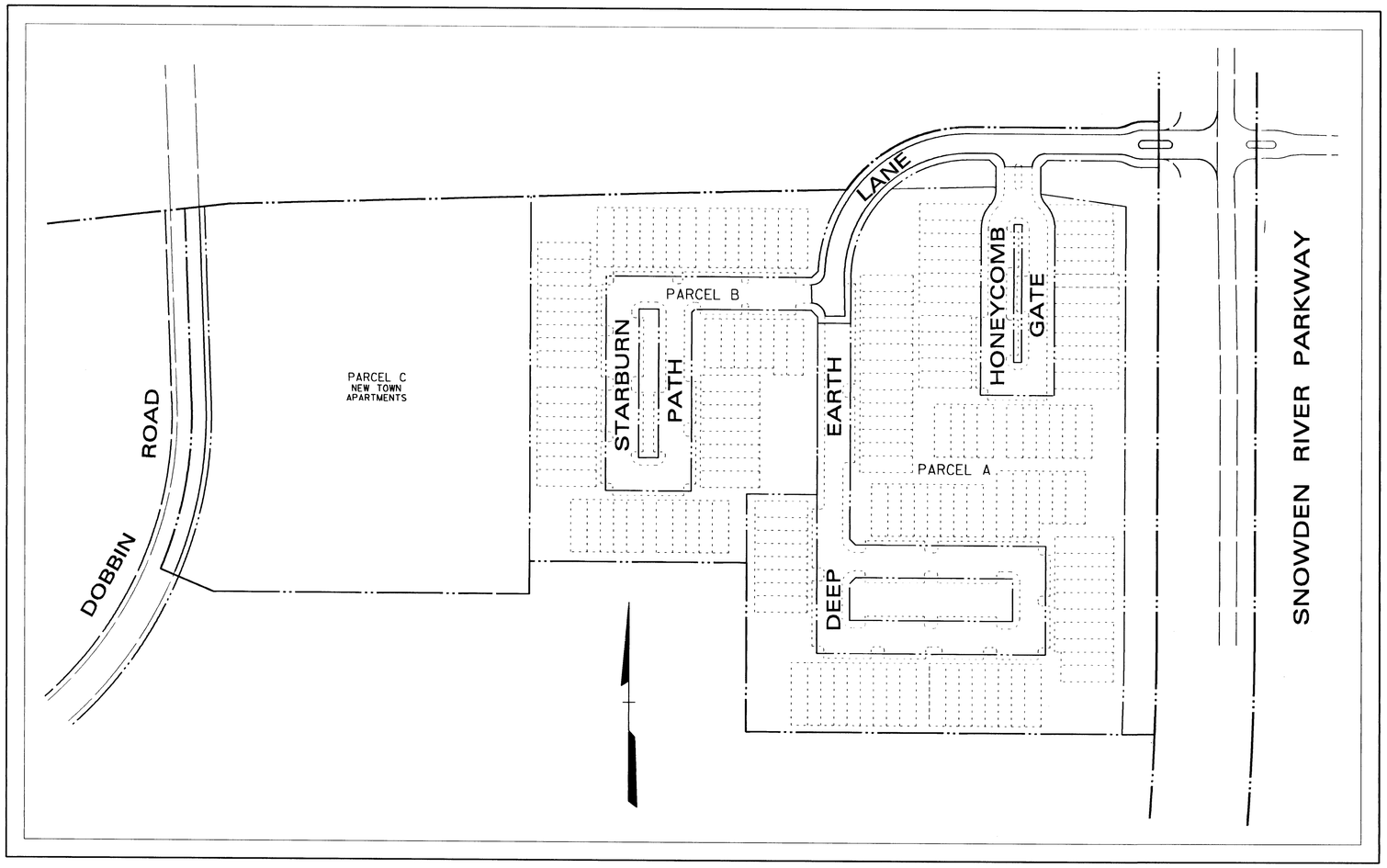
VILLAGE OF
LONGREACH

SECTION 4, AREA 3, PHASE 220

HOWARD COUNTY, MARYLAND

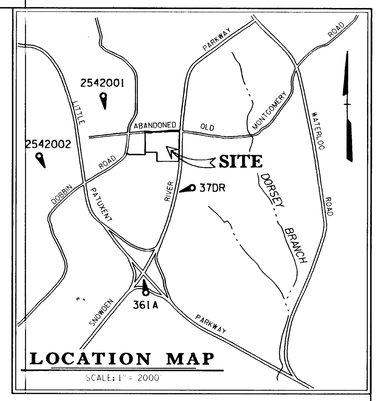


PLAN VIEW

SCALE: 1" = 100'

INDEX OF DRAWINGS

SHEET NO.	DESCRIPTION
1 OF 20	COVER SHEET
2 OF 20	ROAD CONSTRUCTION PLAN - DEEP EARTH LANE
3 OF 20	ROAD WIDENING PLAN - DOBBIN ROAD
4 OF 20	ROAD CONSTRUCTION DETAILS & STORM DRAIN PROFILES
5 OF 20	STORM DRAIN DRAINAGE AREA MAP
6 OF 20	STORMWATER MANAGEMENT EXISTING DRAINAGE AREA MAP
7 OF 20	STORMWATER MANAGEMENT PROPOSED DRAINAGE AREA MAP
8 OF 20	STORMWATER MANAGEMENT & LANDSCAPE PLAN & PROFILES
9 OF 20	STORMWATER MANAGEMENT DETAILS
10 OF 20	STORMWATER MANAGEMENT DETAILS
11 OF 20	MASS GRADING PLAN
12 OF 20	MASS GRADING PLAN
13 OF 20	MASS GRADING PLAN
14 OF 20	SEDIMENT & EROSION CONTROL PLAN
15 OF 20	SEDIMENT & EROSION CONTROL PLAN
16 OF 20	SEDIMENT & EROSION CONTROL PLAN
17 OF 20	SEDIMENT & EROSION CONTROL PLAN
18 OF 20	SEDIMENT & EROSION CONTROL PLAN BASIN #1
19 OF 20	SEDIMENT & EROSION CONTROL PLAN NOTES & SEQUENCE
20 OF 20	SEDIMENT & EROSION CONTROL PLAN DETAILS



GENERAL NOTES

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS, IF APPLICABLE.
2. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/BUREAU OF CONSTRUCTION INSPECTION AT (301) 792-7272 AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF WORK.
3. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK.
4. PROJECT BACKGROUND:
   LOCATION: SNOWDEN RIVER PARKWAY
   TAX MAP: 36
   PARCEL: PART OF PARCEL 50 AND PART OF LOT 1 (RESUBDIVIDED INTO LOTS 89 & 90)
   ZONING: NEW TOWN PER 8/2/85 COMPREHENSIVE ZONING
   ZB/BA REF: 918-M
   ELECTION DISTRICT: 6TH
   SECTION/AREA: SECTION 4, AREA 3, PHASE 220
   TOTAL TRACT AREA: 24.071 AC.
   NUMBER OF PROPOSED LOTS: 0
   COMPREHENSIVE SKETCH PLAN: SP 93-10
5. TRAFFIC CONTROL DEVICES, MARKINGS, AND SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
6. TOPOGRAPHY SHOWN HEREON IS TAKEN FROM AERIAL MAPS DATED 1963 PREPARED FOR HOWARD RESEARCH AND DEVELOPMENT BY MAPS, INC., AND AS UPDATED BY FIELD OBSERVATION PERFORMED IN 1992.
7. HORIZONTAL DATUM: NAD 83, VERTICAL DATUM: NGVD 29
8. LIGHT POLES AND FIXTURES FOR STREET LIGHTS SHALL BE IN ACCORDANCE WITH THE LATEST HOWARD COUNTY DESIGN MANUAL, VOLUME III, ROADS AND BRIDGES.
9. PUBLIC WATER AND SEWER SYSTEMS TO BE MADE AVAILABLE AND UTILIZED.
10. THIS PROPERTY IS LOCATED WITHIN THE HOWARD COUNTY METROPOLITAN DISTRICT.
11. WETLAND EVALUATION PREPARED BY GEOTECHNOLOGY ASSOCIATES, INC. AUGUST 31, 1992.
12. TRAFFIC STUDY PREPARED BY WELLS AND ASSOCIATES OCTOBER 19, 1992 AND UPDATED APRIL 1, 1993.
13. NOISE STUDY PREPARED BY WILDMAN ENVIRONMENTAL SERVICES OCTOBER 20, 1992.
14. EXISTING UTILITIES LOCATED BY DMW.
15. OLD MONTGOMERY ROAD WAS ABANDONED PER RESOLUTION NO. 5 DATED APRIL 1988. THE ABANDONED OLD MONTGOMERY ROAD PAVING WILL BE REMOVED DURING THE MASS GRADING PHASE BY THE GRADING CONTRACTOR (SEE STEP 7 OF THE SEQUENCE OF OPERATION).
16. WP-93-43, APPROVED DECEMBER 8, 1992, TO WAIVE SECTION 16.116(C)(6) TO ALLOW GRADING AND REMOVAL OF VEGETATION IN WETLAND AND STREAM BUFFERS.

BENCHMARK

DESCRIPTION

STATION 37DR (1/4" REBAR)
N169881.1794, E416566.7155 (FOR HORIZONTAL CONTROL ONLY)
STATION IS LOCATED 0.45± MILES NORTH OF RTE. 175 AND 46'± EAST OF THE EAST CURB OF SNOWDEN RIVER PARKWAY

BENCHMARK

DESCRIPTION

STATION 361A (CONCRETE MONUMENT)
N.169205.9263, E.416313.5119 (FOR HORIZONTAL CONTROL ONLY)
STATION IS LOCATED AT THE SOUTHEAST CORNER OF THE INTERSECTION OF SNOWDEN RIVER PARKWAY AND RTE. 175 3'± FROM CURB AND 5.7'± FROM GUARDRAIL END

BENCHMARK

DESCRIPTION

STATION 2542001 (CONCRETE MONUMENT)
ELEV. 426.971 (FOR VERTICAL CONTROL ONLY)
STATION IS LOCATED ON BG&E TRANSMISSION LINES 1060'± S.W. OF DOBBIN ROAD

BENCHMARK

DESCRIPTION

STATION 2542002(CONCRETE MONUMENT)
ELEV. 363.638 (FOR VERTICAL CONTROL ONLY)
STATION IS LOCATED 1000'±WEST OF RTE. 175 ON TRANSMISSION LINE AT G. & E. TOWER 19-E NEAR HANOVERS RESTAURANT ENTRANCE

THE PURPOSE OF THIS PLAN IS TO PROVIDE CONSTRUCTION DETAILS FOR THE CONSTRUCTION OF DEEP EARTH LANE FROM STATION -0+15 TO STATION 7+43.87; MASS GRADING OF PARCELS A,B, & C; THE WIDENING OF DOBBIN ROAD; AND THE CONSTRUCTION OF THE REGIONAL STORMWATER MANAGEMENT POND.

8-24-93
Date

STATE OF MARYLAND — JOHN W. RANCOCAS JR. — No. 10551 — PROFESSIONAL ENGINEER

Professional Engr. No. 10551

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 9-20-93

CHIEF, BUREAU OF ENGINEERING — DATE 9/21/93

CHIEF, LAND DEVELOPMENT DIVISION M.K. — DATE 9/21/93

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

Gina Fornwanyi — CHIEF, DIVISION OF LAND DEVELOPMENT & RESEARCH — DATE 9/24/93 JA

Date	No.	Revision Description

LONGREACH

SECTION 4, AREA 3, PHASE 220

OWNER / DEVELOPER

THE HOWARD RESEARCH & DEVELOPMENT CORP.
THE ROUSE BUILDING
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044

Daft · McCune · Walker, Inc.
A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals
200 East Pennsylvania Avenue
Towson, Maryland 21286
410 296 3333
Fax 296 4705

AREA
PARCELS A,B, & C AND LOTS 89, 90, 91, & 92
TAX MAP 36,37 PART OF PARCEL 50
6TH ELECTION DISTRICT OF HOWARD COUNTY, MARYLAND

TITLE
COVER SHEET

Des By	MAT	Scale	AS SHOWN	Proj. No.	89088D
Drn By	MAT	Date	4/12/93	1 OF 20	
Chk By	JWR	Approved			

Tue Aug 24 09:57:13 1993 w:\89088\89088c.cvl

F-93-130

STREET TREE TABLE (SEE SHEET 3 FOR ADDITIONAL TREES)

SYMBOL	TYPE	SIZE	QUANTITY	REMARKS
	ACER RUBRUM 'RED SUNSET' RED SUNSET RED MAPLE	2½" - 3" CAL.	27	B & B

1. THE CONTRACTOR SHALL VERIFY LOCATIONS OF UNDERGROUND UTILITES PRIOR TO PLANTING. LOCATION OF TREES MAY BE ADJUSTED SLIGHTLY TO MEET FIELD CONDITIONS.
2. THE LOCATION, TYPE AND NUMBER OF TREES SHOWN ARE TENTATIVE AND ARE USED FOR BOND PURPOSES ONLY. THE FINAL LOCATION AND VARIETY OF TREES MAY VARY TO ACCOMODATE FIELD CONDITIONS AND BUILDERS LANDSCAPE PROGRAM. BOND RELEASE IS CONTINGENT UPON SECTION 16.124 OF THE HOWARD COUNTY SUBDIVISION REGULATIONS AS APPROVED BY THE DEPARTMENT OF PLANNING AND ZONING.
3. STREET TREES FOR INTERNAL PARKING LOT LANDSCAPING WILL BE INCLUDED ON THE SITE DEVELOPMENT PLAN.
4. SEE SHEET 3 OF 20 FOR STREET TREE PLANTING DETAIL.

STREET LIGHT LEGEND

100 WATT HIGH PRESSURE SODIUM (HPS) VAPOR MODERN POST TOP FIXTURE (BRONZE) MOUNTED ON A 14' BRONZE FIBERGLASS POLE.

FUTURE 250 WATT HPS VAPOR PENDANT FIXTURE (CUTOFF) MOUNTED AT 30' ON A BREAKAWAY BASE STEEL POLE (BROWN).

LOCATIONS :
- DEEP EARTH LANE ℄ STA. 3+25 19.0' LEFT
- DEEP EARTH LANE ℄ STA. 4+75 18.5' RIGHT
- DEEP EARTH LANE ℄ STA. 6+83 28.6' RIGHT
- DEEP EARTH LANE ℄ STA. 0+46 52.0' RIGHT

STREET SIGN LEGEND

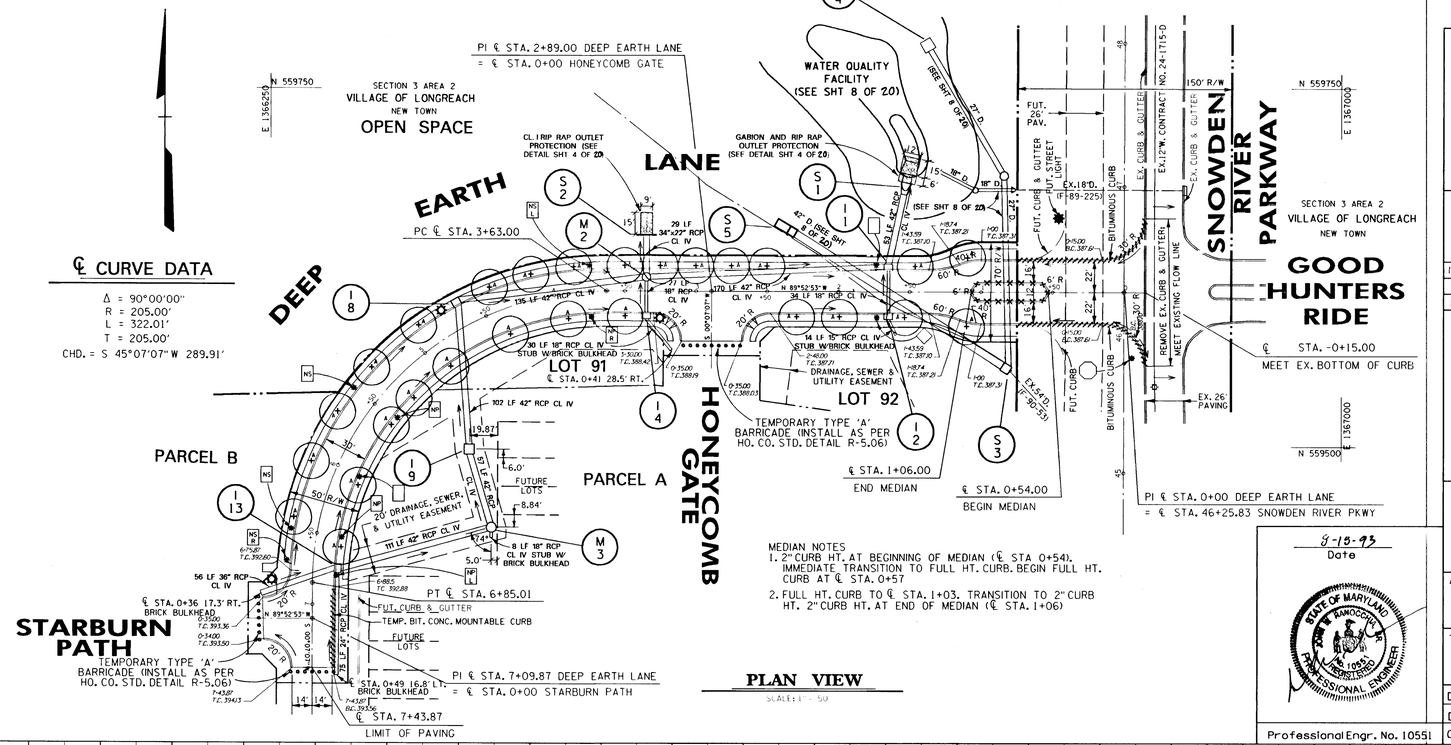
- 24" X 30" RECTANGLE, R2-1, SPEED LIMIT 25
- 30" X 30" OCTAGON, R1-1, STOP SIGN
- 36" X 36" DIAMOND, W3-1a, STOP AHEAD SIGN
- NP R 12" X 18" RECTANGLE, R7-1, NO PARKING ANYTIME
- NS R 12" X 18" RECTANGLE, R7-1, NO STOPPING ANYTIME
- NP R 12" X 18" RECTANGLE, R7-1R, NO PARKING ANYTIME
- NP L 12" X 18" RECTANGLE, R7-1L, NO PARKING ANYTIME
- NS R 12" X 18" RECTANGLE, R7-1R, NO STOPPING ANYTIME
- NS L 12" X 18" RECTANGLE, R7-1L, NO STOPPING ANYTIME

CURB & GUTTER LEGEND

- STD. 7 5/16" C. & G.
- REV. 7 5/16" C. & G.
- BIT. CONCRETE MOUNT. CURB

℄ CURVE DATA

Δ = 90°00'00"
R = 205.00'
L = 322.01'
T = 205.00'
CHD. = S 45°07'07" W 289.91'



MEDIAN NOTES
1. 2" CURB HT. AT BEGINNING OF MEDIAN (℄ STA 0+54). IMMEDIATE TRANSITION TO FULL HT. CURB. BEGIN FULL HT. CURB AT ℄ STA. 0+57
2. FULL HT. CURB TO ℄ STA. 1+03. TRANSITION TO 2" CURB HT. 2" CURB HT. AT END OF MEDIAN (℄ STA. 1+06)

PLAN VIEW
SCALE: 1" = 50'

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 9-20-93
CHIEF, BUREAU OF ENGINEERING — DATE 9/21/93
CHIEF, LAND DEVELOPMENT DIVISION M.K. — DATE 9/20/93

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT & RESEARCH — DATE 9/24/93

Date	No.	Revision Description
11/30/93	1	CHANGED S-3 TO A BRICK MH (G 5.03)

LONGREACH

SECTION 4, AREA 3, PHASE 220

OWNER / DEVELOPER

THE HOWARD RESEARCH & DEVELOPMENT CORP.
THE ROUSE BUILDING
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044

Daft · McCune · Walker, Inc.
A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals
200 East Pennsylvania Avenue, Towson, Maryland 21286
410 296 3333 Fax 296 4705

9-15-93 Date

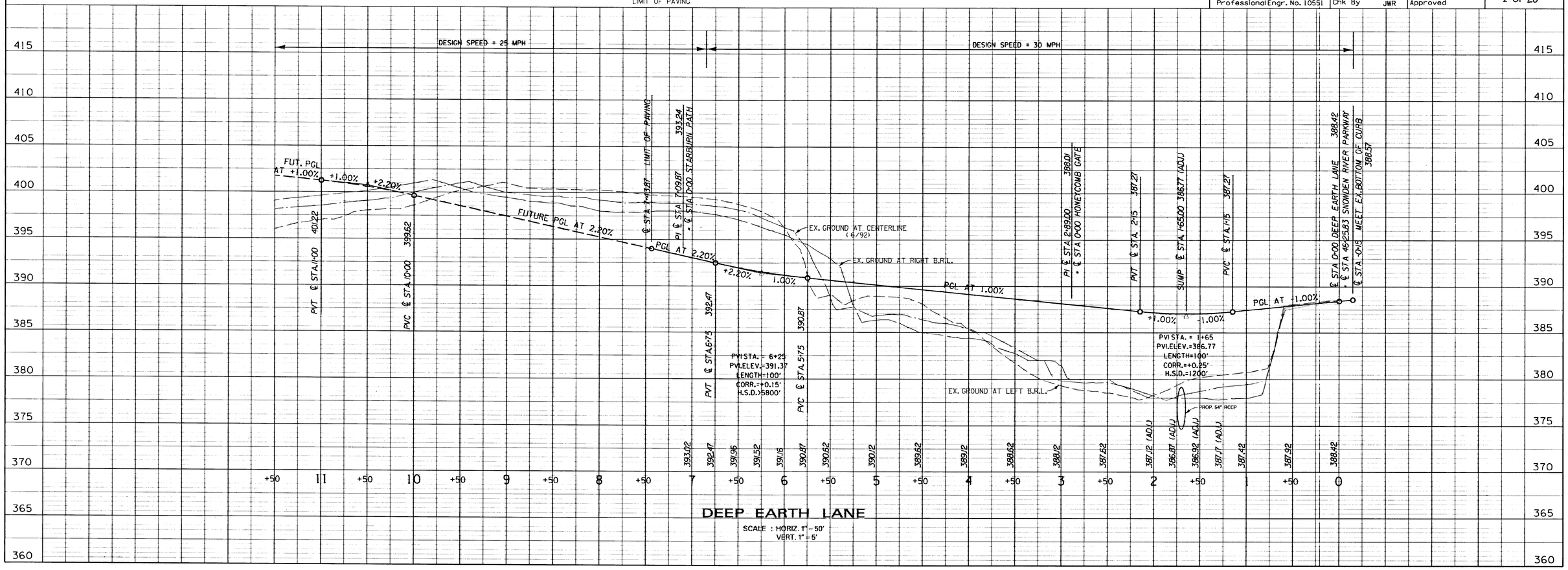
STATE OF MARYLAND — JOHN W. BANOCHSKI — No. 10551 — REGISTERED PROFESSIONAL ENGINEER

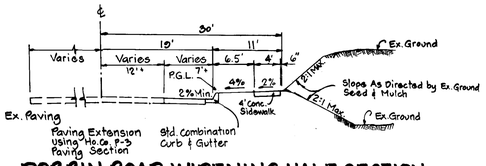
Professional Engr. No. 10551

AREA
PARCELS A,B, & C AND LOTS 89, 90, 91, & 92
TAX MAP 36,37 PART OF PARCEL 50
6TH ELECTION DISTRICT OF HOWARD COUNTY, MARYLAND

TITLE **ROAD CONSTRUCTION PLANS DEEP EARTH LANE STA. -0+15 TO 7+43.87**

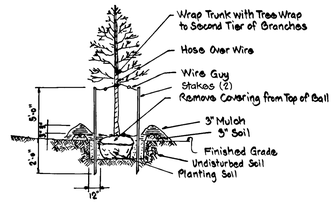
Des By	FCB	Scale	AS SHOWN	Proj. No.	89088.D
Drn By	JCS	Date	4/12/93	2 OF 20	
Chk By	JWR	Approved			





DOBBIN ROAD WIDENING HALF SECTION

Not to Scale
MAJOR COLLECTOR
DESIGN SPEED - 40 M.P.H.
R/W WIDTH = 60'
PAVING WIDTH = 38'



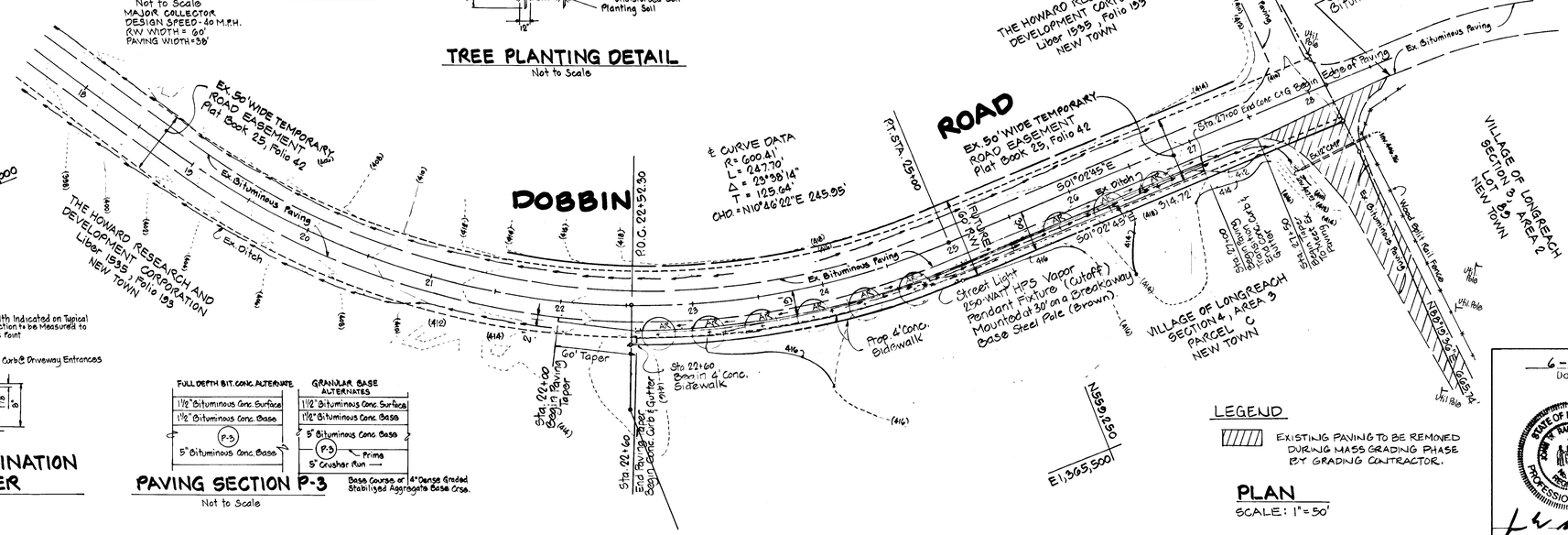
TREE PLANTING DETAIL

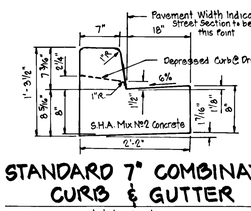
Not to Scale

PLANTING LIST

Qty	Key	Name	Size	Remarks
7	AR	Acer Rubrum 'October Glory' October Glory Red Maple	2½"-3" Cal.	B & B Full Crown

(SEE SHEET 2 FOR ADDITIONAL TREES)





STANDARD 7" COMBINATION CURB & GUTTER

Not to Scale

PAVING SECTION P-3

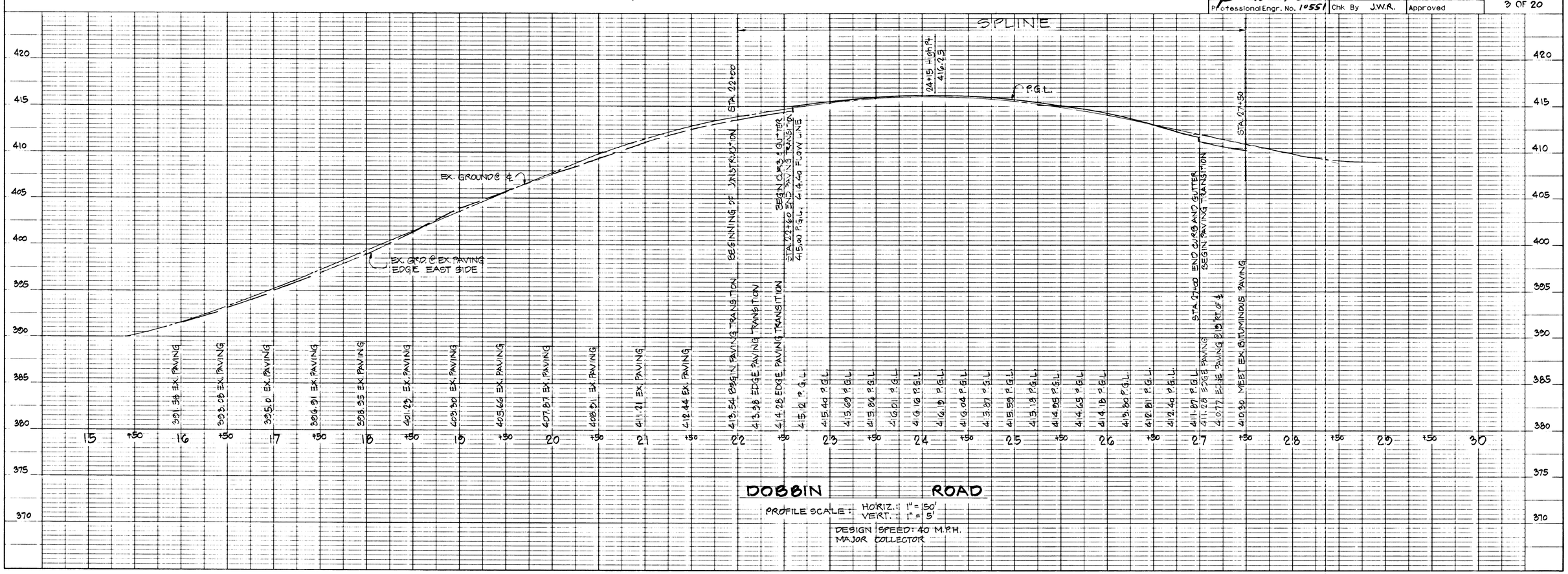
Not to Scale

LEGEND

EXISTING PAVING TO BE REMOVED DURING MASS GRADING PHASE BY GRADING CONTRACTOR.

