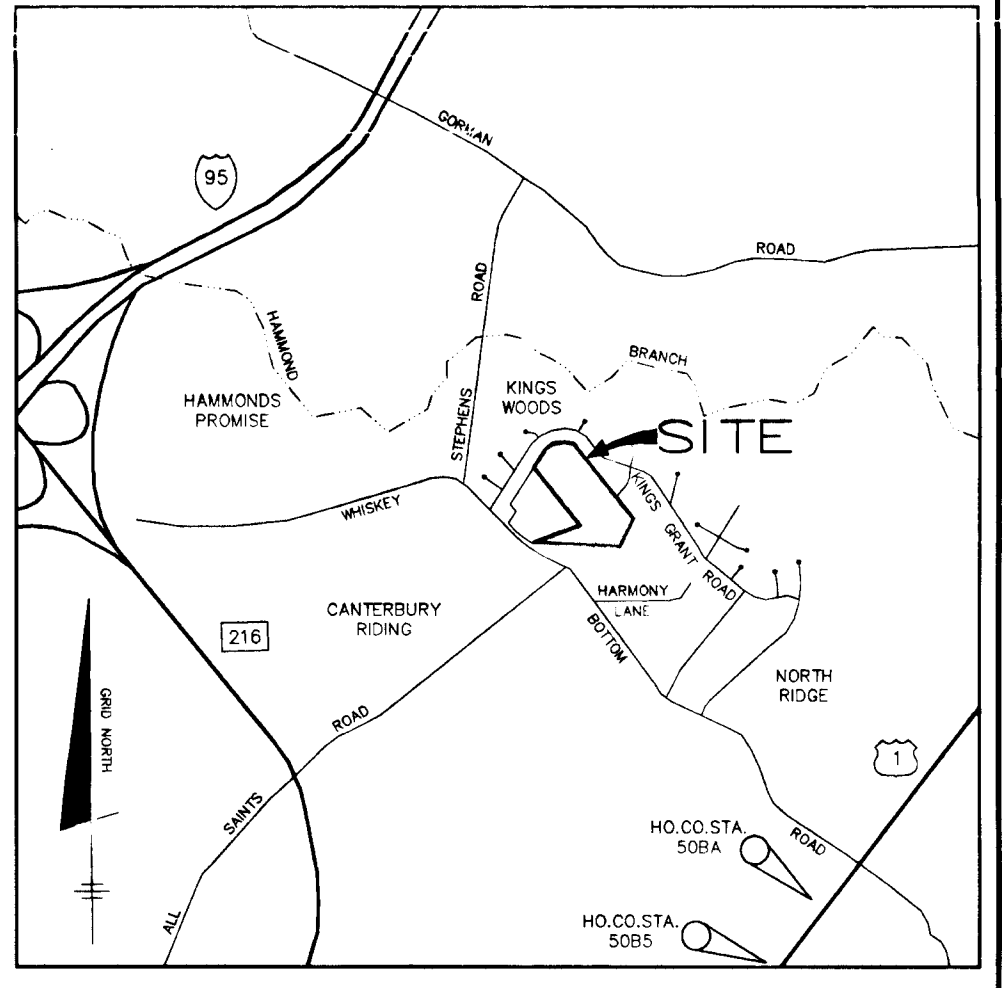


BENCH MARKS

HO. CO. #508A (NAD '83)	ELEV. N/A
STANDARD DISC ON CONCRETE MONUMENT	
N 527561.6702'	E 1359772.5936'
HO. CO. #5085 (NAD '83)	ELEV. 178.242'
STANDARD DISC ON CONCRETE MONUMENT	
N 524999.3640'	E 1357925.6751'



VICINITY MAP
SCALE: 1" = 2000'

GENERAL NOTES

- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY, PLUS MSHA STANDARDS AND SPECIFICATIONS, IF APPLICABLE.
- THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS CONSTRUCTION INSPECTION DIVISION AT (410) 313-1880 AT LEAST 24 HOURS PRIOR TO THE START OF WORK.
- THE CONTRACTOR SHALL NOTIFY "MSS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK.
- PROJECT BACKGROUND :
LOCATION : TAX MAP 47 - P/O PARCEL 857, AND PARCEL 550
ZONING : R-50
SECTION 1
TOTAL TRACT AREA : 14.27 AC.
SECTION AREA : 14.27 AC.
NUMBER OF PROPOSED LOTS : 57 BUILDABLE, 4 OPEN SPACE LOTS
DATE PRELIMINARY PLAN APPROVED : FEB. 5, 1998
DPZ REFERENCE # : S-95-13, P-96-01, SP-96-04
- TRAFFIC CONTROL DEVICES, MARKINGS, AND SIGNING SHALL BE IN ACCORDANCE WITH THE MOST CURRENT EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL STREET AND REGULATORY SIGNS SHALL BE IN PLACE PRIOR TO THE PLACEMENT OF ANY ASPHALT.
- TOPOGRAPHY TAKEN FROM FIELD RUN SURVEY BY TSA GROUP, INC., 4/95. CONTOUR INTERVAL IS 2 FEET.
- COORDINATES SHOWN HEREON ARE BASED ON THE MARYLAND STATE GRID SYSTEM, NAD 83, AS PROJECTED BY HO. CO. GEODETIC CONTROL STATIONS BR01A AND BR02A.
- STREET LIGHT PLACEMENT AND TYPE OF FIXTURE AND POLE SELECTED SHALL BE IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL, VOLUME II (1993) AND AS ADOPTED BY THE "GUIDELINES FOR STREET LIGHTS IN RESIDENTIAL DEVELOPMENTS (JUNE 1993)", WHICH DETERMINE LATERAL AND LONGITUDINAL PLACEMENT.
- ALL ROAD FILLS SHALL BE COMPACTED TO 95% AS DETERMINED BY AASHTO T-180.
- ALL SIDEWALKS AND SIDEWALK RAMPS SHALL BE IN CONFORMANCE WITH CURRENT ADA CRITERIA.
- WATER AND SEWER FOR THIS SUBMISSION IS PUBLIC DRAINAGE AREA IS LITTLE PATENT, CONT. NO. 24-3408-0.
- WETLANDS DELINEATION COMPILED BY M.A. DIRKES & CO. INC., 11/94.
- TRAFFIC STUDY COMPILED BY LEE CUNNINGHAM & ASSOC., 11/93, APPROVED 3/24/95
- GEOLOGICAL REPORT COMPILED BY HILLIS-CARNES INC., 6/95.
- FOREST CONSERVATION PLAN PREPARED BY M.A. DIRKES & CO. INC., 6/95. FOREST CONSERVATION REQUIREMENTS ARE SATISFIED BY ONSITE RETENTION, ONSITE REFORESTATION, AND OFFSITE REFORESTATION.
- EXISTING UTILITIES WERE LOCATED BY RECORD DRAWINGS AND/OR FIELD RUN SURVEY BY TSA GROUP, INC., 1/94. CONTRACTOR IS RESPONSIBLE FOR LOCATION OF ALL EXISTING UTILITIES.
- UNLESS NOTED AS "PRIVATE" ALL EASEMENTS ARE PUBLIC.
- STORMWATER MANAGEMENT IS PROVIDED BY EXTENDED DETENTION STRUCTURE IS CLASS "A" DESIGN MANUAL W/AVEN (SECTION 5.2.4.1) APPROVED 12/28/95 TO PERMIT SWM OUTFALL LESS THAN 20' FROM PROPERTY LINE.
- NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN WETLANDS, STREAM BUFFERS OR FOREST CONSERVATION AREAS.
- WATER QUALITY TREATMENT FOR LOTS (ROOFTOPS) NOT DRAINING TO THE PROPOSED SWM FACILITY SHALL REQUIRE DRAINWELLS AT THE SITE DEVELOPMENT PLAN STAGE AND SHALL BE THE RESPONSIBILITY OF THE BUILDER.
- STREET TREES SHALL BE A MINIMUM 20 FEET FROM THE STREET LIGHTS.

Donald Maas
FOR REVISION 12-9-96

OPERATION AND MAINTENANCE SCHEDULE
STORMWATER MANAGEMENT FACILITY
EXTENDED DETENTION POND
HOMEOWNERS ASSOCIATION'S MAINTENANCE RESPONSIBILITIES:

- TOP AND SIDE SLOPES OF THE EMBANKMENT SHALL BE MOWED A MINIMUM OF TWO (2) TIMES A YEAR, ONCE IN JUNE AND ONCE IN SEPTEMBER. OTHER SIDE SLOPES, THE BOTTOM OF THE POND, AND MAINTENANCE ACCESS SHOULD BE MOWED AS NEEDED.
- DEBRIS AND LITTER NEXT TO THE OUTLET STRUCTURE SHALL BE REMOVED DURING REGULAR MOWING OPERATIONS AND AS NEEDED.
- WHEN DEEMED NECESSARY FOR AESTHETIC REASONS, SEDIMENT SHOULD BE REMOVED FROM THE POND. APPROVAL OF THE DEPARTMENT OF PUBLIC WORKS IS REQUIRED.

CENTERLINE CONTROL DATA

ROAD	STATION	NORTH	EAST
CHATON ROAD	LIMIT 3+27.72	531748.2044	135715.5970
	PT 4+28.28	531676.9425	1357644.8435
	PC 6+83.37	531496.0946	1357464.7449
	PT 7+95.96	531430.3040	1357373.9764
OVERTON DRIVE	LIMIT 8+09.31	531424.3018	1357362.0525
	0+00.00	531662.8069	1357630.5822
	R.P. 6+83.52	532106.9710	1357145.7897
	0+00.00	531863.8014	1357428.5271
ODELTON COURT	PC 1+40.70	531764.0468	1357329.2962
	R.P. 2+19.28	531693.9598	1357297.6607
	0+00.00	531496.5546	1357465.2025
	PC 1+00.00	531426.0303	1357536.0990
ULSTER DRIVE	LIMIT 3+32.24	531219.4682	1357631.0184

STREET LIGHT LEGEND

ROAD	STATION	OFFSET	TYPE
CHATON ROAD	4+22.00	20' RIGHT	100 WATT TRADITIONAIRE
	7+05.00	22' LEFT	HPS VAPOR LAMP POST TOP FIXTURE ON 14 FOOT BLACK FIBERGLASS POLE
OVERTON DRIVE	3+12.00	19' LEFT	
	LP 7+66.83	3'	

CENTERLINE CURVE DATA

ROAD	STATION	RADIUS	LENGTH	CHORD	BEARING	DELTA
CHATON ROAD	3+27.72 TO 4+28.28	2425.00'	100.56'	50.28'	100.56'	N 44°52'33" E 007°14'15"
	6+83.37 TO 7+95.96	350.00'	112.59'	56.78'	112.10'	S 54°03'53" W 18°25'52"
OVERTON DRIVE	5+84.94 TO 6+83.52	109.50'	78.57'	41.06'	76.90'	S 65°42'25" E 41°06'44"
ODELTON COURT	1+40.70 TO 2+19.28	109.50'	78.57'	41.06'	76.90'	S 24°17'35" W 41°06'44"
ULSTER DRIVE	1+00.00 TO 3+27.24	325.00'	232.24'	121.33'	227.33'	S 24°40'47" E 40°56'31"

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Andrew M. Duncanson 7-26-96
CHIEF, BUREAU OF HIGHWAYS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
Richard Blood 9/4/96
CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH

William J. ... 9/4/96
CHIEF, DEVELOPMENT ENGINEERING DIVISION

SHEET INDEX

NO.	DESCRIPTION
1	ROAD PLAN
2	ROAD PROFILES AND DETAILS
3	DRAINAGE AREA MAP, ROAD PROFILE & DETAILS
4	STORM DRAIN PROFILES
5	GRADING PLAN
6	STORMWATER MANAGEMENT DETAILS
7	SEDIMENT CONTROL PLAN
8	SEDIMENT CONTROL NOTES & DETAILS
9	LANDSCAPE PLAN AND FCP
10	FOREST CONSERVATION DETAILS

NO.	DATE	REVISION
1	1-2-97	ADD STORM DRAIN M-9 TO I-15
2	12-9-96	REVISE OPEN SPACE LOT 360 TO THE HOMEOWNERS ASSOC. (REVISE SITE GRADING)

TSA GROUP, INC.
planning • architecture • engineering
9480 Baltimore National Pike • Ellicott City, Maryland 21043 • (410) 465-0105

OWNER/DEVELOPER:
SDC GROUP, INC.
P.O. BOX 417
ELLCOTT CITY, MARYLAND 21041
(410) 465-4244

PROJECT:
KINGS WOODS
SECTION 4
LOTS 301-361
(KING PROPERTY)

LOCATION:
TAX MAP 47 - PARCEL 550
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE:
ROAD PLAN

DATE: MARCH 1996
JULY 1, 1996

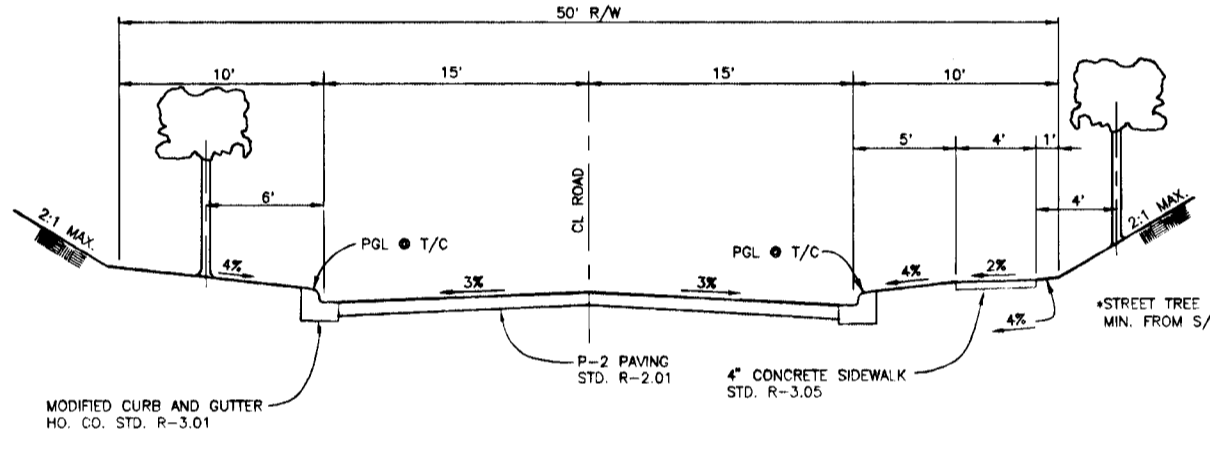
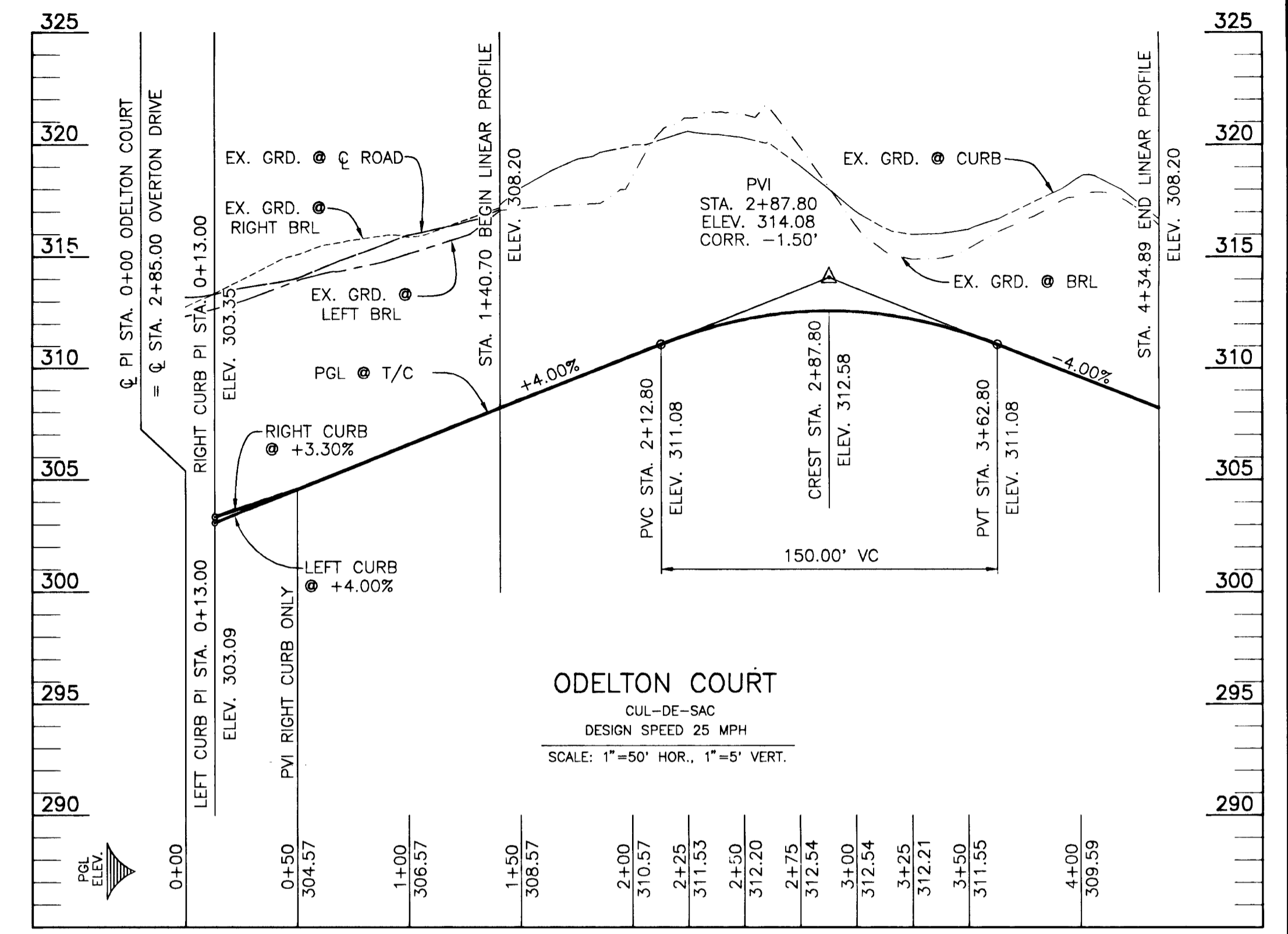
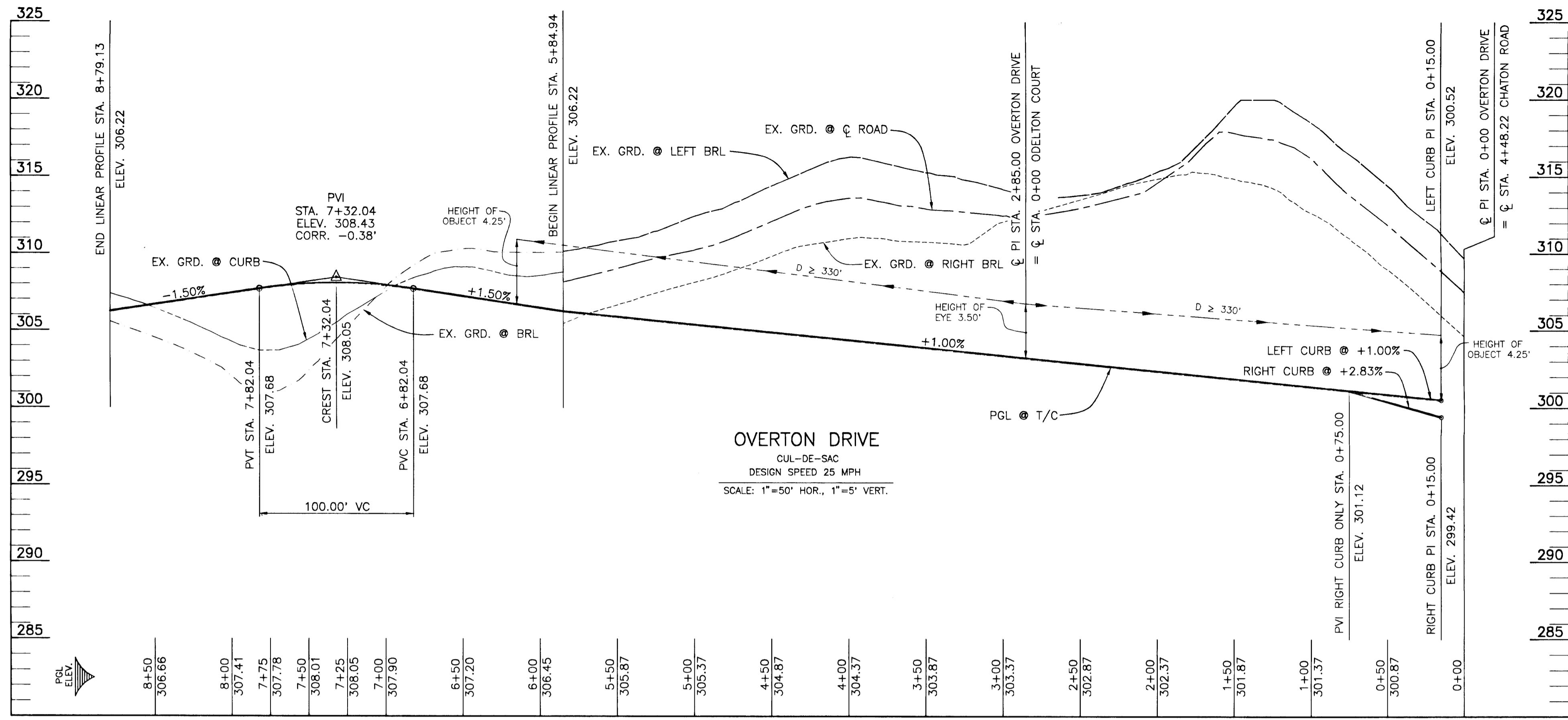
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SCALE: 1" = 50'

