

SHEET INDEX	
NO	DESCRIPTION
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2	SITE DEVELOPMENT PLAN
3	GRADING AND SEDIMENT CONTROL
4	SEDIMENT CONTROL DETAILS
5	PROFILES AND DETAILS SHEET
6	PROFILES
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8	LANDSCAPE SCHEDULES AND DETAILS
9	RETAINING WALL CONSTRUCTION DETAILS
10	RETAINING WALL CONSTRUCTION DETAILS*

GENERAL NOTES

- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS, IF APPLICABLE.
- THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/BUREAU OF ENGINEERING/ CONSTRUCTION INSPECTION DIVISION AT (410) 313-1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF WORK.
- THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
- TRAFFIC CONTROL DEVICES, MARKINGS, AND SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL STREET AND REGULATORY SIGNS SHALL BE IN PLACE PRIOR TO THE PLACEMENT OF ANY ASPHALT.
- ALL PLAN DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
- THE EXISTING TOPOGRAPHY IS TAKEN FROM FIELD RUN SURVEY WITH MAXIMUM TWO FOOT CONTOUR INTERVALS PREPARED BY RIEMER MUEGGE & ASSOCIATES DATED NOVEMBER 1999, AND FROM MASS GRADES SDP-03-121.
- THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM. HOWARD COUNTY MONUMENT NOS. 30FB AND 30FC WERE USED FOR THIS PROJECT.
- WATER IS PUBLIC UNDER A PUBLIC CONTRACT TO BE BONDED BY THE DEVELOPER. CONTRACT NO. 24-4128-D.
- SEWER IS PUBLIC. SEWER DRAINAGE AREA: 108 P.S. CONTRACT NO. 24-4128-D
- THE STORMWATER QUALITY AND QUANTITY MANAGEMENT IS PROVIDED FOR THE DEVELOPMENT BY A REGIONAL RETENTION FACILITY PER F-87-82. THE FACILITY IS LOCATED NORTH OF EXECUTIVE DRIVE AND COLUMBIA 100 PARKWAY INTERSECTION.
- APPROXIMATE LOCATION OF EXISTING UTILITIES ARE SHOWN. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED DUE TO CONTRACTOR'S OPERATION SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE. EXISTING UTILITIES ARE SHOWN BASED ON THE BEST AVAILABLE INFORMATION.
- A 100- YEAR FLOODPLAIN STUDY FOR THIS PROJECT IS NOT REQUIRED.
- NO WETLANDS ARE FOUND ON THIS PROJECT.
- A TRAFFIC STUDY FOR THIS PROJECT WAS PREPARED BY MARS GROUP DATED AUGUST 2003.
- THE BOUNDARY SURVEY FOR THIS PROJECT WAS PREPARED BY RIEMER MUEGGE & ASSOCIATES DATED OCTOBER 1998.
- SUBJECT PROPERTY ZONED POR PER 10-18-93 COMPREHENSIVE ZONING PLAN.
- ALL ELEVATIONS SHOWN ARE BASED ON THE U.S.C. AND G.S. MEAN SEA LEVEL DATUM, 1929
- SEE DEPARTMENT OF PLANNING AND ZONING FILE NO'S. F-87-13, F-87-82, F-96-51, F-97-48, F-97-147, F-99-59, F-03-139, SDP-03-121, F-04-063.
- THE CONTRACTOR SHALL TEST PIT EXISTING UTILITIES AT LEAST (5) DAYS BEFORE STARTING WORK SHOWN ON THESE DRAWINGS.
- CONTRACTOR IS SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, PROCEDURES, AND SAFETY PRECAUTIONS AND PROGRAMS.
- ALL STORM DRAIN SHALL BE HDPE PIPE MEETING AASHTO M-252 TYPE S, M-294 TYPE S, AND ASTM D2321. PIPE SHALL NOT BE INSTALLED BY THE CONTRACTOR UNTIL THE LENGTH CALLED FOR AT EACH STATION HAS BEEN APPROVED BY THE ENGINEER IN THE FIELD.
- NO PIPE SHALL BE LAID UNTIL LINES OF EXCAVATION HAVE BEEN BROUGHT WITHIN 6" OF FINISHED GRADE.
- ALL INLETS SHALL BE CONSTRUCTED IN ACCORDANCE WITH HOWARD COUNTY STANDARDS.
- ALL PIPE ELEVATIONS SHOWN ARE INVERT ELEVATIONS.
- PROFILE STATIONS SHALL BE ADJUSTED AS NECESSARY TO CONFORM TO PLAN DIMENSIONS.
- ALL FILL AREAS WITHIN ROADWAY AND UNDER STRUCTURES TO BE COMPACTED TO A MINIMUM OF 95% COMPACTION OF AASHTO T180.
- PER SUBDIVISION REGULATION SECTION 16.1202(b)(1)(ii) THIS PROJECT WAS SUBJECT TO FINAL PLANS AND MASS GRADING PLANS (GP-86-57) PRIOR TO THE FOREST CONSERVATION ACT, AND IS NOT SUBJECT TO THE FOREST CONSERVATION ACT.
- ALL OUTDOOR LIGHTING SHALL COMPLY WITH THE REQUIREMENTS OF HOWARD COUNTY ZONING REGULATIONS SECTION 134.
- THE CANTILEVERED UPPER STORY BUILDING OVERHANG FEATURE IS PERMITTED UP TO THREE FEET WITHIN ANY REQUIRED SETBACK AREA IN ACCORDANCE WITH HOWARD COUNTY REGULATIONS SECTION 128.A.1.d.
- COVENANTS, CONDITIONS AND RESTRICTIONS FOR THE COLUMBIA 100 OFFICE RESEARCH PARK ARE RECORDED IN L1771 F.434 OF THE LAND RECORDS OF HOWARD COUNTY. THE COVENANTS ALLOW WORK UP TO 10' ONTO ADJACENT PARCELS FOR GRADING.
- A WAIVER TO SECTION 5.4 DEISM MANUAL VOLUME II TO ALLOW A RETAINING WALL TO BE LOCATED WITHIN 10' OF A PUBLIC SEWER EASEMENT WAS APPROVED BY BUREAU OF ENGINEERING IN LETTER DATED OCTOBER 2, 2003.

SITE ANALYSIS DATA CHART

AREA OF PARCEL J-2	2.88 ACRES
LIMIT OF DISTURBED AREA	2.75 ACRES
PRESENT ZONING	POR
PROPOSED USE	OFFICE
PROPOSED FLOOR AREAS	
FIRST FLOOR	
OFFICE	13,830 SF
2nd & 3rd FLOOR	
OFFICE	16,009 SF
4th FLOOR	
OFFICE	7,270 SF
TOTAL OFFICE	53,118 SF

REQUIRED PARKING*
OFFICE @ 3.3 SP./1,000 SF X 53,118 SF = 175.29
TOTAL REQUIRED SPACES = 197 SPACES

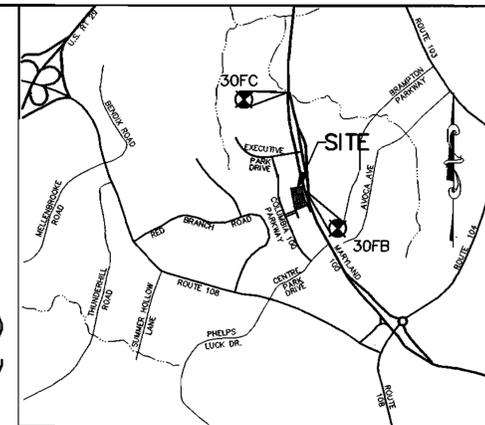
PROPOSED PARKING 237** SPACES (INCL. 7 HANDICAP SP.)

29 SMALL CAR PARKING SPACES ARE PROPOSED (16'x9') AS ALLOWED BY ZONING REGULATION SECT. 133 C(2)

BUILDING COVERAGE 14,229 SF (11.3% OF SITE)

** 9 OFFSITE SPACES ARE RESERVED SOLELY FOR SDP-04-020/ ADJACENT PARCEL K-4 UNDER RECORDED AGREEMENT, AND ARE NOT INCLUDED IN THE 228 PROVIDED. AGREEMENT RECORDED ON 12/17/03 UNDER L.7916, F. 631

SITE DEVELOPMENT PLAN COLUMBIA 100 OFFICE RESEARCH PARK SECTION 1, AREA 2, PARCEL J-2 2nd ELECTION DISTRICT HOWARD COUNTY, MARYLAND



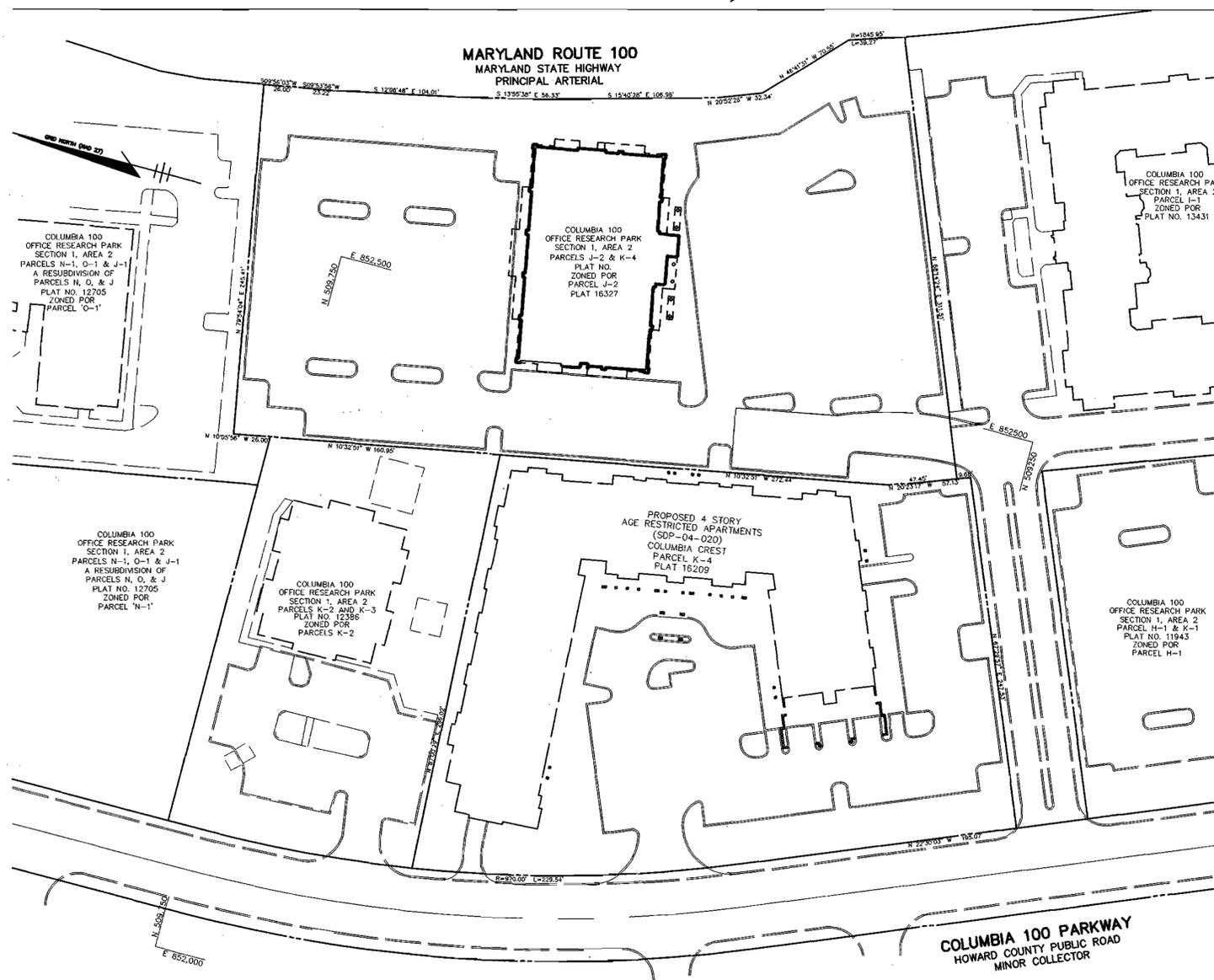
VICINITY MAP

SCALE: 1"=2000'
COPYRIGHT ADC THE MAP PEOPLE
PERMITTED USE NO. 20894285

BENCH MARK

HOWARD COUNTY CONTROL
STATION 30FB
N 570,134.286 (NAD83) E 509,385 (NAD27)
E 1,385,194.137 (NAD 83) E 852,776 (NAD 27)
ELEV. 500.63

HOWARD COUNTY CONTROL
STATION 30FC
N 572,916.535 (NAD 83) E 512,168 (NAD 27)
E 1,364,670.171 (NAD 83) E 852,252 (NAD 27)
ELEV. 386.93



LOCATION PLAN

1" = 50'



BUILDING ELEVATION

NO SCALE

ADDRESS CHART

PARCEL NUMBER	STREET ADDRESS
J-2	8850 COLUMBIA 100 PARKWAY

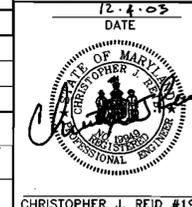
SUBDIVISION NAME	SECT./AREA	PARCEL
COLUMBIA 100 OFFICE RESEARCH PARK	S/1 A/2	J-2
PLAT NO. 16327	BLOCK # ZONING TAX MAP NO. ELECT. DIST. CENSUS TRACT	
	18 POR 30 2 6023.02	
WATER CODE G02	SEWER CODE 5750639	

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.	
<i>Diana Wright</i>	1/2/04
DIRECTOR	DATE
<i>Michael J. ...</i>	12/8/03
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE
<i>Chris Hamilton</i>	1/6/04
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE

DATE NO.	REVISION
OWNER	DEVELOPER
MJF ASSOCIATES LLLP 5550 STERRETT PLACE SUITE 312 COLUMBIA, MARYLAND 21044 410-730-9091	MDG COMPANIES 5550 STERRETT PLACE SUITE 312 COLUMBIA, MARYLAND 21044 410-730-9091
PROJECT	MDG CORPORATE CENTRE COLUMBIA 100 OFFICE RESEARCH PARK SECTION 1, AREA 2, PARCEL J-2
AREA	TAX MAP 30, PARCEL J-2, ZONED POR 2nd ELECTION DISTRICT HOWARD COUNTY, MARYLAND

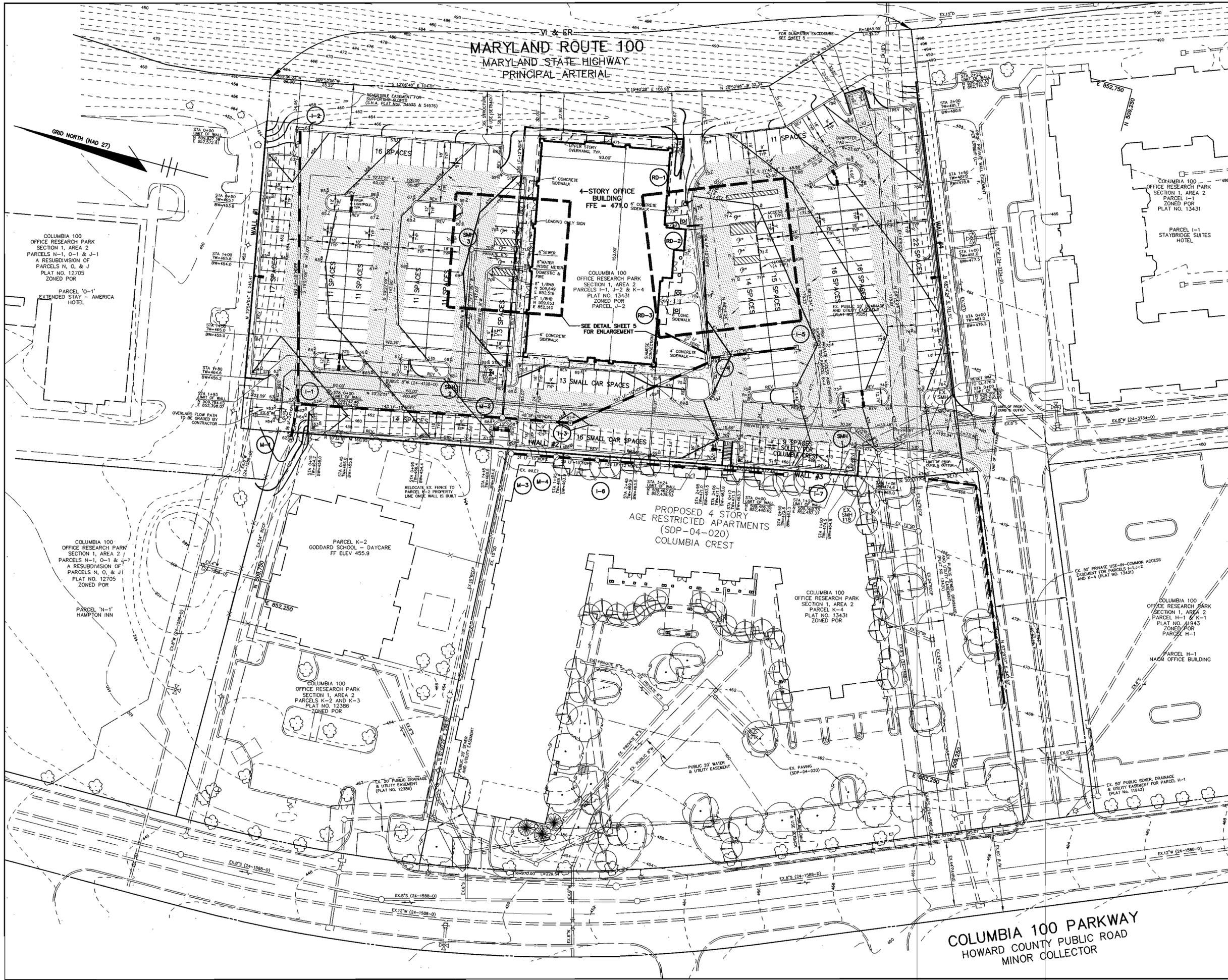
TITLE SHEET

Patton Harris Rust & Associates, pc
Engineers, Surveyors, Planners, Landscape Architects.
8818 Centre Park Drive
Columbia, MD 21045
T 410.997.8900
F 410.997.9282



DATE 12.4.03
DESIGNED BY : C.J.R.
DRAWN BY: DAM
PROJECT NO. :11872-3.1
C100COV
DATE : DECEMBER 4, 2003
SCALE : AS SHOWN
DRAWING NO. 1 OF 10

SDP-04-038



MARYLAND ROUTE 100
 MARYLAND STATE HIGHWAY
 PRINCIPAL ARTERIAL

- NOTES:**
1. ALL RADII ARE 5' UNLESS OTHERWISE NOTED.
 2. ALL DIMENSIONS ARE TO FACE OF CURB OR BUILDING UNLESS OTHERWISE NOTED.
 3. ALL ON-SITE ROADS ARE PRIVATE.
 4. STD/REV# - STANDARD TO REVERSE CURB TRANSITION.
 5. COVENANTS, CONDITIONS AND RESTRICTIONS FOR THE COLUMBIA 100 OFFICE RESEARCH PARK ARE RECORDED IN L1771 F.434 OF THE LAND RECORDS OF HOWARD COUNTY. THE COVENANTS ALLOW WORK UP TO 10' ONTO ADJACENT PARCELS FOR GRADING.

- LEGEND**
- 450 — EXISTING 10' CONTOURS
 - 448 — EXISTING 2' CONTOURS
 - 450 — PROPOSED 10' CONTOURS
 - 448 — PROPOSED 2' CONTOURS
 - — PROPOSED CURB & GUTTER
 - — PROPOSED STORM DRAIN
 - P-1 PAVING (HO.CO. DETAIL R-2.01)
 - P-2 PAVING (HO.CO. DETAIL R-2.01)
 - CONCRETE SIDEWALK (HO.CO. DETAIL R-3.05)
 - LIGHTS
 - 11R DENOTES NUMBER OF STEPS
 - VI & ER VEHICULAR INGRESS AND EGRESS RESTRICTED

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

Director 1/7/04 DATE
 DIRECTOR

Chief Development Engineer 12/03 DATE
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

Chief of Land Development 1/6/04 DATE
 CHIEF, DIVISION OF LAND DEVELOPMENT

DATE	NO.	REVISION	
OWNER	MJF ASSOCIATES LLLP 5550 STERRETT PLACE SUITE 312 COLUMBIA, MARYLAND 21044 410-730-9091	DEVELOPER	MDG COMPANIES 5550 STERRETT PLACE SUITE 312 COLUMBIA, MARYLAND 21044 410-730-9091

PROJECT MDG CORPORATE CENTRE
 COLUMBIA 100 OFFICE RESEARCH PARK
 SECTION 1, AREA 2, PARCEL J-2

AREA TAX MAP 30, PARCEL J-2, ZONED POR
 2nd ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

TITLE SITE DEVELOPMENT PLAN

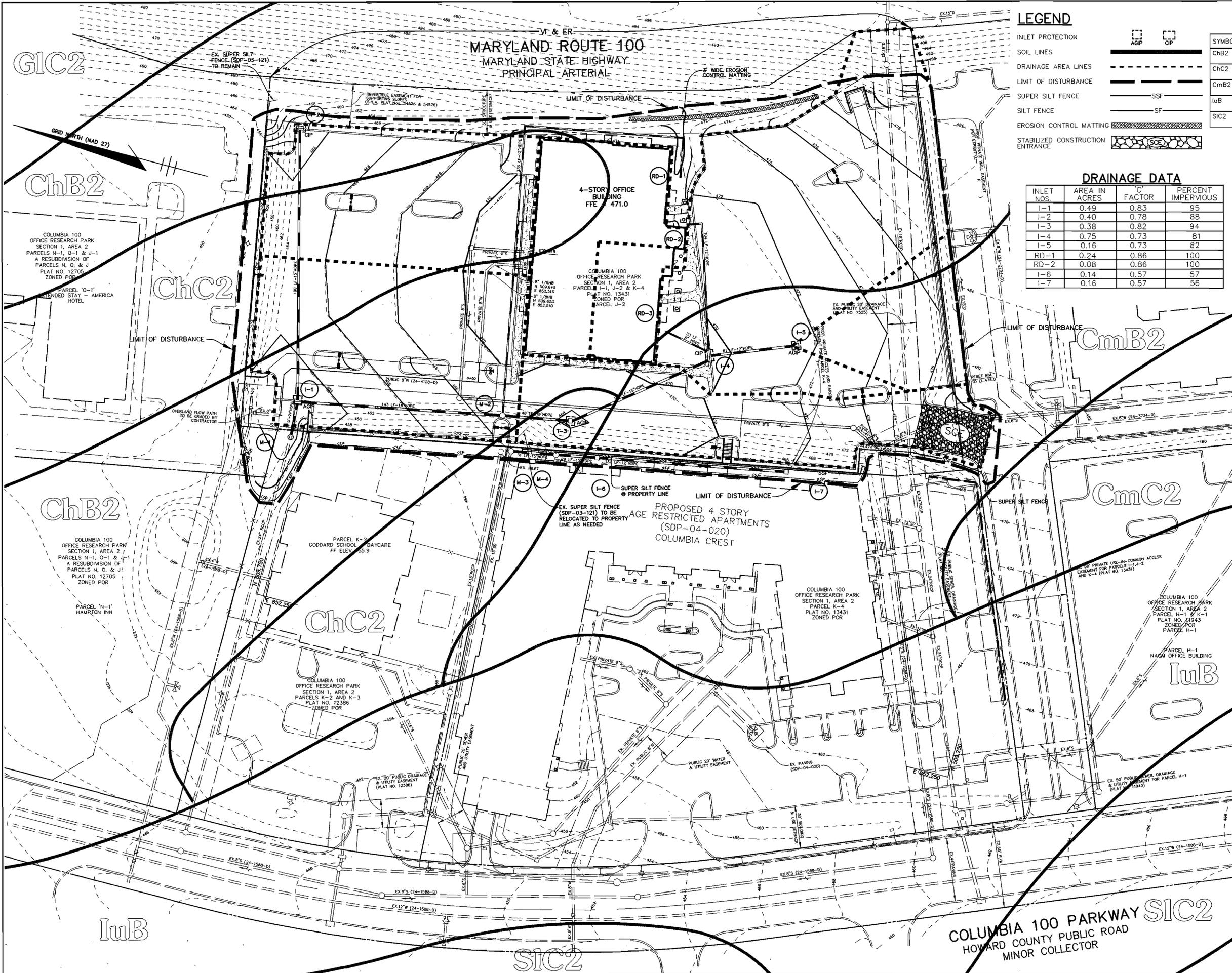
Patton Harris Rust & Associates, pc
 Engineers, Surveyors, Planners, Landscape Architects.
 8818 Centre Park Drive
 Columbia, MD 21045
 T 410.997.8900
 F 410.997.9282

12.4.03
 DATE

DESIGNED BY : C.J.R.
 DRAWN BY : DAM
 PROJECT NO : 11872-3.1
 C400SIT.DWG
 DATE : DECEMBER 4, 2003
 SCALE : 1" = 30'
 DRAWING NO. 2 OF 10



COLUMBIA 100 PARKWAY
 HOWARD COUNTY PUBLIC ROAD
 MINOR COLLECTOR



MARYLAND ROUTE 100
MARYLAND STATE HIGHWAY
PRINCIPAL ARTERIAL

LEGEND

- INLET PROTECTION
- SOIL LINES
- DRAINAGE AREA LINES
- LIMIT OF DISTURBANCE
- SUPER SILT FENCE
- SILT FENCE
- EROSION CONTROL MATTING
- STABILIZED CONSTRUCTION ENTRANCE

SOIL CHART

SYMBOL	DESCRIPTION	HYDROLOGIC SOIL GROUP
ChB2	CHESTER SILT LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED	B
ChC2	CHESTER SILT LOAM, 8 TO 15 PERCENT SLOPES, MODERATELY ERODED	B
CmB2	CHILLUM SILT LOAM, 1 TO 5 PERCENT SLOPES, MODERATELY ERODED	C
IuB	IUKA LOAM, LOCAL ALLUVIUM, 1 TO 5 PERCENT SLOPES	C
SIC2	SASSAFRAS LOAM, 5 TO 10 PERCENT SLOPES, MODERATELY ERODED	B

DRAINAGE DATA

INLET NOS.	AREA IN ACRES	C FACTOR	PERCENT IMPERVIOUS
I-1	0.49	0.83	95
I-2	0.40	0.78	88
I-3	0.38	0.82	94
I-4	0.75	0.73	81
I-5	0.16	0.73	82
RD-1	0.24	0.86	100
RD-2	0.08	0.86	100
I-6	0.14	0.57	57
I-7	0.16	0.57	56

BY THE DEVELOPER:
 I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

Christina Richards 12/3/03
 DEVELOPER DATE

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

Cheryl Reed 12.4.03
 ENGINEER DATE

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

Jin Mays 12/1/03
 NATURAL RESOURCES CONSERVATION SERVICE DATE

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

J.R. Robinson 12/4/03
 HOWARD SOIL CONSERVATION DISTRICT DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

Mark K. Leggett 1/2/04
 DIRECTOR DATE

John Williams 12/10/03
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Linda Hammett 1/1/04
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

DATE	NO.	REVISION
		OWNER
		DEVELOPER

PROJECT MDG CORPORATE CENTRE
 COLUMBIA 100 OFFICE RESEARCH PARK
 SECTION 1, AREA 2, PARCEL J-2

AREA TAX MAP 30, PARCEL J-2, ZONED POR
 2nd ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

TITLE GRADING, SEDIMENT CONTROL AND
 DRAINAGE AREA MAP

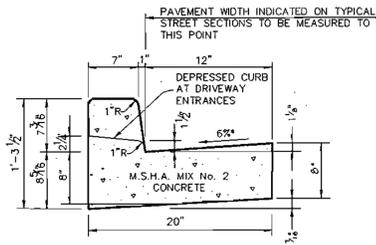
Patton Harris Rust & Associates, pc
 Engineers, Surveyors, Planners, Landscape Architects.
 8818 Centre Park Drive
 Columbia, MD 21045
 T 410.997.8900
 F 410.997.9282

DATE 12.4.03
 DESIGNED BY: C.J.R.
 DRAWN BY: DAM
 PROJECT NO.: 11872-3.1
 C200ESC.DWG
 DATE: DECEMBER 4, 2003
 SCALE: 1" = 30'
 DRAWING NO. 3 OF 10

CHRISTOPHER J. REID #19949
 SDP-04-038

COLUMBIA 100 PARKWAY
 HOWARD COUNTY PUBLIC ROAD
 MINOR COLLECTOR

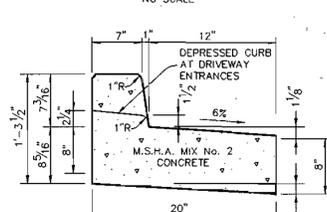
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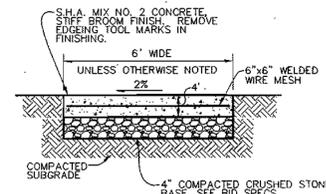
HOWARD COUNTY DESIGN MANUAL, VOLUME IV, STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION (DRAWING R-3.01).

