

GENERAL NOTES

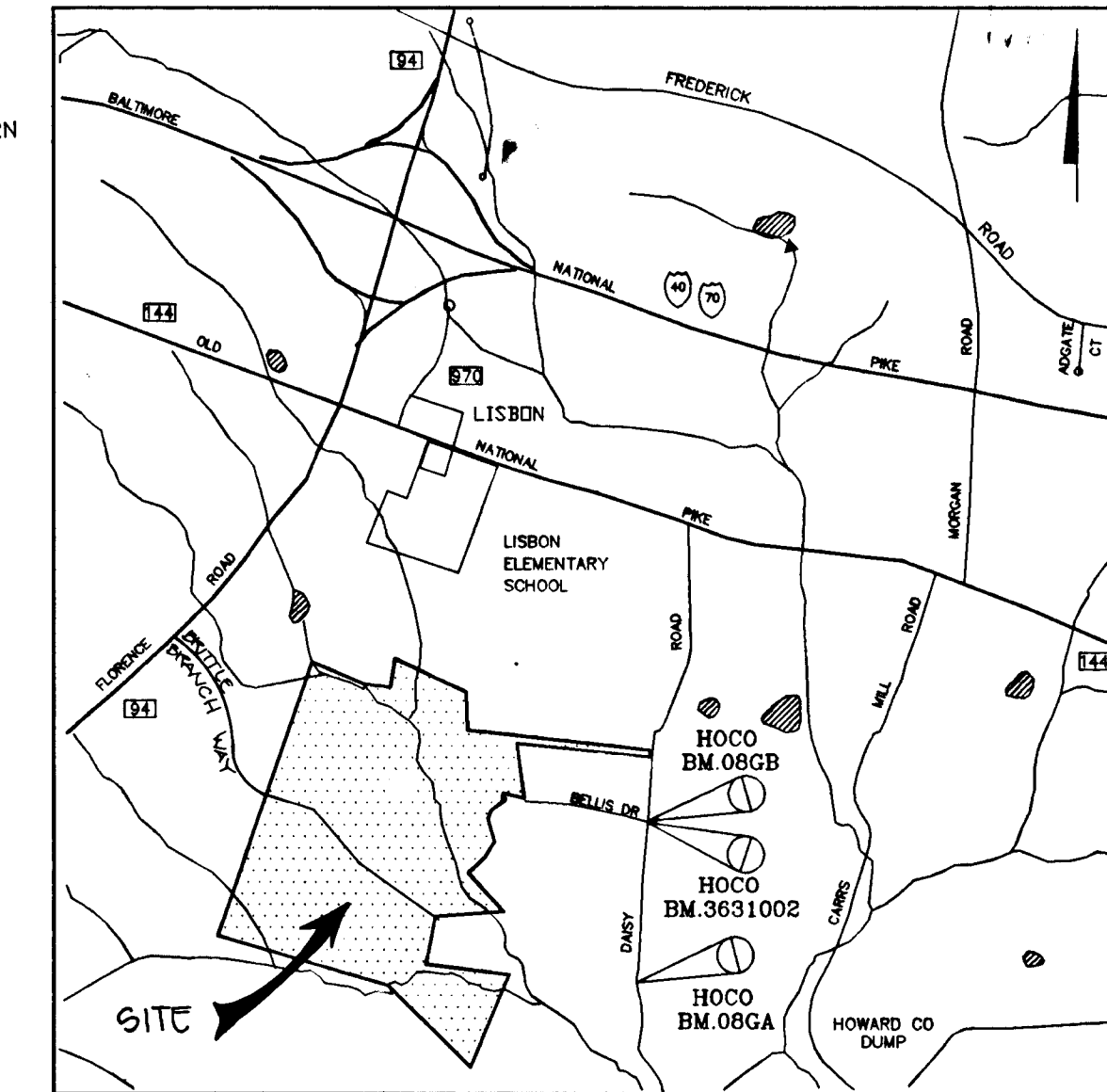
- All construction shall be in accordance with the latest standards and specifications of Howard County, plus MSHA standards and specifications, if applicable.
- The contractor shall notify the Department of Public Works/Bureau of Construction Inspection at (410) 313-1880 at least 24 hours prior to the start of work.
- The contractor shall notify "Miss Utility" at 1-800-257-7777 at least 48 hours prior to any excavation work.
- Project Background :
Location : Tax Map 7 - Parcel 5
Zoning : RC
4th Election District
Section 2 Total Tract Area : 192.4 Ac.
Section Area : 81.06 Ac.±
Number of Proposed Lots : 17 Cluster, 1 Preservation Parcel
Date Preliminary Plan Approved : October 17, 1994
DPZ Reference # : S-94-27, F-94-60, WP-94-77, P-95-C2
- Traffic control devices, markings, and signing shall be in accordance with the latest edition of the Manual on Uniform Traffic Control Devices (MUTCD). All street and regulatory signs shall be in place prior to the placement of any asphalt.
- Topographic Survey of proposed Roadway, Right-of-Way, and Sewerage easement areas was prepared by TSA Group, Inc. November, 1993. Remaining areas are supplemented by 1"=200' scale Howard County Topographic Maps. Contour interval is 2 feet.
- Howard County monuments BM 086A and BM 086B used for horizontal datum Nad 83. Monument 3631002 was used for vertical datum Nad 27.
- Water and Sewer for this subdivision is private. A percolation certification plan has been approved by the Health Department, dated 9/7/94.
- Stormwater Management will be provided through extended detention.
- Floodplain Study compiled by TSA Group, Inc., 3/94. Reference number F-94-60, P-91-11.
- Wetlands Delineation Study compiled by M.A. Dricks & Co. dated 8/16/94.
- Traffic Study compiled by Lee Cunningham & Associates, Inc. dated 11/1/94.
- Noise Study not required for this project.
- Geotechnical Report compiled by Hillis-Carnes & Associates, dated June 1994. Unless noted as "private", all easements are public.
- No clearing, grading or construction is permitted within wetlands, wetland buffers, stream buffers or forest conservation areas.
- Forest Conservation Plan by M.A. Dricks & Co. dated 7/21/94. Forest Conservation Easements are located outside areas impacted by construction activities.

ROADWAYS, STORM DRAINAGE AND STORMWATER MANAGEMENT CATTAIL WOODS SECTION 2 (PHASE 1 CONSTRUCTION) 4TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

BENCH MARKS (NAD83)
HO. CO. #086A
CONC. MONUMENT LOCATED ON THE SOUTH-EASTERN SHOULDER OF THE INTERSECTION OF DAISY ROAD AND BOKA VALLEY COURT.
N 602165.1699 E 1294794.856

HO. CO. #086B
CONC. MONUMENT LOCATED ON THE NORTH-WEST SHOULDER OF THE INTERSECTION OF DAISY ROAD AND BELLIS DRIVE.
N 603764.8085 E 1294891.851

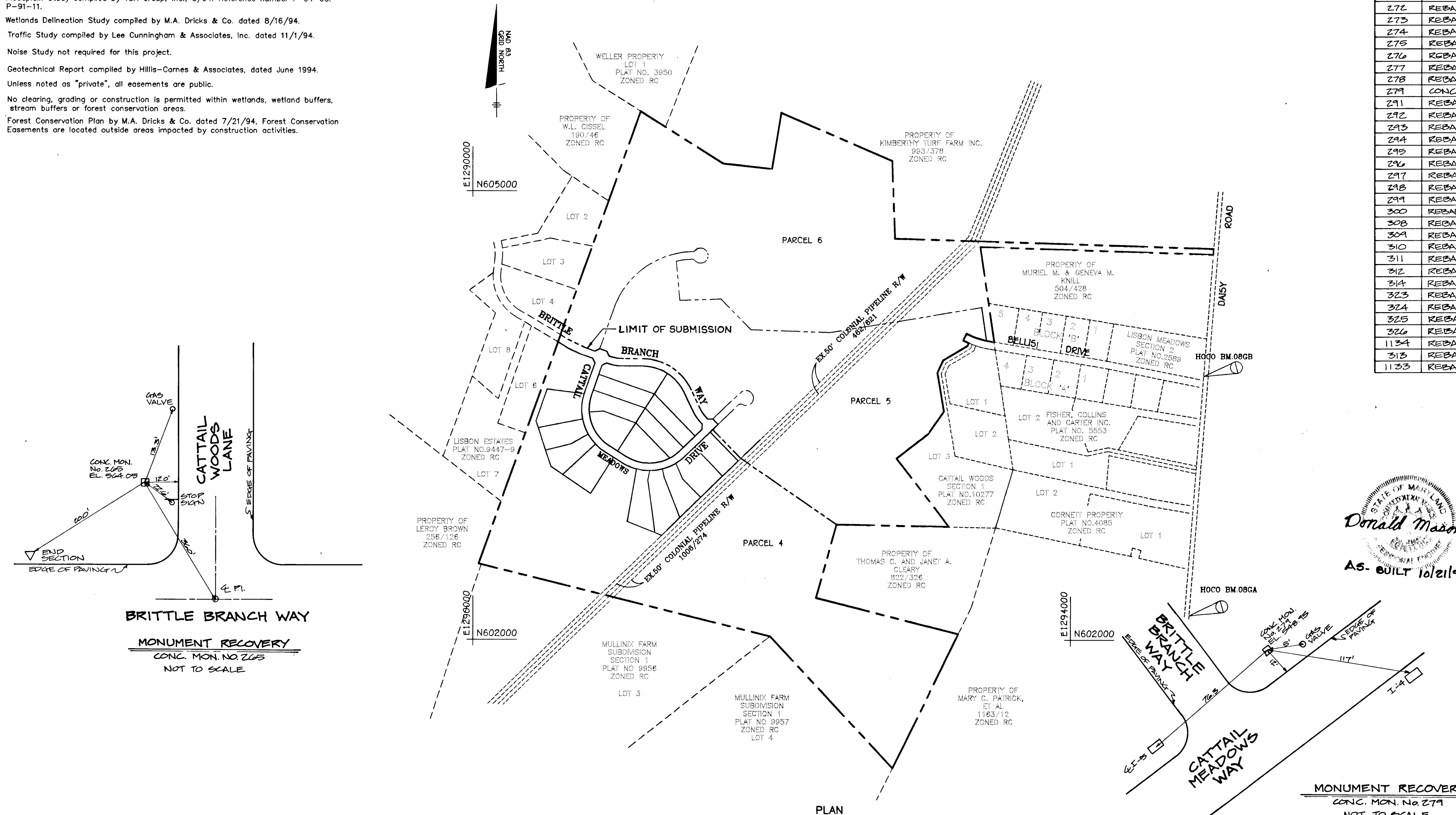
BENCH MARKS (NAD27)
HO. CO. #3631002 ELEV = 569.674 ft
3/4" REBAR LOCATED ON THE NORTH-WEST SHOULDER OF THE INTERSECTION OF DAISY ROAD AND BELLIS DRIVE.



VICINITY MAP
SCALE: 1" = 2000'

R/W POINT No.	DESCRIPTION	ELEV.
261	REBAR # CAP	580.16
262	REBAR # CAP	574.97
263	REBAR # CAP	568.90
264	REBAR # CAP	568.28
265	CONC. MON.	564.05
272	REBAR # CAP	563.91
273	REBAR # CAP	562.28
274	REBAR # CAP	559.72
275	REBAR # CAP	551.51
276	REBAR # CAP	558.84
277	REBAR # CAP	553.30
278	REBAR # CAP	550.31
279	CONC. MON.	548.15
291	REBAR # CAP	563.08
292	REBAR # CAP	568.64
293	REBAR # CAP	567.47
294	REBAR # CAP	575.56
295	REBAR # CAP	579.33
296	REBAR # CAP	561.77
297	REBAR # CAP	559.88
298	REBAR # CAP	555.74
299	REBAR # CAP	551.14
300	REBAR # CAP	553.42
308	REBAR # CAP	550.64
309	REBAR # CAP	553.70
310	REBAR # CAP	568.47
311	REBAR # CAP	586.83
312	REBAR # CAP	584.70
314	REBAR # CAP	562.11
323	REBAR # CAP	568.92
324	REBAR # CAP	586.92
325	REBAR # CAP	584.62
326	REBAR # CAP	562.44
1134	REBAR # CAP	549.72
313	REBAR # CAP	563.17
1133	REBAR # CAP	552.98

SHEET INDEX	
NO.	DESCRIPTION
1	TITLE SHEET
2	ROAD PLAN
3	ROAD PROFILE AND TYPICAL SECTION
4	ROAD PROFILES AND DETAILS
5	DRAINAGE AREA MAP
6	GRADING AND SEDIMENT CONTROL PLAN
7	SEDIMENT AND EROSION CONTROL NOTES AND DETAILS
8	STORM DRAIN PROFILES, STORMWATER MANAGEMENT, NOTES AND DETAILS
9	STORMWATER MANAGEMENT NOTES AND DETAILS
10	LANDSCAPE PLAN



STATE OF MARYLAND
COUNTY OF HOWARD
Donald Mason
REGISTERED PROFESSIONAL ENGINEER
AS-BUILT 10/21/97

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Andrew M. Daneker 115
CHIEF, BUREAU OF HIGHWAYS
ANDREW DANEKER
8-30-95 DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
Gina Tirinnanzi
CHIEF DIVISION OF LAND DEVELOPMENT AND RESEARCH
GINA TIRINNANZI
9/19/95 DATE

Charles Dammers
CHIEF DEVELOPMENT ENGINEERING DIVISION
CHARLES DAMMERS
9/14/95 DATE

NO.	DATE	REVISION

TSA GROUP, INC.
planning • architecture • engineering • surveying
8480 Baltimore National Pike • Ellicott City, Maryland 21045 • (410-465-6106)

OWNER: 206 JOINT VENTURE 15555 UNION CHAPEL ROAD WOODBINE, MARYLAND 21797	PROJECT: CATTAIL WOODS SECTION 2 (PHASE 1 CONSTRUCTION)
DEVELOPER: PARCEL 137 INC. 15298 UNION CHAPEL ROAD WOODBINE, MARYLAND 21797	LOCATION: TAX MAP NO. 7 PARCEL NO. 137 4 TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
TITLE: TITLE SHEET	
DATE: JANUARY 13, 1995 AUGUST 3, 1995	PROJECT NO. 0769
DES: GWF	DRN: JR
SCALE: AS SHOWN	DRAWING 1 OF 10

1552
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ROADSIDE SWALE DATA							
ROADWAY	STATION	Q ₁₀ (cfs)	S ₀ (ft/100)	n	V ₁₀ (fps)	dn (ft)	LINING
CATTAIL MEADOWS DRIVE	RT. 1+93 TO 8+21	3.5	0.0100	0.04	1.9	0.8	SOIL STABILIZATION MATTING
CATTAIL MEADOWS DRIVE	LT. 1+93 TO 8+21	2.6	0.0100	0.04	1.8	0.7	
CATTAIL MEADOWS DRIVE	LT. 8+21 TO 14+60	6.6	0.0640	0.04	4.5	0.7	
CATTAIL MEADOWS DRIVE	RT. 8+21 TO 16+50	2.6	0.0400	0.04	3.0	0.5	
BRITTLE BRANCH WAY	RT. 3+05 TO 9+04	5.6	0.0100	0.04	2.2	0.9	

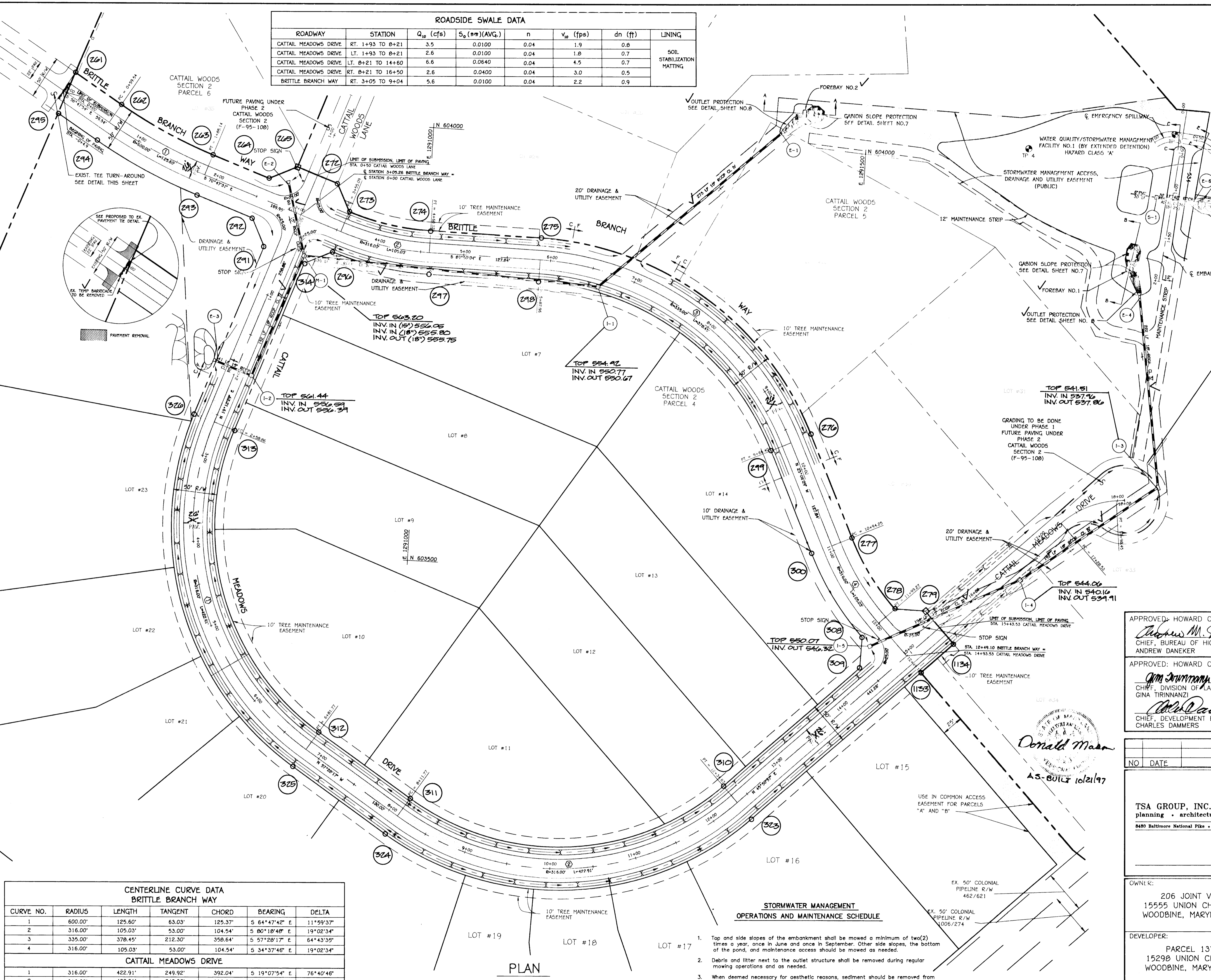


LEGEND

PROPOSED STORM DRAIN	
PROPOSED DRAINAGE DITCH	
FLOW DIRECTION	

NOTE:
1.) FOR STORM DRAIN STRUCTURE SCHEDULE SEE SHEET NO. 8

CENTERLINE CONTROL DATA BRITTLE BRANCH WAY		
STATION	NORTH	EAST
LIMIT OF SUBMISSION STA. 0+00	604013.4620	1290575.7759
PC STATION 0+59.54	603982.6175	1290626.7027
PT STATION 1+85.14	603929.2285	1290740.1345
STATION 3+05.26 = 0+00 CATTAIL WOODS LANE	603889.7083	1290853.5691
PC STATION 3+95.09	603873.3134	1290900.6272
PT STATION 4+60.12	603855.7229	1291003.6791
PC STATION 5+87.96	603855.3532	1291131.5212
PT STATION 9+66.40	603662.5045	1291433.8995
PC STATION 10+94.25	603546.7416	1291488.1466
PT STATION 11+99.27	603460.7195	1291547.5545
STATION 12+49.10 =		
STATION 14+93.53 CATTAIL MEADOWS DRIVE	603424.9644	1291582.2650
CATTAIL MEADOWS DRIVE		
STATION 0+00 = 3+05.26 BRITTLE BRANCH WAY	603889.7083	1290853.5691
PC STATION 2+58.86	603845.2593	1290768.4040
PT STATION 6+81.77	603277.4667	1290898.5490
PC STATION 8+11.77	603204.9624	1291006.5011
PT STATION 12+34.67	603244.6560	1291396.5306
STATION 14+93.53 =		
STATION 12+49.10 BRITTLE BRANCH WAY	603424.9644	1291582.2650
LIMIT OF SUBMISSION STATION 15+43.53	603459.7913	1291618.1399
CATTAIL WOODS LANE		
STATION 0+00 =		
STATION 3+05.26 BRITTLE BRANCH WAY	603889.7083	1290853.5691
LIMIT OF SUBMISSION STATION 0+50	603936.9247	1290870.0192