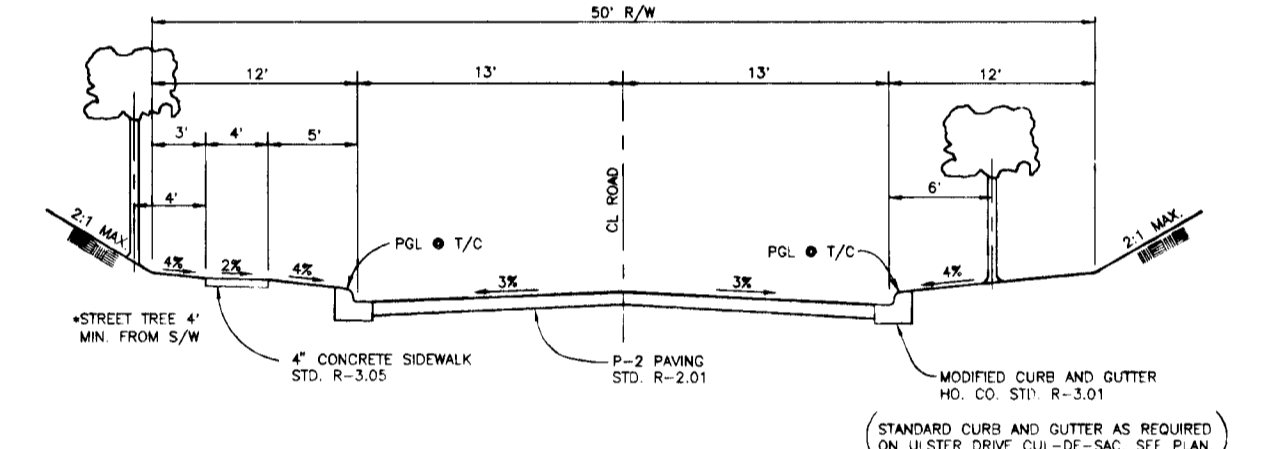
PROJECT NO. 0718
DRAWING 1 OF 10

Arch. 25, 1996 Acad. Dep. 7070521

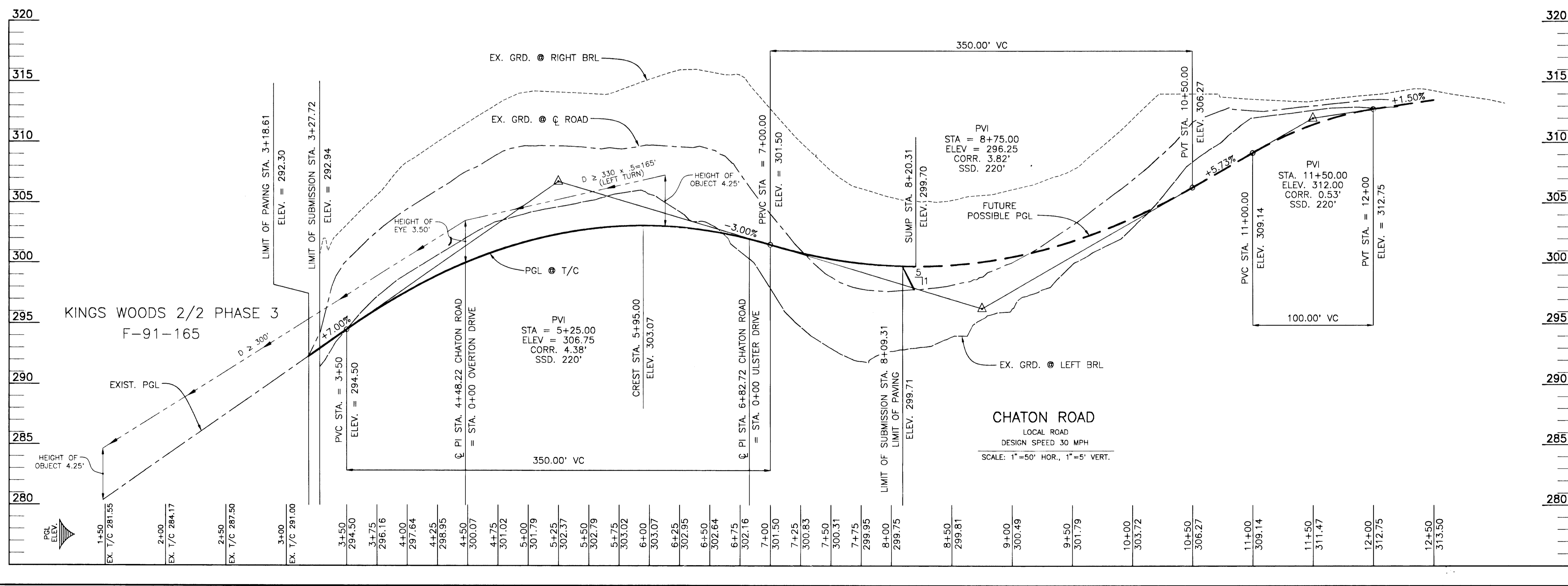
F-96-139



TYPICAL SECTION
CHATON ROAD
NOT TO SCALE



TYPICAL SECTION
OVERTON DRIVE
ULSTER DRIVE
ODELTON COURT
NOT TO SCALE



* SEE SHEET 3 OF 10 FOR ULSTER DRIVE PROFILE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Richard M. Sandoz 7-26-96
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
Richard Sandoz 9/4/96
 CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH DATE

William J. ... 9/4/96
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

NO	DATE	REVISION

TSA GROUP, INC.
 planning • architecture • engineering
 8480 Baltimore National Pike • Ellicott City, Maryland 21043 • (410) 486-8105

OWNER/DEVELOPER: SDC GROUP, INC.
 P.O. BOX 417
 ELLICOTT CITY, MARYLAND 21041
 (410) 465-4244

PROJECT: **KINGS WOODS**
 SECTION 4
 LOTS 301-361
 (KING PROPERTY)

LOCATION: TAX MAP 47 - PARCEL 550
 6TH ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

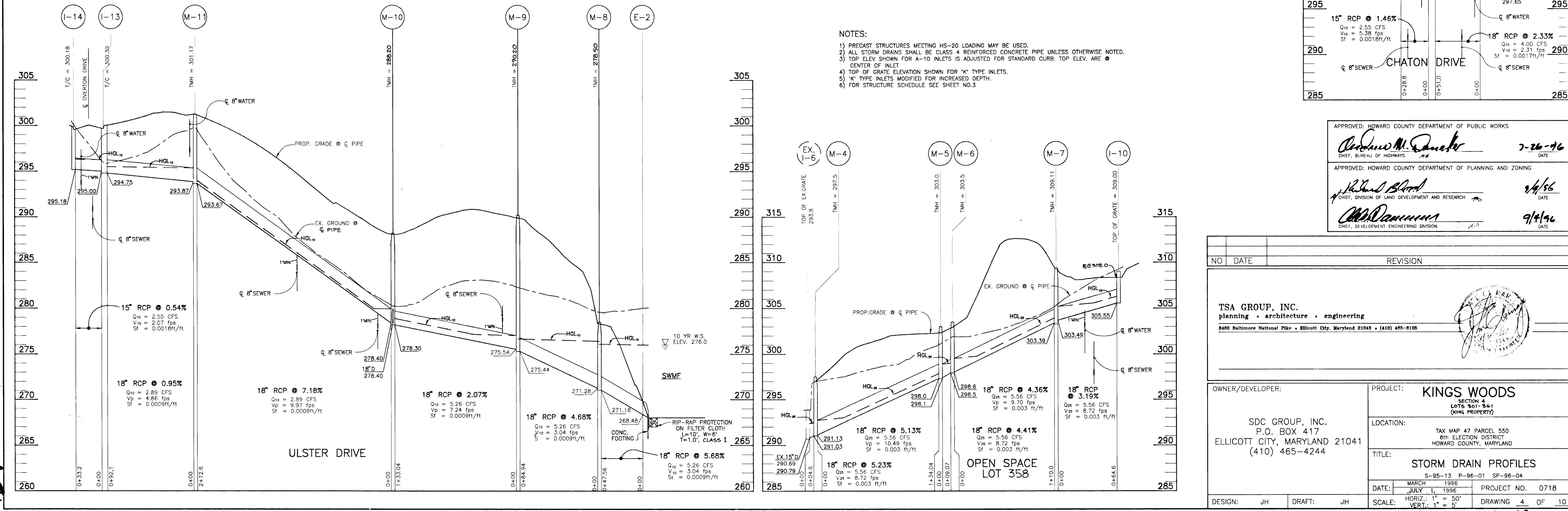
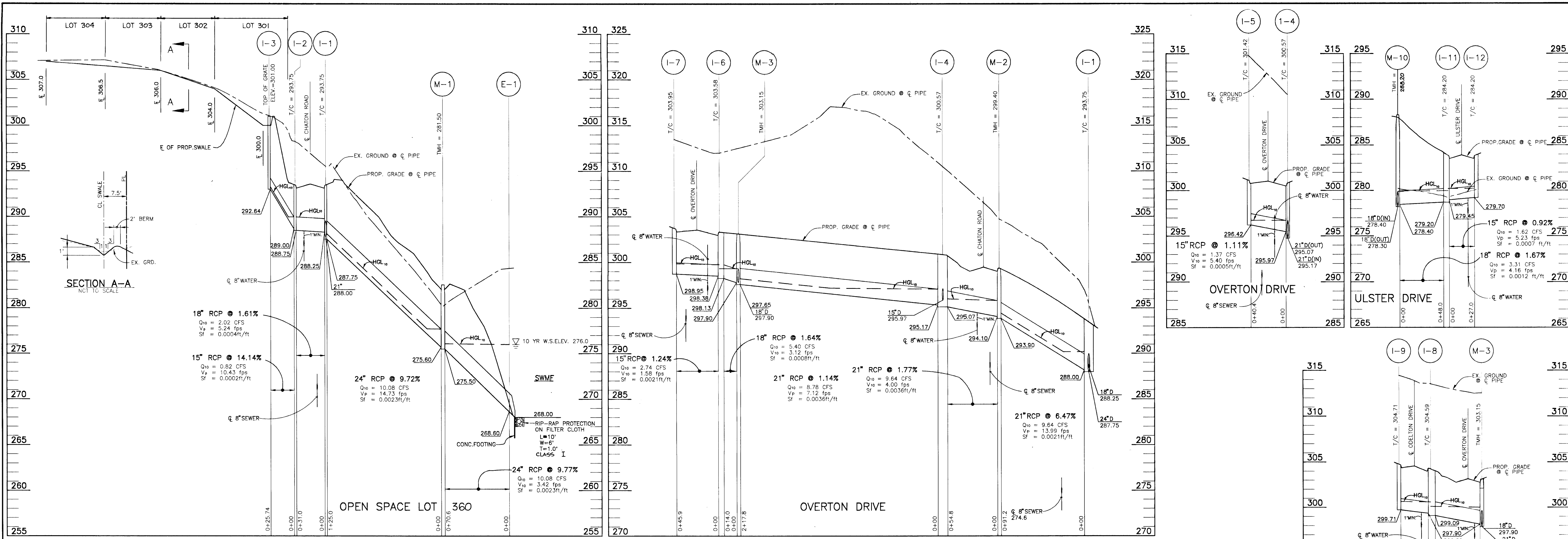
TITLE: **ROAD PROFILES AND DETAILS**
 S-95-13 P-96-01 SP-96-04

DATE: MARCH 1996 PROJECT NO. 0718
 JULY 1, 1996

DESIGN: JME DRAFT: DBT SCALE: AS SHOWN DRAWING 2 OF 10

987

F-90-199



- NOTES:
- 1) PRECAST STRUCTURES MEETING HS-20 LOADING MAY BE USED.
 - 2) ALL STORM DRAINS SHALL BE CLASS 4 REINFORCED CONCRETE PIPE UNLESS OTHERWISE NOTED.
 - 3) TOP ELEV SHOWN FOR A-10 INLETS IS ADJUSTED FOR STANDARD CURB. TOP ELEV. ARE CENTER OF INLET.
 - 4) TOP OF GRATE ELEVATION SHOWN FOR 'K' TYPE INLETS.
 - 5) 'K' TYPE INLETS MODIFIED FOR INCREASED DEPTH.
 - 6) FOR STRUCTURE SCHEDULE SEE SHEET NO.3

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Richard M. Daneker 7-26-96
 CHIEF, BUREAU OF HIGHWAYS
 APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
Richard Blood 7/4/96
 CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH
Chris Daneman 7/1/96
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

NO	DATE	REVISION

TSA GROUP, INC.
 planning • architecture • engineering
 2480 Baltimore National Pike • Ellicott City, Maryland 21043 • (410) 465-8106

OWNER/DEVELOPER: SDC GROUP, INC.
 P.O. BOX 417
 ELLICOTT CITY, MARYLAND 21041
 (410) 465-4244

PROJECT: **KINGS WOODS**
 SECTION 4
 LOTS 301-301
 (KING PROPERTY)

LOCATION: TAX MAP 47 PARCEL 550
 6TH ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