* GUTTER PAN AT THE MEDIAN EDGE OF INTERMEDIATE ARTERIALS OR THE HIGH SIDE OF SUPERELEVATED SECTIONS SHALL BE SLOPED AT THE SAME RATE AS THE PAVEMENT.

STANDARD 7" COMBINATION CURB AND GUTTER
NO SCALE

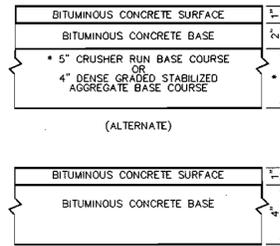


REVERSE 7" COMBINATION CURB AND GUTTER
NO SCALE



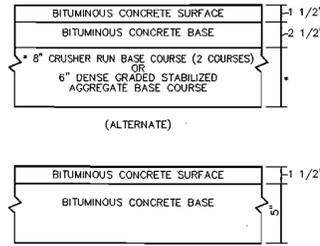
NOTES:
PROVIDE LATITUDINAL EXPANSION JOINTS AT 15' O.C. (MAX.) PROVIDE CONTRACTION (DUMMY) JOINT AT 5' O.C. INTERVALS BETWEEN EXPANSION JOINTS. SIDEWALK TO BE SCRIBED IN 5' MAX. SQUARES.

SIDEWALK w/ REINFORCING
NO SCALE



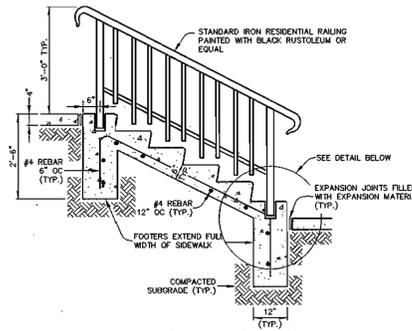
HOWARD COUNTY DESIGN MANUAL VOLUME IV - STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION (DRAWING R-2.01)

P-1 PAVING
NO SCALE

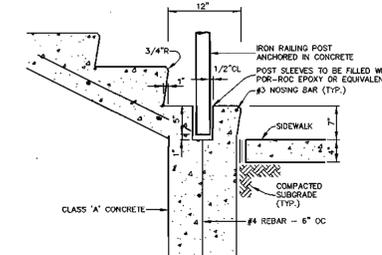


HOWARD COUNTY DESIGN MANUAL VOLUME IV - STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION (DRAWING R-2.01)

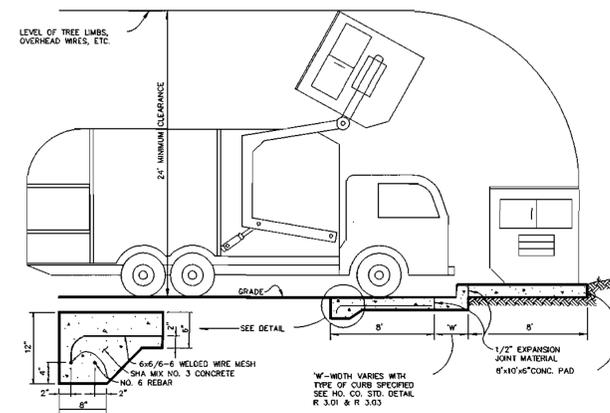
P-2 PAVING
NO SCALE



STEP AND RAILING DETAIL
NO SCALE

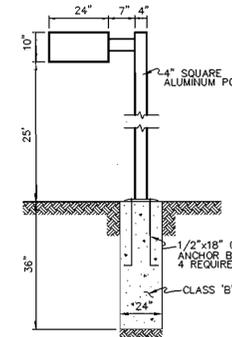


TYPICAL CONCRETE STEP WITH RAIL DETAIL
NO SCALE

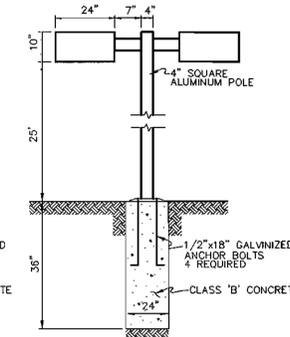


DUMPSTER PAD
NO SCALE

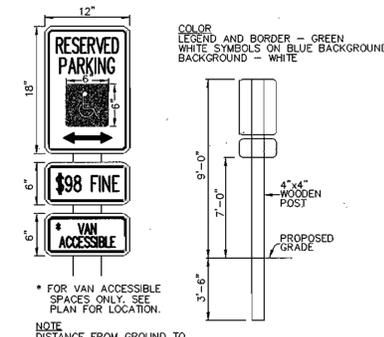
- ALL LIGHT FIXTURES TO BE SINGLE LUMINAIRE 400 WATT MERCURY TYPE WITH METAL POLES AND DIRECTED DOWNWARD
- LOCATIONS OF LIGHT FIXTURES ARE ON THE PLAN AND ARE SHOWN THUS:
- LIGHTS TO BE MODULE II TYPE AS MANUFACTURED BY MOLDCAST OR APPROVED EQUAL.
- POLE AND FIXTURE TO HAVE BLACK POLYESTER ENAMEL FINISH.
- POLE TO BE LOCATED 3' BACK FROM BACK OF CURB.



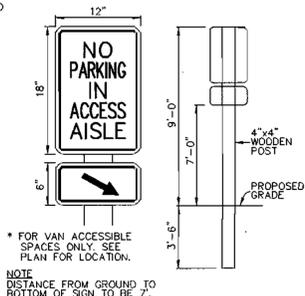
LIGHT POLE DETAIL
NO SCALE



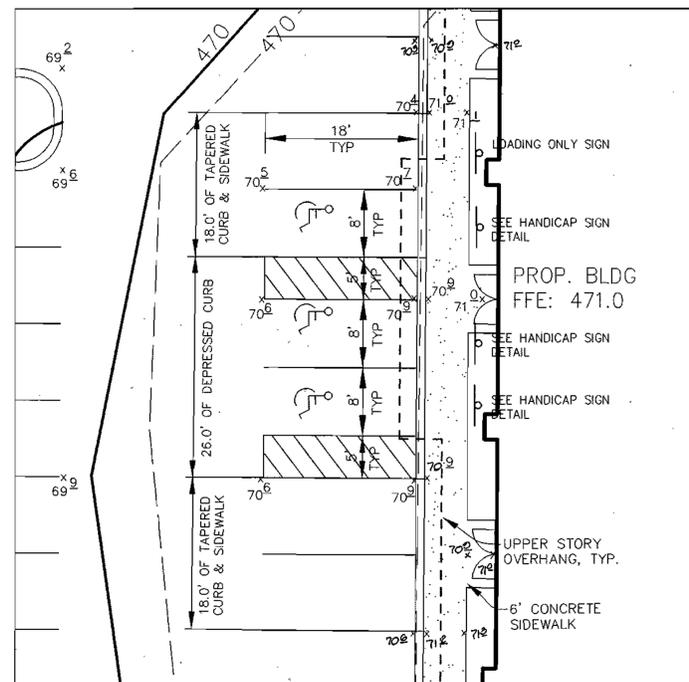
DUAL LIGHT POLE DETAIL
NO SCALE



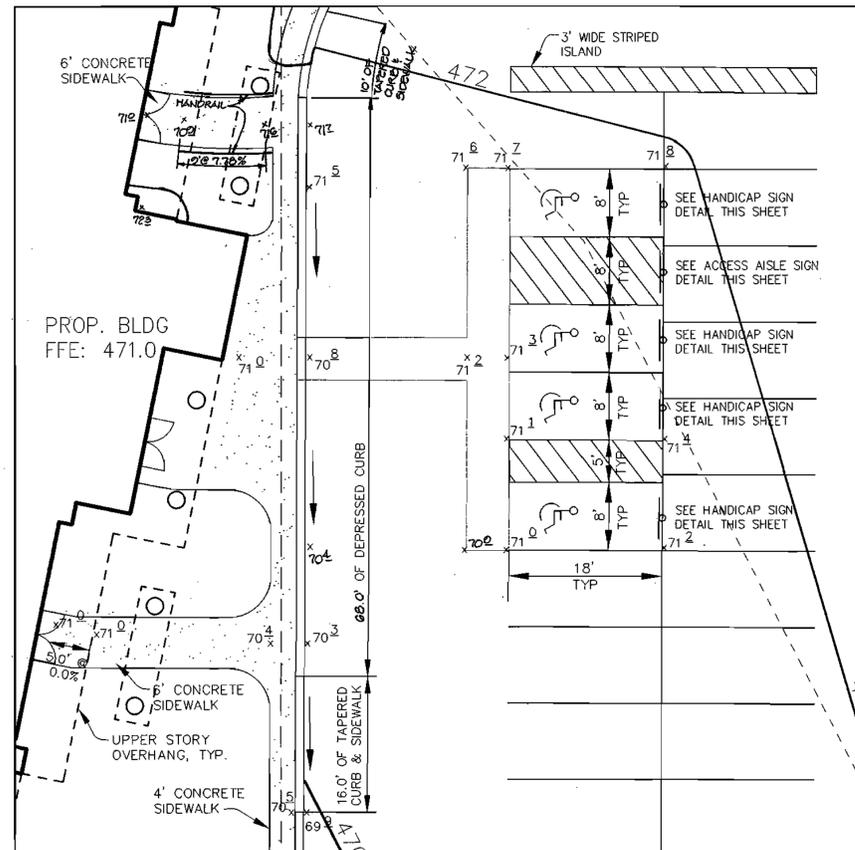
HANDICAP SIGN DETAIL
NO SCALE



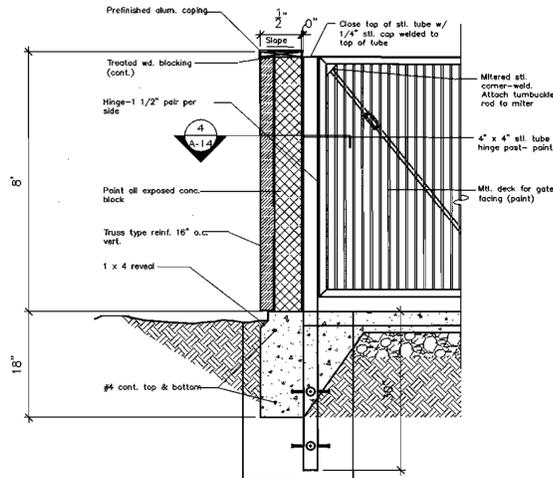
ACCESS AISLE SIGN
NO SCALE



ENLARGEMENT #1
SCALE: 1" = 10'



ENLARGEMENT #2
SCALE: 1" = 10'



Section Through Wall (Looking @ Gate)
NO SCALE

BY THE DEVELOPER:
I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.
Christina A. Richards 12/3/03
DEVELOPER DATE

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

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SOIL EROSION AND SEDIMENT CONTROL.
Chris S. Reed 12-4-03
NATURAL RESOURCES CONSERVATION SERVICE DATE

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

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.
Patton Harris Rust 1/1/04
DIRECTOR DATE
Chris S. Reed 12/10/03
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE
Chris S. Reed 1/1/04
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

DATE	NO.	REVISION

OWNER MJF ASSOCIATES LLLP 5550 STERRETT PLACE SUITE 312 COLUMBIA, MARYLAND 21044 410-730-9091	DEVELOPER MDG COMPANIES 5550 STERRETT PLACE SUITE 312 COLUMBIA, MARYLAND 21044 410-730-9091
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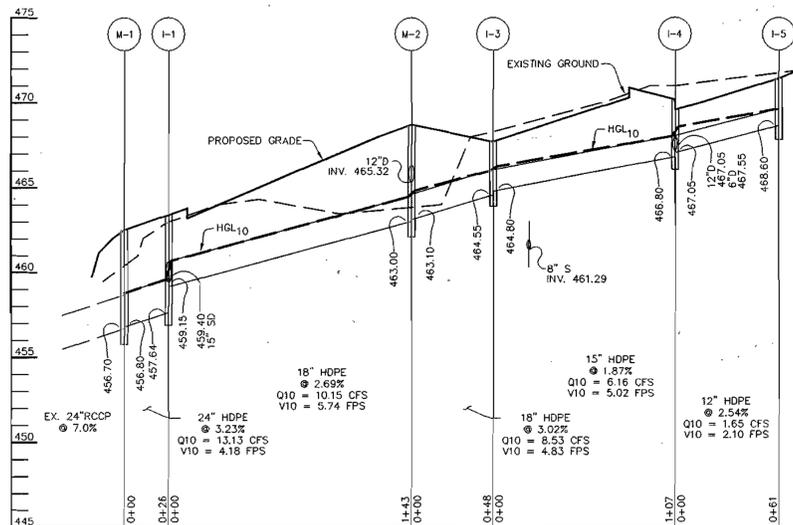
PROJECT MDG CORPORATE CENTRE
COLUMBIA 100 OFFICE RESEARCH PARK
SECTION 1, AREA 2, PARCEL J-2

AREA TAX MAP 30, PARCEL J-2, ZONED POR
2nd ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE DETAIL SHEET

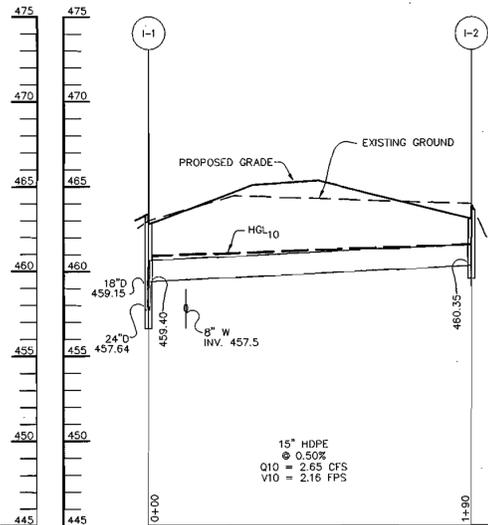
Patton Harris Rust & Associates, pc
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F 410.997.9282

DATE 12-4-03
DESIGNED BY: C.J.R.
DRAWN BY: DAM
PROJECT NO.: 11872-3.1
C900DET.DWG
DATE: DECEMBER 4, 2003
SCALE: AS SHOWN
DRAWING NO. 5 OF 10
CHRISTOPHER J. REID #19949



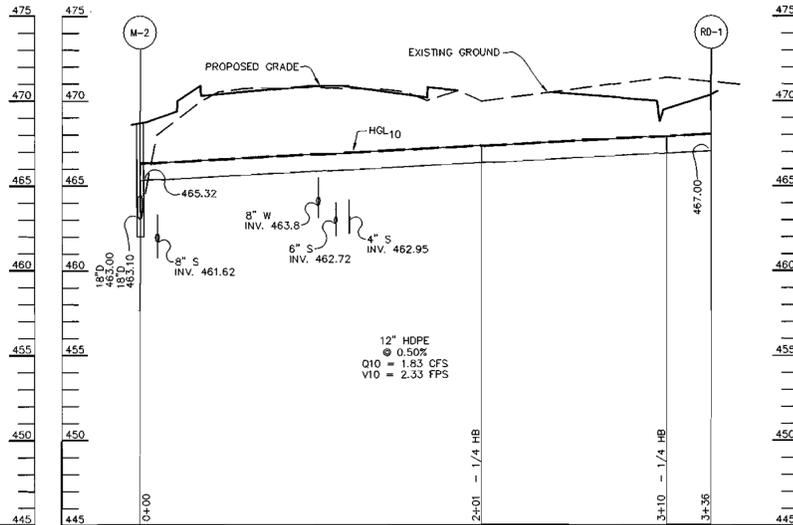
STORM DRAIN PROFILE

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



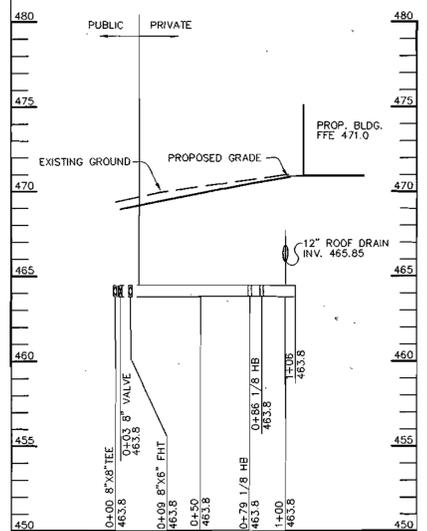
STORM DRAIN PROFILE

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



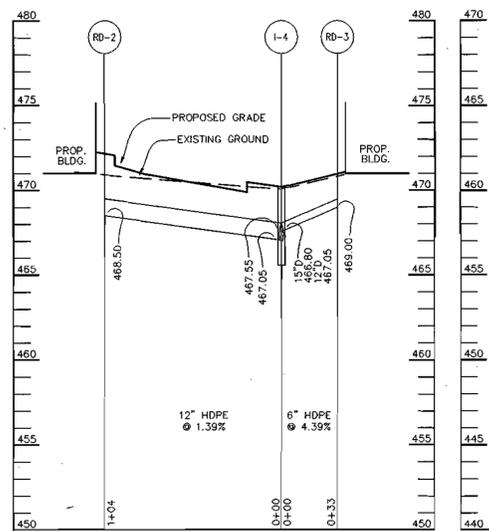
STORM DRAIN PROFILE

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



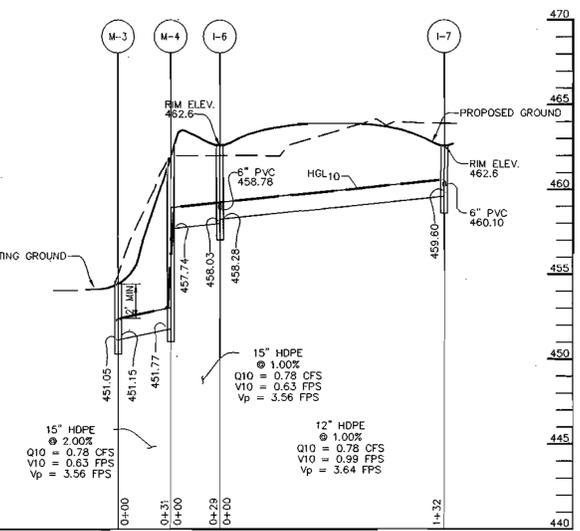
WATER PROFILE

SCALE:
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VERT.-1"=5'



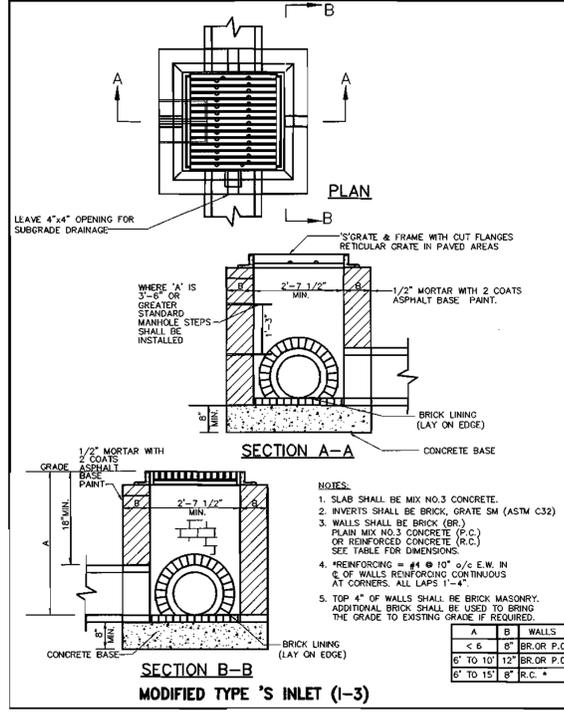
STORM DRAIN PROFILE

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



STORM DRAIN PROFILE

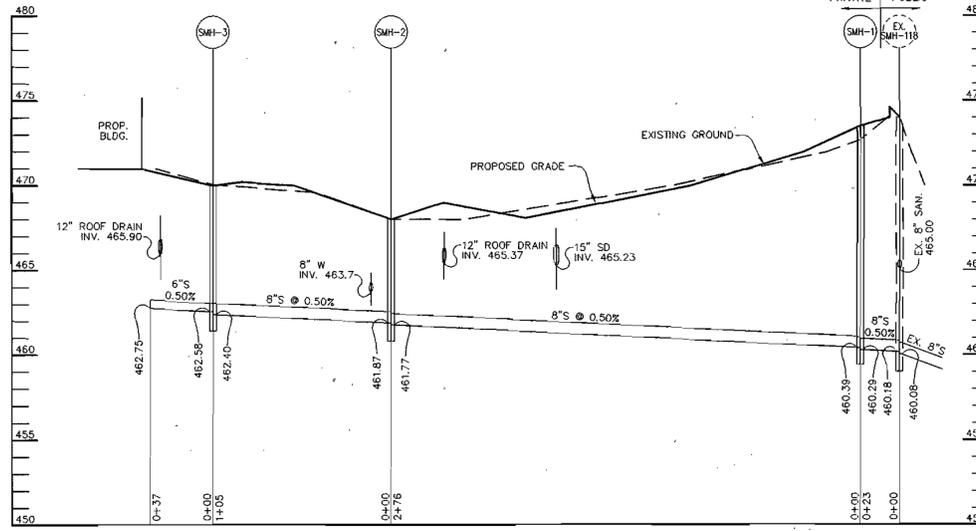
SCALE:
HOR.-1"=50'
VERT.-1"=5'



**SECTION B-B
MODIFIED TYPE 'S' INLET (I-3)**

PIPE SCHEDULE

PIPE LENGTH	SIZE	TYPE
31	6"	HDPE
635	12"	HDPE
357	15"	HDPE
191	18"	HDPE
26	24"	HDPE



SEWER PROFILE

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

STRUCTURE SCHEDULE						
STRUCTURE	TYPE	LOCATION	INV. IN	INV. OUT	TOP	REMARKS
I-1	A-5	N 509756.52 E 852387.49	459.40 (15") 459.15 (18")	457.64 (24")	463.4	HOCO STD. DETAIL SD-4.01
I-2	A-5	N 509804.52 E 852573.35	-	461.2 (15")	463.7	HOCO STD. DETAIL SD-4.01
I-3	'S' INLET MODIFIED	N 509569.10 E 852423.64	464.80 (15")	464.55 (18")	467.7	SEE DETAIL THIS SHEET
I-4	A-10	N 509487.01 E 852492.50	467.85 (8") 467.00 (12") 466.80 (15")	466.80 (18")	470.2	HOCO STD. DETAIL SD-4.02
I-5	'S' INLET	N 509430.09 E 852515.33	-	469.60 (12")	471.4	HOCO STD. DETAIL SD-4.22
I-6	'S' INLET MODIFIED	N 509544.32 E 852403.44	458.28 (15")	452.35 (15")	462.6	SEE DETAIL THIS SHEET
I-7	'S' INLET	N 509414.18 E 852427.67	-	459.60 (12")	462.6	HOCO STD. DETAIL SD-4.22
M-1	4'-0" DIA.	N 509755.00 E 852362.26	456.80 (24")	456.70 (24")	462.5	HOCO STD. DETAIL G-5.11
M-2	4'-0" DIA.	N 509615.96 E 852415.07	465.32 (12") 463.10 (18")	463.00 (18")	468.7	HOCO STD. DETAIL G-5.11
M-3	SHALLOW PRECAST	N 509603.64 E 852392.39	451.15 (15")	451.05 (15")	454.4	HOCO STD. DETAIL G-5.12
M-4	4'-0" DIA.	N 509572.73 E 852398.15	457.74 (15")	451.77 (15")	462.0	HOCO STD. DETAIL G-5.11
SMH-1	4'-0" DIA.	N 509376.76 E 852469.65	460.39 (8")	460.29 (8")	473.5	HOCO STD. DETAIL G-5.11
SMH-2	4'-0" DIA.	N 509648.02 E 852419.14	461.87 (8")	461.77 (8")	468.0	HOCO STD. DETAIL G-5.11
SMH-3	4'-0" DIA.	N 509667.36 E 852523.00	462.58 (6")	462.40 (8")	470.0	HOCO STD. DETAIL G-5.11

NOTES:
1. LOCATION OF INLETS AND MANHOLES IS AT CENTER OF TOP COVER

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.
 Director: [Signature] DATE: 1/3/04
 Chief, Development Engineering Division: [Signature] DATE: 12/10/03
 Chief, Division of Land Development: [Signature] DATE: 1/6/04

OWNER	DEVELOPER
MJF ASSOCIATES LLLP 5550 STERRETT PLACE SUITE 312 COLUMBIA, MARYLAND 21044 410-730-9091	MDG COMPANIES 5550 STERRETT PLACE SUITE 312 COLUMBIA, MARYLAND 21044 410-730-9091

PROJECT: MDG CORPORATE CENTRE
 COLUMBIA 100 OFFICE RESEARCH PARK
 SECTION 1, AREA 2, PARCEL J-2
 AREA: TAX MAP 30, PARCEL J-2, ZONED POR
 2nd ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

TITLE: **PROFILE SHEET**

Patton Harris Rust & Associates, p.c.
 Engineers, Surveyors, Planners, Landscape Architects.
 PHRA
 8818 Centre Park Drive
 Columbia, MD 21045
 T 410.997.8900
 F 410.997.9282

DATE: 12-4-03
 DESIGNED BY: C.J.R.
 DRAWN BY: DAM
 PROJECT NO.: 11872-3.1
 C700PRO.DWG
 DATE: DECEMBER 4, 2003
 SCALE: AS SHOWN
 DRAWING NO.: 6 OF 10
 CHRISTOPHER J. REID #19949



LEGEND	
PROPERTY LINE	
CONTOUR LINES	
EX. BUILDING	
PROP. SHADE TREE	
PROP. EVERGREEN TREE	
PERIMETER LANDSCAPE REQUIREMENT	
PARKING LOT LANDSCAPE REQUIREMENT	
PERIMETER LANDSCAPE EDGE LIMITS	
CREDITED LANDSCAPE ISLAND	

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

Director: *Mark D. Wright* 1/31/04 DATE
 Chief, Development Engineering Division: *Chris Williams* 2/10/03 DATE
 Chief, Division of Land Development: *Chris Harman* 1/6/04 DATE

DATE	NO.	REVISION
OWNER	MJF ASSOCIATES LLLP 5550 STERRETT PLACE SUITE 312 COLUMBIA, MARYLAND 21044 410-730-9091	DEVELOPER MDG COMPANIES 5550 STERRETT PLACE SUITE 312 COLUMBIA, MARYLAND 21044 410-730-9091

PROJECT: MDG CORPORATE CENTRE
COLUMBIA 100 OFFICE RESEARCH PARK
SECTION 1, AREA 2, PARCEL J-2

AREA: TAX MAP 30, PARCEL J-2, ZONED POR
2nd ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: LANDSCAPE PLAN

Patton Harris Rust & Associates, pc
Engineers, Surveyors, Planners, Landscape Architects.
8818 Centre Park Drive
Columbia, MD 21045
T 410.997.8900
F 410.997.9282

DATE: 12/04/03

DESIGNED BY: G.T.H.