CENTERLINE CURVE DATA BRITTLE BRANCH WAY						
CURVE NO.	RADIUS	LENGTH	TANGENT	CHORD	BEARING	DELTA
1	600.00'	125.60'	63.03'	125.37'	S 64°47'42" E	11°59'37"
2	316.00'	105.03'	53.00'	104.54'	S 80°18'48" E	19°02'34"
3	335.00'	378.45'	212.30'	358.64'	S 57°28'17" E	64°43'35"
4	316.00'	105.03'	53.00'	104.54'	S 34°37'46" E	19°02'34"
CATTAIL MEADOWS DRIVE						
1	316.00'	422.91'	249.92'	392.04'	S 19°07'54" E	76°40'46"
2	316.00'	422.91'	249.92'	392.04'	N 84°11'20" E	76°40'46"

PLAN
SCALE: 1" = 50'

- STORMWATER MANAGEMENT OPERATIONS AND MAINTENANCE SCHEDULE**
- Top and side slopes of the embankment shall be mowed a minimum of two(2) times a year, once in June and once in September. Other side slopes, the bottom of the pond, and maintenance access should be mowed as needed.
 - Debris and litter next to the outlet structure shall be removed during regular mowing operations and as needed.
 - When deemed necessary for aesthetic reasons, sediment should be removed from the pond. Approval of the Department of Public Works is required.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Andrew M. Daneker 6-30-95
 CHIEF, BUREAU OF HIGHWAYS
 ANDREW DANEKER

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
Gina Tirinnanzi 9/19/95
 CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH
 GINA TIRINNANZI

Charles Dammers 9/14/95
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 CHARLES DAMMERS

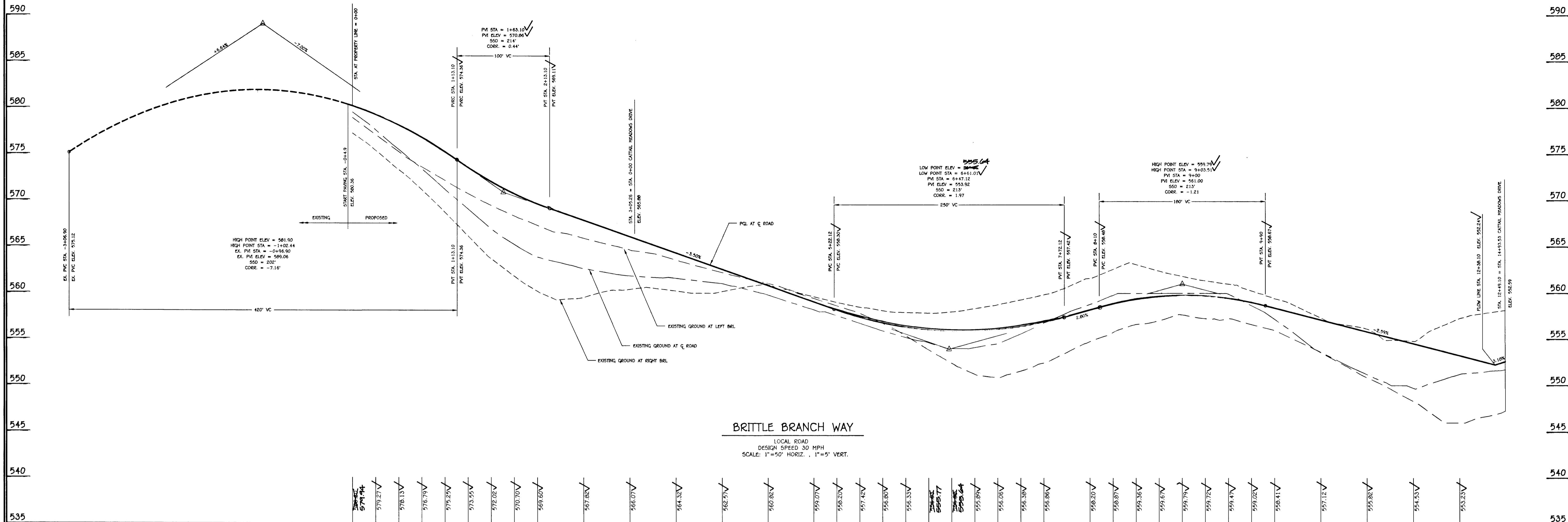
NO.	DATE	REVISION

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John Stange

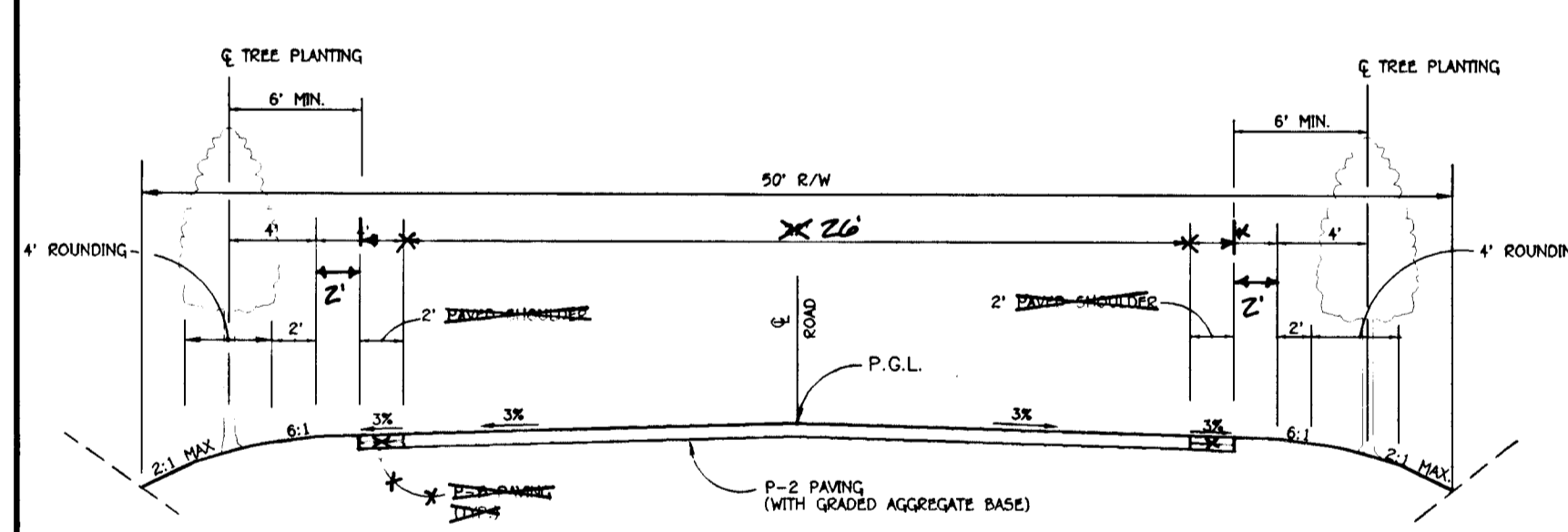
OWNER: 206 JOINT VENTURE 15555 UNION CHAPEL ROAD WOODBINE, MARYLAND 21797	PROJECT: CATTAIL WOODS SECTION 2 - PARCEL 4
DEVELOPER: PARCEL 137 INC. 15298 UNION CHAPEL ROAD WOODBINE, MARYLAND 21797	LOCATION: TAX MAP 7 - PARCEL 137 4th ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DES: GWF	DRN: JR
DATE: JANUARY 13, 1995 AUGUST 3, 1995	TITLE: ROAD PLAN PHASE 1 F-94-60 S-94-27 WP-94-77 PROJECT NO. 0769
SCALE: AS SHOWN	DRAWING 2 OF 10

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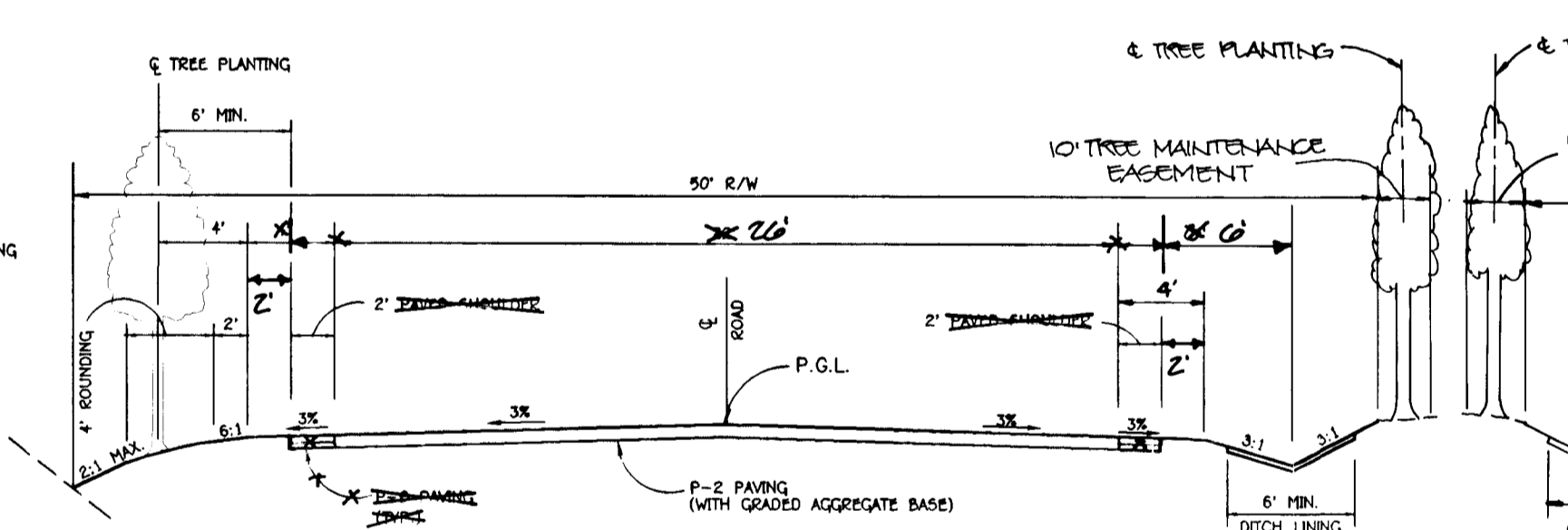


BRITTLE BRANCH WAY
 LOCAL ROAD
 DESIGN SPEED 30 MPH
 SCALE: 1"=50' HORIZ. , 1"=5' VERT.

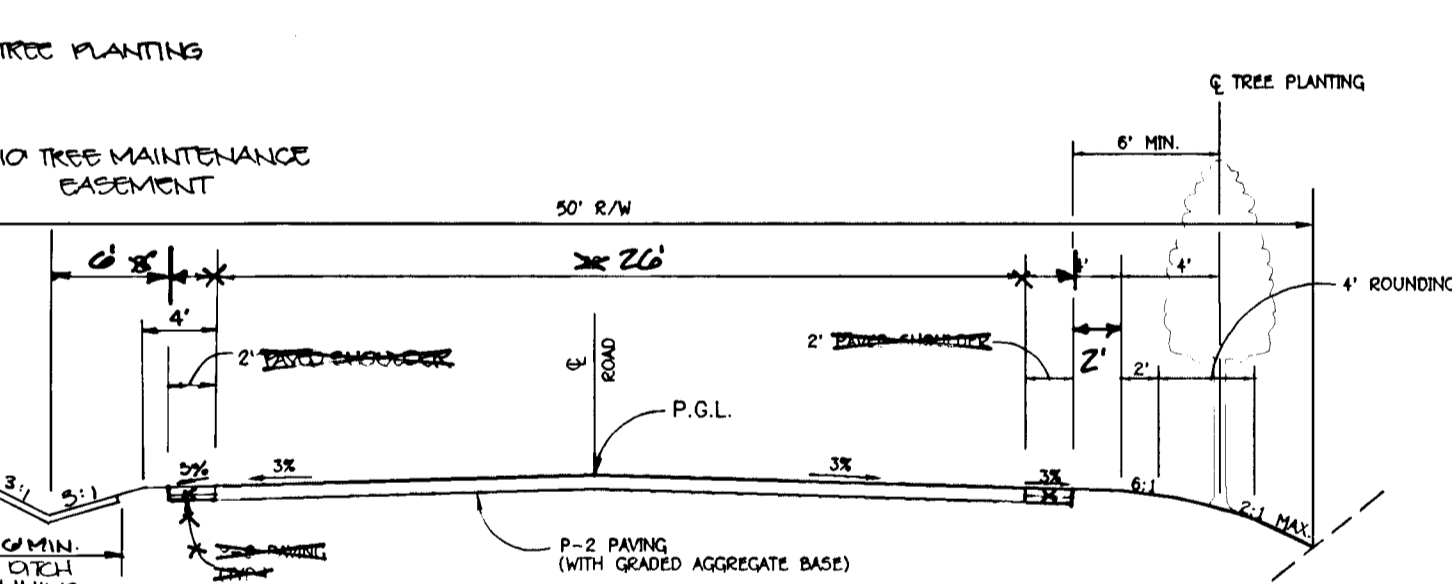
0+00 0+50 1+00 1+50 2+00 2+50 3+00 3+50 4+00 4+50 5+00 5+50 6+00 6+50 7+00 7+50 8+00 8+50 9+00 9+50 10+00 10+50 11+00 11+50 12+00



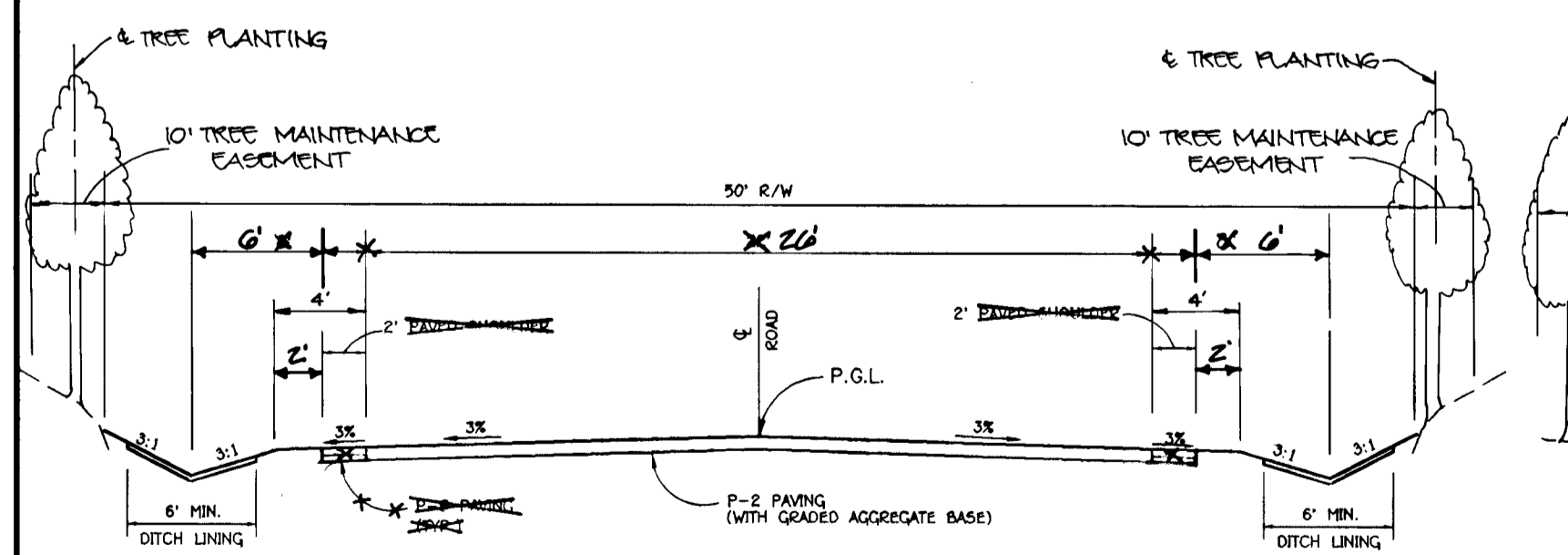
BRITTLE BRANCH WAY STATION 0+4.9 TO STATION 2+69.26
 BRITTLE BRANCH WAY STATION 10+00 TO STATION 12+13.10
 CATTAIL MEADOWS DRIVE STATION 0+36 TO STATION 1+00
 CATTAIL WOODS LANE STATION 0+36 TO STATION 0+50 (LIMIT OF SUBMISSION)
TYPICAL ROADWAY SECTION
 NOT TO SCALE



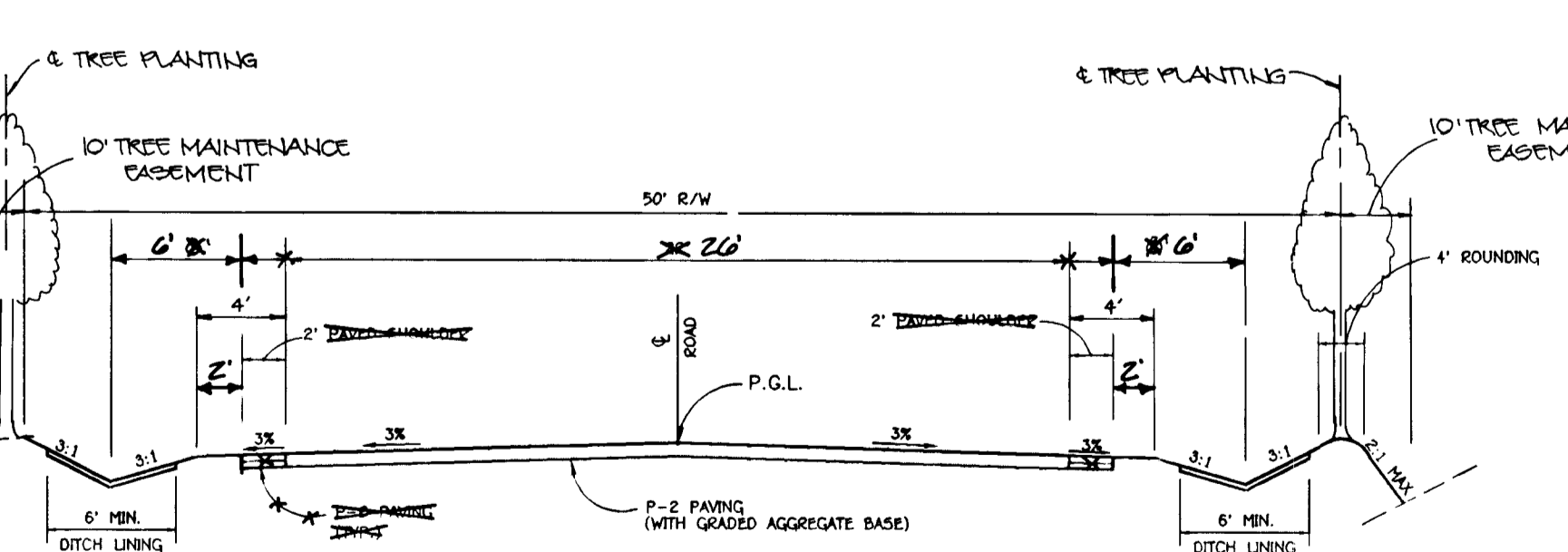
BRITTLE BRANCH WAY STATION 6+20 TO STATION 7+35
TYPICAL ROADWAY SECTION
 NOT TO SCALE