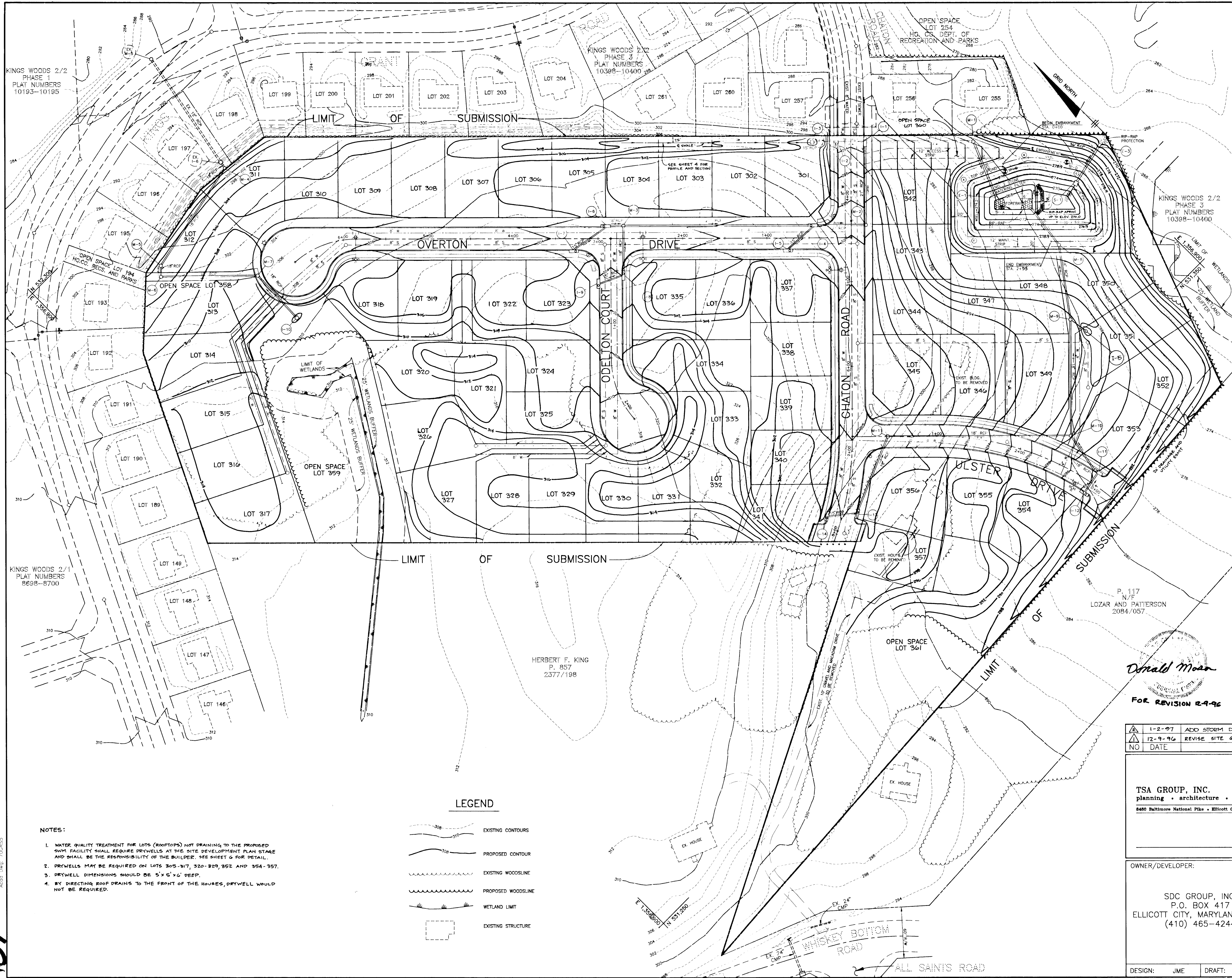
TITLE: **STORM DRAIN PROFILES**
 S-95-13 P-96-01 SP-96-04

DATE: MARCH 1996
 JULY 1, 1996 PROJECT NO. 0718

DESIGN: JH DRAFT: JH SCALE: HORIZ.: 1" = 50'
 VERT.: 1" = 5' DRAWING 4 OF 10

Acad. Dwg. 7/24/96

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TOP OF BANK SWM CONTROL POINTS		
POINT	NORTH	EAST
(A)	531612.57	135774.55
(B)	531579.53	1357842.84
(C)	531523.10	1357880.38
(D)	531485.91	1357871.32
(E)	531453.24	1357841.97
(F)	531566.19	1357728.42

NOTE:
INSPECTION OF THE POND(S) SHOWN HEREON SHALL BE PERFORMED AT LEAST ANNUALLY, IN ACCORDANCE WITH THE CHECKLIST AND REQUIREMENTS CONTAINED WITHIN USDA, SOC 5 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 INDICATORS OF DISTRESS SUCH AS EXCESSIVE SEEPAGE, TURBID SEEPAGE, SLIDING OR SLUMPING.

AS-BUILT CERTIFICATION
I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE AS-BUILT PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.

PE NO. _____
DATE _____
JOHN M. ELORRAGA

CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ON-SITE INSPECTIONS AND MATERIAL TESTS WHICH ARE CONDUCTED DURING CONSTRUCTION. THE ON-SITE INSPECTIONS AND MATERIAL TESTS ARE THOSE INSPECTIONS AND TESTS DEEMED SUFFICIENT AND APPROPRIATE BY COMMONLY ACCEPTED ENGINEERING STANDARDS. CERTIFY DOES NOT MEAN OR IMPLY A GUARANTEE BY THE ENGINEER NOR DOES AN ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

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

James R. Moxley
DEVELOPER - SDC GROUP, INC.
PRESIDENT - JAMES R. MOXLEY JR. DATE 6/5/96

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

John M. Elorraga
ENGINEER - JOHN M. ELORRAGA, P.E. # 16891 DATE 6/6/96

These plans have been reviewed for the HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION, AND SEDIMENT CONTROL.

J. A. Washfield
U.S. NATURAL RESOURCES CONSERVATION SERVICE DATE 7/19/96

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Richard M. Donolo
CHIEF, BUREAU OF HIGHWAYS DATE 7-22-96

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
Richard Blood
CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH DATE 9/4/96

Mr. Cummings
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE 9/4/96

Donald Moran
FOR REVISION R-9-96

NO	DATE	REVISION
1	1-2-97	ADD STORM DRAIN M-9 TO I-15
2	12-9-96	REVISE SITE GRADING

LEGEND

- EXISTING CONTOURS
- PROPOSED CONTOUR
- EXISTING WOODSLINE
- PROPOSED WOODSLINE
- WETLAND LIMIT
- EXISTING STRUCTURE

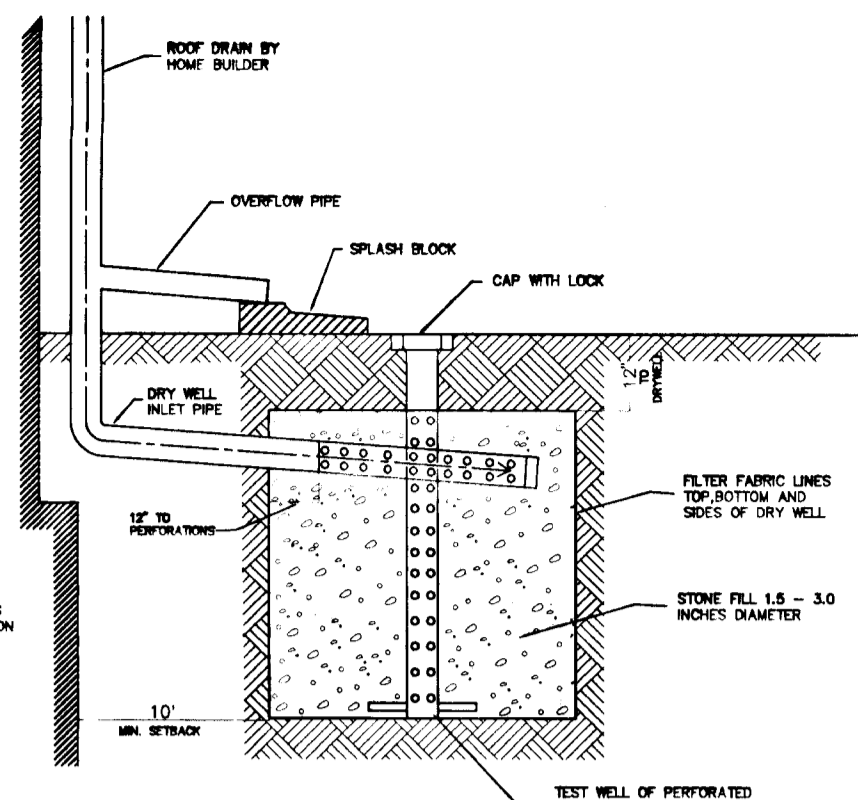
- NOTES:
- WATER QUALITY TREATMENT FOR LOTS (ROOFTOPS) NOT DRAINING TO THE PROPOSED SWM FACILITY SHALL REQUIRE DRYWELLS AT THE SITE DEVELOPMENT PLAN STAGE AND SHALL BE THE RESPONSIBILITY OF THE BUILDER. SEE SHEET G FOR DETAIL.
 - DRYWELLS MAY BE REQUIRED ON LOTS 305-317, 320-329, 352 AND 354-357.
 - DRYWELL DIMENSIONS SHOULD BE 5'x 5'x 6' DEEP.
 - BY DIRECTING ROOF DRAINS TO THE FRONT OF THE HOUSES, DRYWELL WOULD NOT BE REQUIRED.

987

TSA GROUP, INC.
planning • architecture • engineering
8480 Baltimore National Pike • Ellicott City, Maryland 21043 • (410) 465-8105

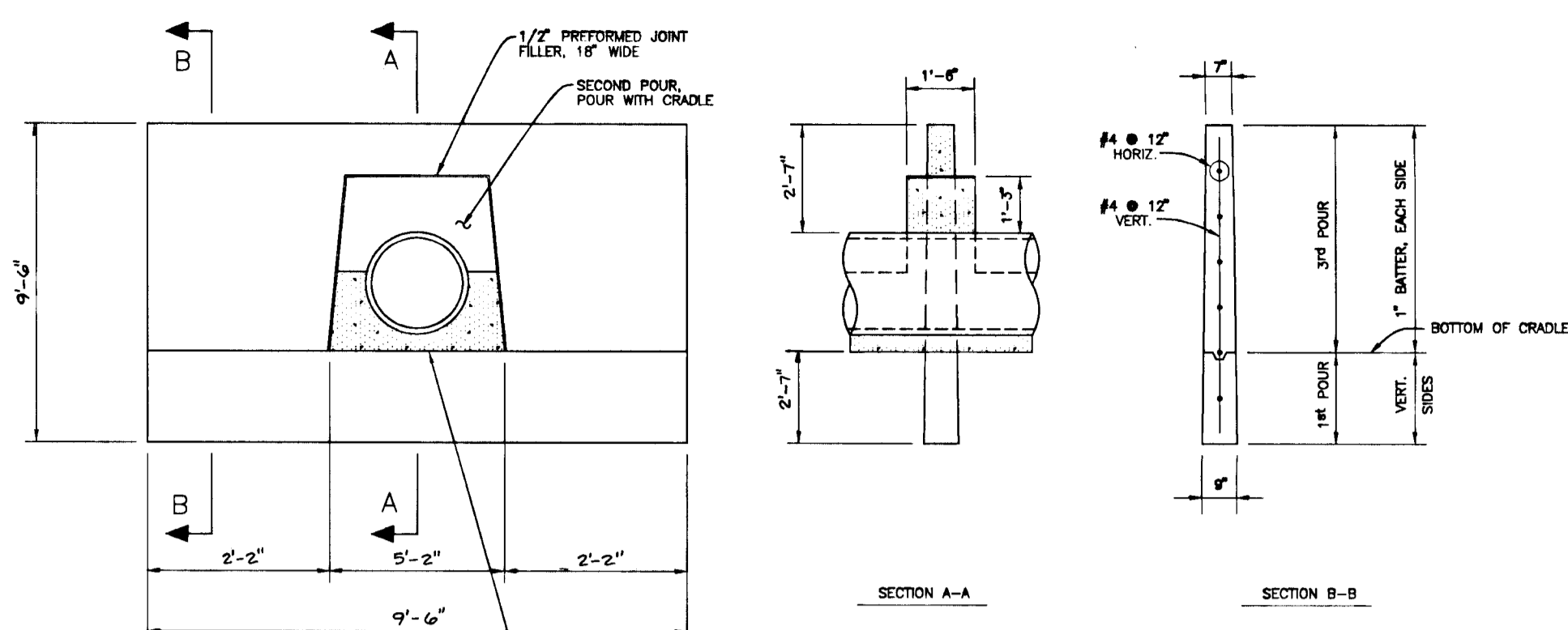
OWNER/DEVELOPER: SDC GROUP, INC. P.O. BOX 417 ELLCOTT CITY, MARYLAND 21041 (410) 465-4244	PROJECT: KINGS WOODS SECTION 4 LOTS 301-361 (KING PROPERTY)
LOCATION: TAX MAP 47 - & PARCEL 550 6th ELECTION DISTRICT HOWARD COUNTY, MARYLAND	TITLE: GRADING PLAN S-95-13 P-96-01 SP-96-04
DATE: MARCH 1996 JULY 1, 1996	PROJECT NO. 0718
DESIGN: JME DRAFT: DBT	SCALE: 1" = 50' DRAWING 5 OF 10

F-24-199

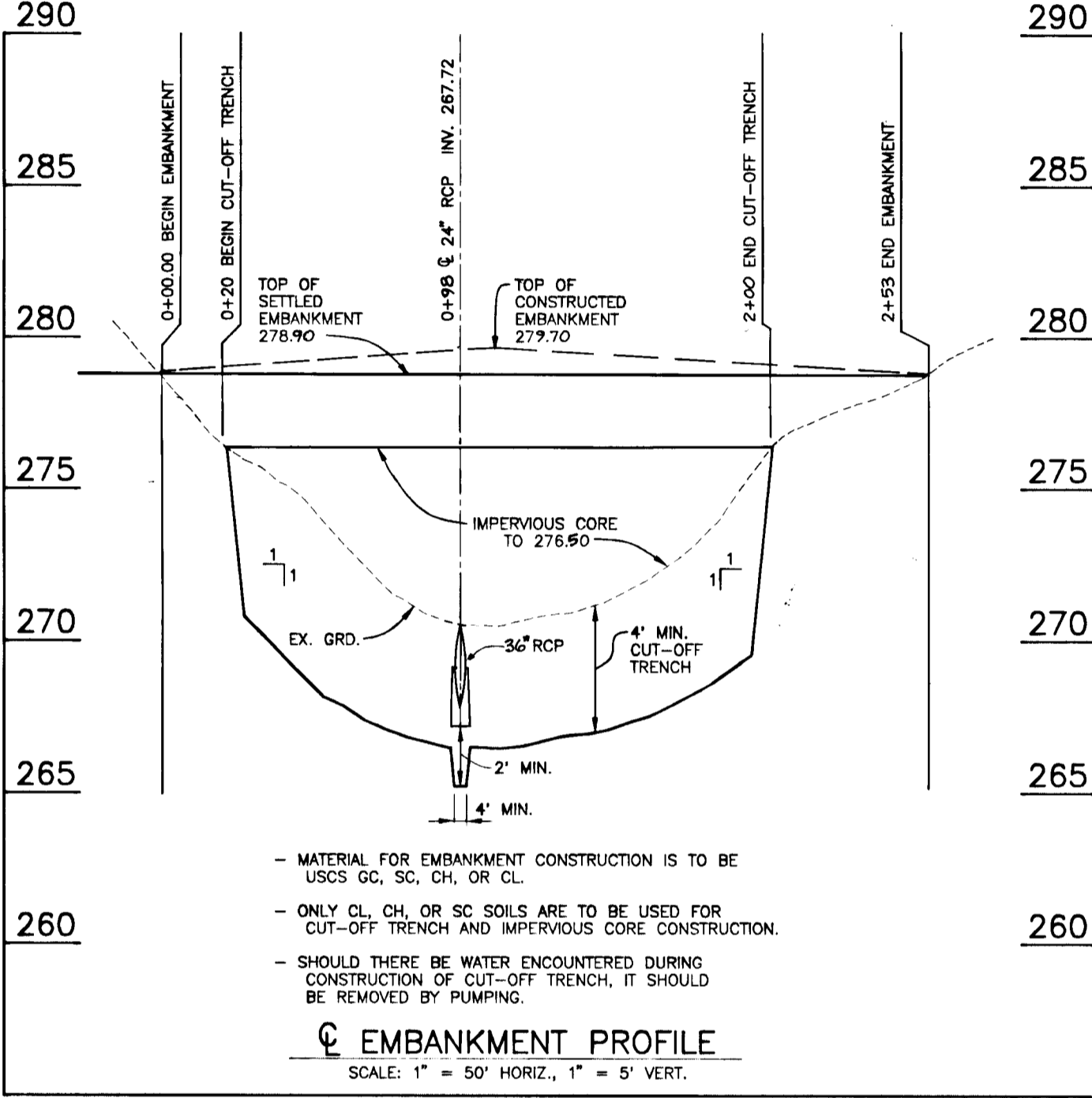


DRY WELLS SHALL BE REQUIRED ON LOTS NOT MANAGED FOR QUALITY CONTROL IN THE SWM FACILITY. DRY WELLS SHALL BE THE RESPONSIBILITY OF THE BUILDER AT SITE DEVELOPMENT PLAN STAGE.

