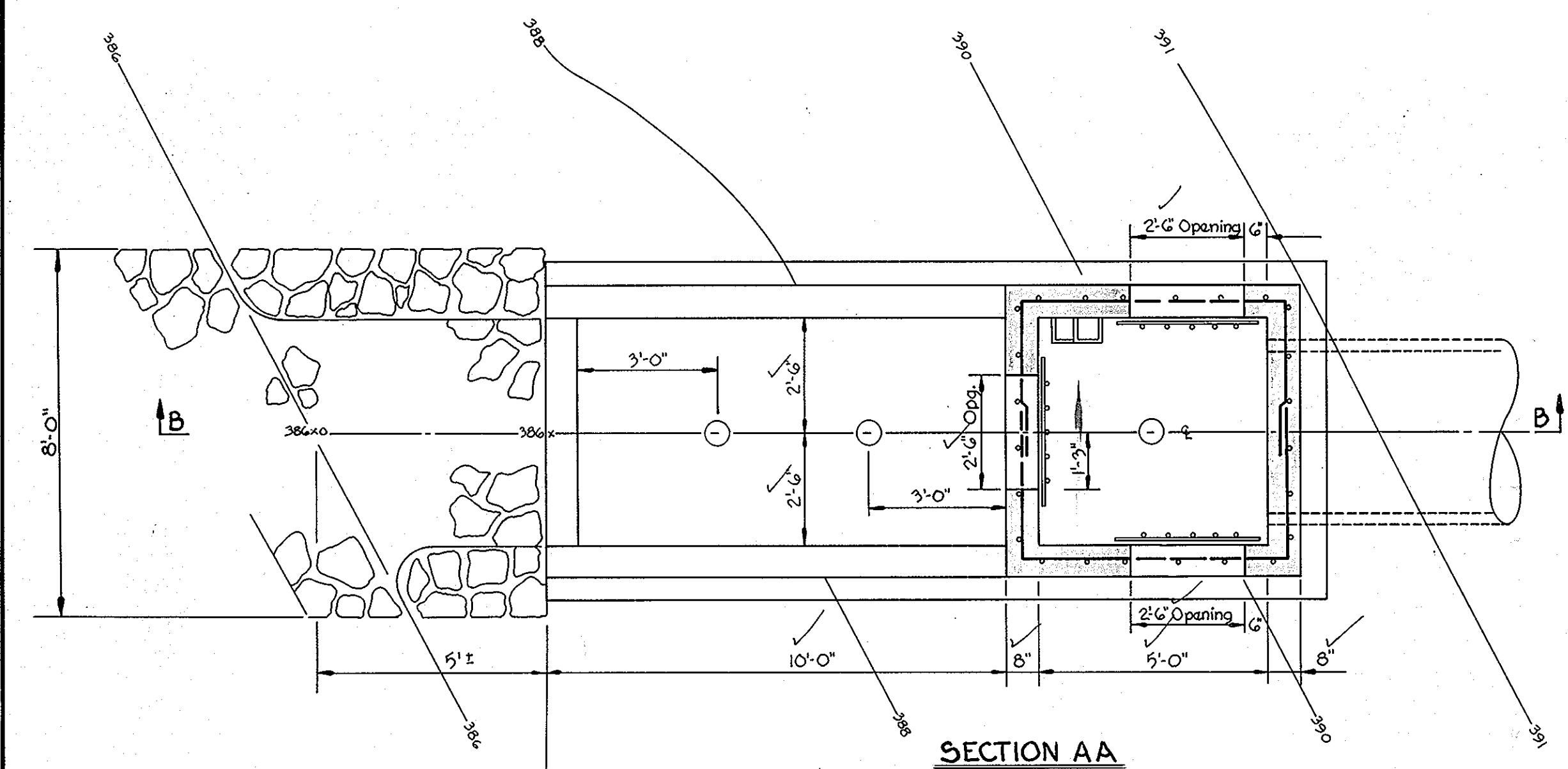
[Signature]
HOWARD SOIL CONSERVATION DISTRICT
DATE: 3/12/90

BY THE ENGINEER:
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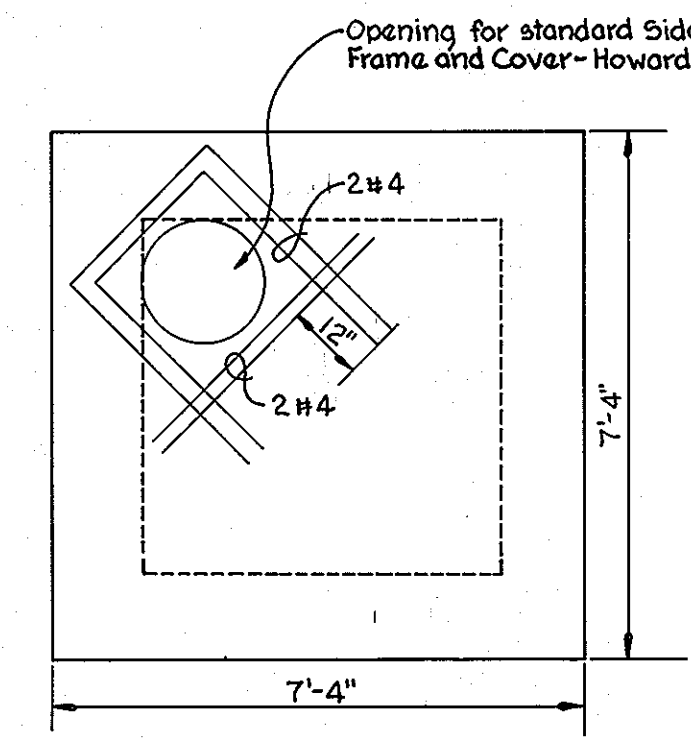
[Signature]
THOMAS J. SHAFER
Registration No. 8457
DATE: 11-10-89

