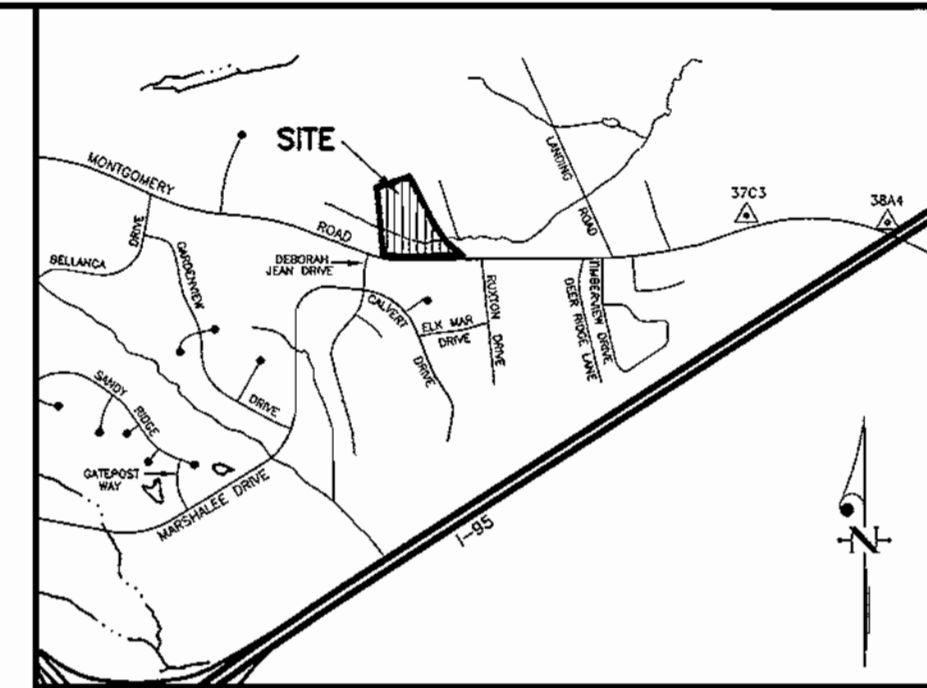


ROCKBURN WOODS 21 ACTIVE ADULT CONDOMINIUMS SITE DEVELOPMENT PLAN



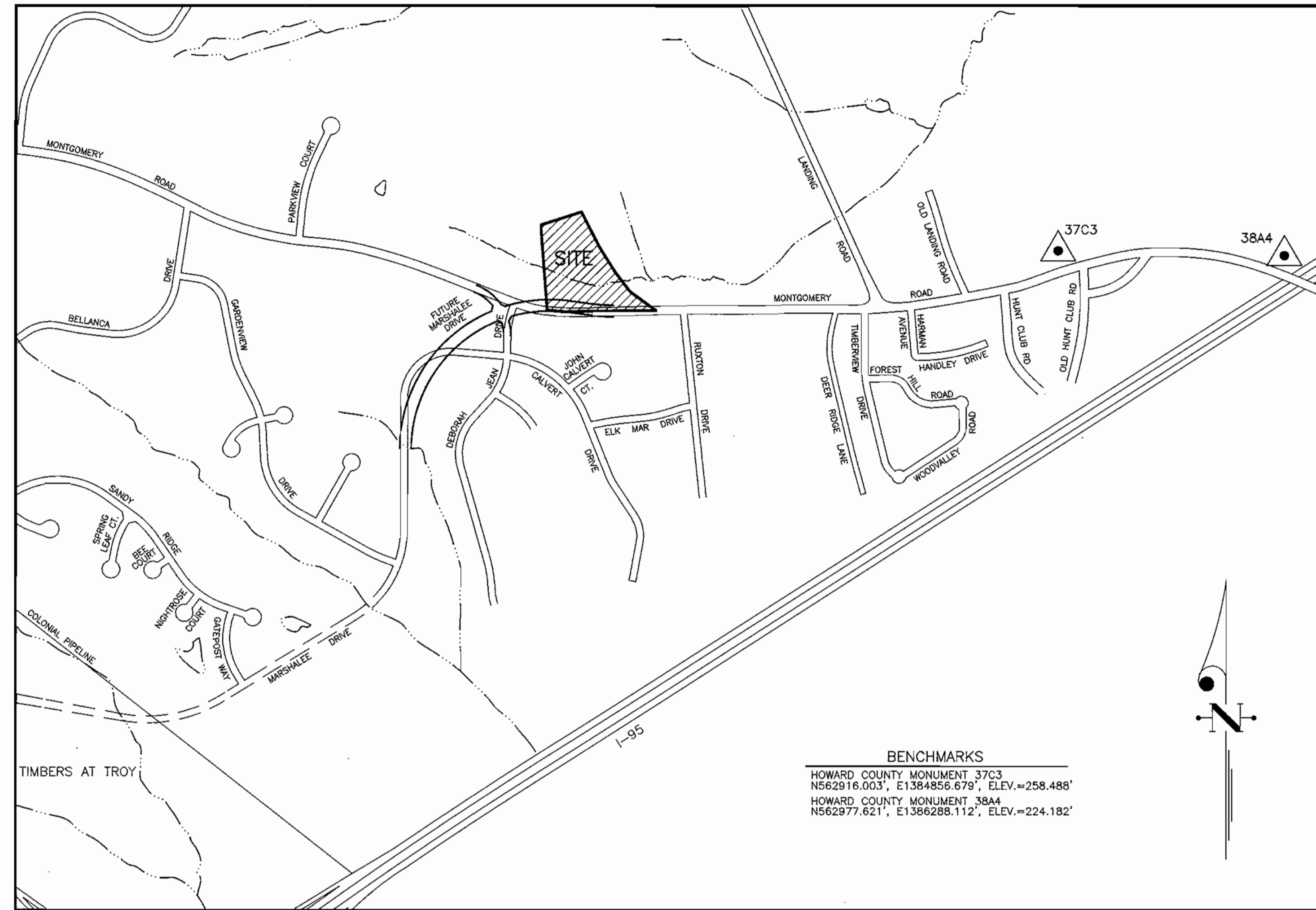
VICINITY MAP
Scale: 1" = 2000'

WATER & SEWER NOTES

- All construction methods and materials for on-site water and sewer systems shall follow the current editions of the Howard County Plumbing Code, supplemented by the Howard County Standard Details and Specifications, where necessary.
- 4" and 6" sewer house connections shall be built to within 5' of the building at a slope of 2.00%.
- 6" and 8" P.V.C. Pipe shall meet the requirements of A.S.T.M. D.3034, wall thickness classification SDR-35.
- Water meters shall be located inside the building.
- Area where water house connections shall be built shall be at final grade, and the water house connections shall be laid with a minimum of 3.5' of cover. Water house connections to Buildings A & B shall be 4" Diameter, Ductile-iron, Class 52. The Water house connection to Building C shall be 2" Diameter, Copper Type K.
- Water house connection shall be built to within 5' of the building.

BUILDING	ADDRESS
1	6440 KOFFEL COURT
2	6416 KOFFEL COURT
3	6414 KOFFEL COURT
4	6418 KOFFEL COURT
5	6420 KOFFEL COURT
6	6422 KOFFEL COURT
7	6424 KOFFEL COURT
8	6426 KOFFEL COURT
9	6428 KOFFEL COURT
10	6430 KOFFEL COURT
11	6432 KOFFEL COURT
12	6434 KOFFEL COURT
13	6436 KOFFEL COURT
14	6438 KOFFEL COURT
15	6440 KOFFEL COURT
16	6442 KOFFEL COURT
17	6444 KOFFEL COURT
18	6446 KOFFEL COURT
19	6448 KOFFEL COURT
20	6450 KOFFEL COURT
21	6452 KOFFEL COURT

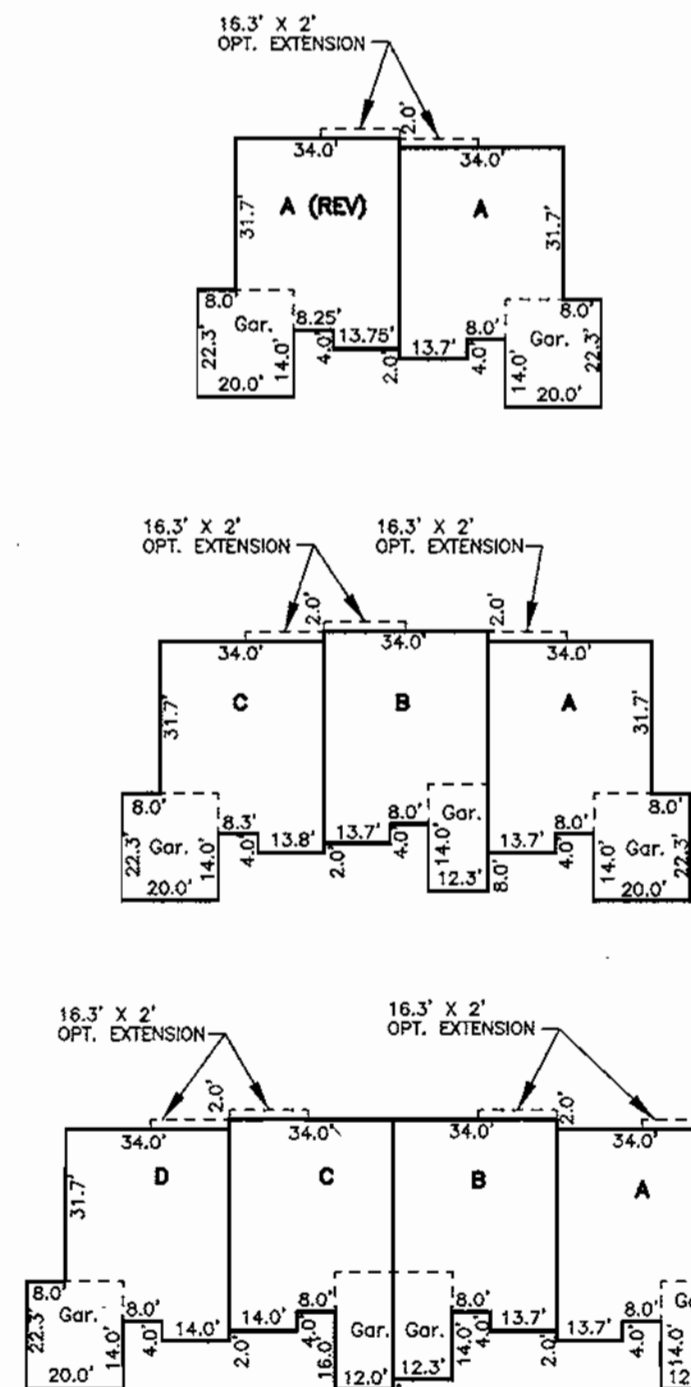
Garygo 6433 Koffel Court



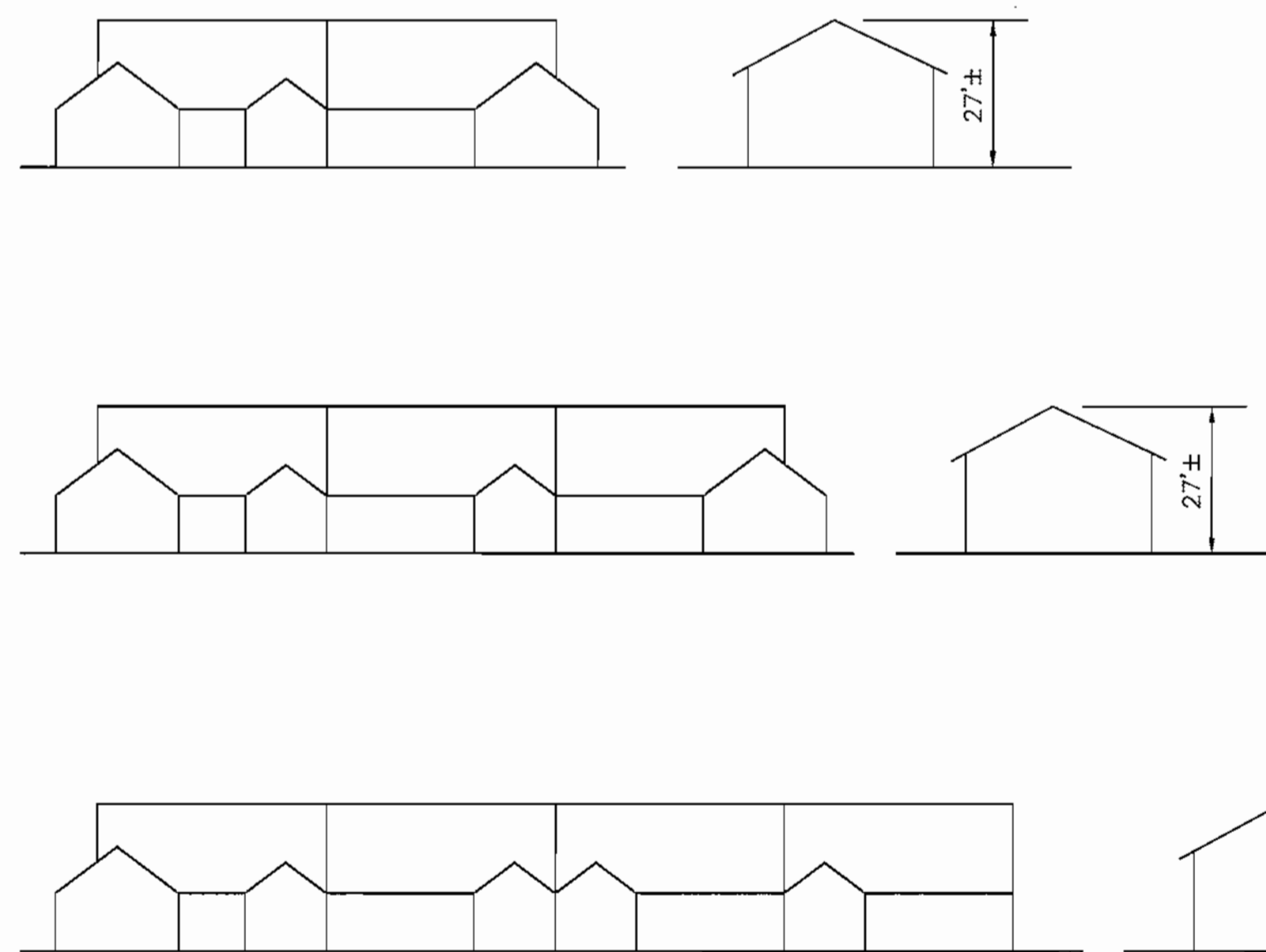
BENCHMARKS
HOWARD COUNTY MONUMENT 37C3
N562916.003', E1384856.679', ELEV.=258.488'
HOWARD COUNTY MONUMENT 38A4
N562977.621', E1386288.112', ELEV.=224.182'

LOCATION MAP
Scale: 1" = 600'

BUILDING	SHC @ C.O.	MIN. CELLAR ELEV.
1	261.6	264.7
2	261.9	265.0
3	262.3	265.4
4	262.4	265.5
5	264.1	267.2
6	264.8	267.9
7	265.3	268.4
8	266.9	270.1
9	266.7	269.8
10	266.7	269.8
11	268.9	272.0
12	268.6	271.4
13	268.7	271.8
14	266.3	269.4
15	265.6	268.7
16	264.8	267.9
17	263.0	266.2
18	262.9	266.1
19	262.8	265.9
20	262.4	265.5
21	261.8	264.9



BUILDING FOOTPRINTS
NTS



SCHEMATIC PROFILES
NTS

SHEET	DESCRIPTION
1	COVER SHEET
2	SITE DEVELOPMENT PLAN
3	SITE DEVELOPMENT PLAN
4	CONSTRUCTION DETAILS
5	STORM DRAIN AND SEWER PROFILES
6	GRADING, AND SEDIMENT & EROSION CONTROL PLAN
7	SEDIMENT AND EROSION CONTROL DETAILS
8	SEDIMENT AND EROSION CONTROL DETAILS
9	STORM WATER MANAGEMENT DETAILS
10	STORM WATER MANAGEMENT DETAILS
11	LANDSCAPE PLAN AND DRAINAGE AREA MAP
12	FOREST CONSERVATION PLAN
13	FOREST CONSERVATION DETAILS
14	CULVERT DETAILS
15	CULVERT DETAILS
16	CULVERT DETAILS
17	CULVERT DETAILS

SITE ANALYSIS DATA CHART

- Total Project Area: 6.2698 acres or 273,112 square feet
 - Area of Plan Submission: 6.2698 acres
 - Limit of Disturbed Area: 3.88 acres
 - Present Zoning: R-20
 - Proposed Uses for Site and Structures: Active Adult Condominiums
 - Proposed Density = 21 units
Maximum Density Permitted = 5 x 6,2698 = 31 units
 - Required Parking: 86 per Board of Appeals Decision and Order.
Required parking per Section 133 = 21 units x 2 ps/du = 42 spaces
 - Provided Parking: 86 spaces
 - Open Space for this project is provided by the common area.
Open space required (50% of gross area) = 3,134.9 Acres
Open space provided = 5,432.0 acres or 86.63% of gross area.
 - Building Coverage of Site: 0.8378 acres, 13.36% of gross area.
 - DPZ File References: BA 00-37 B, S-99-20, P-00-22
 - Development Standards:
 - Minimum lot size one acre. Met by condominium use.
 - Maximum density of 5 dwelling units per gross acre. Met by density of 3.35 dwelling units per gross acre.
 - At least 50% of gross site area shall be open space or open area. Met by 71.82% open space, and is protective of natural features (wetlands and floodplain).
 - Business uses shall be integrated with the units and oriented towards the interior. No exterior signs or other evidence of business facilities shall be visible from the periphery of the site. Met by no business uses proposed.
 - Loading and trash storage areas shall be adequately screened from view. Met by building and landscape screening around trash storage area.
 - The project shall be designed to provide a transition or adequate buffering near the periphery of the site, either with open space areas and landscaping, or by designing the buildings near the periphery to be harmonious in density and type with the surrounding neighborhood. Met by preservation of natural features, perimeter landscaping, and afforestation.
 - Open space areas, recreational facilities and other accessory facilities shall be developed in each phase of development to meet the needs of the residents. The developer shall provide a schedule for the installation of facilities at the time the special exception is approved. Met by the development being developed in one phase, which includes all open space areas and recreational facilities.
- Waiver petition WP-02-68 was approved on 3/13/02, waiving section 16.120(b)(4)(iii)(c), which stipulates that condominium units shall be no closer than 15' to environmentally sensitive feature buffers. The waiver applies specifically to units 17 and 21.
 - Private trash collection is to be utilized.

27. Flat of Forest Conservation Easement is recorded under SDP 03-15FC for 0.99 ac on site. Flat # 15620

APPROVED: DEPARTMENT OF PLANNING & ZONING

 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE: 10/10/02

 CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE: 10/17/02

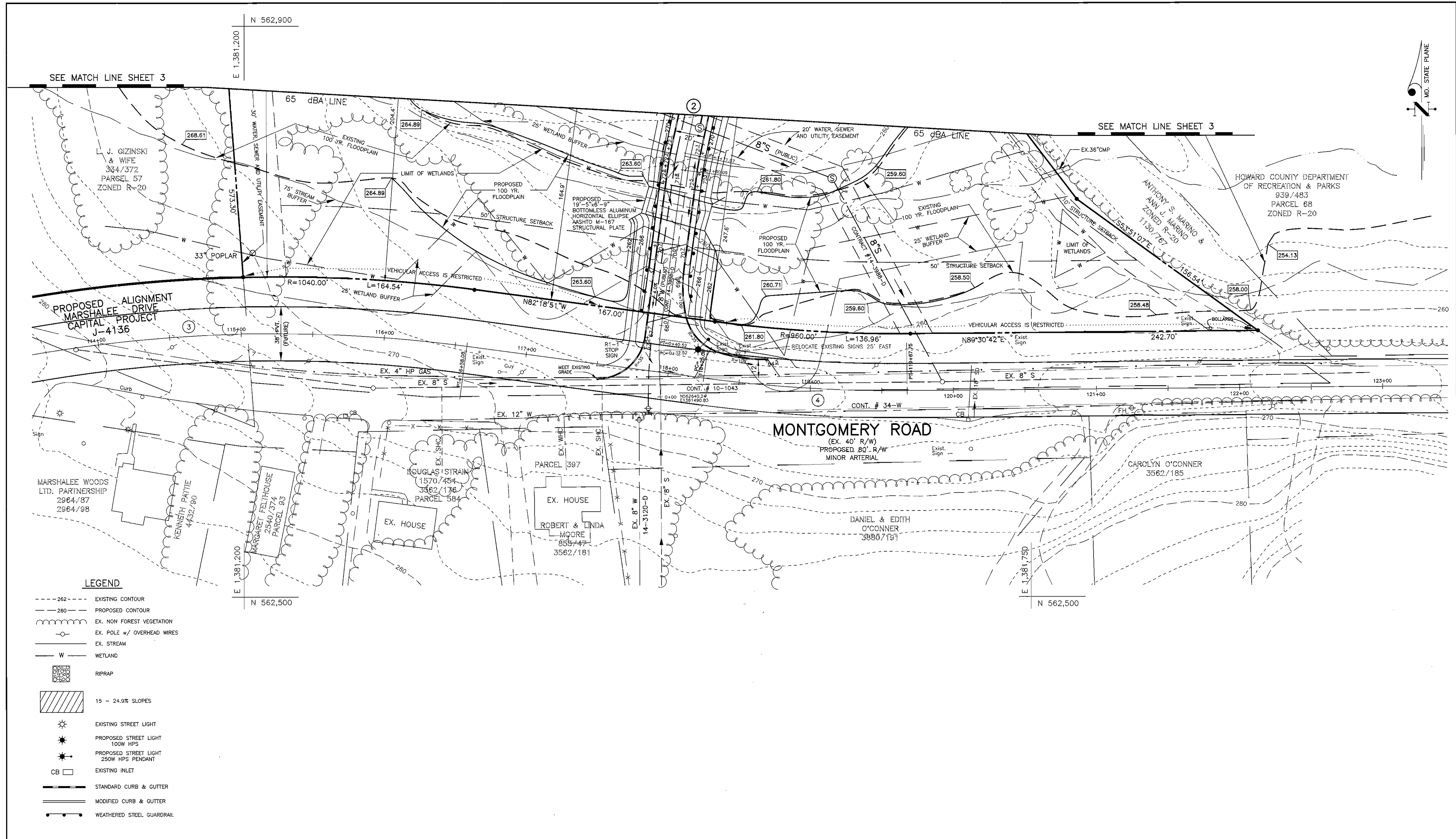
 DIRECTOR
 DATE: 10/18/02

OWNER
ROCKBURN WOODS LLC
8835-P COLUMBIA 100 PARKWAY
COLUMBIA, MD 21045

ENGINEER/SURVEYOR
CLARK, FINEFROCK & SACKETT, INC.
7135 MINSTREL WAY, SUITE 201
COLUMBIA, MARYLAND 21045
PHONE: 410-381-7500



SUBDIVISION NAME		SECTION/AREA	LOTS/PARCELS
CLARK • FINEFROCK & SACKETT, INC. <td>SECTION 37</td> <td>PARCEL 61</td>		SECTION 37	PARCEL 61
PLAT NO.	GRID NO.	ZONING	TAX MAP NO.
	5	R-20	37
ELECTION DIST.		CENSUS TRACT	
1ST		6011.02	
WATER CODE		SEWER CODE	
D 04		261000	
DESIGNED	COVER SHEET		SCALE
TD	ROCKBURN WOODS		AS SHOWN
DRAWN	21 ACTIVE ADULT CONDOMINIUMS		DRAWING
LAI/CRH2	PARCEL 61	TAX MAP 37	1 of 17
CHECKED	L 5159	F 192	JOB NO.
TD	FIRST (1st) ELECTION DISTRICT		00176
DATE	FOR: BRANTLY DEVELOPMENT GROUP		FILE NO.
4/3/02	8835-P COLUMBIA 100 PARKWAY		00176 X
		COLUMBIA, MD 21045	



SEE MATCH LINE SHEET 3

SEE MATCH LINE SHEET 3



LEGEND

- 262 --- EXISTING CONTOUR
- 280 --- PROPOSED CONTOUR
- EX. NON FOREST VEGETATION
- EX. POLE w/ OVERHEAD WIRES
- EX. STREAM
- W --- WETLAND
- RIPRAP
- 15 - 24.9% SLOPES
- EXISTING STREET LIGHT
- PROPOSED STREET LIGHT 100W HPS
- PROPOSED STREET LIGHT 250W HPS PENDANT
- CB --- EXISTING INLET
- STANDARD CURB & GUTTER
- MODIFIED CURB & GUTTER
- WEATHERED STEEL GUARDRAIL

APPROVED: DEPARTMENT OF PLANNING & ZONING
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 CHIEF, DIVISION OF LAND DEVELOPMENT
 DIRECTOR

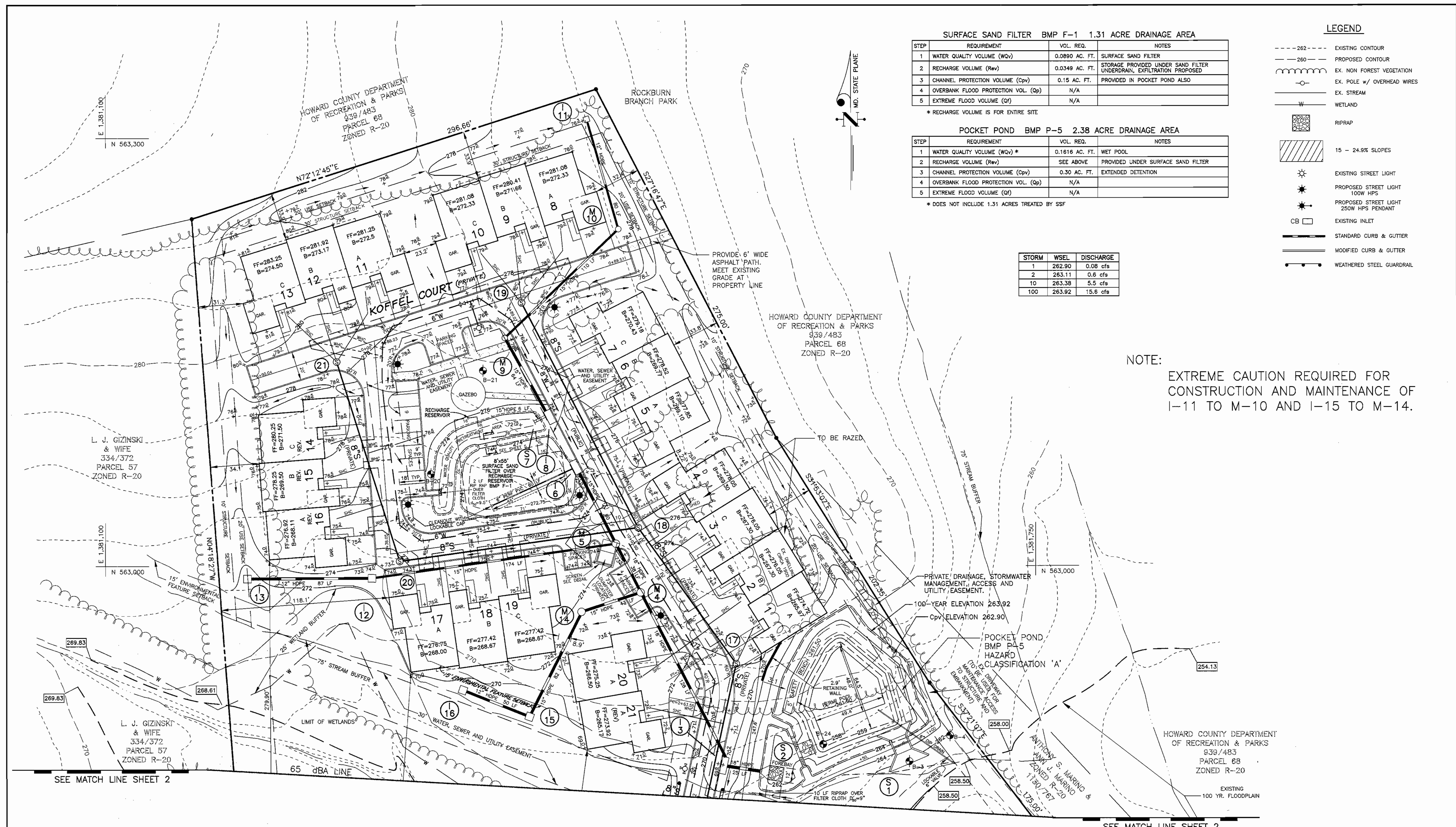
10/10/02
 10/17/02
 10/18/02



CLARK · FINEFROCK & SACKETT, INC.
 ENGINEERS · PLANNERS · SURVEYORS
 7135 MINSTREL WAY · COLUMBIA, MD 21045 · (410) 381-7500 BALT. · (301) 621-8100 WASH.

DESIGNED TD	SITE DEVELOPMENT PLAN 21 ACTIVE ADULT CONDOMINIUMS ROCKBURN WOODS PARCEL 61 TAX MAP 37 GRID 5 FIRST (1st) ELECTION DISTRICT HOWARD COUNTY, MARYLAND	SCALE 1" = 30'
DRAWN LAI/CRH2		DRAWING 2 OF 17
CHECKED TD		JOB NO. 00-176
DATE 6/18/02		FILE NO. 00-176 X

FOR: ROCKBURN WOODS LLC
 c/o BRANTLY DEVELOPMENT CORPORATION
 8815-P COLUMBIA 100 PARKWAY
 COLUMBIA, MARYLAND 21045



SURFACE SAND FILTER BMP F-1 1.31 ACRE DRAINAGE AREA

STEP	REQUIREMENT	VOL. REQ.	NOTES
1	WATER QUALITY VOLUME (Wqv)	0.0890 AC. FT.	SURFACE SAND FILTER
2	RECHARGE VOLUME (Rev)	0.0349 AC. FT.	STORAGE PROVIDED UNDER SAND FILTER UNDERDRAIN, EXFILTRATION PROPOSED
3	CHANNEL PROTECTION VOLUME (Cpv)	0.15 AC. FT.	PROVIDED IN POCKET POND ALSO
4	OVERBANK FLOOD PROTECTION VOL. (Qp)	N/A	
5	EXTREME FLOOD VOLUME (Qf)	N/A	

* RECHARGE VOLUME IS FOR ENTIRE SITE

POCKET POND BMP P-5 2.38 ACRE DRAINAGE AREA

STEP	REQUIREMENT	VOL. REQ.	NOTES
1	WATER QUALITY VOLUME (Wqv) *	0.1616 AC. FT.	WET POOL
2	RECHARGE VOLUME (Rev)	SEE ABOVE	PROVIDED UNDER SURFACE SAND FILTER
3	CHANNEL PROTECTION VOLUME (Cpv)	0.30 AC. FT.	EXTENDED DETENTION
4	OVERBANK FLOOD PROTECTION VOL. (Qp)	N/A	
5	EXTREME FLOOD VOLUME (Qf)	N/A	

* DOES NOT INCLUDE 1.31 ACRES TREATED BY SSF

STORM	WSEL	DISCHARGE
1	262.90	0.08 cfs
2	263.11	0.6 cfs
10	263.38	5.5 cfs
100	263.92	15.6 cfs

- LEGEND**
- 262--- EXISTING CONTOUR
 - 260--- PROPOSED CONTOUR
 - EX. NON FOREST VEGETATION
 - EX. POLE w/ OVERHEAD WIRES
 - EX. STREAM
 - W WETLAND
 - RIPRAP
 - 15 - 24.9% SLOPES
 - EXISTING STREET LIGHT
 - PROPOSED STREET LIGHT 100W HPS
 - PROPOSED STREET LIGHT 250W HPS PENDANT
 - EXISTING INLET
 - STANDARD CURB & GUTTER
 - MODIFIED CURB & GUTTER
 - WEATHERED STEEL GUARDRAIL

NOTE:
EXTREME CAUTION REQUIRED FOR CONSTRUCTION AND MAINTENANCE OF I-11 TO M-10 AND I-15 TO M-14.

APPROVED: DEPARTMENT OF PLANNING & ZONING
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 CHIEF, DIVISION OF LAND DEVELOPMENT
 DIRECTOR

10/10/02
 10/17/02
 10/18/02



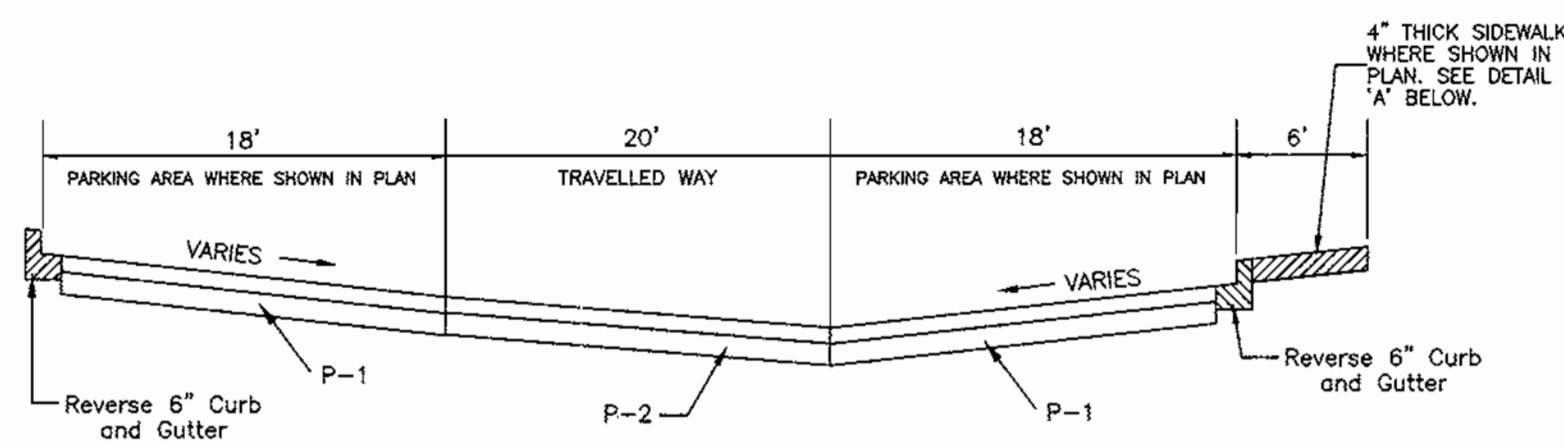
CLARK · FINEFROCK & SACKETT, INC.
 ENGINEERS · PLANNERS · SURVEYORS
 7135 MINSTREL WAY · COLUMBIA, MD 21045 · (410) 381-7500 BALT. · (301) 621-8100 WASH.

DESIGNED: TD
 DRAWN: LAI
 CHECKED: TD
 DATE: 6/18/02

SITE DEVELOPMENT PLAN
21 ACTIVE ADULT CONDOMINIUMS
ROCKBURN WOODS
 PARCEL 61 TAX MAP 37 GRID 5
 FIRST (1st) ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

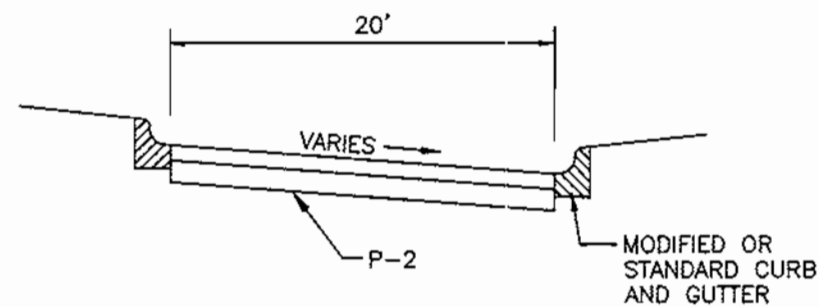
SCALE: 1" = 30'
 DRAWING: 3 OF 17
 JOB NO.: 00-176
 FILE NO.: 00-176 X

FOR: ROCKBURN WOODS LLC
 c/o BRANTLY DEVELOPMENT CORPORATION
 8815-P COLUMBIA 100 PARKWAY
 COLUMBIA, MARYLAND 21045

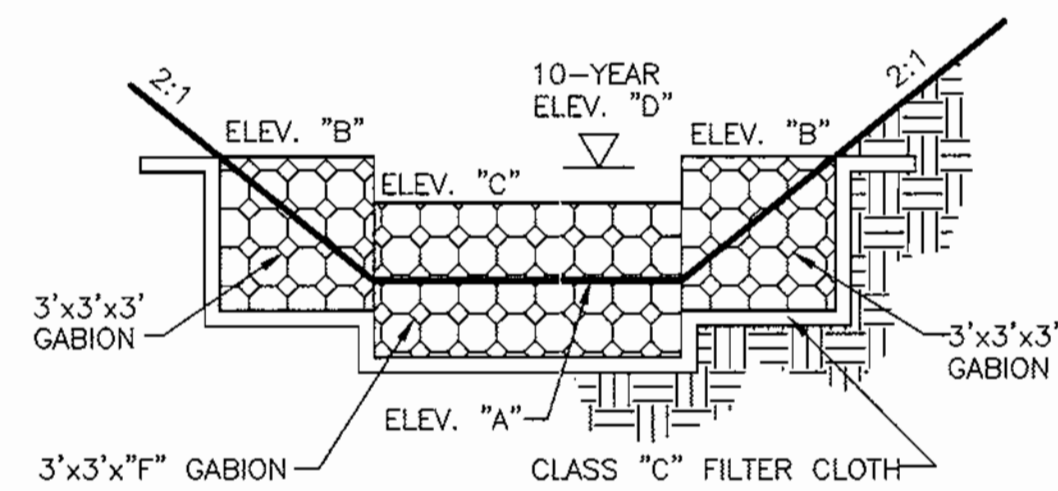


SEE SCHEMATIC PLAN SHOWING LIMITS OF PROPOSED PAVING SECTIONS

TYPICAL PAVING SECTION PRIVATE PARKING AREAS
NO SCALE



TYPICAL SECTION PRIVATE TRAVELWAY
NO SCALE



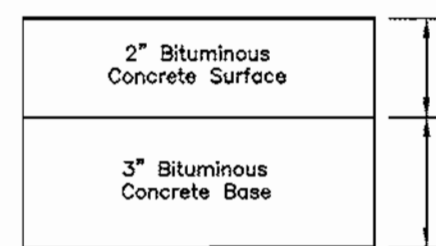
OUTFALL NO.	ELEV. "A"	ELEV. "B"	ELEV. "C"	ELEV. "D"	F	COMMENTS
S-2	262.00	264.00	263.50	263.65	6.0'	
N/A	272.75	274.30	274.21	274.61	8.0'	SAND FILTER

SECTION THROUGH GABION AT OUTFALL FOREBAY
NOT TO SCALE

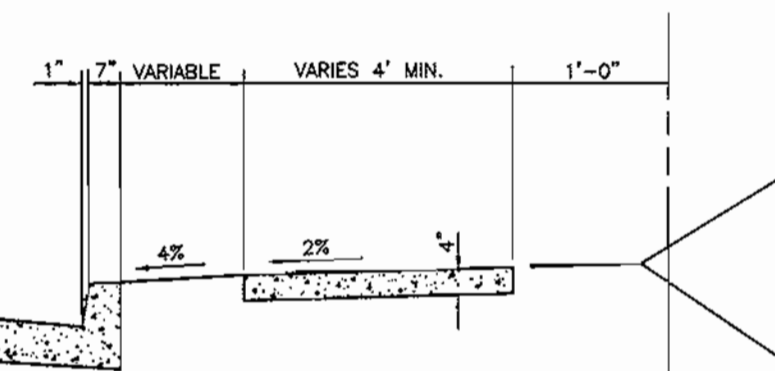
CONSTRUCTION SPECIFICATIONS

- The subgrade for the filter, rip-rap, or gabion shall be prepared to the required lines and grades. Any fill required in the subgrade shall be compacted to a density of approximately that of the surrounding undisturbed material.
- The rock or gravel shall conform to the specified grading limits when installed respectively in the rip-rap or filter.
- Geotextile Class C28 or better shall be protected from punching, cutting, or tearing. Any damage other than an occasional small hole shall be repaired by placing another piece of geotextile fabric over the damaged part or by completely replacing the geotextile fabric. All overlaps whether for repairs or for joining two pieces of geotextile fabric shall be a minimum of one foot.
- Stone for the rip-rap or gabion outlets may be placed by equipment. They shall be constructed to the full course thickness in one operation and in such a manner as to avoid displacement of underlying materials. The stone for rip-rap or gabion outlets shall be delivered and placed in a manner that will ensure that it is reasonably homogenous with the smaller stones and spalls filling the voids between the larger stones. Rip-rap shall be placed in a manner to prevent damage to the filter blanket or geotextile fabric. Hand placement will be required to the extent necessary to prevent damage to the permanent works.
- The stone shall be placed so that it blends in with the existing ground. If the stone is placed too high then the flow will be forced out of the channel and scour adjacent to the stone will occur.

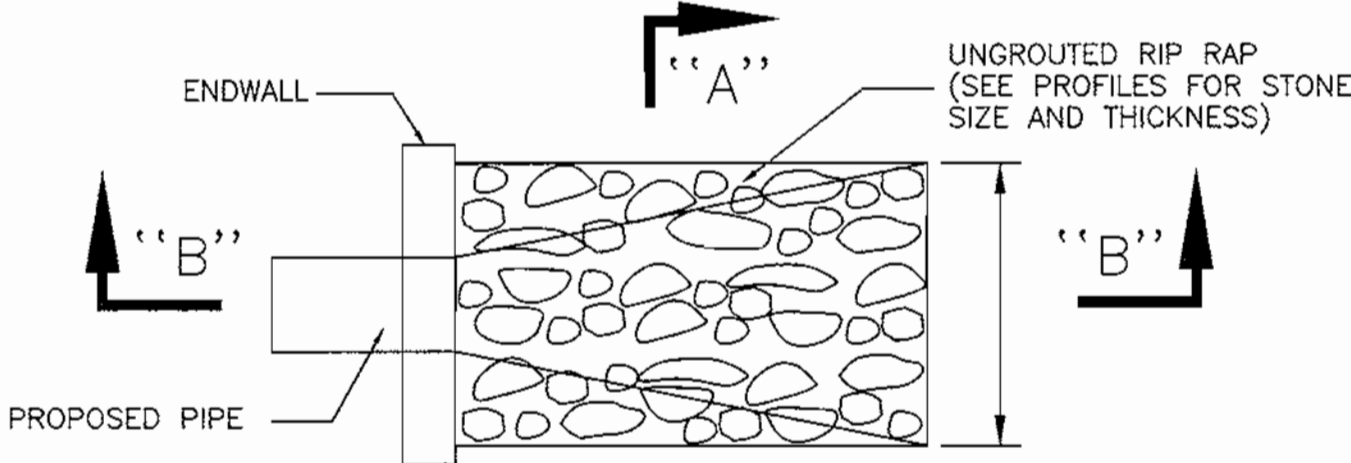
ALTERNATE PAVING SECTION FOR PARKING AREAS
NO SCALE
(SECTION P-1, Modified)



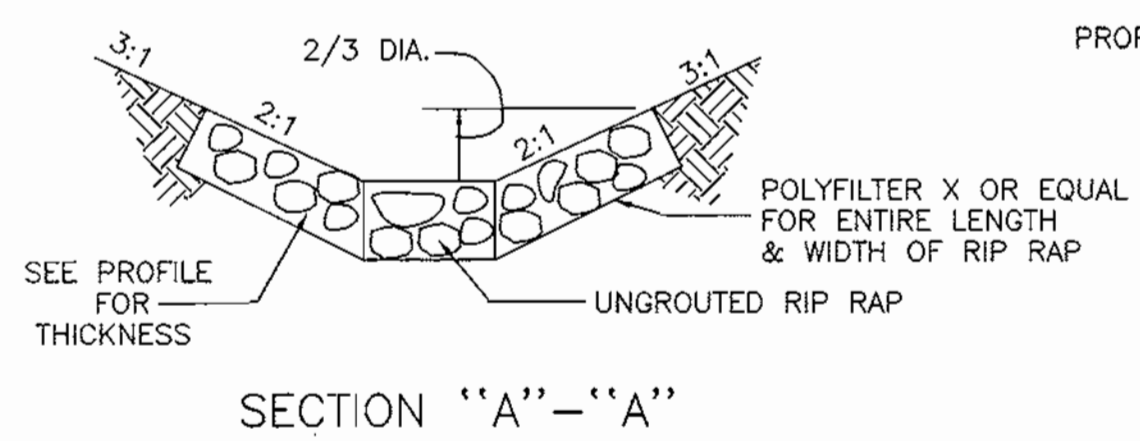
ALTERNATE PAVING SECTION FOR PARKING AREAS
NO SCALE
(SECTION P-1, Modified)



CONCRETE SIDEWALK DETAIL
NO SCALE

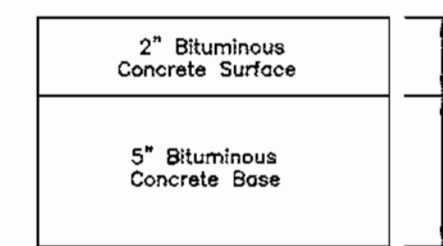


STRUCTURE	WIDTH	LENGTH
S-1	12'	15'

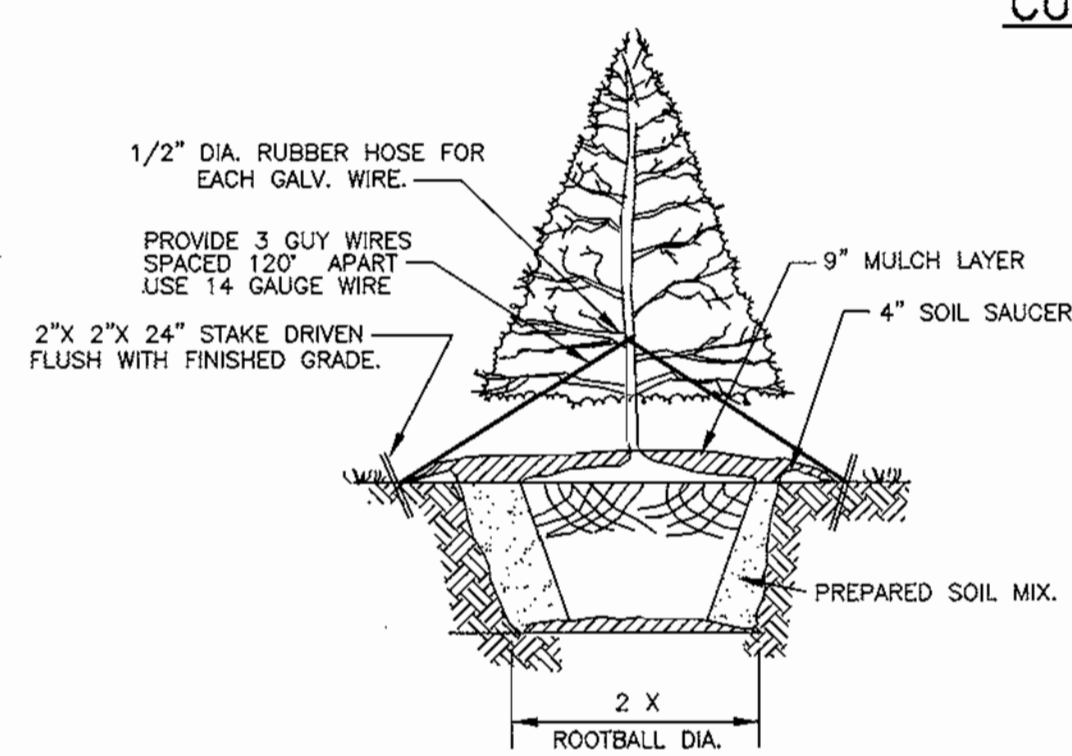


UNGROUTED RIP RAP DETAIL
NO SCALE

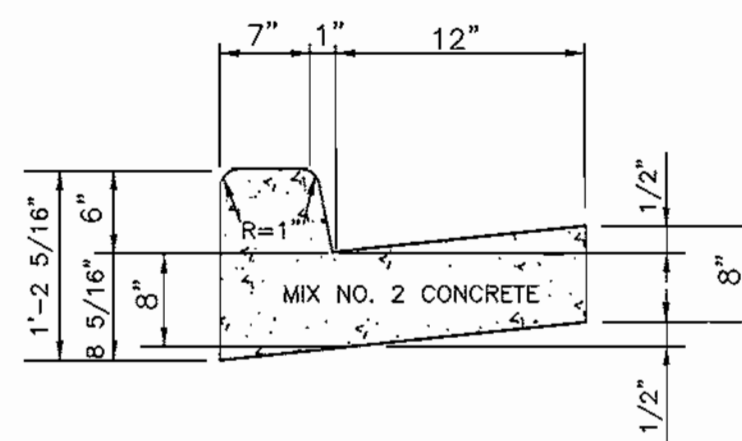
ALTERNATE PAVING SECTION FOR TRAVELWAYS
NO SCALE
(SECTION P-2, Modified)



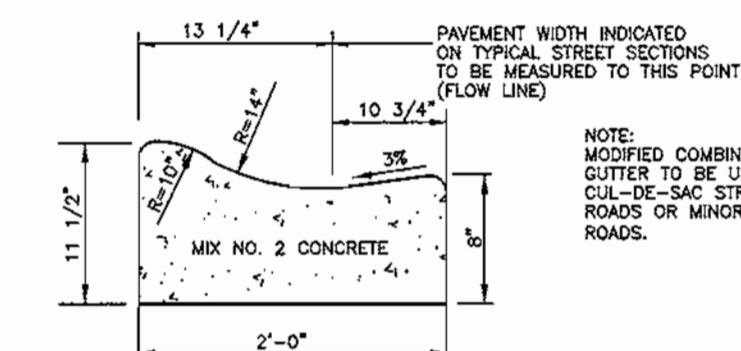
ALTERNATE PAVING SECTION FOR TRAVELWAYS
NO SCALE
(SECTION P-2, Modified)



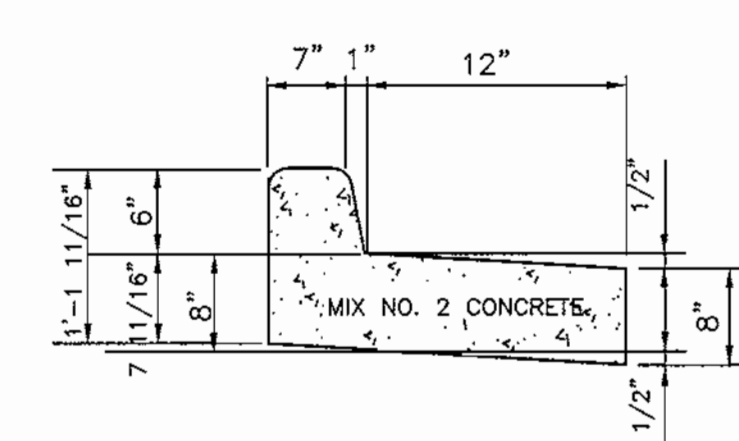
PLANTING DETAIL
NO SCALE



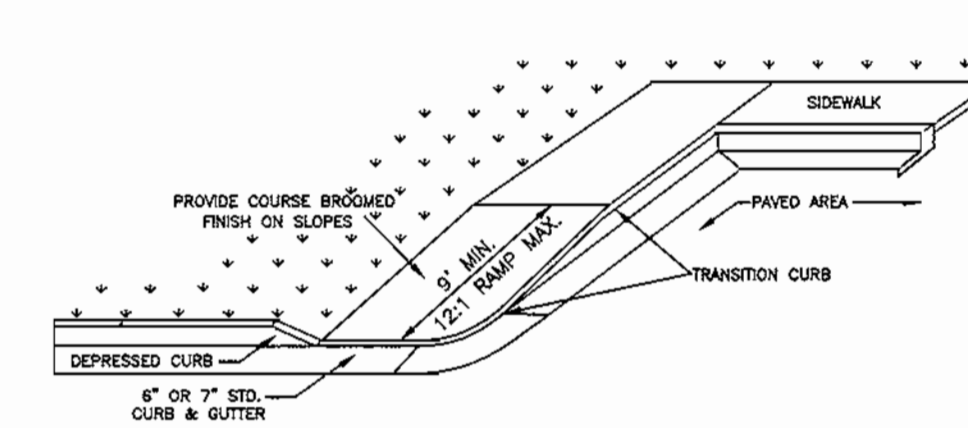
STANDARD 6\"/>



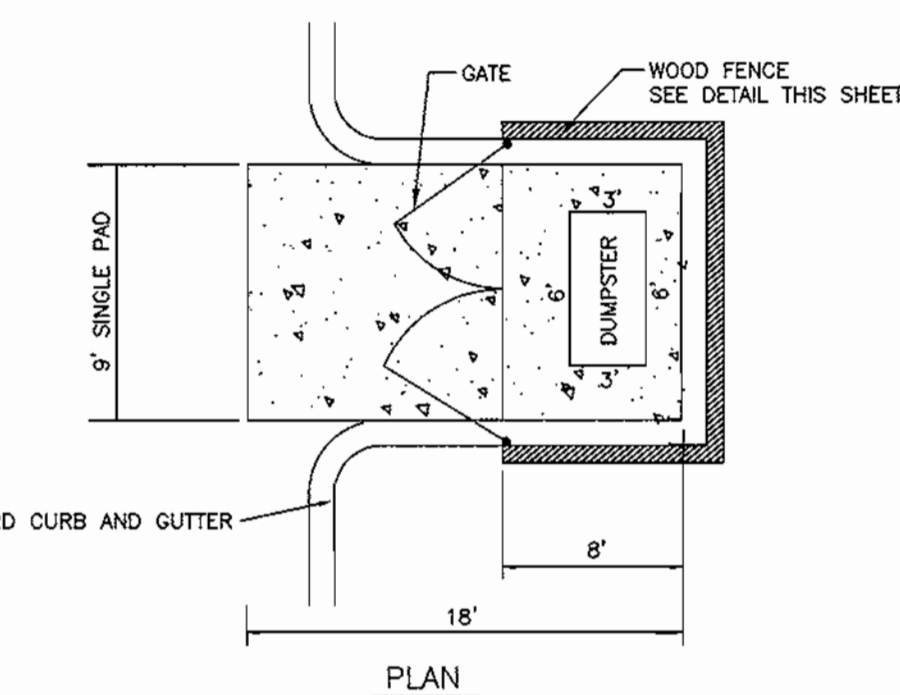
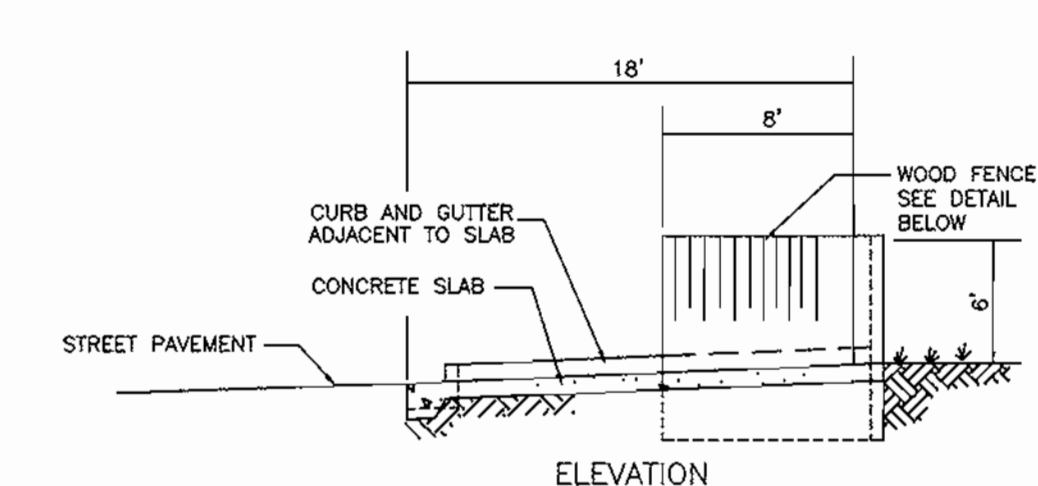
MODIFIED COMBINATION CURB AND GUTTER
NO SCALE