DRY WELL
NOT TO SCALE

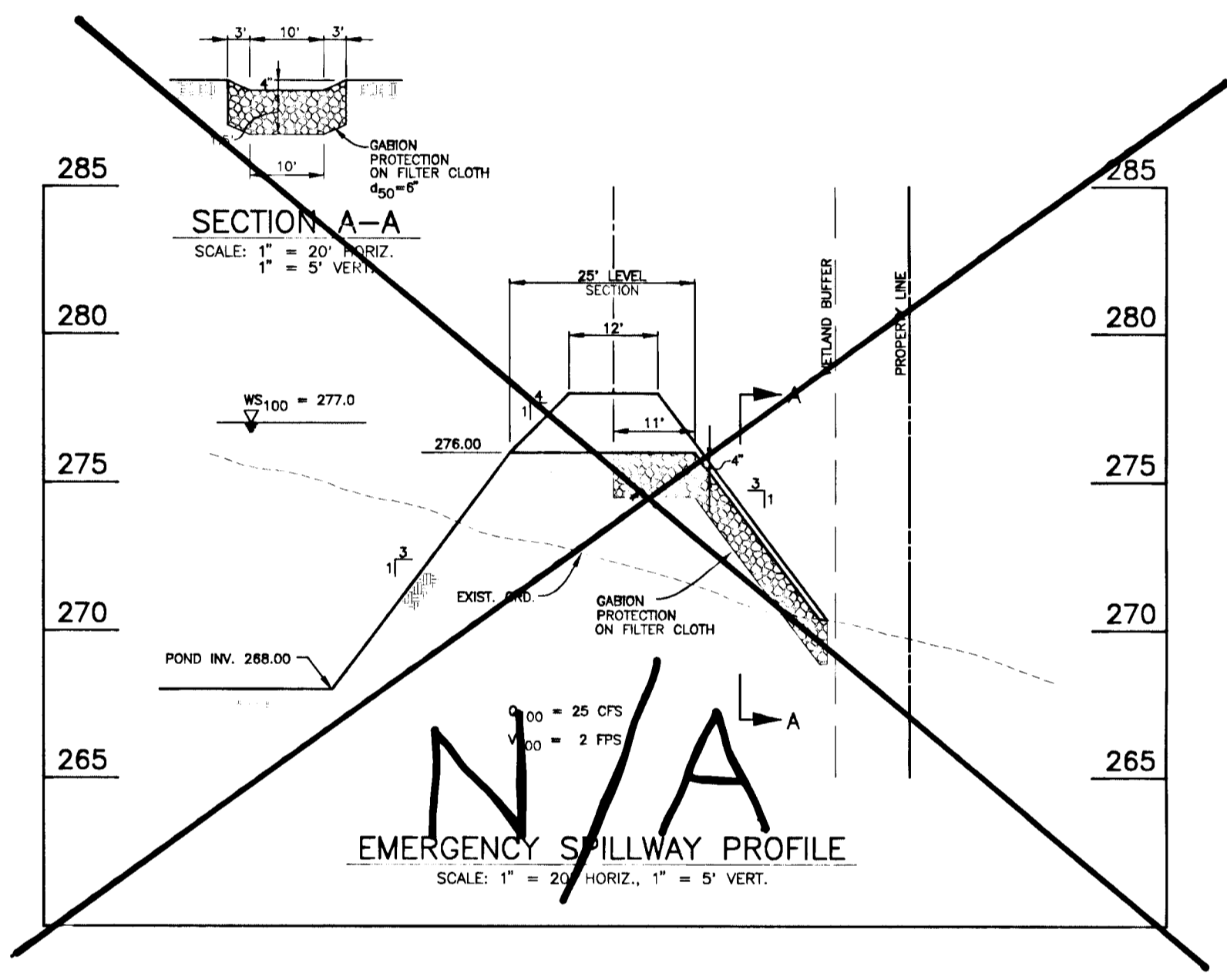


ANTI-SEEP COLLAR
NOT TO SCALE

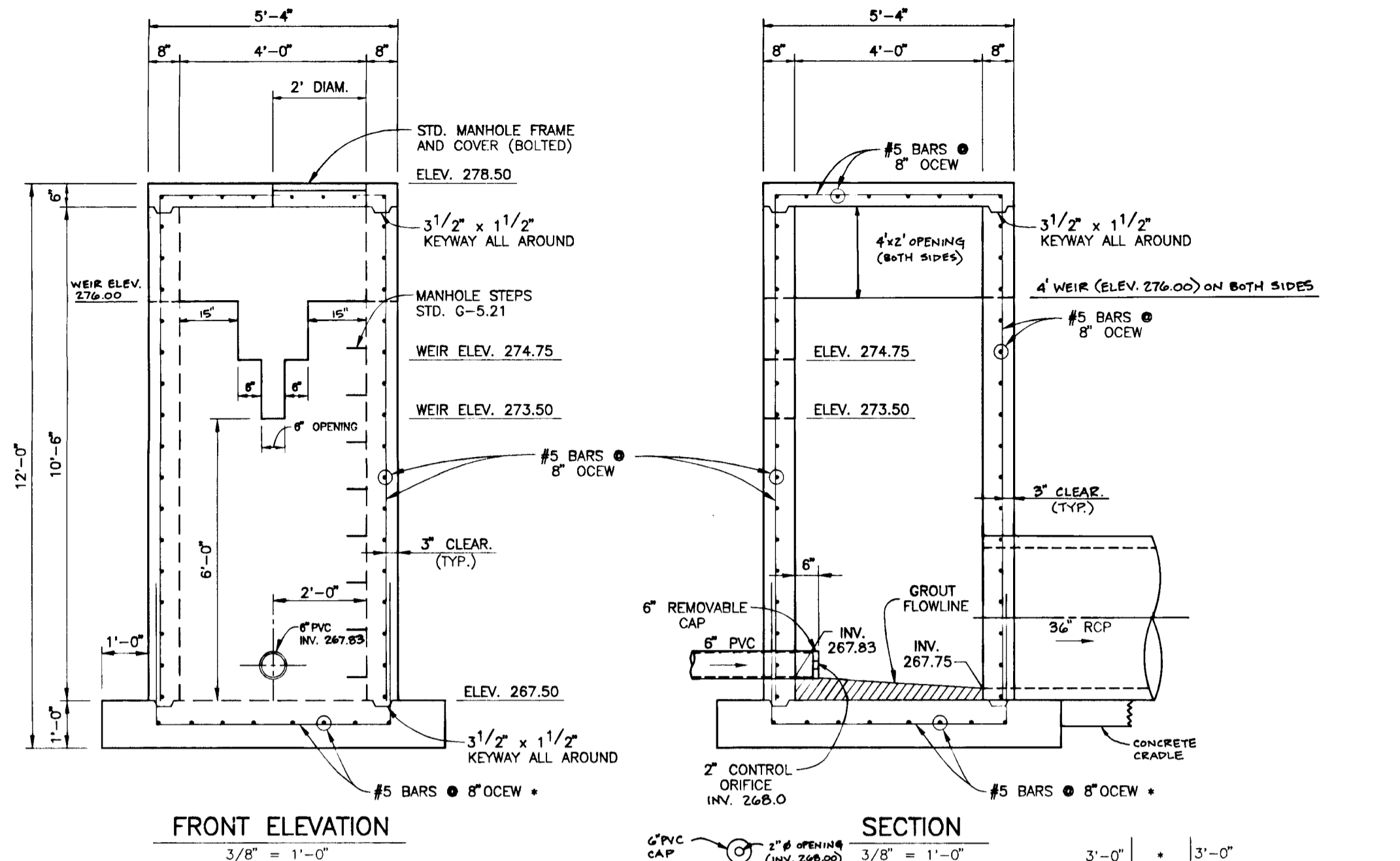


MATERIAL FOR EMBANKMENT CONSTRUCTION IS TO BE USCS GC, SC, CH, OR CL.
ONLY CL, CH, OR SC SOILS ARE TO BE USED FOR CUT-OFF TRENCH AND IMPERVIOUS CORE CONSTRUCTION.
SHOULD THERE BE WATER ENCOUNTERED DURING CONSTRUCTION OF CUT-OFF TRENCH, IT SHOULD BE REMOVED BY PUMPING.

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

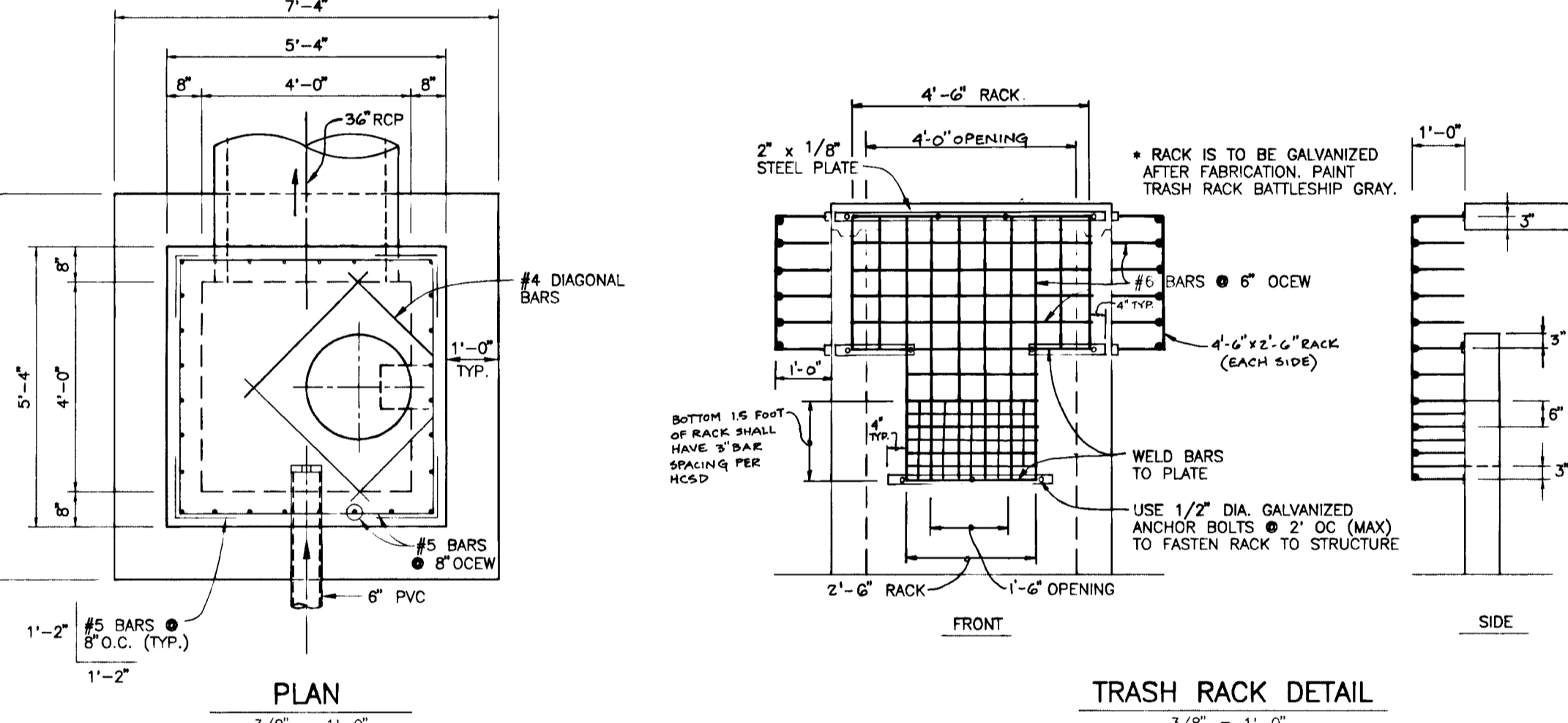


EMERGENCY SPILLWAY PROFILE
SCALE: 1" = 20' HORIZ., 1" = 5' VERT.



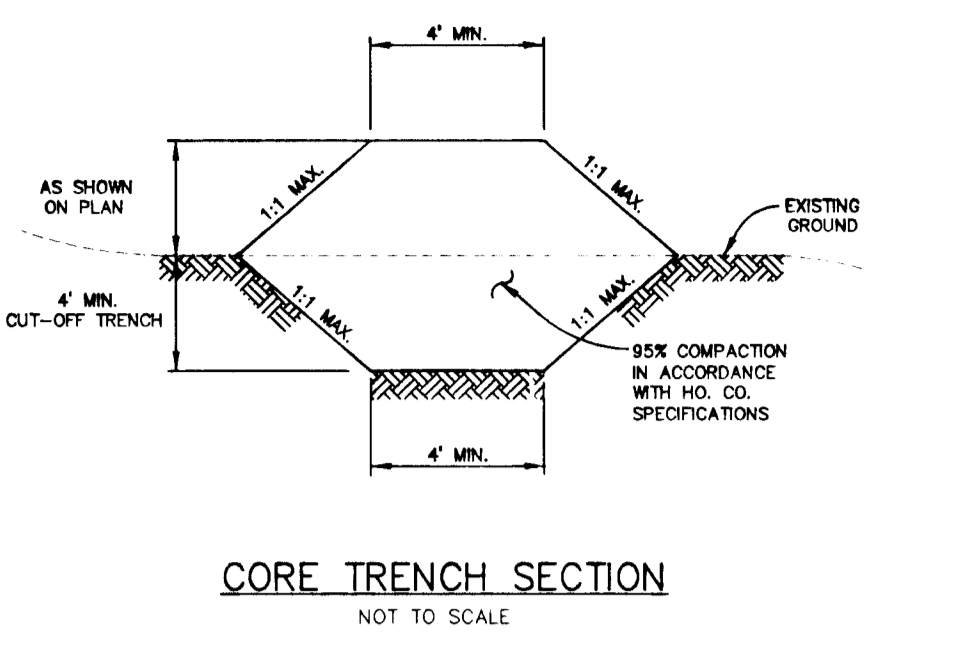
FRONT ELEVATION
3/8" = 1'-0"

SECTION
3/8" = 1'-0"



PLAN
3/8" = 1'-0"

TRASH RACK DETAIL
3/8" = 1'-0"



CORE TRENCH SECTION
NOT TO SCALE

NOTE:
INSPECTION OF THE POND(S) SHOWN HEREON SHALL BE PERFORMED AT LEAST ANNUALLY, IN ACCORDANCE WITH THE CHECKLIST AND REQUIREMENTS CONTAINED WITHIN USDA, SCS STANDARDS AND SPECIFICATIONS FOR PONDS (MD-378). THE POND OWNER(S) AND ANY HEIRS, SUCCESSORS, OR ASSIGNS SHALL BE RESPONSIBLE FOR THE SAFETY OF THE POND AND THE CONTINUED OPERATION, SURVEILLANCE, INSPECTION, AND MAINTENANCE THEREOF. THE POND OWNER(S) SHALL PROMPTLY NOTIFY THE SOIL CONSERVATION DISTRICT OF ANY UNUSUAL OBSERVATIONS THAT MAY BE INDICATORS OF DISTRESS SUCH AS EXCESSIVE SEEPAGE, TURBID SEEPAGE, SLIDING OR SLUMPING.

AS-BUILT CERTIFICATION

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.

JOHN M. ELORRAGA PE NO. _____ DATE _____

CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ON-SITE INSPECTIONS AND MATERIAL TESTS WHICH ARE CONDUCTED DURING CONSTRUCTION. THE ON-SITE INSPECTIONS AND MATERIAL TESTS ARE THOSE INSPECTIONS AND TESTS DEEMED SUFFICIENT AND APPROPRIATE BY COMMONLY ACCEPTED ENGINEERING STANDARDS. CERTIFY DOES NOT MEAN OR IMPLY A GUARANTEE BY THE ENGINEER NOR DOES AN ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

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

James R. Moxley 6/5/96
DEVELOPER - SDC GROUP, INC. DATE
PRESIDENT - JAMES R. MOXLEY, JR.

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

John M. Elorraga 6/5/96
ENGINEER - JOHN M. ELORRAGA, P.E. # 18891 DATE

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

J. A. Washfield 7/19/96
U.S. NATURAL RESOURCES ADMINISTRATION SERVICE DATE

Robert W. Ziehm 7/19/96
HOWARD SOIL CONSERVATION DISTRICT DATE

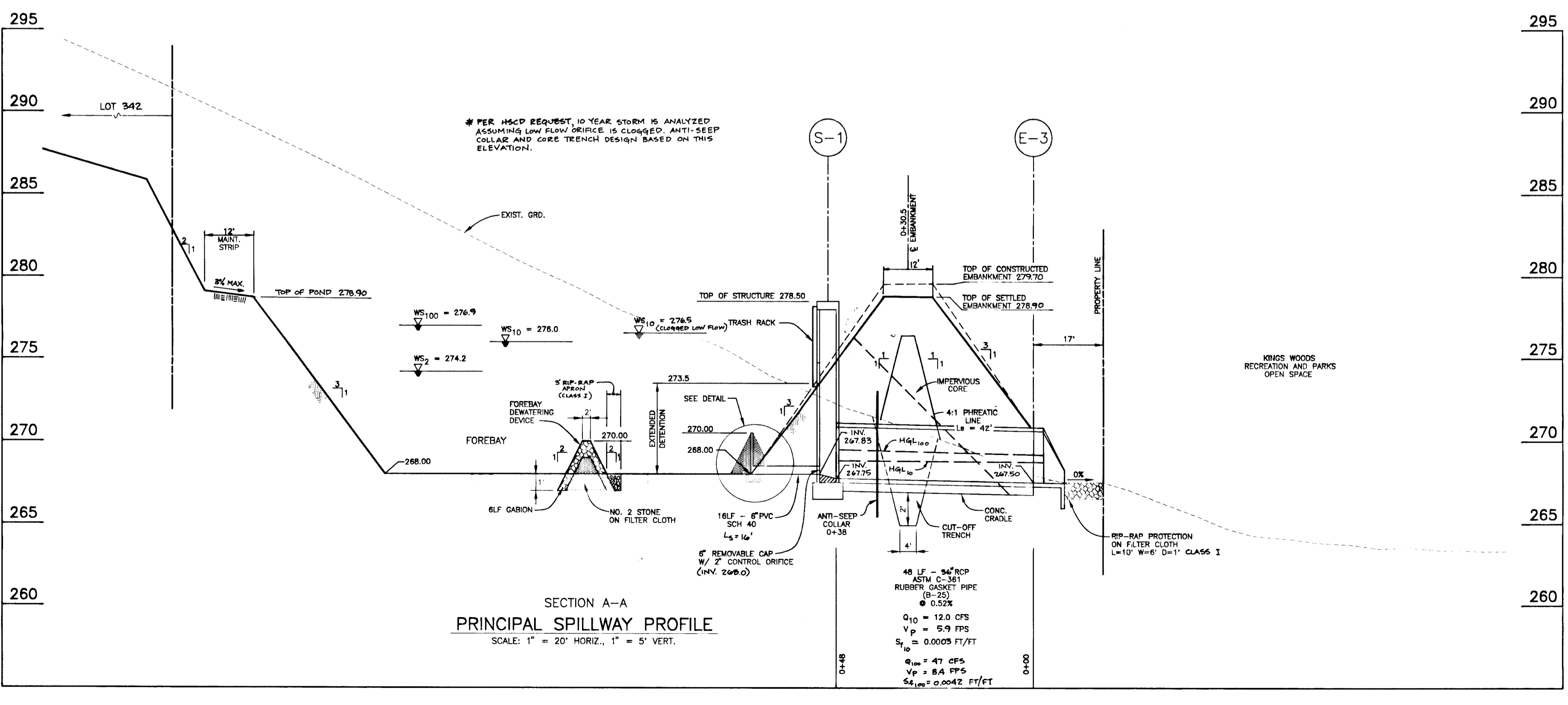
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Richard M. Donald 7-26-96
CHIEF, BUREAU OF HIGHWAYS DATE