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

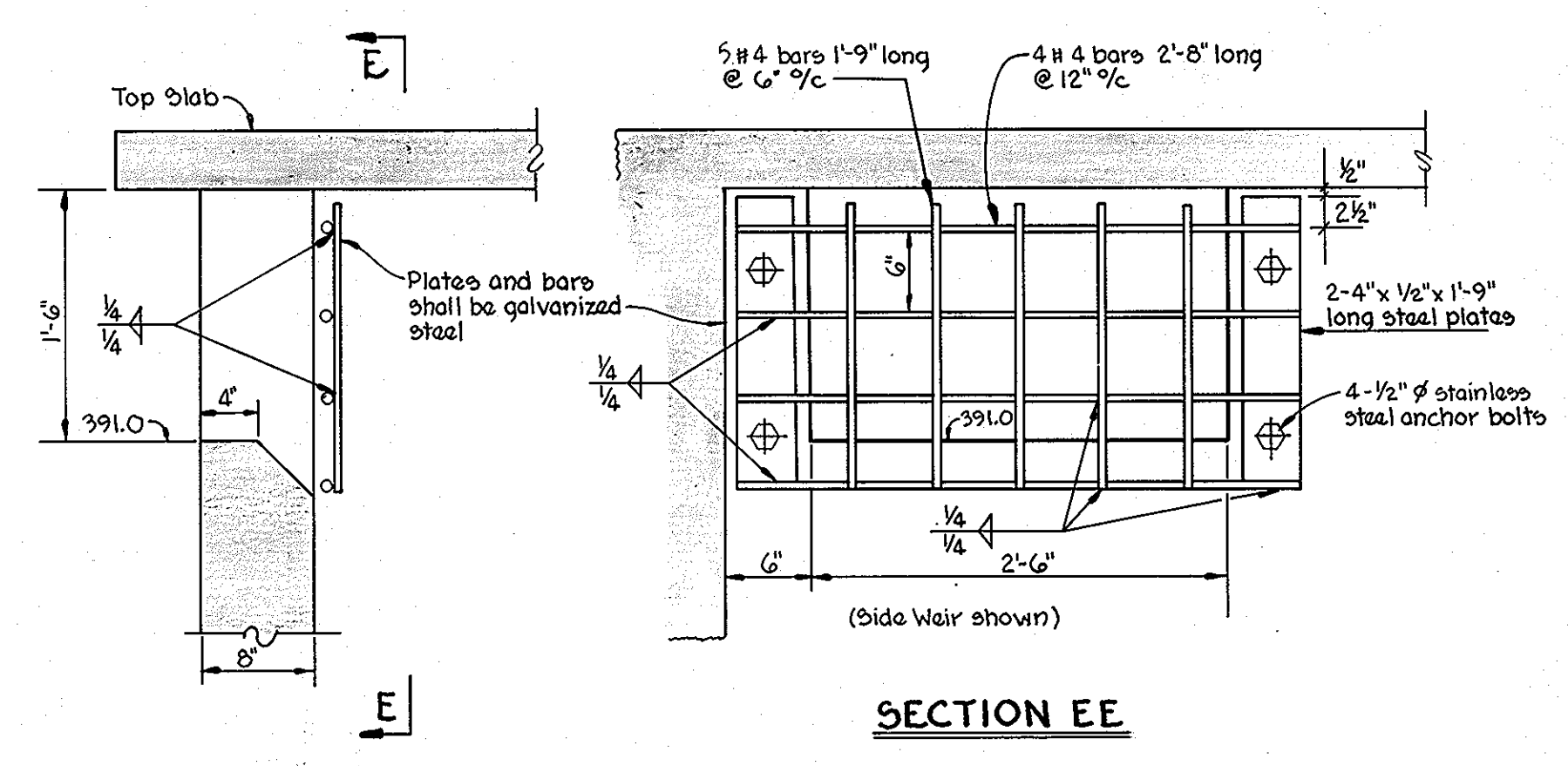
Donald J. Sporn 3/23/90
 CHIEF, LAND DEVELOPMENT DIVISION DATE
Lawrence W. McLeod 3/20/90
 CHIEF, BUREAU OF HIGHWAYS DATE
William B. Bell 3-26-90
 CHIEF, BUREAU OF ENGINEERING DATE
 APPROVED: DEPARTMENT OF PLANNING AND ZONING
David J. Anglin 3/23/90
 CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT DATE



