

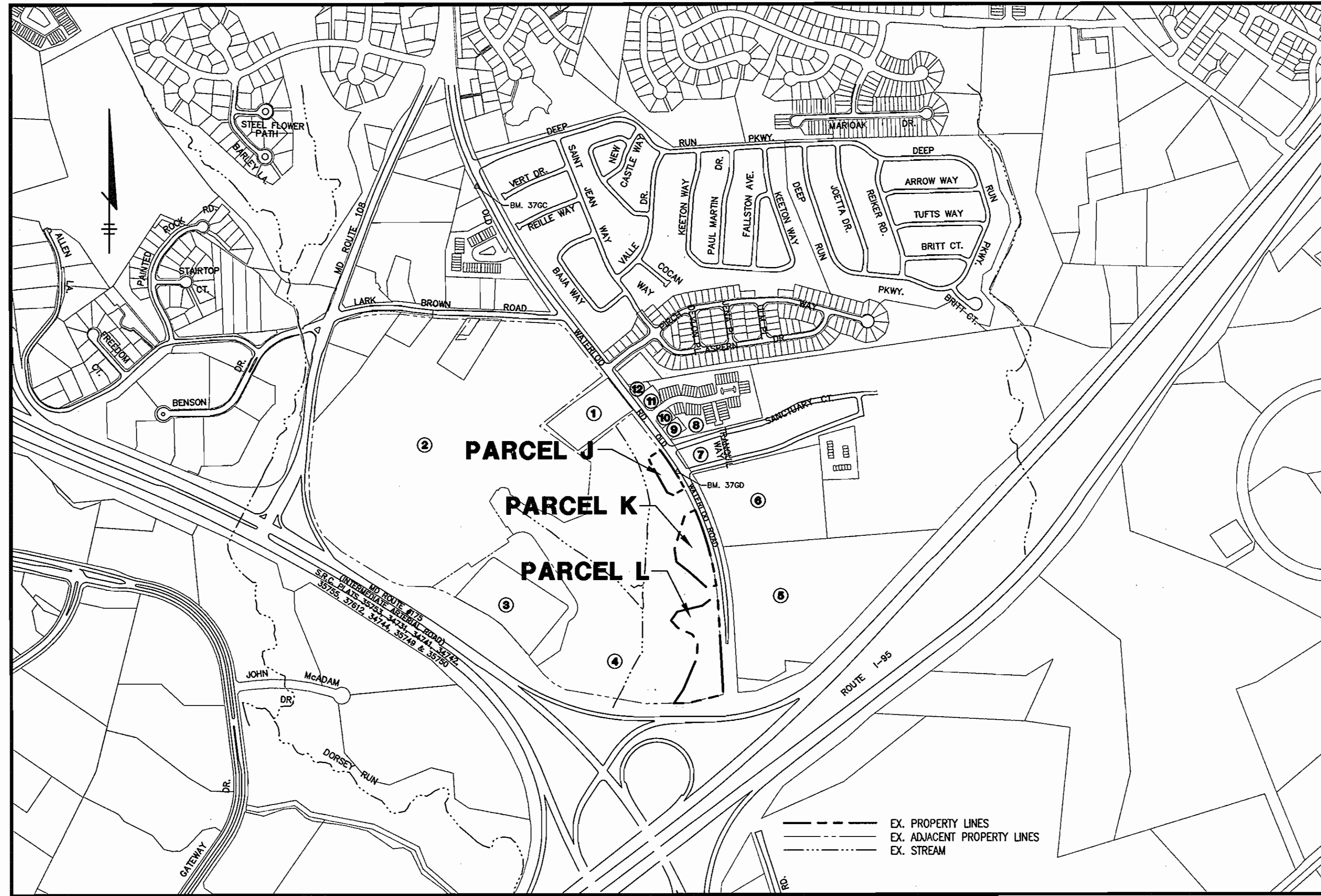
GENERAL NOTES

- 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) 313-1860 AT LEAST FIVE (5) WORKING DAYS PRIOR TO 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 OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL STREET AND REGULATORY SIGNS SHALL BE IN PLACE PRIOR TO THE PLACEMENT OF ANY PAVING.
- ALL PLAN DIMENSIONS ARE TO FACE UNLESS OTHERWISE NOTED.
- THE EXISTING SITE TOPOGRAPHY IS TAKEN FROM FIELD RUN SURVEY WITH 2' CONTOUR INTERVALS PREPARED BY MORRIS & RITCHIE ASSOCIATES, INC. DATED JANUARY 21, 2006.
- COORDINATES, COURSES AND ELEVATIONS SHOWN HEREON ARE REFERRED TO THE MEDIUM OF THE MARYLAND STATE PLANE COORDINATE SYSTEM (NAD 83/91, NAD 88) AS DETERMINED FROM THE FOLLOWING HOWARD COUNTY CONTROL STATIONS (US SURVEY FEET): 3760 AND 3762 SHOWN HEREON.
- WATER IS PUBLIC.
- SEWER IS BOTH PRIVATE AND PUBLIC.
- ALL SWM DEVICES WILL BE PRIVATE.
- EXISTING UTILITIES ARE BASED ON CONTRACT DRAWINGS FOR WATER & SEWER (CONTRACT #24-4284-D) AND CAD DRAWINGS FROM PATTON, HARRIS, RUST & ASSOCIATES, PC.
- THE 100-YEAR FLOODPLAIN LIMITS FROM PATTON, HARRIS, RUST & ASSOCIATES, PC FINAL PLAN F-05-058, DATED DECEMBER 12, 2005 WERE REVISED BY MORRIS & RITCHIE ASSOCIATES INC. FLOODPLAIN STUDY DATED 7/31/06 AND THE REVISED FLOODPLAIN IS SHOWN HEREON.
- THE WETLANDS AND STREAMS FOR THIS PROJECT WERE TAKEN FROM PATTON, HARRIS, RUST & ASSOCIATES, PC FINAL PLAN F-05-058, DATED DECEMBER 12, 2005.
- THE TRAFFIC STUDY FOR THIS PROJECT WAS PREPARED BY WELLS & ASSOCIATES, LLC, DATED OCTOBER 7, 2002, LAST REVISED APRIL 13, 2005.
- CONTRACTOR IS RESPONSIBLE FOR ALL SITE CONDITIONS, CONSTRUCTION REQUIREMENTS, AND SHALL CONFORM TO ALL STATE, FEDERAL, AND COUNTY CONSTRUCTION REGULATIONS. THE CONTRACTOR IS NOT RELIEVED OF RESPONSIBILITY SHOULD ANY REQUIRED ITEMS PERTAINING TO SITE CONSTRUCTION NOT BE INCLUDED ON THESE PLANS. CONTRACTOR IS RESPONSIBLE FOR ALL ITEMS NECESSARY TO COMPLETE THE SITE IMPROVEMENTS AS SHOWN ON THESE PLANS.
- ANY DAMAGE TO EXISTING UTILITIES, PAVEMENT, OR CURB AND GUTTER DUE TO CONSTRUCTION ACTIVITY OUTSIDE THE LIMITS OF DISTURBANCE IS TO BE REPLACED BY THE CONTRACTOR AT HIS OWN EXPENSE.
- WHERE NECESSARY, THE CONTRACTOR SHALL TEST PIT ALL EXISTING UTILITIES AT LEAST FIVE (5) DAYS PRIOR TO STARTING ANY WORK SHOWN ON THESE DRAWINGS.
- CONTRACTOR IS RESPONSIBLE FOR REPLACING ANY PROPERTY MONUMENTS, MARKERS, SIGNS, LIGHTS, OR ANY OTHER DISTURBED DURING CONSTRUCTION.
- ALL WORK SHALL COMPLY WITH ALL APPLICABLE PROVISIONS OF THE "1994 STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROLS" PUBLISHED JOINTLY BY THE WATER RESOURCES ADMINISTRATION, SOIL CONSERVATION SERVICE, AND STATE SOIL CONSERVATION COMMITTEE.
- THE SUBJECT PROPERTY IS ZONED WF PER THE FEBRUARY 2, 2004 COMPREHENSIVE ZONING PLAN.
- THIS PROJECT IS EXEMPT FROM THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CODE FOR FOREST CONSERVATION BECAUSE THE PROPERTY IS ZONED NT, AND HAS PRELIMINARY PLAN APPROVAL PRIOR TO DECEMBER 31, 1992 PER SECTION 16.1202 (b)(1)(i).
- A NOISE STUDY FOR THIS PROJECT WAS PREPARED BY THE MARS GROUP, DATED APRIL 2006. A NOISE MITIGATION STUDY WAS PREPARED BY THE MARS GROUP, DATED JULY, 2006.
- A GEO-TECHNICAL STUDY WAS CONDUCTED FOR THIS PROJECT BY GEO-TECHNOLOGY ASSOCIATES, INC. DATED NOVEMBER 2005 & MARCH, 2006.
- TRENCH COMPACTON FOR STORM DRAINS WITHIN ROADWAYS AND PARKING AREAS SHALL BE IN ACCORDANCE WITH HOWARD COUNTY DESIGN MANUAL, VOL. IV, STANDARD NO. G-201.
- ALL COMPLETED WORK SHALL BE IN ACCORDANCE WITH ASHRAE 90.1 REQUIREMENTS.
- ALL EXTERIOR LIGHTING SHALL COMPLY WITH ZONING REGULATIONS SECTION 154. SITE LIGHTING TO BE PROVIDED BY BSE.
- SIGHT LIGHT LOCATIONS SHOWN ON SHEETS 7-8 AND DETAIL ON SHEET 4 PROVIDED BY CONSULTATION ENGINEER. THE LIGHT INTENSITY AT THE PROPERTY LINE WILL NOT EXCEED 0.1 FOOT CANDLES. SITE LIGHTS WILL BE 150 WATT W/ 16,000 LUMENS. CONSTELLATION ENERGY WILL INSTALL LIGHT SHIELDS AS NECESSARY.
- EACH ENTRANCE AND EXIT POINT ONTO OLD WATERLOO ROAD SHALL HAVE A STREET LIGHT ON THE OPPOSITE CORNER OF THE STOP SIGN. THE REQUIRED STREET LIGHTS SHALL BE 150-WATT HPS VAPOR "PREMIER" POST TOP FIXTURES MOUNTED ON A 14-FOOT BLACK FIBERGLASS POLE.
- 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 IN THE AMOUNT OF \$81,440 (76 SHADE TREES @ \$300.00 EA, 178 FLOWERING/ EVERGREEN TREES @ \$150.00 EA, 398 SHRUBS @ \$30.00 EA) IS PART OF THE DEVELOPER'S AGREEMENT.
- SEE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS CONTRACT DRAWING 24-4376-D FOR PUBLIC WATER & SANITARY SEWER DESIGN.
- SEE FINAL PLAN F-05-203 FOR PUBLIC ROAD AND STORM DRAIN DESIGN.
- WAIVER PETITION WP-06-110 HAS BEEN WITHDRAWN. THE SITE PLAN HAS BEEN REVISED SO THAT NO WAIVER PETITION WILL BE REQUIRED.
- FOR DRIVEWAY ENTRANCE DETAIL REFER TO HOWARD COUNTY DESIGN MANUAL, VOLUME IV, STANDARD DETAIL R-6.01.
- CURRENT IMPROVEMENTS BEING DONE TO WATERLOO ROAD FOR ROAD WIDENING, NEW CURB & GUTTER, STORM DRAIN AND SIDEWALKS ARE BEING DONE UNDER F-05-058 ARE SHOWN ON OUR PLAN AS EXISTING. THERE ARE NO STEEP SLOPES (25% OR >), WITHIN OUR LOD.
- IN ACCORDANCE WITH FDP PHASE 240, BAY WINDOWS OR CHIMNEYS NOT MORE THAN 10 FEET IN WIDTH MAY PROJECT NOT MORE THAN 4 FEET INTO ANY SETBACKS, PORCHES OR DECKS MAY PROJECT NOT MORE THAN 3 FEET INTO THE FRONT OR REAR YARD SETBACKS. EXTERIOR BASEMENT AREAS/ STAIRWAYS MAY NOT ENCRoACH INTO ANY BRL.
- NO GRADING, REMOVAL OF VEGETATIVE COVER OR TREES, PAVING AND NEW STRUCTURES SHALL BE PERMITTED WITHIN THE REQUIRED WETLANDS, STREAM(S) OR THEIR BUFFERS, FOREST CONSERVATION EASEMENT AREAS AND 100-YEAR FLOODPLAIN. NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN THE WETLANDS, WETLAND BUFFERS, STREAM OR STREAM BUFFERS AND FLOODPLAINS.
- DRAWINGS SHALL BE PROVIDED PRIOR TO ISSUANCE OF A USE AND OCCUPANCY PERMIT FOR ANY NEW DWELLINGS TO INSURE SAFE ACCESS FOR FIRE AND EMERGENCY VEHICLES PER THE FOLLOWING MINIMUM REQUIREMENTS:
 - WIDTH: 12' (14' SERVING MORE THAN ONE RESIDENCE).
 - SURFACE: 6" OF COMPACTED CRUSHER RUN BASE W/ TAR AND CHIP COATING (1-1/2" MIN.).
 - GEOMETRY: MAX. 15% GRADE, MAX. 10% GRADE CHANGE AND MIN. 45' TURNING RADIUS.
 - STRUCTURES (CULVERTS/ BRIDGES): CAPABLE OF SUPPORTING 25 GROSS TONS (H25 LOADING).
 - DRAINAGE ELEMENTS: CAPABLE OF SAFELY PASSING 100-YEAR FLOOD WITH NO MORE THAN 1' DEPTH OVER DRIVEWAY SURFACE.
 - MAINTENANCE SUFFICIENT TO INSURE ALL WEATHER USE.
- THE 65 dBA NOISE CONTOUR LINE DRAWN ON THIS DEVELOPMENT PLAN IS ADVISORY AS REQUIRED BY THE HOWARD COUNTY DESIGN MANUAL, CHAPTER 5, REVISED FEBRUARY, 1992, AND CAN NOT BE CONSIDERED TO EXACTLY LOCATE THE 65 dBA NOISE EXPOSURE. THE 65 dBA NOISE LINE WAS ESTABLISHED BY HOWARD COUNTY TO ALERT DEVELOPERS, BUILDERS AND FUTURE RESIDENTS THAT AREAS BEYOND THIS THRESHOLD MAY EXCEED GENERALLY ACCEPTED NOISE LEVELS ESTABLISHED BY THE U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT.
- THERE ARE NO EXISTING STRUCTURES IN J, K, L OR Q.
- ADVISORY NOTE: PER FDP-240, "WHENEVER AN ATTACHED LAND USE, SINGLE FAMILY DWELLING IS CONSTRUCTED, A MAINTENANCE AGREEMENT FOR THE PARTY WALL, SIDE OF THE STRUCTURE, AS WELL AS ANY APPROVED OVERHANGS PROTRUDING ONTO THE ADJACENT LOT OR LOTS MUST BE INCLUDED IN THE DEED OF CONVEYANCE AND RECORDING REFERENCE OF SAME FURNISHED TO THE DEPARTMENT OF PLANNING AND ZONING."
- PROPOSED ROADS WILL BE PRIVATE AND WILL BE CLASSIFIED AS LOCAL ROADS.
- FIRE LINES SHOWN ON SHEETS 7-8 TO BE PAINTED AND MARKED PER HOWARD COUNTY FIRE DEPARTMENT STANDARDS.
- TWO DESIGN MANUAL WAINERS HAVE BEEN REQUESTED FOR THIS SDP:
 - VOLUME I - SECTION 5.2.4.1: REQUEST FOR RELIEF OF THE REQUIRED 25 FOOT STORMWATER MANAGEMENT POND SETBACK FROM ADJACENT PROPERTIES AND RIGHT-OF-WAYS. DED HAS DEFERRED THIS COMMENT AS OF 10/30/06.
 - VOLUME II - SECTION 2.3.2.4: REQUEST FOR RELIEF OF THE REQUIRED INTERSECTION SPACING. DED APPROVED THIS WAIWER REQUEST ON 10/30/06.

43. A reduction of the 30' setback from the right-of-way of Old Waterloo Road to 10' for Parcels "J", "K" and "L" was granted by the Planning Board on May 10, 2007. The Planning Board approved SDP-06-128 on May 10, 2007.

SITE DEVELOPMENT PLAN OLD WATERLOO ROAD GATEWAY OVERLOOK AT BENSON EAST PARCEL "382"

6th ELECTION DISTRICT HOWARD COUNTY, MARYLAND SDP-06-128

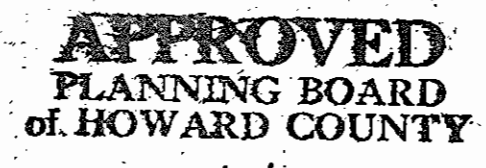


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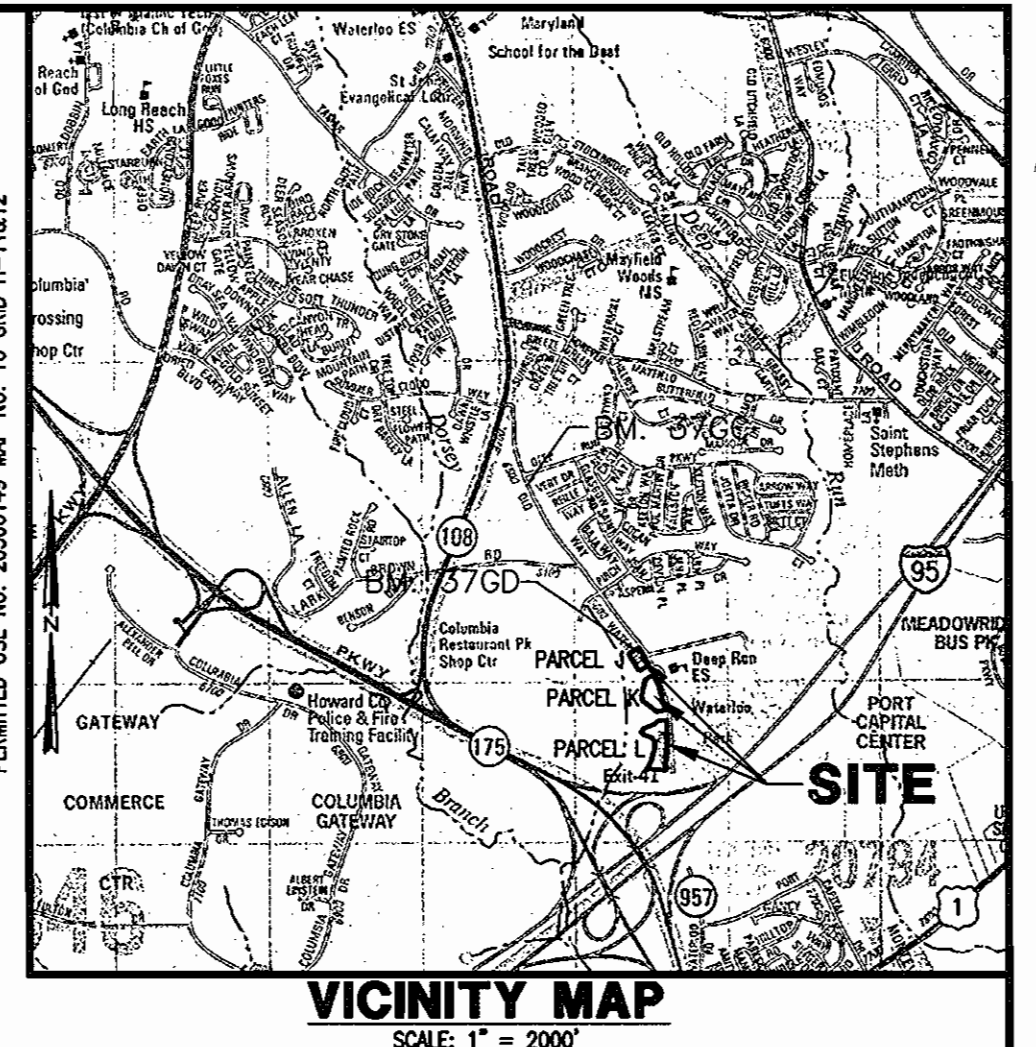
SITE ANALYSIS DATA CHART

A. TOTAL PROJECT AREA:	
PARCEL 382/LOT J	0.82 ACRES OR 35,840.09 SQ. FT.
K	2.11 ACRES OR 91,724.87 SQ. FT.
L	3.67 ACRES OR 159,709.24 SQ. FT.
(PORTION OF) Q	2.76 ACRES OR 120,232.82 SQ. FT.
TOTAL:	9.36 ACRES OR 407,507.02 SQ. FT.
B. LIMIT OF DISTURBED AREA:	
PARCEL 382/LOT J	0.82 ACRES OR 35,754.64 SQ. FT.
K	2.11 ACRES OR 91,724.87 SQ. FT.
L	3.37 ACRES OR 146,972.22 SQ. FT.
(PORTION OF) Q	2.66 ACRES OR 115,973.93 SQ. FT.
TOTAL:	8.96 ACRES OR 390,425.66 SQ. FT.
C. ZONING: NT	
D. PROPOSED USE: SINGLE FAMILY ATTACHED CONDOMINIUM UNITS	
E. TOTAL NUMBER OF UNITS ALLOWED PER PLAT F-05-058: 66 UNITS	
F. TOTAL NUMBER ON UNITS PROPOSED: 66 UNITS	
G. PARKING SPACES REQUIRED: 2 SPACES PER D.U. = 2 SPACES/ UNIT X 60 UNITS = 132 SPACES	
H. PARKING PROVIDED: 2 INSIDE GARAGE/ UNIT (132 SPACES) & 2 IN DRIVEWAY/ UNIT (132 SPACES) + 36 SPACES = 300 SPACES	
I. BUILDING COVERAGE PERCENTAGE (LOTS J, K & L ONLY):	
LOT J	9,156 SQ. FT. = 25.3%
LOT K	20,370 SQ. FT. = 22.2%
LOT L	29,884 SQ. FT. = 18.5%
J. DPZ FILE REFERENCES: F-05-058, FDP-240, PB-360, 24-4284-D, S-03-05, WP-04-113, WP-04-135, SDP-04-163, F-06-102, F-06-203, WP-06-110, 24-4376-D, F-07-119.	



DATE 5/10/07

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 [Signature] 6/21/07
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 [Signature] 6/22/07
 CHIEF, DIVISION OF LAND DEVELOPMENT AND ZONING
 [Signature] 4/25/07
 DIRECTOR, DEPARTMENT OF PLANNING AND ZONING



BENCHMARKS

GEODETIC SURVEY CONTROL: 376D
 N 553,237.204
 E 1,372,353.605
 ELEVATION: 290.931
 LOCATED 30' EAST OF FIRE HYDRANT ACROSS FROM DEEP RUN ELEMENTARY SCHOOL.

GEODETIC SURVEY CONTROL: 376C
 N 555,250.791
 E 1,370,246.348
 ELEVATION: 331.855
 LOCATED 30' EAST ON THE SOUTH SIDE OF OLD WATERLOO ROAD ACROSS FROM DEEP RUN PARKWAY

ADJACENT PROPERTY CHART

NO.	OWNER	TAX MAP	PARCEL	PREMISES ADDRESS
1	FRANK E. RHODES & WIFE	37	487	6686 WATERLOO ROAD, ELKRIEDE, MD 21075
2	HOWARD RESEARCH & DEVELOPMENT	37	382-F	LARK BROWN ROAD ELKRIEDE, MD 21075
3	HOWARD RESEARCH & DEVELOPMENT	37	382-I	RT 175 ELKRIEDE, MD 21075
4	HOWARD RESEARCH & DEVELOPMENT	37	382-O	OLD WATERLOO RD ELKRIEDE, MD 21075
5	HOWARD COUNTY MD PUBLIC RECREATION	43	1	6951 WATERLOO RD ELKRIEDE, MD 21075
6	WATERLOO MIDDLE SCHOOL C/O HOWARD COUNTY BOARD OF EDUCATION	37	168	6925 E OLD WATERLOO ROAD ELKRIEDE, MD 21075
7	SHERWOOD CROSSING APARTMENTS LLC	37	637	E OLD WATERLOO ROAD ELKRIEDE, MD 21075
8	SANCTUARY HOMEOWNERS ASSOCIATION, INC.	37	700-59	S SANCTUARY COURT ELKRIEDE, MD 21075
9	PATRICK ALEY	37	700-58	6719 OLD WATERLOO ROAD ELKRIEDE, MD 21075
10	CHARLOTTE POWELL & JARED HEALY	37	700-57	6715 OLD WATERLOO ROAD ELKRIEDE, MD 21075
11	LINDA BELLOFATTO SOPER	37	700-2	6693 OLD WATERLOO ROAD ELKRIEDE, MD 21075
12	GLENN & CHERYL HAYES	37	700-1	6691 OLD WATERLOO ROAD ELKRIEDE, MD 21075

SITE ADDRESS CHART

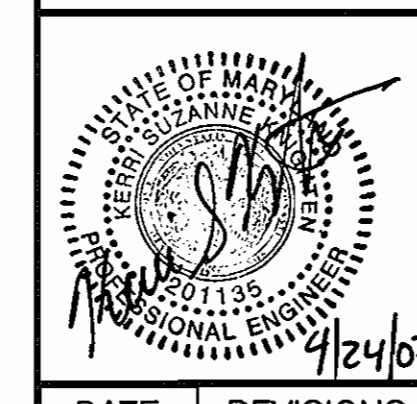
LOT	PARCEL	UNIT	PREMISES ADDRESS	LOT	PARCEL	UNIT	PREMISES ADDRESS
L	382	1	8896 PURPLE IRIS LANE, ELKRIEDE, MD 21075	L	382	34	8857 PURPLE IRIS LANE, ELKRIEDE, MD 21075
L	382	2	8894 PURPLE IRIS LANE, ELKRIEDE, MD 21075	L	382	35	8855 PURPLE IRIS LANE, ELKRIEDE, MD 21075
L	382	3	8892 PURPLE IRIS LANE, ELKRIEDE, MD 21075	L	382	36	8853 PURPLE IRIS LANE, ELKRIEDE, MD 21075
L	382	4	8890 PURPLE IRIS LANE, ELKRIEDE, MD 21075	L	382	37	8851 PURPLE IRIS LANE, ELKRIEDE, MD 21075
L	382	5	8888 PURPLE IRIS LANE, ELKRIEDE, MD 21075	K	382	38	8754 BLAZING BROOK WAY, ELKRIEDE, MD 21075
L	382	6	8884 PURPLE IRIS LANE, ELKRIEDE, MD 21075	K	382	39	8756 BLAZING BROOK WAY, ELKRIEDE, MD 21075
L	382	7	8882 PURPLE IRIS LANE, ELKRIEDE, MD 21075	K	382	40	8758 BLAZING BROOK WAY, ELKRIEDE, MD 21075
L	382	8	8880 PURPLE IRIS LANE, ELKRIEDE, MD 21075	K	382	41	8759 BLAZING BROOK WAY, ELKRIEDE, MD 21075
L	382	9	8878 PURPLE IRIS LANE, ELKRIEDE, MD 21075	K	382	42	8757 BLAZING BROOK WAY, ELKRIEDE, MD 21075
L	382	10	8866 PURPLE IRIS LANE, ELKRIEDE, MD 21075	K	382	43	8755 BLAZING BROOK WAY, ELKRIEDE, MD 21075
L	382	11	8864 PURPLE IRIS LANE, ELKRIEDE, MD 21075	K	382	44	8753 BLAZING BROOK WAY, ELKRIEDE, MD 21075
L	382	12	8862 PURPLE IRIS LANE, ELKRIEDE, MD 21075	K	382	45	8749 BLAZING BROOK WAY, ELKRIEDE, MD 21075
L	382	13	8860 PURPLE IRIS LANE, ELKRIEDE, MD 21075	K	382	46	8747 BLAZING BROOK WAY, ELKRIEDE, MD 21075
L	382	14	8856 PURPLE IRIS LANE, ELKRIEDE, MD 21075	K	382	47	8745 BLAZING BROOK WAY, ELKRIEDE, MD 21075
L	382	15	8854 PURPLE IRIS LANE, ELKRIEDE, MD 21075	K	382	48	8743 BLAZING BROOK WAY, ELKRIEDE, MD 21075
L	382	16	8852 PURPLE IRIS LANE, ELKRIEDE, MD 21075	K	382	49	8739 BLAZING BROOK WAY, ELKRIEDE, MD 21075
L	382	17	8850 PURPLE IRIS LANE, ELKRIEDE, MD 21075	K	382	50	8737 BLAZING BROOK WAY, ELKRIEDE, MD 21075
L	382	18	8848 PURPLE IRIS LANE, ELKRIEDE, MD 21075	K	382	51	8735 BLAZING BROOK WAY, ELKRIEDE, MD 21075
L	382	19	8846 PURPLE IRIS LANE, ELKRIEDE, MD 21075	K	382	52	8733 BLAZING BROOK WAY, ELKRIEDE, MD 21075
L	382	20	8844 PURPLE IRIS LANE, ELKRIEDE, MD 21075	K	382	53	8731 BLAZING BROOK WAY, ELKRIEDE, MD 21075
L	382	21	8842 PURPLE IRIS LANE, ELKRIEDE, MD 21075	K	382	54	8732 BLAZING BROOK WAY, ELKRIEDE, MD 21075
L	382	22	8840 PURPLE IRIS LANE, ELKRIEDE, MD 21075	K	382	55	8734 BLAZING BROOK WAY, ELKRIEDE, MD 21075
L	382	23	8838 PURPLE IRIS LANE, ELKRIEDE, MD 21075	K	382	56	8736 BLAZING BROOK WAY, ELKRIEDE, MD 21075
L	382	24	8836 PURPLE IRIS LANE, ELKRIEDE, MD 21075	K	382	57	8738 BLAZING BROOK WAY, ELKRIEDE, MD 21075
L	382	25	8879 PURPLE IRIS LANE, ELKRIEDE, MD 21075	J	382	58	8621 BLUE SMOKE COURT, ELKRIEDE, MD 21075
L	382	26	8875 PURPLE IRIS LANE, ELKRIEDE, MD 21075	J	382	59	8619 BLUE SMOKE COURT, ELKRIEDE, MD 21075
L	382	27	8873 PURPLE IRIS LANE, ELKRIEDE, MD 21075	J	382	60	8617 BLUE SMOKE COURT, ELKRIEDE, MD 21075
L	382	28	8871 PURPLE IRIS LANE, ELKRIEDE, MD 21075	J	382	61	8615 BLUE SMOKE COURT, ELKRIEDE, MD 21075
L	382	29	8869 PURPLE IRIS LANE, ELKRIEDE, MD 21075	J	382	62	8609 BLUE SMOKE COURT, ELKRIEDE, MD 21075
L	382	30	8865 PURPLE IRIS LANE, ELKRIEDE, MD 21075	J	382	63	8607 BLUE SMOKE COURT, ELKRIEDE, MD 21075
L	382	31	8863 PURPLE IRIS LANE, ELKRIEDE, MD 21075	J	382	64	8605 BLUE SMOKE COURT, ELKRIEDE, MD 21075
L	382	32	8861 PURPLE IRIS LANE, ELKRIEDE, MD 21075	J	382	65	8603 BLUE SMOKE COURT, ELKRIEDE, MD 21075
L	382	33	8859 PURPLE IRIS LANE, ELKRIEDE, MD 21075	J	382	66	8601 BLUE SMOKE COURT, ELKRIEDE, MD 21075

PERMIT INFORMATION CHART

PROJECT NAME GATEWAY OVERLOOK AT BENSON EAST	LOTS J, K & L	PARCEL NO. PARCEL 382
PLAT # OR L/F 18885-18887	GRID # 20, 21 & 23	TAX MAP NO. 37 & 43
WATER CODE: D-06	SEWER CODE: 3390000	ELECT. DIST. 6
		CENSUS TRACT 606703



MORRIS & RITCHIE ASSOCIATES, INC.
 ENGINEERS, PLANNERS, SURVEYORS AND LANDSCAPE ARCHITECTS
 14280 PARK CENTER DRIVE, SUITE A
 LAUREL, MARYLAND 20707
 (410) 792-9792 or (301) 776-1690
 FAX (410) 792-7395

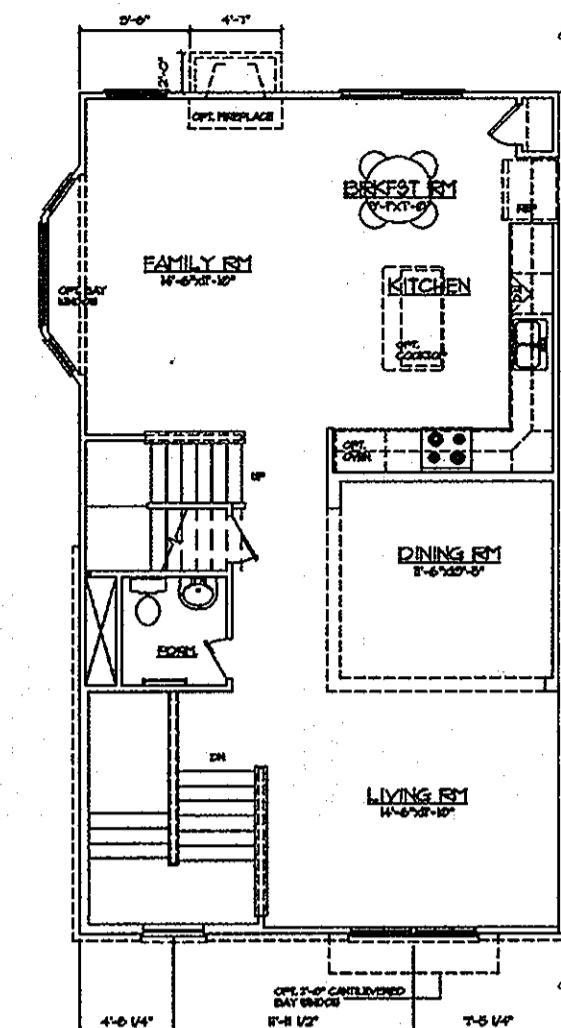


SITE DEVELOPMENT PLAN
 GATEWAY OVERLOOK AT BENSON EAST-OLD WATERLOO ROAD
 66 SINGLE FAMILY ATTACHED CONDOMINIUM UNITS
COVER SHEET
 LIBER: 9779 ~ FOLIO: 80 ~ PARCEL: 382
 ZONED: NT ~ TAX MAPS: 37 & 43 ~ GRIDS: 20, 21 & 23
 LOTS: J, K & L ~ 6TH ELECTION DISTRICT ~ HOWARD COUNTY, MARYLAND

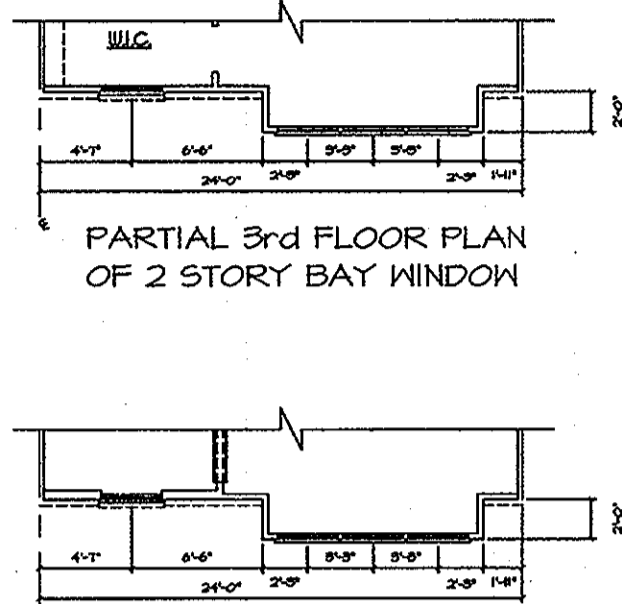
DATE	REVISIONS	JOB NO.:
		14719
		SCALE: AS SHOWN
		DATE: 4/24/07
		DRAWN BY: MSP
		DESIGN BY: MSP/KSK
		REVIEW BY: KSK
		SHEET: 1 OF 33

OWNER/DEVELOPER/APPLICANT

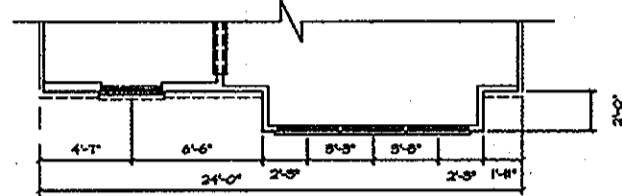
NAME: MR. BRIAN KNAUFF
 COMPANY: THE RYLAND GROUP
 6011 UNIVERSITY BOULEVARD, SUITE 260
 ELLICOTT CITY, MARYLAND 21043
 PHONE: 410-480-2467
 FAX: 410-480-0543



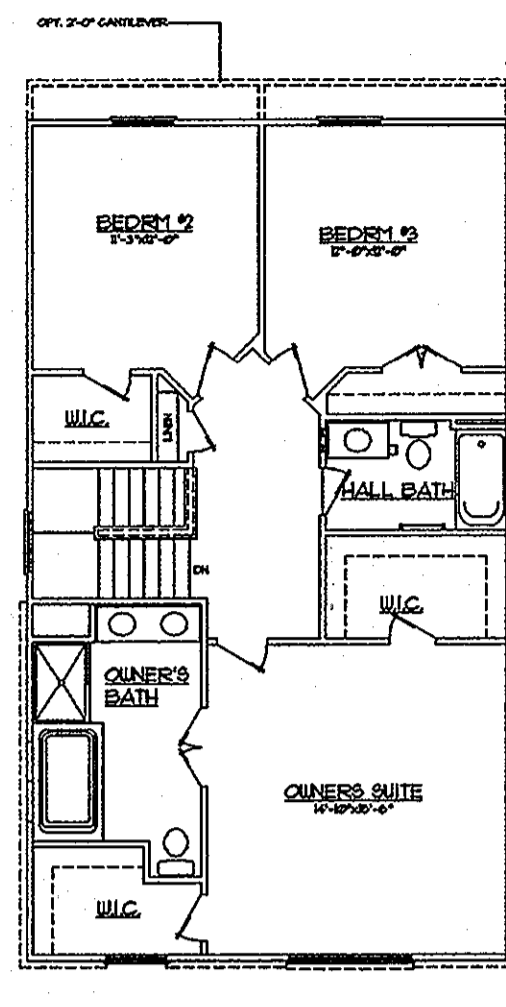
2ND FLOOR PLAN W/END UNIT



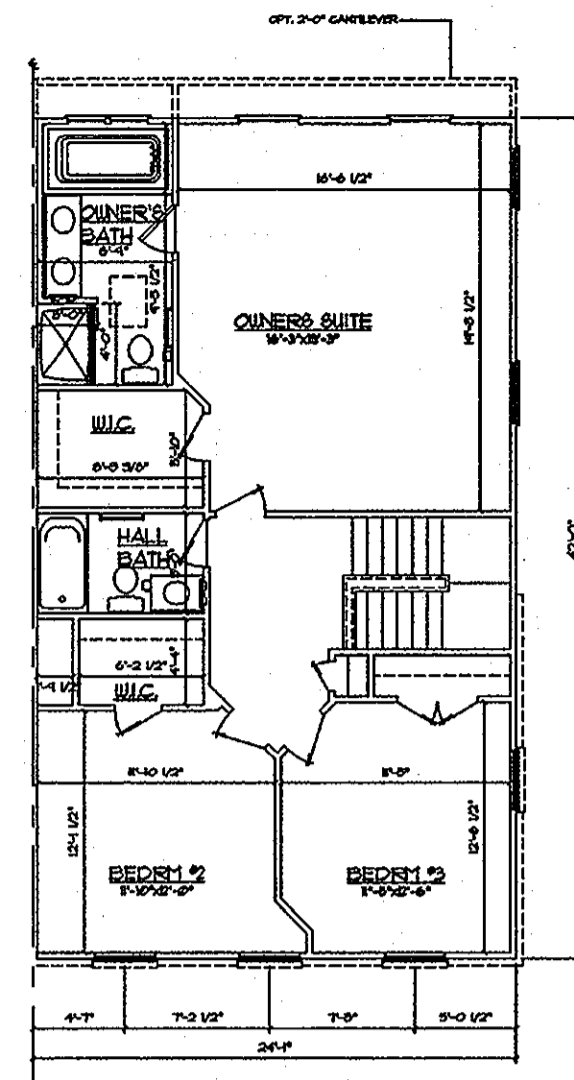
PARTIAL 3rd FLOOR PLAN OF 2 STORY BAY WINDOW



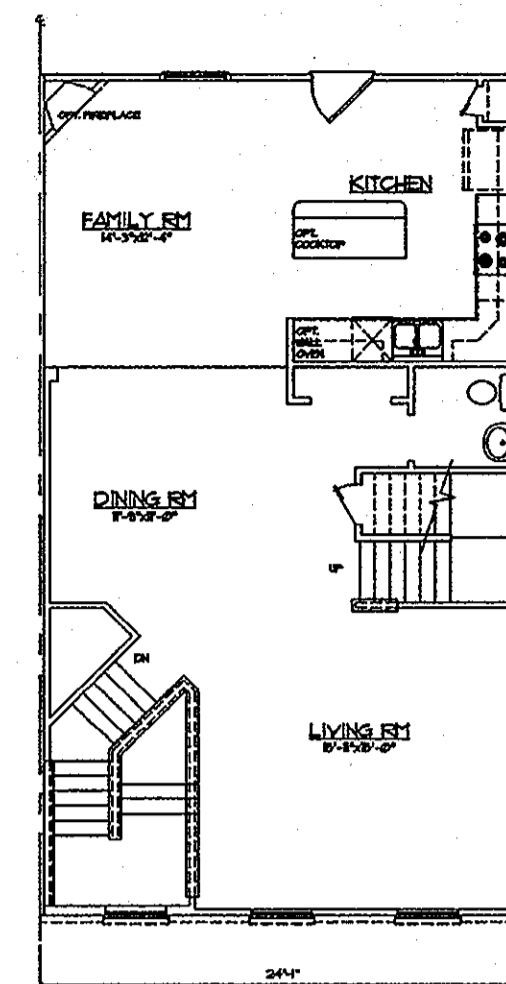
PARTIAL 2nd FLOOR PLAN OF 2 STORY BAY WINDOW



3RD FLOOR PLAN W/END UNIT



STANDARD 2ND FLOOR PLAN W/END UNIT



STANDARD 3RD FLOOR PLAN W/END UNIT

RYLAND HOMES

APRIL 11, 2006

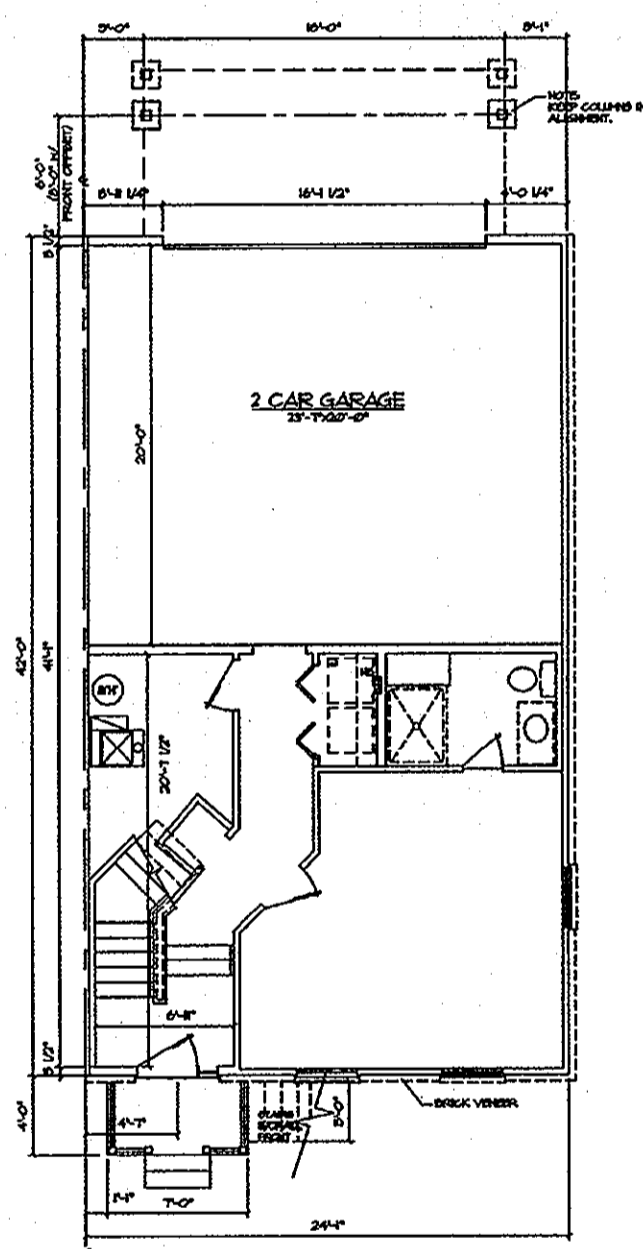
**WINGATE IV FLOOR PLANS
GATEWAY OVERLOOK**



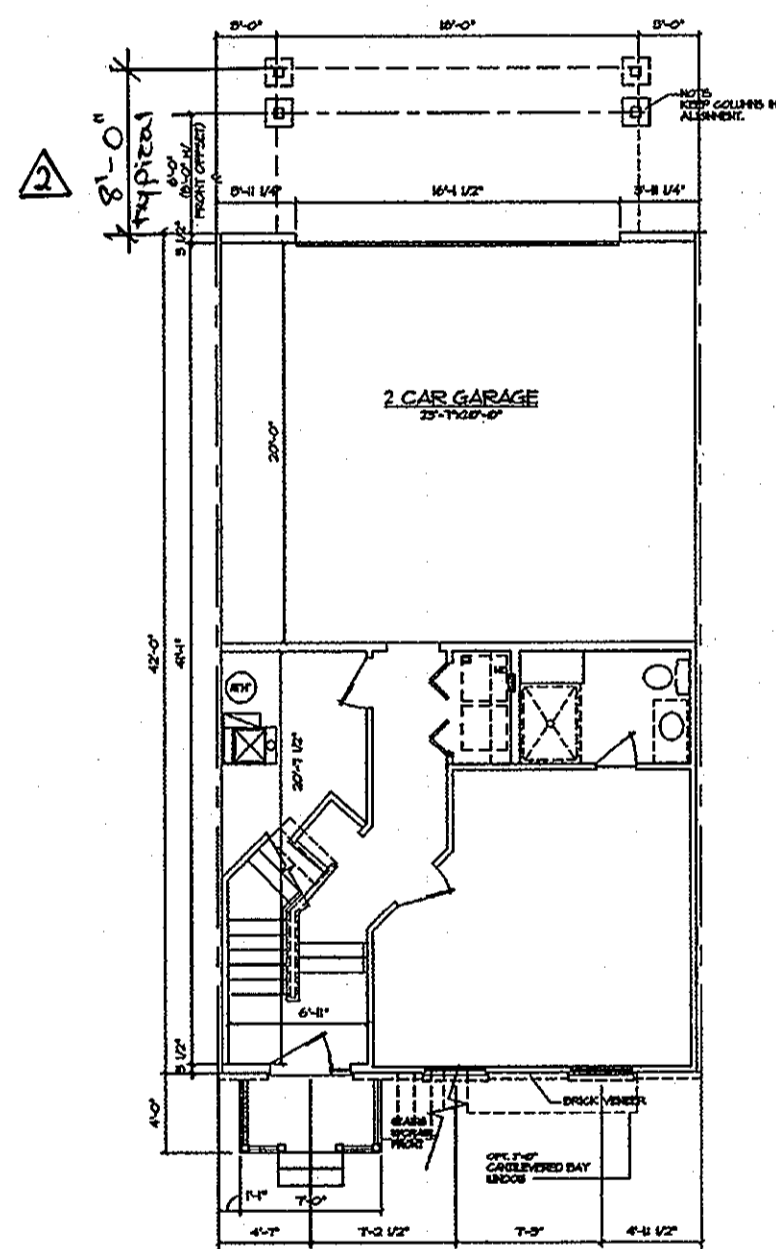
RYLAND HOMES

APRIL 11, 2006

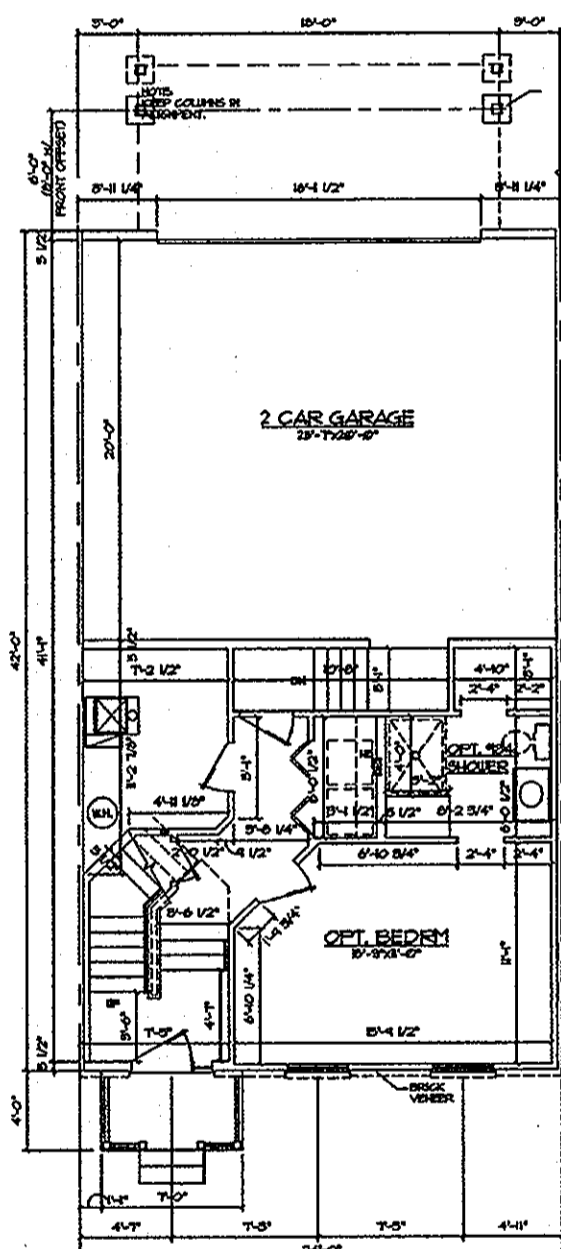
**WOODFIELD FLOOR PLANS
GATEWAY OVERLOOK**



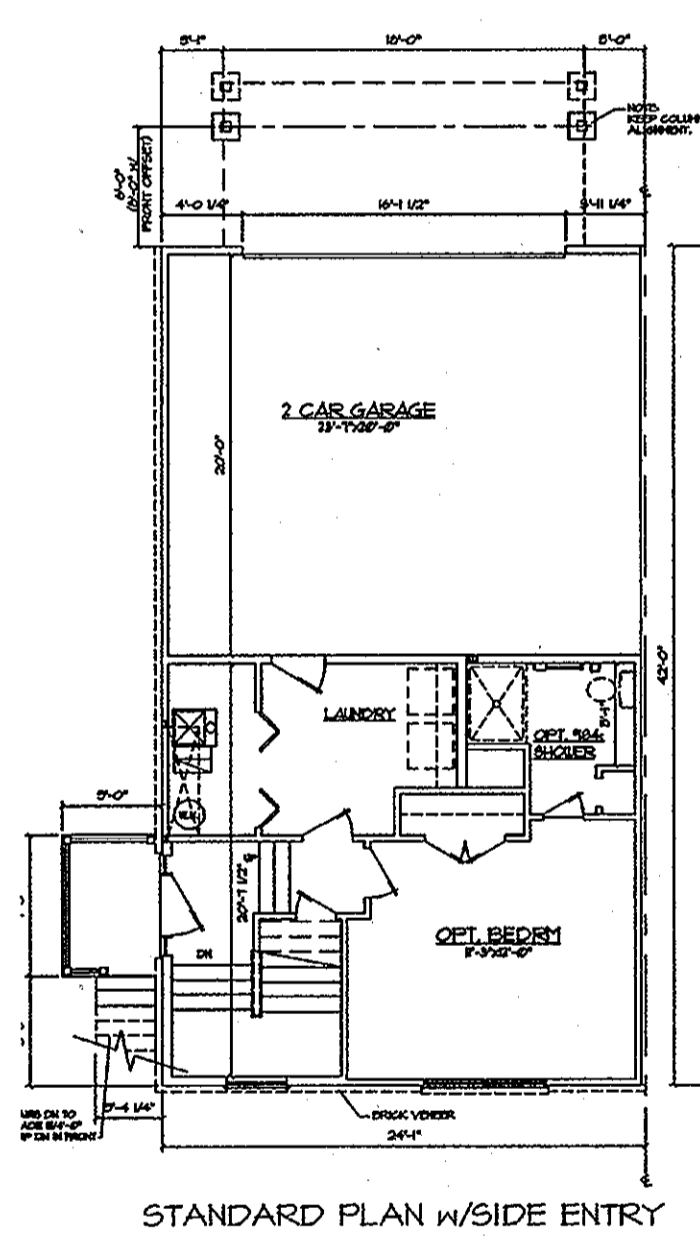
STANDARD PLAN W/END UNIT



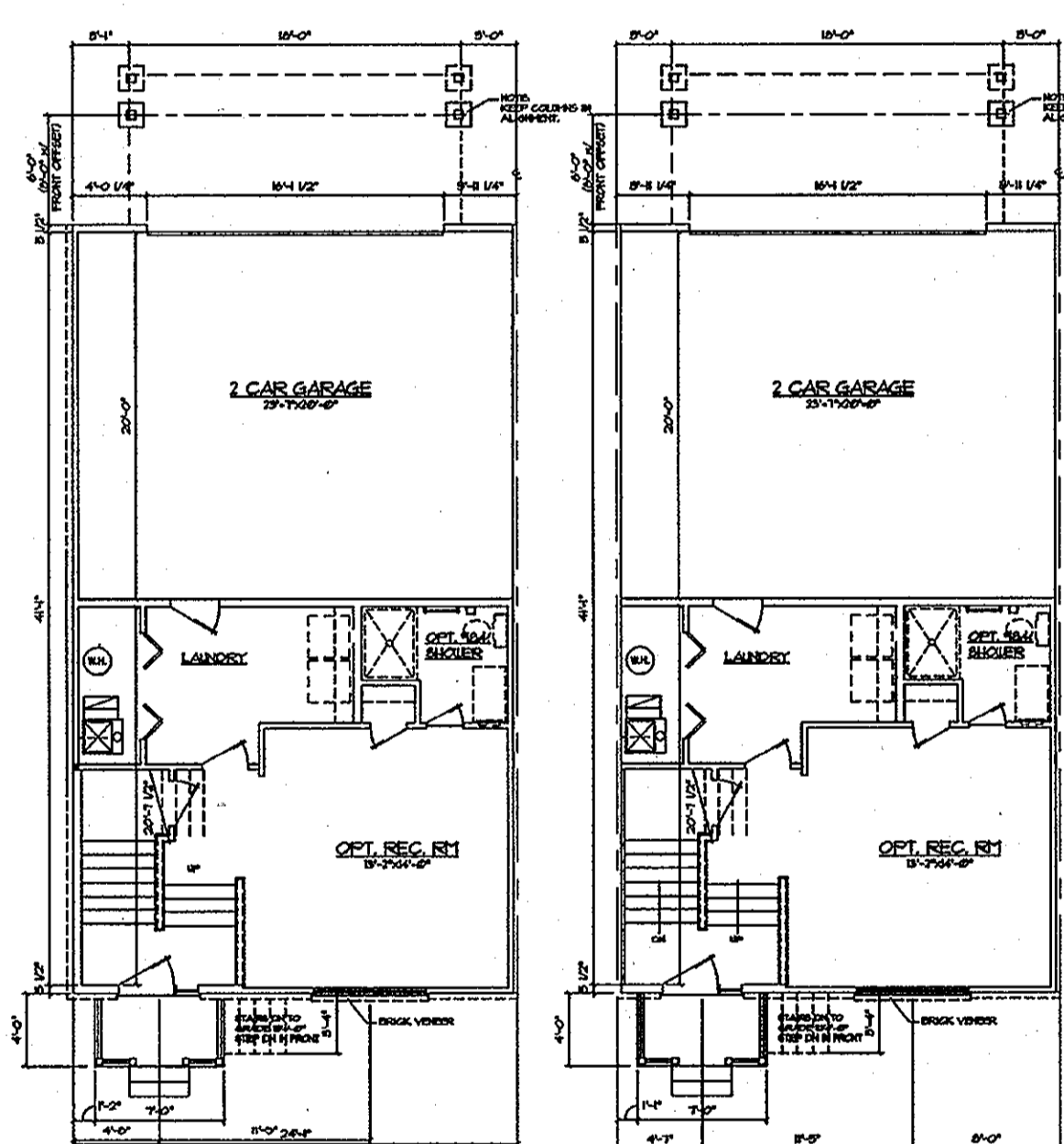
STANDARD PLAN-INTERIOR UNIT



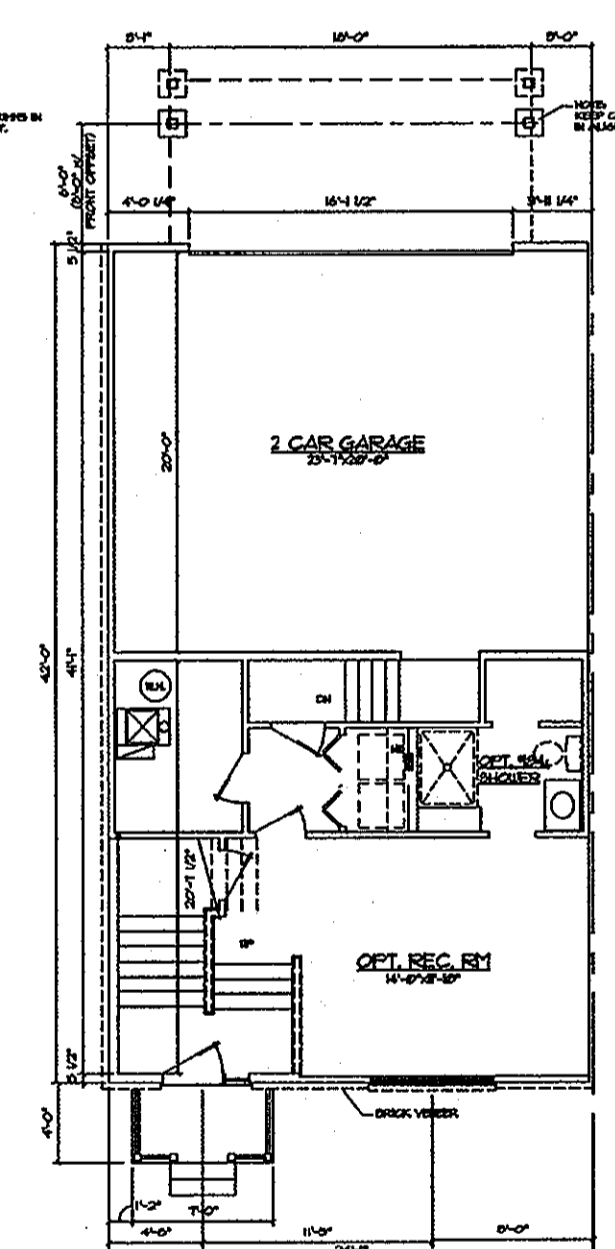
4'-0" STEP IN REAR



STANDARD PLAN W/SIDE ENTRY



STANDARD PLAN W/END UNIT STANDARD PLAN - INTERIOR UNIT

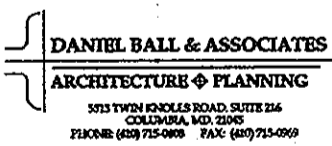


4'-0" STEP DN AT REAR - END UNIT

RYLAND HOMES

APRIL 11, 2006

**WOODFIELD LOWER LEVEL FLOOR PLANS
GATEWAY OVERLOOK**



RYLAND HOMES

APRIL 11, 2006

**WINGATE IV FLOOR PLANS
GATEWAY OVERLOOK**



**APPROVED
PLANNING BOARD
of HOWARD COUNTY**

DATE: 5/16/07

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 CHIEF, DIVISION OF LAND DEVELOPMENT
 DIRECTOR, DEPARTMENT OF PLANNING AND ZONING

DATE: 6/21/07
 DATE: 6/20/07
 DATE: 6/21/07

OWNER/DEVELOPER/APPLICANT
 NAME: MR. BRIAN KNAUFF
 COMPANY: THE RYLAND GROUP
 6011 UNIVERSITY BOULEVARD, SUITE 260
 ELLICOTT CITY, MARYLAND 21043
 PHONE: 410-480-2467
 FAX: 410-480-0543