CATTAIL MEADOWS DRIVE STATION 0+36 TO STATION 2+10
TYPICAL ROADWAY SECTION
 NOT TO SCALE



BRITTLE BRANCH WAY STATION 3+41.26 TO STATION 6+20
 BRITTLE BRANCH WAY STATION 7+35 TO STATION 10+00
 CATTAIL MEADOWS DRIVE STATION 5+50 TO STATION 14+57.53
 CATTAIL MEADOWS DRIVE STATION 15+29.53 TO STATION 15+43.53 (LIMIT OF SUBMISSION)
TYPICAL ROADWAY SECTION
 NOT TO SCALE



CATTAIL MEADOWS DRIVE STATION 2+10 TO STATION 5+50
TYPICAL ROADWAY SECTION
 NOT TO SCALE

NOTES:
 1. DITCHES TO BE LINED WITH SOIL STABILIZATION MATTING

STATE OF MARYLAND
 DONALD MAAS
 AS-BUILT 10/21/97

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NO	DATE	REVISION

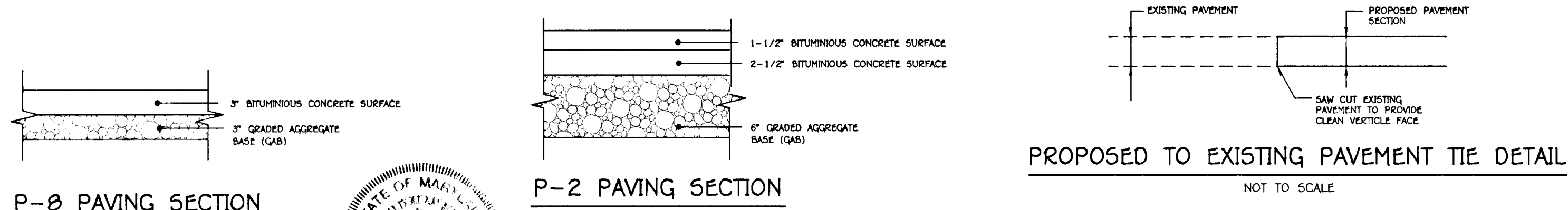
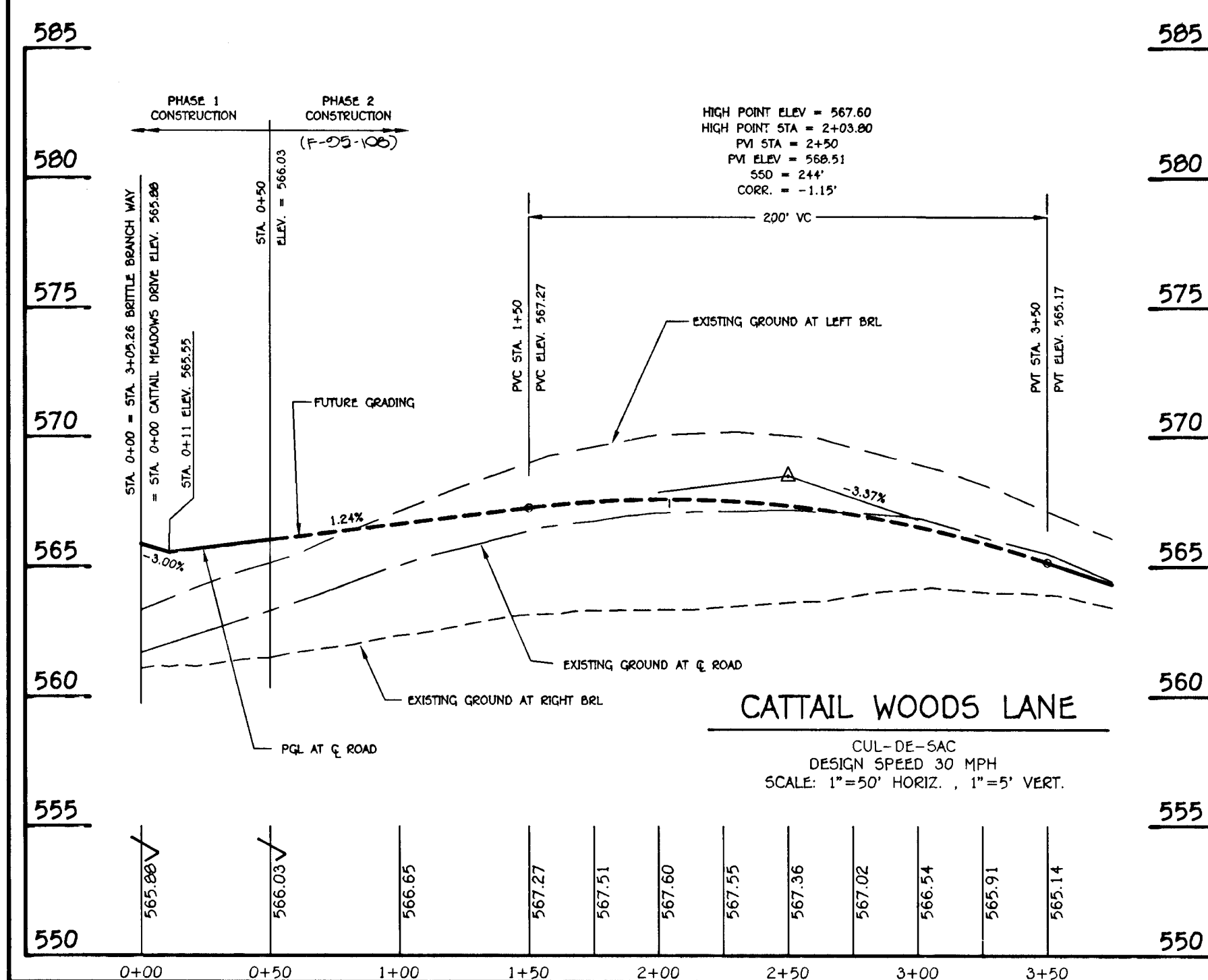
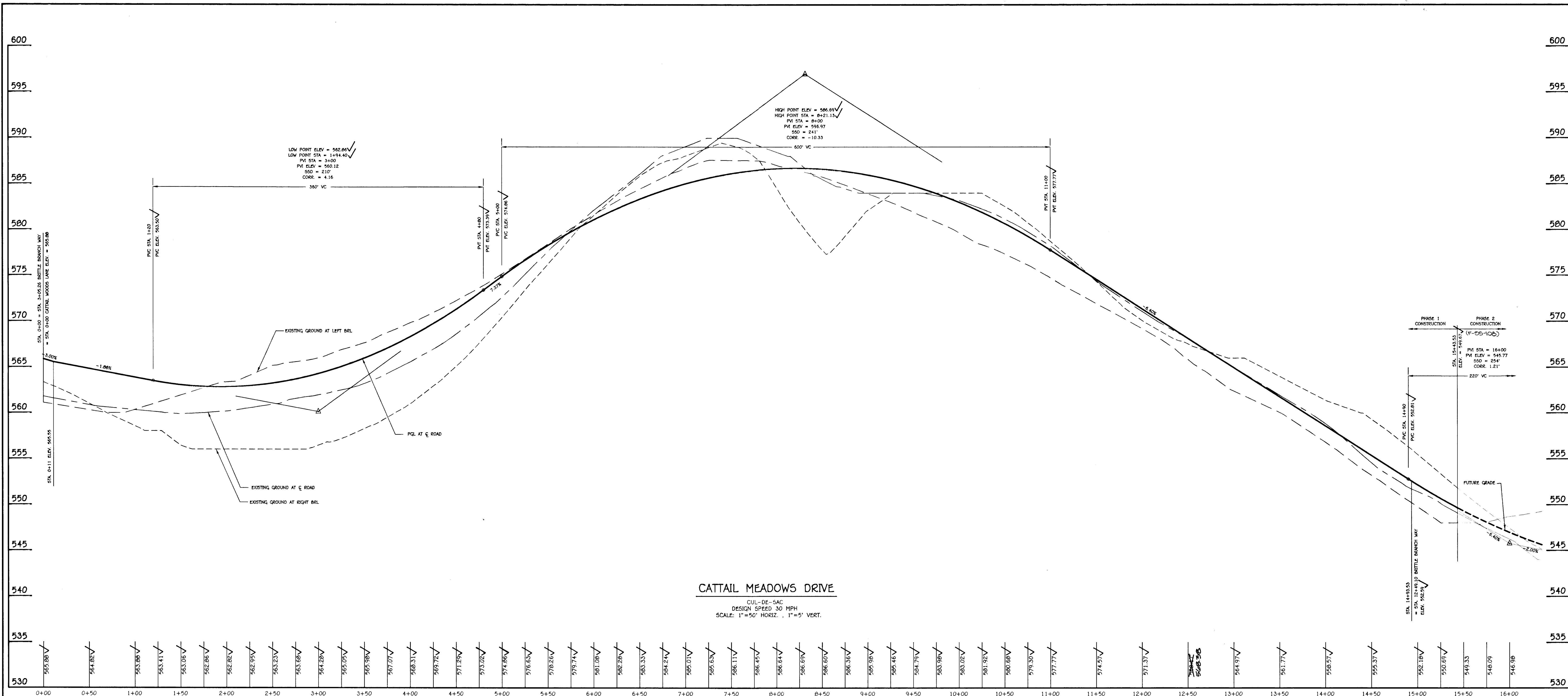
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Andrew M. Daneker
 CHIEF BUREAU OF HIGHWAYS
 ANDREW DANEKER
 DATE: 8-30-95

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
Gina Tirinnanzi
 CHIEF DIVISION OF LAND DEVELOPMENT AND RESEARCH
 GINA TIRINNANZI
 DATE: 9/1/95

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
Charles Damers
 CHIEF DEVELOPMENT ENGINEERING DIVISION
 CHARLES DAMERS
 DATE: 8/14/95

OWNER: 206 JOINT VENTURE 15555 UNION CHAPEL ROAD WOODBINE, MARYLAND 21797	PROJECT: CATTAIL WOODS SECTION 2 - PARCEL 4
DEVELOPER: PARCEL 137 INC. 15298 UNION CHAPEL ROAD WOODBINE, MARYLAND 21797	LOCATION: TAX MAP 7 - PARCEL 137 4TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
TITLE: ROAD PROFILES AND TYPICAL SECTIONS PHASE 1	DATE: JANUARY 18, 1995 AUGUST 3, 1995
DES: GWF DRN: JR	PROJECT NO. 0769 SCALE: AS SHOWN DRAWING 3 OF 10

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STATE OF MARYLAND
 DEPARTMENT OF TRANSPORTATION
 DONALD MAEN
 AS-BUILT 10/1/97

NO.	DATE	REVISION

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 Andrew M. Daneker
 CHIEF, BUREAU OF HIGHWAYS
 ANDREW DANEKER

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 Gina Tirinnanzi
 CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH
 GINA TIRINNANZI

APPROVED: CHARLES DAMMERS
 CHIEF DEVELOPMENT ENGINEERING DIVISION
 CHARLES DAMMERS

8/30/95 DATE
 9/1/95 DATE
 9/14/95 DATE

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 5480 Baltimore National Pike • Ellicott City, Maryland 21043 • (410)468-6105

OWNER:
 206 JOINT VENTURE
 15555 UNION CHAPEL ROAD
 WOODBINE, MARYLAND 21797

DEVELOPER:
 PARCEL 137 INC.
 15298 UNION CHAPEL ROAD
 WOODBINE, MARYLAND 21797

PROJECT:
CATTAIL WOODS
 SECTION 2 - PARCEL 4

LOCATION:
 TAX MAP 7 - PARCEL 137
 4TH ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

TITLE:
ROAD PROFILES AND DETAILS
 PHASE 1

DATE: JANUARY 12, 1995
 AUGUST 3, 1995

PROJECT NO. 0769

DES: GWF DRN: JR

SCALE: AS SHOWN DRAWING 4 OF 10

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SOILS CLASSIFICATIONS

- ChB2 Chester silt loam, 3 to 8 percent slopes, moderately eroded.(B Soil)
- Co Codorus silt loam.(C Soil)
- CuB Cornus silt loam, local alluvium, 3 to 8 percent slopes.(B Soil)
- EkC2 Elovak silt loam, 3 to 8 percent slopes, moderately eroded.(B Soil)
- GIB2 Glenelg loam, 3 to 8 percent slopes, moderately eroded.(B Soil)
- GIC2 Glenelg loam, 8 to 15 percent slopes, moderately eroded.(B Soil)
- GIC3 Glenelg loam, 8 to 15 percent slopes, severely eroded.(B Soil)
- GID2 Glenelg loam, 15 to 25 percent slopes, moderately eroded.(B Soil)
- GID3 Glenelg loam, 15 to 25 percent slopes, severely eroded.(B Soil)
- GnA Glenville silt loam, 0 to 3 percent slopes.(C Soil)
- GnB2 Glenville silt loam, 3 to 8 percent slopes, moderately eroded.(C Soil)
- Ha Hatboro silt loam.(D Soil)
- MID3 Manor loam, 15 to 25 percent slopes, severely eroded.(B Soil)
- MIE Manor loam, 25 to 45 percent slopes.(B Soil)
- MID3 Mt. Airy channery loam, 15 to 25 percent slopes, moderately eroded.(B Soil)
- MIE Mt. Airy channery loam, 3 to 8 percent slopes.(B Soil)

• Indicates hydric soils.

STORM DRAINAGE DATA

INLET	AREA	C	% IMP
I-1	3.95	0.25	13
I-2	1.46	0.29	19
I-3	1.71	0.35	27
I-4	1.49	0.30	20
I-5	4.34	0.27	15
E-2	1.56	0.27	16
E-3	1.11	0.37	31

ZONED RC

NOTE:
HOUSE LOCATIONS SHOWN FOR C VALUE COMPUTATIONS ONLY.

LEGEND

PROPOSED CONTOUR	— 560 —
EXISTING GRADE	- - - 560 - - -
DRAINAGE LIMIT	— — — — —
SOILS TYPE	GIB2
SOILS DIVISION LINE	— — — — —

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Andrew M. Daneker
 CHIEF, BUREAU OF HIGHWAYS 113 8-30-95
 ANDREW DANEKER DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
Gina Tirinnanzi
 CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH 124 9/19/95
 GINA TIRINNANZI DATE

Charles Damms
 CHIEF, DEVELOPMENT ENGINEERING DIVISION MK 9/14/95
 CHARLES DAMMERS DATE

NO	DATE	REVISION

TSA GROUP, INC.
 planning • architecture • engineering • surveying
 5400 Baltimore National Pike • Ellicott City, Maryland 21043 • (410)408-6100

OWNER:
 206 JOINT VENTURE
 15555 UNION CHAPEL ROAD
 WOODBINE, MARYLAND 21797

PROJECT:
CATTAIL WOODS
 SECTION 2 - PARCEL 4
 LOTS 7-24

DEVELOPER:
 PARCEL 137 INC.
 15298 UNION CHAPEL ROAD
 WOODBINE, MARYLAND 21797

LOCATION:
 TAX MAP 7 - PARCEL 137
 4TH ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

TITLE:
DRAINAGE AREA MAP
 (PHASE 1 CONSTRUCTION)

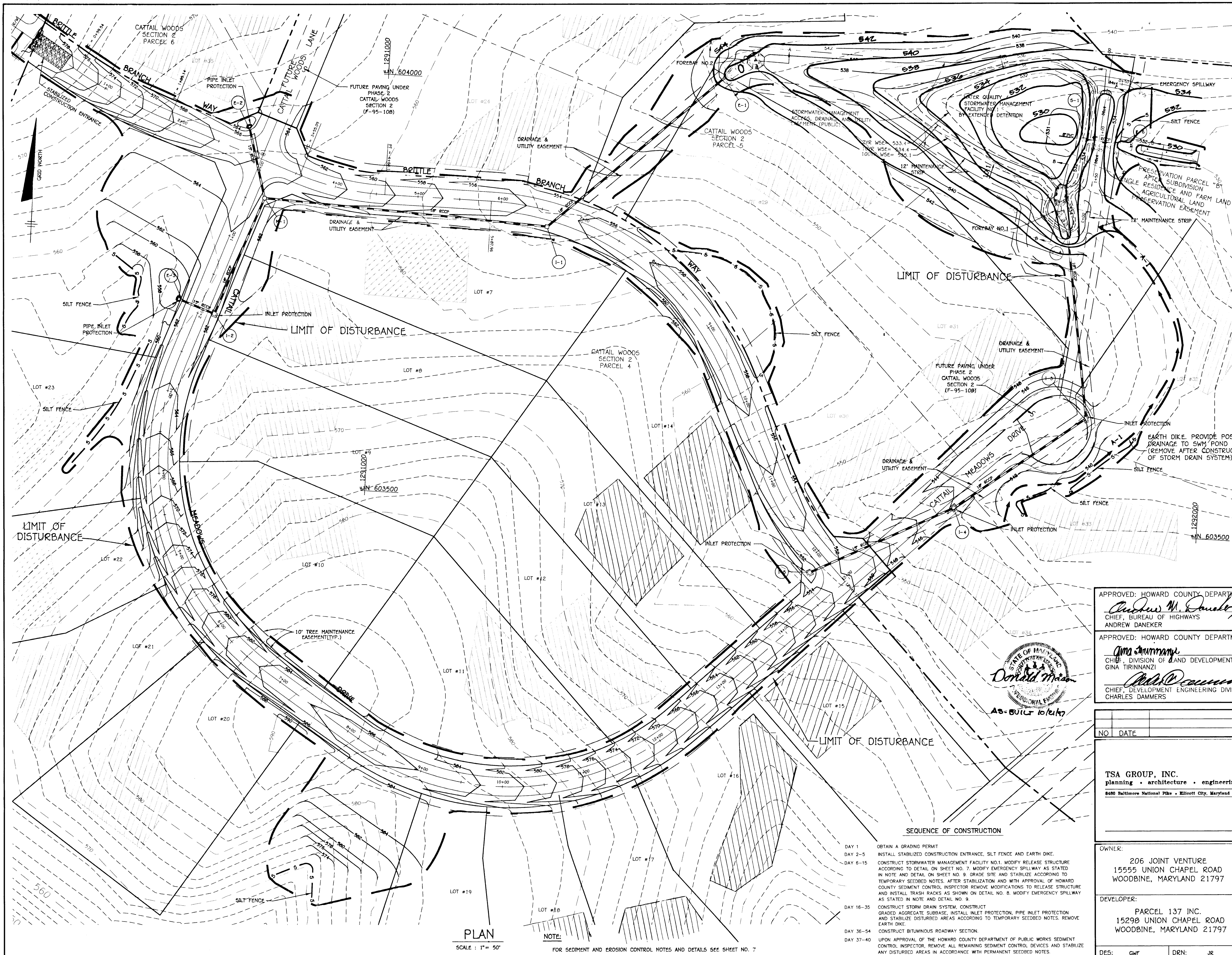
DATE:
 JANUARY 13, 1995
 AUGUST 3, 1995

PROJECT NO. 0769

DES: GWF DRN: JR SCALE: AS SHOWN DRAWING 5 OF 10

PLAN
 SCALE: 1" = 100'

1552



LEGEND

PROPOSED CONTOUR	560
EXISTING GRADE	560
INLET PROTECTION	[Symbol]
STABILIZED CONSTRUCTION ENTRANCE	[Symbol]
SILT FENCE	5 5
PIPE INLET PROTECTION	[Symbol]
LIMIT OF DISTURBANCE	[Symbol]
EARTH DIKE	A-1

I hereby certify that the facility shown on this plan was constructed as shown on the "AS-BUILT" plans and meets the approved plans and specifications.
Donald Maan 10/21/97
 Date:

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

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."
Bruce Brendel 8/3/95
 DEVELOPER: PARCEL 137, INC.