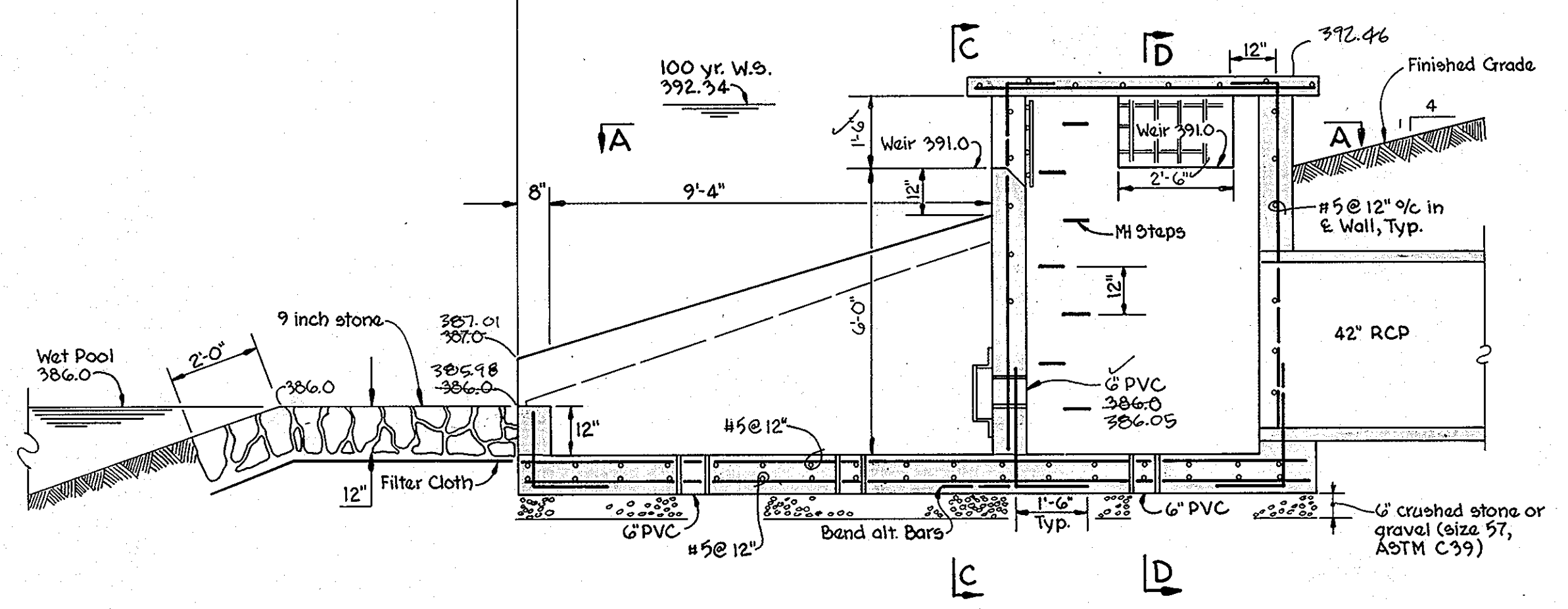
SECTION AA



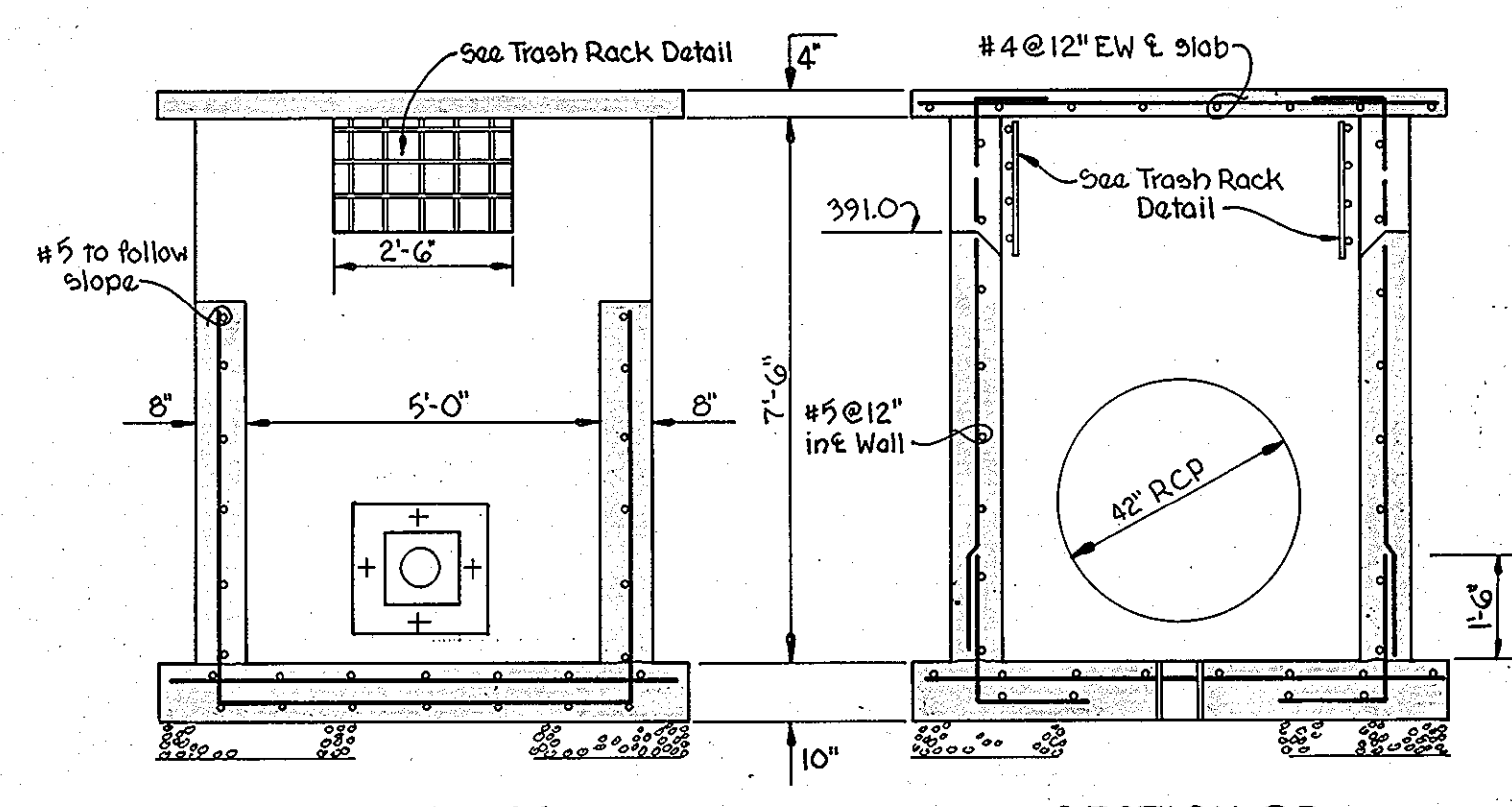
PLAN TOP SLAB



WEIR TRASH RACK



SECTION BB



SECTION CC

SECTION DD

RISER STRUCTURE - POND 2
 Scale: 3/8" = 1'-0"

AS-BUILT



Thomas J. Shafer
 THOMAS J. SHAFER
 PROFESSIONAL L.S. 11084
 DATE 11/10/89

SHANABERGER & LANE
 8726 TOWN & COUNTRY BLVD.
 SUITE 104
 ELLICOTT CITY, MARYLAND 21043

DATE	REV. NO.	REVISION DESCRIPTION
		COLUMBIA 5TH. ELECTION DISTRICT HOWARD COUNTY, MARYLAND
		OWNER AND DEVELOPER THE HOWARD RESEARCH AND DEVELOPMENT LAND COMPANY
		PROJECT AREA: VILLAGE OF HICKORY RIDGE SECTION 6 AREA 5
		PROJECT TITLE: STORMWATER MANAGEMENT POND NO. 2
		SCALE: As Shown DATE: Nov 10, 1989
		WHITMAN, REQUARDT AND ASSOCIATES Engineers BALTIMORE, MARYLAND 21218

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Joseph M. Necker, Jr.
 JOSEPH M. NECKER, JR.
 DATE 11-9-89

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.