PLAN

SCALE: 1" = 50'



DOBBIN ROAD

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

DESIGN SPEED: 40 M.P.H.
MAJOR COLLECTOR

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS	9-20-93 DATE
CHIEF, BUREAU OF ENGINEERING	9/21/93 DATE
CHIEF, LAND DEVELOPMENT DIVISION M.K.	9/21/93 DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT & RESEARCH JA	9/24/93 DATE

Date	No.	Revision Description

LONGREACH

SECTION 4, AREA 3, PHASE 220

OWNER / DEVELOPER

THE HOWARD RESEARCH & DEVELOPMENT CORPORATION
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044

Daft · McCune · Walker, Inc.
A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals
200 East Pennsylvania Avenue
Towson, Maryland 21286
410 296 3333
Fax 296 4705

6-18-93
Date

STATE OF MARYLAND — JOHN W. RICHARDSON — No. 10551 — PROFESSIONAL ENGINEER

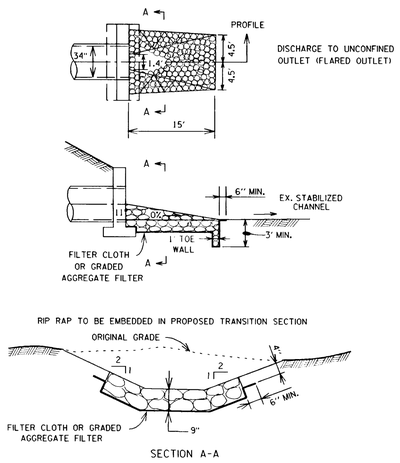
Professional Engr. No. 10551

AREA
PARCELS A, B, & C AND LOTS 89, 90, 91, & 92
TAX MAP 36, 37 PART OF PARCEL 50
6th ELECTION DISTRICT OF HOWARD COUNTY, MARYLAND

TITLE ROAD WIDENING PLAN
DOBBIN ROAD
STA. 22+00 TO STA. 28+60

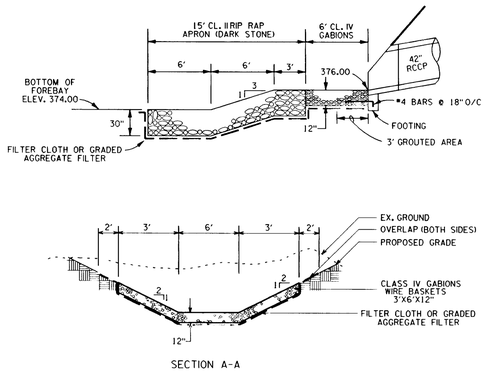
Des By	T.P.D.	Scale	AS SHOWN	Proj. No.	80088.E0
Drn By	T.P.D.	Date	6/18/93		
Chk By	J.W.R.	Approved			3 OF 20

F-93-130



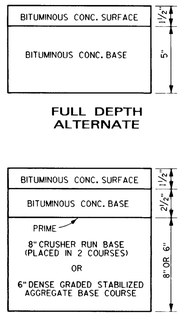
RIPRAP OUTLET PROTECTION FOR S-2

NOT TO SCALE



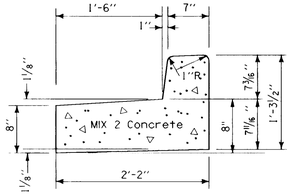
OUTLET PROTECTION FOR S-1

NOT TO SCALE



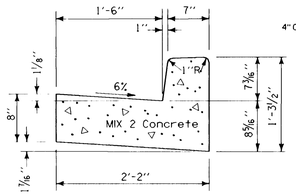
PAVING SECTION P-2 (FOR PUBLIC ROADS)

NO SCALE



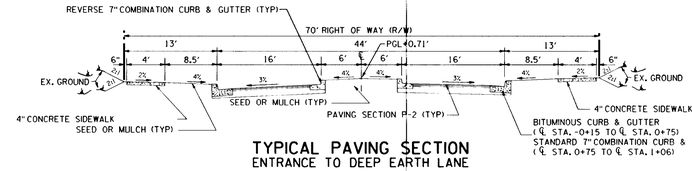
REVERSE 7" COMBINATION CURB & GUTTER

NO SCALE



STANDARD 7" COMBINATION CURB & GUTTER

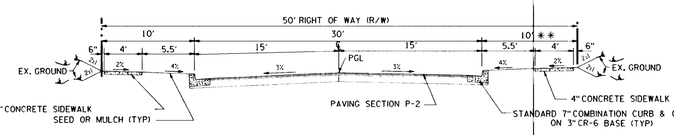
NO SCALE



TYPICAL PAVING SECTION
ENTRANCE TO DEEP EARTH LANE

STA. 0+54 TO STA. 1+06

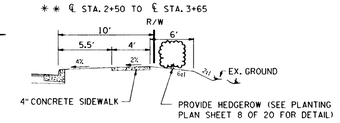
NOT TO SCALE

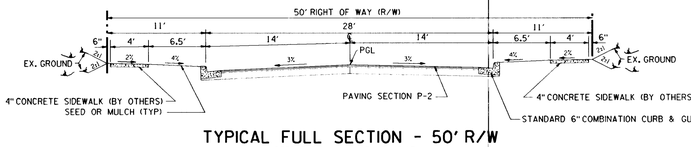


TYPICAL FULL SECTION - 50' R/W

DEEP EARTH LANE: STA. 1+36.75 TO STA. 6+75.87

NOT TO SCALE
CLASSIFICATION: LOCAL STREET
DESIGN SPEED: 30 MPH
ZONING: NEW TOWN

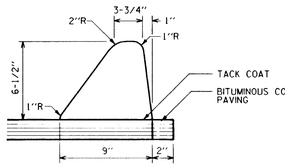




TYPICAL FULL SECTION - 50' R/W

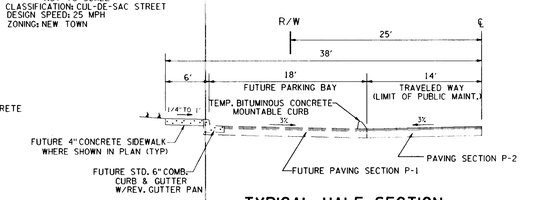
DEEP EARTH LANE: STA. 7+43.87

NOT TO SCALE
CLASSIFICATION: CUL-DE-SAC STREET
DESIGN SPEED: 25 MPH
ZONING: NEW TOWN



BITUMINOUS CONCRETE MOUNTABLE CURB

NO SCALE

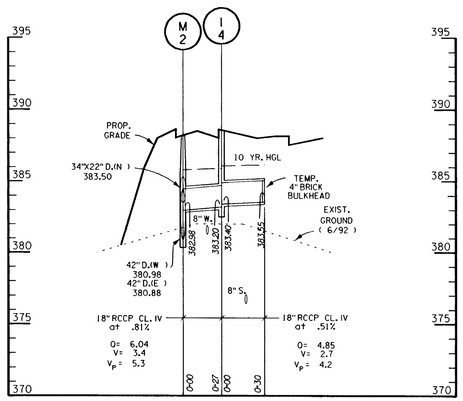


TYPICAL HALF SECTION
PARKING ADJACENT TO PUBLIC ROADS

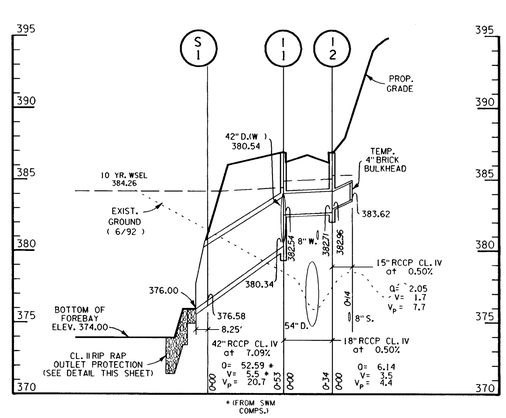
DEEP EARTH LANE: STA. 6+88.50 TO STA. 7+43.87

NOT TO SCALE

DEEP EARTH LANE



DRAINAGE & UTILITY EASEMENT | DEEP EARTH LANE



MANHOLE SCHEDULE

NO.	TYPE	INV. OUT	TOP ELEV.	DETAIL NO.	LOCATION
2	42" X 60"	380.88	388.17	HO CO G 5.03	CL STA 3+35 10.0' R
3	42" X 60"	382.36	390.00	HO CO G 5.03	SEE PLAN

STRUCTURE SCHEDULE

NO.	TYPE	INV. OUT	DETAIL NO.	LOCATION
1	42" CONC. END SECTION	376.00	HO CO SD 5.51	CL STA 1+54.5 68.3' R
2	TYPE 'C' ENDWALL	380.45	HO CO SD 5.21	CL STA 3+35 40.0' R

INLET SCHEDULE

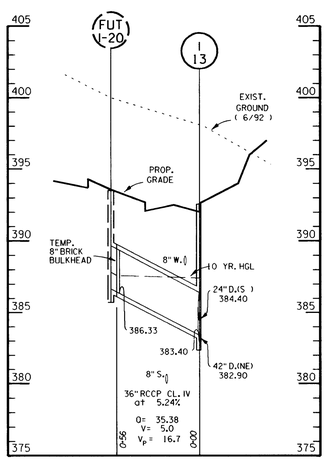
NO.	TYPE	INV. OUT	TOP ELEV. *	DETAIL NO.	LOCATION **
1	A-5 W/ 4.5' WIDTH	380.34	386.88	HO CO SD 4.01	CL STA 1+65 15.0' R
2	A-5	382.71	386.88	HO CO SD 4.01	CL STA 1+65 15.0' L
4	A-5	383.20	388.58	HO CO SD 4.01	CL STA 3+35 15.0' L
8	A-5 W/ 5.0' WIDTH	381.52	389.87	HO CO SD 4.01	CL STA 4+64 15.0' R
9	'S' W/ 5.0' WIDTH	382.03	387.50	HO CO SD 4.22	SEE PLAN
13	A-5	382.90	392.56	HO CO SD 4.01	CL STA 6+74 15.0' L

* TOP ELEV. IS TOP OF CURB FOR A-5 & A-10 INLETS AND TOP OF GRATE FOR 'S' INLETS.

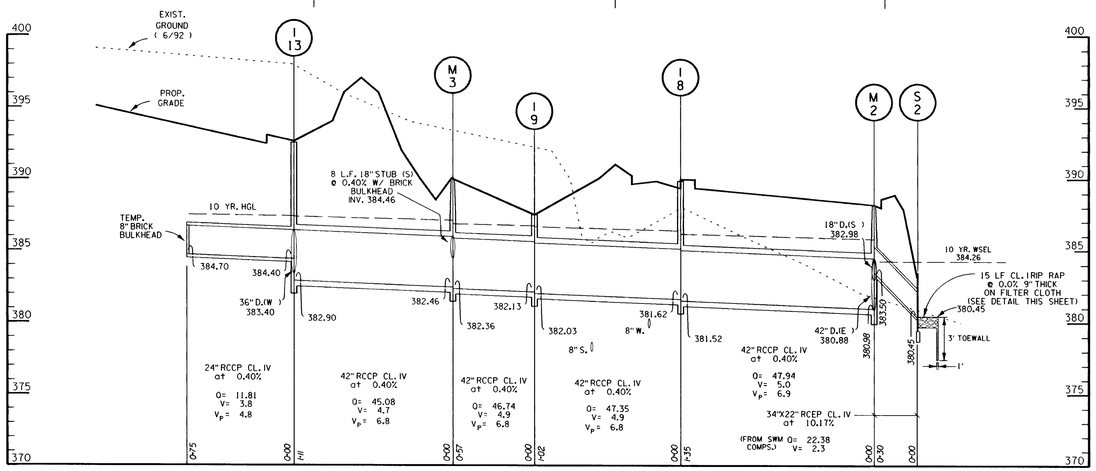
** LOCATION OF INLET IS FACE OF CURB FOR 'A' INLETS AND CENTER OF INLET FOR 'S' INLETS.

NOTE : MINIMUM 6" VERTICAL CLEARANCE REQUIRED BETWEEN STORM DRAIN AND SEWER. MINIMUM 1' VERTICAL CLEARANCE REQUIRED BETWEEN STORM DRAIN AND WATER.

STARBURN PATH | DEEP EARTH LANE



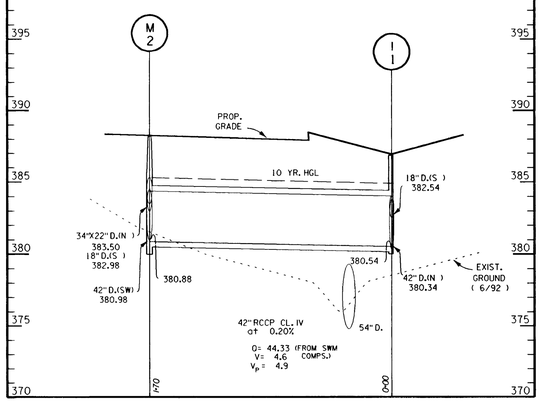
DEEP EARTH LANE | DRAINAGE & UTILITY EASEMENT | DEEP EARTH LANE | DRAINAGE & UTILITY EASEMENT



STORM DRAIN PROFILES

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

DEEP EARTH LANE



8-25-93
Date

Professional Engr. No. 10551

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 9-20-93

CHIEF, BUREAU OF ENGINEERING — DATE 9/21/93

CHIEF, LAND DEVELOPMENT DIVISION M.K. — DATE 9/20/93

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT & RESEARCH — DATE 9/24/93

Date	No.	Revision Description

LONGREACH

SECTION 4, AREA 3, PHASE 220

OWNER / DEVELOPER

THE HOWARD RESEARCH & DEVELOPMENT CORP.
THE ROUSE BUILDING
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044

Daft · McCune · Walker, Inc.
A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals
200 East Pennsylvania Avenue
Towson, Maryland 21286
410 296 3333
Fax 296 4705

AREA
PARCELS A,B, & C AND LOTS 89, 90, 91, & 92
TAX MAP 36,37 — PART OF PARCEL 50
6TH ELECTION DISTRICT OF HOWARD COUNTY, MARYLAND

TITLE
ROAD CONSTRUCTION DETAILS & STORM DRAIN PROFILES

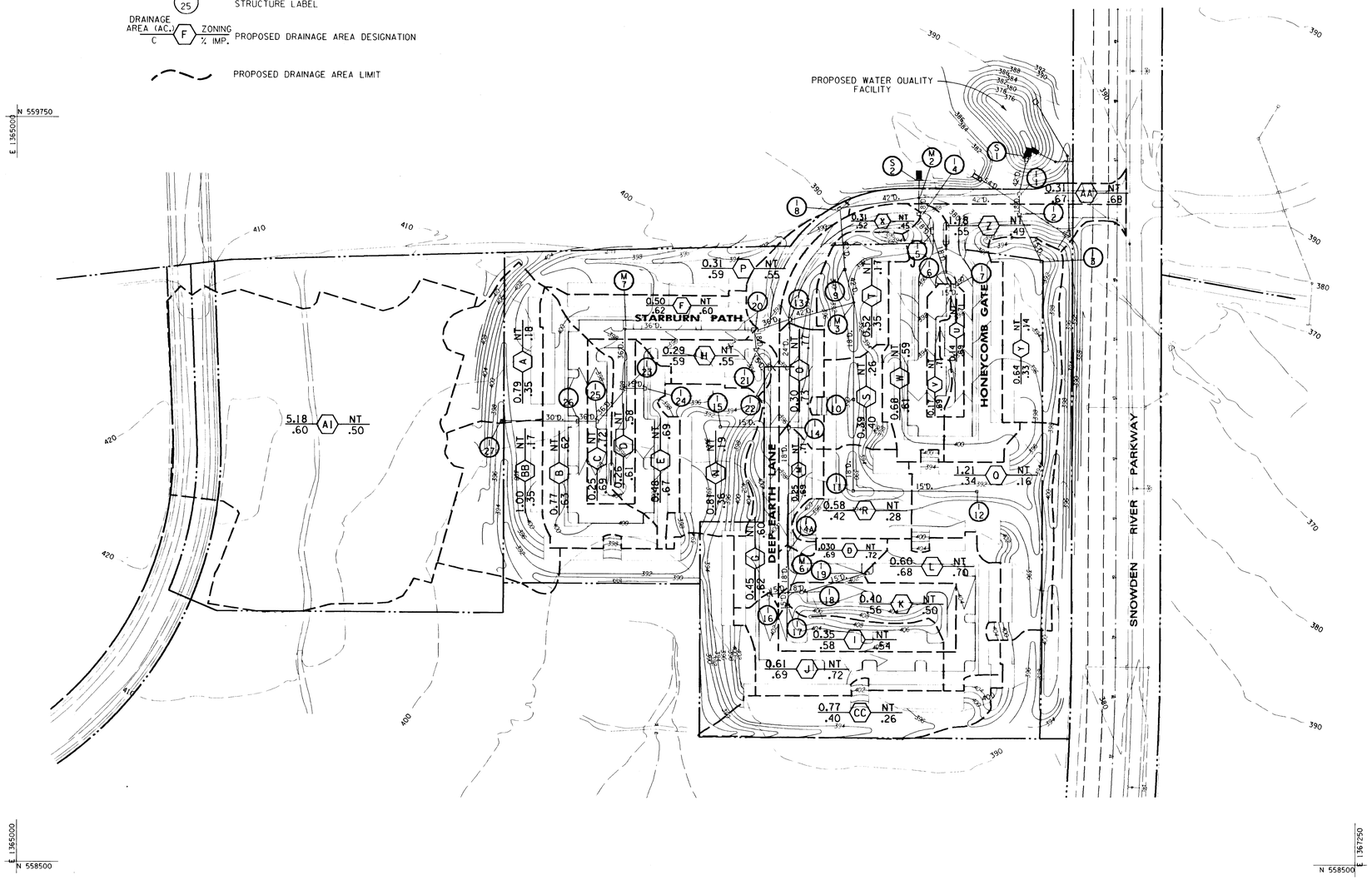
Des By	JCS	Scale	AS SHOWN	Proj. No.	89088D
Drn By	JMJ/JCS	Date	4/12/93		4 OF 20
Chk By	JWR	Approved			

LEGEND

MH 25 — STRUCTURE LABEL

DRAINAGE AREA (AC.) C — F — ZONING % IMP. — PROPOSED DRAINAGE AREA DESIGNATION

PROPOSED DRAINAGE AREA LIMIT



APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS	9-20-93 DATE
CHIEF, BUREAU OF ENGINEERING	9/21/93 DATE
CHIEF, LAND DEVELOPMENT DIVISION M.K.	9/20/93 DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT & RESEARCH	9/24/93 DATE

Date	No.	Revision Description

LONGREACH

SECTION 4, AREA 3, PHASE 220

OWNER / DEVELOPER

THE HOWARD RESEARCH & DEVELOPMENT CORP.
THE ROUSE BUILDING
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044

Daft · McCune · Walker, Inc.
A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals
200 East Pennsylvania Avenue
Towson, Maryland 21286
410 296 3333
Fax 296 4705

8-18-93
Date

STATE OF MARYLAND — JOHN W. HANCOCK JR. — No. 10551 — REGISTERED PROFESSIONAL ENGINEER

Professional Engr. No. 10551

AREA
PARCELS A,B, & C AND LOTS 89, 90, 91, & 92
TAX MAP 36,37 — PART OF PARCEL 50
6TH ELECTION DISTRICT OF HOWARD COUNTY, MARYLAND

TITLE
STORM DRAIN DRAINAGE AREA MAP

Des By	CFB	Scale	1" = 100'	Proj. No.	89088D
Drn By	JCS	Date	4/12/93	5 OF 20	
Chk By	JWR	Approved			

Tue Aug 17 12:49:33 1993 w:\89088\89088d.dwl

F-93-130

100

N 562500 E 1365000

LEGEND

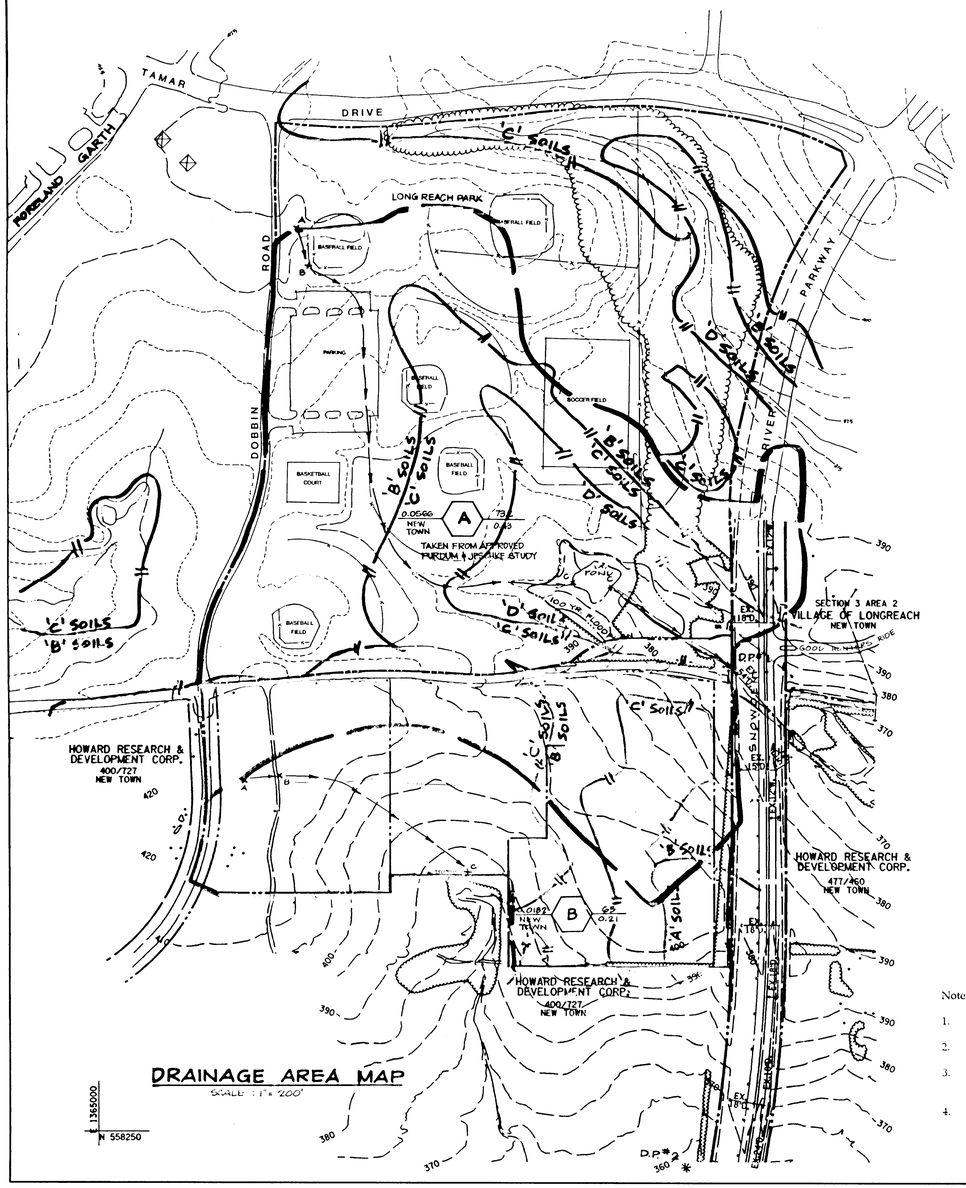
DRAINAGE AREA BOUNDARY

TIME OF CONCENTRATION FLOW PATH

DRAINAGE AREA (SQ MILES) — ZONING — A — R C N — TIME OF CONCENTRATION (HRS)

SOILS GROUP BOUNDARY — 'B' SOILS — 'C' SOILS

N 562500 E 1367000



DRAINAGE AREA MAP

SCALE: 1" = 200'

Sequence of Construction

1. Obtain a grading permit.
2. Notify the Howard County Dept. of Inspection and Permits (313-1850) a minimum of 24 hours prior to the start of any construction.
3. After installation of sediment controls and approval of Sediment Control Inspector, install the 48 inch culvert extension to Structure S-5 and construct the brick MH Structure S-3) (1 week).
4. Install the water quality basin concurrent with mass grading of the site (3 weeks).
   a. Install the dam core and cutoff trench as shown on the plans.
   b. Install the remainder of the storm drains.
   c. Construct Structures S-4 and S-5.
5. Conduct an initial as-built survey of the stormwater management grading and structures (1 week).
6. Fine grade and stabilize the stormwater management areas (1 day).
7. Upon completion of construction, with prior approval of the Sediment Control Inspector, remove Sediment Basin No. 1 and temporary outfall into Structure S-3. Brick the opening in S-3 as required. Stabilize all remaining disturbed areas (1 week).
8. Prepare and submit final as-built (30 days).