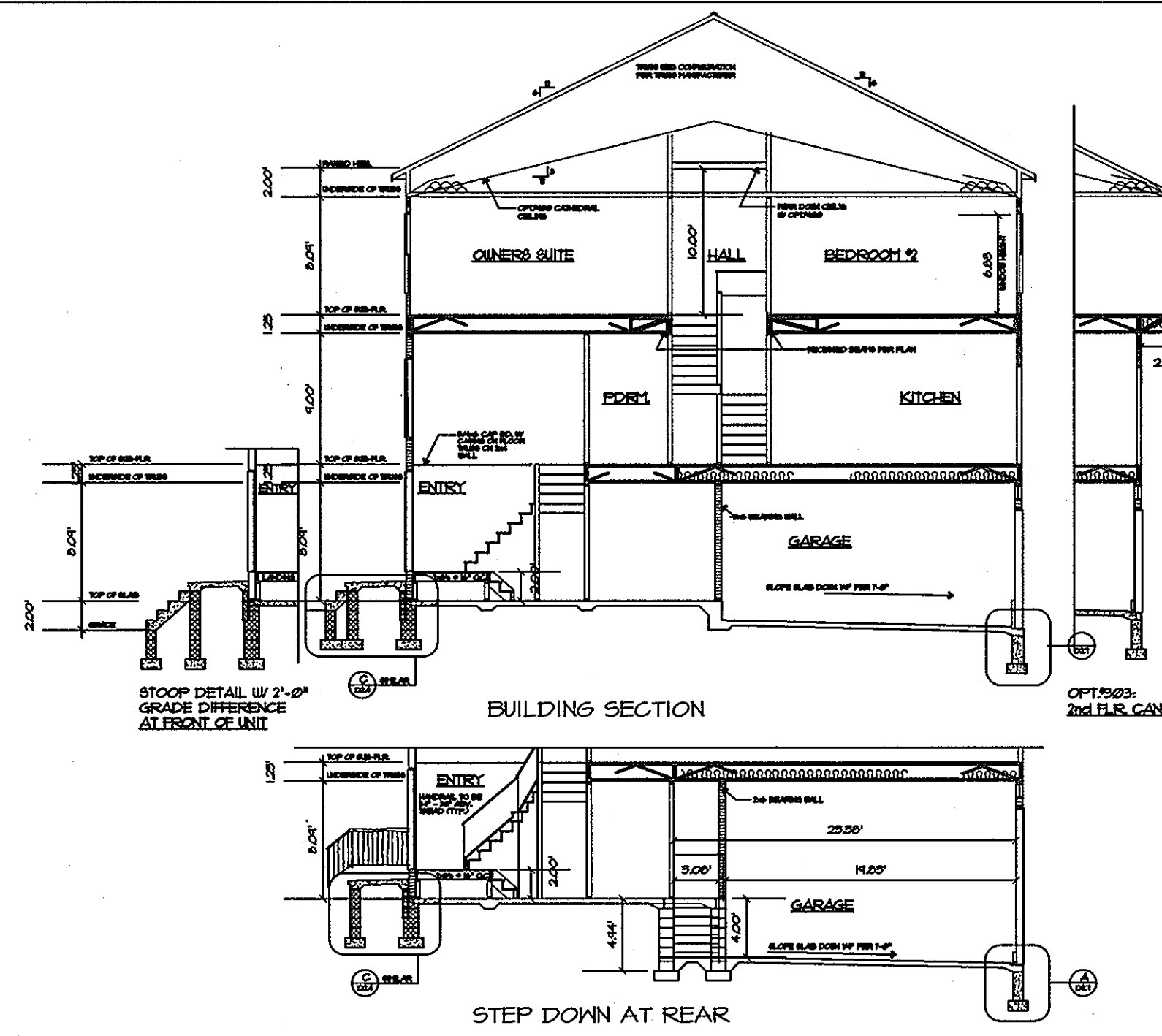
	MORRIS & RITCHIE ASSOCIATES, INC. ENGINEERS, PLANNERS, SURVEYORS AND LANDSCAPE ARCHITECTS 14280 PARK CENTER DRIVE, SUITE A LAUREL, MARYLAND 20707 (410) 792-9792 or (301) 776-1690 FAX (410) 792-7395	
	SITE DEVELOPMENT PLAN GATEWAY OVERLOOK AT BENSON EAST-OLD WATERLOO ROAD 66 SINGLE FAMILY ATTACHED CONDOMINIUM UNITS SITE DETAILS LIBER: 9779 ~ FOLIO: 80 ~ PARCEL: 382 ZONED: NT ~ TAX MAPS: 37 & 43 ~ GRIDS: 20, 21 & 2,3 LOTS: J, K & L ~ 6TH ELECTION DISTRICT ~ HOWARD COUNTY, MARYLAND	
	DATE: 12/3/07 REVISIONS: <u>Δ</u> ADDED DECK DIMENSIONS	JOB NO.: 14719 SCALE: N.T.S. DATE: 4/24/07 DRAWN BY: MM/MSP DESIGN BY: KSK REVIEW BY: KSK SHEET: 2 OF 33



RYLAND HOMES
MARCH 15, 2006

GATEWAY OVERLOOK

DANIEL BALL & ASSOCIATES
ARCHITECTURE & PLANNING
800 TOWSON ROAD, SUITE 200
TOWSON, MD 21286
PHONE: (410) 792-0000 FAX: (410) 792-0000



RYLAND HOMES
MARCH 15, 2006

GATEWAY OVERLOOK

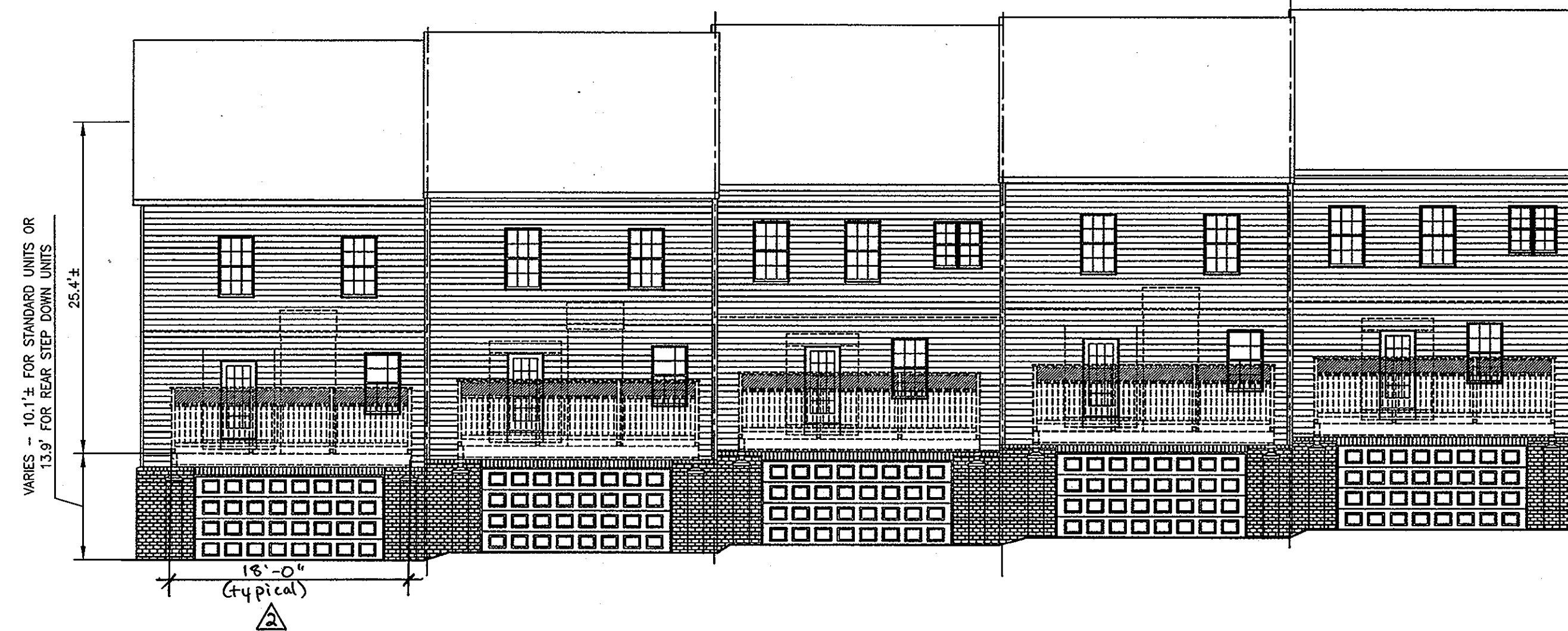
DANIEL BALL & ASSOCIATES
ARCHITECTURE & PLANNING
800 TOWSON ROAD, SUITE 200
TOWSON, MD 21286
PHONE: (410) 792-0000 FAX: (410) 792-0000



RYLAND HOMES
MARCH 15, 2006

GATEWAY OVERLOOK
SCALE: 1/8" = 1'-0"

DANIEL BALL & ASSOCIATES
ARCHITECTURE & PLANNING
800 TOWSON ROAD, SUITE 200
TOWSON, MD 21286
PHONE: (410) 792-0000 FAX: (410) 792-0000



RYLAND HOMES
MARCH 15, 2006

GATEWAY OVERLOOK

DANIEL BALL & ASSOCIATES
ARCHITECTURE & PLANNING
800 TOWSON ROAD, SUITE 200
TOWSON, MD 21286
PHONE: (410) 792-0000 FAX: (410) 792-0000

NOTE: DIMENSIONS SHOWN ARE FOR INFORMATIONAL PURPOSES ONLY.
SEE ARCHITECTURAL PLANS FOR EXACT UNIT DIMENSIONS.

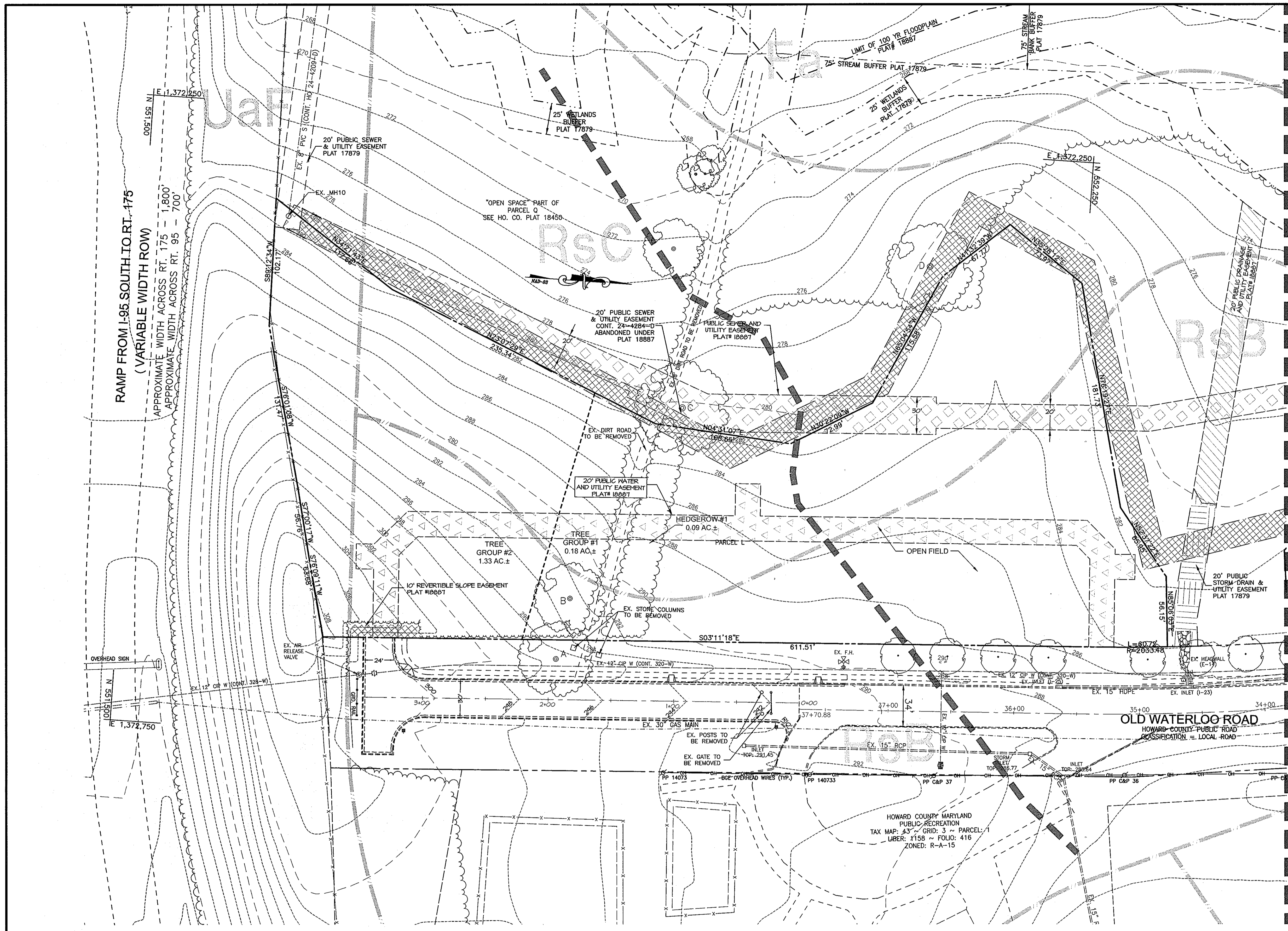
APPROVED
PLANNING BOARD
of HOWARD COUNTY
DATE: 5/10/07

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 [Signature] 6/22/07
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE: 6/22/07
 [Signature] 6/22/07
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE: 6/22/07
 [Signature] 6/22/07
 DIRECTOR, DEPARTMENT OF PLANNING AND ZONING DATE: 6/22/07

APPROVED
[Stamp]

OWNER/DEVELOPER/APPLICANT
 NAME: MR. BRIAN KNAUFF
 COMPANY: THE RYLAND GROUP
 6011 UNIVERSITY BOULEVARD, SUITE 260
 ELLICOTT CITY, MARYLAND 21043
 PHONE: 410-480-2467
 FAX: 410-480-0543

	MORRIS & RITCHIE ASSOCIATES, INC. ENGINEERS, PLANNERS, SURVEYORS AND LANDSCAPE ARCHITECTS 14280 PARK CENTER DRIVE, SUITE A LAUREL, MARYLAND 20707 (410) 792-9792 or (301) 776-1690 FAX (410) 792-7395	
	SITE DEVELOPMENT PLAN GATEWAY OVERLOOK AT BENSON EAST-OLD WATERLOO ROAD 66 SINGLE FAMILY ATTACHED CONDOMINIUM UNITS SITE DETAILS LIBER: 9779 ~ FOLIO: 80 ~ PARCEL: 382 ZONED: NT ~ TAX MAPS: 37 & 43 ~ GRIDS: 20, 21 & 2,3 LOTS: J, K & L ~ 6TH ELECTION DISTRICT ~ HOWARD COUNTY, MARYLAND	
	DATE: 12/3/07 REVISIONS: 1 Added Deck Dimensions	JOB NO.: 14719 SCALE: N.T.S. DATE: 4/24/07 DRAWN BY: MM/MSP DESIGN BY: KSK REVIEW BY: KSK SHEET: 3 OF 33



MATCHLINE - SEE SHEET 6 FOR CONTINUATION

LEGEND

- EX. 2025 6584A LINE
 - EX. 2' CONTOUR
 - EX. 10' CONTOUR
 - EX. BUILDING
 - EX. CURB
 - EX. EASEMENT
 - EX. FENCE
 - EX. FLOODPLAIN
 - EX. GAS
 - EX. PAVEMENT
 - EX. PROPERTY LINE
 - EX. ROAD CENTERLINE
 - EX. SANITARY SEWER
 - EX. STORM DRAIN
 - EX. STREAM
 - EX. 75' STREAM BUFFER
 - EX. TREE LINE
 - EX. WATERLINE
 - EX. FIRE HYDRANT
 - EX. WETLAND
 - EX. WETLAND BUFFER
 - SOIL BOUNDARY
 - SOIL TYPE
- PUBLIC SD & UTILITY ESMT
 - PUBLIC SEWER & UTILITY ESMT
 - PUBLIC WATER & UTILITY ESMT
 - PUBLIC WATER, SEWER, & UTILITY ESMT
 - ABANDONED 20' PUBLIC SEWER & UTILITY ESMT
 - 20' PUBLIC SD & UTILITY ESMT
 - ABANDONED 20' PUBLIC SD & UTILITY ESMT

SOILS LEGEND		
SYMBOL	NAME/DESCRIPTION	SOIL TYPE
Fa	FALLSINGTON, SANDY LOAM, 0-2% SLOPES	C
R8B	RUSSETT, FINE SANDY LOAM, 2-5% SLOPES	C
R8C	RUSSETT, FINE SANDY LOAM, 5-10% SLOPES	C
U8F	UDORTHENTS, HIGHWAY 0-65% SLOPES	C
UD	URBAN LAND, UDORTHENTS COMPLEX 0-15% SLOPES	C

TYPE	AREA	DOMINANT SPECIES	AGE OF STAND (APPROX.)	CONDITION OF STAND	TYPICAL GALIFER
TREE GROUP #1	0.10 AC±	SOUTHERN RED OAKS	80-100 YRS	APPARENTLY HEALTHY	24"
TREE GROUP #2	1.33 AC±	TULIP TREE 40%, RED MAPLE 40%, EASTERN REDCEDAR 20%	20-30 YRS	APPARENTLY HEALTHY	2"-8"
HEDGEROW #1	0.09 AC±	EASTERN REDCEDAR	50-70 YRS	APPARENTLY HEALTHY	6"-12"

SPECIMEN	SPECIMEN SPECIES	DBH	CONDITION	STATUS
A	LIRIODENDRON TULIPIFERA - TULIPTREE	40"	POOR	TO BE REMOVED (F-06-2003)
B	QUERCUS FALCATA - SOUTHERN RED OAK	38"	FAIR	TO BE REMOVED
C	QUERCUS MACROCARPA - BUR OAK	50"	POOR	TO BE REMOVED
D	QUERCUS ALBA - WHITE OAK	46"	POOR/FAIR	TO BE REMOVED

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[Signature]
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE: 6/21/07

[Signature]
 CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE: 6/20/07

[Signature]
 DIRECTOR, DEPARTMENT OF PLANNING AND ZONING
 DATE: 6/25/07

APPROVED
 PLANNING BOARD
 OF HOWARD COUNTY

DATE: 5/10/07

OWNER/DEVELOPER/APPLICANT

NAME: MR. BRIAN KNAUFF
 COMPANY: THE RYLAND GROUP
 6011 UNIVERSITY BOULEVARD, SUITE 260
 ELLICOTT CITY, MARYLAND 21043
 PHONE: 410-480-2467
 FAX: 410-480-0543

MORRIS & RITCHIE ASSOCIATES, INC.
 ENGINEERS, PLANNERS, SURVEYORS AND LANDSCAPE ARCHITECTS

14280 PARK CENTER DRIVE, SUITE A
 LAUREL, MARYLAND 20707
 (410) 792-9792 or (301) 776-1680
 FAX (410) 792-7395

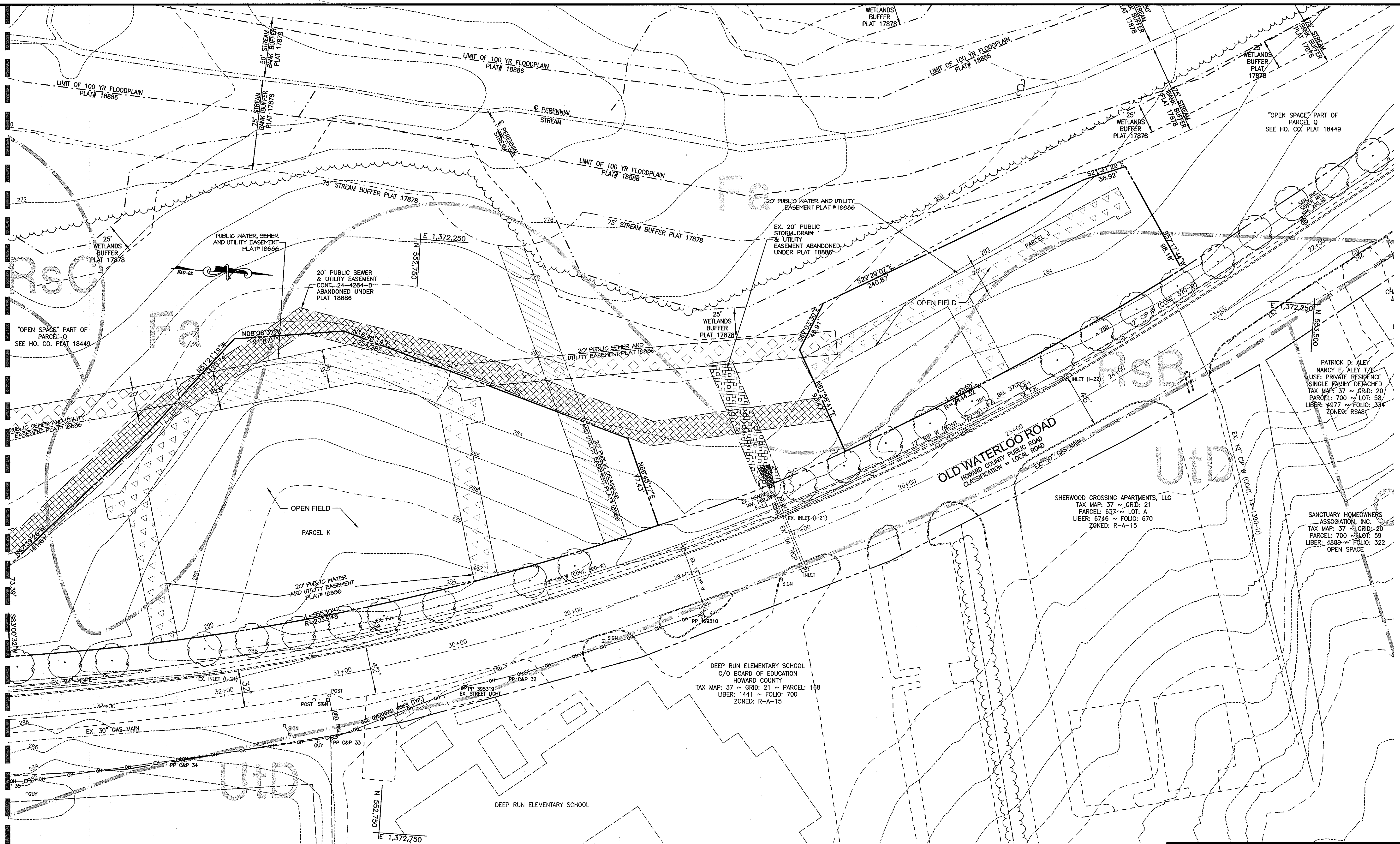
SITE DEVELOPMENT PLAN
 GATEWAY OVERLOOK AT BENSON EAST-OLD WATERLOG ROAD
 66 SINGLE FAMILY ATTACHED CONDOMINIUM UNITS

EXISTING CONDITIONS & DEMOLITION PLAN

LIBER: 9779 ~ FOLIO: 80 ~ PARCEL: 382
 ZONED: NT ~ TAX MAPS: 37 & 43 ~ GRIDS: 20, 21 & 23
 PLOTS: J, K & L ~ 6TH ELECTION DISTRICT ~ HOWARD COUNTY, MARYLAND

DATE	REVISIONS	JOB NO.:
		14719
		SCALE: 1"=40'
		DATE: 4/24/07
		DRAWN BY: MM/MSP
		DESIGN BY: KSK
		REVIEW BY: KSK
		SHEET: 5 OF 33

MATCHLINE - SEE SHEET 5 FOR CONTINUATION



APPROVED
PLANNING BOARD
of HOWARD COUNTY

DATE: 5/10/07

SOILS LEGEND		
SYMBOL	NAME/DESCRIPTION	SOIL TYPE
Fa	FALLSINGTON, SANDY LOAM, 0-2% SLOPES	C
RsB	RUSSETT, FINE SANDY LOAM, 2-5% SLOPES	C
RsC	RUSSETT, FINE SANDY LOAM, 5-10% SLOPES	C
UoF	UDORTHENTS, HIGHWAY 0-65% SLOPES	C
UoD	UDORTHENTS COMPLEX 0-15% SLOPES	C

- EX. 2025 65/BA LINE
- EX. 2' CONTOUR
- EX. 10' CONTOUR
- EX. BUILDING
- EX. CURB
- EX. EASEMENT
- EX. FENCE
- EX. FLOODPLAIN
- EX. GAS
- EX. PAYMENT
- EX. PROPERTY LINE
- EX. ROAD CENTERLINE
- EX. S' S
- EX. SANITARY SEWER
- EX. STORM DRAIN
- EX. STREAM
- EX. 75' STREAM BUFFER
- EX. TREE LINE
- EX. WATERLINE
- EX. FIRE HOBORANT
- EX. WETLAND
- EX. WETLAND BUFFER

LEGEND

- PUBLIC SD & UTILITY ESMT
- PUBLIC SEWER & UTILITY ESMT
- PUBLIC WATER & UTILITY ESMT
- PUBLIC WATER, SEWER, & UTILITY ESMT
- ABANDONED 20' PUBLIC SEWER & UTILITY ESMT
- 20' PUBLIC SD & UTILITY ESMT
- ABANDONED 20' PUBLIC SD & UTILITY ESMT

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[Signature]
CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE: 6/21/07

[Signature]
CHIEF, DIVISION OF LAND DEVELOPMENT
DATE: 6/23/07

[Signature]
DIRECTOR, DEPARTMENT OF PLANNING AND ZONING
DATE: 6/15/07

OWNER/DEVELOPER/APPLICANT

NAME: MR. BRIAN KNAUFF
COMPANY: THE RYLAND GROUP
6011 UNIVERSITY BOULEVARD, SUITE 260
ELLCOTT CITY, MARYLAND 21043
PHONE: 410-480-2467
FAX: 410-480-0543

MRA
MORRIS & RITCHIE ASSOCIATES, INC.
ENGINEERS, PLANNERS, SURVEYORS AND LANDSCAPE ARCHITECTS

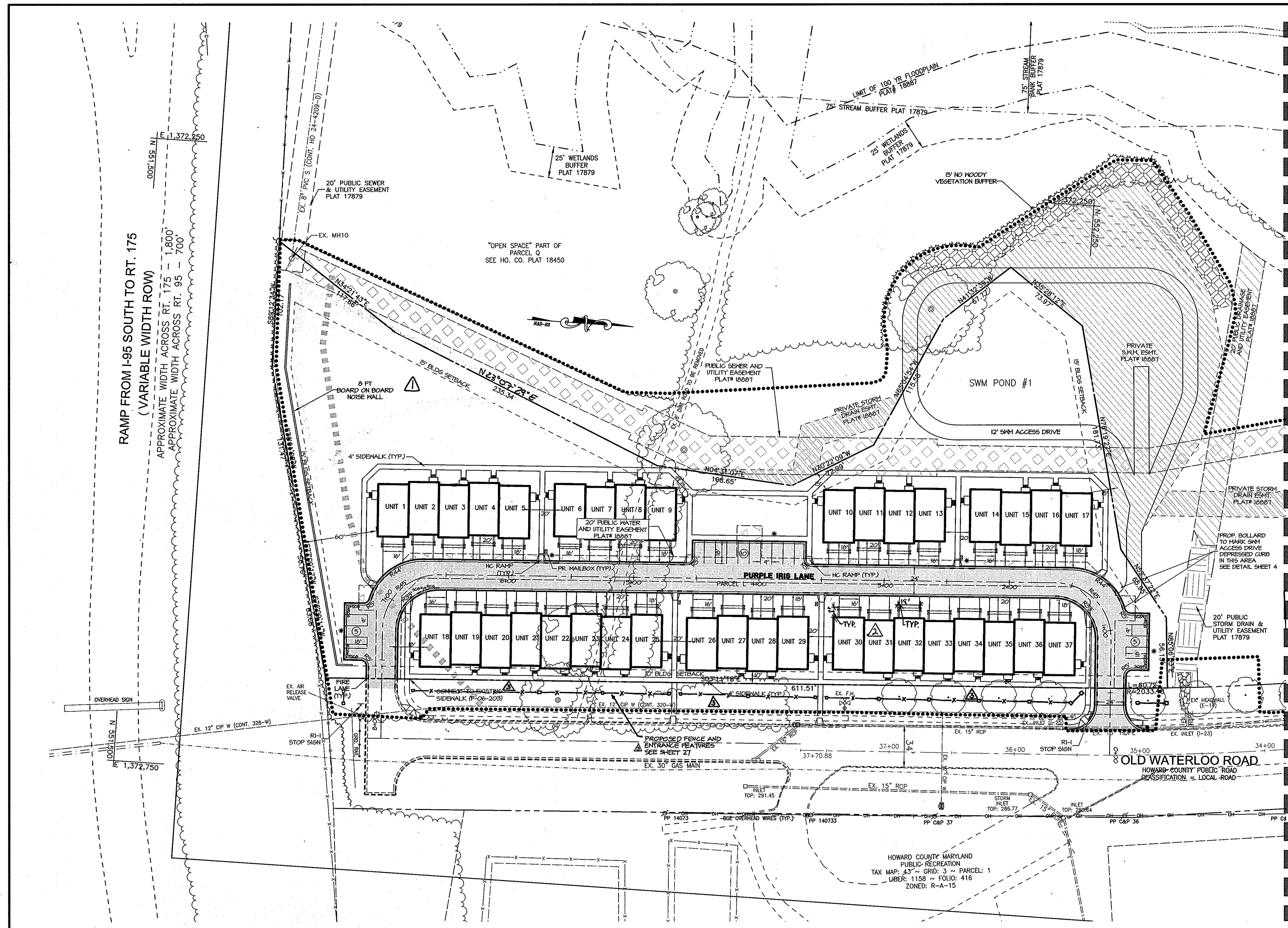
14280 PARK CENTER DRIVE, SUITE A
LAUREL, MARYLAND 20707
(410) 792-9792 or (301) 776-1690
FAX (410) 792-7395

SITE DEVELOPMENT PLAN
GATEWAY OVERLOOK AT BENSON EAST-OLD WATERLOO ROAD
66 SINGLE FAMILY ATTACHED CONDOMINIUM UNITS

EXISTING CONDITIONS & DEMOLITION PLAN

LIBER: 9779 ~ FOLIO: 80 ~ PARCEL: 382
ZONED: NT ~ TAX MAPS: 37 & 43 ~ GRIDS: 20, 21 & 23
LOTS: J, K & L ~ 6TH ELECTION DISTRICT ~ HOWARD COUNTY, MARYLAND

DATE	REVISIONS	JOB NO.:
		14719
		SCALE: 1"=40'
		DATE: 4/24/07
		DRAWN BY: MM/MSP
		DESIGN BY: KSK
		REVIEW BY: KSK
		SHEET: 6 OF 33



MATCHLINE - SEE SHEET 8 FOR CONTINUATION

LEGEND

- EX. BUILDING
- EX. CURB
- EX. EASEMENT
- EX. FENCE
- EX. FLOODPLAIN
- EX. GAS
- EX. PAVEMENT
- EX. PROPERTY LINE
- EX. ROAD CENTERLINE
- EX. S. S.
- EX. 27" RCP
- EX. SANITARY SEWER
- EX. STORM DRAIN
- EX. STREAM
- EX. 75' STREAM BUFFER
- EX. 10' W
- EX. WATERLINE
- EX. FIRE HYDRANT
- EX. WETLAND
- EX. WETLAND BUFFER
- PROP. 2025 E564 LINE
- PROP. CENTERLINE OF DRAINAGE SWALE
- PROP. FENCE - SEE DETAIL SHEET 33
- PROP. CURB
- PROP. REVERSE CURB & GUTTER
- PROP. STANDARD CURB & GUTTER
- PROP. FIRE LANE
- PROP. TREE LINE
- PROP. LIMIT OF DISTURBANCE
- PROP. PAVEMENT
- PROP. BUILDING
- PROP. BUILDING SETBACK
- PROP. PRIVATE SANITARY SEWER LINE
- PROP. PUBLIC SANITARY SEWER LINE
- PROP. PUBLIC WATER LINE
- PROP. PRIVATE STORM DRAIN LINE
- PROP. PUBLIC STORM DRAIN LINE
- PROP. SWM POND OUTLINE
- PROP. PUBLIC SITE LIGHTING
- PROP. PRIVATE SITE LIGHTING
- SOIL BOUNDARY
- SOIL TYPE

RAMP FROM I-95 SOUTH TO RT. 175
(VARIABLE WIDTH ROW)
APPROXIMATE WIDTH ACROSS RT. 175 - 1,800'
APPROXIMATE WIDTH ACROSS RT. 95 - 700'

NOTE:
PURPLE IRIS LANE, BLAZING BROOK WAY, AND BLUE SMOKE COURT ARE PRIVATE LOCAL ROADS.

STREET LIGHT SCHEDULE (PRIVATE ONLY)

STREET NAME	STATION	OFFSET	POLE/FIXTURE
PURPLE IRIS LANE	0+84	34' RIGHT	14' BLACK POLE/BGE 150-WATT HPS VAPOR*
PURPLE IRIS LANE	2+34	17' RIGHT	14' BLACK POLE/BGE 150-WATT HPS VAPOR*
PURPLE IRIS LANE	3+88	36' RIGHT	14' BLACK POLE/BGE 150-WATT HPS VAPOR*
PURPLE IRIS LANE	5+66	17' RIGHT	14' BLACK POLE/BGE 150-WATT HPS VAPOR*
PURPLE IRIS LANE	7+27	33' RIGHT	14' BLACK POLE/BGE 150-WATT HPS VAPOR*

*SEE DETAIL SHEET 4 OF 33 FOR POLE AND FIXTURE DETAIL.

APPROVED
PLANNING BOARD
of HOWARD COUNTY
DATE: 5/10/07

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 [Signature] 6/24/07
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 [Signature] 6/22/07
 CHIEF, DIVISION OF LAND DEVELOPMENT
 [Signature] 6/25/07
 DIRECTOR, DEPARTMENT OF PLANNING AND ZONING

NOTE: SEE SHEETS 2 AND 3 FOR TYPICAL DECK DIMENSIONS.

MORRIS & RITCHIE ASSOCIATES, INC.
ENGINEERS, PLANNERS, SURVEYORS AND LANDSCAPE ARCHITECTS

14280 PARK CENTER DRIVE, SUITE A
LAUREL, MARYLAND 20707
(410) 792-9792 or (301) 776-1690
FAX (410) 792-7395

SITE DEVELOPMENT PLAN
GATEWAY OVERLOOK AT BENSON EAST-OLD WATERLOO ROAD
66 SINGLE FAMILY ATTACHED CONDOMINIUM UNITS

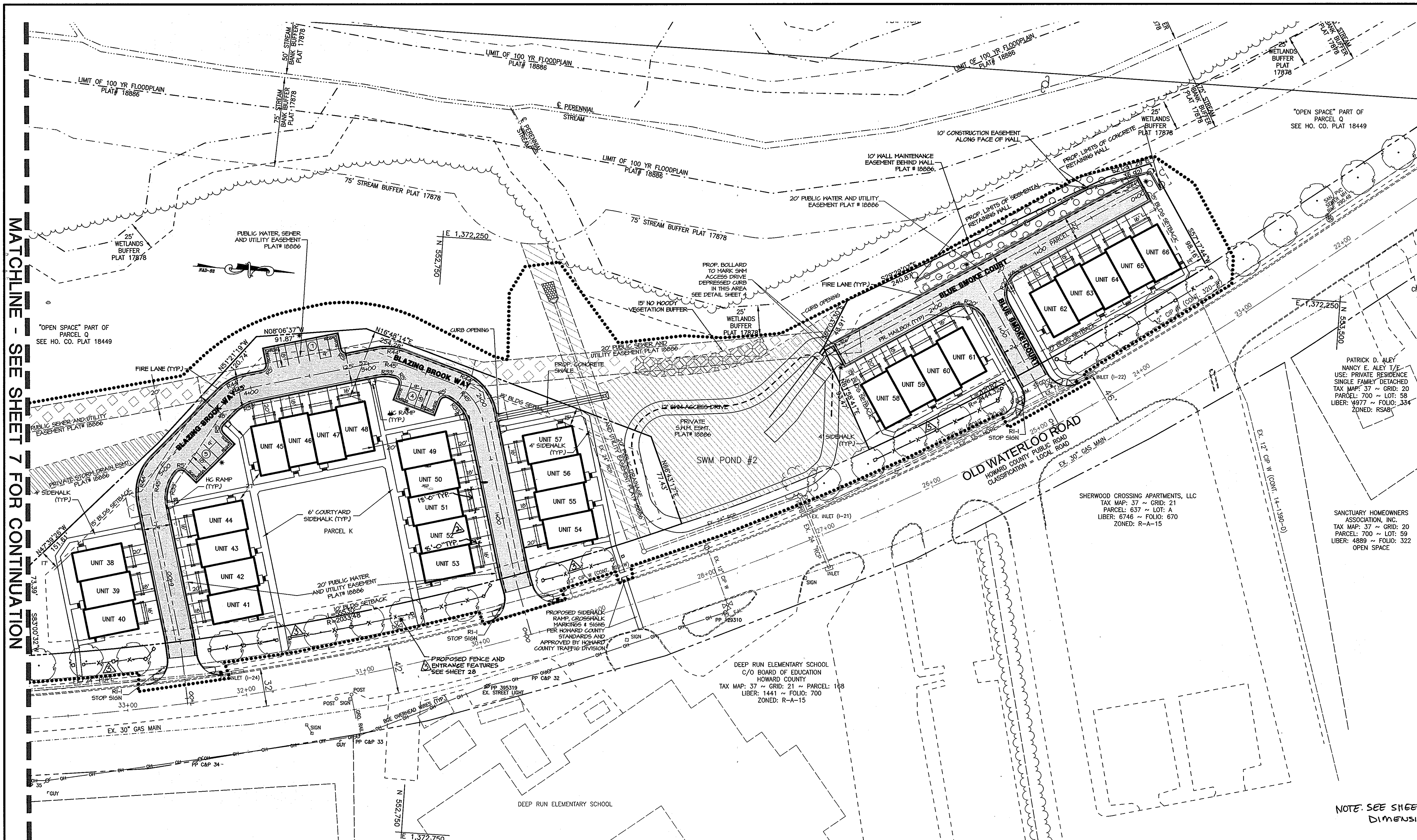
SITE LAYOUT PLAN

LIBER: 9779 ~ FOLIO: 80 ~ PARCEL: 382
ZONED: NT ~ TAX MAPS: 37 & 43 ~ GRIDS: 20, 21 & 23
LOTS: J, K & L ~ 6TH ELECTION DISTRICT ~ HOWARD COUNTY, MARYLAND

DATE	REVISIONS	JOB NO.:
7/24/07	ADD LOD REVISION	14719
12/3/07	ADD DECK DIMENSIONS	SCALE: 1"=40'
7/16/08	ADD ENTRANCE FEATURES	DATE: 4/24/07
		DRAWN BY: MM/MSP
		DESIGN BY: KSK
		REVIEW BY: KSK
		SHEET: 7 OF 33

OWNER/DEVELOPER/APPLICANT
 NAME: MR. BRIAN KNAUFF
 COMPANY: THE RYLAND GROUP
 6011 UNIVERSITY BOULEVARD, SUITE 260
 ELLICOTT CITY, MARYLAND 21043
 PHONE: 410-480-2467
 FAX: 410-480-0543

MATCHLINE - SEE SHEET 7 FOR CONTINUATION



LEGEND

- EX. BUILDING
- EX. CURB
- EX. EASEMENT
- EX. FENCE
- EX. FLOODPLAIN
- EX. GAS
- EX. PAVEMENT
- EX. PROPERTY LINE
- EX. ROAD CENTERLINE
- EX. SANITARY SEWER
- EX. STORM DRAIN
- EX. STREAM
- EX. 75' STREAM BUFFER
- EX. WATERLINE
- EX. FIRE HYDRANT
- EX. WETLAND
- EX. WETLAND BUFFER
- PROP. 2025 6584 LINE
- PROP. CENTERLINE OF DRAINAGE SWALE
- PROP. FENCE - SEE DETAIL SHEET 33
- PROP. CURB
- PROP. REVERSE CURB & GUTTER
- PROP. STANDARD CURB & GUTTER
- PROP. FIRE LANE
- PROP. TREE LINE
- PROP. LIMIT OF DISTURBANCE
- PROP. PAVEMENT
- PROP. BUILDING
- PROP. BUILDING SETBACK
- PROP. PRIVATE SANITARY SEWER LINE
- PROP. PUBLIC SANITARY SEWER LINE
- PROP. PUBLIC WATER LINE
- PROP. PRIVATE STORM DRAIN LINE
- PROP. PUBLIC STORM DRAIN LINE
- PROP. SWM POND OUTLINE
- PROP. PUBLIC SITE LIGHTING
- PROP. PRIVATE SITE LIGHTING
- SOIL BOUNDARY
- SOIL TYPE

PRICE PRICE

PR. PRIVATE 8" PVC

PR. PUBLIC 8" PVC

PR. PUBLIC 6" DIP

PR. PRIVATE 15" SD

PR. PUBLIC 15" SD

R&B

PUBLIC SD & UTILITY ESMT

PUBLIC SEWER & UTILITY ESMT

PUBLIC WATER & UTILITY ESMT

PUBLIC WATER, SEWER, & UTILITY ESMT

PRIVATE SWM ESMT

PRIVATE STORM DRAIN ESMT

NO WOODY VEGETATION BUFFER

20' PUBLIC SD & UTILITY ESMT

CONSTRUCTION AND MAINTENANCE EASEMENT FOR RETAINING WALL

NOTE: SEE SHEETS 2 AND 3 FOR TYPICAL DECK DIMENSIONS.

NOTE:
PURPLE IRIS LANE, BLAZING BROOK WAY, AND BLUE SMOKE COURT ARE PRIVATE LOCAL ROADS.

STREET LIGHT SCHEDULE (PRIVATE ONLY)

STREET NAME	STATION	OFFSET	POLE/FIXTURE
BLAZING BROOK WAY	2+54	34' LEFT	14' BLACK POLE/BGE 150-WATT HPS VAPOR*
BLAZING BROOK WAY	3+52	35' RIGHT	14' BLACK POLE/BGE 150-WATT HPS VAPOR*
BLAZING BROOK WAY	4+63	34' LEFT	14' BLACK POLE/BGE 150-WATT HPS VAPOR*
BLUE SMOKE COURT	-0+4	5' RIGHT	14' BLACK POLE/BGE 150-WATT HPS VAPOR*
BLUE SMOKE COURT	1+60	15' RIGHT	14' BLACK POLE/BGE 150-WATT HPS VAPOR*
BLUE SMOKE COURT	2+94	10' LEFT	14' BLACK POLE/BGE 150-WATT HPS VAPOR*

*SEE DETAIL SHEET 4 OF 33 FOR POLE AND FIXTURE DETAIL.

APPROVED
PLANNING BOARD
OF HOWARD COUNTY
DATE: 5/10/07

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division: 6/24/07
 Chief, Division of Land Development: 6/26/07
 Director, Department of Planning and Zoning: 6/25/07

OWNER/DEVELOPER/APPLICANT
 NAME: MR. BRIAN KNAUFF
 COMPANY: THE RYLAND GROUP
 6011 UNIVERSITY BOULEVARD, SUITE 260
 ELLICOTT CITY, MARYLAND 21043
 PHONE: 410-480-2467
 FAX: 410-480-0543

MORRIS & RITCHIE ASSOCIATES, INC.
 ENGINEERS, PLANNERS, SURVEYORS AND LANDSCAPE ARCHITECTS

14280 PARK CENTER DRIVE, SUITE A
 LAUREL, MARYLAND 20707
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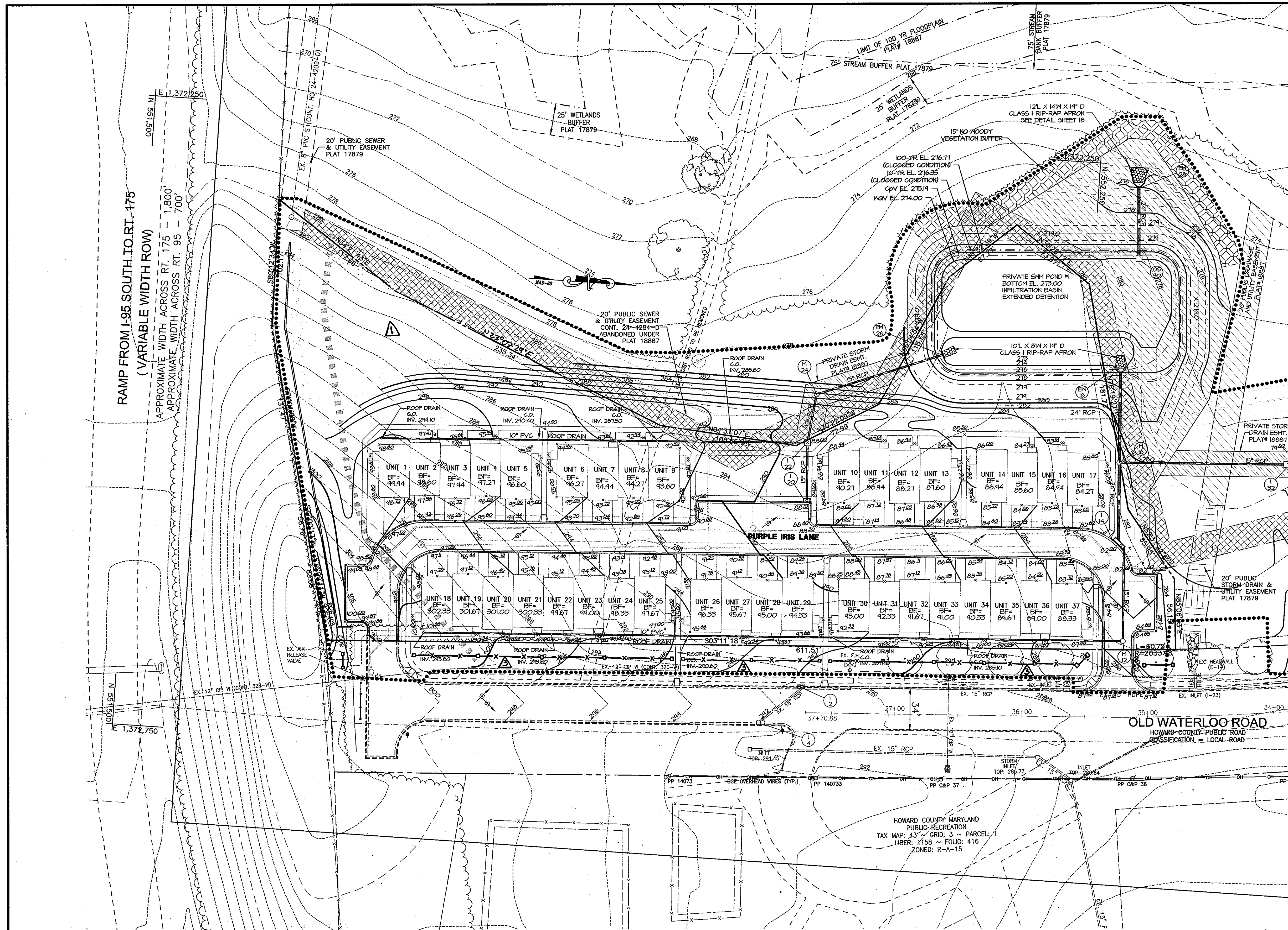
SITE DEVELOPMENT PLAN
 GATEWAY OVERLOOK AT BENSON EAST-OLD WATERLOO ROAD
 66 SINGLE FAMILY ATTACHED CONDOMINIUM UNITS

SITE LAYOUT PLAN

LIBER: 9779 ~ FOLIO: 80 ~ PARCEL: 382
 ZONED: NT ~ TAX MAPS: 37 & 43 ~ GRIDS: 20, 21 & 23
 LOTS: J, K & L ~ 6TH ELECTION DISTRICT ~ HOWARD COUNTY, MARYLAND

DATE	REVISIONS	JOB NO.:
12/3/07	ADDED DECK DIMENSIONS	14719
7/16/08	ADDED ENTRANCE FEATURES	SCALE: 1"=40'

DATE: 4/24/07
 DRAWN BY: MM/MSP
 DESIGN BY: KSK
 REVIEW BY: KSK
 SHEET: 8 OF 33



MATCHLINE - SEE SHEET 10 FOR CONTINUATION

LEGEND

- EX. BUILDING
- EX. CURB
- EX. EASEMENT
- EX. FENCE
- EX. FLOODPLAIN
- EX. GAS
- EX. PAVEMENT
- EX. PROPERTY LINE
- EX. ROAD CENTERLINE
- EX. SANITARY SEWER
- EX. STORM DRAIN
- EX. STREAM
- EX. 75' STREAM BUFFER
- EX. TREE LINE
- EX. WATERLINE
- EX. FIRE HYDRANT
- EX. WETLAND
- EX. WETLAND BUFFER
- PROP. 2025 65/84 LINE
- PROP. CENTERLINE OF DRAINAGE SWALE
- PROP. FENCE - SEE DETAIL SHEET 33
- PROP. CURB
- PROP. REVERSE CURB & GUTTER
- PROP. STANDARD CURB & GUTTER
- PROP. TREE LINE
- PROP. LIMIT OF DISTURBANCE
- PROP. PAVEMENT
- PROP. BUILDING
- PROP. BUILDING SETBACK
- PROP. SWM POND OUTLINE
- PROP. SITE LIGHTING
- PROP. PRIVATE SITE LIGHTING
- SOIL BOUNDARY
- SOIL TYPE
- R&B
- PUBLIC SD & UTILITY ESMT
- PUBLIC SEWER & UTILITY ESMT
- PUBLIC WATER & UTILITY ESMT
- PUBLIC WATER, SEWER, & UTILITY ESMT
- PRIVATE SWM ESMT
- PRIVATE STORM DRAIN ESMT
- NO WOODY VEGETATION BUFFER
- 20' PUBLIC SD & UTILITY ESMT
- CONSTRUCTION AND MAINTENANCE EASEMENT FOR RETAINING WALL

NOTE: ADD +200 TO ALL SPOT ELEVATIONS & UNIT ELEVATIONS

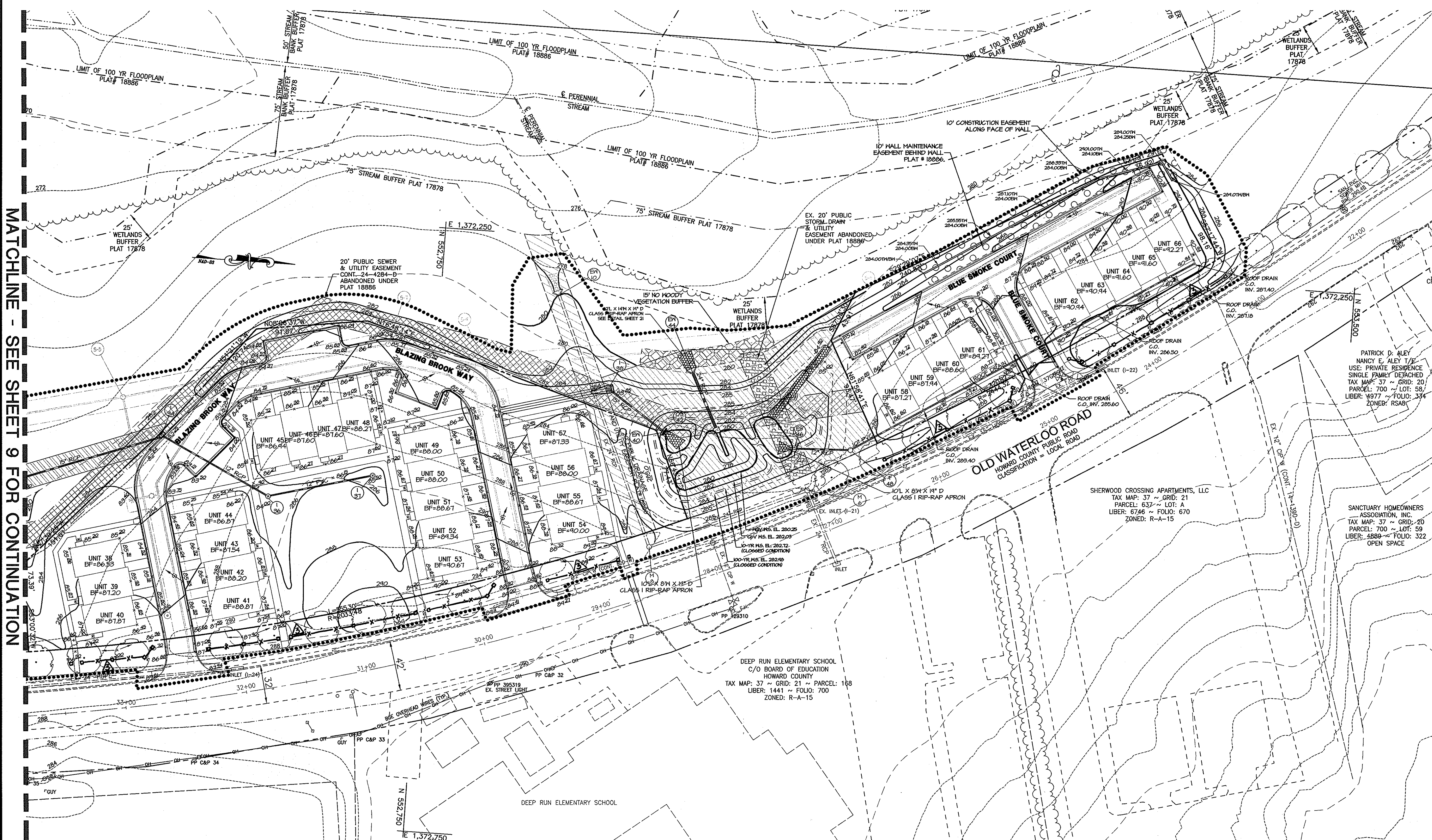
APPROVED
PLANNING BOARD
of HOWARD COUNTY
DATE 5/10/07

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 [Signature] 10/21/07
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 [Signature] 9/28/10
 CHIEF, DIVISION OF LAND DEVELOPMENT
 [Signature] 6/25/10
 DIRECTOR, DEPARTMENT OF PLANNING AND ZONING

OWNER/DEVELOPER/APPLICANT
 NAME: MR. BRIAN KNAUFF
 COMPANY: THE RYLAND GROUP
 6011 UNIVERSITY BOULEVARD, SUITE 260
 ELLICOTT CITY, MARYLAND 21043
 PHONE: 410-480-2467
 FAX: 410-480-0543

	MORRIS & RITCHIE ASSOCIATES, INC. ENGINEERS, PLANNERS, SURVEYORS AND LANDSCAPE ARCHITECTS 14280 PARK CENTER DRIVE, SUITE A LAUREL, MARYLAND 20707 (410) 792-9792 or (301) 776-1690 FAX (410) 792-7395	
	SITE DEVELOPMENT PLAN GATEWAY OVERLOOK AT BENSON EAST-OLD WATERLOO ROAD 66 SINGLE FAMILY ATTACHED CONDOMINIUM UNITS GRADING PLAN LIBER: 9779 ~ FOLIO: 80 ~ PARCEL: 382 ZONED: NT ~ TAX MAPS: 37 & 43 ~ GRIDS: 20, 21 & 23 LOTS: J, K & L ~ 6TH ELECTION DISTRICT ~ HOWARD COUNTY, MARYLAND	
DATE 7/24/07 7/16/08	REVISIONS A LOD REVISION B ADDED ENTRANCE FEATURES	JOB NO.: 14719 SCALE: 1"=40' DATE: 4/24/07 DRAWN BY: MM/MSP DESIGN BY: KSK REVIEW BY: KSK SHEET: 9 OF 33

MATCHLINE - SEE SHEET 9 FOR CONTINUATION



LEGEND

- EX. BUILDING
- EX. CURB
- EX. EASEMENT
- EX. FENCE
- EX. FLOODPLAIN
- EX. GAS
- EX. PAVEMENT
- EX. PROPERTY LINE
- EX. ROAD CENTERLINE
- EX. SANITARY SEWER
- EX. STORM DRAIN
- EX. STREAM
- EX. 75' STREAM BUFFER
- EX. TREE LINE
- EX. WATERLINE
- EX. 10' W
- EX. FIRE HYDRANT
- EX. WETLAND
- EX. WETLAND BUFFER
- PROP. 2025 656BA LINE
- PROP. CENTERLINE OF BRANWICK SWALE
- PROP. FENCE - SEE DETAIL SHEET 33
- PROP. CURB
- PROP. REVERSE CURB & GUTTER
- PROP. STANDARD CURB & GUTTER
- PROP. TREE LINE
- PROP. LIMIT OF DISTURBANCE
- PROP. PAVEMENT
- PROP. BUILDING
- PROP. BUILDING SETBACK
- PROP. SWIM POOL OUTLINE
- PROP. PUBLIC SITE LIGHTING
- PROP. PRIVATE SITE LIGHTING
- SOIL BOUNDARY
- SOIL TYPE

R&B

PUBLIC SD & UTILITY ESMT

PUBLIC SEWER & UTILITY ESMT

PUBLIC WATER & UTILITY ESMT

PUBLIC WATER, SEWER, & UTILITY ESMT

PRIVATE SWIM ESMT

PRIVATE STORM DRAIN ESMT

NO WOODY VEGETATION BUFFER

20' PUBLIC SD & UTILITY ESMT

CONSTRUCTION AND MAINTENANCE EASEMENT FOR RETAINING WALL

PATRICK D. ALEY
NANCY E. ALEY T/E
USE: PRIVATE RESIDENCE
SINGLE FAMILY DETACHED
TAX MAP: 37 ~ GRID: 20
PARCEL: 700 ~ LOT: 58
LIBER: 1977 ~ FOLIO: 334
ZONED: RSAB

SANCTUARY HOMEOWNERS ASSOCIATION, INC.
TAX MAP: 37 ~ GRID: 20
PARCEL: 700 ~ LOT: 59
LIBER: 4889 ~ FOLIO: 322
OPEN SPACE

NOTE: ADD +200 TO ALL SPOT ELEVATIONS & UNIT ELEVATIONS

APPROVED
PLANNING BOARD
of HOWARD COUNTY
DATE: 5/10/07

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[Signature]
CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE: 6/21/07

[Signature]
CHIEF, DIVISION OF LAND DEVELOPMENT
DATE: 6/25/07

[Signature]
DIRECTOR, DEPARTMENT OF PLANNING AND ZONING

DEEP RUN ELEMENTARY SCHOOL
C/O BOARD OF EDUCATION
HOWARD COUNTY
TAX MAP: 37 ~ GRID: 21 ~ PARCEL: 168
LIBER: 1441 ~ FOLIO: 700
ZONED: R-A-15

SHERWOOD CROSSING APARTMENTS, LLC
TAX MAP: 37 ~ GRID: 21
PARCEL: 637 ~ LOT: A
LIBER: 8746 ~ FOLIO: 670
ZONED: R-A-15

MORRIS & RITCHIE ASSOCIATES, INC.
ENGINEERS, PLANNERS, SURVEYORS AND LANDSCAPE ARCHITECTS

14280 PARK CENTER DRIVE, SUITE A
LAUREL, MARYLAND 20707
(410) 792-9792 or (301) 776-1690
FAX (410) 792-7395

SITE DEVELOPMENT PLAN
GATEWAY OVERLOOK AT BENSON EAST-OLD WATERLOO ROAD
66 SINGLE FAMILY ATTACHED CONDOMINIUM UNITS

GRADING PLAN

LIBER: 9779 ~ FOLIO: 80 ~ PARCEL: 382
ZONED: NT ~ TAX MAPS: 37 & 43 ~ GRIDS: 20, 21 & 23
LOTS: J, K & L ~ 6TH ELECTION DISTRICT ~ HOWARD COUNTY, MARYLAND

DATE	REVISIONS	JOB NO.:
7/16/08	ADDED ENTRANCE FEATURES	14719

OWNER/DEVELOPER/APPLICANT

NAME: MR. BRIAN KNAUFF
COMPANY: THE RYLAND GROUP
6011 UNIVERSITY BOULEVARD, SUITE 260
ELLCOTT CITY, MARYLAND 21043
PHONE: 410-480-2467
FAX: 410-480-0543

SCALE: 1"=40'

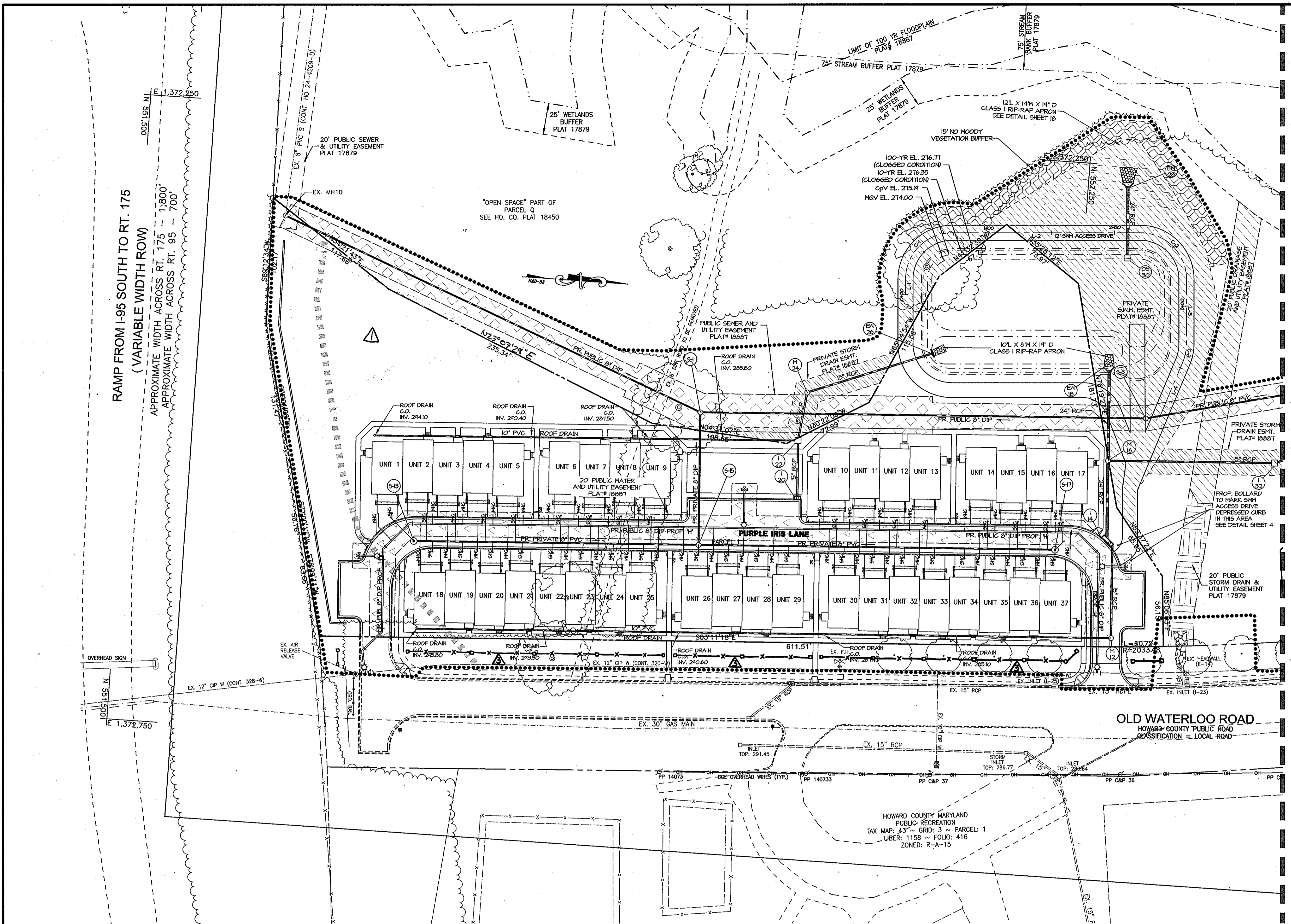
DATE: 4/24/07

DRAWN BY: MM/MSP

DESIGN BY: KSK

REVIEW BY: KSK

SHEET: 10 OF 33



MATCHLINE - SEE SHEET 12 FOR CONTINUATION

LEGEND

- EX. BUILDING
- EX. CURB
- EX. EASEMENT
- EX. FENCE
- EX. FLOODPLAIN
- EX. GAS
- EX. PAVEMENT
- EX. PROPERTY LINE
- EX. ROAD CENTERLINE
- EX. SANITARY SEWER
- EX. STORM DRAIN
- EX. STREAM
- EX. 75' STREAM BUFFER
- EX. TREE LINE
- EX. WATERLINE
- EX. FIRE HYDRANT
- EX. WETLAND
- EX. WETLAND BUFFER
- PROP. 2025 65/8A LINE
- PROP. CENTERLINE OF DRAINAGE SWALE
- PROP. FENCE - SEE DETAIL SHEET 33
- PROP. CURB
- PROP. REVERSE CURB & GUTTER
- PROP. STANDARD CURB & GUTTER
- PROP. TREE LINE
- PROP. LIMIT OF DISTURBANCE
- PROP. PAVEMENT
- PROP. BUILDING
- PROP. BUILDING SETBACK
- PROP. PRIVATE SANITARY SEWER LINE
- PR. PRIVATE 8" PVC
- PR. PUBLIC 8" PVC
- PR. PUBLIC 8" DIP
- PR. PRIVATE 15" SD
- PR. PUBLIC 15" SD
- PROP. PRIVATE STORM DRAIN LINE
- PROP. PUBLIC STORM DRAIN LINE
- PROP. SWM POND OUTLINE
- PROP. PUBLIC SITE LIGHTING
- PROP. PRIVATE SITE LIGHTING
- SOIL BOUNDARY
- SOIL TYPE
- R&B
- PUBLIC SD & UTILITY ESMT
- PUBLIC SEWER & UTILITY ESMT
- PUBLIC WATER & UTILITY ESMT
- PUBLIC WATER, SEWER, & UTILITY ESMT
- PRIVATE SWM ESMT
- PRIVATE STORM DRAIN ESMT
- NO WOODY VEGETATION BUFFER
- 20' PUBLIC SD & UTILITY ESMT

*SEE F-06-203 FOR PUBLIC STORM DRAIN DESIGN.
 *SEE 24-4376-D FOR PUBLIC WATER & SEWER DESIGN.