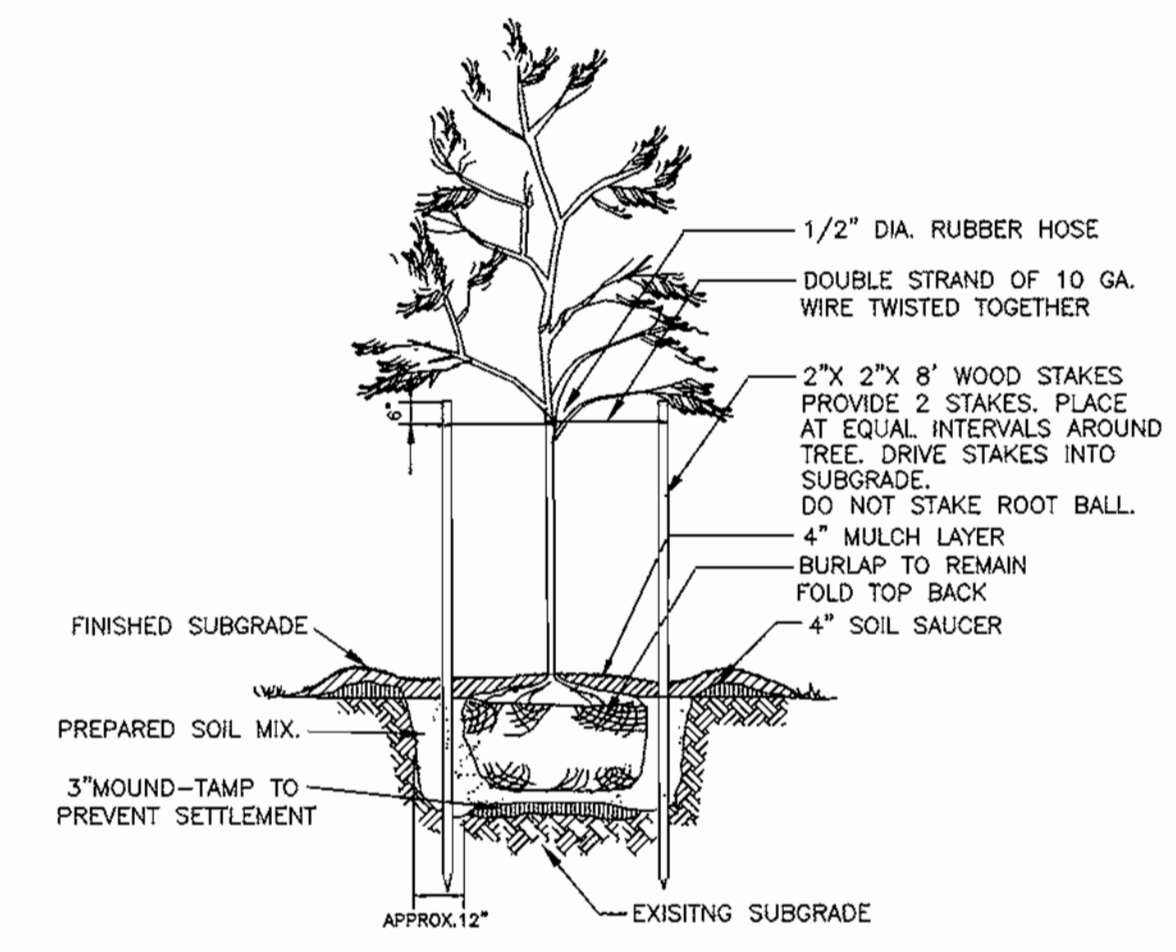
REVERSE 6\"/>



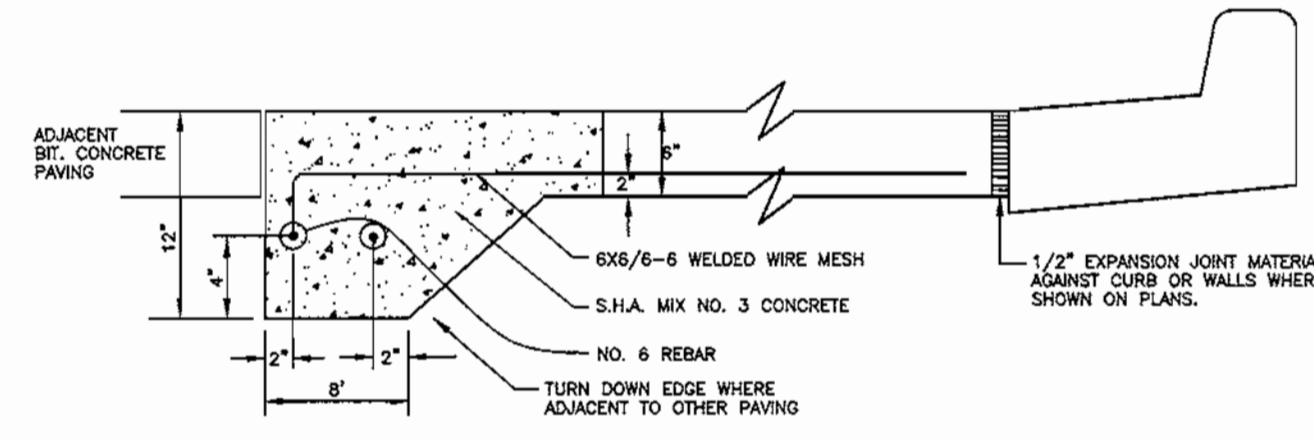
SIDEWALK CORNER RAMP
NO SCALE



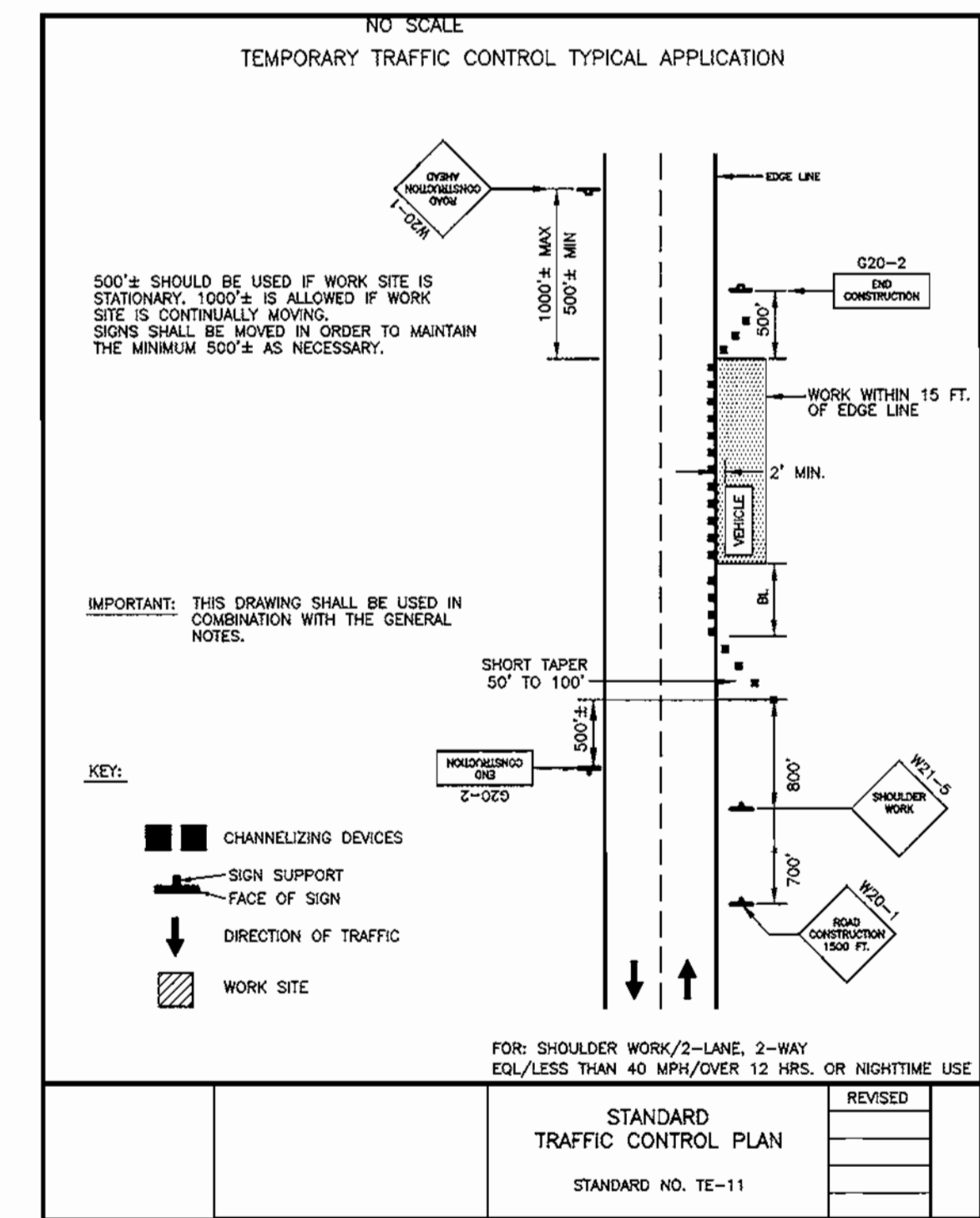
DUMPSTER PAD & ENCLOSURE
NO SCALE



PLANTING DETAIL
NO SCALE



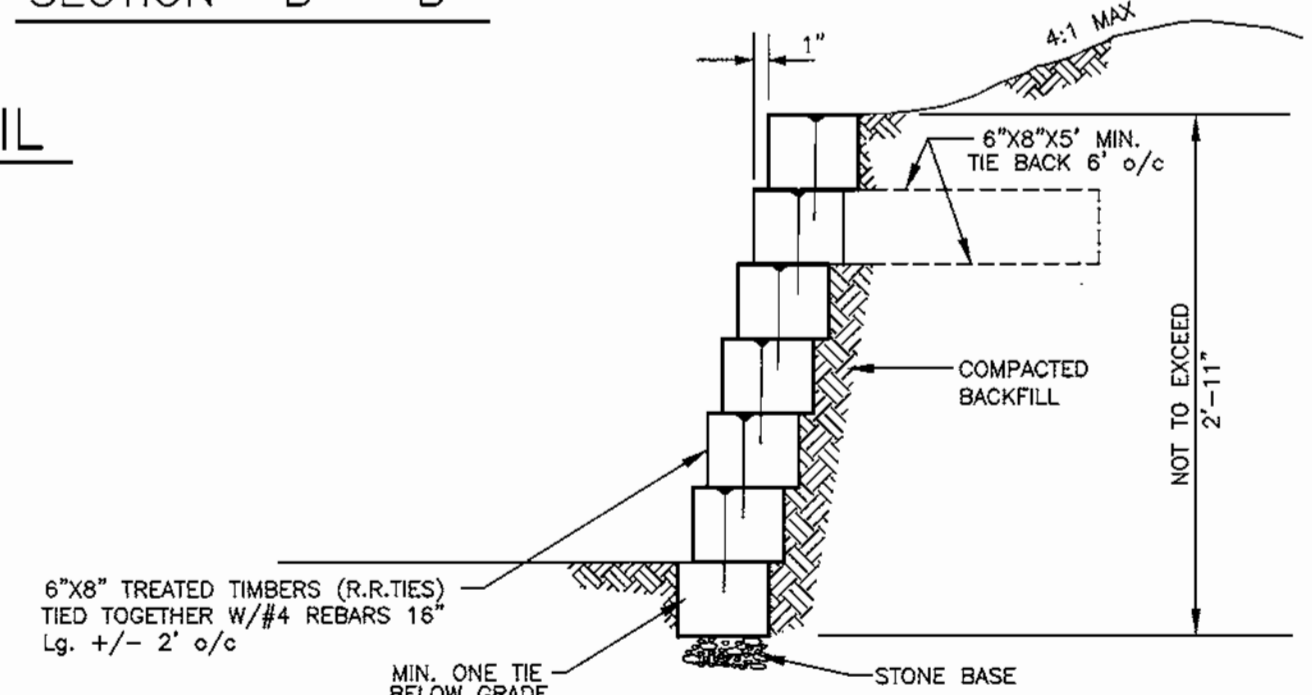
DUMPSTER PAD AND PAVING DETAIL



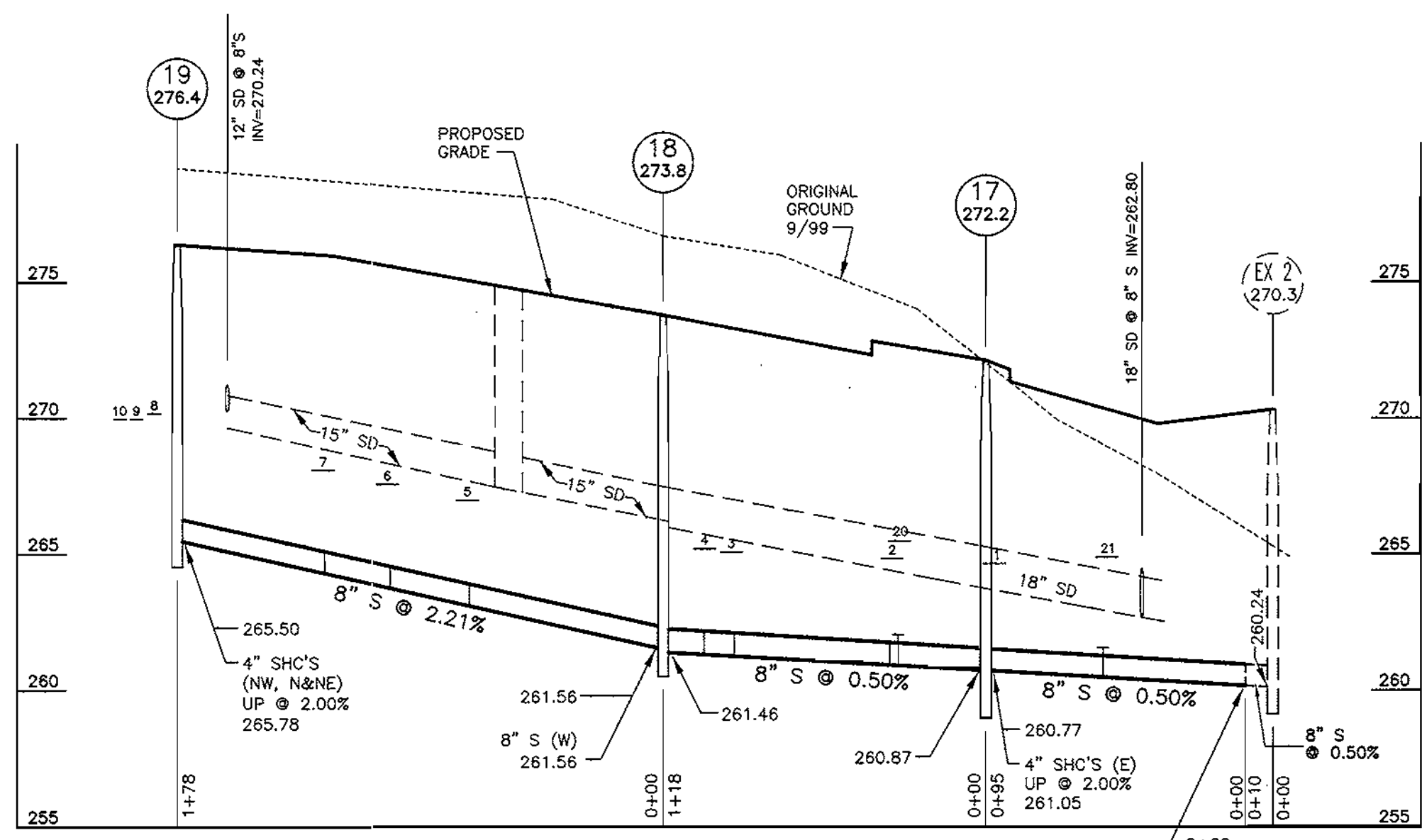
CLARK • FINEPROCK & SACKETT, INC.
ENGINEERS • PLANNERS • SURVEYORS

DESIGNED TD	CONSTRUCTION DETAILS	SCALE AS SHOWN
DRAWN LAI/CRH2	ROCKBURN WOODS 21 ACTIVE ADULT CONDOMINIUMS	DRAWING 4 of 17
CHECKED TD	PARCEL 61 TAX MAP 37 GRID 5 FIRST (1st) ELECTION DISTRICT HOWARD COUNTY, MARYLAND	JOB NO. 00176
DATE 4/3/02	FOR : BRANTLY DEVELOPMENT GROUP 8835-P COLUMBIA 100 PARKWAY COLUMBIA, MD 21045	FILE NO. 00176 X

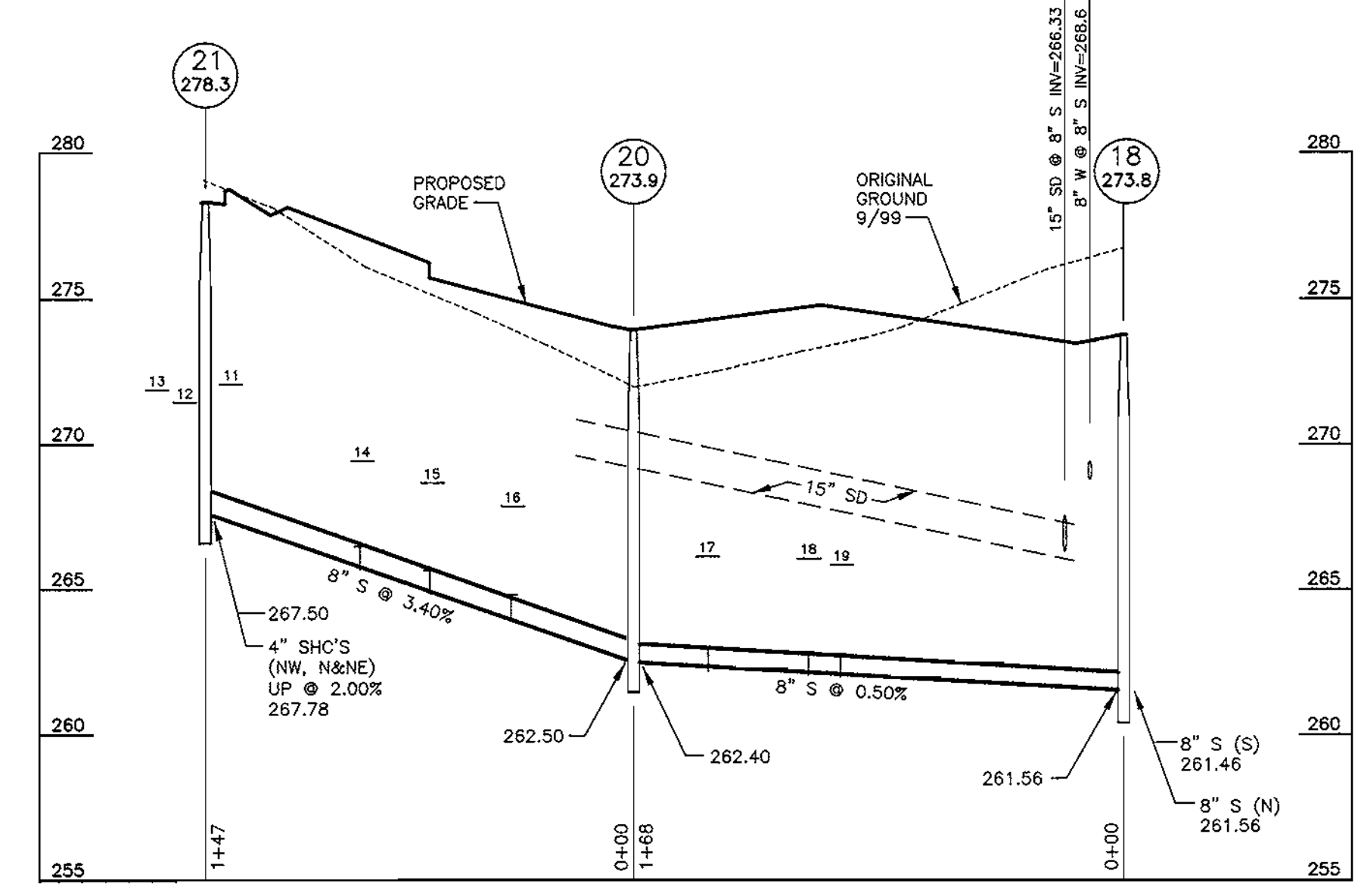
APPROVED: DEPARTMENT OF PLANNING & ZONING
 [Signature] 10/10/02
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 [Signature] 10/17/02
 CHIEF, DIVISION OF LAND DEVELOPMENT
 [Signature] 10/18/02
 DIRECTOR



TYPICAL RETAINING WALL
NO SCALE



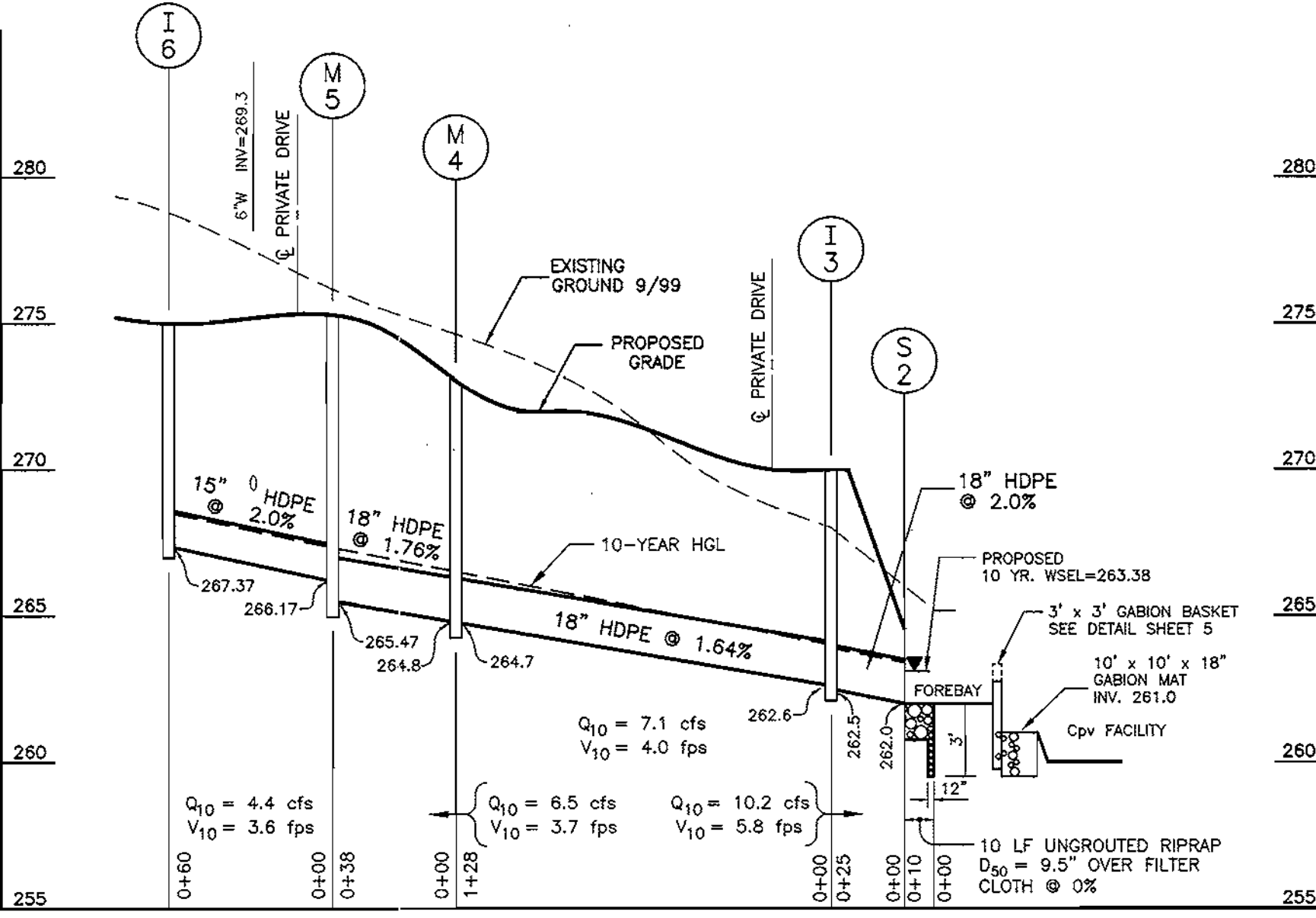
SEWER PROFILE
HOR. SCALE: 1"=50'
VERT. SCALE: 1"=5'



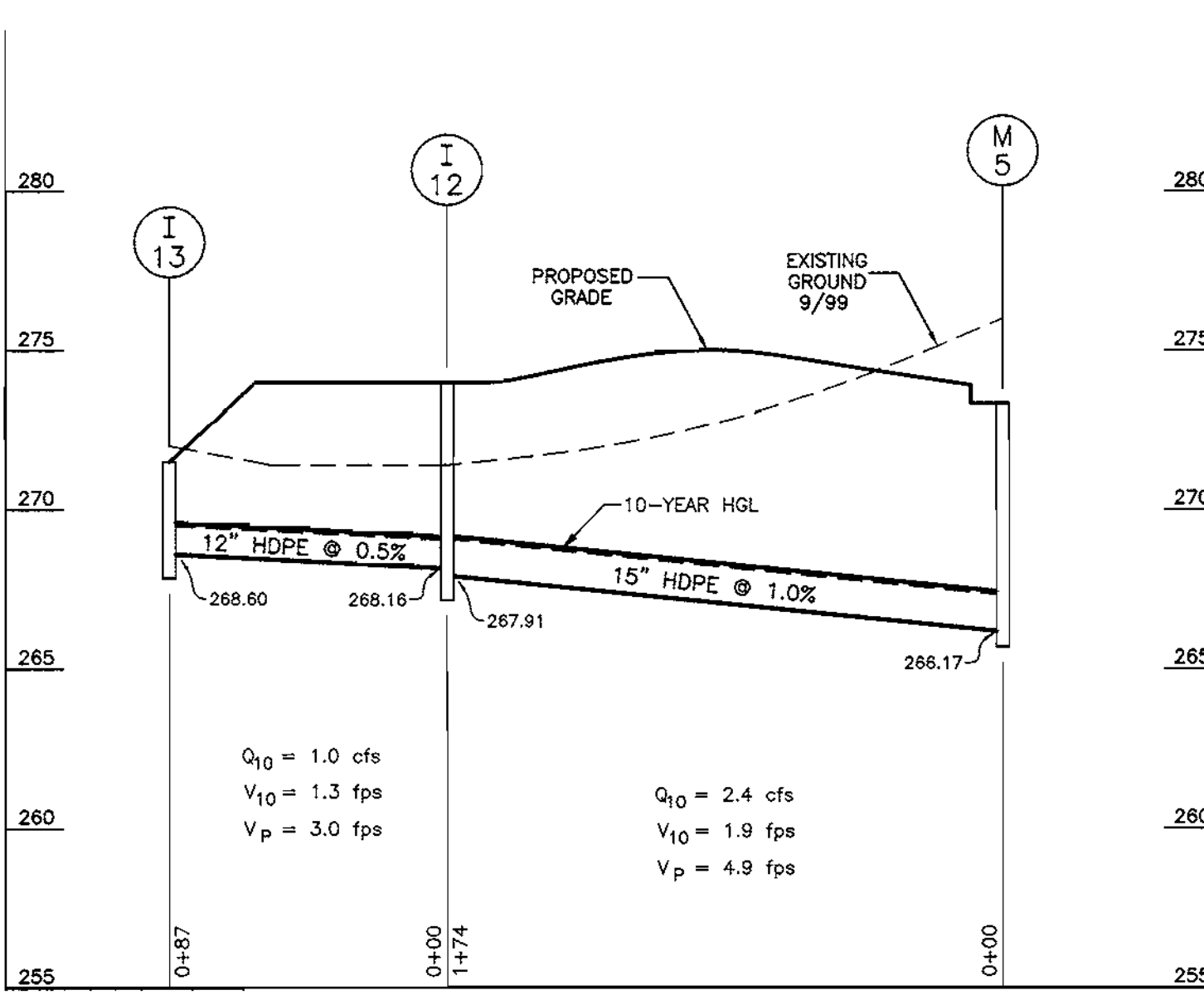
SEWER PROFILE
HOR. SCALE: 1"=50'
VERT. SCALE: 1"=5'

PIPE SCHEDULE		
SIZE	TYPE	TOTAL
12"	HDPE	217 LF
15"	HDPE	539 LF
18"	HDPE	191 LF

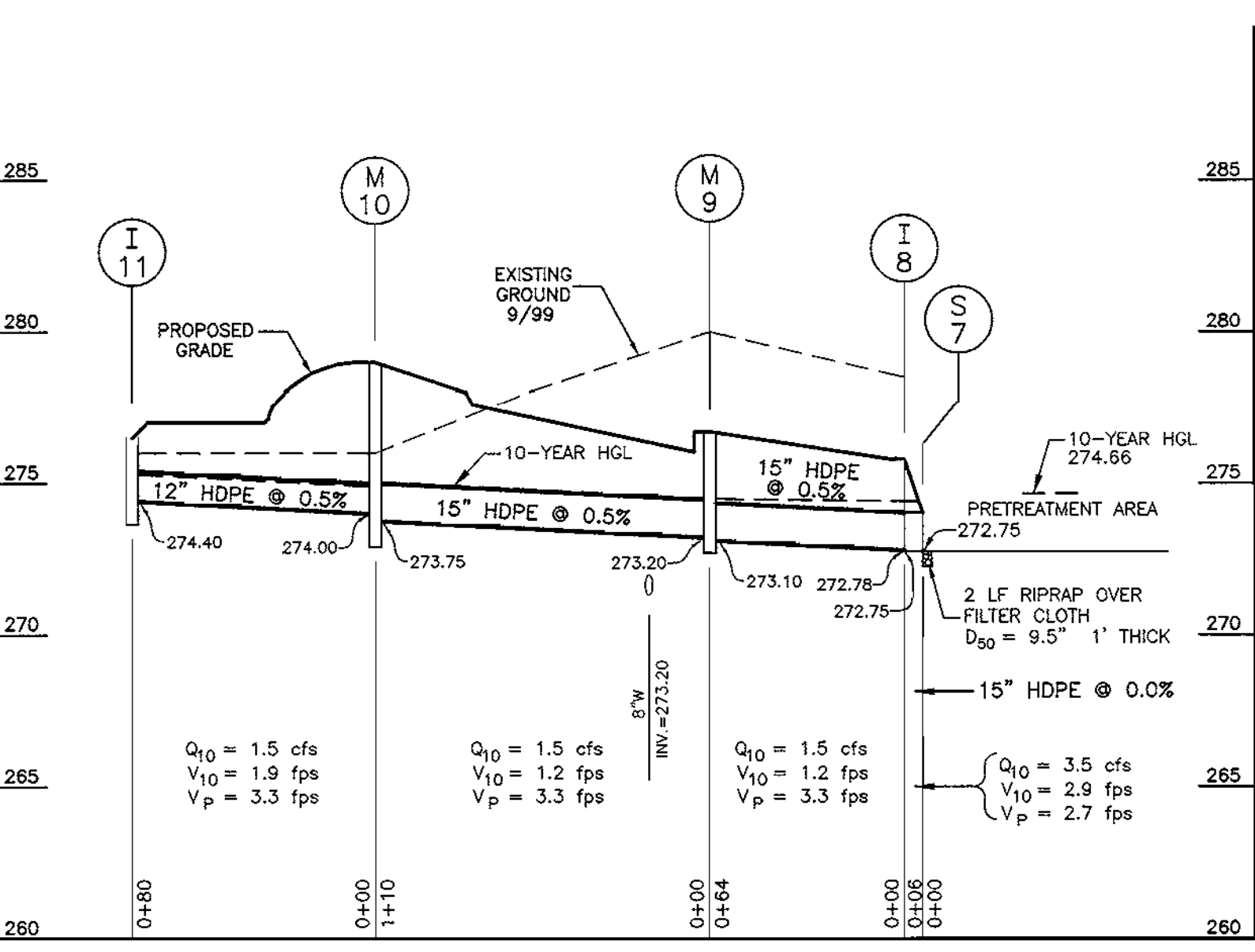
STRUCTURE SCHEDULE						
NO.	TYPE	INVERT		TOP ELEVATION UPPER / LOWER	REMARKS	LOCATION
		IN	OUT			
I-1	LOW RISE WEIR	SEE DETAIL	SEE DETAIL	264.92		2+84.04 130.67' RT.
S-2	'A' HEADWALL	262.00	262.00	264.25	SD 5.11	2+25.44 38.21' RT.
I-3	A-10	262.60	262.50	270.20	SD 4.41 SINGLE	2+25.00 10' RT.
M-4	PRECAST MANHOLE	264.80/264.95	264.70	272.50	G 5.11	3+64.58 17.07' LT.
M-5	PRECAST MANHOLE	266.17	265.47	273.28	G 5.11	4+02.66 13.74' LT.
I-6	A-10 MODIFIED	267.37	275.24/275.00	SD 4.41		4+62.18 10' LT.
S-7	END SECTION	272.75	274.00			5+03.63 22' LT.
I-8	A-10	272.78	272.75	275.89/275.71	SD 4.41	5+01.75 10' LT.
M-9	PRECAST MANHOLE	273.20	273.10	276.90	G 5.11	5+65.47 15.75'
M-10	PRECAST MANHOLE	274.00	273.75	278.60	G 5.11	0+87.18 22.42'
I-11	YARD	274.40	276.30			N563313.06 E1381436.30
I-12	S	268.16	267.91	273.00	SD 4.22 SINGLE	N562991.55 E1381286.11
I-13	S	268.60	271.50		SD 4.22 SINGLE	N562991.13 E1381199.19
M-14	PRECAST MANHOLE	265.27	265.17	272.80	G 5.11	9+64.57 58.82' RT.
I-15	S	265.93	265.68	269.00	SD 4.22 SINGLE	9+18.31 126.58' RT.
I-16	S	266.43	269.10		SD 4.22 SINGLE	8+74.80 101.61' RT.



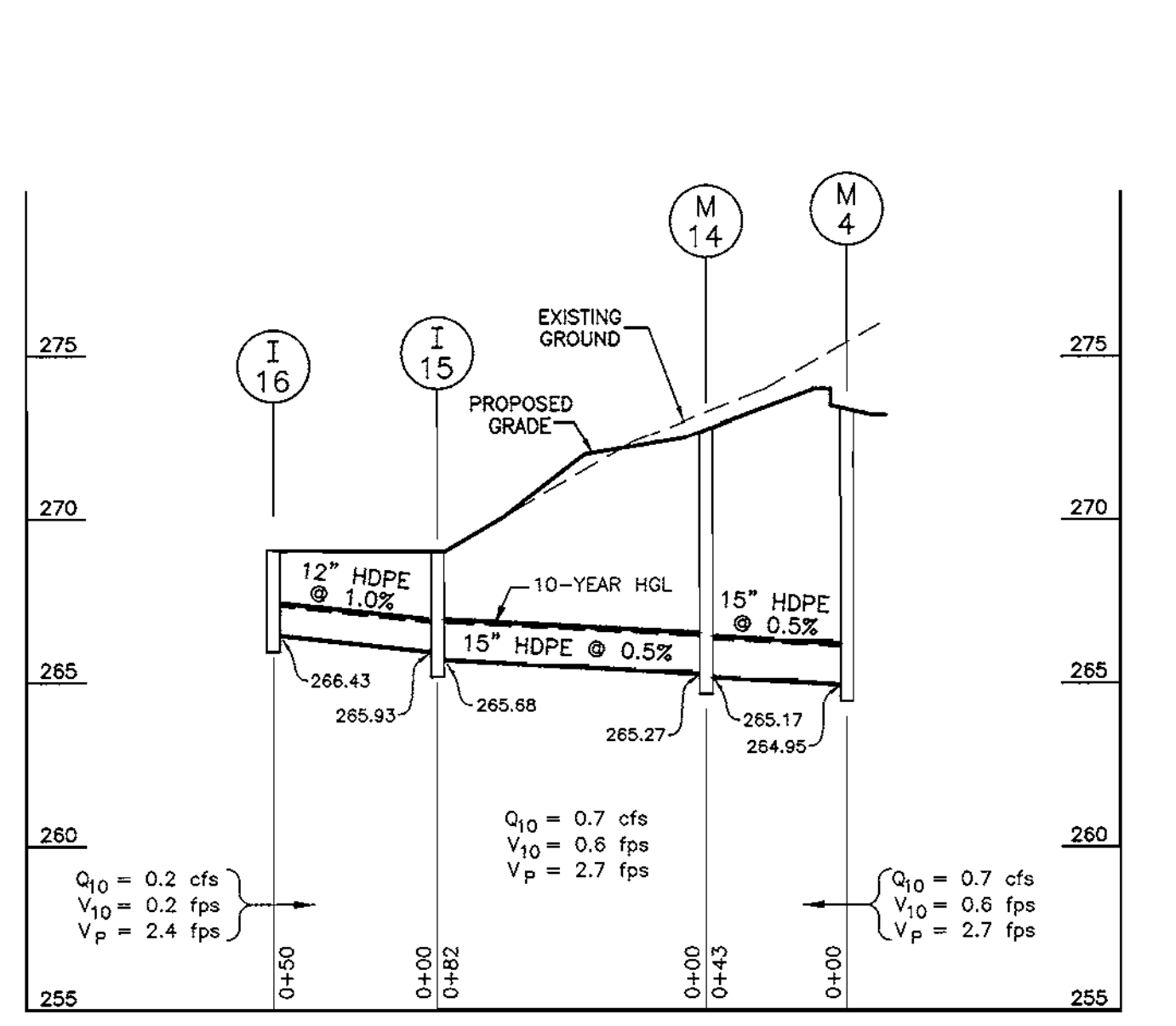
STORM DRAIN PROFILE
HOR. SCALE: 1"=50'
VERT. SCALE: 1"=5'



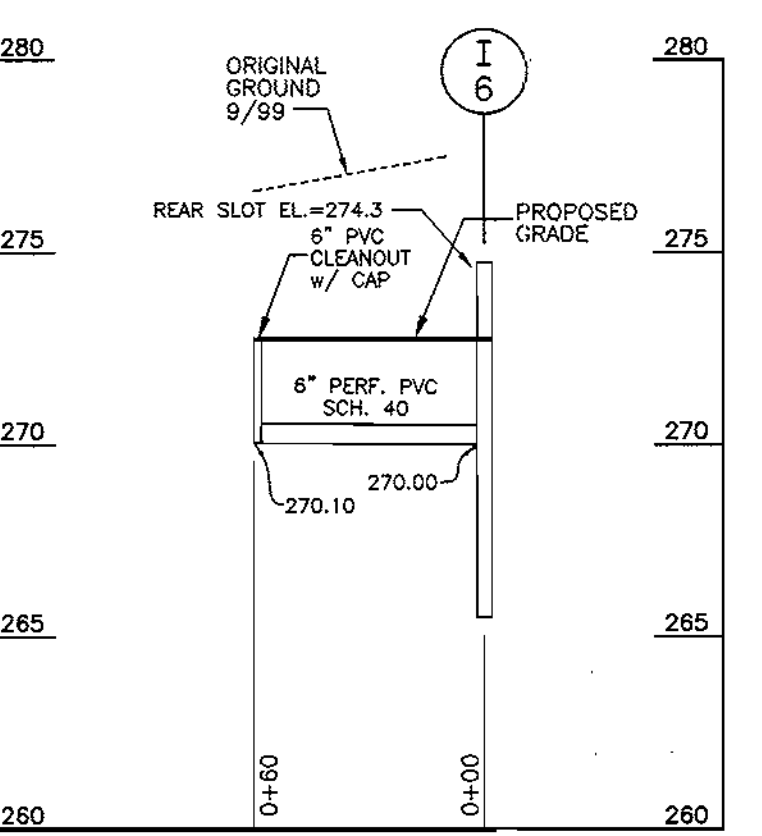
STORM DRAIN PROFILE
HOR. SCALE: 1"=50'
VERT. SCALE: 1"=5'



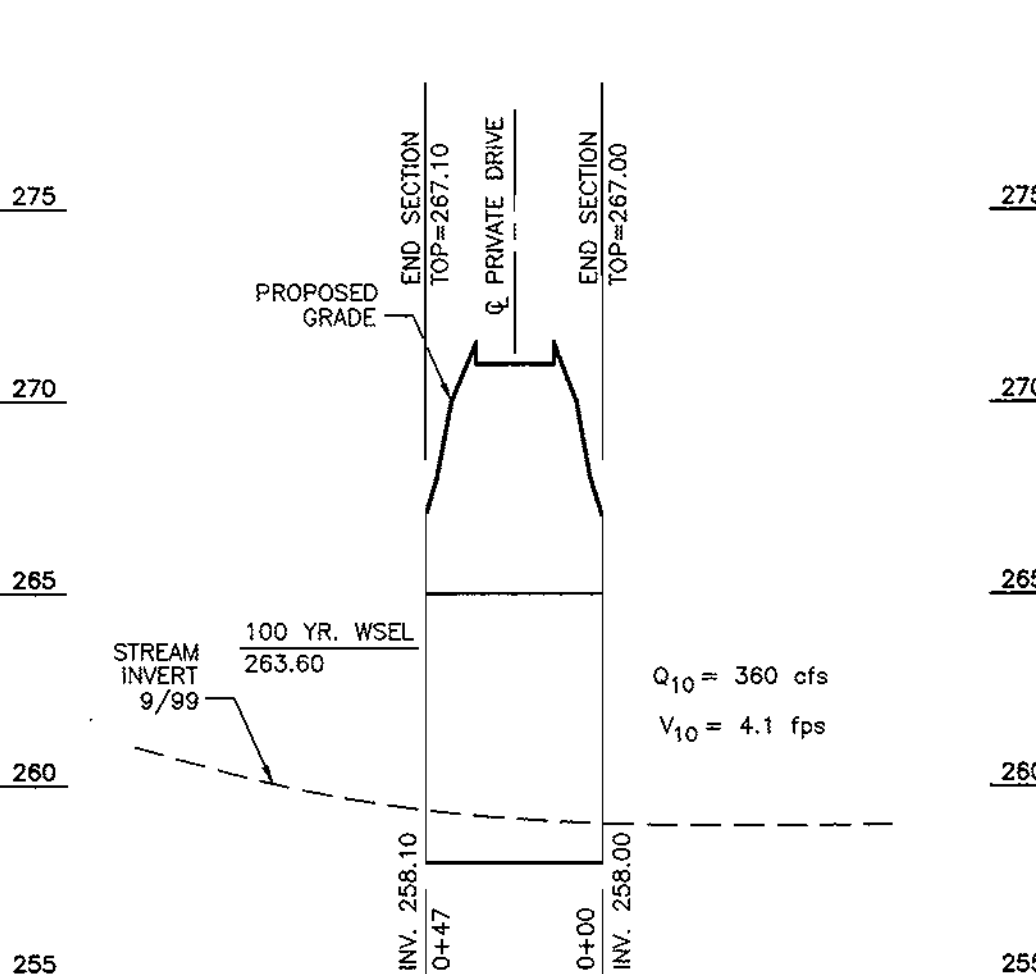
STORM DRAIN PROFILE
HOR. SCALE: 1"=50'
VERT. SCALE: 1"=5'



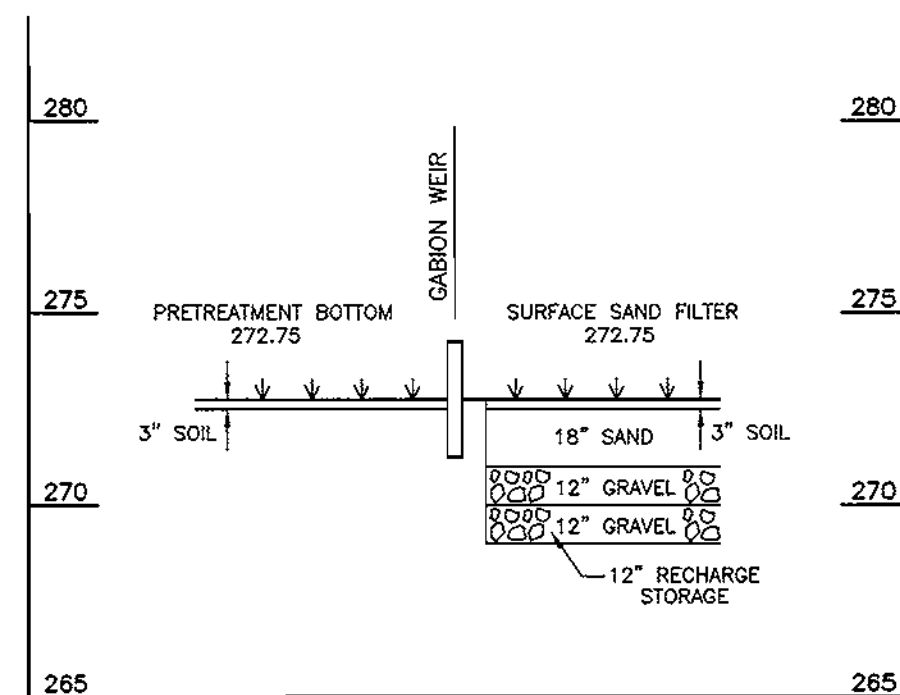
STORM DRAIN PROFILE
HOR. SCALE: 1"=50'
VERT. SCALE: 1"=5'



**SURFACE SAND FILTER
PVC PIPE PROFILE**
HOR. SCALE: 1"=50'
VERT. SCALE: 1"=5'

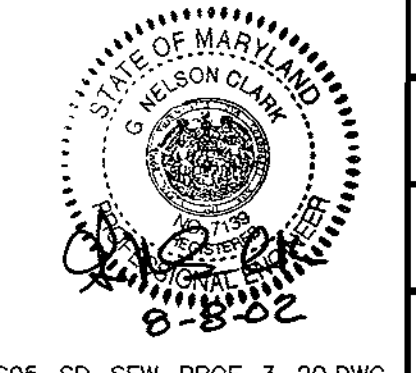


BOTTOMLESS 6'-11" X 19'-5" CULVERT PROFILE
HOR. SCALE: 1"=50'
VERT. SCALE: 1"=5'



**SURFACE SAND FILTER WEIR
CROSS SECTION A-A**
HOR. SCALE: 1"=50'
VERT. SCALE: 1"=5'

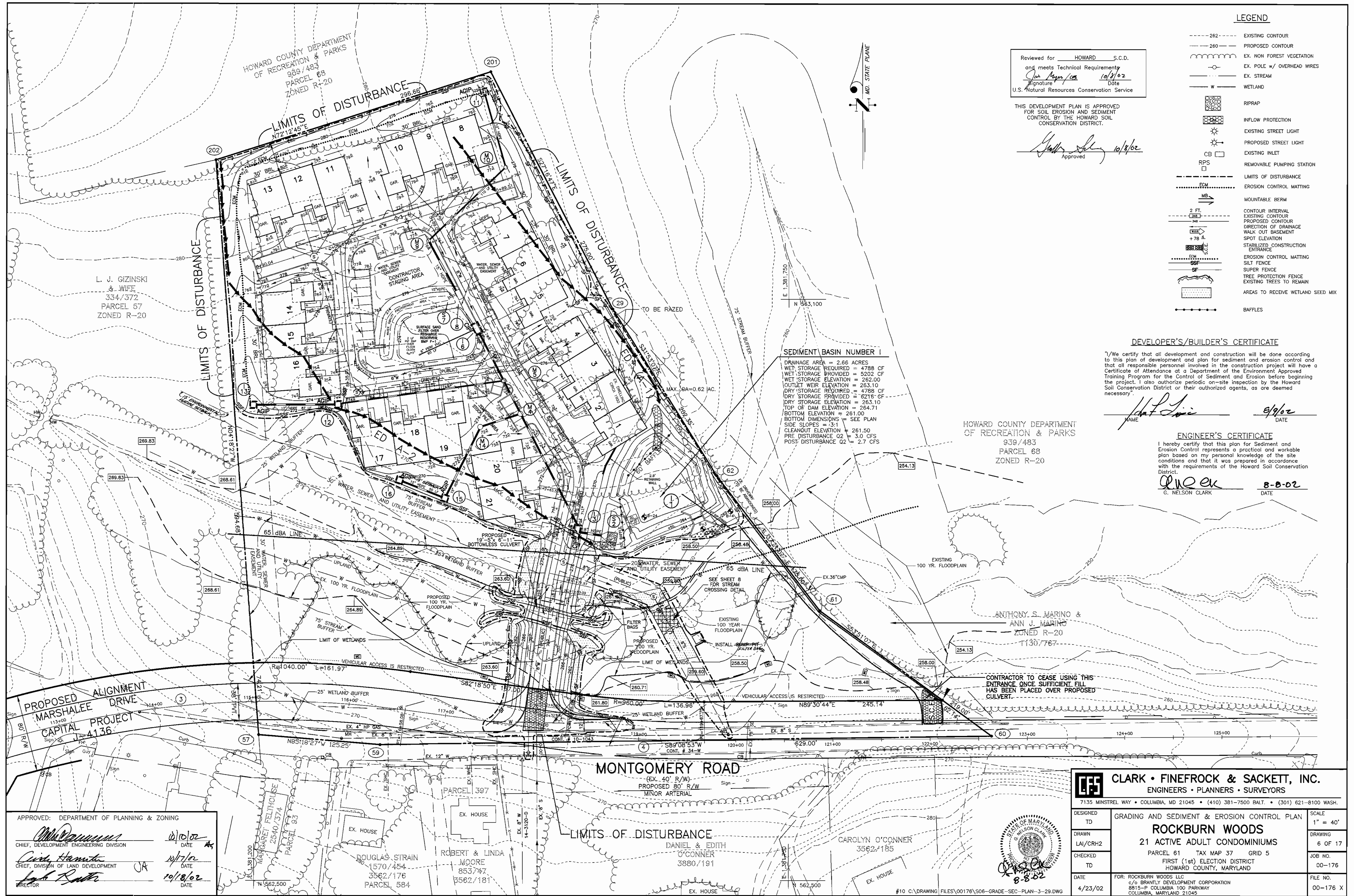
APPROVED: DEPARTMENT OF PLANNING & ZONING
 [Signature] 10/10/02
 CHIEF, ENGINEERING DIVISION
 [Signature] 11/1/02
 CHIEF, DIVISION OF LAND DEVELOPMENT
 [Signature] 10/18/02
 DIRECTOR



CLARK • FINEFROCK & SACKETT, INC.
 ENGINEERS • PLANNERS • SURVEYORS
 7135 MINSTREL WAY • COLUMBIA, MD 21045 • (410) 381-7500 BALT. • (301) 621-8100 WASH.

DESIGNED TD	STORM DRAIN AND SEWER PROFILES ROCKBURN WOODS 21 ACTIVE ADULT CONDOMINIUMS PARCEL 61 TAX MAP 37 GRID 5 FIRST (1st) ELECTION DISTRICT HOWARD COUNTY, MARYLAND	SCALE AS SHOWN
DRAWN LAI/CRH2		DRAWING 5 of 17
CHECKED TD		JOB NO. 00176
DATE 4/3/02		FILE NO. 00176 X

FOR: BRANTLY DEVELOPMENT GROUP
 8835-P COLUMBIA 100 PARKWAY
 COLUMBIA, MD 21045



LEGEND

- 262 --- EXISTING CONTOUR
- 260 --- PROPOSED CONTOUR
- EX. NON FOREST VEGETATION
- EX. POLE W/ OVERHEAD WIRES
- EX. STREAM
- W --- WETLAND
- [Symbol] RIPRAP
- [Symbol] INFLOW PROTECTION
- [Symbol] EXISTING STREET LIGHT
- [Symbol] PROPOSED STREET LIGHT
- [Symbol] CB [] EXISTING INLET
- [Symbol] RPS [] REMOVABLE PUMPING STATION
- [Symbol] [] LIMITS OF DISTURBANCE
- [Symbol] [] EROSION CONTROL MATTING
- [Symbol] [] MOUNTABLE BERM
- [Symbol] [] CONTOUR INTERVAL
- [Symbol] [] EXISTING CONTOUR
- [Symbol] [] PROPOSED CONTOUR
- [Symbol] [] DIRECTION OF DRAINAGE
- [Symbol] [] WALK OUT BASEMENT
- [Symbol] [] SPOT ELEVATION
- [Symbol] [] STABILIZED CONSTRUCTION ENTRANCE
- [Symbol] [] EROSION CONTROL MATTING
- [Symbol] [] SILT FENCE
- [Symbol] [] SUPER FENCE
- [Symbol] [] TREE PROTECTION FENCE
- [Symbol] [] EXISTING TREES TO REMAIN
- [Symbol] [] AREAS TO RECEIVE WETLAND SEED MIX
- [Symbol] [] BAFFLES

Reviewed for HOWARD S.C.D.
and meets Technical Requirements
[Signature] 10/1/02
Date
U.S. Natural Resources Conservation Service

THIS DEVELOPMENT PLAN IS APPROVED
FOR SOIL EROSION AND SEDIMENT
CONTROL BY THE HOWARD SOIL
CONSERVATION DISTRICT.
[Signature] 10/1/02
Approved

DEVELOPER'S/BUILDER'S CERTIFICATE

I/We certify that all development and construction will be done according to this plan of development and plan for sediment and erosion control and that all responsible personnel involved in the construction project will have a Certificate of Attendance at a Department of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I also authorize periodic on-site inspection by the Howard Soil Conservation District or their authorized agents, as are deemed necessary.