Quantity Stormwater Management
(TR-20 Structure 1)

	2-Year	10-Year	100-Year
Developed Inflow (cfs)	35.14	87.97	163.74
Developed Outflow (cfs)	18.18	34.39	98.75
Water Surface Elevation	381.07	384.26	385.52
Storage Provided (Ac. Ft.)	0.40	1.62	2.92

Structure Type ..... Dry Pond
Structure Classification ..... A
Structure Location ..... Urban
Storage Height Product 53.13
Watershed Area to Facility * ..... 33.26 Ac.
Minimum Top Width Provided ..... NA (Deep Earth Lane and Snowden River Parkway)
Maximum Height to Fill ..... 11 Feet

Water Quality Pond
(TR-20 Structure 2)

	2-Year	10-Year	100-Year
Developed Inflow (cfs)	32.57	56.45	63.52
Developed Outflow (cfs)	5.97	38.95	41.49
Water Surface Elevation	383.21	384.46	384.84
Storage Provided (Ac. Ft.)	1.23	1.60	1.74

Structure Type ..... Extended Detention
Structure Classification ..... A
Structure Location ..... Urban
Storage Height Product 28.14
Watershed Area to Facility * ..... 7.32 Ac.
Minimum Top Width Provided ..... 15 Feet
Maximum Height to Fill ..... 7 Feet

* Based on percent of drainage area through Divert Structure (M-2).

Design Point No. 1

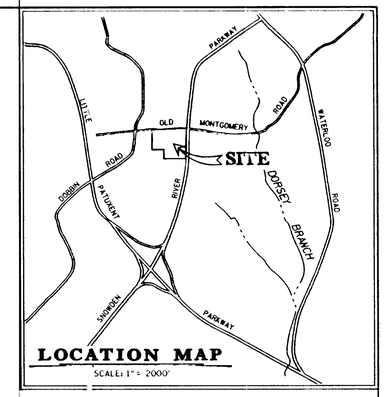
	2-Year	10-Year
Predeveloped Peak (cfs)	30.52	77.36
(Taken from approved Purdum & Jeschke Study TR-20 Structure 09)		
Developed Peak (cfs)	23.36	64.95

Design Point No. 2

	2-Year	10-Year
Predeveloped Peak (cfs)	7.58	24.52
Developed Peak (cfs)	3.98	[illegible]

Notes:

1. This site lies within the Dorsey Run watershed.
2. These facilities are public and shall be maintained by Howard County.
3. Stormwater management is required and provided for the 2 and 10 year storms.
4. Call "Miss Utility" at 1-800-257-7777, 48 hours prior to the start of work. The excavator must notify all public utility companies with underground facilities in the area of proposed excavation and have those facilities located by the utility companies prior to commencing excavation.



LOCATION MAP

SCALE: 1" = 2000'

By The Developer:

"I/We certify that all development and/or construction will be done according to these plans, and that any responsible personal involved in the construction project will have a Certificate of Attendance at a Department of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I shall engage a registered professional engineer to supervise pond construction and ~~provide the Howard Soil Conservation District with one copy of the pond plan to time of~~ [illegible] I also authorize periodic on-site inspections by the Howard Soil Conservation District."

JMK 9/3/93

Signature of Developer — Date 8-18-93

Albert F. Edwards, P.E.
Print name

By the Engineer:

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

JMK 9/3/93

Signature of Engineer — Date 8/18/93

ERNEST I. SHEPPE II
Print name

These plans have been reviewed for the Howard Soil Conservation District and meet the technical requirements for ~~pond construction and~~ soil erosion and sediment control. JMK 9/3/93

J. D. Wonfield JMK 9/3/93

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

John R. Robertson 9/3/93

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS

Andrew M. Doneker — 9-20-93 DATE
CHIEF, BUREAU OF HIGHWAYS

Paul D. Lepson — 9/21/93 DATE
CHIEF, BUREAU OF ENGINEERING

[illegible] — 9/21/93 DATE
CHIEF, DIVISION OF LAND DEVELOPMENT & DRAINAGE M.K.

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

Gina Drummonji — 9/24/93 DATE
GINA DRUMMONJI, CHIEF, DIVISION OF LAND DEVELOPMENT & ENVIRONMENTAL RESEARCH

Date	No.	Revision Description
11/30/93	1	REV. SEQ. OF CONST. TO REFLECT S-3 CHANGE TO BRICK MH

LONGREACH
SECTION 4, AREA 3, PHASE 220
OWNER / DEVELOPER

THE HOWARD RESEARCH & DEVELOPMENT CORP.
THE ROUSE BUILDING
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044

Daft · McCune · Walker, Inc.
A Team of Land Planners, Landscape Architects, Engineers & Surveyors & Environmental Professionals
200 East Pennsylvania Avenue
Towson, Maryland 21286
410 296 3333
Fax 296 4705

8/18/93
Date

Professional Engr. No. 16580

AREA
PARCELS A B & C AND LOTS 89, 90, 91, & 92
TAX MAP 26,27
6TH ELECTION DISTRICT OF HOWARD COUNTY, MARYLAND

TITLE
STORMWATER MANAGEMENT
EXISTING DRAINAGE AREA MAP

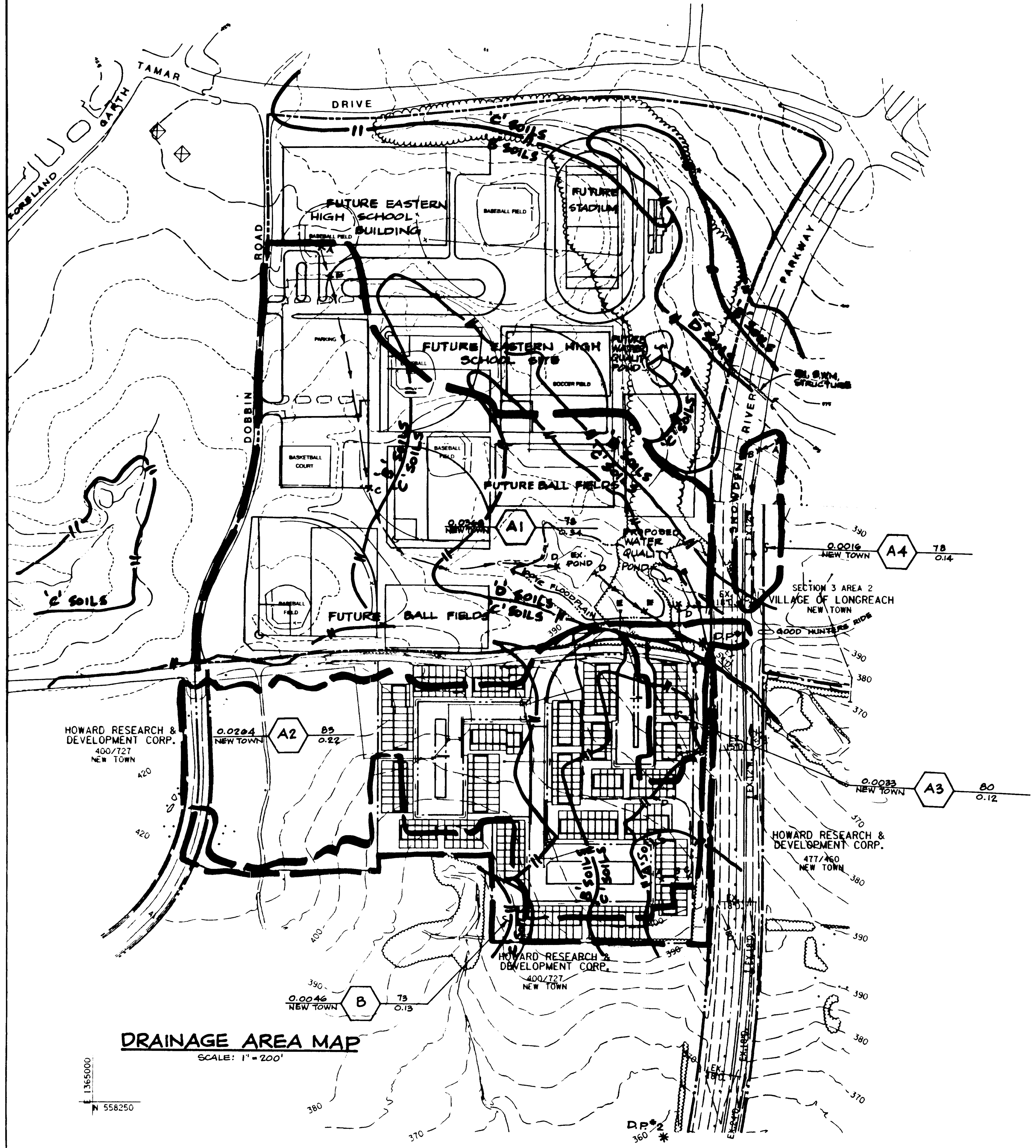
Des By	JMG	Scale	1" = 200'	Proj. No.	89088D
Drn By	DBS	Date	08/17/93	6 OF 20	
Chk By	EIS	Approved			

F-93-130

100

LEGEND

DRAINAGE AREA BOUNDARY
TIME OF CONCENTRATION FLOW PATH
DRAINAGE AREA (SQ. MILES) / ZONING — (A) — RCN / TIME OF CONCENTRATION (HRS)
SOIL GROUP BOUNDARY — 'B' SOILS / 'C' SOILS



DRAINAGE AREA MAP

SCALE: 1" = 200'

CONSTRUCTION SPECIFICATIONS

1. GENERAL
All stormwater management facilities shall be constructed in accordance with Howard County's "Design Manual, Volume I - Storm Drainage (1990)" and the S.C.S. Maryland "Standard and Specifications for Ponds" (MD-378, 1992)

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

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

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

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

3. EARTH FILL

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

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

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

All compaction is to be not less than 95 percent of the maximum dry density as determined by AASHTO Specification T-99 (Standard Proctor) with a moisture content within + 2 percent of optimum. Each layer of fill shall be compacted as necessary to obtain that density, and is to be certified by the Engineer at the time of construction.

CUTOFF TRENCH AND IMPERVIOUS CORE. The cutoff trench shall be excavated into impervious material along or parallel to the centerline of the embankment as shown on the plans. The bottom width of the trench shall be governed by the equipment used for excavation, with the minimum width being four feet. The depth shall be at least 4 feet below existing grade or as shown on the plans. The side slopes of the trench shall be 1 to 1 or flatter. The top width of the impervious core shall be 4 feet minimum. The height of the core shall be as shown on the plans. The side slopes of the core shall be 1 to 1 or flatter. The backfill shall be compacted with construction equipment, rollers, or hand tampers to assure maximum density and minimum permeability.

4. STRUCTURAL BACKFILL
Backfill adjacent to pipes or structures shall be of the type and quality conforming to that specified for the adjoining fill material. The fill shall be placed in horizontal layers not to exceed 4 inches in thickness and compacted by hand tampers or other manually directed compaction equipment. The material needs to fill completely all spaces under and adjacent to the pipe. At no time during the backfilling operation shall driven equipment be allowed to operate closer than 4 feet, measured horizontally, to any part of a structure. Under no circumstances shall equipment be driven over any part of a concrete structure or pipe, unless there is a compacted fill of 24 inches or greater over the structure or pipe.

5. REMOVAL AND REPLACEMENT OF DEFECTIVE FILL
Fill placed at densities lower than specified minimum density or at moisture contents outside the specified acceptable range of moisture content or otherwise not conforming to the requirements of the specifications shall be reworked to meet the requirements or removed and replaced by acceptable fill. The bottoms of such excavations shall be finished flat or gently curving and at the sides of such excavations the adjacent sound fill shall be trimmed to a slope not steeper than 3 feet horizontally to 1 foot vertically extending from the bottom of the excavation to the fill surface.

6. PIPE CONDUITS
All pipes shall be circular in cross section.

REINFORCED CONCRETE PIPE. All of the following criteria shall apply for reinforced concrete pipe ASTM Designation C-361:

1. Materials - Reinforced concrete pipe shall have bell and spigot joints with rubber gaskets and shall equal or exceed ASTM Designation C-361. An approved equivalent is AWWA Specification C - 302.
2. Bedding - All reinforced concrete pipe conduits shall be laid in a concrete bedding for their entire length. This bedding shall consist of high slump concrete placed under the pipe and up the sides of the pipe at least 10 percent of its outside diameter with a minimum thickness of 3 inches, or as shown on the drawings.
3. Laying Pipe - Bell and spigot pipe shall be placed with the bell end upstream. Joints shall be made in accordance with recommendations of the manufacturer of the material. After the joints are sealed for the entire line, the bedding shall be placed so that all spaces under the pipe are filled. Care shall be exercised to prevent any deviation from the original line and grade of the pipe. The first joint must be located within 2 feet from the riser.
4. Backfilling shall conform to "Structural Backfill".
5. Connections - All connections (to anti-seep collars, riser, etc.) shall be watertight.
6. Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

REINFORCED CONCRETE PIPE. All of the following criteria shall apply for reinforced concrete pipe ASTM Designation C-76:

1. Materials - Reinforced concrete pipe shall have bell and spigot joints and shall equal or exceed ASTM Designation C-76.
2. 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.
3. Laying Pipe - Bell and spigot pipe shall be placed with the bell end upstream. Joints shall be made in accordance with recommendations of the manufacturer of the material. The first joint must be located within 2 feet from the riser.
4. Backfilling shall conform to "Structural Backfill".

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

Contractor shall add color mix at plant in accordance with manufacturers recommendation "C-12 Mesa Beige" as manufactured by L. M. Scofield Company (213) 723-5285.

Supply mixture for approval prior to application. Contractor shall supply load and mix tickets for each truck load. No partial field mixes shall be allowed.

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

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

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

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

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

All disturbed areas shall be controlled by an Erosion and Sediment Control Plan which has been approved by the Howard County Soil Conservation District (H.C.S.C.D.).

12. SEEDING
Seeding, fertilizing and mulching shall be as follows:

Seed Mix:	70% Forager Tall Fescue 30% Chemung Crownvetch, Inoculated Applied at a rate of 55 lbs. per acre. Optimum seeding dates: March 1 to April 30.
Lime:	2 tons/acre Dolomitic Limestone.
Fertilizer:	600 lbs./acre 10-10-10 fertilizer before seeding, 400 lbs./acre 30-0-0 ureaform fertilizer at time of seeding.
Mulch:	Straw at 4,000 lbs. per acre.
Anchoring:	Mulching tool or emulsified asphalt binder at a rate of 8 gal. per 1,000 square feet.

13. FILTER CLOTH
All filter cloth shall conform to Mirifi 140N, Dupont Typar 3341 or 3401, Supac 5P or approved equal.

CONSTRUCTION INSPECTION BY DESIGNATED ENGINEERS
The construction of the pond and embankment, and certification that the pond and embankment have been built in accordance with the plans shall be under the supervision of a Registered Professional Engineer. The Engineer shall be notified sufficiently in advance of construction in order that arrangements can be made for (1) inspection of pipe trench and bedding, (2) inspection of riser and anti-seep collars and (3) supervision of embankment construction and compaction testing. The Engineer shall direct the handling of water during construction, minor changes not affecting the integrity of the dam in order to compensate for unusual soil conditions, and the removal and replacement of defective fill.

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 the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I shall engage a registered professional engineer to supervise pond construction and provide the Howard Soil Conservation District with an ~~"as-built" plan of the pond within 30 days of completion.~~ I also authorize periodic on-site inspections by the Howard Soil Conservation District."

JRK 9/3/93

[signature] 8-23-93
Signature of Developer — Date

Albert F. Edwards, P.E.
Print name

By the Engineer:

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

JRK 9/3/93

[signature] 8/18/93
Signature of Engineer — Date

ERNEST I. SHEPPE III
Print name

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. JRK 9/3/93

J. G. Warfield / JRK 9/3/93
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.

John R. Robertson 9/3/93
Howard Soil Conservation District — Date

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS

[signature] CHIEF, BUREAU OF HIGHWAYS	9-20-93 DATE
[signature] CHIEF, BUREAU OF ENGINEERING	9/21/93 DATE
[signature] CHIEF, LAND DEVELOPMENT DIVISION M.K.	9/20/93 DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

Gina [signature] CHIEF, DIVISION OF LAND DEVELOPMENT & RESEARCH SA	9/24/93 DATE

Date	No.	Revision Description

LONGREACH

SECTION 4, AREA 3, PHASE 220

OWNER / DEVELOPER

THE HOWARD RESEARCH & DEVELOPMENT CORP.
THE ROUSE BUILDING
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044

DMW
Daft · McCune · Walker, Inc.
A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals
200 East Pennsylvania Avenue, Towson, Maryland 21286, 410 296 3333, Fax 296 4705

8/18/93
Date

[seal]

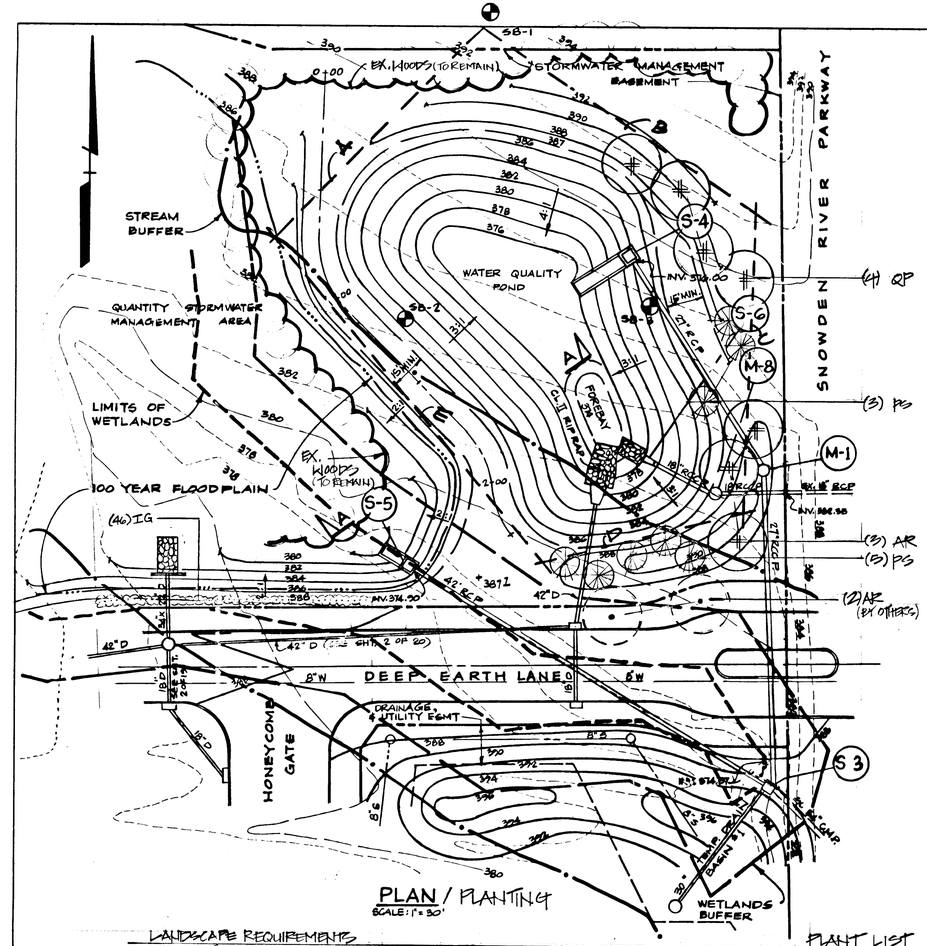
[signature]
Professional Engr. No. 16580

AREA
PARCELS A,B,& C AND LOTS 89,90,91,& 92
TAX MAP 36,37 — PART OF PARCEL 50
6TH ELECTION DISTRICT OF HOWARD COUNTY, MARYLAND

TITLE
STORMWATER MANAGEMENT
PROPOSED DRAINAGE AREA MAP

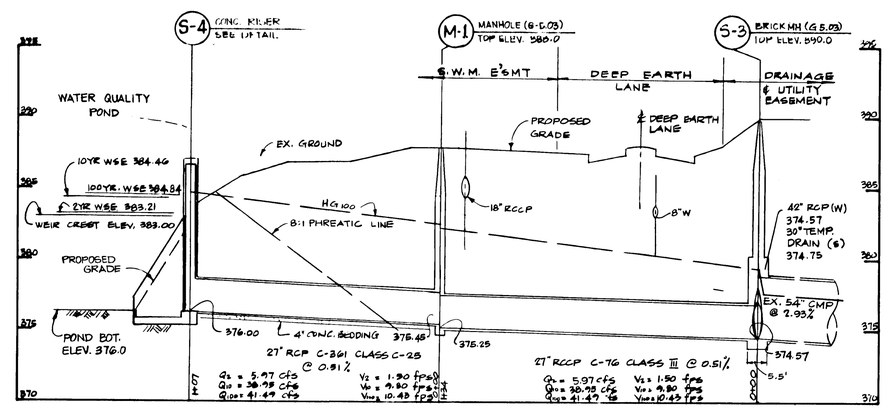
Des By JMG	Scale 1" = 200'	Proj. No. 89088D	
Drn By DBS	Date 08/17/93		
Chk By E.I.S.	Approved	7 OF 20	

F-93-130



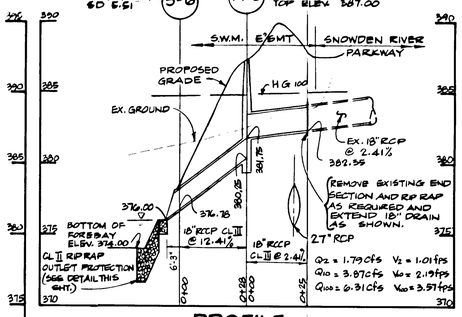
PLAN / PLANTING

SCALE: 1" = 30'



PROFILE

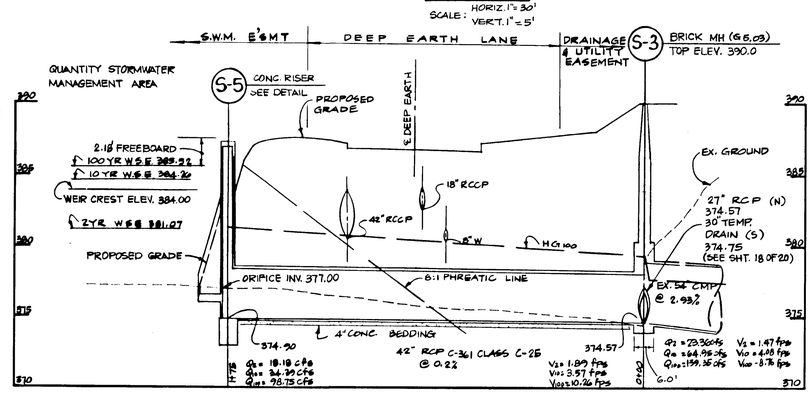
SCALE: HORIZ. 1" = 30'
VERT. 1" = 5'



PROFILE

SCALE: HORIZ. 1" = 30'
VERT. 1" = 5'

* MINIMUM 6" VERTICAL CLEARANCE REQUIRED BETWEEN STORM DRAIN AND SEWER. MIN. 1' VERT. CLEARANCE BETWEEN STORM DRAIN AND WATER.



PROFILE

SCALE: HORIZ. 1" = 30'
VERT. 1" = 5'

LANDSCAPE REQUIREMENTS

PERIMETER
- A. 128'
- B. 140'
- C. 126'
- D. 87'
- E. 177'

608'
LESS 338' EX. TREE EDGE
320' BUFFER LENGTH

TREES REQUIRED
1/SHADE TREE/50 LF = 7
1/EVERGREEN TREE/40 LF = 8

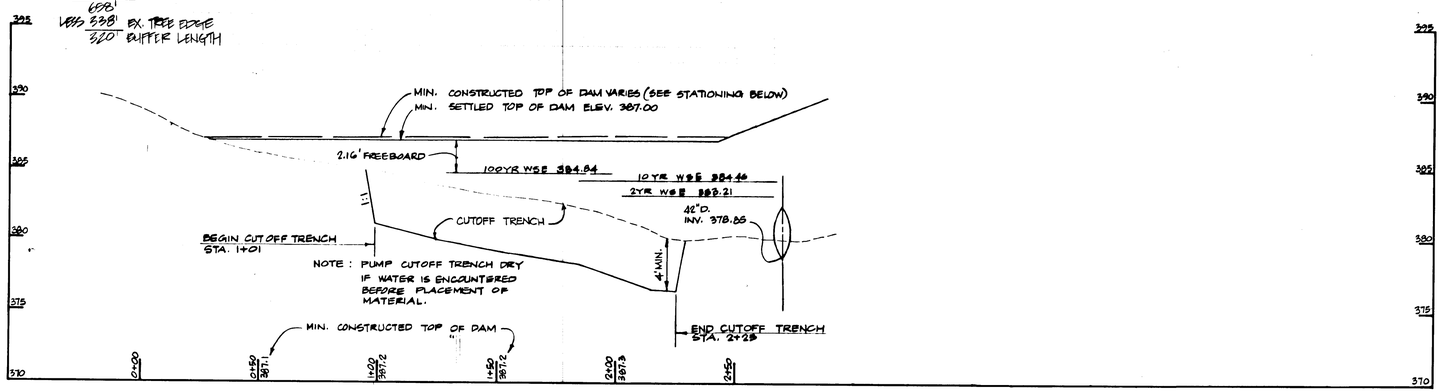
PLANT LIST

QTY	CODE	BOTANICAL NAME	COMMON NAME	SIZE	COND	REMARKS
3	AR	ACER RUBRUM 'RED SUNSET'	RED SUNSET MAPLE	2-2½"	B&B	14'-16' FULL CROWN
4	QP	QUERCUS PALUSTRIS	PIN OAK	2-2½"	"	" "
8	PS	PINUS STROBUS	EASTERN WHITE PINE	6-8'	"	HEAVY/ NATURAL
46	IG	ILEX GLABRA	INKBERRY HOLLY	2-2½'	"	HEDGE 2½' ON CENTER

NOTE

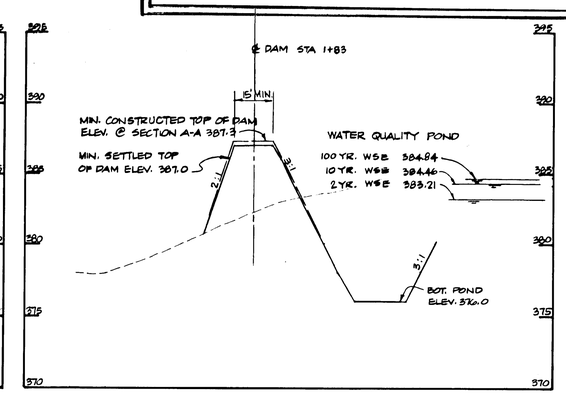
THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SEC. 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL.