J. Helmutz 3/12/90
 U.S. SOIL CONSERVATION SERVICE DATE

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

Robert W. Zielman 3/12/90
 HOWARD SOIL CONSERVATION DISTRICT DATE

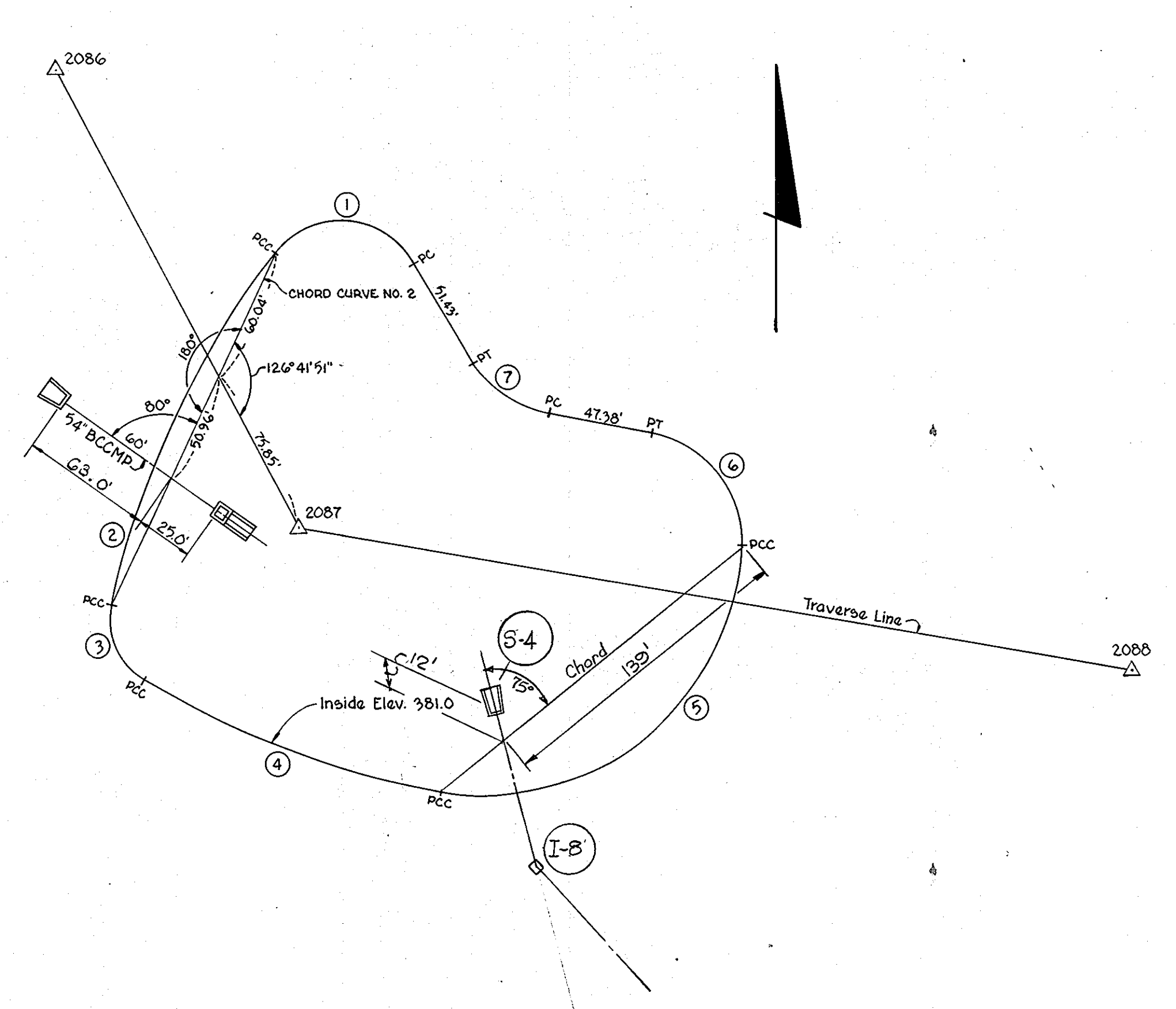
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Thomas J. Shafer 11-10-89
 THOMAS J. SHAFER
 Registration No. 8457 DATE