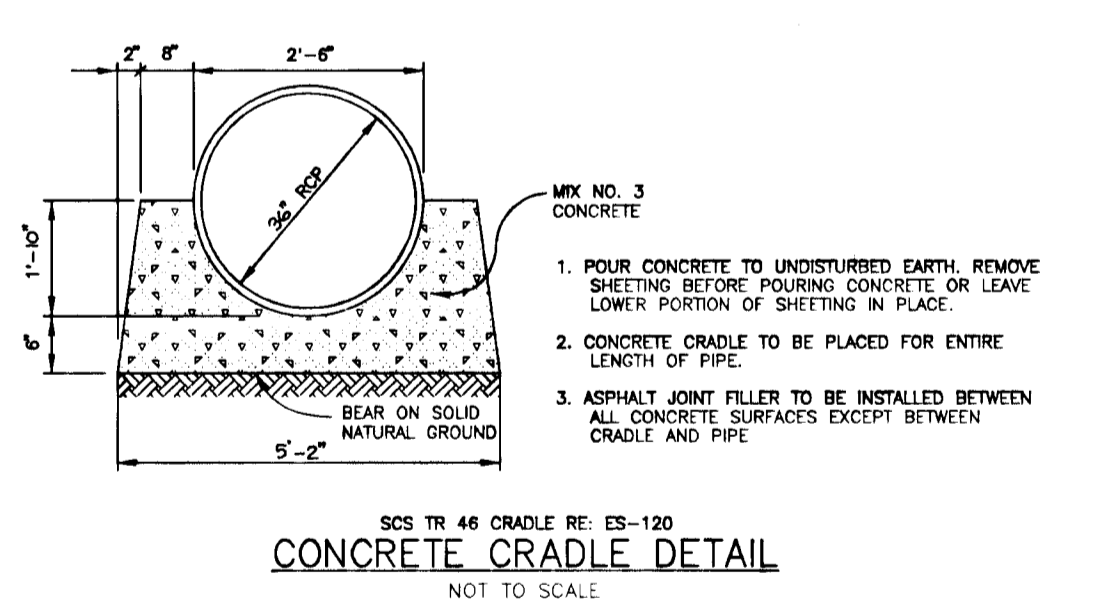
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Richard Blood 8/4/96
CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH DATE

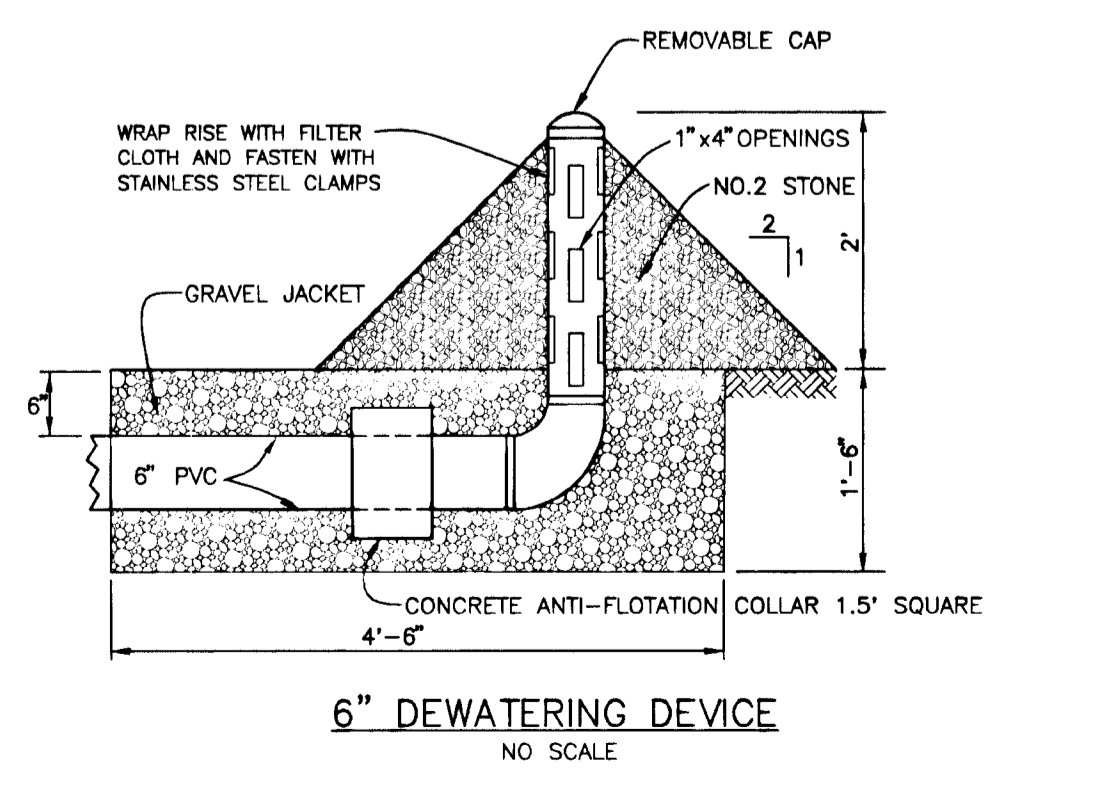
Michael Damm 9/4/96
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE



SECTION A-A
PRINCIPAL SPILLWAY PROFILE
SCALE: 1" = 20' HORIZ., 1" = 5' VERT.



CONCRETE CRADLE DETAIL
NOT TO SCALE



6" DEWATERING DEVICE
NO SCALE

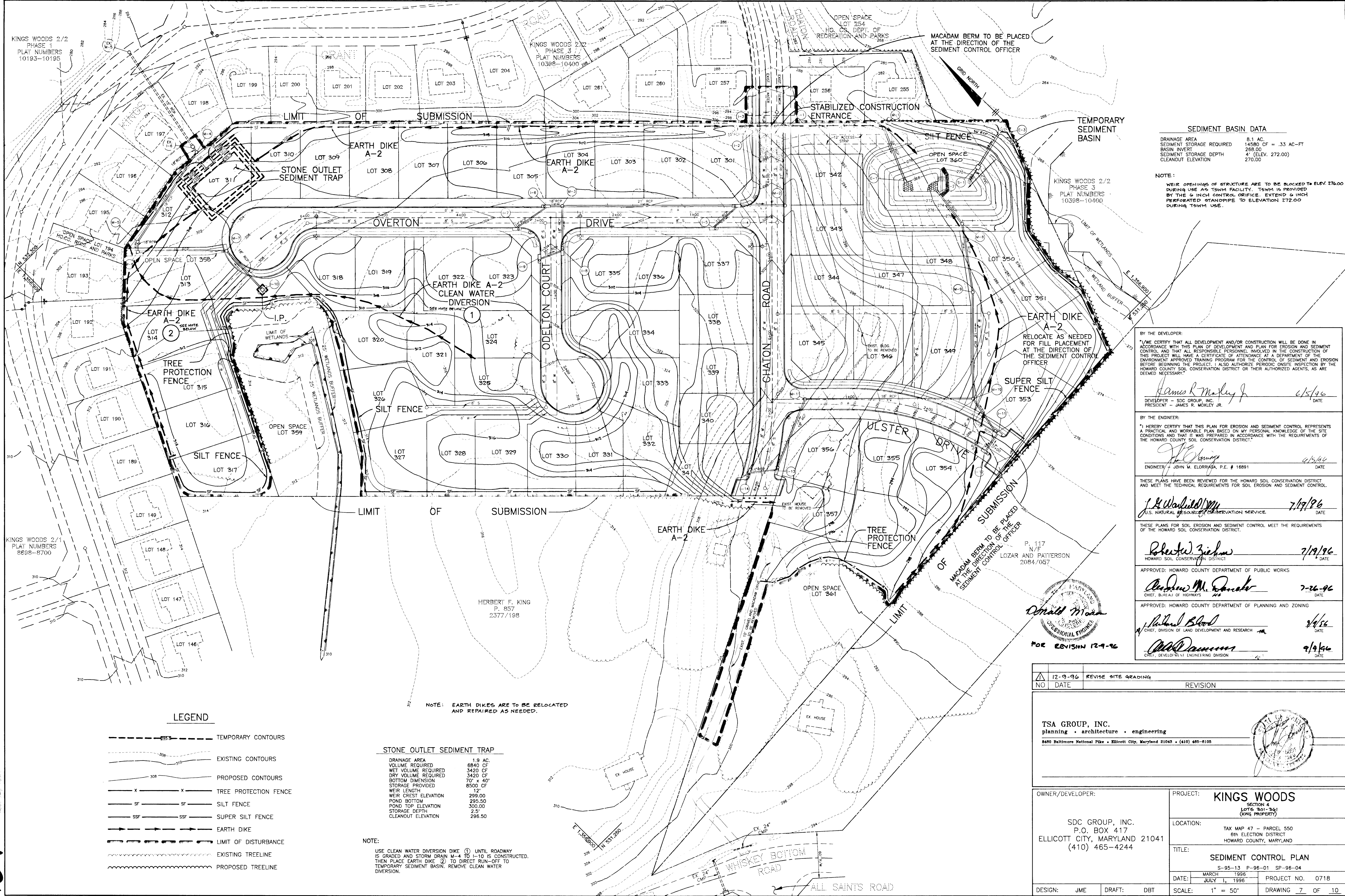
NO	DATE	REVISION

TSA GROUP, INC.
planning • architecture • engineering
8480 Baltimore National Pike • Ellicott City, Maryland 21043 • (410) 465-8100

OWNER/DEVELOPER:	PROJECT:	KINGS WOODS
SDC GROUP, INC. P.O. BOX 417 ELLICOTT CITY, MARYLAND 21041 (410) 465-4244	LOCATION:	TAX MAP 47 - PARCEL 550 8th ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DESIGN: JME	DRAFT: DBT	TITLE: STORMWATER MANAGEMENT DETAILS
DATE: MARCH 1996	DATE: JULY 1, 1996	PROJECT NO. 0718
SCALE: AS SHOWN	DRAWING 6 OF 10	

F-96-199

987



SEDIMENT BASIN DATA

DRAINAGE AREA	8.1 AC.
SEDIMENT STORAGE REQUIRED	14880 CF = .33 AC-FT
BASIN INVERT	268.00
SEDIMENT STORAGE DEPTH	4" (ELEV. 272.00)
CLEANOUT ELEVATION	270.00

NOTE:
WEIR OPENINGS OF STRUCTURE ARE TO BE BLOCKED TO ELEV. 276.00 DURING USE AND TSWM FACILITY. TSWM IS PROVIDED BY THE 6 INCH CONTROL ORIFICE. EXTEND 6 INCH PERFORATED STANDPIPE TO ELEVATION 272.00 DURING TSWM USE.

BY THE DEVELOPER:
I HEREBY CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE IN ACCORDANCE WITH THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION AND SEDIMENT CONTROL AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION OF THIS 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 ONSITE INSPECTION BY THE HOWARD COUNTY SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY.

James R. Moxley Jr.
DEVELOPER - SDC GROUP, INC.
PRESIDENT - JAMES R. MOXLEY JR. DATE: 6/5/96

BY THE ENGINEER:
I HEREBY CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD COUNTY SOIL CONSERVATION DISTRICT.

John M. Elorriaga
ENGINEER - JOHN M. ELORRIAGA, P.E. # 16691 DATE: 6/5/96

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

J. H. Winkler
U.S. NATURAL RESOURCES CONSERVATION SERVICE DATE: 7/19/96

THESE PLANS FOR SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD COUNTY SOIL CONSERVATION DISTRICT.

Robert W. Zichow
HOWARD SOIL CONSERVATION DISTRICT DATE: 7/19/96

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Andrew M. Danaher
CHIEF, BUREAU OF HIGHWAYS DATE: 7-26-96

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Richard Blood
CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH DATE: 8/4/96

Donald M. Moore
PROFESSIONAL ENGINEER DATE: 9/4/96

P. 117
N/7
LOZAR AND PATTERSON
2084-057



NO	DATE	REVISION
12-9-96		REVISE SITE GRADING

TSA GROUP, INC.
planning • architecture • engineering
8480 Baltimore National Pike • Ellicott City, Maryland 21043 • (410) 465-0105



OWNER/DEVELOPER: SDC GROUP, INC. P.O. BOX 417 ELLICOTT CITY, MARYLAND 21041 (410) 465-4244	PROJECT: KINGS WOODS SECTION 4 LOTS 301-361 (KING PROPERTY)
LOCATION: TAX MAP 47 - PARCEL 550 8th ELECTION DISTRICT HOWARD COUNTY, MARYLAND	TITLE: SEDIMENT CONTROL PLAN
DATE: MARCH 1996 JULY 1, 1996	PROJECT NO. 0718
DESIGN: JME DRAFT: DBT	SCALE: 1" = 50' DRAWING 7 OF 10

- LEGEND**
- TEMPORARY CONTOURS
 - EXISTING CONTOURS
 - PROPOSED CONTOURS
 - X X TREE PROTECTION FENCE
 - SF SF SILT FENCE
 - SSF SSF SUPER SILT FENCE
 - EARTH DIKE
 - LIMIT OF DISTURBANCE
 - EXISTING TREELINE
 - PROPOSED TREELINE

STONE OUTLET SEDIMENT TRAP

DRAINAGE AREA	1.9 AC.
VOLUME REQUIRED	6840 CF
WET VOLUME REQUIRED	3420 CF
DRY VOLUME REQUIRED	3420 CF
BOTTOM DIMENSION	70' x 40'
STORAGE PROVIDED	8500 CF
WEIR LENGTH	12'
WEIR CREST ELEVATION	299.00
POND BOTTOM	295.50
POND TOP ELEVATION	300.00
STORAGE DEPTH	2.5'
CLEANOUT ELEVATION	296.50

NOTE:
USE CLEAN WATER DIVERSION DIKE (1) UNTIL ROADWAY IS GRADED AND STORM DRAIN M-4 TO I-10 IS CONSTRUCTED. THEN PLACE EARTH DIKE (2) TO DIRECT RUN-OFF TO TEMPORARY SEDIMENT BASIN. REMOVE CLEAN WATER DIVERSION.

NOTE: EARTH DIKES ARE TO BE RELOCATED AND REPAIRED AS NEEDED.

KINGS WOODS 2/2
PHASE 1
PLAT NUMBERS
10193-10195

KINGS WOODS 2/2
PHASE 3
PLAT NUMBERS
10388-10400

KINGS WOODS 2/2
PHASE 3
PLAT NUMBERS
10398-10400

KINGS WOODS 2/1
PLAT NUMBERS
8698-8700

HERBERT F. KING
P. 857
2377/198

987

F-9-139

POND CONSTRUCTION SPECIFICATIONS

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

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

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

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

Placement - Areas on which fill is to be placed shall be scarified prior to placement of fill. Fill material 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 the equipment or compaction shall be achieved by a minimum of four complete passes of a sheepsfoot, rubber-tired or vibratory roller. Fill material shall contain sufficient moisture such that the required degree of compaction will be obtained with the equipment used. The fill material shall contain sufficient moisture so that if formed into a ball it will not crumble yet not be so wet that water can be squeezed out.

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

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

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

Pipe Conduits
All pipes shall be circular in cross section.

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

- Materials - (Steel Pipe) - This pipe and its appurtenances shall be galvanized and fully bituminous coated and shall conform to the requirements of AASHTO Specification M-190 Type A with watertight coupling bands. Any bituminous coating damaged or otherwise removed shall be replaced with compacted asphaltic bituminous coating compound. Steel pipes with polymeric coatings shall have a minimum coating thickness of 0.01 inch (10 mil) on both sides of the pipe. The following coatings or an approved equal may be used: Nexon, Plastico-Cote, Blue-Klad, and Beth-Cu-Loy. Coated corrugated steel pipe shall meet the requirements of AASHTO M-45 and M-246.

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

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

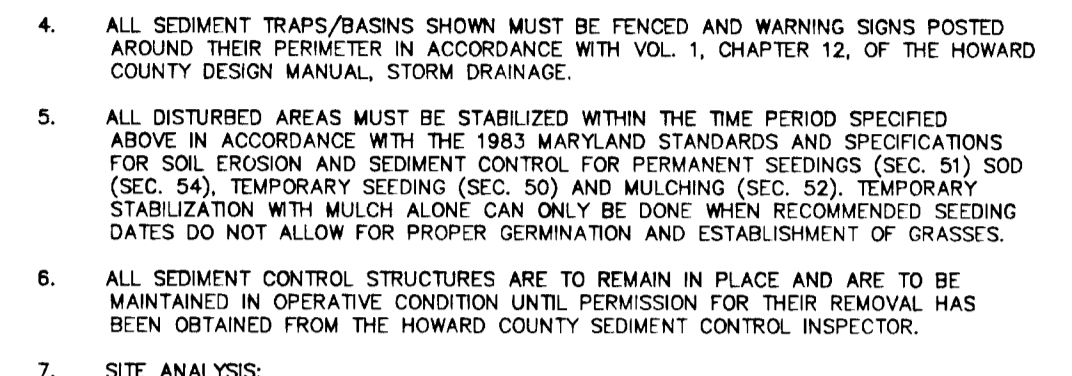
- Coupling bands, anti-seep collars, end sections, etc., must be composed of the same material as the pipe. Metals must be insulated from dissimilar materials with use of rubber or plastic insulating materials at least 24 mils in thickness.
- Connections - All connections with pipes must be completely watertight. The drain pipe or barrel connection to the riser shall be welded all around when the pipe and riser are metal. Anti-seep collars shall be connected to the pipe in such a manner as to be completely watertight. Diplicate 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 band width. The following type connections are acceptable for pipes less than 48" in diameter: flanges on both ends of the pipe, a 12" wide standard lap type band with 12" wide 3/8" thick closed cell circular neoprene gasket; and a 12" wide hucker type band with O-ring gaskets having a minimum diameter of 1/2" greater than the corrugation depth. Pipes 48" in diameter and larger shall be connected by a 24" long annular corrugated band using rods and lugs. A 12" wide by 3/8" thick closed cell circular neoprene gasket will be installed on the end of each pipe for a total of 24". Helicorr corrugated pipe shall have either continuously welded seams or have lock seams.

- Bedding - The pipe shall be firmly and uniformly bedded throughout its entire length. Where rock or soft, spongy or other unstable soil is encountered, all such material shall be removed and replaced with suitable earth compacted to provide adequate support.
- Backfilling shall conform to "Structure Backfill."
- Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

SEDIMENT CONTROL NOTES

- A MINIMUM OF 24 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTION, LICENSES AND PERMITS, SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION, (313-1850).
- ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE MOST CURRENT MARYLAND STANDARDS AND SPECIFICATION FOR SOIL EROSION AND SEDIMENT CONTROL, REVISIONS THERE TO.
- FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN: A) 7 CALENDAR DAYS FOR ALL PERMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES AND ALL SLOPES GREATER THAN 3:1, B) 14 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
- ALL SEDIMENT TRAPS/BASINS SHOWN MUST BE FENCED AND WARNING SIGNS POSTED AROUND THEIR PERIMETER IN ACCORDANCE WITH VOL. 1, CHAPTER 12, OF THE HOWARD COUNTY DESIGN MANUAL, STORM DRAINAGE.
- ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDINGS (SEC. 51) SDO (SEC. 54), TEMPORARY SEEDING (SEC. 50) AND MULCHING (SEC. 52), TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.
- ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMITS FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
- SEE SITE ANALYSIS.