[Signature] 10/1/02
NAME DATE

ENGINEER'S CERTIFICATE

I hereby certify that this plan for Sediment and Erosion Control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District.

[Signature] 8-8-02
G. NELSON CLARK DATE

SEDIMENT BASIN NUMBER 1

DRAINAGE AREA = 2.66 ACRES
WET STORAGE REQUIRED = 4788 CF
WET STORAGE PROVIDED = 5202 CF
WET STORAGE ELEVATION = 262.00
OUTLET WEIR ELEVATION = 263.10
DRY STORAGE REQUIRED = 4788 CF
DRY STORAGE PROVIDED = 6216 CF
DRY STORAGE ELEVATION = 263.10
TOP OF DAM ELEVATION = 264.71
BOTTOM ELEVATION = 261.00
BOTTOM DIMENSIONS = SEE PLAN
SIDE SLOPES = 3:1
CLEANOUT ELEVATION = 261.50
PRE DISTURBANCE Q2 = 3.0 CFS
POST DISTURBANCE Q2 = 2.7 CFS

HOWARD COUNTY DEPARTMENT
OF RECREATION & PARKS
939/483
PARCEL 68
ZONED R-20

ANTHONY S. MARINO &
ANN J. MARINO
ZONED R-20
1130/767

CONTRACTOR TO CEASE USING THIS
ENTRANCE ONCE SUFFICIENT FILL
HAS BEEN PLACED OVER PROPOSED
CULVERT.

APPROVED: DEPARTMENT OF PLANNING & ZONING
[Signature] 10/1/02
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE
[Signature] 10/1/02
CHIEF, DIVISION OF LAND DEVELOPMENT DATE
[Signature] 10/18/02
DIRECTOR DATE

CLARK • FINEFROCK & SACKETT, INC.
ENGINEERS • PLANNERS • SURVEYORS
7135 MINSTREL WAY • COLUMBIA, MD 21045 • (410) 381-7500 BALT. • (301) 621-8100 WASH.

DESIGNED TD	GRADING AND SEDIMENT & EROSION CONTROL PLAN ROCKBURN WOODS 21 ACTIVE ADULT CONDOMINIUMS PARCEL 61 TAX MAP 37 GRID 5 FIRST (1st) ELECTION DISTRICT HOWARD COUNTY, MARYLAND	SCALE 1" = 40'
DRAWN LAI/CRH2		DRAWING 6 OF 17
CHECKED TD		JOB NO. 00-176
DATE 4/23/02		FILE NO. 00-176 X
FOR: ROCKBURN WOODS LLC c/o BRANTLY DEVELOPMENT CORPORATION 8815-P COLUMBIA 100 PARKWAY COLUMBIA, MARYLAND 21045		



DETAIL 24 - STABILIZED CONSTRUCTION ENTRANCE

Construction Specifications

- Length - minimum of 50' (x 30' for a single lane lot).
- Width - 10' minimum, should be flared at the existing road to provide a turning radius.
- Geotextile fabric (filter cloth) shall be placed over the existing ground prior to placing stone. The plan approval authority may not require single family residences to use geotextile.
- Stone - crushed aggregate (2" to 3") or reclaimed or recycled concrete equivalent shall be placed at least 6" deep over the length and width of the entrance.
- Surface Water - all surface water flowing to or diverted toward construction entrances shall be piped through the entrance, maintaining positive drainage. Pipe installed through the stabilized construction entrance shall be protected with a malleable iron or ductile iron pipe with a minimum of 8" of stone over the pipe. Pipe has to be sized according to the drainage. When the pipe is located at a high spot and has no drainage to convey, a pipe will not be necessary. Pipe should be sized according to the amount of runoff to be conveyed. A 6" minimum shall be required.
- Location - A stabilized construction entrance shall be located at every point where construction traffic enters or leaves a construction site. Vehicles leaving the site must travel over the entire length of the stabilized construction entrance.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE 1-7-3 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 22 - SILT FENCE

Construction Specifications

- Fence posts shall be a minimum of 36" long, driven 16" minimum into the ground. Wood posts shall be 1 1/2" x 1 1/2" square (minimum) cut, or 3/4" diameter (minimum) round and shall be of sound quality hardwood. Steel posts shall be spaced 12' or 15' section weighing not less than 1.00 pound per linear foot.
- Geotextile shall be fastened securely to each fence post with wire ties or staples at top and mid-section and shall meet the following requirements for Geotextile Class F:
Tensile Strength: 50 lbs./in. (min.) Test: MSMT 509
Tensile Modulus: 20 lbs./in. (min.) Test: MSMT 509
Flow Rate: 0.3 gal./ft./minute (max.) Test: MSMT 322
Filtering Efficiency: 75% (min.) Test: MSMT 322
- Where ends of geotextile fabric come together, they shall be overlapped, folded and stapled to prevent sediment bypass.
- Silt Fence shall be inspected after each rainfall event and maintained when bulges occur or when sediment accumulation reaches 50% of the fabric height.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE 1-9-3 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 1 - EARTH DIKE

Construction Specifications

- All temporary earth dikes shall have uninterrupted positive grade to an outlet. Spot elevations may be necessary for grades less than 1%.
- Runoff diverted from a disturbed area shall be conveyed to a sediment trapping device.
- Runoff diverted from an undisturbed area shall outlet directly into an undisturbed, stabilized area at a non-erose velocity.
- All trees, brush, stumps, obstructions, and other objectional material shall be removed and disposed of so as not to interfere with the proper functioning of the dike.
- The dike 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.
- Fill shall be compacted by earth moving equipment.
- All earth removed and not needed for construction shall be placed so that it will not interfere with the functioning of the dike.
- Inspection and maintenance must be provided periodically and after each rain event.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE A-1-6 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 6 - GABION INFLOW PROTECTION

Construction Specifications

- Gabion inflow protection shall be constructed of 9' x 3' x 9' gabion baskets forming a trapezoidal cross section 1' deep, with 2:1 side slopes, and a 3" bottom width.
- Geotextile Class C shall be installed under all gabion baskets.
- The stone used to fill the gabion baskets shall be 4" - 7".
- Gabions shall be installed in accordance with manufacturers recommendations.
- Gabion inflow protection shall be used where concentrated flow is present on steep slopes greater than 4:1.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE 7-1-2 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

SEQUENCE OF CONSTRUCTION

STREAM CLOSURE NOTE: The stream channel must not be disturbed between March 1st and June 15th.

1. OBTAIN GRADING PERMIT	1 DAY
2. CONSTRUCT SCE PER STANDARD DETAIL, AND BMP FACILITY P-5. CONSTRUCT PER TEMPORARY SWM DETAILS BELOW, WITH PERMISSION OF INSPECTOR TO PROCEED.	1 DAY
3. INSTALL PERIMETER CONTROLS.	7 DAYS
4. GRADE SITE. ADJUST CONTROLS AS NEEDED TO MAINTAIN MAXIMUM DRAINAGE TO TRAP. DO NOT CONSTRUCT BMP P-1, SURFACE SAND FILTER.	30 DAYS
5. WITH PERMISSION OF INSPECTOR TO PROCEED, INSTALL FOOTERS FOR BOTTOMLESS PIPE. CONSTRUCT PIPE.	7 DAYS
6. INSTALL UTILITIES AND CURB INLET PROTECTION. SEE NOTE AT TOP REGARDING STREAM CLOSURE.	7 DAYS
7. INSTALL CURBS, REMOVE EARTH DIKE AS NECESSARY.	30 DAYS
8. CONSTRUCT BUILDINGS, PAVE SITE, INSTALL SIDEWALKS & DRIVEWAYS.	45 DAYS
9. STABILIZE ALL DISTURBED AREAS.	7 DAYS
10. UPON APPROVAL OF SEDIMENT CONTROL INSPECTOR, CONVERT BMP FACILITY P-5 TO FINISHED GRADE, REMOVE BRICK FROM WEIR, CONSTRUCT BMP P-1, SURFACE SAND FILTER.	7 DAYS
11. CONTRACTOR SHALL INSURE THAT ANY SEDIMENT WHICH ACCUMULATES IN OPERATIVE CONDITION UNTIL PERMISSION FOR THEIR CONSTRUCTION IS REMOVED AND STABILIZED AT A LOCATION WITH AN APPROVED PLAN.	7 DAYS
12. UPON APPROVAL OF SEDIMENT CONTROL INSPECTOR, REMOVE ANY REMAINING SEDIMENT AND EROSION CONTROL MEASURES, AND STABILIZE AS REQUIRED.	7 DAYS

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE 7-1-2 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

SEDIMENT AND EROSION CONTROL NOTES

- A minimum of 48 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 (315-1885).
- All vegetative and structural practices are to be installed according to the provisions of this plan and are to be in conformance with the 1994 MARYLAND STANDARDS AND SPECS. FOR SOIL EROSION AND SEDIMENT CONTROL AND revisions thereof.
- Following initial soil disturbance or redistribution, permanent or temporary stabilization shall be completed within:
 - a) 7 calendar days for all perimeter sediment control structures, dikes, perimeter slopes and all slopes greater than 3:1
 - b) 14 days as to all other disturbed or graded areas on the project site.
- All sediment traps/basins must be fenced and warning signs posted around their perimeters in accordance with Vol. 1, Chapter 7, of the HOWARD COUNTY DESIGN MANUAL, Storm Drainage.
- All disturbed areas must be stabilized within the time period specified above, in accordance with the 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for permanent seedings, roof temporary seeding and mulching (Sec G). 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:	2.12 Acres
Area Disturbed:	3.88 Acres
Area to be seeded or paved:	2.72 Acres
Area to be vegetatively stabilized:	2.16 Acres
Total Cut:	15,418 Cubic Yards
Total Fill:	4,977 Cubic Yards
Offset Waste/Borrow Area Location:	*
- Any sediment control practice which is disturbed by grading activity for placement of utilities must be repaired on the same working day, whichever is shorter.
- Additional sediment control must be provided, if deemed necessary by the Howard County DPW Sediment Control Inspector.
- On all sites with disturbed areas in excess of 2 acres, approval of the inspection authority 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 shall be back-filled and stabilized within one working day, whichever is shorter.
- The total amount of silt fence = 880 LF
- The total amount of super silt fence = 700 LF
- The total amount of earth dike = 763 LF

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE 7-1-2 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

CONDITIONS AND MANAGEMENT PRACTICES FOR WORKING IN NONTIDAL WETLANDS AND BUFFERS

a) No excess fill, construction material or debris are to be stockpiled or stored in the wetlands or buffers.

b) Place materials in a location and manner which does not adversely impact surface or subsurface water flow into or out of the nontidal wetland or buffer.

c) Do not use the excavated material as backfill if it contains waste metal products, unsightly debris, toxic material or any other deleterious substance. If any additional backfill is required, use clean material free of waste metal products, unsightly debris, toxic material or any other deleterious substance.

d) Place heavy equipment on mats or suitably operate the equipment to prevent damage to the nontidal wetland or buffer.

e) Repair and maintain any serviceable structure or fill so there is no permanent loss of nontidal wetland and buffer in excess of nontidal wetland and buffer lost under the original structure of fill.

PERMANENT SEEDING NOTES

f) Conduct the activity so as not to cause or contribute to a degradation of water quality as determined by the Maryland Department of the Environment.

g) To protect important aquatic species, in-stream work is prohibited as determined by the classification of the stream as follows:
a. Class 1 Waters: In-stream work may not be conducted during the period March 1 through June 15, inclusive during any year.

h) All stabilization in the wetland and buffer shall be of the following recommended species: Annual Ryegrass (Lolium multiflorum), Millet (Setaria italica), Barley (Hordeum sp.), Oats (Avena sp.), and/or Rye (Secale cereale). These species will allow for the stabilization of the site while also allowing for the voluntary revegetation of natural wetland species. Other non-persistent vegetation may be acceptable, but must be approved by the Division. Kentucky 31 species shall not be utilized in the wetland or buffer areas. The area should be seeded and mulched to reduce erosion after construction activities have been completed.

DETAIL 30 - EROSION CONTROL MATTING

Construction Specifications

- Key-in the matting by placing the top ends of the matting in a narrow trench, 4" in depth. Backfill the trench and tamp firmly to conform to the channel cross-section. Secure with a row of staples about 4" down slope from the trench. Spacing between staples is 6".
- Staple the 4" overlap in the channel center using an 18" spacing between staples.
- Before stapling the outer edges of the matting, make sure the matting is smooth and in firm contact with the soil.
- Staples shall be placed 2' apart with 4 rows for each strip, 2 outer rows, and 2 alternating rows down the center.
- Where one roll of matting ends and another begins, the end of the top strip shall overlap the upper end of the lower strip by 4", shingle fashion. Reinforce the overlap with a double row of staples spaced 6" apart in a staggered pattern on either side.
- The discharge end of the matting liner should be similarly secured with 2 double rows of staples.

Note: If flow will enter from the edge of the matting then the area effected by the flow must be keyed-in.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE 8-2-2 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 33 - SUPER SILT FENCE

Construction Specifications

- Fencing shall be 42" in height and constructed in accordance with the latest Maryland State Highway Details for Chain Link Fencing. The specification for a 4' fence shall be used, substituting 42" fabric and 6" length posts.
- Chain link fence shall be fastened securely to the fence posts with wire ties. The lower tension wire, brace and truss rods, drive anchors and post caps are not required except on the ends of the fence.
- Filter cloth shall be fastened securely to the chain link fence with ties spaced every 24" at the top and mid section.
- Filter cloth shall be embedded a minimum of 8" into the ground.
- When two sections of filter cloth adjoin each other, they shall be overlapped by 6" and folded.
- Maintenance shall be performed as needed and silt buildup removed when "bulges" develop in the silt fence, or when silt reaches 50% of fence height.
- Filter cloth shall be fastened securely to each fence post with wire ties or staples at top and mid section and shall meet the following requirements for Geotextile Class F:
Tensile Strength: 50 lbs./in. (min.) Test: MSMT 509
Tensile Modulus: 20 lbs./in. (min.) Test: MSMT 509
Flow Rate: 0.3 gal./ft./minute (max.) Test: MSMT 322
Filtering Efficiency: 75% (min.) Test: MSMT 322

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE 8-28-3 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 23C - CURB INLET PROTECTION (COG OR COS INLETS)

Construction Specifications

- 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.
- Place a continuous piece of Geotextile Class E of the same dimensions as the wire mesh over the wire mesh and secure it to the 2" x 4" weir.
- Securely nail the 2" x 4" weir to a 6" long vertical spacer to be located between the weir and the inlet face (max. 4" apart).
- Place the assembly against the inlet throat and nail (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.
- The assembly shall be placed so that the end spacers are a minimum 1" beyond both ends of the throat opening.
- Form the 1/2" x 1/2" wire mesh and the geotextile fabric to the concrete gutter and against the face of the curb on both sides of the inlet. Place clean 3/4" x 1 1/2" stone over the wire mesh and geotextile in such a manner to prevent water from entering the inlet under or around the geotextile.
- This type of protection must be inspected frequently and the filter cloth and stone replaced when clogged with sediment.
- Ensure that storm flow does not bypass the inlet by installing a temporary curb or splash ditch to direct the flow to the inlet.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE E-16-58 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 23B - AT GRADE INLET PROTECTION

Construction Specifications

- Lift grate and wrap with Geotextile Class E to completely cover all openings, then set grate back in place.
- Place 3/4" x 1 1/2" stone, 4"-6" thick on the grate to secure the fabric and provide additional filtration.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE E-16-54 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

WETLAND AND WETLAND BUFFER SEED MIX FOR TEMPORARY OR PERMANENT STABILIZATION

Up to June 15
Annual Ryegrass
Spring Oats
Winter Rye
Winter Wheat
Red Clover
Small Hop Clover

June 16 to August 15
Annual Ryegrass
Japanese or Foxtail Millet
Spring Oats
Winter Rye
Winter Wheat
Red Clover
Small Hop Clover

August 16 and Later
Annual Ryegrass
Spring Oats (will winter kill)
Winter Rye
Winter Wheat
Barley
Flax

December, January & February (during periods of no snow cover and above freezing temperature)
Winter Rye
Winter Wheat

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE 8-16-54 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

TEMPORARY SEEDING NOTES

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 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 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 216 gallons per acre (5 gal/1000 sq.ft.) of emulsified asphalt on flat areas. On slopes 8 feet or higher, use 348 gallons per acre (8 gal/1000 sq.ft.) for anchoring.

MAINTENANCE: Inspect all seeded areas and make needed repairs, replacements and reseedings.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE 8-16-54 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

MOUNTABLE BERM DETAIL STATION 15+50

Construction Specifications

- Minimum 18" of 2"-3" aggregate over filter cloth.
- Minimum 6" depth over filter cloth.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE 8-22-2 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

SEDIMENT BASIN DEWATERING DEVICE WITH 6" PERFORATED RISER

Construction Specifications

- PERFORATIONS: SPACING TO BE AT 11 PER VERTICAL FOOT. PERFORATIONS SLITS MUST NOT BE MADE ANY LOWER THAN 6" ABOVE TOP OF THE HORIZONTAL OUTLET BARREL.
- CAP END AT ELEV. 263.1
- 12" x 6" CMP
- 1" PERFORATIONS, ELEV. 262.0 AND ABOVE
- FILTER CLOTH OVER WIRE MESH
- 2" STONE CORE CONTINUOUS BAND
- BASE PLATE (1/4" SIZE: 24" x 24")

N.T.S.

SECTION OF SPILLWAY FOR TEMPORARY STORMWATER MANAGEMENT DURING CONSTRUCTION

263.6 BRICK EL.
262.0 WET POOL EL.
263.10 WEIR CREST
6" DRAIN

N.T.S.

APPROVED: DEPARTMENT OF PLANNING & ZONING

10/10/02 DATE

10/17/02 DATE

10/18/02 DATE

Reviewed for HOWARD S.C.D. and meets Technical Requirements

SIGNATURE: [Handwritten Signature] DATE: 10/18/02

U.S. Natural Resources Conservation Service

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

10/18/02 DATE

DEVELOPER'S/BUILDER'S CERTIFICATE

I/We certify that all development and construction will be done according to this plan of development and plan for sediment and erosion control and that all responsible personnel involved in the construction project will have a Certificate of Attendance at a Department of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I also authorize periodic on-site inspection by the Howard Soil Conservation District or their authorized agents, as deemed necessary.

Signature: [Handwritten Signature] DATE: 10/18/02

ENGINEER'S CERTIFICATE

I hereby certify that this plan for Sediment and Erosion Control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District.

Signature: [Handwritten Signature] DATE: 8-8-02

G. NELSON CLARK

CLARK · FINEFROCK & SACKETT, INC.
ENGINEERS · PLANNERS · SURVEYORS

7135 MINSTREL WAY · COLUMBIA, MD 21045 · (410) 381-7500 BALT. · (301) 621-8100 WASH.

DESIGNED TD	SCALE AS SHOWN
DRAWN LAI/CRH2	DRAWING
CHECKED TD	JOB NO. 00176
DATE 4/3/02	FILE NO. 00176 X

SEDIMENT AND EROSION CONTROL DETAILS

ROCKBURN WOODS

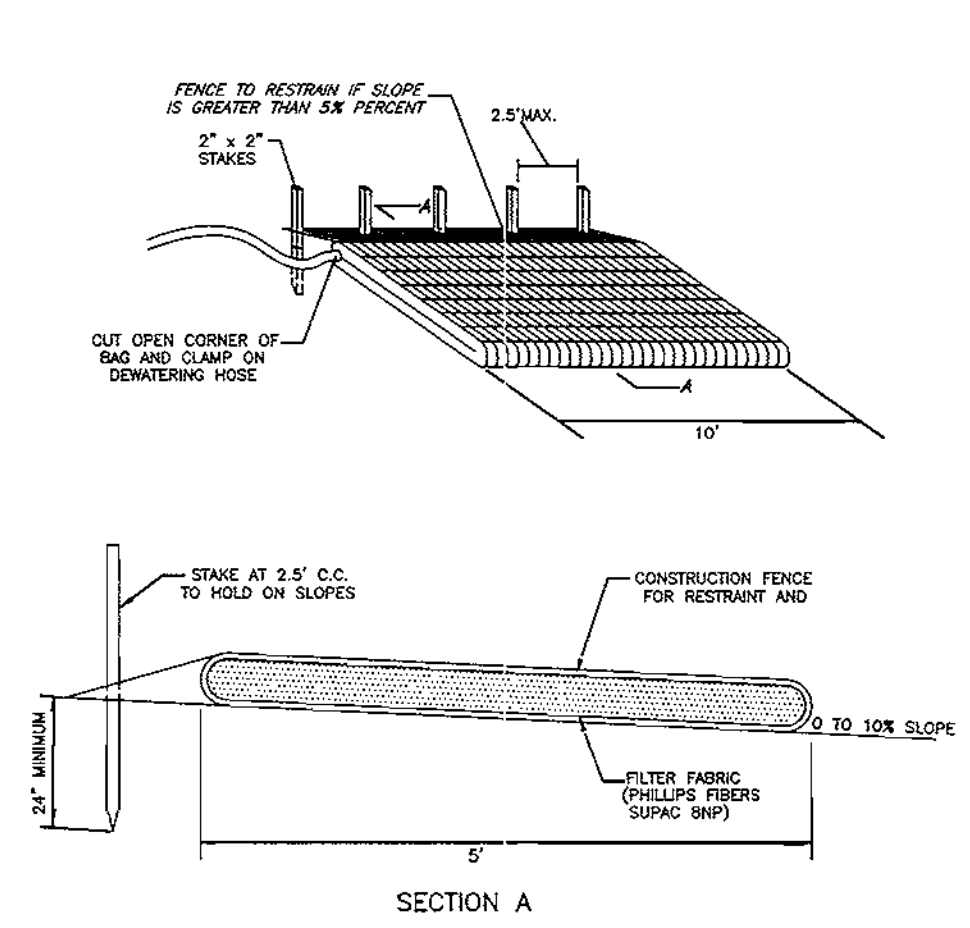
21 ACTIVE ADULT CONDOMINIUMS

PARCEL 61 TAX MAP 37 GRID 5

FIRST (1st) ELECTION DISTRICT HOWARD COUNTY, MARYLAND

FOR: BRANTLY DEVELOPMENT GROUP
8835-P COLUMBIA 100 PARKWAY
COLUMBIA, MD 21045

EROSION CONTROL - FILTER BAG



- NOTES:**
1. FILTER BAG SHALL BE PLACED ON A SLOPING OR LEVEL, WELL GRADED VEGETATED SITE SUCH THAT WATER WILL FLOW AWAY FROM DEVICE AND ANY WORK AREAS.
 2. WIDTH AND LENGTH SHALL BE AS SHOWN IN THE TABLE.
 3. THE FILTER BAG MUST BE STAKED IN PLACE AND SECURED TO THE PUMP DISCHARGE LINE.
 4. FILTER BAG SHALL NOT BE USED FOR DISCHARGING FLOWS GREATER THAN 300 GPM.
 5. DEVICE SHALL BE REMOVED AND DISPOSED OF AFTER BAG IS FILLED WITH SEDIMENT. SEDIMENT FROM BAG SHALL BE SPREAD IN AN UPLAND AREA.

FILTER BAG
TEMPORARY EROSION CONTROL MEASURE
NO SCALE PATH: F:\DTP\FOR\SDPS\EROSION\EROSION.DWG

21.0 STANDARDS AND SPECIFICATIONS FOR TOPSOIL

Definition
Placement of topsoil over a prepared subsoil prior to establishment of permanent vegetation.

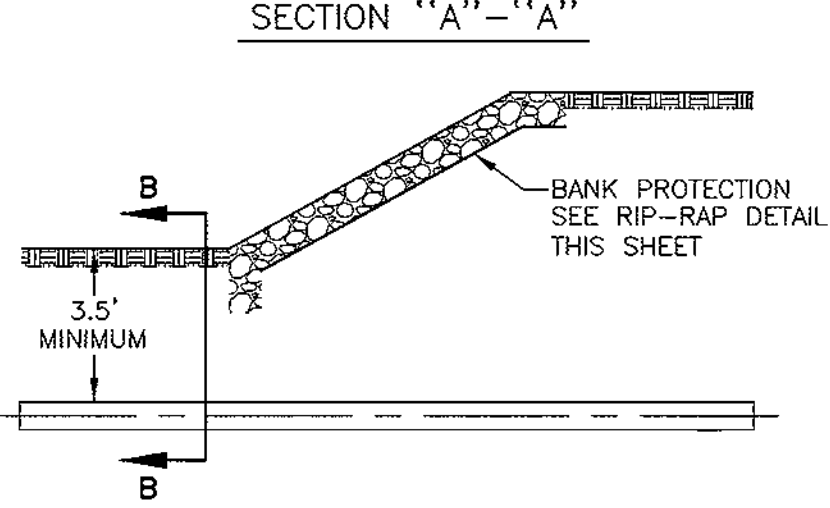
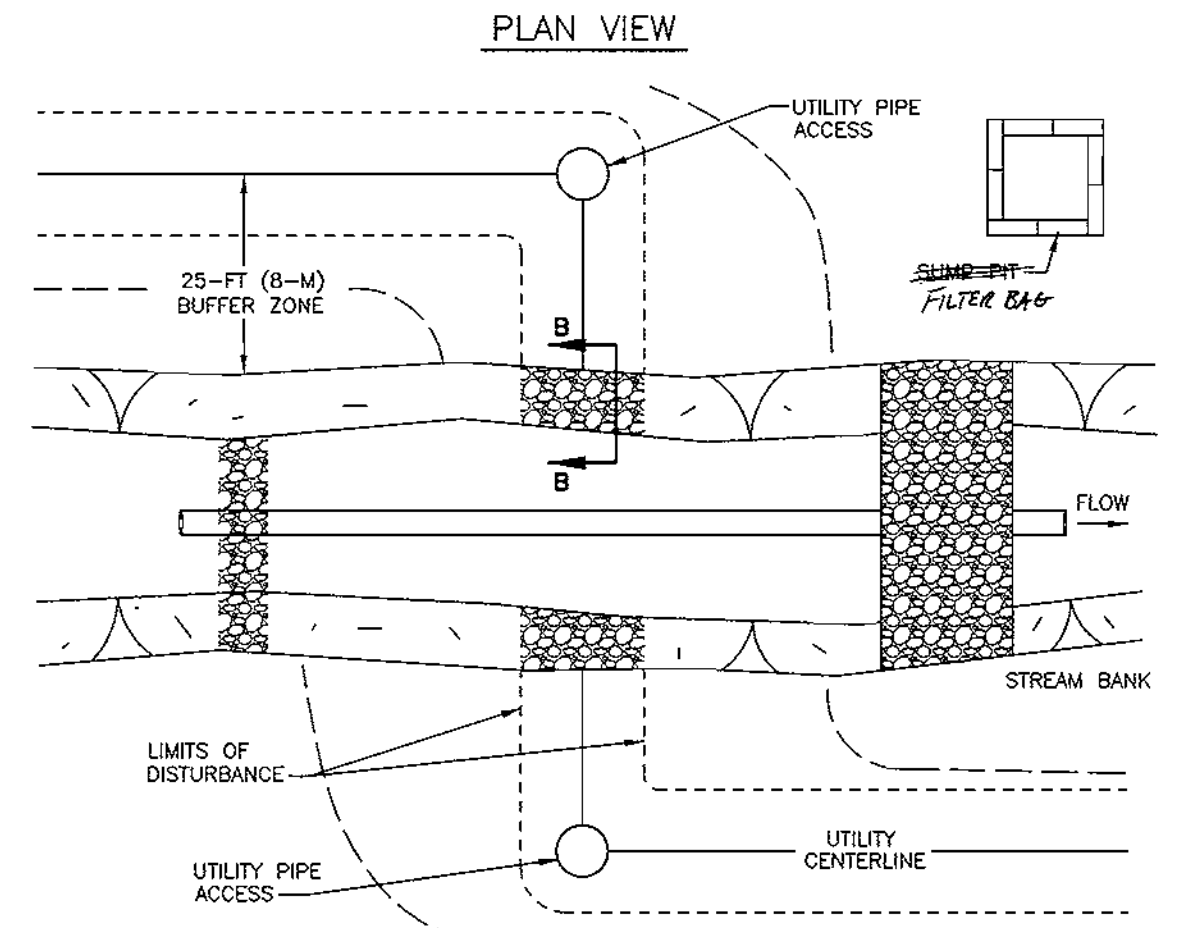
Purpose
To provide a suitable soil medium for vegetable growth. Soils of concern have low moisture content, low nutrient levels, low pH, materials toxic to plants, and/or unacceptable soil gradation.

Conditions Where Practice Applies

- I. This practice is limited to areas having 2:1 or flatter slopes where:
 - a. The texture of the exposed subsoil/parent material is not adequate to produce vegetative growth.
 - b. The soil material is so shallow that the rooting zone is not deep enough to support plants or furnish continuing supplies of moisture and plant nutrients.
 - c. The original soil to be vegetated contains material toxic to plant growth.
 - d. The soil is so acidic that treatment with limestone is not feasible.
- II. For the purpose of these Standards and Specifications, areas having slopes steeper than 2:1 require special consideration and design for adequate stabilization. Areas having slopes steeper than 2:1 shall have the appropriate stabilization shown on the plans.

Construction and Material Specifications

- I. Topsoil salvaged from the existing site may be used provided that it meets the standards as set forth in these specifications. Typically, the depth of topsoil to be salvaged for a given soil type can be found in the representative soil profile section in the Soil Survey published by USDA-SSC in cooperation with Maryland Agricultural Experiment Station.
- II. Topsoil Specifications - Soil to be used as topsoil must meet the following:
 - i. Topsoil shall be a loam, sandy loam, clay loam, silt loam, sandy clay loam, loamy sand. Other soils may be used if recommended by an agronomist or a soil scientist and approved by the appropriate approval authority. Regardless, topsoil shall not be a mixture of contrasting textured subsoils and shall contain less than 5% by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 1 1/2" in diameter.
 - ii. Topsoil must be free of plants or plant parts such as Bermuda grass, quackgrass, Johnsongrass, nutsedge, poison ivy, thistle, or others as specified.
 - iii. Where the subsoil is either highly acidic or composed of heavy clays, ground limestone shall be spread at the rate of 4-8 tons/acre (200-400 pounds per 1,000 square feet) prior to the placement of topsoil. Lime shall be distributed uniformly over designated areas and worked into the soil in conjunction with tillage operations as described in the following procedures.



STREAM CROSSING DETAIL
NOT TO SCALE

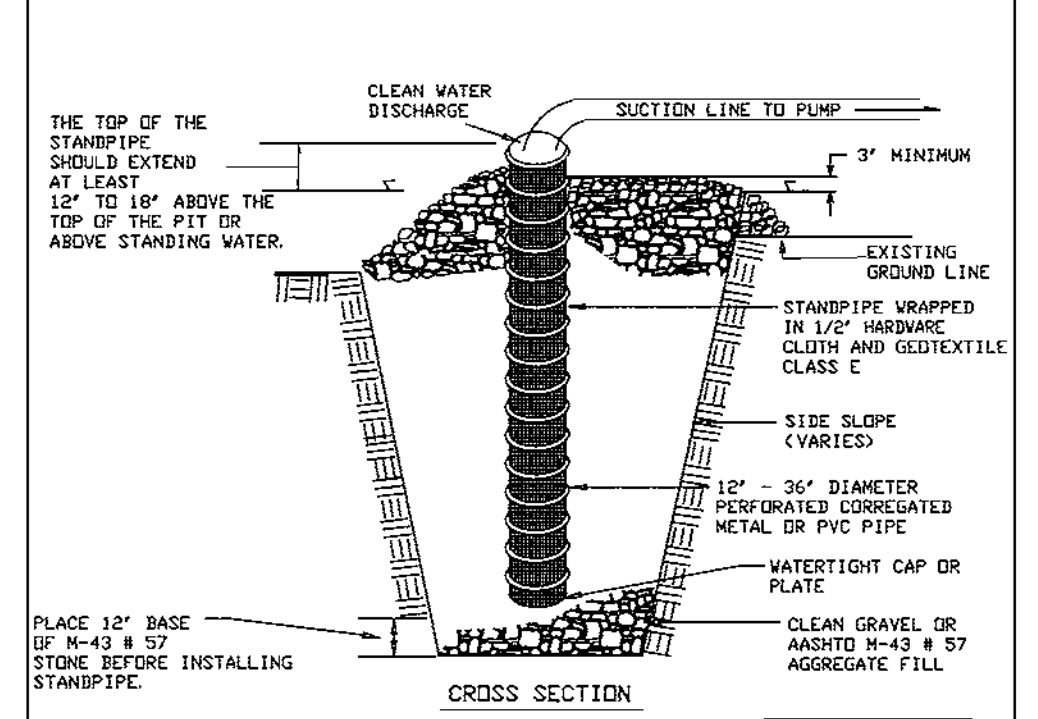
STREAM CROSSING NOTES

DESCRIPTION: THE WORK SHALL CONSIST OF INSTALLING EROSION CONTROL DEVICES IN AND ADJACENT TO THE CONSTRUCTION OF UTILITY CROSSINGS.

INSTALLATION GUIDELINES:
ALL EROSION AND SEDIMENT CONTROL DEVICES, INCLUDING Dewatering Basins, SHALL BE IMPLEMENTED AS THE FIRST ORDER OF BUSINESS ACCORDING TO A PLAN APPROVED BY THE WMA OR LOCAL AUTHORITY. (SEE THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL.) THE PROPOSED CONSTRUCTION SEQUENCE IS AS FOLLOWS (REFER TO DETAIL 4.2):

1. THE CONTRACTOR SHALL INSURE THAT A CONTINUOUS PERIMETER CONTROL BARRIER IS IN PLACE TO MINIMIZE THE AMOUNT OF POLLUTANTS ENTERING THE FLOW. A DIVERSION PIPE SHALL BE INSTALLED AND SANDBAG OR STONE BARRIERS SHALL BE CONSTRUCTED ACCORDING TO SPECIFICATIONS TO DIVERT THE STREAMFLOW.
2. EXCAVATED TOPSOIL AND SUBSOIL SHALL BE KEPT SEPARATE, PLACED ON THE UPLAND SIDE OF THE EXCAVATION, AND REPLACED IN THEIR NATURAL ORDER.
3. ALL CONSTRUCTION SHALL TAKE PLACE DURING STREAM LOW FLOWS. THE LENGTH OF CONSTRUCTION TIME SHALL BE LIMITED TO A MAXIMUM OF 5 CONSECUTIVE DAYS FOR CROSSING.
4. ALL UTILITY CROSSINGS SHALL BE PLACED A MINIMUM OF 3.5 FEET BENEATH THE STREAM BED.
5. THE STREAM SHALL BE DIVERTED BY AN APPROVED TEMPORARY STREAM DIVERSION, THE CONSTRUCTION AREA SHALL BE Dewatered, AND ANY DISTURBED BANKS SHALL BE STABILIZED.
6. ONCE THE CROSSING IS COMPLETED, THE DIVERSION SHALL BE REMOVED FROM UPSTREAM TO DOWNSTREAM. SEDIMENT CONTROL DEVICES, INCLUDING PERIMETER EROSION CONTROLS, ARE TO REMAIN IN PLACE UNTIL ALL DISTURBED AREAS ARE STABILIZED ACCORDANCE WITH AN APPROVED SEDIMENT AND EROSION CONTROL PLAN AND THE INSPECTION AUTHORITY APPROVES THEIR REMOVAL.

DETAIL 20B - SUMP PIT

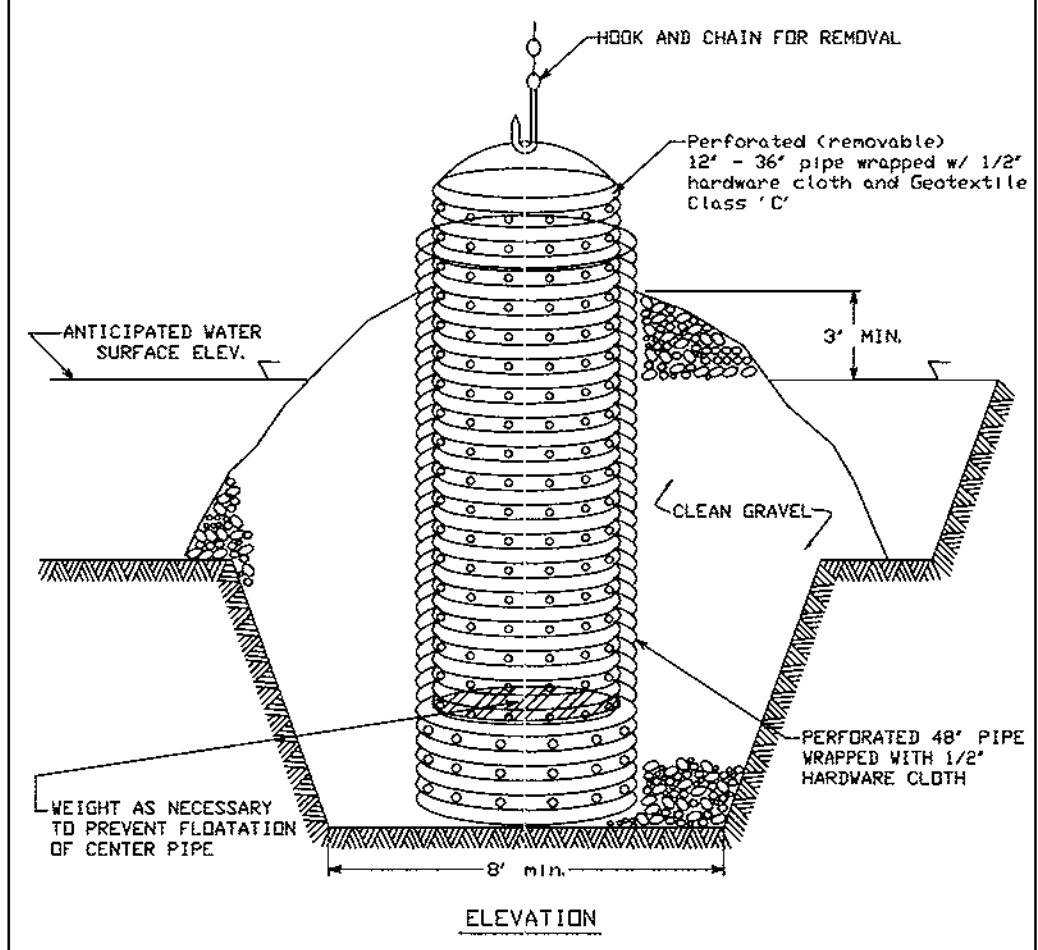


Construction Specifications

1. Pit dimensions are variable, with the minimum diameter being 2 times the standpipe diameter.
2. The standpipe should be constructed by perforating a 12" to 24" diameter corrugated or PVC pipe. Then wrapping with 1/2" hardware cloth and Geotextile Class C. The perforations shall be 1/2" x 6" slits or 1" diameter holes.
3. A base of filter material consisting of clean gravel or #57 stone should be placed in the pit to a depth of 12". After installing the standpipe, the pit surrounding the standpipe should then be backfilled with the same filter material.
4. The standpipe should extend 12" to 18" above the lip of the pit or the riser crest elevation (basin dewatering only) and the filter material should extend 3' minimum above the anticipated standing water elevation.

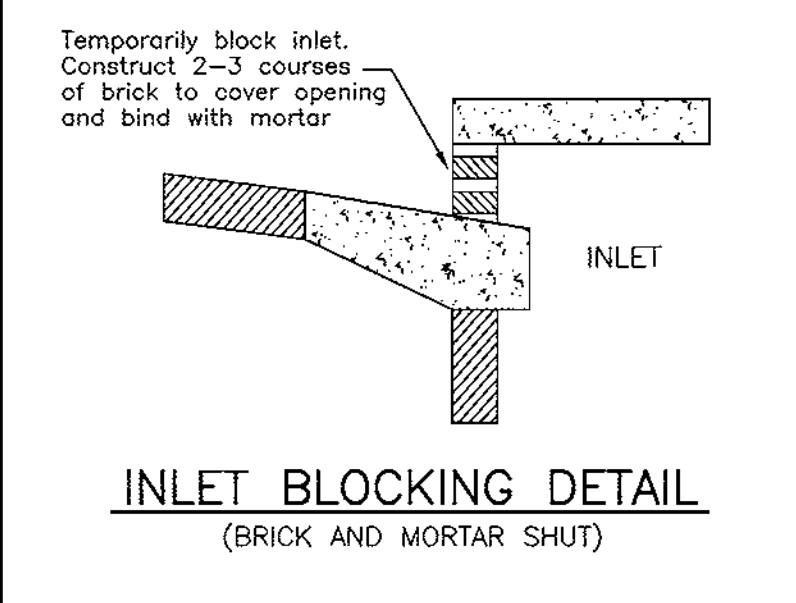
US DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE 8-12-2 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 20A - REMOVABLE PUMPING STATION



Construction Specifications

1. The outer pipe should be 48" dia. or shall, in any case, be at least 4' greater in diameter than the center pipe. The outer pipe shall be wrapped with 1/2" hardware cloth to prevent backfill material from entering the perforations.
2. After installing the outer pipe, backfill around outer pipe with 2' aggregate or clean gravel.
3. The inside stand pipe (center pipe) should be constructed by perforating a corrugated or PVC pipe between 12" and 36" in diameter. The perforations shall be 1/2" x 6" slits or 1" diameter holes 6" on center. The center pipe shall be wrapped with 1/2" hardware cloth first, then wrapped again with Geotextile Class C.
4. The center pipe should extend 12" to 18" above the anticipated water surface elevation or riser crest elevation when dewatering a basin.



INLET BLOCKING DETAIL
(BRICK AND MORTAR SHUT)

APPROVED: DEPARTMENT OF PLANNING & ZONING
 DATE: 10/10/02
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE: 10/17/02
 CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE: 10/13/02
 DIRECTOR

Reviewed for HOWARD S.C.D.
 and meets Technical Requirements
 Signature: [Signature] Date: 10/18/02
 U.S. Natural Resources Conservation Service

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
 Signature: [Signature] Date: 10/18/02
 Approved

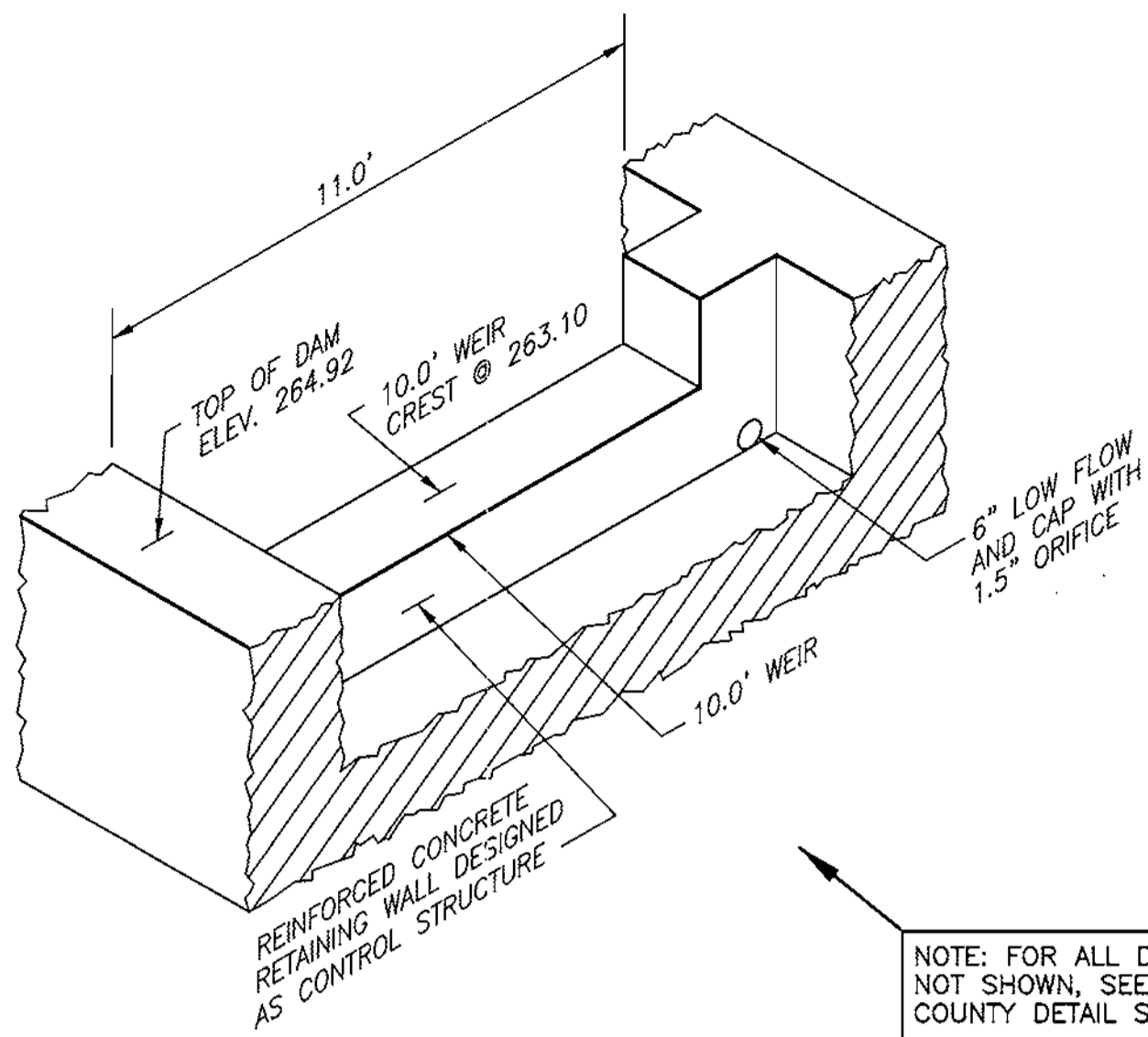
DEVELOPER'S/BUILDER'S CERTIFICATE
 "I/we certify that all development and construction will be done according to this plan of development and plan for sediment and erosion control and that all responsible personnel involved in the construction project will have a Certificate of Attendance at a Department of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I also authorize periodic on-site inspection by the Howard Soil Conservation District or their authorized agents, as are deemed necessary."
 Signature: [Signature] Date: 8/6/02

ENGINEER'S CERTIFICATE
 I hereby certify that this plan for Sediment and Erosion Control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District.
 Signature: [Signature] Date: 8-8-02
 G. NELSON CLARK

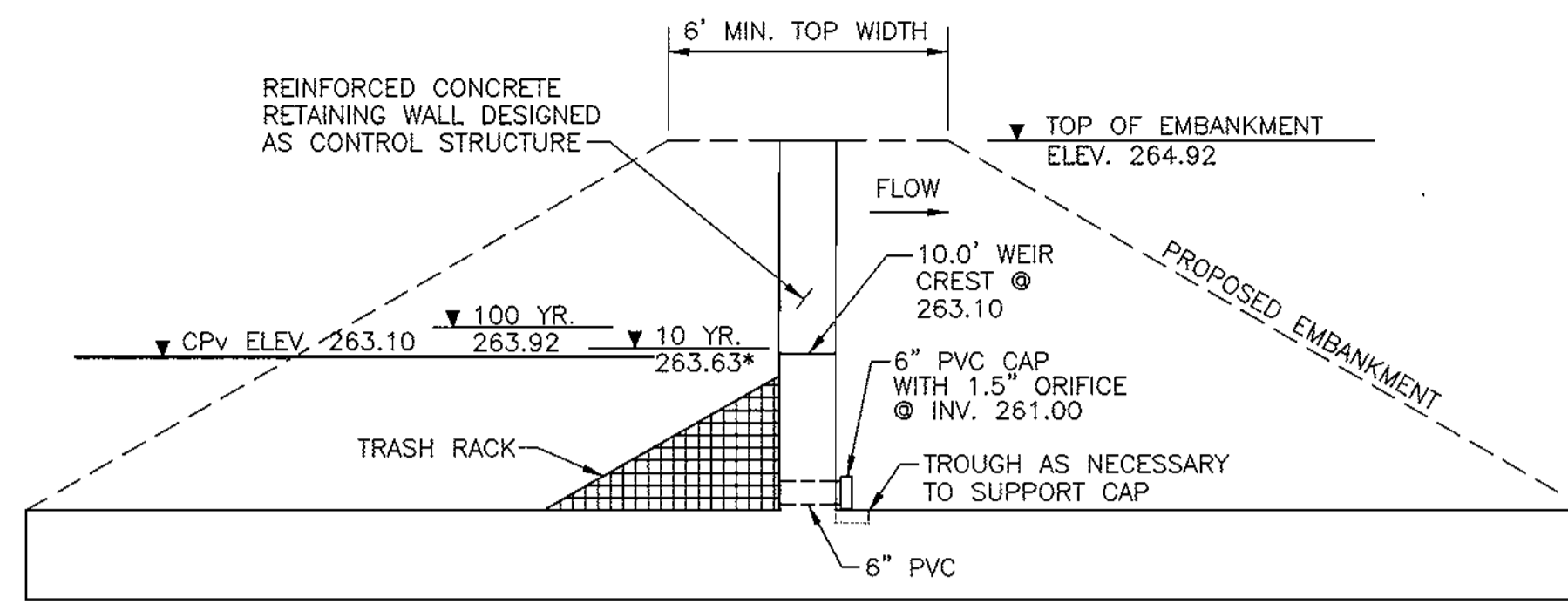


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 7135 MINTREL WAY • COLUMBIA, MD 21045 • (410) 381-7500 BALT. • (301) 621-8100 WASH.

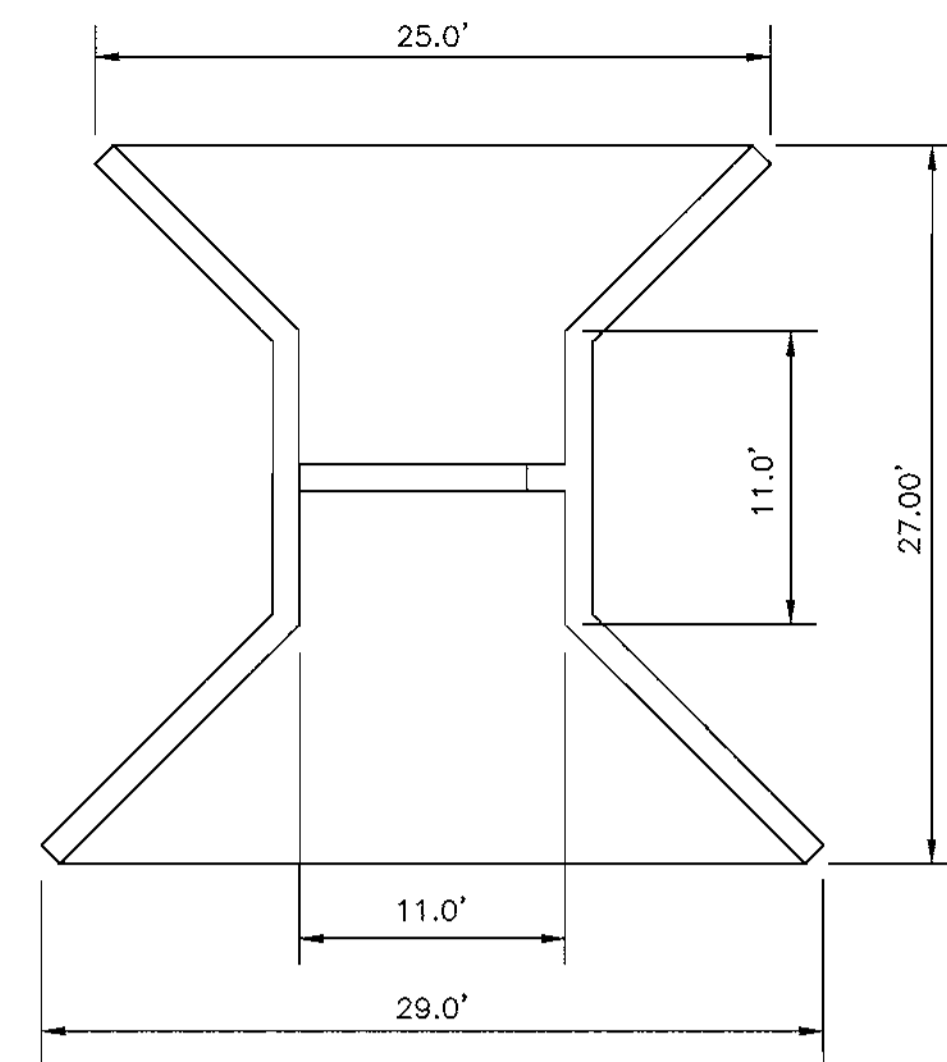
DESIGNED TD	SEDIMENT AND EROSION CONTROL DETAILS	SCALE AS SHOWN
DRAWN LAI/CRH2	ROCKBURN WOODS 21 ACTIVE ADULT CONDOMINIUMS	DRAWING 8 of 17
CHECKED TD	PARCEL 61 TAX MAP 37 GRID 5 FIRST (1st) ELECTION DISTRICT HOWARD COUNTY, MARYLAND	JOB NO. 00176
DATE 4/3/02	FOR: BRANTLY DEVELOPMENT GROUP 8835-P COLUMBIA 100 PARKWAY COLUMBIA, MD 21045	FILE NO. 00176 X



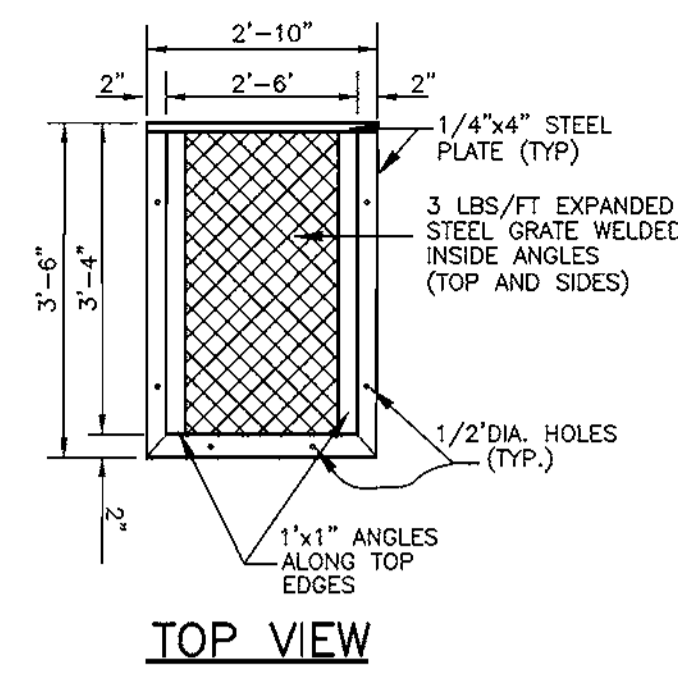
PARTIAL PICTORIAL VIEW OF WEIR AND ORIFICE



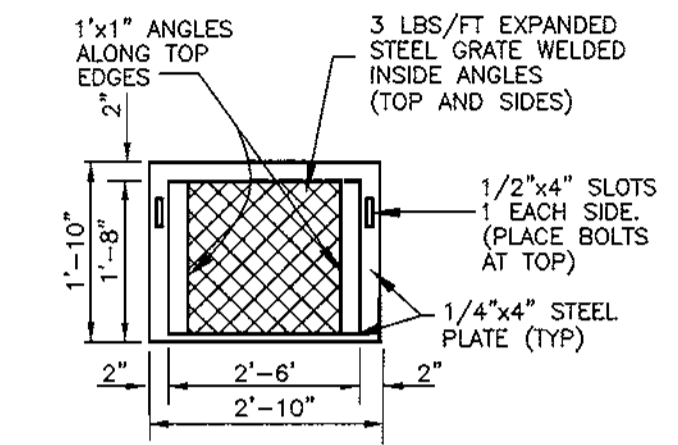
PROFILE OF PRINCIPLE SPILLWAY
N.T.S.