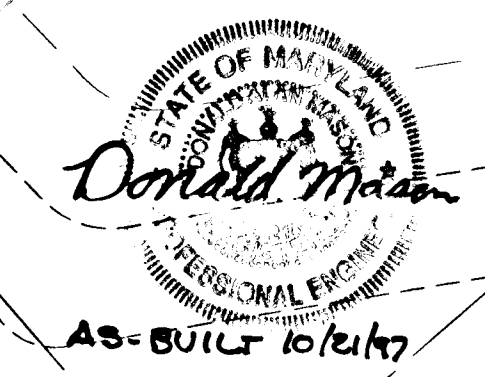
By the Engineer:
 "I certify that this plan for pond construction, erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions. This plan was prepared in accordance with the requirements of the Howard Soil Conservation District. I have notified 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."
John M. Elorriaga 8/3/95
 ENGINEER: JOHN M. ELORRIAGA, P.E. #16891

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.
Patricia Engler 8/21/95
 Natural Resources Services Service Date:

These plans for small pond construction, soil erosion and sediment control meet the requirements of the Howard Soil Conservation District.
Robert Zielow 8/21/95
 Howard Soil Conservation District Date:

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Andrew M. Danek 8-20-95
 CHIEF, BUREAU OF HIGHWAYS ANDREW DANEKER

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
Gina Tirinnanzi 9/19/95
 CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH GINA TIRINNANZI
Charles Damms 9/14/95
 CHIEF, DEVELOPMENT ENGINEERING DIVISION CHARLES DAMMS



- SEQUENCE OF CONSTRUCTION**
- DAY 1 OBTAIN A GRADING PERMIT
 - DAY 2-5 INSTALL STABILIZED CONSTRUCTION ENTRANCE, SILT FENCE AND EARTH DIKE.
 - DAY 6-15 CONSTRUCT STORMWATER MANAGEMENT FACILITY NO.1, MODIFY RELEASE STRUCTURE ACCORDING TO DETAIL ON SHEET NO. 7, MODIFY EMERGENCY SPILLWAY AS STATED IN NOTE AND DETAIL ON SHEET NO. 9, GRADE SITE AND STABILIZE ACCORDING TO TEMPORARY SEEDBED NOTES. AFTER STABILIZATION AND WITH APPROVAL OF HOWARD COUNTY SEDIMENT CONTROL INSPECTOR REMOVE MODIFICATIONS TO RELEASE STRUCTURE AND INSTALL TRASH RACKS AS SHOWN ON DETAIL NO. 8, MODIFY EMERGENCY SPILLWAY AS STATED IN NOTE AND DETAIL NO. 9.
 - DAY 16-35 CONSTRUCT STORM DRAIN SYSTEM, CONSTRUCT GRADED AGGREGATE SUBBASE, INSTALL INLET PROTECTION, PIPE INLET PROTECTION AND STABILIZE DISTURBED AREAS ACCORDING TO TEMPORARY SEEDBED NOTES. REMOVE EARTH DIKE.
 - DAY 36-54 CONSTRUCT BITUMINOUS ROADWAY SECTION.
 - DAY 37-40 UPON APPROVAL OF THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS SEDIMENT CONTROL INSPECTOR, REMOVE ALL REMAINING SEDIMENT CONTROL DEVICES AND STABILIZE ANY DISTURBED AREAS IN ACCORDANCE WITH PERMANENT SEEDBED NOTES.

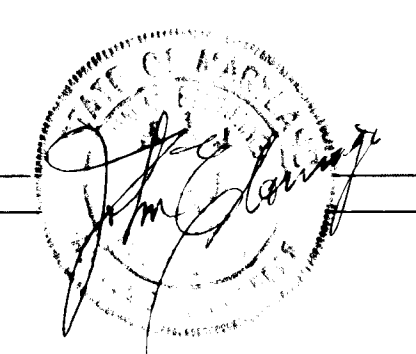
PLAN
 SCALE: 1" = 50'
 FOR SEDIMENT AND EROSION CONTROL NOTES AND DETAILS SEE SHEET NO. 7

NO	DATE	REVISION

TSA GROUP, INC.
 planning • architecture • engineering • surveying
 8600 Baltimore National Pike • Ellicott City, Maryland 21043 • (410)468-6106

OWNER: 206 JOINT VENTURE 15555 UNION CHAPEL ROAD WOODBINE, MARYLAND 21797	PROJECT: CATTAIL WOODS SECTION 2 - PARCEL 4
DEVELOPER: PARCEL 137 INC. 15298 UNION CHAPEL ROAD WOODBINE, MARYLAND 21797	LOCATION: TAX MAP 7 - PARCEL 137 4TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: JANUARY 13, 1995 AUGUST 3, 1995	TITLE: GRADING AND SEDIMENT CONTROL PLAN PHASE 1 F-94-60 5-94-27 WP-94-77
DES: GWF DRN: JR	PROJECT NO.: 0769 DRAWING: 6 OF 10

255T



SEDIMENT CONTROL NOTES

- A MINIMUM OF 24 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTION, LICENSES AND PERMITS, SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION. (313-1850).
- 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 SPECIFICATION FOR SOIL EROSION AND SEDIMENT CONTROL. REVISIONS THERE TO.
- 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.
- ALL SEDIMENT TRAPS/BASINS SHOWN MUST BE FENCED AND WARNING SIGNS POSTED AROUND THEIR PERIMETER IN ACCORDANCE WITH VOL. 1, CHAPTER 12, OF THE HOWARD COUNTY DESIGN MANUAL, STORM DRAINAGE.
- ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDINGS (SEC. 51) SOO (SEC. 54), TEMPORARY SEEDING (SEC. 50) AND MULCHING (SEC. 52). TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.
- ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMISSION FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
- SITE ANALYSIS:

TOTAL AREA OF SITE	81.056 ACRES
AREA TO BE ROOFED OR PAVED	0.850 ACRES
AREA TO BE VEGETATIVELY STABILIZED	80.206 ACRES
TOTAL CWT	11,800 CY YDS.
TOTAL CWT	11,800 CY YDS.
OFFSITE WASTE/BORROW AREA LOCATION	0.100 CY YDS. BORROW
(FROM CATTAIL WOODS PHASE 2 CONSTRUCTION) (P-100-1000)	
- ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
- ADDITIONAL SEDIMENT CONTROL MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
- ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES, APPROVAL OF THE INSPECTION AGENCY SHALL BE REQUESTED UPON COMPLETION OF INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING. OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE.
- 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.

PERMANENT SEEDBED PREPARATION

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

SOIL AMENDMENTS: IN LIEU OF SOIL TEST RECOMMENDATIONS, USE ON OF THE FOLLOWING SCHEDULES:

- PREFERRED - APPLY 2 TONS PER ACRE DOLOMITIC LIMESTONE (92 LBS/1000 SQ FT) AND 600 LBS PER ACRE 10-10-10 FERTILIZER (14 LBS/1000 SQ FT) BEFORE SEEDING. HARROW OR DISC INTO UPPER THREE INCHES OF SOIL AT TIME OF SEEDING. APPLY 400 LBS PER ACRE 30-0-0-0 UREAFORM FERTILIZER (9 LBS/1000 SQ FT).
- ACCEPTABLE - APPLY 2 TONS PER ACRE DOLOMITIC LIMESTONE (92 LBS/1000 SQ FT) AND 1000 LBS PER ACRE 10-10-10 FERTILIZER (23 LBS/1000 SQ FT) BEFORE SEEDING. HARROW OR DISC INTO UPPER THREE INCHES OF SOIL.

SEEDING: FOR THE PERIODS MARCH 1 THROUGH APRIL 30 AND AUGUST 1 THROUGH OCTOBER 15, SEED WITH 60 LBS PER ACRE (1.4 LBS/1000 SQ FT) OF KENTUCKY 31 TALL FESCUE PER ACRE AND 2 LBS PER ACRE (0.5 LBS/1000 SQ FT) OF WEeping LOVEGRASS. DURING THE PERIOD OF OCTOBER 15 THROUGH 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 SOO. OPTION (3) SEED WITH 60 LBS PER ACRE OF KENTUCKY 31 TALL FESCUE AND MULCH WITH 2 TONS PER ACRE OF 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 SEEDBED AREAS AND MAKE NEEDED REPAIRS, REPLACEMENTS AND RESEEDINGS.

TEMPORARY SEEDBED PREPARATION

APPLY TO GRADED OR CLEARED AREAS LIKELY TO BE REDISTURBED BY A SHORT-TERM VEGETATIVE COVER IS NEEDED.

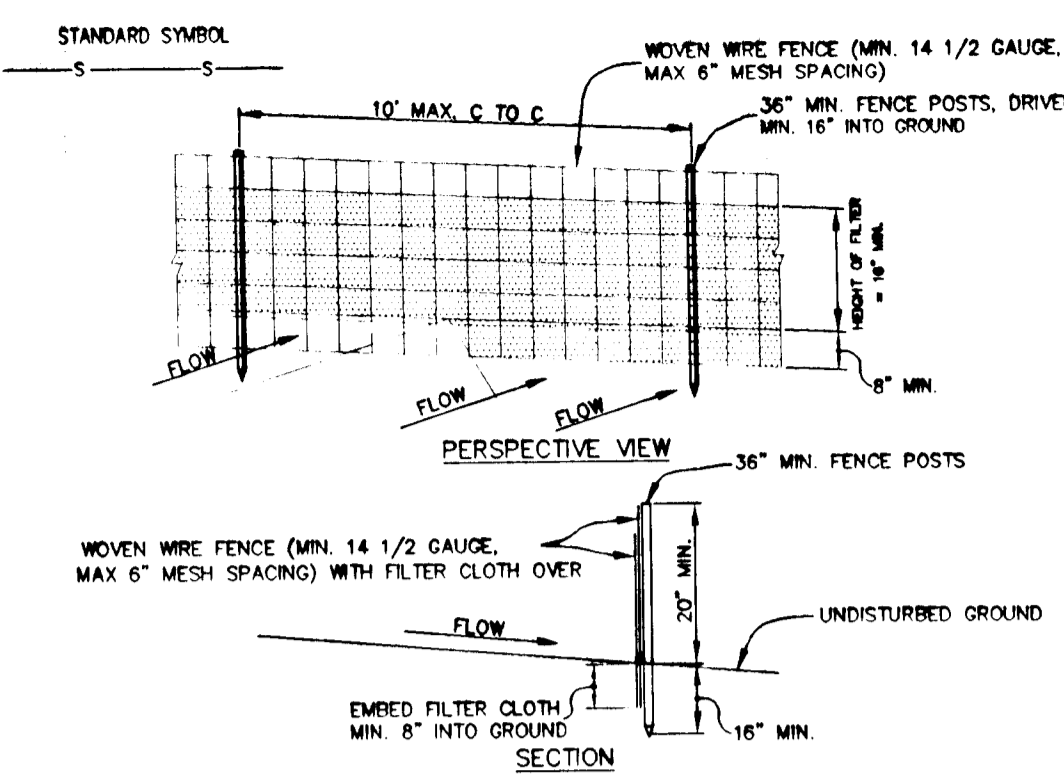
SEEDBED PREPARATION: LOOSEN UPPER THREE INCHES OF SOIL BY RAKING, DISCING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING, IF NOT PREVIOUSLY LOOSENED.

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

SEEDING: FOR PERIOD MARCH 1 THROUGH APRIL 30 AND FROM AUGUST 15 THROUGH NOVEMBER 15, SEED WITH 2-1/2 BUSHEL PER ACRE OF ANNUAL RYE (3.2 LBS/1000 SQ FT) FOR THE PERIOD MAY 1 THROUGH AUGUST 14, SEED WITH 3 LBS PER ACRE OF WEeping LOVEGRASS (0.7 LBS/1000 SQ FT). FOR THE PERIOD NOVEMBER 16 THROUGH 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 SOO.

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 FT. OR HIGHER, USE 348 GALLONS PER ACRE (8 GAL/1000 SQ FT) FOR ANCHORING.

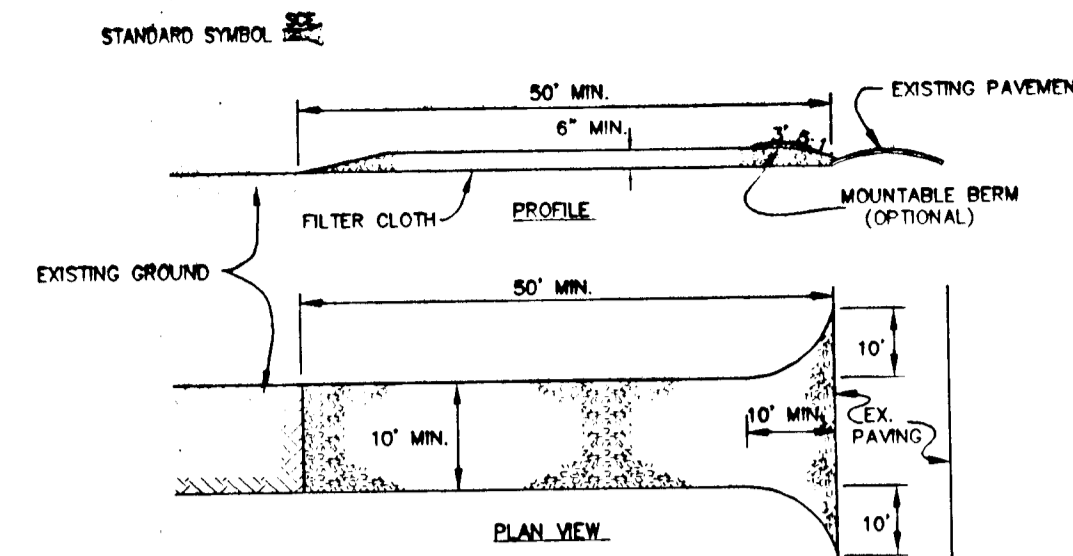
REFER TO THE 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR RATE AND METHODS NOT COVERED.



- CONSTRUCTION NOTES FOR FABRICATED SILT FENCE**
- Woven wire fence to be fastened securely to fence posts with wire ties or staples.
 - Filter cloth to be fastened securely to woven wire fence with ties spaced every 24" at top and mid section.
 - When two sections of filter cloth adjoin each other they shall be overlapped by six inches and folded.
 - Maintenance shall be performed as needed and material removed when "bulges" develop in the silt fence.
- POST: Steel either T or U type or 2" hardwood
 FENCE: Woven wire, 14 1/2 Go. 6"
 Max. mesh opening
 FILTER CLOTH: Filter X, Mirafi 100X, Stabliinka T140N or approved equal
 PREFABRICATED UNIT: Geofab, Enviroforce, or approved equal

SILT FENCE DETAIL

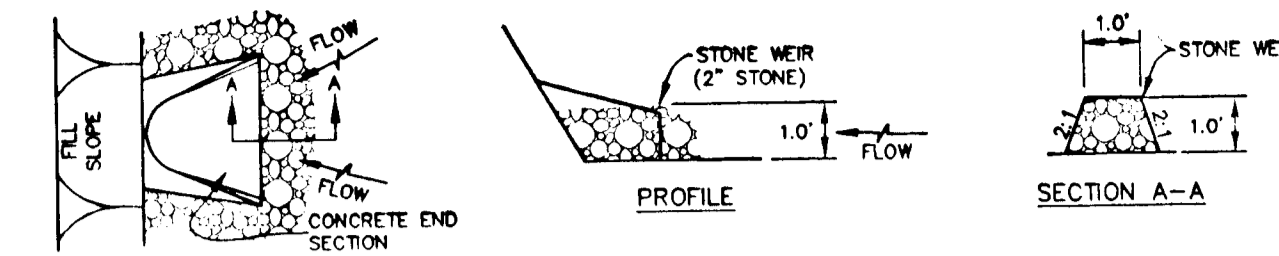
NOT TO SCALE



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

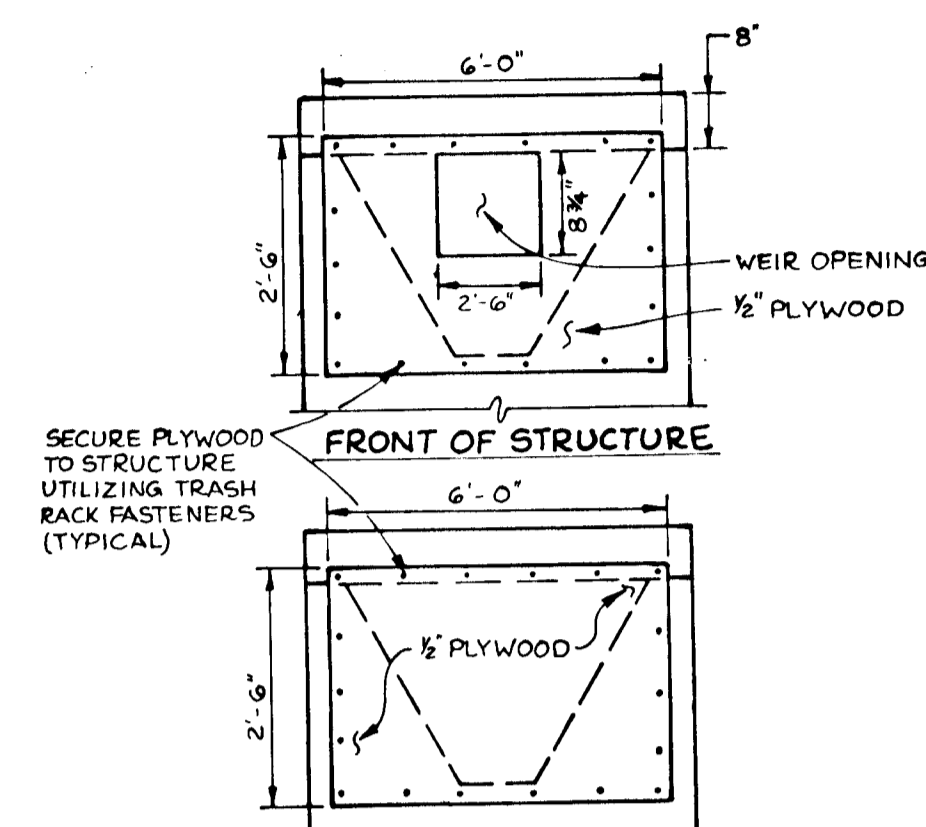
STABILIZED CONSTRUCTION ENTRANCE

NOT TO SCALE



PIPE INLET PROTECTION

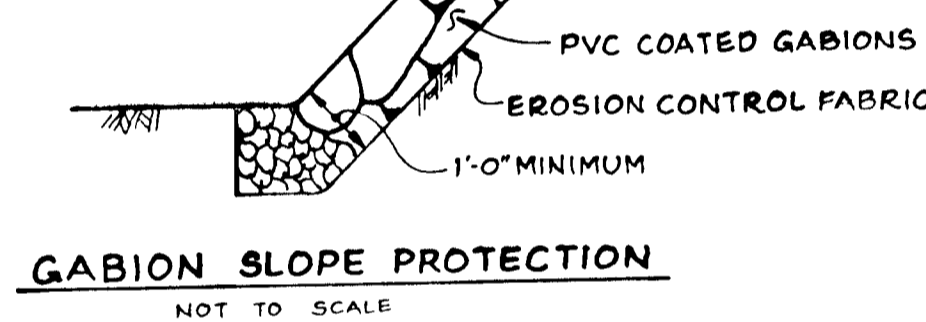
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TEMPORARY STORMWATER MANAGEMENT RELEASE STRUCTURE MODIFICATIONS

NOT TO SCALE

- NOTES: 1) EROSION CONTROL FABRIC SHALL BE AS MANUFACTURED BY CARTHAGE MILLS, INC. EROSION CONTROL DIVISION, 124 W. 66TH STREET, CINCINNATI, OHIO OR APPROVED EQUAL.
 2) RIP RAP SHALL CONSIST OF DENSE ROCKS OF RANDOM SHAPES AND SIZES, RESISTANT TO THE ACTION OF AIR AND WATER AND SUITABLE FOR BANK PROTECTION.