RAMP FROM I-95 SOUTH TO RT. 175
 (VARIABLE WIDTH ROW)
 APPROXIMATE WIDTH ACROSS RT. 175 - 1,800'
 APPROXIMATE WIDTH ACROSS RT. 95 - 700'

APPROVED
 PLANNING BOARD
 of HOWARD COUNTY
 DATE 5/10/07

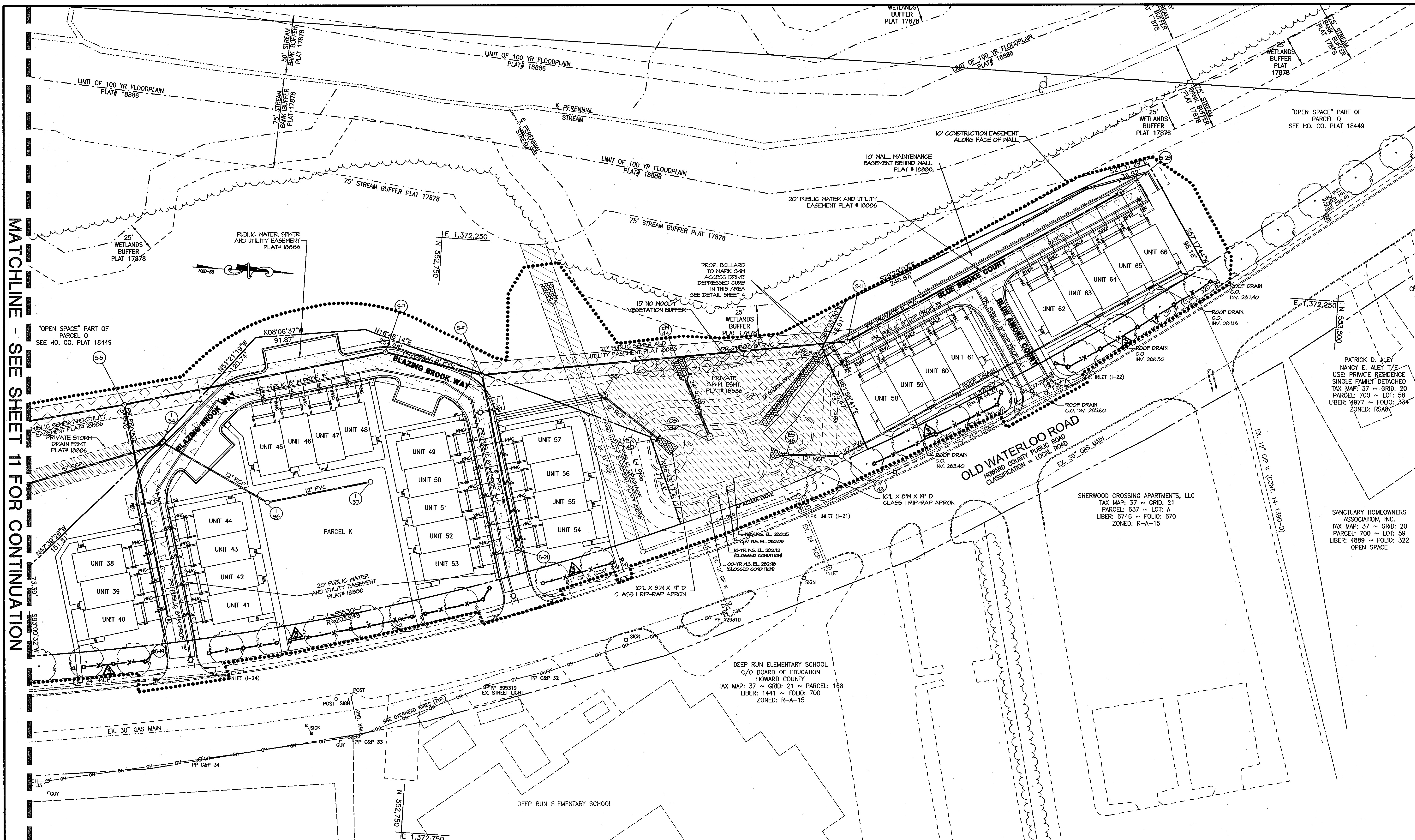
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 [Signature] DATE 4/24/07
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 [Signature] DATE 6/22/07
 CHIEF, DIVISION OF LAND DEVELOPMENT
 [Signature] DATE 6/27/07
 DIRECTOR, DEPARTMENT OF PLANNING AND ZONING

HOWARD COUNTY MARYLAND
 PUBLIC RECREATION
 TAX MAP: 43 ~ GRID: 3 ~ PARCEL: 1
 LIBER: 1158 ~ FOLIO: 416
 ZONED: R-A-15

OWNER/DEVELOPER/APPLICANT
 NAME: MR. BRIAN KNAUFF
 COMPANY: THE RYLAND GROUP
 6011 UNIVERSITY BOULEVARD, SUITE 260
 ELLICOTT CITY, MARYLAND 21043
 PHONE: 410-480-2467
 FAX: 410-480-0543

		MORRIS & RITCHIE ASSOCIATES, INC. ENGINEERS, PLANNERS, SURVEYORS AND LANDSCAPE ARCHITECTS 14280 PARK CENTER DRIVE, SUITE A LAUREL, MARYLAND 20707 (410) 792-9792 or (301) 776-1690 FAX (410) 792-7395	
		SITE DEVELOPMENT PLAN GATEWAY OVERLOOK AT BENSON EAST-OLD WATERLOO ROAD 66 SINGLE FAMILY ATTACHED CONDOMINIUM UNITS UTILITY PLAN LIBER: 9779 ~ FOLIO: 80 ~ PARCEL: 382 ZONED: NT ~ TAX MAPS: 37 & 43 ~ GRIDS: 20, 21 & 2,3 LOTS: J, K & L ~ 6TH ELECTION DISTRICT ~ HOWARD COUNTY, MARYLAND	
DATE	REVISIONS	JOB NO.:	14719
7/2/07	100 REVISION	SCALE:	1"=40'
7/16/08	ADDED ENTRANCE FEATURES	DATE:	4/24/07
		DRAWN BY:	MM/MSP
		DESIGN BY:	KSK
		REVIEW BY:	KSK
		SHEET:	11 OF 33

MATCHLINE - SEE SHEET 11 FOR CONTINUATION



LEGEND

[Symbol]	EX. BUILDING
[Symbol]	EX. CURB
[Symbol]	EX. EASEMENT
[Symbol]	EX. FENCE
[Symbol]	EX. FLOODPLAIN
[Symbol]	EX. GAS
[Symbol]	EX. PAVEMENT
[Symbol]	EX. PROPERTY LINE
[Symbol]	EX. ROAD CENTERLINE
[Symbol]	EX. SANITARY SEWER
[Symbol]	EX. STORM DRAIN
[Symbol]	EX. STREAM
[Symbol]	EX. 75' STREAM BUFFER
[Symbol]	EX. TREE LINE
[Symbol]	EX. WATERLINE
[Symbol]	EX. FIRE HYDRANT
[Symbol]	EX. WETLAND
[Symbol]	EX. WETLAND BUFFER
[Symbol]	PROP. 2025 653BA LINE
[Symbol]	PROP. CENTERLINE OF DRAINAGE SWALE
[Symbol]	PROP. FENCE - SEE DETAIL SHEET 33
[Symbol]	PROP. CURB
[Symbol]	PROP. REVERSE CURB & GUTTER
[Symbol]	PROP. STANDARD CURB & GUTTER
[Symbol]	PROP. TREE LINE
[Symbol]	PROP. LIMIT OF DISTURBANCE
[Symbol]	PROP. PAVEMENT
[Symbol]	PROP. BUILDING SETBACK
[Symbol]	PR. PRIVATE 8" P.V.C.
[Symbol]	PR. PUBLIC 8" P.V.C.
[Symbol]	PR. PRIVATE 8" D.I.P.
[Symbol]	PR. PUBLIC 8" D.I.P.
[Symbol]	PR. PRIVATE 12" SD
[Symbol]	PR. PUBLIC 12" SD
[Symbol]	PROP. PUBLIC SANITARY SEWER LINE
[Symbol]	PROP. PUBLIC WATER LINE
[Symbol]	PROP. PRIVATE STORM DRAIN LINE
[Symbol]	PROP. PUBLIC STORM DRAIN LINE
[Symbol]	PROP. SIMM POND OUTLINE
[Symbol]	PROP. PUBLIC SITE LIGHTING
[Symbol]	PROP. PRIVATE SITE LIGHTING
[Symbol]	SOIL BOUNDARY
[Symbol]	SOIL TYPE
[Symbol]	PUBLIC SD & UTILITY ESMT
[Symbol]	PUBLIC SEWER & UTILITY ESMT
[Symbol]	PUBLIC WATER & UTILITY ESMT
[Symbol]	PUBLIC WATER, SEWER, & UTILITY ESMT
[Symbol]	PRIVATE SWM ESMT
[Symbol]	PRIVATE STORM DRAIN ESMT
[Symbol]	NO WOODY VEGETATION BUFFER
[Symbol]	20' PUBLIC SD & UTILITY ESMT

PATRICK D. ALEY
NANCY E. ALEY T/E
USE: PRIVATE RESIDENCE
SINGLE FAMILY DETACHED
TAX MAP: 37 ~ GRID: 20
PARCEL: 700 ~ LOT: 58
LIBER: 4977 ~ FOLIO: 334
ZONED: RSAB

SHERWOOD CROSSING APARTMENTS, LLC
TAX MAP: 37 ~ GRID: 21
PARCEL: 637 ~ LOT: A
LIBER: 8746 ~ FOLIO: 670
ZONED: R-A-15

DEEP RUN ELEMENTARY SCHOOL
C/O BOARD OF EDUCATION
HOWARD COUNTY
TAX MAP: 37 ~ GRID: 21 ~ PARCEL: 158
LIBER: 1441 ~ FOLIO: 700
ZONED: R-A-15

SANCTUARY HOMEOWNERS ASSOCIATION, INC.
TAX MAP: 37 ~ GRID: 20
PARCEL: 700 ~ LOT: 59
LIBER: 4889 ~ FOLIO: 322
OPEN SPACE

*SEE F-06-203 FOR PUBLIC STORM DRAIN DESIGN.
*SEE 24-4376-D FOR PUBLIC WATER & SEWER DESIGN.

APPROVED
PLANNING BOARD
of HOWARD COUNTY
DATE 5/10/07

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[Signature]
CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE 6/24/07

[Signature]
CHIEF, DIVISION OF LAND DEVELOPMENT
DATE 6/22/07

[Signature]
DIRECTOR, DEPARTMENT OF PLANNING AND ZONING
DATE 6/14/07

MORRIS & RITCHIE ASSOCIATES, INC.
ENGINEERS, PLANNERS, SURVEYORS AND LANDSCAPE ARCHITECTS

14280 PARK CENTER DRIVE, SUITE A
LAUREL, MARYLAND 20707
(410) 792-9792 or (301) 776-1690
FAX (410) 792-7395

SITE DEVELOPMENT PLAN
GATEWAY OVERLOOK AT BENSON EAST-OLD WATERLOO ROAD
66 SINGLE FAMILY ATTACHED CONDOMINIUM UNITS

UTILITY PLAN

LIBER: 9779 ~ FOLIO: 80 ~ PARCEL: 382
ZONED: NT ~ TAX MAPS: 37 & 43 ~ GRIDS: 20, 21 & 23
LOTS: J, K & L ~ 6TH ELECTION DISTRICT ~ HOWARD COUNTY, MARYLAND

DATE	REVISIONS	JOB NO.:
7/16/08	ADDED ENTRANCE FEATURES	14719

OWNER/DEVELOPER/APPLICANT	SCALE: 1"=40'
NAME: MR. BRIAN KNAUFF	DATE: 4/24/07
COMPANY: THE RYLAND GROUP	DRAWN BY: MM/MSP
6011 UNIVERSITY BOULEVARD, SUITE 260	DESIGN BY: KSK
ELLCOTT CITY, MARYLAND 21043	REVIEW BY: KSK
PHONE: 410-480-2467	SHEET: 12 OF 33
FAX: 410-480-0543	

● COORDINATES TO CENTER OF STRUCTURE AT FLOWLINE FOR ALL INLETS & MANHOLES.
 * TOP ELEVATION FOR GRATE INLETS ARE AT CENTER OF STRUCTURE AT FLOWLINE; MANHOLE ELEVATIONS ARE AT CENTER OF RIM; A-5 & A-10 INLET ELEVATIONS ARE AT CENTER OF STRUCTURE AT TOP OF SLAB

PRIVATE STORM DRAIN STRUCTURE SCHEDULE							LOCATION	
STR NO.	* TOP ELEV	INV IN	INV IN	INV OUT	TYPE	REMARKS	NORTHING	EASTING
M-12	285.10	---	282.00	280.60	SHALLOW PRECAST MANHOLE, HOWARD COUNTY STANDARD DETAIL G5.12		552,293.3923	1,372,630.6226
I-14	282.60	278.07	---	277.32	TYPE 'A-10' INLET, HOWARD COUNTY STANDARD DETAIL SD-4.41		552,285.1328	1,372,553.2589
M-16	282.70	274.17	274.82	274.07	STANDARD PRECAST MANHOLE, HOWARD COUNTY STANDARD DETAIL G5.12		552,281.0921	1,372,489.2552
EW-18	275.75	273.00	---	---	TYPE 'A' HEADWALL, HOWARD COUNTY STANDARD DETAIL SD-5.11		552,277.0678	1,372,417.9567
I-20	288.70	---	---	282.30	TYPE 'A-5' INLET, HOWARD COUNTY STANDARD DETAIL SD-4.40		552,036.2736	1,372,536.1069
I-22	288.00	280.00	284.00	279.90	SINGLE WR INLET, HOWARD COUNTY STANDARD DETAIL SD-4.37		552,030.7220	1,372,490.3016
M-24	284.50	278.30	---	278.20	STANDARD PRECAST MANHOLE, HOWARD COUNTY STANDARD DETAIL G5.12		552,036.7216	1,372,465.1894
EW-26	275.00	273.00	---	---	TYPE 'C' ENDWALL, HOWARD COUNTY STANDARD DETAIL SD-5.21		552,135.3223	1,372,413.5917
I-32	280.33	276.91	---	276.81	TYPE 'D' INLET, HOWARD COUNTY STANDARD DETAIL SD-4.39	(1)	552,413.4426	1,372,481.8723
I-34	282.85	279.02	---	278.77	TYPE 'A-5' INLET, HOWARD COUNTY STANDARD DETAIL SD-4.40		553,529.2461	1,372,437.2989
I-36	284.00	281.14	---	281.04	YARD INLET, HOWARD COUNTY STANDARD DETAIL SD-4.14		552,619.7583	1,372,481.9126
I-37	285.50	---	---	281.58	YARD INLET, HOWARD COUNTY STANDARD DETAIL SD-4.14		552,704.33	1,372,458.82
I-38	283.85	---	---	281.14	TYPE 'S' INLET, HOWARD COUNTY STANDARD DETAIL SD-4.22		552,893.6708	1,372,373.9199
EW-40	282.00	280.00	---	---	TYPE 'C' ENDWALL, HOWARD COUNTY STANDARD DETAIL SD-5.21		552,940.7608	1,372,405.6561
ES-46	---	280.00	---	---	CONCRETE END SECTION, STANDARD DETAIL 5.51		552,940.7608	1,372,405.6561
I-48	284.50	281.30	---	281.10	YARD INLET, HOWARD COUNTY STANDARD DETAIL SD-4.14		552,940.7608	1,372,405.6561

(1) THROAT OPENING AT ELEVATION 279.50 (INSTALL IN SUMP)

CONTROLLED AND COMPACTED FILL PER AASHTO T-180, TO BE CERTIFIED BY AN APPROVED ON-SITE GEOTECHNICAL ENGINEER

COMPACTED SPECIFICATIONS FOR UTILITIES IN FILL

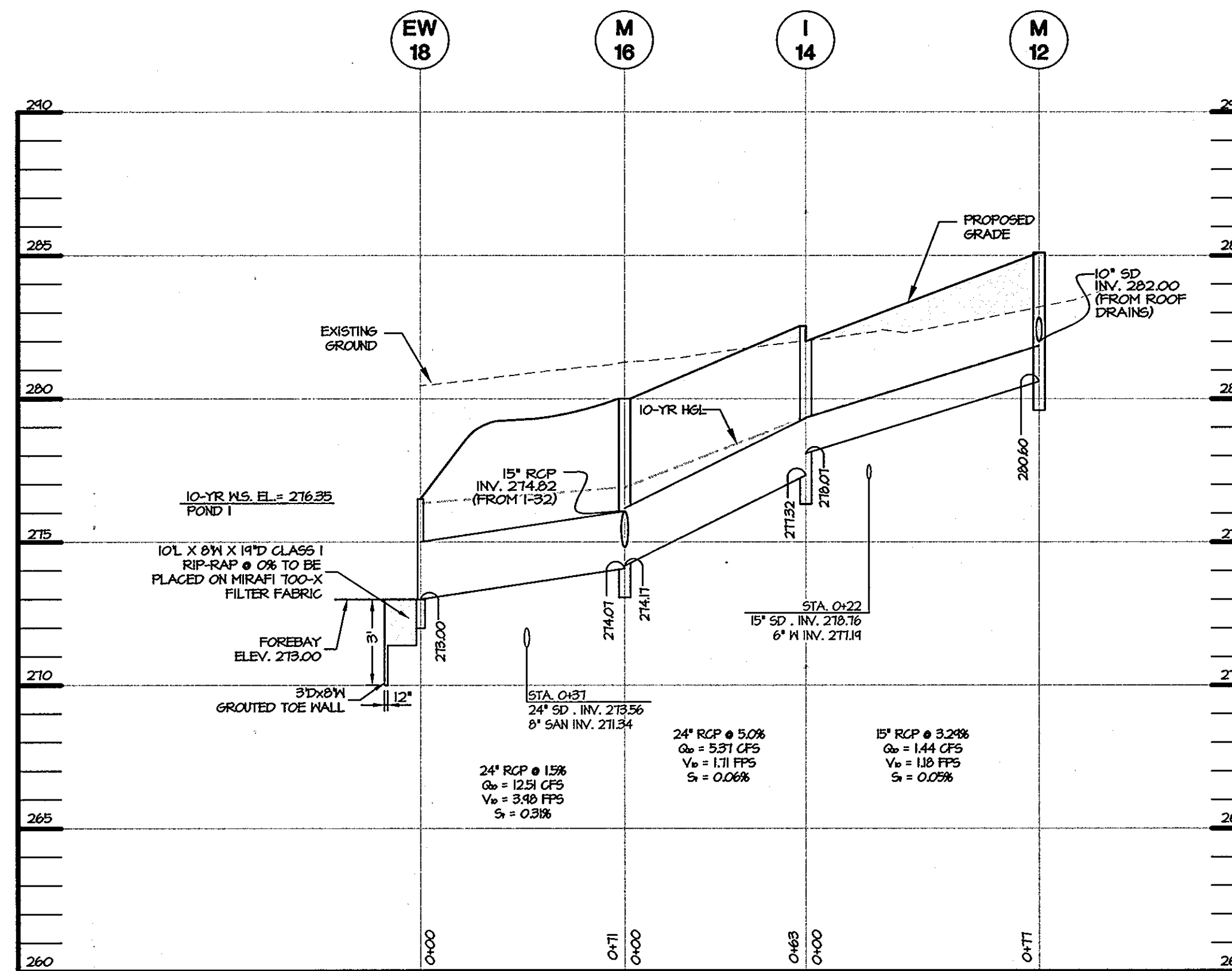
WHERE UTILITY PIPES ARE TO BE PLACED ON COMPACTED FILL, THE FOLLOWING APPLIES:

- A. PRIOR TO PLACEMENT OF COMPACTED FILL, ANY SOFT OR OTHERWISE UNSUITABLE SOILS ENCOUNTERED AT THE EXISTING RAINE BOTTOM OR SLOPE, SHALL BE UNDERCUT AND REMOVED FROM THE CONSTRUCTION AREA.
- B. ACCEPTABLE COMPACTED FILL SHALL BE PLACED IN SIX INCH THICK LOOSE LIFTS AND COMPACTED TO AT LEAST 98 PERCENT OF THE MAXIMUM DENSITY AS DETERMINED BY A.A.S.H.T.O. METHOD T-180.
- C. THE COMPACTED FILL SHALL BE BENCHED INTO THE EXISTING VIRGIN SLOPES WITH EACH LIFT PLACED TO A SMOOTH TRANSITION FROM VIRGIN TO FILL SOILS.

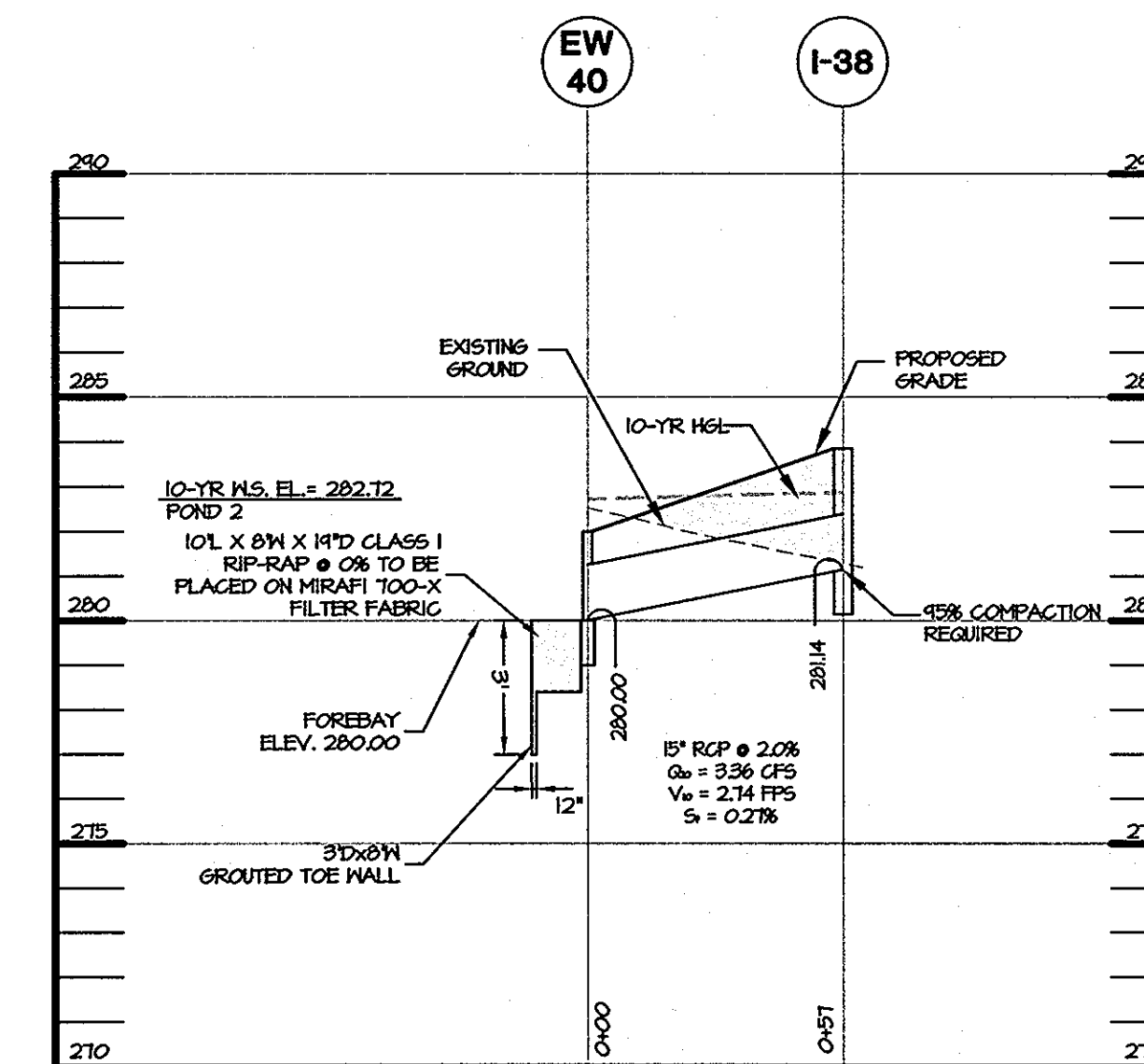
SIZE	TYPE	LENGTH
12"	RCP, CL. IV	146 FT
15"	RCP, CL. IV	580 FT
24"	RCP, CL. IV	134 FT
10"	PVC, SCHED. 40	1,254 FT (ROOF DRAINS***)

*SEE SHEETS 18-21 FOR SHM POND OUTFALL PROFILES AND STRUCTURE SCHEDULE.
 **SEE F-06-203 FOR PUBLIC STORM DRAIN DESIGN.

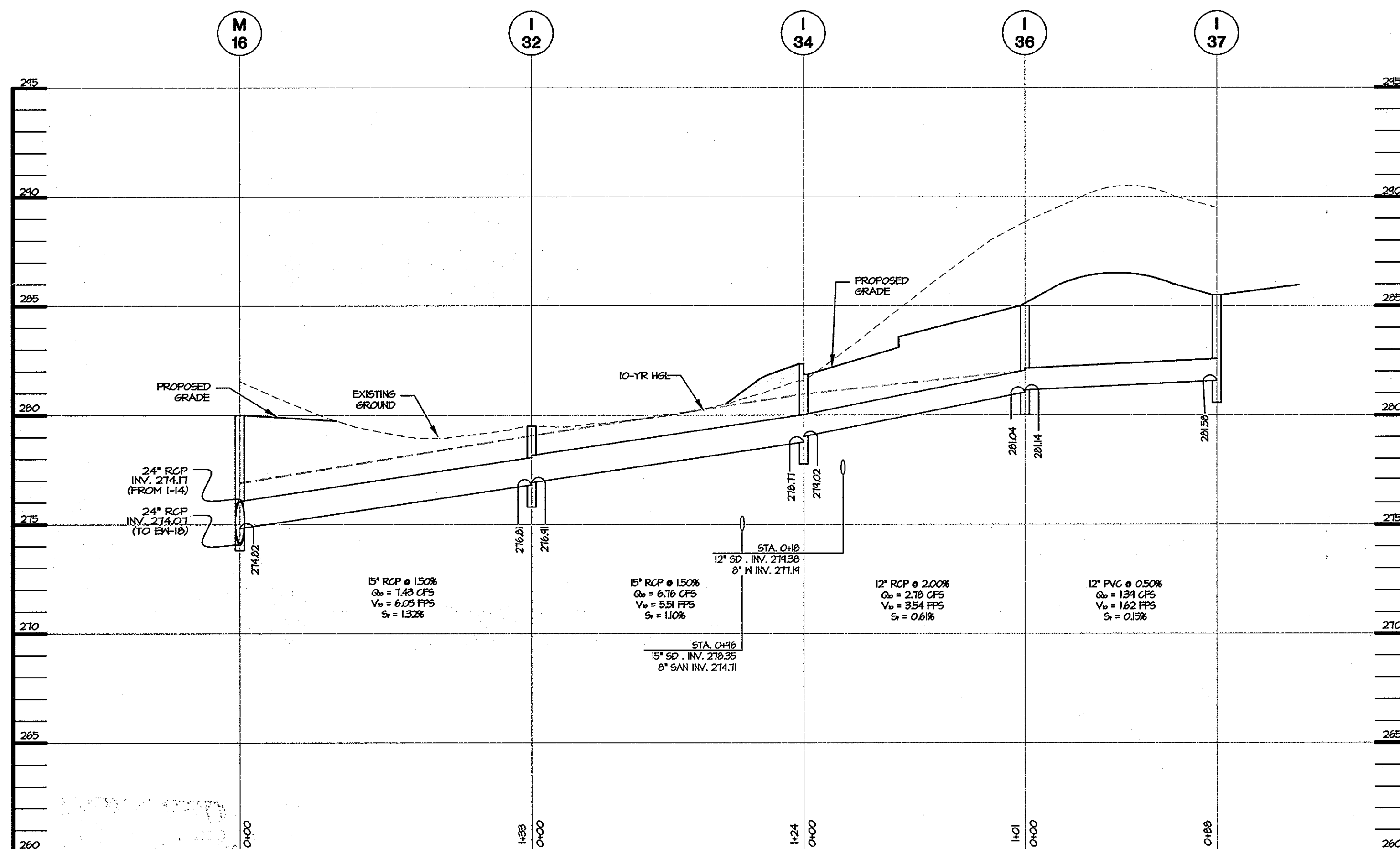
- *** ROOF DRAINS
 - CONTRACTOR TO INSTALL 10"x4" TEES AND 4" PVC LATERALS TO DOWNSPOUTS AT UNITS 1-9, 18-37, & 58-66.
 - CLEANOUTS PER STANDARD DETAIL S-2.22 MODIFIED FOR 10" PVC
 - TRAFFIC BEARING CLEANOUT COVER FOR CLEANOUTS IN PAVED AREAS.



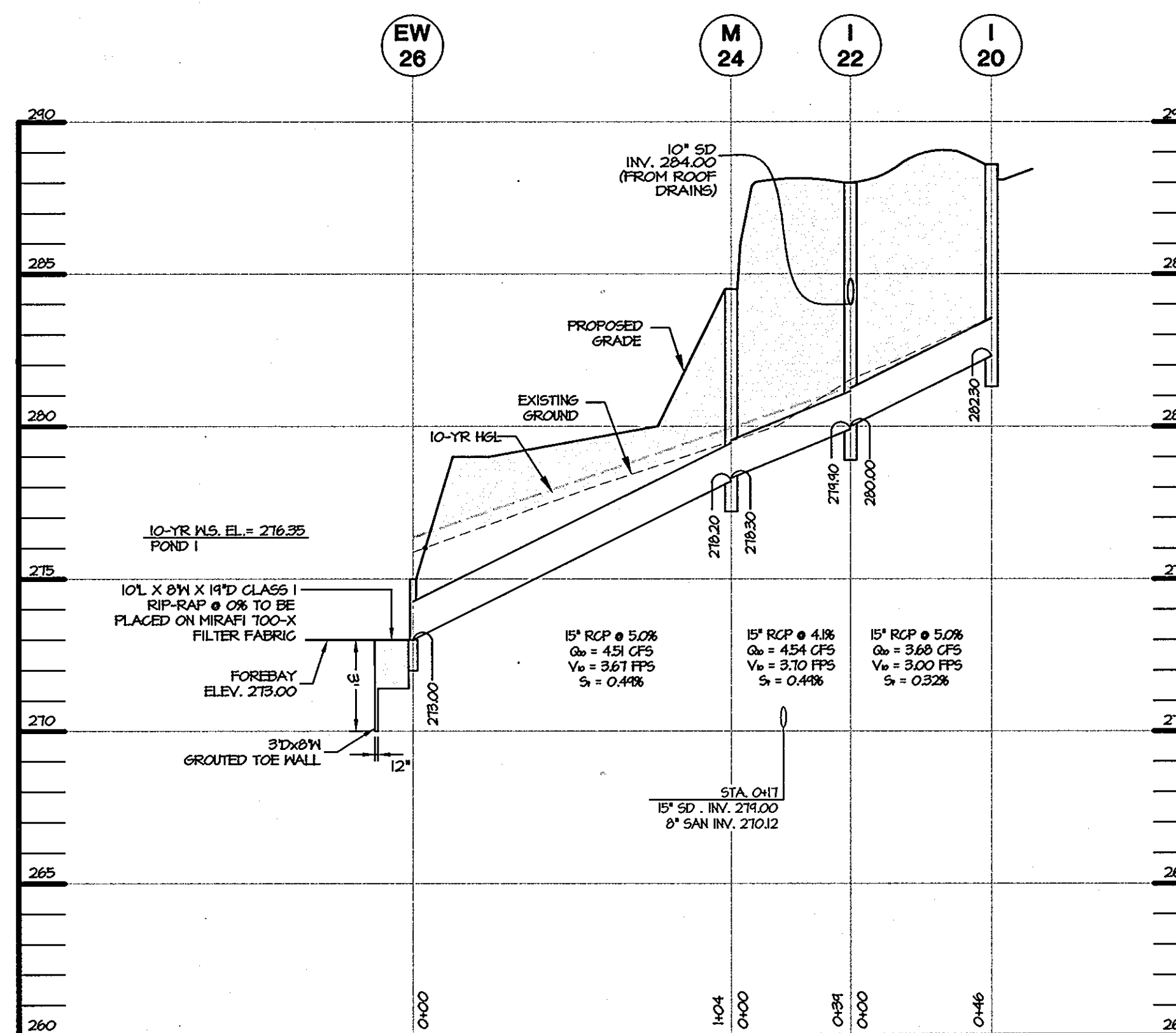
STORM DRAIN PROFILE (PRIVATE)
 EW-18 TO M-12
 HOR. 1" = 40'
 VERT. 1" = 4'



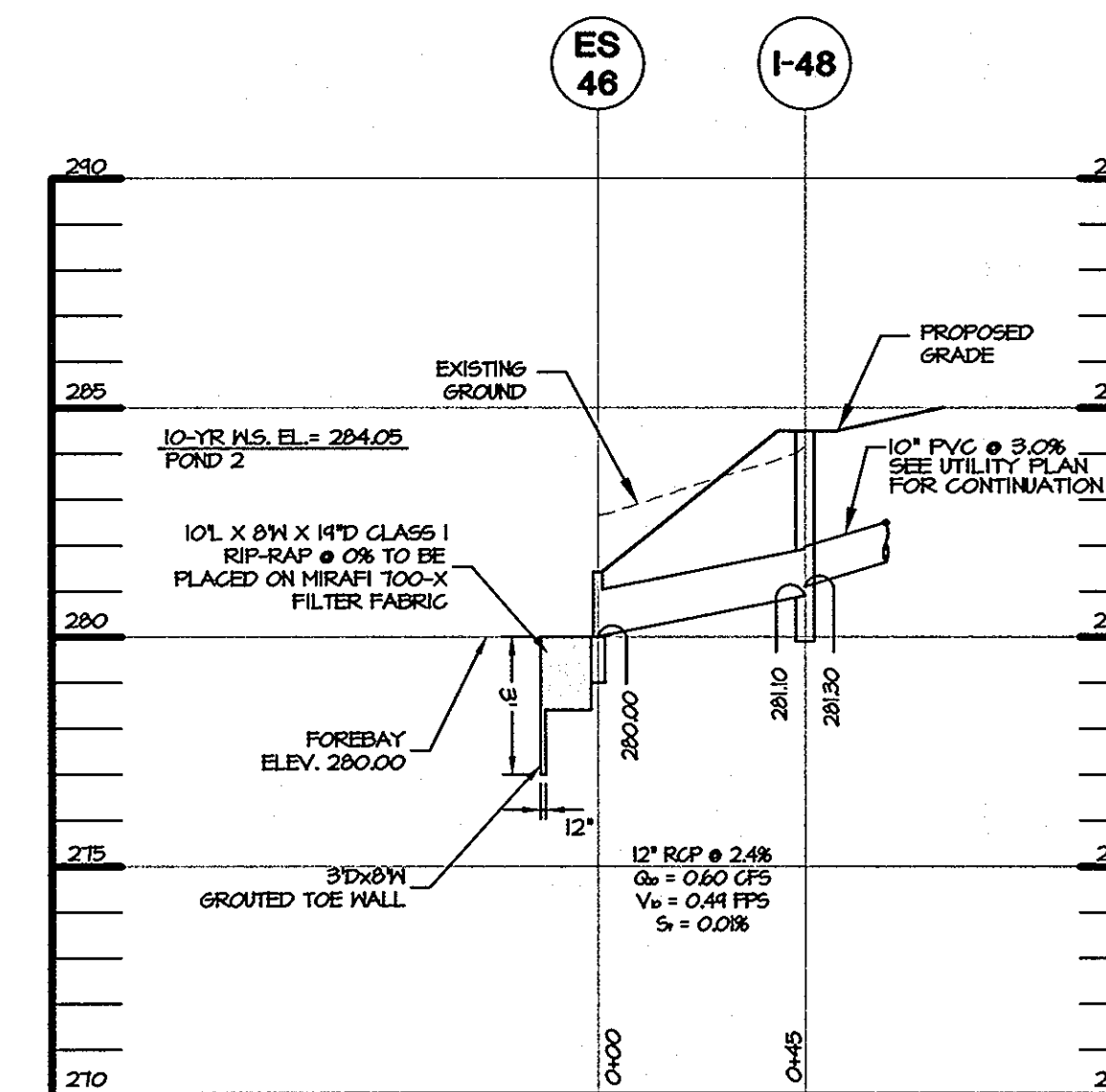
STORM DRAIN PROFILE (PRIVATE)
 EW-40 TO I-38
 HOR. 1" = 40'
 VERT. 1" = 4'



STORM DRAIN PROFILE (PRIVATE)
 M-16 TO I-37
 HOR. 1" = 40'
 VERT. 1" = 4'



STORM DRAIN PROFILE (PRIVATE)
 EW-26 TO I-20
 HOR. 1" = 40'
 VERT. 1" = 4'



STORM DRAIN PROFILE (PRIVATE)
 ES-46 TO I-48
 HOR. 1" = 40'
 VERT. 1" = 4'

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 Chief, Development Engineering Division
 Chief, Division of Land Development
 Director, Department of Planning and Zoning

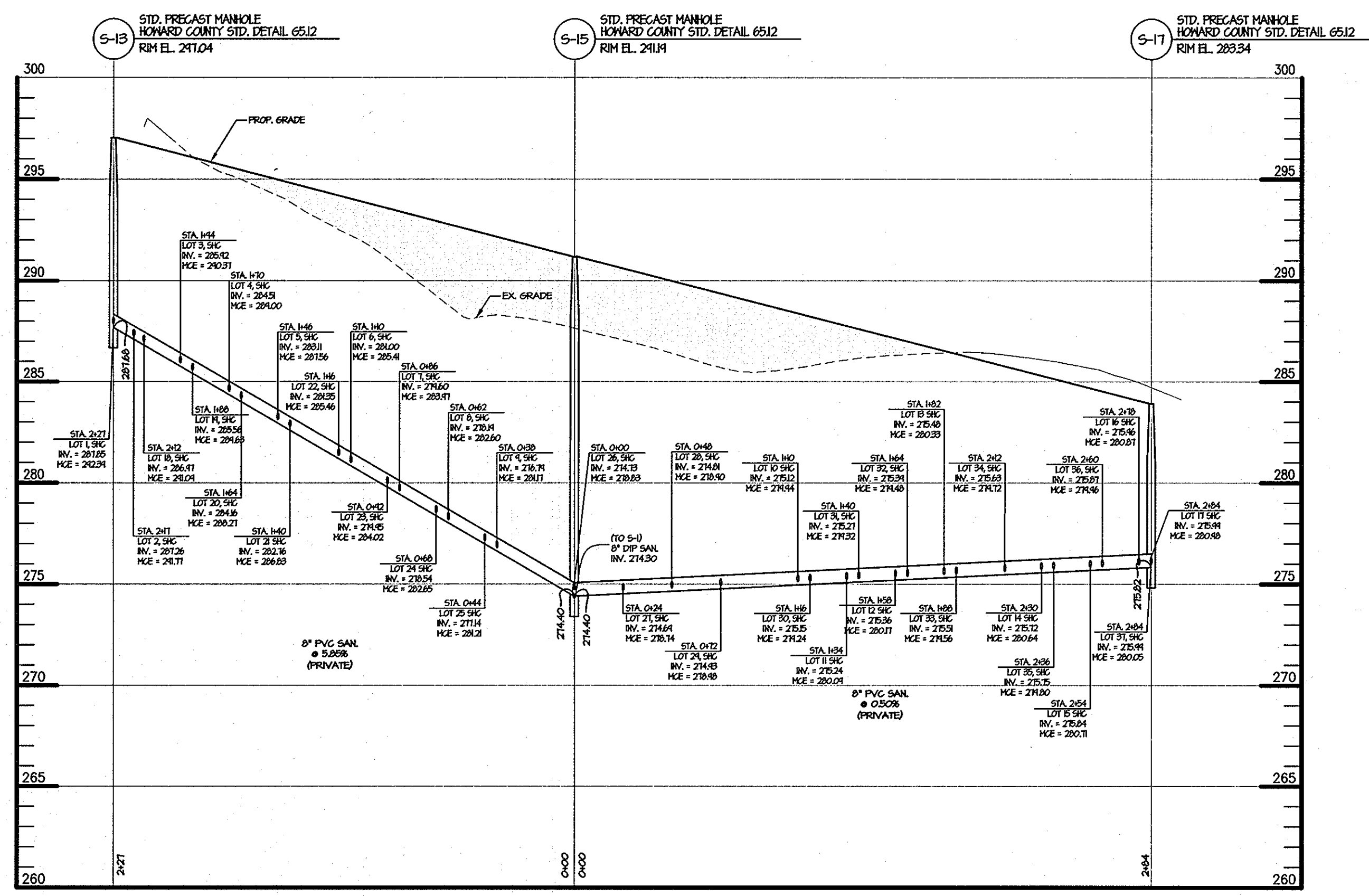
APPROVED
 PLANNING BOARD
 of HOWARD COUNTY
 DATE 5/10/07

OWNER/DEVELOPER/APPLICANT
 NAME: MR. BRIAN KNAUFF
 COMPANY: THE RYLAND GROUP
 6011 UNIVERSITY BOULEVARD, SUITE 260
 ELLICOTT CITY, MARYLAND 21043
 PHONE: 410-480-2467
 FAX: 410-480-0543

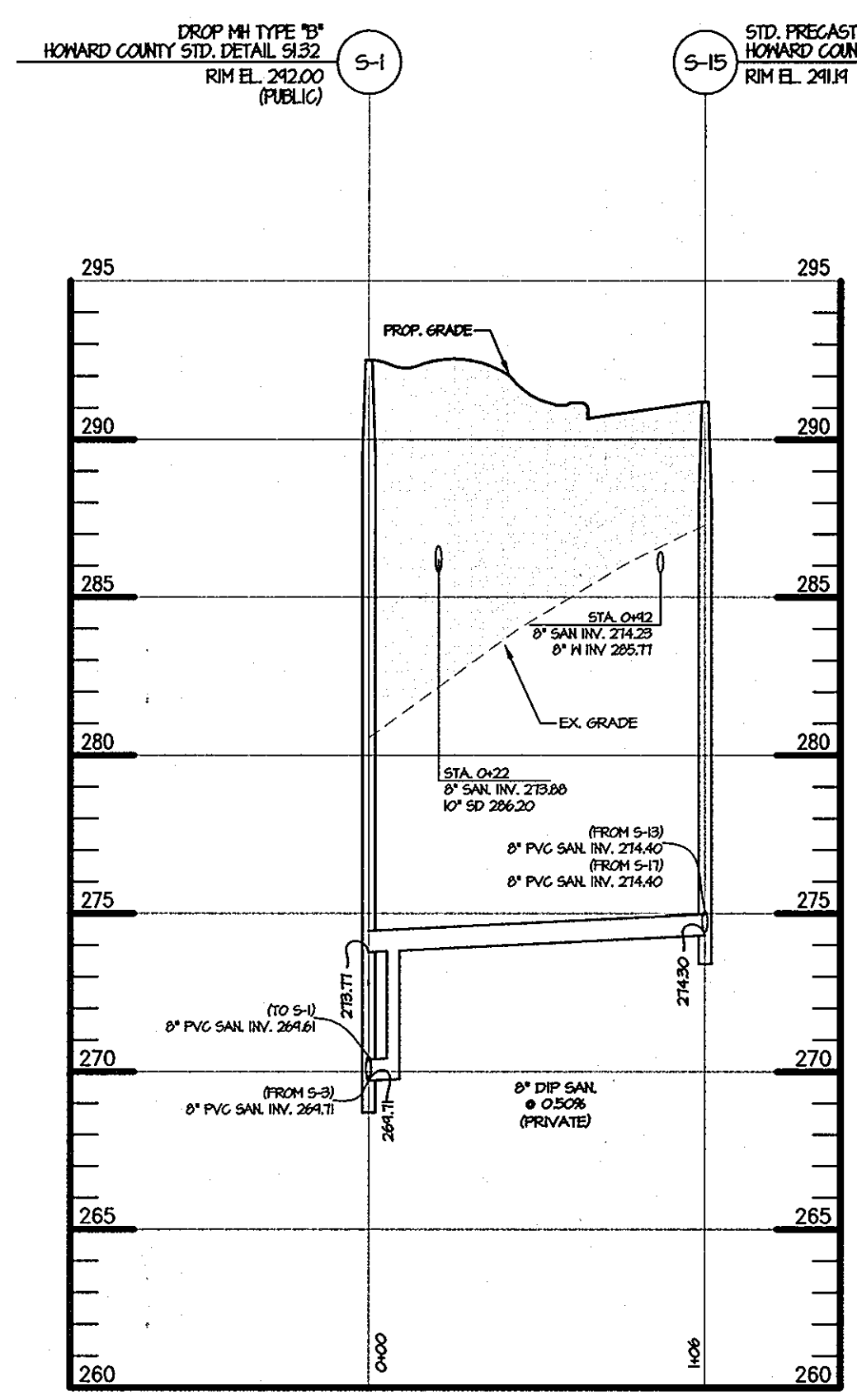
MRA
MORRIS & RITCHIE ASSOCIATES, INC.
 ENGINEERS, PLANNERS, SURVEYORS AND LANDSCAPE ARCHITECTS
 14280 PARK CENTER DRIVE, SUITE A
 LAUREL, MARYLAND 20707
 (410) 792-9792 or (301) 776-1690
 FAX (410) 792-7395

SITE DEVELOPMENT PLAN
 GATEWAY OVERLOOK AT BENSON EAST-OLD WATERLOO ROAD
 66 SINGLE FAMILY ATTACHED CONDOMINIUM UNITS
STORM DRAIN PROFILES
 LIBER: 9779 ~ FOLIO: 80 ~ PARCEL: 382
 ZONED: NT ~ TAX MAPS: 37 & 43 ~ GRIDS: 20, 21 & 23
 LOTS: J, K & L ~ 6TH ELECTION DISTRICT ~ HOWARD COUNTY, MARYLAND

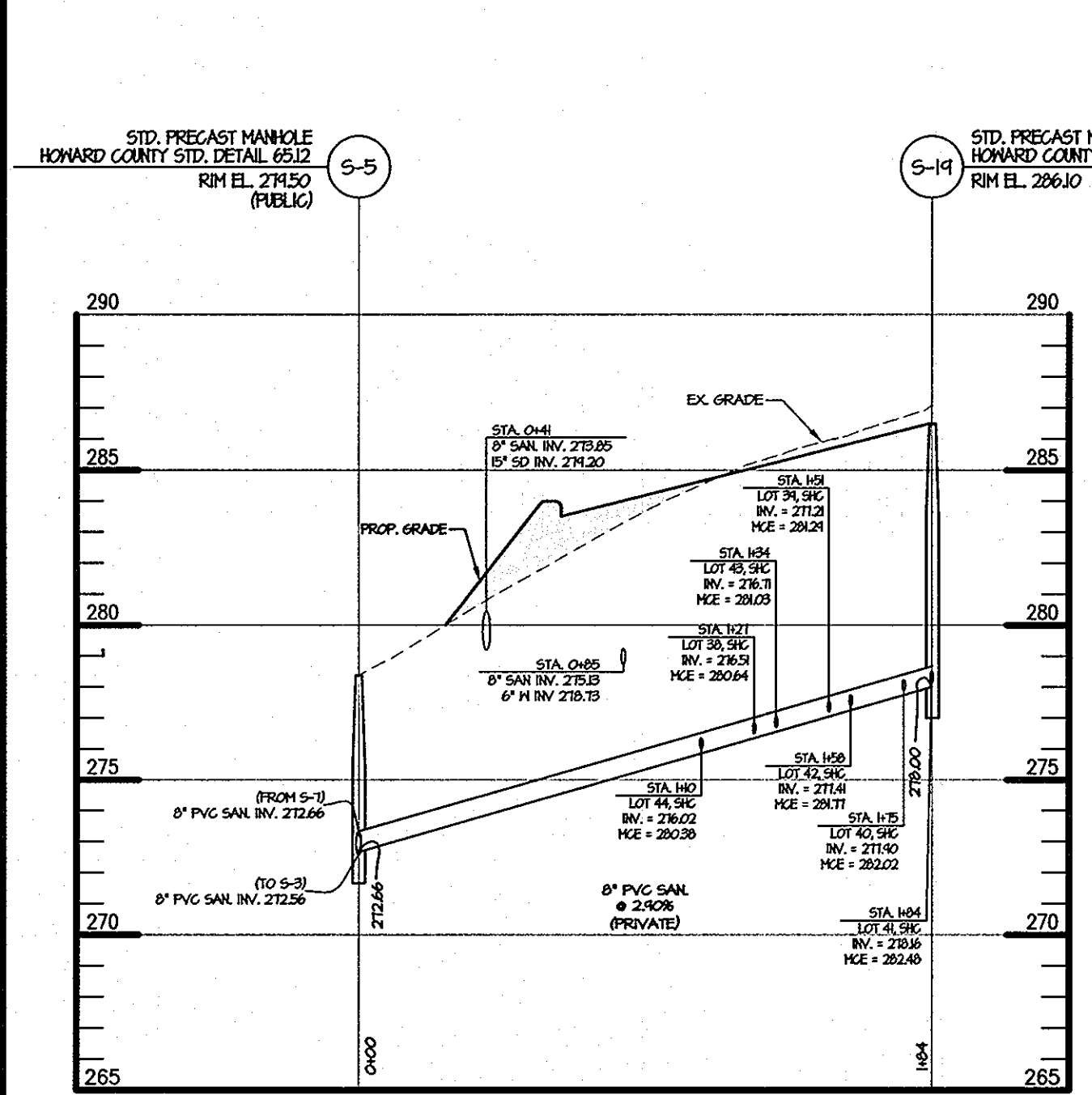
DATE	REVISIONS	JOB NO.	SCALE:
		14719	AS SHOWN
			DATE: 4/24/07
			DRAWN BY: MSP
			DESIGN BY: KSK
			REVIEW BY: KSK
			SHEET: 13 OF 33



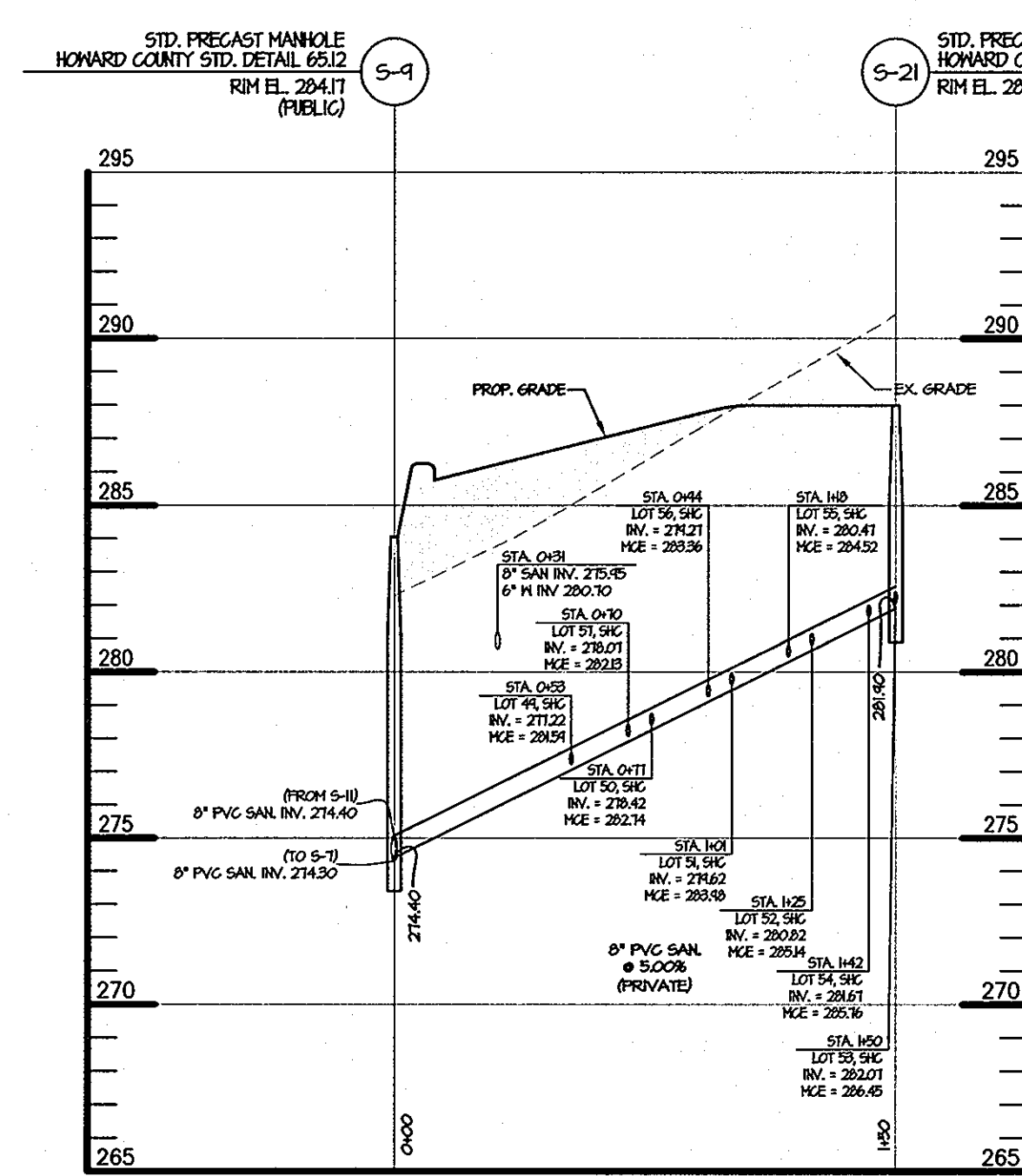
**SANITARY PROFILE (PRIVATE)
FROM S-13 TO S-17**
SCALE: HOR. 1" = 50'
VERT. 1" = 5'



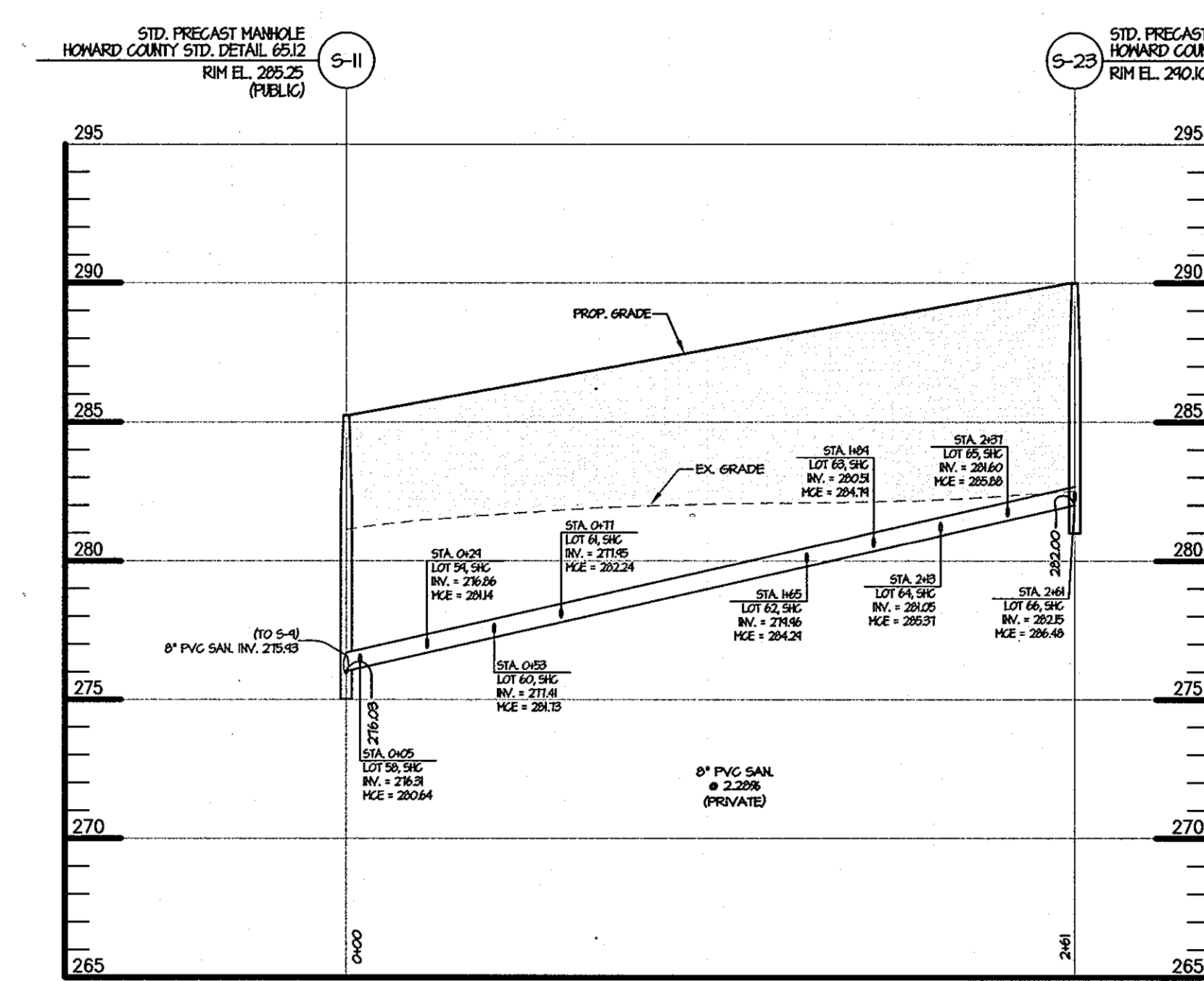
**SANITARY PROFILE (PRIVATE)
FROM S-1 TO S-15**
SCALE: HOR. 1" = 50'
VERT. 1" = 5'



**SANITARY PROFILE (PRIVATE)
FROM S-5 TO S-19**
SCALE: HOR. 1" = 50'
VERT. 1" = 5'



**SANITARY PROFILE (PRIVATE)
FROM S-9 TO S-21**
SCALE: HOR. 1" = 50'
VERT. 1" = 5'



**SANITARY PROFILE (PRIVATE)
FROM S-11 TO S-23**
SCALE: HOR. 1" = 50'
VERT. 1" = 5'

SANITARY SEWER PIPE SCHEDULE (PRIVATE)*

SIZE	TYPE	LENGTH
8"	PVC (SDR-35)	1,106 FT
8"	DIP (CLASS 50)	106 FT
4"	PVC (SDR-35)	1,071 FT

SANITARY SEWER STRUCTURE SCHEDULE (PRIVATE)*

STR. NO.	TOP ELEV.	INV. IN	INV. IN	INV. OUT	TYPE	REMARKS	NORTHING	EASTING
SMH-13	297.04	---	---	287.68	H.C. STD. DETAIL GS.12	STANDARD PRECAST MH	551,733.793	1,372,591.682
SMH-15	291.19	274.40	274.40	274.30	H.C. STD. DETAIL GS.12	STANDARD PRECAST MH	551,960.381	1,372,579.059
SMH-17	283.34	---	---	275.82	H.C. STD. DETAIL GS.12	STANDARD PRECAST MH	552,243.942	1,372,563.284
SMH-19	286.10	---	---	278.00	H.C. STD. DETAIL GS.12	STANDARD PRECAST MH	552,543.932	1,372,585.836
SMH-21	287.85	---	---	281.90	H.C. STD. DETAIL GS.12	STANDARD PRECAST MH	552,830.936	1,372,507.547
SMH-23	290.10	---	---	282.00	H.C. STD. DETAIL GS.12	STANDARD PRECAST MH	553,313.128	1,372,174.068

* FOR PUBLIC STRUCTURE & PIPE SCHEDULE, SEE WATER AND SEWER PLANS CONTRACT NUMBER: 24-4376-D • COORDINATES TO CENTERLINE OF STRUCTURE

SANITARY SEWER CLEAN-OUT CHART

UNIT NO.	STATION	4" INVERT	LENGTH TO CLEANOUT (B)	SLOPE OF SERVICE	CLEANOUT INVERT	TOP C/O ELEV.	MIN. CELLAR ELEVATION (MCE)
S-13 TO S-15							
1	2+27	287.85	29'	2.00%	288.43	298.00	292.39
2	2+17	287.26	22'	2.00%	287.70	297.26	291.77
3	1+94	285.92	22'	2.00%	286.36	296.56	290.37
4	1+70	284.51	22'	2.00%	284.95	295.84	289.00
5	1+46	283.11	22'	2.00%	283.55	295.14	287.56
6	1+10	281.00	22'	2.00%	281.44	294.02	285.41
7	0+86	279.60	22'	2.00%	280.04	294.34	283.97
8	0+62	278.19	22'	2.00%	278.63	292.58	282.60
9	0+38	276.79	22'	2.00%	277.23	291.88	281.17
18	2+12	286.97	8'	2.00%	287.13	297.15	291.09
19	1+88	285.56	8'	2.00%	285.72	296.69	289.63
20	1+64	284.16	8'	2.00%	284.32	295.90	288.27
21	1+40	282.76	8'	2.00%	282.92	295.27	286.83
22	1+16	281.35	8'	2.00%	281.51	294.66	285.46
23	0+92	279.95	8'	2.00%	280.11	293.96	284.02
24	0+68	278.54	8'	2.00%	278.70	293.22	282.65
25	0+44	277.14	8'	2.00%	277.30	292.60	281.21
S-15 TO S-17							
10	1+10	275.12	22'	2.00%	275.56	287.95	279.94
11	1+34	275.24	22'	2.00%	275.68	287.24	280.09
12	1+58	275.36	22'	2.00%	275.80	286.60	280.17
13	1+82	275.48	22'	2.00%	275.92	285.95	280.33
14	2+30	275.72	22'	2.00%	276.16	284.80	280.64
15	2+54	275.84	22'	2.00%	276.28	284.00	280.71
16	2+78	275.96	22'	2.00%	276.40	283.48	280.87
17	2+84	275.99	24'	2.00%	276.47	282.80	280.98
26	0+00	274.73	8'	2.00%	274.89	291.34	278.83
27	0+24	274.69	8'	2.00%	274.85	290.68	278.74
28	0+48	274.81	8'	2.00%	274.97	289.99	278.90
29	0+72	274.93	8'	2.00%	275.09	289.51	278.98
30	1+16	275.15	8'	2.00%	275.31	288.15	279.24
31	1+40	275.27	8'	2.00%	275.43	287.58	279.32
32	1+64	275.39	8'	2.00%	275.55	286.94	279.48
33	1+88	275.51	8'	2.00%	275.67	286.15	279.56
34	2+12	275.63	8'	2.00%	275.79	285.49	279.72
35	2+36	275.75	8'	2.00%	275.91	284.85	279.80
36	2+60	275.87	8'	2.00%	276.03	284.18	279.96
37	2+84	275.99	8'	2.00%	276.15	283.54	280.05
S-5 TO S-19							
44	1+10	276.02	21'	2.00%	276.44	284.75	280.38
38	1+27	276.51	9'	2.00%	276.69	284.82	280.64
43	1+34	276.71	21'	2.00%	277.13	285.34	281.03
39	1+51	277.21	9'	2.00%	277.39	285.46	281.29
42	1+58	277.41	21'	2.00%	277.83	285.90	281.77
40	1+75	277.90	9'	2.00%	278.08	286.00	282.02
41	1+84	278.16	21'	2.00%	278.58	286.73	282.48
S-8 TO S-21							
49	0+53	277.22	22'	2.00%	277.66	285.91	281.59
57	0+70	278.07	8'	2.00%	278.23	286.81	282.13
50	0+77	278.42	22'	2.00%	278.86	286.57	282.74
56	0+94	279.27	8'	2.00%	279.43	286.60	283.35
51	1+01	279.62	22'	2.00%	280.06	287.23	283.98
55	1+18	280.47	8'	2.00%	280.63	287.28	284.52
52	1+25	280.82	22'	2.00%	281.26	287.90	285.14
54	1+42	281.67	8'	2.00%	281.83	287.85	285.76
53	1+50	282.07	22'	2.00%	282.51	288.55	286.45
S-11 TO S-23							
58	0+05	276.31	20'	2.00%	276.71	285.88	280.64
59	0+29	276.86	20'	2.00%	277.26	286.00	281.14
60	0+53	277.41	20'	2.00%	277.81	286.38	281.73
61	0+77	277.95	20'	2.00%	278.35	286.94	282.24
62	1+01	278.49	20'	2.00%	278.89	287.23	282.29
63	1+25	279.03	20'	2.00%	279.43	287.90	282.79
64	2+13	281.05	20'	2.00%	281.45	289.80	285.37
65	2+37	281.60	20'	2.00%	282.00	290.30	285.88
66	2+61	282.15	20'	2.00%	282.55	290.70	286.48

* SHOWN ON PROFILE VIEW
NOTE: FOR UNITS 45-48, SEE CONTRACT NO. 24-4376-D FOR SANITARY SEWER HOUSE CONNECTION DATA.