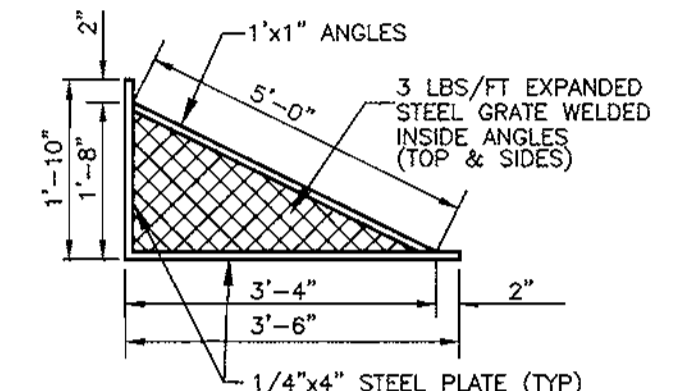
PLAN VIEW
N.T.S.



TOP VIEW



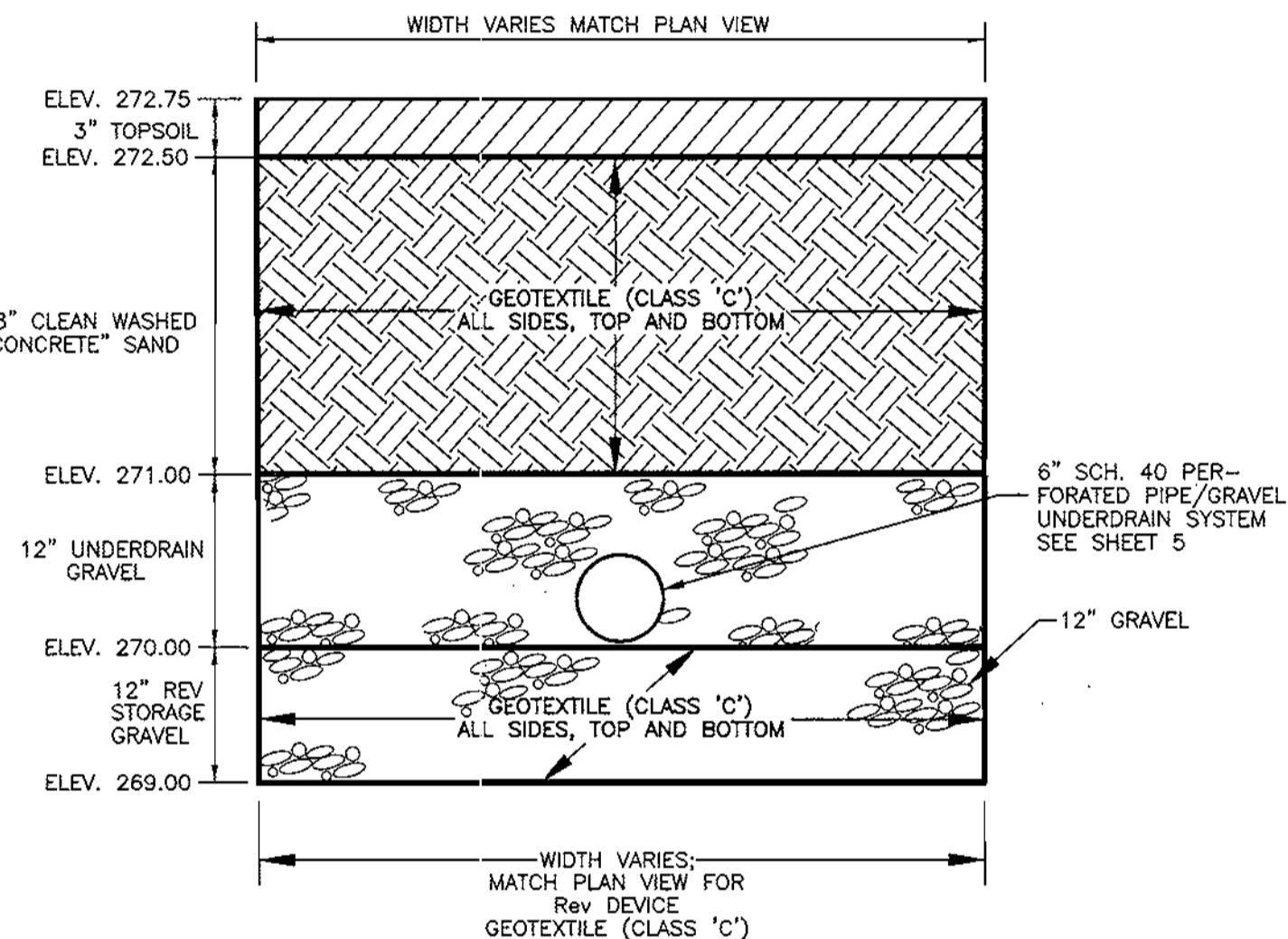
FRONT VIEW



SIDE VIEW

- NOTES FOR TRASH RACK**
- TRASH RACK TO BE CENTERED OVER OPENING.
 - STEEL TO CONFORM TO ASTM-A36.
 - ALL SURFACES TO BE COATED WITH ZRC COLD GALVANIZING COMPOUND AFTER WELDING AND PAINTED WITH 2 COATS OF BATTLESHIP GREY.
 - TRASH RACK TO BE FASTENED TO THE WALL AND BASE WITH 1/2\"/>

LOW FLOW TRASH RACK
NO SCALE



SAND FILTER DETAIL
NO SCALE

MATERIAL SPECIFICATIONS FOR SAND FILTERS
THE ALLOWABLE MATERIALS FOR SAND FILTER CONSTRUCTION ARE DETAILED IN TABLE B.3.1

SAND FILTER TESTING SPECIFICATIONS

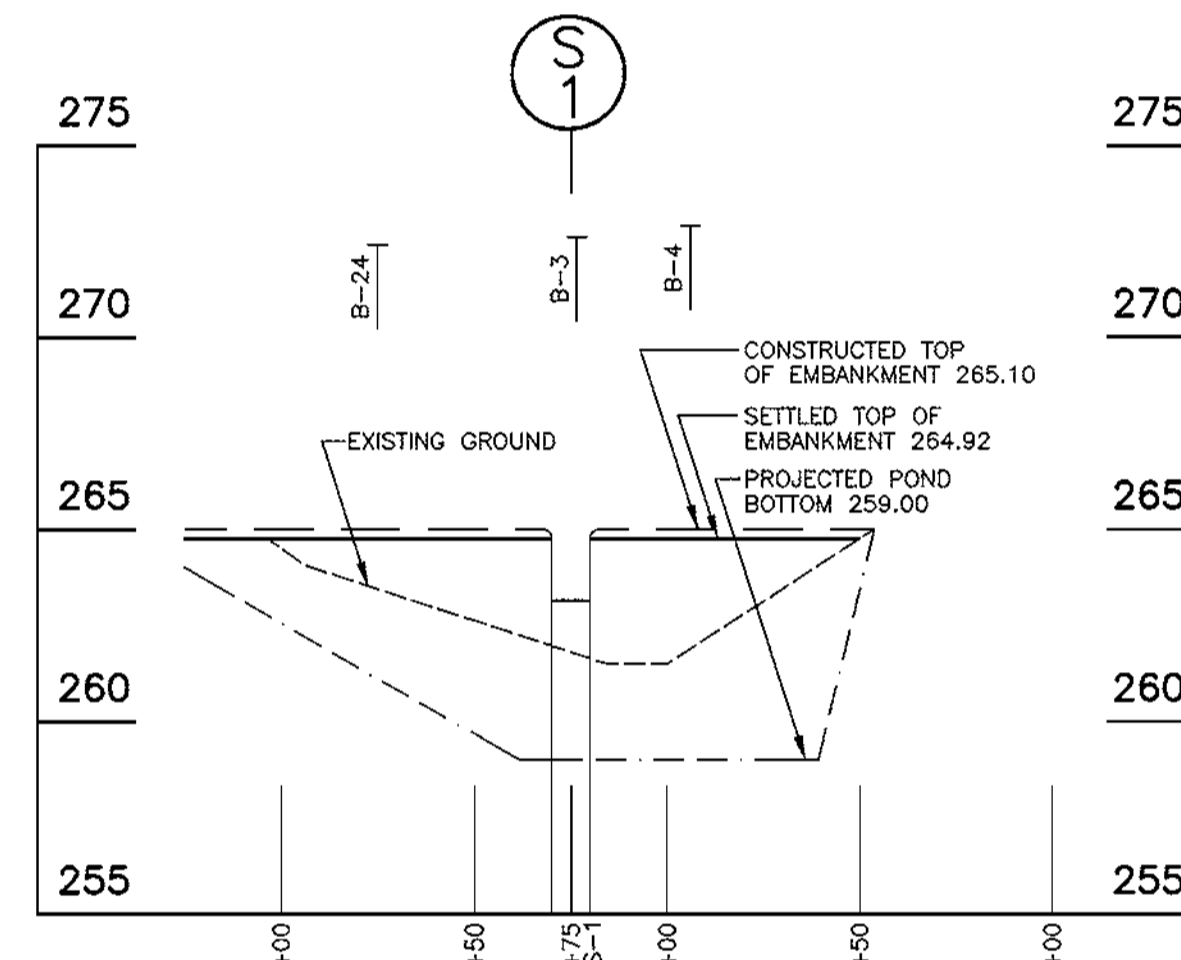
- UNDERGROUND SAND FILTERS, FACILITIES WITHIN SENSITIVE GROUNDWATER AQUIFERS AND FILTERS DESIGNED TO SERVE URBAN HOT SPOTS ARE TO BE TESTED FOR WATER TIGHTNESS PRIOR TO PLACEMENT OF FILTER MEDIA. ENTRANCES AND EXITS SHOULD BE PLUGGED AND THE SYSTEM COMPLETELY FILLED WITH WATER TO DEMONSTRATE WATER TIGHTNESS. WATER TIGHTNESS MEANS NO LEAKAGE FOR A PERIOD OF 8 HOURS.
- ALL OVERFLOW WEIRS, MULTIPLE ORIFICES AND FLOW DISTRIBUTION SLOTS ARE TO BE FIELD TESTED TO VERIFY ADEQUATE DISTRIBUTION OF FLOWS.

SAND FILTER CONSTRUCTION SPECIFICATIONS

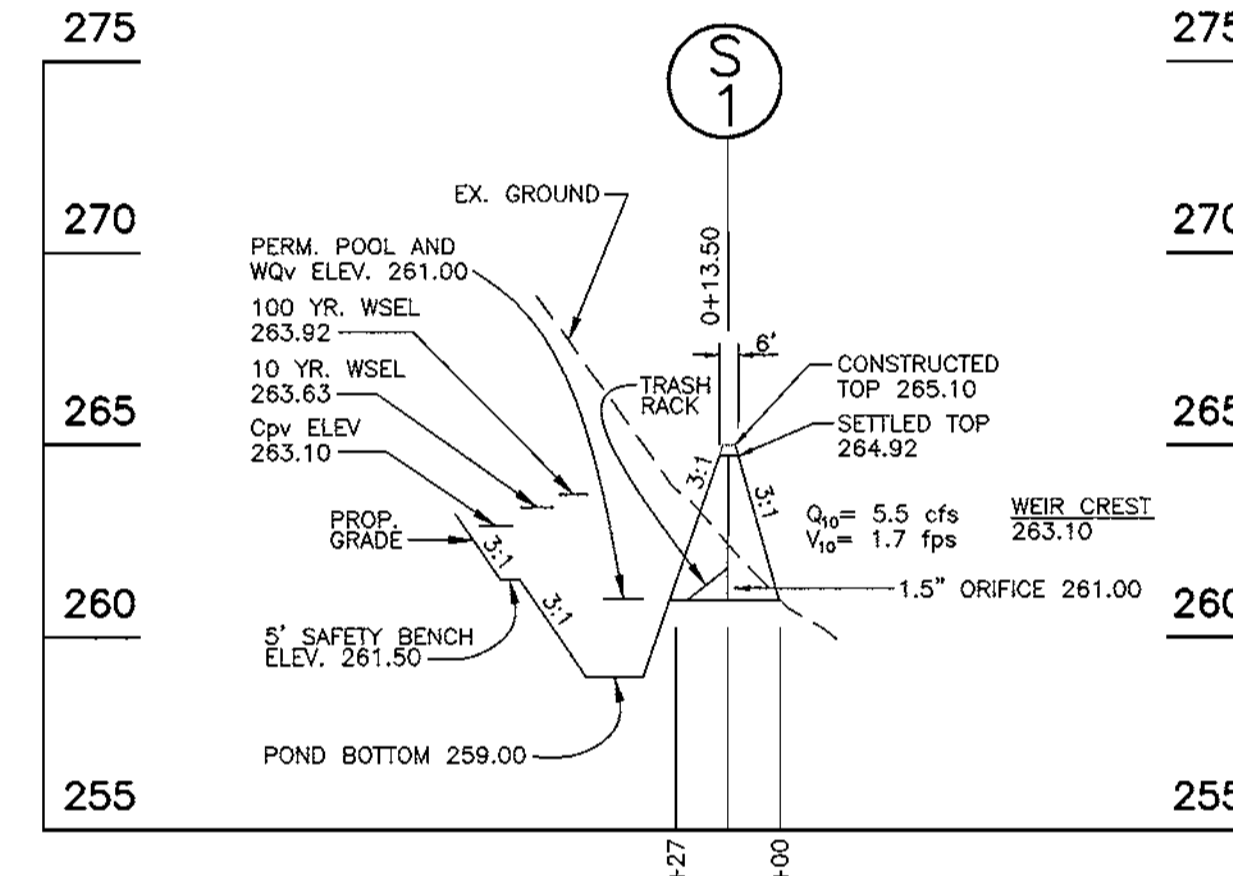
- ABSOLUTELY NO RUNOFF IS TO ENTER THE FILTER UNTIL ALL CONTRIBUTING DRAINAGE AREAS HAVE BEEN STABILIZED.
- SURFACE OF FILTER BED IS TO BE LEVEL.
- ALL UNDERGROUND SAND FILTERS SHOULD BE CLEARLY DELINEATED WITH SIGNS SO THAT THEY MAY BE LOCATED WHEN MAINTENANCE IS DUE.
- SURFACE SAND FILTERS SHALL BE PLANTED WITH APPROPRIATE GRASSES.

HOME OWNER'S ASSOCIATION FILTERING MAINTENANCE CRITERIA

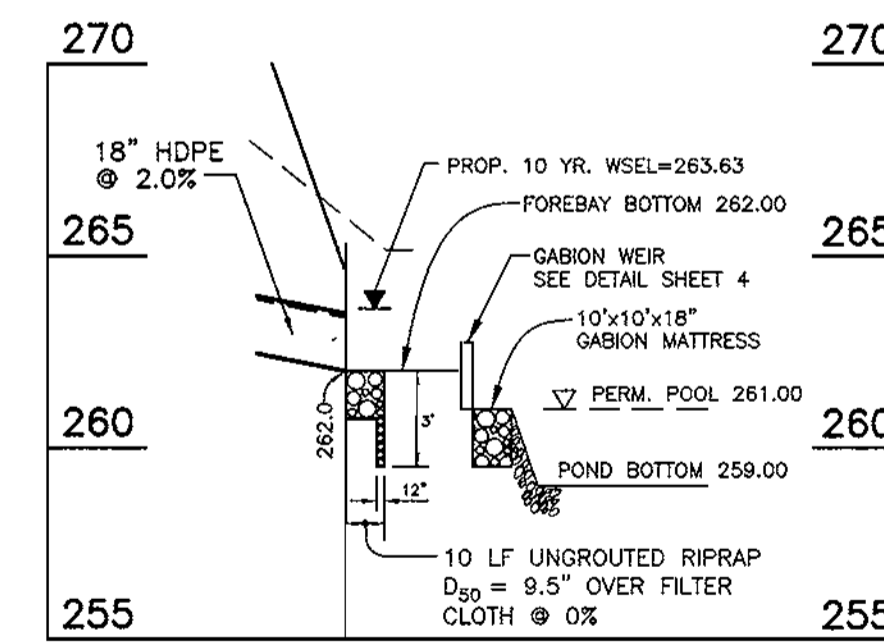
- THE SEDIMENT CHAMBER OUTLET DEVICES SHALL BE CLEANED/REPAIRED WHEN DRAINDOWN TIMES WITHIN THE CHAMBER EXCEED 36 HOURS. TRASH AND DEBRIS TO BE REMOVED AS NECESSARY.
- SEDIMENT SHOULD BE CLEANED OUT OF THE SEDIMENTATION CHAMBER WHEN IT ACCUMULATES TO A DEPTH OF MORE THAN SIX INCHES. VEGETATION WITHIN THE SEDIMENTATION CHAMBER SHOULD BE LIMITED TO A HEIGHT OF 18 INCHES.
- WHEN THE FILTERING CAPACITY OF THE FILTER DIMINISHES SUBSTANTIALLY (e.g., WHEN WATER PONDING ON THE SURFACE OF THE FILTER BED FOR MORE THEN 72 HOURS), THE TOP FEW INCHES OF DISCOLORED MATERIAL SHALL BE REMOVED AND SHALL BE REPLACE WITH FRESH MATERIAL. THE REMOVED SEDIMENTS SHOULD BE DISPOSED IN AN ACCEPTABLE MANNER (e.g., LANDFILL). SILT/SEDIMENT SHOULD BE REMOVED FORM THE FILTER BED WHEN THE ACCUMULATION EXCEEDS ONE INCH.
- ORGANIC FILTERS (F-4) OR SURFACE SAND FILTERS (F-1) THAT HAVE A GRASS COVER SHOULD BE MOWED A MINIMUM OF 3 TIMES PER GROWING SEASON TO MAINTAIN MAXIMUM GRASS HEIGHTS LESS THAN 12 INCHES.
- A DROP OF AT LEAST 6 INCHES SHALL BE PROVIDED AT THE INLET OF BIO-RETENTION FACILITIES (F-6) (STONE DIAPHRAGM). DEAD OR DISEASED PLANT MATERIAL SHALL BE REPLACED. AREAS DEVOID OF MULCH SHOULD BE RE-MULCHED ON AN ANNUAL BASIS.



PROFILE ALONG CENTERLINE OF EMBANKMENT
SCALE: HOR. 1"=50' VER. 1"=5'



PROFILE ALONG PRINCIPAL SPILLWAY
SCALE: HOR. 1"=50' VER. 1"=5'



PROFILE THROUGH FOREBAY
SCALE: HOR. 1"=50' VER. 1"=5'

HOME OWNER'S ASSOCIATION MAINTENANCE SCHEDULE FOR SWM FACILITY

- Forebay is to be inspected once after each major storm or every month. Trash to be removed as necessary.
- Facility is to be inspected once a month and excessive growth cut or mowed as required. No growth above 18" allowed during growing season.
- Pond slopes, top and bench are to be mowed once a month during growing season.
- Trash to be removed after each major storm or every month, and during regular mowing operations.
- An annual inspection of the pond is to be done.
- Remove sediment from forebay area when depth exceeds 4".
- Corrective maintenance is to be done as needed if the pond is found to be nonfunctional. Inspections should be performed during wet weather to determine if the pond is functioning properly.

OPERATION MAINTENANCE & INSPECTION

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

NON-ROUTINE MAINTENANCE

- Structural components of the pond, such as the weir wall, shall be repaired upon the detection of any damage. The components should be inspected during routine maintenance operations.
- Sediment should be removed when its accumulation significantly reduces the design storage, interfere with the function of the orifice. When deemed necessary for aesthetic reasons or when deemed necessary by the Howard County Department of Public Works.

MODIFIED TYPE A-10 INLET, INLET I-6
N.T.S.

APPROVED: DEPARTMENT OF PLANNING & ZONING

[Signature]
CHIEF, DEVELOPMENT ENGINEERING DIVISION
[Signature]
CHIEF, DIVISION OF LAND DEVELOPMENT
[Signature]
DIRECTOR

10/18/02
DATE

TABLE B.3.1 MATERIAL SPECIFICATIONS FOR SAND FILTERS

Material	Specification/Test Method	Size	Notes
sand	clean AASHTO-M-6 or ASTM-C-33 concrete sand	0.02" to 0.04"	Sand substitutions such as Diabase and Gneiss #10 are not acceptable. No calcium carbonate or dolomitic sand substitutions are acceptable. No "rock dust" can be used for sand.
peat	ash content: < 15% pH range: 5.2 to 4.9 loose bulk density: 0.12 to 0.15 g/cc	n/a	The material must be reed-sedge hemic peat, shredded, uncompacted, uniform and clean.
leaf compost		D/G	
underdrain gravel	AASHTO-M-43	0.375" to 0.75"	
geotextile fabric (if required)	ASTM-D-4833 (puncture strength=125 lb.) ASTM-D-4832 (Tensile Strength=300 lb.)	0.08" thick equivalent opening size of #60 sieve	Must maintain 125 gpm per sq. ft. flow rate. Note: a 4" pea gravel layer may be substituted for geotextiles meant to "separate" sand filter layers.
impermeable liner (if required)	ASTM-D-4833 (thickness) ASTM-D-4112 (tensile strength) 1100 lb. elongation 200% ASTM-D-624 (tear resistance - 160 lb./in.) ASTM-D-471 (water adsorption: +8 to +25 mm)	30 mil thickness	Liner to be ultraviolet resistant. A geotextile fabric should be used to protect the liner from puncture.
underdrain piping	1/2" Type PG 28 or AASHTO-M-275	4" - 6" rigid schedule 40 PVC or 50835	3/8" perf. @ 6" o.c., 4 holes per row; minimum of 3" of gravel over pipes; not necessary underneath pipes
concrete (cast-in-place)	MSHA Standards and Specs. Section 902, Mix No. 3, FG=3500 psi, normal weight, air-entrained, re-inforcing to meet ASTM-G15-80	n/a	on-site testing of poured-in-place concrete required: 28 day strength and slump test; all concrete design (cast-in-place or pre-cast) not using previously approved State or local standards require design drawings sealed and approved by a professional structural engineer licensed in the State of Maryland.
concrete (pre-cast)	per pre-cast manufacturer	n/a	SEE ABOVE NOTE
non-rebar steel	ASTM A-36	n/a	structural steel to be hot-dipped galvanized ASTM-A-123



#6 D:\DRAWINGS\00176-ROCKBURN-WOODS\509-SWM-DETS-3-25.DWG

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DESIGNED TD	STORM WATER MANAGEMENT DETAILS	SCALE AS SHOWN
DRAWN LAI/CRH2	ROCKBURN WOODS 21 ACTIVE ADULT CONDOMINIUMS	DRAWING 9 of 17
CHECKED TD	PARCEL 61 TAX MAP 37 GRID 5 FIRST (1st) ELECTION DISTRICT HOWARD COUNTY, MARYLAND	JOB NO. 00176
DATE 4/3/02	FOR: BRANTLY DEVELOPMENT GROUP 8835-P COLUMBIA 100 PARKWAY COLUMBIA, MD 21045	FILE NO. 00176 X

CONSTRUCTION SPECIFICATIONS

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

Site Preparation

Area 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 shore breaks shall be sloped to a steepness of 1:1. All trees shall be cleared and grubbed within 15 feet of the toe of the embankment.

Area to be covered by the reservoir will be cleared of all trees, brush, logs, fence, 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 25-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.

Earth Fill

Material - The fill material shall be taken from approved designated borrow areas. It shall be free of rocks, stumps, roots, 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 SC, CH or CL and must have at least 50% passing the #200 sieve. Consideration may be given to the use of other materials in the embankment if designed by a geotechnical engineer. Such special designs must have construction supervised by a geotechnical engineer. Materials used in the outer shell of the embankment must have the capability to support vegetation of the quality required to prevent erosion of the embankment.

Placement - Area 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 track of each 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.

When required by the reviewing agency the minimum required density shall not be less than 95% of maximum dry density with a moisture content within ± 2% of the optimum. Each layer of fill shall be compacted as necessary to obtain that density, and it to be certified by the Engineer at the time of construction. All compaction is to be determined by AASHTO Method D-155 (Standard Practice).

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. In addition, the core shall be placed concurrently with the outer shell of the embankment.

Embankment Core - The core shall be parallel to the centerline of the embankment as shown on the plans. The top width of the core shall be a minimum of four feet. The height shall extend up to at least the 10 year water elevation or as shown on the plans. The side slopes shall be 1 to 1 or flatter. The core shall be compacted with construction equipment, rollers, or hand tampers to assure maximum density and minimum permeability. In addition, the core shall be placed concurrently with the outer shell of the embankment.

Structure Backfill

Backfill adjacent to pipes or structures shall be of the type and quality conforming to that specified for the adjoining fill material. The fill shall be placed in horizontal layers not to exceed four inches in thickness and compacted by hand tampers or other manually directed compaction equipment. The material needs to be compacted to a minimum of 95% of maximum dry density to the full depth of the structure. 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.

Structure backfill may be flowable fill meeting the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 313 as modified. The mixture shall have a 100-200 psi, 28 day unconfined compressive strength. The flowable fill shall have a minimum pH of 4.0 and a minimum resistivity of 2,000 ohm-cm. Material shall be placed such that a minimum of 6" (measured perpendicular to the outside of the pipe) of flowable fill shall be under (bedding), over and, on the side of the pipe. It only needs to extend up to the spring line for rigid conduits. Average slump of the fill shall be 7" to assure flowability of the material. Adequate measures shall be taken (sand bags, etc.) to prevent floating the pipe. When using flowable fill, all metal pipe shall be bluish-black coated. Any adjoining soil 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 shall completely fill voids adjacent to the flowable fill zone. 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 structure or pipe unless there is a compacted fill of 24" or greater over the structure or pipe. Backfill material outside the structural backfill (flowable fill) zone shall be of the type and quality conforming to that specified for the core of the embankment or other embankment materials.

Pipe Conduits

All pipes shall be circular in cross section.

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

1. Materials - (Polymer Coated Steel Pipe) - Steel pipes with polymeric coatings shall have a minimum coating thickness of 0.01 inch (10 mil) on both sides of the pipe. This pipe and its appurtenances shall conform to the requirements of AASHTO Specifications M-245 & M-246 with watertight coupling bands or flanges.

Materials - (Aluminum Coated Steel Pipe) - This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-274 with watertight coupling bands or flanges. Aluminum Coated Steel Pipe, when used with flowable fill or when soil and/or water conditions warrant the need for increased durability, shall be fully bluish-black coated per requirements of AASHTO Specification M-190 Type A. Any aluminum coating damaged or otherwise removed shall be replaced with cold applied bluish-black coating compound. Aluminum surfaces that are to be in contact with concrete shall be primed with one coat of zinc chromate primer or two coats of asphalt.

Materials - (Aluminum Pipe) - This pipe and its appurtenances shall conform to the requirements of AASHTO Specifications M-198 or M-211 with watertight coupling bands or flanges. Aluminum Pipe, when used with flowable fill or when soil and/or water conditions warrant for increased durability, shall be fully bluish-black coated per requirements of AASHTO Specification M-190 Type A. Aluminum surfaces that are to be in contact with concrete shall be primed with one coat of zinc chromate primer or two coats of asphalt. Hot dip galvanized bolts may be used for connections. The pH of the surrounding soil shall be between 4 and 9.

2. Coupling bands, anti-seep collars, end sections, etc., must be composed of the same material and coatings 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.

3. Connections - All connections with pipes must be completely watertight. The drain pipe or barrel connection to the riser shall be welded or brazed 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 re-rolled an adequate number of corrugations to accommodate the bond width. The following type connections are acceptable for pipes less than 24 inches in diameter. Flanges on both ends of the pipe with a circular 3/8 inch closed cell neoprene gasket, pre-punched to the flange bolt circle, sandwiched between adjacent flanges; a 12-inch wide standard lap type bond with 12-inch wide by 3/8-inch thick closed cell circular neoprene gasket; and a 12-inch wide hugger type bond with O-ring gaskets having a minimum diameter of 1/2 inch greater than the corrugation depth. Pipes 24 inches in diameter and larger shall be connected by a 24 inch long circular corrugated bond using a minimum of 4 (four) rods and lugs, 2 on each connecting pipe end. A 24-inch wide 3/8-inch thick closed cell circular neoprene gasket will be installed with 12 inches on the end of each pipe. Flanged joints with 3/8 inch closed cell gaskets the full width of the flange is also acceptable.

Helicly corrugated pipe shall have either continuously welded seams with internal caulking or a neoprene bead.

4. 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.

5. Backfilling shall conform to "Structure Backfill".

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:

1. Materials - Reinforced concrete pipe shall have bell and spigot joints with rubber gaskets and shall equal or exceed ASTM C-361.

2. Bedding - Reinforced concrete pipe conduits shall be laid in a concrete bedding/crode for their entire length. This bedding/crode shall consist of high slump concrete placed under the pipe and up the sides of the pipe at least 50% of its outside diameter with a minimum thickness of 6 inches. Where a concrete crode is not needed for structural reasons, flowable fill may be used as described in the "Structure Backfill" section of this standard. Grovel bedding is not permitted.

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 4 feet from the riser.

4. Backfilling shall conform to "Structure Backfill".

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

Plastic Pipe - The following criteria shall apply for plastic pipe:

1. Materials - PVC pipe shall be PVC-1120 or PVC-1220 conforming to ASTM D-1785 or ASTM D-2241. Corrugated High Density Polyethylene (HDPE) pipe, couplings and fittings shall conform to the following: 4"-12" pipe shall meet the requirements of AASHTO M252 Type 5, and 12" through 24" shall meet the requirements of AASHTO M254 Type 5.

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

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

4. Backfilling shall conform to "Structure Backfill".

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

Drainage Diaphragm - When a drainage diaphragm is used, a registered professional engineer will supervise the design and construction inspection.

Concrete

Concrete shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 414, Mix No. 3.

Rock Riprap

Rock riprap shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 311.

Geotextile 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 921.09, Class C.

Care of Water during Construction


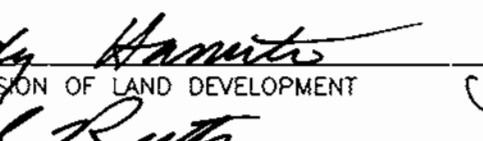
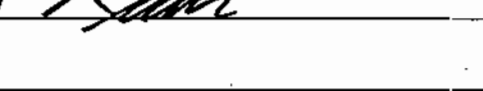
All work on permanent structures shall be carried out in areas free from water. The Contractor shall construct and maintain all temporary dikes, levees, cofferdams, drainage channels, and stream diversions necessary to protect the areas to be occupied by the permanent works. The contractor shall also 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 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.

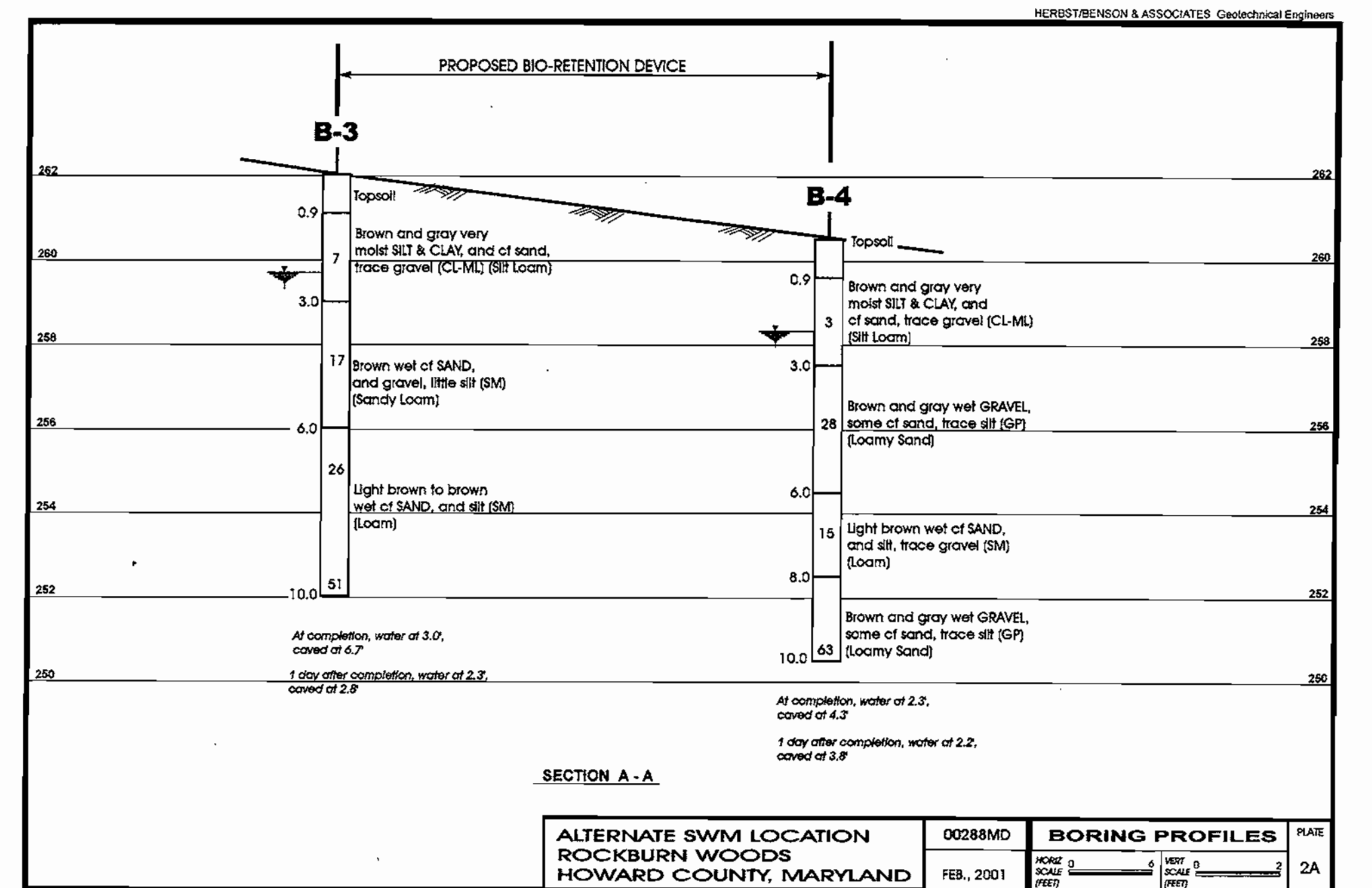
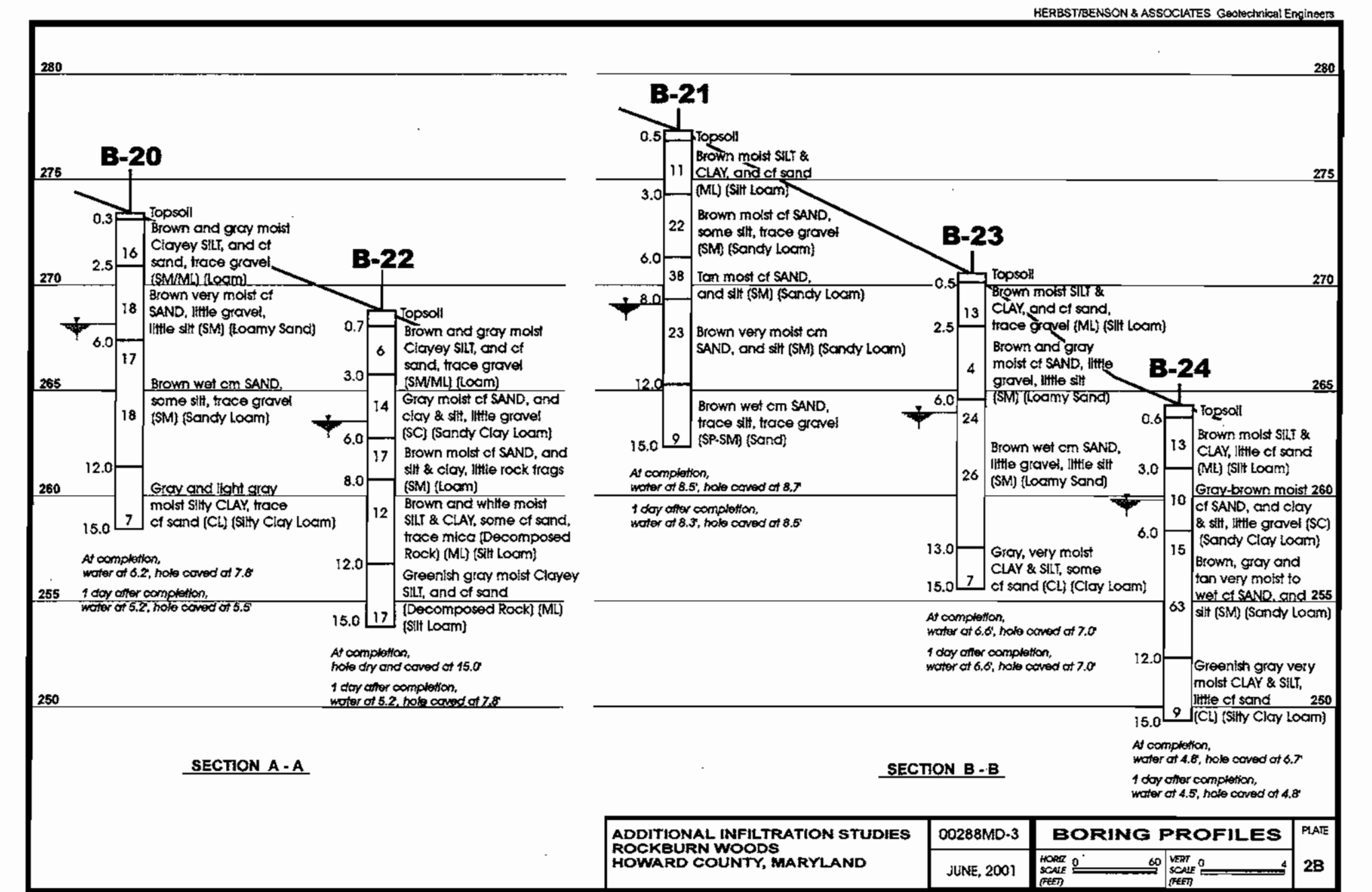
Stabilization

All borrow areas shall be graded to provide proper drainage and left in a steady condition. All exposed surfaces of the embankment, spillway, soil and borrow areas, and berms shall be stabilized by seeding, liming, fertilizing and mulching in accordance with the Natural Resources 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.

APPROVED: DEPARTMENT OF PLANNING & ZONING

 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE: 10/10/02

 CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE: 10/17/02

 DIRECTOR
 DATE: 10/18/02



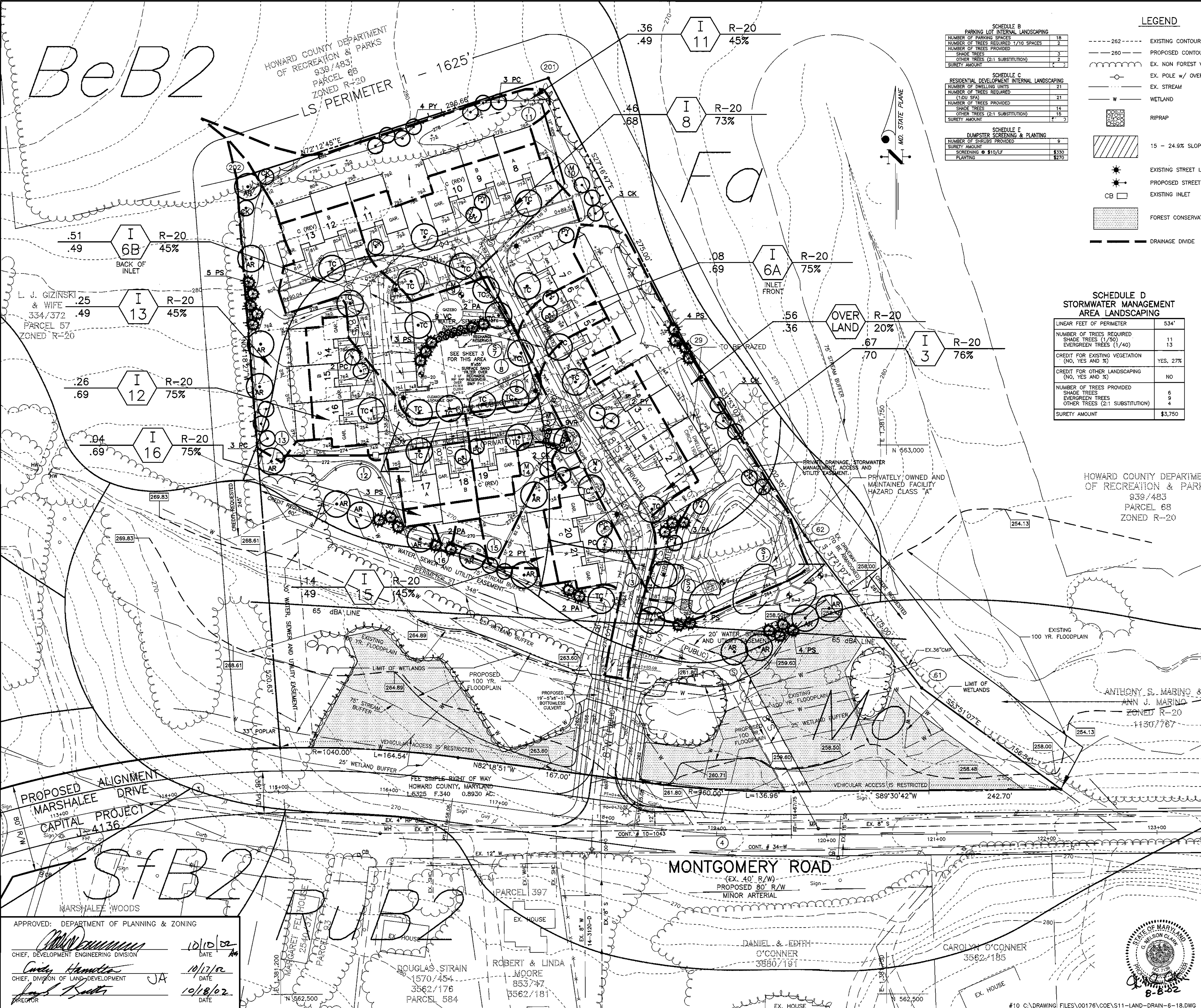
ALTERNATE SWM LOCATION ROCKBURN WOODS HOWARD COUNTY, MARYLAND	00288MD	BORING PROFILES	DATE: FEB, 2001	SCALE: HORIZ 0 TO 10 FEET VERT 0 TO 2 FEET	PLATE: 2A
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CLARK • FINEFROCK & SACKETT, INC.
 ENGINEERS • PLANNERS • SURVEYORS
 7135 MINSTREL WAY • COLUMBIA, MD 21045 • (410) 381-7500 BALT. • (301) 621-8100 WASH.

DESIGNED TD	STORM WATER MANAGEMENT DETAILS	SCALE AS SHOWN
DRAWN LAI/CRH2	ROCKBURN WOODS 21 ACTIVE ADULT CONDOMINIUMS	DRAWING 10 of 17
CHECKED TD	PARCEL 61 TAX MAP 37 GRID 5 FIRST (1st) ELECTION DISTRICT HOWARD COUNTY, MARYLAND	JOB NO. 00176
DATE 9/25/01	FOR: BRANTLY DEVELOPMENT GROUP 8835-P COLUMBIA 100 PARKWAY COLUMBIA, MD 21045	FILE NO. 00176 X

BeB2

HOWARD COUNTY DEPARTMENT
OF RECREATION & PARKS
838/483/
PARCEL 68
ZONED R-20



SCHEDULE B
PARKING LOT INTERNAL LANDSCAPING

NUMBER OF PARKING SPACES	18
NUMBER OF TREES REQUIRED 1/10 SPACES	2
NUMBER OF TREES PROVIDED	3
SHADE TREES	2
EVERGREEN TREES (2:1 SUBSTITUTION)	2
SURETY AMOUNT	1

SCHEDULE C
RESIDENTIAL DEVELOPMENT INTERNAL LANDSCAPING

NUMBER OF DWELLING UNITS	21
NUMBER OF TREES REQUIRED (1500 SFA)	21
NUMBER OF TREES PROVIDED	21
SHADE TREES	14
OTHER TREES (2:1 SUBSTITUTION)	15
SURETY AMOUNT	1

SCHEDULE E
DUMPSTER SCREENING & PLANTING

NUMBER OF DUMPSTERS PROVIDED	9
SURETY AMOUNT	\$330
SCREENING @ \$10/LF	
PLANTING	\$270

LEGEND

- 262 --- EXISTING CONTOUR
- 260 --- PROPOSED CONTOUR
- EX. NON FOREST VEGETATION
- EX. POLE w/ OVERHEAD WIRES
- EX. STREAM
- W WETLAND
- ▨ 15 - 24.9% SLOPES
- ★ EXISTING STREET LIGHT
- ★ PROPOSED STREET LIGHT
- CB EXISTING INLET
- ▨ FOREST CONSERVATION EASEMENT
- DRAINAGE DIVIDE

SCHEDULE A PERIMETER LANDSCAPE EDGE

Category	Adjacent to Perim. Properties	Side or Rear To Road
Perimeter Number	1	2
Landscape Type	A	B
Frontage/Perimeter	1625' - 512' = 1113'	348' - 60' = 288'
Number of Plants Required		
Shade Trees	27 (1/60)	7 (1/50)
Evergreen Trees	-	9
Shrubs	-	(1/40)
Number of Plants Provided		
Shade Trees	5*	5**
Evergreen Trees	-	7
Other Trees (2:1 substitution)	27*	2
Shrubs (10:1 substitution)	-	2
(Describe plant substitution credits below if needed)		
Surety amount	\$5,550	\$2,850

Notes:
*1. Thirty Two percent (32%) credit for existing vegetation adjacent to property line and afforestation in stream valley.
*2. Seventeen percent (17%) credit for existing vegetation adjacent to stream valley.
3. See Sheet 4 for Planting Details.

SOILS LEGEND

SYMBOL	NAME / DESCRIPTION	TYPE
BeB2	Beltville Silt Loam, 1 to 5 percent slopes, moderately eroded.	C
BeC3	Beltville Silt Loam, 5 to 10 percent slopes, severely eroded.	C
EvB	Evesboro Loamy Sand, 1 to 5 percent slopes.	A
Evc	Glenelg Silt Loam, 15 to 25 percent slopes, moderately eroded.	A
Fo	Fallsington Loam.	D
L1	Leonardtown Silt Loam.	D
Mo	Mixed Alluvial Land.	D
RuB2	Rumford Loamy Sand, 1 to 5 percent slopes, moderately eroded.	B
RuC2	Rumford Loamy Sand, 5 to 10 percent slopes, moderately eroded.	B
SfB2	Sassatras Gravely Sandy Loam, 1 to 5 percent slopes.	B

SCHEDULE D
STORMWATER MANAGEMENT AREA LANDSCAPING

LINEAR FEET OF PERIMETER	534'
NUMBER OF TREES REQUIRED	11
SHADE TREES (1/50)	13
EVERGREEN TREES (1/40)	
CREDIT FOR EXISTING VEGETATION (NO, YES AND %)	YES, 27%
CREDIT FOR OTHER LANDSCAPING (NO, YES AND %)	NO
NUMBER OF TREES PROVIDED	6
SHADE TREES	9
EVERGREEN TREES	4
OTHER TREES (2:1 SUBSTITUTION)	
SURETY AMOUNT	\$3,750

PLANT SCHEDULE

KEY QUANT	PLANT NAME	SIZE	REMARKS
SHADE TREES			
AR 17	ACER RUBRUM 'RED SUNSET'	2 1/2"-3" cal.	B&B Heavy
	Red Sunset Maple	12-14" ht.	
TC 24	TILIA CORDATA 'GREENSPIRE'	2 1/2"-3" cal.	B&B Heavy
	Greenspire Linden	12-14" ht.	
FLOWERING / INTERMEDIATE SCALE TREES			
CK 13	CORNUS KOUSA	2 - 2 1/2" cal.	B&B Heavy
	Kousa Dogwood	8-10" ht.	
PC 14	PRUNUS C.A. 'THUNDERCLOUD'	2 - 2 1/2" cal.	B&B Heavy
	Thundercloud Flowering Plum	8-10" ht.	
PY 13	PRUNUS X YEDOENSIS	2 - 2 1/2" cal.	B&B Heavy
	Yoshino Cherry	8-10" ht.	
EVERGREEN TREES			
PA 11	PICEA ABIES	6 - 8" ht.	B&B
	Norway Spruce		
PS 18	PHILUS STROBUS	6 - 8" ht.	B&B Heavy
	Eastern White Pine		
SHRUBS			
VC 9	VIBURNUM CARLESII	2 1/2 - 3' ht.	B&B
	Korean Spice Viburnum		
VR 9	VIBURNUM RHYTIDOPHYLLUM	2 1/2 - 3' ht.	B&B
	Leatherleaf Viburnum		

NOTES:
1. **LS bond with Developer's Agreement = \$20,090.00**
2. ALL PLANT MATERIALS SHALL BE FULL AND HEAVY, BE WELL FORMED AND SYMMETRICAL, CONFORM TO THE MOST CURRENT AAS SPECIFICATIONS AND BE INSTALLED IN ACCORDANCE WITH HRD PLANTING SPECIFICATIONS.
3. CONTRACTOR SHALL VERIFY LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO DIGGING.
4. FINAL LOCATION OF PLANT MATERIAL MAY NEED TO VARY TO MEET FIELD CONDITIONS. TREES SHALL NOT BE PLANTED IN THE BOTTOM OF DRAINAGE SWALES.

HOWARD COUNTY DEPARTMENT
OF RECREATION & PARKS
838/483/
PARCEL 68
ZONED R-20

ANTHONY S. MARINO &
ANN J. MARINO
ZONED R-20
14307767

APPROVED: DEPARTMENT OF PLANNING & ZONING
[Signature]
CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE: 10/10/02

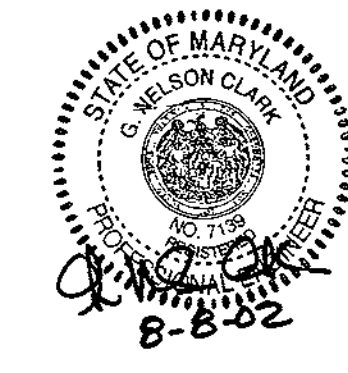
[Signature]
CHIEF, DIVISION OF LAND DEVELOPMENT
DATE: 10/17/02

[Signature]
DATE: 10/18/02

CLARK • FINEFROCK & SACKETT, INC.
ENGINEERS • PLANNERS • SURVEYORS
7135 MINSTREL WAY • COLUMBIA, MD 21045 • (410) 381-7500 BALT. • (301) 621-8100 WASH.