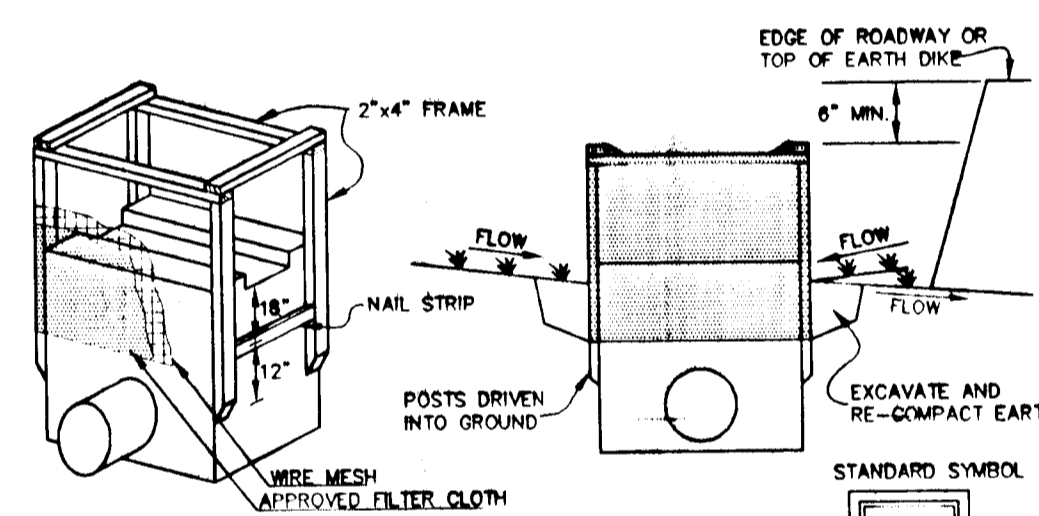


GABION SLOPE PROTECTION

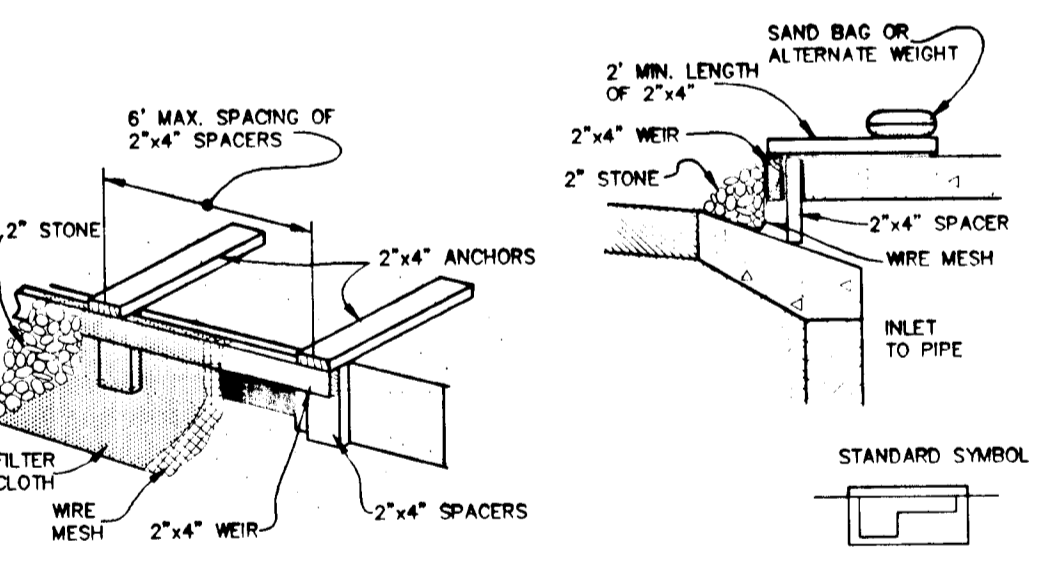
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CONSTRUCTION SPECIFICATIONS FOR IPD-1

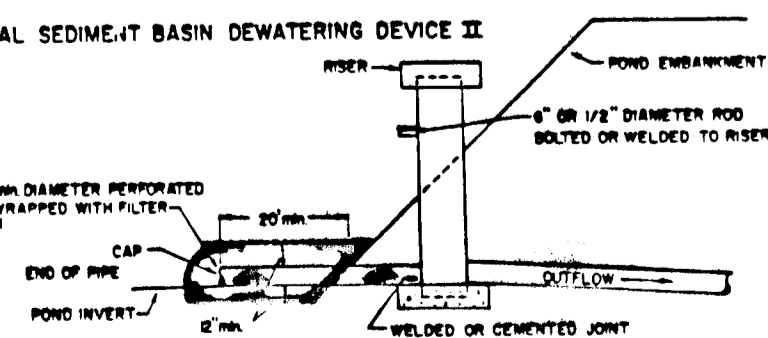
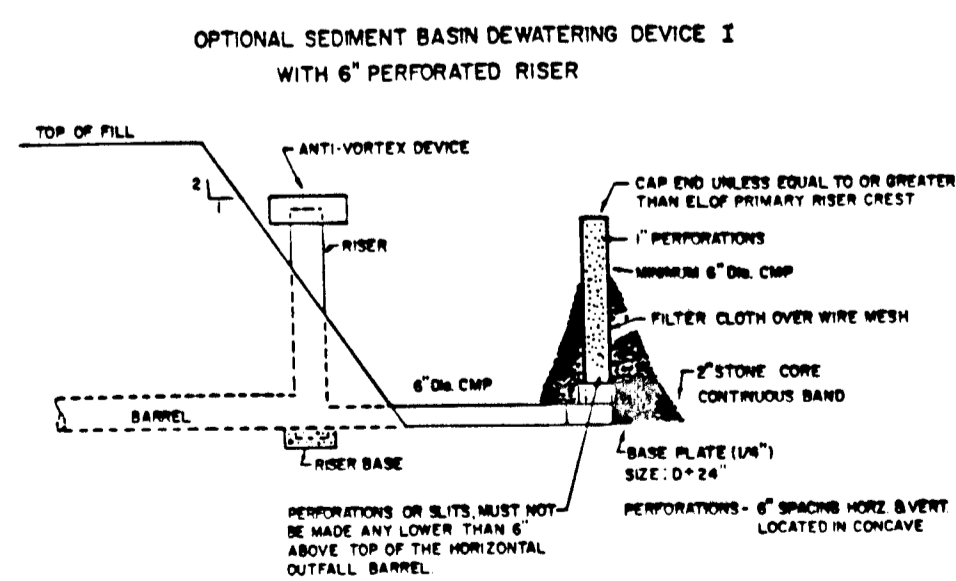
- Excavate completely around inlet to a depth of 18" below notch elevation.
 - Drive 2 x 4 post 1' into ground at four corners of inlet. Place nail strips between posts on ends of inlet. Assemble top portion of 2 x 4 frame using overlap joint shown. Top of frame (weir) must be 6" below edge of roadway adjacent to inlet.
 - Stretch wire mesh tightly around frame and fasten securely. Ends must meet post.
 - Stretch filter cloth tightly over wire mesh, the cloth must extend from top of frame to 18" below inlet notch elev. fasten securely to frame. Ends must meet at post, be overlapped and folded, then fastened down.
 - Back-fill around inlet in compacted 6" layers until layer of earth is even with notch elevation on ends and top elevation on sides.
 - If the 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 frame (weir).
 - This structure must be inspected frequently and the filter fabric replaced when clogged.
- Attach a continuous piece of wire mesh (30" min. width by throat length plus 4") to the 2"x4" weir (measuring throat length plus 2") as shown on the standard drawing.
 - 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"x4" weir.
 - Securely nail the 2"x4" weir to 9" long vertical spacers to be located between the weir and inlet face (max. 6" apart).
 - Place the assembly against the inlet throat and nail (min. 2" lengths of 2"x4" to the top of the weir spacer locations. These 2"x4" anchors shall extend across the inlet top and be held in place by sandbags or alternate weight.
 - The assembly shall be placed so that the end spacers are a minimum 1' beyond both ends of the throat opening.
 - From the wire mesh and filter cloth to the concrete gutter and against the face of curb on both sides of the inlet. Place clean 2" stone over the wire mesh and filter fabric in such a manner as to prevent water from entering the inlet under or around the filter cloth.
 - This type of protection must be inspected frequently and the filter cloth and stone replaced when clogged with sediment.
 - Assure that storm flow does not bypass inlet by installing temporary earth or asphalt dikes directing flow into inlet.



SWALE INLET PROTECTION DETAIL



CURB INLET PROTECTION DETAIL



VERTICAL BLOCKING DETAIL

NOT TO SCALE

INLET PROTECTION DETAIL

NOT TO SCALE

EARTH DIKE DETAIL

NOT TO SCALE

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

JOHN M. ELORRIGA Date:
 Certify means to state or declare a professional opinion based upon on-site inspections and materials tests which are conducted during construction. The on-site inspections and materials tests are those inspections and tests deemed sufficient and appropriate by commonly accepted engineering standards. Certify does not mean or imply a guarantee by the Engineer nor does an Engineer's certification relieve any other party from meeting requirements imposed by contract, employment or other means, including meeting commonly accepted industry practices.

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.

Bruce B. Brendel Pres. 8/3/95
 BRUCE BRENDEL Date
 DEVELOPER: PARCEL 137, INC.

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.

John M. Elorriga 8/2/95
 JOHN M. ELORRIGA, P.E. #16891 Date
 ENGINEER

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.
 Patricia Engle 8/2/95
 Natural Resource Conservation Service Date

These plans for small pond construction, soil erosion and sediment control meet the requirements of the Howard Soil Conservation District.
 Robert J. Ziebar 8/2/95
 Howard Soil Conservation District Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 Andrew M. Daneker 9-30-95
 CHIEF, BUREAU OF HIGHWAYS DATE
 ANDREW DANEKER

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 Gina Trinanzi 9/19/95
 CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH DATE
 GINA TRINANZI

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 Charles Dammers 9/14/95
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE
 CHARLES DAMMERS

NO.	DATE	REVISION

TSA GROUP, INC.
 planning • architecture • engineering • surveying
 8490 Baltimore National Pike • Ellicott City, Maryland 21043 • (410)468-6100

OWNER: 206 JOINT VENTURE
 15555 UNION CHAPEL ROAD
 WOODBINE, MARYLAND 21797

PROJECT: CATTAIL WOODS
 SECTION 2 - PARCEL 4

DEVELOPER: PARCEL 137 INC.
 15298 UNION CHAPEL ROAD
 WOODBINE, MARYLAND 21797

LOCATION: TAX MAP 7 - PARCEL 137
 4TH ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

TITLE: SEDIMENT AND EROSION CONTROL
 NOTES AND DETAILS
 F-94-80 5-94-27 WP-94-77

DATE: JANUARY 13, 1995
 AUGUST 3, 1995 PROJECT NO. 0769

DES: GWF DRN: JR SCALE: AS SHOWN DRAWING 7 OF 10

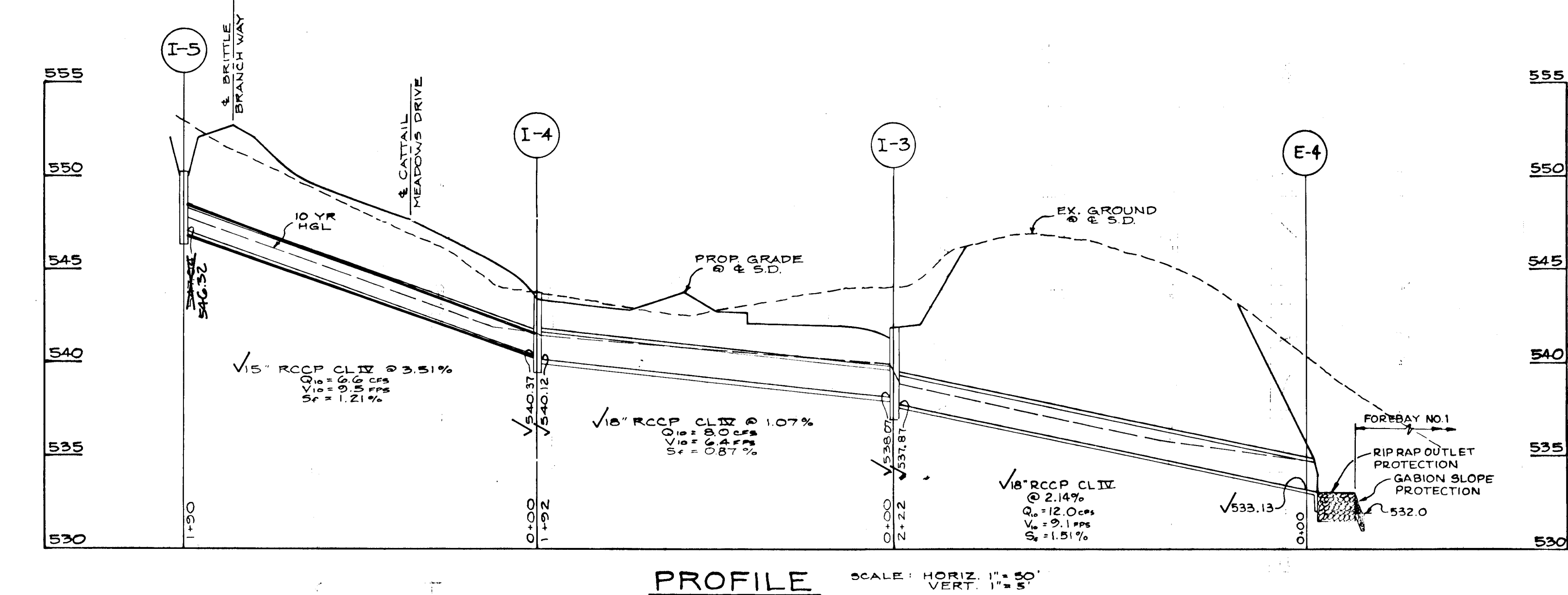
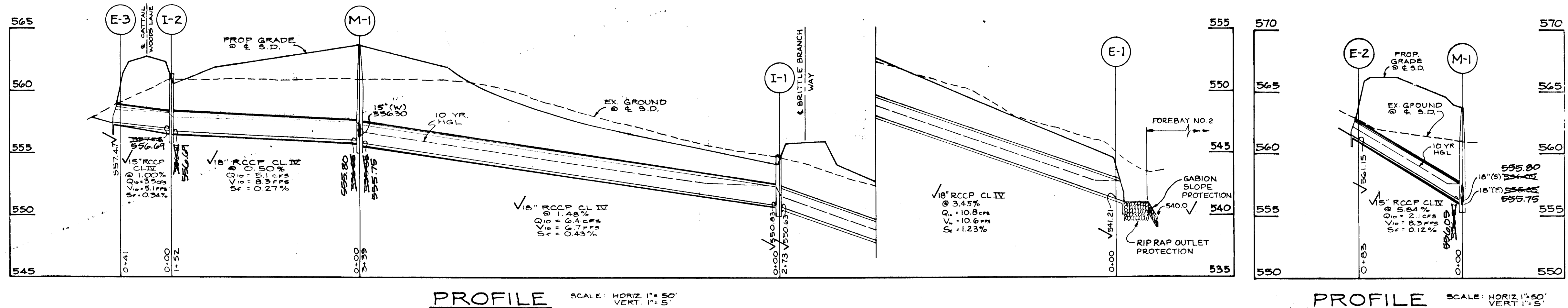
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TP-3

ELEV.	SOIL DESCRIPTION	STRA. DEPTH	DEPTH SCALE	SAMPLE CON. BLOWS 6"	NO.	REC.	BORING & SAMPLING NOTES
565	Color: Medium Brown, Silty, Clayey	0.0	1:1	1.0			
560	Charge-down, moist, micaceous sandy silt (ML) trace to little decomposed rock	2.0	1:1	1.0			In-situ infiltration test performed at a depth of 5.0 feet (approx. EL. 530)
555	Reddish brown, moist, sandy silt and decomposed rock fragments (SM-ML)	5.0	1:1	1.0			
550	Yellowish-brown, moist, micaceous sandy silt and decomposed rock fragments (SM-ML)	8.0	1:1	1.0			
545		9.0	1:1	1.0			
540		10.0	1:1	1.0			

TP-4

ELEV.	SOIL DESCRIPTION	STRA. DEPTH	DEPTH SCALE	SAMPLE CON. BLOWS 6"	NO.	REC.	BORING & SAMPLING NOTES
555	Color: Medium Brown, Silty, Clayey	0.0	1:1	1.0			
550	Charge-down, moist, micaceous sandy silt (ML) trace to little decomposed rock	3.0	1:1	1.0			In-situ infiltration test performed at a depth of 6.0 feet (approx. EL. 530)
545	Reddish brown, moist, sandy silt and decomposed rock fragments (SM-ML)	5.0	1:1	1.0			
540		10.0	1:1	1.0			



BY THE DEVELOPER:
 "I/WE CERTIFY THAT ALL DEVELOPMENT AND 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 MARYLAND DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."