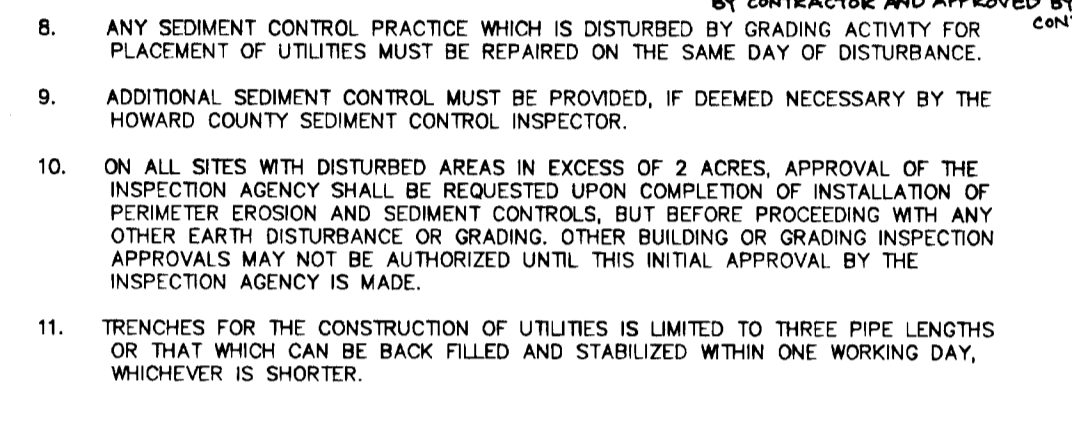


CONSTRUCTION NOTES FOR FABRICATED SILT FENCE

- 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 1 3/4" diameter (minimum) round and shall be of sound quality hardwood. Steel posts will be standard 1" or 1 1/2" section welding 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: MSUT 509
Tensile Modulus	20 lbs/in (min.)	Test: MSUT 509
Flow Rate	0.3 gal/ft ² /minute (max.)	Test: MSUT 322
Filtering Efficiency	75% (min.)	Test: MSUT 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.



TEMPORARY SEEDBED PREPARATION

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

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

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

SEEDING: FOR PERIOD MARCH 1 THROUGH APRIL 30 AND FROM AUGUST 15 THROUGH NOVEMBER 15, SEED WITH 2-1/2 BUSHELS PER ACRE OF ANNUAL RYE (3.2 LBS/1000 SQ FT). FOR THE PERIOD MAY 1 THROUGH AUGUST 14, SEED WITH 3 LBS PER ACRE OF WEEPING LOVEGRASS (0.7 LBS/1000 SQ FT). FOR THE PERIOD NOVEMBER 16 THROUGH FEBRUARY 28, PROTECT SITE BY APPLYING 2 TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING, OR USE SOU.

MULCHING: APPLY 1-1/2 TO 2 TONS PER ACRE (70 TO 90 LBS/1000 SQ FT) OF UNROTTED SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 218 GALLONS PER ACRE (5 GAL/1000 SQ FT) OF EMULSIFIED ASPHALT ON FLAT AREAS, ON SLOPES, 8 FT. OR HIGHER, USE 348 GALLONS PER ACRE (8 GAL/1000 SQ FT) FOR ANCHORING.

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

PERMANENT SEEDBED PREPARATION

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

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

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

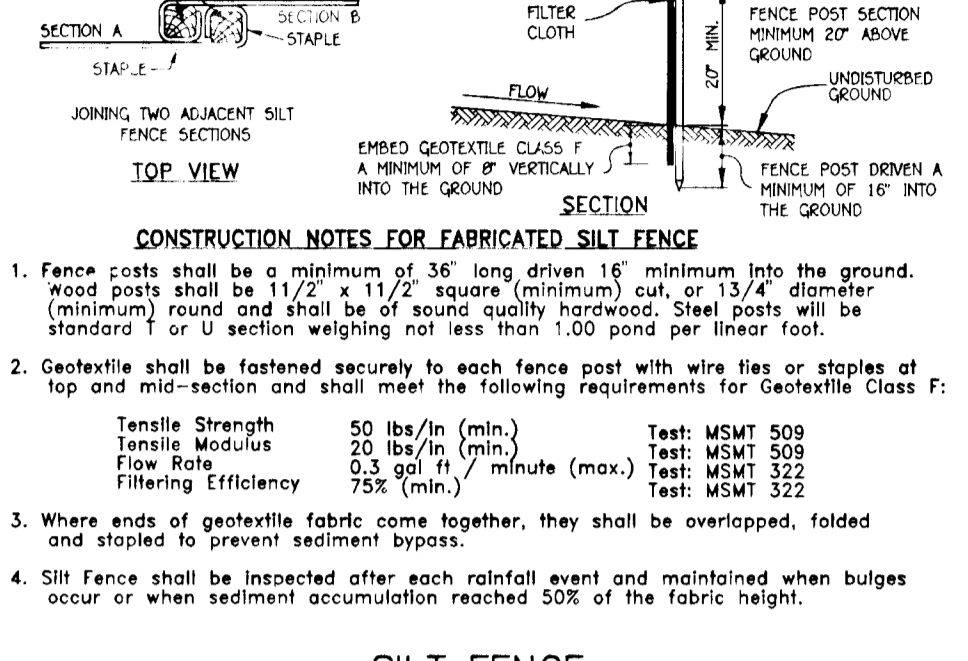
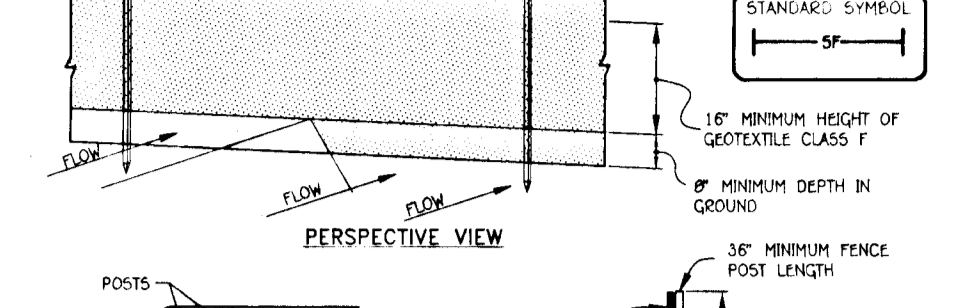
SEEDING: FOR THE PERIODS MARCH 1 THROUGH APRIL 30 AND AUGUST 1 THROUGH OCTOBER 15, SEED WITH 60 LBS PER ACRE (14 LBS/1000 SQ FT) OF KENTUCKY 31 TALL FESCUE PER ACRE AND 2 LBS PER ACRE (0.5 LBS/1000 SQ FT) OF WEEPING LOVEGRASS. DURING THE PERIOD OF OCTOBER 16 THROUGH FEBRUARY 28, PROTECT SITE BY APPLYING 2 TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING, OR OPTION (2) USE SOU, OPTION (3) SEED WITH 60 LBS PER ACRE OF KENTUCKY 31 TALL FESCUE AND MULCH WITH 2 TONS PER ACRE OF WELL ANCHORED STRAW.

MULCHING: APPLY 1-1/2 TO 2 TONS PER ACRE (70 TO 90 LBS/1000 SQ FT) OF UNROTTED SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 218 GALLONS PER ACRE (5 GAL/1000 SQ FT) OF EMULSIFIED ASPHALT ON FLAT AREAS, ON SLOPES 8 FEET OR HIGHER, USE 348 GALLONS PER ACRE (8 GAL/1000 SQ FT) FOR ANCHORING.

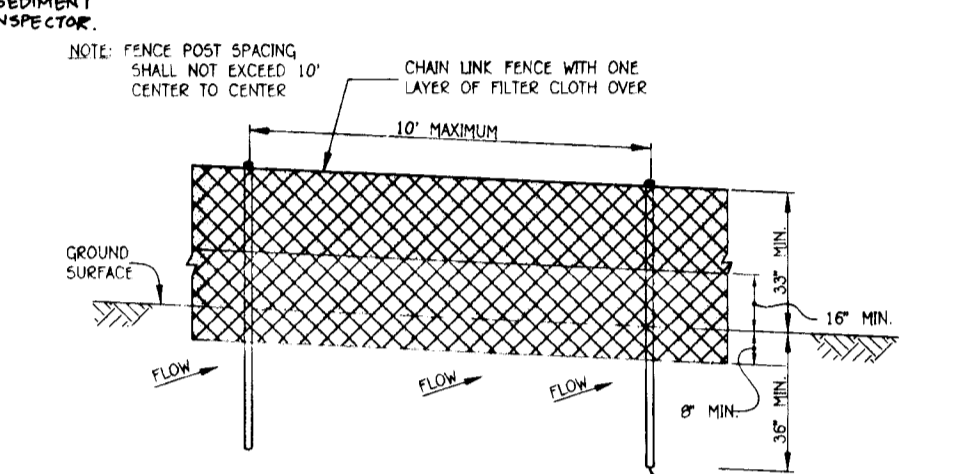
MAINTENANCE: INSPECT ALL SEEDED AREAS AND MAKE NEEDED REPAIRS, REPLACEMENTS AND RESEEDINGS.

SEQUENCE OF CONSTRUCTION

- OBTAIN GRADING PERMIT.
- INSTALL STABILIZED CONSTRUCTION ENTRANCE, TREE PROTECTION FENCE, SILT FENCE, AND STONE OUTLET SEDIMENT TRAP.
- CONSTRUCT TEMPORARY SEDIMENT BASIN, RISER, AND OUTFALL. INSTALL 8" PVC DRAINPIPE AND DEWATERING DEVICE (WITHOUT 2" CONTROL CRIBS).
- INSTALL EARTH DIKES.
- GRADE ROADWAY TO SUBGRADE. STABILIZE ALL DISTURBED AREAS.
- CONSTRUCT SEWER, WATER, AND STORM DRAIN SYSTEMS.
- CONSTRUCT CURB & GUTTER AND PAVING.
- STABILIZE ALL DISTURBED AREAS IN ACCORDANCE WITH PERMANENT SEEDBED NOTES.
- UPON APPROVAL OF THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, REMOVE SEDIMENT CONTROL DEVICES AND STABILIZE.
- CONVERT SEDIMENT BASIN TO PERMANENT WATER QUALITY FACILITY AS FOLLOWS:
 - PUMP OUT IMPOUNDED WATER.
 - DREDGE BASIN TO REMOVE ALL SEDIMENT.
 - GRADE POND TO PLAN SHAPE.
 - INSTALL 2" CONTROL CRIBS.
 - PERMANENTLY STABILIZE.
- LANDSCAPE.



SILT FENCE



TEMPORARY SEEDBED PREPARATION

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

SEEDBED PREPARATION: LOOSEN UPPER THREE INCHES OF SOIL BY RAKING, DISING 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).

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MULCHING: APPLY 1-1/2 TO 2 TONS PER ACRE (70 TO 90 LBS/1000 SQ FT) OF UNROTTED SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 218 GALLONS PER ACRE (5 GAL/1000 SQ FT) OF EMULSIFIED ASPHALT ON FLAT AREAS, ON SLOPES, 8 FT. OR HIGHER, USE 348 GALLONS PER ACRE (8 GAL/1000 SQ FT) FOR ANCHORING.

PERMANENT SEEDBED PREPARATION

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- ACCEPTABLE - APPLY 2 TONS PER ACRE DOLOMITIC LIMESTONE (92 LBS/1000 SQ FT) AND 1000 LBS PER ACRE 10-10-10 FERTILIZER (23 LBS/1000 SQ FT) BEFORE SEEDING. HARROW OR DISC INTO UPPER THREE INCHES OF SOIL.

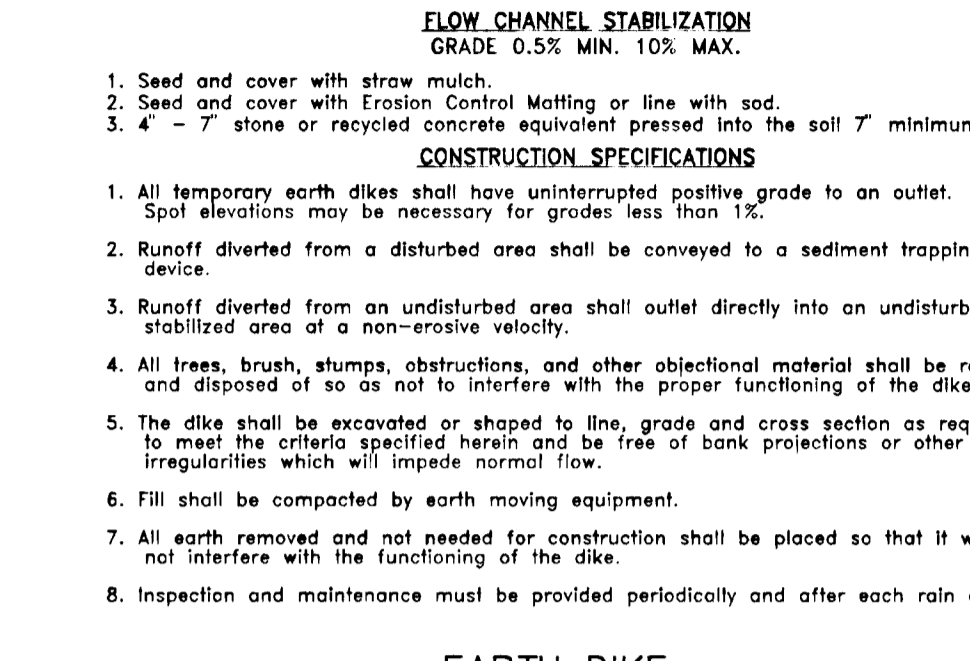
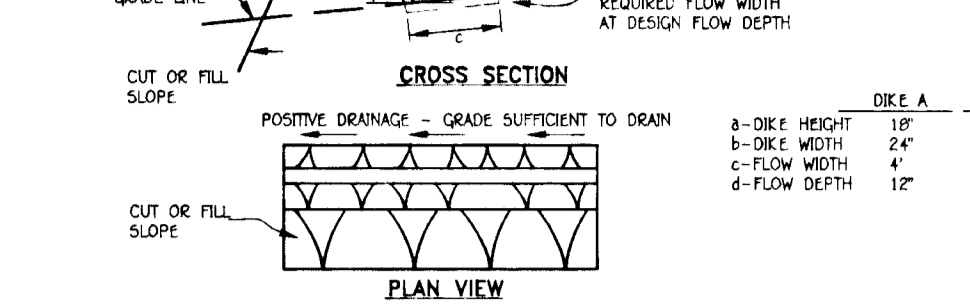
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MULCHING: APPLY 1-1/2 TO 2 TONS PER ACRE (70 TO 90 LBS/1000 SQ FT) OF UNROTTED SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 218 GALLONS PER ACRE (5 GAL/1000 SQ FT) OF EMULSIFIED ASPHALT ON FLAT AREAS, ON SLOPES 8 FEET OR HIGHER, USE 348 GALLONS PER ACRE (8 GAL/1000 SQ FT) FOR ANCHORING.

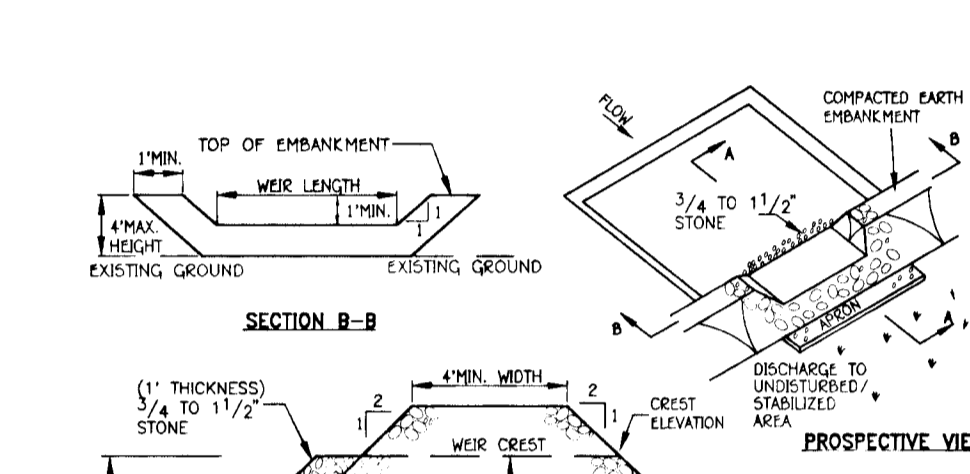
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SEQUENCE OF CONSTRUCTION

- OBTAIN GRADING PERMIT.
- INSTALL STABILIZED CONSTRUCTION ENTRANCE, TREE PROTECTION FENCE, SILT FENCE, AND STONE OUTLET SEDIMENT TRAP.
- CONSTRUCT TEMPORARY SEDIMENT BASIN, RISER, AND OUTFALL. INSTALL 8" PVC DRAINPIPE AND DEWATERING DEVICE (WITHOUT 2" CONTROL CRIBS).
- INSTALL EARTH DIKES.
- GRADE ROADWAY TO SUBGRADE. STABILIZE ALL DISTURBED AREAS.
- CONSTRUCT SEWER, WATER, AND STORM DRAIN SYSTEMS.
- CONSTRUCT CURB & GUTTER AND PAVING.
- STABILIZE ALL DISTURBED AREAS IN ACCORDANCE WITH PERMANENT SEEDBED NOTES.
- UPON APPROVAL OF THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, REMOVE SEDIMENT CONTROL DEVICES AND STABILIZE.
- CONVERT SEDIMENT BASIN TO PERMANENT WATER QUALITY FACILITY AS FOLLOWS:
 - PUMP OUT IMPOUNDED WATER.
 - DREDGE BASIN TO REMOVE ALL SEDIMENT.
 - GRADE POND TO PLAN SHAPE.
 - INSTALL 2" CONTROL CRIBS.
 - PERMANENTLY STABILIZE.
- LANDSCAPE.