DESIGNED TD	LANDSCAPE PLAN AND DRAINAGE AREA MAP	SCALE 1" = 40'
DRAWN TD/LAI	ROCKBURN WOODS	DRAWING 11 OF 17
CHECKED TD	21 ACTIVE ADULT CONDOMINIUMS	JOB NO. 00-176
DATE 6/18/02	PARCEL 61 TAX MAP 37 GRID 5 FIRST (1st) ELECTION DISTRICT HOWARD COUNTY, MARYLAND	FILE NO. 00-176 X

FOR: ROCKBURN WOODS LLC
c/o BRANTLY DEVELOPMENT CORPORATION
8815-P COLUMBIA 100 PARKWAY
COLUMBIA, MARYLAND 21045



MONTGOMERY ROAD
(EX. 40' R/W)
PROPOSED 80' R/W
MINOR ARTERIAL

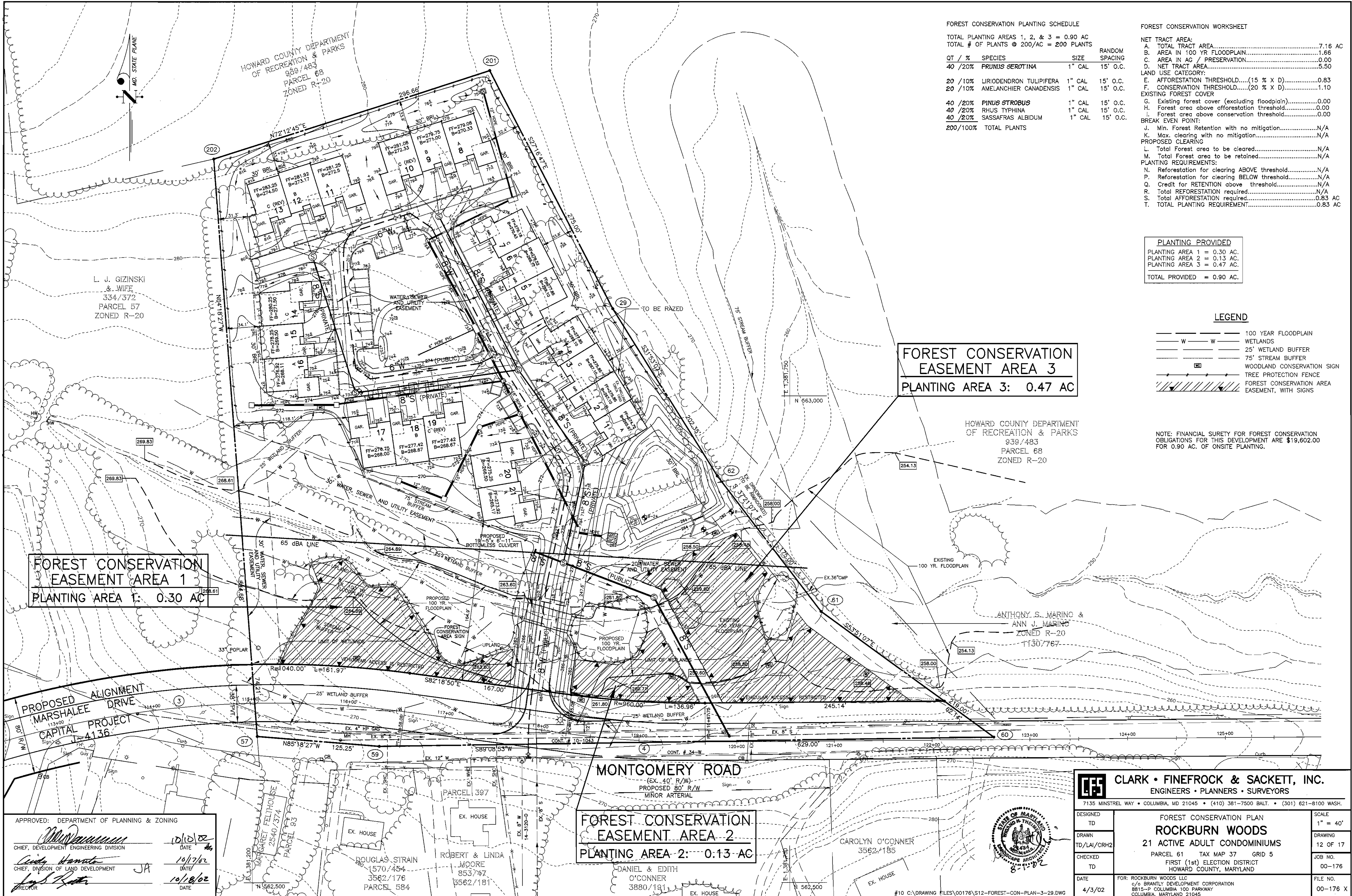
PROPOSED ALIGNMENT
MARSHALEE DRIVE
CAPITAL PROJECT
I-436

StB2

APPROVED: DEPARTMENT OF PLANNING & ZONING
[Signature]
CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE: 10/10/02

[Signature]
CHIEF, DIVISION OF LAND DEVELOPMENT
DATE: 10/17/02

[Signature]
DATE: 10/18/02



FOREST CONSERVATION PLANTING SCHEDULE

TOTAL PLANTING AREAS 1, 2, & 3 = 0.90 AC
 TOTAL # OF PLANTS @ 200/AC = 200 PLANTS

QT / %	SPECIES	SIZE	RANDOM SPACING
40 / 20%	PRUNUS SEROTINA	1" CAL	15' O.C.
20 / 10%	LIRIODENDRON TULIPIFERA	1" CAL	15' O.C.
20 / 10%	AMELANCHIER CANADENSIS	1" CAL	15' O.C.
40 / 20%	PINUS STROBUS	1" CAL	15' O.C.
40 / 20%	RHUS TYPHINA	1" CAL	15' O.C.
40 / 20%	SASSAFRAS ALBIDUM	1" CAL	15' O.C.
200 / 100%	TOTAL PLANTS		

FOREST CONSERVATION WORKSHEET

NET TRACT AREA: 7.16 AC

A. TOTAL TRACT AREA	7.16 AC
B. AREA IN 100 YR FLOODPLAIN	1.66 AC
C. AREA IN AG / PRESERVATION	0.00 AC
D. NET TRACT AREA	5.50 AC
LAND USE CATEGORY:	
E. AFFORESTATION THRESHOLD (15% X D)	0.83 AC
F. CONSERVATION THRESHOLD (20% X D)	1.10 AC
EXISTING FOREST COVER	
G. Existing forest cover (excluding floodplain)	0.00 AC
H. Forest area above afforestation threshold	0.00 AC
I. Forest area above conservation threshold	0.00 AC
BREAK EVEN POINT:	
J. Min. Forest Retention with no mitigation	N/A
K. Max. clearing with no mitigation	N/A
PROPOSED CLEARING	
L. Total Forest area to be cleared	N/A
M. Total Forest area to be retained	N/A
PLANTING REQUIREMENTS:	
N. Reforestation for clearing ABOVE threshold	N/A
P. Reforestation for clearing BELOW threshold	N/A
Q. Credit for RETENTION above threshold	N/A
R. Total REFORESTATION required	N/A
S. Total AFFORESTATION required	0.83 AC
T. TOTAL PLANTING REQUIREMENT	0.83 AC

PLANTING PROVIDED

PLANTING AREA 1 = 0.30 AC.
 PLANTING AREA 2 = 0.13 AC.
 PLANTING AREA 3 = 0.47 AC.
 TOTAL PROVIDED = 0.90 AC.

LEGEND

- 100 YEAR FLOODPLAIN
- W W WETLANDS
- 25' WETLAND BUFFER
- 75' STREAM BUFFER
- WOODLAND CONSERVATION SIGN
- TREE PROTECTION FENCE
- FOREST CONSERVATION AREA EASEMENT, WITH SIGNS

FOREST CONSERVATION EASEMENT AREA 3
 PLANTING AREA 3: 0.47 AC

FOREST CONSERVATION EASEMENT AREA 1
 PLANTING AREA 1: 0.30 AC

FOREST CONSERVATION EASEMENT AREA 2
 PLANTING AREA 2: 0.13 AC

HOWARD COUNTY DEPARTMENT OF RECREATION & PARKS
 939/483
 PARCEL 68
 ZONED R-20

ANTHONY S. MARINO & ANN J. MARINO
 ZONED R-20
 1130/767

NOTE: FINANCIAL SURETY FOR FOREST CONSERVATION OBLIGATIONS FOR THIS DEVELOPMENT ARE \$19,602.00 FOR 0.90 AC. OF ONSITE PLANTING.

APPROVED: DEPARTMENT OF PLANNING & ZONING
 [Signature] 10/18/02
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 [Signature] 10/17/02
 CHIEF, DIVISION OF LAND DEVELOPMENT JA
 [Signature] 10/18/02
 DIRECTOR

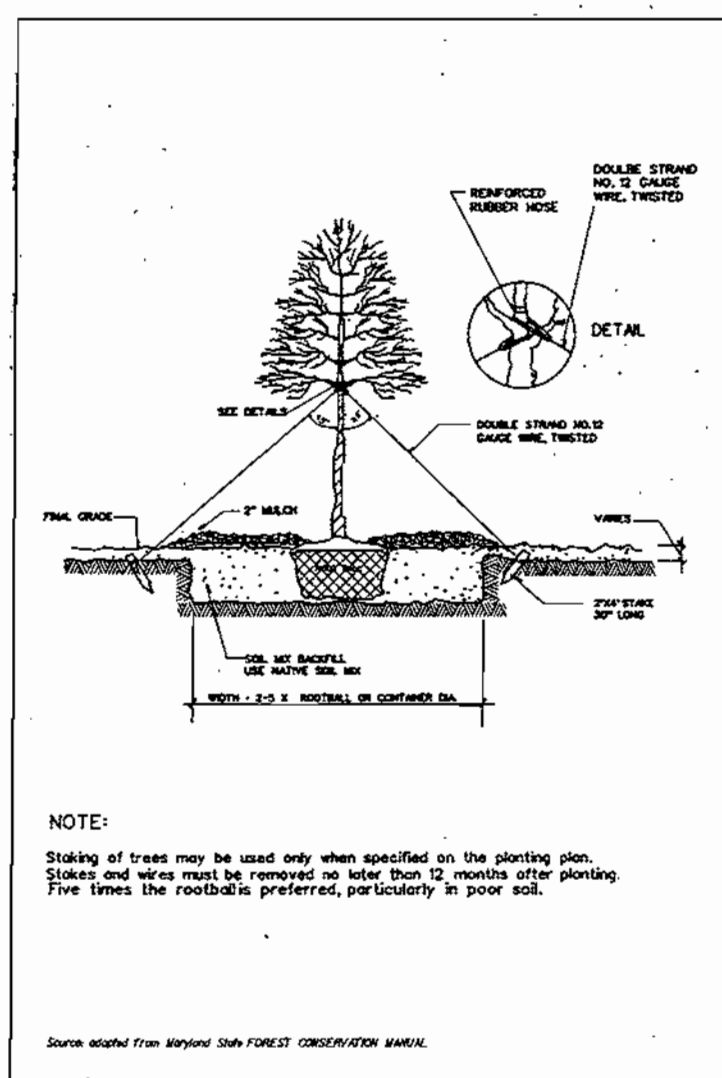
CLARK • FINEFROCK & SACKETT, INC.
 ENGINEERS • PLANNERS • SURVEYORS
 7135 MINSTREL WAY • COLUMBIA, MD 21045 • (410) 381-7500 BALT. • (301) 621-8100 WASH.

DESIGNED TD	FOREST CONSERVATION PLAN	SCALE 1" = 40'
DRAWN TD/LAI/CRH2	ROCKBURN WOODS	DRAWING 12 OF 17
CHECKED TD	21 ACTIVE ADULT CONDOMINIUMS	JOB NO. 00-176
DATE 4/3/02	PARCEL 61 TAX MAP 37 GRID 5 FIRST (1st) ELECTION DISTRICT HOWARD COUNTY, MARYLAND	FILE NO. 00-176 X

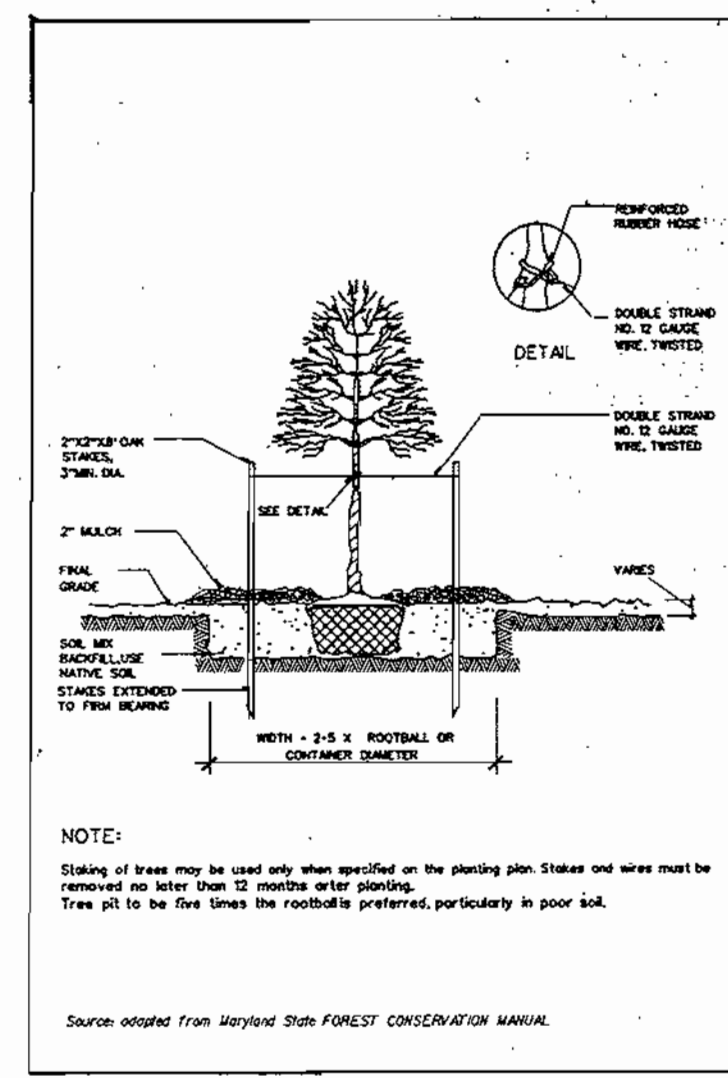
FOR: ROCKBURN WOODS LLC
 c/o BRANTLY DEVELOPMENT CORPORATION
 8815-P COLUMBIA 100 PARKWAY
 COLUMBIA, MARYLAND 21045



STAKED TREE SPECIFICATION(1)



STAKED TREE SPECIFICATION(2)



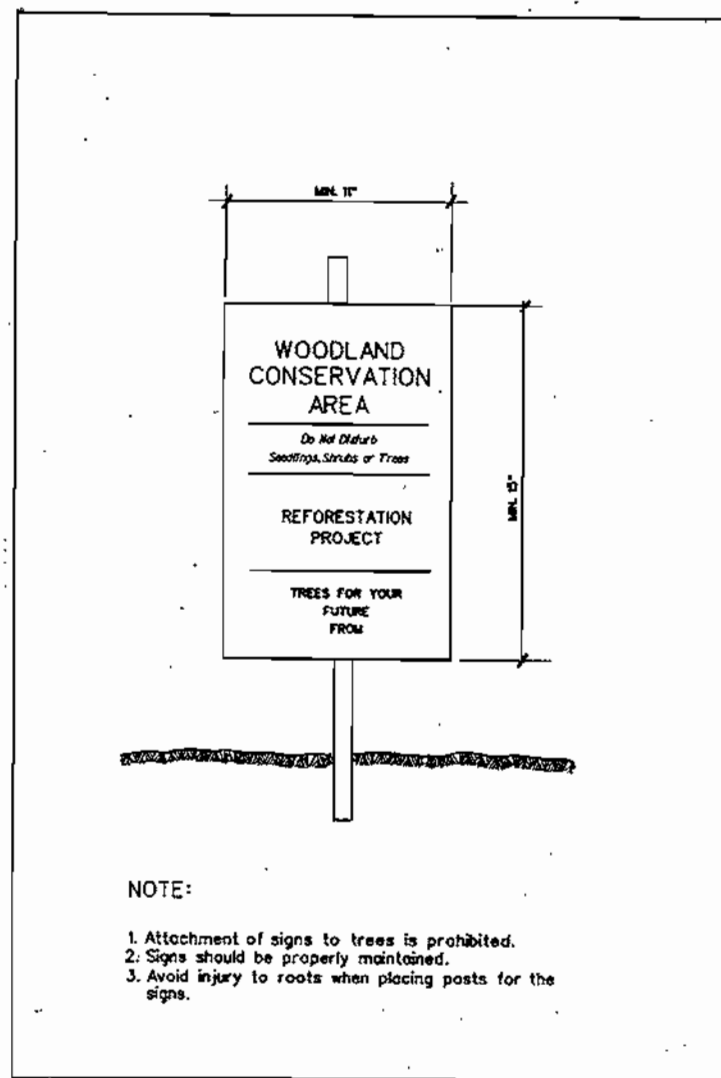
TREE PLANTING AND MAINTENANCE CALENDAR

TASKS	MONTHS											
	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEPT	OCT	NOV	DEC
TRANSPORT OF 2" DIA. OR GREATER												
PLANTING												
WATERING (IF NEEDED)												
PRUNING												

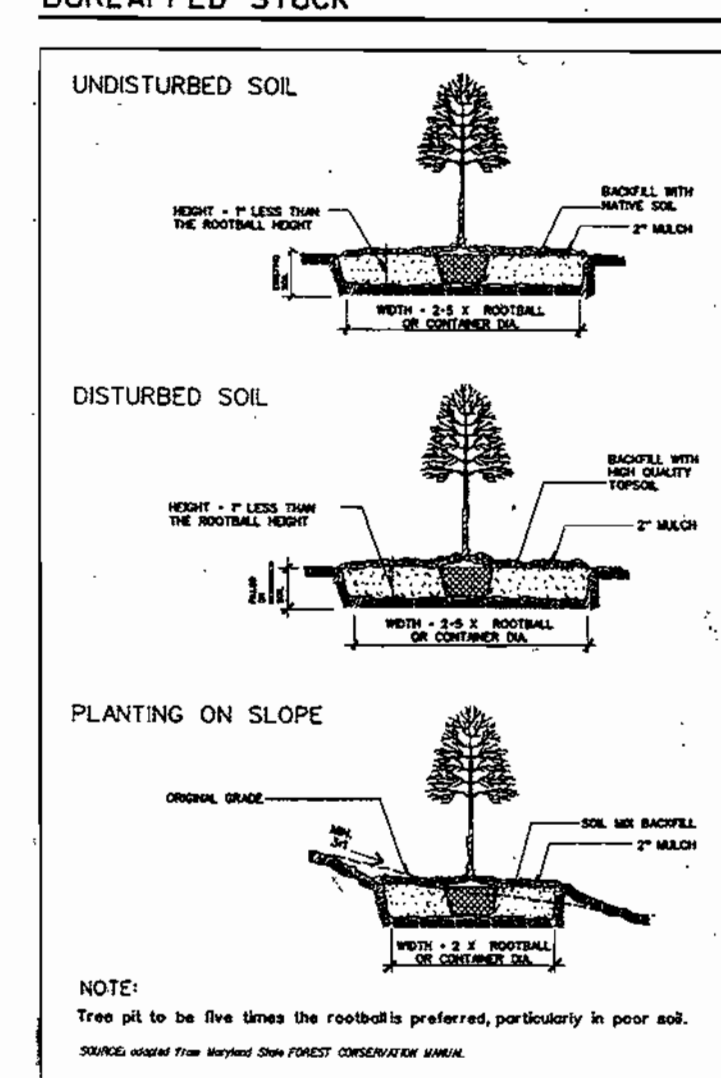
KEY:
 - ACTIVITIES DURING THESE MONTHS ARE DEPENDENT UPON GROUND CONDITIONS
 - GREATLY RECOMMENDED
 - RECOMMENDED WITH ADDITIONAL CARE
 - RECOMMENDED
 - DEPENDENT UPON SITE CONDITIONS
 - DEPENDENT UPON SITE CONDITIONS WEEDY WATERING IS GREATLY RECOMMENDED FROM MAY THROUGH OCTOBER UNLESS WEEDY RAINFALL COULDS IT

NOTE:
The planting and care of trees is most successful when coordinated with the local climatic conditions. This calendar summarizes some of the recommended time frames for tree reforestation and stress reduction activities.

SIGNAGE



CONTAINER GROWN AND BALLED AND BURLAPPED STOCK



PRE-CONSTRUCTION MEETING:

- AFTER THE BOUNDARIES OF THE FOREST RETENTION AREAS HAVE BEEN FIELD LOCATED AND MARKED, AND AFTER THE FOREST PROTECTION DEVICES HAVE BEEN INSTALLED, BUT BEFORE ANY OTHER DISTURBANCE HAS TAKEN PLACE ON SITE, A PRE-CONSTRUCTION MEETING SHALL TAKE PLACE ON SITE. THE DEVELOPER, CONTRACTOR OR PROJECT MANAGER, AND HOWARD COUNTY INSPECTORS SHALL ATTEND. THE PURPOSE OF THIS MEETING WILL BE:
 - TO IDENTIFY THE LOCATIONS OF THE FOREST RETENTION AREAS, SPECIMEN TREES WITHIN 50 FEET OF THE LIMIT OF DISTURBANCE LIMITS OF CONSTRUCTION, EMPLOYEE PARKING AREAS AND EQUIPMENT STAGING AREAS;
 - INSPECT ALL FLAGGED BOUNDARIES AND PROTECTION DEVICES;
 - MAKE ALL NECESSARY ADJUSTMENTS;
 - ASSIGN RESPONSIBILITIES AS APPROPRIATE AND DISCUSS PENALTIES.

CONSTRUCTION PERIOD PROTECTION & MANAGEMENT:

- THE CONSTRUCTION PERIOD EXTENDS FROM APPROVAL OF THE PROPOSAL UNTIL COMPLETION OF ALL SITE IMPROVEMENTS AND RELEASE OF DEVELOPERS AGREEMENTS AND BONDS.
- ALL APPLICABLE CONSTRUCTION ACTIVITIES SHALL CONFORM TO THE TERMS AND CONDITIONS OF THE APPROVED SEDIMENT AND EROSION CONTROL PLAN.
- TREE PROTECTION FENCING AND TEMPORARY SIGNAGE SHALL BE INSTALLED ALONG TREE SAVE AREAS THAT ARE WITHIN 50' OF ANY CONSTRUCTION ACTIVITIES AND IN ACCORDANCE WITH THE APPROVED SEDIMENT AND EROSION CONTROL PLAN.
- PLACE PROTECTIVE FENCING AND SIGNAGE AROUND SPECIMEN TREES AS SHOWN ON THE PLAN, (IF APPLICABLE).
- VEHICLES, EQUIPMENT, MACHINERY, DEBRIS, TEMPORARY STRUCTURES AND/OR EXCESSIVE PEDESTRIAN TRAFFIC SHALL NOT BE PERMITTED IN THE RETENTION AREAS.
- THE REFORESTATION/AFFORESTATION SHALL BE CLEARLY MARKED BY PERMANENT SIGNAGE AT +/- 100' INTERVALS AS SHOWN ON THE PLAN. IF IT IS DETERMINED TO BE NECESSARY, CERTAIN SEGMENTS OF THE REFORESTATION/AFFORESTATION EDGES MAY BE ENCLOSED BY POSTS AND SMOOTH WIRE FENCE. THE FENCE SHALL BE OF SUFFICIENT CONSTRUCTION TO IMPEDE ENTRY AND MARKED APPROPRIATELY WITH CONSPICUOUS MARKERS AND/OR SIGNAGE, (IF APPLICABLE).
- ALL TEMPORARY FENCING SHALL BE REMOVED AT THE END OF CONSTRUCTION PERIOD WITH THE APPROVED SEDIMENT AND EROSION CONTROL PLAN.
- SUMMARY OF CONSTRUCTION PERIOD SEQUENCE:
 - OBTAIN GRADING PERMIT.
 - INSTALL TEMPORARY TREE PROTECTION FENCING AND SIGNAGE ALONG LIMITS OF DISTURBANCE AND AROUND SPECIMEN TREES.
 - PROCEED WITH CLEARING, GRADING, STABILIZATION OR CONSTRUCTION IN ACCORDANCE WITH APPROVED PLANS.
 - AFTER COMPLETED CONSTRUCTION, REMOVE TEMPORARY TREE PROTECTION DEVICES.
 - INSTALL PLANTINGS.
 - PLACE PERMANENT PROTECTIVE DEVICES, I.E. SIGNAGE AND FENCING AS DEEMED NECESSARY.
 - INITIATE POST CONSTRUCTION PROTECTION AND MANAGEMENT PROGRAM.

LANDSCAPE CONTRACTORS RESPONSIBILITIES:

- Work related to this Forest Conservation Plan shall be performed only by a landscape contractor experienced in reforestation practices.
- Handling and planting method details shown on this plan are intended as a guide. It is the contractor's responsibility to appropriately install and maintain quality planting for a period of two(2) years to guarantee the owner that after the two-year period at least 100 trees per acre, or 75% of the total trees planted per acre (whichever is greater), are alive and in good condition.

OPTIONAL UPGRADE

In order to achieve a more immediate result, the owner may choose to upgrade plantings entirely or plant in combination of various sizes in accordance with the following schedule as a guide:

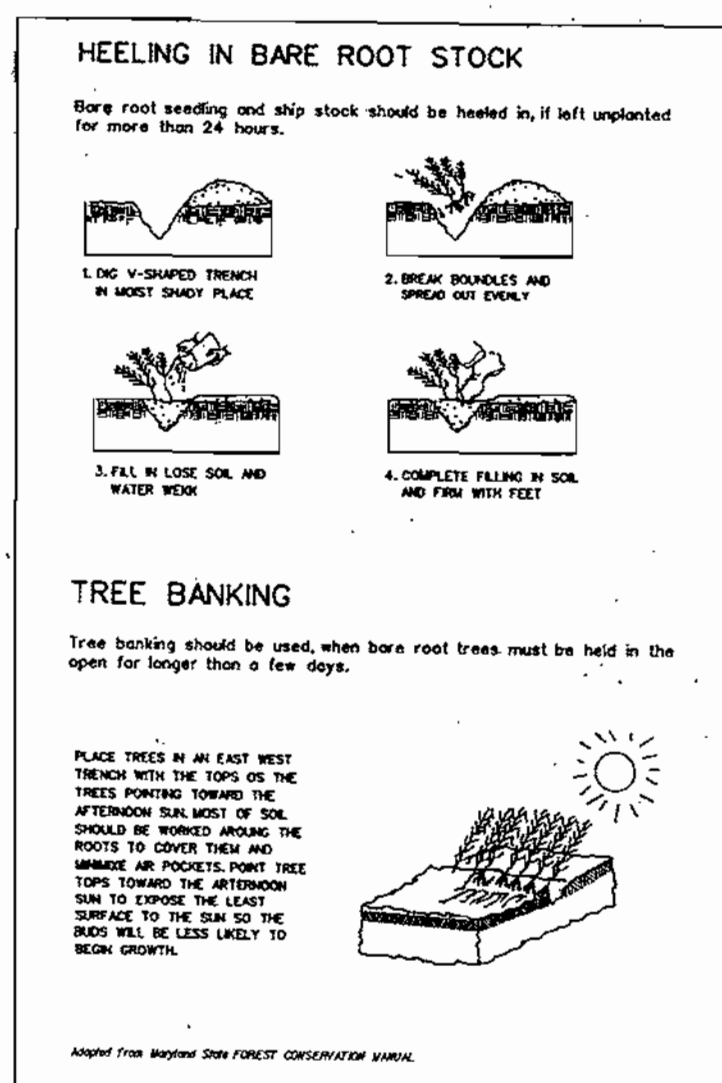
Proposed minimum:	700 seedlings or tublings/acre
Alternate A:	450 1-3 gal. cont. trees/acre
Alternate B:	350 whips/acre
Alternate C:	200 1" cal. trees/acre
Alternate D:	100 2" cal. trees/acre

Upgrades may be approved at time of planting by the enforcement inspector.

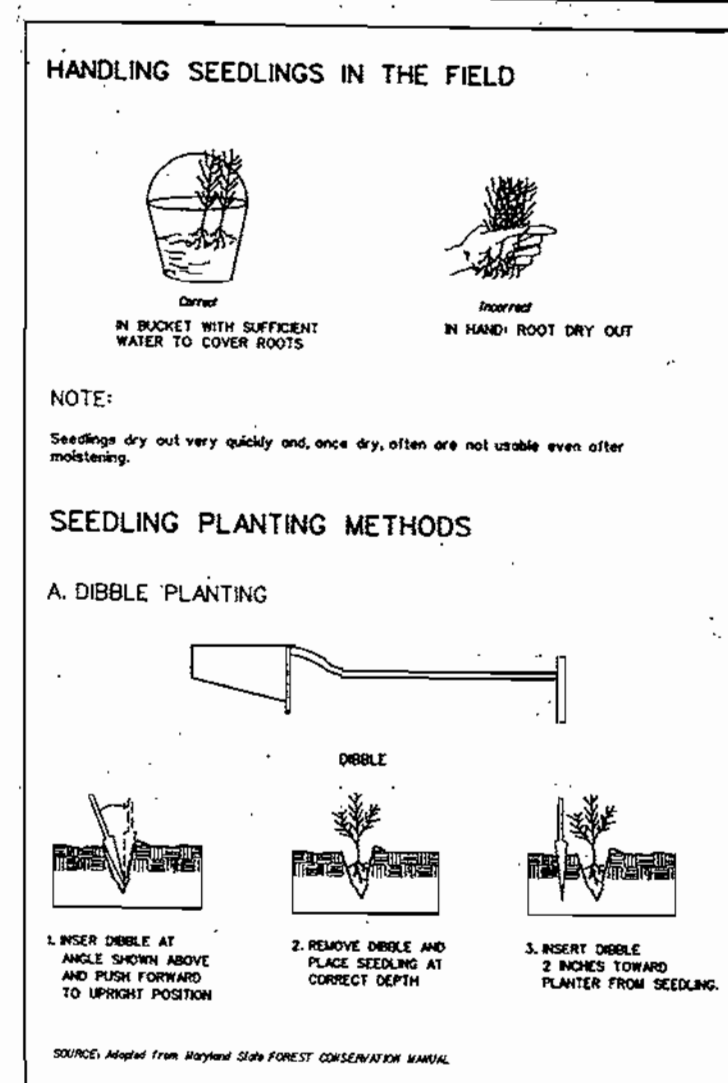
POST CONSTRUCTION AND MANAGEMENT PROGRAM

- Annual maintenance during the growing season, for a three-year period.
- Assess tree mortality of planting stock, remove and replace any dead or diseased plantings.
- Volunteer seeding of native, local and endemic vegetation is to be expected. Do not discourage this effort unless it is negatively affecting the planted stock.
- Remove through manual means (grubbing, pulling, cutting) aggressive, noxious, invasive species and all herbaceous vegetation within a 3-foot radius surrounding the planted woody nursery stock.
- Remove and dispose of man-made trash, including items contained within entire planting area. Do not remove down and dead material naturally occurring or accumulating, unless it is smothering planting stock.
- A 75 percent survival of planted stock must be achieved at the end of the 24-month management period. If not, additional planting may be required to achieve this goal.
- All forest conservation activities shall be done under the direct supervision of someone from the design team or other "Qualified Professional" as determined by the requirements of COMAR 08.19.06.01 and the Maryland Department of Natural Resources, Public Lands and Forestry Division.

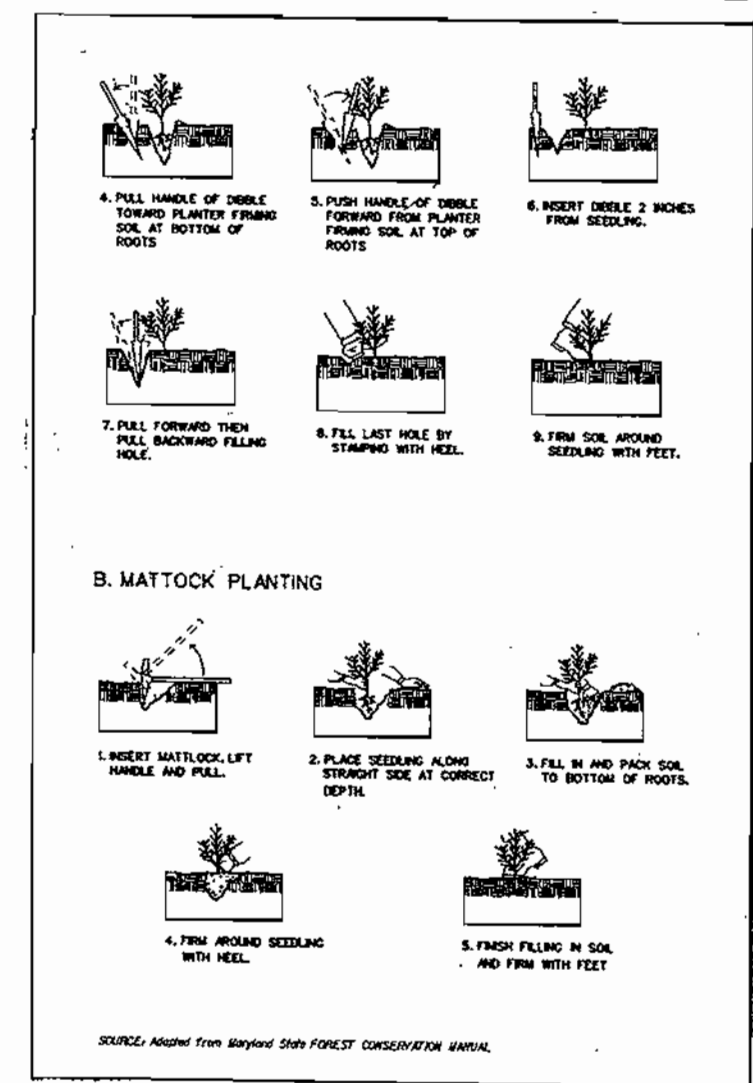
HANDLING AND PLANTING OF SEEDLING(1)



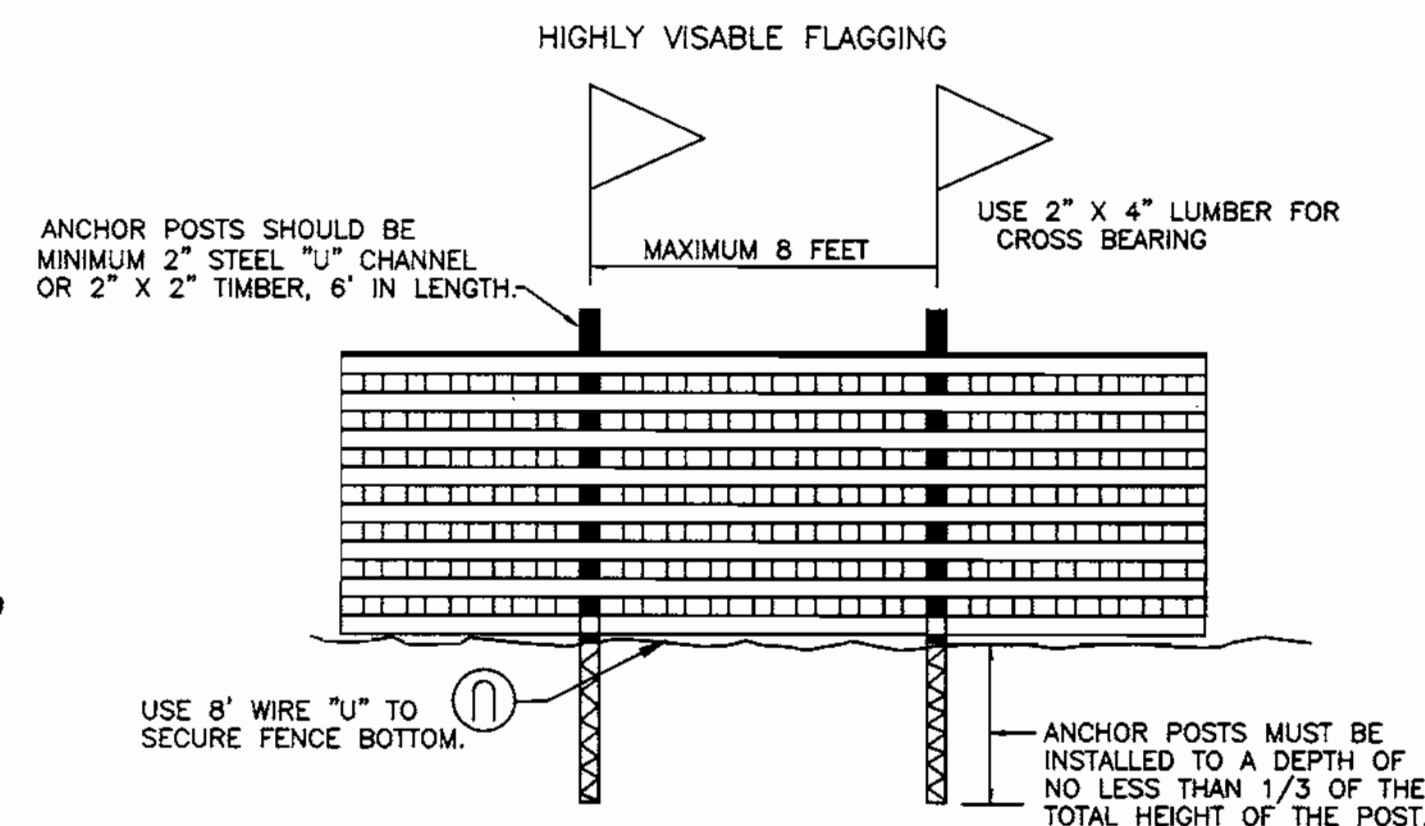
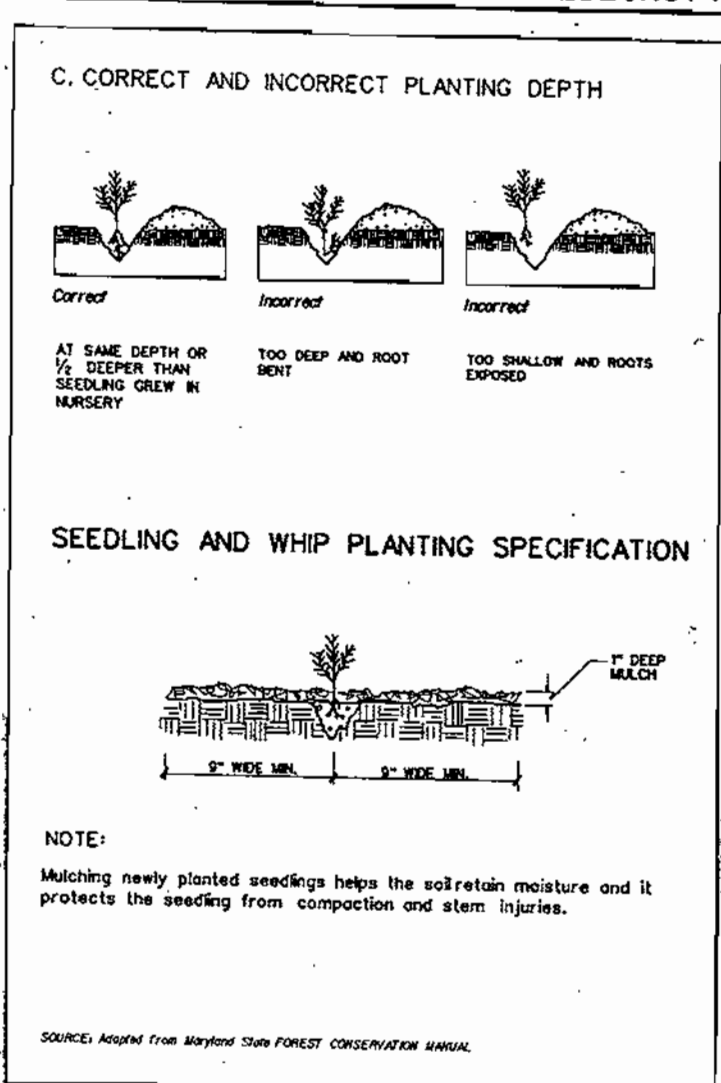
HANDLING AND PLANTING OF SEEDLING(2)



HANDLING AND PLANTING OF SEEDLING(3)



HANDLING AND PLANTING OF SEEDLING(4)



- NOTES:
- Forest protection device only.
 - Retention area will be set as part of the review process.
 - Boundaries of retention area should be staked and flagged prior to installing device.
 - Root damage should be avoided.
 - Protection signage should be used.
 - Device should be maintained throughout construction.

BLAZE ORANGE PLASTIC MESH
TYPICAL TREE PROTECTION FENCE DETAIL
NO SCALE

APPROVED: DEPARTMENT OF PLANNING & ZONING

[Signature] 10/10/02
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

[Signature] 10/17/02
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

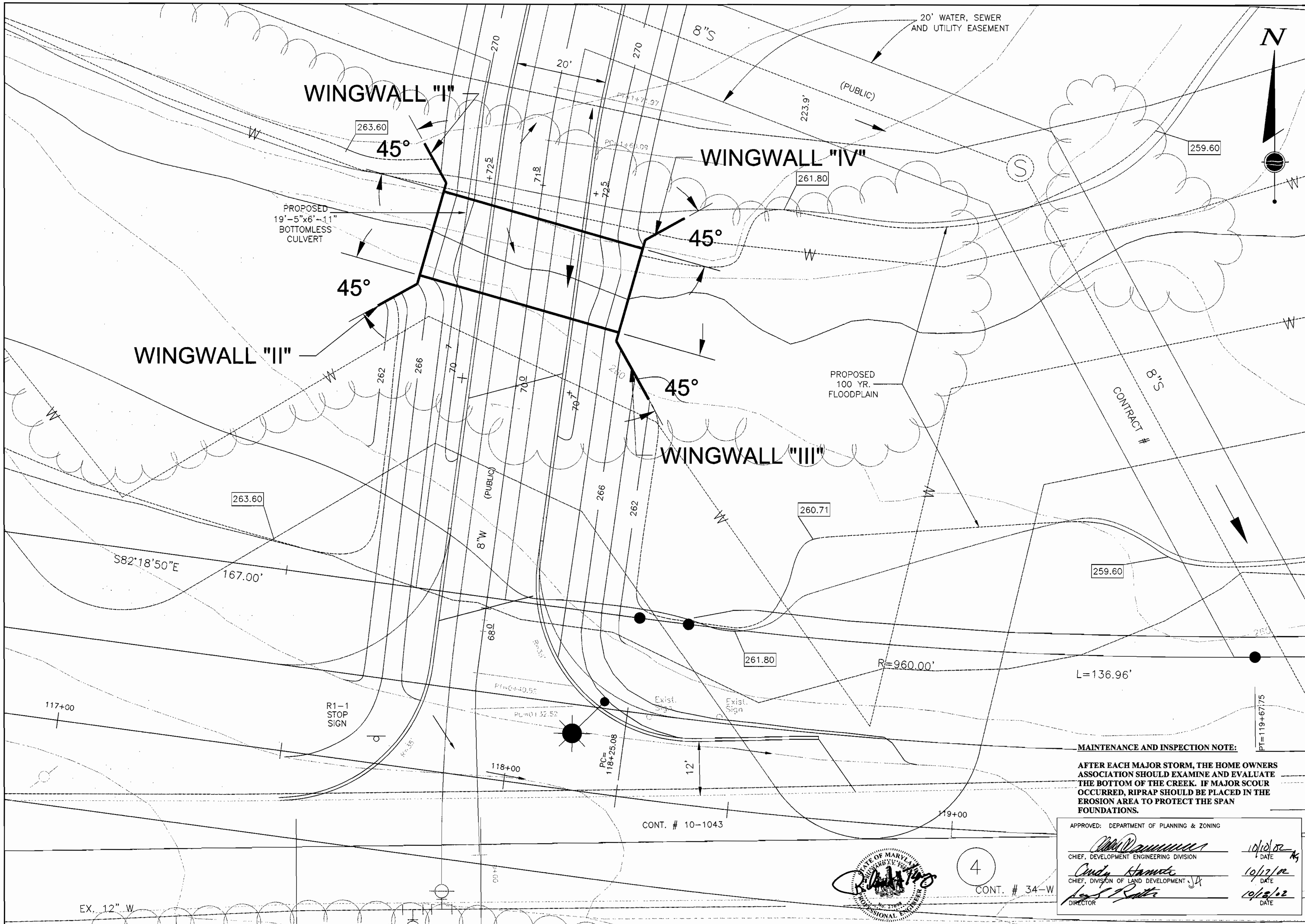
[Signature] 10/18/02
DIRECTOR DATE

CLARK • FINEFROCK & SACKETT, INC.
ENGINEERS • PLANNERS • SURVEYORS

7135 MINSTREL WAY • COLUMBIA, MD 21045 • (410) 381-7500 BALT. • (301) 621-8100 WASH.

DESIGNED TD	FOREST CONSERVATION DETAILS	SCALE
DRAWN LA/CRH2	ROCKBURN WOODS	AS SHOWN
CHECKED TD	21 ACTIVE ADULT CONDOMINIUMS	DRAWING 13 of 17
DATE 9/25/01	PARCEL 61 TAX MAP 37 GRID 5 FIRST (1st) ELECTION DISTRICT HOWARD COUNTY, MARYLAND	JOB NO. 00176
	FOR : BRANTLY DEVELOPMENT GROUP 8835-P COLUMBIA 100 PARKWAY COLUMBIA, MD 21045	FILE NO. 00176 X

#6 D:\DRAWINGS\00176-ROCKBURN-WOODS\513-FOR-CON-DETS.DWG



PROJECT NO. 124705		REVIEWED BY SZ
DATE 04/02	DRAWN BY SR	CLIENT Longspan Bridge & Culvert, LLC
REVISION BLOCK		BY/DATE
NO.		DESCRIPTION OF REVISION
1	CHANGED SHEET NUMBER PER CLIENT'S REQUEST	HGW07-02

PLAN

ROCKBURN WOODS
21 ACTIVE ADULT CONDOMINIUMS
PARCEL 61 TAX MAP 37 GRID 5
FIRST (1st) ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

MAINTENANCE AND INSPECTION NOTE:
AFTER EACH MAJOR STORM, THE HOME OWNERS ASSOCIATION SHOULD EXAMINE AND EVALUATE THE BOTTOM OF THE CREEK. IF MAJOR SCOUR OCCURRED, RIPRAP SHOULD BE PLACED IN THE EROSION AREA TO PROTECT THE SPAN FOUNDATIONS.