FINANCIAL SURETY FOR THE REQUIRED 15 LANDSCAPE TREES IN THE AMOUNT OF $1500.00 IS PART OF THE DEVELOPERS AGREEMENT.



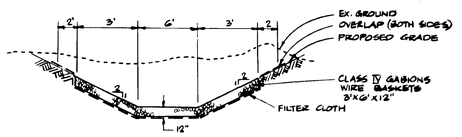
PROFILE ALONG ℄ DAM

SCALE: HORIZ. 1" = 30'
VERT. 1" = 5'



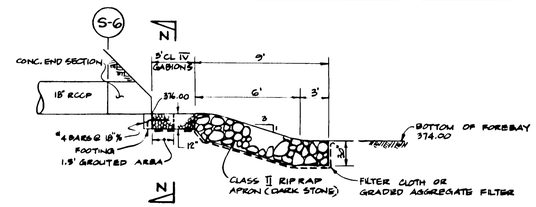
SECTION 'A-A'

SCALE: HORIZ. 1" = 30'
VERT. 1" = 5'



SECTION N-N

NO SCALE



RIP RAP OUTLET PROTECTION DETAIL STRUCTURE -6 (NO SCALE)

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 THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT ~~WITH AN AS-BUILT PLAN WITHIN 30 DAYS OF COMPLETION~~. ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT." JAH 9/3/93

SIGNATURE OF DEVELOPER — DATE 8-23-93

Albert F. Edwards, P.E.

BY THE ENGINEER:

"I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN AS-BUILT PLAN OF COMPLETION." JAH, 9/3/93

SIGNATURE OF ENGINEER — DATE 8/18/93

ERNEST I. SHEPPE III

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. JAH 9/3/93

U.S. SOIL CONSERVATION SERVICE — DATE 9/3/93

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 9/3/93

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 9-20-93

CHIEF, BUREAU OF ENGINEERING — DATE 9/21/93

CHIEF, LAND DEVELOPMENT DIVISION M.V. — DATE 9/21/93

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT & RESEARCH — DATE 9/24/93

Date	No.	Revision Description
11/30/93	1	CHANGED S-3 TO A BRICK MH (G 5.03)

LONGREACH

SECTION 4, AREA 3, PHASE 220

OWNER / DEVELOPER

THE HOWARD RESEARCH & DEVELOPMENT CORP.
THE ROUSE BUILDING
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044

DMW
Daft · McCune · Walker, Inc.
A Team of Land Pioneers, Landscape Architects, Engineers, Surveyors & Environmental Professionals
200 East Pennsylvania Avenue, Towson, Maryland 21286, 410 296 3333, Fax 296 4705

8/18/93
Date

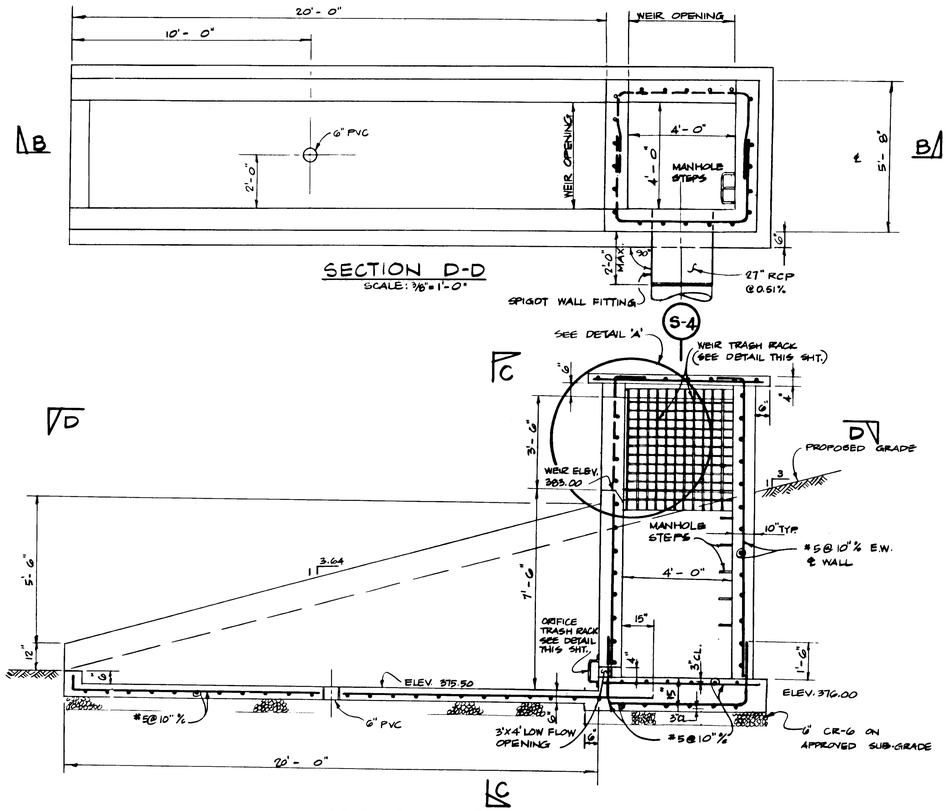
Professional Engr. No. 16580

AREA
PARCELS A, B, & C AND LOTS 89, 90, 91, & 92
TAX MAP 38, 37 — PART OF PARCEL 50
8TH ELECTION DISTRICT OF HOWARD COUNTY, MARYLAND

TITLE
STORMWATER MANAGEMENT AND LANDSCAPE PLAN
PLAN AND PROFILE

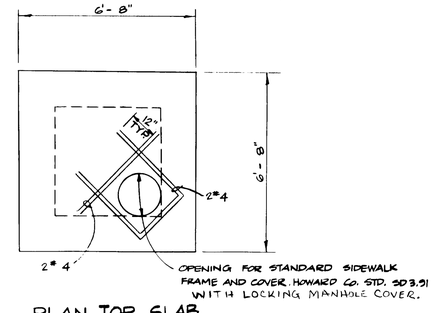
Des By	JMG	Scale	AS SHOWN	Proj. No. 89088D
Drn By	DBS	Date	08/17/93	8 OF 20
Chk By	EIS	Approved		

F-93-130

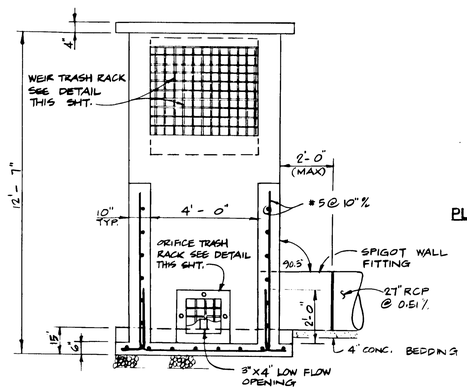


SECTION D-D
SCALE: 3/8"=1'-0"

SECTION B-B
SCALE: 3/8"=1'-0"

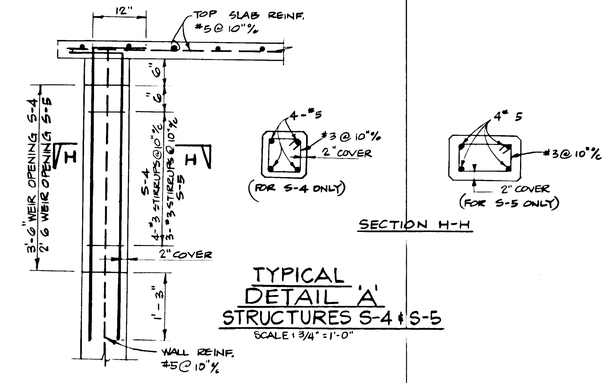


PLAN TOP SLAB
SCALE: 3/8"=1'-0"



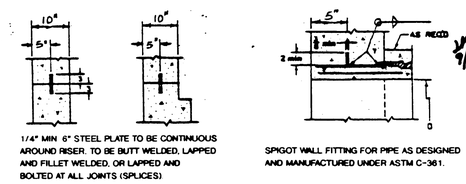
SECTION C-C
SCALE: 3/8"=1'-0"

DETAILS
STRUCTURE S-4
SCALE: 3/8"=1'-0"



SECTION H-H

TYPICAL DETAIL 'A'
STRUCTURES S-4 & S-5
SCALE: 3/4"=1'-0"



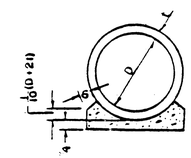
1/4" MIN 6" STEEL PLATE TO BE CONTINUOUS AROUND RISER. TO BE BUTT WELDED, LAPPED AND FILLET WELDED, OR LAPPED AND BOLTED AT ALL JOINTS (SPLICES).

PLATE CONSTRUCTION JOINT DETAIL

SPIGOT WALL FITTING FOR PIPE AS DESIGNED AND MANUFACTURED UNDER ASTM C-361.

SPIGOT WALL FITTING DETAIL

CONSTRUCTION DETAILS



4" CONC. BEDDING
N.T.S.

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 THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND ~~PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN AS-BUILT PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION~~ I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF DEVELOPER — DATE 8-23-93

Albert F. Edwards, P.E.

BY THE ENGINEER:

I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND ~~PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN AS-BUILT PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.~~

SIGNATURE OF ENGINEER — DATE 8/18/93

ERNEST I. SWEPPE III

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.

U.S. SOIL CONSERVATION SERVICE — DATE 9/3/93

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 9/3/93

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 9-20-93

CHIEF, BUREAU OF ENGINEERING — DATE 9/21/93

CHIEF, LAND DEVELOPMENT DIVISION M.K. — DATE 9/21/93

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT & RESEARCH — DATE 9/24/93

Date	No.	Revision Description

LONGREACH
SECTION 4, AREA 3, PHASE 220
OWNER / DEVELOPER

THE HOWARD RESEARCH & DEVELOPMENT CORP.
THE ROUSE BUILDING
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044

DMW
Daft · McCune · Walker, Inc.
A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals
200 East Pennsylvania Avenue, Towson, Maryland 21286, 410 296 3333, Fax 296 4705

AREA
PARCELS A,B,& C AND LOTS 89,90,91,& 92
TAX MAP 38,37 — PART OF PARCEL 50
6TH ELECTION DISTRICT OF HOWARD COUNTY, MARYLAND

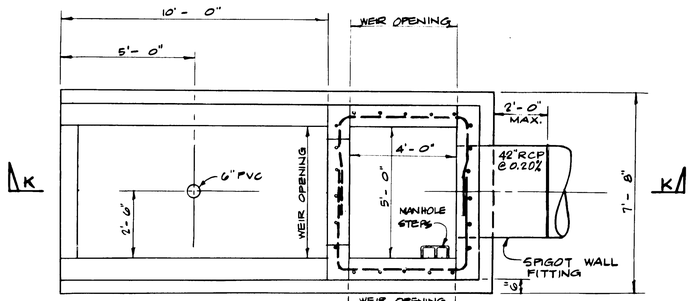
TITLE
STORMWATER MANAGEMENT DETAILS

Des By JMG	Scale AS SHOWN	Proj. No. 89088D	
Drn By DBS	Date 08/17/93	9 OF 20	
Chk By EIS	Approved		

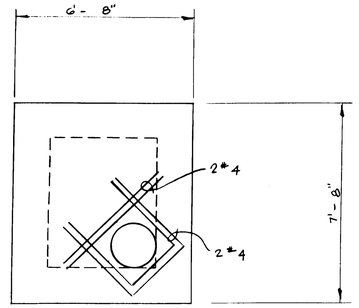
8/18/93
Date

Professional Engr. No. 16580

F-93-130

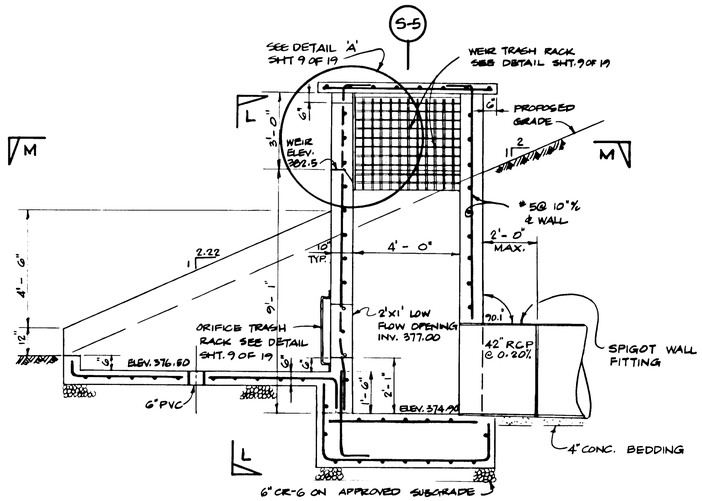


SECTION M-M
SCALE 1 7/8" = 1'-0"

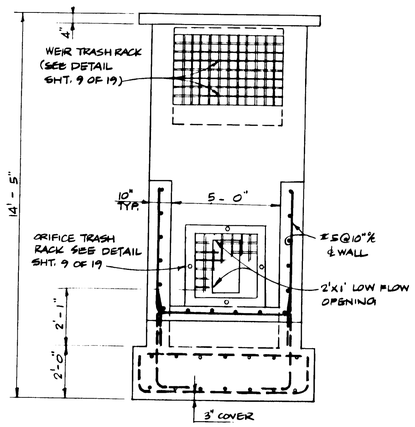


OPENING FOR STANDARD SIDEWALK FRAME AND COVER HOWARD Co. STANDARD SD 3.91 WITH LOCKING MANHOLE COVER.

PLAN TOP SLAB

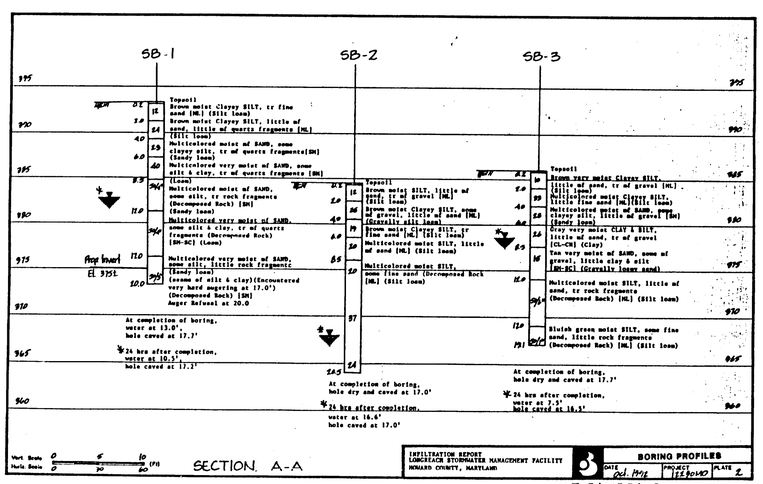


SECTION K-K



SECTION L-L
SCALE: 3/8" = 1'-0"

DETAILS
STRUCTURE S-5
SCALE: 3/8" = 1'-0"



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 THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN ~~AS-BUILT PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.~~ JMG 9/3/93

Albert F. Edwards — 8-23-93
SIGNATURE OF DEVELOPER — DATE
Albert F. Edwards, P.E.

BY THE ENGINEER:

I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND ~~PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN AS-BUILT PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.~~ JMG 9/3/93

Ernest I. Shappert — 8/18/93
SIGNATURE OF ENGINEER — DATE
ERNEST I. SHAPPE III

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

J. L. Warfield JMG — 9/3/93
HOWARD SOIL CONSERVATION SERVICE — DATE

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

John R. Robertson — 9/3/93
HOWARD SOIL CONSERVATION DISTRICT — DATE

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS

Andrew M. Loneker — 9-20-93
CHIEF, BUREAU OF HIGHWAYS — DATE

Gerald Sapson — 9/21/93
CHIEF, BUREAU OF ENGINEERING — DATE

Robert Divinniss — 9/21/93
CHIEF, LAND DEVELOPMENT DIVISION M.K. — DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

Gina Fornwalt — 9/24/93
CHIEF, DIVISION OF LAND DEVELOPMENT & RESEARCH — DATE

Date	No.	Revision Description

LONGREACH
SECTION 4, AREA 3, PHASE 220
OWNER / DEVELOPER

THE HOWARD RESEARCH & DEVELOPMENT CORP.
THE ROUSE BUILDING
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044

DMW
Daft · McCune · Walker, Inc.
A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals
200 East Pennsylvania Avenue
Towson, Maryland 21286
410 296 3333
Fax 296 4705

8/18/93
Date

Professional Engr. No. 16580

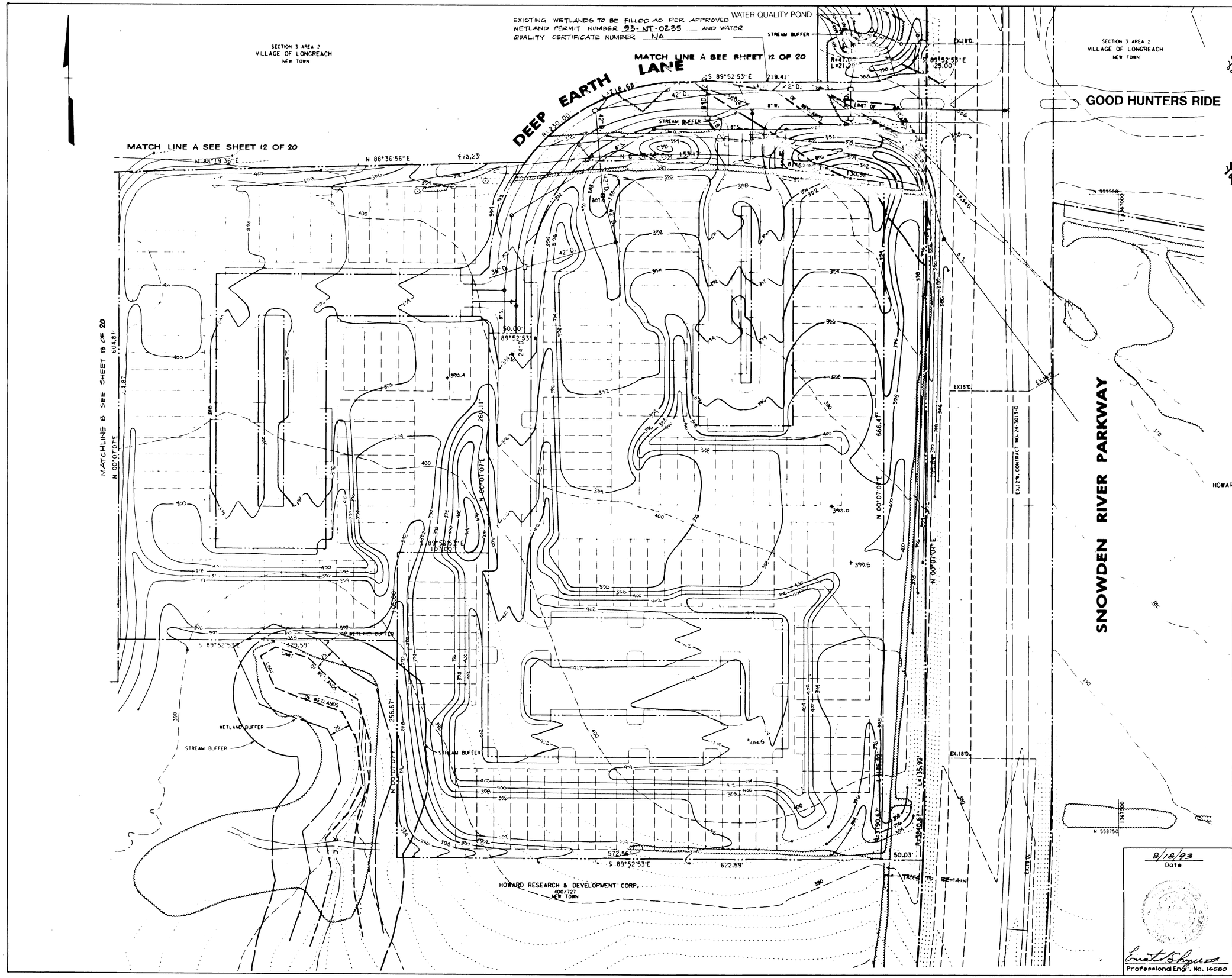
AREA
PARCELS A,B,& C AND LOTS 89,90,91,& 92
TAX MAP 36,37 — PART OF PARCEL 50
6TH ELECTION DISTRICT OF HOWARD COUNTY, MARYLAND

TITLE
STORMWATER MANAGEMENT DETAILS

Des By	JMG	Scale	AS SHOWN	Proj. No.	89088D
Drn By	DBS	Date	08/17/93	10 OF 20	
Chk By	EIS	Approved			

F-93-130

100



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 the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I shall engage a registered professional engineer to supervise pond construction and provide the Howard Soil Conservation District with an as-built plan of the pond. I also authorize periodic on-site inspections by the Howard Soil Conservation District."

JRK 9/3/93

Signature of Developer — Date 8-23-93

Albert F. Edwards, P.E.
Print name

By the Engineer:

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

JRK 9/3/93

Signature of Engineer — Date 8/18/93

ERNEST I. SHEPPE III
Print name

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

J. G. Warfield JRK 9/3/93
Signature of Developer — Date

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

John R. Robertson 9/3/93

WETLAND PERMIT #93-NT-0235

HOWARD RESEARCH & DEVELOPMENT CORP.
477/460
NEW TOWN

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS

Andrew M. Doucher — 9-20-93
CHIEF, BUREAU OF HIGHWAYS — DATE

Ronald O. Lapson — 9/21/93
CHIEF, BUREAU OF ENGINEERING — DATE

Alan Dammann — 9/20/93
CHIEF, LAND DEVELOPMENT DIVISION M.K. — DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

Gina Irvinnanji — 9/24/93
CHIEF, DIVISION OF LAND DEVELOPMENT & RESEARCH JA — DATE

Date	No.	Revision Description
1/13/93		REVISED PER COUNTY COMMENTS

LONGREACH
SECTION 4, AREA 3, PHASE 220
OWNER / DEVELOPER

THE HOWARD RESEARCH & DEVELOPMENT CORP.
THE ROUSE BUILDING
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044
PHONE: 410-992-6000

Daft · McCune · Walker, Inc.
A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals
200 East Pennsylvania Avenue
Towson, Maryland 21286
410 296 3333
Fax 296 4705

8/18/93
Date

Professional Engr. No. 16580

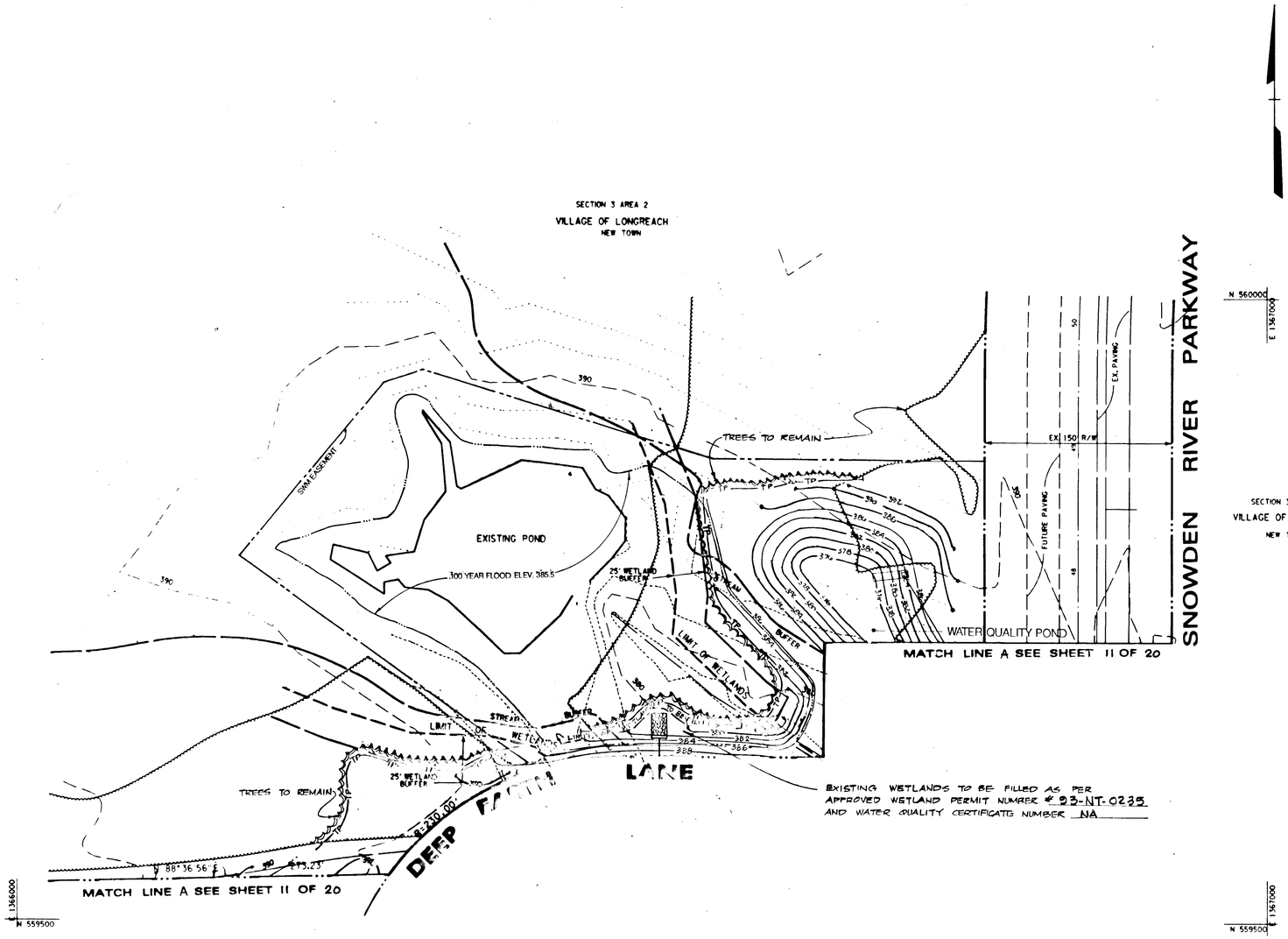
AREA
PARCELS A,B,& C AND LOTS 89,90,91,& 92
TAX MAP 38,37 — PART OF PARCEL 50
6TH ELECTION DISTRICT OF HOWARD COUNTY, MARYLAND

TITLE
MASS GRADING PLAN

Des By	FPB	Scale	1" = 50'	Proj. No.	89088D
Drn By	CRW	Date	4-12-93	11 OF 20	
Chk By	JWR	Approved			

F-93-130

100



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 the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I shall engage a registered professional engineer to supervise pond construction and ~~provide the Howard Soil Conservation District with an "Inspection" plan of the pond within 15 days of completion.~~ I also authorize periodic on-site inspections by the Howard Soil Conservation District."