SILT FENCE



TEMPORARY SEEDBED PREPARATION

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

SEEDBED PREPARATION: LOOSEN UPPER THREE INCHES OF SOIL BY RAKING, DISING 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).

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MULCHING: APPLY 1-1/2 TO 2 TONS PER ACRE (70 TO 90 LBS/1000 SQ FT) OF UNROTTED SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 218 GALLONS PER ACRE (5 GAL/1000 SQ FT) OF EMULSIFIED ASPHALT ON FLAT AREAS, ON SLOPES, 8 FT. OR HIGHER, USE 348 GALLONS PER ACRE (8 GAL/1000 SQ FT) FOR ANCHORING.

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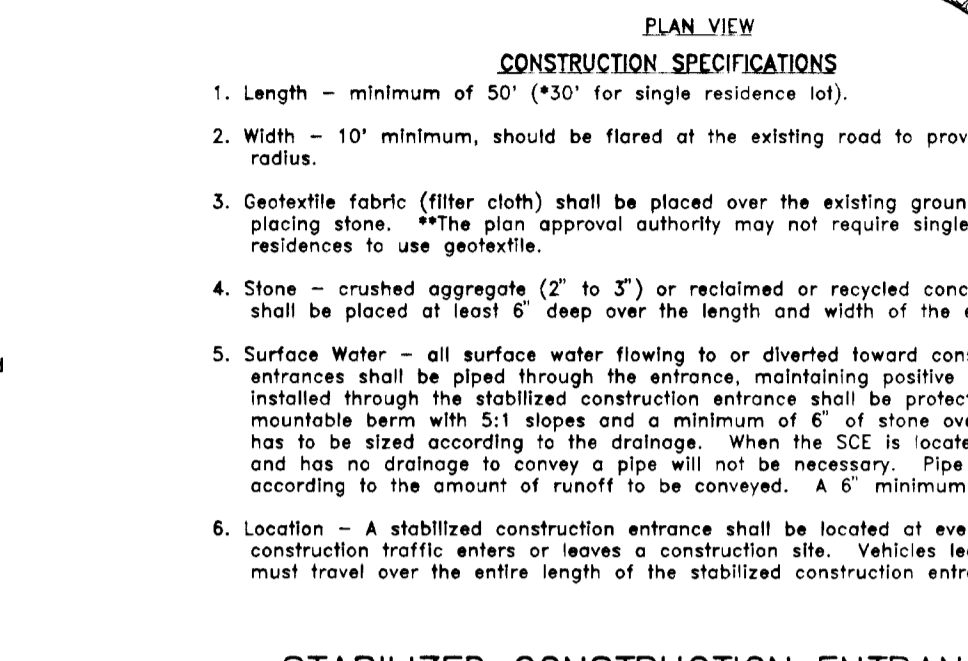
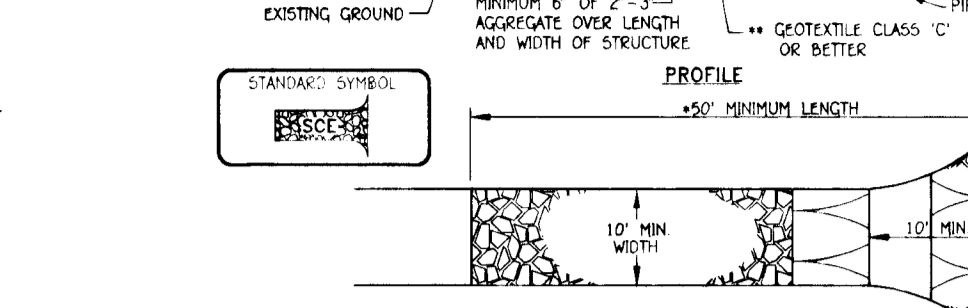
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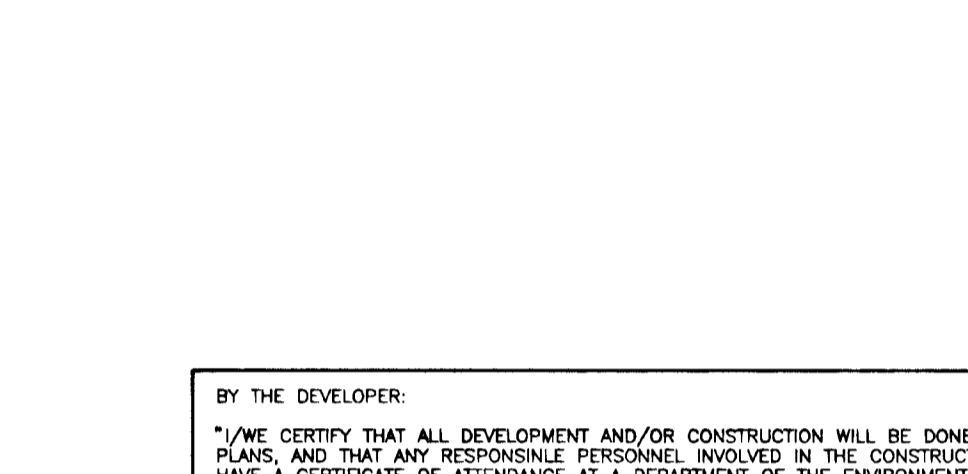
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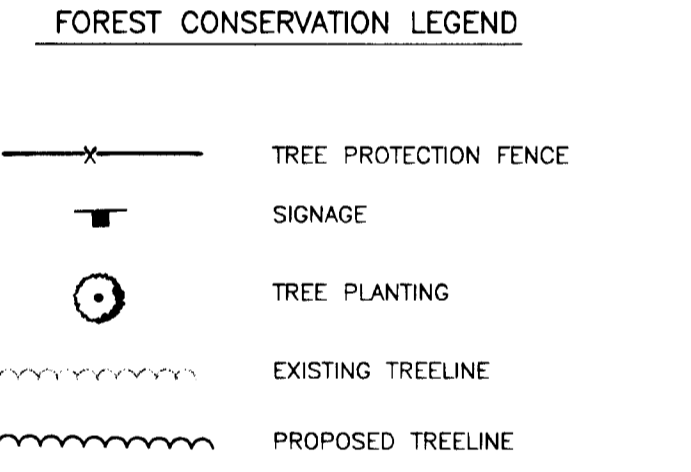
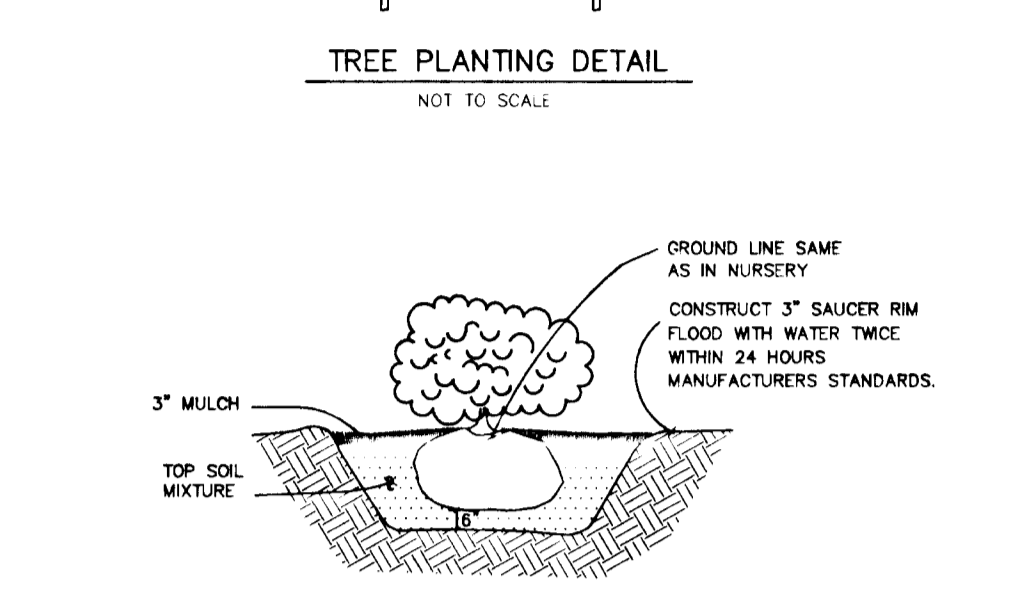
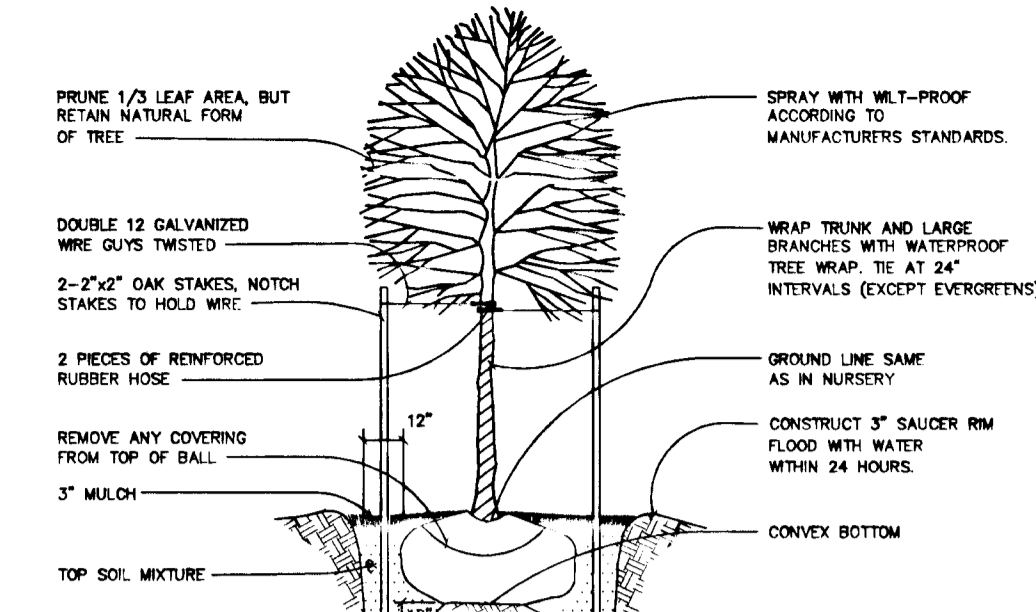
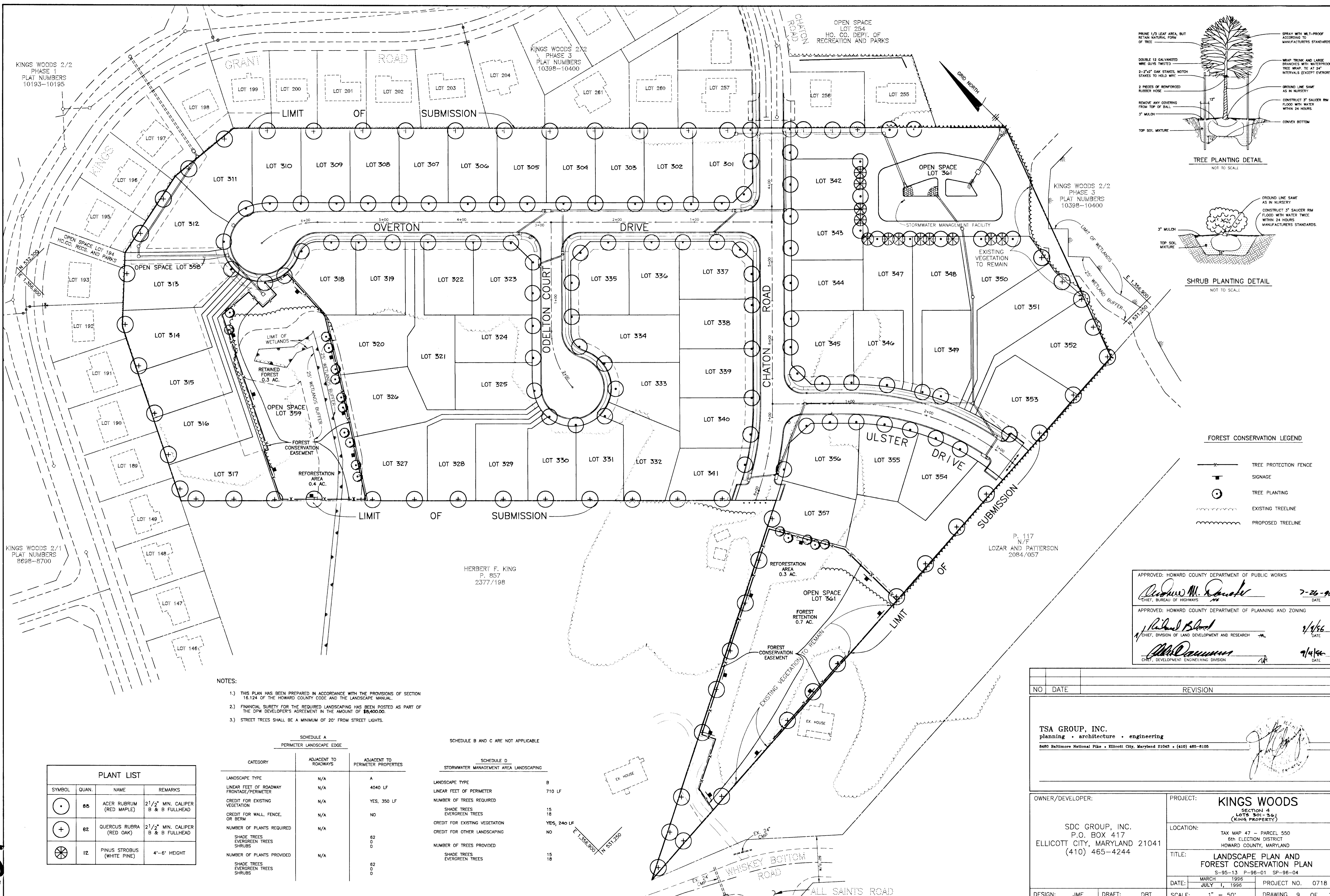
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NOTES:
 1.) THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL.
 2.) FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING HAS BEEN POSTED AS PART OF THE DPW DEVELOPER'S AGREEMENT IN THE AMOUNT OF \$8,400.00.
 3.) STREET TREES SHALL BE A MINIMUM OF 20' FROM STREET LIGHTS.

SCHEDULE A PERIMETER LANDSCAPE EDGE			
SYMBOL	QUAN.	NAME	REMARKS
○	85	ACER RUBRUM (RED MAPLE)	2 1/2" MIN. CALIPER B & B FULLHEAD
+	62	QUERCUS RUBRA (RED OAK)	2 1/2" MIN. CALIPER B & B FULLHEAD
⊗	12	PINUS STROBUS (WHITE PINE)	4'-6" HEIGHT

SCHEDULE B AND C ARE NOT APPLICABLE		
CATEGORY	ADJACENT TO ROADWAYS	ADJACENT TO PERIMETER PROPERTIES
LANDSCAPE TYPE	N/A	A
LINEAR FEET OF ROADWAY FRONTAGE/PERIMETER	N/A	4040 LF
CREDIT FOR EXISTING VEGETATION	N/A	YES, 350 LF
CREDIT FOR WALL, FENCE, OR BERM	N/A	NO
NUMBER OF PLANTS REQUIRED	N/A	NO
SHADE TREES		62
EVERGREEN TREES		0
SHRUBS		0
NUMBER OF PLANTS PROVIDED	N/A	NO
SHADE TREES		62
EVERGREEN TREES		0
SHRUBS		0

SCHEDULE D STORMWATER MANAGEMENT AREA LANDSCAPING	
LANDSCAPE TYPE	B
LINEAR FEET OF PERIMETER	710 LF
NUMBER OF TREES REQUIRED	
SHADE TREES	15
EVERGREEN TREES	18
CREDIT FOR EXISTING VEGETATION	YES, 240 LF
CREDIT FOR OTHER LANDSCAPING	NO
NUMBER OF TREES PROVIDED	
SHADE TREES	15
EVERGREEN TREES	18

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Richard M. Daulton 7-26-96
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
Richard Blood 7/4/96
 CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH DATE

Mr. Daulton 7/4/96
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

NO	DATE	REVISION

TSA GROUP, INC.
 planning • architecture • engineering
 8480 Baltimore National Pike • Ellicott City, Maryland 21043 • (410) 465-6105

OWNER/DEVELOPER: SDC GROUP, INC.
 P.O. BOX 417
 ELLICOTT CITY, MARYLAND 21041
 (410) 465-4244

PROJECT: **KINGS WOODS**
 SECTION 4
 LOTS 301-361
 (KING PROPERTY)

LOCATION: TAX MAP 47 - PARCEL 550
 6th ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

TITLE: **LANDSCAPE PLAN AND FOREST CONSERVATION PLAN**
 S-95-13 P-96-01 SP-96-04

DATE: MARCH 1996
 JULY 1, 1996 PROJECT NO. 0718

DESIGN: JME DRAFT: DBT SCALE: 1" = 50' DRAWING 9 OF 10

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FOREST PROTECTION PROCEDURES - Pre-Construction Phase

- The edge of the woods to be protected will be marked in the field per the limits of disturbance shown in the approved site development plan prior to the start of construction activity. All areas within protective fences are to be considered "off limits" to any construction activities. The protective fencing shall be installed at the outside edge of forested areas and specimen trees to be retained; the limit of the critical root zone to be determined as follows:
 - Edge of Forested Area - 1 foot of protective radius/inch of DBH or an eight foot protective radius, whichever is greater.
- Construction activities expressly restricted within the preservation areas are:
 - Placing or stockpiling backfill or top soil in protected areas
 - Felling trees into protected areas
 - Driving construction equipment into or through protected areas
 - Burning in or in close proximity to protected areas
 - Stacking or storing supplies of any kind
 - Concrete wash-off areas
 - Conducting trenching operations
 - Grading beyond the limits of disturbance
 - Parking vehicles or construction equipment
 - Removal of root mat or topsoil
 - Siting and construction of:
 - Utility lines
 - Access roads
 - Impermeable surfaces
 - Stormwater management devices
- Protective fencing (see Figure "Protective Fencing") shall be the responsibility of the general contractor. The general contractor shall affix signs to the fencing at 25' minimum intervals indicating that these areas are "Forest Retention Area" or "Specimen Trees" (see Figure "Signage"). The general contractor shall take great care to assure the restricted areas are not violated and that root systems are protected from smothering, flooding, excessive wetting from de-watering operations, off-site run-off, spillage, and drainage of solutions containing materials hazardous to tree roots.
- The general contractor shall be responsible for any tree damaged or destroyed within the preservation areas whether caused by the contractor, his agents, employees, sub-contractors, or licensees.
- Foot traffic shall be kept to a minimum in the protective areas.
- All trees which are not to be preserved within fifty feet of any tree preservation areas are to be removed in a manner that will not damage those trees that are designated for preservation. It is highly recommended that tree stumps within this fifty foot area be ground out with a stump grinding machine to minimize damage.
- The general contractor shall designate a "wash out" area on-site for concrete trucks which will not drain toward a protected area.
- A pre-construction meeting shall be held with local authorities before any disturbance has taken place on site.