DRAWN BY: G.T.H.

PROJECT NO.: 11872-3.1 ENGR
PLANS L200LND

DATE: DECEMBER 4, 2003

SCALE: 1" = 30'

DRAWING NO.: 7 OF 10



PERIMETER	ADJACENT TO ROADWAYS			
	1	2	3	4
LANDSCAPE TYPE	E	C	E	D
LINEAR FEET OF ROADWAY FRONTAGE/ PERIMETER	±104'	±120'	±160'	±14'
CREDIT FOR EXISTING VEGETATION (YES/NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	NO	NO	NO	NO
CREDIT FOR WALL, FENCE, BERM OR DRIVE AISLE (YES/NO/LINEAR FEET)	NO	NO	NO	NO
LINEAR FEET REMAINING	±104'	±120'	±160'	±14'
NUMBER OF PLANTS REQUIRED				
SHADE TREES	5	3	4	1
EVERGREEN TREES	-	6	-	-
SHRUBS	46*	-	40*	-
NUMBER OF PLANTS PROVIDED				
SHADE TREES	5	3	4	1
EVERGREEN TREES	-	6	-	-
ORNAMENTAL TREES	0*	-	0*	-
SHRUBS	-	-	-	-

SCHEDULE 'A' NOTES:

REGULATIONS DO NOT REQUIRE LANDSCAPE EDGES, BUFFERING, OR SCREENING BETWEEN INTERNAL LOTS OR PARCELS WITHIN THE SAME DEVELOPMENT. (PAGE 17 OF THE HO. CO. LANDSCAPE MANUAL)

*... A CHANGE IN GRADE THAT CAUSES A PARKING LOT TO BE LOCATED LOWER THAN THE ADJACENT ROADWAY BY 3 FEET OR MORE MAY BE SUBSTITUTED FOR SHRUB PLANTING IN A TYPE E LANDSCAPE BUFFER. (PAGE 24 OF THE HO. CO. LANDSCAPE MANUAL)

SCHEDULE B - PARKING LOT INTERNAL LANDSCAPING	
PARKING LOTS	2
NUMBER OF PARKING SPACES	237
NUMBER OF SHADE TREES REQUIRED (1/20 SPACES)	12
NUMBER OF TREES PROVIDED	
SHADE TREES	12
OTHER TREES (2:1 SUBSTITUTION)	0
NUMBER OF ISLANDS REQUIRED (1/20 SPACES)	12
NUMBER OF ISLANDS PROVIDED (200 SQ. FT./ISLAND)	12

PARKING LOT AND PERIMETER PLANT LIST					
SYMBOL	QTY.	SCIENTIFIC/COMMON NAME	SIZE	ROOT	REMARKS
AR	9	Acer rubrum 'Red Sunset' Red Sunset Red Maple	2.5"-3" cal.	B&B	Plant as shown
FP	12	Fraxinus pennsylvanica 'Marshall's Seedless' Marshall's Seedless Green Ash	2.5"-3" cal.	B&B	Plant as shown
GT	4	Gleditsia triacanthos Inermis 'Imperial' Imperial Thornless Honeylocust	2.5"-3" cal.	B&B	Plant as shown
PO	7	Picea omorika Serbian Spruce	6'-8' ht.	B&B	Plant as shown

PLANTING SPECIFICATIONS

- Plants, related material, and operations shall meet the detailed description, as given on the plans and as described herein. Where discrepancies exist between Standards & Guidelines referenced within these specifications and the Howard County Landscape Manual, the latter takes precedence.
- All plant material, unless otherwise specified, that is not nursery grown, uniformly branched, does not have a vigorous root system, and does not conform to the most recent edition of the American Association of Nurserymen (AAN) Standards will be rejected. Plant material that is not healthy, vigorous, free from defects, decay, disfiguring roots, sunscald injuries, abrasions of the bark, plant disease, insect pest eggs, borers and all forms of insect infestations or objectionable disfigurements will be rejected. Plant material that is weak or which has been cut back from larger grades to meet specified requirements will be rejected. Trees with forked leaders will be rejected. All B & B plants shall be freshly dug; no healed-in plants or plants from cold storage will be accepted.
- Unless otherwise specified, all general conditions, planting operations, details and planting specifications shall conform to the most recent edition of the "Landscape Specification Guidelines by the Landscape Contractors Association of MD, DC, & VA", (hereinafter "Landscape Guidelines") approved by the Landscape Contractors Association of Metropolitan Washington and the Potomac Chapter of the American Society of Landscape Architects.
- Contractor shall guarantee all plant material for a period of one year after date of acceptance in accordance with the appropriate section on the Landscape Guidelines. Contractor's attention is directed to the maintenance requirements found within the one year specifications including watering and replacement of specified plant material.
- Contractor shall be responsible for notifying all relevant and appropriate utility companies, utility contractors, and "Miss Utility" a minimum of 48 hours prior to the beginning of any work. Contractor may make minor adjustments in spacing and location of plant material to avoid conflicts with utilities. Major changes will require the approval of the landscape architect. Damage to existing structure and utilities shall be repaired at the expense of the Contractor.
- Protection of existing vegetation to remain shall be accomplished via the temporary installation of 4 foot high snow fence at the drip line, see detail.
- Contractor is responsible for installing all material in the proper planting season for each plant type. All planting is to be completed within growing season of completion of site construction. Do not plant Pinus strobus or Xpressocyparis leylandii between November 15 and March 15. Landscape plants are not to be installed before site is graded to final grade.
- Contractor to regrade, fine grade, sod, hydroseed and straw mulch all areas disturbed by their work.
- Bid shall be based on actual site conditions. No extra payment shall be made for work arising from actual site conditions differing from those indicated on drawings and specifications.
- Plant quantities are provided for the convenience of the contractor only. If discrepancies exist between quantities shown on plan and those shown on the plant list, the quantities on the plan take precedence. Where discrepancies on the plan exist between the symbols and the callout leader, the number of symbols take precedence.
- All shrubs and groundcover areas shall be planted in continuous planting beds, prepared as specified, unless otherwise indicated on plans. (See Specification 13). Beds to be mulched with minimum 2" and maximum 3" of composted, double-shredded hardwood mulch throughout.
- Positive drainage shall be maintained on planting beds (minimum 2 percent slope).
- Bed preparation shall be as follows: Till into a minimum depth of 6" 1 yard of Compro or Leafgro per 200 SF of planting bed, and 1 yard of topsoil per 100 SF of bed. Add 3 lbs of standard 5-10-5 fertilizer per cubic yard of planting mix and till. Ericaceous plants (Azaleas, Rhododendrons, etc.); top dress after planting with iron sulfate or comparable product according to package directions. Taxus baccata 'Repandens' (English weeping yew); Top dress after planting with 1/4 to 1/2 cup lime each.
- Planting mix: For trees not in a prepared bed, mix 50% Compro or Leafgro with 50% soil from tree hole to use as backfill, see tree planting detail.
- Seed & insect control: Incorporate a pre-emergent herbicide into the planting bed following recommended rates on the label. For tree planting, apply a pre-emergent on top of soil and root ball before mulching. Caution: For areas to be planted with a ground cover, be sure to carefully check the chemical used to assure its adaptability to the specific groundcover to be treated. Maintain the mulch weed-free for the extent of the warranty period. Under no circumstances is a pesticide containing chlorpyrifos to be used as a means of pest control.
- Water: All plant material planted shall be watered thoroughly the day of planting. All plant material not yet planted shall be properly protected from drying out until planted. At a minimum, water unplanted plant material daily and as necessary to avoid desiccation.
- Pruning: Do not heavily prune trees and shrubs at planting. Prune only broken, dead, or diseased branches.
- All areas within contract limits disturbed during or prior to construction not designated to receive plants and mulch shall be fine graded, grass seed planted, and covered with straw mulch.

GENERAL NOTES:

- THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL.
- FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING MUST BE POSTED AS PART OF THE DEVELOPER'S AGREEMENT IN THE AMOUNT OF \$ 8,550.
25 SHADE TREES @ \$300 = 7,500
7 EVERGREEN TREES @ \$150 = 1,050
- THIS PLAN IS FOR LANDSCAPING PURPOSES ONLY.
- CONTRACTOR IS SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, PROCEDURES, AND SAFETY PRECAUTIONS AND PROGRAMS.
- ALL MATERIAL SELECTED SHALL BE EQUAL TO OR BETTER THAN THE REQUIREMENTS OF THE "USA STANDARD FOR NURSERY STOCK", LATEST EDITION, AS PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN.
- ALL MATERIAL SHALL BE PLANTED IN ACCORDANCE WITH THE MINIMUM STANDARDS CITED IN THE LATEST EDITION OF "LANDSCAPE SPECIFICATION GUIDELINES" PUBLISHED BY THE LANDSCAPE CONTRACTORS ASSOCIATION.
- AT THE TIME OF INSTALLATION, ALL SHRUBS AND OTHER PLANTINGS SHALL BE OF THE PROPER HEIGHT AND/OR SPREAD REQUIREMENTS IN ACCORDANCE WITH THIS PLAN AND THE HOWARD COUNTY LANDSCAPE MANUAL.
- NO SUBSTITUTIONS OR RELOCATION OF PLANTS MAY BE MADE WITHOUT PRIOR APPROVAL FROM THE DEPARTMENT OF PLANNING AND ZONING OF HOWARD COUNTY. ANY DEVIATION FROM THIS LANDSCAPE PLAN MAY RESULT IN A REQUIREMENT FOR SUBMITTAL OF AN OFFICIAL "REDLINE REVISION" TO THE SITE DEVELOPMENT PLAN(S) AND/OR DENIAL IN THE RELEASE OF LANDSCAPE SURETY.

DEVELOPER'S/BUILDER'S CERTIFICATE:

I/WE CERTIFY THAT THE LANDSCAPING WORK ON THIS PLAN WILL BE DONE ACCORDING TO THE PLAN, SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE HOWARD COUNTY LANDSCAPE MANUAL. I/WE FURTHER CERTIFY THAT UPON COMPLETION, A CERTIFICATION OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.

Christine A. Richards 12/13/03
SIGNATURE DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.	
<i>Mark D. Wynn</i>	1/4/04
DIRECTOR	DATE
<i>John D. Williams</i>	12/18/03
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE
<i>Chris Alexander</i>	1/6/04
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE

DATE	NO.	REVISION

OWNER	DEVELOPER
MJF ASSOCIATES LLLP 5550 STERRETT PLACE SUITE 312 COLUMBIA, MARYLAND 21044 410-730-9091	MDG COMPANIES 5550 STERRETT PLACE SUITE 312 COLUMBIA, MARYLAND 21044 410-730-9091

PROJECT	MDG CORPORATE CENTRE COLUMBIA 100 OFFICE RESEARCH PARK SECTION 1, AREA 2, PARCEL J-2
AREA	TAX MAP 30, PARCEL J-2, ZONED POR 2nd ELECTION DISTRICT HOWARD COUNTY, MARYLAND

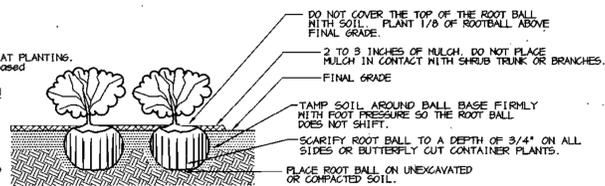
TITLE	LANDSCAPE SCHEDULES AND DETAILS
Patton Harris Rust & Associates, pc Engineers, Surveyors, Planners, Landscape Architects.	8818 Centre Park Drive Columbia, MD 21045 T 410.997.8900 F 410.997.9282

DATE	DESIGNED BY: G.T.H.
DATE	DRAWN BY: G.T.H.
DATE	PROJECT NO.: 11872-3.1 ENGR PLANS L201LND
DATE	DATE: DECEMBER 4, 2003
DATE	SCALE: NOT TO SCALE
DATE	DRAWING NO.: 8 OF 10

SCOTT R. WOLFORD #797

NOTES:

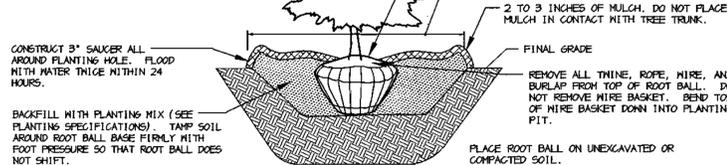
- SEE PLANTING SPECIFICATIONS FOR PREPARATION OF PLANTING BED.
- DO NOT HEAVILY PRUNE THE SHRUB AT PLANTING. PRUNE ONLY BROKEN, DAMAGED, OR DISJOINED BRANCHES.
- DIG PLANTING PIT 12" WIDER THAN THE DIAMETER OF THE TOP OF THE ROOT BALL WITH A MINIMUM PLANTING PIT DIAMETER OF 18".
- FOR B&B SHRUBS, REMOVE ALL TWINE, ROPE, AND BURLAP FROM TOP OF ROOT BALL.
- ALL CONTAINERS SHALL BE REMOVED BEFORE INSTALLATION.



SHRUB BED PLANTING DETAIL - B&B AND CONTAINER SHRUBS
NOT TO SCALE

NOTES:

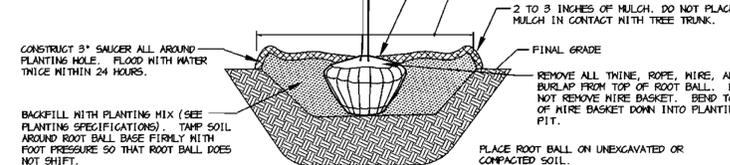
- SELECT ONLY NURSERY STOCK WITH A SINGLE LEADER UNLESS OTHERWISE SPECIFIED ON PLAN. PLANTS WITH CO-DOMINANT, MISSING, OR DAMAGED LEADERS SHALL BE REJECTED.
- STAKE TREES ONLY IF RECOMMENDED ON THE PLANT SCHEDULE OR UPON THE APPROVAL OF THE LANDSCAPE ARCHITECT. STAKING DETAIL SHOWN ONLY IF RECOMMENDED.
- DIG PLANTING PIT TWICE AS WIDE AS THE DIAMETER OF THE TOP OF THE ROOT BALL WITH A MINIMUM PLANTING PIT DIAMETER OF 5'.



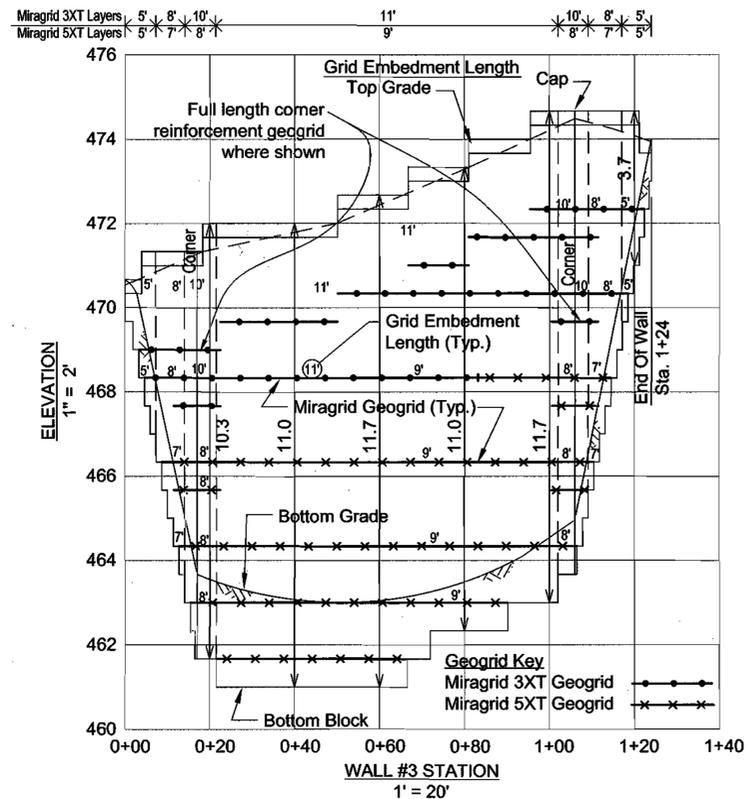
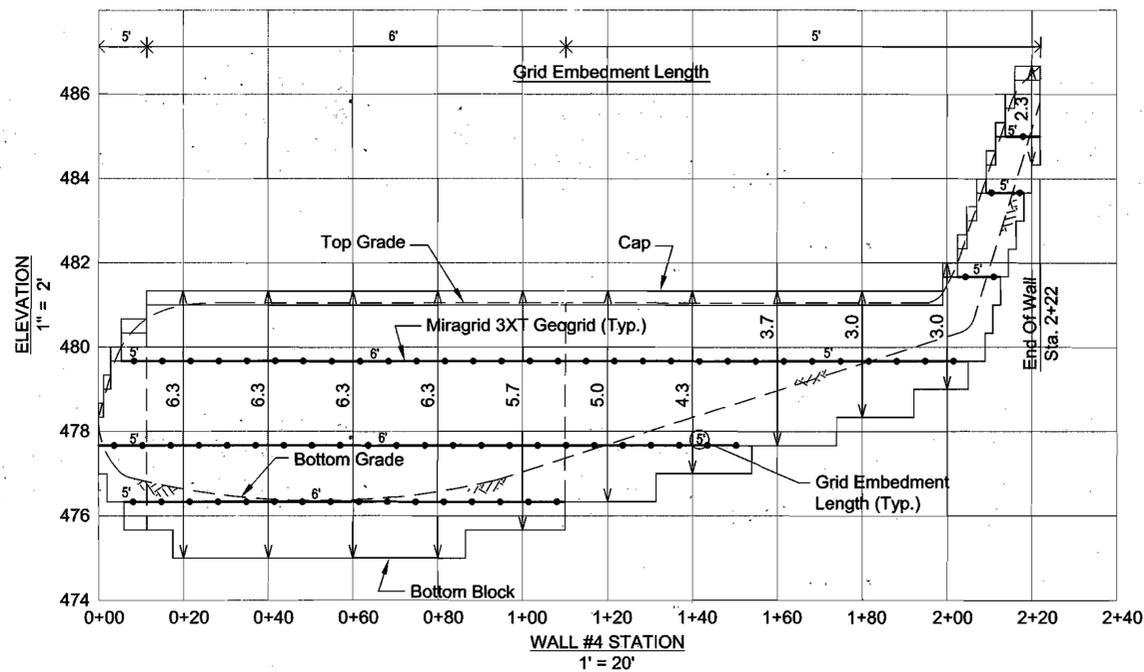
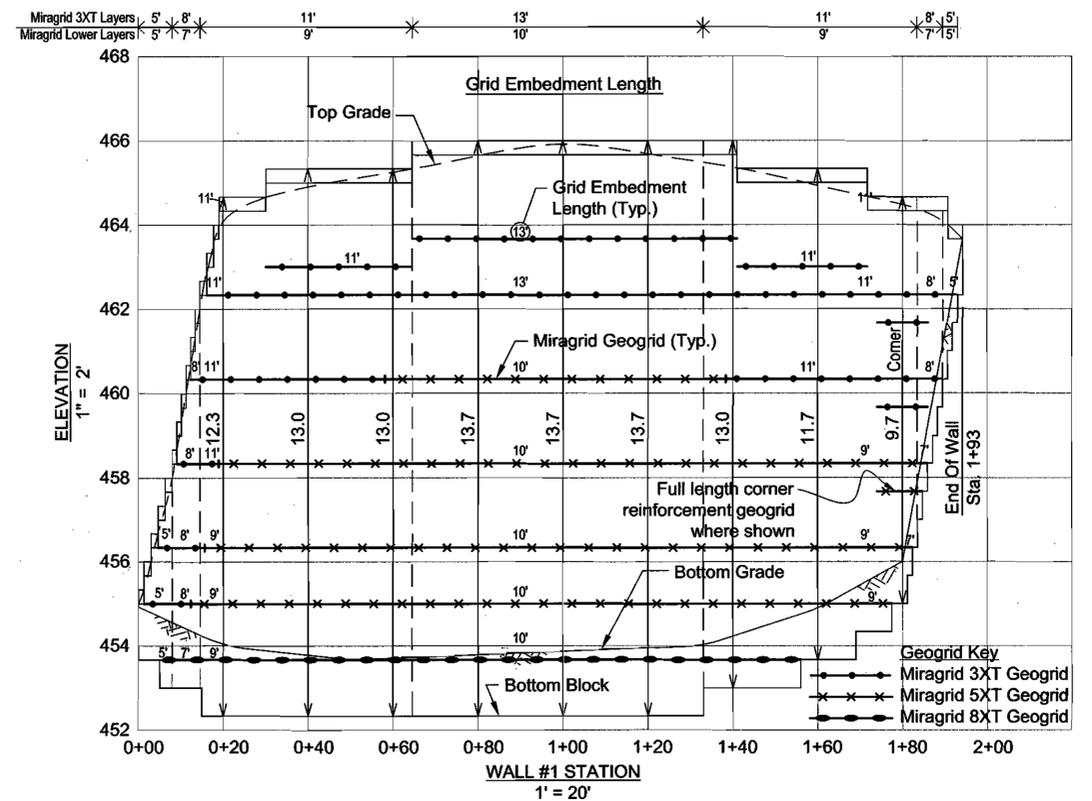
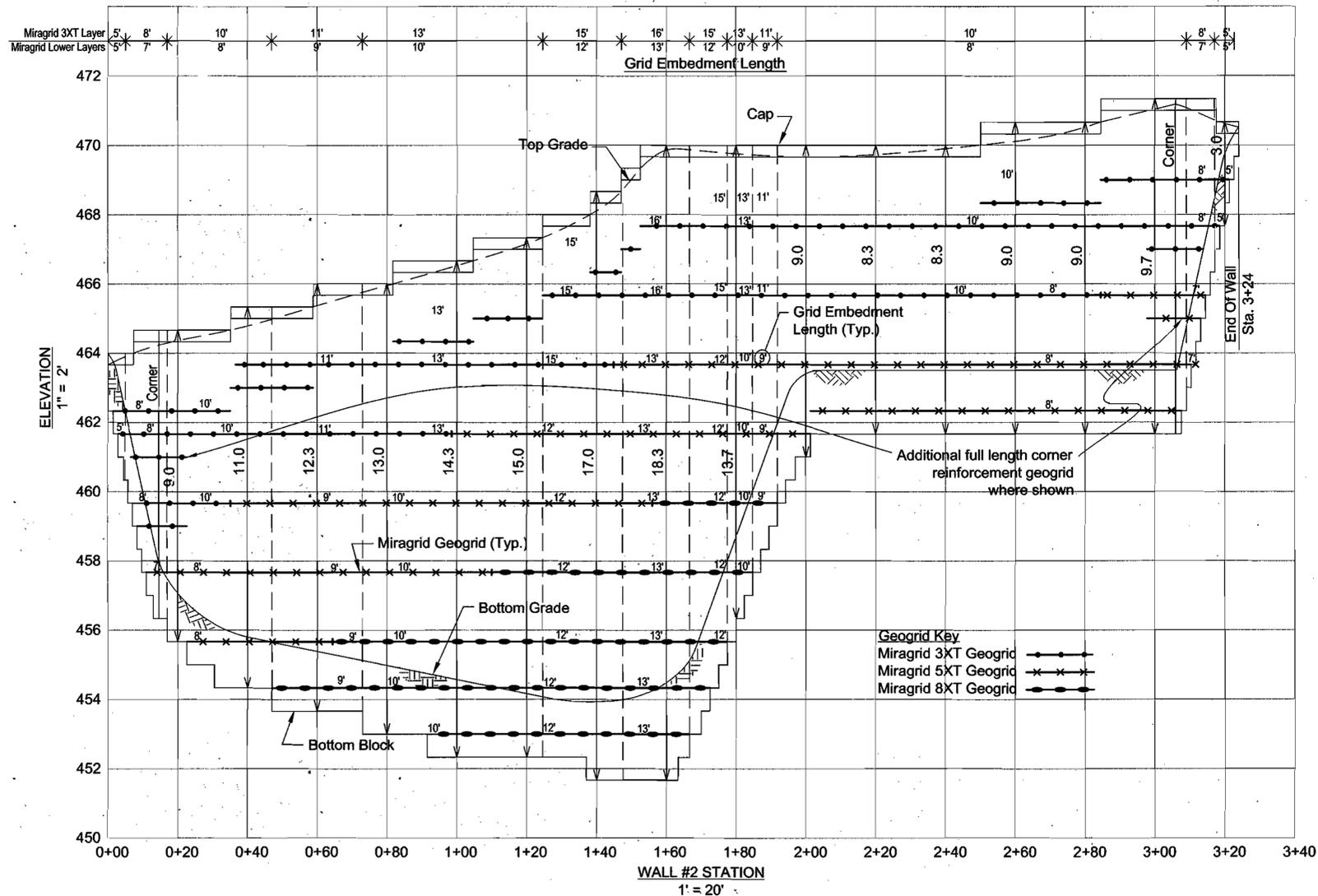
EVERGREEN B&B TREE PLANTING DETAIL
NOT TO SCALE

NOTES:

- DO NOT HEAVILY PRUNE THE TREE AT PLANTING. PRUNE ONLY CROSSOVER LINES, CO-DOMINANT LEADERS, AND BROKEN OR DEAD BRANCHES. SOME INTERIOR THINNS AND LATERAL BRANCHES MAY BE PRUNED; HOWEVER, DO NOT REMOVE THE TERMINAL BUDS OF BRANCHES THAT EXTEND TO THE EDGE OF THE CROWN.
- STAKE TREES ONLY IF RECOMMENDED ON THE PLANT SCHEDULE OR UPON THE APPROVAL OF THE LANDSCAPE ARCHITECT. STAKING DETAIL SHOWN ONLY IF RECOMMENDED.
- DIG PLANTING PIT TWICE AS WIDE AS THE DIAMETER OF THE TOP OF THE ROOT BALL WITH A MINIMUM PLANTING PIT DIAMETER OF 5'.