JWR 9/3/93

[signature] 8-23-93
Signature of Developer Date

Albert F. Edwards, P.E.
Print name

By the Engineer:

"I certify that this plan for pond construction, erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions. This plan was prepared in accordance with the requirements of the Howard Soil Conservation District. I have notified the developer that he/she must engage a registered professional engineer to supervise pond construction and ~~provide the Howard Soil Conservation District with an "Inspection" plan of the pond within 15 days of completion.~~"

JWR 9/3/93

Ernest I. Shepperd 8/18/93
Signature of Engineer Date

ERNEST I. SHEPPE III
Print name

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.

G. Warfield JWR 9/3/93
Signature of Engineer Date

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

John R. Robertson 9/3/93

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS

Andrew M. Doucher 9-20-93
CHIEF, BUREAU OF HIGHWAYS DATE

Paul O. Sepson 9/21/93
CHIEF, BUREAU OF ENGINEERING DATE

Abdul Daunum 9/20/93
CHIEF, LAND DEVELOPMENT DIVISION MLK DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

Gina Tourmanji 9/24/93
CHIEF, DIVISION OF LAND DEVELOPMENT & RESEARCH JA DATE

Date	No.	Revision Description

LONGREACH
SECTION 4, AREA 3, PHASE 220
OWNER / DEVELOPER

THE HOWARD RESEARCH & DEVELOPMENT CORP.
THE ROUSE BUILDING
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044
PHONE: 410-992-6000

Daft · McCune · Walker, Inc.
A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals
200 East Pennsylvania Avenue
Towson, Maryland 21286
410 296 3333
Fax 296 4705

AREA
PARCELS A,B,& C AND LOTS 89,90,91,& 92
TAX MAP 38,37 PART OF PARCEL 50
6TH ELECTION DISTRICT OF HOWARD COUNTY, MARYLAND

TITLE
MASS GRADING PLAN

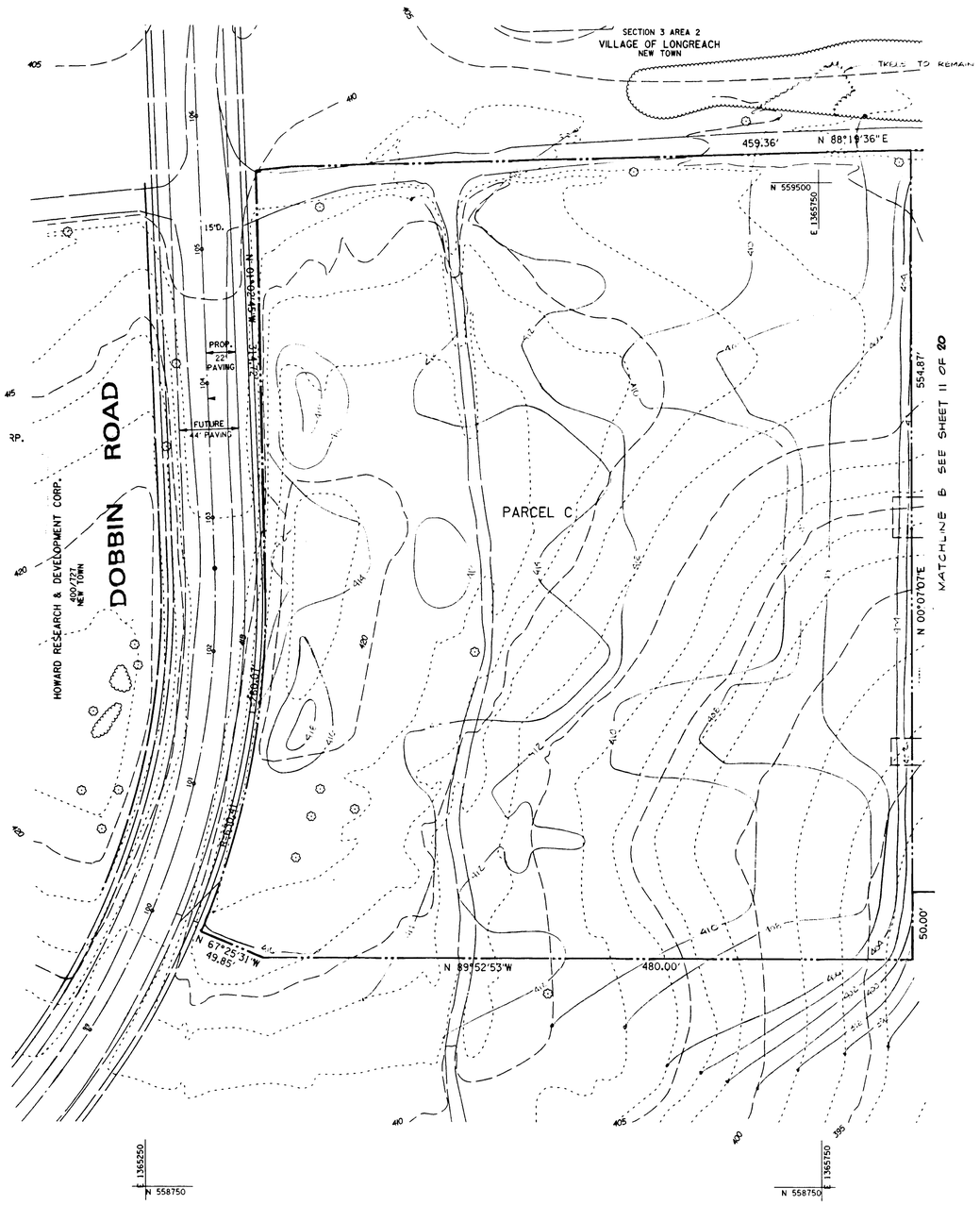
Des By FPB	Scale 1" = 50'	Proj. No. 890[illegible]D
Drn By CRW	Date 4-12-93	12 OF 20
Chk By JWR	Approved	

8/18/93
Date

Ernest I. Shepperd
Professional Engr. No. 16580

F-93-130

100



PARCEL B

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 the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I shall engage a registered professional engineer to supervise pond construction and ~~perform periodic inspections of construction~~ ~~site. He shall give authorization to proceed to the next~~ ~~phase of construction~~. I also authorize periodic on-site inspections by the Howard Soil Conservation District."

SWM 8/13/93

8-23-93
Signature of Developer Date

Print Name

By the Engineer:

"I certify that this plan for pond construction, erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions. This plan was prepared in accordance with the requirements of the Howard Soil Conservation District. I have notified the developer that he/she must engage a registered professional engineer to ~~supervise the construction of the pond. The Howard Soil Conservation District may require periodic inspections of the pond construction~~."

SWM 8/13/93

8/12/93
Signature of Engineer Date

ERNEST I. SHAPPE III
Print Name

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

8/3/93
Title Date

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

8/3/93
Title Date

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS

9-20-93
CHIEF, BUREAU OF HIGHWAYS DATE

9/21/93
CHIEF, BUREAU OF ENGINEERING DATE

9/21/93
CHIEF, LAND DEVELOPMENT DIVISION M.K. DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

9/24/93
CHIEF, DIVISION OF LAND DEVELOPMENT & RESEARCH DATE

Date	No.	Revision Description

LONGREACH
SECTION 4, AREA 3, PHASE 220
OWNER / DEVELOPER

THE HOWARD RESEARCH & DEVELOPMENT CORP.
THE ROUSE BUILDING
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044

Daft · McCune · Walker, Inc.
A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals
200 East Pennsylvania Avenue
Towson, Maryland 21286
410 296 3333
Fax 296 4705

AREA
PARCELS A,B,& C AND LOTS 89,90,91,& 92
TAX MAP 38,37 PART OF PARCEL 50
6TH ELECTION DISTRICT OF HOWARD COUNTY, MARYLAND

TITLE
MASS GRADING PLAN

Des By	CRW	Scale AS SHOWN	Proj. No. 89088D
Drn By	CRW	Date 4-12-93	13 OF 20
Chk By	JWR	Approved	

8/12/93
Date

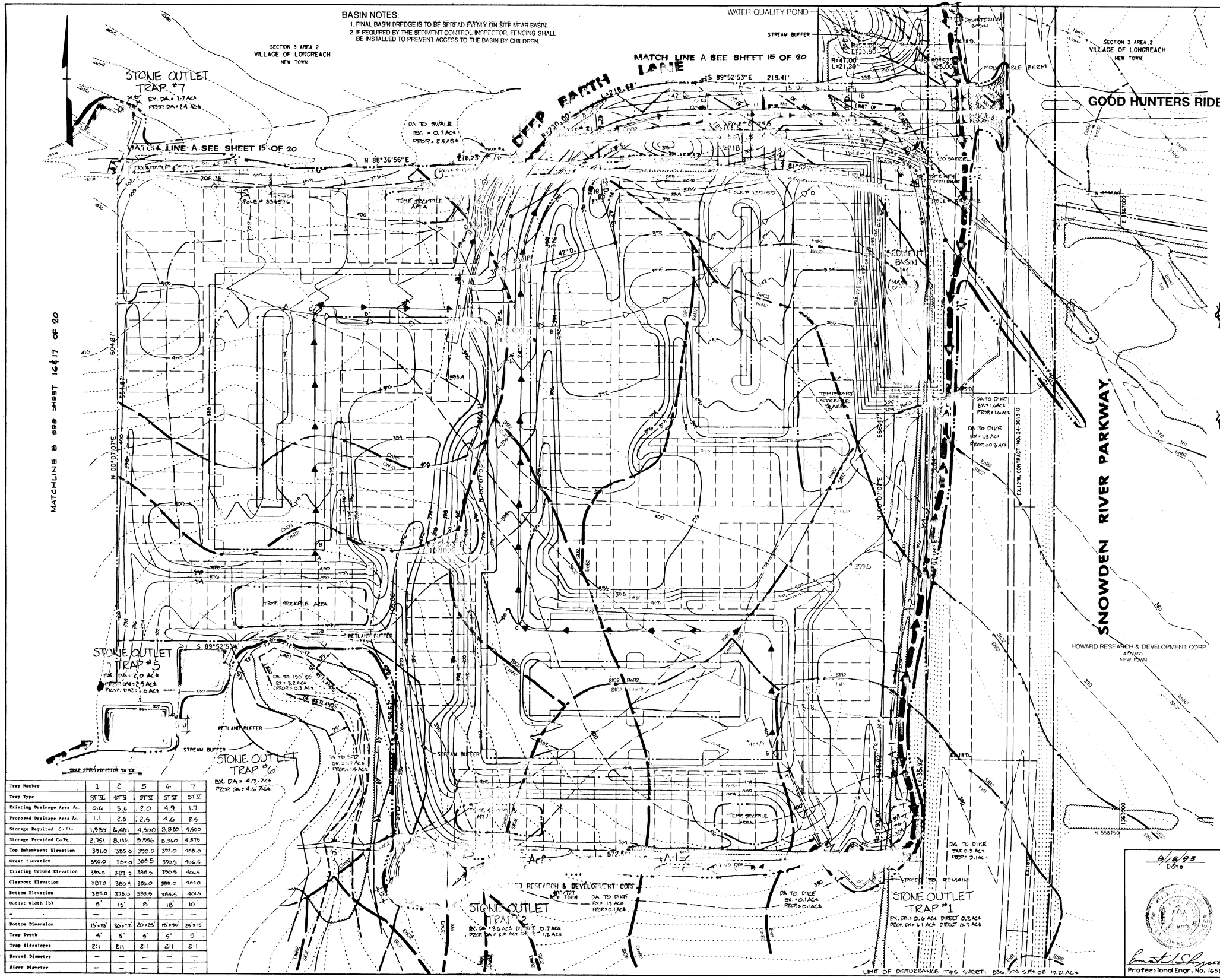
Professional Engr. No. 16580

F-93-130

18

BASIN NOTES:

1. FINAL BASIN DREDGE IS TO BE SPREAD EVENLY ON SITE NEAR BASIN.
2. IF REQUIRED BY THE SEDIMENT CONTROL INSPECTOR, FENCING SHALL BE INSTALLED TO PREVENT ACCESS TO THE BASIN BY CHILDREN.



Trap Number	1	2	5	6	7
Trap Type	STV	STV	STV	STV	STV
Existing Drainage Area Ac.	0.6	3.6	2.0	4.9	1.7
Proposed Drainage Area Ac.	1.1	2.8	2.9	4.6	2.9
Storage Required Cu.Ft.	1,980	6,480	4,500	8,820	4,500
Storage Provided Cu.Ft.	2,751	8,146	5,956	8,960	4,875
Top Embankment Elevation	391.0	385.0	390.0	392.0	408.0
Crest Elevation	390.0	384.0	388.5	390.5	406.5
Existing Ground Elevation	389.0	383.0	388.5	390.5	406.5
Cleanout Elevation	387.0	380.5	386.0	388.0	404.0
Bottom Elevation	385.0	378.0	383.5	385.5	401.5
Outlet Width (b)	5'	15'	8'	18'	10'
*	—	—	—	—	—
Bottom Dimension	15'x18'	30'x32'	20'x25'	18'x50'	25'x15'
Trap Depth	4'	5'	5'	5'	5'
Trap Sideslopes	2:1	2:1	2:1	2:1	2:1
Barrel Diameter	—	—	—	—	—
Riser Diameter	—	—	—	—	—

SEDIMENT CONTROL LEGEND

- EXISTING CONTOURS
- PROPOSED CONTOURS
- EXISTING DRAINAGE AREA
- PROPOSED DRAINAGE AREA
- LIMIT OF DISTURBANCE
- LIMIT OF TEMPORARY STOCKPILE
- SILT FENCE
- EARTH DIKE
- STABILIZED CONSTRUCTION ENTRANCE
- MOUNTABLE BERM
- SUPER FENCE DIVERSION
- SUPER SILT FENCE
- INLET BLOCKING
- TRAP STORAGE
- DEWATERING BASIN
- EXISTING T. C. PATH
- PROPOSED T. C. PATH
- TP — TREE PROTECTION FENCE

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 the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I shall engage a registered professional engineer to supervise pond construction and ~~[illegible] Howard Soil Conservation District~~ ~~[illegible]~~. I also authorize periodic on-site inspections by the Howard Soil Conservation District."

9/9/93

8-23-93
Signature of Developer Date

Albert F. Edwards, P.E.
Print name

By the Engineer:

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

9/13/93

9/8/93
Signature of Engineer Date

ERNEST I. SHUPPE II
Print name

These plans have been reviewed for the Howard Soil Conservation District and meet the technical requirements for ~~[illegible]~~, soil erosion and sediment control.

9/3/93
Date

These plans for ~~[illegible]~~, soil erosion and sediment control meet the requirements of the Howard Soil Conservation District.

9/3/93
Date

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS

9-20-93
CHIEF, BUREAU OF HIGHWAYS — DATE

9/21/93
CHIEF, BUREAU OF ENGINEERING — DATE

9/21/93
CHIEF, LAND DEVELOPMENT DIVISION M.K. — DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

9/24/93
CHIEF, DIVISION OF LAND DEVELOPMENT & RESEARCH — DATE

Date	No.	Revision Description
1/13/93		REVISED PER COUNTY COMMENTS

LONGREACH
SECTION 4, AREA 3, PHASE 220
OWNER / DEVELOPER

THE HOWARD RESEARCH & DEVELOPMENT CORP.
THE ROUSE BUILDING
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044
PHONE: 410-992-6000

Daft · McCune · Walker, Inc.
A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals
200 East Pennsylvania Avenue, Towson, Maryland 21286
410 296 3333 Fax 296 4705

AREA
PARCELS A,B,& C AND LOTS 89,90,91,& 92
TAX MAP 30.37 — PART OF PARCEL 50
6TH ELECTION DISTRICT OF HOWARD COUNTY, MARYLAND

TITLE
SEDIMENT AND EROSION CONTROL PLAN

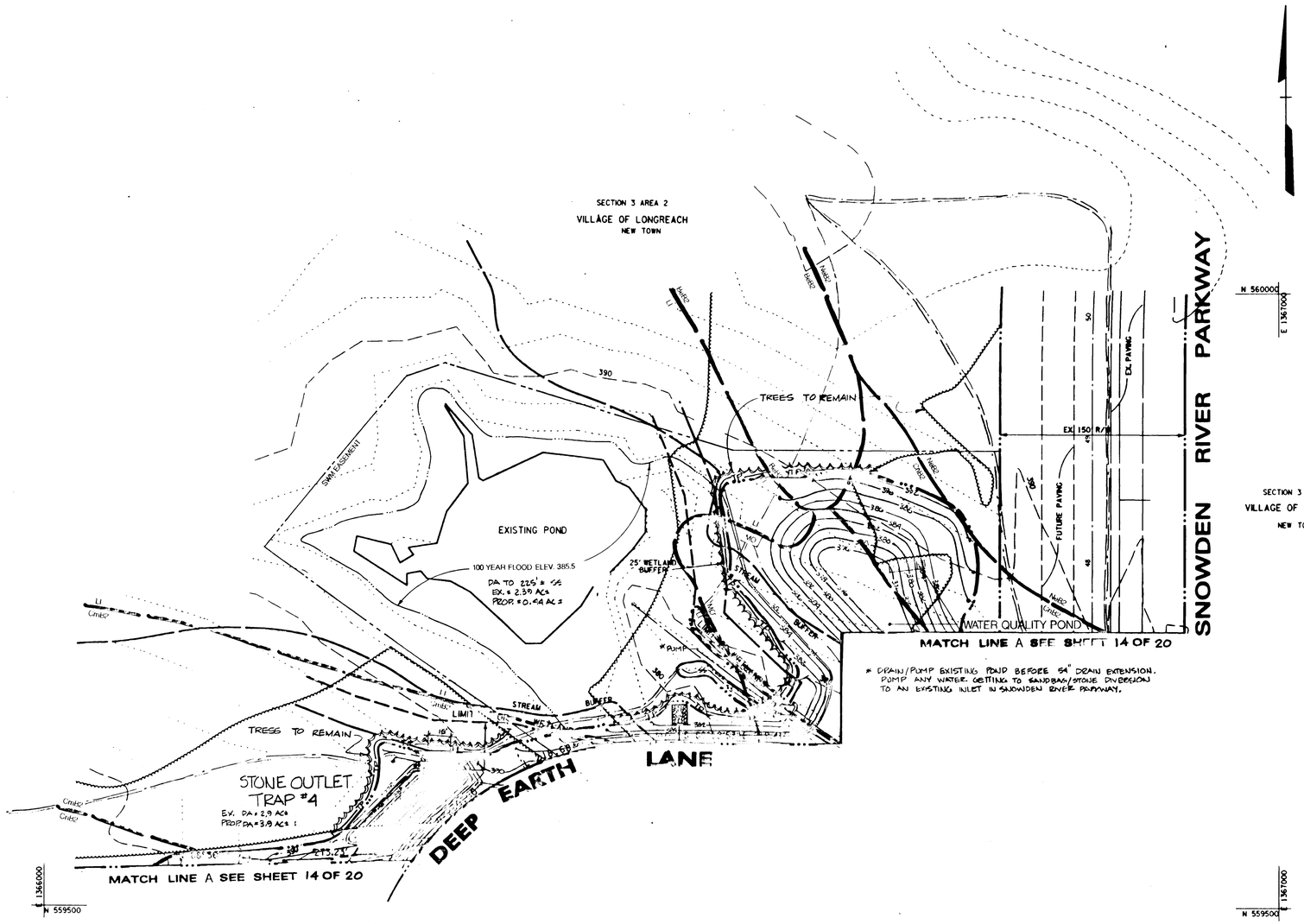
Des By CRW	Scale 1" = 50'	Proj. No. 89039	
Drn By CRW	Date 4-12-93	14 OF 20	
Chk By EIS	Approved		

9/8/93
Date

Professional Engr. No. 16580

F-93-130

100



TRAP SPECIFICATION TABLE

Trap Number	4
Trap Type	ST V
Existing Drainage Area	2.9
Proposed Drainage Area	3.9
Storage Required	7,020
Storage Provided	8,412
Top Embankment Elevation	393.0
Crest Elevation	392.0
Existing Ground Elevation	391.0
Cleanout Elevation	389.0
Bottom Elevation	387.0
Outlet Width (b)	18'
a	—
Bottom Dimension	18' x 65'
Trap Depth	4'
Trap Sideslopes	2:1
Barrel Diameter	—
Riser Diameter	—

SEDIMENT CONTROL LEGEND

- EXISTING CONTOURS
- PROPOSED CONTOURS
- EXISTING DRAINAGE AREA
- PROPOSED DRAINAGE AREA
- LIMIT OF DISTURBANCE
- SUPER SILT FENCE
- SILT FENCE
- TRAP STORAGE
- SANDBAG/STONE DIVERSION

LIMIT OF DISTURBANCE THIS SHEET: 42,827 S.F. OR 0.98 AC±

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 the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I shall engage a registered professional engineer to supervise pond construction and ~~perform 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 of Developer — Date 8-23-93

Albert F. Edwards, P.E.
Print name

By the Engineer:

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

Signature of Engineer — Date 8/8/93

ERNEST E. SHIPLEY
Print name

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

Soil Conservation District — Date 9/3/93

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

9/3/93

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 9-20-93

CHIEF, BUREAU OF ENGINEERING — DATE 9/21/93

CHIEF, LAND DEVELOPMENT DIVISION M.K. — DATE 9/20/93

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT & RESEARCH — DATE 9/24/93

JA

Date	No.	Revision Description

LONGREACH
SECTION 4, AREA 3, PHASE 220
OWNER / DEVELOPER

THE HOWARD RESEARCH & DEVELOPMENT CORP.
THE ROUSE BUILDING
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044
PHONE: 410-992-6000

Daft · McCune · Walker, Inc.
A Team of Land Planners, Landscape Architects, Engineers & Surveyors & Environmental Professionals
200 East Pennsylvania Avenue
Towson, Maryland 21286
410 296 3333
Fax 296 4705

AREA
PARCELS A,B,& C AND LOTS 89,90,91,& 92
TAX MAP 30,37 — PART OF PARCEL 50
6TH ELECTION DISTRICT OF HOWARD COUNTY, MARYLAND

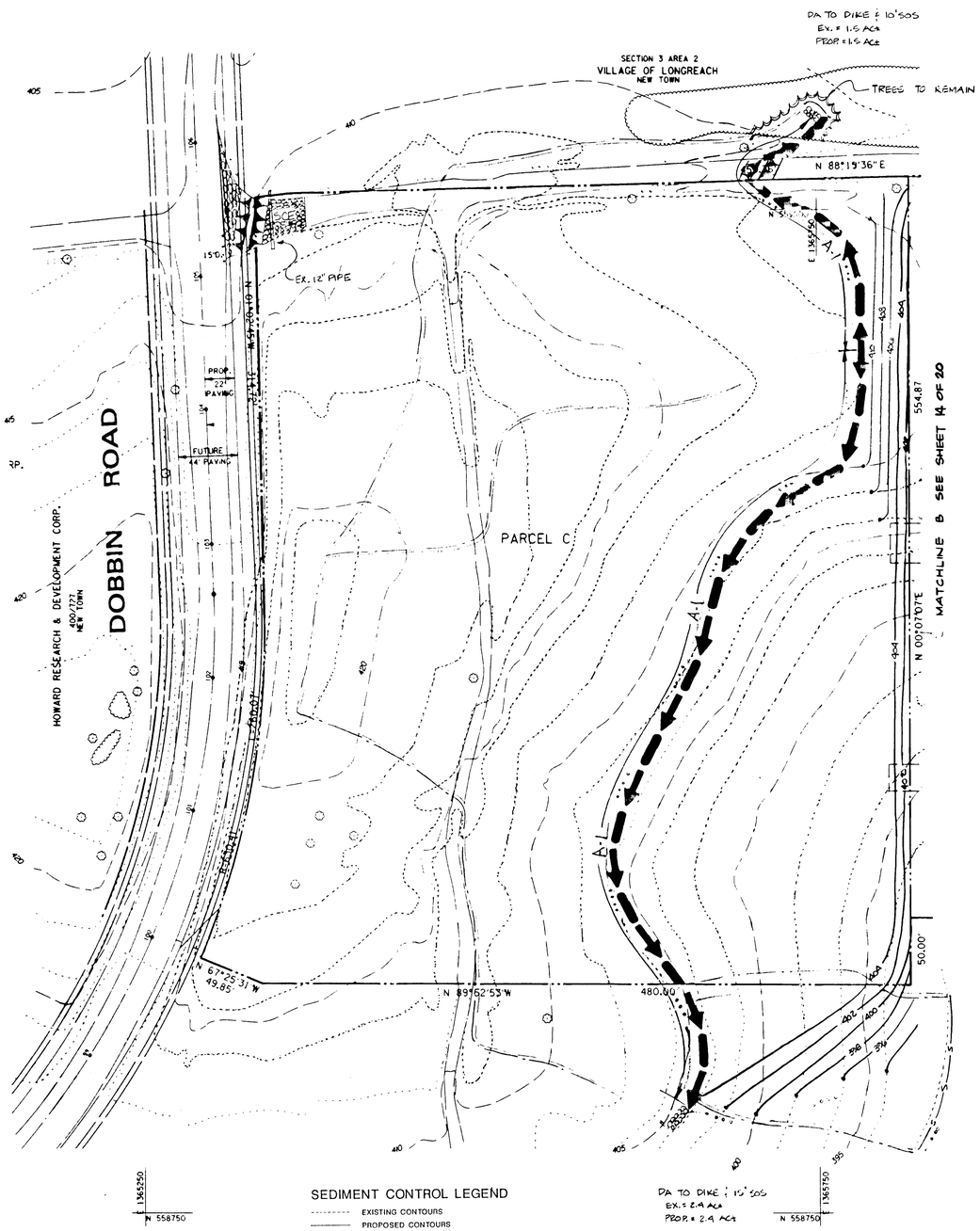
TITLE
SEDIMENT AND EROSION CONTROL PLAN

Des By	CRW	Scale 1" = 50'	Proj. No. 89207D
Drn By	CRW	Date 4-12-93	15 OF 20
Chk By	EIS	Approved	

8/8/93
Date

Professional Engr. No. 16580

F-93-130



INITIAL SEDIMENT CONTROL INSTALLATION

SEDIMENT CONTROL LEGEND

- EXISTING CONTOURS
- PROPOSED CONTOURS
- EXISTING DRAINAGE AREA
- PROPOSED DRAINAGE AREA
- LIMIT OF DISTURBANCE
- SILT FENCE
- EARTH DIKE
- STABILIZED CONSTRUCTION ENTRANCE
- MOUNTABLE BERM
- 505 STONE OUTLET STRUCTURE

By The Developer:

"I/We certify that all development and/or construction will be done according to these plans, and that any [illegible] personnel involved in the construction project will have a Certificate of Attendance at a Department of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I shall engage a registered professional engineer to supervise pond construction and [illegible] I also authorize periodic [illegible] by the Howard Soil Conservation District."