CONTROLLED AND 95% COMPACTED FILL PER AASHTO T-180, TO BE CERTIFIED BY AN APPROVED ON-SITE GEOTECHNICAL ENGINEER
COMPACTED SPECIFICATIONS FOR UTILITIES IN FILL
WHERE UTILITY PIPES ARE TO BE PLACED ON COMPACTED FILL, THE FOLLOWING APPLIES:
A. PRIOR TO PLACEMENT OF COMPACTED FILL, ANY SOFT OR OTHERWISE UNSUITABLE SOILS ENCOUNTERED AT THE EXISTING RAVIDE BOTTOM OR SLOPE, SHALL BE UNDERCUT AND REMOVED FROM THE CONSTRUCTION AREA.
B. ACCEPTABLE COMPACTED FILL SHALL BE PLACED IN SIX INCH THICK LOOSE LIFTS AND COMPACTED TO AT LEAST 95 PERCENT OF THE MAXIMUM DENSITY AS DETERMINED BY AASHTO METHOD T-180.
C. THE COMPACTED FILL SHALL BE BENCHED INTO THE EXISTING VIRGIN SLOPES WITH EACH LIFT PLACED TO A SMOOTH TRANSITION FROM VIRGIN TO FILL SOILS.

APPROVED
PLANNING BOARD
OF HOWARD COUNTY
DATE 5/10/07

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
CHIEF, DEVELOPMENT ENGINEERING DIVISION
CHIEF, DIVISION OF LAND DEVELOPMENT
DIRECTOR, DEPARTMENT OF PLANNING AND ZONING

- GENERAL NOTES**
- CONTRACTOR TO FIELD VERIFY ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION.
 - CONTRACTOR TO TEST PIT TO DETERMINE EXACT DEPTH, LOCATION AND SIZE FOR ALL PROPOSED UTILITY CROSSINGS WITH EXISTING UTILITIES.
 - ALL EXISTING VALVES TO BE RAISED TO PROPOSED GRADE, BY CONTRACTOR, AS NEEDED.
 - THIS PLAN ASSUMES DEMOLITION/RELOCATION OF EXISTING UTILITIES, PAVING, STREET SIGNS, CURBSETS, ETC. WITHIN THE AREA OF R/W IMPROVEMENTS HAS ALREADY BEEN PERFORMED.
 - SEE PUBLIC ROAD & STORM DRAIN PLANS FOR R/W IMPROVEMENTS.
 - SEE CONTRACT NO. 24-4376-D FOR CONTINUATION OF PRIVATE WATER & SEWER.
 - ALL SEWER HOUSE CONNECTIONS SHALL BE IN ACCORDANCE WITH HOWARD COUNTY STANDARD DETAILS S2.11 & S2.22.
 - TRAFFIC BEARING CLEANOUTS SHALL BE PER HOWARD COUNTY STANDARD DETAIL S3.21 ARE TO BE USED FOR CLEANOUTS LOCATED IN PAVED AREAS.

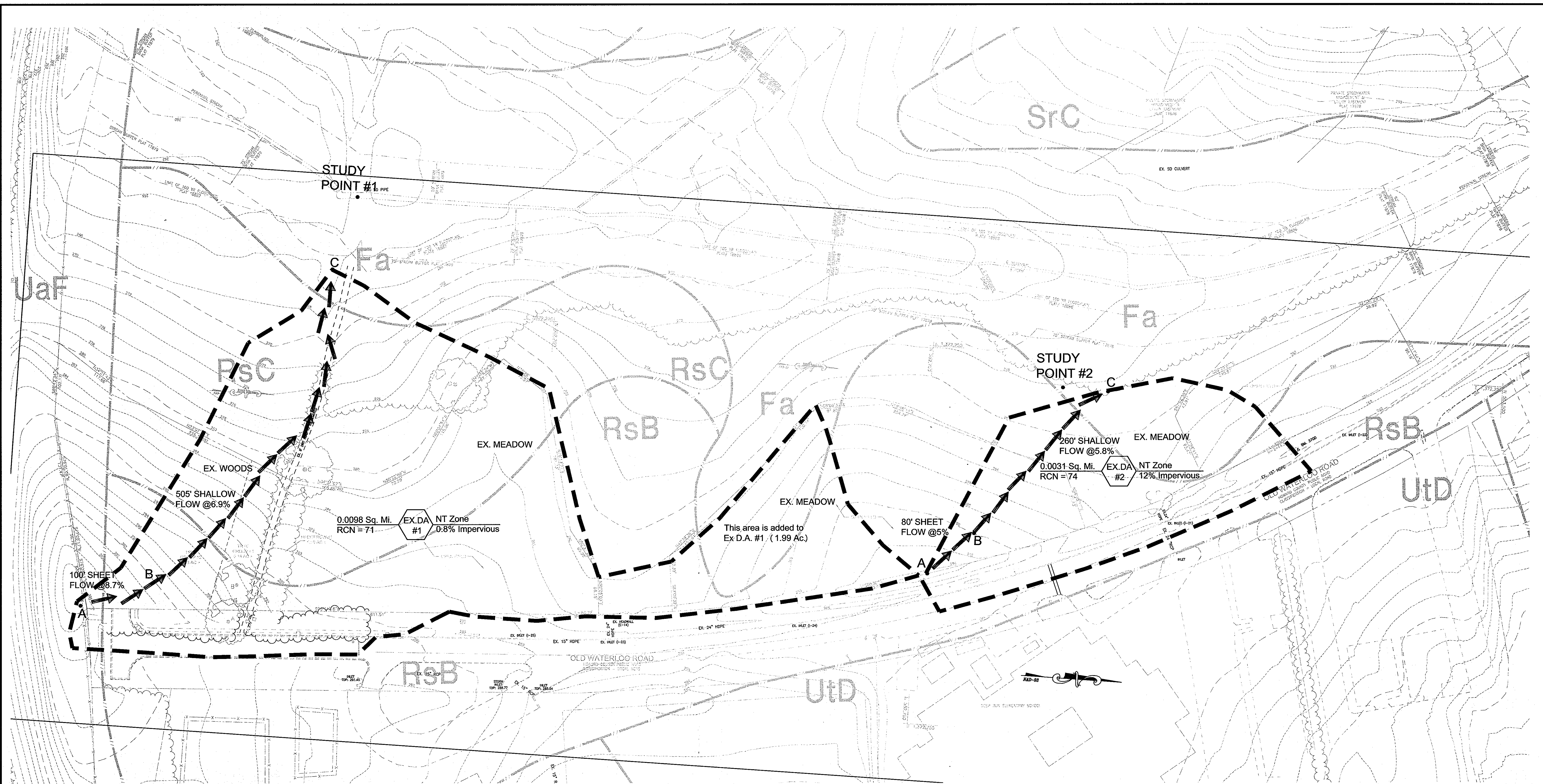
OWNER/DEVELOPER/APPLICANT
NAME: MR. BRIAN KNAUFF
COMPANY: THE RYLAND GROUP
6011 UNIVERSITY BOULEVARD, SUITE 260
ELLCOTT CITY, MARYLAND 21043
PHONE: 410-480-2467
FAX: 410-480-0543

MRA
MORRIS & RITCHIE ASSOCIATES, INC.
ENGINEERS, PLANNERS, SURVEYORS AND LANDSCAPE ARCHITECTS
14280 PARK CENTER DRIVE, SUITE A
LAUREL, MARYLAND 20707
(410) 792-9792 or (301) 776-1690
FAX (410) 792-7395

SITE DEVELOPMENT PLAN
GATEWAY OVERLOOK AT BENSON EAST-OLD WATERLOO ROAD
66 SINGLE FAMILY ATTACHED CONDOMINIUM UNITS

SEWER PROFILES
LIBER: 9779 ~ FOLIO: 80 ~ PARCEL: 382
ZONED: NT ~ TAX MAPS: 37 & 43 ~ GRIDS: 20, 21 & 23
LOTS: J, K & L ~ 6TH ELECTION DISTRICT ~ HOWARD COUNTY, MARYLAND

DATE	REVISIONS	JOB NO.:	SCALE:
		14719	AS SHOWN
			4/24/07
			DRAWN BY: MSP
			DESIGN BY: KSK
			REVIEW BY: KSK
			SHEET: 14 OF 33



EXISTING DRAINAGE AREA MAP

SCALE: 1"=60'

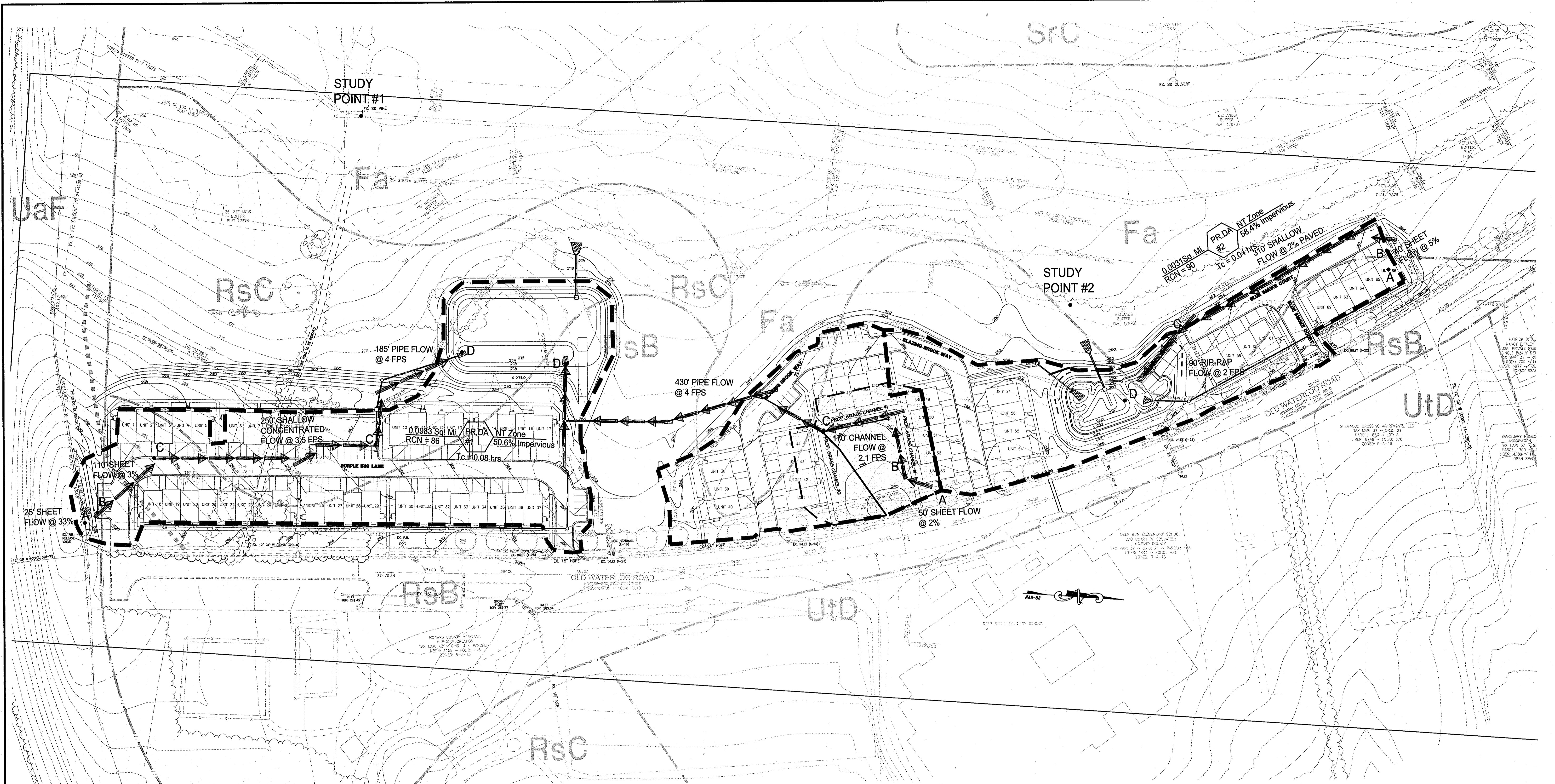
SOILS LEGEND		
SYMBOL	NAME/DESCRIPTION	SOIL TYPE
Rsb	RUSSETT, FINE SANDY LOAM, 2-5% SLOPES	C
Fa	FALLSINGTON, SANDY LOAM, 0-2% SLOPES	C
Rsc	RUSSETT, FINE SANDY LOAM, 5-10% SLOPES	C
Utd	URBAN LAND, UDORTHERNTS COMPLEX, 0-15% SLOPES	C
Uaf	UDORTHERNTS, HIGHWAY 0-85% SLOPES	C

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
[Signature]
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE: 10/21/07
[Signature]
 CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE: 9/23/07
[Signature]
 DIRECTOR, DEPARTMENT OF PLANNING AND ZONING
 DATE: 9/15/07

APPROVED
 PLANNING BOARD
 of HOWARD COUNTY
 DATE: 5/10/07

OWNER/DEVELOPER/APPLICANT
 NAME: MR. BRIAN KNAUFF
 COMPANY: THE RYLAND GROUP
 6011 UNIVERSITY BOULEVARD, SUITE 260
 ELLICOTT CITY, MARYLAND 21043
 PHONE: 410-480-2467
 FAX: 410-480-0543

	MORRIS & RITCHIE ASSOCIATES, INC. ENGINEERS, PLANNERS, SURVEYORS AND LANDSCAPE ARCHITECTS 14280 PARK CENTER DRIVE, SUITE A LAUREL, MARYLAND 20707 (410) 792-9792 or (301) 776-1690 FAX (410) 792-7395	
	SITE DEVELOPMENT PLAN GATEWAY OVERLOOK AT BENSON EAST-OLD WATERLOO ROAD 66 SINGLE FAMILY ATTACHED CONDOMINIUM UNITS EXISTING DRAINAGE AREA MAP LIBER: 9779 ~ FOLIO: 80 ~ PARCEL: 382 ZONED: NT ~ TAX MAPS: 37 & 43 ~ GRIDS: 20, 21 & 23 LOTS: J, K & L ~ 6TH ELECTION DISTRICT ~ HOWARD COUNTY, MARYLAND	
DATE: 4/24/07	REVISIONS:	JOB NO.: 14719 SCALE: 1"=60' DATE: 4/24/07 DRAWN BY: MM DESIGN BY: MM REVIEW BY: KSK SHEET: 15 OF 33



PROPOSED DRAINAGE AREA MAP

SCALE: 1" = 60'

SOILS LEGEND		
SYMBOL	NAME/DESCRIPTION	SOIL TYPE
Rsb	RUSSETT, FINE SANDY LOAM, 2-5% SLOPES	C
Fa	FALLSINGTON, SANDY LOAM, 0-2% SLOPES	C
Rsc	RUSSETT, FINE SANDY LOAM, 5-10% SLOPES	C
Utd	URBAN LAND, UDORTMENTS COMPLEX, 0-15% SLOPES	C
Uof	UDORTMENTS, HIGHWAY 0-65% SLOPES	C

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
[Signature]
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE: 6/21/07

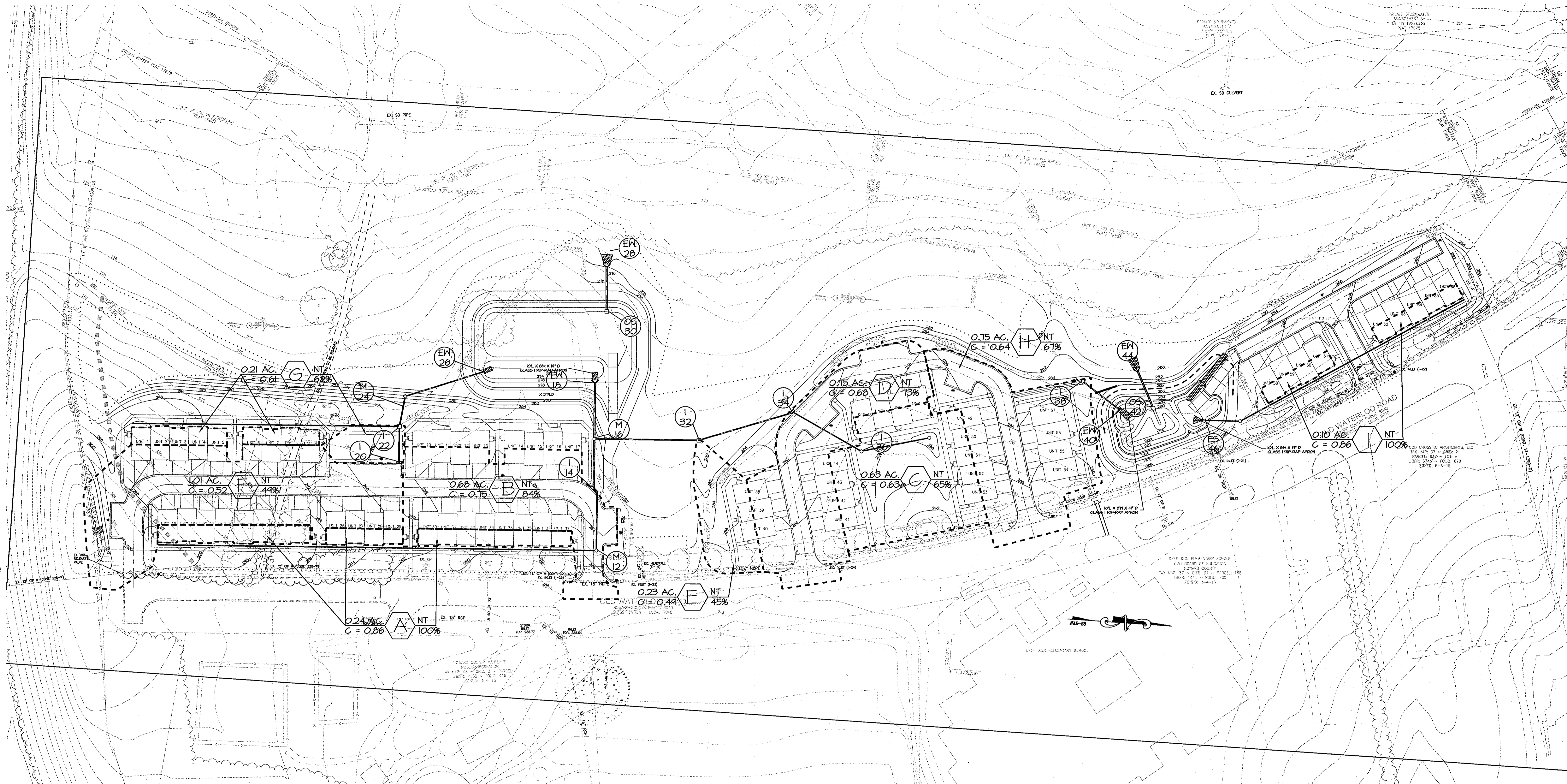
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
[Signature]
 CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE: 6/22/07

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
[Signature]
 DIRECTOR, DEPARTMENT OF PLANNING AND ZONING
 DATE: 6/27/07

APPROVED
 PLANNING BOARD
 of HOWARD COUNTY
 DATE: 5/10/07

OWNER/DEVELOPER/APPLICANT
 NAME: MR. BRIAN KNAUFF
 COMPANY: THE RYLAND GROUP
 6011 UNIVERSITY BOULEVARD, SUITE 260
 ELLICOTT CITY, MARYLAND 21043
 PHONE: 410-480-2467
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		MORRIS & RITCHIE ASSOCIATES, INC. ENGINEERS, PLANNERS, SURVEYORS AND LANDSCAPE ARCHITECTS 14280 PARK CENTER DRIVE, SUITE A LAUREL, MARYLAND 20707 (410) 792-9792 or (301) 776-1890 FAX (410) 792-7395	
		SITE DEVELOPMENT PLAN GATEWAY OVERLOOK AT BENSON EAST-OLD WATERLOO ROAD 66 SINGLE FAMILY ATTACHED CONDOMINIUM UNITS PROPOSED DRAINAGE AREA MAP LIBER: 9779 ~ FOLIO: 80 ~ PARCEL: 382 ZONED: NT ~ TAX MAPS: 37 & 43 ~ GRIDS: 20, 21 & 2,3 LOTS: J, K & L ~ 6TH ELECTION DISTRICT ~ HOWARD COUNTY, MARYLAND	
DATE	REVISIONS	JOB NO.:	14719
		SCALE:	1"=60'
		DATE:	4/24/07
		DRAWN BY:	MM
		DESIGN BY:	MM
		REVIEW BY:	KSK
		SHEET:	16 OF 33



STORM DRAIN DRAINAGE AREA MAP

SCALE: 1"=60'

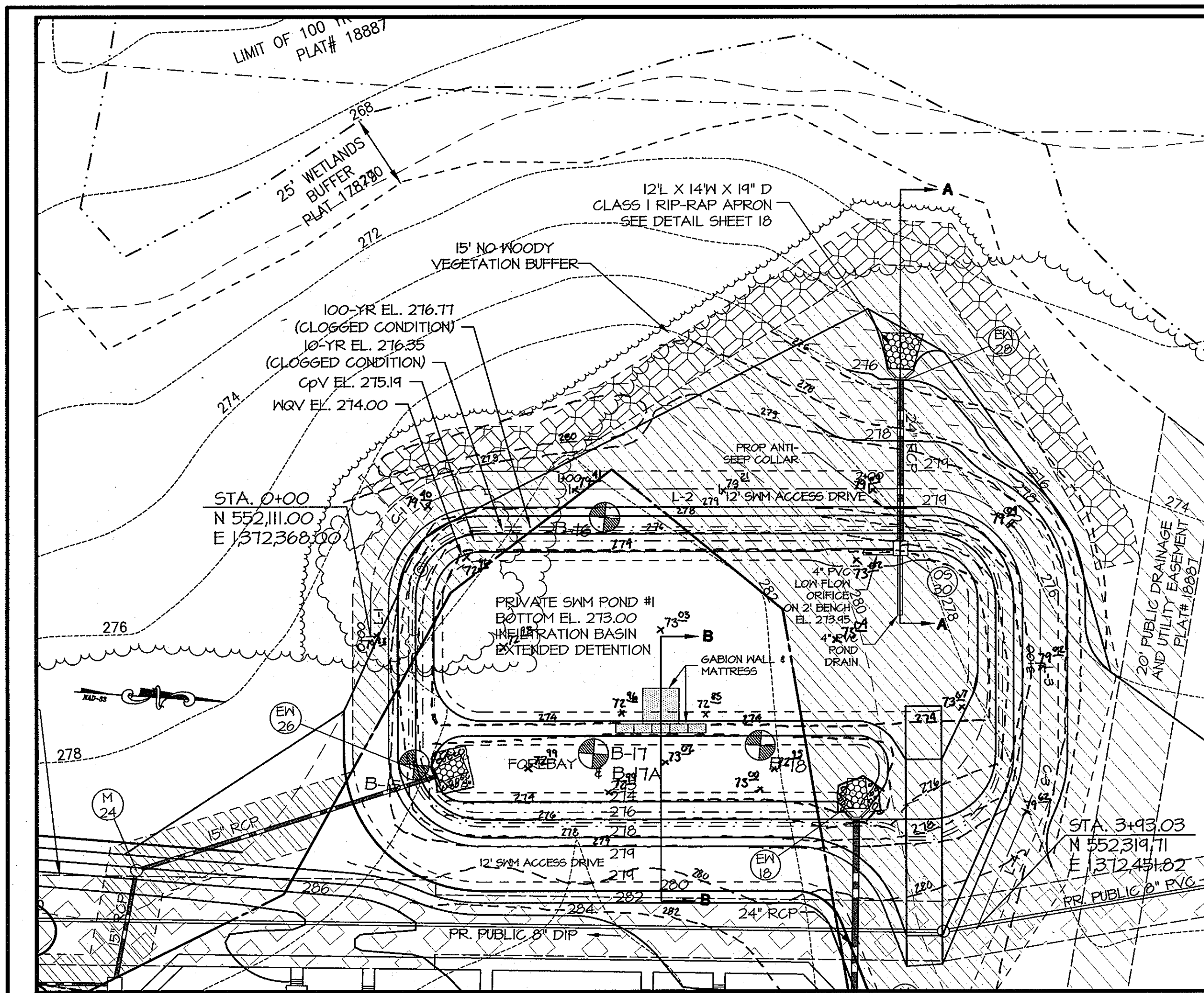
APPROVED
 PLANNING BOARD
 of HOWARD COUNTY
 DATE: 6/10/07

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 CHIEF, DIVISION OF LAND DEVELOPMENT
 DIRECTOR, DEPARTMENT OF PLANNING AND ZONING

DATE: 6/21/07
 DATE: 6/20/07
 DATE: 6/20/07

OWNER/DEVELOPER/APPLICANT
 NAME: MR. BRIAN KNAUFF
 COMPANY: THE RYLAND GROUP
 6011 UNIVERSITY BOULEVARD, SUITE 260
 ELLICOTT CITY, MARYLAND 21043
 PHONE: 410-480-2467
 FAX: 410-480-0543

		MORRIS & RITCHIE ASSOCIATES, INC. ENGINEERS, PLANNERS, SURVEYORS AND LANDSCAPE ARCHITECTS 14280 PARK CENTER DRIVE, SUITE A LAUREL, MARYLAND 20707 (410) 792-9792 or (301) 776-1690 FAX (410) 792-7395	
		SITE DEVELOPMENT PLAN GATEWAY OVERLOOK AT BENSON EAST-OLD WATERLOO ROAD 66 SINGLE FAMILY ATTACHED CONDOMINIUM UNITS STORM DRAIN DRAINAGE AREA MAP LIBER: 9779 ~ FOLIO: 80 ~ PARCEL: 382 ZONED: NT ~ TAX MAPS: 37 & 43 ~ GRIDS: 20, 21 & 23 LOTS: J, K & L ~ 6TH ELECTION DISTRICT ~ HOWARD COUNTY, MARYLAND	
DATE	REVISIONS	JOB NO.:	14719
		SCALE:	1"=60'
		DATE:	4/24/07
		DRAWN BY:	MM
		DESIGN BY:	MM
		REVIEW BY:	KSK
		SHEET:	17 OF 33



APPROVED
PLANNING BOARD
OF HOWARD COUNTY

DATE 5/10/07

PLAN VIEW - SWM POND #1
SCALE: 1"=30'

EMBANKMENT SWM POND #1

NAME	DELTA	RADIUS	LENGTH	BEARING	CHORD	TANGENT
C-1	90°00'00"	37.00'	58.12'	S 49°00'00" E	52.33'	37.00'
C-2	90°00'00"	37.00'	58.12'	S 41°00'00" W	52.33'	37.00'
C-3	22°34'52"	37.00'	14.58'	N 82°42'34" W	14.49'	7.39'

LINE	LENGTH	BEARING
L-1	12.42	S86°00'00"W
L-2	149.71	N04°00'00"W
L-3	51.83	N86°00'00"E
L-4	48.24	S71°25'08"E

SUMMARY OF PROP. SWM POND #1 FACILITY

DESIGN STORM	Proposed Facility Inflow (cfs)	Proposed Facility Discharge (cfs)	Facility Water Surface Elevation (ft)	Facility Storage Volume (acre-ft)
WQV	---	---	274.00	0.2837
1 year (CpV)	9.69	0.21	275.19	0.4266
10 year*	22.83	10.94	276.35	0.4601
100 year*	33.68	17.68	276.77	0.6469

* CLOGGED CONDITION
Drainage Area 4.47 acres
Impervious Area 2.91 acres

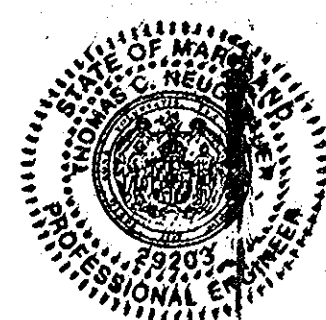
SUMMARY OF PROP. TSWM POND #1 FACILITY

DESIGN STORM	Proposed Facility Inflow (cfs)	Proposed Facility Discharge (cfs)	Facility Water Surface Elevation (ft)	Facility Storage Volume (acre-ft)
1 year**	15.25	1.01	275.18	0.5087
10 year**	32.37	10.80	276.29	0.9601

** SEDIMENT BASIN TSWM CONDITION
MAX. DA 5.6 acres

OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED SURFACE STORMWATER SYSTEMS

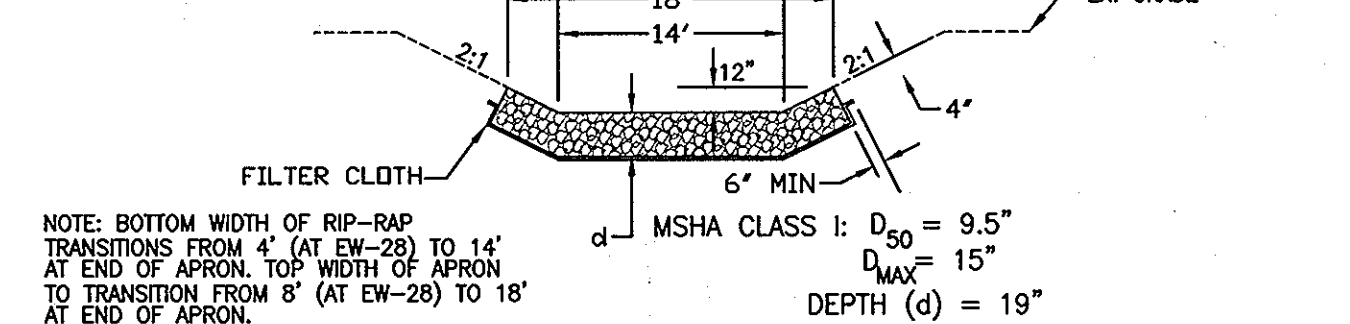
- THE STORMWATER FACILITY SHALL BE INSPECTED ANNUALLY AND AFTER MAJOR STORMS. INSPECTIONS SHALL BE PERFORMED DURING WET WEATHER TO DETERMINE IF THE FACILITY IS FUNCTIONING PROPERLY.
- THE TOP AND SIDE SLOPES OF THE EMBANKMENT SHALL BE MOWED A MINIMUM OF ONCE A YEAR, WHEN VEGETATION REACHES 18" IN HEIGHT OR AS NEEDED.
- THE FILTRATION BASIN SHALL HAVE A GRASS COVER AND SHALL BE MOWED A MINIMUM OF 3 (THREE) TIMES PER GROWING SEASON TO MAINTAIN A MAXIMUM GRASS HEIGHT OF LESS THAN 12 INCHES.
- DEBRIS AND LITTER SHALL BE REMOVED DURING REGULAR MOWING OPERATION AND AS NEEDED.
- VISIBLE SIGNS OF EROSION IN THE FACILITY SHALL BE REPAIRED AS SOON AS IT IS NOTICED.
- REMOVE SEDIMENT WHEN IT EXCEEDS 4 (FOUR) INCHES DEEP IN THE FOREBAY.
- WHEN WATER PONDING ON THE SURFACE OF THE FILTER BED FOR MORE THAN 72 HOURS, THE TOP FEW INCHES OF DISCOLORED MATERIAL SHALL BE REPLACED WITH FRESH MATERIAL. PROPER CLEANING AND DISPOSAL OF THE REMOVED MATERIALS AND LIQUID MUST BE FOLLOWED BY THE OWNER.
- A LOG BOOK SHALL BE MAINTAINED TO DETERMINE THE RATE AT WHICH THE FACILITY DRAINS.
- THE MAINTENANCE LOG BOOK SHALL BE AVAILABLE TO HOWARD COUNTY FOR INSPECTION TO INSURE COMPLIANCE WITH OPERATION AND MAINTENANCE CRITERIA.
- ONCE THE PERFORMANCE CHARACTERISTICS OF THE INFILTRATION SYSTEM HAVE BEEN VERIFIED, THE MONITORING SCHEDULE CAN BE REDUCED TO AN ANNUAL BASIS UNLESS THE PERFORMANCE DATA INDICATES THAT A MORE FREQUENT SCHEDULE IS REQUIRED.



SWM AS BUILT PLAN

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

SIGNATURE: [Signature] ENGINEER-IN-CHARGE DATE: 7-29-10 MR. PE SEAL AND NO.



SWM POND #1 OUTFALL RIP RAP CHANNEL DETAIL

SWM POND #1 SWM PIPE SCHEDULE

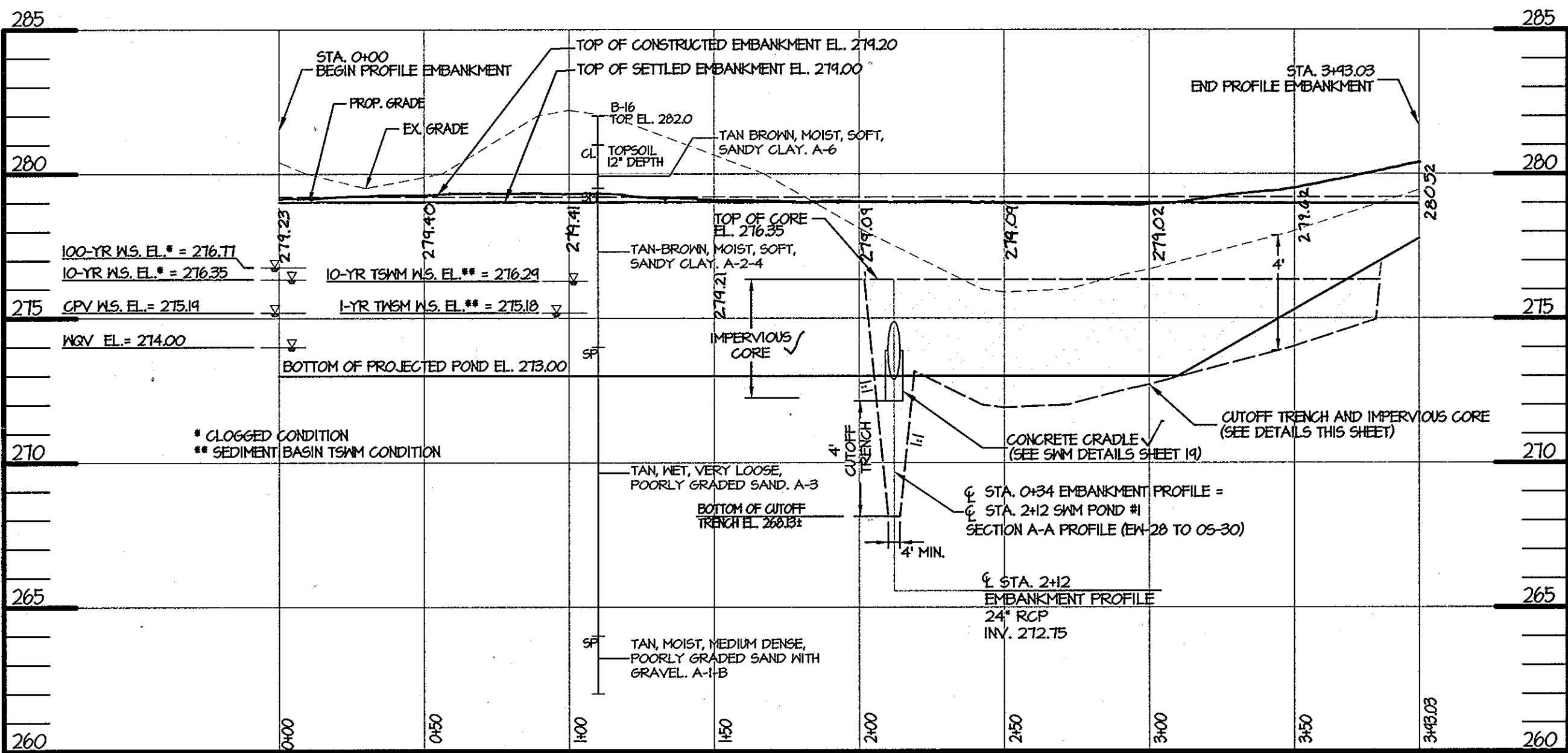
SIZE	TYPE	LENGTH
24"	ASTM C-361 B-25 RCP	53'-54"
4"	PVC SCHEDULE 40 (POND DRAINS)	30'✓

SWM POND #1 STORMWATER MANAGEMENT STRUCTURE SCHEDULE

STR NO.	TOP ELEV.	INV IN	INV IN	INV OUT	TYPE	REMARKS	NORTHING	EASTING
EW-28	275.98	---	---	272.49	TYPE "A" HEADWALL, HOWARD CO. STD. DETAIL SD-5.11		552,280.30	1,372,252.42
OS-30	277.71	275.85	272.74	272.77	RISER STRUCTURE (SEE DETAIL SHEET 19)		552,285.49	1,372,326.36

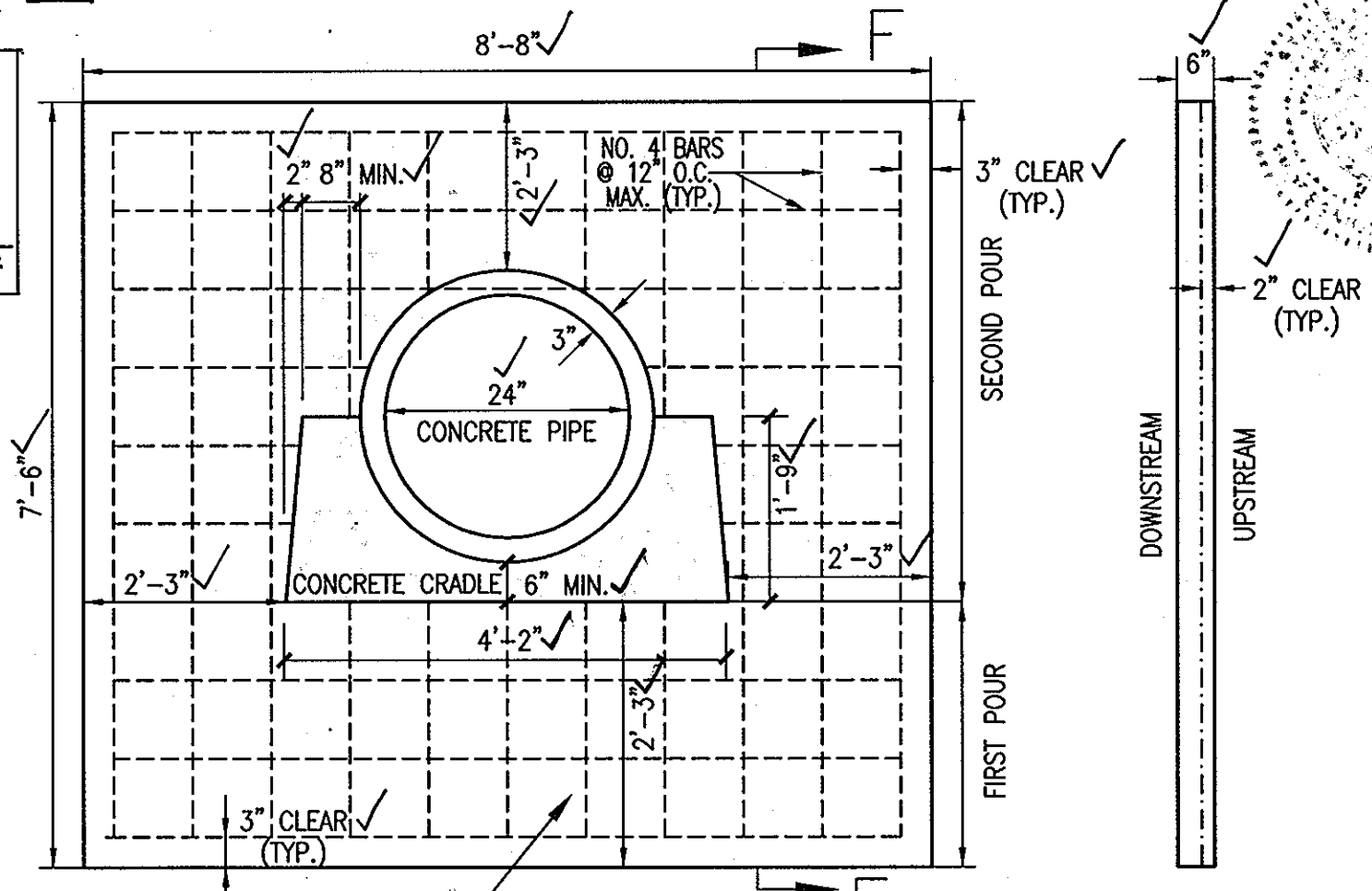
• COORDINATES TO CENTER OF STRUCTURE.

OWNER/DEVELOPER/APPLICANT
NAME: MR. RYLAND KNAUFF
COMPANY: THE RYLAND GROUP
6011 UNIVERSITY BOULEVARD, SUITE 260
ELLCOTT CITY, MARYLAND 21043
PHONE: 410-480-2467
FAX: 410-480-0543



SWM POND #1 CENTERLINE OF EMBANKMENT PROFILE

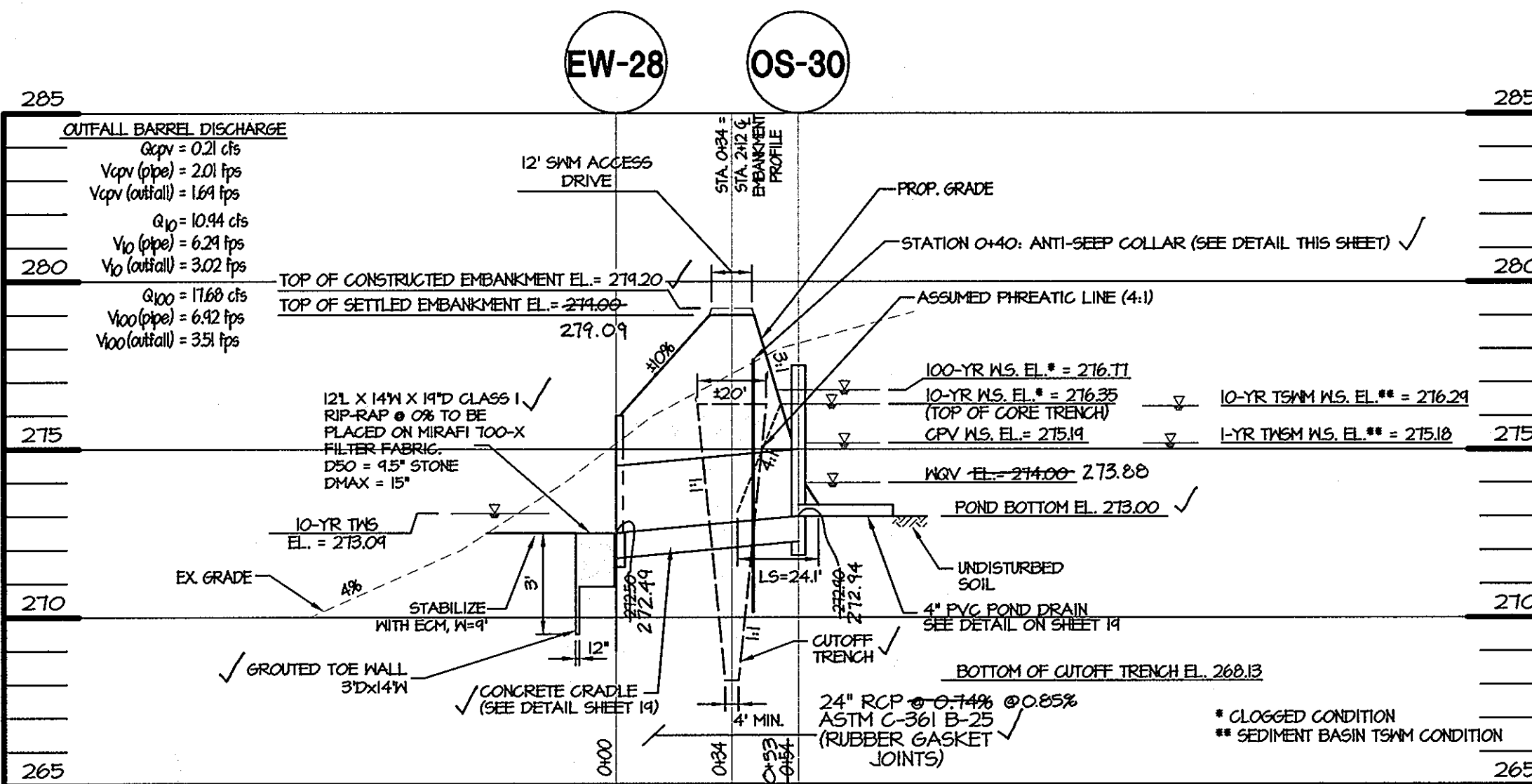
HOR. 1" = 40'
VERT. 1" = 4'



ANTI-SEEP COLLAR TO BE PLACED A MINIMUM OF 2' FROM PIPE JOINT

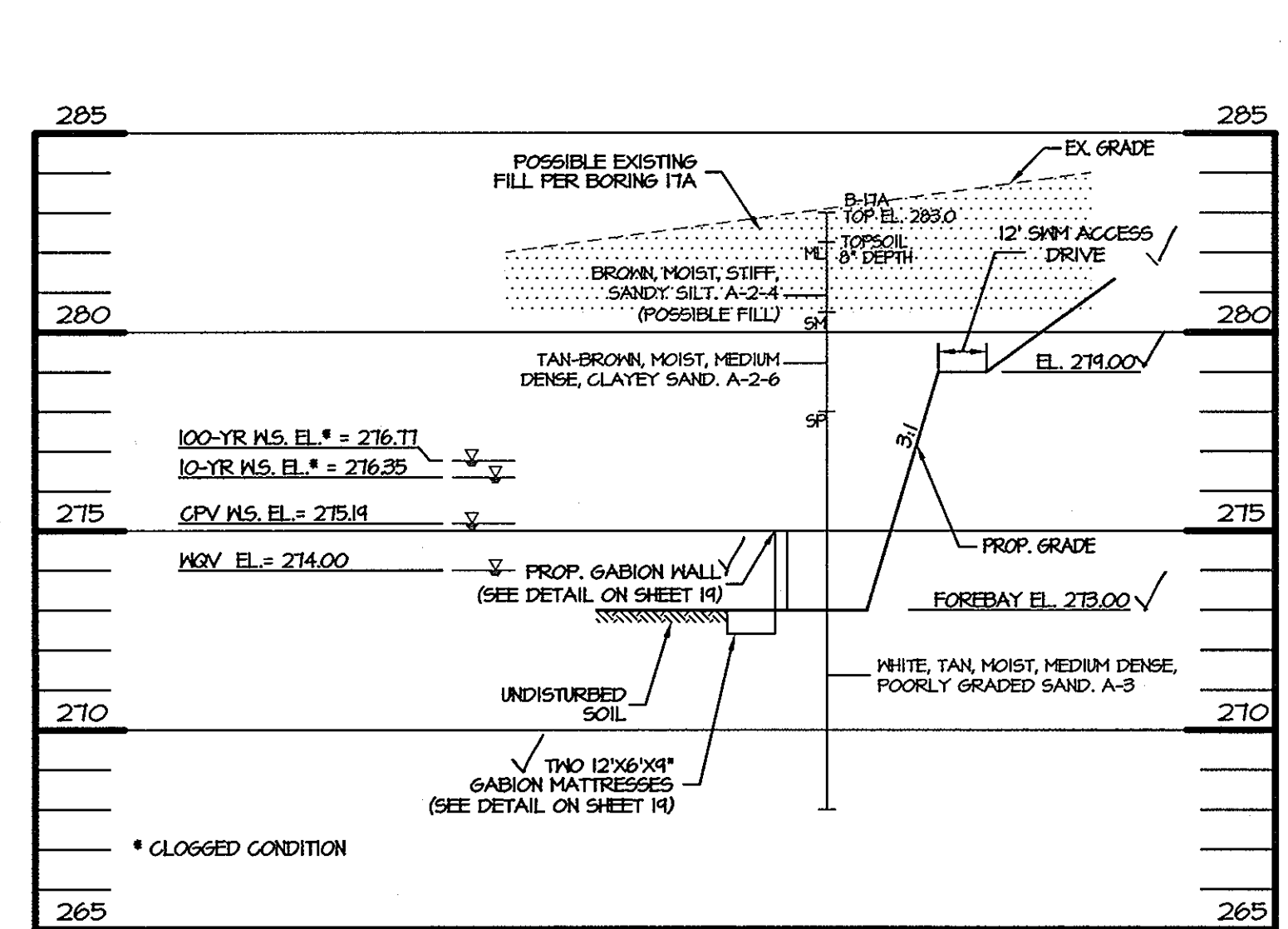
SWM POND ANTI-SEEP COLLAR DETAILS

N.T.S.



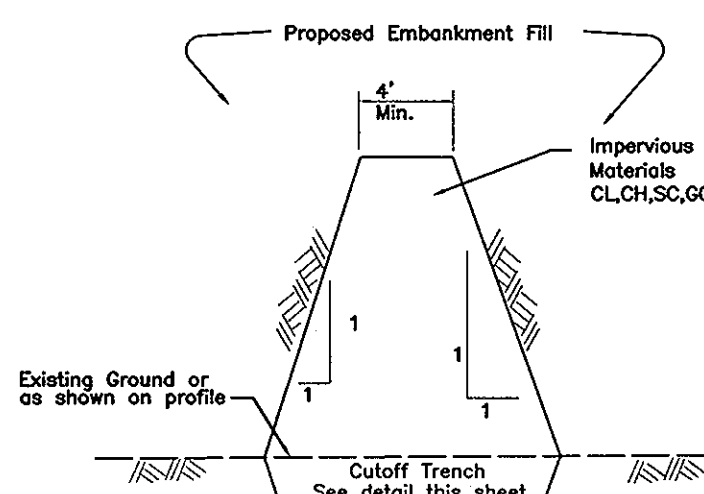
SWM POND #1 SECTION A-A

HOR. 1" = 40'
VERT. 1" = 4'

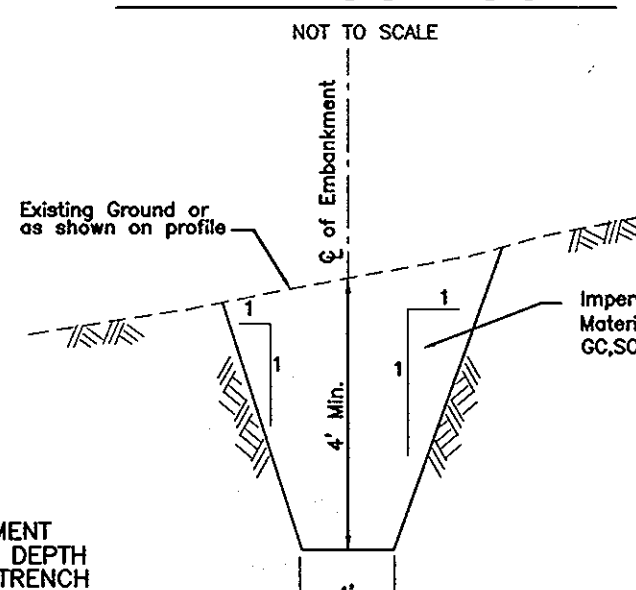


SWM POND #1 SECTION B-B

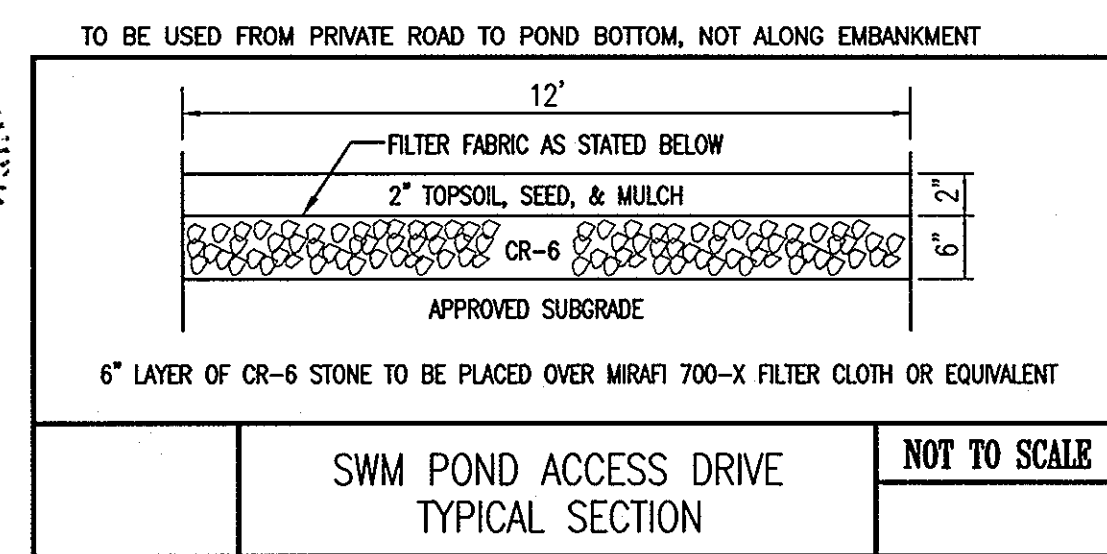
HOR. 1" = 40'
VERT. 1" = 4'



IMPERVIOUS CORE



CUTOFF TRENCH



SWM POND ACCESS DRIVE TYPICAL SECTION



MORRIS & RITCHIE ASSOCIATES, INC.