DECIDUOUS B&B TREE PLANTING DETAIL
NOT TO SCALE



APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

Paula M. Wagoner 4/2/04
DIRECTOR DATE

John J. Vanman 12/10/03
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Condy Hamilton 1/6/04
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

DATE	NO.	REVISION

OWNER: MJF ASSOCIATES LLLP, 5550 STERRETT PLACE, SUITE 312, COLUMBIA, MARYLAND 21044, 410-730-9091

DEVELOPER: MDG COMPANIES, 5550 STERRETT PLACE, SUITE 312, COLUMBIA, MARYLAND 21044, 410-730-9091

PROJECT: MDG CORPORATE CENTRE, COLUMBIA 100 OFFICE RESEARCH PARK, SECTION 1, AREA 2, PARCEL J-2

AREA: TAX MAP 30, PARCEL J-2, ZONED POR 2nd ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

TITLE: RETAINING WALL ELEVATION

Patton Harris Rust & Associates, pc
Engineers, Surveyors, Planners, Architects, Scientists

PHRA

T: (410) 326-1100
F: (410) 326-3333

HILLIS-CARNES
ENGINEERING ASSOCIATES, INC.

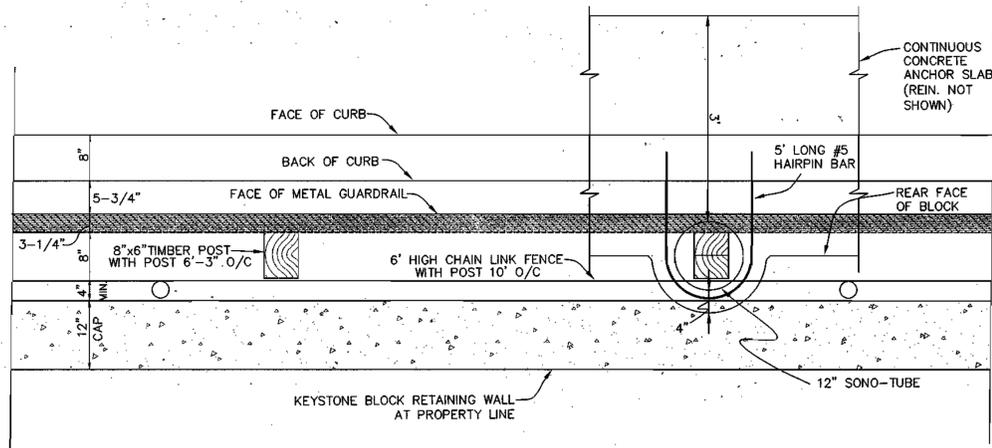
12011 Gullford Road - Suite 106 Annapolis Junction, Maryland
Telephone: (410) 880-4788 Fax: (410) 880-4086

DESIGNED BY : RWS
DRAWN BY: AM
PROJECT NO : 991098
DATE : DECEMBER 4, 2003
SCALE : AS SHOWN
DRAWING NO. 2 OF 10



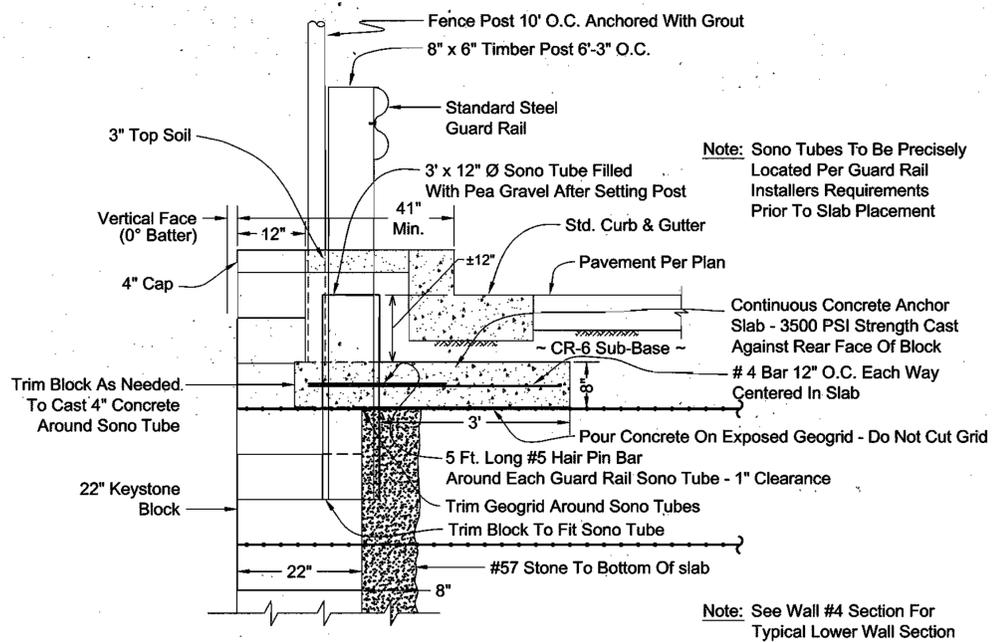
NOTES:

- 1.) No trees shall be planted within 10 feet of the top of the retaining wall.
- 2.) Retaining walls shall only be constructed under the observation of a registered professional engineer and a (NICET, WACEL, or equiv.) certified soils technician.
- 3.) The required bearing pressure beneath the wall system shall be verified in the field by a certified soils technician. Testing documentation must be provided to the Howard County Inspector prior to start of construction. The required bearing test shall be the Dynamic Cone Penetrometer test ASTM STP-399.
- 4.) The suitability of fill material shall be confirmed by the on-site soils technician. Each 8" lift must be compacted to a minimum 95% standard proctor density and the testing report shall be made available to the Howard County Inspector upon completion of construction.
- 5.) One soil boring is required every one hundred feet along the length of the wall. Copies of the boring reports shall be provided to the Howard County Inspector prior to the start of the construction.



**WALL #1, #2 & #3
UPPER RETAINING WALL PLAN**

NTS



**WALL #1, #2 & #3
UPPER RETAINING WALL SECTION**

NTS

SPECIFICATIONS

KEYSTONE MODULAR CONCRETE BLOCK RETAINING WALL

PART 1: GENERAL

1.01 Description

1. Work shall consist of furnishing and construction of a KEYSTONE Retaining Wall System in accordance with these specifications and in reasonably close conformity with the lines, grades, design, and dimensions shown on the plans.
2. Work includes preparing foundation soil, furnishing and installing leveling pad, unit drainage fill and backfill to the lines and grades shown on the construction drawings.
3. Work includes furnishing and installing geogrid soil reinforcement of the type, size, location, and lengths designated on the construction drawings.

1.02 Delivery, Storage and Handling

1. Contractor shall check all materials upon delivery to assure that the proper type, grade, color, and certification has been received.
2. Contractor shall protect all materials from damage due to job site conditions and in accordance with manufacturer's recommendations. Damaged materials shall not be incorporated into the work.

PART 2: PRODUCTS

2.01 Modular Concrete Retaining Wall Units

1. Modular concrete units shall conform to the following architectural requirements:
 - a. face color - concrete gray - standard manufacturers' color may be specified by the Owner.
 - b. face finish - sculptured rock face in angular tri-planer configuration. Other face finishes will not be allowed without written approval of Owner.
 - c. bond configuration - turning with bonds nominally located at midpoint vertically adjacent units, in both straight and curved alignments.
2. exposed surfaces of units shall be free of chips, cracks or other imperfections when viewed from a distance of 10 feet under diffused lighting.
3. Modular concrete materials shall conform to the requirements of ASTM C1372 - Standard Specifications for Segmental Retaining Wall Units.
4. Modular concrete units shall conform to the following structural and geometric requirements measured in accordance with appropriate references:
 - a. compressive strength = 3000 psi minimum;
 - b. absorption = 8% maximum (8% in northern states) for standard weight aggregates;
 - c. dimensional tolerances = ± 1/8" from nominal unit dimensions - not including rough split face, ± 1/16" unit height - top and bottom planes;
 - d. unit size - 8" (H) x 18" (W) x 22" (D) minimum;

1. inter-unit shear strength - 1000 pcf minimum at 2 psi normal pressure;
2. geogrid/unit peak connection strength - 1000 pcf minimum at 2 psi normal force.
3. Modular concrete units shall conform to the following constructability requirements:
 - a. vertical setback = 1/8"± per course (near vertical) or 1"± per course per the design;
 - b. alignment and grid positioning mechanism - fiberglass pins, two per unit minimum;
 - c. maximum horizontal gap between erected units shall be 1/2 inch.

2.02 Shear Connectors

1. Shear connectors shall be 1/2 inch diameter theroset isophthalic polyester resin-protruded fiberglass reinforcement rods or equivalent to provide connection between vertically and horizontally adjacent units.
2. Strength of shear connectors between vertical adjacent units shall be applicable over a design temperature of 10 degrees F to + 100 degrees F.
3. Shear connectors shall be capable of holding the geogrid in the proper design position during grid pre-tensioning and backfilling.

2.03 Base Leveling Pad Material

1. Material shall consist of a compacted #57 crushed stone base as shown on the construction drawings.

2.04 Unit Drainage Fill

1. Unit drainage fill shall consist of #57 crushed stone.
2. One cubic foot, minimum, of drainage fill shall be used for each square foot of wall face. Drainage fill shall be placed within cores of, between, and behind units to meet this requirement.

2.05 Reinforced Backfill

1. Reinforced backfill shall type SM, be free of debris and meet the following gradation tested in accordance with ASTM D-422 and meet other properties shown on the plan:

Sieve Size	Percent Passing
2 inch	100-75
3/4 inch	100-75
No. 40	0-60
No. 200	0-35
2. Plasticity Index (PI) <15 and Liquid Limit <40 per ASTM D-4318.
3. Material can be site excavated soils where the above requirements can be met. Unsuitable soils for backfill (high plastic clays or organic soils) shall not be used in the reinforced soil mass.

2.06 Geogrid Soil Reinforcement

1. Geosynthetic reinforcement shall consist of geogrids manufactured specifically for soil reinforcement applications and shall be manufactured from high tenacity polyester yarn.

2.07 Drainage Pipe

1. The drainage pipe shall be perforated corrugated HDPE pipe manufactured in accordance with ASTM D-1248.

PART 3 EXECUTION

3.01 Excavation

1. Contractor shall excavate to the lines and grades shown on the construction drawings. Owner's representative shall be responsible for inspecting and approving the excavation prior to placement of leveling material or fill soils.

3.02 Base Leveling Pad

1. Leveling pad material shall be placed to the lines and grades shown on the construction drawings, to a minimum thickness of 6 inches and extend laterally a minimum of 6' in front and behind the modular wall unit.
2. Leveling pad shall be prepared to insure full contact to the base surface of the concrete units.

3.03 Modular Unit Installation

1. First course of units shall be placed on the leveling pad at the appropriate line and grade. Alignment and level shall be checked in all directions and insure that all units are in full contact with the base and properly seated.
2. Place the front of units side-by-side. Do not leave gaps between adjacent units. Layout of corners and curves shall be in accordance with manufacturer's recommendations.
3. Install shear/connecting devices per manufacturer's recommendations.
4. Place and compact drainage fill within and behind wall units. Place and compact backfill soil behind drainage fill. Follow wall erection and drainage fill closely with structure backfill.
5. Maximum stacked vertical height of wall units, prior to unit drainage fill and backfill placement and compaction, shall not exceed three courses.

3.04 Structural Geogrid Installation

1. Geogrid shall be oriented with the highest strength axis perpendicular to the wall alignment.
2. Geogrid reinforcement shall be placed at the strengths, lengths, and elevations shown on the construction design drawings or as directed by the Engineer.
3. The geogrid shall be laid horizontally on compacted backfill and attached to the modular wall units. Place the next course of modular concrete units over the geogrid. The geogrid shall be pulled taut, and anchored prior to

1. backfill placement on the geogrid.
2. Geogrid reinforcements shall be continuous throughout their embedment lengths and placed side-by-side to provide 100% coverage at each level. Spliced connections between shorter pieces of geogrid or gaps between adjacent pieces of geogrid are not permitted.

3.05 Reinforced Backfill Placement

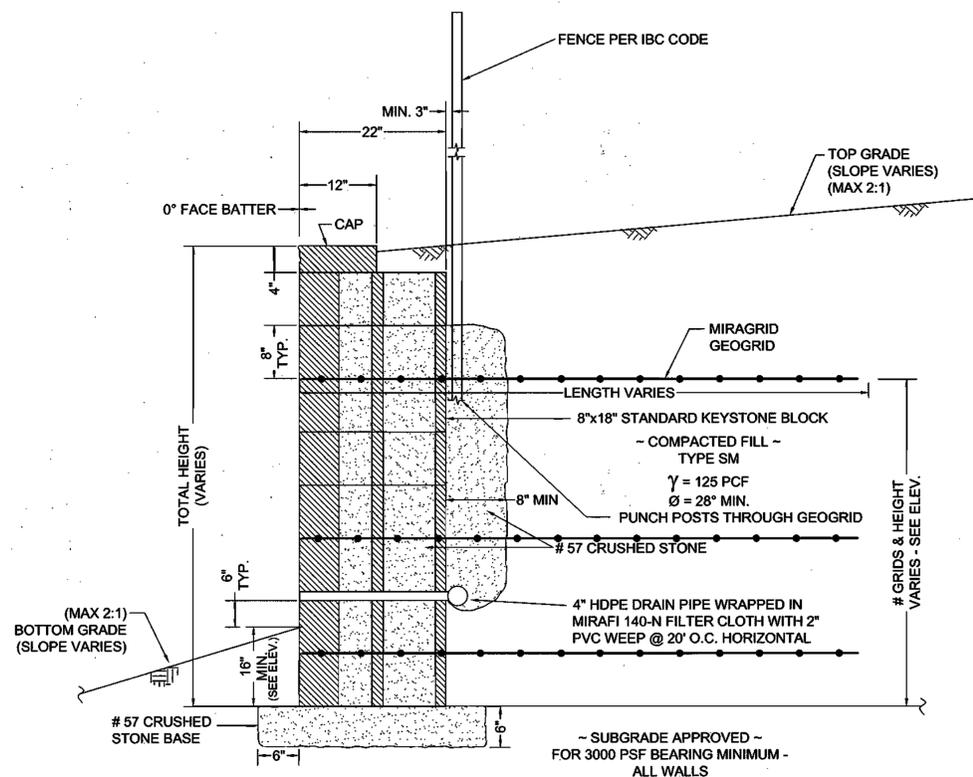
1. Reinforced backfill shall be placed, spread, and compacted in such a manner that minimizes the development of slack in the geogrid and installation damage.
2. Reinforced backfill shall be placed and compacted in lifts not to exceed 6 inches where hand compaction is used, or 8 - 10 inches where heavy compaction equipment is used. Lift thickness shall be decreased to achieve the required density as required.
3. Reinforced backfill shall be compacted to 95% of the maximum density as determined by ASTM D698. The moisture content of the backfill material prior to and during compaction shall be uniformly distributed throughout each layer and shall be + 3% to - 3% of optimum.
4. Only lightweight hand-operated equipment shall be allowed within 3 feet from the tail of the modular concrete unit.
5. Tracked construction equipment shall not be operated directly upon the geogrid reinforcement. A minimum fill thickness of 6 inches is required prior to operation of tracked vehicles over the geogrid. Tracked vehicle turning should be kept to a minimum to prevent tracks from displacing the fill and damaging the geogrid.
6. Rubber tired equipment may pass over geogrid reinforcement at slow speeds, less than 10 MPH. Sudden braking and sharp turning shall be avoided.
7. At the end of each day's operation, the Contractor shall slope the last lift of reinforced backfill away from the wall units to direct runoff away from wall face. The Contractor shall not allow surface runoff from adjacent areas to enter the wall construction site.

3.06 Cap Installation

1. Cap units shall be glued to underlying units with an all-weather adhesive recommended by the manufacturer.

3.07 Field Quality Control

1. The Owner shall engage inspection and testing services, including independent laboratories, to provide quality assurance and testing services during construction.
2. As a minimum, quality assurance testing should include foundation soil inspection, soil and backfill testing, verification of design parameters, and observation of construction for general compliance with design drawings and specifications.



WALL #4 SECTION

NTS

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.	
<i>Frank D. Egler</i>	1/2/04
DIRECTOR	DATE
<i>William Dammann</i>	12/10/03
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE
<i>Cindy Hanetta</i>	1/6/04
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE

PHONE	
DATE NO.	REVISION
OWNER	DEVELOPER
M/J ASSOCIATES LLLP 5550 STERRETT PLACE SUITE 312 COLUMBIA, MARYLAND 21044 410-730-9091	MDG COMPANIES 5550 STERRETT PLACE SUITE 312 COLUMBIA, MARYLAND 21044 410-730-9091

PROJECT	MDG CORPORATE CENTRE COLUMBIA 100 OFFICE RESEARCH PARK SECTION 1, AREA 2, PARCEL J-2
AREA	TAX MAP 30, PARCEL J-2, ZONED POR 2nd ELECTION DISTRICT HOWARD COUNTY, MARYLAND

TITLE
RETAINING WALL NOTES & DETAILS

Patton Harris Rust & Associates, pc
Engineers, Surveyors, Planners, Landscapers, Architects
3818 Centre Farm Drive
Columbia, MD 21045
T 410.937.2901
F 410.937.9121

HILLIS-CARNES
ENGINEERING ASSOCIATES, INC.
12011 Guilford Road - Suite 106 Annapolis Junction, Maryland
Telephone: (410) 890-4788 Fax: (410) 890-4998

DESIGNED BY :	RWS
DRAWN BY :	AM
PROJECT NO :	99109B
DATE :	DECEMBER 4, 2003
SCALE :	AS SHOWN
DRAWING NO. :	10 OF 10



SHEET INDEX	
NO	DESCRIPTION
1	TITLE SHEET
2	SITE DEVELOPMENT PLAN
3	GRADING AND SEDIMENT CONTROL
4	SEDIMENT CONTROL DETAILS
5	PROFILES AND DETAILS SHEET
6	PROFILES
7	LANDSCAPE PLAN
8	LANDSCAPE SCHEDULES AND DETAILS
9	RETAINING WALL CONSTRUCTION DETAILS
10	RETAINING WALL CONSTRUCTION DETAILS

GENERAL NOTES

- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS, IF APPLICABLE.
- THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/BUREAU OF ENGINEERING/ CONSTRUCTION INSPECTION DIVISION AT (410) 313-1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF WORK.
- THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
- TRAFFIC CONTROL DEVICES, MARKINGS, AND SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL STREET AND REGULATORY SIGNS SHALL BE IN PLACE PRIOR TO THE PLACEMENT OF ANY ASPHALT.
- ALL PLAN DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
- THE EXISTING TOPOGRAPHY IS TAKEN FROM FIELD RUN SURVEY WITH MAXIMUM TWO FOOT CONTOUR INTERVALS PREPARED BY RIEMER MUEGGE & ASSOCIATES DATED NOVEMBER 1999, AND FROM MASS GRADES SDP-03-121.
- THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM. HOWARD COUNTY MONUMENT NOS. 30FB AND 30FC WERE USED FOR THIS PROJECT.
- WATER IS PUBLIC UNDER A PUBLIC CONTRACT TO BE BONDED BY THE DEVELOPER. CONTRACT NO. 24-4128-D.
- SEWER IS PUBLIC. SEWER DRAINAGE AREA: 108 P.S. CONTRACT NO. 24-4128-D.
- THE STORMWATER QUALITY AND QUANTITY MANAGEMENT IS PROVIDED FOR THE DEVELOPMENT BY A REGIONAL RETENTION FACILITY PER F-87-82. THE FACILITY IS LOCATED NORTH OF EXECUTIVE DRIVE AND COLUMBIA 100 PARKWAY INTERSECTION.
- APPROXIMATE LOCATION OF EXISTING UTILITIES ARE SHOWN. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED DUE TO CONTRACTOR'S OPERATION SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE. EXISTING UTILITIES ARE SHOWN BASED ON THE BEST AVAILABLE INFORMATION.
- A 100- YEAR FLOODPLAIN STUDY FOR THIS PROJECT IS NOT REQUIRED.
- NO WETLANDS ARE FOUND ON THIS PROJECT.
- A TRAFFIC STUDY FOR THIS PROJECT WAS PREPARED BY MARS GROUP DATED AUGUST 2003.
- THE BOUNDARY SURVEY FOR THIS PROJECT WAS PREPARED BY RIEMER MUEGGE & ASSOCIATES DATED OCTOBER 1998.
- SUBJECT PROPERTY ZONED POR PER 10-18-93 COMPREHENSIVE ZONING PLAN.
- ALL ELEVATIONS SHOWN ARE BASED ON THE U.S.C. AND G.S. MEAN SEA LEVEL DATUM, 1929
- SEE DEPARTMENT OF PLANNING AND ZONING FILE NO'S. F-87-13, F-87-82, F-96-51, F-97-48, F-97-147, F-99-59, F-03-139, SDP-03-121, F-04-063.
- THE CONTRACTOR SHALL TEST PIT EXISTING UTILITIES AT LEAST (5) DAYS BEFORE STARTING WORK SHOWN ON THESE DRAWINGS.
- CONTRACTOR IS SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, PROCEDURES, AND SAFETY PRECAUTIONS AND PROGRAMS.
- ALL STORM DRAIN SHALL BE HDPE PIPE MEETING AASHTO M-252 TYPE S, M-294 TYPE S, AND ASTM D2321. PIPE SHALL NOT BE INSTALLED BY THE CONTRACTOR UNTIL THE LENGTH CALLED FOR AT EACH STATION HAS BEEN APPROVED BY THE ENGINEER IN THE FIELD.
- NO PIPE SHALL BE LAID UNTIL LINES OF EXCAVATION HAVE BEEN BROUGHT WITHIN 6" OF FINISHED GRADE
- ALL INLETS SHALL BE CONSTRUCTED IN ACCORDANCE WITH HOWARD COUNTY STANDARDS.
- ALL PIPE ELEVATIONS SHOWN ARE INVERT ELEVATIONS.
- PROFILE STATIONS SHALL BE ADJUSTED AS NECESSARY TO CONFORM TO PLAN DIMENSIONS.
- ALL FILL AREAS WITHIN ROADWAY AND UNDER STRUCTURES TO BE COMPACTED TO A MINIMUM OF 95% COMPACTION OF AASHTO T180.
- PER SUBDIVISION REGULATION SECTION 16.1202.(b),(1),(iii) THIS PROJECT WAS SUBJECT TO FINAL PLANS AND MASS GRADING PLANS (GP-86-57) PRIOR TO THE FOREST CONSERVATION ACT, AND IS NOT SUBJECT TO THE FOREST CONSERVATION ACT.
- ALL OUTDOOR LIGHTING SHALL COMPLY WITH THE REQUIREMENTS OF HOWARD COUNTY ZONING REGULATIONS SECTION 134.
- THE CANTILEVERED UPPER STORY BUILDING OVERHANG FEATURE IS PERMITTED UP TO THREE FEET WITHIN ANY REQUIRED SETBACK AREA IN ACCORDANCE WITH HOWARD COUNTY REGULATIONS SECTION 128.A.1.0.
- COVENANTS, CONDITIONS AND RESTRICTIONS FOR THE COLUMBIA 100 OFFICE RESEARCH PARK ARE RECORDED IN L1771 F.434 OF THE LAND RECORDS OF HOWARD COUNTY. THE COVENANTS ALLOW WORK UP TO 10' ONTO ADJACENT PARCELS FOR GRADING.
- A WAIVER TO SECTION 5.4 DEISN MANUAL VOLUME II TO ALLOW A RETAINING WALL TO BE LOCATED WITHIN 10' OF A PUBLIC SEWER EASEMENT WAS APPROVED BY BUREAU OF ENGINEERING IN LETTER DATED OCTOBER 2, 2003.

SITE ANALYSIS DATA CHART

AREA OF PARCEL J-2	2.88 ACRES
LIMIT OF DISTURBED AREA	2.75 ACRES
PRESENT ZONING	POR
PROPOSED USE	OFFICE, BANK, RESTAURANT
PROPOSED FLOOR AREAS	
FIRST FLOOR	
BANK	3,010 SF
RESTAURANT	7,041 SF
2nd & 3rd FLOOR	
OFFICE	16,009 SF
4th FLOOR	
OFFICE	7,270 SF
TOTAL OFFICE	23,279 SF
BANK	3,010 SF
RESTAURANT	7,041 SF
REQUIRED PARKING**	220 SPACES (INCL. 7 HANDICAP SP.)
GENERAL OFFICE @ 3.3 SF/1,000 SF x 1,111 SF = 3,667 SF	BANK @ 5.0 SF/1,000 SF x 3,010 SF = 15,050 SF
MEDICAL OFFICE @ 2.0 SF/1,000 SF x 1,111 SF = 2,222 SF	RESTAURANT @ 14.97/1,000 SF x 7,041 SF = 105,288 SF
TOTAL REQUIRED SPACES = 221 SPACES	
PROPOSED PARKING	220 SPACES (INCL. 7 HANDICAP SP.)
40 SMALL CAR PARKING SPACES ARE PROPOSED (16'x20')	AS ALLOWED BY ZONING REGULATION SECT. 133 C(2)
BUILDING COVERAGE	14,229 SF (11.3% OF SITE)
** EXCLUDES AREA DEVOTED TO DRIVE-THRU LANES	
** USING HOWARD COUNTY ZONING REGULATIONS SECTION 100.C.1.4, THE INTENDED USERS CAN EXPLOIT A SHARED PARKING ADJUSTMENT. THE MAXIMUM NUMBER OF SPACES OCCURS ON WEEKENDS BETWEEN 6 AM - 6 PM. THE REGULATIONS ALLOW THE FOLLOWING ADJUSTMENT FACTORS: 50% RESTAURANT, 100% OFFICE.	