APPROVED: DEPARTMENT OF PLANNING & ZONING

[Signature] 10/20/02
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

[Signature] 10/27/02
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

[Signature] 10/28/02
DIRECTOR DATE



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CONT. # 34-W

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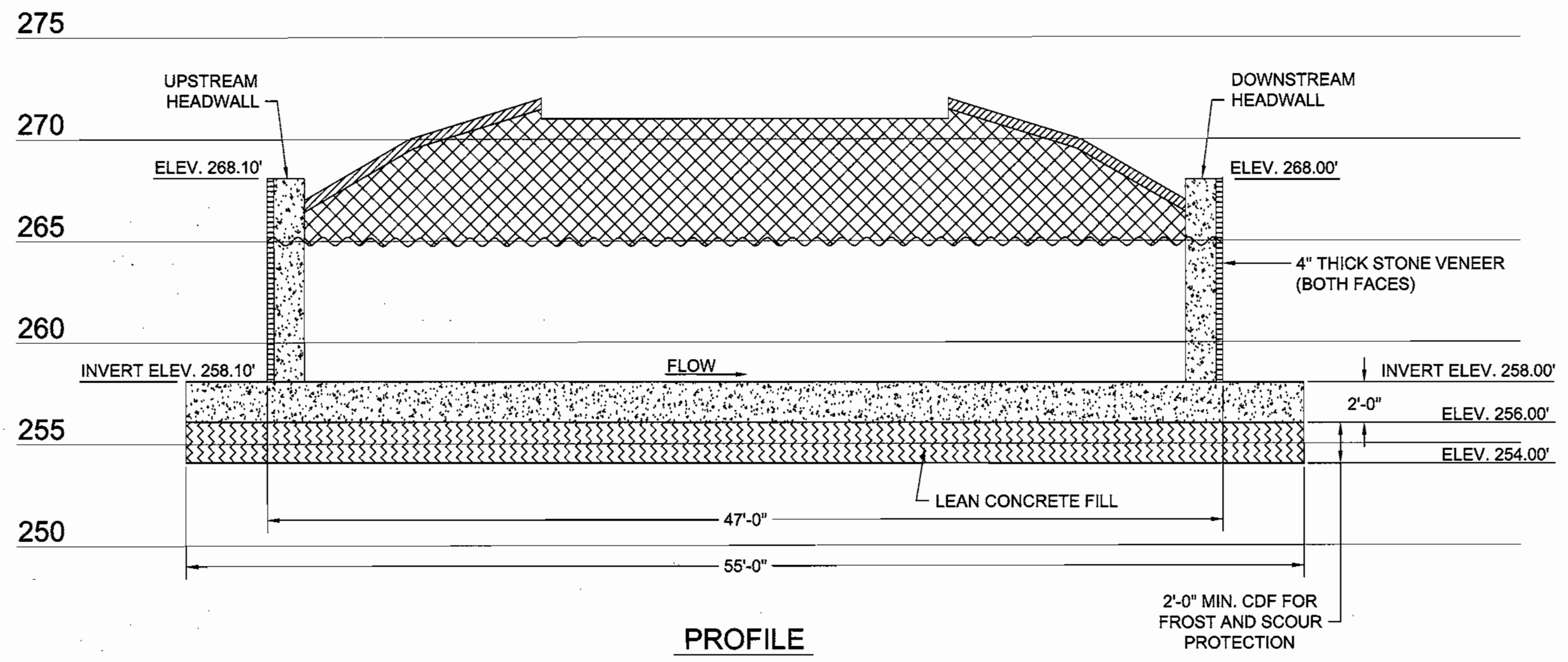
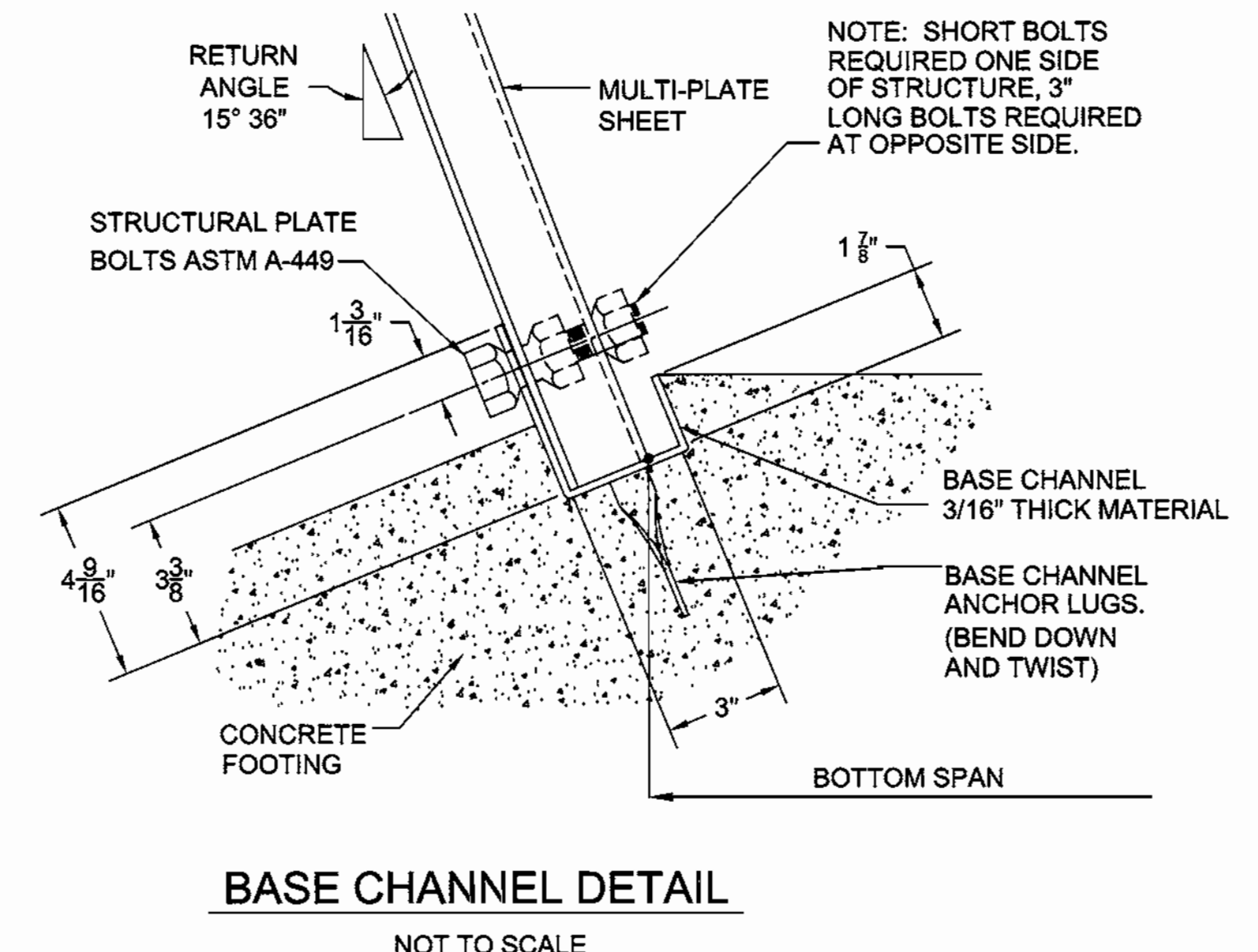
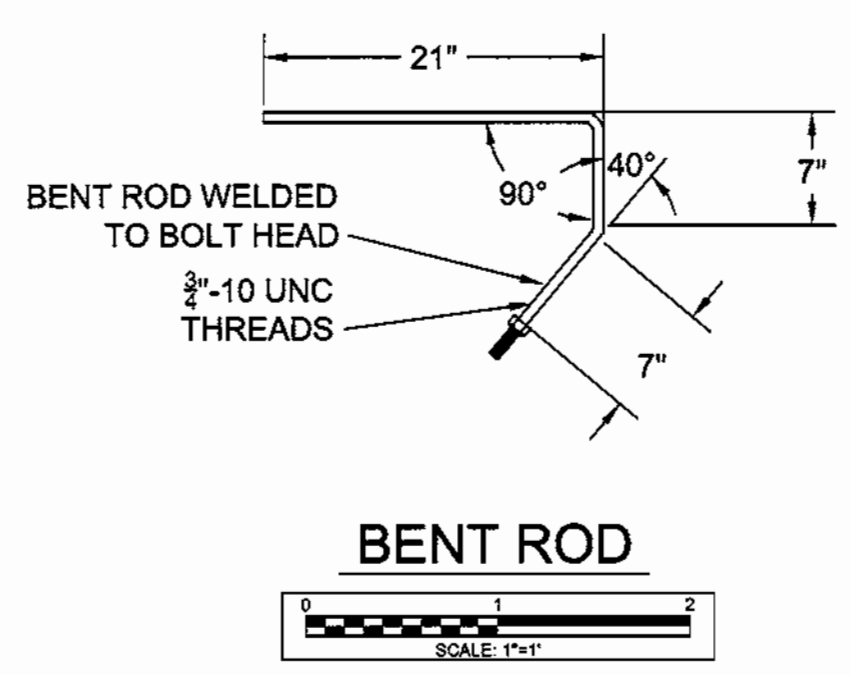
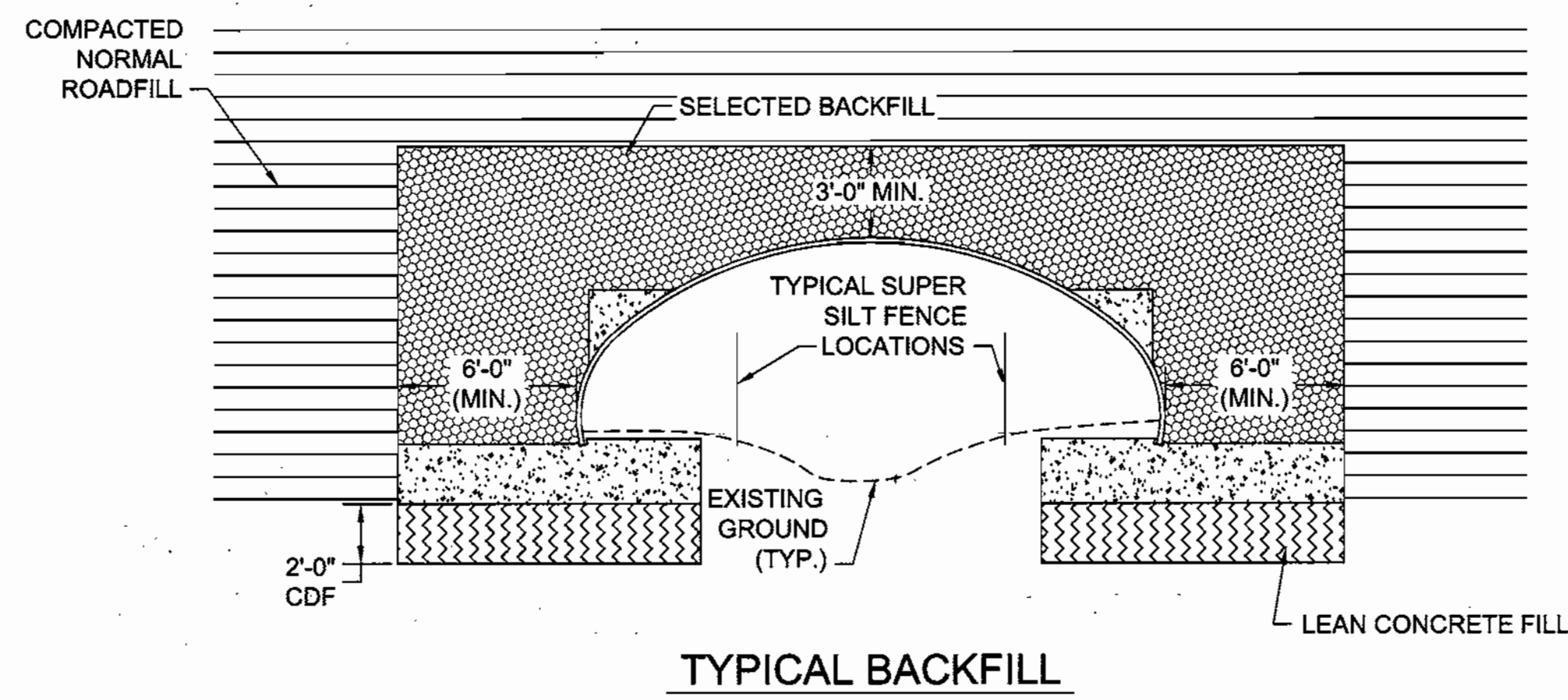
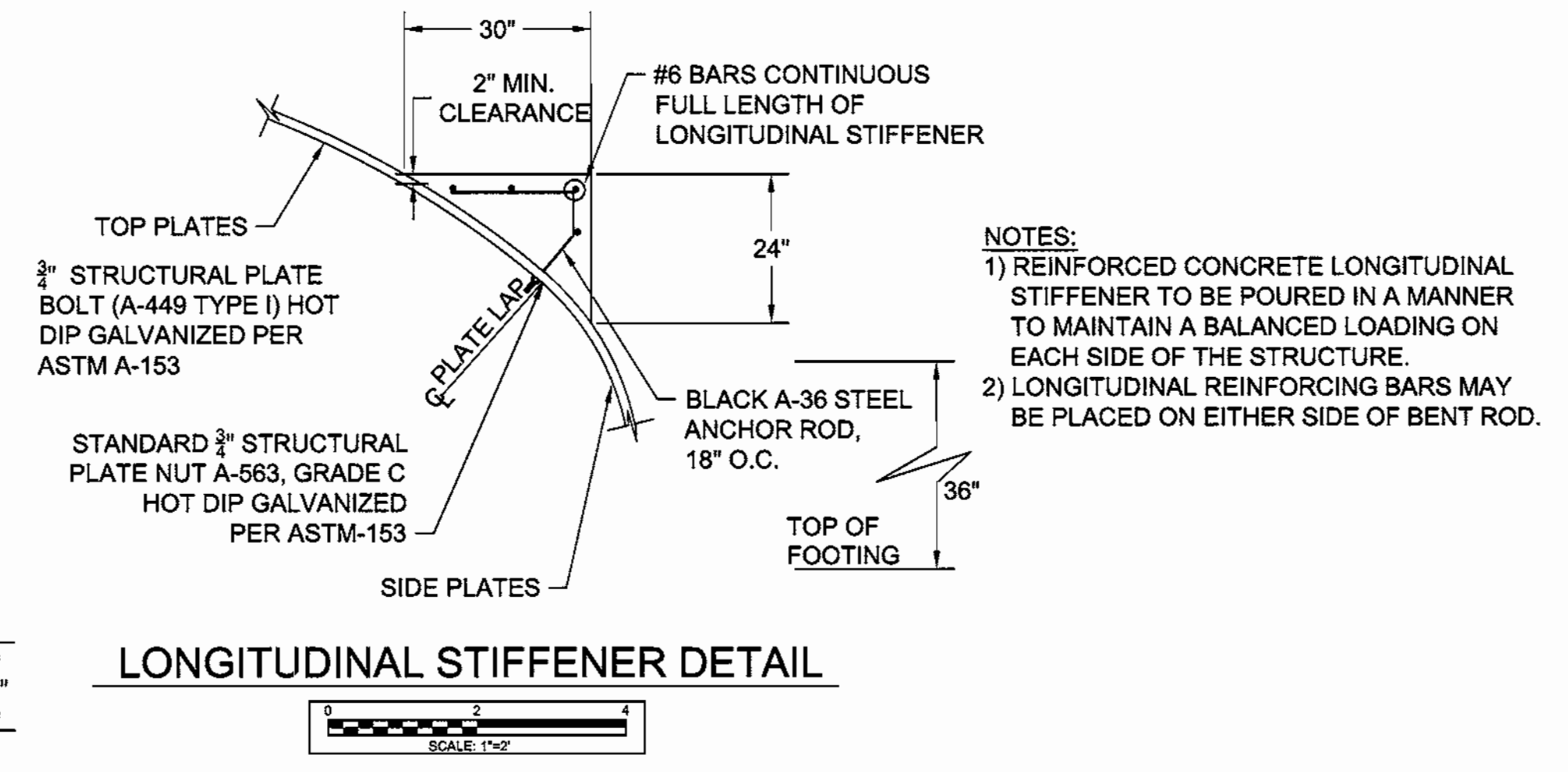
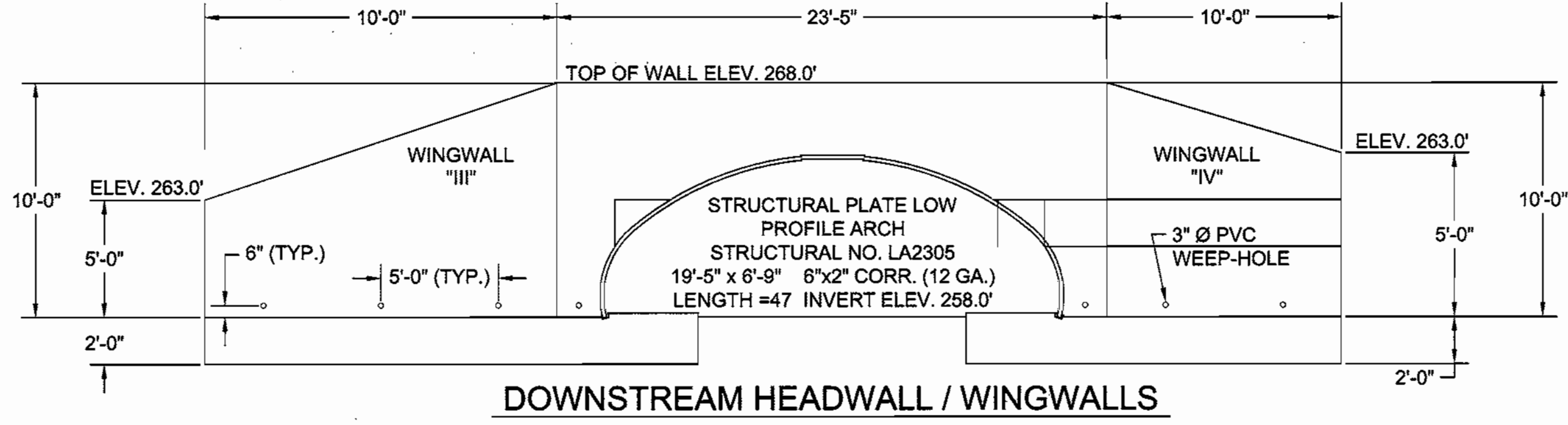
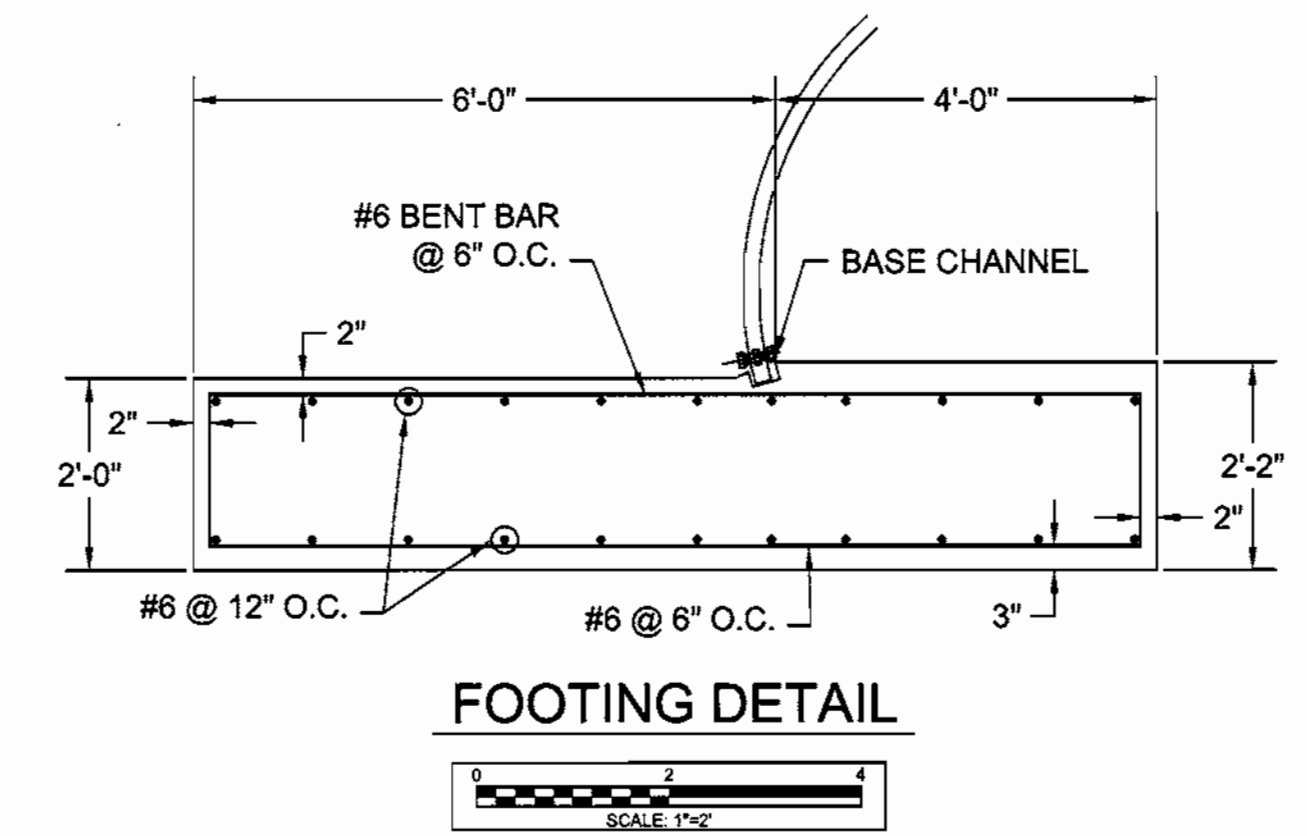
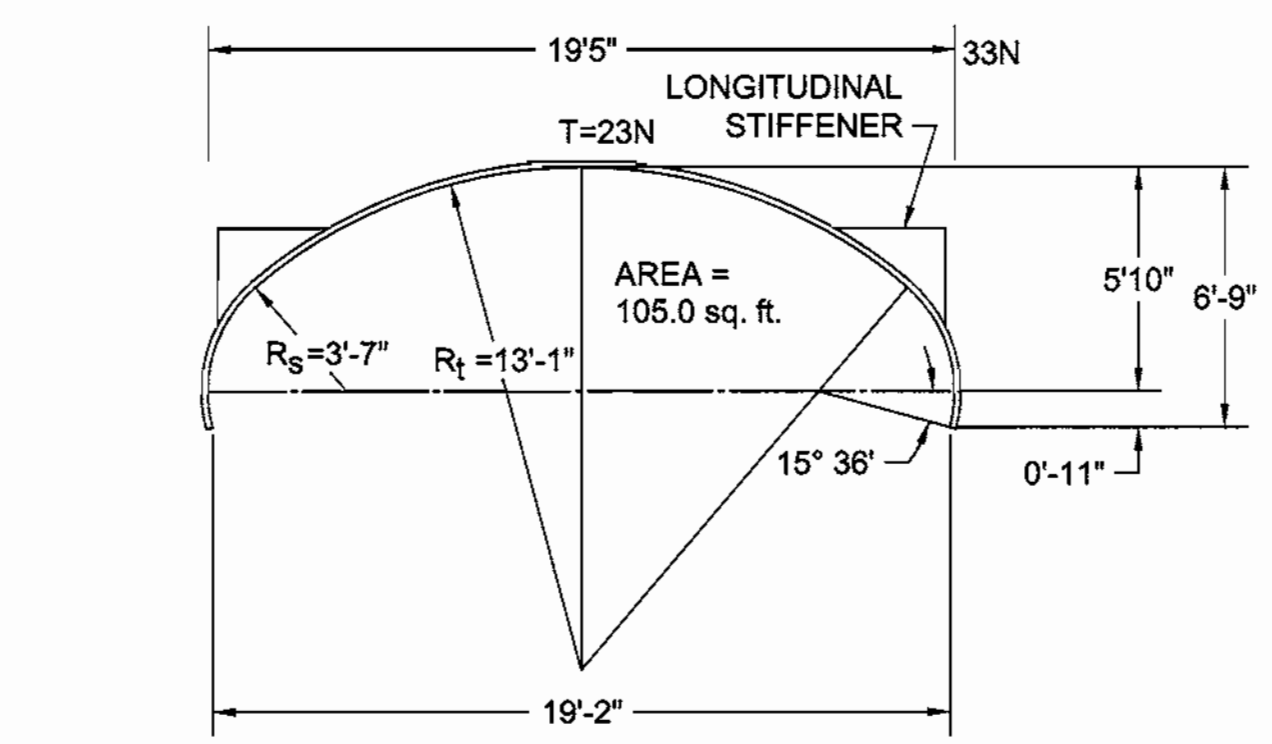
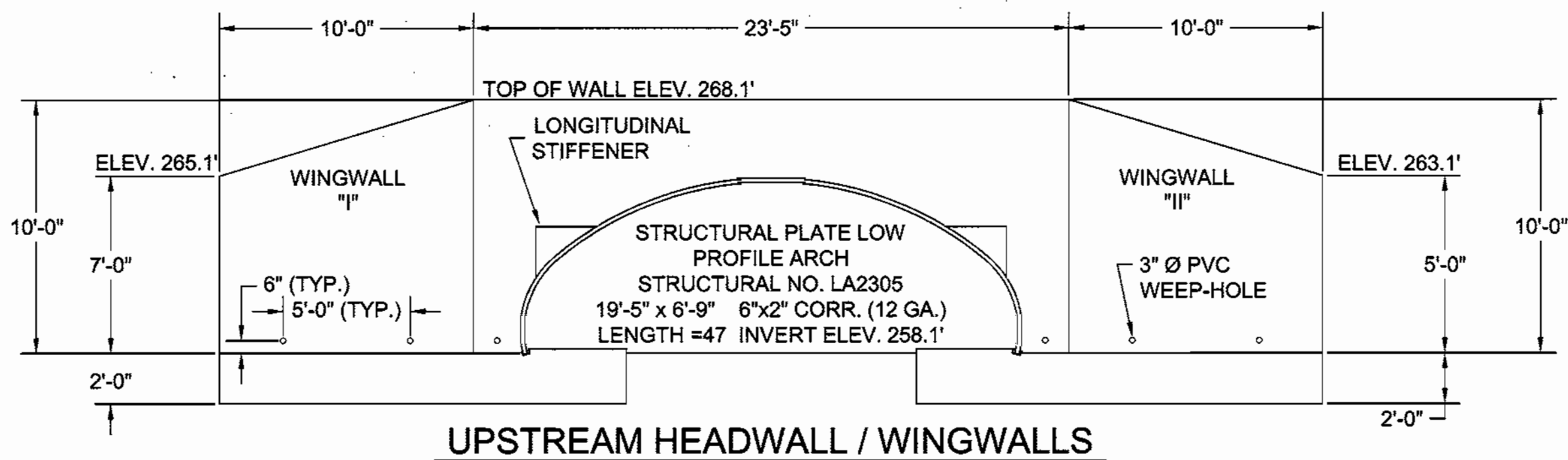


PROJECT NO.	124705
DATE	04/02
DRAWN BY	SR
REVIEWED BY	SZ
CLIENT	Longspan Bridge & Culvert, LLC

NO.	DESCRIPTION OF REVISION	BY/DATE
1	CHANGED SHEET NUMBER PER CLIENTS REQUEST	HGW/07-02

SECTIONS AND DETAILS

ROCKBURN WOODS
 21 ACTIVE ADULT CONDOMINIUMS
 PARCEL 61 TAX MAP 37 GRID 5
 FIRST (1st) ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND



APPROVED: DEPARTMENT OF PLANNING & ZONING

Robert J. Smith 10/10/02
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

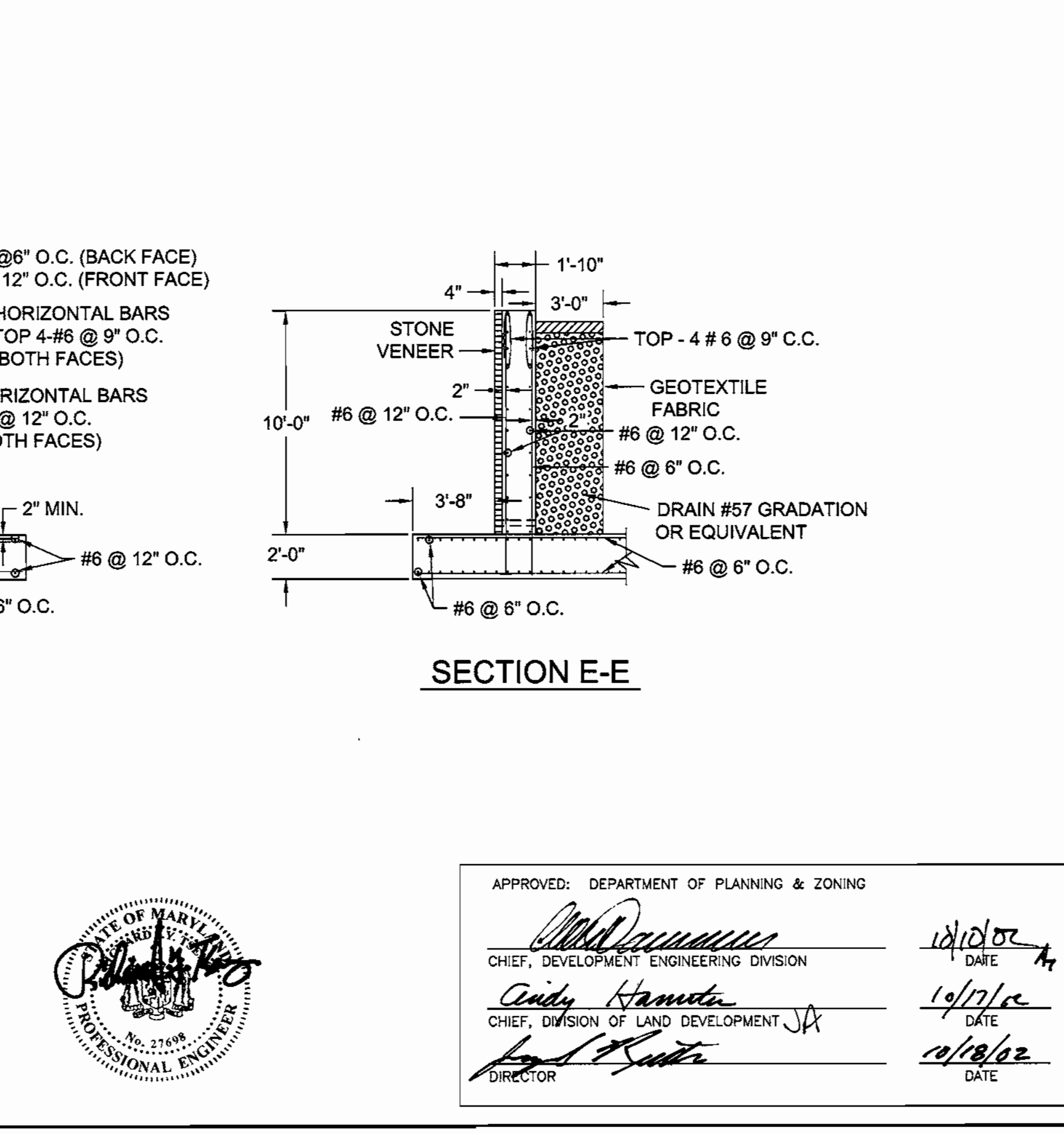
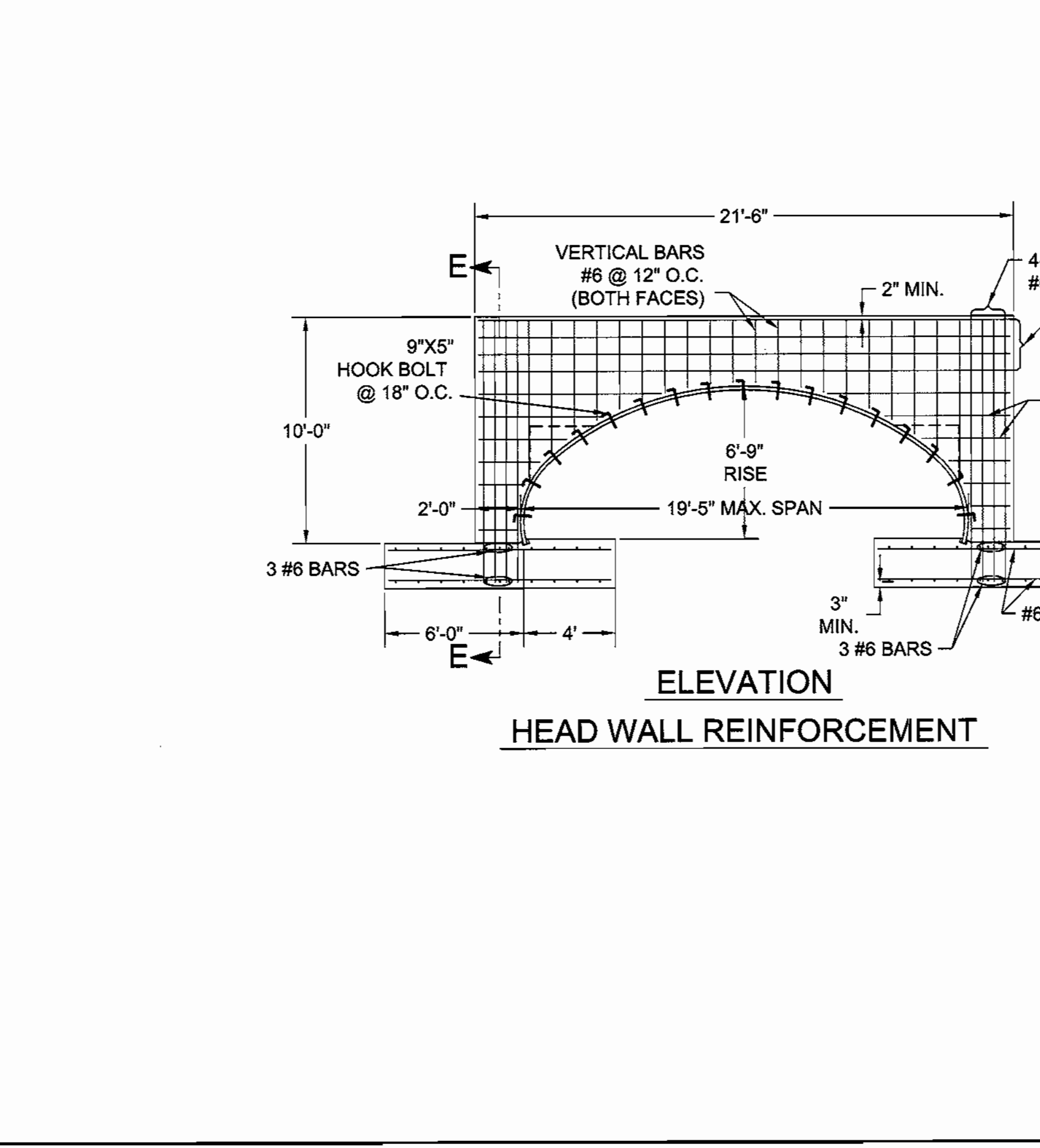
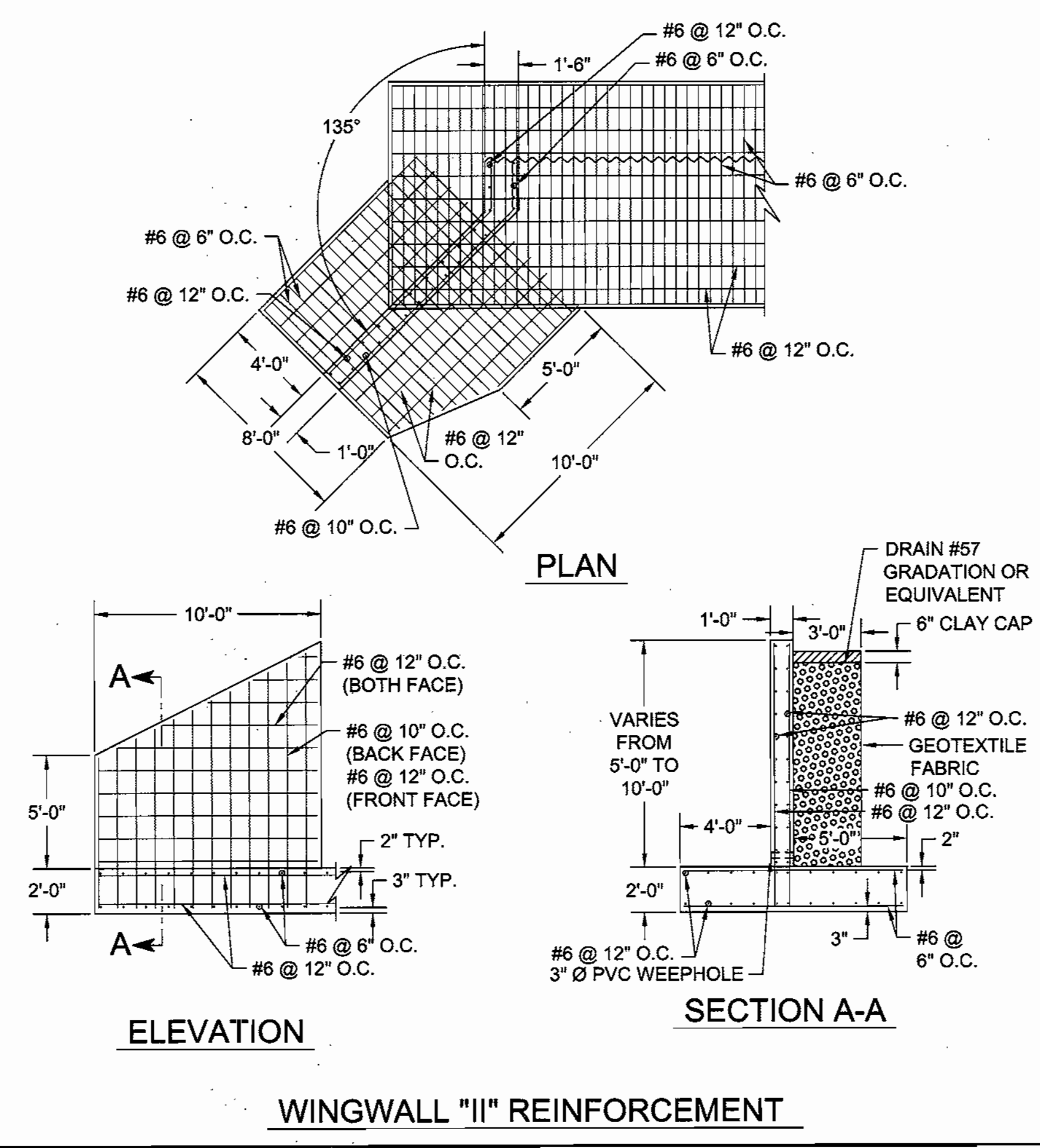
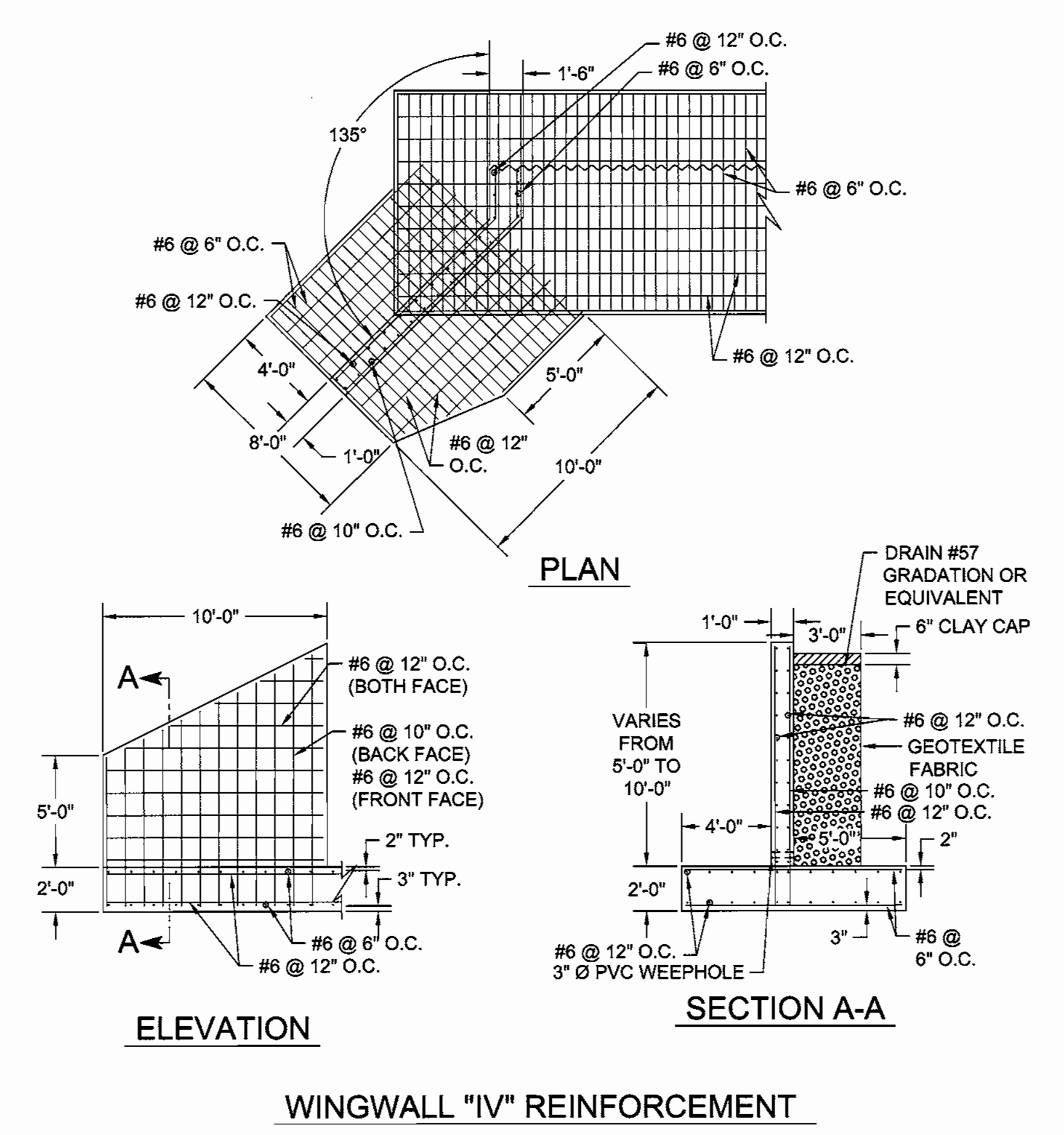
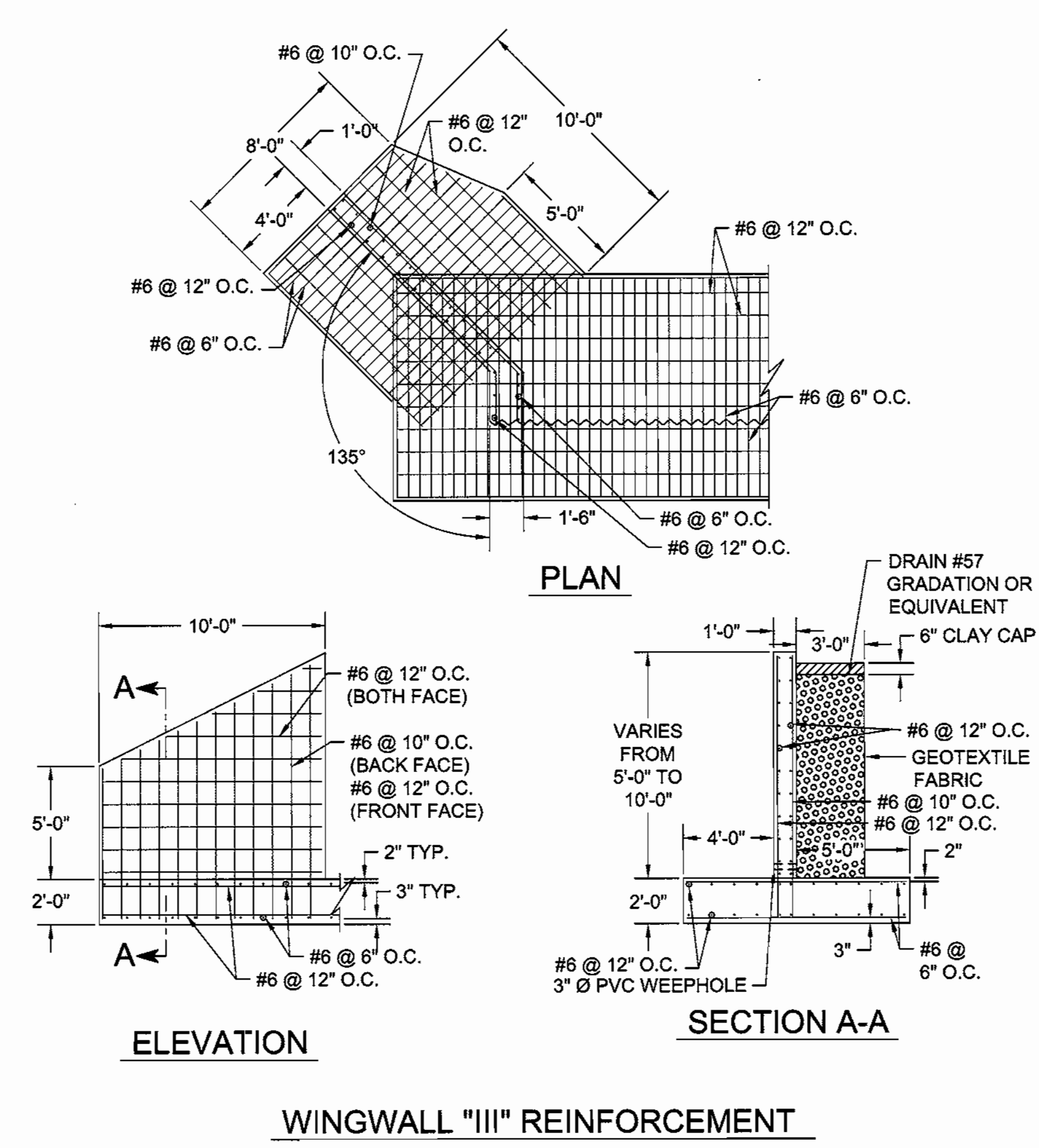
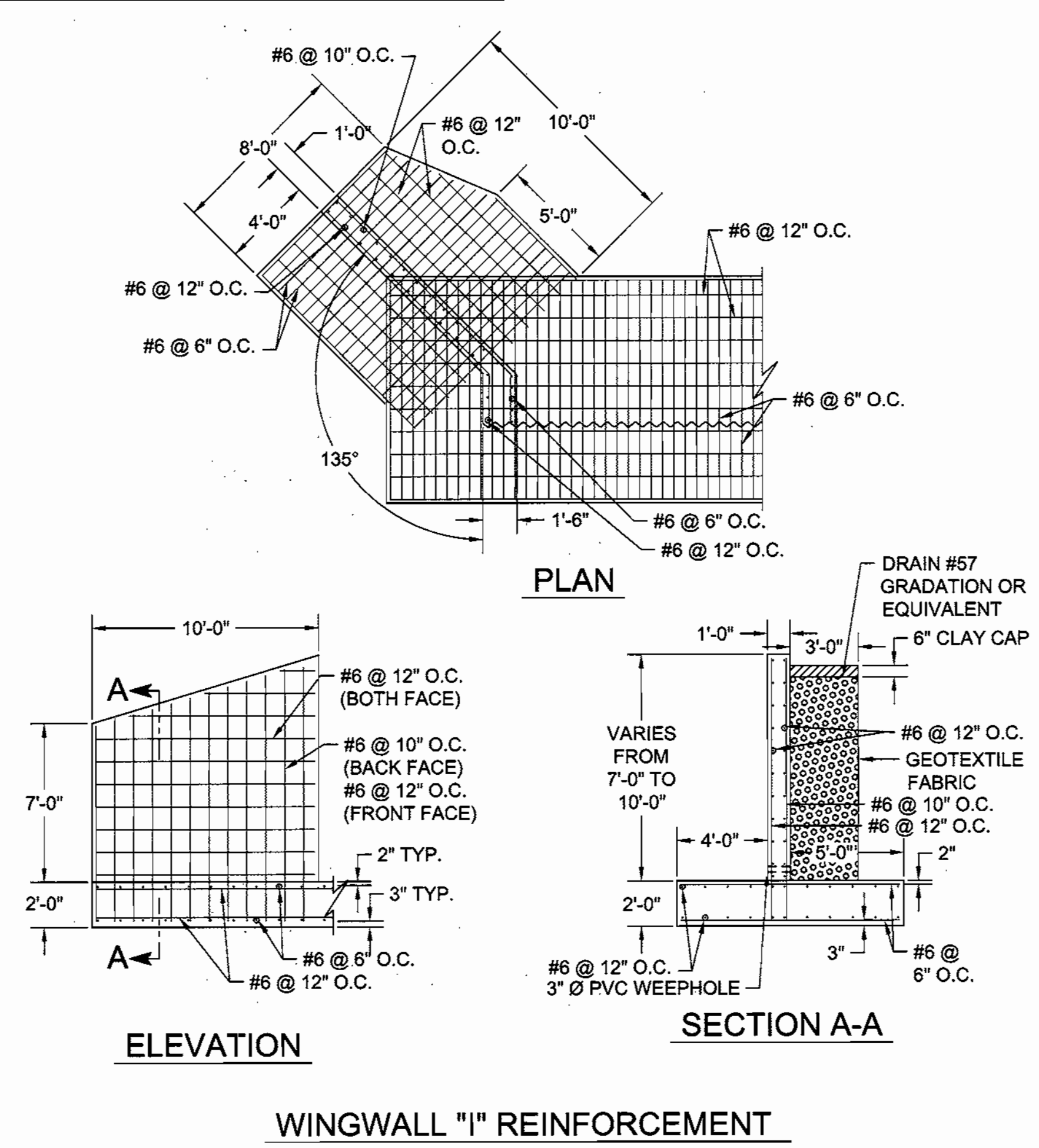
Cheryl Hamrick 10/10/02
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Robert J. Smith 10/10/02
 DIRECTOR DATE



PROJECT NO.	124705
DATE	04/02
DRAWN BY	SR
REVIEWED BY	SZ
CLIENT	Longspan Bridge & Culvert, LLC

REVISION BLOCK	
NO.	1
DESCRIPTION OF REVISION	CHANGED SHEET NUMBER PER CLIENTS REQUEST
BY/DATE	HGW/07-02



SECTIONS AND DETAILS

ROCKBURN WOODS
 21 ACTIVE ADULT CONDOMINIUMS
 PARCEL 61 TAX MAP 37 GRID 5
 FIRST (1st) ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND



APPROVED: DEPARTMENT OF PLANNING & ZONING

[Signature] 12/12/02
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

[Signature] 10/17/02
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

[Signature] 10/18/02
 DIRECTOR DATE

SDP.03.51

REQUIRED SUBMITTALS

The contractor shall submit the following items to the Design Engineer for approval in writing at least two weeks prior to use:
*Manufacturer Certification for yield strength of reinforcing steel.
*Manufacturer Certification for concrete mix design.
*Material samples of AASHTO M-145 A-1-a granular backfill, and site soil backfill for testing

DEFINITIONS

ENGINEER - Bowser-Morner Associates, Inc.
OWNER - Rockburn Woods Development.

CONCRETE

1.0 CODES AND STANDARDS

Concrete shall conform to AASHTO Standard specifications for Highway Bridges, Division II construction, section 8 concrete structures. The Concrete shall have a minimum 28-day compressive strength of 3,500 psi.

2.0 STANDARD FOR MATERIALS

Portland Cement

Conforming to ASTM Specification C-150, Type I or II.

Water

The water shall be drinkable, clean, free from injurious amounts of oils, acids, alkalies, organic materials or deleterious substances.

Aggregates

Fine and coarse aggregates shall conform to ASTM specification C-33 "Specification for Concrete Aggregates".

Steel Reinforcing

Reinforcing bars shall be grade 60 (400) epoxy coated steel per ASTM A775. Handling and fabrication of coated bars shall be conducted to minimize damage to epoxy coating. Damaged areas of coating will be repaired with a patching material.

3.0 PROPORTIONING OF CONCRETE

The work includes furnishing all labor, materials, transportation, supervision, tools and construction machinery which may be necessary.

The concrete shall be homogeneous, readily placeable and uniformly workable and shall be proportioned in accordance with ACI-211.1.

4.0 QUALITIES REQUIRED

Type of cement: I or II; The concrete shall have the compressive strength $f_c=3,500\text{psi}$ slump=2-4 inches; and air content: $6\pm 1\%$

4.1 Maximum Size of Coarse Aggregates

Maximum size of coarse aggregates shall not be larger than 1/5 of the narrowest dimension between forms and not larger than 1/4 the thickness of slabs.

4.2 Rate of Hardening of Concrete

Concrete mix shall be adjusted to produce the required rate of hardening for varied climatic conditions:

- a) Under 40°F Ambient Temperature - NonChloride Accelerator (Approval in Writing from the Engineer). Concrete shall be placed in accordance with "ACI 306 Cold Weather Concreting".
- b) Over 70°F Ambient Temperature - Retard (Type D Admixture).
- c) Between 40°F and 70°F - Normal rate of hardening (Type A Admixture).

5.0 MIXING AND PLACING

The work includes furnishing all labor, materials, transportation, supervision, tools and construction machinery which may be necessary.

Equipment

Ready Mix Concrete shall be used and shall conform to the "Specifications for Ready-Mixed Concrete," ASTM C-94. Approval is required prior to using job mixed concrete. Work shall be in accordance with ACI Recommended Practice for Winter or Hot Weather Concrete, whichever is appropriate.

Preparation

All work shall be in accordance with ACI-304R, "Recommended Practice for Measuring, Mixing and Placing Concrete". All construction debris and extraneous matter shall be removed from within the forms. Struts, stays, bracing and blocks, serving temporarily to hold the forms in correct shape and alignment, shall be removed. All concrete shall be placed on clean, damp surfaces, free from water, or upon properly consolidated fills. Concrete shall be deposited in approximately horizontal layers, not to exceed 19 inches. Concrete has to be dropped 4 feet or more shall be placed through a tremie.

Vibration

Concrete shall be consolidated by means of mechanical vibration. Vibrators shall be inserted and removed vertically at regular intervals not to exceed every 18 inches, to ensure uniform consolidation. In no case shall vibrators be used to transport concrete inside the forms.

6.0 FORM WORK

The work includes furnishing all labor, materials, transportation, supervision, tools and construction machinery which may be necessary.

Installation

Form work shall follow ACI 347, "Recommended Practice for Concrete Form Work". Forms shall conform to the working drawing to shape, line and dimensions of members and shall be substantially free from surface defects and sufficiently tight to prevent leakage. They shall be properly braced and tied to maintain position and shape.

Removal

Remove forms in a manner and at such time as to ensure complete safety of the structure. In no case shall supporting forms or shoring be removed until sufficient strength has been obtained to support weight and load.

7.0 CURING

Fresh concrete shall be protected from rains, flowing water and mechanical injury, sun, drying winds, and freezing for a period of 7 days. The temperature of the concrete must be kept above 50°F for at least 14 days.

8.0 TESTING

The frequency of these tests will be at the discretion of the Engineer.
The concrete shall have a minimum 28-day compressive strength of 3,500 psi.

EARTHWORK SPECIFICATIONS

GENERAL

The Contractor shall furnish all labor, material and equipment, and perform all work and services except those set out and furnished by the Owner, as shown in the attached documents necessary to complete in a satisfactory manner the site preparation, excavation, filling, compaction, and grading as shown on the plans and as described therein.

This work shall consist of all clearing and grading, preparation of the land to be filled, filling of the land, spreading and compaction of the fill, and all subsidiary work necessary to complete the grading of the cut and fill areas to conform with the project lines, grades, slopes and specifications.

This work is to be accomplished under the observation of the Engineer's designated representative. Placement of backfill material will not be permitted unless the Engineer's designated representative (QA/QC field technician) is onsite.

Prior to bidding the work, the Contractor shall examine, investigate and inspect the construction site as to the nature and location of the work, and the general and local conditions at the construction site, including, without limitation, the character of surface or subsurface conditions and obstacles to be encountered on and around the construction site; and shall make such additional investigation as they may deem necessary for the planning and proper execution of the work.

GEOTECHNICAL STRATA

NOTE: The geotechnical design for this project is based on subsurface information conducted by Herbst/Benson & Associates (November, 2001) and furnished to Bowser-Morner Associates, Inc. by Long Span Bridge & Culvert, LLC.

Results of these borings and studies should be provided to the Contractor by the Owner upon their request, but the Owner and Engineer shall not be responsible for any interpretations or conclusions with respect thereto made by the Contractor on the basis of such information, and the Owner further has no responsibility for the accuracy of the borings.

If conditions other than those indicated by the confirmatory subsurface boring program are discovered by the Contractor, the Owner should be notified immediately. The material, which the Contractor believes to be a changed condition, should not be disturbed so that the Owner and/or his designated representative can investigate the condition.

CLEARING AND GRUBBING

The work includes furnishing all labor, materials, transportation, supervision, tools and construction machinery which may be necessary to accomplish the clearing and grubbing for this project area.

When the construction/operation sequence requires, all trees, brush, etc., shall be removed from the limits of the proposed areas to receive fill or other engineered structures. The areas may be extended outside the actual lines of construction only to the distance required to provide the contractor with sufficient space to perform the work.

All stumps, vegetation, brush, or debris shall be removed from the limits of the fill or other engineered structures.

Any trees, brush, stumps, etc. removed during the clearing and grubbing operation shall be disposed of in the manner and location approved by the Owner. Any buried material shall be covered by at least 2 feet of cohesive soil.

STRIPPING

The work includes furnishing all labor, materials, transportation, supervision, tools and construction machinery which may be necessary.

When the construction/operation sequence requires the area of fill or other engineered structures shall be properly stripped. This stripping shall include topsoil and other deleterious materials. Topsoil shall be removed to its full depth and stockpiled for use in the final cover. Any rubbish, organic and other objectionable soils, and other deleterious material, shall be properly disposed of at a site approved by Owner.

EXCAVATION

The work includes furnishing all labor, materials, transportation, supervision, tools and construction machinery that may be necessary to accomplish the excavation in the grading limits shown on the drawings for this project.

The lines and grades shall be established by using control benchmarks.

The Contractor shall remove all materials encountered within that portion of the site to the proper depth as indicated on the drawings. Excavation shall be extended to the depths indicated and detailed on the drawings.

Soft or spongy cohesive or silty materials encountered at the base of the excavation shall be removed at the direction of the Design Engineer or his representative. The excavation for the wall foundations should be observed by the design engineer upon completion of this task. At the direction of the Design Engineer or his designated representative, soft materials will be removed to a depth directed by the Design Engineer or his designated representative, and replaced with granular backfill compacted at least 100 percent of the maximum dry unit weight at a moisture content within 2 percent of optimum as determined by AASHTO T-99 method (Standard Proctor).

Suitable material removed from the excavation may be used, in so far as practical, in the formation of embankments as shown on the Drawings and approved by Owner or disposed of as directed by Owner.

All sod and soft or spongy material shall be stockpiled for use as topsoil or disposed of as directed.

FOOTER SUBGRADE PREPARATION

Two feet of subgrade soil shall be removed from the bottoms of the footing excavations below an elevation of 256.0 feet and shall be backfilled with lean concrete. The lean concrete shall have a minimum 28-day compressive strength of 2,000 psi. Footers shall be supported on at least 2-foot-thick of cured lean concrete.

Ground water and surface water within the subgrade excavation area must be maintained at least 3 feet below the footer elevation (256.0) during preparation of the subgrade. If additional excavation is required to remove unsuitable materials, the water will need to be maintained 3 feet below the deepest excavation elevation.

The subgrade shall be smooth rolled with a Caterpillar CP-533 Soil Vibratory Compactor or equivalent with a dynamic force of 50,000 pounds (min.). The top 1-foot of the subgrade soil shall be compacted to at least 100 percent of the maximum dry unit weight at a moisture content within 2 percent of optimum as determined by AASHTO T-99 method (Standard Proctor). No vibration shall be applied for compaction over the silty and clayey soil.

Subgrade areas observed to be rutting, pumping or soft must be excavated to a depth designated by the Design Engineer or his designated representative and replaced with competent granular soils compacted in accordance with project specifications for the granular envelope around the pipe.

BACKFILL REQUIREMENTS

Material Qualifications

The backfill material around the pipe shall consist of AASHTO M145 A-1-a granular material. Recycled concrete material shall not be allowed. The A-1-a material shall have fines (pass no. 200 sieve material) less than 20 % by weight.

The A-1-a granular material and site soil backfill for the adjoining embankment material shall be tested in the laboratory for grain size distribution (AASHTO T-27 for granular material; AASHTO T 88 for soil material) and moisture-density relationship (AASHTO T-99) at a frequency no less than 1 test per 2,000 cubic yards of placed materials. The testing described above is for purposes of verification of site soil backfill parameters and is in addition to the general project specifications for the embankment backfill, but does not supersede project specifications that may be more stringent.

Placement

All backfill operations shall place the material evenly on both sides of the pipe and each lift shall extend for the entire length of the pipe prior to placement of the next sequential lift. Fill placement shall begin in the middle of the pipe length and extend equally on both sides in the upstream and downstream directions. When directed, shovel slicing and/or spud bars shall be used in conjunction with all of the compaction operations, to completely backfill the corrugations along the haunch of the pipe (below the Springline). Embankment fill and material used as backfill for the wing walls shall be placed concurrently with the A-1-a material used to backfill the (Structural Plate Long Span) structure.

The granular backfill AASHTO M145 (A-1-a) shall be placed in horizontal layers not to exceed 8-inch loose depth. The lift thickness may be reduced by the Design Engineer or his designated representative to obtain the required compaction, fill all the voids, achieve the proper seating of the backfill material and achieve the stability of the backfill material and the pipe. The granular backfill shall be compacted to 95 percent of the maximum dry unit weight as determined by the Standard Proctor test (AASHTO T-99). Field nuclear density tests shall be performed at a minimum frequency of two tests per every other lift on each side of the structure. Greater emphasis shall be given to a uniform degree of compaction throughout each lift than to achieving a degree of compaction greater than the minimum specified criteria.

All granular material shall be compacted using mechanical devices, hand devices, vibrating plates or other equipment approved by the Engineer. Compaction equipment weighing more than 24,000 pounds shall not be used within 2.5 feet of the corrugated metal structure. The compaction equipment shall be capable of compacting the material under the haunch of the pipe (i.e.; below the springline of the pipe).