ENGINEERS, PLANNERS, SURVEYORS AND LANDSCAPE ARCHITECTS

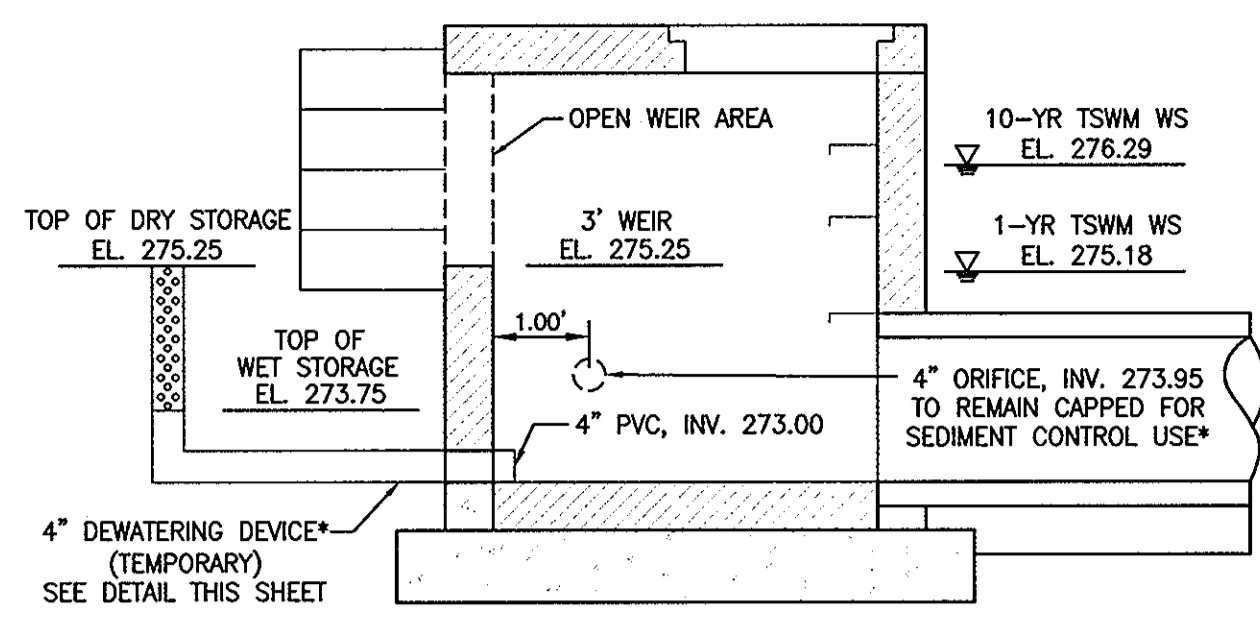
14280 PARK CENTER DRIVE, SUITE A
LAUREL, MARYLAND 20707
(410) 792-9792 or (301) 776-1690
FAX (410) 792-7395

SITE DEVELOPMENT PLAN
GATEWAY OVERLOOK AT BENSON EAST-OLD WATERLOO ROAD
66 SINGLE FAMILY ATTACHED CONDOMINIUM UNITS

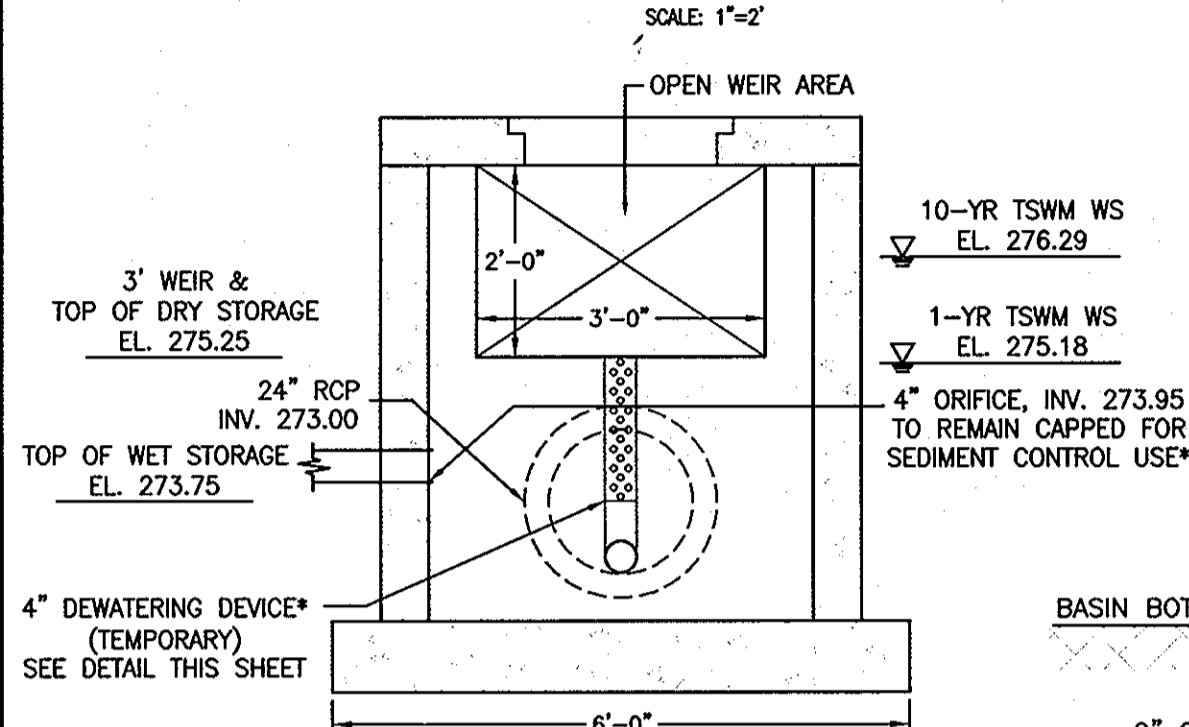
SWM POND #1 PLAN, PROFILE & DETAILS

LIBER: 9779 ~ FOLIO: 80 ~ PARCEL: 382
ZONED: NT ~ TAX MAPS: 37 & 43 ~ GRIDS: 20, 21 & 23
LOTS: J, K & L ~ 6TH ELECTION DISTRICT ~ HOWARD COUNTY, MARYLAND

DATE	REVISIONS	JOB NO.:
7/21/10	SWM AS-BUILT INFO ADDED	14719
		SCALE: AS SHOWN
		DATE: 4/24/07
		DRAWN BY: MM
		DESIGN BY: MM
		REVIEW BY: KSK
		SHEET: 18 OF 33

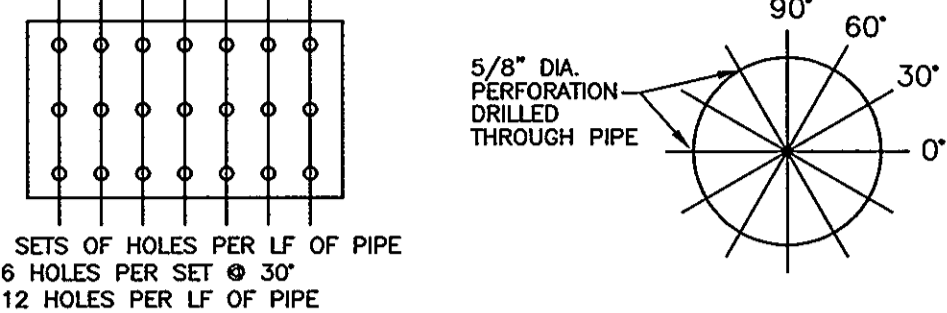


SEDIMENT BASIN RISER SECTION B-B



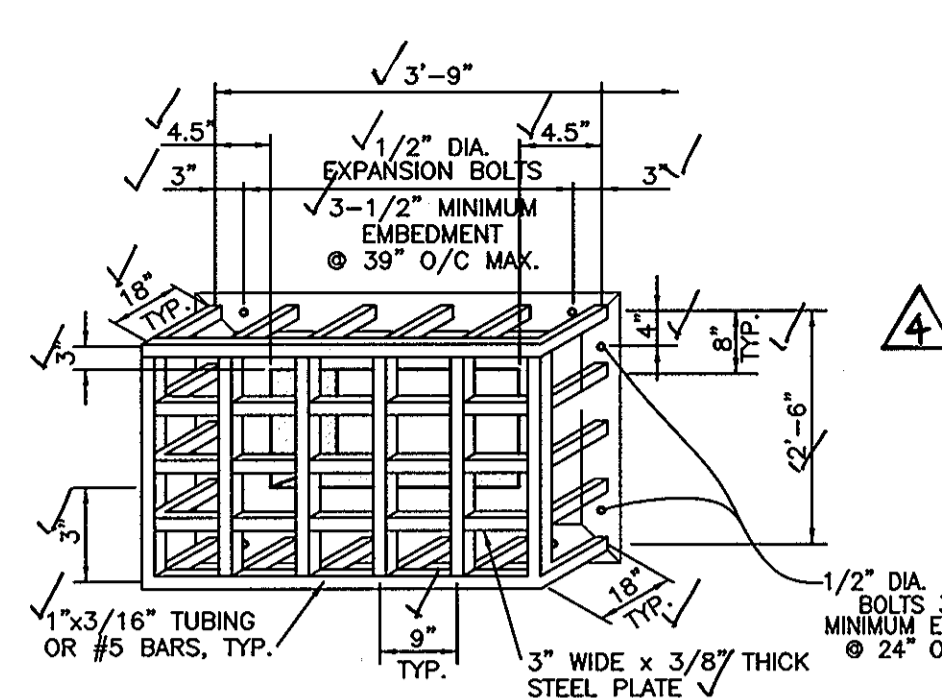
SEDIMENT BASIN RISER OPENING SECTION A-A

- NOTES:
1. PIPE PERFORATIONS TO BE PER DETAIL SHOWN.
 2. PERFORATED SECTION OF PIPE TO BE WRAPPED WITH CLASS 'E' FILTER FABRIC.
 3. SOLID PORTION OF PIPE TO BE COVERED WITH #2 STONE FOR A MINIMUM DEPTH OF 6\"/>



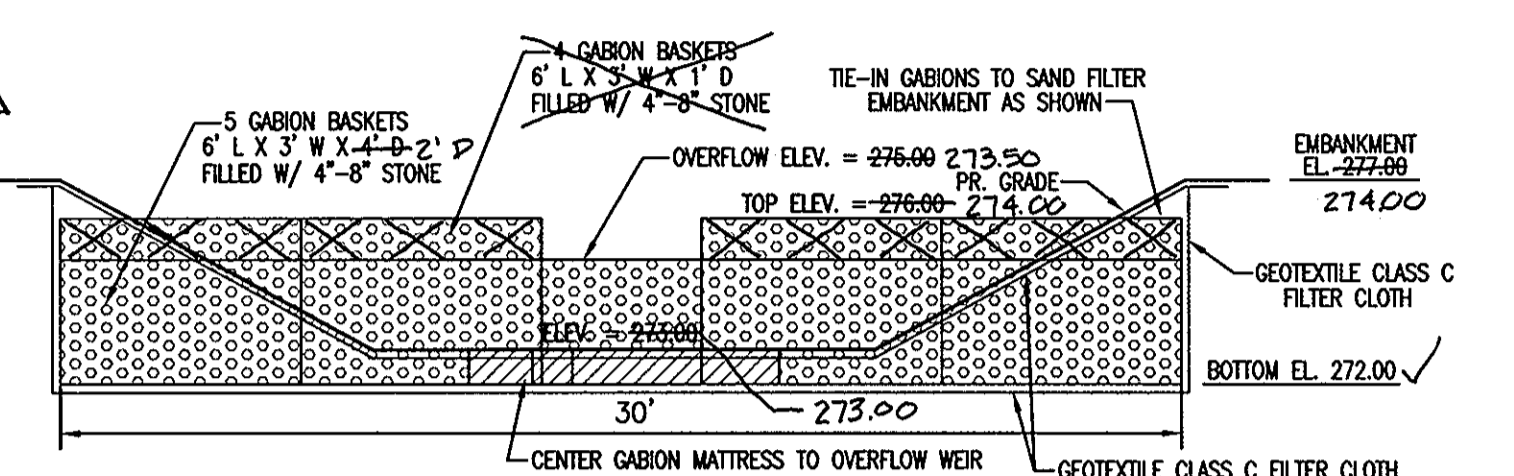
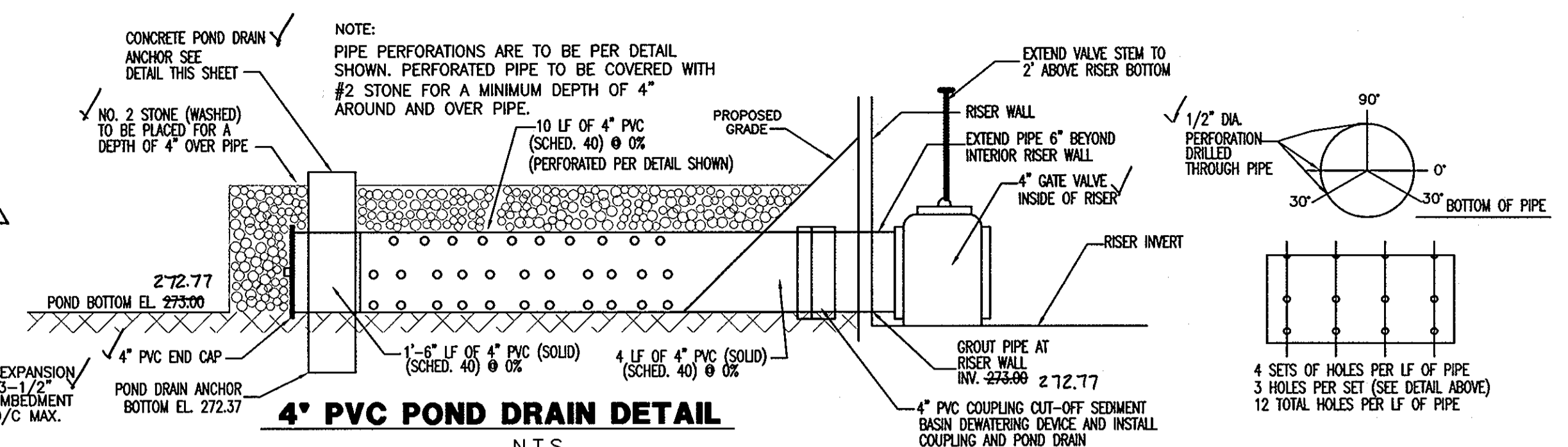
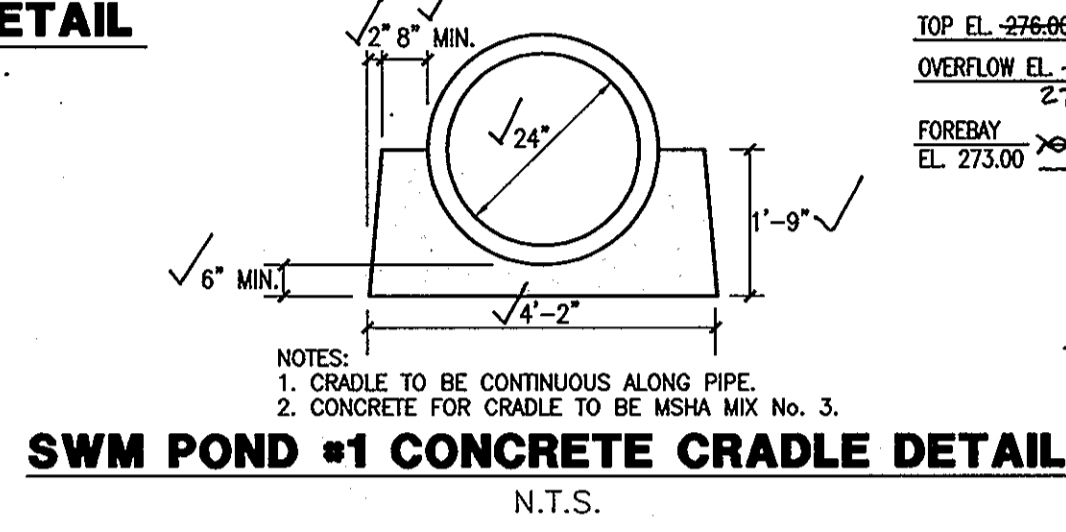
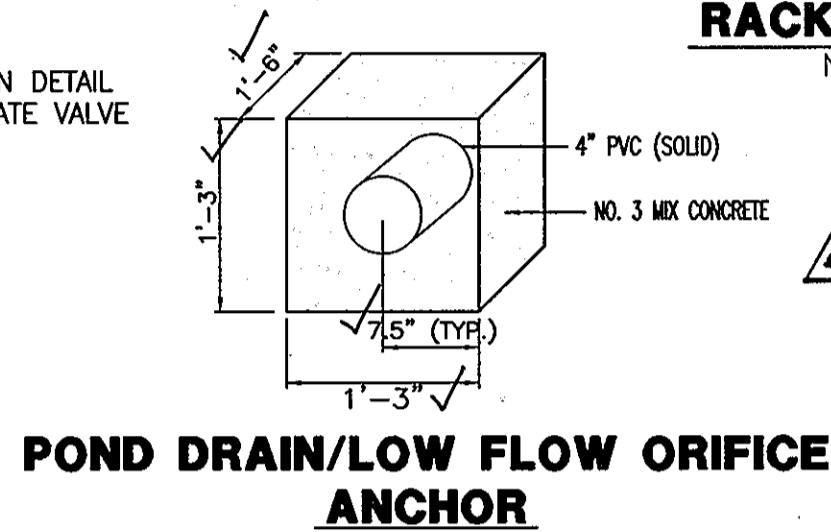
*ONCE ALL UPSTREAM AREAS ARE STABILIZED, SEDIMENT BASIN IS TO BE DEWATERED. ALL ACCUMULATED SEDIMENT IS TO BE REMOVED & POND BOTTOM IS TO BE STABILIZED. REMOVE TEMPORARY DEWATERING DEVICE, TEMPORARY BRICKWORK, & REPLACE WITH SWM DEWATERING DEVICE PER DETAIL SHOWN ON THIS DETAIL SHEET.

NOTE: GATE VALVE TO REMAIN OPEN FOR SEDIMENT BASIN, & CLOSED UPON SWM CONVERSION.

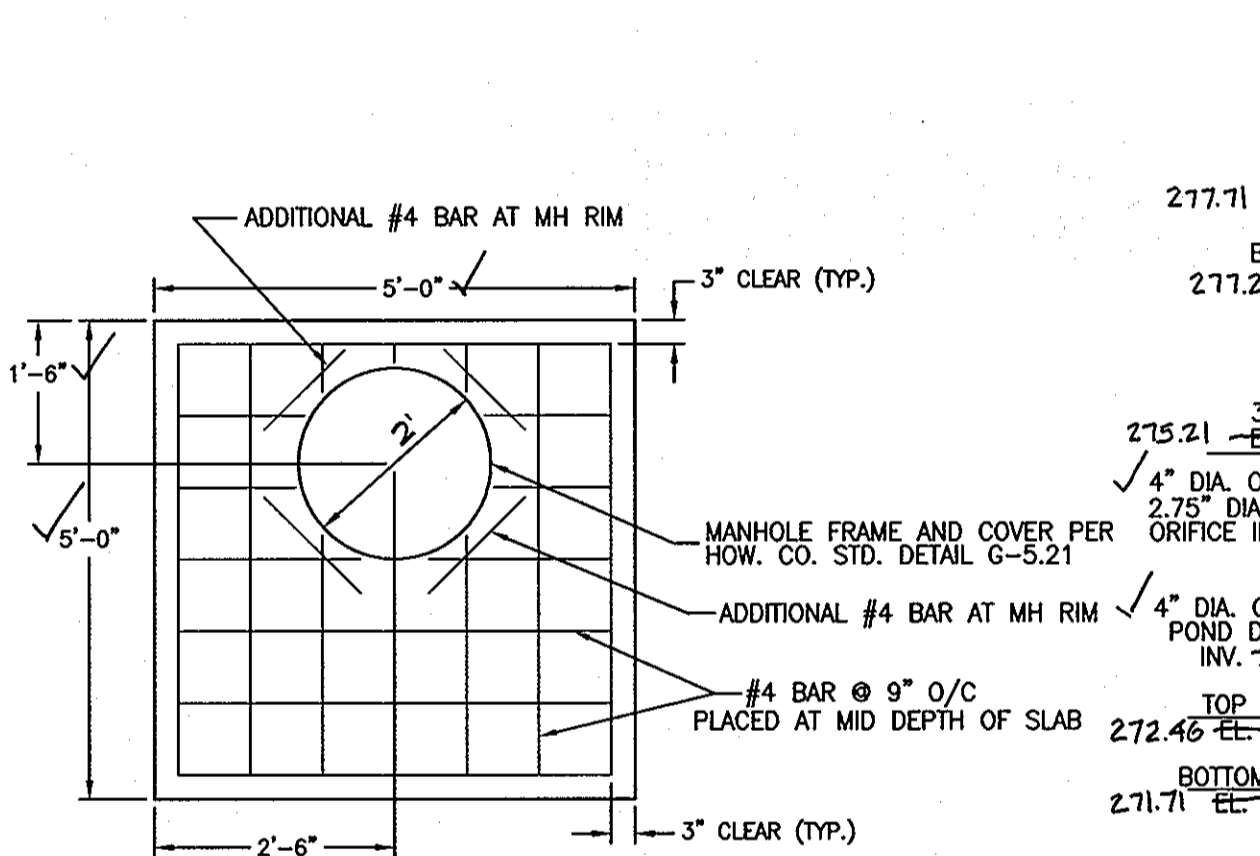


- NOTES:
1. ALL MATERIALS SHALL BE HOT DIPPED GALVANIZED AFTER FABRICATION.
 2. #5 BARS SHALL BE WELDED AT CROSS-POINTS AND WHERE BAR MEETS STEEL CONNECTION PLATE.
 3. TRASH RACK BARS ARE TO BE PAINTED 'BATTLESHIP GREY' IN ACCORDANCE WITH HOWARD CO. STANDARDS.

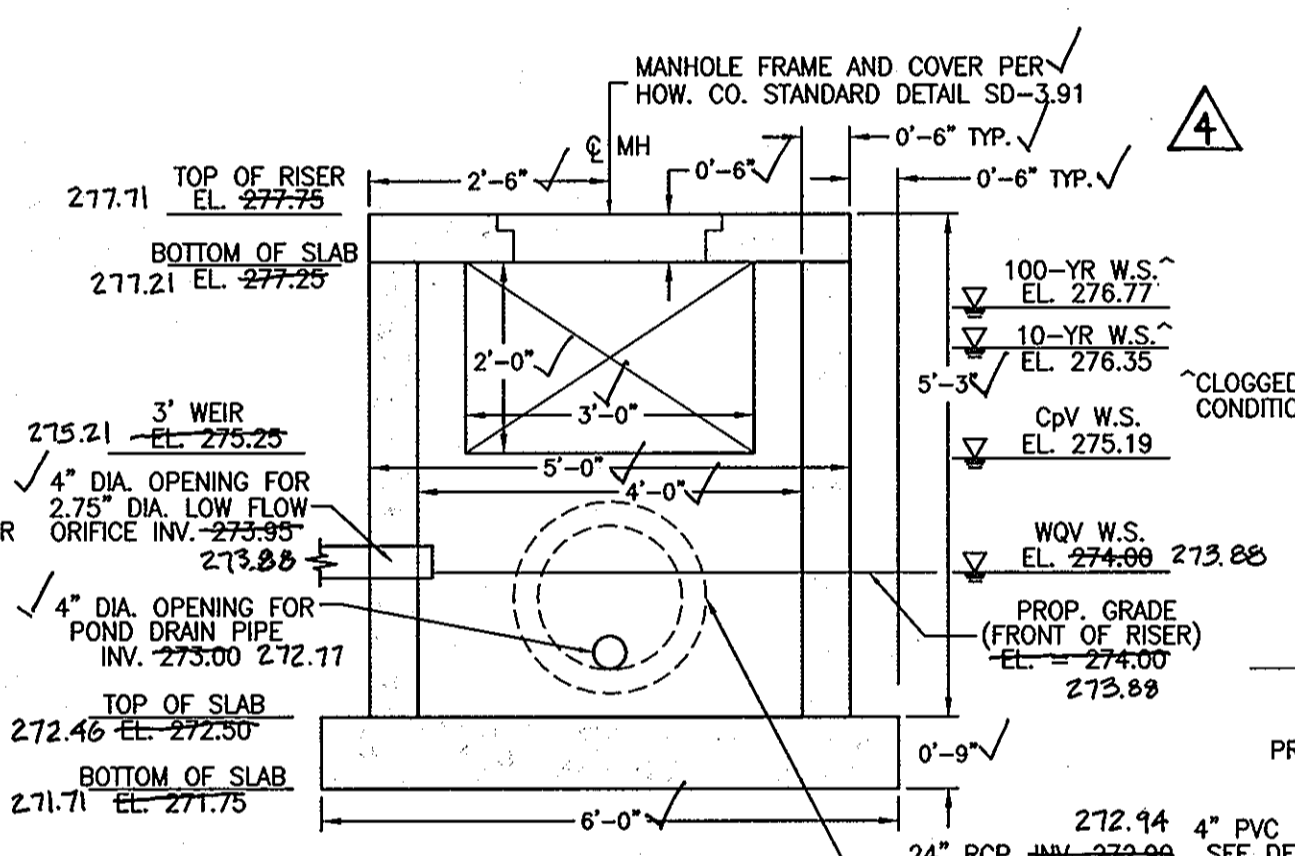
3\"/>



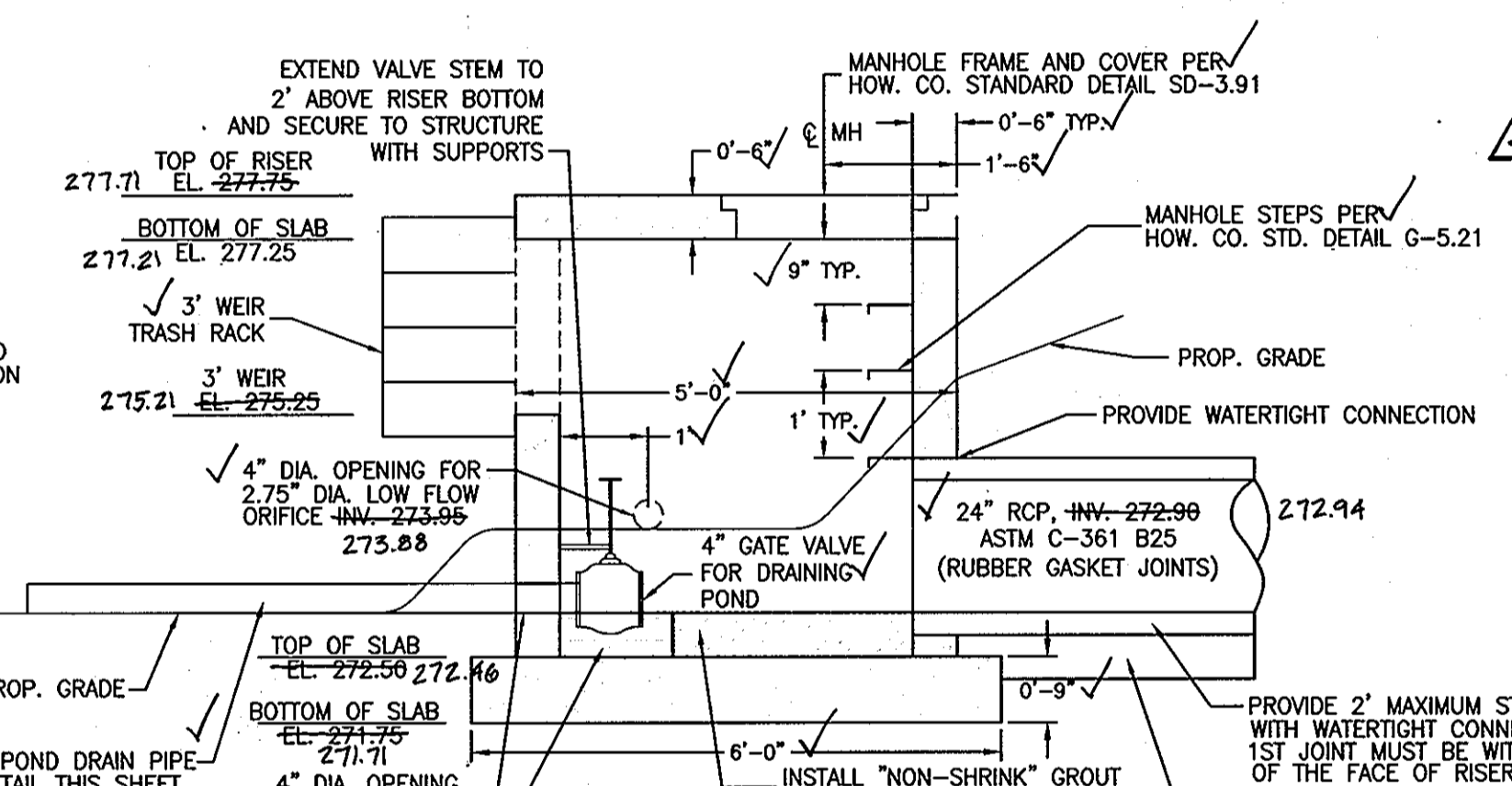
- INSTALLATION NOTES:
1. GABION BASKETS SHALL BE CONSTRUCTED OF GALVANIZED US GAUGE 11 MESH WIRE OR APPROVED EQUIVALENT.
 2. GABION INSTALLATION SHALL BE PERFORMED ACCORDING TO GABION MANUFACTURER'S RECOMMENDATIONS AND SPECS.
 3. TOP GABION BASKETS TO BE STAGGERED OVER BOTTOM BASKETS PER MANUFACTURER'S RECOMMENDATIONS.
 4. TOP GABION BASKETS TO BE FASTENED TO BOTTOM BASKETS PER MANUFACTURER'S RECOMMENDATIONS.



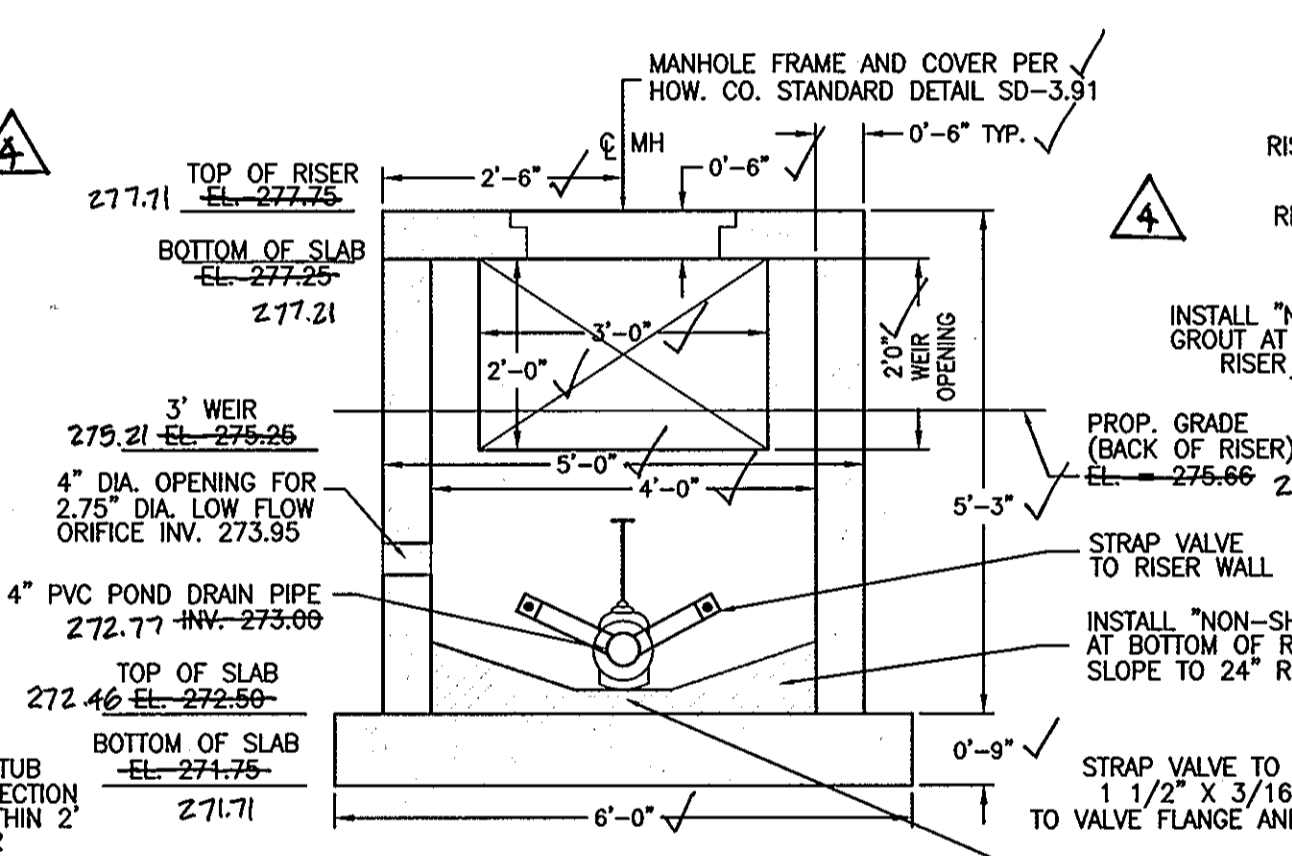
TOP OF SLAB DETAIL



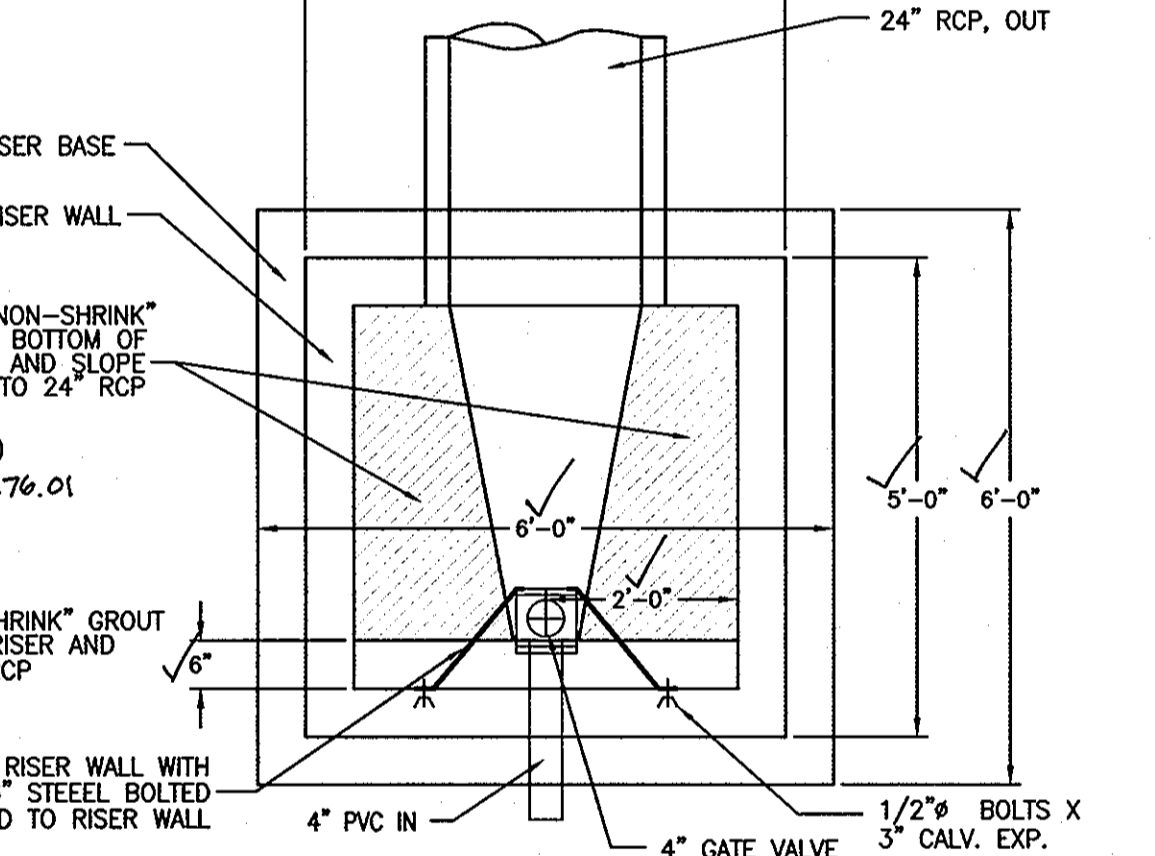
RISER SECTION A-A



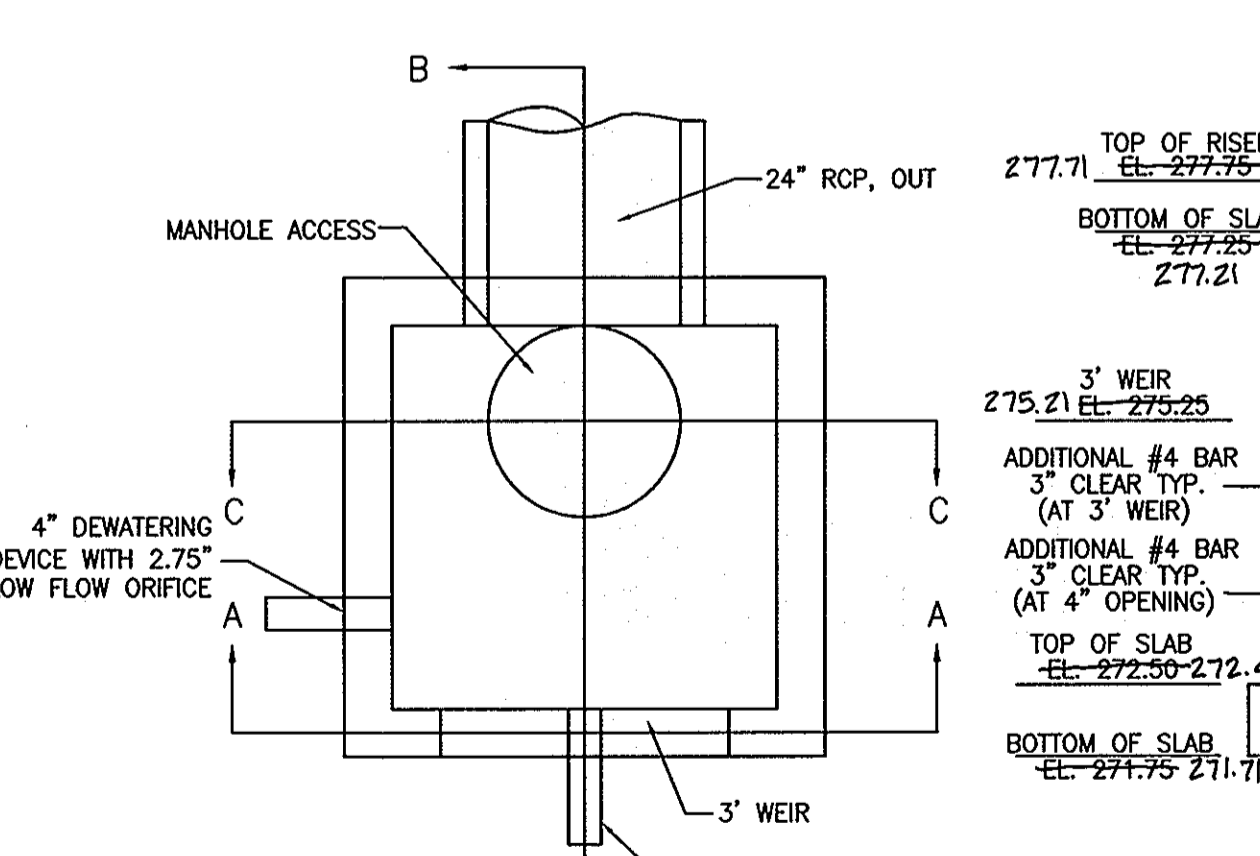
RISER SECTION B-B



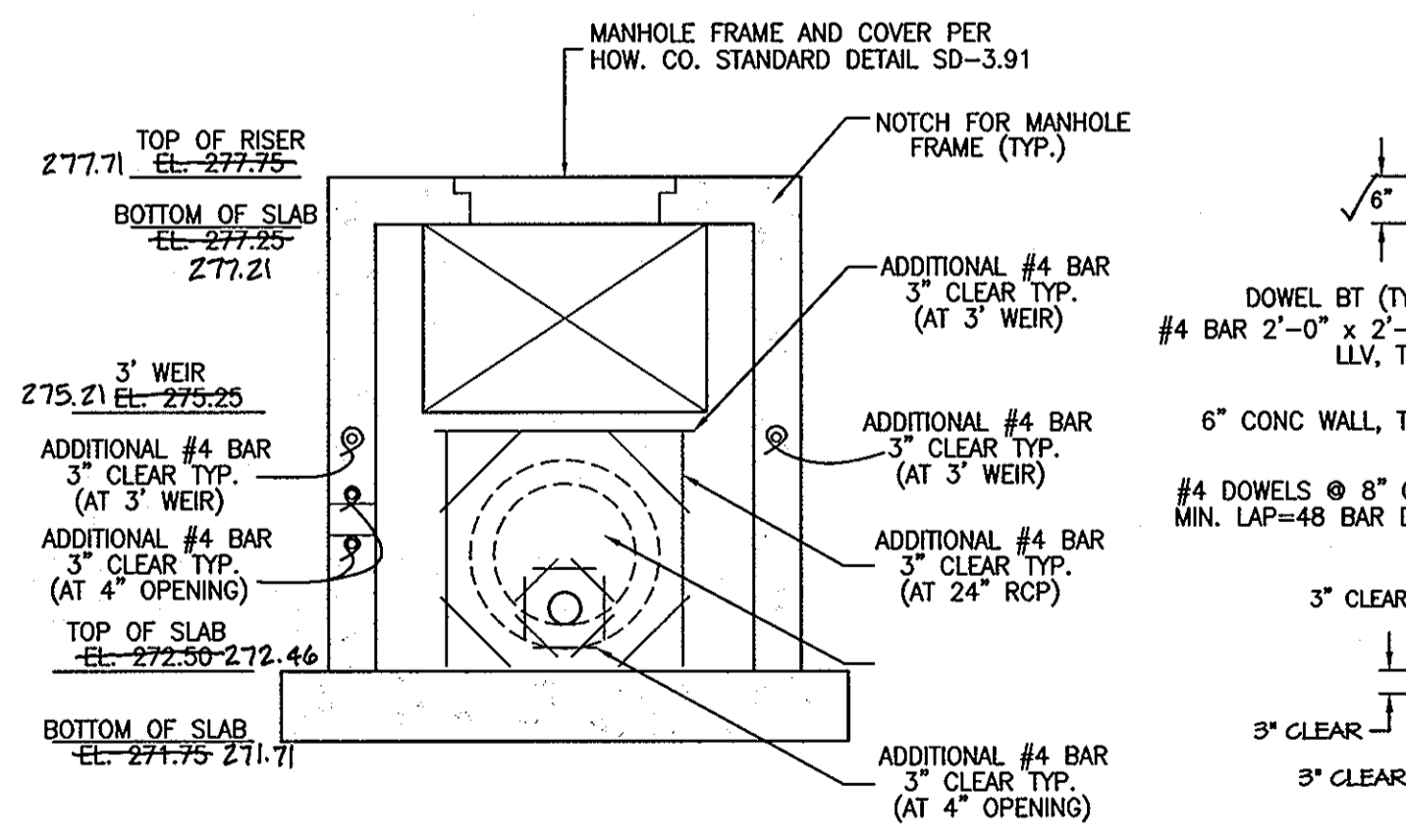
RISER SECTION C-C



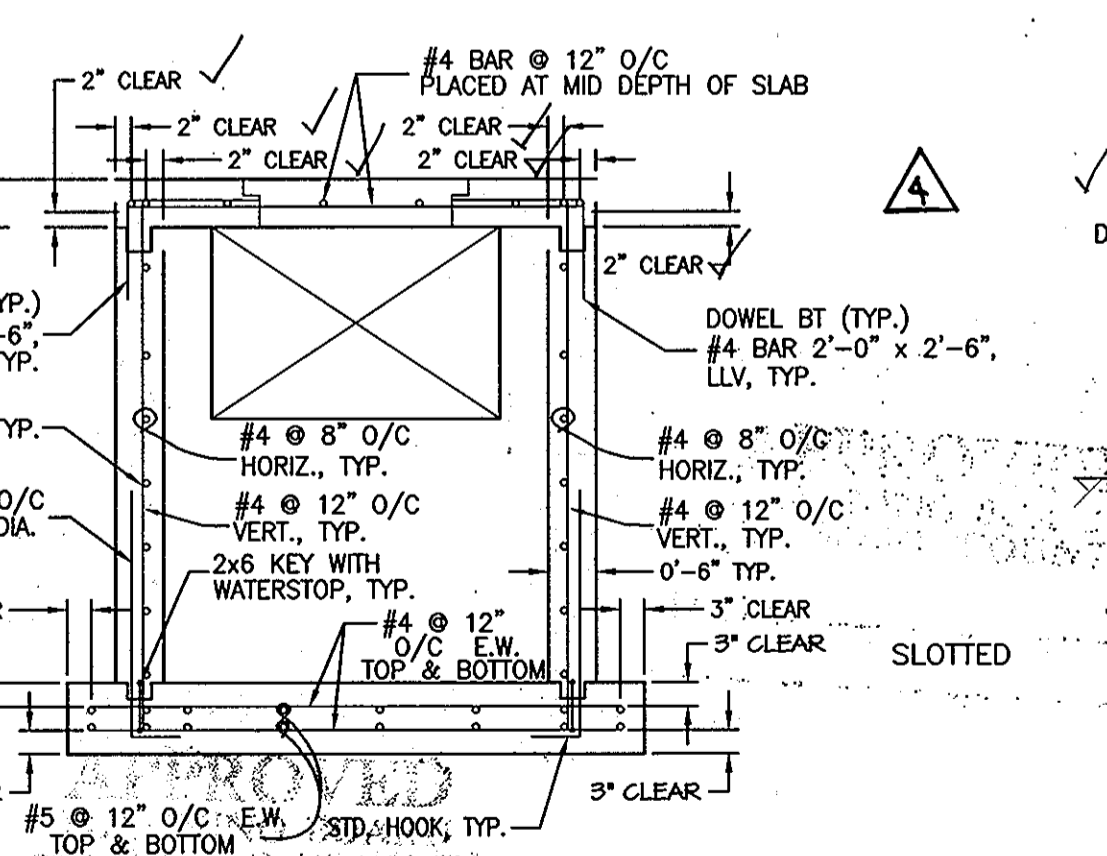
RISER BOTTOM DETAIL



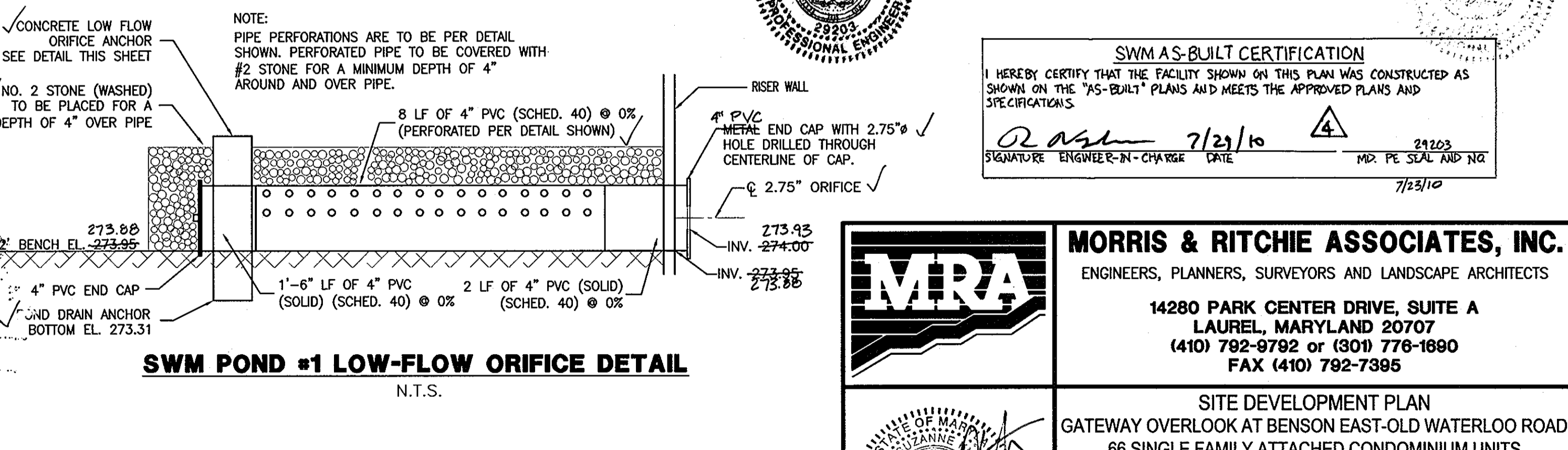
SECTION LOCATIONS



RISER STRUCTURE OPENING REINFORCEMENT DETAIL



RISER STRUCTURE OPENING REINFORCEMENT DETAIL



SWM POND #1 LOW-FLOW ORIFICE DETAIL



SWM AS-BUILT PLAN

SWM AS-BUILT CERTIFICATION
 I HEREBY CERTIFY THAT THE PLAN SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE 'AS-BUILT' PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.
 SIGNATURE: [Signature] 7/23/10
 ENGINEER-IN-CHARGE DATE
 IMP: PE SEAL AND NO: 29103
 7/23/10

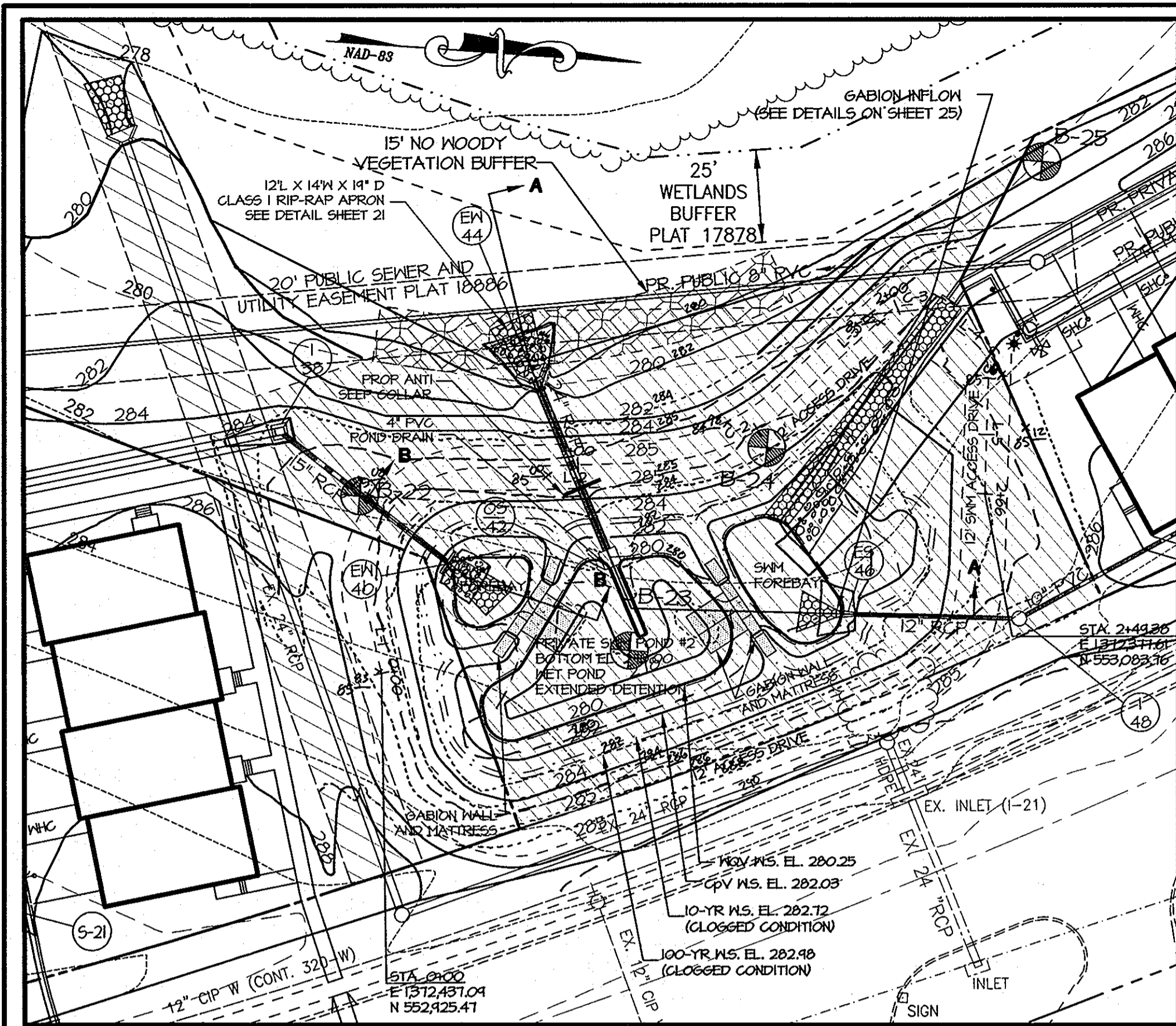
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 [Signature] 6/21/07
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 [Signature] 6/22/07
 CHIEF, DIVISION OF LAND DEVELOPMENT
 [Signature] 6/21/07
 DIRECTOR, DEPARTMENT OF PLANNING AND ZONING

APPROVED
 PLANNING BOARD
 OF HOWARD COUNTY
 DATE: 6/10/07

OWNER/DEVELOPER/APPLICANT
 NAME: MR. BRIAN KNAUFF
 COMPANY: THE RYLAND GROUP
 6011 UNIVERSITY BOULEVARD, SUITE 260
 ELLICOTT CITY, MARYLAND 21043
 PHONE: 410-480-2467
 FAX: 410-480-0543

DATE	REVISIONS	JOB NO.
7/21/10	SWM AS-BUILT INFO ADDED	14719

SCALE: AS SHOWN
 DATE: 4/24/07
 DRAWN BY: MM
 DESIGN BY: MM
 REVIEW BY: KSK
 SHEET: 19 OF 33



SUMMARY OF PROP. SWM POND #2 FACILITY

DESIGN STORM	Proposed Facility Inflow (cfs)	Proposed Facility Discharge (cfs)	Facility Water Surface Elevation (ft)	Facility Storage Volume (acre-ft)
WQV	---	---	280.25	0.1144
1 year*	4.50	0.29	282.03	0.1770
10 year*	10.81	7.96	282.72	0.2857
100 year	15.92	12.16	282.98	0.3226

* CLOGGED CONDITION
 Drainage Area 1.96 acres
 Impervious Area 1.27 acres

SWM POND #2

SCALE: 1"=30'

SIZE	TYPE	LENGTH
24"	ASTM C-361 B-25 RCP	49'
4"	PVC SCHEDULE 40 (POND DRAINS)	30'

SUMMARY OF PROP. TSWM POND #2 FACILITY

DESIGN STORM	Proposed Facility Inflow (cfs)	Proposed Facility Discharge (cfs)	Facility Water Surface Elevation (ft)	Facility Storage Volume (acre-ft)
1 year**	7.46	1.97	282.52	0.1881
10 year**	15.83	10.29	283.29	0.3116

** SEDIMENT BASIN TSWM CONDITION
 MAX. DA 2.74 acres

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

Signature of Developer: [Signature]
 DATE: 4/25/07

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

Signature of Engineer: [Signature]
 DATE: 4/24/07

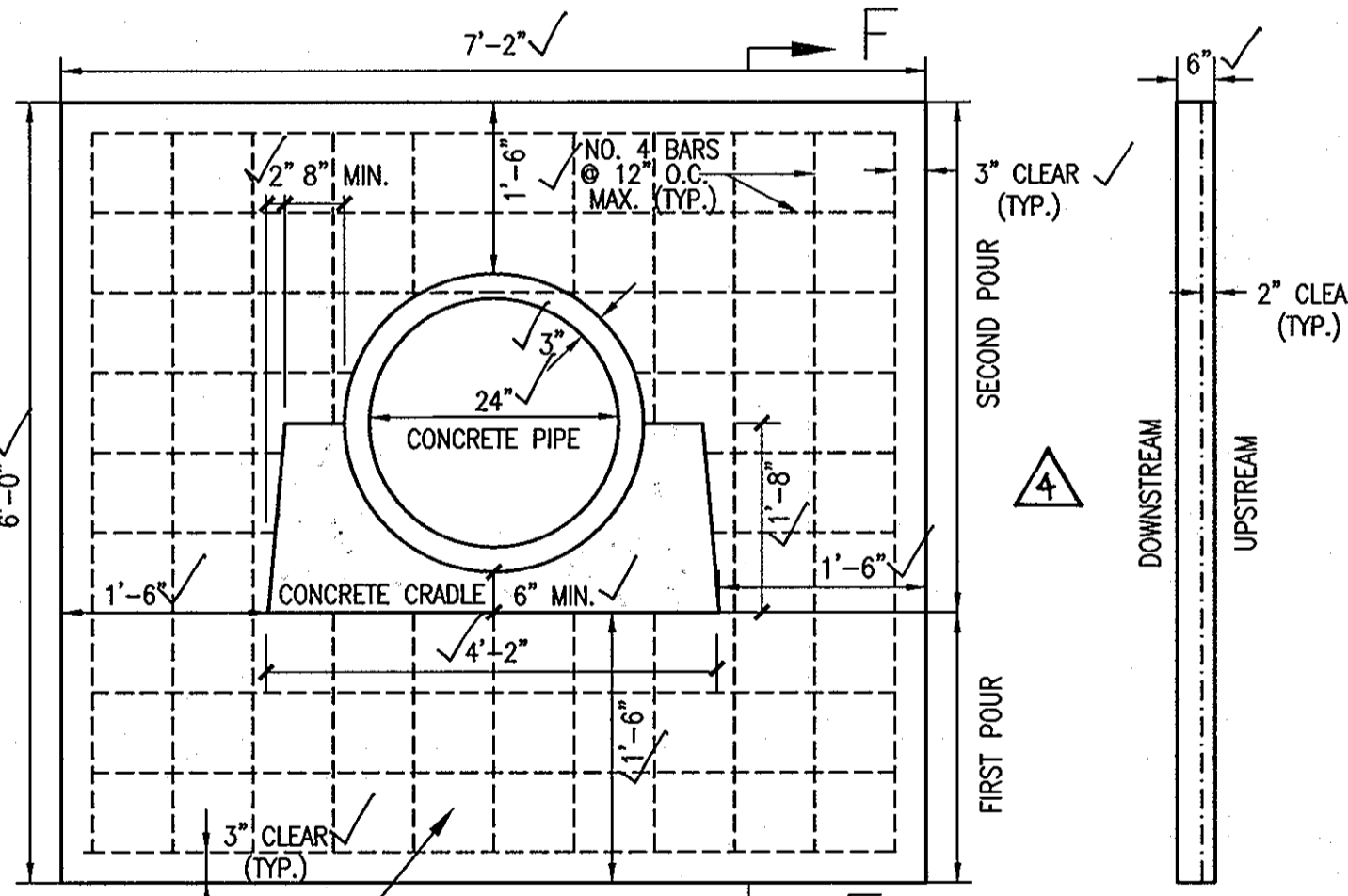
THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.

Signature: [Signature]
 DATE: 6/19/07

Signature: [Signature]
 DATE: 6/19/07

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 Chief, Development Engineering Division
 Chief, Division of Land Development
 Director, Department of Planning and Zoning

DATE: 6/21/07
 DATE: 6/20/07
 DATE: 6/15/07



SWM POND #2 ANTI-SEEP COLLAR DETAILS

N.T.S.

OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED SURFACE STORMWATER SYSTEMS

1. THE STORMWATER FACILITY SHALL BE INSPECTED ANNUALLY AND AFTER MAJOR STORMS. INSPECTIONS SHALL BE PERFORMED DURING WET WEATHER TO DETERMINE IF THE FACILITY IS FUNCTIONING PROPERLY.
2. THE TOP AND SIDE SLOPES OF THE EMBANKMENT SHALL BE MOWED A MINIMUM OF ONCE A YEAR, WHEN VEGETATION REACHES 18" IN HEIGHT OR AS NEEDED.
3. THE FILTRATION BASIN SHALL HAVE A GRASS COVER AND SHALL BE MOWED A MINIMUM OF 3 (THREE) TIMES PER GROWING SEASON TO MAINTAIN A MAXIMUM GRASS HEIGHT OF LESS THAN 12 INCHES.
4. DEBRIS AND LITTER SHALL BE REMOVED DURING REGULAR MOWING OPERATION AND AS NEEDED.
5. VISIBLE SIGNS OF EROSION IN THE FACILITY SHALL BE REPAIRED AS SOON AS IT IS NOTICED.
6. REMOVE SEDIMENT WHEN IT EXCEEDS 4 (FOUR) INCHES DEEP IN THE FOREBAY.
7. WHEN WATER PONDS ON THE SURFACE OF THE FILTER BED FOR MORE THAN 72 HOURS, THE TOP FEW INCHES OF DISCOLORED MATERIAL SHALL BE REPLACED WITH FRESH MATERIAL. PROPER CLEANING AND DISPOSAL OF THE REMOVED MATERIALS AND LIQUID MUST BE FOLLOWED BY THE OWNER.
8. A LOG BOOK SHALL BE MAINTAINED TO DETERMINE THE RATE AT WHICH THE FACILITY DRAINS.
9. THE MAINTENANCE LOG BOOK SHALL BE AVAILABLE TO HOWARD COUNTY FOR INSPECTION TO INSURE COMPLIANCE WITH OPERATION AND MAINTENANCE CRITERIA.
10. ONCE THE PERFORMANCE CHARACTERISTICS OF THE INFILTRATION SYSTEM HAVE BEEN VERIFIED, THE MONITORING SCHEDULE CAN BE REDUCED TO AN ANNUAL BASIS UNLESS THE PERFORMANCE DATA INDICATES THAT A MORE FREQUENT SCHEDULE IS REQUIRED.

APPROVED
 PLANNING BOARD
 OF HOWARD COUNTY

DATE: _____

EMBANKMENT SWM POND #2

CURVE TABLE

NAME	DELTA	RADIUS	LENGTH	BEARING	CHORD	TANGENT
C-1	102°10'10"	31.00'	55.28'	S 55°30'24" E	48.24'	38.40'
C-2	41°15'48"	59.00'	42.49'	N 27°00'25" W	41.58'	22.21'
C-3	81°03'07"	10.00'	14.15'	S 07°06'45" E	13.09'	8.55'
C-4	54°19'28"	10.00'	9.48'	S 60°34'32" W	9.13'	5.13'

LINE TABLE

LINE	LENGTH	BEARING
L-1	18.04	S73°24'31" W
L-2	46.36	N05°43'34" W
L-3	34.15	N47°38'19" W
L-4	13.49	N33°24'48" E
L-5	32.56	N87°44'16" E

SWM POND #2

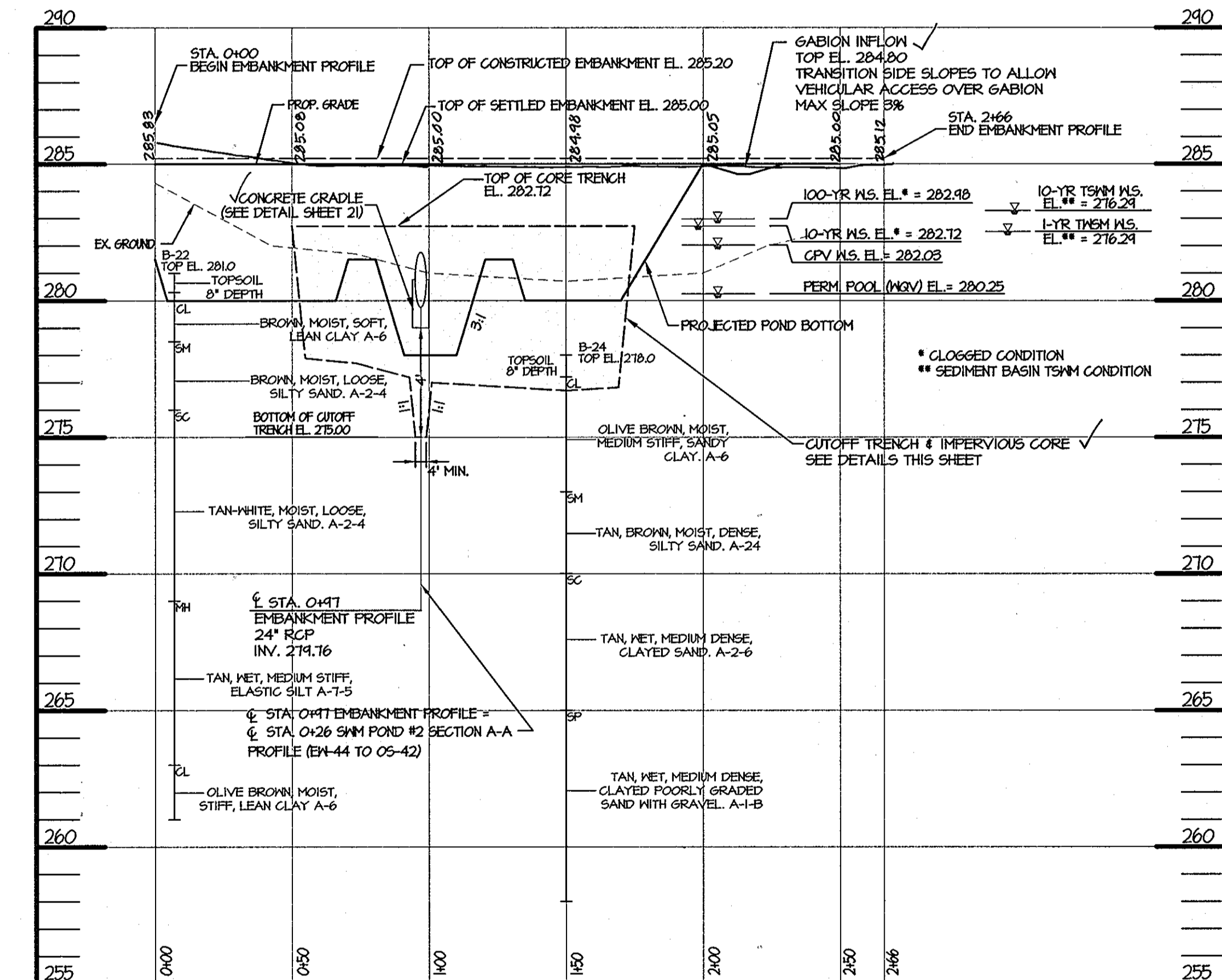
STORMWATER MANAGEMENT STRUCTURE SCHEDULE

STR. NO.	TOP ELEV.	INV. IN.	INV. IN. OUT.	TYPE	REMARKS	NORTHING	EASTING
EW-44	283.05	---	274.58	TYPE "A" HEADWALL, HOWARD CO. STD. DETAIL SD-5.11		552,961.50	1,372,355.73
OS-42	284.50	---	280.47	RISER STRUCTURE (SEE DETAIL SHEET)		552,984.57	1,372,401.80

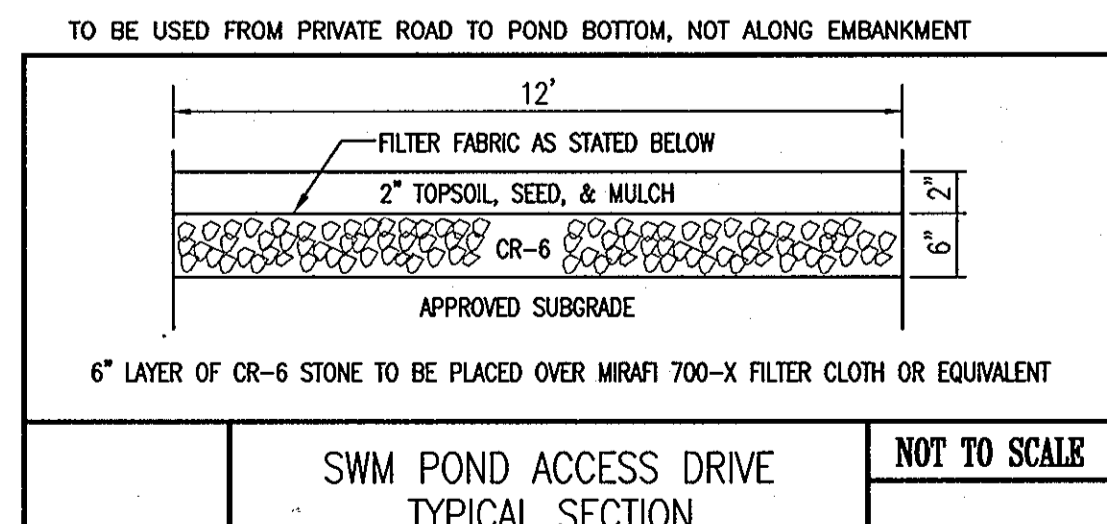
COORDINATES TO CENTER OF STRUCTURE.

OWNER/DEVELOPER/APPLICANT

NAME: MR. BRIAN KNAUFF
 COMPANY: THE RYLAND GROUP
 6011 UNIVERSITY BOULEVARD, SUITE 260
 ELLICOTT CITY, MARYLAND 21043
 PHONE: 410-480-2467
 FAX: 410-480-0543



SWM AS-BUILT PLAN

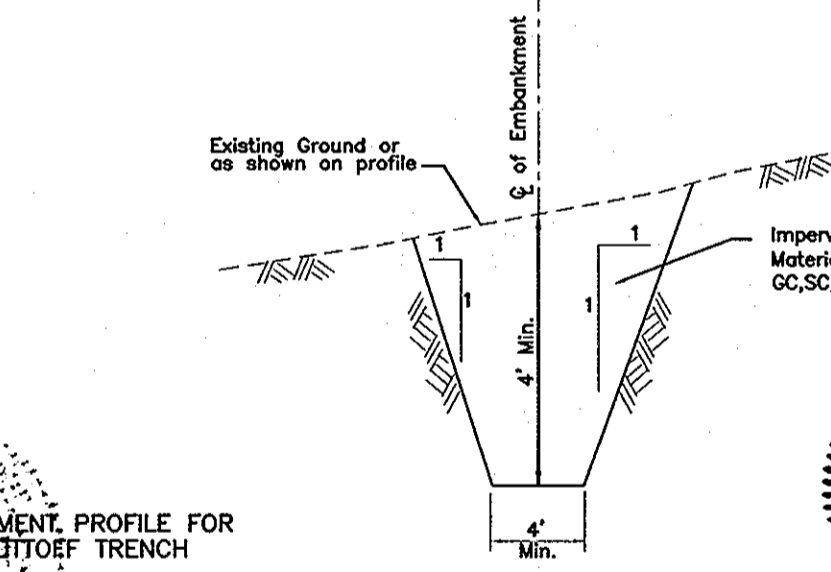


SWM POND #2 SECTION B-B

HOR. 1"=40'
 VERT. 1"=4'

IMPERVIOUS CORE

N.T.S.



SWM AS-BUILT CERTIFICATION

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

Signature: [Signature]
 DATE: 7-29-10

MORRIS & RITCHIE ASSOCIATES, INC.
 ENGINEERS, PLANNERS, SURVEYORS AND LANDSCAPE ARCHITECTS

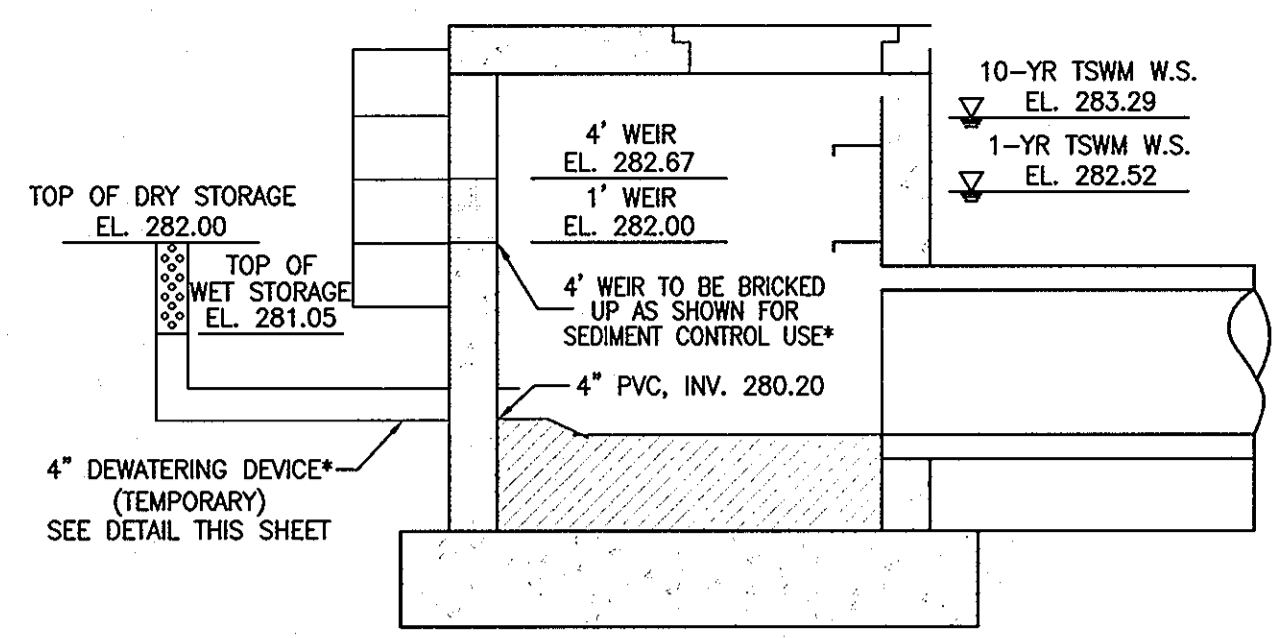
14280 PARK CENTER DRIVE, SUITE A
 LAUREL, MARYLAND 20707
 (410) 792-9792 or (301) 776-1690
 FAX (410) 792-7395

SWM POND #2 PLAN, PROFILE & DETAILS

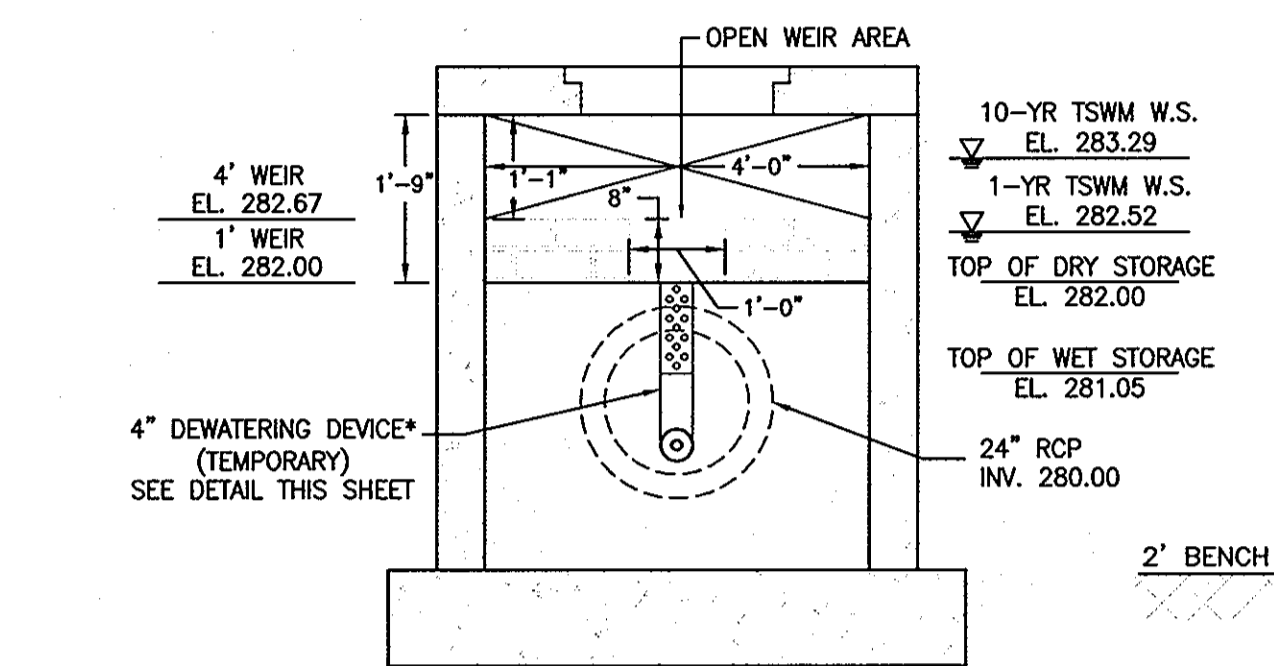
LIBER: 9779 ~ FOLIO: 80 ~ PARCEL: 382
 ZONED: NT ~ TAX MAPS: 37 & 43 ~ GRIDS: 20, 21 & 23
 LOTS: J, K & L ~ 6TH ELECTION DISTRICT ~ HOWARD COUNTY, MARYLAND

DATE	REVISIONS	JOB NO.:
7/21/10	SWM AS-BUILT INFO ADDED	14719

SCALE: AS SHOWN
 DATE: 4/24/07
 DRAWN BY: MM
 DESIGN BY: MM
 REVIEW BY: KSK
 SHEET: 20 OF 33

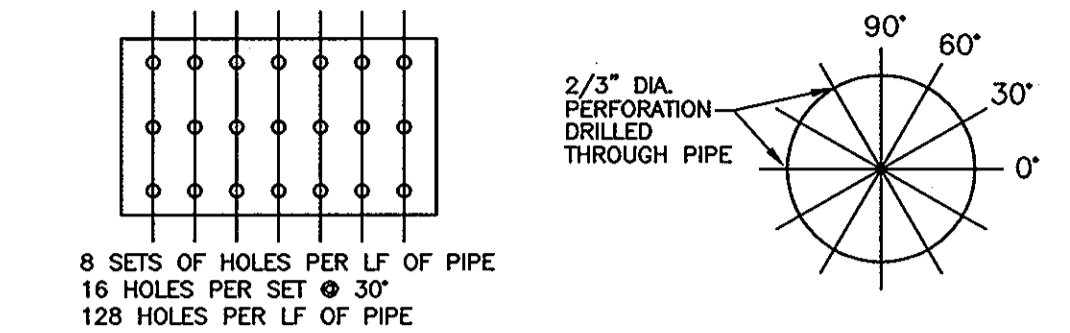


SEDIMENT BASIN RISER SECTION B-B
SCALE: 1"=2'

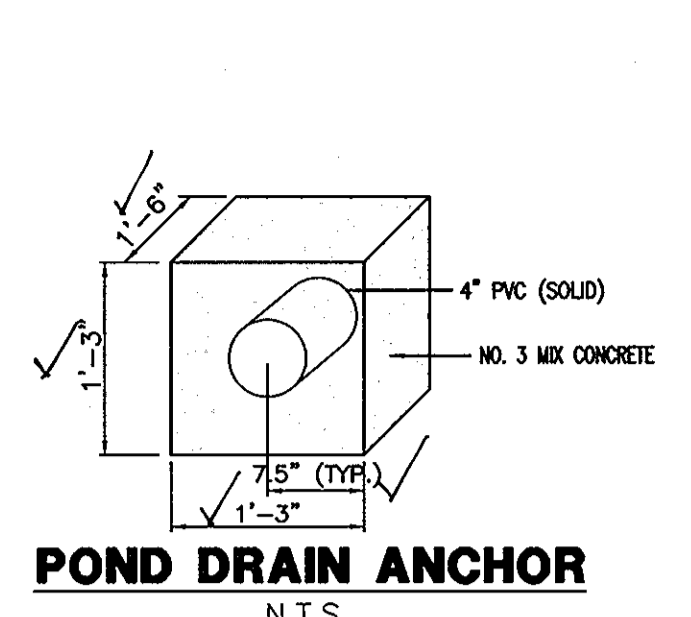


SEDIMENT BASIN RISER SECTION A-A
SCALE: 1"=2'

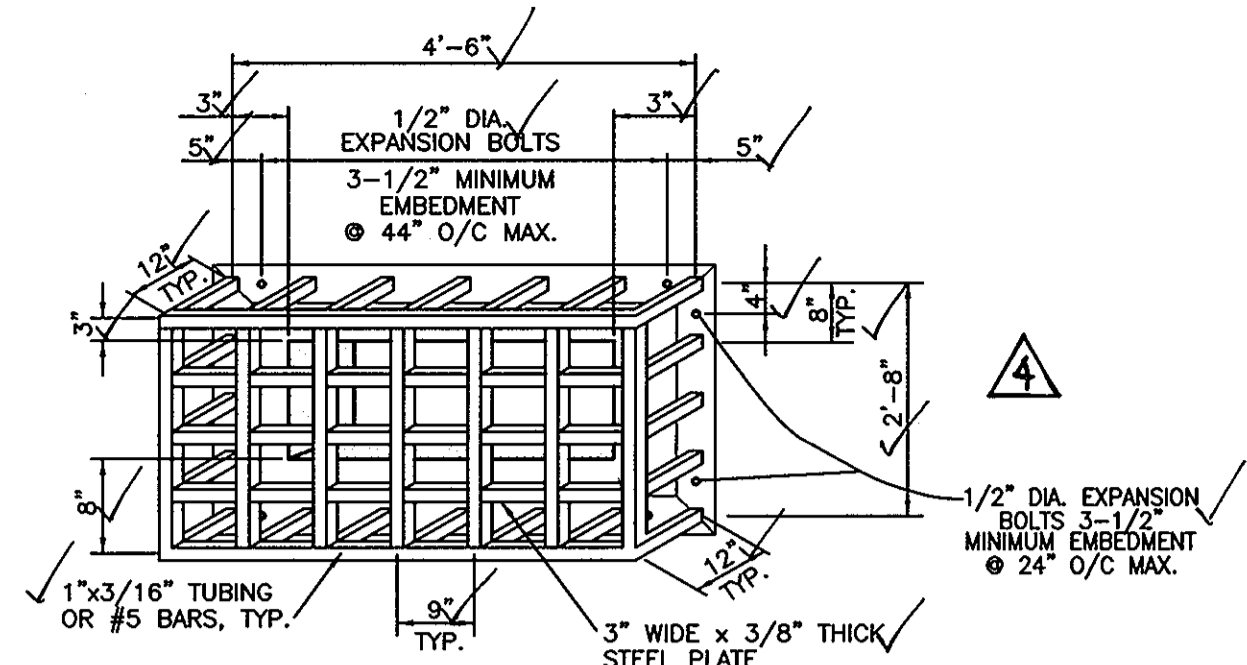
- NOTES:
- PIPE PERFORATIONS TO BE PER DETAIL SHOWN.
 - PERFORATED SECTION OF PIPE TO BE WRAPPED WITH CLASS "E" FILTER FABRIC.
 - SOLID PORTION OF PIPE TO BE COVERED WITH #2 STONE FOR A MINIMUM OF DEPTH OF 6" AROUND AND OVER PIPE.
 - SEE "VERTICAL DRAW-DOWN DEVICE DETAIL" SHEET 25 FOR ADDITIONAL INSTALLATION INFORMATION.



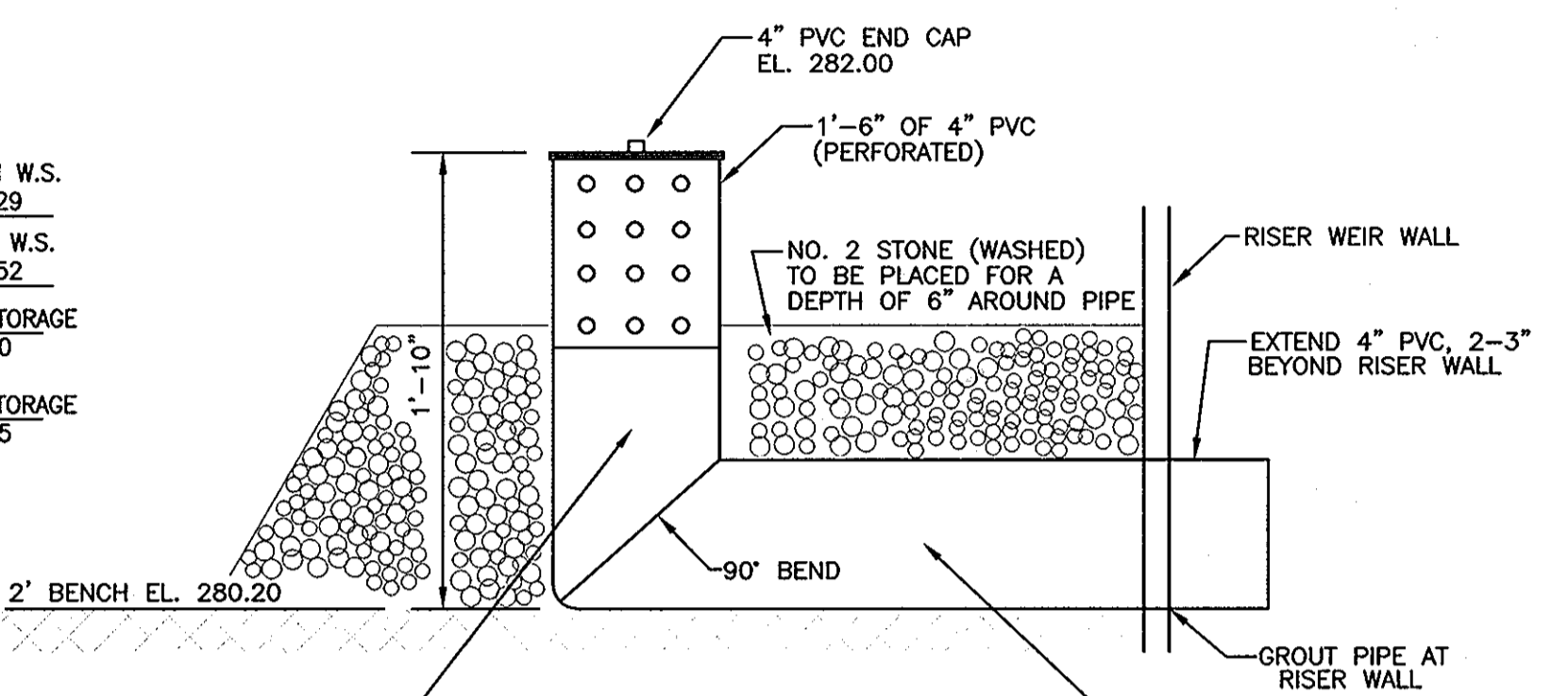
*ONCE ALL UPSTREAM AREAS ARE STABILIZED, SEDIMENT BASIN IS TO BE DEWATERED. ALL ACCUMULATED SEDIMENT IS TO BE REMOVED & POND BOTTOM IS TO BE STABILIZED. REMOVE TEMPORARY DEWATERING DEVICE, TEMPORARY BRICKWORK, & REPLACE WITH SWM DEWATERING DEVICE PER DETAIL SHOWN ON THIS DETAIL SHEET.



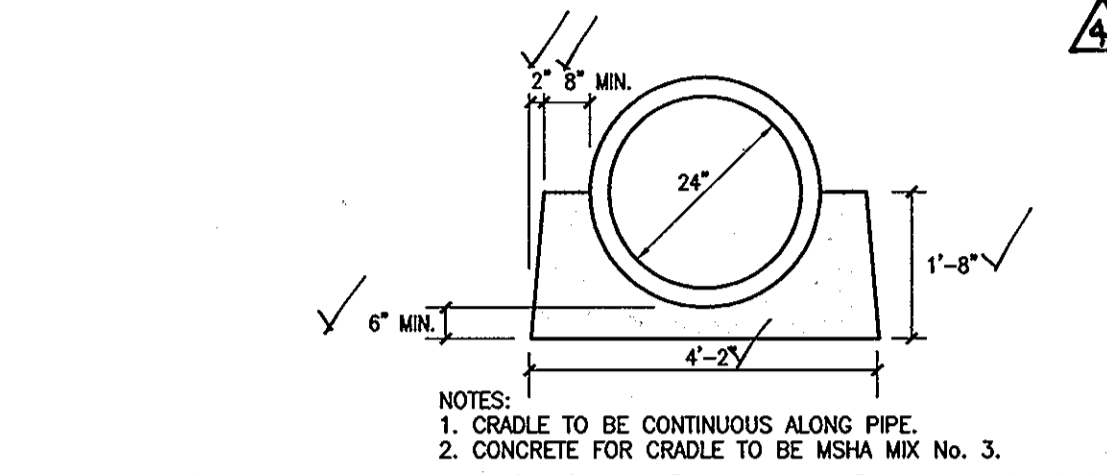
POND DRAIN ANCHOR
N.T.S.



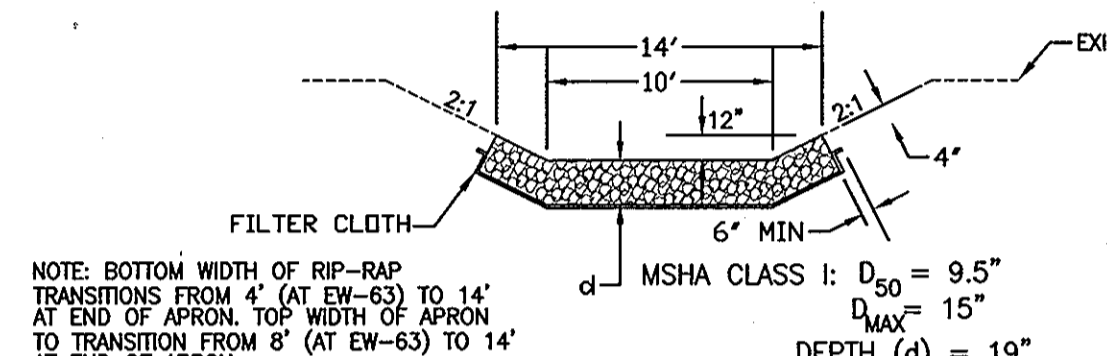
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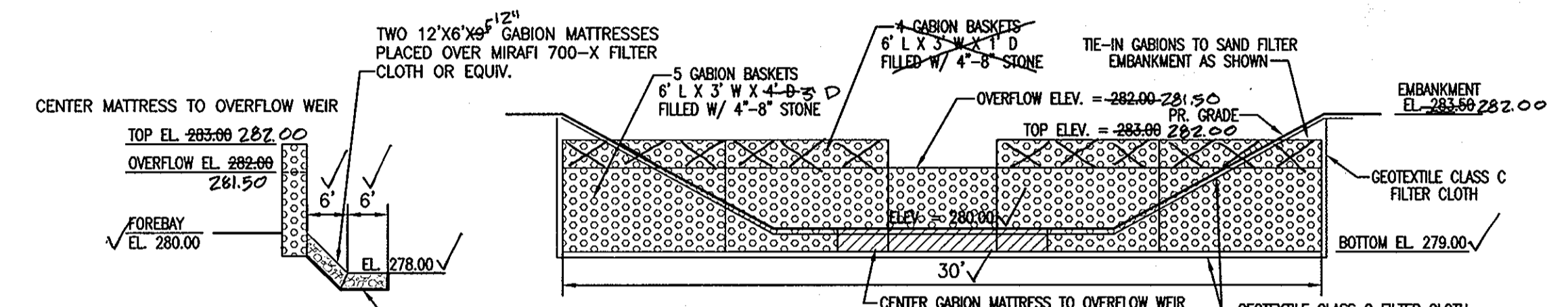
SEDIMENT BASIN #2 DEWATERING DEVICE DETAIL
N.T.S.



SWM POND #2 CONCRETE CRADLE DETAIL
N.T.S.

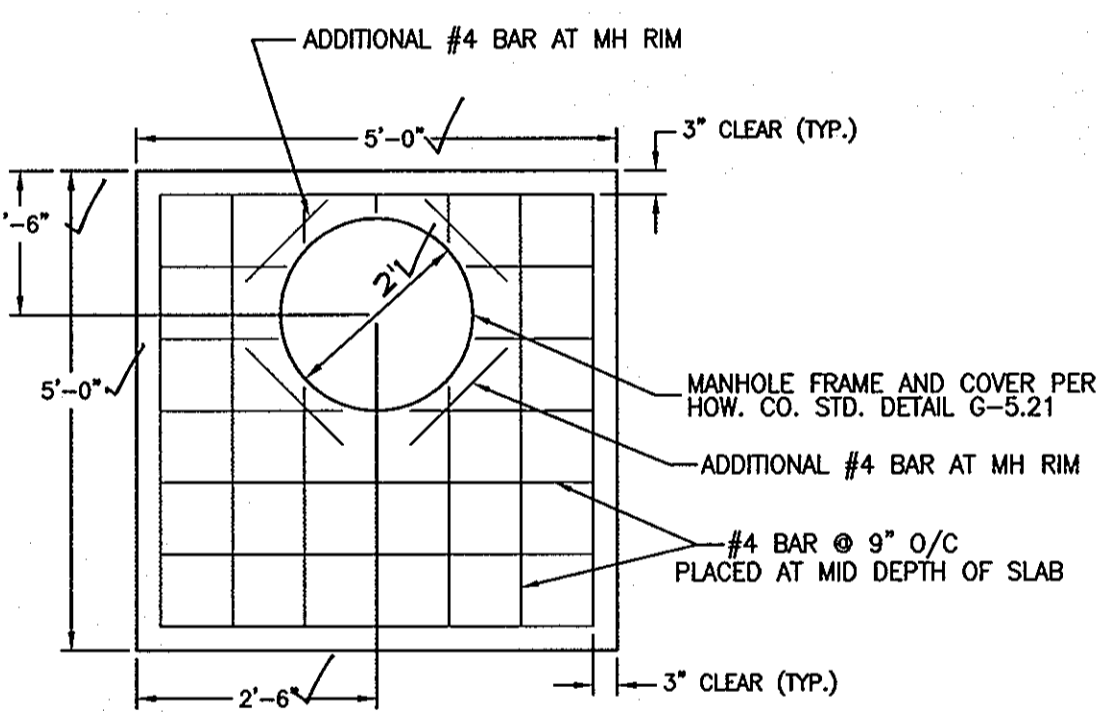


SWM POND #2 RIP RAP CHANNEL DETAIL
N.T.S.

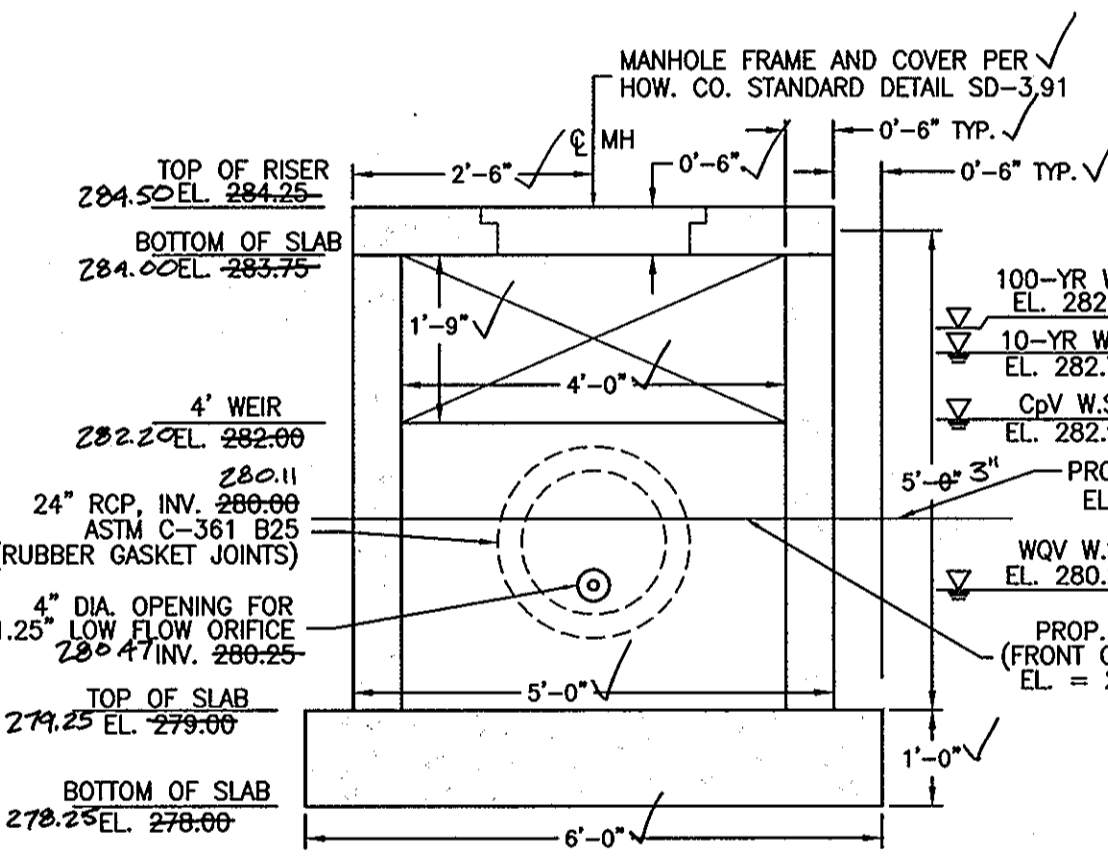


GABION WALL DETAIL AT SWM POND #2
N.T.S.

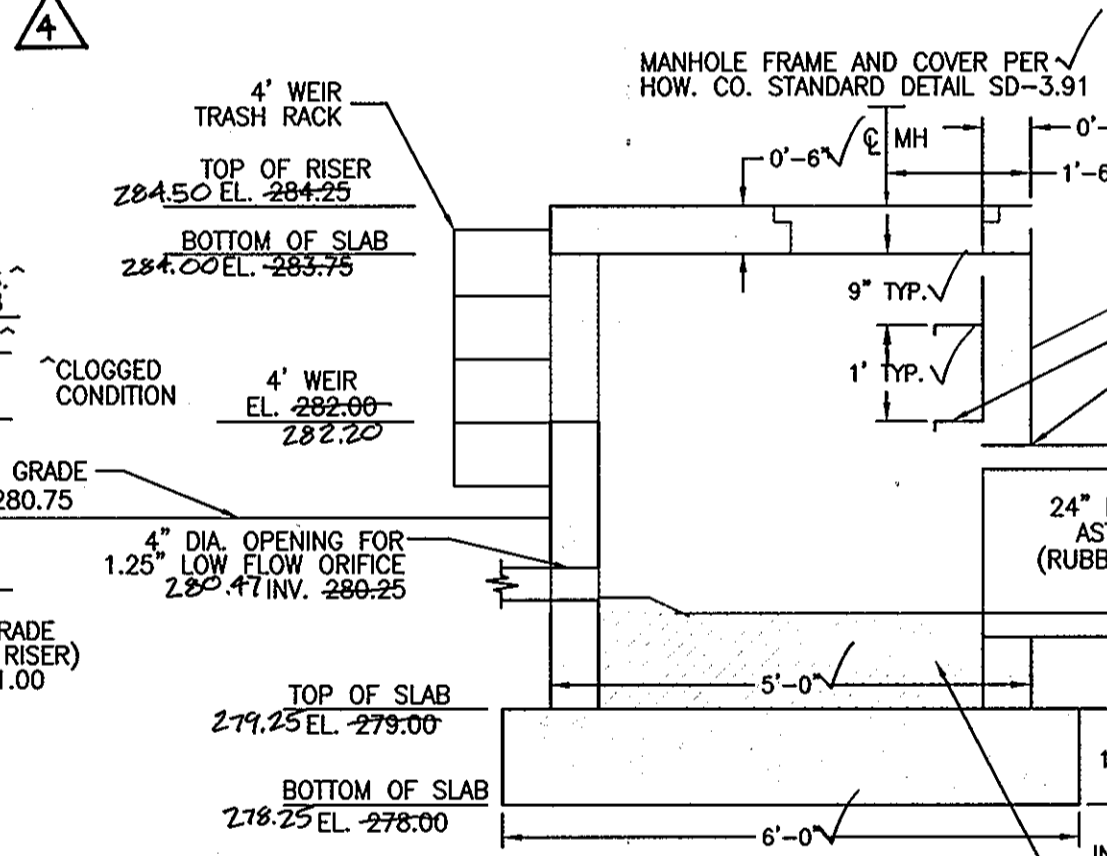
- INSTALLATION NOTES:
- GABION BASKETS SHALL BE CONSTRUCTED OF GALVANIZED U.S. GAUGE #11 WIRE OR APPROVED EQUIVALENT.
 - GABION INSTALLATION SHALL BE PERFORMED ACCORDING TO GABION MANUFACTURER'S RECOMMENDATIONS AND SPECS.
 - TOP GABION BASKETS TO BE STAGGERED OVER BOTTOM BASKETS PER MANUFACTURER'S RECOMMENDATIONS.
 - TOP GABION BASKETS TO BE FASTENED TO BOTTOM BASKETS PER MANUFACTURER'S RECOMMENDATIONS.



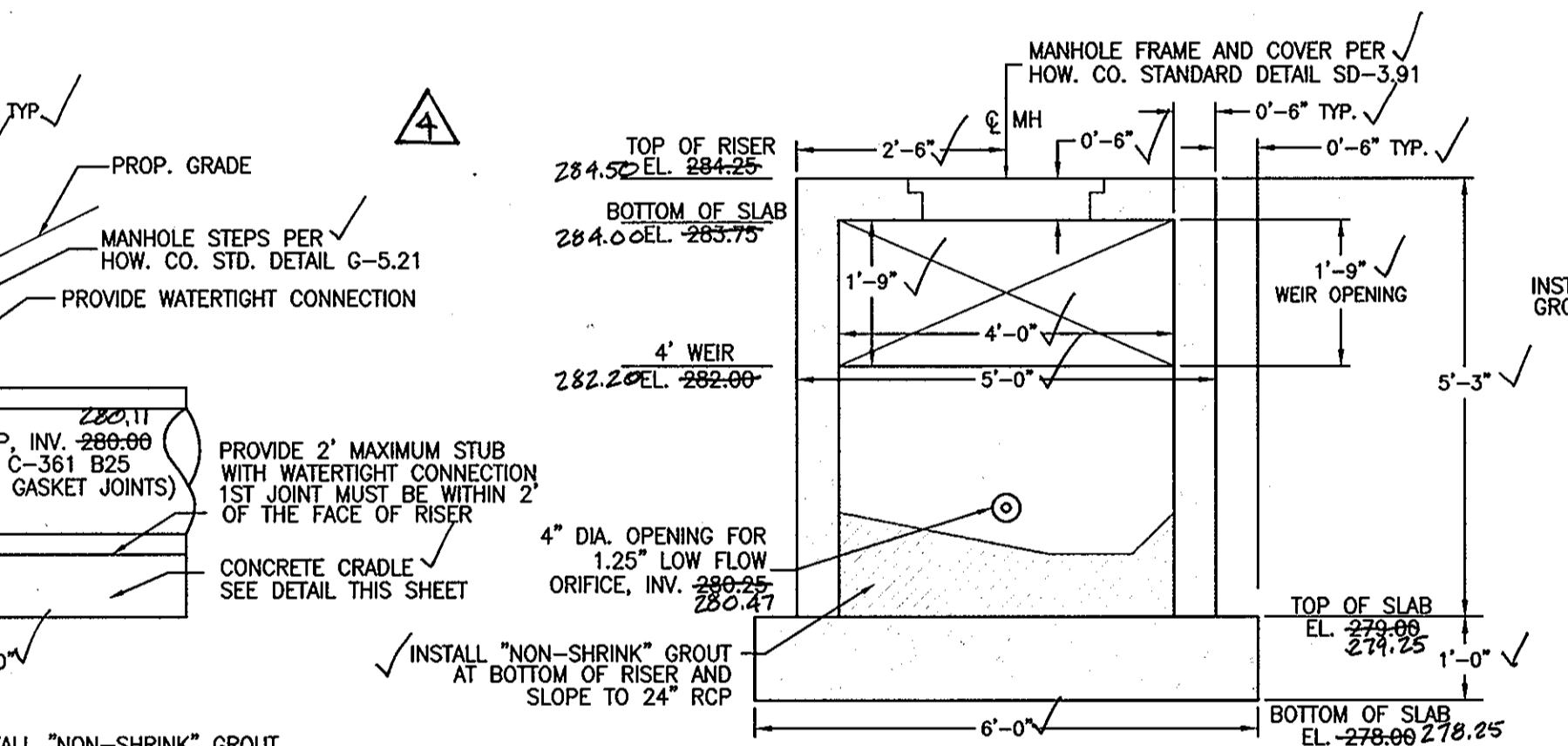
TOP OF SLAB DETAIL
SCALE: 1"=2'



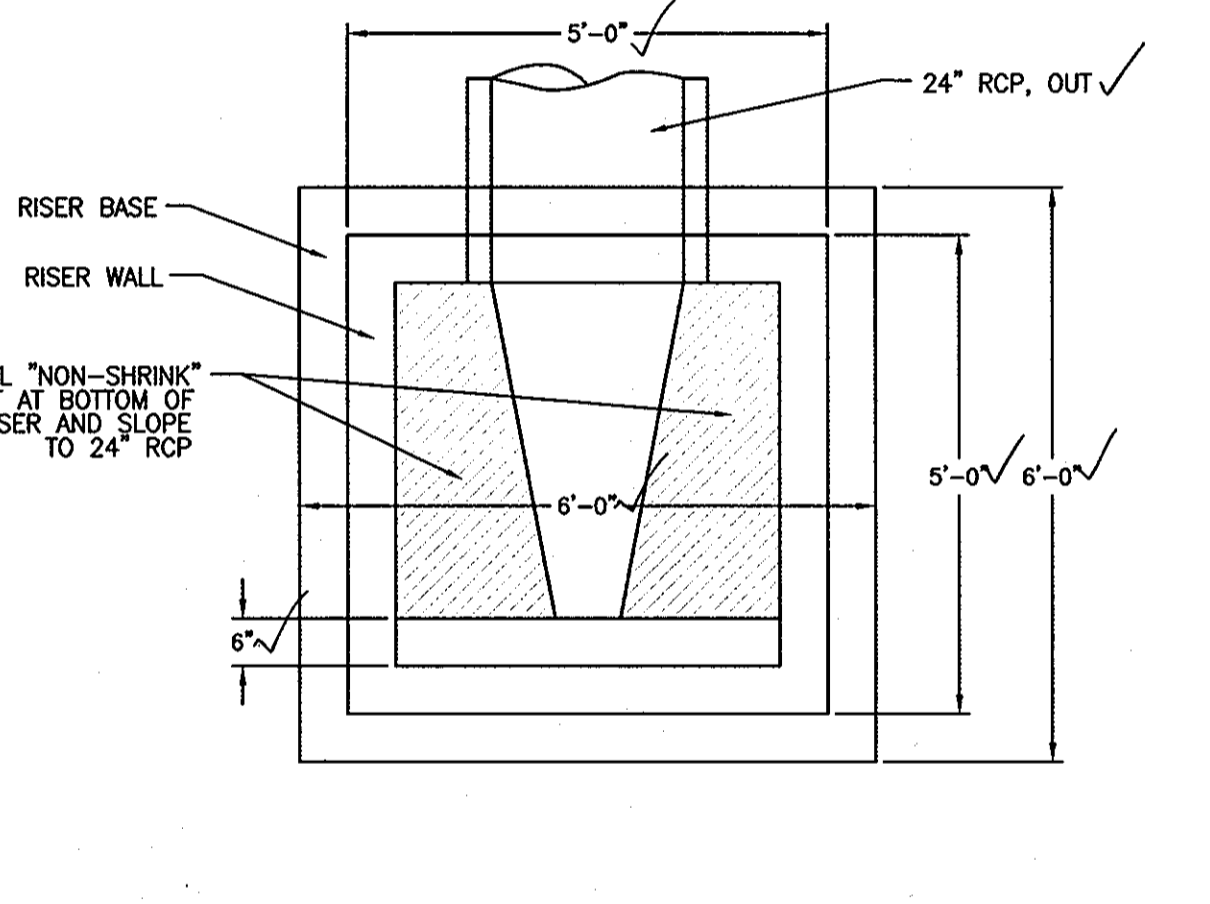
RISER SECTION A-A
SCALE: 1"=2'



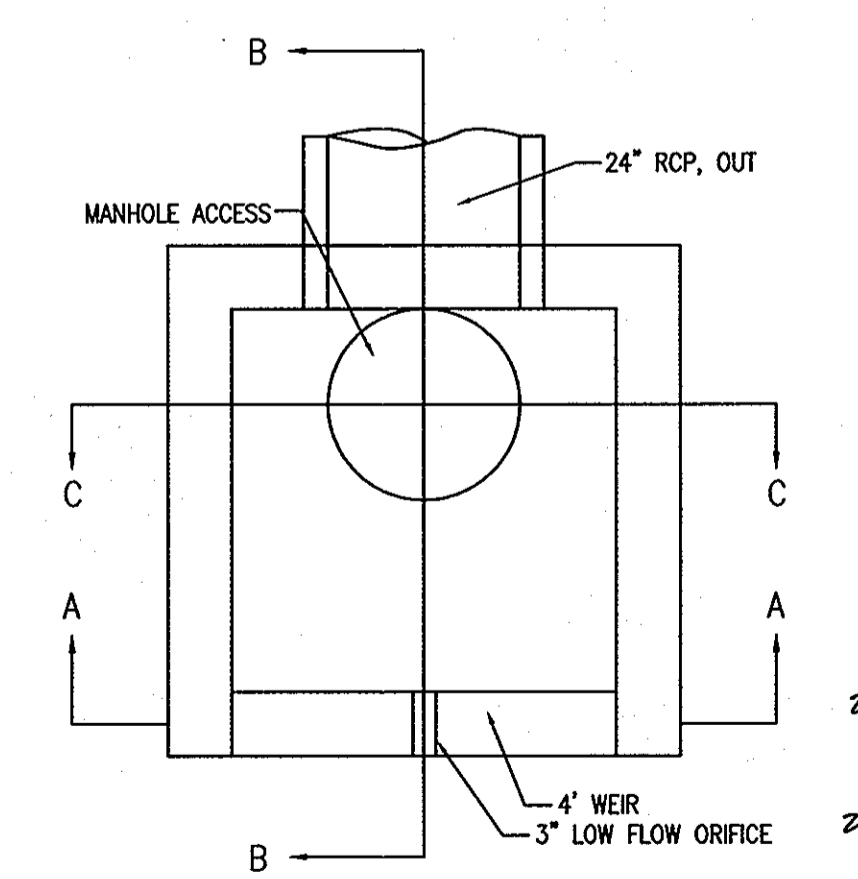
RISER SECTION B-B
SCALE: 1"=2'



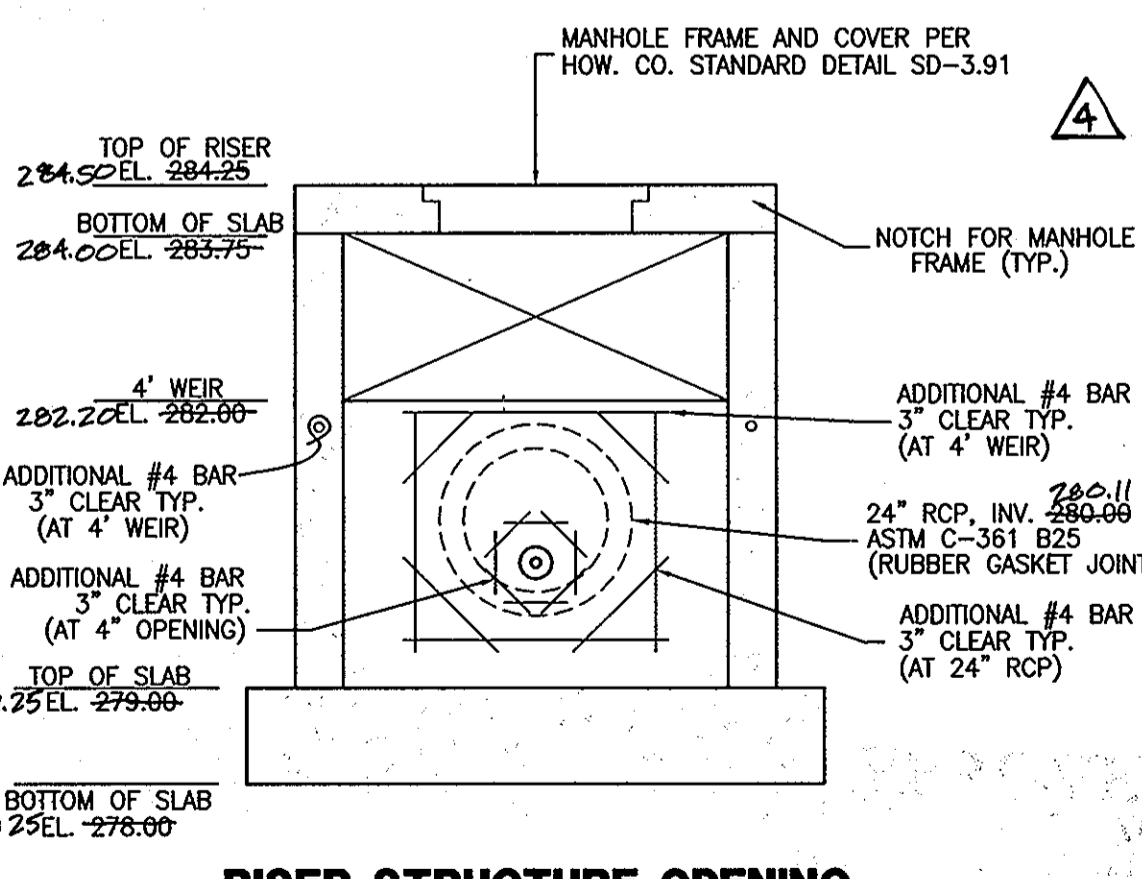
RISER SECTION C-C
SCALE: 1"=2'



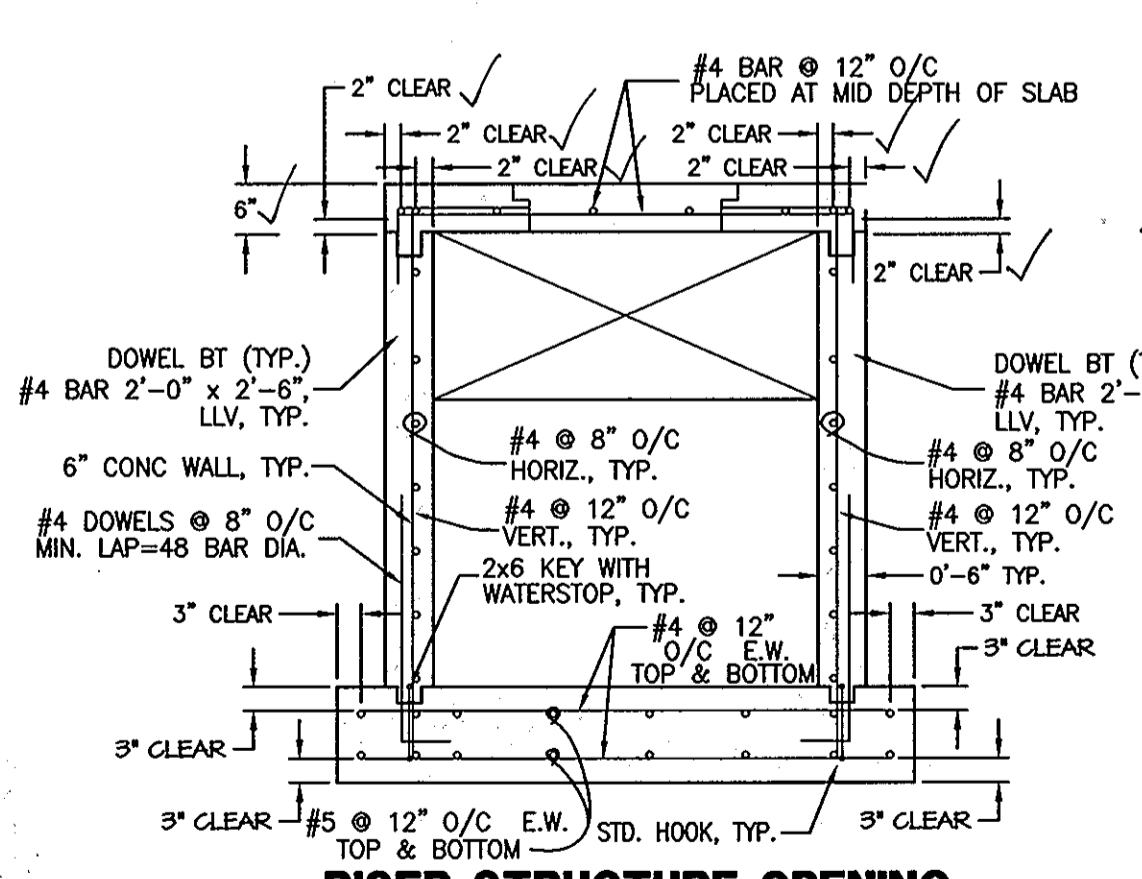
RISER BOTTOM DETAIL
SCALE: 1"=2'



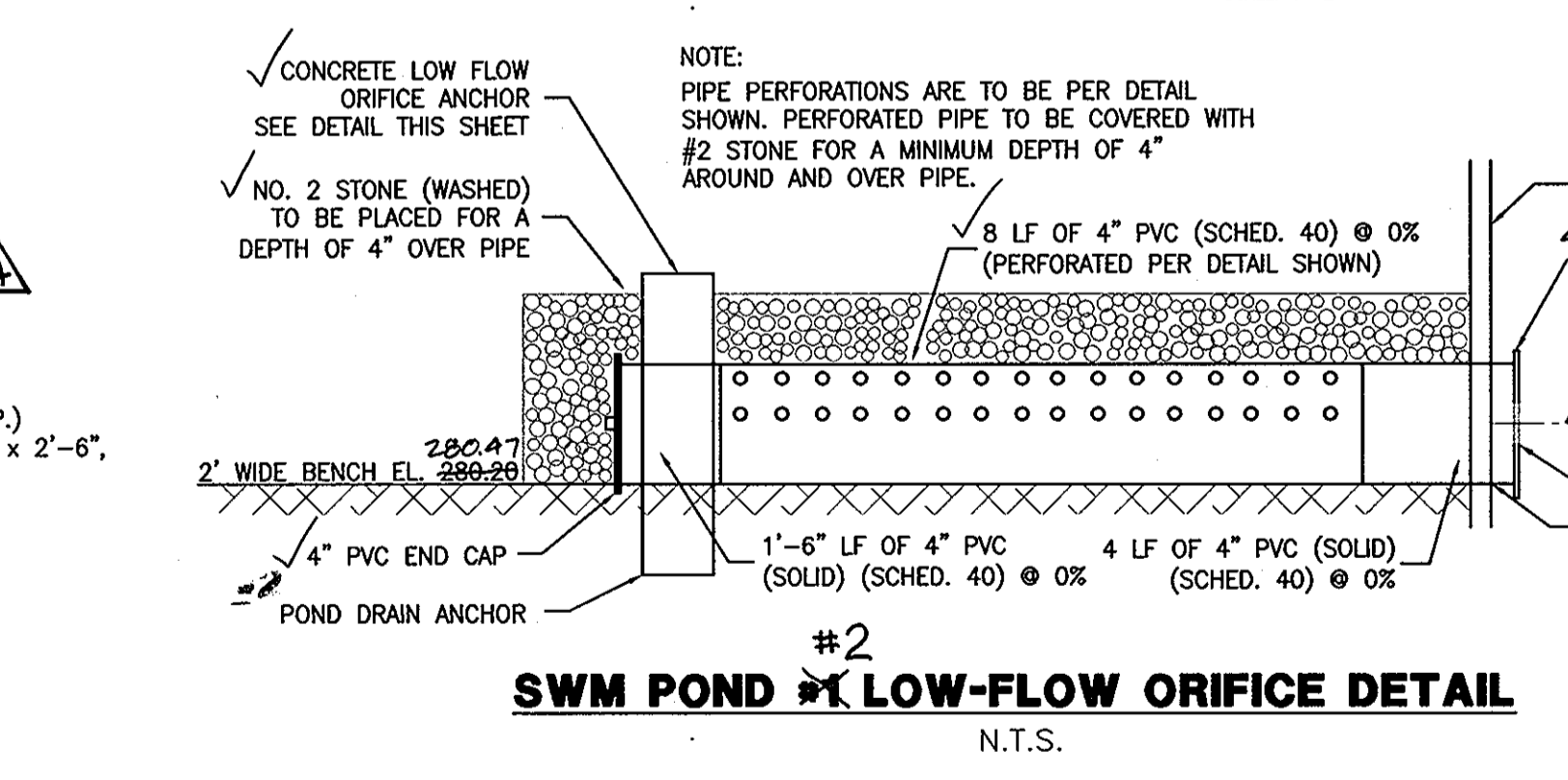
SECTION LOCATIONS
SCALE: 1"=2'



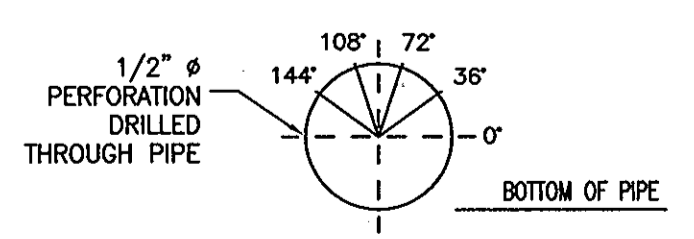
RISER STRUCTURE OPENING REINFORCEMENT DETAIL
SCALE: 1"=2'



RISER STRUCTURE OPENING REINFORCEMENT DETAIL
SCALE: 1"=2'



SWM POND #2 LOW-FLOW ORIFICE DETAIL
N.T.S.