SITE DEVELOPMENT PLAN

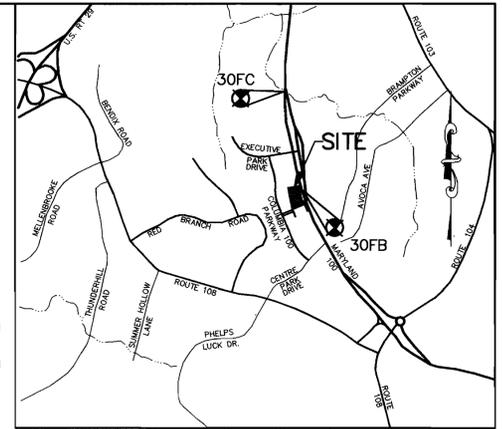
COLUMBIA 100

OFFICE RESEARCH PARK

SECTION 1, AREA 2, PARCEL J-2

2nd ELECTION DISTRICT

HOWARD COUNTY, MARYLAND

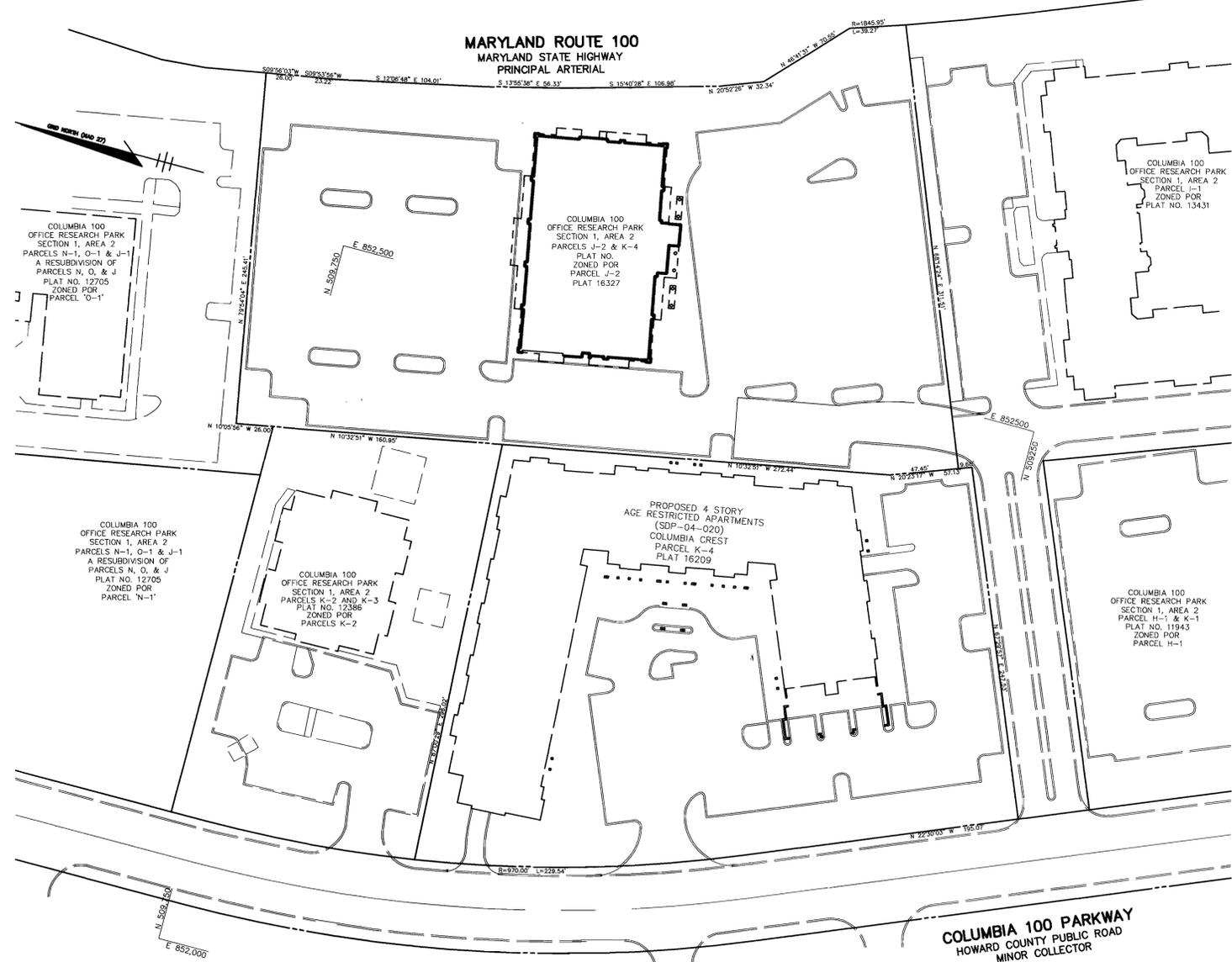


VICINITY MAP
SCALE: 1"=2000'
COPYRIGHT ADC THE MAP PEOPLE
PERMITTED USE NO. 20894285

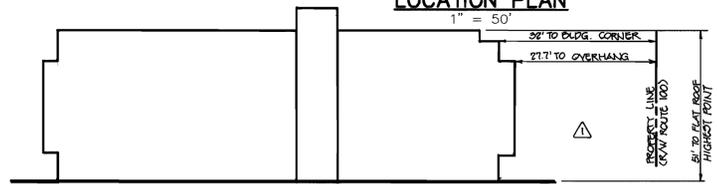
BENCH MARK

HOWARD COUNTY CONTROL
STATION 30FB
N 570,134.286 (NAD83) N 509,385 (NAD27)
E 1,365,194.137 (NAD 83) E 852,776 (NAD 27)
ELEV. 500.63

HOWARD COUNTY CONTROL
STATION 30FC
N 572,916.535 (NAD 83) N 512,168 (NAD 27)
E 1,364,870.171 (NAD 83) E 852,252 (NAD 27)
ELEV. 386.93



LOCATION PLAN



SOUTH BUILDING ELEVATION
SCALE: 1"=30'

NOTE: THE HEIGHT OF THIS BUILDING IS BASED ON THE HIGHEST POINT ON THE PLAT ROOF. THIS POINT IS 51'-0" ABOVE THE AVERAGE ADJOINING GRADE. THE SETBACK TO THE BUILDING IS 30' THEREBY DETERMINING THE ALLOWABLE MAXIMUM HEIGHT TO 51'-0".

ADDRESS CHART

PARCEL NUMBER	STREET ADDRESS
J-2	8850 COLUMBIA 100 PARKWAY

SUBDIVISION NAME	SECT./AREA	PARCEL
COLUMBIA 100 OFFICE RESEARCH PARK	S/1 A/2	J-2
PLAT NO. 16327	BLOCK # ZONING TAX MAP NO. 18 POR 30	ELECT. DIST. CENSUS TRACT 2 6023.02
WATER CODE G02	SEWER CODE 5750639	

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.	
<i>Danish A. Wright</i> DIRECTOR	1/2/04 DATE
<i>Chris Dammann</i> CHIEF, DEVELOPMENT ENGINEERING DIVISION	12/9/03 DATE
<i>Cindy Hamilton</i> CHIEF, DIVISION OF LAND DEVELOPMENT	1/6/04 DATE

4-G-04	REVISOR	REVISION	
OWNER	MJF ASSOCIATES LLLP 5550 STERRETT PLACE SUITE 312 COLUMBIA, MARYLAND 21044 410-730-9091	DEVELOPER	MDG COMPANIES 5550 STERRETT PLACE SUITE 312 COLUMBIA, MARYLAND 21044 410-730-9091

PROJECT	MDG CORPORATE CENTRE COLUMBIA 100 OFFICE RESEARCH PARK SECTION 1, AREA 2, PARCEL J-2
AREA	TAX MAP 30, PARCEL J-2, ZONED POR 2nd ELECTION DISTRICT HOWARD COUNTY, MARYLAND

TITLE SHEET

Patton Harris Rust & Associates, pc
Engineers, Surveyors, Planners, Landscape Architects.
8818 Centre Park Drive
Columbia, MD 21045
T 410.997.8900
F 410.997.9282

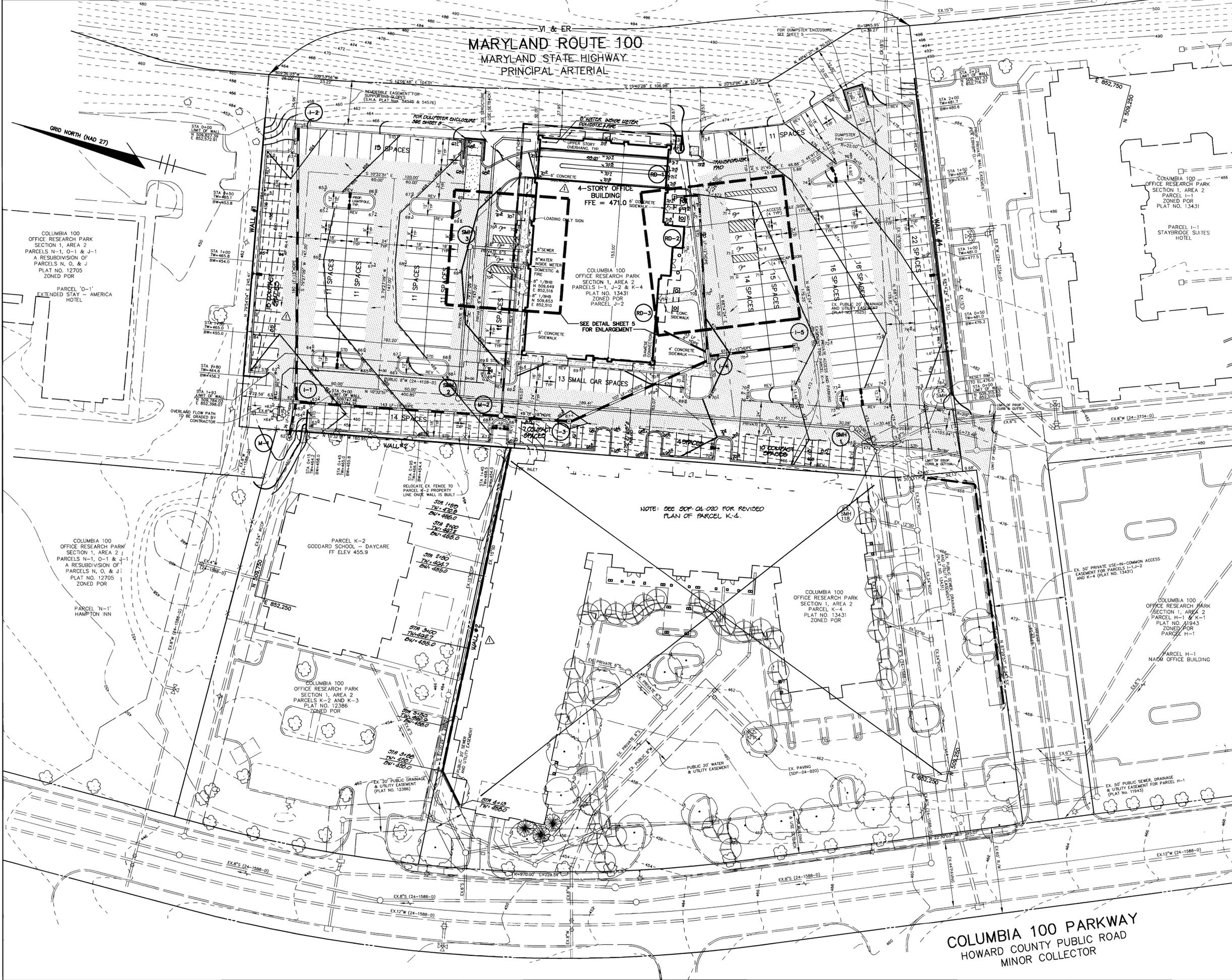
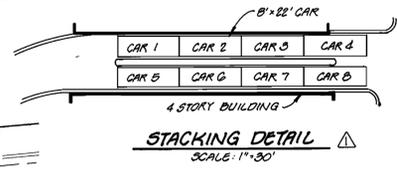
DATE	12-4-03
DESIGNED BY :	C.J.R.
DRAWN BY :	DAM
PROJECT NO :	11872-3.1 C100COV
DATE :	DECEMBER 4, 2003
SCALE :	AS SHOWN
DRAWING NO. :	1 OF 10

CHRISTOPHER J. REID #19949

VI & ER
MARYLAND ROUTE 100
 MARYLAND STATE HIGHWAY
 PRINCIPAL ARTERIAL

- NOTES:**
1. ALL RADII ARE 5' UNLESS OTHERWISE NOTED.
 2. ALL DIMENSIONS ARE TO FACE OF CURB OR BUILDING UNLESS OTHERWISE NOTED.
 3. ALL ON-SITE ROADS ARE PRIVATE.
 4. STD/REV*- STANDARD TO REVERSE CURB TRANSITION.
 5. COVENANTS, CONDITIONS AND RESTRICTIONS FOR THE COLUMBIA 100 OFFICE RESEARCH PARK ARE RECORDED IN L.1771 F.434 OF THE LAND RECORDS OF HOWARD COUNTY. THE COVENANTS ALLOW WORK UP TO 10' ONTO ADJACENT PARCELS FOR GRADING.

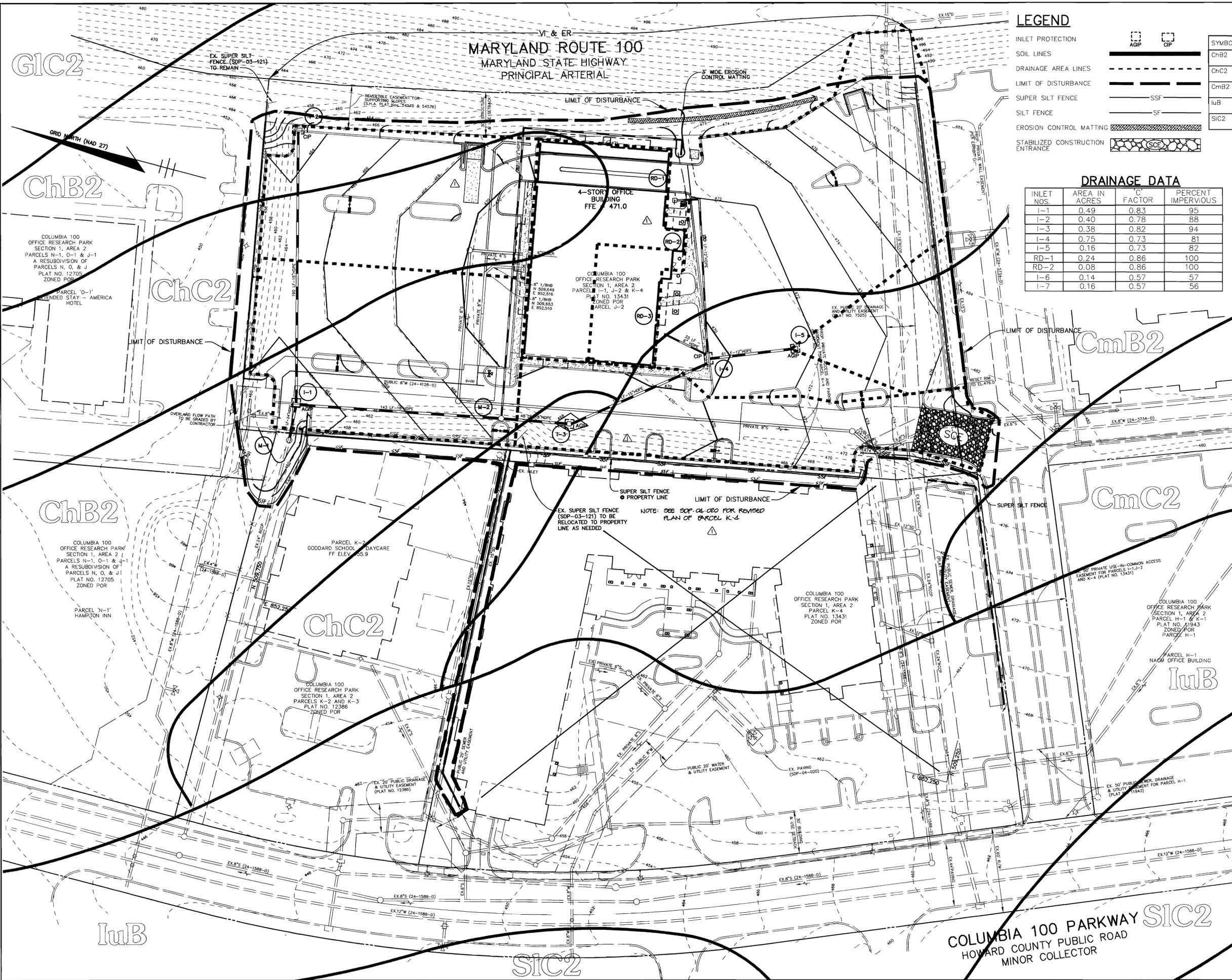
- LEGEND**
- 450 --- EXISTING 10' CONTOURS
 - 448 --- EXISTING 2' CONTOURS
 - 450 --- PROPOSED 10' CONTOURS
 - 448 --- PROPOSED 2' CONTOURS
 - --- PROPOSED CURB & GUTTER
 - --- PROPOSED STORM DRAIN
 - P-1 PAVING (HO.CO. DETAIL R-2.01)
 - P-2 PAVING (HO.CO. DETAIL R-2.01)
 - CONCRETE SIDEWALK (HO.CO. DETAIL R-3.05)
 - ⊕ LIGHTS
 - ⊕ DENOTES NUMBER OF STEPS
 - VI & ER VEHICULAR INGRESS AND EGRESS RESTRICTED



NOTE: SEE SUP-04-020 FOR REVISED PLAN OF PARCEL K-4.

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.	
<i>Mark A. Wright</i> DIRECTOR	1/3/14 DATE
<i>John DeMunn</i> CHIEF, DEVELOPMENT ENGINEERING DIVISION	12/10/13 DATE
<i>John Harvath</i> CHIEF, DIVISION OF LAND DEVELOPMENT	1/6/14 DATE
4-G-04 DATE NO.	ADDED DRIVE THRU DRIVE DUMPSTER AND ENCLOSURE, REVISION UTILITIES, WALLS, PARKING CURBS REVISION
OWNER MJF ASSOCIATES LLLP 5550 STERRETT PLACE SUITE 312 COLUMBIA, MARYLAND 21044 410-730-9091	DEVELOPER MDG COMPANIES 5550 STERRETT PLACE SUITE 312 COLUMBIA, MARYLAND 21044 410-730-9091
PROJECT MDG CORPORATE CENTRE COLUMBIA 100 OFFICE RESEARCH PARK SECTION 1, AREA 2, PARCEL J-2	
AREA TAX MAP 30, PARCEL J-2, ZONED POR 2nd ELECTION DISTRICT HOWARD COUNTY, MARYLAND	
TITLE SITE DEVELOPMENT PLAN	
Patton Harris Rust & Associates, pc Engineers, Surveyors, Planners, Landscape Architects. 8818 Centre Park Drive Columbia, MD 21045 T 410.997.8900 F 410.997.9282	
	12-4-03 DATE
DESIGNED BY : C.J.R.	12-4-03 DATE
DRAWN BY : DAM	11872-3.1 PROJECT NO. 'C400SIT.DWG
DATE : DECEMBER 4, 2003	SCALE : 1" = 30'
CHRISTOPHER J. REID #19949	DRAWING NO. 2 OF 10

COLUMBIA 100 PARKWAY
 HOWARD COUNTY PUBLIC ROAD
 MINOR COLLECTOR



LEGEND

- INLET PROTECTION
- SOIL LINES
- DRAINAGE AREA LINES
- LIMIT OF DISTURBANCE
- SUPER SILT FENCE
- SILT FENCE
- EROSION CONTROL MATTING
- STABILIZED CONSTRUCTION ENTRANCE

SOIL CHART

SYMBOL	DESCRIPTION	HYDROLOGIC SOIL GROUP
ChB2	CHESTER SILT LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED	B
ChC2	CHESTER SILT LOAM, 8 TO 15 PERCENT SLOPES, MODERATELY ERODED	B
CmB2	CHILLUM SILT LOAM, 1 TO 5 PERCENT SLOPES, MODERATELY ERODED	C
IuB	IUKA LOAM, LOCAL ALLUVIUM, 1 TO 5 PERCENT SLOPES	C
SIC2	SASSAFRAS LOAM, 5 TO 10 PERCENT SLOPES, MODERATELY ERODED	B

DRAINAGE DATA

INLET NOS.	AREA IN ACRES	C FACTOR	PERCENT IMPERVIOUS
1-1	0.49	0.83	95
1-2	0.40	0.78	88
1-3	0.38	0.82	94
1-4	0.75	0.73	81
1-5	0.16	0.73	82
RD-1	0.24	0.86	100
RD-2	0.08	0.86	100
1-6	0.14	0.57	57
1-7	0.16	0.57	56

BY THE DEVELOPER :
 I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

Christina A. Richards 12/3/03
 DEVELOPER DATE

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

Cheryl S. Reid 12-4-03
 ENGINEER DATE

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

Jim Mays 12/11/03
 NATURAL RESOURCES CONSERVATION SERVICE DATE

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

J.R. Robinson 12/16/03
 HOWARD SOIL CONSERVATION DISTRICT DATE

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

Mark A. Coughlin 1/3/04
 DIRECTOR DATE

John D. Williams 12/10/03
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Janis Hamilton 1/5/04
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

4-06-04 APPROX DRIVE THRU LAWN, EXISTING PAD & ENCLOSURE RELOCATED UTILITIES, WALLS, CURBS

OWNER	DEVELOPER
MJF ASSOCIATES LLLP 5550 STERRETT PLACE SUITE 312 COLUMBIA, MARYLAND 21044 410-730-9091	MDG COMPANIES 5550 STERRETT PLACE SUITE 312 COLUMBIA, MARYLAND 21044 410-730-9091

PROJECT **MDG CORPORATE CENTRE**
 COLUMBIA 100 OFFICE RESEARCH PARK
 SECTION 1, AREA 2, PARCEL J-2

AREA TAX MAP 30, PARCEL J-2, ZONED POR
 2nd ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

TITLE **GRADING, SEDIMENT CONTROL AND DRAINAGE AREA MAP**

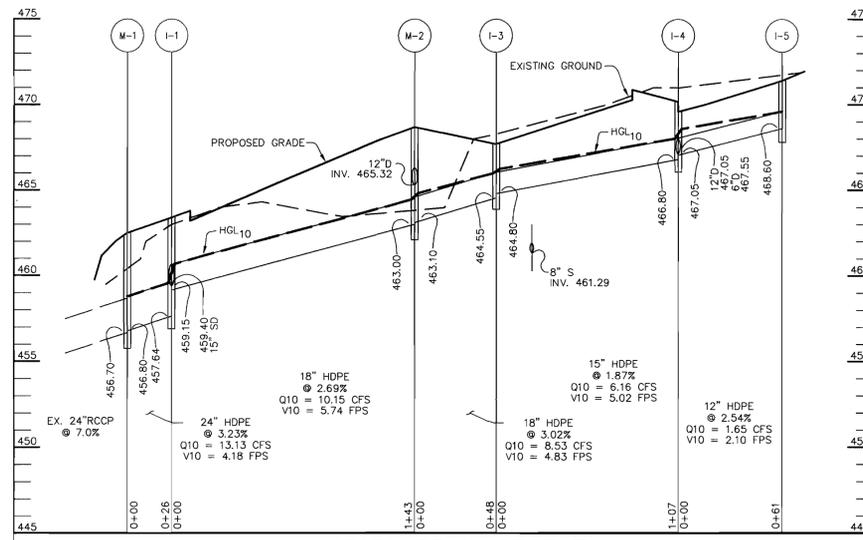
Patton Harris Rust & Associates, pc
 Engineers, Surveyors, Planners, Landscape Architects.
 8818 Centre Park Drive
 Columbia, MD 21045
 T 410.997.8900
 F 410.997.9282

12-4-03
 DATE

DESIGNED BY : C.J.R.
 DRAWN BY : DAM
 PROJECT NO : 11872-3.1
 C200ESC.DWG
 DATE : DECEMBER 4, 2003
 SCALE : 1" = 30'
 DRAWING NO. 3 OF 10