Developer: Bruce B. Randal Pres. 8/5/95
 DATE

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

Engineer: John M. Florriaga, P.E. # 16891 8/15/95
 DATE

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

Inspector: Patricia Eng 8/21/95
 DATE
 NATURAL RESOURCE CONSERVATION SERVICE

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

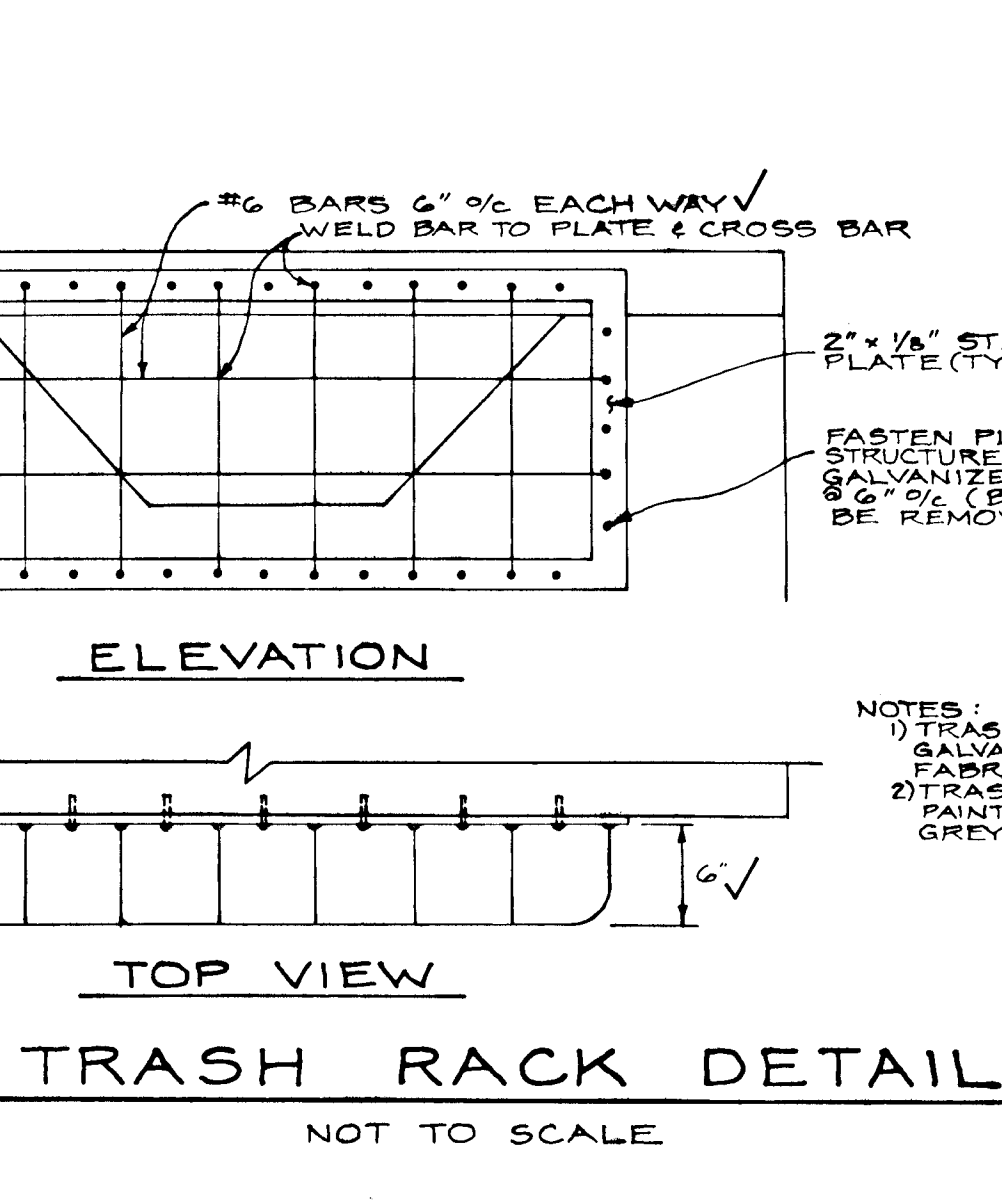
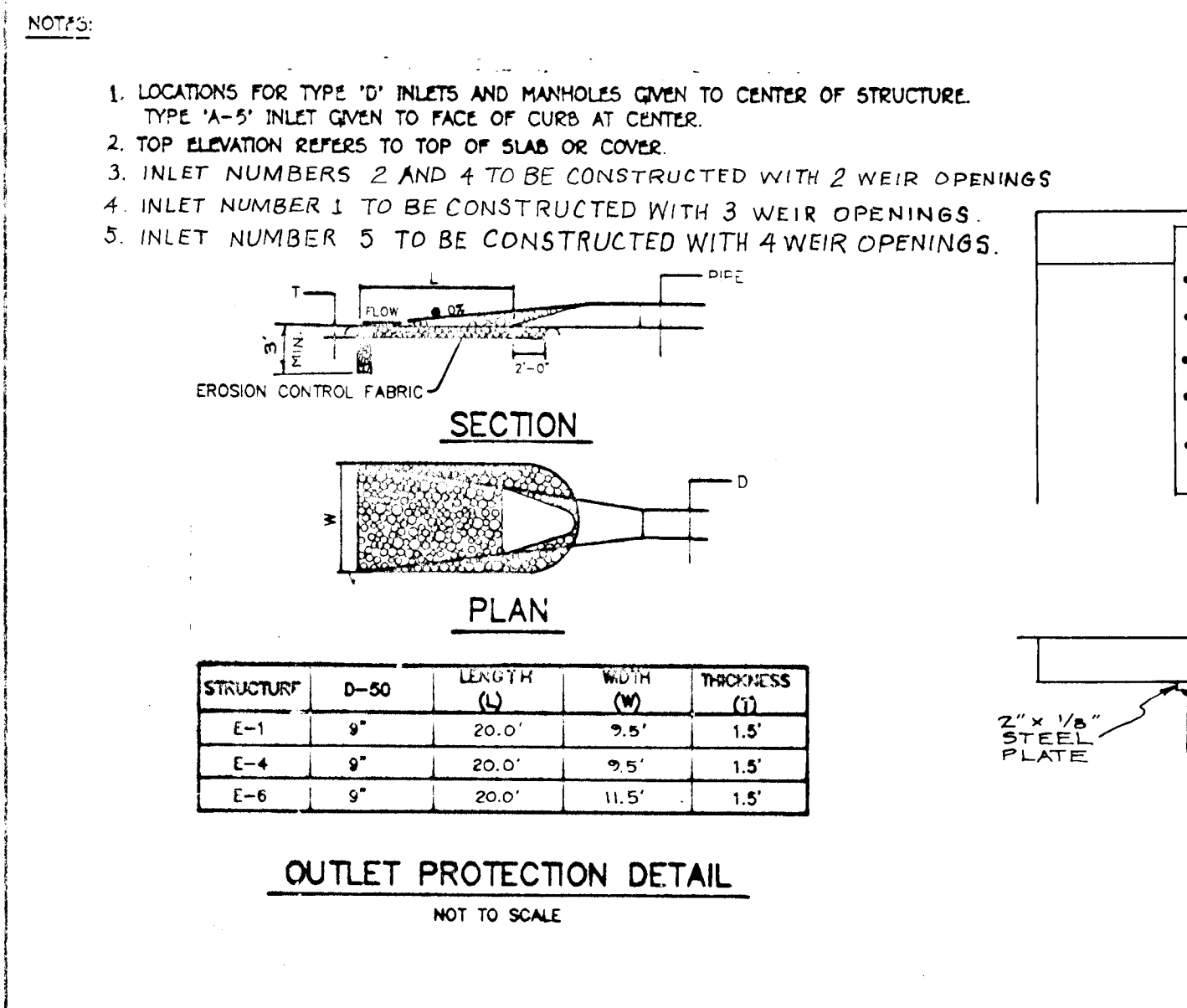
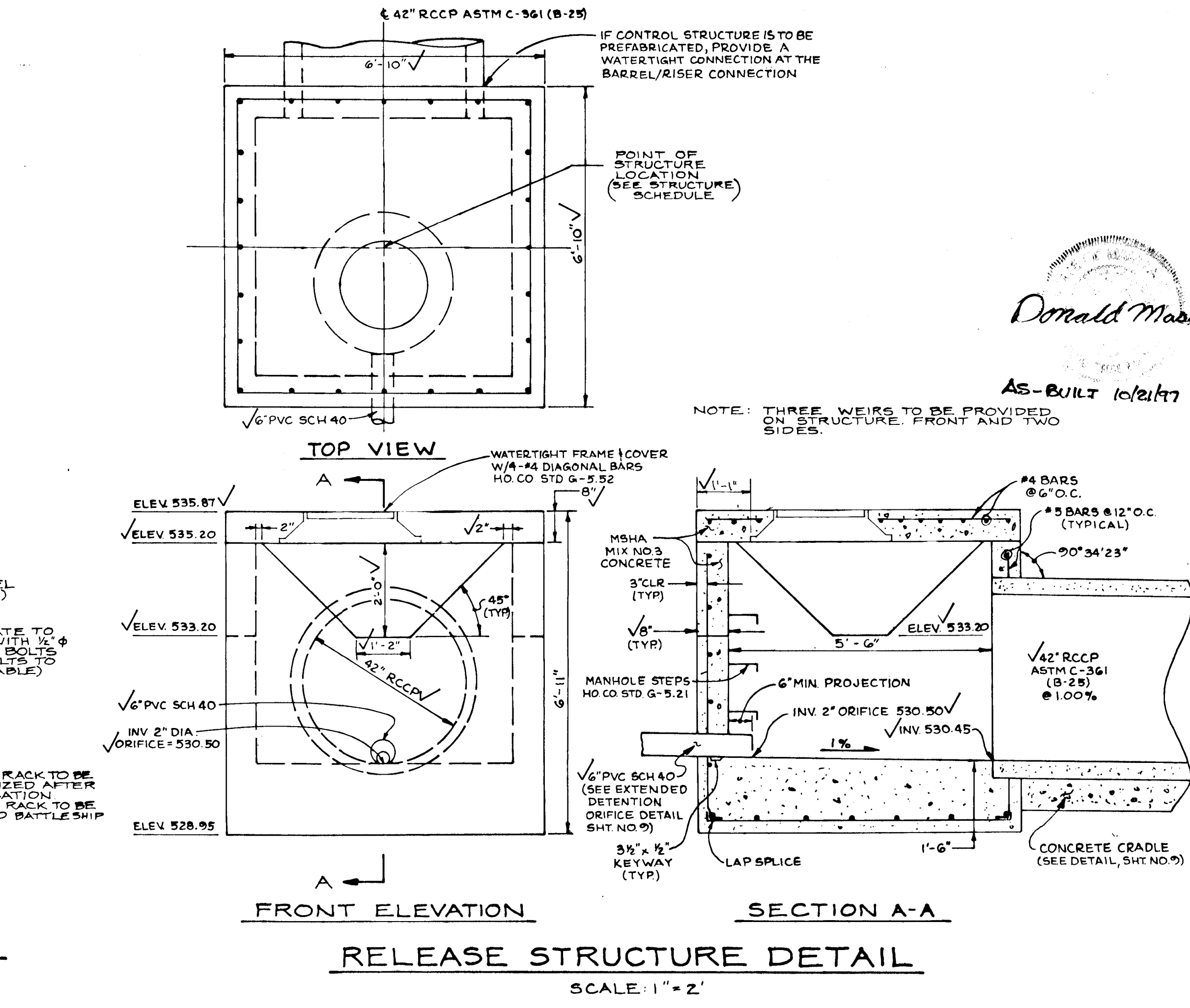
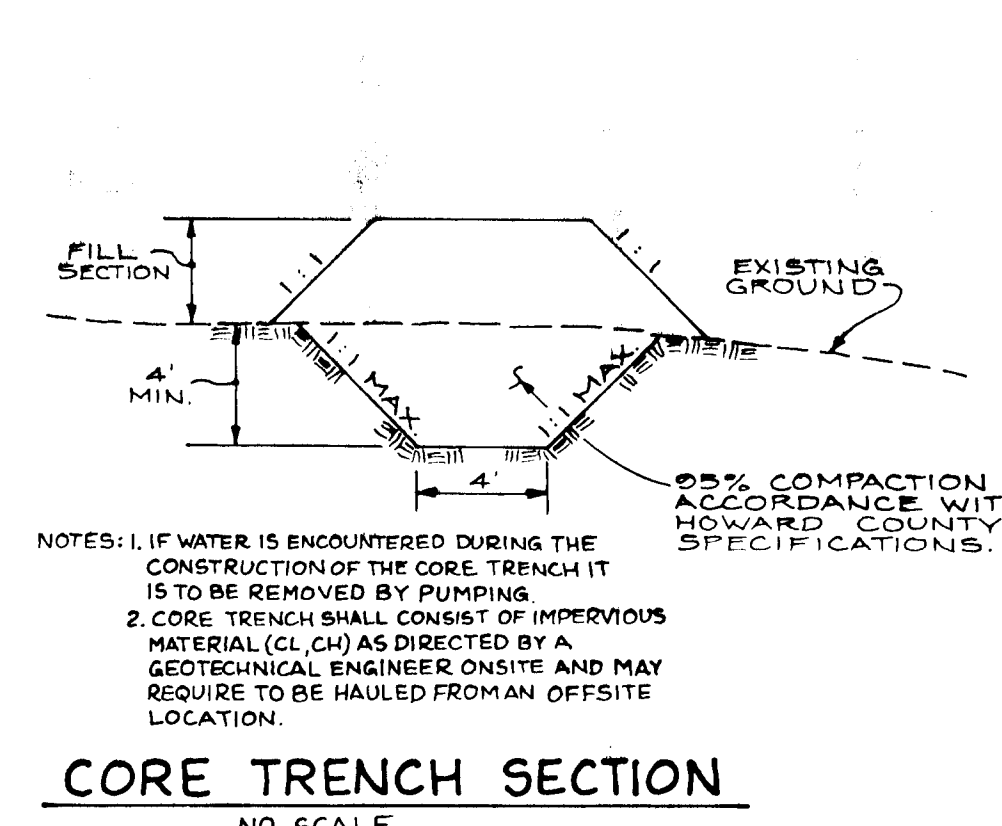
Inspector: Robert W. Ziehm 8/21/95
 DATE
 HOWARD S.C.D.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 Chief, Bureau of Highways Andrew Daneker 8-30-95
 DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 Chief, Division of Land Development and Research GINA TIRINNANZI 9/19/95
 DATE
 Chief, Development Engineering Division CHARLES DAMMERS MK 9/14/95
 DATE

PHASE 1 CONSTRUCTION STRUCTURE SCHEDULE

No.	TYPE	LOCATION	INV. IN	INV. OUT	TOP ELEV.	HO. CO. STD.	SD
I-1	TYPE 'D'	19' RT. STA. 6+61.01 BRITTLE BRANCH WAY	√18' 550.34	√18' 550.34	554.91		SD 4.39
I-2	TYPE 'D'	19' LT. STA. 1+93.17 CATTAIL MEADOWS DR	√18' 550.34	√18' 550.34	554.91		SD 4.39
I-3	A-5 (DEPRESSED)	19' PROF. STA. 10+72.51 CATTAIL MEADOWS DR	√18' 550.34	√18' 550.34	554.91		SD 4.01
I-4	TYPE 'D'	19' RT. STA. 10+50 CATTAIL MEADOWS DR	√18' 550.34	√18' 550.34	554.91		SD 4.39
I-5	TYPE 'D'	25' RT. STA. 12+13 BRITTLE BRANCH WAY	√18' 550.34	√18' 550.34	554.91		SD 4.39
E-1	16" CONCRETE 2' DIA. RELEASE STRUCTURE	N 604017.83 E 1291401.04	√18' 541.21	√18' 541.21	550.09		SD 5.51
E-2	16" CONCRETE 2' DIA. RELEASE STRUCTURE	20' LT. STA. 2+50 BRITTLE BRANCH WAY	√18' 561.12	√18' 561.12	550.09		SD 5.51
E-3	16" CONCRETE 2' DIA. RELEASE STRUCTURE	22' RT. STA. 1+93.17 CATTAIL MEADOWS DR	√18' 557.41	√18' 557.41	550.09		SD 5.51
E-4	16" CONCRETE 2' DIA. RELEASE STRUCTURE	N 603859.17 E 1291826.03	√18' 533.13	√18' 533.13	550.09		SD 5.51
E-6	16" CONCRETE 2' DIA. RELEASE STRUCTURE	N 603966.99 E 1291872.80	√18' 530.16	√18' 530.16	550.09		SD 5.51
S-1	30" FACILITY A&J RELEASE STRUCTURE	N 803959.8704 E 1291838.7244	√18' 530.48	√18' 530.48	535.87		SPECIAL DESIGN
M-1	MANHOLE	21.5' LT. STA. 0+42 CATTAIL MEADOWS DR	√18' 550.34	√18' 550.34	563.76		SD 5.12



6/24/97 ADD INLET WEIR OPENING CONSTRUCTION NOTES.

NO.	DATE	REVISION

TSA GROUP, INC.
 planning • architecture • engineering
 8400 Baltimore National Pike • Hillcott City, Maryland 21043 • (301)465-8100

OWNER: 206 JOINT VENTURE 15555 UNION CHAPEL ROAD WOODBINE, MARYLAND 21797	PROJECT: CATTAIL WOODS SECTION 2 - PARCEL 4
DEVELOPER: PARCEL 137 INC. 15290 UNION CHAPEL ROAD WOODBINE, MARYLAND 21797	LOCATION: TAX MAP 7 - PARCELS 137 4th ELECTION DISTRICT HOWARD COUNTY, MARYLAND
TITLE: STORM DRAIN PROFILES & STORMWATER MANAGEMENT NOTES AND DETAILS (PHASE 1)	DATE: JANUARY 13, 1995 AUGUST 3, 1995
DES: GWF	DRN: JPR JR.
SCALE: AS SHOWN	PROJECT NO. 0769 DRAWING 2 OF 10

2551

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 the topsoil will be stockpiled in a suitable location for use on the embankment and other designated areas.

Earth Fill

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

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

Compaction - The movement of the hauling and spreading equipment over the fill shall be controlled so that the entire surface of each lift shall be traversed by not less than one tread track of the equipment or compaction shall be achieved by a minimum of four complete passes of a sheepfoot, 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.

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

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

Structure Backfill

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

Pipe Conduits

All pipes shall be circular in cross section.

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

- Materials - (Steel Pipe) - This pipe and its appurtenances shall be galvanized and fully bituminous coated and shall conform to the requirements of AASHTO Specification M-190 Type A with watertight coupling bands. Any bituminous coating damaged or otherwise removed shall be replaced with cold applied bituminous coating compound. Steel pipes with polymeric coatings shall have a minimum coating thickness of 0.01 inch (10 mil) on both sides of the pipe. The following coatings or an approved equal may be used: Nexon, Plast-i-Cote, Baco-Klad, and Beth-Cu-Loy. Coated corrugated steel pipe shall meet the requirements of AASHTO M-245 and M-246.

Materials - (Aluminum Coated Pipe) - This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-274 with watertight coupling bands or flanges. Any aluminum coating damaged or otherwise removed shall be replaced with cold applied bituminous coating compound.

Materials - (Aluminum Pipe) - This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-196 or M-211 with watertight coupling bands or flanges. Aluminum surfaces that are to be in contact with concrete shall be painted with one coat of zinc chromate primer. Hot dip galvanized bolts may be used for connections. The pH of the surrounding soils shall be between 4 and 9.

- Coupling bands, anti-seep collars, end sections, etc., must be composed of the same material as the pipe. Metals must be insulated from dissimilar materials with use of rubber or plastic insulating materials of at least 24 mils in thickness.

- Connections - All connections with pipes must be completely watertight. The drain pipe or barrel connection to the riser shall be welded all around when the pipe and riser are metal. Anti-seep collars shall be connected to the pipe in such a manner as to be completely watertight. Dimple bands are not considered to be watertight.

All connections shall use a rubber or neoprene gasket when joining pipe sections. The end of each pipe shall be rolled on an adequate number of corrugations to accommodate the band width. The following type connections are acceptable for pipes less than 48" in diameter: flanges on both ends of the pipe, a 12" wide standard lap type band with 12" wide by 3/8" thick closed circular neoprene gasket; and a 12" wide hugger type band with O-ring gaskets having a minimum diameter of 1/2" greater than the corrugation depth. Pipes 48" in diameter and larger shall be connected by a 24" long angular corrugated band using rods and lugs. A 12" wide by 3/8" thick closed circular neoprene gasket will be installed on the end of each pipe for a total of 24". Helicoidally corrugated pipe shall have either continuously welded seams or hove lock seams.

- 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.

- Backfilling shall conform to "Structure Backfill."

- 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:

- Materials - Reinforced concrete pipe shall have bell and spigot joints with rubber gaskets and shall equal or exceed ASTM Specification C-361. An approved equivalent is AWWA Specification C-302.
- 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 to a thickness of at least 10% of its outside diameter with a minimum thickness of 3 inches, or as shown on the drawings.

- 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.

- Backfilling shall conform to "Structure Backfill."

- Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

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

- Materials - PVC pipe shall be PVC-1120 or PVC-1220 conforming to ASTM D-1785 or ASTM D-2241.

- Joints and connections to anti-seep collars shall be completely watertight.

- Bedding - The pipe shall be firmly and uniformly bedded throughout its entire length. Where rock or soft, spongy or other unstable soil is encountered, all such material shall be removed and replaced with suitable earth compacted to provide adequate support.

- Backfilling shall conform to "Structure Backfill."

- Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

Concrete

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

Rock Riprap

All rock shall be dense, sound, and free from cracks, seams, and other defects conducive to accelerated weathering. The rock fragments shall be angular to subangular in shape. The least dimension of an individual rock fragment shall be not less than one third the greatest dimension of the fragment.

The rock shall have the following properties:

- Bulk specific gravity (saturated surface-dry basis) not less than 2.5.
- Absorption not more than three percent.
- Soundness: Weight loss in five cycles not more than 20 percent when sodium sulfate is used.

Bulk specific gravity and absorption shall be determined according to ASTM C 127. The test for soundness shall be performed according to ASTM C 85.