FOREST PROTECTION PROCEDURES - Construction Phase

Forest and tree conditions should be monitored during construction and corrective measures taken when appropriate.

The following shall be monitored:

- Soil compaction
- Root injury - prune and monitor; consider crown reduction
- Limb injury - prune and monitor
- Flooded conditions - drain and monitor; correct problem
- Drought conditions - water and monitor; correct problem
- Other stress signs - determine reason, correct, and monitor.

FOREST PROTECTION PROCEDURES - Post-Construction Phase

The following measures shall be taken:

- Corrective measures if damages were incurred due to negligence:
 - Stress reduction
 - Removal of dead or dying trees. This may be done only if trees pose an immediate safety hazard
- Removal of temporary structures:
 - No burial of discarded materials will occur on-site within the conservation area.
 - No open burning within 100 feet of a wooded area.
 - All temporary forest protection structures will be removed after construction.
 - Remove temporary roads by removing stone or broadcasting mulch; pre-construction elevation should be maintained.
 - Aerate compacted soil.
 - Replant disturbed sites with trees, shrubs and/or herbaceous plants.
 - Retain signs for retention areas or specimen trees.
 - A County official shall inspect the entire site.
- Future protection measures:
 - Howard County shall contact the owner for dedication of the appropriate forest protection easements.

PLANTING SPECIFICATIONS AND NOTES

I. SITE PREPARATION AND SOILS

- Disturbance of soils should be limited to the Planting Field for each plant. Planting hole will be a minimum 18" auger hole, dug to the depth of the root ball. As shown on the detail view, a Planting Field of 18" diameter is recommended.
- In areas of steep slopes or erodible soils, soil disturbance will be limited to the Planting Field which is equal to the 18" diameter auger hole.
- Soil mix for all plants shall be native soil with no soil amendments, unless a soils analysis determines that soil amendments are required (disturbed sites). Natural amendments, such as organic mulch or leaf mold compost, are preferred.

II. PLANT STORAGE AND INSPECTION

- For container grown nursery stock, planting should occur within two weeks after delivery to site.
- Planting stock should be inspected prior to planting. Plants not conforming to standard nurseryman specifications for size, form and vigor, roots, trunk wounds, insects and disease should be replaced.

III. SOIL AMENDMENTS

- Amendments are not recommended in the planting field as studies have shown that roots will be encouraged to stay within the amended soils.

IV. PLANT INSTALLATION

- Container grown stock should be removed from the container and roots gently loosened from the soil. If the roots encircle the root ball, substitution is required. J-shaped or kinked root systems should also be rejected. **ROOTS MAY NOT BE TRIMMED ON SITE.**
- The Planting Field should be prepared as specified (see detail). Native dug soils should be used to backfill planting field. Set plant material no more than 1" above existing ground and no lower than existing ground. Gently pack native soil around plant to eliminate all air pockets. After whip and container installation, rake soils evenly over the Planting Field and cover hole with three inches of composted hardwood mulch. Water to settle soil and provide moisture, as needed.
- Prune whips to encourage branching. Container stock will be pruned to eliminate broken and dead branches.
- Newly planted trees may need watering depending on weather conditions. During the next two years watering should be required during summer and dry months. Any watering should consider for recent rainfall patterns.
- Staking of stock is not required, if preferred stock type used.
- Side dressing fertilization 1 year after planting may be warranted.

V. MAINTENANCE SCHEDULE

- Landscape should conduct an inspection at the following intervals: 6 months after planting, 1 year after planting and 2 years after planting. The purpose of inspection is to evaluate survival rate with reference to the survival required at the end of the two year period (75% minimum).

Regular visits during the first growing season (yr 1) are to assess the success of the plantings and determine if supplemental watering or other actions are necessary. Early spring visits will determine winter kill and autumn visits will determine summer kill.

- Assess tree mortality of planting stock, remove and replace any dead or diseased plantings for the first 2 growing seasons.
- 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.
- Landscape shall remove or control aggressive, noxious, invasive species (i.e. Multiflora Rose, Japanese Moneytree, and all herbaceous vegetation) within a 3-foot radius surrounding the planted woody nursery stock for 2 years after planting.
- The landscaper shall be responsible to remove down and dead material that is smothering planting stock. Material occurring naturally that is not affecting planted stock shall not be removed.
- Mowing is one of the most effective means to control exotic and/or invasive species. No mowing shall occur during the wildlife nesting period of early April through mid-July. The landscaper is responsible for mowing and/or weed wacking and/or applying herbicide around planting stock, if needed for 2 growing seasons after planting.

PLANT LIST

QTY	SPECIES	INDICATOR STATUS	SIZE
14*	<i>Salix nigra</i> Black willow	ORL	whip
121	3 SPECIES OF Mixed oaks	FACU	whip
18 (15)	<i>Quercus alba</i> INLBS COCCINEA	FACU FACU UPL	whip (8 TREES TO BE MIN 1 1/2" HIGH CALIPER TO BE PLANTED AS BUFFER ALONG RESIDENTIAL LOTS @ 20' SPACING)
46	<i>Cornus florida</i> Flowering dogwood	FACU	Whip/container
46	<i>Sassafras albidum</i> Sassafras	FACU	Whip/container

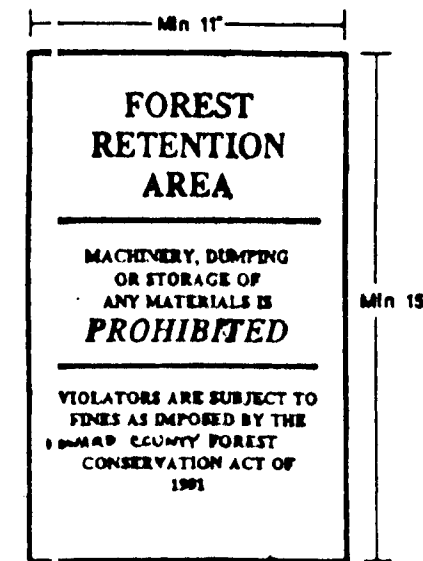
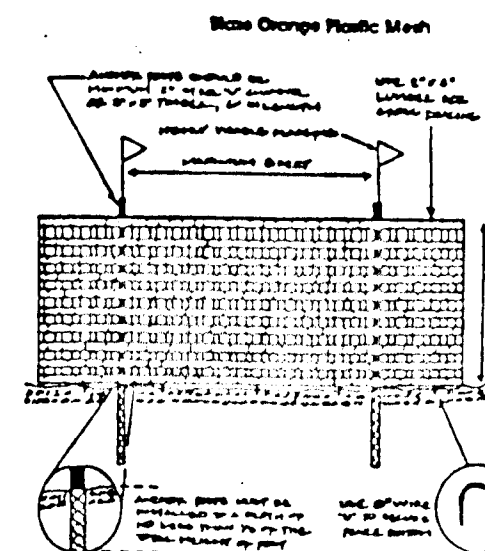
***NOTES:**

*Only black willow whips should be planted in the wetland. Plant all 14 willows in this area.

4.7 ACRES REFORESTATION REQUIRED. 0.7 acres reforestation on-site.

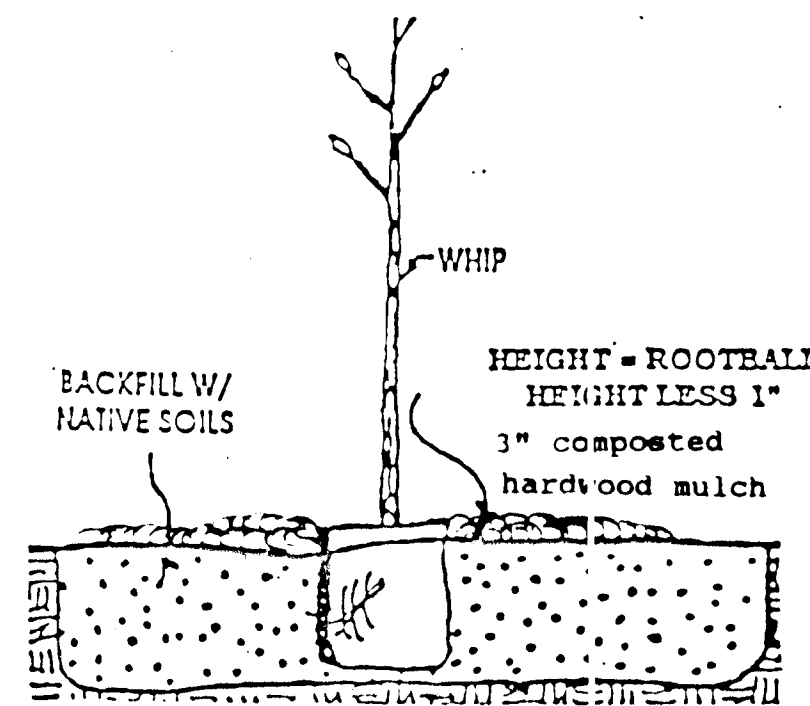
PLANTING NOTES

- Planting stock should be 3' to 4' whips and 1 1/2 to 2 gallon container stock at a minimum.
- Only composted mulch may be used.
- Whips should be planted an average of 11 ft on center. (see random planting detail)

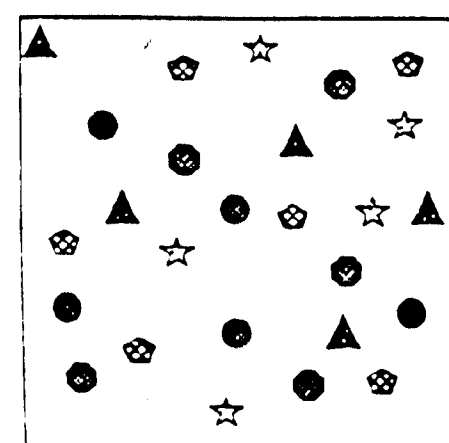


FENCING

SIGNAGE



Width = 2-3X Rootmass or Container Diameter
Depth = 1-1.5X Length of Rootmass
PLANTING FIELD DETAIL
NO SCALE



- SYCAMORE/CAK
 - ☆ TULIP POPLAR
 - △ RED MAPLE
 - ▲ DOGWOOD
 - ◇ GREEN ASH
- TO BE PLANTED IN RANDOM DISTRIBUTION PATTERN

RANDOM PLANTING DETAIL

RECORD OF SOIL EXPLORATION

DATE	TIME	DEPTH	SOIL DESCRIPTION	TESTS	REMARKS
3-23-96	10:00	0.0	Topsoil, 0-2" (0-2")		
		0.5	Topsoil, 2-4" (2-4")		
		1.0	Subsoil, 4-6" (4-6")		
		1.5	Subsoil, 6-8" (6-8")		
		2.0	Subsoil, 8-10" (8-10")		
		2.5	Subsoil, 10-12" (10-12")		
		3.0	Subsoil, 12-14" (12-14")		
		3.5	Subsoil, 14-16" (14-16")		
		4.0	Subsoil, 16-18" (16-18")		
		4.5	Subsoil, 18-20" (18-20")		
		5.0	Subsoil, 20-22" (20-22")		
		5.5	Subsoil, 22-24" (22-24")		
		6.0	Subsoil, 24-26" (24-26")		
		6.5	Subsoil, 26-28" (26-28")		
		7.0	Subsoil, 28-30" (28-30")		
		7.5	Subsoil, 30-32" (30-32")		
		8.0	Subsoil, 32-34" (32-34")		
		8.5	Subsoil, 34-36" (34-36")		
		9.0	Subsoil, 36-38" (36-38")		
		9.5	Subsoil, 38-40" (38-40")		
		10.0	Subsoil, 40-42" (40-42")		
		10.5	Subsoil, 42-44" (42-44")		
		11.0	Subsoil, 44-46" (44-46")		
		11.5	Subsoil, 46-48" (46-48")		
		12.0	Subsoil, 48-50" (48-50")		
		12.5	Subsoil, 50-52" (50-52")		
		13.0	Subsoil, 52-54" (52-54")		
		13.5	Subsoil, 54-56" (54-56")		
		14.0	Subsoil, 56-58" (56-58")		
		14.5	Subsoil, 58-60" (58-60")		
		15.0	Subsoil, 60-62" (60-62")		
		15.5	Subsoil, 62-64" (62-64")		
		16.0	Subsoil, 64-66" (64-66")		
		16.5	Subsoil, 66-68" (66-68")		
		17.0	Subsoil, 68-70" (68-70")		
		17.5	Subsoil, 70-72" (70-72")		
		18.0	Subsoil, 72-74" (72-74")		
		18.5	Subsoil, 74-76" (74-76")		
		19.0	Subsoil, 76-78" (76-78")		
		19.5	Subsoil, 78-80" (78-80")		
		20.0	Subsoil, 80-82" (80-82")		
		20.5	Subsoil, 82-84" (82-84")		
		21.0	Subsoil, 84-86" (84-86")		
		21.5	Subsoil, 86-88" (86-88")		
		22.0	Subsoil, 88-90" (88-90")		
		22.5	Subsoil, 90-92" (90-92")		
		23.0	Subsoil, 92-94" (92-94")		
		23.5	Subsoil, 94-96" (94-96")		
		24.0	Subsoil, 96-98" (96-98")		
		24.5	Subsoil, 98-100" (98-100")		
		25.0	Subsoil, 100-102" (100-102")		
		25.5	Subsoil, 102-104" (102-104")		
		26.0	Subsoil, 104-106" (104-106")		
		26.5	Subsoil, 106-108" (106-108")		
		27.0	Subsoil, 108-110" (108-110")		
		27.5	Subsoil, 110-112" (110-112")		
		28.0	Subsoil, 112-114" (112-114")		
		28.5	Subsoil, 114-116" (114-116")		
		29.0	Subsoil, 116-118" (116-118")		
		29.5	Subsoil, 118-120" (118-120")		
		30.0	Subsoil, 120-122" (120-122")		
		30.5	Subsoil, 122-124" (122-124")		
		31.0	Subsoil, 124-126" (124-126")		
		31.5	Subsoil, 126-128" (126-128")		
		32.0	Subsoil, 128-130" (128-130")		
		32.5	Subsoil, 130-132" (130-132")		
		33.0	Subsoil, 132-134" (132-134")		
		33.5	Subsoil, 134-136" (134-136")		
		34.0	Subsoil, 136-138" (136-138")		
		34.5	Subsoil, 138-140" (138-140")		
		35.0	Subsoil, 140-142" (140-142")		
		35.5	Subsoil, 142-144" (142-144")		
		36.0	Subsoil, 144-146" (144-146")		
		36.5	Subsoil, 146-148" (146-148")		
		37.0	Subsoil, 148-150" (148-150")		
		37.5	Subsoil, 150-152" (150-152")		
		38.0	Subsoil, 152-154" (152-154")		
		38.5	Subsoil, 154-156" (154-156")		
		39.0	Subsoil, 156-158" (156-158")		
		39.5	Subsoil, 158-160" (158-160")		
		40.0	Subsoil, 160-162" (160-162")		
		40.5	Subsoil, 162-164" (162-164")		
		41.0	Subsoil, 164-166" (164-166")		
		41.5	Subsoil, 166-168" (166-168")		
		42.0	Subsoil, 168-170" (168-170")		
		42.5	Subsoil, 170-172" (170-172")		
		43.0	Subsoil, 172-174" (172-174")		
		43.5	Subsoil, 174-176" (174-176")		
		44.0	Subsoil, 176-178" (176-178")		
		44.5	Subsoil, 178-180" (178-180")		
		45.0	Subsoil, 180-182" (180-182")		
		45.5	Subsoil, 182-184" (182-184")		
		46.0	Subsoil, 184-186" (184-186")		
		46.5	Subsoil, 186-188" (186-188")		
		47.0	Subsoil, 188-190" (188-190")		
		47.5	Subsoil, 190-192" (190-192")		
		48.0	Subsoil, 192-194" (192-194")		
		48.5	Subsoil, 194-196" (194-196")		
		49.0	Subsoil, 196-198" (196-198")		
		49.5	Subsoil, 198-200" (198-200")		
		50.0	Subsoil, 200-202" (200-202")		
		50.5	Subsoil, 202-204" (202-204")		
		51.0	Subsoil, 204-206" (204-206")		
		51.5	Subsoil, 206-208" (206-208")		
		52.0	Subsoil, 208-210" (208-210")		
		52.5	Subsoil, 210-212" (210-212")		
		53.0	Subsoil, 212-214" (212-214")		
		53.5	Subsoil, 214-216" (214-216")		
		54.0	Subsoil, 216-218" (216-218")		
		54.5	Subsoil, 218-220" (218-220")		
		55.0	Subsoil, 220-222" (220-222")		
		55.5	Subsoil, 222-224" (222-224")		
		56.0	Subsoil, 224-226" (224-226")		
		56.5	Subsoil, 226-228" (226-228")		
		57.0	Subsoil, 228-230" (228-230")		
		57.5	Subsoil, 230-232" (230-232")		
		58.0	Subsoil, 232-234" (232-234")		
		58.5	Subsoil, 234-236" (234-236")		
		59.0	Subsoil, 236-238" (236-238")		
		59.5	Subsoil, 238-240" (238-240")		
		60.0	Subsoil, 240-242" (240-242")		
		60.5	Subsoil, 242-244" (242-244")		
		61.0	Subsoil, 244-246" (244-246")		
		61.5	Subsoil, 246-248" (246-248")		
		62.0	Subsoil, 248-250" (248-250")		
		62.5	Subsoil, 250-252" (250-25		