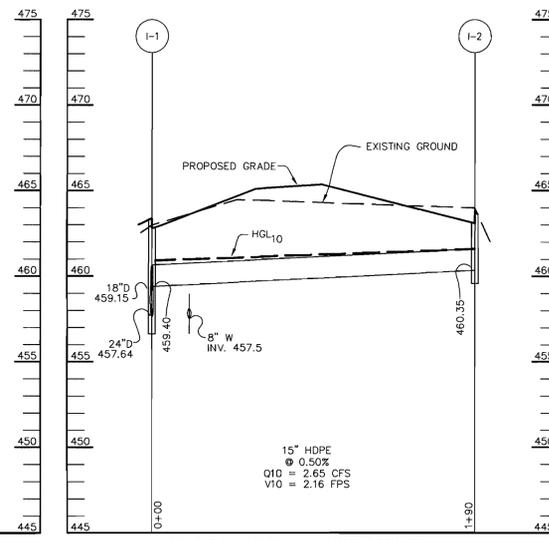
CHRISTOPHER J. REID #19949

COLUMBIA 100 PARKWAY
 HOWARD COUNTY PUBLIC ROAD
 MINOR COLLECTOR



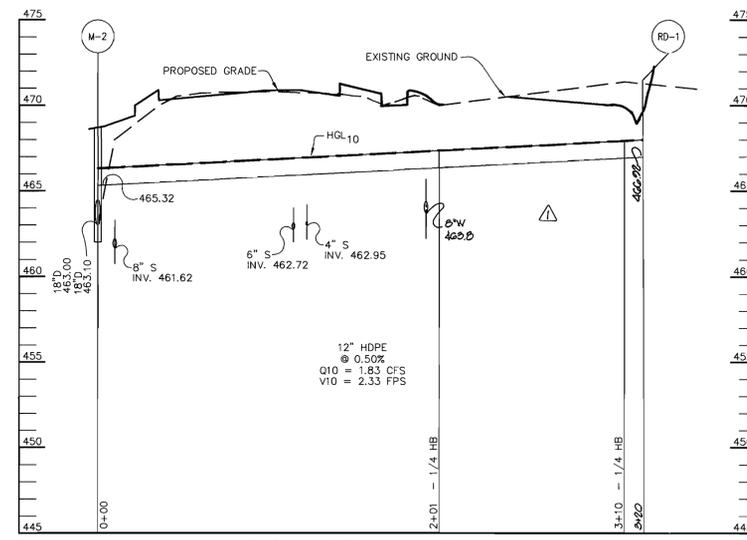
STORM DRAIN PROFILE

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



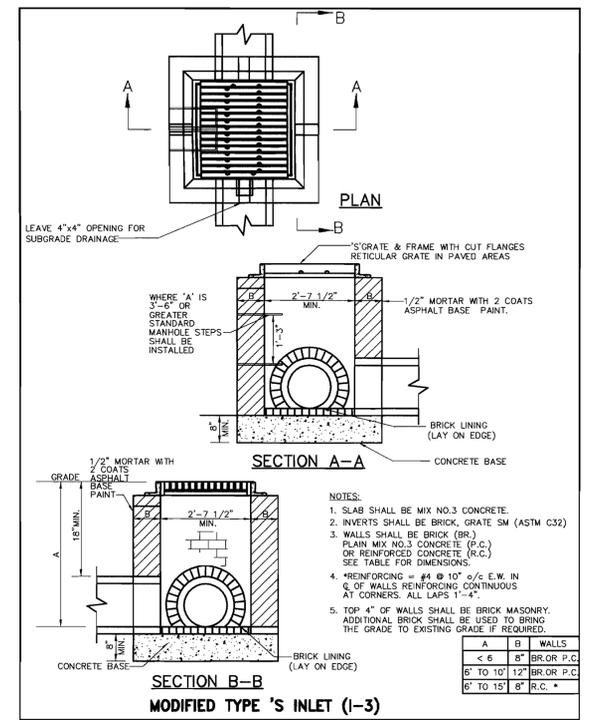
STORM DRAIN PROFILE

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



STORM DRAIN PROFILE

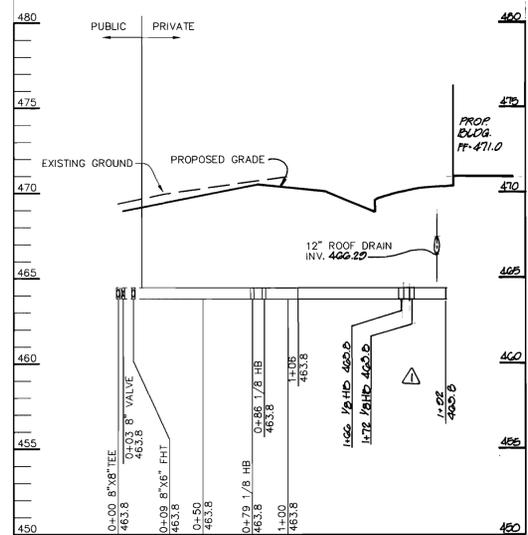
SCALE:
HOR. - 1"=50'
VERT. - 1"=5'



MODIFIED TYPE 'S' INLET (I-3)

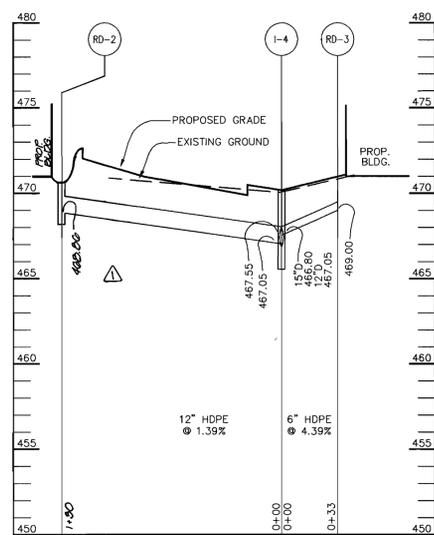
PIPE SCHEDULE

PIPE LENGTH	SIZE	TYPE
31	6"	HDPE
645	12"	HDPE
357	15"	HDPE
191	18"	HDPE
26	24"	HDPE



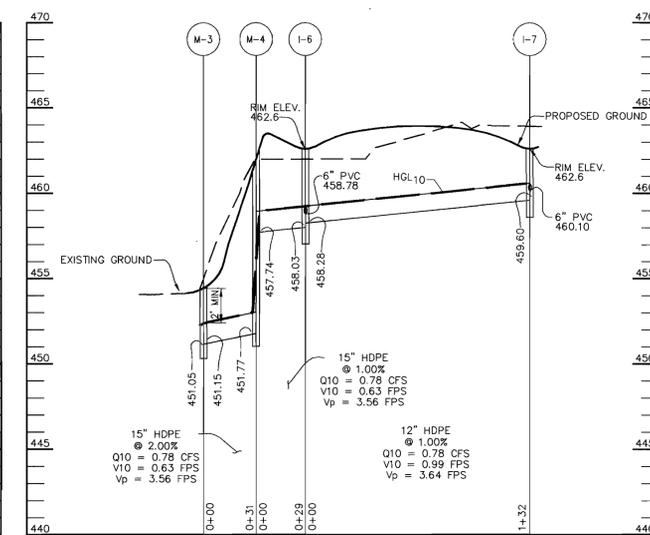
WATER PROFILE

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



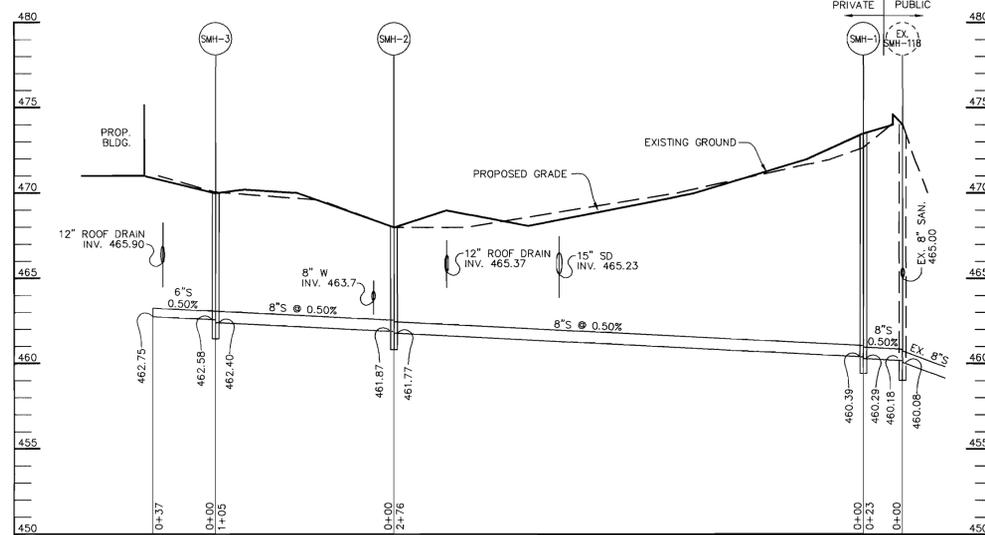
STORM DRAIN PROFILE

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



STORM DRAIN PROFILE

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



SEWER PROFILE

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

STRUCTURE SCHEDULE

STRUCTURE	TYPE	LOCATION	INV. IN	INV. OUT	TOP	REMARKS
I-1	A-5	N 509756.52 E 852387.49	459.40 (15") 459.15 (18")	457.64 (24")	463.4	HOCO STD. DETAIL SD-4.01
I-2	A-5	N 509804.52 E 852573.35	-	461.2 (15")	463.7	HOCO STD. DETAIL SD-4.01
I-3	'S' INLET MODIFIED	N 509569.10 E 852423.64	464.80 (15")	464.55 (18")	467.7	SEE DETAIL THIS SHEET
I-4	A-10	N 509487.01 E 852492.50	467.55 (8") 466.80 (15")	466.80 (18")	470.2	HOCO STD. DETAIL SD-4.02
I-5	'S' INLET	N 509430.09 E 852515.33	-	469.60 (12")	471.4	HOCO STD. DETAIL SD-4.22
I-6	'S' INLET MODIFIED	N 509544.32 E 852403.44	458.28 (15")	452.35 (15")	462.6	SEE DETAIL THIS SHEET
I-7	'S' INLET	N 509414.18 E 852427.67	-	459.60 (12")	462.6	HOCO STD. DETAIL SD-4.22
M-1	4'-0" DIA.	N 509755.00 E 852362.26	456.80 (24")	456.70 (24")	462.5	HOCO STD. DETAIL G-5.11
M-2	4'-0" DIA.	N 509615.96 E 852415.07	465.32 (12") 463.10 (18")	463.00 (18")	468.7	HOCO STD. DETAIL G-5.11
M-3	SHALLOW PRECAST	N 509603.64 E 852392.39	451.15 (15")	451.05 (15")	454.4	HOCO STD. DETAIL G-5.12
M-4	4'-0" DIA.	N 509572.73 E 852398.15	457.74 (15")	451.77 (15")	462.0	HOCO STD. DETAIL G-5.11
SMH-1	4'-0" DIA.	N 509376.76 E 852469.65	460.39 (8")	460.29 (8")	473.5	HOCO STD. DETAIL G-5.11
SMH-2	4'-0" DIA.	N 509648.02 E 852419.14	461.87 (8")	461.77 (8")	468.0	HOCO STD. DETAIL G-5.11
SMH-3	4'-0" DIA.	N 509667.36 E 852523.00	462.58 (8")	462.40 (8")	470.0	HOCO STD. DETAIL G-5.11

NOTES:
1. LOCATION OF INLETS AND MANHOLES IS AT CENTER OF TOP COVER

RD-2	ADD INLET	N 509507	E 852500	-	460.80 (8")	470.7	ADD INLET FOR 12" D
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APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

DIRECTOR: *Mark Wright* 1/7/14
 CHIEF, DEVELOPMENT ENGINEERING DIVISION: *Chris Ramm* 12/10/05
 CHIEF, DIVISION OF LAND DEVELOPMENT: *Jack Hamstra* 1/6/04

4-5-04 REV. ROOF DRAIN & WATER PROFILES

DATE	NO.	REVISION

OWNER	DEVELOPER
MJF ASSOCIATES LLLP 5550 STERRETT PLACE SUITE 312 COLUMBIA, MARYLAND 21044 410-730-9091	MDG COMPANIES 5550 STERRETT PLACE SUITE 312 COLUMBIA, MARYLAND 21044 410-730-9091

PROJECT: MDG CORPORATE CENTRE
 COLUMBIA 100 OFFICE RESEARCH PARK
 SECTION 1, AREA 2, PARCEL J-2

AREA: TAX MAP 30, PARCEL J-2, ZONED POR
 2nd ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

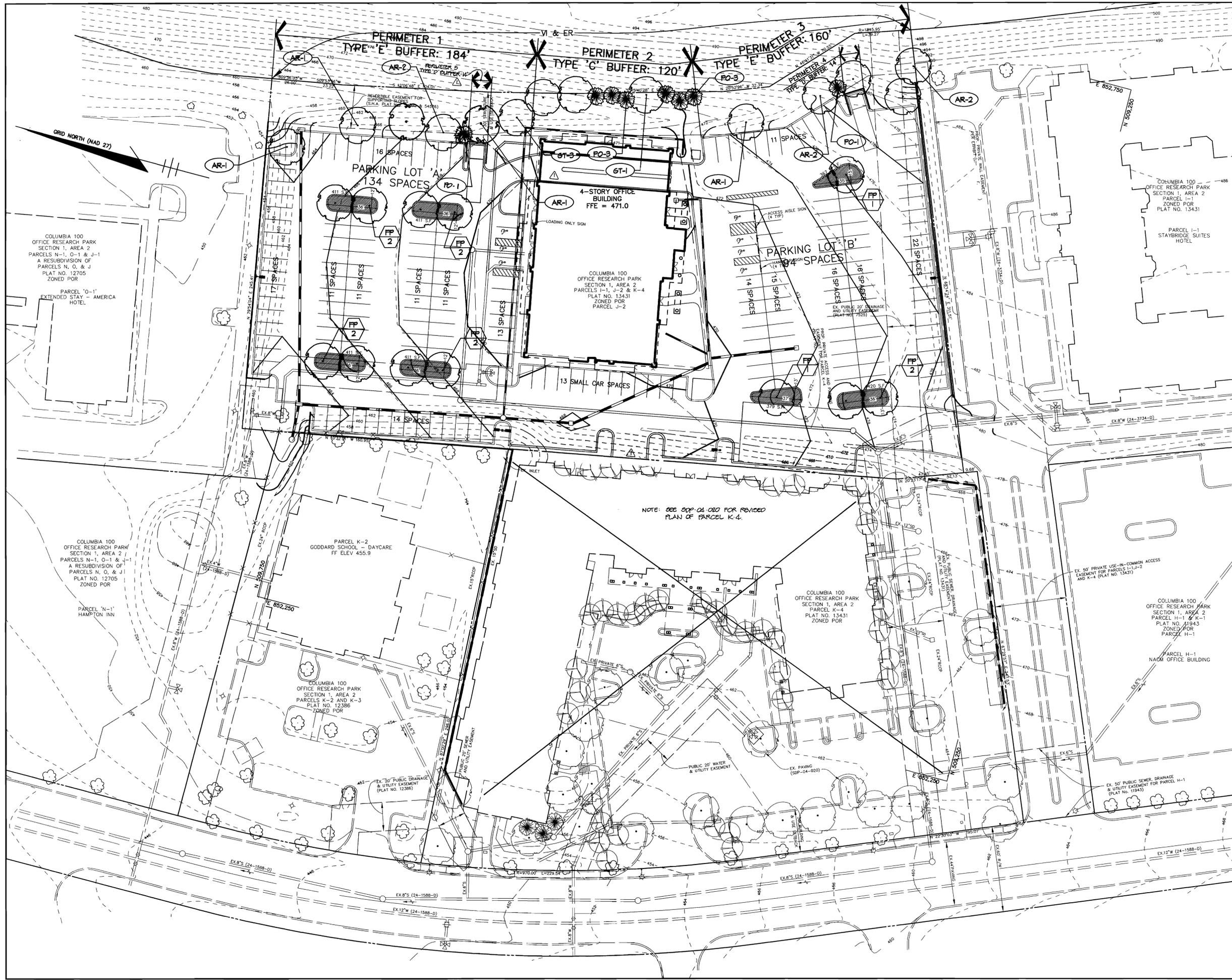
TITLE: **PROFILE SHEET**

Patton Harris Rust & Associates, pc
 Engineers, Surveyors, Planners, Landscape Architects.
 8818 Centre Park Drive
 Columbia, MD 21045
 T 410.997.8900
 F 410.997.9282

DATE: 12-4-03

DESIGNED BY: C.J.R.
 DRAWN BY: DAM
 PROJECT NO: 11872-3.1
 C700PRO.DWG
 DATE: DECEMBER 4, 2003
 SCALE: AS SHOWN
 DRAWING NO. 6 OF 10





LEGEND	
PROPERTY LINE	
CONTOUR LINES	
EX. BUILDING	
PROP. SHADE TREE	
PROP. EVERGREEN TREE	
PERIMETER LANDSCAPE REQUIREMENT	
PARKING LOT LANDSCAPE REQUIREMENT	
PERIMETER LANDSCAPE EDGE LIMITS	
CREDITED LANDSCAPE ISLAND	

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

David D. Wright 1/2/14
DIRECTOR DATE

John D. Williams 12/10/13
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Andy Hester 1/6/14
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

4-G-04 REVISED CURB, ADDED DRIVEWAY, MOVED 1 TREE	
DATE NO.	REVISION
OWNER	DEVELOPER
MJF ASSOCIATES LLLP 5550 STERRETT PLACE SUITE 312 COLUMBIA, MARYLAND 21044 410-730-9091	MDG COMPANIES 5550 STERRETT PLACE SUITE 312 COLUMBIA, MARYLAND 21044 410-730-9091

PROJECT MDG CORPORATE CENTRE
COLUMBIA 100 OFFICE RESEARCH PARK
SECTION 1, AREA 2, PARCEL J-2

AREA TAX MAP 30, PARCEL J-2, ZONED POR
2nd ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE LANDSCAPE PLAN

Patton Harris Rust & Associates, pc
Engineers, Surveyors, Planners, Landscape Architects.
8818 Centre Park Drive
Columbia, MD 21045
T 410.997.8900
F 410.997.9282

<p>DATE</p> <p>DESIGNED BY: G.T.H.</p> <p>DRAWN BY: G.T.H.</p> <p>PROJECT NO. 11872-3.1 ENGR PLANS LZ00LND</p> <p>DATE: DECEMBER 4, 2003</p> <p>SCALE: 1" = 30'</p> <p>DRAWING NO. 7 OF 10</p>	<p>DATE</p> <p>DESIGNED BY: G.T.H.</p> <p>DRAWN BY: G.T.H.</p> <p>PROJECT NO. 11872-3.1 ENGR PLANS LZ00LND</p> <p>DATE: DECEMBER 4, 2003</p> <p>SCALE: 1" = 30'</p> <p>DRAWING NO. 7 OF 10</p>
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SCHEDULE A - PERIMETER LANDSCAPE EDGE					
PERIMETER	ADJACENT TO ROADWAYS				
	1	2	3	4	5
LANDSCAPE TYPE	E	C	E	D	D
LINEAR FEET OF ROADWAY FRONTAGE/ PERIMETER	±184'	±120'	±160'	±14'	±14'
CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	NO	NO	NO	NO	NO
CREDIT FOR WALL, FENCE, BERM OR DRIVE AISLE (YES/NO/LINEAR FEET)	NO	NO	NO	NO	NO
LINEAR FEET REMAINING	±184'	±120'	±160'	±14'	±14'
NUMBER OF PLANTS REQUIRED					
SHADE TREES	5	3	4	1	1
EVERGREEN TREES	-	6	-	-	-
SHRUBS	46*	-	40*	-	-
NUMBER OF PLANTS PROVIDED					
SHADE TREES	5	3	4	1	1
EVERGREEN TREES	-	6	-	-	-
ORNAMENTAL TREES	0*	-	0*	-	-
SHRUBS	-	-	-	-	-

SCHEDULE 'A' NOTES:

REGULATIONS DO NOT REQUIRE LANDSCAPE EDGES, BUFFERING, OR SCREENING BETWEEN INTERNAL LOTS OR PARCELS WITHIN THE SAME DEVELOPMENT. (PAGE 17 OF THE HO. CO. LANDSCAPE MANUAL)

*... A CHANGE IN GRADE THAT CAUSES A PARKING LOT TO BE LOCATED LOWER THAN THE ADJACENT ROADWAY BY 3 FEET OR MORE MAY BE SUBSTITUTED FOR SHRUB PLANTING IN A TYPE E LANDSCAPE BUFFER. (PAGE 24 OF THE HO. CO. LANDSCAPE MANUAL)

SCHEDULE B - PARKING LOT INTERNAL LANDSCAPING	
PARKING LOTS	2
NUMBER OF PARKING SPACES	237
NUMBER OF SHADE TREES REQUIRED (1/20 SPACES)	12
NUMBER OF TREES PROVIDED	
SHADE TREES	12
OTHER TREES (2:1 SUBSTITUTION)	0
NUMBER OF ISLANDS REQUIRED (1/20 SPACES)	12
NUMBER OF ISLANDS PROVIDED (200 SQ. FT./ISLAND)	12

PARKING LOT AND PERIMETER PLANT LIST					
SYMBOL	QTY.	SCIENTIFIC/COMMON NAME	SIZE	ROOT	REMARKS
AR	10	Acer rubrum 'Red Sunset' Red Sunset Red Maple	2.5"-3" cal.	B4B	Plant as shown
FP	12	Fraxinus pennsylvanica 'Marshall's Seedless' Marshall's Seedless Green Ash	2.5"-3" cal.	B4B	Plant as shown
GT	4	Gleditsia triacanthos 'Inermis' Imperial Thornless Honeylocust	2.5"-3" cal.	B4B	Plant as shown
PO	8	Picea omorika Serbian Spruce	6'-8' ht.	B4B	Plant as shown

PLANTING SPECIFICATIONS

- Plants, related material, and operations shall meet the detailed description, as given on the plans and as described herein. Where discrepancies exist between Standards & Guidelines referenced within these specifications and the Howard County Landscape Manual, the latter takes precedence.
- All plant material, unless otherwise specified, that is not nursery grown, uniformly branched, does not have a vigorous root system, and does not conform to the most recent edition of the American Association of Nurserymen (AAN) Standards will be rejected. Plant material that is not healthy, vigorous, free from defects, decay, disfiguring roots, sunscald injuries, abrasions of the bark, plant disease, insect pest eggs, borers and all forms of insect infestations or objectionable disfigurements will be rejected. Plant material that is weak or which has been cut back from larger grades to meet specified requirements will be rejected. Trees with forked leaders will be rejected. All B & B plants shall be freshly dug; no healed-in plants or plants from cold storage will be accepted.
- Unless otherwise specified, all general conditions, planting operations, details and planting specifications shall conform to the most recent edition of the "Landscape Specification Guidelines by the Landscape Contractors Association of MD, DC, & VA", (hereinafter "Landscape Guidelines") approved by the Landscape Contractors Association of Metropolitan Washington and the Potomac Chapter of the American Society of Landscape Architects.
- Contractor shall guarantee all plant material for a period of one year after date of acceptance in accordance with the appropriate section on the Landscape Guidelines. Contractor's attention is directed to the maintenance requirements found within the one year specifications including watering and replacement of specified plant material.
- Contractor shall be responsible for notifying all relevant and appropriate utility companies, utility contractors, and "Miss Utility" a minimum of 48 hours prior to the beginning of any work. Contractor may make minor adjustments in spacing and location of plant material to avoid conflicts with utilities. Major changes will require the approval of the landscape architect. Damage to existing structure and utilities shall be repaired at the expense of the Contractor.
- Protection of existing vegetation to remain shall be accomplished via the temporary installation of 4 foot high snow fence at the drip line, see detail.
- Contractor is responsible for installing all material in the proper planting season for each plant type. All planting is to be completed within growing season of completion of site construction. Do not plant Pinus strobus or Xcupressacyparis leylandii between November 15 and March 15. Landscape plants are not to be installed before site is graded to final grade.
- Contractor to regrade, fine grade, sod, hydroseed and straw mulch all areas disturbed by their work.
- Bid shall be based on actual site conditions. No extra payment shall be made for work arising from actual site conditions differing from those indicated on drawings and specifications.

- Plant quantities are provided for the convenience of the contractor only. If discrepancies exist between quantities shown on plan and those shown on the plant list, the quantities on the plan take precedence. Where discrepancies on the plan exist between the symbols and the callout leader, the number of symbols take precedence.
- All shrubs and groundcover areas shall be planted in continuous planting beds, prepared as specified, unless otherwise indicated on plans. (See Specification 13). Beds to be mulched with minimum 2" and maximum 3" of composted, double-shredded hardwood mulch throughout.
- Positive drainage shall be maintained on planting beds (minimum 2 percent slope).
- Bed preparation shall be as follows: Till into a minimum depth of 6" 1 yard of Compro or Leafgro per 200 SF of planting bed, and 1 yard of topsoil per 100 SF of bed. Add 3 lbs of standard 5-10-5 fertilizer per cubic yard of planting mix and till. Ericaceous plants (Azaleas, Rhododendrons, etc.): top dress after planting with Iron sulfate or comparable product according to package directions. Taxus baccata 'Repandens' (English weeping yew): top dress after planting with 1/4 to 1/2 cup lime each.
- Planting mix: For trees not in a prepared bed, mix 50% Compro or Leafgro with 50% soil from tree hole to use as backfill, see tree planting detail.
- Weed & insect control: Incorporate a pre-emergent herbicide into the planting bed following recommended rates on the label. For tree planting, apply a pre-emergent on top of soil and root ball before mulching. Caution: For areas to be planted with a ground cover, be sure to carefully check the chemical used to assure its adaptability to the specific groundcover to be treated. Maintain the mulch weed-free for the extent of the warranty period. Under no circumstances is a pesticide containing chlorpyrifos to be used as a means of pest control.
- Water: All plant material planted shall be watered thoroughly the day of planting. All plant material not yet planted shall be properly protected from drying out until planted. At a minimum, water unplanted plant material daily and as necessary to avoid desiccation.
- Pruning: Do not heavily prune trees and shrubs at planting. Prune only broken, dead, or diseased branches.
- All areas within contract limits disturbed during or prior to construction not designated to receive plants and mulch shall be fine graded, grass seed planted, and covered with straw mulch.

GENERAL NOTES:

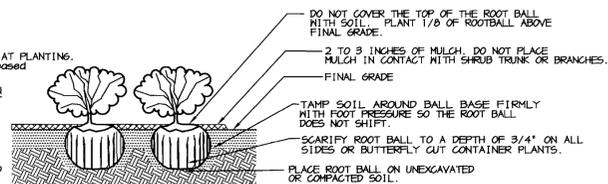
- THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL.
- FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING MUST BE POSTED AS PART OF THE DEVELOPER'S AGREEMENT IN THE AMOUNT OF \$ 8,550.
25 SHADE TREES @ \$300 = 7,500
7 EVERGREEN TREES @ \$150 = 1,050
- THIS PLAN IS FOR LANDSCAPING PURPOSES ONLY.
- CONTRACTOR IS SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, PROCEDURES, AND SAFETY PRECAUTIONS AND PROGRAMS.
- ALL MATERIAL SELECTED SHALL BE EQUAL TO OR BETTER THAN THE REQUIREMENTS OF THE "USA STANDARD FOR NURSERY STOCK", LATEST EDITION, AS PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN.
- ALL MATERIAL SHALL BE PLANTED IN ACCORDANCE WITH THE MINIMUM STANDARDS CITED IN THE LATEST EDITION OF "LANDSCAPE SPECIFICATION GUIDELINES" PUBLISHED BY THE LANDSCAPE CONTRACTORS ASSOCIATION.
- AT THE TIME OF INSTALLATION, ALL SHRUBS AND OTHER PLANTINGS SHALL BE OF THE PROPER HEIGHT AND/OR SPREAD REQUIREMENTS IN ACCORDANCE WITH THIS PLAN AND THE HOWARD COUNTY LANDSCAPE MANUAL.
- NO SUBSTITUTIONS OR RELOCATION OF PLANTS MAY BE MADE WITHOUT PRIOR APPROVAL FROM THE DEPARTMENT OF PLANNING AND ZONING OF HOWARD COUNTY. ANY DEVIATION FROM THIS LANDSCAPE PLAN MAY RESULT IN A REQUIREMENT FOR SUBMITTAL OF AN OFFICIAL "REDLINE REVISION" TO THE SITE DEVELOPMENT PLAN(S) AND/OR DENIAL IN THE RELEASE OF LANDSCAPE SURETY.