JWR 9/3/93

[signature] 8-23-93

Albert F. Edwards, P.E.

Print name

By the Engineer:

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

JWR 9/3/93

[signature] 8/18/93

ERNEST T. SHEPPARD III

Print name

These plans have been reviewed for the Howard Soil Conservation District and meet the technical requirements for [illegible] soil erosion and sediment control.

J. G. Warfield/JWR 9/3/93

These plans for [illegible] construction, soil erosion and sediment control meet the requirements of the Howard Soil Conservation District.

John R. Robertson 9/3/93

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS

[signature] 9-20-93

CHIEF, BUREAU OF HIGHWAYS — DATE

[signature] 9/21/93

CHIEF, BUREAU OF ENGINEERING — DATE

[signature] 9/21/93

CHIEF, LAND DEVELOPMENT DIVISION M.K. — DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

Gina Irvinnanji 9/24/93

CHIEF, DIVISION OF LAND DEVELOPMENT & RESEARCH JA — DATE

Date	No.	Revision Description

LONGREACH

SECTION 4, AREA 3, PHASE 220

OWNER / DEVELOPER

THE HOWARD RESEARCH & DEVELOPMENT CORP.
THE ROUSE BUILDING
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044

Daft · McCune · Walker, Inc.

A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals

200 East Pennsylvania Avenue
Towson, Maryland 21286
410 296 3333
Fax 296 4705

8/18/93
Date

[signature]
Professional Engr. No

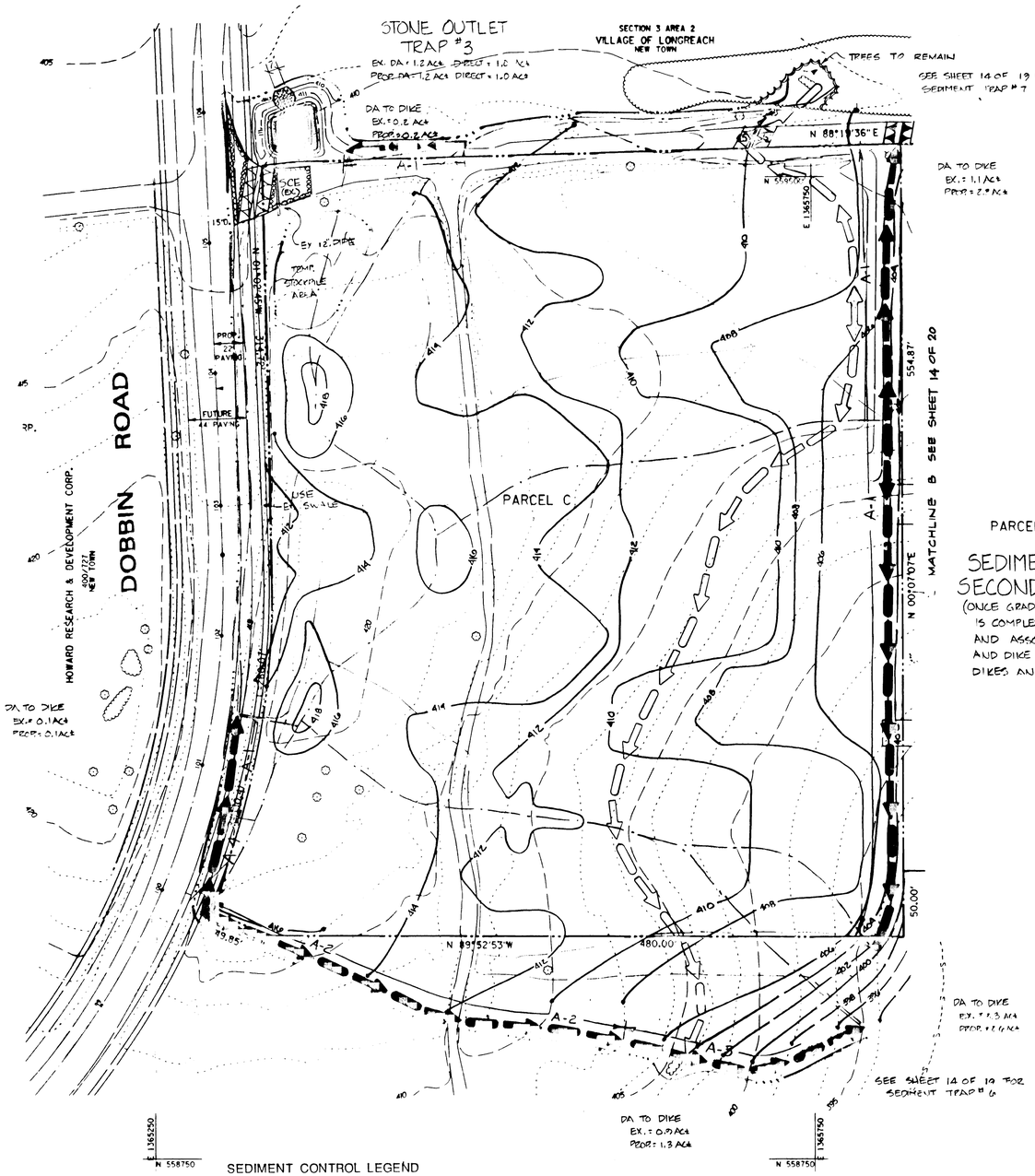
AREA
PARCELS A,B,& C AND LOTS 89,90,91,& 92
TAX MAP 38-37 PART OF PARCEL 80
6TH ELECTION DISTRICT OF HOWARD COUNTY, MARYLAND

TITLE
SEDIMENT AND EROSION CONTROL PLAN

Des By	CRW	Scale	AS SHOWN	Proj. No.	890880
Drn By	CRW	Date	4-12-93	16 OF 20	
Chk By	JWR	Approved			

F-93-130

100



PARCEL B

SEDIMENT CONTROL
SECOND INSTALLATION
(ONCE GRADING BELOW INITIAL INSTALLATION IS COMPLETE INSTALL TRAPS 3, 6 & 7 AND ASSOCIATED DIKES. ONCE TRAPS AND DIKE INSTALLED REMOVE INITIAL DIKES AND SDS's.)

SEDIMENT CONTROL LEGEND

- EXISTING CONTOURS
- PROPOSED CONTOURS
- EXISTING DRAINAGE AREA
- PROPOSED DRAINAGE AREA
- LIMIT OF DISTURBANCE
- LIMIT OF TEMPORARY STOCKPILE
- SILT FENCE
- EARTH DIKE
- STABILIZED CONSTRUCTION ENTRANCE
- MOUNTABLE BERM
- TRAP STORAGE
- EXISTING EARTH DIKE

TRAP SPECIFICATION TABLE

Trap Number	3
Trap Type	ST-V
Existing Drainage Area Ac	1.2
Proposed Drainage Area Ac	1.2
Storage Required C.F.	2,160
Storage Provided C.F.	3,550
Top Embankment Elevation	411.0
Crest Elevation	410.0
Existing Ground Elevation	405.0
Cleanout Elevation	407.0
Bottom Elevation	405.0
Outlet Width (b)	7'
a	—
Bottom Dimension	20'x22'
Trap Depth	4'
Trap Sideslopes	2:1
Barrel Diameter	—
Riser Diameter	—

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 the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I shall engage a registered professional engineer to supervise grading, construction and provide the Howard Soil Conservation District with an [illegible] I also authorize periodic on-site inspections by the Howard Soil Conservation District."

SMR 9/3/93

8-23-93
Albert F. Edwards, P.E.
Print Name

By the Engineer:

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

SMR 9/3/93

9/3/93
Ernest L Shipman
Print Name

These plans have been reviewed for the Howard Soil Conservation District and meet the technical requirements for [illegible], soil erosion and sediment control.

9/3/93

These plans for [illegible] soil erosion and sediment control meet the requirements of the Howard Soil Conservation District.

9/3/93

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS	9-20-93 DATE
CHIEF, BUREAU OF ENGINEERING	9/21/93 DATE
CHIEF, LAND DEVELOPMENT DIVISION M.K.	9/21/93 DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT & SUBDIVISION REVIEW	9/24/93 DATE

Date	No.	Revision Description

LONGREACH
SECTION 4, AREA 3, PHASE 220
OWNER / DEVELOPER

THE HOWARD RESEARCH & DEVELOPMENT CORP.
THE ROUSE BUILDING
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044

Daft · McCune · Walker, Inc.
A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals
200 East Pennsylvania Avenue, Towson, Maryland 21286, 410 296 3333, Fax 296 4705

8/18/93
Date

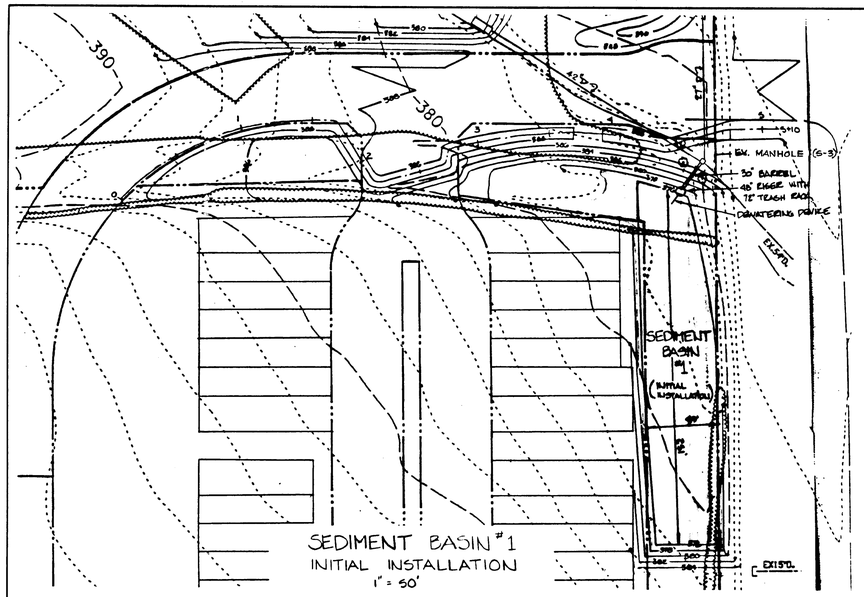
Professional Engr. No. 16580

AREA
PARCELS A,B,& C AND LOTS 89,90,91,& 92
TAX MAP 30.37 PART OF PARCEL 50
6TH ELECTION DISTRICT OF HOWARD COUNTY, MARYLAND

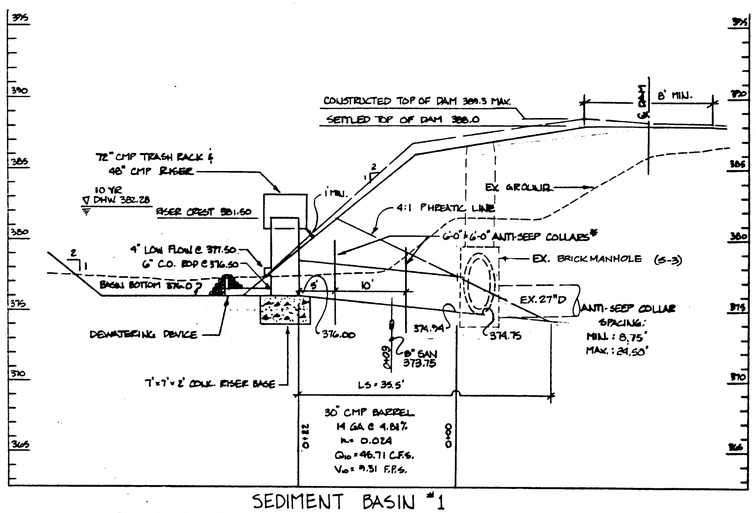
TITLE
SEDIMENT AND EROSION CONTROL PLAN

Des By	CRW	Scale	AS SHOWN	Proj. No.	89-0780
Drn By	CRW	Date	4-12-93	17 OF 20	
Chk By	JWR	Approved			

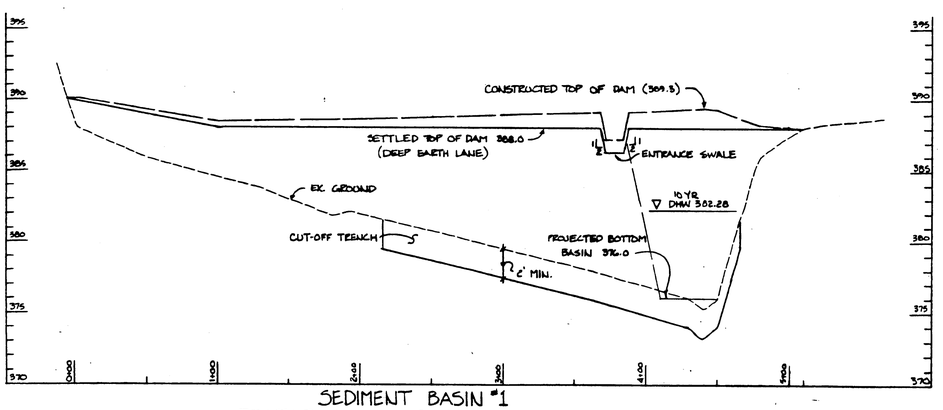
F-93-130



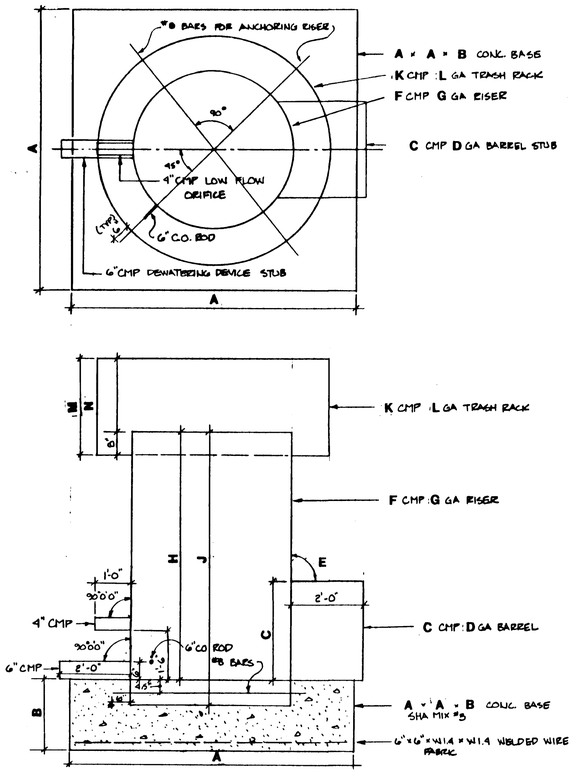
SEDIMENT BASIN #1
INITIAL INSTALLATION
1" = 50'



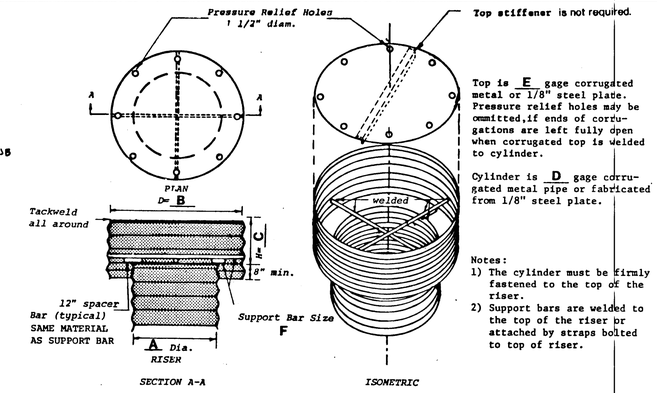
SEDIMENT BASIN #1
PROFILE ALONG CENTERLINE OF PRINCIPAL SPILLWAY
HORIZ.: 1"=10' VERT.: 1"=5'



SEDIMENT BASIN #1
PROFILE ALONG CENTERLINE OF DAM
HORIZ.: 1"=50' VERT.: 1"=5'



RISER DETAIL
NOT TO SCALE



Top is E gage corrugated metal or 1/8" steel plate. Pressure relief holes may be ommitted, if ends of corrugations are left fully open when corrugated top is welded to cylinder.

Cylinder is D gage corrugated metal pipe or fabricated from 1/8" steel plate.

Notes:
1) The cylinder must be firmly fastened to the top of the riser.
2) Support bars are welded to the top of the riser or attached by straps bolted to top of riser.

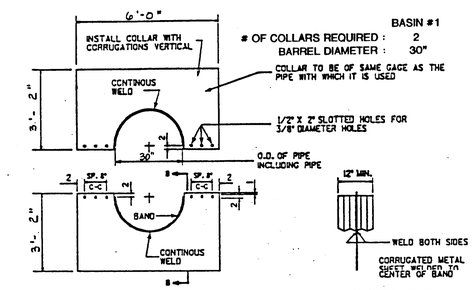
CONCENTRIC TRASH RACK AND ANTI-VORTEX DEVICE
(not to scale)

RISER CONSTRUCTION TABLE

	BASIN #1
A	7'-0"
B	2'-0"
C	30"
D	14
E	92°45'14"
F	48"
G	12
H	5'-6"
J	6'-3"
K	72"
L	12
M	29"
N	21"

CONCENTRIC TRASH RACK AND ANTI-VORTEX DEVICE CONSTRUCTION TABLE

	BASIN #1
A	48"
B	72"
C	21"
D	12
E	10
F	1 1/4" PIPE OR 1 1/4"x1 1/4"x1/4" ANGLE



BASIN #1
OF COLLARS REQUIRED : 2
BARREL DIAMETER : 30"
COLLAR TO BE OF SAME GAGE AS THE PIPE WITH WHICH IT IS USED

NOTES FOR COLLARS:

1. ALL MATERIALS TO BE IN ACCORDANCE WITH CONSTRUCTION AND CONSTRUCTION MATERIAL SPECIFICATIONS.
2. WHEN SPECIFIED ON THE PLANS, COATING OF COLLARS SHALL BE IN ACCORDANCE WITH CONSTRUCTION AND CONSTRUCTION MATERIAL SPECIFICATIONS.
3. BITUMINOUS COAT AFTER FABRICATIONS. MAINTAIN MIN. 2'-0" BETWEEN COLLARS AND PIPE JOINTS.
4. UNASSEMBLED COLLARS SHALL BE MARKED BY PAINTING OR TAGGING TO IDENTIFY MATCHING PAIRS.
5. THE LAP BETWEEN THE TWO HALF SECTIONS AND BETWEEN THE PIPE AND CONNECTING BAND SHALL CAULKED WITH ASPHALT MASTIC AT TIME OF INSTALLATION.
6. EACH COLLAR SHALL BE FURNISHED WITH TWO 1/2" DIAMETER RODS WITH STANDARD TANK LUGS FOR CONNECTING COLLARS TO PIPE.

DETAILS
CORRUGATED METAL ANTI-SEEP COLLAR
NO SCALE

BY THE DEVELOPER:

"WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION. BEFORE BEGINNING THE PROJECT, SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN ~~AS-BUILT PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION~~ ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

SEDIMENT 9/3/93

SIGNATURE OF DEVELOPER — DATE 8-27-93
Albert F. Edwards, P. E.

BY THE ENGINEER:

"CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND ~~PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN AS-BUILT PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.~~"

SEDIMENT 9/3/93

SIGNATURE OF ENGINEER — DATE 8/6/93
ERNEST I. SHEPPE III

"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."

U.S. SOIL CONSERVATION SERVICE — DATE 9/3/93

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 9/3/93

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 9-20-93
CHIEF, BUREAU OF ENGINEERING — DATE 9/21/93
CHIEF, LAND DEVELOPMENT DIVISION M.K. — DATE 9/21/93

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT & RESEARCH — DATE 9/24/93

Date	No.	Revision Description
11/30/95	1	CHANGED S-3 TO A BRICK MH (G5.03)

LONGREACH

OWNER / DEVELOPER

THE HOWARD RESEARCH & DEVELOPMENT CORP.
THE ROUSE BUILDING
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044

DMW
Daft · McCune · Walker, Inc.
A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals
200 East Pennsylvania Avenue Towson, Maryland 21286 410 296 3333 Fax 296 4705

8/18/93
Date

Professional Engr. No. 16580

AREA
PARCELS A,B,& C AND LOTS 89,90,91,& 92
TAX MAP 38,37
6TH ELECTION DISTRICT OF HOWARD COUNTY, MARYLAND

TITLE
SEDIMENT AND EROSION CONTROL PLAN BASIN #1

Des By CRW	Scale AS SHOWN	Proj. No. 89088D	
Drn By CRW	Date 4-12-93		18 OF 20
Chk By EIS	Approved		

F-93-130

Sequence of Construction

1. Obtain a grading permit.
2. Notify the Howard County Dept. of Inspection and Permits (313-1850) a minimum of 24 hours prior to the start of any construction.
3. Drain/pump existing pond. Install tree protection fence.
4. Install sediment and erosion control measures per "Utility Construction Outside Sediment Control" note, Sheet 20 of 20, for installation of 42 inch storm drain extension. Install sediment and erosion control measures for water quality pond construction.
5. Install sandbag/stone diversion, pump, and dewatering basin. Clear and grub for and install 42 inch storm drain extension. Install water quality pond.
6. Clear and grub for and install remaining sediment and erosion control measures or devices excepting Sediment Traps No. 3, 6 and 7 and earth dikes directing runoff to them.
7. Clear, grub, and strip and rough grade site. As grading below initial installation is reached install Sediment Traps No. 3, 6 and 7 and earth dikes directing runoff to them. Remove initial dikes and soils above new dike and traps.
8. Stabilize all nonactive graded surfaces with temporary seeding.
9. Install utilities. Inlets are to be blocked upon installation.
10. Repair any sediment or erosion control devices disturbed during utility construction.
11. Fine grade all road surfaces. Install curb and gutters. Apply road subbase.
12. Fine grade areas adjoining Deep Earth Lane and permanently stabilize those areas.
13. Pave road.
14. With the prior permission of the Sediment Control Inspector and the Howard County Sediment Control Division, remove sediment controls. Fine grade and stabilize these areas.

STANDARD SEDIMENT CONTROL NOTES

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

2) All vegetative and structural practices are to be installed according to the provisions of this plan and are to be in conformance with the most current "MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL", and revisions thereto.

3) Following initial soil disturbance or redisturbance, permanent or temporary stabilization shall be completed within: a) 7 calendar days for all perimeter sediment control structures, dikes, perimeter slopes and all slopes greater than 3:1, b) 14 days as to all other disturbed or graded areas on the project site.

4) All sediment traps/basins shown must be fenced and warning signs posted around their perimeter in accordance with Vol. 1, Chapter 12, of the HOWARD COUNTY DESIGN MANUAL, Storm Drainage.

5) All disturbed areas must be stabilized within the time period specified above in accordance with the 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for permanent seeding (Sec. 51), sod (Sec. 54), temporary seeding (Sec. 50) and mulching (Sec. 52). Temporary stabilization with mulch alone can only be done when recommended seeding dates do not allow for proper germination and establishment of grasses.

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

7) Site Analysis:

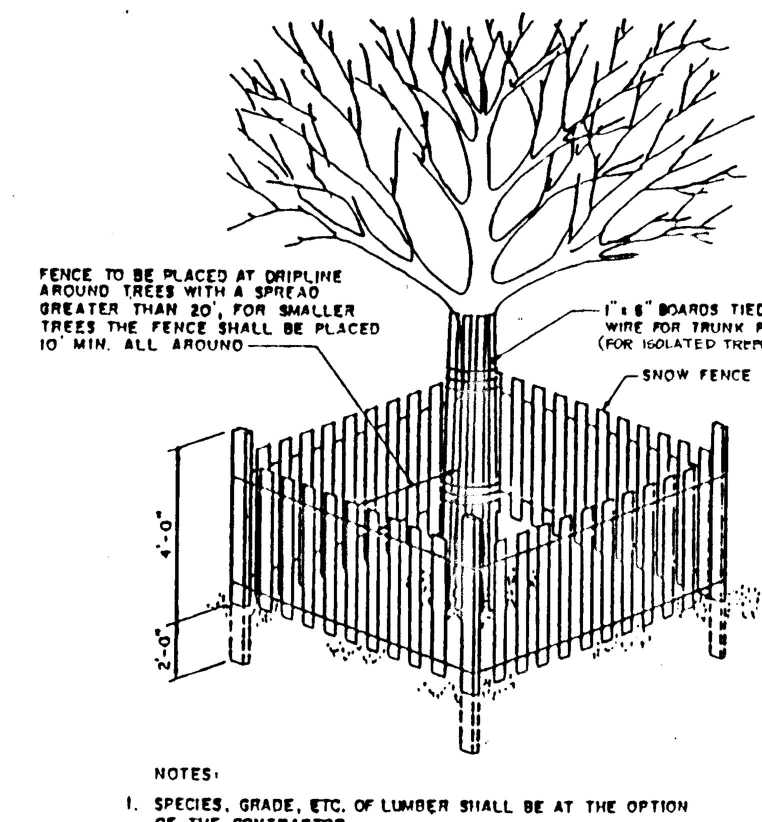
Total Area of Site	26.7	Acres ±
Area Disturbed	18.3	Acres ±
Area to be roofed or paved	0.6	Acres ±
Area to be vegetatively stabilized	27.7	Acres ±
Total Cut	104,350	Cu. Yds. ±
Total Fill	104,350	Cu. Yds. ±
Offsite waste/borrow area location	NA	

8) Any sediment control practice which is disturbed by grading activity for placement of utilities must be repaired on the same day of disturbance.