Thomas J. Shafer
 THOMAS J. SHAFER
 Registered Engineer No. 8457

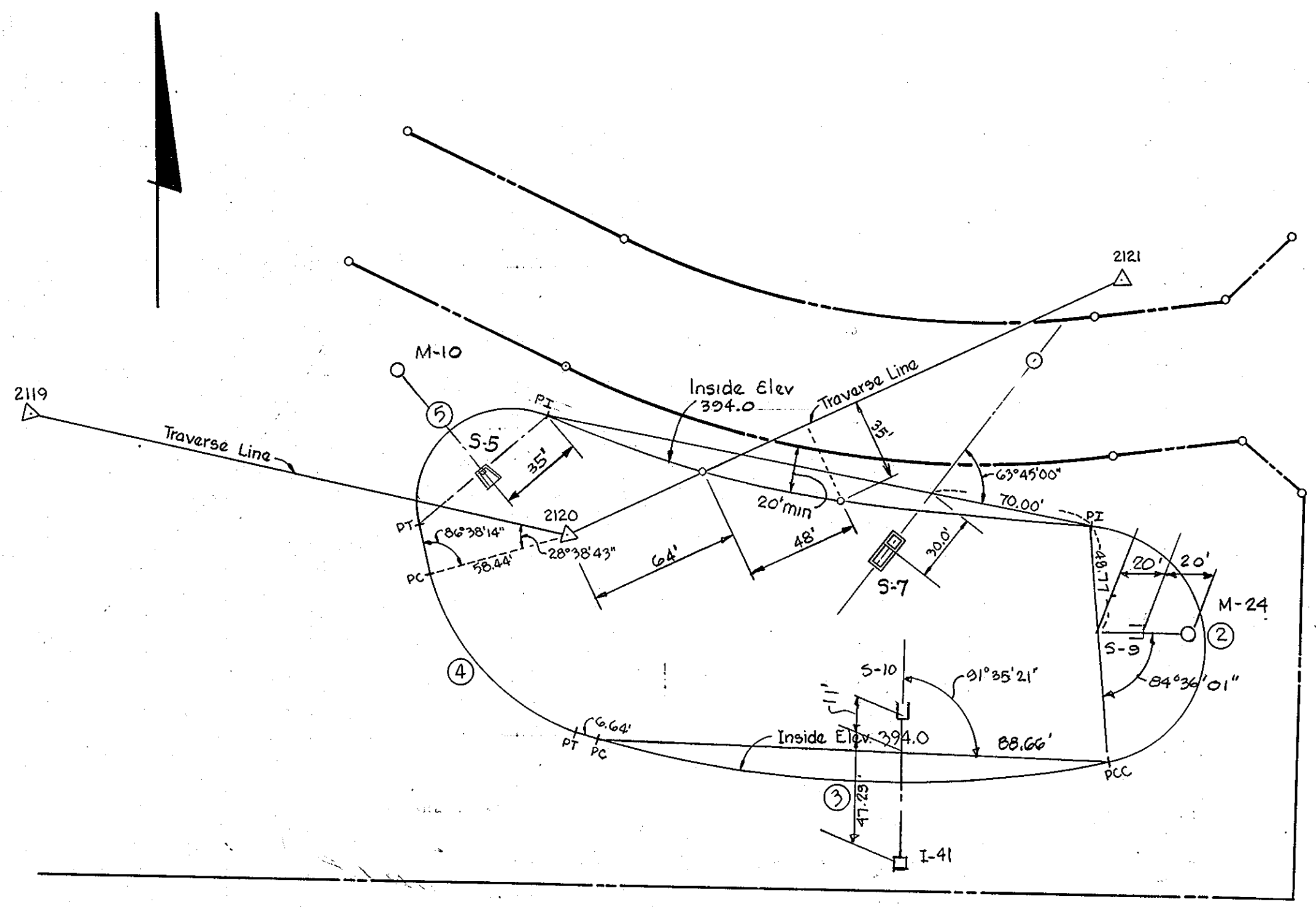
SHT. 27 OF 29
 F-90-97

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Donald Eason 3/23/90
 BRIEF, LAND DEVELOPMENT DIVISION DATE
Drumville W. Weiland 3/20/90
 CHIEF, BUREAU OF HIGHWAYS DATE
William E. Ryan 3-20-90
 CHIEF, BUREAU OF ENGINEERS DATE
 APPROVED: DEPARTMENT OF PLANNING AND ZONING
Paul J. Taylor 3/20/90
 CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT DATE
 JKS



STAKEOUT PLAN - POND ONE

Scale: 1" = 50'



STAKEOUT PLAN - POND TWO

Scale: 1" = 50'

CURVE DATA TABLE - POND ONE						
NO.	RADIUS	DELTA	ARC	TANGENT	CHORD	CHORD BEARING
1	38.00'	112°00'00"	74.28'	56.34'	63.01'	N 86°15'00" W
2	400.00'	25°15'00"	176.28'	89.59'	174.86'	S 25°07'30" W
3	31.50'	71°40'00"	39.40'	22.75'	36.88'	S 23°20'00" E
4	400.00'	20°30'00"	143.12'	72.33'	142.35'	S 69°25'00" E
5	115.00'	99°00'00"	198.71'	134.65'	174.89'	N 50°50'00" E
6	50.00'	80°15'00"	70.03'	42.14'	64.45'	N 38°47'30" W
7	50.00'	48°40'00"	42.47'	22.61'	41.20'	N 54°35'00" W

CURVE DATA TABLE - POND TWO						
NO.	RADIUS	DELTA	ARC	TANGENT	CHORD	CHORD BEARING
2	144.86'	166°00'00"	144.86'	407.22'	99.25'	S 04°05'00" E
3	450.00'	27°35'00"	216.64'	110.46'	214.55'	N 87°17'30" W
4	90.00'	60°55'00"	95.69'	52.93'	91.24'	N 43°02'30" W
5	40.00'	123°20'00"	86.10'	74.18'	70.42'	N 49°05'00" E

DATE	REV. NO.	REVISION DESCRIPTION
C O L U M B I A 5TH. ELECTION DISTRICT HOWARD COUNTY, MARYLAND		
OWNER AND DEVELOPER THE HOWARD RESEARCH AND DEVELOPMENT LAND COMPANY		
PROJECT AREA: VILLAGE OF HICKORY RIDGE SECTION 6 AREA 5		
PROJECT TITLE: STORMWATER MANAGEMENT PONDS 1 AND 2 CONSTRUCTION STAKEOUT		
SCALE: As Shown	DATE: Nov. 10, 1989	
WHITMAN, REQUARDT AND ASSOCIATES Engineers BALTIMORE, MARYLAND 21218		

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Joseph H. Necker, Jr. 11-9-89
 JOSEPH H. NECKER, JR. DATE

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J. Helms 3/12/90
 U.S. SOIL CONSERVATION SERVICE DATE
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Robert W. Zielman 3/12/90
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Thomas J. Shafer 11-10-89
 THOMAS J. SHAFER
 Registration No. 8457 DATE

Thomas J. Shafer
 THOMAS J. SHAFER
 Registered Engineer No. 8457



CONSTRUCTION SPECIFICATIONS

1. 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 pond or 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. All cleared and grubbed material shall be disposed of outside and below the limits of the dam and reservoir as directed by the owner or his representative. When specified, a sufficient quantity of topsoil will be stockpiled in a suitable location for use on the embankment and other designated areas.

2. EARTH FILL

MATERIAL
The fill material shall be taken from approved designated borrow area or areas. It shall be free of roots, stumps, wood, rubbish, oversize stones, frozen or other objectionable materials. The embankment shall be constructed to an elevation which provides for anticipated settlement to the design elevation. The fill height all along the length of the embankment shall be increased above the design elevation (including freeboard) as shown on the plans.