DEVELOPER'S/BUILDER'S CERTIFICATE:

I/WE CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE ACCORDING TO THE PLAN, SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE HOWARD COUNTY LANDSCAPE MANUAL. I/WE FURTHER CERTIFY THAT UPON COMPLETION, A CERTIFICATION OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.

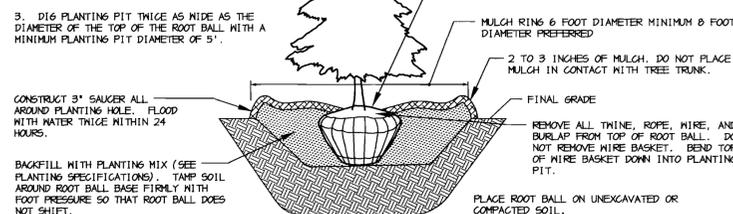
Christine A. Richards 12/3/03
SIGNATURE DATE

- NOTES:
- SEE PLANTING SPECIFICATIONS FOR PREPARATION OF PLANTING BED.
 - DO NOT HEAVILY PRUNE THE SHRUB AT PLANTING. PRUNE ONLY BROKEN, DAMAGED, OR DISEASED BRANCHES.
 - DIG PLANTING PIT 12" WIDER THAN THE DIAMETER OF THE TOP OF THE ROOT BALL WITH A MINIMUM PLANTING PIT DIAMETER OF 18".
 - FOR B4B SHRUBS, REMOVE ALL TWINE, ROPE, AND BURLAP FROM TOP OF ROOT BALL.
 - ALL CONTAINERS SHALL BE REMOVED BEFORE INSTALLATION.



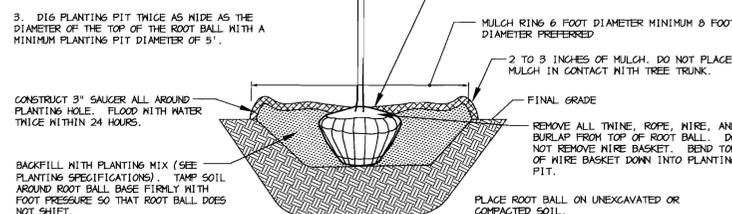
NOTES:

- SELECT ONLY NURSERY STOCK WITH A SINGLE LEADER UNLESS OTHERWISE SPECIFIED ON PLAN. PLANTS WITH CO-DOMINANT, HISSING, OR DAMAGED LEADERS SHALL BE REJECTED.
- STAKE TREES ONLY IF RECOMMENDED ON THE PLANT SCHEDULE OR UPON THE APPROVAL OF THE LANDSCAPE ARCHITECT. STAKING DETAIL SHOWN ONLY IF RECOMMENDED.
- DIG PLANTING PIT TWICE AS WIDE AS THE DIAMETER OF THE TOP OF THE ROOT BALL WITH A MINIMUM PLANTING PIT DIAMETER OF 9".



NOTES:

- DO NOT HEAVILY PRUNE THE TREE AT PLANTING. PRUNE ONLY CROSSOVER LIMBS, CO-DOMINANT LEADERS, AND BROKEN OR DEAD BRANCHES. SOME INTERIOR TWIGS AND LATERAL BRANCHES MAY BE PRUNED; HOWEVER, DO NOT REMOVE THE TERMINAL BUDS OF BRANCHES THAT EXTEND TO THE EDGE OF THE CROWN.
- STAKE TREES ONLY IF RECOMMENDED ON THE PLANT SCHEDULE OR UPON THE APPROVAL OF THE LANDSCAPE ARCHITECT. STAKING DETAIL SHOWN ONLY IF RECOMMENDED.
- DIG PLANTING PIT TWICE AS WIDE AS THE DIAMETER OF THE TOP OF THE ROOT BALL WITH A MINIMUM PLANTING PIT DIAMETER OF 9".

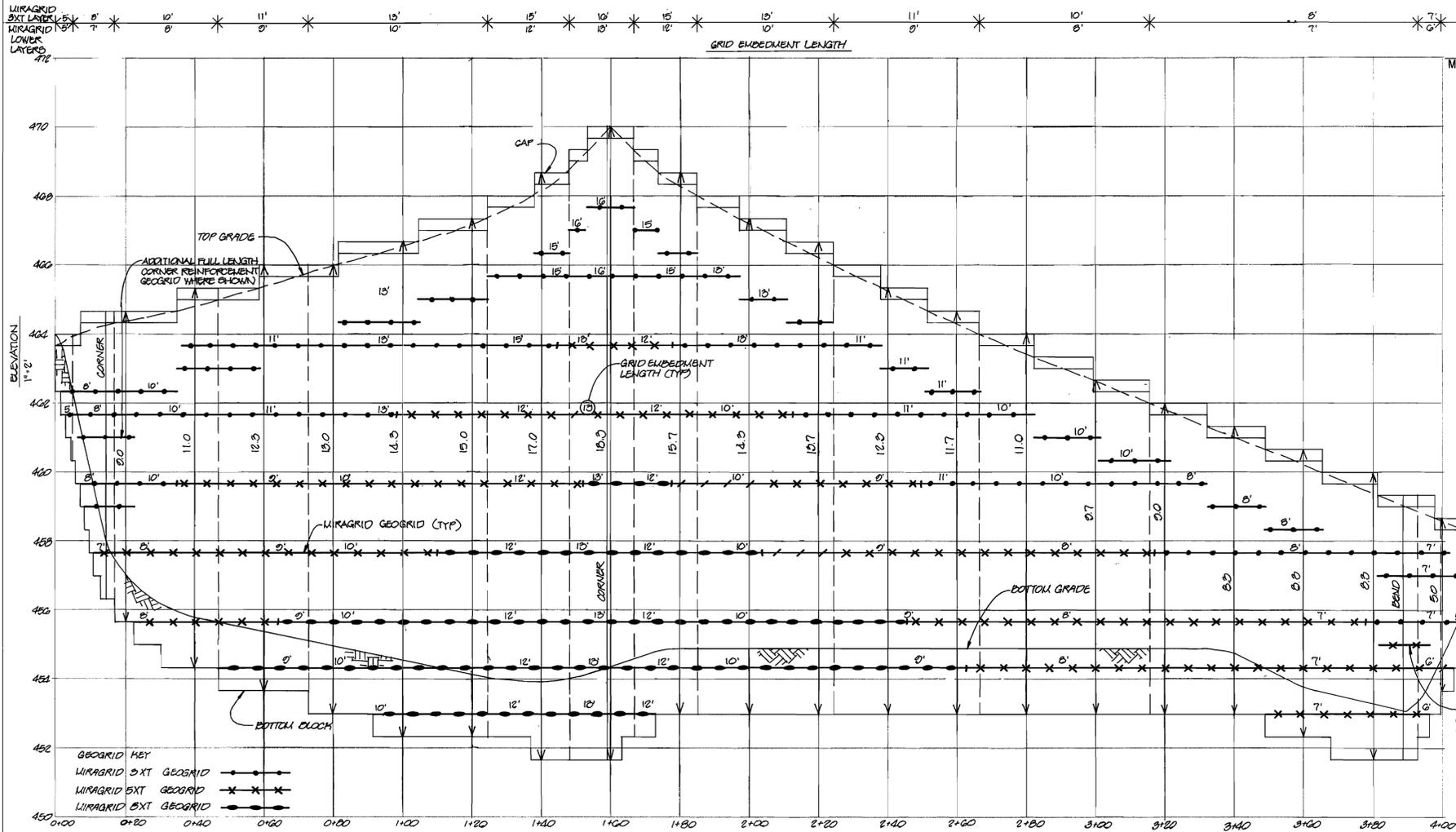


SHRUB BED PLANTING DETAIL - B4B AND CONTAINER SHRUBS
NOT TO SCALE

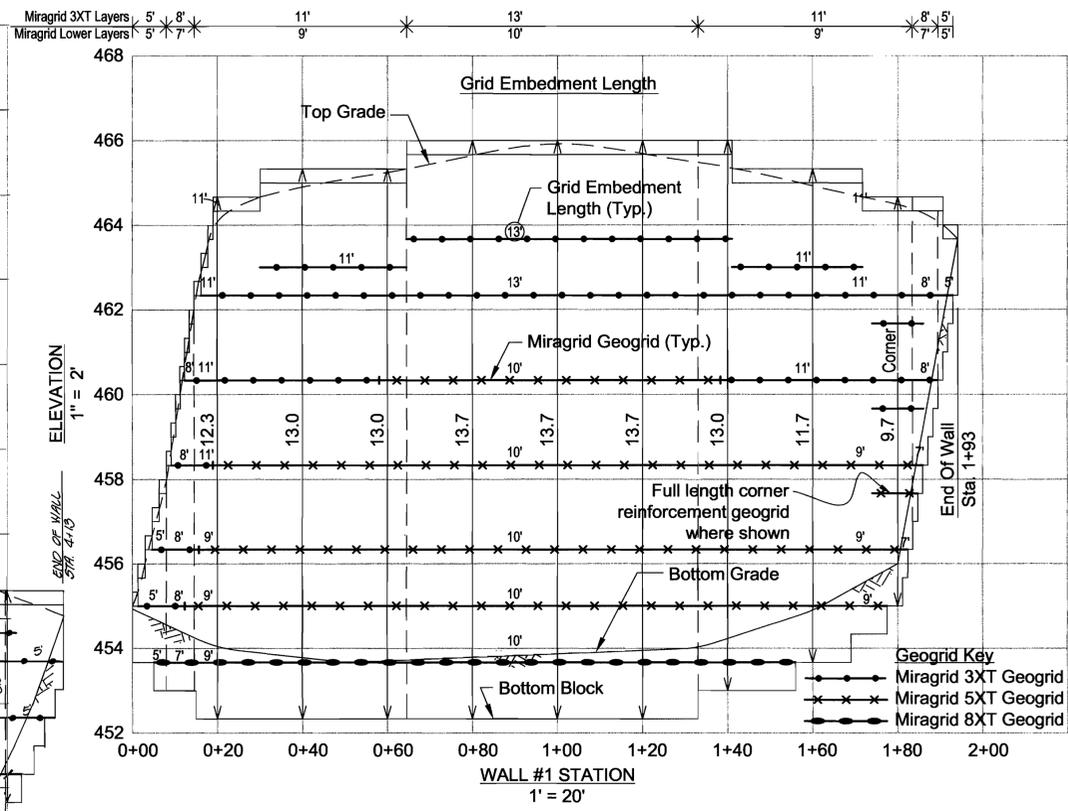
EVERGREEN B4B TREE PLANTING DETAIL
NOT TO SCALE

DECIDUOUS B4B TREE PLANTING DETAIL
NOT TO SCALE

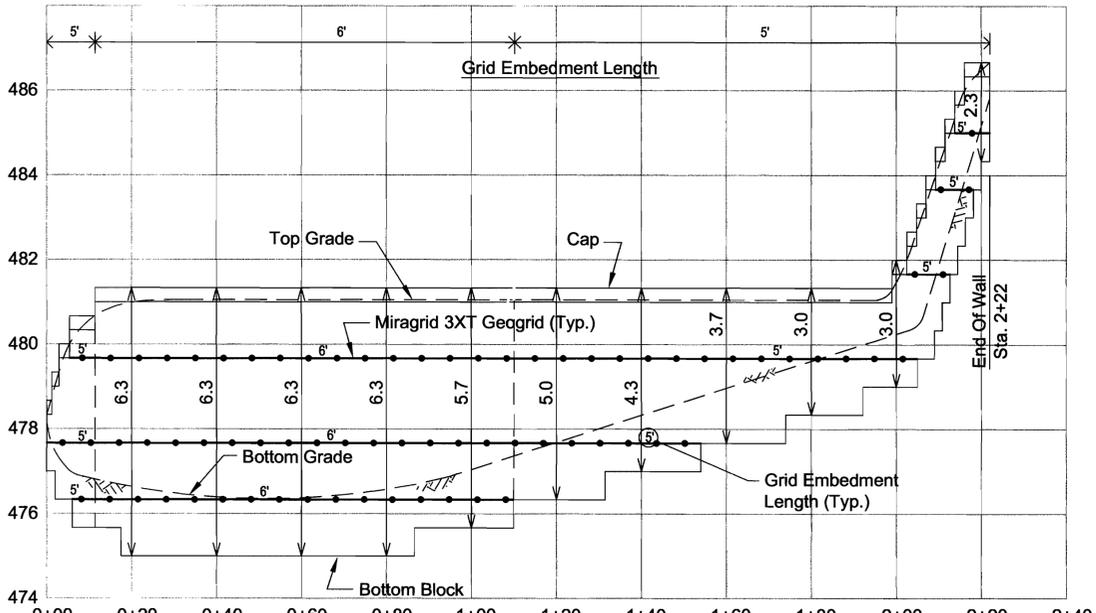
APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.		
<i>Marka D. Doyle</i>	1/8/11	
DIRECTOR	DATE	
<i>John J. ...</i>	12/10/03	
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE	
<i>Chris Hamden</i>	1/6/04	
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE	
4.6.04	ADDED PERIMETER B, REVISED PLANT LIST	
DATE	NO.	REVISION
OWNER	DEVELOPER	
MJF ASSOCIATES LLLP 5550 STERRETT PLACE SUITE 312 COLUMBIA, MARYLAND 21044 410-730-9091	MDG COMPANIES 5550 STERRETT PLACE SUITE 312 COLUMBIA, MARYLAND 21044 410-730-9091	
PROJECT	MDG CORPORATE CENTRE COLUMBIA 100 OFFICE RESEARCH PARK SECTION 1, AREA 2, PARCEL J-2	
AREA	TAX MAP 30, PARCEL J-2, ZONED POR 2nd ELECTION DISTRICT HOWARD COUNTY, MARYLAND	
TITLE	LANDSCAPE SCHEDULES AND DETAILS	
Patton Harris Rust & Associates, pc Engineers, Surveyors, Planners, Landscape Architects. 8818 Centre Park Drive Columbia, MD 21045 T 410.997.8900 F 410.997.9282		
DATE	DESIGNED BY : G.T.H.	
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	DRAWING NO. 8 OF 10	
 SCOTT R. WOLFRD #797		



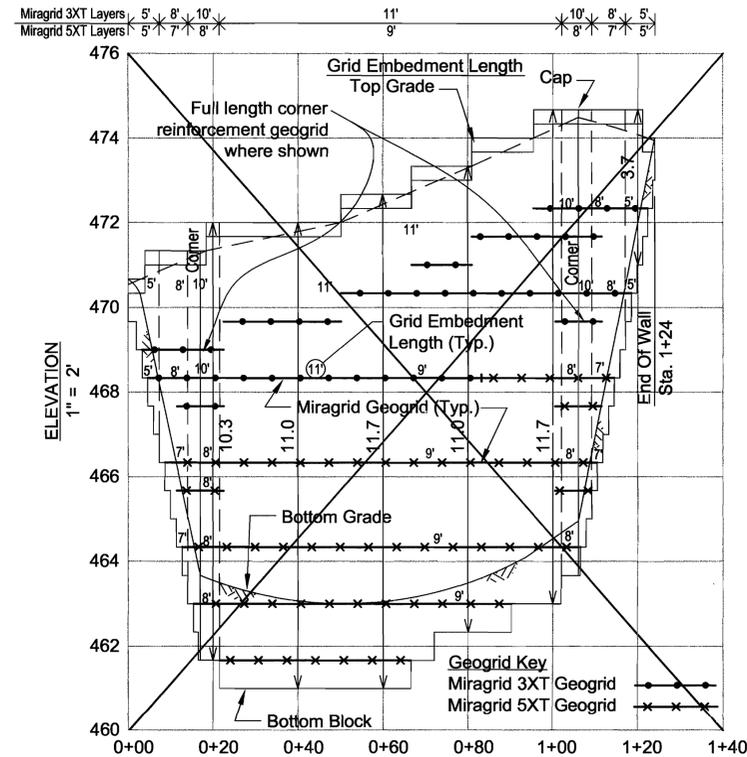
WALL #2 STATION
1" = 20'



WALL #1 STATION
1" = 20'



WALL #4 STATION
1" = 20'



WALL #3 STATION
1" = 20'

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

DIRECTOR: *Josh M. Cagle* 4/2/04 DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION: *John J. ...* 12/10/03 DATE

CHIEF, DIVISION OF LAND DEVELOPMENT: *Cindy Hamilton* 1/6/04 DATE

DATE NO.	REVISION
1.0.04	REV. WALL #2, REMOVED WALL #3
OWNER	DEVELOPER
MJF ASSOCIATES LLLP 5550 STERRETT PLACE SUITE 312 COLUMBIA, MARYLAND 21044 410-730-9091	MDG COMPANIES 5550 STERRETT PLACE SUITE 312 COLUMBIA, MARYLAND 21044 410-730-9091

PROJECT MDG CORPORATE CENTRE
COLUMBIA 100 OFFICE RESEARCH PARK
SECTION 1, AREA 2, PARCEL J-2

AREA TAX MAP 30, PARCEL J-2, ZONED POR
2nd ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE RETAINING WALL ELEVATION

Patton Harris Rust & Associates, p.c.

PHRA

HILLIS-CARNES
ENGINEERING ASSOCIATES, INC.

12011 Gullford Road - Suite 106 Annapolis Junction, Maryland
Telephone: (410) 880-4788 Fax: (410) 880-4998

DESIGNED BY : RWS
DRAWN BY: AM
PROJECT NO : 99109B
DATE : DECEMBER 4, 2003
SCALE : AS SHOWN
DRAWING NO. 0 OF 10



NOTES:

- No trees shall be planted within 10 feet of the top of the retaining wall.
- Retaining walls shall only be constructed under the observation of a registered professional engineer and a (NICET, WACEL, or equiv.) certified soils technician.
- The required bearing pressure beneath the wall system shall be verified in the field by a certified soils technician. Testing documentation must be provided to the Howard County Inspector prior to start of construction. The required bearing test shall be the Dynamic Cone Penetrometer test ASTM STP-399.
- The suitability of fill material shall be confirmed by the on-site soils technician. Each 8" lift must be compacted to a minimum 95% standard proctor density and the testing report shall be made available to the Howard County Inspector upon completion of construction.
- One soil boring is required every one hundred feet along the length of the wall. Copies of the boring reports shall be provided to the Howard County Inspector prior to the start of the construction.

SPECIFICATIONS

KEYSTONE MODULAR CONCRETE BLOCK RETAINING WALL

PART 1: GENERAL

1.01 Description

- Work shall consist of furnishing and construction of a KEYSTONE Retaining Wall System in accordance with these specifications and in reasonably close conformity with the lines, grades, design, and dimensions shown on the plans.
- Work includes preparing foundation soil, furnishing and installing leveling pad, unit drainage fill and backfill to the lines and grades shown on the construction drawings.
- Work includes furnishing and installing geogrid soil reinforcement of the type, size, location, and lengths designated on the construction drawings.

1.02 Delivery, Storage and Handling

- Contractor shall check all materials upon delivery to assure that the proper type, grade, color, and certification has been received.
- Contractor shall protect all materials from damage due to job site conditions and in accordance with manufacturer's recommendations. Damaged materials shall not be incorporated into the work.

PART 2: PRODUCTS

2.01 Modular Concrete Retaining Wall Units

- Modular concrete units shall conform to the following architectural requirements:
face color - concrete gray - standard manufacturers' color may be specified by the Owner.
face finish - sculptured rock face in angular tri-planar configuration. Other face finishes will not be allowed without written approval of Owner.
bond configuration - running with bonds nominally located at midpoint vertically adjacent units, in both straight and curved alignments.
exposed surfaces of units shall be free of chips, cracks or other imperfections when viewed from a distance of 10 feet under diffused lighting.
- Modular concrete materials shall conform to the requirements of ASTM C1372 - Standard Specifications for Segmental Retaining Wall Units.
- Modular concrete units shall conform to the following structural and geometric requirements measured in accordance with appropriate references:
compressive strength = 3000 psi minimum;
absorption = 8% maximum (6% in northern states) for standard weight aggregates;
dimensional tolerances = ± 1/8" from nominal unit dimensions not including rough split face, ± 1/16" unit height - top and bottom planes;
unit size - 8" (H) x 18" (W) x 22" (D) minimum;

inter-unit shear strength - 1000 plf minimum at 2 psi normal pressure.

- Modular concrete units shall conform to the following constructability requirements:
vertical setback = 1/8"± per course (near vertical) or 1"± per course per the design;
alignment and grid positioning mechanism - fiberglass pins, two per unit minimum;
maximum horizontal gap between erected units shall be 1/2 inch.

2.02 Shear Connectors

- Shear connectors shall be 1/2 inch diameter thero-moset isophthalic polyester resin-protuded fiberglass reinforcement rods or equivalent to provide connection between vertically and horizontally adjacent units. Strength of shear connectors between vertical adjacent units shall be applicable over a design temperature of 10 degrees F to + 100 degrees F.
- Shear connectors shall be capable of holding the geogrid in the proper design position during grid pre-tensioning and backfilling.

2.03 Base Leveling Pad Material

- Material shall consist of a compacted #57 crushed stone base as shown on the construction drawings.

2.04 Unit Drainage Fill

- Unit drainage fill shall consist of #57 crushed stone
- One cubic foot, minimum, of drainage fill shall be used for each square foot of wall face. Drainage fill shall be placed within cores of, between, and behind units to meet this requirement.

2.05 Reinforced Backfill

- Reinforced backfill shall type SM. Be free of debris and meet the following gradation tested in accordance with ASTM D-422 and meet other properties shown on the plan:

Sieve Size	Percent Passing
2 inch	100-75
3/4 inch	100-75
No. 40	0-60
No. 200	0-35

 Plasticity Index (PI) <15 and Liquid Limit <40 per ASTM D-4318.
 B. Material can be site excavated soils where the above requirements can be met. Unsuitable soils for backfill (high plastic clays or organic soils) shall not be used in the reinforced soil mass.

2.06 Geogrid Soil Reinforcement

- Geosynthetic reinforcement shall consist of geogrids manufactured specifically for soil reinforcement applications and shall be manufactured from high tenacity polyester yarn.

2.07 Drainage Pipe

- The drainage pipe shall be perforated corrugated HDPE pipe manufactured in accordance with ASTM D-1248.

PART 3 EXECUTION

3.01 Excavation

- Contractor shall excavate to the lines and grades shown on the construction drawings. Owner's representative shall be responsible for inspecting and approving the excavation prior to placement of leveling material or fill soils.

3.02 Base Leveling Pad

- Leveling pad material shall be placed to the lines and grades shown on the construction drawings, to a minimum thickness of 6 inches and extend laterally a minimum of 6" in front and behind the modular wall unit.
- Leveling pad shall be prepared to insure full contact to the base surface of the concrete units.

3.03 Modular Unit Installation

- First course of units shall be placed on the leveling pad at the appropriate line and grade. Alignment and level shall be checked in all directions and insure that all units are in full contact with the base and properly seated.
- Place the front of units side-by-side. Do not leave gaps between adjacent units. Layout of corners and curves shall be in accordance with manufacturer's recommendations.
- Install shear/connecting devices per manufacturer's recommendations.
- Place and compact drainage fill within and behind wall units. Place and compact backfill soil behind drainage fill. Follow wall erection and drainage fill closely with structure backfill.
- Maximum stacked vertical height of wall units, prior to unit drainage fill and backfill placement and compaction, shall not exceed three courses.

3.04 Structural Geogrid Installation

- Geogrid shall be oriented with the highest strength axis perpendicular to the wall alignment.
- Geogrid reinforcement shall be placed at the strengths, lengths, and elevations shown on the construction design drawings or as directed by the Engineer.
- The geogrid shall be laid horizontally on compacted backfill and attached to the modular wall units. Place the next course of modular concrete units over the geogrid. The geogrid shall be pulled taut, and anchored prior to

- backfill placement on the geogrid.
- Geogrid reinforcements shall be continuous throughout their embedment lengths and placed side-by-side to provide 100% coverage at each level. Spliced connections between shorter pieces of geogrid or gaps between adjacent pieces of geogrid are not permitted.

3.05 Reinforced Backfill Placement

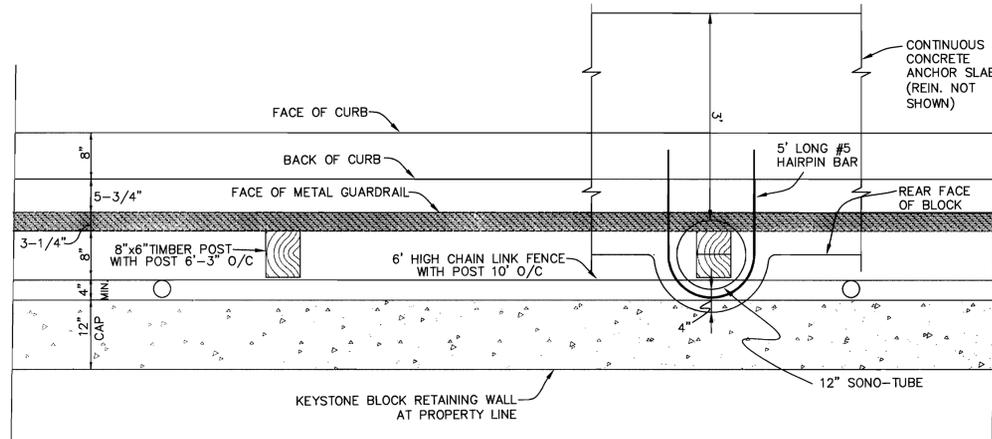
- Reinforced backfill shall be placed, spread, and compacted in such a manner that minimizes the development of slack in the geogrid and installation damage.
- Reinforced backfill shall be placed and compacted in lifts not to exceed 6 inches where hand compaction is used, or 8 - 10 inches where heavy compaction equipment is used. Lift thickness shall be decreased to achieve the required density as required.
- Reinforced backfill shall be compacted to 95% of the maximum density as determined by ASTM D698. The moisture content of the backfill material prior to and during compaction shall be uniformly distributed throughout each layer and shall be + 3% to - 3% of optimum.
- Only lightweight hand-operated equipment shall be allowed within 3 feet from the tail of the modular concrete unit.
- Tracked construction equipment shall not be operated directly upon the geogrid reinforcement. A minimum fill thickness of 6 inches is required prior to operation of tracked vehicles over the geogrid. Tracked vehicle turning should be kept to a minimum to prevent tracks from displacing the fill and damaging the geogrid.
- Rubber tired equipment may pass over geogrid reinforcement at slow speeds, less than 10 MPH. Sudden braking and sharp turning shall be avoided.
- At the end of each day's operation, the Contractor shall slope the last lift of reinforced backfill away from the wall units to direct runoff away from wall face. The Contractor shall not allow surface runoff from adjacent areas to enter the wall construction site.