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

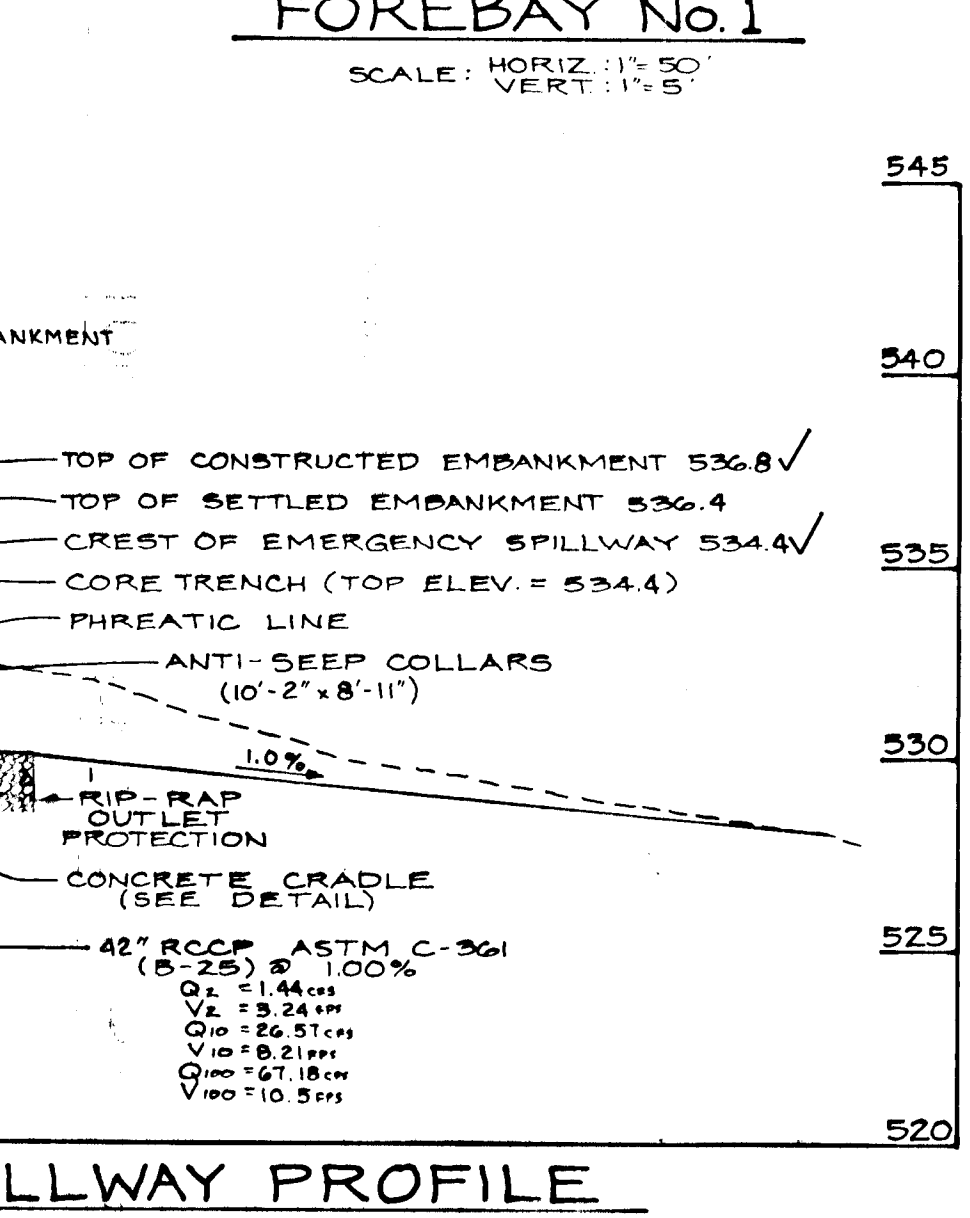
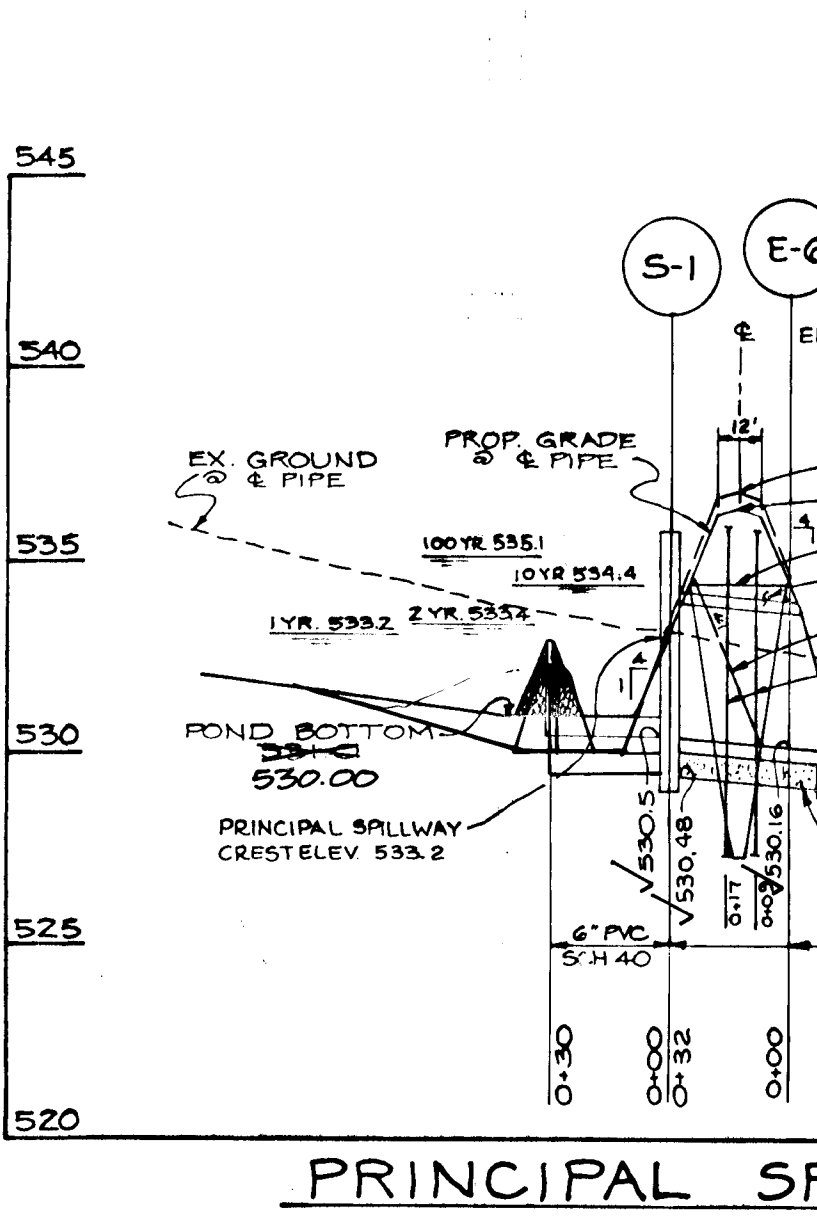
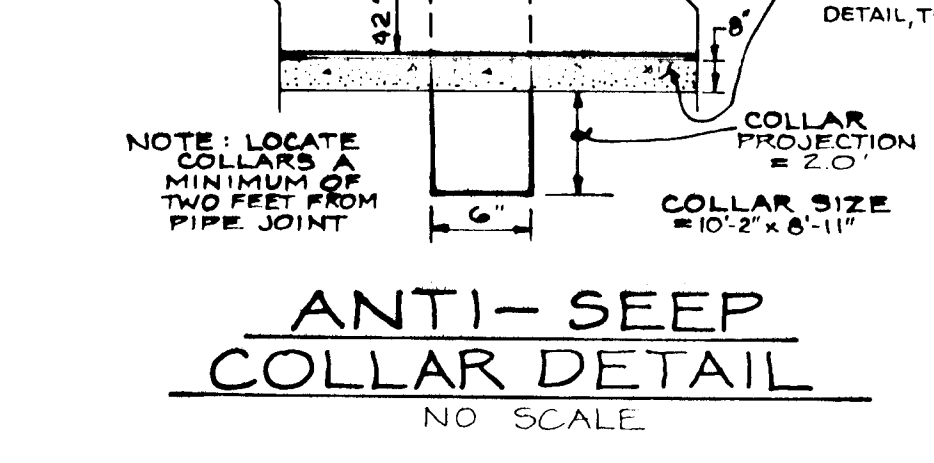
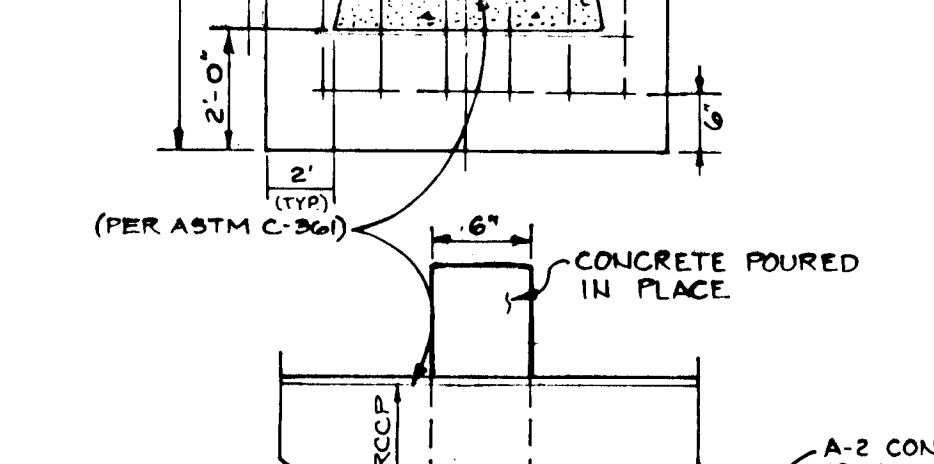
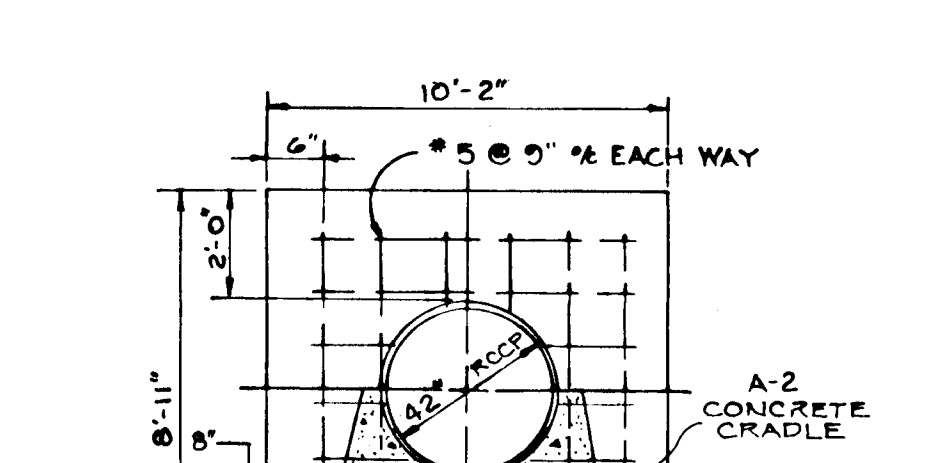
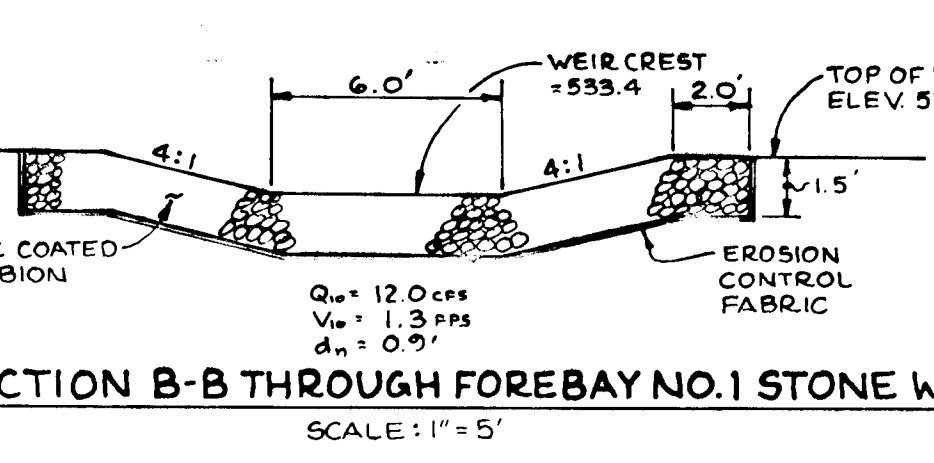
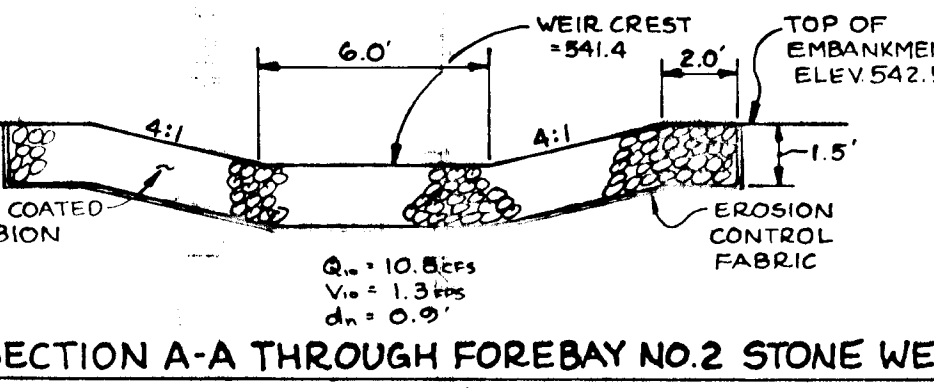
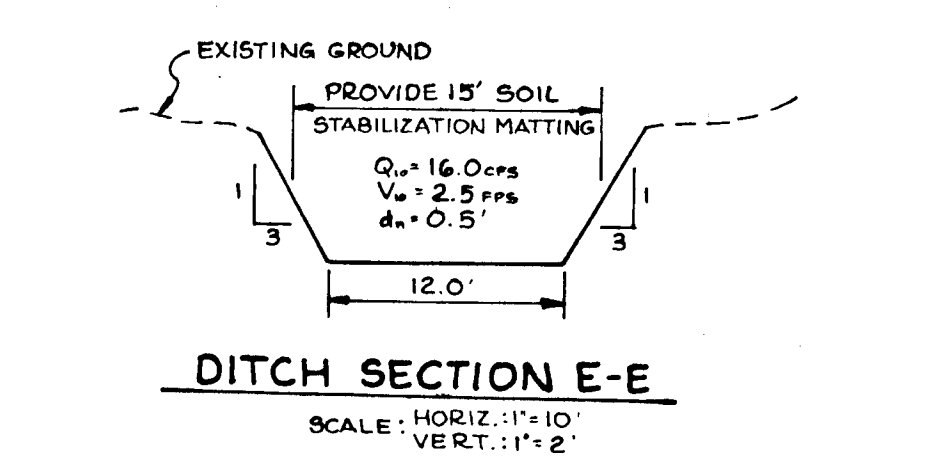
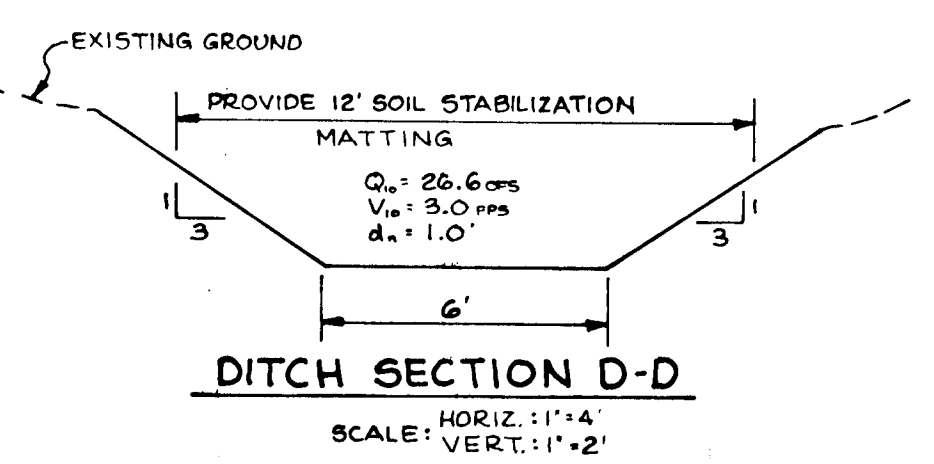
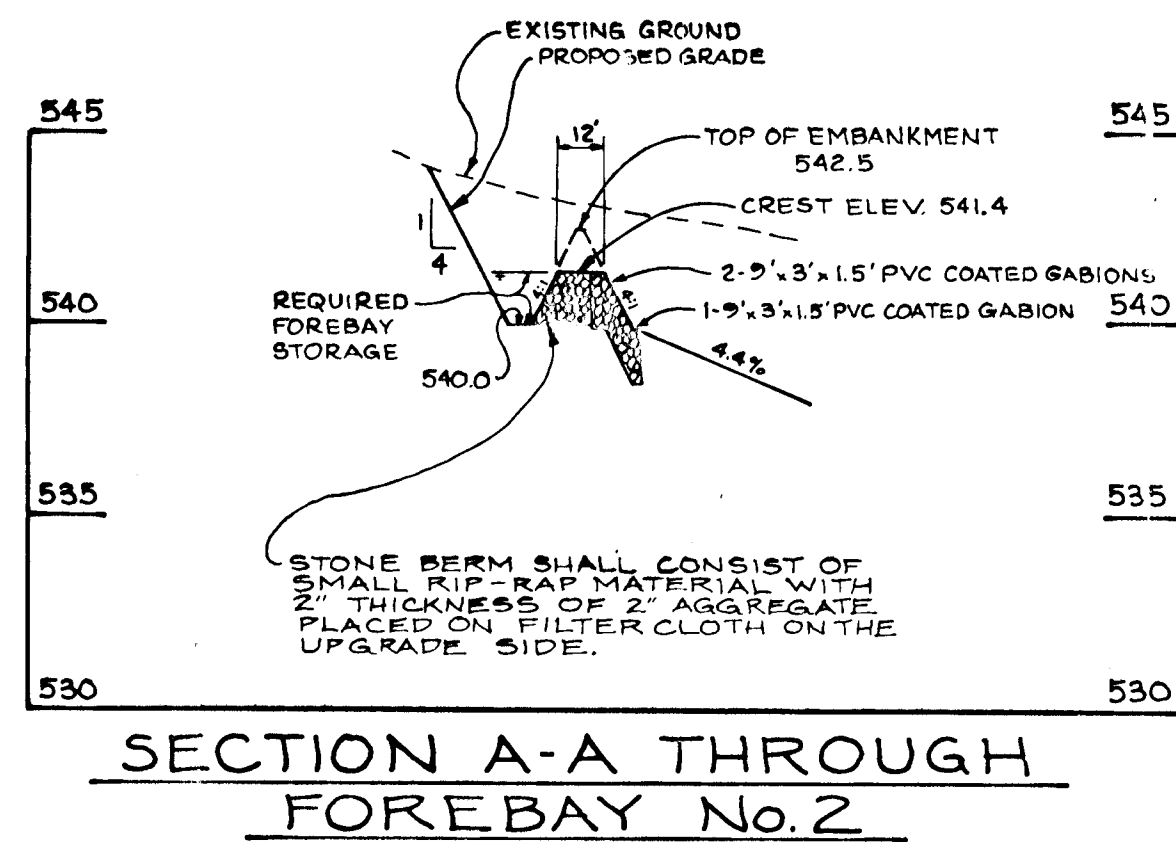
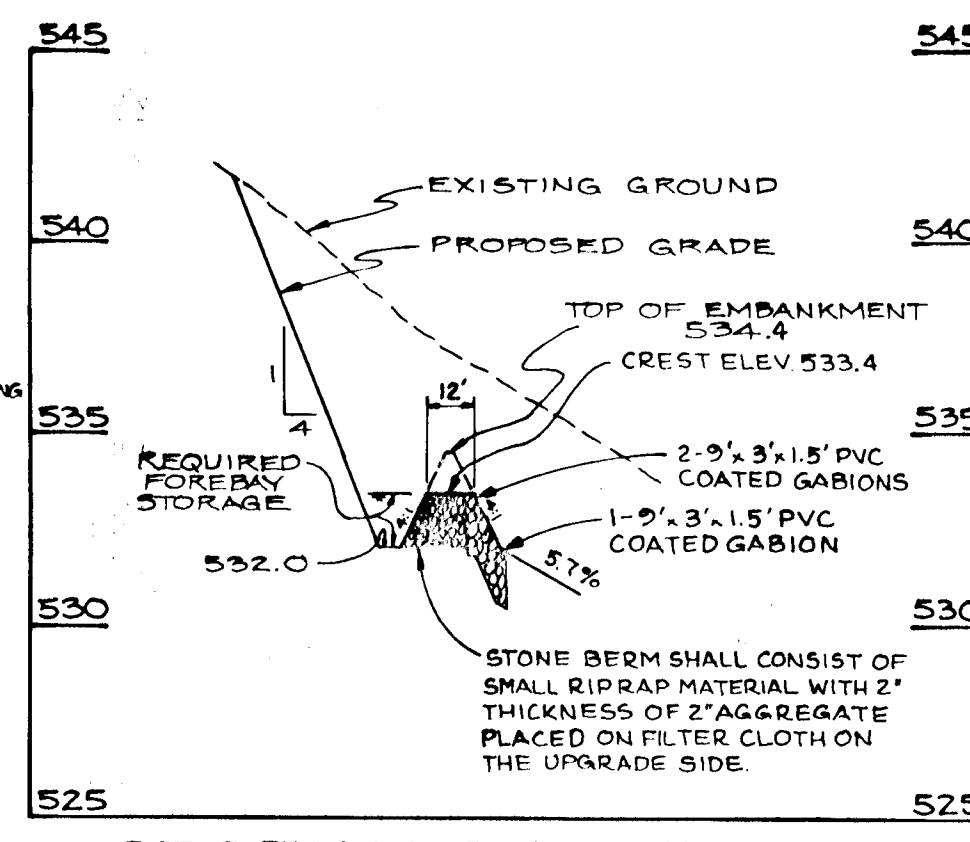
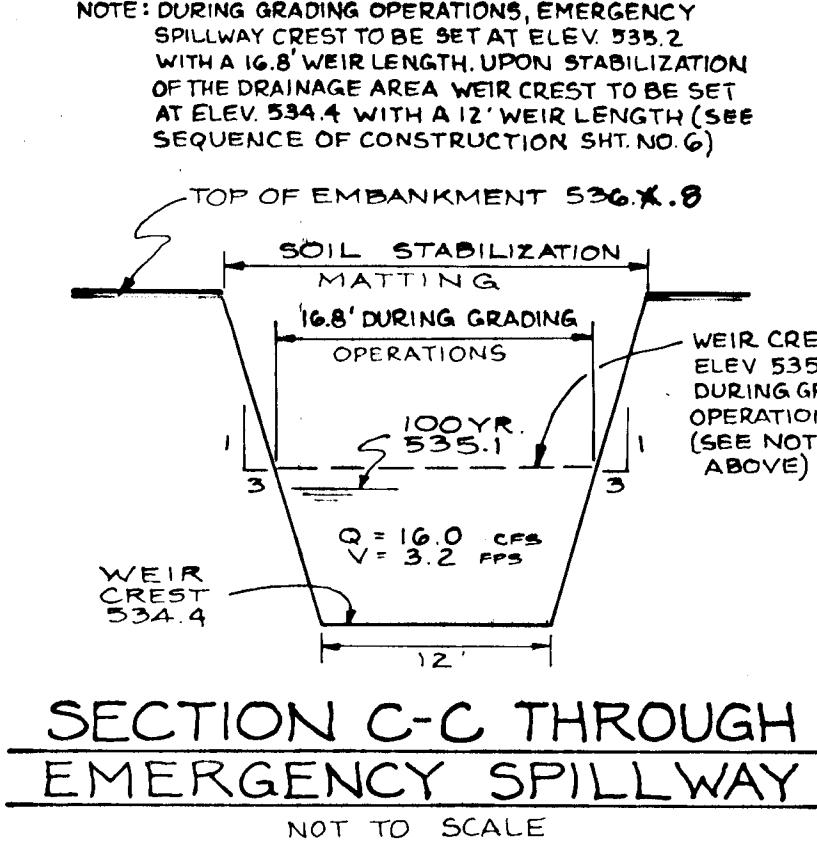
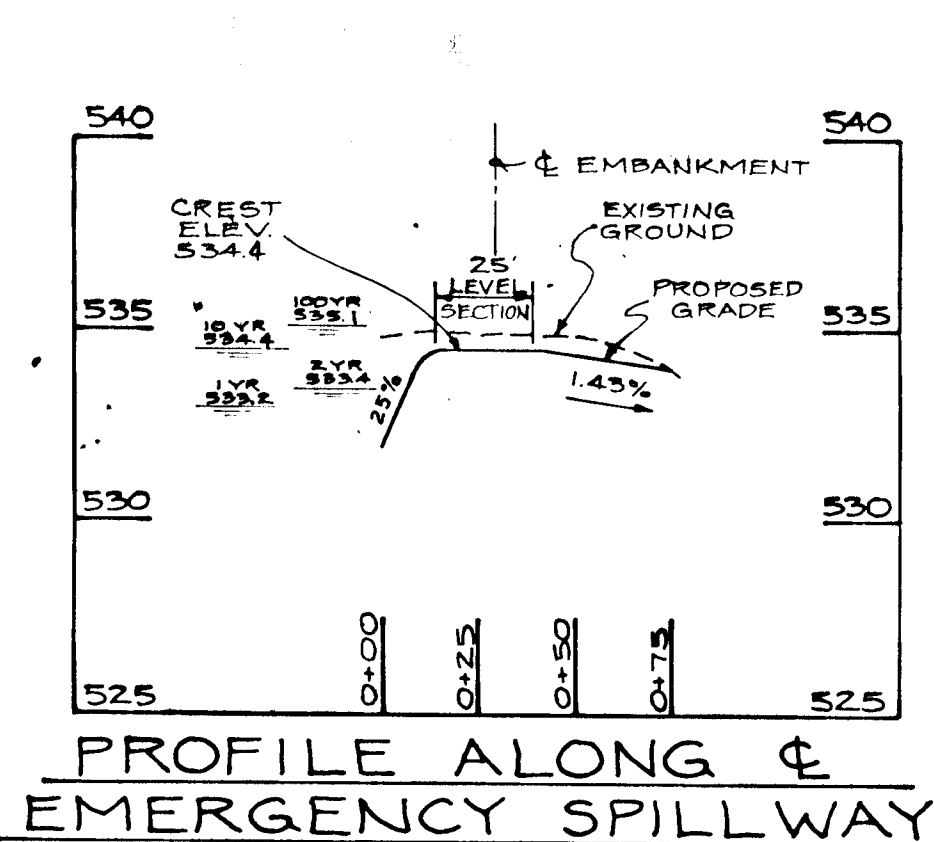
Care of Water during Construction