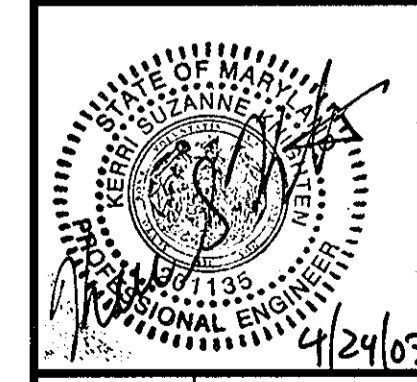
4 SETS OF HOLES PER LF OF PIPE
4 HOLES PER SET (SEE DETAIL ABOVE)
16 TOTAL HOLES PER LF OF PIPE

SWM AS-BUILT PLAN

SWM AS-BUILT CERTIFICATION
I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.
DATE: 7-27-10
SIGNATURE: [Signature]
ENGINEER-IN-CHARGE: [Name]
DATE: 7/27/10
MD. PE. SEAL AND NO. 29203



MORRIS & RITCHIE ASSOCIATES, INC.
ENGINEERS, PLANNERS, SURVEYORS AND LANDSCAPE ARCHITECTS
14280 PARK CENTER DRIVE, SUITE A
LAUREL, MARYLAND 20707
(410) 792-9792 or (301) 776-1690
FAX (410) 792-7395



SWM POND #2 PROFILES & DETAILS
SITE DEVELOPMENT PLAN
GATEWAY OVERLOOK AT BENSON EAST-OLD WATERLOO ROAD
66 SINGLE FAMILY ATTACHED CONDOMINIUM UNITS
LIBER: 9779 ~ FOLIO: 80 ~ PARCEL: 382
ZONED: NT ~ TAX MAPS: 37 & 43 ~ GRIDS: 20, 21 & 23
LOTS: J, K & L ~ 6TH ELECTION DISTRICT ~ HOWARD COUNTY, MARYLAND

DATE	REVISIONS	JOB NO.:
7/29/10	SWM AS-BUILT INFO ADDED	14719
		SCALE: AS SHOWN
		DATE: 4/24/07
		DRAWN BY: MM
		DESIGN BY: MM
		REVIEW BY: KSK
		SHEET: 21 OF 33

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
[Signature]
CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE: 6/21/07
[Signature]
CHIEF, DIVISION OF LAND DEVELOPMENT
DATE: 6/23/07
[Signature]
DIRECTOR, DEPARTMENT OF PLANNING AND ZONING
DATE: 6/25/07

APPROVED
PLANNING BOARD
OF HOWARD COUNTY
DATE: 5/10/07

OWNER/DEVELOPER/APPLICANT
NAME: MR. BRIAN KNAUFF
COMPANY: THE RYLAND GROUP
6011 UNIVERSITY BOULEVARD, SUITE 260
ELLCOTT CITY, MARYLAND 21043
PHONE: 410-480-2467
FAX: 410-480-0543

HOWARD SOIL CONSERVATION DISTRICTS
STANDARD SEDIMENT CONTROL NOTES

1. A MIN. OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD CO. DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS, SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION (313-1855)
2. ALL VEGETATION AND STRUCTURAL ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE MOST CURRENT MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL AND REVISIONS THERETO.
3. FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN: A) 7 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES AND ALL SLOPES GREATER THAN 3:1, B) 14 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
4. ALL BASINS SHOWN MUST BE FENCED AND WARNING SIGNS POSTED AROUND THE PERIMETER IN ACCORDANCE WITH VOL. 1, CHAPTER 12 OF THE HOWARD COUNTY DESIGN MANUAL, STORM DRAINAGE.
5. ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDING (SEC. 51), SOD (SEC. 54), TEMPORARY SEEDING (SEC. 50) AND MULCHING (SEC. 52). TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.
6. ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMITS FOR THEIR REMOVAL HAS BEEN OBTAINED FROM HOWARD COUNTY SEDIMENT CONTROL INSPECTOR
7. SITE ANALYSIS:
TOTAL AREA OF SITE 9.36 AC.
AREA DISTURBED 8.98 AC.
AREA TO BE ROOFED OR PAVED 6.01 AC. (6.01 AC., FINAL BUILD-OUT)
AREA TO BE VEGETATIVELY STABILIZED 2.95 AC. (2.95 AC., FINAL BUILD-OUT)
TOTAL CUT 16,313 CU. YDS.*
TOTAL FILL 18,313 CU. YDS.*
TOTAL TOPSOIL 2,300 CU. YDS.*
OFF SITE WASTE/BORROW AREA LOCATION TO BE A SITE WITH AN APPROVED SEDIMENT CONTROL PERMIT.
8. ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTRIBUTED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
9. ADDITIONAL SEDIMENT MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
10. ON ALL SITES WITH DISTURBED AREAS IN ACCESS OF 2 ACRES, APPROVAL OF THE INSPECTION AGENCY SHALL BE REQUESTED UPON COMPLETION OF INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING. OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE.
11. TRENCHES FOR THE UTILITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH SHALL BE BACK-FILLED AND STABILIZED BY THE END OF EACH WORK DAY, WHICHEVER IS SHORTER.

* THE EARTHWORK QUANTITIES SHOWN HEREON ARE FOR INFORMATION PURPOSES ONLY. MRA MAKES NO GUARANTEE OF ACCURACY OF QUANTITIES OR BALANCE OF SITE. THE DEVELOPER AND CONTRACTOR SHALL TAKE FULL RESPONSIBILITY OF ACTUAL EARTHWORK QUANTITIES ENCOUNTERED DURING CONSTRUCTION.

SEQUENCE OF CONSTRUCTION

1. STORM DRAIN PROPOSED UNDER F-06-203 MUST BE COMPLETED BEFORE THE START OF THIS PLAN. SEE F-06-203
2. OBTAIN GRADING PERMIT. 1 DAY
3. CLEAR FOR AND INSTALL PERIMETER SEDIMENT CONTROLS, SILT FENCE, SEDIMENT BASINS #1 & #2 AND STABILIZED CONSTRUCTION ENTRANCES. 3 WEEKS
4. CONSTRUCT PROPOSED STORM DRAIN SYSTEM, EW-18 TO I-32. 1 WEEK
5. INSTALL EARTH DIKES. 1 WEEK
6. DIRECT RUNOFF USING EARTH DIKES TO INLET I-32.
7. WITH HOWARD COUNTY SEDIMENT CONTROL INSPECTOR'S PERMISSION, PROCEED WITH ROUGH GRADING PHASE. 1 DAY
8. CLEAR & GRUB, BEGIN ROUGH GRADING OF SITE. 4 WEEKS
9. BEGIN UTILITY CONSTRUCTION AND COMPLETE STORM DRAIN SYSTEM, INSTALL INLET PROTECTION AS STORM DRAIN INSTALLATION PROCEEDS. 6 WEEKS
10. BEGIN TOWNHOUSE CONSTRUCTION. ADD TYPICAL SEDIMENT CONTROLS FOR TOWNHOUSES ON SHEET 23. 12 MONTHS
11. FINE GRADE AND INSTALL CURB, GUTTER AND BASE PAVING. 1 MONTH
12. CONSTRUCT WALKWAYS, RAMPS, GRASSED CHANNELS, AND VEGETATIVELY STABILIZE REMAINING AREAS. 2 WEEKS
13. WHEN RECEIVING AREA IS STABILIZED, CLEAN STORM DRAINAGE AND SEDIMENT BASINS AFFECTED BY ANY SEDIMENTATION. 1 WEEK
14. WITH HOWARD COUNTY SEDIMENT CONTROL INSPECTOR'S PERMISSION, CONVERT SEDIMENT BASINS TO SWM PONDS. REMOVE EARTH DIKES, AND STABILIZE REMAINING DISTURBED AREAS. 2 WEEKS
15. REMOVE OLD AND NEW JUNK, TRASH AND DEBRIS FROM ENTIRE SITE, INCLUDING FROM FLOODPLAIN, BUFFER AND OPEN SPACES AREAS. 2 DAYS

SWM POND CONVERSION INSTALLATION SEQUENCE

1. PUMP-OUT ANY REMAINING WATER. IF NECESSARY USE A FLOCCULANT TO CLEAR WATER PRIOR TO PUMPING. FILTER PUMP EFFLUENT THROUGH SILT SACKS. DRY-OUT POND BOTTOM AND REMOVE ANY UNSUITABLE SOILS TO FINAL GRADES.
2. REMOVE DEWATERING DEVICES AND INSTALL POND DRAIN SYSTEM. INSTALL TRASH RACKS AND UNBLOCK ORIFICES. REMOVE ANY REMAINING RISER BLOCKING.
3. INSTALL FOREBAYS, GABION WALLS, BERMS, GABION MATTRESSES, AND STABILIZE BERMS IMMEDIATELY USING SOD. DISC BOTTOM OF INFILTRATION BASIN AREA. INSTALL ACCESS ROADS, FENCES AND GATES.
4. STABILIZE ALL SLOPES AND POND BOTTOMS AND FOREBAY AREAS WITH SEED AND MULCH. SLOPES 3:1 WILL REQUIRE SOD STABILIZATION. CLOSE POND DRAIN VALVES.
5. REQUEST ENGINEER TO PERFORM FINAL SWM SURVEY AND INSPECTION.

LEGEND

- EX. BUILDING
- EX. CURB
- EX. EASEMENT
- EX. FENCE
- EX. FLOODPLAIN
- EX. GAS
- EX. PAVEMENT
- EX. PROPERTY LINE
- EX. ROAD CENTERLINE
- EX. SANITARY SEWER
- EX. STORM DRAIN
- EX. STREAM
- EX. 75' STREAM BUFFER
- EX. TREE LINE
- EX. WATERLINE
- EX. FIRE HYDRANT
- EX. WETLAND
- EX. WETLAND BUFFER
- PROP. 2025 65BIA LINE
- PROP. 1' CONTOURS
- PROP. 2' CONTOURS
- PROP. 10' CONTOURS
- PROP. CENTERLINE OF DRAINAGE SWALE
- PROP. FENCE - SEE DETAIL SHEET 33
- PROP. CURB
- PROP. REVERSE CURB & GUTTER
- PROP. STANDARD CURB & GUTTER
- PROP. TREE LINE
- PROP. LIMIT OF DISTURBANCE
- PROP. PAVEMENT
- PROP. BUILDING SETBACK
- PROP. PRIVATE SANITARY SEWER LINE
- PROP. PUBLIC SANITARY SEWER LINE
- PROP. PUBLIC WATER LINE
- PROP. PRIVATE STORM DRAIN LINE
- PROP. PUBLIC STORM DRAIN LINE
- PROP. DRAINAGE AREA
- PROP. SWM POND OUTLINE
- PROP. SILT FENCE
- PROP. SUPER SILT FENCE
- PROP. "AT GRADE" INLET PROTECTION
- PROP. STABILIZED CONSTRUCTION ENTRANCE
- PROP. EARTH DIKE
- PROP. TEMPORARY SWALE
- PROP. PUBLIC SITE LIGHTING
- PROP. PRIVATE SITE LIGHTING
- SOIL BOUNDARY
- SOIL TYPE

SUMMARY TABLE-SEDIMENT BASIN #1

EX. D.A. = 5.60 AC.
MAX. PROP. D.A. = 5.60 AC.
STORAGE REQUIRED = 20,160 CF
WET VOLUME = 10,080 CF
DRY STORAGE = 5,040 CF
STORAGE PROVIDED = 34,309 CF @ 275.25
WET VOLUME = 10,356 CF @ 273.75
DRY VOLUME = 23,336 CF

DEPTH BELOW WEIR CREST
WET VOLUME = 1.50'
DRY VOLUME = 0.00'
WEIR CREST ELEV. = 275.25
TOP OF EMBANKMENT ELEV. = 279.00
DEWATERING DEVICE ELEV. = 273.00
CLEANOUT ELEV. = 273.56
BOTTOM ELEV. = 273.00

PEAK DISCHARGES
EX. Q1 = 3.20 cfs
DURING Q1 (INFLOW) = 15.25 cfs
DURING Q1 (OUTFLOW) = 1.01 cfs (TSWM)
PROP. Q1 (INFLOW) = 9.69 cfs
PROP. Q1 (OUTFLOW) = 0.21 cfs (SWM)

SOILS LEGEND		
SYMBOL	NAME/DESCRIPTION	SOIL TYPE
Fa	FALLSINGTON, SANDY LOAM, 0-2% SLOPES	C
Rsb	RUSSETT, FINE SANDY LOAM, 2-5% SLOPES	C
Rsc	RUSSETT, FINE SANDY LOAM, 5-10% SLOPES	C
Uaf	UDORTHERTS, HIGHWAY 0-65% SLOPES	C
UD	URBAN LAND, UDORTHERTS COMPLEX 0-15% SLOPES	C

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/WE ALSO AUTHORIZE ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT.

DATE: 4/25/07

SIGNATURE OF DEVELOPER: [Signature]

RYLAND HOMES, INC.

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.

DATE: 4/24/07

SIGNATURE OF ENGINEER: [Signature]

KEVIN S. KNIGHTEN, P.E. NO LICENSE #201135

REVIEWED FOR HOWARD S.C.D. AND MEETS TECHNICAL REQUIREMENTS.

DATE: 6/19/07

U.S.D.A. NATURAL RESOURCES CONSERVATION SERVICE

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

DATE: 6/19/07

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

DATE: 6/21/07

DATE: 6/20/07

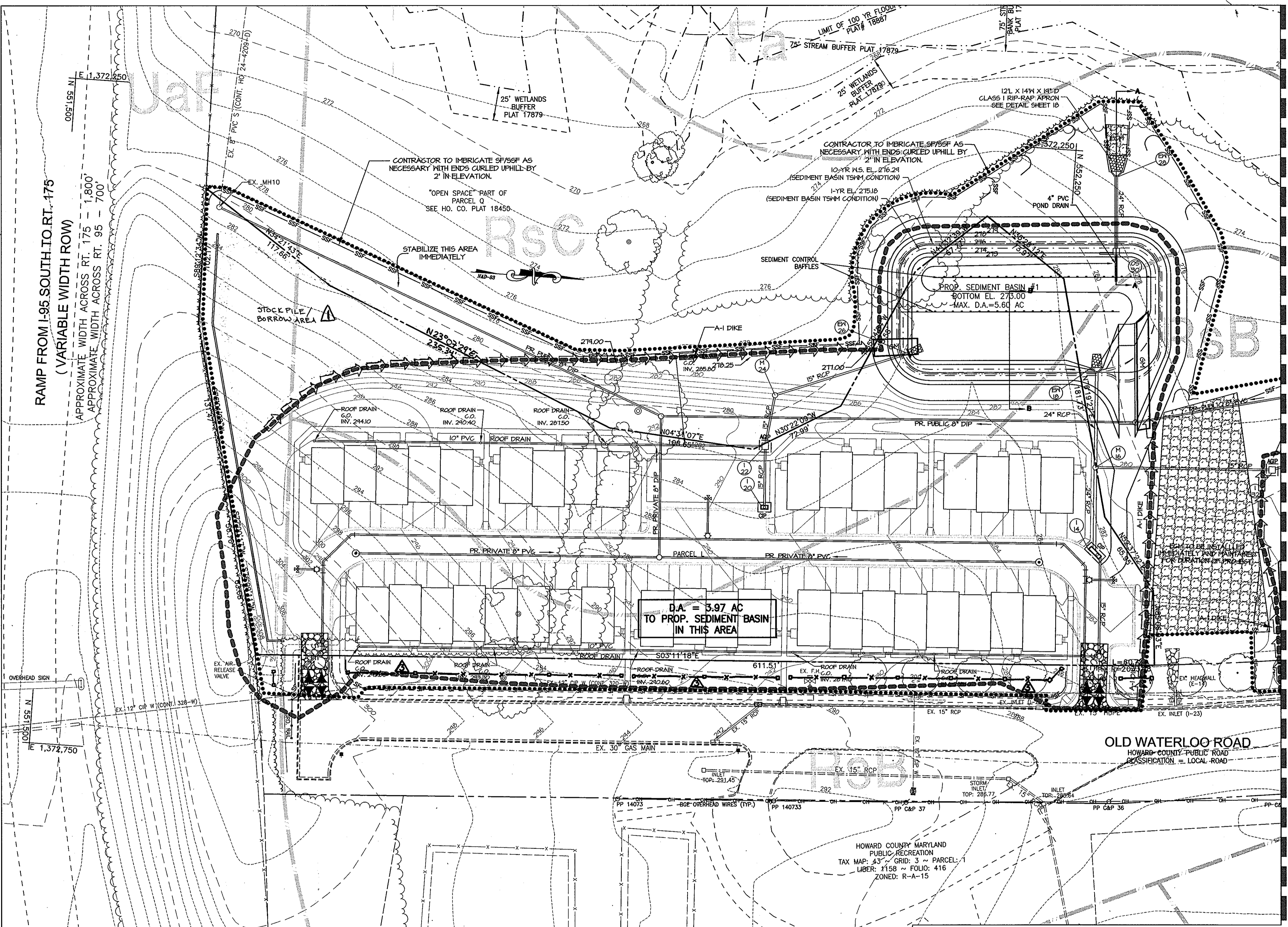
DATE: 6/20/07

APPROVED
BOARD OF HOWARD COUNTY

DATE: 5/10/07

APPROVED
PLANNING BOARD OF HOWARD COUNTY

DATE: 5/10/07



SEE SWM DETAIL SHEETS FOR RISER/OUTFALL SECTIONS AT SEDIMENT BASINS

MORRIS & RITCHIE ASSOCIATES, INC.
ENGINEERS, PLANNERS, SURVEYORS AND LANDSCAPE ARCHITECTS

14280 PARK CENTER DRIVE, SUITE A
LAUREL, MARYLAND 20707
(410) 792-9792 or (301) 776-1690
FAX (410) 792-7395

MRA

EROSION & SEDIMENT CONTROL PLAN

SITE DEVELOPMENT PLAN
GATEWAY OVERLOOK AT BENSON EAST-OLD WATERLOO ROAD
66 SINGLE FAMILY ATTACHED CONDOMINIUM UNITS

LIBER: 9779 ~ FOLIO: 80 ~ PARCEL: 382
ZONED: NT ~ TAX MAPS: 37 & 43 ~ GRIDS: 20, 21 & 2,3
LOTS: J, K & L ~ 6TH ELECTION DISTRICT ~ HOWARD COUNTY, MARYLAND

DATE	REVISIONS	JOB NO.:
7/21/07	ADD LOD REVISION	14719
7/16/08	ADDED ENTRANCE FEATURES	

OWNER/DEVELOPER/APPLICANT
NAME: MR. BRIAN KNAUFF
COMPANY: THE RYLAND GROUP
6011 UNIVERSITY BOULEVARD, SUITE 260
ELLCOTT CITY, MARYLAND 21043
PHONE: 410-480-2467
FAX: 410-480-0543

SCALE: 1"=40'
DATE: 4/24/07
DRAWN BY: MM
DESIGN BY: MM
REVIEW BY: KSK
SHEET: 22 OF 33

MATCHLINE - SEE SHEET 23 FOR CONTINUATION

SUMMARY TABLE-SEDIMENT BASIN #2

EX. D.A. = 2.74 AC.
 MAX. PROP. D.A. = 2.74 AC.
 STORAGE REQUIRED = 9,864 CF
 WET VOLUME = 4,932 CF
 DRY STORAGE = 2,466 CF
 STORAGE PROVIDED = 14,104 CF @ 282.67
 NET VOLUME = 4,932 CF @ 281.30
 DRY VOLUME = 9,207 CF

DEPTH BELOW WEIR CREST
 WET VOLUME = 1.61'
 DRY VOLUME = 0.00'
 WEIR CREST ELEV. = 282.66
 TOP OF EMBANKMENT ELEV. = 285.00
 SLOTTING DEVICE ELEV. = 280.00
 CLEANOUT ELEV. = 280.53
 BOTTOM ELEV. = 280.00

PEAK DISCHARGES
 EX. Q1 = 1.74 cfs
 DURING Q1 (INFLOW) = 7.46 cfs
 DURING Q1 (OUTFLOW) = 1.79 cfs (TSM)
 PROP. Q1 (INFLOW) = 4.50 cfs
 PROP. Q1 (OUTFLOW) = 0.29 cfs (SWM)

LEGEND

- EX. BUILDING
- EX. CURB
- EX. EASEMENT
- EX. FENCE
- EX. FLOODPLAIN
- EX. GAS
- EX. PAVEMENT
- EX. PROPERTY LINE
- EX. ROAD CENTERLINE
- EX. ST. S.
- EX. ST. S.
- EX. Z.Z. RECP.
- EX. 75' STREAM BUFFER
- EX. TREE LINE
- EX. WATERLINE
- EX. FIRE HYDRANT
- EX. WETLAND
- EX. WETLAND BUFFER
- PROP. 2025 65/68A LINE
- PROP. 1' CONTOURS
- PROP. 2' CONTOURS
- PROP. 10' CONTOURS
- PROP. CENTERLINE OF DRAINAGE SWALE
- PROP. FENCE - SEE DETAIL SHEET 33
- PROP. CURB
- PROP. REVERSE CURB & GUTTER
- PROP. STANDARD CURB & GUTTER
- PROP. TREE LINE
- PROP. LINE OF DISTURBANCE
- PROP. PAVEMENT
- PROP. BUILDING
- PROP. BUILDING SETBACK
- PROP. PRIVATE SANITARY SEWER LINE
- PROP. PUBLIC SANITARY SEWER LINE
- PROP. PUBLIC WATER LINE
- PROP. PRIVATE STORM DRAIN LINE
- PROP. PUBLIC STORM DRAIN LINE
- PROP. DRAINAGE AREA
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- PROP. "AT GRADE" INLET PROTECTION
- PROP. STABILIZED CONSTRUCTION ENTRANCE
- PROP. EARTH DIKE
- PROP. TEMPORARY SWALE
- PROP. PUBLIC SITE LIGHTING
- PROP. PRIVATE SITE LIGHTING
- SOIL BOUNDARY
- SOIL TYPE

APPROVED PLANNING BOARD of HOWARD COUNTY

DATE 5/10/07

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 ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF DEVELOPER: [Signature] 4/25/07
 DATE
 RYLAND HOMES, INC.

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."

SIGNATURE OF ENGINEER: [Signature] 4/29/07
 DATE
 KEVIN S. KNIGHTEN, P.E. MD LICENSE #201135

REVIEWED FOR HOWARD S.C.D. AND MEETS TECHNICAL REQUIREMENTS.

[Signature] 6/19/07
 DATE
 U.S.D.A. NATIONAL RESOURCES CONSERVATION SERVICE

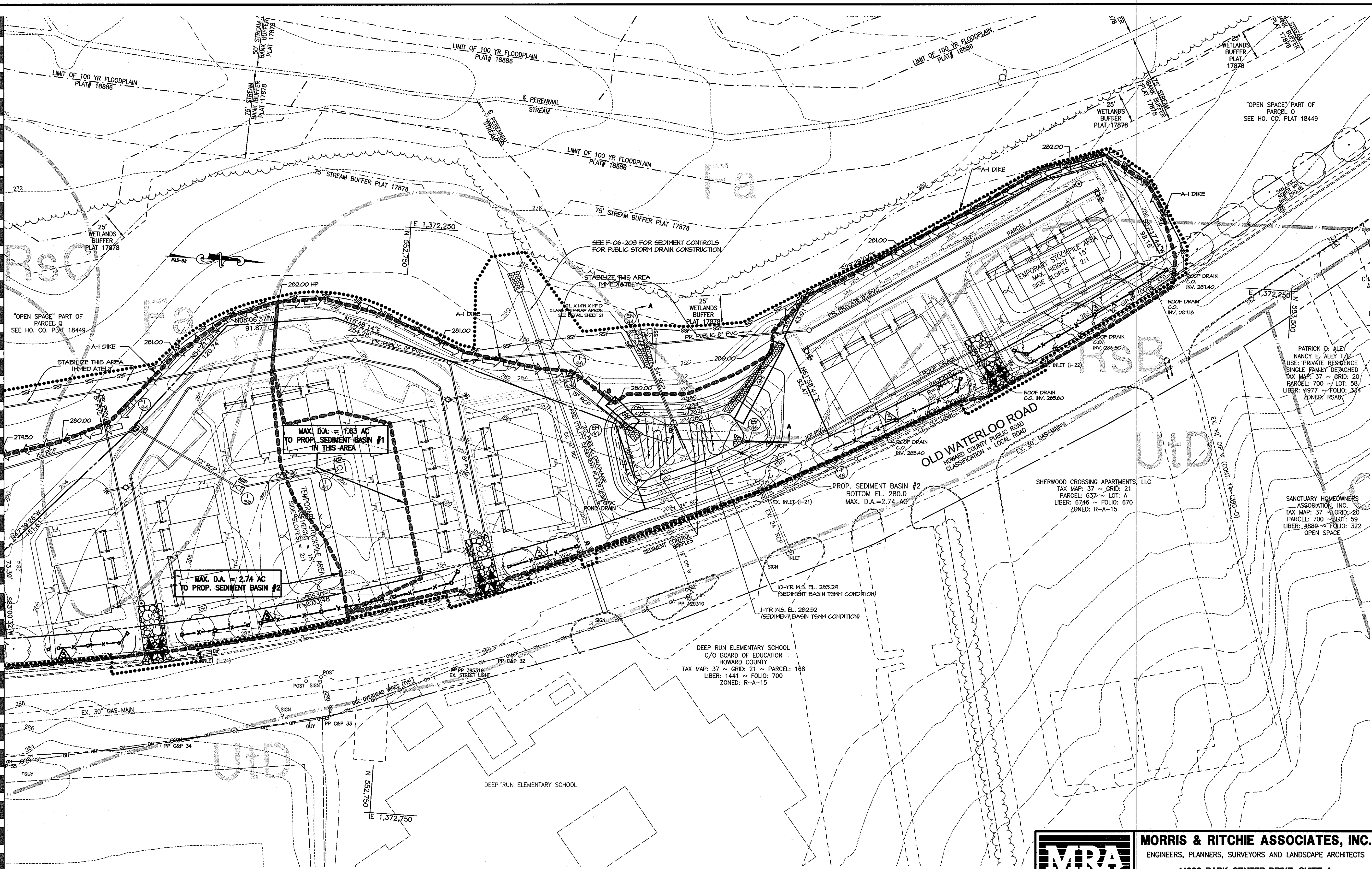
THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

[Signature] 6/19/07
 DATE
 HOWARD S.C.D.

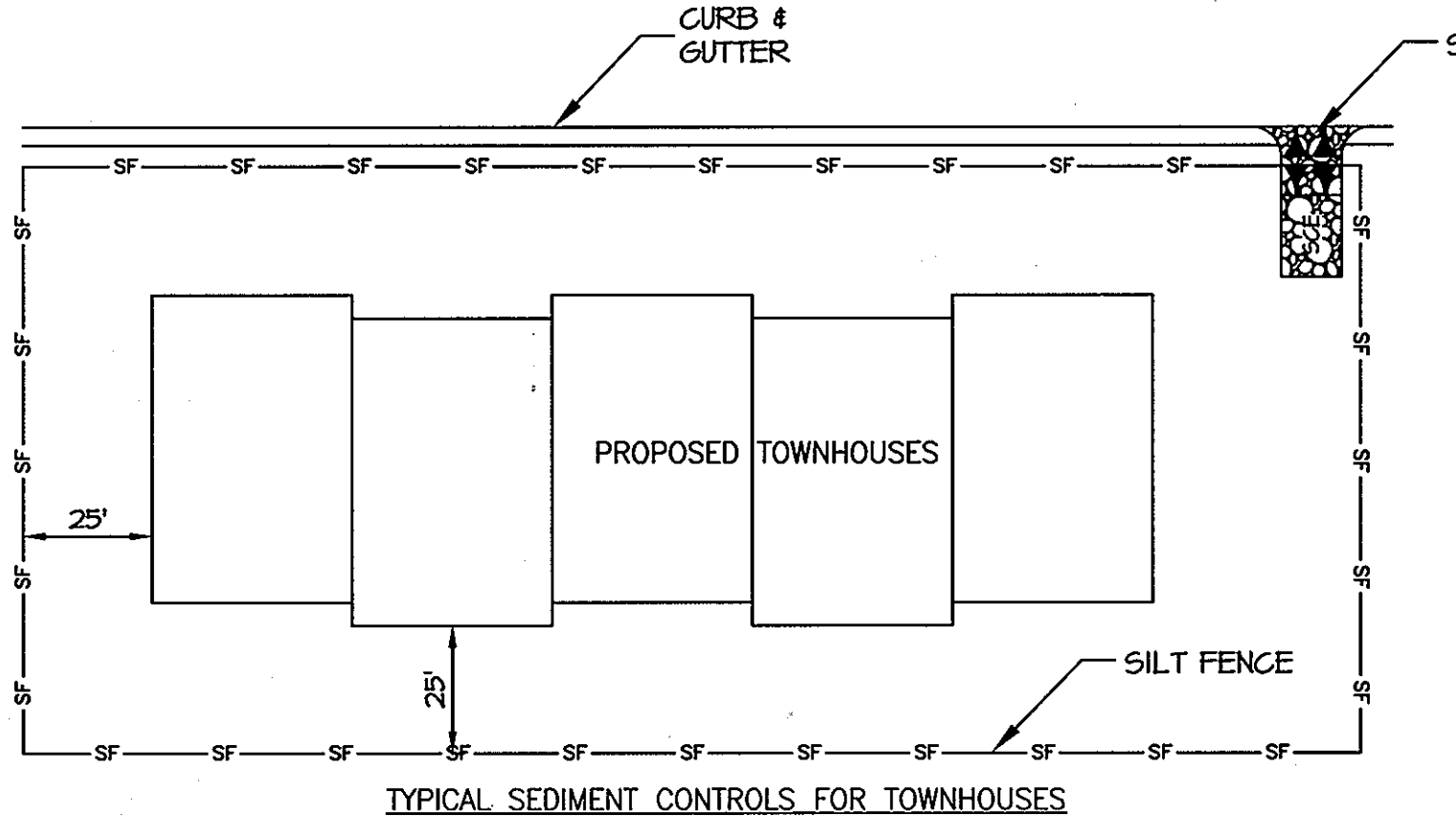
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[Signature] 6/21/07
 DATE
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 [Signature] 6/23/07
 DATE
 CHIEF, DIVISION OF LAND DEVELOPMENT
 [Signature] 6/20/07
 DATE
 DIRECTOR, DEPARTMENT OF PLANNING AND ZONING

MATCHLINE - SEE SHEET 22 FOR CONTINUATION



SOILS LEGEND		
SYMBOL	NAME/DESCRIPTION	SOIL TYPE
Fa	FALLSINGTON, SANDY LOAM, 0-2% SLOPES	C
RaB	RUSSETT, FINE SANDY LOAM, 2-5% SLOPES	C
RaC	RUSSETT, FINE SANDY LOAM, 5-10% SLOPES	C
UaF	UDORHTENTS, HIGHWAY 0-85% SLOPES	C
Utd	URBAN LAND, UDORHTENTS COMPLEX 0-15% SLOPES	C



SEE SWM DETAIL SHEETS FOR RISER/OUTFALL SECTIONS AT SEDIMENT BASINS

DURING PLACEMENT OF FILL, CONTRACTOR TO SHIFT EARTH DIKES TO SEDIMENT BASIN #2 AS NEEDED TO MAINTAIN POSITIVE DRAINAGE TO BASIN

OWNER/DEVELOPER/APPLICANT
 NAME: MR. BRIAN KNAUFF
 COMPANY: THE RYLAND GROUP
 6011 UNIVERSITY BOULEVARD, SUITE 260
 ELLICOTT CITY, MARYLAND 21043
 PHONE: 410-480-2467
 FAX: 410-480-0543



MORRIS & RITCHIE ASSOCIATES, INC.
 ENGINEERS, PLANNERS, SURVEYORS AND LANDSCAPE ARCHITECTS

14280 PARK CENTER DRIVE, SUITE A
 LAUREL, MARYLAND 20707
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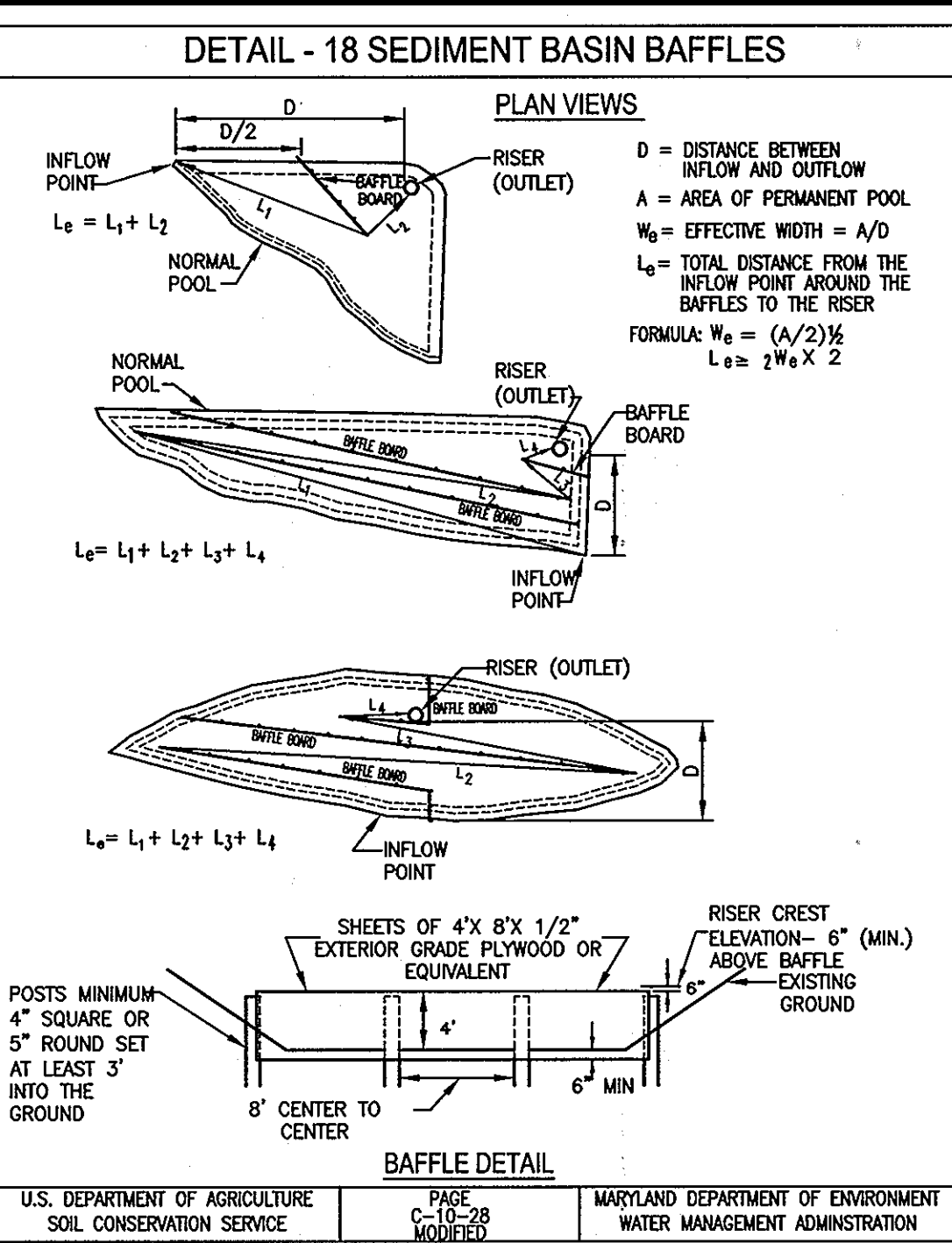
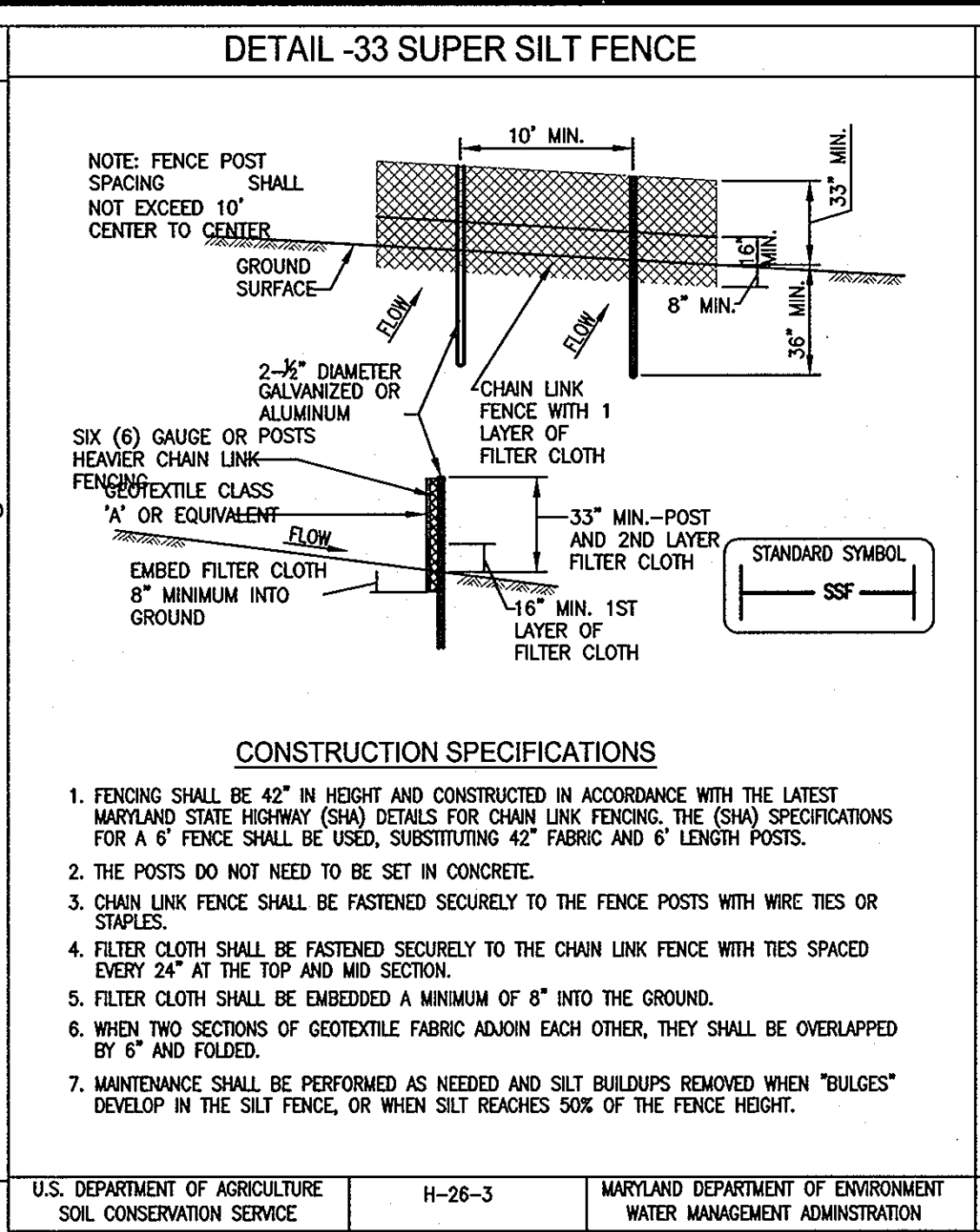
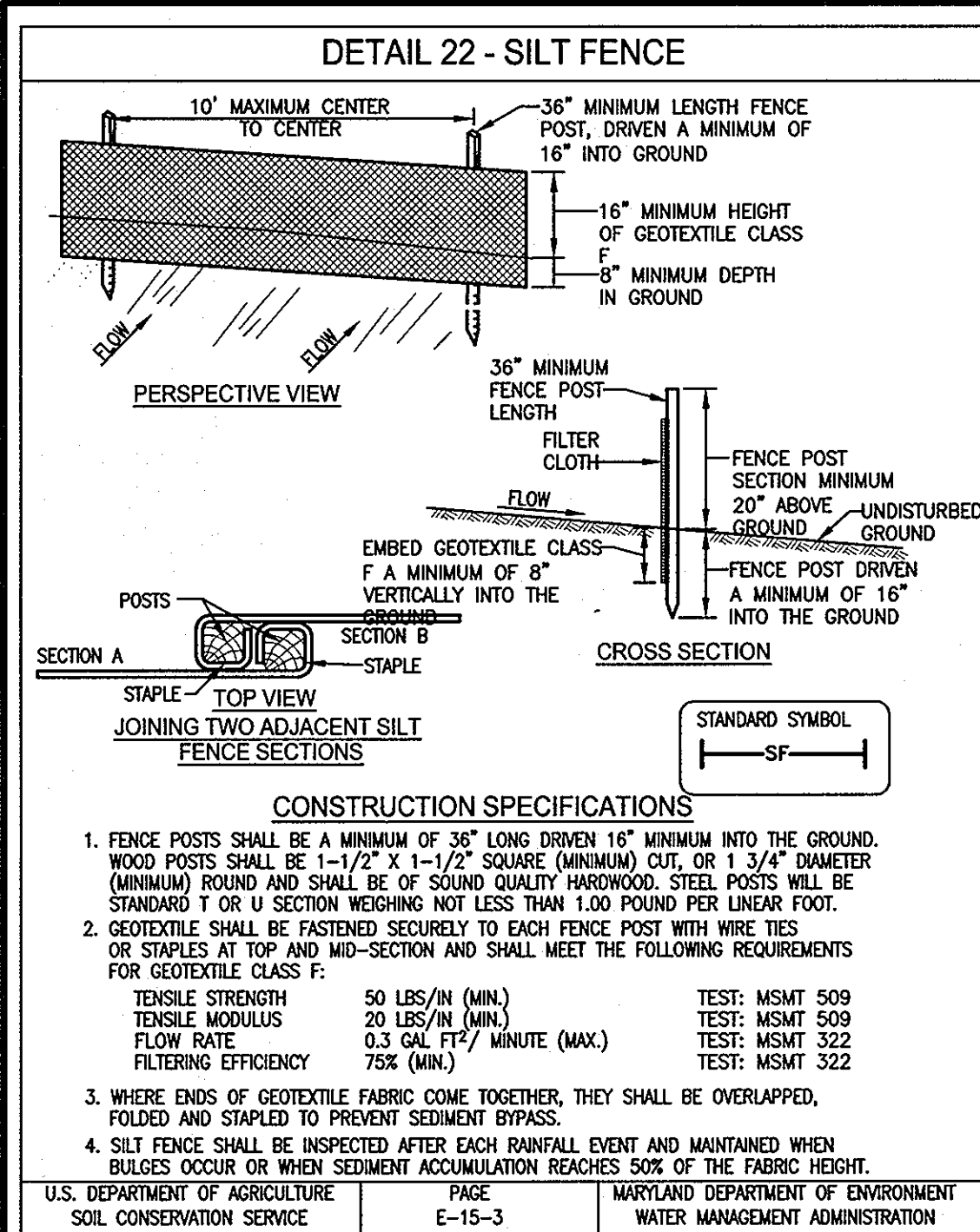


SITE DEVELOPMENT PLAN
 GATEWAY OVERLOOK AT BENSON EAST-OLD WATERLOO ROAD
 66 SINGLE FAMILY ATTACHED CONDOMINIUM UNITS

EROSION & SEDIMENT CONTROL PLAN

LIBER: 9779 ~ FOLIO: 80 ~ PARCEL: 382
 ZONED: NT ~ TAX MAPS: 37 & 43 ~ GRIDS: 20, 21 & 2,3
 LOTS: J, K & L ~ 6TH ELECTION DISTRICT ~ HOWARD COUNTY, MARYLAND

DATE	REVISIONS	JOB NO.:
7/16/08	ADDED ENTRANCE FEATURES	14719
		SCALE: 1"=40'
		DATE: 4/24/07
		DRAWN BY: MM
		DESIGN BY: MM
		REVIEW BY: KSK
		SHEET: 23 OF 33



VEGETATIVE STABILIZATION

PERMANENT AND TEMPORARY SEEDING, SODDING AND MULCHING

FOLLOWING INITIAL SOIL DISTURANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN SEVEN CALENDAR DAYS FOR THE SURFACE OF ALL PERIMETER CONTROL DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES GREATER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1) AND FOURTEEN DAYS FOR ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.

PERMANENT SEEDING

SOIL TEST: LIME FERTILIZATION WILL BE APPLIED PER SOIL TEST RESULTS FOR THE SITES GREATER THAN 5 ACRES. SOIL TESTS WILL BE DONE AT COMPLETION OF INITIAL ROUGH GRADING OR AS RECOMMENDED BY THE SEDIMENT CONTROL INSPECTOR. RATES AND ANALYSIS WILL BE PROVIDED TO THE GRADING INSPECTOR AS WELL AS THE CONTRACTOR.

- OCCURRENCE OF ACID SULFATE SOILS (BRISCH BLACK COLOR) WILL REQUIRE COVERING WITH A MINIMUM OF 12 INCHES OF CLEAN SOIL WITH 6 INCHES MINIMUM CAPPING OF TOP SOIL. NO STOCKPILING OF MATERIAL IS ALLOWED. IF NEEDED, SOIL TESTS SHOULD BE DONE BEFORE AND AFTER A 6-WEEK INCUBATION PERIOD TO ALLOW OXIDATION OF SULFATES.
- APPLY GRADE OR CLEARED AREAS NOT SUBJECT TO IMMEDIATE FURTHER DISTURBANCE WHERE PERMANENT LONG-LIVED VEGETATIVE COVER IS NEEDED.

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

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

- PREPARED: APPLY 2 TONS/ACRE DOLOMITIC LIMESTONE (92 LBS./1,000 SQ. FT.) AND 400 LBS./ACRE 10-10-10 FERTILIZER (14 LBS./1,000 SQ. FT.) BEFORE SEEDING. HARROW OR DISK INTO UPPER THREE INCHES OF SOIL. AT TIME OF SEEDING, APPLY 400 LBS./ACRE 30-0-0 UREAFORM FERTILIZER (9 LBS./1,000 SQ. FT.).
- ACCEPTABLE: APPLY 2 TONS/ACRE DOLOMITIC LIMESTONE (9 LBS./1,000 SQ. FT.) AND 1,000 LBS./ACRE 10-10-10 FERTILIZER (23 LBS./1,000 SQ. FT.) BEFORE SEEDING. HARROW OR DISK INTO UPPER THREE INCHES OF SOIL.

SEEDING: FOR THE PERIODS OF MARCH 1 - APRIL 30, AND AUGUST 1 - OCTOBER 15, SEED WITH 60 LBS./ACRE (14 LBS./1,000 SQ. FT.) OF KENTUCKY 31 TALL FESCUE. FOR THE PERIOD OF MAY 1 - JULY 31, SEED WITH 60 LBS./ACRE OF KENTUCKY 31 TALL FESCUE PER ACRE AND 2 LBS./ACRE (0.05/1,000 SQ. FT.) OF WEEPING LOVEGRASS. DURING THE PERIOD OF OCTOBER 15 - FEBRUARY 28, PROTECT SITE BY: **OPTION 1:** 60 TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING. **OPTION 2:** USE SOO. **OPTION 3:** SEED WITH 60 LBS./ACRE KENTUCKY 30 TALL FESCUE AND MULCH WITH 2 TONS/ACRES WELL ANCHORED STRAW.

MULCHING: APPLY 1-1/2 TO 2 TONS PER ACRE (70 TO 90 LBS./1,000 SQ. FT.) OF UNROTTED SMALL GRASS STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 218 GAL/ACRE (5 GAL./1,000 SQ. FT.) OF EMULSIFIED ASPHALT ON FLAT AREAS ON SLOPE 8 FEET OR HIGHER, USE 348 GAL/ACRE (8 GAL./1,000 SQ. FT.) FOR ANCHORING.

SECURING STRAW MULCH: STRAW MULCH SHALL BE SECURED IMMEDIATELY FOLLOWING MULCH APPLICATIONS TO MINIMIZE MOVEMENT BY WIND OR WATER. THE FOLLOWING METHODS ARE PERMITTED:

- USE A MULCH-ANCHORING TOOL WHICH IS DESIGNED TO PUNCH AND ANCHOR MULCH INTO THE SOIL SURFACE TO A MINIMUM DEPTH OF 2 INCHES. THIS IS THE MOST EFFECTIVE METHOD FOR SECURING MULCH. HOWEVER, IT IS LIMITED TO RELATIVELY FLAT AREAS WHERE EQUIPMENT CAN OPERATE SAFELY.
- WOOD CELLULOSE FIBER MAY BE USED FOR ANCHORING STRAW. APPLY THE FIBER BINDER AT A NET DRY WEIGHT OF 750 POUNDS PER ACRE WITH WATER. USE 50 POUNDS OF ACRYLIC FIBER PER 100 GALLONS OF WATER.
- LIQUID LIMESTONE MAY BE USED. APPLY AT HIGHER RATES AT THE EDGES, WHERE WIND CATCHES MULCH. SUCH AS IN VALLEYS AND ON CRESTS OF SLOPES. THE REMAINDER OF THE AREA SHOULD APPEAR UNIFORM AFTER BINDER APPLICATION. THE 1924 STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL OR APPROVED EQUAL SHALL BE APPLIED AT RATES RECOMMENDED BY THE MANUFACTURERS.
- LIGHTWEIGHT PLASTIC NETTING MAY BE USED TO SECURE MULCH. THE NETTING WILL BE STAPLED TO THE GROUND ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.

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

TEMPORARY SEEDING NOTES

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

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

SOIL AMENDMENTS: APPLY 600 LBS./ACRE 10-10-10 FERTILIZER (14 LBS./1,000 SQ. FT.).

SEEDING: FOR PERIODS MARCH 1 - APRIL 30 AND FROM AUGUST 15 - OCTOBER 15, SEED WITH 2-1/2 BUSHEL PER ACRE OF ANNUAL RYE (3.2 LBS./1,000 SQ. FT.). FOR THE PERIOD MAY 1 - AUGUST 14, SEED WITH 3 LBS./ACRE OF WEEPING LOVEGRASS (0.7 LBS./1,000 SQ. FT.). FOR THE PERIOD NOVEMBER 15 - FEBRUARY 28, PROTECT SITE BY APPLYING 2 TONS/ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING, OR USE SOO.

MULCHING: APPLY 1-1/2 TO 2 TONS/ACRE (70 TO 90 LBS./1,000 SQ. FT.) OF UNROTTED WEED-FREE, SMALL GRASS STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 218 GAL/ACRE (5 GAL./1,000 SQ. FT.) OF EMULSIFIED ASPHALT ON FLAT AREAS ON SLOPE 8 FT. OR HIGHER, USE 348 GAL/ACRE (8 GAL./1,000 SQ. FT.) FOR ANCHORING. NO FILL MAY BE PLACED ON FROZEN GROUND. ALL FILL TO BE PLACED IN APPROXIMATELY HORIZONTAL LAYER EACH LAYER HAVING A LOOSE THICKNESS OF NOT MORE THAN 8 INCHES. ALL FILL IN ROADWAYS AND PARKING AREA IS TO BE CLASSIFIED TYPE 2 AS PER HOWARD COUNTY CODE - ARTICLE 21, SECTION 2-308, AND COMPACTED TO 90% DENSITY; COMPACTATION TO BE DETERMINED BY ASTM D-1557-68T (MODIFIED PROCTOR). ANY FILL WITHIN THE BUILDING AREA IS TO BE COMPACTED TO A MINIMUM OF 95% DENSITY AS DETERMINED BY METHODS PREVIOUSLY MENTIONED. FILLS FOR POND EMBANKMENTS SHALL BE COMPACTED AS PER MD-278 CONSTRUCTION SPECIFICATIONS. ALL OTHER FILLS SHALL BE COMPACTED SUFFICIENTLY SO AS TO BE STABLE AND PROVEN EROSION AND SURFACE.

PERMANENT SOO

INSTALLATION OF SOO SHOULD FOLLOW PERMANENT SEEDING DATES. SEEDING PREPARATION FOR SOO SHALL BE AS NOTED IN SECTION (B) ABOVE. PERMANENT SOO IS TO BE TALL FESCUE, STATE APPROVED SOO, LIME AND FERTILIZER PER PERMANENT SEEDING SPECIFICATIONS AND LIGHTLY IRRIGATE SOO PRIOR TO LAYING SOO. SOO IS TO BE LAD ON THE CONTOUR WITH ALL ENDS THOROUGHLY BUTTING. JOINTS ARE TO BE STAGGERED BETWEEN ROWS. WATER AND ROLL OR TAMP SOO TO INSURE POSITIVE ROOT CONTACT WITH THE SOIL. ALL SLOPES STEEPER THAN 3:1, AS SHOWN, ARE TO BE PERMANENTLY SODDED OR PROTECTED WITH AN APPROVED EROSION CONTROL NETTING. ADDITIONAL WATER FOR ESTABLISHMENT MAY BE REQUIRED. SOO IS NOT TO BE INSTALLED ON FROZEN GROUND. SOO SHALL NOT BE TRANSPORTED WHEN MOISTURE CONTENT (DRY OR WET) AND/OR EXTREME TEMPERATURE MAY BE ADVERSELY AFFECT ITS SURVIVAL. IN THE ABSENCE OF ADEQUATE RAINFALL, IRRIGATION SHOULD BE PERFORMED TO ENSURE ESTABLISHMENT OF SOO.

MIXING OPERATIONS

DOES NOT APPLY TO THIS PROJECT

SOO

SOO SHALL BE APPLIED AS PER THE STANDARD AND SPECIFICATIONS FOR TOPSOIL FROM THE CURRENT MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL.

NOTE: USE OF THIS INFORMATION PRECLUDES MEETING ALL OF THE REQUIREMENT OF THE CURRENT MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT.

NOTE: PROJECTS WITHIN 4 MILES OF THE BW AIRPORT WILL NEED TO ADHERE TO MARYLAND AVIATION ADMINISTRATION'S SEEDING SPECIFICATION RESTRICTIONS.

REFERENCES: GUIDELINE SPECIFICATIONS, SOIL PREPARATION AND SODDING, MD-VA, PUB. #1, COOPERATIVE EXTENSION SERVICE, UNIVERSITY OF MARYLAND AND VIRGINIA POLYTECHNIC INSTITUTE, REVISED 1973.

STANDARDS AND SPECIFICATIONS FOR TOPSOIL

DEFINITION

PLACEMENT OF TOPSOIL OVER A PREPARED SUBSOIL PRIOR TO ESTABLISHMENT OF PERMANENT VEGETATION.

PURPOSE

TO PROVIDE A SUITABLE SOIL MEDIUM FOR VEGETATIVE GROWTH. SOILS OF CONCERN HAVE LOW MOISTURE CONTENT, LOW NUTRIENT LEVELS, LOW PH, MATERIAL TOXIC TO PLANTS, AND/OR UNACCEPTABLE SOIL GRADATION.

CONDITIONS WHERE PRACTICE APPLIES

THIS PRACTICE IS LIMITED TO AREAS HAVING 2:1 OR FLATTER SLOPES WHERE:

- THE TEXTURE OF THE EXPOSED SUBSOIL/PARENT MATERIAL IS NOT ADEQUATE TO PRODUCE VEGETATIVE GROWTH.
- THE SOIL MATERIAL IS SO SHALLOW THAT THE ROOTING ZONE IS NOT DEEP ENOUGH TO SUPPORT PLANTS OR FURNISH CONTINUING SUPPLIES OF MOISTURE AND PLANT NUTRIENTS.
- THE ORIGINAL SOIL TO BE VEGETATED CONTAINS MATERIAL TOXIC TO PLANT GROWTH.
- THE SOIL IS SO ACIDIC THAT TREATMENT WITH LIMESTONE IS NOT FEASIBLE.

FOR THE PURPOSE OF THESE STANDARDS AND SPECIFICATIONS, AREAS HAVING SLOPES STEEPER THAN 2:1 SHALL BE SALVAGED FOR THE PURPOSE OF PRESERVING EXISTING AND PROPOSED CONTOURS OF THE AREAS TO BE GRADED. ADEQUATE STABILIZATION AREAS HAVING SLOPES STEEPER THAN 2:1 SHALL HAVE THE APPROPRIATE STABILIZATION SHOWN ON THE PLANS.

CONSTRUCTION AND MATERIAL SPECIFICATIONS

TOPSOIL SALVAGED FROM THE EXISTING SITE MAY BE USED PROVIDED THAT IT MEETS STANDARDS AS SET FORTH IN THESE SPECIFICATIONS. TYPICALLY, THE DEPTH OF TOPSOIL TO BE SALVAGED FOR A GIVEN SOIL TYPE CAN BE FOUND IN REPRESENTATIVE SOIL PROFILE SECTION IN THE SOIL SURVEY PUBLISHED BY USDA-SCS IN COOPERATION WITH MARYLAND AGRICULTURAL EXPERIMENTAL STATION.