PLACEMENT

Areas on which fill is to be placed shall be scarified prior to placement of fill. Fill materials shall be placed in 8-inch maximum thickness (before compaction) layers which are to be continuous over the entire length of the fill. The most porous borrow material shall be placed in the downstream portions of 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 can be obtained with the equipment used.

Where a minimum required density is specified, each layer of fill shall be compacted as necessary to obtain that density and is to be certified by the Engineer.

CUTOFF TRENCH

Where specified, a cutoff trench shall be excavated along or parallel to the centerline of the embankment as shown on the plans. The bottom width of the trench shall be as shown on the drawings, with the minimum width being four feet. The depth shall be at least four feet or as shown on the plans. The side slopes of the trench shall be 1 to 1 or flatter. The backfill material for the cutoff trench shall be the most impervious material available and shall be compacted with equipment or rollers to assure maximum density and minimum permeability.

3. STRUCTURAL BACKFILL

Backfill material 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 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 twenty-four inches or greater over the structure or pipe.

4. PIPE CONDUITS

ALL PIPES SHALL BE CIRCULAR IN CROSS SECTION.

A. CORRUGATED METAL PIPE

- MATERIALS** - (Steel Pipe) - This pipe and its appurtenances shall be galvanized and fully bituminous coated and shall conform to the requirements of AASHTO Specification M-190 Type A with watertight coupling bands. Any bituminous coating damaged or otherwise removed shall be replaced with cold applied bituminous coating compound. steel pipes with polymeric coatings shall have a minimum coating thickness of 0.01 inch (10 mil) on both sides of the pipe. The following coatings are commercially available: Nexon, Plasti-Cote, Blac-Klad, and Beth-Cu-Loy. Coated corrugated steel pipe shall meet the requirements of AASHTO M-245 AND M-246.
- CONNECTIONS** - All connections with pipes must be completely watertight. Watertight coupling bands are not considered to be watertight.
- 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.
- LAYING PIPE** - The pipe shall be placed with inside circumferential laps pointing downstream and with the longitudinal laps at the sides.
- BACKFILLING** - Backfilling shall conform to structural backfill as shown above.
- Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

5. CONCRETE

1. MATERIALS

- CEMENT** - Normal Portland cement shall conform to the latest ASTM Specification C-150.
- WATER** - The water used in concrete shall be clean, free from oil, acid, alkali, scales, organic matter or other objectionable substances.
- SAND** - The sand used in concrete shall be clean, hard, strong and durable, and shall be well graded with 100 percent passing a one-quarter inch sieve. Limestone sand shall not be used.

5. CONCRETE - Continued

1. MATERIALS

- COARSE AGGREGATE** - The coarse aggregate shall be clean, hard, strong and durable, and free from clay or dirt. It shall be well graded with a maximum size of one and one-half (1-1/2) inches. For the trial mix shall be 1:2:3-1/2. The combination of aggregates may be adjusted to produce a plastic and workable mix that will not produce harshness in placing or honey-combing in the structure.
- REINFORCING STEEL** - The reinforcing steel shall be deformed bars of intermediate grade billet steel or rail steel conforming to ASTM Specification A-615.

DESIGN MIX - The concrete shall be mixed in the following proportions, measured by weight. The water-cement ratio shall be 5-1/2 to 6 U.S. Gallons of water per 94 pound bag of cement. The proportion of materials shall be adjusted to produce a plastic and workable mix that will not produce harshness in placing or honey-combing in the structure.

MIXING - The concrete ingredients shall be mixed in batch mixers until the mixture is homogeneous and of uniform consistency. The mixing of each batch shall continue for not less than one and one-half minutes after all the ingredients, except the full amount of water, are in the mixer. The minimum mixing time is predicted on proper control of the speed of rotation of the mixer and of the introduction of the materials, including water, into the mixer. Water shall be added prior to, during, and following the mixer-charging operations. Excessive overmixing requiring the addition of water to preserve the required concrete consistency shall not be permitted. Truck mixing will be allowed provided that the use of this method shall cause no violation of any applicable provisions of the specifications given here.

FORMS - The forms shall have sufficient strength and rigidity to hold the concrete and to withstand the necessary pressure, tamping, and vibration without deflection from the prescribed lines. They shall be mortar-tight and constructed so that they can be removed without hammering or prying or prying against the concrete.

The inside of forms shall be oiled with a non-staining mineral oil or thoroughly wetted before concrete is placed.

Forms may be removed 24 hours after the placement of concrete. All wire ties and other devices used shall be recessed from the surface of the concrete.

REINFORCING STEEL - All reinforcing material shall be free of dirt, rust, scale, oil, paint or any other coatings. The steel shall be accurately placed and securely tied and blocked into position so that no movement of the steel will occur during placement of concrete.

CONSOLIDATING - Concrete shall be consolidated with internal type mechanical vibrators. Vibration shall be supplemented by spading and hand tamping as necessary to insure smooth and dense concrete along form surfaces, in corners, and around embedded items.

FINISHING - Defective concrete, honeycombed areas, voids left by the removal of tie rods, ridges on all concrete surfaces permanently exposed to view or exposed to water on the finished structure, shall be repaired immediately after the removal of forms. All voids shall be reamed and completely filled with dry-patching mortar.