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

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

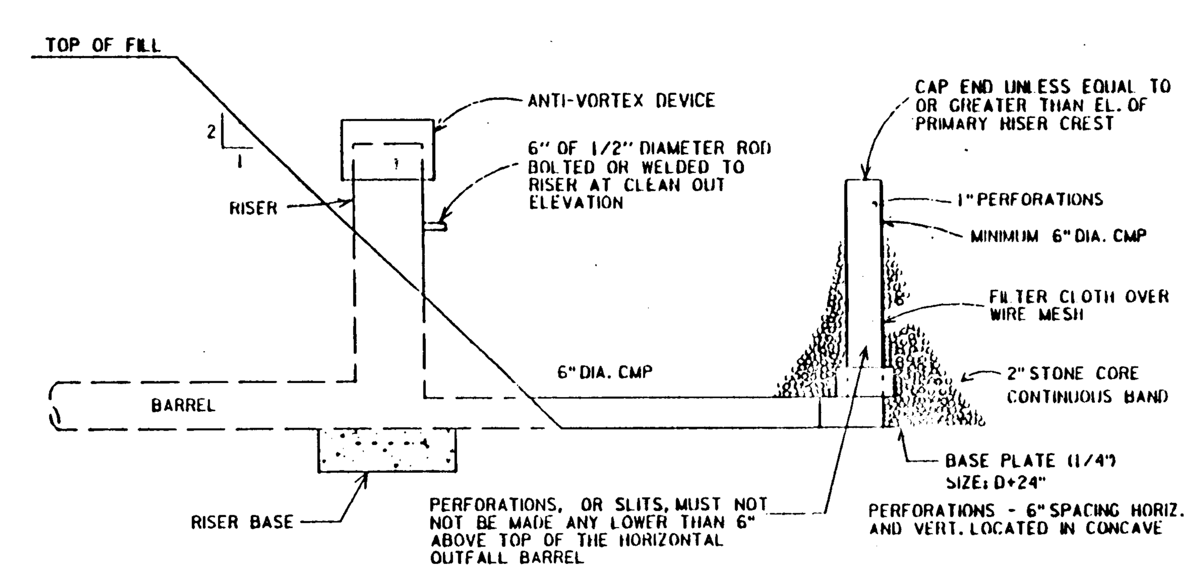
11) Trenches for the construction of utilities is limited to three pipe lengths or that which can be back filled and stabilized within one working day, whichever is shorter.



NOTES:

1. SPECIES, GRADE, ETC. OF LUMBER SHALL BE AT THE OPTION OF THE CONTRACTOR.
2. NO CONSTRUCTION MATERIALS, EQUIPMENT OR EXCAVATED EARTH SHALL BE ALLOWED WITHIN THE PROTECTED AREA.

TREE PROTECTION



CONSTRUCTION SPECIFICATIONS

1. DEWATERING DEVICE SHALL BE 6" MINIMUM DIAMETER METAL PIPE EXTENDING INTO BASIN AREA.
2. PIPE SHALL BE WELDED OR CEMENTED TO RISER AND HAVE A 6" MINIMUM DIAMETER PERFORATED METAL PIPE WELDED AT END PERPENDICULAR TO BARREL WITH A METAL CAP WELDED ONTO END OF PIPE UNLESS ABOVE EL. OF PRIMARY RISER CREST.
3. PIPE SHALL BE SECURELY WRAPPED WITH APPROVED FILTER CLOTH AND COVERED ON ALL SIDES WITH NO. 2A STONE TO THE CLEANOUT ELEV.
4. CLEAN OUT ELEVATION FOR BASIN WILL BE DESIGNATED BY A 6" PIECE OF 1/2" DIAMETER ROD BOLTED OF WELDED TO RISER AT THE PROPER ELEVATION. ROD SHOULD BE CLEARLY VISIBLE FROM TOP OF DAM. PLEASE NOTE THAT THE 4" CLEAN OUT HOLE HAS BEEN ELIMINATED.
5. SEDIMENT SHALL BE REMOVED AND BASIN RESTORED TO ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO THE CLEAN-OUT ELEVATION. REMOVED SEDIMENT SHALL BE DEPOSITED IN A SUITABLE AREA AND IN SUCH A MANNER THAT IT WILL NOT ERODE.
6. THE STRUCTURE WILL BE INSPECTED AFTER EACH RAIN AND REPAIRS MADE AS NEEDED.
7. CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT IN SUCH A MANNER THAT EROSION AND WATER POLLUTION IS MINIMIZED.

U.S. DEPT. OF AGRICULTURE SOIL CONSERVATION SERVICE COLLEGE PARK, MD. (SBD-1)

SEDIMENT BASIN DEWATERING DEVICE

Site Preparation

Areas under the embankment shall be cleared, grubbed, and stripped of topsoil to remove trees, vegetation, roots or other objectionable material. In order to facilitate clean-out and restoration, the pool area (measured at the top of the pipe spillway) will be cleared of all brush, trees, and other objectionable materials.

Cut-Off Trench

A cut-off trench shall be excavated along the centerline of earth fill embankments. The minimum depth shall be 2 feet. The cut-off trench shall extend up both abutments to the riser crest elevation. The minimum bottom width shall be 4 feet, but wide enough to permit operation of excavation and compaction equipment. The side slopes shall be no steeper than 1:1. Compaction requirements shall be the same as those for embankment. The trench shall be dewatered during the backfilling-compaction operations.

Embankment

The fill material shall be taken from approved areas shown on the plans. It shall be clean mineral soil free of roots, woody vegetation, oversized stones, rocks, or other objectionable material. Relatively pervious materials such as sand or gravel (Unified Soil Classes GW, GP, SW and SP) shall not be placed in the embankment. Areas on which fill is to be placed shall be scarified prior to placement of fill. The fill material shall contain sufficient moisture so that it can be formed by hand into a ball without crumbling. If water can be squeezed out of the ball, it is too wet for proper compaction. Fill material shall be placed 6 inch to 8 inch thick continuous layers over the entire length of the fill. Compaction shall be obtained by routing and hauling the construction equipment over the fill so that the entire surface of each layer of the fill is traversed by at least one wheel or tread track of the equipment or by the use of a compactor. The embankment shall be constructed to an elevation 10 percent higher than the design height to allow for settlement.

Pipe Spillways

The riser shall be securely attached to the barrel or barrel stub by welding the full circumference making a watertight structural connection. The barrel stub must be attached to the riser at the same percent (angle) of grade as the outlet conduit. The connection between the riser and the riser base shall be watertight. All connections between barrel sections must be achieved by approved watertight band assemblies. (See page 18.22 for details.) The barrel and riser shall be placed on a firm, smooth foundation of impervious soil. Pervious materials such as sand, gravel, or crushed stone shall not be used as backfill around the pipe or anti-seep collars. The fill material around the pipe spillway shall be placed in 4 inch layers and compacted under and around the pipe to at least the same density as the adjacent embankment.

A minimum depth of 2 feet of hand compacted backfill shall be placed over the pipe spillway before crossing it with construction equipment. Steel base plates on risers shall have at least 2-1/2 feet of compacted earth, stone or gravel placed over it to prevent flotation.

Emergency Spillway

The emergency spillway shall be installed in undisturbed ground. The achievement of planned elevations, grades, design width, entrance and exit channel slopes are critical to the successful operation of the emergency spillway and must be constructed within a tolerance of ±0.2 feet.

Vegetative Treatment

Stabilize the embankment and emergency spillway in accordance with the appropriate vegetative Standard and Specifications immediately following construction. In no case shall the embankment remain unstabilized for more than seven days.

Erosion and Pollution Control

Construction operations shall be carried out in such a manner that erosion and water pollution will be minimized. State and local laws shall be complied with concerning pollution abatement.

Safety

State and local requirements shall be met concerning fencing and signs, warning the public of hazards of soft sediment and floodwater.

Maintenance

1. Repair all damages caused by soil erosion and construction equipment at or before the end of each working day.
2. Sediment shall be removed from the basin when it reaches the specified distance below the top of the riser. This sediment shall be placed in such a manner that it will not erode from the site. The sediment shall not be deposited downstream from the embankment, adjacent to a stream or floodplain.

Final Disposal

When temporary structures have served their intended purpose and the contributing drainage areas has been properly stabilized, the embankment and resulting sediment deposits are to be leveled or otherwise disposed of in accordance with the approved sediment control plan. The proposed use of a sediment basin site will often dictate final disposition of the basin and any sediment contained therein. If the site is scheduled for future construction, then the basin material and trapped sediments must be removed, safely disposed of, and backfilled with a structural fill. When the basin area is to remain open space, the pond may be pumped dry, graded and back filled.

SEDIMENT BASIN CONSTRUCTION SPECIFICATIONS

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 THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE ~~THE HOWARD SOIL CONSERVATION DISTRICT WITH AN ... WITHIN 30 DAYS OF ...~~ ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT." JWR 9/3/93

[signature] 8-23-93

SIGNATURE OF DEVELOPER — DATE

Albert F. Edwards, P.E.

BY THE ENGINEER:

"I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND ~~PROVIDE THE HOWARD SOIL CONSERVATION ... CERTIFICATION~~." JWR 9/3/93

[signature] 8/18/93

SIGNATURE OF ENGINEER — DATE

ERNEST I. SHEPPE III

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. L. Warfield / JWR 9/3/93

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.

John R. Robertson 9/3/93

HOWARD SOIL CONSERVATION DISTRICT — DATE

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS

[signature] 9-20-93 — CHIEF BUREAU OF HIGHWAYS — DATE

[signature] 9/21/93 — CHIEF BUREAU OF ENGINEERING — DATE

[signature] 9/21/93 — CHIEF LAND DEVELOPMENT DIVISION M.K. — DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

Gina Tremmanyi 9/24/93 — CHIEF, DIVISION OF LAND DEVELOPMENT & RESEARCH JA — DATE

Date	No	Revision Description

LONGREACH

SECTION 4, AREA 3, PHASE 220

OWNER / DEVELOPER

THE HOWARD RESEARCH & DEVELOPMENT CORP.
THE ROUSE BUILDING
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044

Daft · McCune · Walker, Inc.
A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals
200 East Pennsylvania Avenue, Towson, Maryland 21286, 410 296 3333, Fax 296 4705

8/18/93 Date

Professional Engr. No. 16580

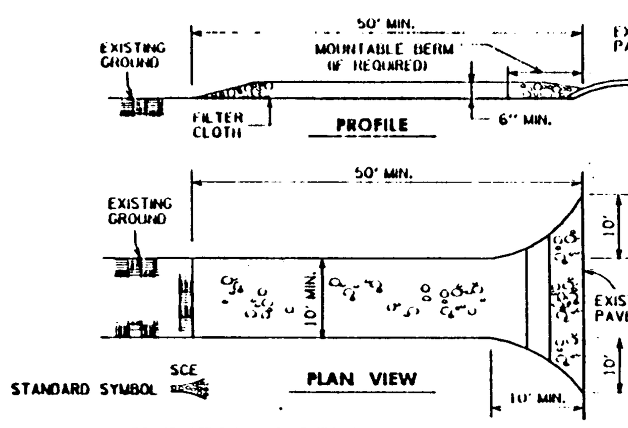
AREA: PARCELS A,B,& C AND LOTS 89,90,91,& 92
TAX MAP 36,37 — PART OF PARCEL 60
6TH ELECTION DISTRICT OF HOWARD COUNTY, MARYLAND

TITLE: SEDIMENT AND EROSION CONTROL PLAN

Des By CRW	Scale AS SHOWN	Proj. No. 89088D
Drn By CRW	Date 4-12-93	19 OF 20
Chk By JS	Approved	

F-93-130

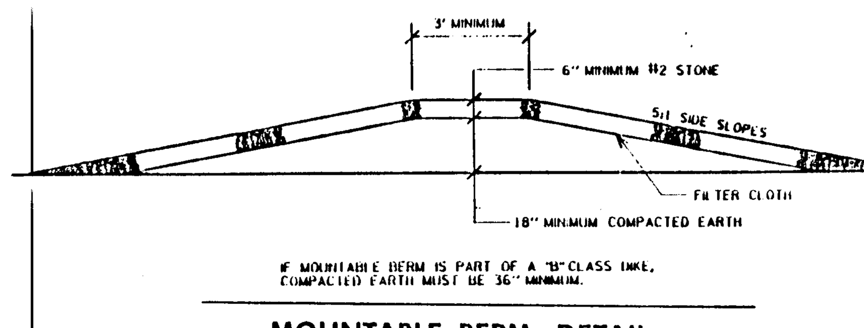
100



CONSTRUCTION SPECIFICATIONS:

1. STONE SIZE - USE 2" STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
2. LENGTH - AS REQUIRED, BUT NOT LESS THAN 50 FEET (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30 FOOT MINIMUM LENGTH WOULD APPLY).
3. THICKNESS - NOT LESS THAN SIX (6) INCHES.
4. WIDTH - TEN (10) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS.
5. 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.
6. SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
7. 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.
8. 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.
9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

STABILIZED CONSTRUCTION ENTRANCE

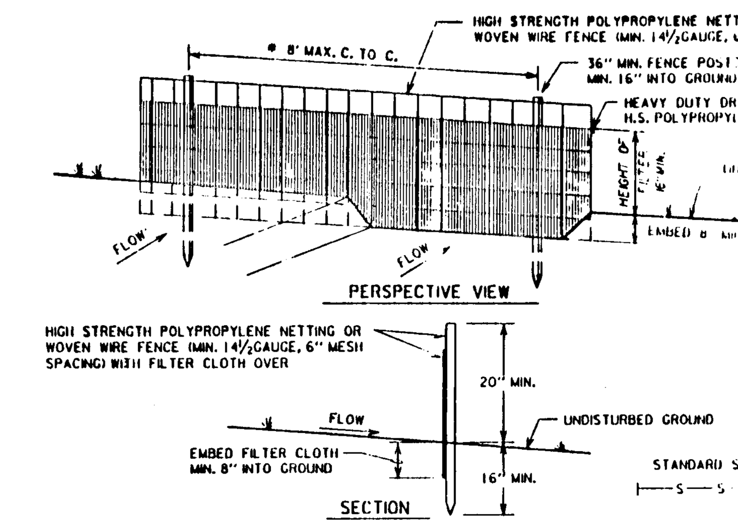


IF MOUNTABLE BERM IS PART OF A "B" CLASS DIKE, COMPACTED EARTH MUST BE 36" MINIMUM.

MOUNTABLE BERM DETAIL

1. EXCAVATED TRENCH MATERIAL SHALL BE PLACED ON UPSTREAM SIDE OF TRENCH.
2. IMMEDIATELY FOLLOWING PIPE INSTALLATION, THE TRENCH SHALL BE BACKFILLED, COMPACTED AND IMMEDIATELY STABILIZED (MULCHED, SEEDED, AND/OR SODDED MECHANICAL STABILIZATION) AT THE END OF EACH WORK DAY.
3. SILT FENCE SHALL BE PLACED IMMEDIATELY DOWN STREAM OF ANY DISTURBED AREA INTENDED TO REMAIN DISTURBED LONGER THAN ONE (1) WORKING DAY. (SILT FENCE AS PER SCS STANDARD DRAWING - SF-1.)
4. THE CONTRACTOR SHALL DISTURB AND OPEN TRENCH THE MINIMUM PRACTICAL AREA REQUIRED TO ACCOMPLISH THE WORK DESIGNATED FOR EACH DAY.
5. ALL SEDIMENT AND EROSION CONTROL PRACTICES AND VEGETATIVE STABILIZATION SHALL BE IN ACCORDANCE WITH THE "STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL IN DEVELOPING AREAS."

UTILITY CONSTRUCTION OUTSIDE SEDIMENT CONTROL



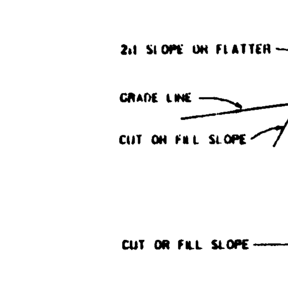
CONSTRUCTION NOTES FOR FABRICATED SILT FENCE

1. HIGH STRENGTH POLYPROPYLENE NETTING OR WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES
2. FILTER CLOTH TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER, THEY SHALL BE OVERLAPPED BY SIX INCHES AND FOLDED.
4. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE

POSTS: STEEL EITHER T OR U TYPE OR 1 1/4"x1 1/4" MIN. (ACTUAL) HARDWOOD
FENCE: WOVEN WIRE, 14 GAUGE 6" MAX. MESH OPENING OR HIGH STRENGTH POLYPROPYLENE NETTING
FILTER CLOTH: FILTER X, MIRAFI 100X, STABILINKA OR APPROVED EQUAL
PREFABRICATED UNIT: GEOFAB, ENVIROFENCE, OR APPROVED EQUAL

* WHEN DOUBLE-STAKED SILT FENCE IS SHOWN ON PLAN, THE MAXIMUM FENCE POST SPACING SHALL BE 4' (C. TO C.).

SILT FENCE



	DIKE A (5ac. OR LESS)	DIKE B (5-10ac.)
a-DIKE HEIGHT	18"	36"
b-DIKE WIDTH	24"	36"
c-FLOW WIDTH	4'	6'
d-FLOW DEPTH	8"	15"

STANDARD SYMBOL A-2 / B-3

CONSTRUCTION SPECIFICATIONS

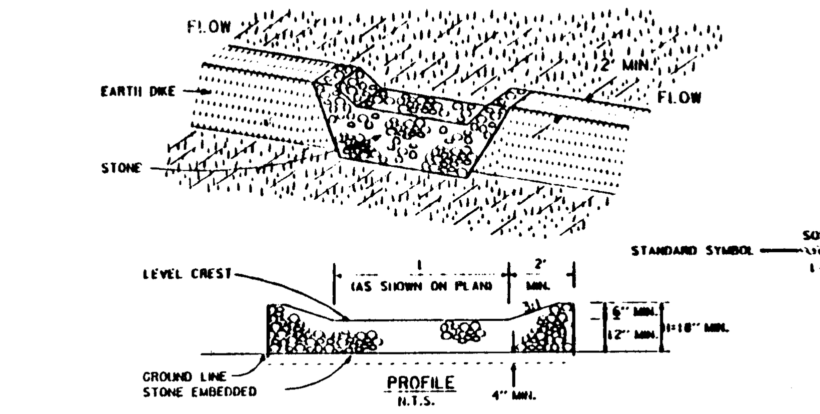
1. ALL DIKES SHALL BE COMPACTED BY EARTH-MOVING EQUIPMENT.
2. ALL DIKES SHALL HAVE POSITIVE DRAINAGE TO AN OUTLET.
3. TOP WIDTH MAY BE WIDER AND SIDE SLOPES MAY BE FLATTER IF DESIRED TO FACILITATE CROSSING BY CONSTRUCTION TRAFFIC.
4. FIELD LOCATION SHOULD BE ADJUSTED AS NEEDED TO UTILIZE A STABILIZED SAFE OUTLET.
5. 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 DIKE CHANNEL OR THE DRAINAGE AREA ABOVE THE DIKE ARE NOT ADEQUATELY STABILIZED.
6. 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 GRADE	DIKE A	DIKE B
1	0.5-3.0%	SEED AND STRAW MULCH	SEED AND STRAW MULCH
2	3.1-5.0%	SEED AND STRAW MULCH	SEED USING JUTE, OR EXCELSIOR; SOD; 2" STONE
3	5.1-8.0%	SEED WITH JUTE, OR SOD; 2" STONE	LINED RIP-RAP 4"-8"
4	8.1-20%	LINED RIP-RAP 4"-8"	ENGINEERING DESIGN

A. STONE TO BE 2" STONE, OR RECYCLED CONCRETE EQUIVALENT, IN A LAYER AT LEAST 3" IN THICKNESS AND BE PRESSED INTO THE SOIL WITH CONSTRUCTION EQUIPMENT.
B. RIP-RAP TO BE 4"-8" IN A LAYER AT LEAST 8" 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.

EARTH DIKE

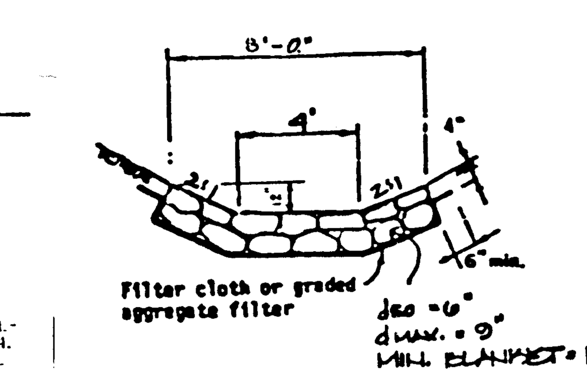


CONSTRUCTION SPECIFICATIONS

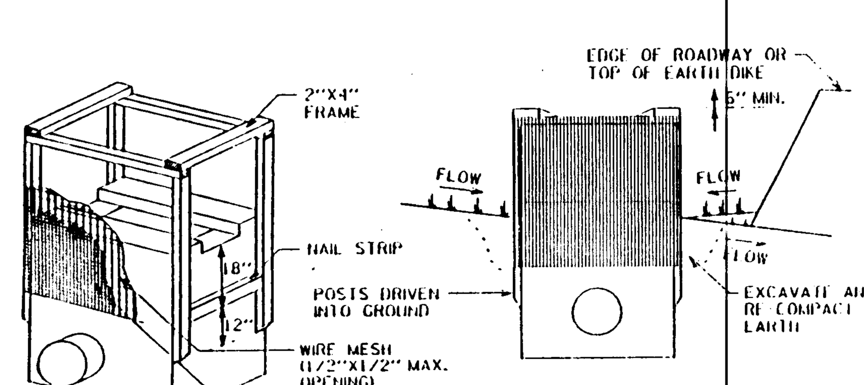
1. THE STONE SHALL BE CRUSHED STONE. GRAVEL MAY BE USED IF CRUSHED STONE IS NOT AVAILABLE. THE STONE SHALL MEET MSHA SIZE NO.2 OR AASHTO DESIGNATION M43 SIZE NO.2 OR 24.
2. THE CREST OF THE STONE DIKE SHALL BE LEAST SIX INCHES LOWER THAN THE LOWEST ELEVATION OF THE TOP OF THE EARTH DIKE AND SHALL BE LEVEL.
3. THE STONE OUTLET STRUCTURE SHALL BE EMBEDDED INTO THE SOIL A MINIMUM OF FOUR INCHES.
4. THE MINIMUM LENGTH, IN FEET, OF THE CREST OF THE STONE OUTLET STRUCTURE SHALL BE EQUAL TO SIX TIMES THE NUMBER OF ACRES OF CONTRIBUTING DRAINAGE AREA.
5. THE STONE OUTLET STRUCTURE SHALL BE INSPECTED AFTER EACH RAIN, AND THE STONE BE REPLACED WHEN THE STRUCTURE CEASES TO FUNCTION AS INTENDED DUE TO SILT ACCUMULATION AMONG THE STONE, WASHOUT, CONSTRUCTION TRAFFIC DAMAGE, ETC.

STONE OUTLET STRUCTURE

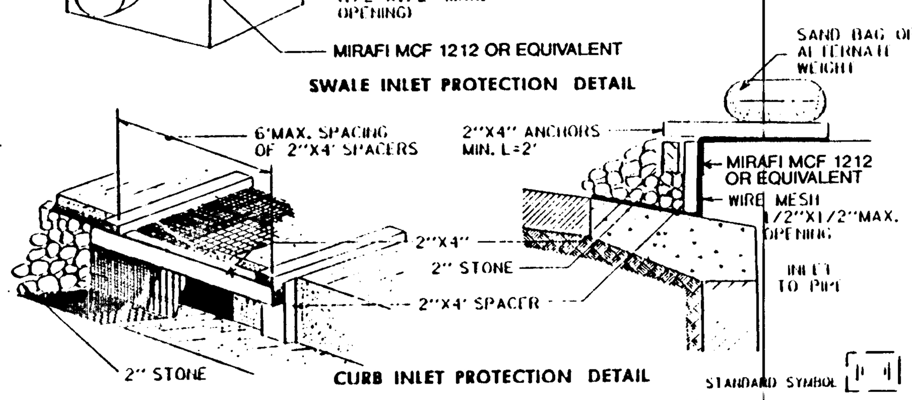
Rip-rap slope protection will be required at inflow points to sediment trap(s) or basin(s)



RIP-RAP SLOPE PROTECTION



SWALE INLET PROTECTION DETAIL



CURB INLET PROTECTION DETAIL

STANDARD SYMBOL

CONSTRUCTION SPECIFICATIONS

I. MATERIALS
A. WOODEN FRAME IS TO BE CONSTRUCTED OF 2" X 4" CONSTRUCTION GRADE LUMBER.
B. WIRE MESH MUST BE OF SUFFICIENT STRENGTH TO SUPPORT FILTER FABRIC, AND STONE FOR CURB INLETS, WITH WATER FULLY IMPOUNDED AGAINST IT.
C. FILTER CLOTH MUST BE OF A TYPE APPROVED FOR THIS PURPOSE; RESISTANT TO SUNLIGHT WITH SIEVE SIZE, EOS, 40-85, TO ALLOW SUFFICIENT PASSAGE OF WATER AND REMOVAL OF SEDIMENT.
D. STONE IS TO BE 2" IN SIZE AND CLEAN, SINCE FINES WOULD CLOG THE CLOTH.

II. PROCEDURE
A. A SWALE, DITCHLINE, OR YARD INLET PROTECTION.
1. EXCAVATE COMPLETELY AROUND INLET TO A DEPTH OF 18" BELOW NOTCH ELEVATION.
2. DRIVE 2" X 4" POST 1' INTO GROUND AT FOUR CORNERS OF INLET. PLACE NAIL STRIPS BETWEEN POSTS ON ENDS OF INLET. ASSEMBLE TOP PORTION OF 2" X 4" FRAME USING OVERLAP JOINT SHOWN. TOP OF FRAME (WEIR) MUST BE 6" BELOW EDGE OF ROADWAY ADJACENT TO INLET.
3. STRETCH WIRE MESH TIGHTLY AROUND FRAME AND FASTEN SECURELY. ENDS MUST MEET AT POST.
4. STRETCH FILTER CLOTH TIGHTLY OVER WIRE MESH. THE CLOTH MUST EXTEND FROM TOP OF FRAME TO 18" BELOW INLET NOTCH ELEVATION. FASTEN SECURELY TO FRAME. ENDS MUST MEET AT POST, BE OVERLAPPED, AND FOLDED, THEN FASTENED DOWN.
5. BACKFILL AROUND INLET IN COMPACTED 6" LAYERS UNTIL LAYER OF EARTH IS EVEN WITH NOTCH ELEVATION ON ENDS AND TOP ELEVATION ON SIDES.
6. IF INLET IS NOT IN A LOW POINT, CONSTRUCT A COMPACTED EARTH DIKE IN THE DITCHLINE BELOW IT. THE TOP OF THIS DIKE IS TO BE AT LEAST 6" HIGHER THAN THE TOP OF THE FRAME (WEIR).
7. THIS STRUCTURE MUST BE INSPECTED FREQUENTLY AND THE FILTER FABRIC REPLACED WHEN CLOGGED.