The soil backfill within 60 feet of the granular backfill shall be placed in layers not to exceed 8-inch loose depth. The lift thickness may be reduced by the Engineer to obtain the required compaction. The soil backfill shall be compacted to a minimum of 95 percent of the maximum dry unit weight as determined by the Standard Proctor test (AASHTO T-99) and to a moisture content within 2% of the optimum moisture content as determined by the same test. Field nuclear density tests shall be performed at a minimum frequency of four tests per every other lift on the soil backfill on each side of the structure. The testing described above is in addition to the general project specifications for the embankment backfill and does not supersede project specification that are more stringent than these requirements. The contractor shall submit to the owner samples of proposed soil backfill material for testing to verify moisture and density relationship (AASHTO T-99) and grain size relationship (AASHTO T-27).

If at any time, longitudinal cracks develop in the backfill surrounding the pipe, to a distance of 30 feet from the springline of the pipe, these features should be brought to the immediate attention of the field QA/QC personnel and the Engineer.

While compacting granular backfill material with a vibratory compactor and adjacent to the pipe, the opposite side of the pipe should be observed to note if vibrations are loosening the granular materials on that side. This may be more prevalent at higher elevations of the backfill with respect to the pipe. If this condition occurs the field QA/QC technician and Engineer should be notified prior to placement of a sequential lift on either side.

The structure should not be crossed with equipment heavier than a D-4 type dozer. No other equipment or highway (H2O) loading shall be allowed to cross the structure until the concrete pavement is placed and cured. Top filling should begin at the middle of the structure (length wise) with backfill being pushed up and over the structure with a D-4 or preferably smaller type dozer. The fill should be pushed over the structure in a directional manner 45 to 90 degrees to the axis of the structure. Special care should be maintained by the contractor to operate construction equipment parallel to the axis of the pipe during backfill placement. Once the elevation of the select backfill material is above the top of the thrust beams, then construction equipment used to place backfill material can be operated perpendicular to the pipe.

FILTER FABRIC

Filter fabric shall be placed between weepholes and the granular material. The filter fabric cloth shall conform to the following ASTM tests:

- ASTM D4632 - Minimum Tensile Strength = 120 lbs
- ASTM D4632 - Maximum Elongation = 50 %
- ASTM D4833 - Minimum Puncture Strength = 50 lbs
- ASTM D4533 - Minimum Tear Strength = 50 lbs
- ASTM D4751 - Apparent Opening Size < 0.84mm
- ASTM D4491 - Minimum Permeability = 1×10^{-2} cm/sec
- ASTM D4355 - Ultraviolet Exposure Strength Retention = 70 %

Filter fabric shall be placed in accordance with the suggested methods by the manufacturer or with Maryland DOT Specifications.



APPROVED: DEPARTMENT OF PLANNING & ZONING

[Signature] 10/10/02
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

[Signature] 10/12/02
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

[Signature] 10/18/02
DIRECTOR DATE

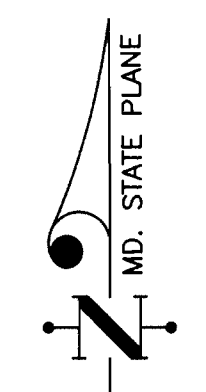
		PROJECT NO.	124705
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REVISION BLOCK		CLIENT	Longspan Bridge & Culvert, LLC
		NO.	
		CHANGED SHEET NUMBER PER CLIENTS REQUEST	HGW/07-02
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SPECIFICATIONS

ROCKBURN WOODS
21 ACTIVE ADULT CONDOMINIUMS
PARCEL 61 TAX MAP 37 GRID 5
FIRST (1st) ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

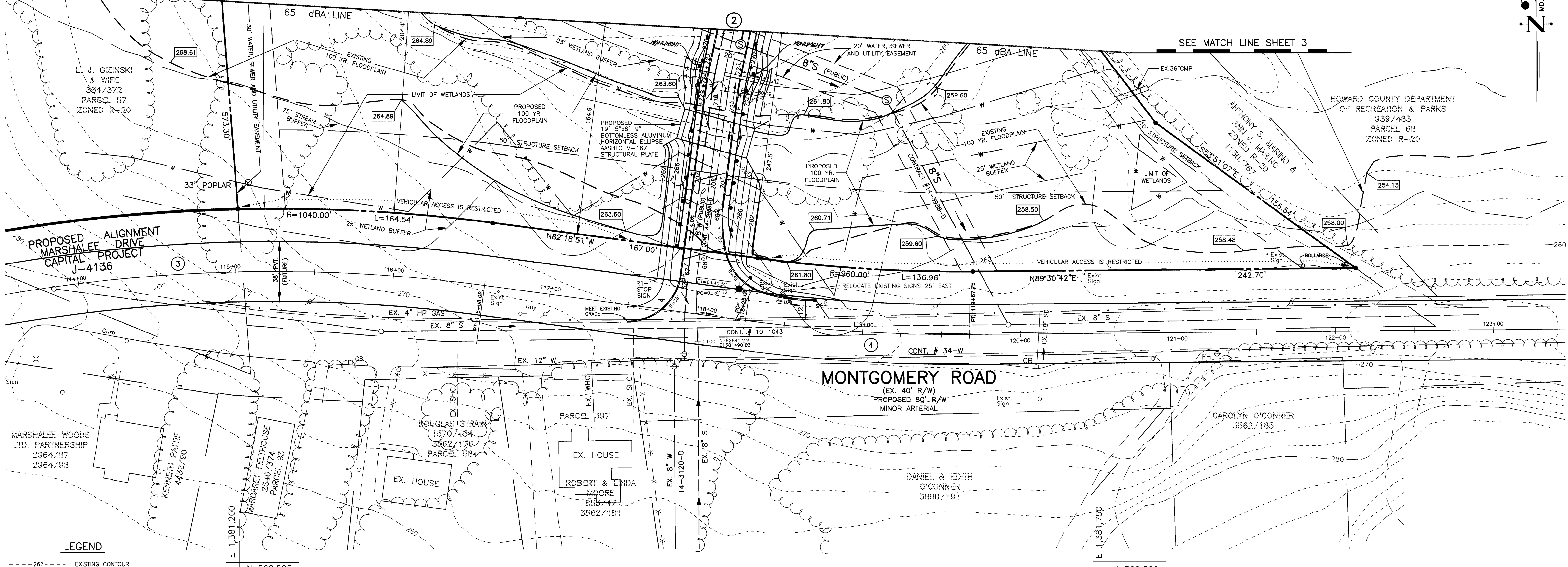
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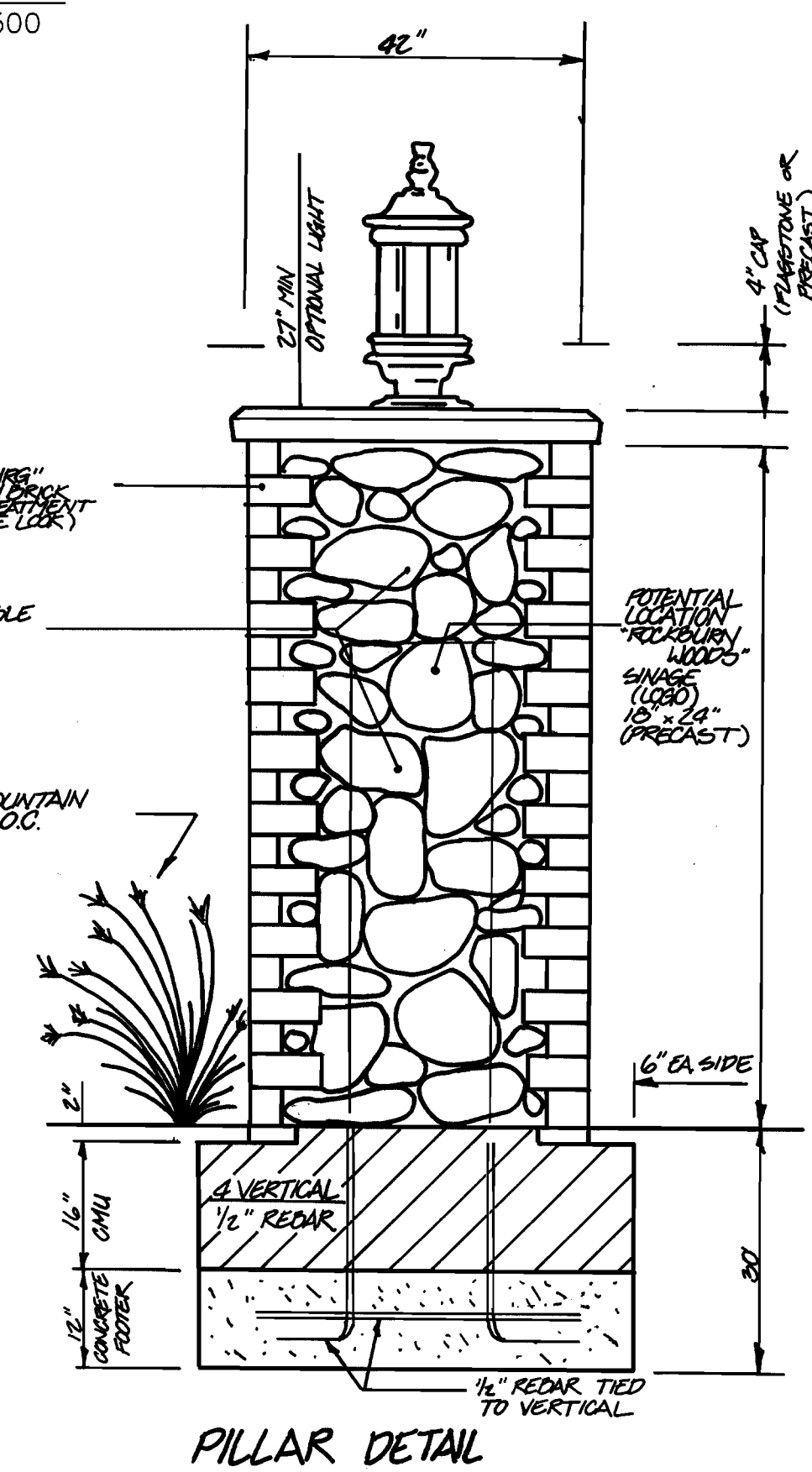


SEE MATCH LINE SHEET 3

SEE MATCH LINE SHEET 3



- LEGEND**
- 262 --- EXISTING CONTOUR
 - 260 --- PROPOSED CONTOUR
 - EX. NON FOREST VEGETATION
 - EX. POLE w/ OVERHEAD WIRES
 - EX. STREAM
 - W WETLAND
 - RIPRAP
 - 15 - 24.9% SLOPES
 - EXISTING STREET LIGHT
 - PROPOSED STREET LIGHT 100W HPS
 - PROPOSED STREET LIGHT 250W HPS PENDANT
 - CB EXISTING INLET
 - STANDARD CURB & GUTTER
 - MODIFIED CURB & GUTTER
 - WEATHERED STEEL GUARDRAIL



APPROVED: DEPARTMENT OF PLANNING & ZONING
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 CHIEF, DIVISION OF LAND DEVELOPMENT
 DIRECTOR

10/10/02
 10/17/02
 10/18/02

1 ADDITION OF ENTRY MONUMENT & MONUMENT DETAIL		9-8-02
REVISION		DATE
CLARK · FINEFROCK & SACKETT, INC. ENGINEERS · PLANNERS · SURVEYORS		
7135 MINSTREL WAY · COLUMBIA, MD 21045 · (410) 381-7500 · (301) 621-8100 WASH.		
DESIGNED TD	SITE DEVELOPMENT PLAN	SCALE 1" = 30'
DRAWN LAI/CRH2	21 ACTIVE ADULT CONDOMINIUMS	DRAWING 2 OF 17
CHECKED TD	ROCKBURN WOODS	JOB NO. 00-176
DATE 6/18/02	PARCEL 61 TAX MAP 37 GRID 5 FIRST (1st) ELECTION DISTRICT HOWARD COUNTY, MARYLAND	FILE NO. 00-176 X
FOR: ROCKBURN WOODS LLC c/o BRANTLY DEVELOPMENT CORPORATION 8815-P COLUMBIA 100 PARKWAY COLUMBIA, MARYLAND 21045		

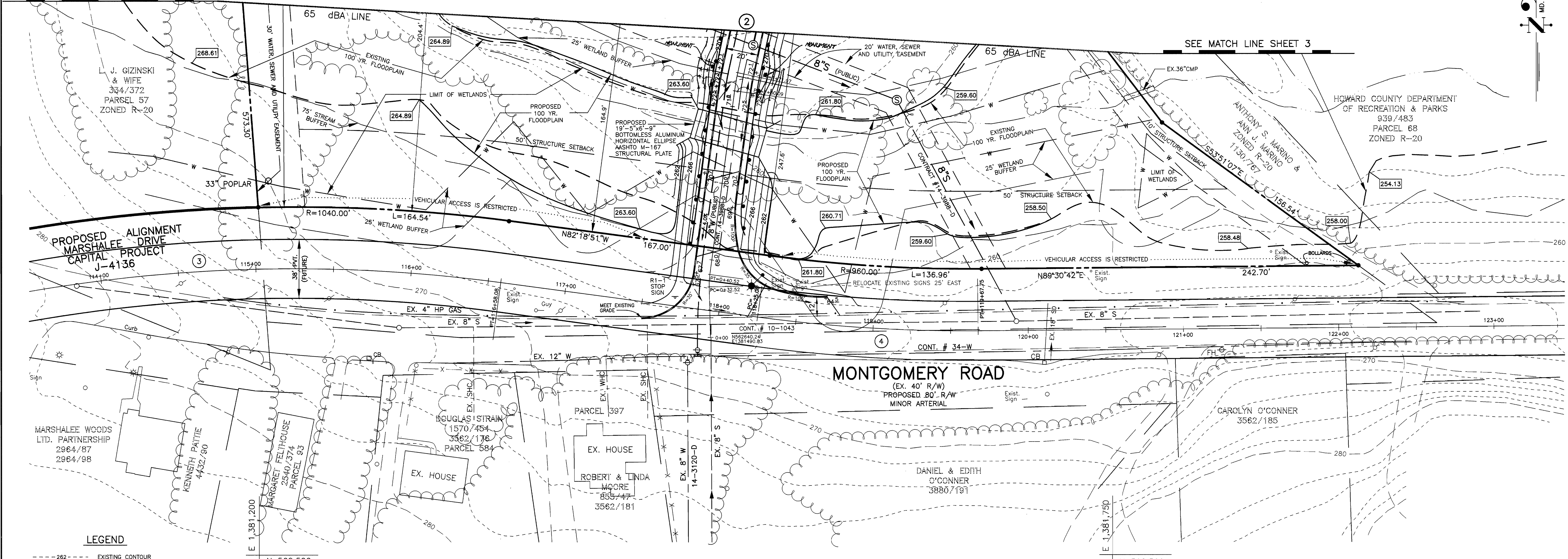
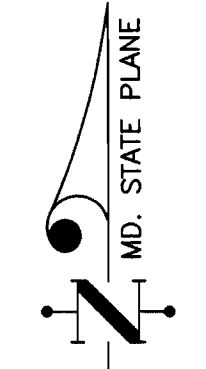
#10 C:\DRAWING FILES\00176\COE\S02-SITE-DEV-PLAN-6-18.DWG

SDP-02-51

N 562,900
E 1,381,200

SEE MATCH LINE SHEET 3

SEE MATCH LINE SHEET 3

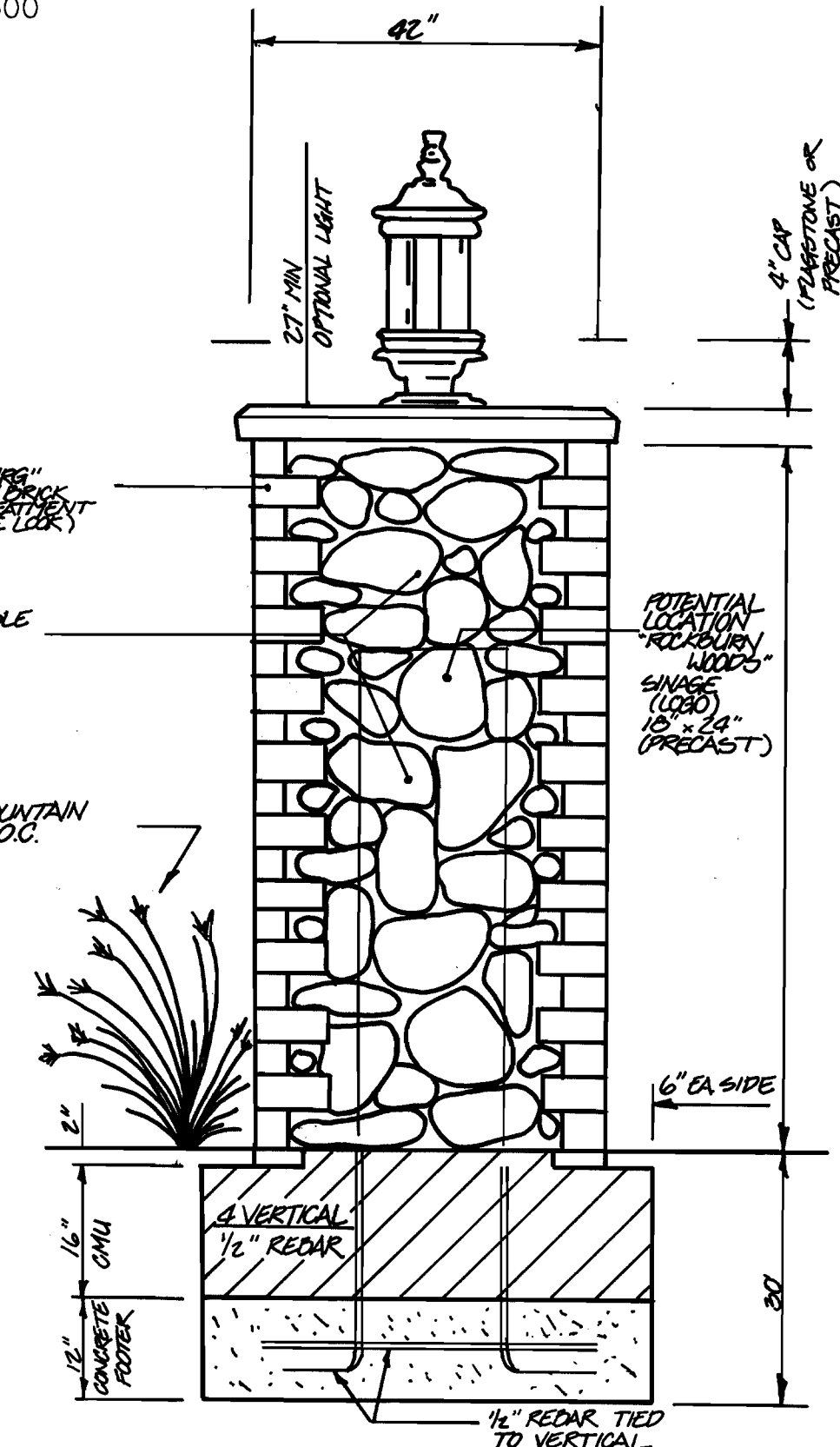


LEGEND

- 262 --- EXISTING CONTOUR
- 260 --- PROPOSED CONTOUR
- EX. NON FOREST VEGETATION
- EX. POLE w/ OVERHEAD WIRES
- EX. STREAM
- W WETLAND
- RIPRAP
- 15 - 24.9% SLOPES
- EXISTING STREET LIGHT
- PROPOSED STREET LIGHT 100W HPS
- PROPOSED STREET LIGHT 250W HPS PENDANT
- CB EXISTING INLET
- STANDARD CURB & GUTTER
- MODIFIED CURB & GUTTER
- WEATHERED STEEL GUARDRAIL

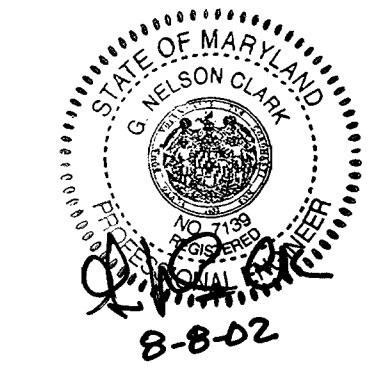
N 562,500
E 1,381,200

N 562,500
E 1,381,750



PILLAR DETAIL

APPROVED: DEPARTMENT OF PLANNING & ZONING
 [Signature] 10/10/02 DATE
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 [Signature] 10/17/02 DATE
 CHIEF, DIVISION OF LAND DEVELOPMENT
 [Signature] 10/18/02 DATE
 DIRECTOR



1 ADDITION OF ENTRY MONUMENT / MONUMENT DETAIL 9-8-02		DATE
CLARK · FINEFROCK & SACKETT, INC. ENGINEERS · PLANNERS · SURVEYORS 7135 MINSTREL WAY · COLUMBIA, MD 21045 · (410) 381-7500 BALT. · (301) 621-8100 WASH.		
DESIGNED TO	SITE DEVELOPMENT PLAN	SCALE 1" = 30'
DRAWN LAI/CRH2	21 ACTIVE ADULT CONDOMINIUMS ROCKBURN WOODS	DRAWING 2 OF 17
CHECKED TO	PARCEL 61 TAX MAP 37 GRID 5 FIRST (1st) ELECTION DISTRICT HOWARD COUNTY, MARYLAND	JOB NO. 00-176
DATE 6/18/02	FOR: ROCKBURN WOODS LLC c/o BRANTLY DEVELOPMENT CORPORATION 8815-P COLUMBIA 100 PARKWAY COLUMBIA, MARYLAND 21045	FILE NO. 00-176 X

NO.	REVISION	DATE
1	REV. HIGHLIGHTED NUMBERS 1, 2, 3, 4, 5, 6, 7, 14, 15, 16, 19, ADDED REAR 16.2' x 10.0' PORCH/SCREEN ROOM	1-17-09
2	REVISE PROPOSED NUMBER 18, ADDED 16.3' x 10.0' PORCH/SCREEN ROOM	10-13-03
3	REV. HIGHLIGHTED 6' HD TO MATCH ADJ. BUILT CONDITIONS	6-11-04

SURFACE SAND FILTER BMP F-1 1.31 ACRE DRAINAGE AREA

STEP	REQUIREMENT	VOL. REQ.	NOTES
1	WATER QUALITY VOLUME (WQV)	0.0890 AC. FT.	SURFACE SAND FILTER
2	RECHARGE VOLUME (Rev)	0.0349 AC. FT.	STORAGE PROVIDED UNDER SAND FILTER UNDERDRAIN, EXFILTRATION PROPOSED
3	CHANNEL PROTECTION VOLUME (Cpv)	0.15 AC. FT.	PROVIDED IN POCKET POND ALSO
4	OVERBANK FLOOD PROTECTION VOL. (Op)	N/A	
5	EXTREME FLOOD VOLUME (Qf)	N/A	

* RECHARGE VOLUME IS FOR ENTIRE SITE

POCKET POND BMP P-5 2.38 ACRE DRAINAGE AREA

STEP	REQUIREMENT	VOL. REQ.	NOTES
1	WATER QUALITY VOLUME (WQV) *	0.1616 AC. FT.	WET POOL
2	RECHARGE VOLUME (Rev)	SEE ABOVE	PROVIDED UNDER SURFACE SAND FILTER
3	CHANNEL PROTECTION VOLUME (Cpv)	0.30 AC. FT.	EXTENDED DETENTION
4	OVERBANK FLOOD PROTECTION VOL. (Op)	N/A	
5	EXTREME FLOOD VOLUME (Qf)	N/A	

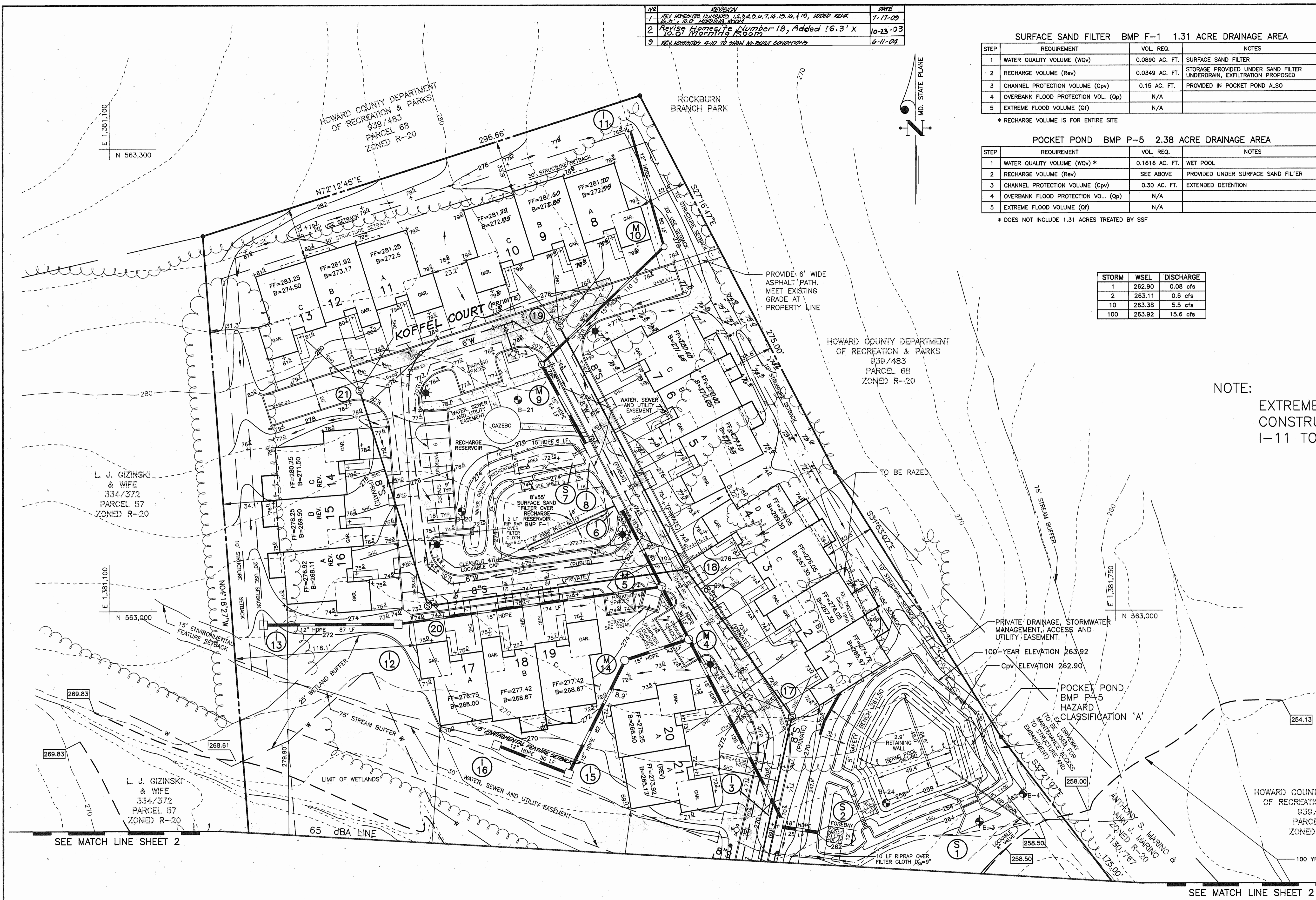
* DOES NOT INCLUDE 1.31 ACRES TREATED BY SSF

STORM	WSEL	DISCHARGE
1	262.90	0.08 cfs
2	263.11	0.6 cfs
10	263.38	5.5 cfs
100	263.92	15.6 cfs

LEGEND

- 262 --- EXISTING CONTOUR
- 260 --- PROPOSED CONTOUR
- EX. NON FOREST VEGETATION
- EX. POLE w/ OVERHEAD WIRES
- EX. STREAM
- W --- WETLAND
- RIPRAP
- 15 - 24.9% SLOPES
- EXISTING STREET LIGHT
- PROPOSED STREET LIGHT 100W HPS
- PROPOSED STREET LIGHT 250W HPS PENDANT
- CB --- EXISTING INLET
- STANDARD CURB & GUTTER
- MODIFIED CURB & GUTTER
- WEATHERED STEEL GUARDRAIL

NOTE:
EXTREME CAUTION REQUIRED FOR CONSTRUCTION AND MAINTENANCE OF I-11 TO M-10 AND I-15 TO M-14.



APPROVED: DEPARTMENT OF PLANNING & ZONING
 Chief, Development Engineering Division
 Chief, Division of Land Development
 Director

DATE: 10/10/02
 DATE: 10/12/02
 DATE: 10/18/02

CLARK · FINEFROCK & SACKETT, INC.
 ENGINEERS · PLANNERS · SURVEYORS
 7135 MINSTREL WAY · COLUMBIA, MD 21045 · (410) 381-7500 BALT. · (301) 621-8100 WASH.

DESIGNED: TD
 DRAWN: LAI
 CHECKED: TD
 DATE: 6/18/02

SITE DEVELOPMENT PLAN
21 ACTIVE ADULT CONDOMINIUMS
ROCKBURN WOODS
 PARCEL 61 TAX MAP 37 GRID 5
 FIRST (1st) ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

SCALE: 1" = 30'
 DRAWING: 3 OF 17
 JOB NO.: 00-176
 FILE NO.: 00-176 X

FOR: ROCKBURN WOODS LLC
 c/o BRANTLY DEVELOPMENT CORPORATION
 8815-P COLUMBIA 100 PARKWAY
 COLUMBIA, MARYLAND 21045

NO.	REVISION	DATE
1	REV. HOMESET NUMBERS 1, 2, 3, 4, 7, 14, 15, 16, 17, ADDED REAR 16.0' x 10.0' MORNING ROOM	7-17-09
2	REVISE HOMESET NUMBER 18, ADDED 16.3' x 10.0' MORNING ROOM	10-23-09
3	REV. HOMESET 5-10 TO SHOW AD-DRAINAGE CONVENTIONS	6-11-01
4	REV. SHUT FOND AND ADD RIPRAP	8-23-05

SURFACE SAND FILTER BMP F-1 1.31 ACRE DRAINAGE AREA

STEP	REQUIREMENT	VOL. REQ.	NOTES
1	WATER QUALITY VOLUME (WQV)	0.0890 AC. FT.	SURFACE SAND FILTER
2	RECHARGE VOLUME (Rev)	0.0349 AC. FT.	STORAGE PROVIDED UNDER SAND FILTER UNDERDRAIN, EXFILTRATION PROPOSED
3	CHANNEL PROTECTION VOLUME (Cpv)	0.15 AC. FT.	PROVIDED IN POCKET POND ALSO
4	OVERBANK FLOOD PROTECTION VOL. (Op)	N/A	
5	EXTREME FLOOD VOLUME (Qf)	N/A	

* RECHARGE VOLUME IS FOR ENTIRE SITE

POCKET POND BMP P-5 2.38 ACRE DRAINAGE AREA

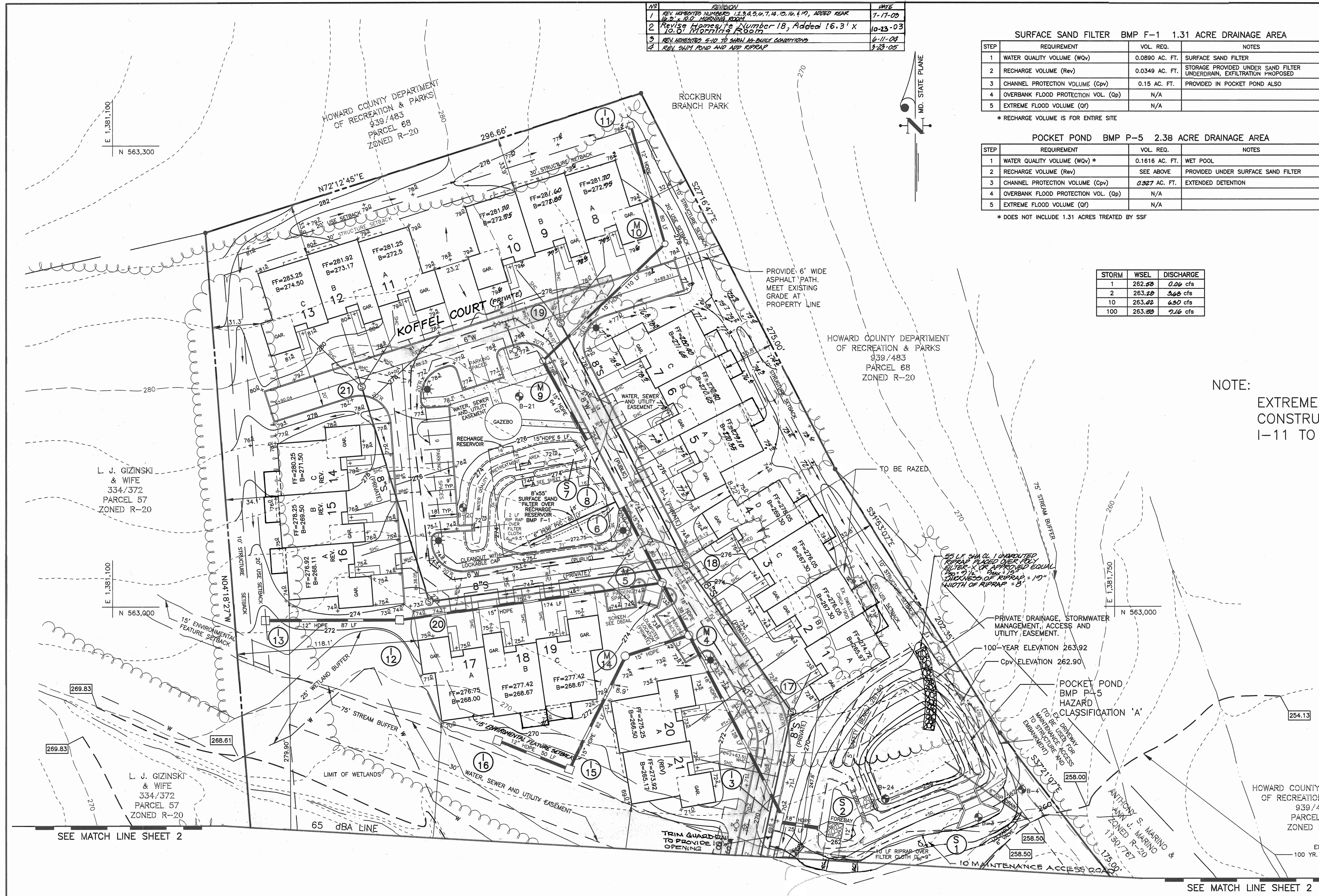
STEP	REQUIREMENT	VOL. REQ.	NOTES
1	WATER QUALITY VOLUME (WQV) *	0.1616 AC. FT.	WET POOL
2	RECHARGE VOLUME (Rev)	SEE ABOVE	PROVIDED UNDER SURFACE SAND FILTER
3	CHANNEL PROTECTION VOLUME (Cpv)	0.327 AC. FT.	EXTENDED DETENTION
4	OVERBANK FLOOD PROTECTION VOL. (Op)	N/A	
5	EXTREME FLOOD VOLUME (Qf)	N/A	

* DOES NOT INCLUDE 1.31 ACRES TREATED BY SSF

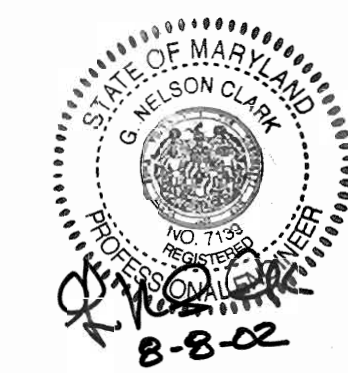
STORM	WSEL	DISCHARGE
1	262.88	0.06 cfs
2	263.28	3.68 cfs
10	263.82	6.90 cfs
100	263.88	7.16 cfs

- LEGEND**
- 262 --- EXISTING CONTOUR
 - 260 --- PROPOSED CONTOUR
 - EX. NON FOREST VEGETATION
 - EX. POLE w/ OVERHEAD WIRES
 - EX. STREAM
 - W WETLAND
 - RIPRAP
 - 15 - 24.9% SLOPES
 - ☼ EXISTING STREET LIGHT
 - ☼ PROPOSED STREET LIGHT 100W HPS
 - ☼ PROPOSED STREET LIGHT 250W HPS PENDANT
 - CB EXISTING INLET
 - STANDARD CURB & GUTTER
 - MODIFIED CURB & GUTTER
 - WEATHERED STEEL GUARDRAIL

NOTE:
EXTREME CAUTION REQUIRED FOR CONSTRUCTION AND MAINTENANCE OF I-11 TO M-10 AND I-15 TO M-14.



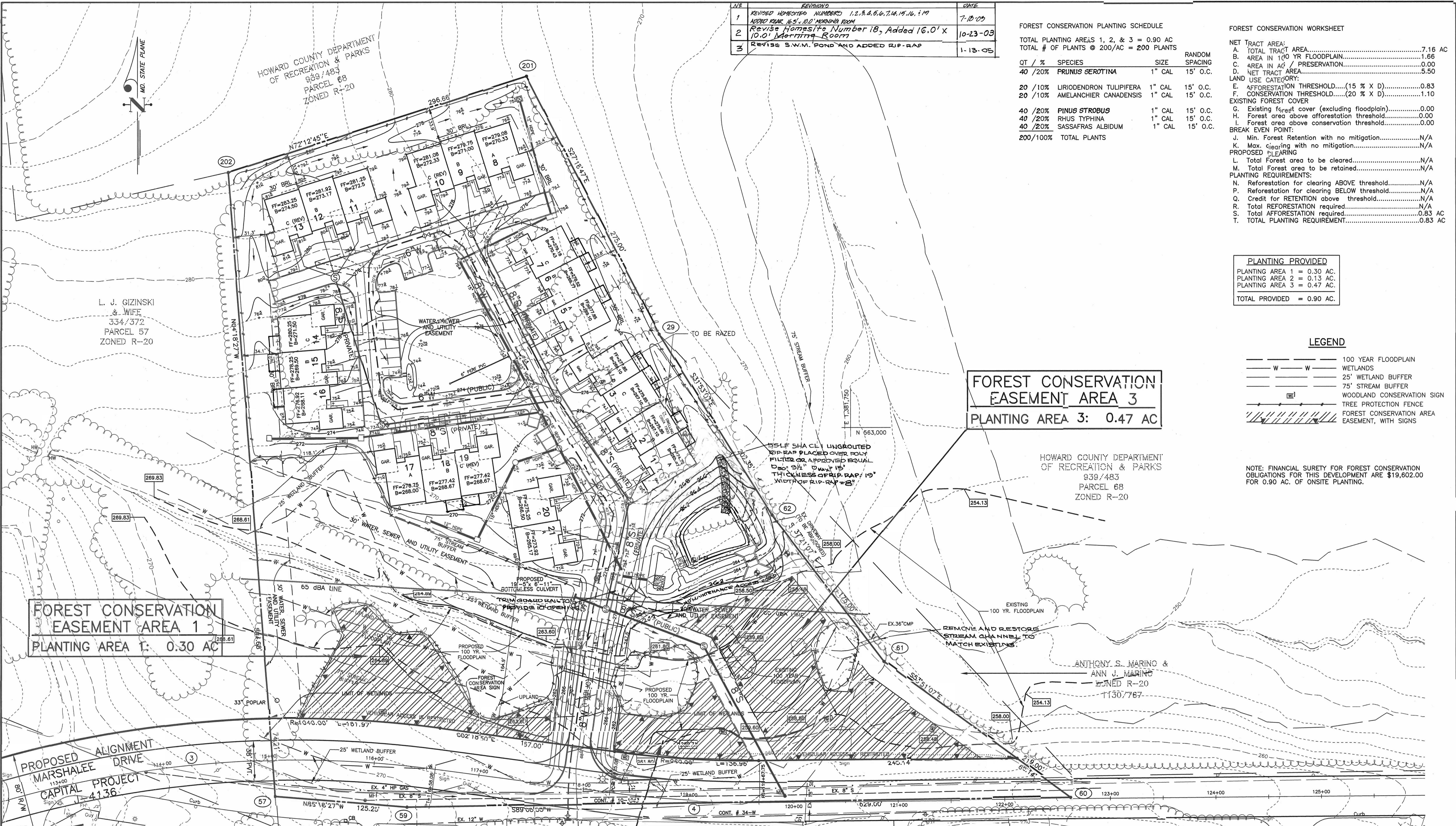
APPROVED: DEPARTMENT OF PLANNING & ZONING
 [Signature] 10/16/02
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 [Signature] 10/16/02
 CHIEF, DIVISION OF LAND DEVELOPMENT
 [Signature] 10/16/02
 DIRECTOR



CLARK · FINEFROCK & SACKETT, INC.
 ENGINEERS · PLANNERS · SURVEYORS
 7135 MINSTREL WAY · COLUMBIA, MD 21045 · (410) 381-7500 BALT. · (301) 621-8100 WASH.

DESIGNED TD	SITE DEVELOPMENT PLAN 21 ACTIVE ADULT CONDOMINIUMS ROCKBURN WOODS PARCEL 61 TAX MAP 37 GRID 5 FIRST (1st) ELECTION DISTRICT HOWARD COUNTY, MARYLAND	SCALE 1" = 30'
DRAWN LAI		DRAWING 3 OF 17
CHECKED TD		JOB NO. 00-176
DATE 6/18/02		FILE NO. 00-176 X

FOR: ROCKBURN WOODS LLC
 c/o BRANTLY DEVELOPMENT CORPORATION
 8815-P COLUMBIA 100 PARKWAY
 COLUMBIA, MARYLAND 21045



NO	REVISIONS	DATE
1	REVISED HOMELESS NUMBERS 1,2,3,4,5,6,7,14,15,16, 17 ADDED REAR 16.5' 10.0' MORNING ROOM	7-10-03
2	REVISE HOMESITE NUMBER 18, ADDED 16.0' X 10.0' MORNING ROOM	10-23-03
3	REVISE S.W.M. POND AND ADDED RIP-RAP	1-13-05

FOREST CONSERVATION PLANTING SCHEDULE

TOTAL PLANTING AREAS 1, 2, & 3 = 0.90 AC
TOTAL # OF PLANTS @ 200/AC = 200 PLANTS

QT / %	SPECIES	SIZE	RANDOM SPACING
40 / 20%	PRUNUS SEROTINA	1" CAL	15' O.C.
20 / 10%	LIRIODENDRON TULIPIFERA	1" CAL	15' O.C.
20 / 10%	AMELANCHIER CANADENSIS	1" CAL	15' O.C.
40 / 20%	PINUS STROBUS	1" CAL	15' O.C.
40 / 20%	RHUS TYPHINA	1" CAL	15' O.C.
40 / 20%	SASSAFRAS ALBIDUM	1" CAL	15' O.C.
200/100%	TOTAL PLANTS		

FOREST CONSERVATION WORKSHEET

NET TRACT AREA: 7.16 AC

A. TOTAL TRACT AREA: 7.16 AC
B. AREA IN 100 YR FLOODPLAIN: 1.66 AC
C. AREA IN AC / PRESERVATION: 0.00 AC
D. NET TRACT AREA: 5.50 AC

LAND USE CATEGORY:

E. AFFORESTATION THRESHOLD (15% X D): 0.83 AC
F. CONSERVATION THRESHOLD (20% X D): 1.10 AC

EXISTING FOREST COVER:

G. Existing forest cover (excluding floodplain): 0.00 AC
H. Forest area above afforestation threshold: 0.00 AC
I. Forest area above conservation threshold: 0.00 AC

BREAK EVEN POINT:

J. Min. Forest Retention with no mitigation: N/A
K. Max. Clearing with no mitigation: N/A

PROPOSED CLEARING:

L. Total Forest area to be cleared: N/A
M. Total Forest area to be retained: N/A

PLANTING REQUIREMENTS:

N. Reforestation for clearing ABOVE threshold: N/A
P. Reforestation for clearing BELOW threshold: N/A
Q. Credit for RETENTION above threshold: N/A
R. Total REFORESTATION required: N/A
S. Total AFFORESTATION required: 0.83 AC
T. TOTAL PLANTING REQUIREMENT: 0.83 AC

PLANTING PROVIDED

PLANTING AREA 1 = 0.30 AC
PLANTING AREA 2 = 0.13 AC
PLANTING AREA 3 = 0.47 AC
TOTAL PROVIDED = 0.90 AC

LEGEND

- 100 YEAR FLOODPLAIN
- W W W W W W WETLANDS
- 25' WETLAND BUFFER
- 75' STREAM BUFFER
- WOODLAND CONSERVATION SIGN
- TREE PROTECTION FENCE
- FOREST CONSERVATION AREA EASEMENT, WITH SIGNS

FOREST CONSERVATION EASEMENT AREA 3
PLANTING AREA 3: 0.47 AC

FOREST CONSERVATION EASEMENT AREA 1
PLANTING AREA 1: 0.30 AC

FOREST CONSERVATION EASEMENT AREA 2
PLANTING AREA 2: 0.13 AC

APPROVED: DEPARTMENT OF PLANNING & ZONING

10/10/02
10/17/02
10/18/02

CLARK • FINEFROCK & SACKETT, INC.
ENGINEERS • PLANNERS • SURVEYORS

7135 MINSTREL WAY • COLUMBIA, MD 21045 • (410) 381-7500 BALT. • (301) 621-8100 WASH.

DESIGNED TD	FOREST CONSERVATION PLAN	SCALE 1" = 40'
DRAWN TD/LAI/CRH2	ROCKBURN WOODS	DRAWING 12 OF 17
CHECKED TD	21 ACTIVE ADULT CONDOMINIUMS	JOB NO. 00-176
DATE 4/3/02	PARCEL 61 TAX MAP 37 GRID 5	FILE NO. 00-176 X
	FIRST (1st) ELECTION DISTRICT HOWARD COUNTY, MARYLAND	



CHIEF, DEVELOPMENT ENGINEERING DIVISION
CHIEF, DIVISION OF LAND DEVELOPMENT

DOUGLAS STRAIN 1570/454 3562/176 PARCEL 584
ROBERT & LINDA MOORE 853/47 3562/181

DANIEL & EDITH O'CONNOR 3880/191

CAROLYN O'CONNOR 3562/185

BeB2

HOWARD COUNTY DEPARTMENT OF RECREATION & PARKS
839/483
PARCEL 68
ZONED R-20
LS PERIMETER 1 - 1625'

SCHEDULE B PARKING LOT INTERNAL LANDSCAPING	
NUMBER OF PARKING SPACES	10
NUMBER OF TREES REQUIRED 1/10 SPACES	2
NUMBER OF TREES PROVIDED	3
SHADE TREES	2
EVERGREEN TREES (2:1 SUBSTITUTION)	2
SURETY AMOUNT	2,000

SCHEDULE C RESIDENTIAL DEVELOPMENT INTERNAL LANDSCAPING	
NUMBER OF DWELLING UNITS	21
NUMBER OF TREES REQUIRED (1:0U 50')	21
NUMBER OF TREES PROVIDED	21
SHADE TREES	14
OTHER TREES (2:1 SUBSTITUTION)	7
SURETY AMOUNT	14,000

SCHEDULE E DUMPSTER SCREENING & PLANTING	
NUMBER OF DUMPSTERS	9
SURETY AMOUNT	9,000
SCREENING @ \$10/LF	\$330
PLANTING	1,270

LEGEND

- 262 --- EXISTING CONTOUR
- 260 --- PROPOSED CONTOUR
- EX. NON FOREST VEGETATION
- EX. POLE W/ OVERHEAD WIRES
- EX. STREAM
- W --- WETLAND
- RIPRAP
- 15 - 24.9% SLOPES
- EXISTING STREET LIGHT
- PROPOSED STREET LIGHT
- CB --- EXISTING INLET
- FOREST CONSERVATION EASEMENT
- DRAINAGE DIVIDE

SCHEDULE A PERIMETER LANDSCAPE EDGE		
Category	Adjacent to Perim. Properties	Side or Rear To Road
Perimeter Number	1	2
Landscape Type	A	B
Frontage/Perimeter	1625' - 512' = 1113'	348' - 60' = 288'
Number of Plants Required	27 (1/60)	7 (1/50)
Shade Trees	-	5
Evergreen Trees	-	2
Shrubs	-	(1/40)
Number of Plants Provided	5*	5**
Shade Trees	5*	7
Evergreen Trees	2*	2
Shrubs	-	-
QUMP Trees (2:1 substitution)	-	-
Shrubs (10:1 substitution)	-	-
Describe plant substitution credits below if needed	-	-
Surety amount	\$5,550	\$2,850

Notes:
*1. Thirty Two Percent (32%) credit for existing vegetation adjacent to property line and off-street in stream valley.
**2. Seventeen percent (17%) credit for existing vegetation adjacent to stream valley.
3. See Sheet 4 for Planting Details.

SOILS LEGEND		
SYMBOL	NAME / DESCRIPTION	TYPE
BeB2	Beltsville Silt Loom, 1 to 5 percent slopes, moderately eroded.	C
BeC3	Beltsville Silt Loom, 5 to 10 percent slopes, severely eroded.	C
Evc	Evesboro Loamy Sand, 1 to 5 percent slopes, moderately eroded.	A
Fa	Follingston Loom, 15 to 25 percent slopes, moderately eroded.	A
L1	Leonardtown Silt Loom.	D
Mo	Mixed Alluvial Land.	D
RoB2	Rumford Loamy Sand, 1 to 5 percent slopes, moderately eroded.	B
RoC2	Rumford Loamy Sand, 5 to 10 percent slopes, moderately eroded.	B
SfB2	Sassafras Gravelly Sandy Loom, 1 to 5 percent slopes	B

SCHEDULE D STORMWATER MANAGEMENT AREA LANDSCAPING

LINEAR FEET OF PERIMETER	534'
NUMBER OF TREES REQUIRED	11
SHADE TREES (1/50)	13
EVERGREEN TREES (1/40)	
CREDIT FOR EXISTING VEGETATION (NO, YES AND %)	YES, 27%
CREDIT FOR OTHER LANDSCAPING (NO, YES AND %)	NO
NUMBER OF TREES PROVIDED	4
SHADE TREES	8
EVERGREEN TREES	8
OTHER TREES (2:1 SUBSTITUTION)	
SURETY AMOUNT	\$3,750

PLANT SCHEDULE

KEY QUANT	PLANT NAME	SIZE	REMARKS
SHADE TREES			
AR 15	ACER RUBRUM 'RED SUNSET'	2 1/2"-3" cal.	B&B Heavy
	Red Sunset Maple	12-14" ht.	
TC 24	TILIA CORDATA 'GREENSPIRE'	2 1/2"-3" cal.	B&B Heavy
	Greenspire Linden	12-14" ht.	
FLOWERING / INTERMEDIATE SCALE TREES			
CK 17	CORNUS KOUSA	2 - 2 1/2" cal.	B&B Heavy
	Kousa Dogwood	8-10" ht.	
PC 14	PRUNUS C.A. 'THUNDERCLOUD'	2 - 2 1/2" cal.	B&B Heavy
	Thundercloud Flowering Plum	8-10" ht.	
PY 13	PRUNUS X YEDOENSIS	2 - 2 1/2" cal.	B&B Heavy
	Yoshino Cherry	8-10" ht.	
EVERGREEN TREES			
PA 11	PICEA ABIES	6 - 8" ht.	B&B
	Norway Spruce		
PS 16	PINUS STROBUS	6 - 8" ht.	B&B Heavy
	Eastern White Pine		
CL 2	CYPRESSUS OXYFOLIA 'LEYLANDII'	5-6" ht.	B&B
	Leyland Cypress		
VC 9	VIBURNUM CARLESII	2 1/2 - 3" ht.	B&B
	Korean Spice Viburnum		
VR 9	VIBURNUM RHYTHIDOPHYLLUM	2 1/2 - 3" ht.	B&B
	Leatherleaf Viburnum		

NOTES: LS bond with Developer's Agreement = \$20,090.00
1. ALL PLANT MATERIALS SHALL BE FULL AND HEAVY, BE WELL FORMED AND SYMMETRICAL, CONFORM TO THE MOST CURRENT AN SPECIFICATIONS AND BE INSTALLED IN ACCORDANCE WITH HRD PLANTING SPECIFICATIONS.
2. CONTRACTOR SHALL VERIFY LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO DIGGING.
3. FINAL LOCATION OF PLANT MATERIAL MAY NEED TO VARY TO MEET FIELD CONDITIONS. TREES SHALL NOT BE PLANTED IN THE BOTTOM OF DRAINAGE SWALES.

NO.	REVISION	DATE
1	REVISED DIMENSIONS NUMBER 17, 2, 3, 5, 7, 11, 16, 17, 19	7-10-05
2	REVISED AREA, PERIMETER, AND DISTANCE	
3	REV. DIMENSIONS NUMBER 18, Added Rear 16.3' x 10.0' MAR 11/05	10-23-03
4	REV. GUY POND AND LANDSCAPING, ALSO ADDITION OF RIPRAP	3-23-05



HOWARD COUNTY DEPARTMENT OF RECREATION & PARKS
839/483
PARCEL 68
ZONED R-20

ANTHONY S. MARINO & ANN J. MARINO
ZONED R-20
1130767

APPROVED: DEPARTMENT OF PLANNING & ZONING
 [Signature] 10/10/02
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 [Signature] 10/17/02
 CHIEF, DIVISION OF LAND DEVELOPMENT
 [Signature] 10/18/02
 DIRECTOR

MONTGOMERY ROAD
 (EX. 40' R/W)
 PROPOSED 80' R/W
 MINOR ARTERIAL

DOUGLAS STRAIN
 1570/454
 3562/176
 PARCEL 584

ROBERT & LINDA MOORE
 853/47
 3562/181

DANIEL & EDITH O'CONNOR
 3880/191

CAROLYN O'CONNOR
 3562/185

STATE OF MARYLAND
 J. NELSON CLARK
 REGISTERED PROFESSIONAL LANDSCAPE ARCHITECT
 8-B-32

CLARK • FINEFROCK & SACKETT, INC.
 ENGINEERS • PLANNERS • SURVEYORS
 7135 MINSTREL WAY • COLUMBIA, MD 21045 • (410) 381-7500 BALT. • (301) 621-8100 WASH.