3.06 Cap Installation

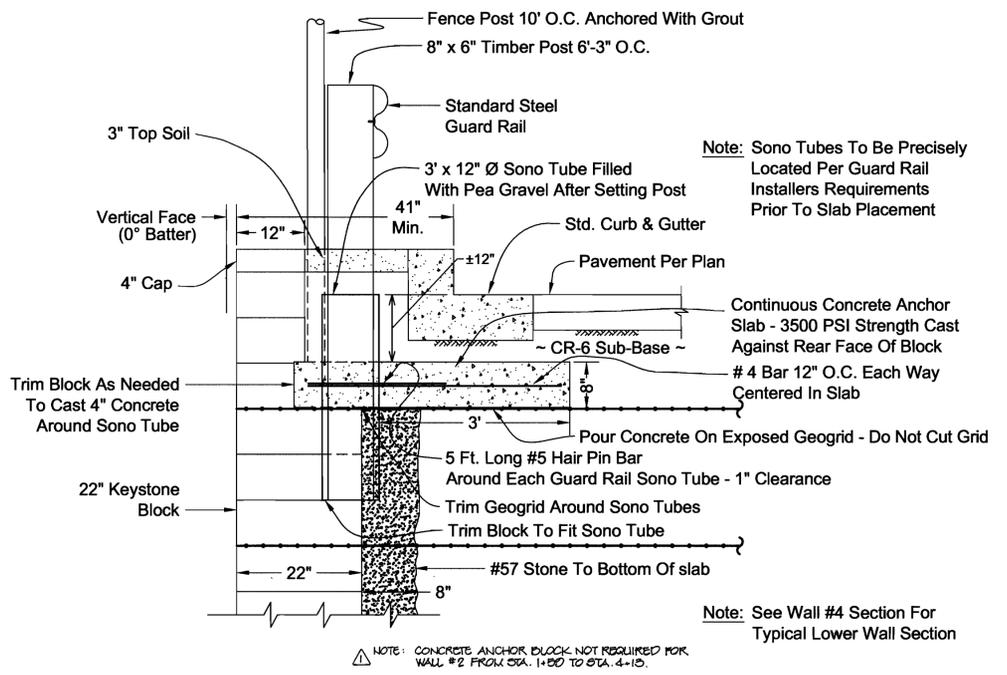
- Cap units shall be glued to underlying units with an all-weather adhesive recommended by the manufacturer.

3.07 Field Quality Control

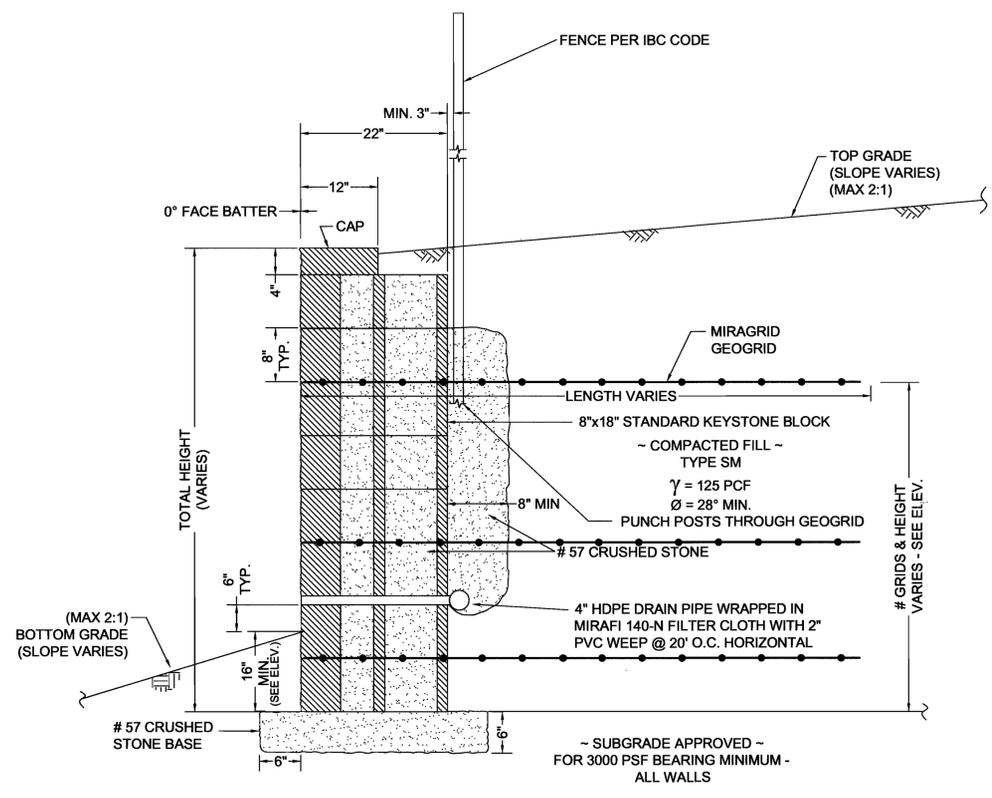
- The Owner shall engage inspection and testing services, including independent laboratories, to provide quality assurance and testing services during construction.
- As a minimum, quality assurance testing should include foundation soil inspection, soil and backfill testing, verification of design parameters, and observation of construction for general compliance with design drawings and specifications.



**WALL #1, #2 & #3
UPPER RETAINING WALL PLAN
NTS**



**WALL #1, #2 & #3
UPPER RETAINING WALL SECTION
NTS**



**WALL #4 SECTION
NTS**

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.
 Director: *Janet M. Cagle* 1/2/08 DATE
 Chief, Development Engineering Division: *William Dammann* 12/18/07 DATE
 Chief, Division of Land Development: *Cindy Hamstra* 1/6/08 DATE

DATE	NO.	REVISION

OWNER MJF ASSOCIATES LLLP 5550 STERRETT PLACE SUITE 312 COLUMBIA, MARYLAND 21044 410-730-9091	DEVELOPER MDG COMPANIES 5550 STERRETT PLACE SUITE 312 COLUMBIA, MARYLAND 21044 410-730-9091
---	---

PROJECT MDG CORPORATE CENTRE
COLUMBIA 100 OFFICE RESEARCH PARK
SECTION 1, AREA 2, PARCEL J-2
AREA TAX MAP 30, PARCEL J-2, ZONED POR
2nd ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE RETAINING WALL NOTES & DETAILS
Patton Harris Rust & Associates, p.c.
 Engineers, Surveyors, Architects, Planners, and Environmental Scientists
 1201 Gullford Road - Suite 106 Annapolis Junction, Maryland
 Telephone: (410) 880-4788 Fax: (410) 880-4098

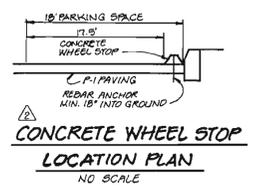
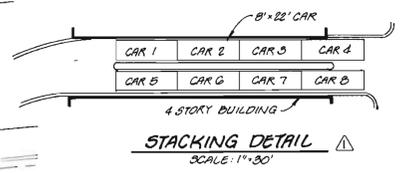
HILLIS-CARNES
ENGINEERING ASSOCIATES, INC.
 1201 Gullford Road - Suite 106 Annapolis Junction, Maryland
 Telephone: (410) 880-4788 Fax: (410) 880-4098

DESIGNED BY : RWS
 DRAWN BY: AM
 PROJECT NO : 99109B
 DATE : DECEMBER 4, 2003
 SCALE : AS SHOWN
 DRAWING NO. 10 OF 10

VI & ER
MARYLAND ROUTE 100
 MARYLAND STATE HIGHWAY
 PRINCIPAL ARTERIAL

- NOTES:**
1. ALL RADII ARE 5' UNLESS OTHERWISE NOTED.
 2. ALL DIMENSIONS ARE TO FACE OF CURB OR BUILDING UNLESS OTHERWISE NOTED.
 3. ALL ON-SITE ROADS ARE PRIVATE.
 4. STD/REV* - STANDARD TO REVERSE CURB TRANSITION.
 5. COVENANTS, CONDITIONS AND RESTRICTIONS FOR THE COLUMBIA 100 OFFICE RESEARCH PARK ARE RECORDED IN 1.771 F.434 OF THE LAND RECORDS OF HOWARD COUNTY. THE COVENANTS ALLOW WORK UP TO 10' ONTO ADJACENT PARCELS FOR GRADING.

- LEGEND**
- 450 --- EXISTING 10' CONTOURS
 - 448 --- EXISTING 2' CONTOURS
 - 450 --- PROPOSED 10' CONTOURS
 - 448 --- PROPOSED 2' CONTOURS
 - --- PROPOSED CURB & GUTTER
 - --- PROPOSED STORM DRAIN
 - --- P-1 PAVING (HO.CO. DETAIL R-2.01)
 - --- P-2 PAVING (HO.CO. DETAIL R-2.01)
 - --- CONCRETE SIDEWALK (HO.CO. DETAIL R-3.05)
 - --- LIGHTS
 - --- DENOTES NUMBER OF STEPS
 - VI & ER VEHICULAR INGRESS AND EGRESS RESTRICTED



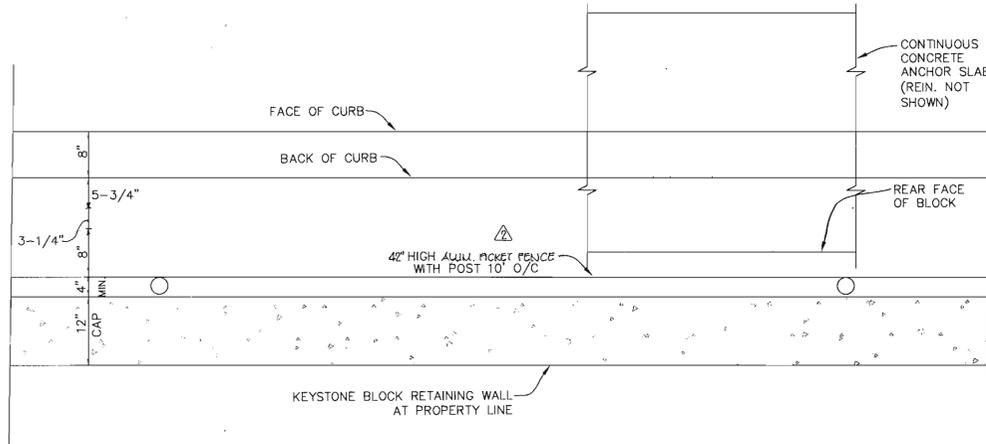
NOTE: SEE SOP-04-020 FOR REVISED PLAN OF PARCEL K-4.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.	
<i>Mark A. Lough</i> DIRECTOR	1/7/14 DATE
<i>John D. ...</i> CHIEF, DEVELOPMENT ENGINEERING DIVISION	12/10/13 DATE
<i>...</i> CHIEF, DIVISION OF LAND DEVELOPMENT	1/6/14 DATE
2-11-08 ADDED CONC. WHEEL STOPS 1 FENCE AT WALLS 1, 2 & 3	
4-6-04 ADDED DRIVE THRU DRIVE, DUMPSTER PAD ENCLOSURE, REVISION UTILITIES, WHEELS, PARKING, CURB	
DATE NO.	REVISION
OWNER MJF ASSOCIATES LLLP 5550 STERRETT PLACE SUITE 312 COLUMBIA, MARYLAND 21044 410-730-9091	DEVELOPER MDG COMPANIES 5550 STERRETT PLACE SUITE 312 COLUMBIA, MARYLAND 21044 410-730-9091
PROJECT MDG CORPORATE CENTRE COLUMBIA 100 OFFICE RESEARCH PARK SECTION 1, AREA 2, PARCEL J-2	
AREA TAX MAP 30, PARCEL J-2, ZONED POR 2nd ELECTION DISTRICT HOWARD COUNTY, MARYLAND	
TITLE SITE DEVELOPMENT PLAN	
Patton Harris Rust & Associates, pc Engineers, Surveyors, Planners, Landscape Architects. 8813 Centre Park Drive Columbia, MD 21045 T 410.997.8900 F 410.997.9282	
 DATE 12-4-03	DESIGNED BY: C.J.R.
 CHRISTOPHER J. REID #19949	DRAWN BY: DAM
	PROJECT NO: 11872-3.1 C400SIT.DWG
	DATE: DECEMBER 4, 2003
	SCALE: 1" = 30'
	DRAWING NO. 2 OF 10

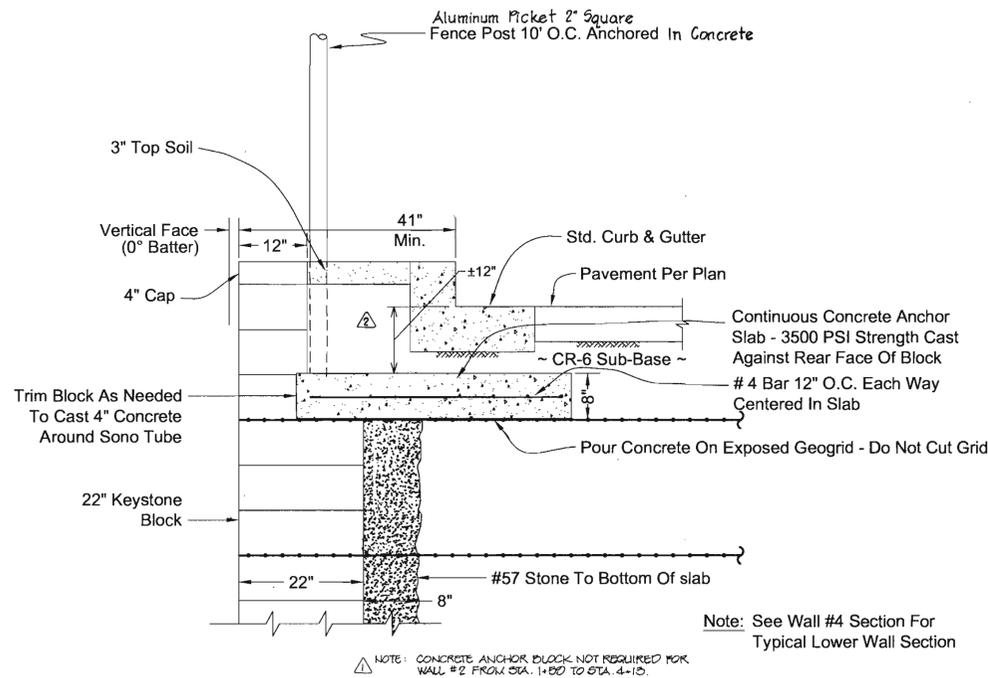
COLUMBIA 100 PARKWAY
 HOWARD COUNTY PUBLIC ROAD
 MINOR COLLECTOR

NOTES:

- No trees shall be planted within 10 feet of the top of the retaining wall.
- Retaining walls shall only be constructed under the observation of a registered professional engineer and a (NICET, WACEL, or equiv.) certified soils technician.
- The required bearing pressure beneath the wall system shall be verified in the field by a certified soils technician. Testing documentation must be provided to the Howard County Inspector prior to start of construction. The required bearing test shall be the Dynamic Cone Penetrometer test ASTM STP-399.
- The suitability of fill material shall be confirmed by the on-site soils technician. Each 8" lift must be compacted to a minimum 95% standard proctor density and the testing report shall be made available to the Howard County Inspector upon completion of construction.
- One soil boring is required every one hundred feet along the length of the wall. Copies of the boring reports shall be provided to the Howard County Inspector prior to the start of the construction.



**WALL #1, #2 & #3
UPPER RETAINING WALL PLAN**
NTS



**WALL #1, #2 & #3
UPPER RETAINING WALL SECTION**
NTS

SPECIFICATIONS

KEYSTONE MODULAR CONCRETE BLOCK RETAINING WALL

PART 1: GENERAL

- 1.01 Description**
- Work shall consist of furnishing and construction of a KEYSTONE Retaining Wall System in accordance with these specifications and in reasonably close conformity with the lines, grades, design, and dimensions shown on the plans.
 - Work includes preparing foundation soil, furnishing and installing leveling pad, unit drainage fill and backfill to the lines and grades shown on the construction drawings.
 - Work includes furnishing and installing geogrid soil reinforcement of the type, size, location, and lengths designated on the construction drawings.

1.02 Delivery, Storage and Handling

- Contractor shall check all materials upon delivery to assure that the proper type, grade, color, and certification has been received.
- Contractor shall protect all materials from damage due to job site conditions and in accordance with manufacturer's recommendations. Damaged materials shall not be incorporated into the work.

PART 2: PRODUCTS

2.01 Modular Concrete Retaining Wall Units

- Modular concrete units shall conform to the following architectural requirements:
 - face color - concrete gray - standard manufacturers' color may be specified by the Owner.
 - face finish - sculptured rock face in angular tri-planer configuration. Other face finishes will not be allowed without written approval of Owner.
- Modular concrete materials shall conform to the requirements of ASTM C1372 - Standard Specifications for Segmental Retaining Wall Units.
- Modular concrete units shall conform to the following structural and geometric requirements measured in accordance with appropriate references:
 - compressive strength = 3000 psi minimum;
 - absorption = 8 % maximum (8% in northern states) for standard weight aggregates;
 - dimensional tolerances = ± 1/8" from nominal unit dimensions - not including rough split face, ± 1/16" unit height - top and bottom planes;
 - unit size - 8" (H) x 18" (W) x 22" (D) minimum;

inter-unit shear strength - 1000 pif minimum at 2 psi normal pressure;
geogrid/unit peak connection strength - 1000 pif minimum at 2 psi normal force.

- Modular concrete units shall conform to the following constructability requirements:
 - vertical setback = 1/8" per course (near vertical) or 1" per course per the design;
 - alignment and grid positioning mechanism - fiberglass pins, two per unit minimum;
 - maximum horizontal gap between erected units shall be 1/2 inch.

2.02 Shear Connectors

- Shear connectors shall be 1/2 inch diameter thermoset isophthalic polyester resin-protuded fiberglass reinforcement rods or equivalent to provide connection between vertically and horizontally adjacent units.
- Strength of shear connectors between vertical adjacent units shall be applicable over a design temperature of 10 degrees F to + 100 degrees F.
- Shear connectors shall be capable of holding the geogrid in the proper design position during grid pre-tensioning and backfilling.

2.03 Base Leveling Pad Material

- Material shall consist of a compacted #57 crushed stone base as shown on the construction drawings.

2.04 Unit Drainage Fill

- Unit drainage fill shall consist of #57 crushed stone
- One cubic foot, minimum, of drainage fill shall be used for each square foot of wall face. Drainage fill shall be placed within cores of, between, and behind units to meet this requirement.

2.05 Reinforced Backfill

- Reinforced backfill shall type SM, be free of debris and meet the following gradation tested in accordance with ASTM D-422 and meet other properties shown on the plan:

Sieve Size	Percent Passing
2 inch	100-75
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No. 40	0-60
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- Material can be site excavated soils where the above requirements can be met. Unsuitable soils for backfill (high plastic clays or organic soils) shall not be used in the reinforced soil mass.

2.06 Geogrid Soil Reinforcement

- Geosynthetic reinforcement shall consist of geogrids manufactured specifically for soil reinforcement applications and shall be manufactured from high tenacity polyester yarn.

2.07 Drainage Pipe

- The drainage pipe shall be perforated corrugated HDPE pipe manufactured in accordance with ASTM D-1248.

PART 3 EXECUTION

3.01 Excavation

- Contractor shall excavate to the lines and grades shown on the construction drawings. Owner's representative shall be responsible for inspecting and approving the excavation prior to placement of leveling material or fill soils.

3.02 Base Leveling Pad

- Leveling pad material shall be placed to the lines and grades shown on the construction drawings, to a minimum thickness of 6 inches and extend laterally a minimum of 6" in front and behind the modular wall unit.
- Leveling pad shall be prepared to insure full contact to the base surface of the concrete units.

3.03 Modular Unit Installation

- First course of units shall be placed on the leveling pad at the appropriate line and grade. Alignment and level shall be checked in all directions and insure that all units are in full contact with the base and properly seated.
- Place the front of units side-by-side. Do not leave gaps between adjacent units. Layout of corners and curves shall be in accordance with manufacturer's recommendations.
- Install shear/connecting devices per manufacturer's recommendations.
- Place and compact drainage fill within and behind wall units. Place and compact backfill soil behind drainage fill. Follow wall erection and drainage fill closely with structure backfill.
- Maximum stacked vertical height of wall units, prior to unit drainage fill and backfill placement and compaction, shall not exceed three courses.

3.04 Structural Geogrid Installation

- Geogrid shall be oriented with the highest strength axis perpendicular to the wall alignment.
- Geogrid reinforcement shall be placed at the strengths, lengths, and elevations shown on the construction design drawings or as directed by the Engineer.
- The geogrid shall be laid horizontally on compacted backfill and attached to the modular wall units. Place the next course of modular concrete units over the geogrid. The geogrid shall be pulled taut, and anchored prior to

- Geogrid reinforcements shall be continuous throughout their embedment lengths and placed side-by-side to provide 100% coverage at each level. Spliced connections between shorter pieces of geogrid or gaps between adjacent pieces of geogrid are not permitted.

3.05 Reinforced Backfill Placement

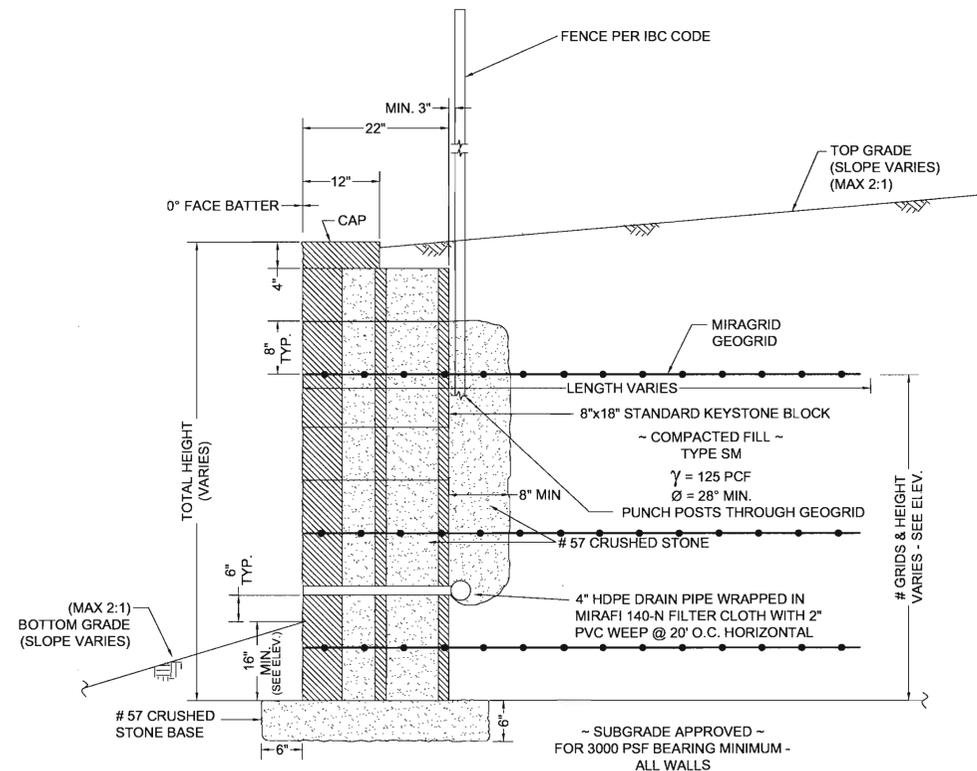
- Reinforced backfill shall be placed, spread, and compacted in such a manner that minimizes the development of slack in the geogrid and installation damage.
- Reinforced backfill shall be placed and compacted in lifts not to exceed 6 inches where hand compaction is used, or 8 - 10 inches where heavy compaction equipment is used. Lift thickness shall be decreased to achieve the required density as required.
- Reinforced backfill shall be compacted to 95% of the maximum density as determined by ASTM D698. The moisture content of the backfill material prior to and during compaction shall be uniformly distributed throughout each layer and shall be + 3% to - 3% of optimum.
- Only lightweight hand-operated equipment shall be allowed within 3 feet from the tail of the modular concrete unit.
- Tracked construction equipment shall not be operated directly upon the geogrid reinforcement. A minimum fill thickness of 6 inches is required prior to operation of tracked vehicles over the geogrid. Tracked vehicle turning should be kept to a minimum to prevent tracks from displacing the fill and damaging the geogrid.
- Rubber tired equipment may pass over geogrid reinforcement at slow speeds, less than 10 MPH. Sudden braking and sharp turning shall be avoided.
- At the end of each day's operation, the Contractor shall slope the last lift of reinforced backfill away from the wall units to direct runoff away from wall face. The Contractor shall not allow surface runoff from adjacent areas to enter the wall construction site.

3.06 Cap Installation

- Cap units shall be glued to underlying units with an all-weather adhesive recommended by the manufacturer.

3.07 Field Quality Control

- The Owner shall engage inspection and testing services, including independent laboratories, to provide quality assurance and testing services during construction.
- As a minimum, quality assurance testing should include foundation soil inspection, soil and backfill testing, verification of design parameters, and observation of construction for general compliance with design drawings and specifications.



WALL #4 SECTION
NTS

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

DIRECTOR: *[Signature]* DATE: 1/2/04

CHIEF, DEVELOPMENT ENGINEERING DIVISION: *[Signature]* DATE: 12/10/03

CHIEF, DIVISION OF LAND DEVELOPMENT: *[Signature]* DATE: 1/6/04

2-11-03 2 RELIEVED GUARD RAIL FROM WALLS 1,2 & 3

4-0-04 1 ADDED NOTE

DATE	NO.	REVISION

OWNER	DEVELOPER
MJF ASSOCIATES LLLP 5550 STERRETT PLACE SUITE 312 COLUMBIA, MARYLAND 21044 410-730-9091	MDG COMPANIES 5550 STERRETT PLACE SUITE 312 COLUMBIA, MARYLAND 21044 410-730-9091

PROJECT MDG CORPORATE CENTRE
COLUMBIA 100 OFFICE RESEARCH PARK
SECTION 1, AREA 2, PARCEL J-2

AREA TAX MAP 30, PARCEL J-2, ZONED POR
2nd ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE
RETAINING WALL NOTES & DETAILS

Patton Harris Rust & Associates, p.c.

HILLIS-CARNES
ENGINEERING ASSOCIATES, INC.

12011 Guilford Road - Suite 106 Annapolis Junction, Maryland
Telephone: (410) 880-4788 Fax: (410) 880-4098

DESIGNED BY : RWS
DRAWN BY : AM
PROJECT NO : 99109B
DATE : DECEMBER 4, 2003
SCALE : AS SHOWN
DRAWING NO. 10 OF 10

SDP-04-036