B. CURB INLET PROTECTION.
1. ATTACH A CONTINUOUS PIECE OF WIRE MESH (30" MINIMUM WIDTH BY THROAT LENGTH PLUS 4') TO THE 2" X 4" WEIR (MEASURING THROAT LENGTH PLUS 2') AS SHOWN ON THE STANDARD DRAWING.
2. PLACE A PIECE OF APPROVED FILTER CLOTH (40-85 SIEVE) OF THE SAME DIMENSIONS AS THE WIRE MESH OVER THE WIRE MESH AND SECURELY ATTACH TO THE 2" X 4" WEIR.
3. SECURELY NAIL THE 2" X 4" WEIR TO 9" LONG VERTICAL SPACERS TO BE LOCATED BETWEEN THE WEIR AND INLET FACE (MAXIMUM 6' APART).
4. PLACE THE ASSEMBLY AGAINST THE INLET THROAT AND NAIL ANCHORS (MINIMUM 2' LENGTHS OF 2" X 4") TO THE TOP OF THE WEIR AT SPACER LOCATIONS. THESE 2" X 4" ANCHORS SHALL EXTEND ACROSS THE INLET TOP AND BE HELD IN PLACE BY SANDBAGS OR ALTERNATE WEIGHT.
5. THE ASSEMBLY SHALL BE PLACED SO THAT THE END SPACERS ARE A MINIMUM 1' BEYOND BOTH ENDS OF THE THROAT OPENING.
6. FORM THE WIRE MESH AND FILTER CLOTH TO THE CONCRETE GUTTER AGAINST THE FACE OF CURB ON BOTH SIDES OF THE INLET. PLACE CLEAN 2" STONE OVER THE WIRE MESH AND FILTER FABRIC IN SUCH MANNER TO PREVENT WATER FROM ENTERING THE INLET UNDER OR AROUND THE FILTER CLOTH.
7. THIS TYPE OF PROTECTION MUST BE INSPECTED FREQUENTLY AND THE FILTER CLOTH AND STONE REPLACED WHEN CLOGGED WITH SEDIMENT.
8. ASSURE THAT STORM FLOW DOES NOT BYPASS INLET BY INSTALLING TEMPORARY EARTH OR ASPHALT DIKES DIRECTING FLOW INTO INLET.

INLET PROTECTION

The contractor is required to install inlet protection on all storm drain inlets with the exception of the following:

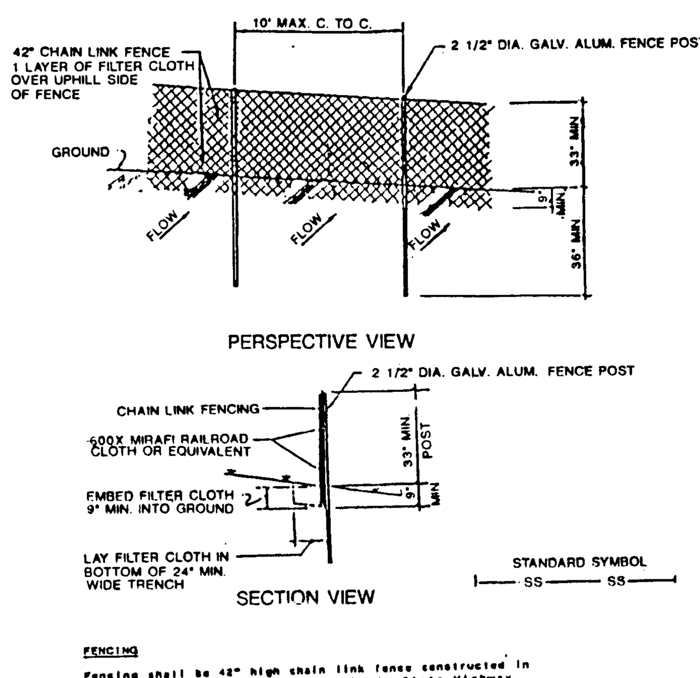
*1. Any inlet outfalling directly into a sediment trapping device.
2. Inlets on private or public paved roadways open to the public.

All inlet protection will be installed as directed by the inspector in accordance with the 1983 Maryland Standards and Specifications for Soil Erosion and Sediment Control, Page 21.01 (or as may be amended.)

The removal of any inlet protection devices will require approval from the inspector.

* Storm drains are to be flushed prior to removal of trapping device.

INLET BLOCKING DETAIL

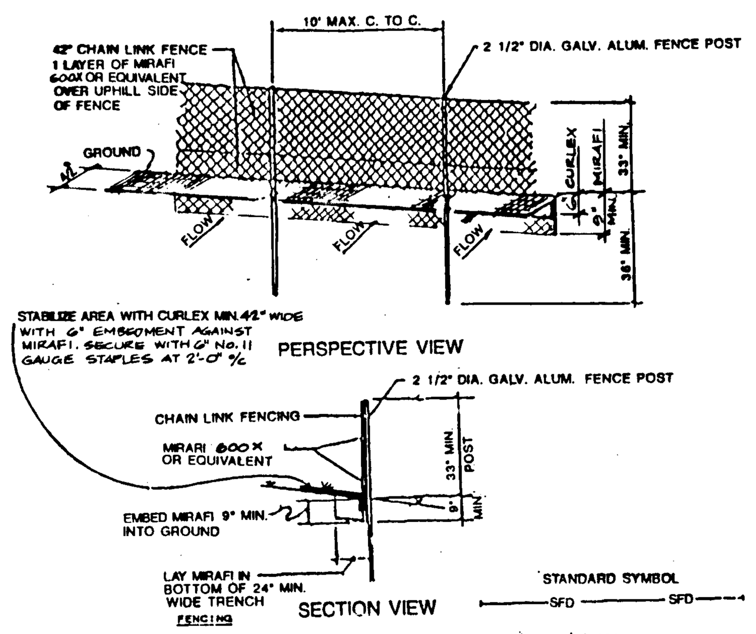


FENCING

Fencing shall be 42" high chain link fence constructed in accordance with the latest Maryland State Highway Administration Standard Details 690.01 and 690.02. The specifications for a 6'-0" fence shall be used, substituting 42" fabric & 70" posts. Posts shall be placed without concrete embedment.

1. CHAIN LINK FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH TIES OR STAPLES.
2. FILTER CLOTH TO BE FASTENED SECURELY TO CHAIN LINK FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY SIX INCHES AND FOLDED.
4. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN BULGES DEVELOP IN THE SILT FENCE.

SUPER SILT FENCE

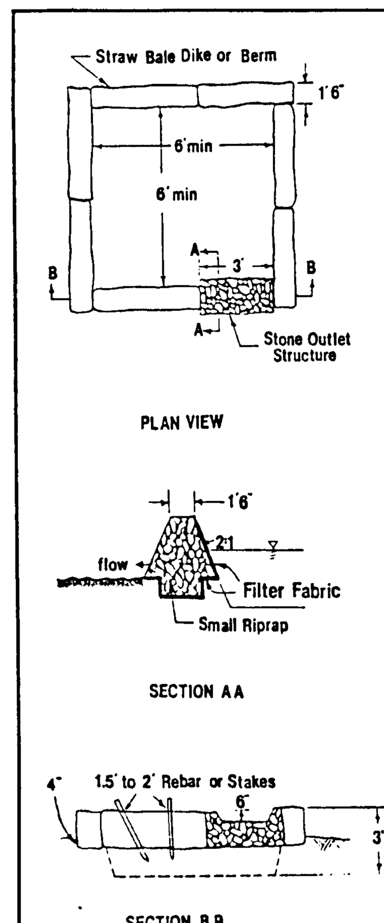


FENCING

Fencing shall be 42" high chain constructed in accordance with the latest Maryland State Highway Administration Standard Details 690.01 and 690.02. The specifications for a 6'-0" fence shall be used, substituting 42" fabric & 70" posts. Posts shall be placed without concrete embedment.

1. CHAIN LINK FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES.
2. DIVERSION CLOTH TO BE FASTENED SECURELY TO CHAIN LINK FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION.
3. WHEN TWO SECTIONS OF DIVERSION CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY SIX INCHES AND FOLDED.
4. MAINTENANCE SHALL BE PERFORMED AS NEEDED.
5. IF SLOPE GRADIENT ALONG FLOW PATH IS 8% OR GREATER (MAX. OF 20%) CURLEX IS TO BE REPLACED WITH RIPRAP 4" TO 8".
6. MAXIMUM DRAINAGE AREA 5ACRES.

SUPER FENCE DIVERSION



I. Description

The work shall consist of the construction of a dewatering basin for the purpose of receiving sediment-laden water pumped from a construction site to allow filtration before the water re-enters the waterway.

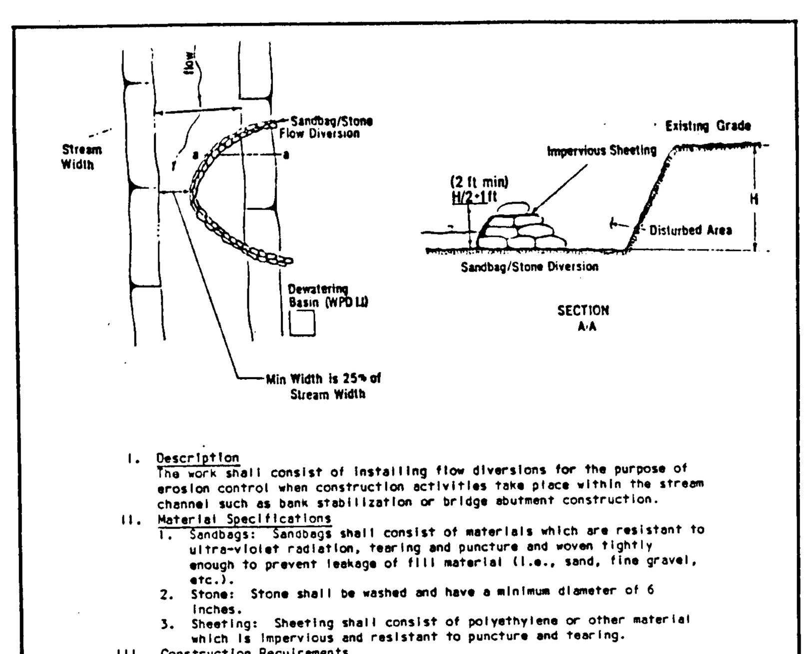
II. Material Specifications

1. Riprap: Riprap shall consist of 4-8 inch washed stone or gravel.
2. Filter Fabric: The filter cloth shall be a woven or nonwoven fabric consisting only of continuous chain polymeric filaments or yarns of polyester. The fabric shall be inert to commonly encountered chemicals, hydro-carbons, mildew, and rot resistant. No. 6 stone (AASHTO 57) may be used on the inner-face for filtering instead of fabric.
3. Strawbales: Strawbales shall meet the criteria as specified in the Maryland Standards and Specifications for Soil Erosion and Sediment Control.

III. Construction Requirements

1. The contractor shall install all sediment and erosion control devices as the first order of business.
2. Excavated materials shall be stored such that sediments are prevented from entering the waterway; i.e., sediment perimeter controls may be necessary.
3. Excavated subsoil and topsoil shall be kept separate and replaced in their natural order.
4. Any dewatering of the construction area shall be filtered through a dewatering basin prior to entering the waterway.
5. The dewatering basin shall be excavated to a minimum depth of 3 feet.
6. Once the dewatering basin becomes filled to 1/2 of the excavated depth, accumulated sediment shall be removed and disposed of in a SCD approved disposal area outside the 100-year floodplain unless otherwise approved on the plans by the WRA.
7. Sediment control devices are to remain in place until all disturbed areas are stabilized and the inspecting authority approves their removal. All ground contours shall be returned to their original condition unless specifically approved otherwise by the Administration.

WATER RESOURCES ADMINISTRATION	Dewatering Basins	Approved On 1-24-86 / Chief, Waterway Permits	WPD 1.1

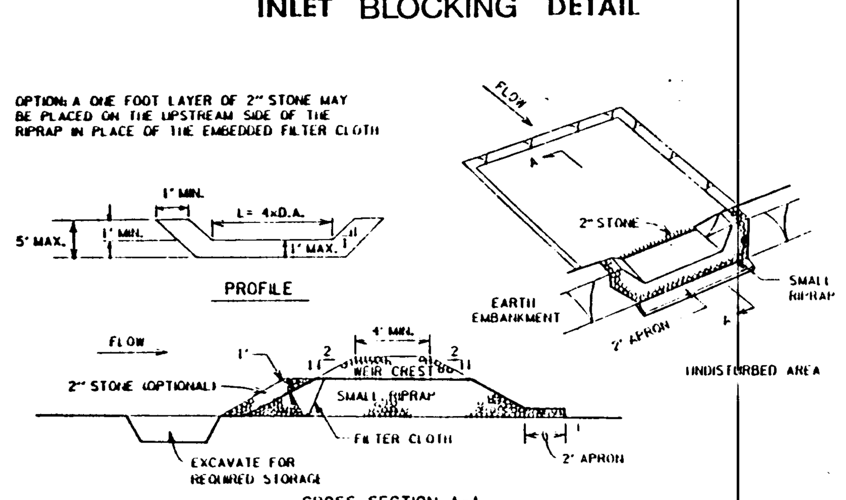


I. Description
The work shall consist of installing flow diversions for the purpose of erosion control when construction activities take place within the stream channel such as bank stabilization or bridge abutment construction.

II. Material Specifications
1. Sandbags: Sandbags shall consist of materials which are resistant to ultra-violet radiation, tearing and puncture and woven tightly enough to prevent leakage of fill material (i.e., sand, fine gravel, etc.).
2. Stone: Stone shall be washed and have a minimum diameter of 6 inches.
3. Sheeting: Sheeting shall consist of polyethylene or other material which is impervious and resistant to puncture and tearing.

III. Construction Requirements
1. All erosion and sediment control devices shall be installed as the first order of work.
2. The diversion structure shall be installed from upstream to downstream.
3. The height of the diversion structure shall be one half the distance from stream bed to stream bank plus one foot, as indicated on the cross-section view.
4. All excavated materials shall be disposed of in a SCD approved disposal area outside the 100-year floodplain unless otherwise approved on the plans by the WRA.
5. All dewatering of the construction area shall be pumped to a dewatering basin prior to re-entering the stream.
6. Sheeting shall be overlapped such that the upstream portion covers the downstream portion with at least an 18-inch overlap.
7. Sediment control devices are to remain in place until all disturbed areas are stabilized in accordance with an approved sediment and erosion control plan and the inspecting authority approves their removal.

WATER RESOURCES ADMINISTRATION	Sandbag/Stone Diversion	Approved On 1/24/86 / Chief, Waterway Permits	WPD 2.3



CONSTRUCTION SPECIFICATIONS FOR ST-V

1. AREA UNDER EMBANKMENT SHALL BE CLEARED, GRUBBED AND STRIPPED OF ANY VEGETATION AND ROOT MAT. THE POOL AREA SHALL BE CLEARED.
2. 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.
3. ALL CUT AND FILL SLOPES SHALL BE 2:1 OR FLATTER.
4. THE STONE USED IN THE OUTLET SHALL BE SMALL RIPRAP 4"-8" ALONG WITH A 1' THICKNESS OF 2" AGGREGATE PLACED ON THE UPGRADE SIDE ON THE SMALL RIPRAP OR EMBEDDED FILTER CLOTH IN THE RIPRAP.
5. SEDIMENT SHALL BE REMOVED AND TRAP RESTORED TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO ONE HALF THE DESIGN DEPTH OF THE TRAP.
6. THE STRUCTURE SHALL BE INSPECTED AFTER EACH RAIN AND REPAIRS MADE AS NEEDED.
7. CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT IN SUCH MANNER THAT EROSION AND WATER POLLUTION IS MINIMIZED.
8. THE STRUCTURE SHALL BE REMOVED AND THE AREA STABILIZED WHEN THE DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.

STONE OUTLET SEDIMENT TRAP

TEMPORARY SEEDING NOTES

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

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

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

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

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

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

PERMANENT SEEDING NOTES

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

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

Soil Amendments: In lieu of soil test recommendations, use one of the following schedules:
1) Preferred -- Apply 2 tons per acres dolomitic limestone (92 lbs/1000 sq. ft.) and 600 lbs per acre 10-10-10 fertilizer (14 lbs/1000 sq. ft.) before seeding. Harrow or disk into upper three inches of soil. At time of seeding, apply 400 lbs per acre 30-0-0 ureaform fertilizer (9 lbs/1000 sq. ft.)
2) Acceptable -- Apply 2 tons per acre dolomitic limestone (92 lbs/1000 sq. ft.) and 1000 lbs per acre 10-10-10 fertilizer (23 lbs/1000 sq. ft.) before seeding. Harrow of disk into upper three inches of soil.

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

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

Maintenance -- Inspect all seeding areas and make needed repairs, replacements and reseedings.

DUST CONTROL
SPECIFICATIONS

Temporary Methods:

A. Mulches - See standards for critical area stabilization with mulches only. Chemical or wood cellulose fiber binders may be used instead of asphalt to bind mulch material.

B. Vegetative Cover - See standards for temporary vegetative cover.

C. Spray-on Adhesives - On mineral soils (not effective on muck soils). Keep traffic off these areas.

	Water Dilution	Type of Nozzle	Apply Gallons/Ac.
Anionic asphalt emulsion	7:1	Coarse Spray	1,200
Latex emulsion	12½:1	Fine Spray	235
Resin-in-water emulsion	4:1	Fine Spray	300

D. Tillage - To roughen surface and bring clods to the surface. This is an emergency measure which should be used before soil blowing starts. Begin plowing on windward side of site. Chisel-type plows spaced about 12" apart, spring-toothed harrows, and similar plows are examples of equipment which may produce the desired effect.

E. Irrigation - This is generally done as an emergency treatment. Site is sprinkled with water until the surface is moist. Repeat as needed.

F. Barriers - Solid board fences, snow fences, burlap fences, crate walls, bales of hay and similar material can be used to control air currents and soil blowing. Barriers placed at right angles to prevailing currents at intervals of about 10 times their height are effective in controlling soil blowing.

G. Calcium Chloride - Apply at rate that will keep surface moist. May need retreatment.

Permanent Methods:

A. Permanent Vegetation - See standards for permanent vegetative cover, and permanent stabilization with sod. Existing trees or large shrubs may afford valuable protection if left in place.

B. Topsoiling - Covering with less erosive soil materials. See standards for topsoiling.

C. Stone - Cover surface with crushed stone or coarse gravel.

Vegetative Stabilization with Sod

A. Specifications
1. Class of turfgrass sod shall be Maryland or Virginia State Certified, or Maryland or Virginia State approved sod.
2. Sod shall be machine cut at a uniform soil thickness of 3/4 inch, plus or minus 1/4 inch, at the time of cutting. Measurement for thickness thickness shall exclude top growth and thatch.
3. Standard size sections of sod shall be strong enough to support their own weight and retain their size and shape when suspended vertically with a firm grasp on the upper 10 percent of the section.
4. Individual pieces of sod shall be cut to the suppliers width and length. Maximum allowable deviation from standard widths and lengths shall be 5 percent. Broken pads and torn or uneven ends will not be acceptable.
5. Sod shall not be harvested or transplanted when moisture content (excessively dry or wet) may adversely affect its survival.
6. Sod shall be harvested, delivered and installed within a period of 36 hours. Sod not transplanted within this period shall be inspected and approved prior to its installation.

B. Site Preparation

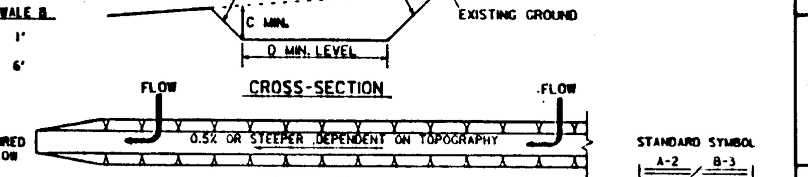
Fertilizer and lime application rates shall be determined by soil tests. Under unusual circumstances where there is insufficient time for a complete soil test, fertilizer and lime materials may be applied in amounts shown under 2, below.

1. Prior to sodding, the surface shall be cleared of all trash, debris, and of all roots, brush, wire grade stakes and other objects that would interfere with planting, fertilizing or maintenance operations.
2. Where the soils acid or composed of heavy clays, ground limestone shall be spread at the rate of 2 tons/acre of 100 pounds per 1,000 square feet. In all soils, 1,000 pounds per acre of 25 pounds per 1,000 square feet of 10-10-10 fertilizer or equivalent shall be uniformly applied and mixed into the top 3 inches of soil with the required lime.
3. All areas receiving sod shall be uniformly fine graded. Hard-packed earth shall be scarified prior to placement of sod.

C. Sod Installation
1. During periods of excessively high temperature the soil shall be lightly irrigated immediately prior to laying the sod.
2. The first row of sod shall be laid in a straight line with subsequent rows placed parallel to and tightly wedged against each other. Lateral joints shall be staggered to promote more uniform growth and strength. Insure that sod is not stretched or overlapped and that all joints are butted tight in order to prevent voids which would cause air drying of the roots.
3. On sloping areas where erosion may be a problem, sod shall be laid with the long edges parallel to the contour and with staggered joints. Secure the sod by tamping and pegging or other approved methods.
4. As sodding is completed in any one section, the entire area shall be rolled or tamped to insure solid contact of roots with the soil surface. Sod shall be watered immediately after rolling or tamping until the underside of the new sod pad and soil surface below the sod are thoroughly wet. The operations of laying, tamping and irrigating for any piece of sod shall be completed within eight hours.

D. Sod Maintenance
1. In the absence of adequate rainfall, watering shall be performed daily or as often as necessary during the first week and in sufficient quantities to maintain moist soil to a depth of 4 inches. Watering should be done during the heat of the day to prevent wilting.
2. After the first week, sod shall be watered as necessary to maintain adequate moisture and insure establishment.
3. First mowing should not be attempted until sod is firmly rooted. No more than 1/3 of the grass leaf shall be removed by the initial cutting of subsequent cuttings. Grass height shall be maintained between 2 and 3 inches unless otherwise specified.
4. Maintenance of established sod should follow specifications outlined in Table 54-1.

TEMPORARY SWALE



CONSTRUCTION SPECIFICATIONS

1. ALL TEMPORARY SWALES SHALL HAVE UNINTERRUPTED POSITIVE GRADE TO AN OUTLET.
2. DIVERTED RUNOFF FROM A DISTURBED AREA SHALL BE CONVEYED TO A SEDIMENT TRAPPING DEVICE.
3. DIVERTED RUNOFF FROM AN UNDISTURBED AREA SHALL OUTLET DIRECTLY INTO AN UNDISTURBED STABILIZED AREA AT NONEROSIVE VELOCITY
4. ALL TREES, BRUSH, STUMPS, OBSTRUCTIONS, AND OTHER OBJECTIONABLE MATERIAL SHALL BE REMOVED AND DISPOSED OF SO AS NOT TO INTERFERE WITH THE PROPER FUNCTIONING OF THE SWALE.
5. 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 IMPEDE NORMAL FLOW.
6. FILLS SHALL BE COMPACTED BY EARTH MOVING EQUIPMENT.
7. ALL EARTH REMOVED AND NOT NEEDED ON CONSTRUCTION SHALL BE PLACED SO THAT IT WILL NOT INTERFERE WITH THE FUNCTIONING OF THE SWALE.
8. STABILIZATION SHALL BE AS PER THE CHART BELOW:

FLOW CHANNEL STABILIZATION

TYPE OF TREATMENT	CHANNEL GRADE	A (5AC. OR LESS)	B (5AC.- 10AC.)
1	0.5-3.0%	SEED AND STRAW MULCH	SEED AND STRAW MULCH
2	3.1-5.0%	SEED AND STRAW MULCH	SEED USING JUTE, OR EXCELSIOR
3	5.1-8.0%	SEED USING JUTE, OR EXCELSIOR; SOD	LINED RIP-RAP 4"-8" RECYCLED CONCRETE EQUIVALENT
4	8.1-20%	LINED RIP-RAP 4"-8"	ENGINEERING DESIGN

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

U.S. DEPT. OF AGRICULTURE SOIL CONSERVATION SERVICE COLLEGE PARK, MD. (15-1)

TEMPORARY SWALE

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 THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN ~~"AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.~~ I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT." JMM 9/3/93

[signature] 8-23-93
SIGNATURE OF DEVELOPER — DATE
Albert F. Edwards, P.E.

BY THE ENGINEER:

"I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND ~~PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.~~" JMM 9/3/93

[signature] 8/10/93
SIGNATURE OF ENGINEER — DATE
ERNEST I. SHEPPE III

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] 9/3/93
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.

[signature] 9/3/93
HOWARD SOIL CONSERVATION DISTRICT — DATE

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS

[signature] 9-20-93
CHIEF, BUREAU OF HIGHWAYS — DATE

[signature] 9/21/93
CHIEF, BUREAU OF ENGINEERING — DATE

[signature] 9/21/93
CHIEF, LAND DEVELOPMENT DIVISION M.K. — DATE

APPROVED: HOWARD COUNTY DEPT OF PLANNING AND ZONING

Gina Zurmmonij 9/24/93
CHIEF, DIVISION OF LAND DEVELOPMENT & RESEARCH JA — DATE

Date	No.	Revision Description

LONGREACH
SECTION 4, AREA 3, PHASE 220
OWNER / DEVELOPER

THE HOWARD RESEARCH & DEVELOPMENT CORP.
THE ROUSE BUILDING
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044

8/18/93
Date

[signature]
Professional Engr. No. 16580

Daft · McCune · Walker, Inc.
A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals
200 East Pennsylvania Avenue Towson, Maryland 21286 410 296 3333 Fax 296 4705

AREA
PARCELS A,B,& C AND LOTS 89,90,91,& 92
TAX MAP 36,37 — PART OF PARCEL 50
5TH ELECTION DISTRICT OF HOWARD COUNTY, MARYLAND

TITLE
SEDIMENT AND EROSION CONTROL PLAN DETAILS

Des By CRW	Scale AS SHOWN	Proj. No. 890880
Drn By CRW	Date 4-12-93	20 OF 20
Chk By EIS	Approved	

F-93-130