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

Stabilization

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

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



BY THE DEVELOPER:
I/WE CERTIFY THAT ALL DEVELOPMENT AND 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 MARYLAND DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT.

Bruce B. Brandel Pres. 8/3/95
DEVELOPER: PARCEL 137 INC. DATE

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

John M. Elorriaga 8/6/95
ENGINEER: JOHN M. ELORRIAGA, P.E. # 16891 DATE

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

Patricia E. 8/21/95
NATURAL RESOURCE CONSERVATION SERVICE DATE

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

Robert J. Zielhu 8/21/95
HOWARD S.C.D. DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Andrew M. 8-30-95
CHIEF, BUREAU OF HIGHWAYS DATE
ANDREW DANEKER

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
Ann Shumanna 9/19/95
CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH DATE
GINA TRINMANZI

Charles Dammers 9/14/95
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE
CHARLES DAMMERS MK

NO.	DATE	REVISION

ISA GROUP, INC.
planning • architecture • engineering • surveying
8400 Baltimore National Pike • Ellicott City, Maryland 21043 • (301)466-6106

OWNER:
206 JOINT VENTURE
15555 UNION CHAPEL ROAD
WOODBINE, MARYLAND 21797

PROJECT:
CATTAIL WOODS
SECTION 2 - PARCEL 4

LOCATION:
TAX MAP 7 - PARCELS 137
4th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

DEVELOPER:
PARCEL 137 INC.
15298 UNION CHAPEL ROAD
WOODBINE, MARYLAND 21797

TITLE:
STORMWATER MANAGEMENT
NOTES AND DETAILS (PHASE 1)

DATE:
JANUARY 13, 1995
AUGUST 3, 1995

PROJECT NO. 0769

SCALE: AS SHOWN

DRAWING 2 OF 10

OWNER:
206 JOINT VENTURE
15555 UNION CHAPEL ROAD
WOODBINE, MARYLAND 21797

PROJECT:
CATTAIL WOODS
SECTION 2 - PARCEL 4

LOCATION:
TAX MAP 7 - PARCELS 137
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SCALE: AS SHOWN

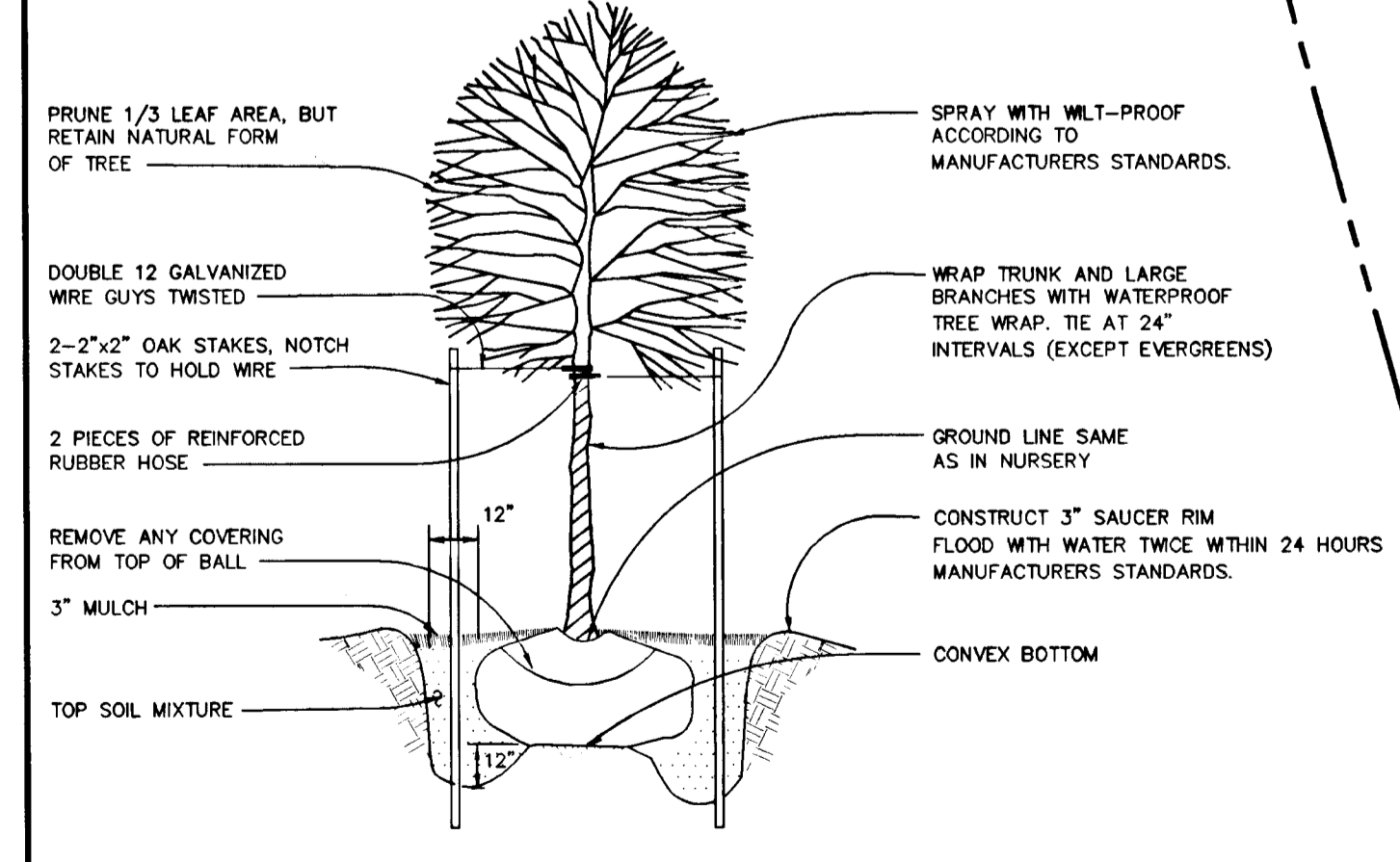
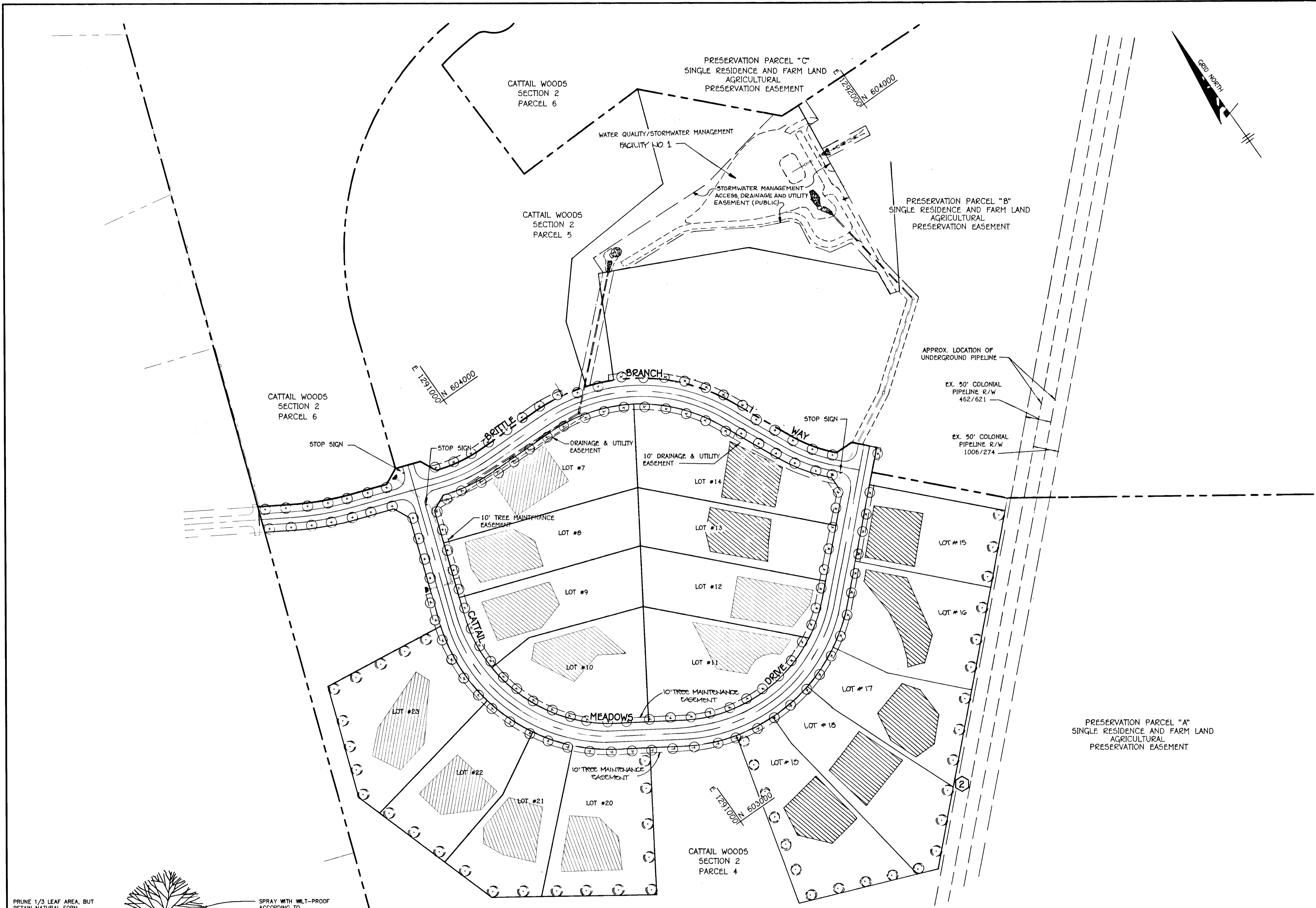
DRAWING 2 OF 10

2451

SCHEDULE A PERIMETER LANDSCAPE EDGE			
CATEGORY	ADJACENT TO ROADWAYS	ADJACENT TO PERIMETER PROPERTIES	
		① A	② A
LANDSCAPE TYPE	N/A		
LINEAR FEET OF ROADWAY FRONTAGE/PERIMETER	N/A	1400	1352
CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	N/A	NO	NO
CREDIT FOR WALL, FENCE OR BERM (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	N/A	NO	NO
NUMBER OF PLANTS REQUIRED SHADE TREES EVERGREEN TREES OTHER TREES (2:1 SUBSTITUTE) SHRUBS	N/A	23 - -	23 - -
NUMBER OF PLANTS PROVIDED SHADE TREES EVERGREEN TREES OTHER TREES (2:1 SUBSTITUTE) SHRUBS (10:1 SUBSTITUTE) (DESCRIBE PLANT SUBSTITUTION CREDITS BELOW IF NEEDED)	N/A	23 - - -	23 - - -

PLANTING LIST			
SYMBOL	QUANTITY	NAME	REMARKS
⊕	131	ACER VULPENUM (RED MAPLE)	2 1/2" MIN. CAL B & B FULL HEAD
⊖	46	ACER SACCHARUM (SUGAR MAPLE)	2 1/2" MIN. CAL B & B FULL HEAD

- NOTE: 1) TREES MUST BE PLANTED A MINIMUM OF 4 FEET FROM THE CURB OR SIDEWALK AND MUST BE A MINIMUM OF 5 FEET FROM ANY STORM DRAIN.
2) TREES MUST BE PLANTED A MINIMUM OF 10 FEET FROM A DRIVEWAY.
3) SEE TREE PLANTING DETAIL - THIS SHEET.
4) REFER TO TYPICAL SECTION (SHT. NO. 3) FOR STREET TREE LOCATIONS.



PLAN
SCALE: 1" = 100'

THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND LANDSCAPE MANUAL. FINANCIAL SURETY FOR THE REQUIRED 4% LANDSCAPE TREES IN THE AMOUNT OF \$4,600.00 IS PART OF THE DEVELOPER'S AGREEMENT.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Andrew M. Daneker
CHIEF, BUREAU OF HIGHWAYS
ANDREW DANEKER
8-30-95
DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
Gina Tirinnanzi
CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH
GINA TIRINNANZI
9/19/95
DATE

Charles Dammer
CHIEF, DEVELOPMENT ENGINEERING DIVISION
CHARLES DAMMERS
9/14/95
DATE

NO.	DATE	REVISION

TSA GROUP, INC.
planning • architecture • engineering • surveying
8400 Baltimore National Pike • Ellicott City, Maryland 21043 • (410)465-8106
John Blum

OWNER: 206 JOINT VENTURE 15555 UNION CHAPEL ROAD WOODBINE, MARYLAND 21797	PROJECT: CATTAIL WOODS SECTION 2 - PARCEL 4
DEVELOPER: PARCEL 137 INC. 15298 UNION CHAPEL ROAD WOODBINE, MARYLAND 21797	LOCATION: TAX MAP 7 - PARCEL 137 4th ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: JANUARY 13, 1995 AUGUST 3, 1995	TITLE: LANDSCAPE PLAN PHASE 1 F-94-60 S-94-27 WP-94-77 PROJECT NO. 0769
DES: GWF	DRN: JR
SCALE: AS SHOWN	DRAWING 10 OF 10

2552
Tue Jan 31 17:03:21 1995