PROTECTION AND CURING - Exposed surfaces of concrete shall be protected from the direct rays of the sun for at least the first three (3) days. All concrete shall be kept continuously moist for at least ten (10) days after being placed. Moisture may be applied by spraying or sprinkling as necessary to prevent the concrete from drying. Concrete shall not be exposed to freezing during the curing period. Curing compounds may also be used.

PLACING TEMPERATURE - Concrete may not be placed at temperatures below 37° F. with the temperature falling, or 34° with the temperature rising.

6. STABILIZATION

All borrow areas shall be graded to provide proper drainage and left in a slightly condition. All exposed surfaces of the embankment, spillway, spoil and borrow areas, and berms shall be stabilized by seeding, liming, fertilizing and mulching (if required) in accordance with the vegetative treatment specifications.

7. 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 show detail erosion and sediment control measures to be employed during the construction process. See Sheets 15 thru 21.

PERMANENT SEEDING

ALL DISTURBED AREAS SHALL BE STABILIZED AS FOLLOWS:

- SEEDING PREPARATION:** Loosen upper 3 inches of soil by raking, discing or other acceptable means before seeding.
- SOIL AMENDMENTS:** Apply 2 ton per acre Dolomitic Limestone (92 lbs./1,000 sq. ft.) and 600 lbs. per acre 0-20 fertilizer (14 lbs./1,000 sq. ft.) Harrow or disc lime and fertilizer into upper three inches of soil. At time of seeding, apply 400 lbs. per acre (9.2 lbs./1,000 sq. ft.) of 38-0-0 Ureaform fertilizer and 500 lbs. per acre (11.5 lbs./1,000 sq. ft.) of 10-20-20 fertilizer.
- SEEDING:** For the periods March 1 thru April 30, and August 1 thru October 15, seed with 45 lbs. per acre (1.4 lbs./1,000 sq. ft.) of Kentucky 31 Tall Fescue. For the period May 1 thru July 31, seed with 45 lbs. Kentucky 31 Tall Fescue per acre and 2 lbs. per acre (.05 lbs./1,000 sq. ft.) of Weeping Lovegrass. During the period of October 16 thru February 28, protect site by Option (1)-2 tons per acre of well anchored straw mulch and seed as soon as possible in the spring. Option (2)-use sod. Option (3)-seed with 60 lbs./acre Kentucky 31 Tall Fescue and mulch with 2 tons/acre well anchored straw.
- EROSION CONTROL FABRIC:** "HOLD GRO", Gulf State Paper Corporation, P.O. B. NO. 3199 Tuscaloosa, Alabama, 34504, or an approved equal. Install as recommended by the manufacturer.
- MAINTENANCE:** Inspect all seeded areas and make needed repairs, replacements and reseedings.
- Add Crown Vetch Leguminous Seed to mixture on 2:1 slopes. Seed mixture shall be sown at the rate of 45 pounds/acre with Crown Vetch sown at 15 pound/acre. Inoculant for Crown Vetch shall be at the rate of 6.7 oz. Powder or liquid culture per 20 pounds Crown Vetch. Seed inoculated with liquid culture shall be sown within 24 hours after treatment. Seed inoculated with powdered culture shall be sown within 48 hours after treatment. The seeding contractor may elect to apply the inoculated Legume Seed dry and in a separate operation prior to applying an aqueous mixture, or he may apply them in the aqueous mixture with the seed and commercial fertilizer using four times the quantity of inoculum recommended for dry leguminous seed application.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Donald B. Johnson 3/23/90
 CHIEF, LAND DEVELOPMENT DIVISION DATE
Lawrence W. Welland 3/20/90
 CHIEF, BUREAU OF HIGHWAYS DATE
W. S. ... 3.24.90
 CHIEF, BUREAU OF ENGINEERING DATE
 APPROVED: DEPARTMENT OF PLANNING AND ZONING
Robert S. ... 3/23/90
 CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT DATE

REV. NO.	REV. DATE	REVISIONS
C O L U M B I A 5TH. ELECTION DISTRICT HOWARD COUNTY, MARYLAND		
OWNER AND DEVELOPER THE HOWARD RESEARCH AND DEVELOPMENT LAND COMPANY		
PROJECT AREA	VILLAGE OF HICKORY RIDGE SECTION 6 AREA 5	
PROJECT TITLE	STORMWATER MANAGEMENT CONSTRUCTION SPECIFICATIONS	
SCALE:	DATE: Nov. 10 1989	
WHITMAN, REQUARDT AND ASSOCIATES ENGINEERS BALTIMORE, MARYLAND 21218		
<i>Thomas J. Shafer</i> THOMAS J. SHAFER Registered Engineer NO. 8457		

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THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.
J. Helmutz 3/12/90
 U.S. SOIL CONSERVATION SERVICE DATE

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Robert W. Zielum 3/12/90
 HOWARD SOIL CONSERVATION DISTRICT DATE

Thomas J. Shafer 11-10-89
 THOMAS J. SHAFER
 Registration No. 8457 DATE

Joseph H. Necker, Jr. 11-9-89
 JOSEPH H. NECKER, JR. DATE