DESIGNED TD	LANDSCAPE PLAN AND DRAINAGE AREA MAP	SCALE 1" = 40'
DRAWN TD/LAI	ROCKBURN WOODS 21 ACTIVE ADULT CONDOMINIUMS	DRAWING 11 OF 17
CHECKED TD	PARCEL 61 TAX MAP 37 GRID 5 FIRST (1st) ELECTION DISTRICT HOWARD COUNTY, MARYLAND	JOB NO. 00-176
DATE 6/18/02	FOR: ROCKBURN WOODS LLC C/O BRANTLY DEVELOPMENT CORPORATION 8815-P COLUMBIA 100 PARKWAY COLUMBIA, MARYLAND 21045	FILE NO. 00-176 X

REV	REVISION	DATE
1	REVISE HOMESITE NUMBERS 12, 14, 15, 16, 17, 18, 19 & 20 ADD REAR 16.3' X 10.0' MORNING ROOM	7-10-03
2	Revise Homesite Number 18, Added Rear 16.3' X 10.0' Morning Room	10-23-03
3	REV. SHIP POND AND REV. LOCATION OF RIPRAP	3-22-05

HOWARD COUNTY DEPARTMENT
OF RECREATION & PARKS
839/483
PARCEL 68
ZONED R-20

Reviewed for HOWARD S.C.D.
and meets Technical Requirements
John A. Sackett 10/8/02
Signature Date
U.S. Natural Resources Conservation Service

THIS DEVELOPMENT PLAN IS APPROVED
FOR SOIL EROSION AND SEDIMENT
CONTROL BY THE HOWARD SOIL
CONSERVATION DISTRICT.
John A. Sackett 10/8/02
Approved

LEGEND

- 262 --- EXISTING CONTOUR
- 260 --- PROPOSED CONTOUR
- - - - EX. NON FOREST VEGETATION
- EX. POLE w/ OVERHEAD WIRES
- EX. STREAM
- W WETLAND
- RIPRAP
- INFLOW PROTECTION
- EXISTING STREET LIGHT
- PROPOSED STREET LIGHT
- CB EXISTING INLET
- RPS REMOVABLE PUMPING STATION
- LIMITS OF DISTURBANCE
- ERM EROSION CONTROL MATTING
- MB MOUNTABLE BERM
- 2 FT. CONTOUR INTERVAL
- EXISTING CONTOUR
- PROPOSED CONTOUR
- DIRECTION OF DRAINAGE
- WALK OUT BASEMENT
- SPOT ELEVATION
- STABILIZED CONSTRUCTION ENTRANCE
- ERM EROSION CONTROL MATTING
- SF SUPER FENCE
- EXISTING TREES TO REMAIN
- AREAS TO RECEIVE WETLAND SEED MIX
- BAFFLES

DEVELOPER'S/BUILDER'S CERTIFICATE

"I/We certify that all development and construction will be done according to this plan of development and plan for sediment and erosion control and that all responsible personnel involved in the construction project will have a Certificate of Attendance at a Department of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I also authorize periodic on-site inspection by the Howard Soil Conservation District or their authorized agents, as are deemed necessary."

John P. Sackett 8/9/02
NAME DATE

ENGINEER'S CERTIFICATE

I hereby certify that this plan for Sediment and Erosion Control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District.

G. Nelson Clark 8-8-02
G. NELSON CLARK DATE

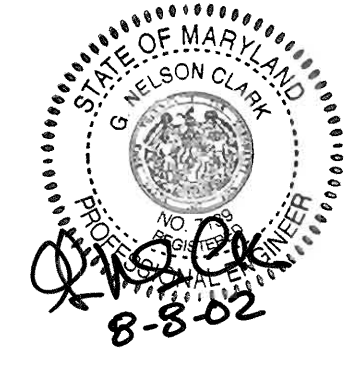
SEDIMENT BASIN NUMBER 1

DRAINAGE AREA = 2.66 ACRES
WET STORAGE REQUIRED = 4788 CF
WET STORAGE PROVIDED = 5202 CF
WET STORAGE ELEVATION = 262.00
OUTLET WEIR ELEVATION = 263.10
DRY STORAGE REQUIRED = 4788 CF
DRY STORAGE PROVIDED = 6216 CF
DRY STORAGE ELEVATION = 263.10
TOP OF DAM ELEVATION = 264.71
BOTTOM ELEVATION = 261.00
SIDE SLOPES = 3:1
CLEANOUT ELEVATION = 261.50
PRE DISTURBANCE Q2 = 3.0 CFS
POST DISTURBANCE Q2 = 2.7 CFS

HOWARD COUNTY DEPARTMENT
OF RECREATION & PARKS
839/483
PARCEL 68
ZONED R-20

ANTHONY S. MARINO &
ANN J. MARINO
ZONED R-20
1130/767

CONTRACTOR TO CEASE USING THIS
ENTRANCE ONCE SUFFICIENT FILL
HAS BEEN PLACED OVER PROPOSED
CULVERT.

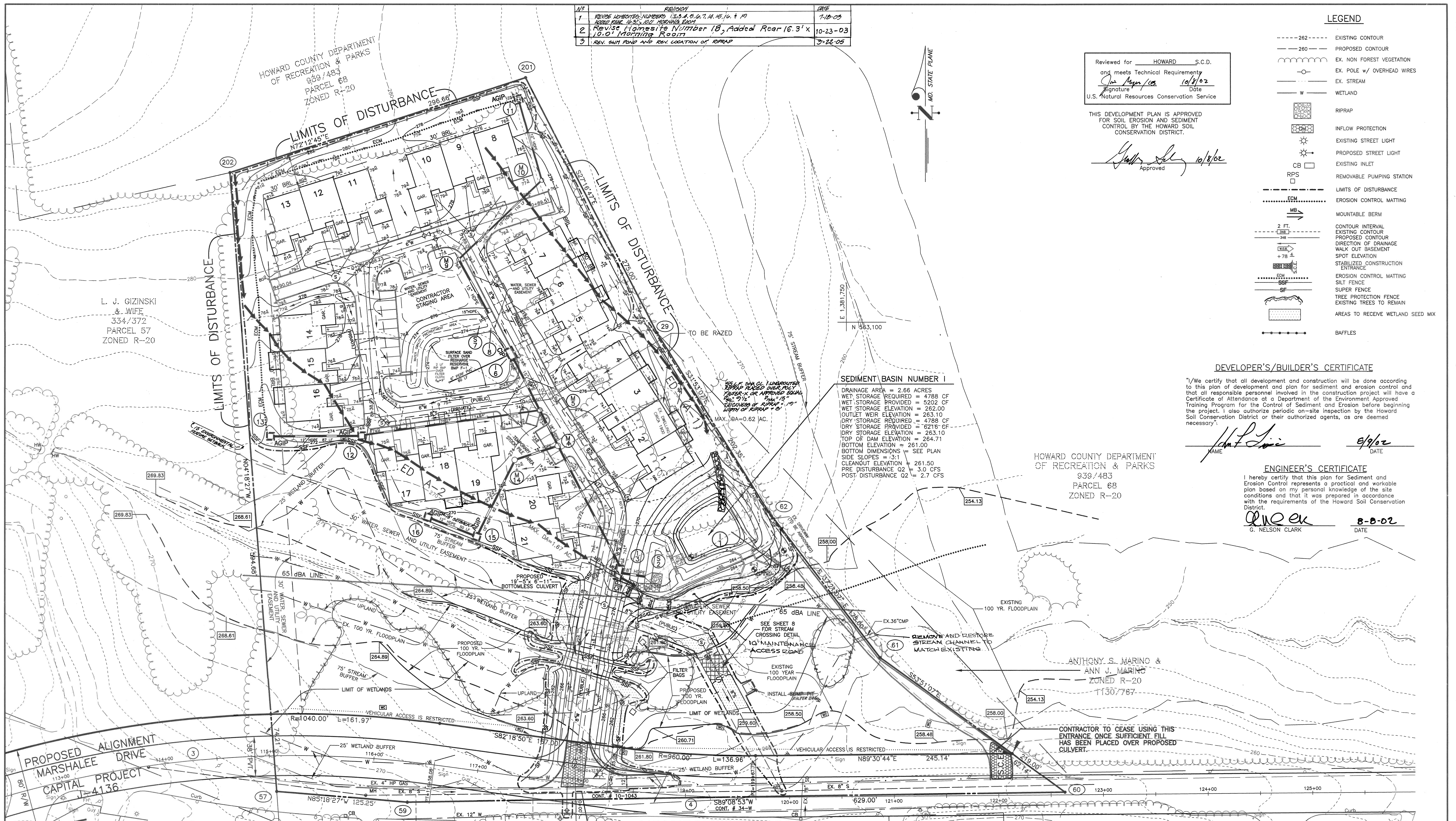


APPROVED: DEPARTMENT OF PLANNING & ZONING
Chris Hamstra 10/10/02
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE
Carol Hamstra 10/7/02
CHIEF, DIVISION OF LAND DEVELOPMENT DATE
John A. Sackett 10/18/02
DIRECTOR DATE

CLARK • FINEFROCK & SACKETT, INC.
ENGINEERS • PLANNERS • SURVEYORS
7135 MINSTREL WAY • COLUMBIA, MD 21045 • (410) 381-7500 BALT. • (301) 621-8100 WASH.

DESIGNED	TD	GRADING AND SEDIMENT & EROSION CONTROL PLAN	SCALE 1" = 40'
DRAWN	LAI/CRH2		
CHECKED	TD	ROCKBURN WOODS 21 ACTIVE ADULT CONDOMINIUMS PARCEL 61 TAX MAP 37 GRID 5 FIRST (1st) ELECTION DISTRICT HOWARD COUNTY, MARYLAND	JOB NO. 00-176
DATE	4/23/02		FILE NO. 00-176 X

FOR: ROCKBURN WOODS LLC
c/o BRANTLY DEVELOPMENT CORPORATION
8815-P COLUMBIA 100 PARKWAY
COLUMBIA, MARYLAND 21045



MONTGOMERY ROAD

(EX. 40' R/W)
PROPOSED 80' R/W
MINOR ARTERIAL

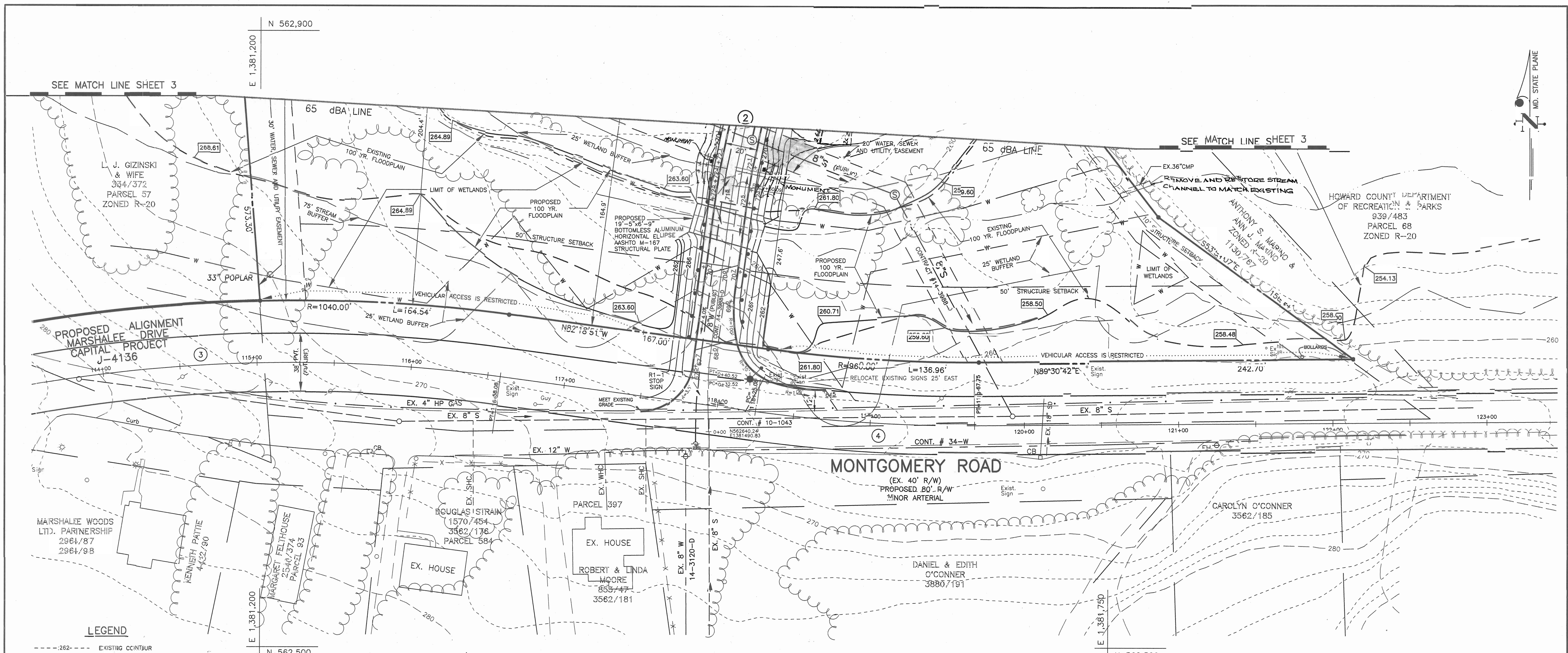
LIMITS OF DISTURBANCE

DANIEL & EDITH
O'CONNOR
3880/181

CAROLYN O'CONNOR
3562/185

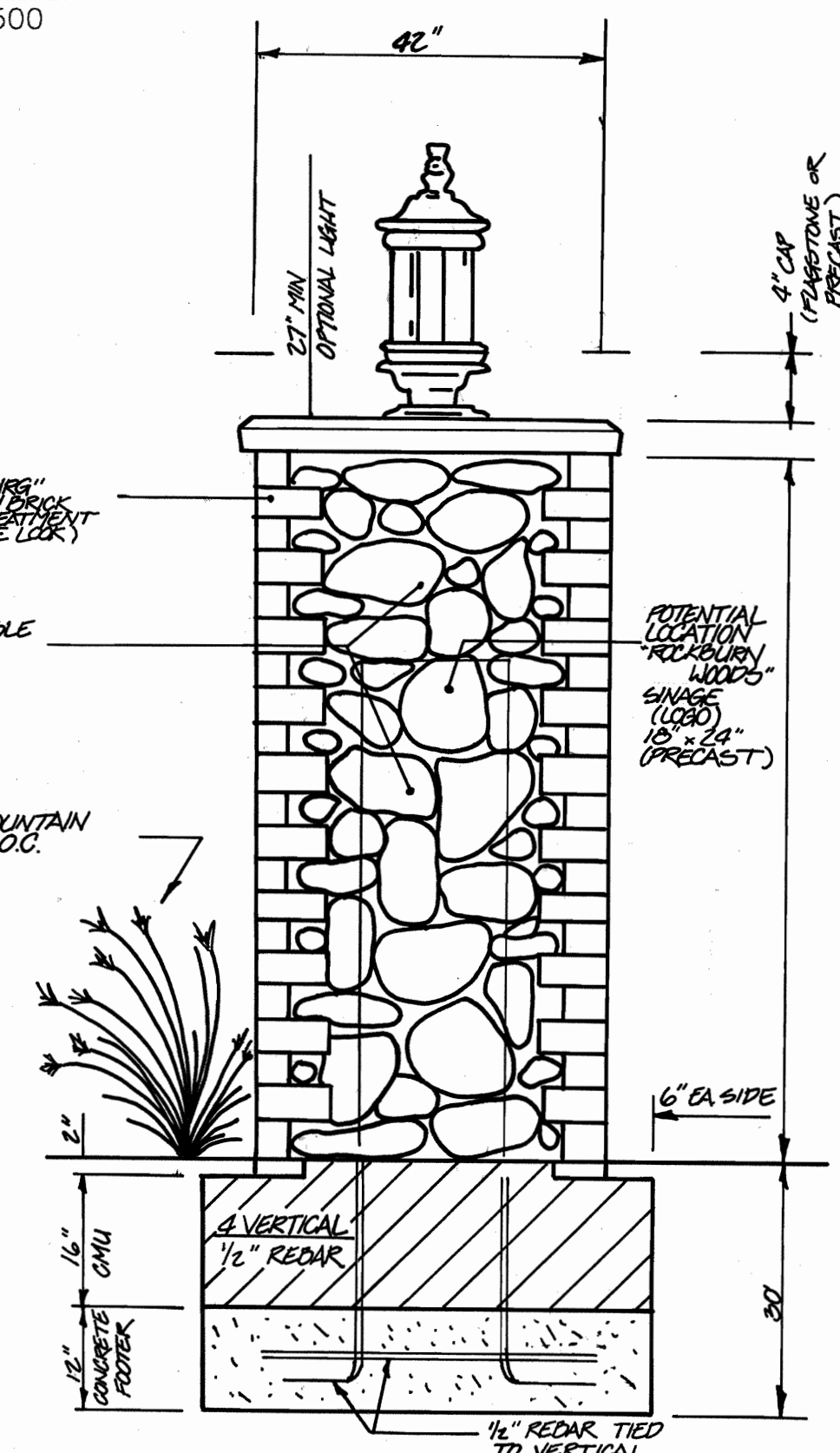
DOUGLAS STRAIN
1570/454
3562/176
PARCEL 584

ROBERT & LINDA
MOORE
8537/47
3562/181



LEGEND

- - - 262 - - - EXISTING CONTOUR
- - - 260 - - - PROPOSED CONTOUR
- ~~~~~ EX. NON FOREST VEGETATION
- EX. POLE w/ OVERHEAD WIRES
- EX. STREAM
- W WETLAND
- ▨ RIPRAP
- 15 - 24.9% SLOPES
- ⊙ EXISTING STREET LIGHT
- ⊙ PROPOSED STREET LIGHT TO OW HPS
- ⊙ PROPOSED STREET LIGHT 250V HPS PENDANT
- CB EXISTING INLET
- STANDARD CURB & GUTTER
- MODIFIED CURB & GUTTER
- WEATHERED STEEL GUARDRAIL

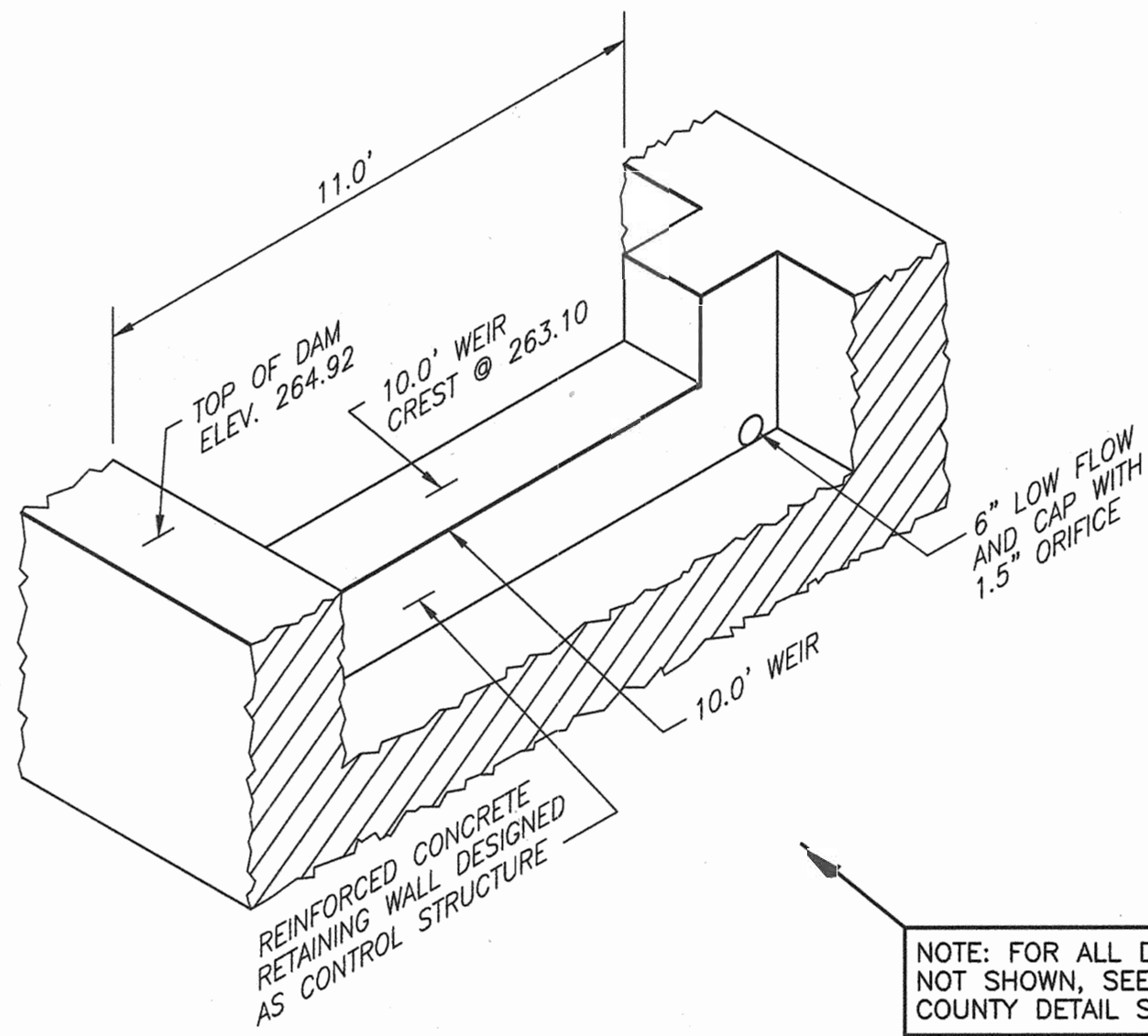


PILLAR DETAIL

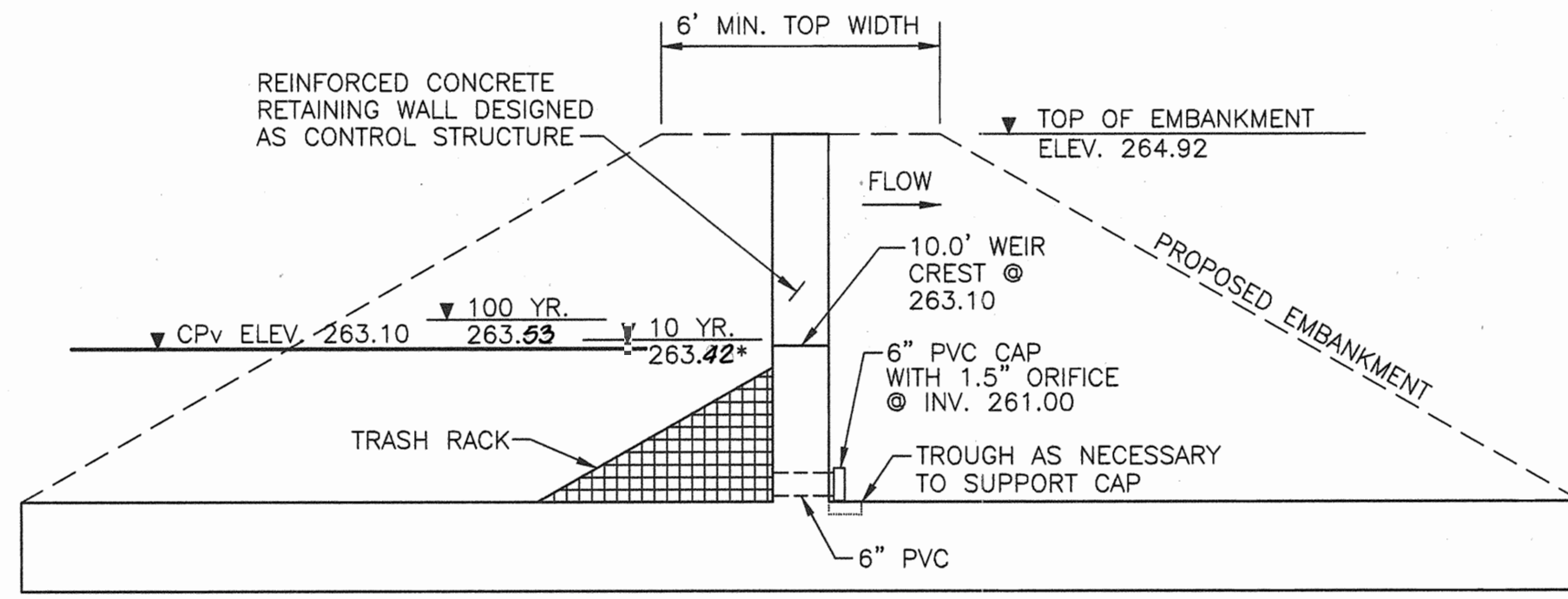
APPROVED: DEPARTMENT OF PLANNING & ZONING
 C. HIRSH, CHIEF, DEVELOPMENT ENGINEERING DIVISION
 C. HIRSH, CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE: 10/10/02
 DATE: 10/17/02
 DATE: 10/18/02

REV. GRADE TO MAIN ROAD, SHEET 3 MATCHLINE		8-23-05
ADDITION OF ENTRY MONUMENT & MONUMENT DETAIL		4-2-04
CLARK · FINEFROCK & SACKETT, INC. ENGINEERS · PLANNERS · SURVEYORS		
7132 MINISTREL WAY • COLLINGSWOOD, MD 21045 • (410) 381-7500 FAX • (301) 621-8100 WASH.		
DESIGNED TD	SITE DEVELOPMENT PLAN	SCALE 1" = 30'
DRAWN LAI/CRH2	21 ACTIVE ADULT CONDOMINIUMS	DRAWING 2 OF 17
CHECKED TD	ROCKBURN WOODS	JOE NO. 0-176
DATE 6/18/02	FOR: ROCKBURN WOODS LLC c/o BRANTLY DEVELOPMENT CORPORATION 8815-P COLUMBIA 100 PARKWAY COLUMBIA, MARYLAND 21045	FILE NO. 00-176 X

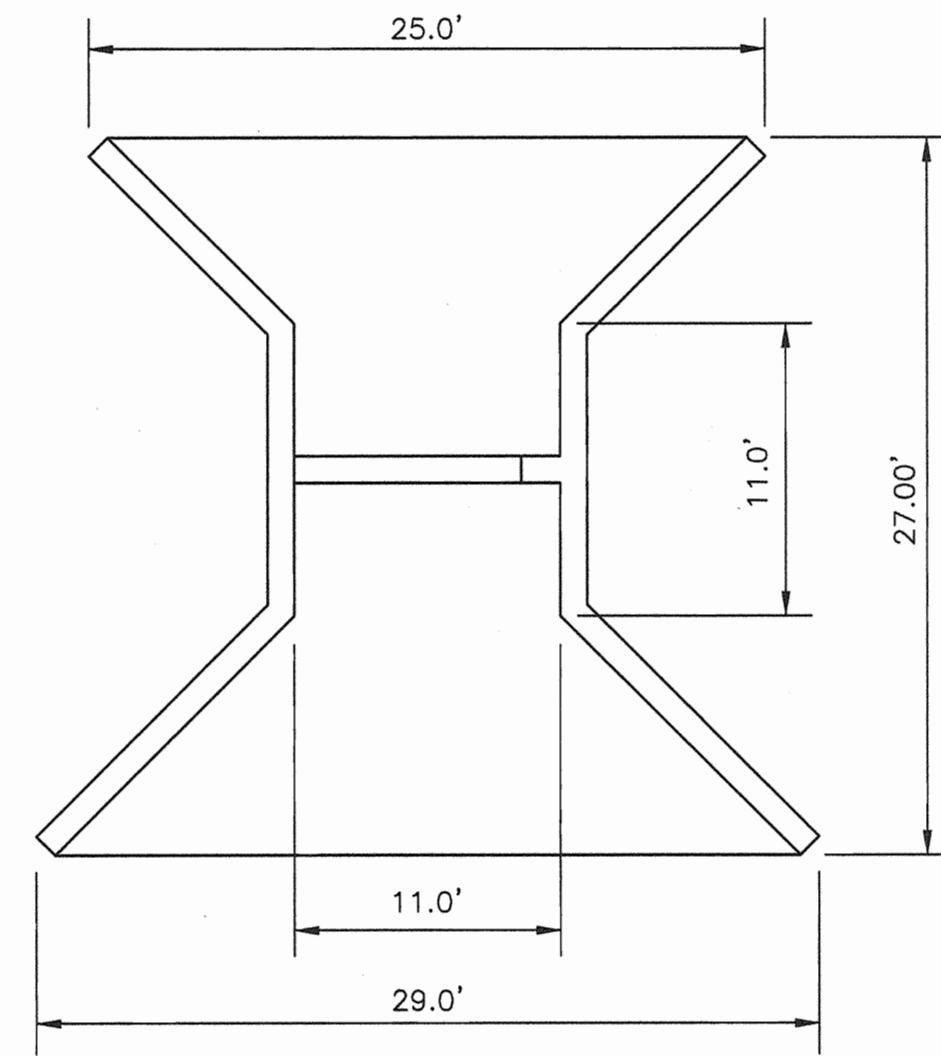




PARTIAL PICTORIAL VIEW OF WEIR AND ORIFICE

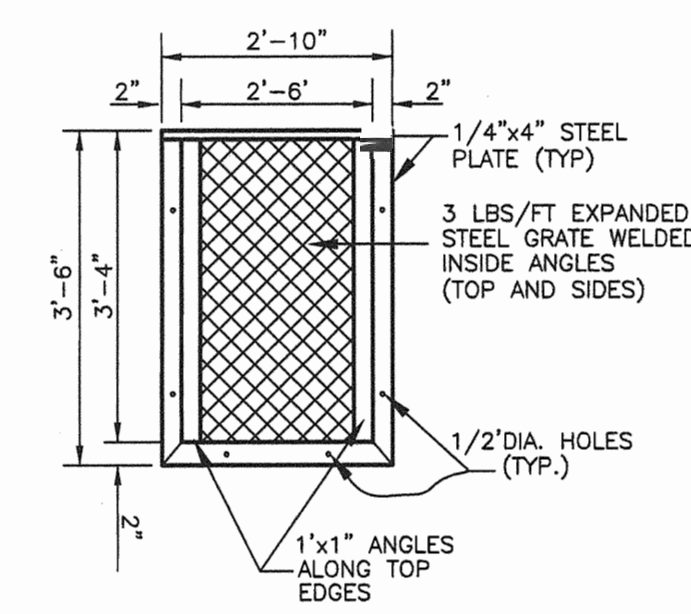


PROFILE OF PRINCIPLE SPILLWAY
N.T.S.

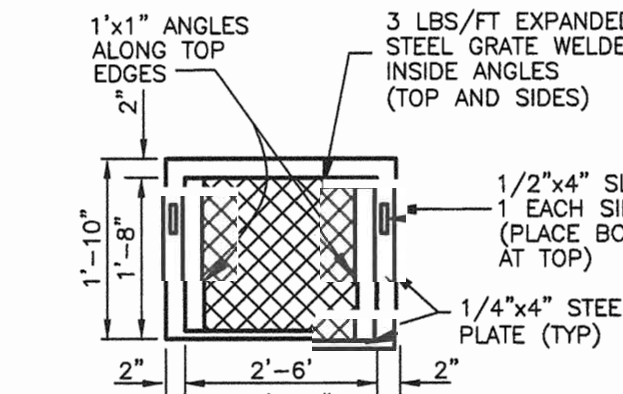


NOTE: FOR ALL DETAILS NOT SHOWN, SEE HOWARD COUNTY DETAIL SD-7.00

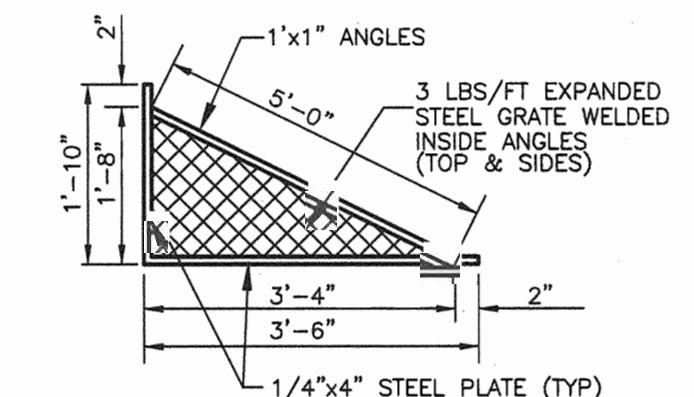
PLAN VIEW
N.T.S.



TOP VIEW



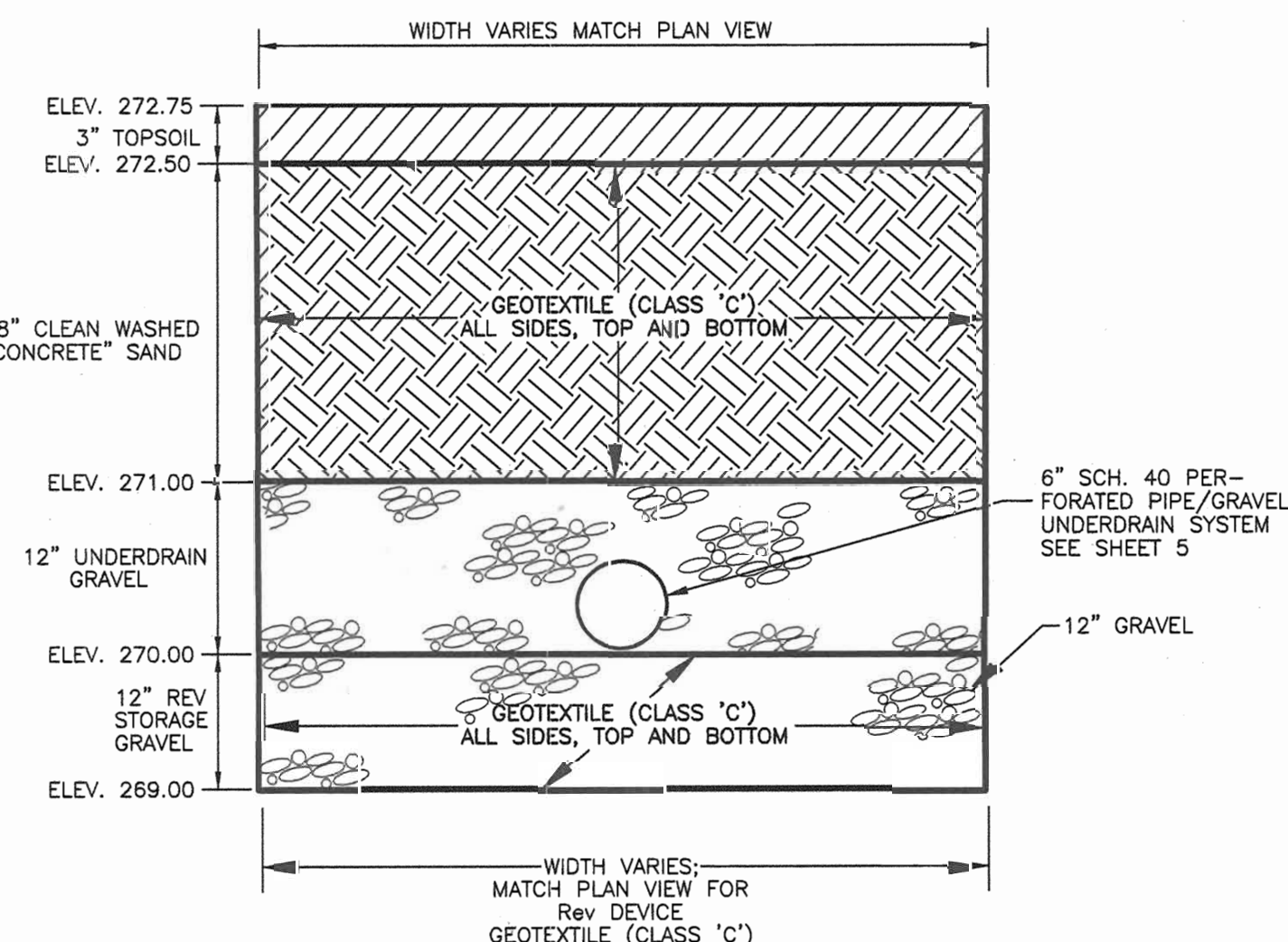
FRONT VIEW



SIDE VIEW

- NOTES FOR TRASH RACK**
1. TRASH RACK TO BE CENTERED OVER OPENING.
 2. STEEL TO CONFORM TO ASTM-A36.
 3. ALL SURFACES TO BE COATED WITH ZRC COLD GALVANIZING COMPOUND AFTER WELDING AND PAINTED WITH 2 COATS OF BATTLESHIP GREY.
 4. TRASH RACK TO BE FASTENED TO THE WALL AND BASE WITH 1/2" MASONRY ANCHORS (TYP.). TRASH RACK TO BE REMOVABLE.

LOW FLOW TRASH RACK
NO SCALE



SAND FILTER DETAIL
NO SCALE

MATERIAL SPECIFICATIONS FOR SAND FILTERS

THE ALLOWABLE MATERIALS FOR SAND FILTER CONSTRUCTION ARE DETAILED IN TABLE B.3.1

SAND FILTER TESTING SPECIFICATIONS

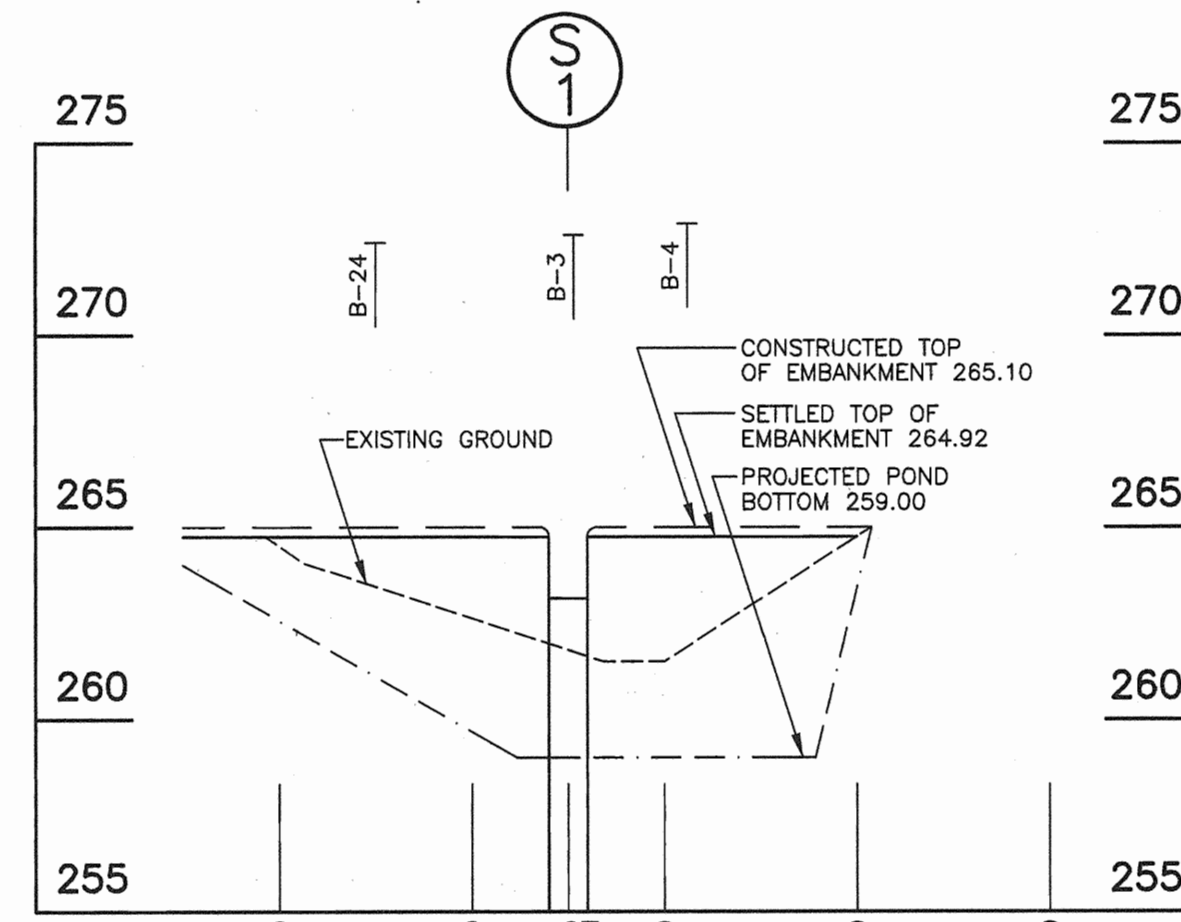
1. UNDERGROUND SAND FILTERS, FACILITIES WITHIN SENSITIVE GROUNDWATER AQUIFERS, AND FILTERS DESIGNED TO SERVE URBAN HOT SPOTS ARE TO BE TESTED FOR WATER TIGHTNESS PRIOR TO PLACEMENT OF FILTER MEDIA. ENTRANCES AND EXITS SHOULD BE PLUGGED AND THE SYSTEM COMPLETELY FILLED WITH WATER TO DEMONSTRATE WATER TIGHTNESS. WATER TIGHTNESS MEANS NO LEAKAGE FOR A PERIOD OF 8 HOURS.
2. ALL OVERFLOW WEIRS, MULTIPLE ORIFICES AND FLOW DISTRIBUTION SLOTS ARE TO BE FIELD TESTED TO VERIFY ADEQUATE DISTRIBUTION OF FLOWS.

SAND FILTER CONSTRUCTION SPECIFICATIONS

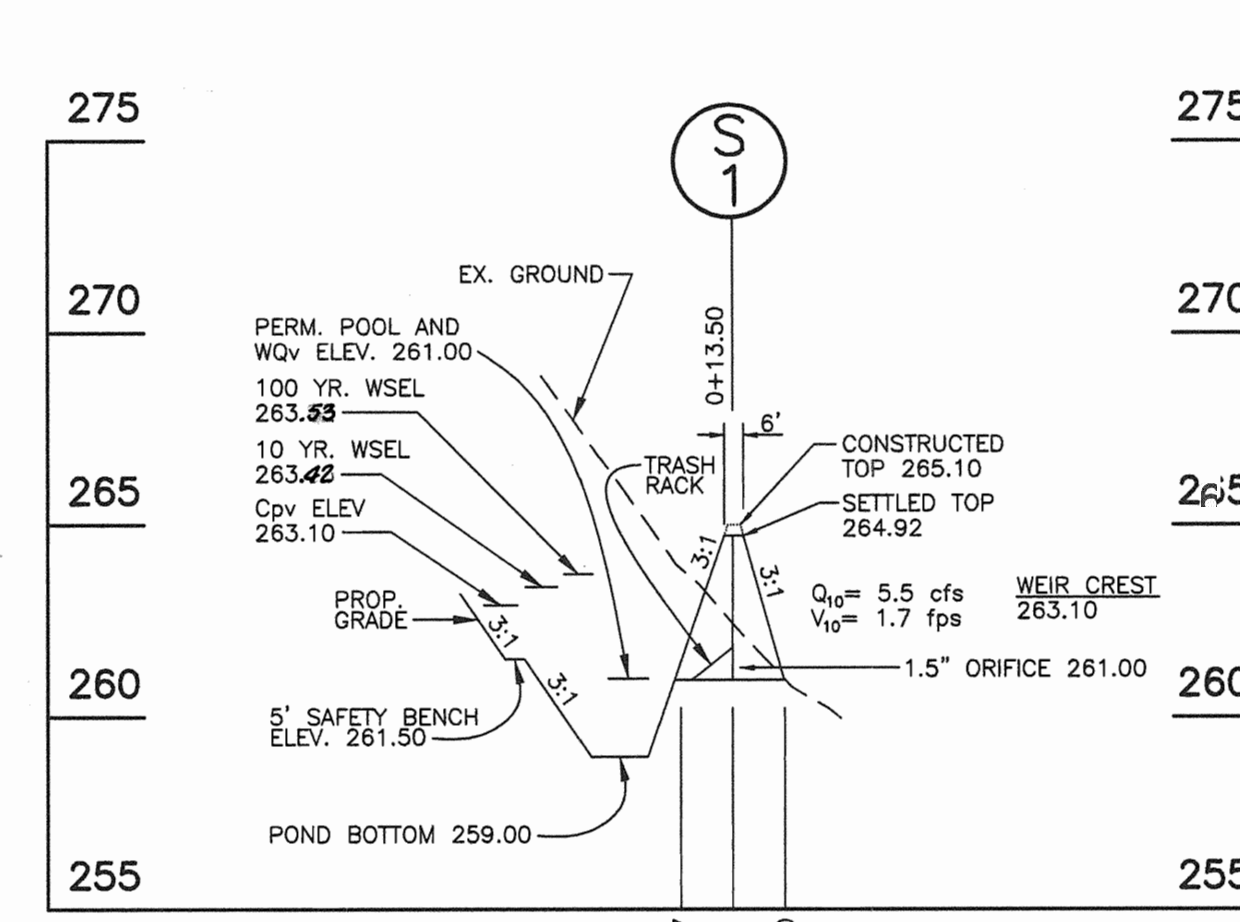
1. ABSOLUTELY NO RUNOFF IS TO ENTER THE FILTER UNTIL ALL CONTRIBUTING DRAINAGE AREAS HAVE BEEN STABILIZED.
2. SURFACE OF FILTER BED IS TO BE LEVEL.
3. ALL UNDERGROUND SAND FILTERS SHOULD BE CLEARLY DELINEATED WITH SIGNS SO THAT THEY MAY BE LOCATED WHEN MAINTENANCE IS DUE.
4. SURFACE SAND FILTERS SHALL BE PLANTED WITH APPROPRIATE GRASSES.

HOME OWNER'S ASSOCIATION FILTERING & MAINTENANCE CRITERIA

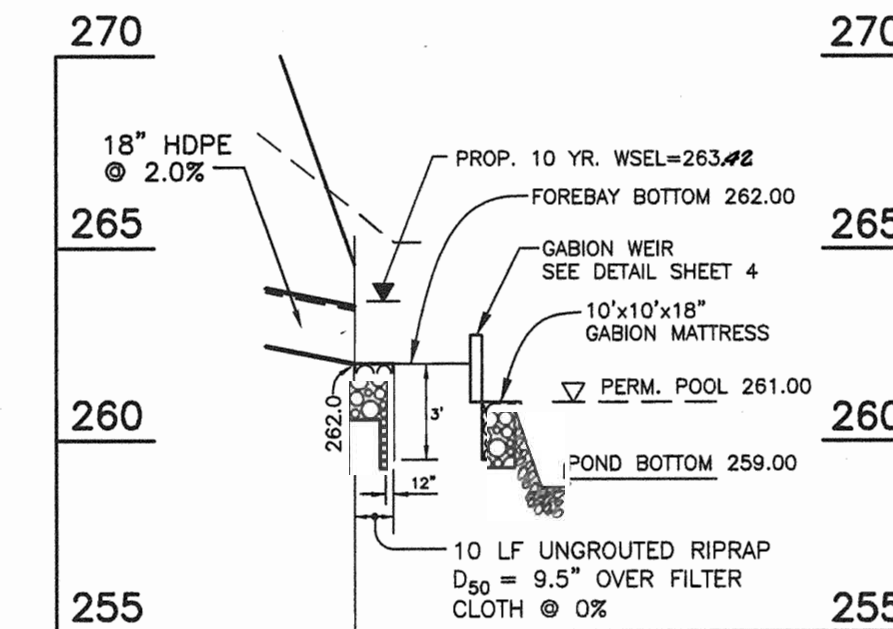
1. THE SEDIMENT CHAMBER OUTLET DEVICES SHALL BE CLEANED/REPAIRED WHEN DRAWDOWN TIMES WITHIN THE CHAMBER EXCEED 36 HOURS. TRASH AND DEBRIS IS TO BE REMOVED AS NECESSARY.
2. SEDIMENT SHOULD BE CLEANED OUT OF THE SEDIMENTATION CHAMBER WHEN IT ACCUMULATES TO A DEPTH OF MORE THAN SIX INCHES. VEGETATION WITHIN THE SEDIMENTATION CHAMBER SHOULD BE LIMITED TO A HEIGHT OF 18 INCHES.
3. WHEN THE FILTERING CAPACITY OF THE FILTER DIMINISHES SUBSTANTIALLY (E.G., WHEN WATER POND ON THE SURFACE OF THE FILTER BED FOR MORE THAN 72 HOURS), THE TOP FEW INCHES OF DISCOLORED MATERIAL SHALL BE REMOVED AND SHALL BE REPLACED WITH FRESH MATERIAL. THE REMOVED SEDIMENTS SHOULD BE DISPOSED IN AN ACCEPTABLE MANNER (E.G., LANDFILL). SILT/SEDIMENT SHOULD BE REMOVED FROM THE FILTER BED WHEN THE ACCUMULATION EXCEEDS ONE INCH.
4. ORGANIC FILTERS (F-4) OR SURFACE SAND FILTERS (F-1) THAT HAVE A GRASS COVER SHOULD BE MOWED A MINIMUM OF 3 TIMES PER GROWING SEASON TO MAINTAIN MAXIMUM GRASS HEIGHTS LESS THAN 12 INCHES.
5. A DEEP OF AT LEAST 6 INCHES SHALL BE PROVIDED AT THE INLET OF BIO-RETENTION FACILITIES (F-6) (STONE DIAPHRAGM). DEAD OR DISEASED PLANT MATERIAL SHALL BE REPLACED. AREAS DEVOID OF MULCH SHOULD BE RE-MULCHED ON AN ANNUAL BASIS.



PROFILE ALONG CENTERLINE OF EMBANKMENT
SCALE: HOR. 1"=50' VER. 1"=5'



PROFILE ALONG PRINCIPAL SPILLWAY
SCALE: HOR. 1"=50' VER. 1"=5'



PROFILE THROUGH FOREBAY
SCALE: HOR. 1"=50' VER. 1"=5'

HOME OWNER'S ASSOCIATION MAINTENANCE SCHEDULE FOR SWM FACILITY

- A. Forebay is to be inspected once after each major storm or every month. Trash to be removed as necessary.
- B. Facility is to be inspected once a month and excessive growth cut or mowed as required. No growth above 18" allowed during growing season.
- C. Pond slopes, top and bench are to be mowed once a month during growing season.
- D. Trash to be removed after each major storm or every month, and during regular mowing operations.
- E. An annual inspection of the pond is to be done.
- F. Remove sediment from forebay area when depth exceeds 4".
- G. Corrective maintenance is to be done as needed if the pond is found to be nonfunctional. Inspections should be performed during wet weather to determine if the pond is functioning properly.

OPERATION MAINTENANCE & INSPECTION

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

NON-ROUTINE MAINTENANCE

- A. Structural components of the pond, such as the weir wall, shall be repaired upon the detection of any damage. The components should be inspected during routine maintenance operations.
- B. Sediment should be removed when its accumulation significantly reduces the design storage, interfere with the function of the orifice, when deemed necessary for aesthetic reasons or when deemed necessary by the Howard County Department of Public Works.

TABLE B.3.1 MATERIAL SPECIFICATIONS FOR SAND FILTERS

Material	Specification/Test Method	Size	Notes
sand	clean AASHTO-M-45 or ASTM-C-33 concrete sand	0.02" to 0.04"	Sand substitutions such as Diabase and Graystone #10 are not acceptable. No calcium carbonated or dolomitic sand substitutions are acceptable. No "took dust" can be used for sand.
peat	ash content < 15% ph range: 5.2 to 4.9 loose bulk density 0.12 to 0.15 g/cc	n/a	The material must be weed-free hemic peat, shredded, uncompacted, uniform and clean.
leaf compost		n/a	
underdrain gravel	AASHTO-M-43	0.375" to 0.75"	
geotextile fabric (if required)	ASTM-D-4833 (puncture strength - 125 lb.) ASTM-D-4832 (Tensile Strength - 300 lb.)	0.008" thick equivalent opening size of #80 sieve	Must maintain 125 gpm per sq. ft. flow rate. Note: a 4" pea gravel layer may be substituted for geotextiles meant to "separate" sand filter layers.
impermeable liner (if required)	ASTM-D-4833 (thickness) ASTM-D-412 (tensile strength) 1.10 lb. elongation 200% ASTM-D-624 (Tear resistance - 150 lb./in.) ASTM-D-471 (water adsorption: +8 to -25 mass)	30 mil thickness	Liner to be ultraviolet resistant. A geotextile fabric should be used to protect the liner from puncture.
underdrain piping	F 758, Type PS 28 or AASHTO-M-278	4" - 6" rigid schedule 40 PVC or SDR33.5	3/8" perf. @ 6" o.c., 4 holes per row; minimum of 3" of gravel over pipes; not necessary underneath pipes
concrete (cast-in-place)	MSHA Standards and Specs. Section 902, Mix No. 3, f'c = 3500 psi, normal weight, air entrained; re-inforcing to meet ASTM-615-60	n/a	on-site testing of poured-in-place concrete required; 28 day strength and slump tests; all concrete design (cast-in-place or pre-cast) not using previously approved State or local standards requires sign-off drawings sealed and approved by a professional structural engineer licensed in the State of Maryland
concrete (pre-cast)	per pre-cast manufacturer	n/a	SEE ABOVE NOTE
non-rebar steel	ASTM A-36	n/a	structural steel to be hot-dipped galvanized ASTM-A-123

MODIFIED TYPE A-10 INLET, INLET I-6
N.T.S.

APPROVED: DEPARTMENT OF PLANNING & ZONING

[Signature]
CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE: 10/10/02

[Signature]
CHIEF, DIVISION OF LAND DEVELOPMENT
DATE: 10/17/02

[Signature]
DIRECTOR
DATE: 10/18/02



1. REV. MODIFIED LOW RISE SWM CONTROL STRUCTURE		3-22-02
DATE		
CLARK • FINEFROCK & SACKETT, INC. ENGINEERS • PLANNERS • SURVEYORS		
7135 MINSTREL WAY • COLUMBIA, MD 21045 • (410) 381-7500 BALT. • (301) 621-8100 WASH.		
UNINTENDED	STORM WATER MANAGEMENT DETAILS	
TD	SCALE: AS SHOWN	
DRAWN	ROCKBURN WOODS 21 ACTIVE ADULT CONDOMINIUMS	
LAJ/CRH2	PARCEL 61 TAX MAP 37 GRID 5	
CHECKED	FIRST (1st) ELECTION DISTRICT	
TD	HOWARD COUNTY, MARYLAND	
DATE	FOR: BRANTLY DEVELOPMENT GROUP 8E135-P COLUMBIA 100 PARKWAY COLUMBIA, MD 21045	JOB NO. 00176
4/3/02		FILE NO. 00176 X