TOPSOIL SPECIFICATIONS-SOIL TO BE USED AS TOPSOIL MUST MEET THE FOLLOWING:

- TOPSOIL SHALL BE A LOAM, SANDY LOAM, CLAY LOAM, SILT LOAM, SANDY CLAY LOAM, LOAMY SAND, OTHER SOILS MAY BE USED IF RECOMMENDED BY AN AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY. REGARDLESS TOPSOIL SHALL NOT BE A MIXTURE OF CONTRASTING TEXTURED SUBSOILS AND SHALL CONTAIN LESS THAN 5% BY VOLUME OF CONCRETE, STONES, SLAG, COARSE FRAGMENTS, GRAVELS, STRICKS, ROOTS, TRASH, OR OTHER MATERIALS LARGER THAN 1 1/2" IN DIAMETER.
- TOPSOIL MUST BE FREE OF PLANTS OR PLANT PARTS SUCH AS BERMUDA GRASS, QUICKGRASS, JOHNSONGRASS, NETTLE, POY IV, THISTLE, OR OTHERS AS SPECIFIED.
- WHERE THE SUBSOIL IS EITHER HIGHLY ACIDIC OR COMPOSED OF HEAVY CLAYS, GROUND LIMESTONE SHALL BE SPREAD AT THE RATE OF 4-8 TONS/ACRE (200-400 POUNDS PER 1,000 SF) PRIOR TO THE PLACEMENT OF TOPSOIL. LIME SHALL BE DISTRIBUTED UNIFORMLY OVER DISTURBED AREAS AND WORKED INTO THE SOIL IN CONJUNCTION WITH TILLAGE OPERATIONS AS DESCRIBED IN THE FOLLOWING PROCEDURES.
- FOR SITE HAVING DISTURBED AREAS UNDER 5 ACRE
 - PLACE TOPSOIL (IF REQUIRED) AND APPLY SOIL AMENDMENTS AS SPECIFIED IN 20.0 VEGETATIVE STABILIZATION-SECTION 1-VEGETATIVE STABILIZATION METHODS AND MATERIALS.
 - TOPSOIL APPLICATION

- WHEN TOPSOILING, MAINTAIN NEEDED EROSION AND SEDIMENT CONTROL PRACTICES SUCH AS DIMENSIONS, GRADE, STABILIZATION STRUCTURES, EARTH DIKES, SLOPE SILT FENCE AND SEDIMENT TRAPS AND BASINS.
- GRADES ON THE AREAS TO BE TOPSOILED, WHICH HAVE BEEN PREVIOUSLY ESTABLISHED, SHALL BE MAINTAINED, ALBERT 4"-8" HIGHER IN ELEVATION.
- TOPSOIL SHALL BE UNIFORMLY DISTRIBUTED IN A 4"-8" LAYER AND LIGHTLY COMPACTED TO A MINIMUM THICKNESS OF 4". SPREADING SHALL BE PERFORMED IN SUCH A MANNER THAT SODDING OR SEEDING CAN PROCEED WITH A MINIMUM OF ADDITIONAL SOIL PREPARATION AND TILLAGE. ANY IRREGULARITIES IN THE SURFACE RESULTING FROM TOPSOILING OR OTHER OPERATIONS SHALL BE CORRECTED IN ORDER TO PREVENT THE FORMATION OF DEPRESSIONS OR WATER POCKETS.
- TOPSOIL SHALL NOT BE PLACED WHILE THE TOPSOIL OR SUBSOIL IS IN A FROZEN OR MUDDY CONDITION, WHEN THE SUBSOIL IS EXCESSIVELY WET OR IN A CONDITION THAT MAY OTHERWISE BE DETRIMENTAL TO PROPER GRADING AND SEEDING PREPARATION.
- ALTERNATIVE TO PERMANENT SEEDING- INSTEAD OF APPLYING THE FULL AMOUNTS OF LIME AND COMMERCIAL FERTILIZER, COMPOSTED SLUDGE AND AMENDMENTS MAY BE APPLIED AS SPECIFIED BELOW:
 - COMPOSTED SLUDGE MATERIAL FOR USE AS SOIL CONDITIONER FOR SITES HAVING DISTURBED AREAS OVER 5 ACRE SHALL BE TESTED TO PRESCRIBE AMENDMENTS AND FOR SITES HAVING DISTURBED AREAS UNDER 5 ACRES SHALL CONFORM TO THE FOLLOWING REQUIREMENTS:
 - COMPOSTED SLUDGE SHALL BE SUPPLIED BY, OR ORIGINATE FROM, A PERSON OR PERSONS THAT ARE PERMITTED (AT THE TIME OF ACQUISITION OF THE COMPOST) BY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT UNDER COMAR 26.04.06.
 - COMPOSTED SLUDGE SHALL CONTAIN AT LEAST 1 PERCENT NITROGEN, 1.5 PERCENT PHOSPHORUS, AND 0.2 PERCENT POTASSIUM AND HAVE A PH OF 7.0 TO 8.0. IF COMPOST DOES NOT MEET THESE REQUIREMENTS, THE APPROPRIATE CONSTITUENTS MUST BE ADDED TO MEET THE REQUIREMENTS PRIOR TO USE.
 - COMPOSTED SLUDGE SHALL BE APPLIED AT A RATE OF 1 TON/1,000 SF.
 - COMPOSTED SLUDGE SHALL BE AMENDED WITH A POTASSIUM FERTILIZER APPLIED AT THE RATE OF 4 LB/1,000 SF, AND 1/3 THE NORMAL LIME APPLICATION RATE.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE E-15-3A MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 22 - SILT FENCE

SILT FENCE DESIGN CRITERIA

SLOPE STEEPNESS	MAX. SLOPE LENGTH	MAX. SILT FENCE LENGTH
FLATTER THAN 50:1	UNLIMITED	UNLIMITED
50:1 - 10:1	125 FEET	1,000 FEET
10:1 - 5:1	100 FEET	750 FEET
5:1 - 3:1	80 FEET	500 FEET
3:1 - 2:1	40 FEET	250 FEET
2:1 AND STEEPER	20 FEET	125 FEET

NOTE: IN AREAS OF LESS THAN 2% SLOPE AND SANDY SOILS (USDA GENERAL CLASSIFICATION SYSTEM, SOIL CLASS A) MAXIMUM SLOPE LENGTH AND SILT FENCE LENGTH WILL BE UNLIMITED. IN THESE AREAS A SILT FENCE MAY BE THE ONLY PERIMETER CONTROL REQUIRED.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE E-15-3A MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 33 - SUPER SILT FENCE

SUPER SILT FENCE DESIGN CRITERIA

SLOPE STEEPNESS	SLOPE LENGTH (MAX.)	SILT FENCE LENGTH (MAX.)
0 - 10%	0 - 10:1	UNLIMITED
10 - 20%	10:1 - 5:1	200 FEET
20 - 33%	5:1 - 3:1	100 FEET
33 - 50%	3:1 - 2:1	100 FEET
50% & HIGHER	2:1 & STEEPER	50 FEET

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE H-26-3A MODIFIED MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

APPROVED PLANNING BOARD of HOWARD COUNTY

DATE 5/16/07

BY THE DEVELOPER

I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBILITY FOR 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/WE ALSO AUTHORIZE ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT.

SIGNATURE OF DEVELOPER: [Signature] DATE: 4/25/07

RYLAND HOMES, INC.

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.

SIGNATURE OF ENGINEER: [Signature] DATE: 4/24/07

KEVIN S. KINGSTON, P.E. MD LICENSE #201135

REVIEWED FOR HOWARD S.C.D. AND MEETS TECHNICAL REQUIREMENTS.

SIGNATURE: [Signature] DATE: 4/19/07

U.S.D.A. NATURAL RESOURCE CONSERVATION SERVICE

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

SIGNATURE: [Signature] DATE: 6/19/07

HOWARD CO. ENGINEER

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

DATE: 6/21/07

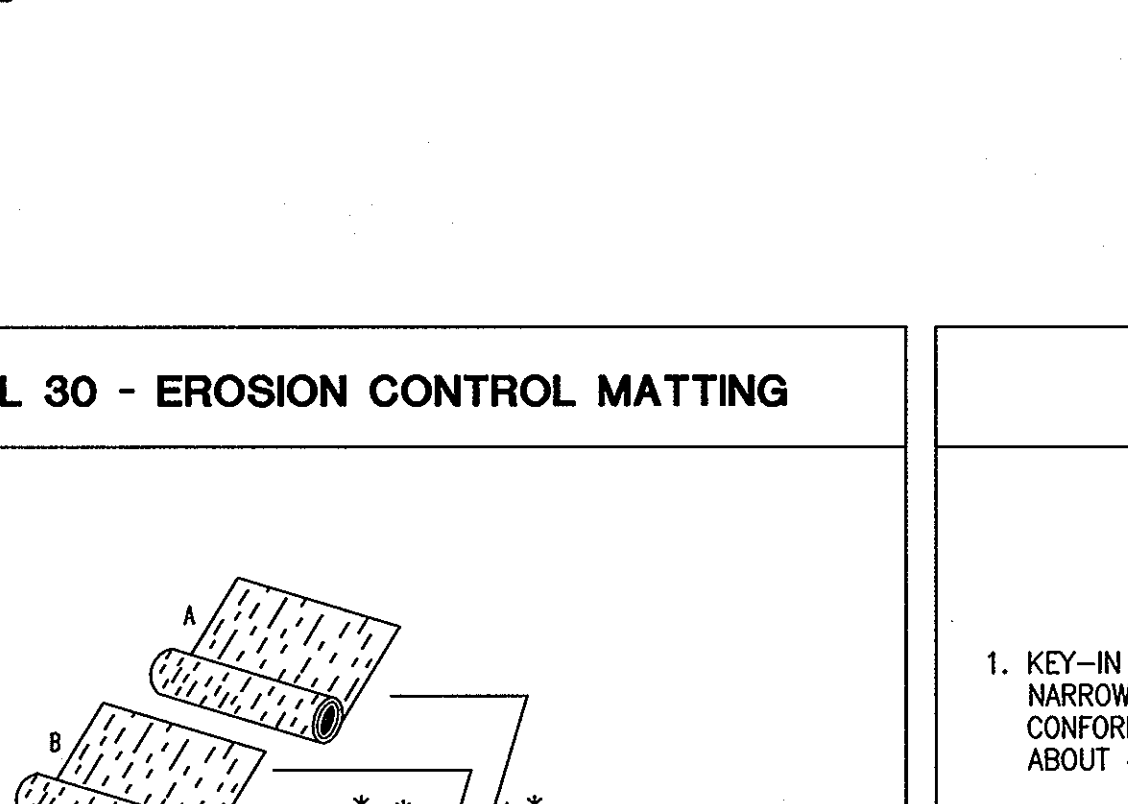
CHIEF, DEVELOPMENT ENGINEERING DIVISION

DATE: 6/23/07

CHIEF, DIVISION OF LAND DEVELOPMENT

DATE: 6/27/07

DIRECTOR, DEPARTMENT OF PLANNING AND ZONING



EROSION CONTROL MATTING

CONSTRUCTION SPECIFICATIONS

- KEY-IN THE MATTING BY PLACING THE TOP ENDS OF THE MATTING IN A NARROW TRENCH, 6" IN DEPTH. BACKFILL THE TRENCH AND TAMP FIRMLY TO CONFORM TO THE CHANNEL CROSS-SECTION. SECURE WITH A ROW OF STAPLES ABOUT 4" DOWN SLOPE FROM THE TRENCH. SPACING BETWEEN STAPLES IS 6".
- STAPLE THE 4" OVERLAP IN THE CHANNEL CENTER USING AN 18" SPACING BETWEEN STAPLES.
- BEFORE STAPLING THE OUTER EDGES OF THE MATTING, MAKE SURE THE MATTING IS SMOOTH AND IN FIRM CONTACT WITH THE SOIL.
- STAPLES SHALL BE PLACED 2' APART WITH 4 ROWS FOR EACH STRIP, 2 OUTER ROWS, AND 2 ALTERNATING ROWS DOWN THE CENTER.
- WHERE ONE ROLL OF MATTING ENDS AND ANOTHER BEGINS, THE END OF THE TOP STRIP SHALL OVERLAP THE UPPER END OF THE LOWER STRIP BY 4", SHIPLAP FASHION. REINFORCE THE OVERLAP WITH A DOUBLE ROW OF STAPLES SPACED 6" APART IN A STAGGERED PATTERN ON EITHER SIDE.
- THE DISCHARGE END OF THE MATTING LINER SHOULD BE SIMILARLY SECURED WITH 2 DOUBLE ROWS OF STAPLES.

NOTE: IF FLOW WILL ENTER FROM THE EDGE OF THE MATTING THEN THE AREA EFFECTED BY THE FLOW MUST BE KEYED-IN.

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

FOR UTILITY WORK ONLY OR FOR OFF-SITE UTILITY WORK

- PLACE ALL EXCAVATED MATERIAL ON HIGH SIDE OF TRENCH.
- ONLY DO AS MUCH WORK AS CAN BE DONE IN ONE DAY SO BACKFILLING FINAL GRADING, AND SEEDING AND MULCHING CAN OCCUR.
- ANY SEDIMENT CONTROL MEASURES DISTURBED BY CONSTRUCTION WILL BE REPAIRED THE SAME DAY.

STOCKPILE NOTES

- NO STOCKPILING ALLOWED ON ASPHALT.
- ALL STOCKPILES LEFT AT THE END OF THE DAY NEED TO BE STABILIZED UNTIL THE NEXT REDISTURBANCE.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

DATE: 6/21/07

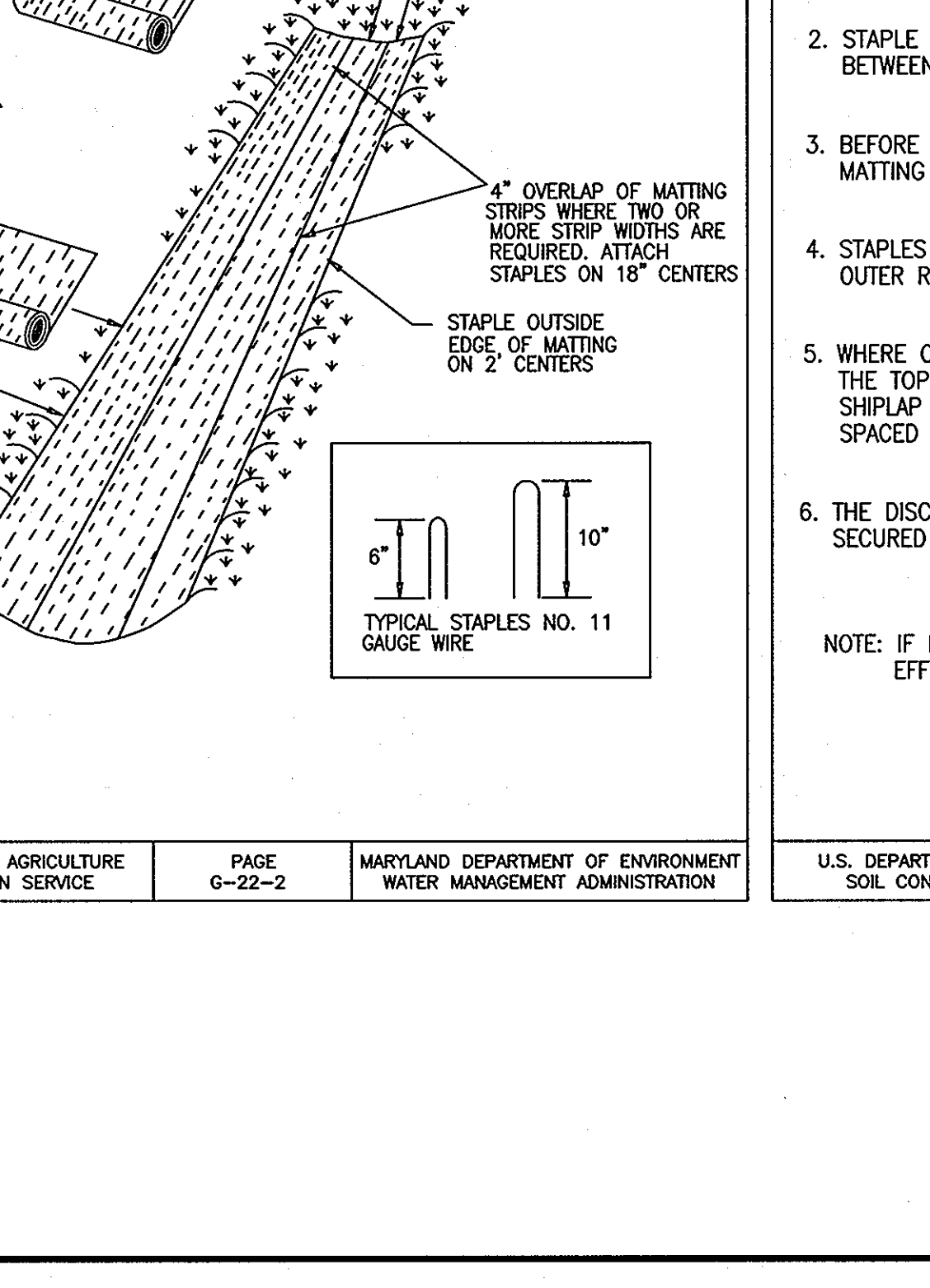
CHIEF, DEVELOPMENT ENGINEERING DIVISION

DATE: 6/23/07

CHIEF, DIVISION OF LAND DEVELOPMENT

DATE: 6/27/07

DIRECTOR, DEPARTMENT OF PLANNING AND ZONING



EROSION CONTROL MATTING

CONSTRUCTION SPECIFICATIONS

- KEY-IN THE MATTING BY PLACING THE TOP ENDS OF THE MATTING IN A NARROW TRENCH, 6" IN DEPTH. BACKFILL THE TRENCH AND TAMP FIRMLY TO CONFORM TO THE CHANNEL CROSS-SECTION. SECURE WITH A ROW OF STAPLES ABOUT 4" DOWN SLOPE FROM THE TRENCH. SPACING BETWEEN STAPLES IS 6".
- STAPLE THE 4" OVERLAP IN THE CHANNEL CENTER USING AN 18" SPACING BETWEEN STAPLES.
- BEFORE STAPLING THE OUTER EDGES OF THE MATTING, MAKE SURE THE MATTING IS SMOOTH AND IN FIRM CONTACT WITH THE SOIL.
- STAPLES SHALL BE PLACED 2' APART WITH 4 ROWS FOR EACH STRIP, 2 OUTER ROWS, AND 2 ALTERNATING ROWS DOWN THE CENTER.
- WHERE ONE ROLL OF MATTING ENDS AND ANOTHER BEGINS, THE END OF THE TOP STRIP SHALL OVERLAP THE UPPER END OF THE LOWER STRIP BY 4", SHIPLAP FASHION. REINFORCE THE OVERLAP WITH A DOUBLE ROW OF STAPLES SPACED 6" APART IN A STAGGERED PATTERN ON EITHER SIDE.
- THE DISCHARGE END OF THE MATTING LINER SHOULD BE SIMILARLY SECURED WITH 2 DOUBLE ROWS OF STAPLES.

NOTE: IF FLOW WILL ENTER FROM THE EDGE OF THE MATTING THEN THE AREA EFFECTED BY THE FLOW MUST BE KEYED-IN.

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

MORRIS & RITCHIE ASSOCIATES, INC.
ENGINEERS, PLANNERS, SURVEYORS AND LANDSCAPE ARCHITECTS

14280 PARK CENTER DRIVE, SUITE A
LAUREL, MARYLAND 20707
(410) 792-9792 or (301) 776-1690
FAX (410) 792-7395

SITE DEVELOPMENT PLAN
GATEWAY OVERLOOK AT BENSON EAST-OLD WATERLOO ROAD
66 SINGLE FAMILY ATTACHED CONDOMINIUM UNITS

ESC NOTES & DETAILS

LIBER: 9779 ~ FOLIO: 80 ~ PARCEL: 382
ZONED: NT ~ TAX MAPS: 37 & 43 ~ GRIDS: 20, 21 & 23
LOTS: J, K & L ~ 6TH ELECTION DISTRICT ~ HOWARD COUNTY, MARYLAND

DATE: 6/21/07

REVISIONS

DATE	REVISIONS	JOB NO.:
		14719

OWNER/DEVELOPER/APPLICANT

NAME: MR. BRIAN KNAUFF
COMPANY: THE RYLAND GROUP
6011 UNIVERSITY BOULEVARD, SUITE 260
ELLCOTT CITY, MARYLAND 21043
PHONE: 410-480-2467
FAX: 410-480-0543

SCALE: AS SHOWN
DATE: 4/24/07
DRAWN BY: MM
DESIGN BY: MM
REVIEW BY: KSK
SHEET: 24 OF 33

SDP-06-128

DETAIL 24 - STABILIZED CONSTRUCTION ENTRANCE

PROFILE

PLAN VIEW

Construction Specification

- Length - minimum of 50' (30' for single residence lot).
- Width - 10' minimum, should be flared at the existing road to provide a turning radius.
- Geotextile fabric (filter cloth) shall be placed over the existing ground prior to placing stone. The plan approval authority may not require single family residences to use geotextile.
- Stone - crushed aggregate (2" to 3") or reclaimed or recycled concrete equivalent shall be placed at least 6" deep over the length and width of the entrance.
- Surface Water - all surface water flowing to or diverted toward construction entrances shall be piped through the entrance, maintaining positive drainage. Pipe installed through the stabilized construction entrance shall be protected with a mounded berm with 5:1 slopes and a minimum of 6" of stone over the pipe. Pipe has to be sized according to the drainage. When the SCE is located at a high spot and has no drainage to convey a pipe will not be necessary. Pipe should be sized according to the amount of runoff to be conveyed. A 6" minimum will be required.
- Location - A stabilized construction entrance shall be located at every point where construction traffic enters or leaves a construction site. Vehicles leaving the site must travel over the entire length of the stabilized construction entrance.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE F-17-3 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 1 - EARTH DIKE

	DIKE A	DIKE B
a-DIKE HEIGHT	18"	30"
b-DIKE WIDTH	24"	36"
c-FLOW WIDTH	4'	6'
d-FLOW DEPTH	12"	24"

Construction Specifications

- Seed and cover with straw mulch.
- Seed and cover with Erosion Control Matting or line with sod.
- 4" - 7" stone or recycled concrete equivalent pressed into the soil 7" minimum.
- All temporary earth dikes shall have uninterrupted positive grade to an outlet. Spot elevations may be necessary for grades less than 1%.
- Runoff diverted from a disturbed area shall be conveyed to a sediment trapping device.
- Runoff diverted from an undisturbed area shall outlet directly into an undisturbed, stabilized area at a non-erosive velocity.
- All trees, brush, stumps, obstructions, and other objectional material shall be removed and disposed of so as not to interfere with the proper functioning of the dike.
- The dike shall be excavated or shaped to line, grade and cross section as required to meet the criteria specified herein and be free of bank projections or other irregularities which will impede normal flow.
- Fill shall be compacted by earth moving equipment.
- All earth removed and not needed for construction shall be placed so that it will not interfere with the functioning of the dike.
- Inspection and maintenance must be provided periodically and after each rain event.

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

DETAIL 23B - AT GRADE INLET PROTECTION

Construction Specifications

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

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE E-16-5A MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

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

Construction Specifications

- Attach a continuous piece of wire mesh (30" minimum width by throat length plus 4") to the 2" x 4" weir (measuring throat length plus 2") as shown on the standard drawing.
- Place a continuous piece of Geotextile Class E the same dimensions as the wire mesh over the wire mesh and securely attach it to the 2" x 4" weir.
- Securely nail the 2" x 4" weir to a 9" long vertical spacer to be located between the weir and the inlet face (max. 4" apart).
- Place the assembly against the inlet throat and nail (minimum 2' lengths of 2" x 4" to the top of the weir at spacer locations). These 2" x 4" anchors shall extend across the inlet top and be held in place by sandbags or alternate weight.
- The assembly shall be placed so that the end spacers are a minimum 1' beyond both ends of the throat opening.
- Form the 1/2" x 1/2" wire mesh and the geotextile fabric to the concrete gutter and against the face of the curb on both sides of the inlet. Place clean 3/4" x 1 1/2" stone over the wire mesh and geotextile in such a manner to prevent water from entering the inlet under or around the geotextile.
- This type of protection must be inspected frequently and the filter cloth and stone replaced when clogged with sediment.
- Assure that storm flow does not bypass the inlet by installing a temporary earth or asphalt dike to direct the flow to the inlet.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE E-16-5B MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

APPROVED PLANNING BOARD OF HOWARD COUNTY
DATE 5/10/07

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 ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT.
SIGNATURE OF DEVELOPER [Signature] DATE 4/25/07
RYLAND HOMES, INC.

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.
SIGNATURE OF ENGINEER [Signature] DATE 4/24/07
KEVIN S. WINTER, P.E. MD LICENSE #201135

REVIEWED FOR HOWARD S.C.D. AND MEETS TECHNICAL REQUIREMENTS.
DATE 6/19/07

U.S.D.A. NATURAL RESOURCES CONSERVATION SERVICE

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
DATE 6/19/07

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
DATE 6/21/07

CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE 6/22/07

CHIEF, DIVISION OF LAND DEVELOPMENT
DATE 6/25/07

DIRECTOR, DEPARTMENT OF PLANNING AND ZONING

BASIN DRAWDOWN SCHEMATIC VERTICAL DRAW-DOWN DEVICE

ELEVATION

PLAN VIEW

CONSTRUCTION SPECIFICATIONS

- Perforations in the draw-down device may not extend into the wet storage.
- The total area of the perforations must be greater than 2 times the area of the internal orifice.
- The perforated portion of the draw-down device shall be wrapped with 1/2" hardware cloth and geotextile fabric. The geotextile fabric shall meet the specifications for Geotextile Class E.
- Provide support of draw-down device to prevent sagging and floatation. An acceptable preventative measure is to stake both sides of draw-down device with 1" steel angle, or by 1" by 4" square or 2" round wooden posts set 3' minimum into the ground then joining them to the device by wrapping with 12 gauge minimum wire.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE C-10-30 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 23A - STANDARD INLET PROTECTION

Construction Specifications

- Excavate completely around the inlet to a depth of 18" below the notch elevation.
- Drive the 2" x 4" construction grade lumber posts 1' into the ground at each corner of the inlet. Place nail strips between the posts on the ends of the inlet. Assemble the top portion of the 2" x 4" frame using the overlap joint shown on Detail 23A. The top of the frame (weir) must be 6" below adjacent roadways where flooding and safety issues may arise.
- Stretch the 1/2" x 1/2" wire mesh tightly around the frame and fasten securely. The ends must meet and overlap at a post.
- Stretch the Geotextile Class E tightly over the wire mesh with the geotextile extending from the top of the frame to 18" below the inlet notch elevation. Fasten the geotextile firmly to the frame. The ends of the geotextile must meet at a post, be overlapped and folded, then fastened down.
- Backfill around the inlet in compacted 6" layers until the layer of earth is level with the notch elevation on the ends and top elevation on the sides.
- If the inlet is not in a sump, construct a compacted earth dike across the ditch line directly below it. The top of the earth dike should be at least 6" higher than the top of the frame.
- The structure must be inspected periodically and after each rain and the geotextile replaced when it becomes clogged.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE E-16-5 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 6 - GABION INFLOW PROTECTION

Construction Specifications

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

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

MRA MORRIS & RITCHIE ASSOCIATES, INC.
ENGINEERS, PLANNERS, SURVEYORS AND LANDSCAPE ARCHITECTS
14280 PARK CENTER DRIVE, SUITE A
LAUREL, MARYLAND 20707
(410) 792-9792 or (301) 778-1690
FAX (410) 792-7395

SITE DEVELOPMENT PLAN
GATEWAY OVERLOOK AT BENSON EAST-OLD WATERLOO ROAD
86 SINGLE FAMILY ATTACHED CONDOMINIUM UNITS

ESC DETAILS

LIBER: 9779 ~ FOLIO: 80 ~ PARCEL: 382
ZONED: NT ~ TAX MAPS: 37 & 43 ~ GRIDS: 20, 21 & 2,3
LOTS: J, K & L ~ 6TH ELECTION DISTRICT ~ HOWARD COUNTY, MARYLAND

OWNER/DEVELOPER/APPLICANT
NAME: MR. BRIAN KNAUFF
COMPANY: THE RYLAND GROUP
6011 UNIVERSITY BOULEVARD, SUITE 260
ELLICOTT CITY, MARYLAND 21043
PHONE: 410-480-2467
FAX: 410-480-0543

DATE	REVISIONS	JOB NO.:
		14719
		SCALE: AS SHOWN
		DATE: 4/24/07
		DRAWN BY: MM
		DESIGN BY: MM
		REVIEW BY: KSK
		SHEET: 25 OF 33

MD-378 STORMWATER MANAGEMENT CONSTRUCTION SPECIFICATIONS

- I. SITE PREPARATION
 - A. AREAS DESIGNATED FOR BORROW AREAS, VEGETATION AND STRUCTURAL WORKS SHALL BE CLEARED, GRUBBED AND STRIPPED OF TOPSOIL. ALL TREES, VEGETATION, ROOTS AND OTHER OBJECTIONABLE MATERIAL SHALL BE REMOVED. CHANNEL BANKS AND SHARP BREAKS SHALL BE SLOPED TO NO STEEPER THAN 1:1. ALL TREES SHALL BE CLEARED AND GRUBBED WITHIN 15 FEET OF THE TOE OF THE EMBANKMENT. AREAS TO BE COVERED BY THE RESERVOIR WILL BE CLEARED OF ALL TREES, BRUSH, LOGS, FENCES, RUBBISH AND OTHER OBJECTIONABLE MATERIAL. UNLESS OTHERWISE DESIGNATED ON THE PLANS, TREES, BRUSH AND STUMPS SHALL BE CUT APPROXIMATELY LEVEL WITH THE GROUND SURFACE. FOR DRY STORMWATER MANAGEMENT PONDS, A MINIMUM OF A 25-FOOT RADIUS AROUND THE INLET STRUCTURE SHALL BE CLEARED. ALL CLEARED AND GRUBBED MATERIAL SHALL BE DISPOSED OF OUTSIDE AND BELOW THE LIMITS OF THE DAM AND RESERVOIR AS DIRECTED BY THE OWNER OR HIS REPRESENTATIVE. WHEN SPECIFIED, A SUFFICIENT QUANTITY OF TOPSOIL WILL BE STOCKPILED IN A SUITABLE LOCATION FOR USE ON THE EMBANKMENT AND OTHER DESIGNATED AREAS.
- II. EARTH FILL MATERIAL
 - A. THE FILL MATERIAL SHALL BE TAKEN FROM APPROVED DESIGNATED BORROW AREAS. IT SHALL BE FREE OF ROOTS, STUMPS, WOOD, RUBBISH, STONES GREATER THAN 6" FROZEN OR OTHER OBJECTIONABLE MATERIALS. FILL MATERIAL FOR THE CENTER OF THE EMBANKMENT, AND CUTOFF TRENCH SHALL CONFORM TO UNIFIED SOIL CLASSIFICATION CC, SC, CH, OR CL AND MUST HAVE AT LEAST 30% PASSING THE #200 SIEVE. CONSIDERATION MAY BE GIVEN TO THE USE OF OTHER MATERIALS IN THE EMBANKMENT IF DESIGNED BY A GEOTECHNICAL ENGINEER. SUCH SPECIAL DESIGNS MUST HAVE CONSTRUCTION SUPERVISED BY A GEOTECHNICAL ENGINEER. MATERIALS USED IN THE OUTER SHELL OF THE EMBANKMENT MUST HAVE THE CAPABILITY TO SUPPORT VEGETATION OF THE QUALITY REQUIRED TO PREVENT EROSION OF THE EMBANKMENT.
 - B. PLACEMENT
 - AREAS ON WHICH FILL IS TO BE PLACED SHALL BE SCARIFIED PRIOR TO PLACEMENT OF FILL. FILL MATERIALS SHALL BE PLACED IN MAXIMUM 8 INCH THICK (BEFORE COMPACTION) LAYERS WHICH ARE TO BE CONTINUOUS OVER THE ENTIRE LENGTH OF THE EMBANKMENT. MATERIAL SHALL BE PLACED IN THE DOWNSTREAM PORTIONS OF THE EMBANKMENT. THE PRINCIPAL SPILLWAY MUST BE INSTALLED CONCURRENTLY WITH FILL PLACEMENT AND NOT EXCAVATED INTO THE EMBANKMENT.
 - C. COMPACTION
 - THE MOVEMENT OF THE HAULING AND SPREADING EQUIPMENT OVER THE FILL SHALL BE CONTROLLED SO THAT THE ENTIRE SURFACE OF EACH LIFT SHALL BE TRAVERSED BY NOT LESS THAN ONE TREAD TRACK OF HEAVY EQUIPMENT OR COMPACTOR SHALL BE ACHIEVED BY A MINIMUM OF FOUR COMPLETE PASSES OF A SHEEPSFOOT, RUBBER TIRED OR VIBRATORY ROLLER. FILL MATERIAL SHALL CONTAIN SUFFICIENT MOISTURE SUCH THAT THE REQUIRED DEGREE OF COMPACTION WILL BE OBTAINED WITH THE EQUIPMENT USED. THE FILL MATERIAL SHALL CONTAIN SUFFICIENT MOISTURE SO THAT IT FORMED INTO A BALL IT WILL NOT CRUMBLE, YET NOT BE SO WET THAT WATER CAN BE SQUEEZED OUT. WHEN REQUIRED BY THE REVIEWING AGENCY THE MINIMUM REQUIRED DENSITY SHALL NOT BE LESS THAN 95% OF MAXIMUM DRY DENSITY WITH A MOISTURE CONTENT WITHIN ±2% OF THE OPTIMUM. EACH LAYER OF FILL SHALL BE COMPACTED AS NECESSARY TO OBTAIN THAT DENSITY AND IS TO BE CERTIFIED BY THE ENGINEER AT THE TIME OF CONSTRUCTION. ALL COMPACTION IS TO BE DETERMINED BY ASHTO METHOD 1-99 (STANDARD PROCTOR).
 - III. CUTOFF TRENCH
 - THE CUTOFF TRENCH SHALL BE EXCAVATED INTO IMPERVIOUS MATERIAL ALONG OR PARALLEL TO THE CENTERLINE OF THE EMBANKMENT AS SHOWN ON THE PLANS. THE BOTTOM WIDTH OF THE TRENCH SHALL BE GOVERNED BY THE EQUIPMENT USED FOR EXCAVATION, WITH THE MINIMUM WIDTH BEING FOUR FEET. THE DEPTH SHALL BE AT LEAST FOUR FEET BELOW EXISTING GRADE OR AS SHOWN ON THE PLANS. THE SIDE SLOPES OF THE TRENCH SHALL BE 1 TO 1 OR FLATTER. THE BACKFILL SHALL BE COMPACTED WITH CONSTRUCTION EQUIPMENT, ROLLERS, OR HAND TAMPERS TO ASSURE MAXIMUM DENSITY AND MINIMUM PERMEABILITY.
 - IV. EMBANKMENT CORE
 - THE CORE SHALL BE PARALLEL TO THE CENTERLINE OF THE EMBANKMENT AS SHOWN ON THE PLANS. THE TOP WIDTH OF THE CORE SHALL BE A MINIMUM OF FOUR FEET. THE HEIGHT SHALL EXTEND UP TO AT LEAST THE 10 YEAR WATER ELEVATION OR AS SHOWN ON THE PLANS. THE SIDE SLOPES SHALL BE 1 TO 1 OR FLATTER. THE CORE SHALL BE COMPACTED WITH CONSTRUCTION EQUIPMENT, ROLLERS, OR HAND TAMPERS TO ASSURE MAXIMUM DENSITY AND MINIMUM PERMEABILITY. IN ADDITION, THE CORE SHALL BE PLACED CONCURRENTLY WITH THE OUTER SHELL OF THE EMBANKMENT.
 - V. STRUCTURE BACKFILL
 - BACKFILL ADJACENT TO PIPES OR STRUCTURES SHALL BE OF THE TYPE AND QUALITY CONFORMING TO THAT SPECIFIED FOR THE ADJOINING FILL MATERIAL. THE FILL SHALL BE PLACED IN HORIZONTAL LAYERS NOT TO EXCEED FOUR INCHES IN THICKNESS AND COMPACTED BY HAND TAMPERS OR OTHER MANUALLY DIRECTED COMPACTION EQUIPMENT. THE MATERIAL NEEDS TO FILL COMPLETELY ALL SPACES UNDER AND ADJACENT TO THE PIPE. AT NO TIME DURING THE BACKFILLING OPERATION SHALL DRIVEN EQUIPMENT BE ALLOWED TO OPERATE CLOSER THAN FOUR FEET MEASURED HORIZONTALLY TO ANY PART OF A STRUCTURE. UNDER NO CIRCUMSTANCES SHALL EQUIPMENT BE DRIVEN OVER ANY PART OF A CONCRETE STRUCTURE OR PIPE. UNLESS THERE IS A COMPACTED FILL OF 24" OR GREATER OVER THE STRUCTURE OR PIPE. STRUCTURE BACKFILL MAY BE FLOWABLE FILL MEETING THE REQUIREMENTS OF ASHTO SPECIFICATION M-246 OR M-246 WITH WATER TIGHT COUPLING BANDS OR FLANGES. STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 313 AS MODIFIED. THE MIXTURE SHALL HAVE OF 4.0 AND A MINIMUM RESISTIVITY OF 2,000 OHM-CM. MATERIAL SHALL BE PLACED SUCH THAT A MINIMUM OF 6" (MEASURED PERPENDICULAR TO THE OUTSIDE OF THE PIPE) OF FLOWABLE FILL SHALL BE UNDER (BELOW), OVER AND ON THE SIDES OF THE PIPE. IT ONLY NEEDS TO EXTEND UP TO THE SPRING LINE FOR RIGID CONDUITS. AVERAGE SLUMP OF THE FILL SHALL BE TO ASSURE FLOWABILITY OF THE MATERIAL. ADEQUATE MEASURES SHALL BE TAKEN (SAND BAGS, ETC.) TO PREVENT FLOATING. WHEN USING FLOWABLE FILL METAL PIPE SHALL BE THOROUGHLY COATED. ANY ADJOINING SOIL FILL SHALL BE PLACED IN HORIZONTAL LAYERS NOT TO EXCEED FOUR INCHES IN THICKNESS AND COMPACTED BY HAND TAMPERS OR OTHER MANUALLY DIRECTED COMPACTION EQUIPMENT. THE MATERIAL SHALL COMPLETELY FILL ALL VOIDS ADJACENT TO THE FLOWABLE FILL ZONE. AT NO TIME DURING THE BACKFILLING OPERATION SHALL DRIVEN EQUIPMENT BE ALLOWED TO OPERATE CLOSER THAN FOUR FEET MEASURED HORIZONTALLY TO ANY PART OF A STRUCTURE. UNDER NO CIRCUMSTANCES SHALL EQUIPMENT BE DRIVEN OVER ANY PART OF A STRUCTURE OR PIPE UNLESS THERE IS A COMPACTED FILL OF 24" OR GREATER OVER THE STRUCTURE OR PIPE. BACKFILL MATERIAL OUTSIDE THE STRUCTURE BACKFILL (FLOWABLE FILL) ZONE SHALL BE OF THE TYPE AND QUALITY CONFORMING TO THAT SPECIFIED FOR THE CORE OF THE EMBANKMENT OR OTHER EMBANKMENT MATERIALS.
 - VI. PIPE CONDUITS
 - A. ALL PIPES SHALL BE CIRCULAR IN CROSS SECTION.
 - 1. CORRUGATED METAL PIPE
 - MATERIALS - POLYMER COATED STEEL PIPE - STEEL PIPES WITH POLYMERIC COATINGS SHALL HAVE A MINIMUM COATING THICKNESS OF 0.01 INCH (10 MIL) ON BOTH SIDES OF THE PIPE. THIS PIPE AND ITS APPURTENANCES SHALL CONFORM TO THE REQUIREMENTS OF ASHTO SPECIFICATIONS M-246 & M-246 WITH WATER TIGHT COUPLING BANDS OR FLANGES.
 - MATERIALS - ALUMINUM COATED STEEL PIPE - THIS PIPE AND ITS APPURTENANCES SHALL CONFORM TO THE REQUIREMENTS OF ASHTO SPECIFICATION M-274 WITH WATER TIGHT COUPLING BANDS OR FLANGES. ALUMINUM COATED STEEL PIPE, WHEN USED WITH FLOWABLE FILL OR WHEN SOIL AND/OR WATER CONDITIONS WARRANT THE NEED FOR INCREASED DURABILITY, SHALL BE FULLY BITUMINOUS COATED PER REQUIREMENTS OF ASHTO SPECIFICATION M-190 TYPE A. ANY ALUMINUM COATING DAMAGED OR OTHERWISE REMOVED SHALL BE REPLACED WITH SUFFICIENT COATING COM-POLIND. ALUMINUM SURFACES THAT ARE TO BE IN CONTACT WITH CONCRETE SHALL BE PAINTED WITH ONE COAT OF ZINC CHROMATE PRIMER OR TWO COATS OF ASPHALT. MATERIALS - ALUMINUM PIPE - THIS PIPE AND ITS APPURTENANCES SHALL CONFORM TO THE REQUIREMENTS OF ASHTO SPECIFICATION M-196 OR M-211 WITH WATER TIGHT COUPLING BANDS OR FLANGES.
 - ALUMINUM PIPE, WHEN USED WITH FLOWABLE FILL OR WHEN SOIL AND/OR WATER CONDITIONS WARRANT FOR INCREASED DURABILITY, SHALL BE FULLY BITUMINOUS COATED PER REQUIREMENTS OF ASHTO SPECIFICATION M-190 TYPE A. ALUMINUM SURFACES THAT ARE TO BE IN CONTACT WITH CONCRETE SHALL BE PAINTED WITH ONE COAT OF ZINC CHROMATE PRIMER OR TWO COATS OF ASPHALT. NOT BE OIL WAZED BOLTS MAY BE USED FOR CONNECTIONS. THE PH OF THE SURROUNDING SOILS SHALL BE BETWEEN 4 AND 9.
 - 2. COUPLING BANDS, ANTI-SEEP COLLARS, END SECTIONS, ETC. MUST BE COMPOSED OF THE SAME MATERIAL AND COATINGS AS THE PIPE. METALS MUST BE INSULATED FROM DISSIMILAR MATERIALS WITH USE OF RUBBER OR PLASTIC INSULATING MATERIALS AT LEAST 24 MILS IN THICKNESS.
 - 3. CONNECTIONS - ALL CONNECTIONS WITH PIPES MUST BE COMPLETELY WATER TIGHT. THE DRAIN PIPE OR BARREL CONNECTION TO THE RISER SHALL BE WELDED ALL AROUND WHEN THE PIPE AND RISER ARE METAL. ANTI-SEEP COLLARS SHALL BE CONNECTED TO THE PIPE IN SUCH A MANNER AS TO BE COMPLETELY WATER TIGHT. DUMPLE BANDS ARE NOT CONSIDERED TO BE WATER TIGHT. ALL CONNECTIONS SHALL USE A RUBBER OR NEOPRENE GASKET WHEN JOINING PIPE SECTIONS. THE END OF EACH PIPE SHALL BE WELDED OR COMBRIED TO ACCOMMODATE THE BANDWIDTH. THE FOLLOWING TYPE CONNECTIONS ARE ACCEPTABLE FOR PIPES LESS THAN 24 INCHES IN DIAMETER: FLANGES ON BOTH ENDS OF THE PIPE WITH A CIRCULAR 3/8 INCH CLOSED CELL NEOPRENE GASKET, PRE-PUNCHED TO THE FLANGE BOLT CIRCLE, SANDWICHED BETWEEN ADJACENT FLANGES. A 12-INCH WIDE HUGGER TYPE BAND WITH O-RING GASKETS HAVING A MINIMUM DIAMETER OF 1/2 INCH GREATER THAN THE CORRUGATION DEPTH. PIPES 24 INCHES IN DIAMETER AND LARGER SHALL BE CONNECTED BY A 24 INCH LONG ANNUAL CORRUGATED BAND USING A MINIMUM OF 4 (FOUR) RODS AND LUGS, 2 ON EACH CONNECTING PIPE END. A 24-INCH THICK CIRCULAR NEOPRENE GASKET WILL BE INSTALLED WITH 12 INCHES ON THE END OF EACH PIPE. FLANGED JOINTS WITH 3/8 INCH CLOSED CELL GASKETS THE FULL WIDTH OF THE FLANGE IS ALSO ACCEPTABLE. HELICALLY CORRUGATED PIPE SHALL HAVE EITHER CONTINUOUSLY WELDED SEAMS OR HAVE INTERNAL COUPLING OR A NEOPRENE BEAD.
 - 4. BEDDING - THE PIPE SHALL BE FIRMLY AND UNIFORMLY BEDDED THROUGHOUT ITS ENTIRE LENGTH, WHERE ROCK OR SOFT, SPONGY OR OTHER UNSTABLE SOIL IS ENCOUNTERED, ALL SUCH MATERIAL SHALL BE REMOVED AND REPLACED WITH SUITABLE EARTH COMPACTED TO PROVIDE ADEQUATE SUPPORT.
 - 5. BACKFILLING SHALL CONFORM TO "STRUCTURE BACKFILL".
 - B. OTHER DETAILS (ANTI-SEEP COLLARS, VALVES, ETC.) SHALL BE AS SHOWN ON THE DRAWINGS.
 - VI. REINFORCED CONCRETE PIPE
 - 1. MATERIALS - REINFORCED CONCRETE PIPE SHALL HAVE BELL AND SPIGOT JOINTS WITH RUBBER GASKETS AND SHALL EQUAL OR EXCEED ASTM C-361.
 - 2. BEDDING - REINFORCED CONCRETE PIPE CONDUITS SHALL BE LAID IN A CONCRETE BEDDING/CRADE FOR THEIR ENTIRE LENGTH. THIS BEDDING/CRADE SHALL CONSIST OF HIGH SLUMP CONCRETE PLACED UNDER THE PIPE AND UP THE SIDES OF THE PIPE AT LEAST 50% OF ITS OUTSIDE DIAMETER WITH A MINIMUM THICKNESS OF 6 INCHES. WHERE A CONCRETE CRADE IS NOT NEEDED FOR STRUCTURAL REASONS, FLOWABLE FILL MAY BE USED AS DESCRIBED IN THE "STRUCTURE BACKFILL" SECTION OF THIS STANDARD. GRAVEL BEDDING IS NOT PERMITTED.
 - 3. LAYING PIPE - BELL AND SPIGOT PIPE SHALL BE PLACED WITH THE BELL END UPSTREAM. JOINTS SHALL BE MADE IN ACCORDANCE WITH RECOMMENDATIONS OF THE MANUFACTURER OF THE MATERIAL. AFTER THE JOINTS ARE SEALED FOR THE ENTIRE LINE, THE BEDDING SHALL BE PLACED SO THAT ALL SPACES UNDER THE PIPE ARE FILLED. CARE SHALL BE EXERCISED TO PREVENT ANY DEVIATION FROM THE ORIGINAL LINE AND GRADE OF THE PIPE. THE FIRST JOINT MUST BE LOCATED WITHIN 4 FEET FROM THE RISER.
 - 4. BACKFILLING SHALL CONFORM TO "STRUCTURE BACKFILL".
 - 5. OTHER DETAILS (ANTI-SEEP COLLARS, VALVES, ETC.) SHALL BE AS SHOWN ON THE DRAWINGS.
 - C. PLASTIC PIPE
 - 1. MATERIALS - PVC PIPE SHALL BE PVC-1120 OR PVC-1220 CONFORMING TO ASTM D-1785 OR ASTM D-2241. CORRUGATED HIGH DENSITY POLYETHYLENE (HDPE) PIPE, COUPLINGS AND FITTINGS SHALL CONFORM TO THE FOLLOWING: 4" 10" INCH PIPE SHALL MEET THE REQUIREMENTS OF ASHTO M252 TYPE S, AND 12" THROUGH 24" INCH SHALL MEET THE REQUIREMENTS OF ASHTO M294 TYPE S.

- C. PLASTIC PIPE (CONTINUED)
 - 2. JOINTS AND CONNECTIONS TO ANTI-SEEP COLLARS SHALL BE COMPLETELY WATER TIGHT.
 - 3. BEDDING - THE PIPE SHALL BE FIRMLY AND UNIFORMLY BEDDED THROUGHOUT ITS ENTIRE LENGTH, WHERE ROCK OR SOFT, SPONGY OR OTHER UNSTABLE SOIL IS ENCOUNTERED, ALL SUCH MATERIAL SHALL BE REMOVED AND REPLACED WITH SUITABLE EARTH COMPACTED TO PROVIDE ADEQUATE SUPPORT.
 - 4. BACKFILLING SHALL CONFORM TO "STRUCTURE BACKFILL".
 - 5. OTHER DETAILS (ANTI-SEEP COLLARS, VALVES, ETC.) SHALL BE AS SHOWN ON THE DRAWINGS.
- VII. DRAINAGE DIAPHRAGMS
 - WHEN A DRAINAGE DIAPHRAGM IS USED, A REGISTERED PROFESSIONAL ENGINEER WILL SUPERVISE THE DESIGN AND CONSTRUCTION INSPECTION.
- VIII. CONCRETE STRUCTURES
 - A. CONCRETE SHALL MEET THE REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 414, MIX NO. 3.
 - B. REINFORCEMENT
 - REINFORCEMENT SHALL MEET THE MINIMUM REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 416 (REINFORCEMENT FOR CONCRETE STRUCTURES); SECTION 908 (REINFORCING STEEL - GRADE 60, WIRE ROPE AND WIRE FABRIC AND SECTION 909.02 (STEEL FOR MISCELLANEOUS USE).
 - IX. ROCK RIPRAP
 - ROCK RIPRAP SHALL MEET THE REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 311. GEOTEXTILE SHALL BE PLACED UNDER ALL RIPRAP AND SHALL MEET THE REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 921.09, CLASS C.
 - X. CARE OF WATER DURING CONSTRUCTION
 - ALL WORK ON PERMANENT STRUCTURES SHALL BE CARRIED OUT IN AREAS FREE FROM WATER. THE CONTRACTOR SHALL CONSTRUCT AND MAINTAIN ALL TEMPORARY DICES, LEVEES, COFFERDAMS, DRAINAGE CHANNELS, AND STREAM DIVERSIONS NECESSARY TO PROTECT THE AREAS TO BE OCCUPIED BY THE PERMANENT WORKS. THE CONTRACTOR SHALL ALSO FURNISH, INSTALL, OPERATE, AND MAINTAIN ALL NECESSARY PUMPING AND OTHER EQUIPMENT REQUIRED FOR REMOVAL OF WATER FROM VARIOUS PARTS OF THE WORK AND FOR MAINTAINING THE EXCAVATIONS, FOUNDATION, AND OTHER PARTS OF THE WORK FREE FROM WATER AS REQUIRED OR DIRECTED BY THE ENGINEER FOR CONSTRUCTING EACH PART OF THE WORK. AFTER THE EQUIPMENT USED TO REMOVE WATER SHALL CONTAIN SUFFICIENT MOISTURE TO BE REMOVED OR LEVELED AND GRADED TO THE EXTENT REQUIRED TO PREVENT OBSTRUCTION IN ANY DEGREE WHATSOEVER OF THE FLOW OF WATER TO THE SPILLWAY OR OUTLET WORKS AND SO AS NOT TO INTERFERE IN ANY WAY WITH THE OPERATION OR MAINTENANCE OF THE STRUCTURE. STREAM DIVERSIONS SHALL BE MAINTAINED UNTIL THE FULL FLOW CAN BE PASSED THROUGH THE PERMANENT WORKS. THE REMOVAL OF WATER FROM EXCAVATIONS, THE WATER LEVEL AT THE LOCATION BEING RETILLED SHALL BE MAINTAINED IN A MANNER AND TO THE EXTENT THAT WILL MAINTAIN STABILITY OF THE EXCAVATED SLOPES AND BOTTOM REQUIRED EXCAVATIONS AND WILL ALLOW SATISFACTORY PERFORMANCE OF ALL CONSTRUCTION OPERATIONS. DURING THE PLACING AND COMPACTING OF MATERIAL IN THORED EXCAVATIONS, THE WATER LEVEL AT THE LOCATIONS BEING RETILLED SHALL BE MAINTAINED BELOW THE BOTTOM OF THE EXCAVATION AT SUCH LOCATIONS WHICH MAY REQUIRE DRAINING THE WATER SUMPS FROM WHICH THE WATER SHALL BE PUMPED.
 - XI. STABILIZATION
 - ALL BORROW AREAS SHALL BE GRADED TO PROVIDE PROPER DRAINAGE AND LEFT IN A SLIGHTLY CONDITION. ALL EXPOSED SURFACES OF THE BORROW SPILL AND BORROW AREAS, AND BERM SHALL BE STABILIZED BY SEEDING, LIMING, FERTILIZING AND MULCHING IN ACCORDANCE WITH THE NATURAL RESOURCES CONSERVATION SERVICE STANDARDS AND SPECIFICATIONS FOR CRITICAL AREA PLANTING (MD-342) OR AS SHOWN ON THE ACCOMPANYING DRAWINGS.
 - A. SOD
 - 1. SPECIFICATIONS - SOD SHALL BE "K-31" TALL FESCUE OR KENTUCKY BLUEGRASS/RED FESCUE MIXTURE OR APPROVED EQUAL CLASS OF TURFGRASS SOD SHALL BE MARYLAND OR VIRGINIA STATE CERTIFIED OR APPROVED SOD.
 - 2. SITE PREPARATION - WHERE SOIL IS ACIDIC OR COMPOSED OF HEAVY CLAYS, GROUND LIMESTONE SHALL BE SPREAD AT THE RATE OF 100 LBS./1000 SQ.FT. IN ALL SOILS 5-10-5 FERTILIZER OR APPROVED EQUAL SHALL BE APPLIED AT THE RATE OF 30 LBS./1000 SQ.FT. FERTILIZER SHALL BE UNIFORMLY APPLIED AND MIXED INTO THE TOP 3" OF SOIL WITH THE REQUIRED LIME. SLOW RELEASE NITROGEN, AT THE RATE OF 3.5 LBS./1000 SQ. FT., SHALL BE APPLIED TO THE PREPARED SOD IMMEDIATELY PRIOR TO SOD INSTALLATION. THIS MATERIAL SHALL BE APPROXIMATELY ONE-THIRD IMMEDIATELY AVAILABLE AND TWO-THIRDS WATER INSOLUBLE NITROGEN. UREA FORMALDEHYDE (UF) AND ISOBUTYLUREA (IBU) MEET THESE STANDARDS.
 - 3. SOD INSTALLATION - THE FIRST ROW OF SOD SHALL BE LAID IN A STRAIGHT LINE WITH SUBSEQUENT ROWS PLACE PARALLEL TO AND TIGHTLY WEDGED AGAINST EACH OTHER. LATERAL JOINTS SHALL BE STAGGERED TO PROMOTE MORE UNIFORM GROWTH AND STRENGTH. INSURE THAT SOD IS NOT STRETCHED OR OVERLAPPED AND THAT ALL JOINTS ARE BUTTED TIGHT IN ORDER TO PREVENT VOIDS WHICH WOULD CAUSE AIR DRYING OF THE ROOTS. ON SLOPING AREAS WHERE EROSION MAY BE A PROBLEM, SOD SHALL BE LAID WITH LONG EDGES PARALLEL TO THE CONTOUR AND WITH STAGGERED JOINTS. SECURE THE SOD BY TAMPING AND PRESSING OR OTHER APPROVED METHODS. AS SOODING IS COMPLETED IN ANY ONE SECTION, THE ENTIRE AREA SHALL BE ROLLED OR TAMPED TO INSURE SOLID CONTACT OF ROOTS WITH THE SOIL SURFACE. SOD SHALL BE WATERED IMMEDIATELY AFTER ROLLING OR TAMPING UNTIL THE UNDERSIDE OF THE NEW SOD PAD AND SOIL SURFACE BELOW THE SOD ARE THOROUGHLY MOIST. THE OPERATION OF LAYING, TAMPING AND IRRIGATING FOR ANY PIECE OF SOD SHALL BE COMPLETED WITHIN EIGHT HOURS.
 - B. PERMANENT SEEDING
 - ALL DISTURBED AREAS SHALL BE STABILIZED AS FOLLOWS:
 - 1. SEEDBED PREPARATION - LOOSEN UPPER 3 INCHES OF SOIL BY RAKING, DISCING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING.
 - 2. SOIL AMENDMENTS - APPLY 2 TONS PER ACRE DOLOMITIC LIMESTONE (92 LBS./1000 SQ. FT.), 600 LBS. PER ACRE 10-10-10 FERTILIZER (14 LBS./1000 SQ. FT.) AND 400 LBS. PER ACRE OF 30-0-0 UREAFORM FERTILIZER (9.2 LBS./100 SQ. FT.). HARBOR OR DISC LIME AND FERTILIZER INTO UPPER THREE INCHES OF SOIL AT TIME OF SEEDING. APPLY 400 LBS PER ACRE (9.2 LBS./1000 SQ. FT.) OF 30-0-0 UREAFORM FERTILIZER AND 500 LBS. PER ACRE (11.5 LBS./1000 SQ.FT.) OF 10-10-10 FERTILIZER.
 - 3. SEEDING - FOR THE PERIOD MARCH 1 THROUGH APRIL 30 SEED WITH 40 LBS. PER ACRE KENTUCKY 31 TALL FESCUE AND 15 LBS. PER ACRE INOCULATED CROWNCRITCH. FOR THE PERIOD MAY 1 THROUGH JULY 31 SEED WITH 60 LBS. PER ACRE KENTUCKY 31 TALL FESCUE AND 2 LBS. PER ACRE INOCULATED WEEPING LOVEGRASS. FOR THE PERIOD OF AUGUST 1 THROUGH OCTOBER 15 SEED WITH 40 LBS. PER ACRE KENTUCKY 31 TALL FESCUE AND 20 LBS. PER ACRE INOCULATED INTERSTATE SERICA ESPESZEDA. DURING THE PERIOD OF OCTOBER 16 THROUGH FEBRUARY 28, PROTECT SITE BY: OPTION (1) - 2 TONS PER ACRE OF WELL ANCHORED STRAW. MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING. OPTION (2) - USE SOD. OPTION (3) - SEED WITH 40 LBS. PER ACRE KENTUCKY 31 TALL FESCUE AND MULCH WITH 2 TONS PER ACRE WELL ANCHORED STRAW. FOR THE PERIOD OF MAY 1 THROUGH FEBRUARY 28, INOCULATED CROWNCRITCH SHALL BE APPLIED DURING THE SUBSEQUENT PERIOD OF MARCH 1 THROUGH APRIL 30 AT THE RATE OF 15 LBS. PER ACRE.
 - 4. MULCHING - APPLY 1.5 TO 2 TONS PER ACRE OF UNROTTED SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH TO THE REQUIREMENTS OF ASHTO SPECIFICATION M-196 OR M-211 WITH WATER TIGHT COUPLING BANDS OR FLANGES. ON SLOPE 8 FEET OR HIGHER, USE 348 GALLONS PER ACRE FOR ANCHORING.
 - C. MAINTENANCE - INSPECT ALL SEEDBED AREAS AND MAKE NEEDED REPAIRS, REPLACEMENTS AND RESEEDING.
 - C. TEMPORARY SEEDING
 - 1. SEEDBED PREPARATION - LOOSEN UPPER 3 INCHES OF SOIL BY DISCING, RAKING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING.
 - 2. SOIL AMENDMENTS - APPLY 60 LBS. PER ACRE OF 10-10-10 FERTILIZER. WHERE SOIL IS ACIDIC OR COMPOSED OF HEAVY CLAYS, GROUND LIMESTONE SHALL BE APPLIED AT THE RATE OF 2 TONS PER ACRE (92 LBS./1000 SQ.FT.).
 - 3. SEEDING - FOR PERIODS MARCH 1 THROUGH APRIL 30, AND FROM AUGUST 15 THROUGH NOVEMBER 15, SEED WITH 2.5 BUSHELS PER ACRE ANNUAL RYE. FOR THE PERIOD MAY 1 THROUGH AUGUST 14, SEED WITH 3 LBS. PER ACRES OF WEEPING LOVEGRASS. FOR THE PERIOD NOVEMBER 16 THROUGH FEBRUARY 28, PROTECT SITE BY APPLYING 2 TONS PER ACRE OF WELL ANCHORED STRAW. MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING OR USE SOD.
 - 4. MULCHING - SAME AS PERMANENT SEEDING.
 - D. EROSION AND SEDIMENT CONTROL
 - CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT IN SUCH A MANNER THAT EROSION WILL BE CONTROLLED AND WATER AND AIR POLLUTION MINIMIZED. STATE AND LOCAL LAWS CONCERNING POLLUTION ABATEMENT WILL BE FOLLOWED. CONSTRUCTION PLANS SHALL DETAIL EROSION AND SEDIMENT CONTROL MEASURES.
 - XI. FENCING
 - FENCING SHALL BE 42" HIGH CHAIN LINK FENCE CONSTRUCTED IN ACCORDANCE WITH THE LATEST MARYLAND STATE HIGHWAY ADMINISTRATION STANDARD DETAILS 615.02 AND 615.03. THE SPECIFICATIONS FOR A 6'-0" FENCE SHALL BE USED, SUBSTITUTING 42" FABRIC AND 6'-8" LINE POSTS. GATE SHALL BE CONSTRUCTED IN ACCORDANCE WITH STATE HIGHWAY ADMINISTRATION STANDARD DETAIL 692.01 WITH 42" FABRIC. FABRIC FOR FENCE AND GATE SHALL CONFORM TO ASHTO DESIGNATION ML-74. DARK VINYL COATING IS REQUIRED FOR THE FENCE POSTS AND WIRE FABRIC IN ACCORDANCE WITH THE LANDSCAPE MANUAL ADOPTED BY RESOLUTION 56-90, OCTOBER 1, 1990.
 - XII. FILTER CLOTH
 - 1. FILTER CLOTH TO BE MIRAF 140N OR APPROVED EQUAL.
 - 2. GABIONS
 - XIII. INSPECTION
 - GABIONS TO BE PVC COATED. SEE HOWARD COUNTY STANDARD SPECIFICATIONS AND DETAILS.
 - THE CONTRACTOR SHALL NOTIFY THE ENGINEER AT LEAST 5 WORKING DAYS PRIOR TO STARTING ANY WORK SHOWN ON THESE PLANS SO THAT STORMWATER MANAGEMENT POND MAY BE INSPECTED DURING CONSTRUCTION.
 - XIV. REFERENCES
 - UNLESS OTHERWISE NOTED, ALL MATERIALS AND CONSTRUCTION PRACTICES SHALL CONFORM TO THE FOLLOWING:
 1. "STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION" OF THE HOWARD COUNTY, MARYLAND, DEPARTMENT OF PUBLIC WORKS, AS AMENDED.
 2. "STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS", 1993, OF THE MARYLAND STATE HIGHWAY ADMINISTRATION, AS AMENDED.
 3. "STANDARD AND SPECIFICATIONS FOR PONDS" OF THE SOIL CONSERVATION SERVICE OF MARYLAND (MD-378), JANUARY 2000 AND AS AMENDED.
 4. "REVISED STORMWATER MANAGEMENT POLICY," REVISED SEPTEMBER 11, 1984, HOWARD COUNTY MARYLAND.

OPERATION, MAINTENANCE AND INSPECTION

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

NOTE: OWNER AND CONTRACTOR

THE ENGINEER SHALL BE NOTIFIED 2 WEEKS PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. THE SWM AND WATER QUALITY FACILITIES MUST BE FIELD INSPECTED FOR THE AS-BUILT PLAN. THE CONTRACTOR SHALL CONSTRUCT THE SEDIMENT BASIN IN ACCORDANCE WITH THE APPROVED SWM PLANS.

OWNER/DEVELOPER/APPLICANT

NAME: MR. BRIAN KNAUFF
 COMPANY: THE RYLAND GROUP
 6011 UNIVERSITY BOULEVARD, SUITE 260
 ELLICOTT CITY, MARYLAND 21043
 PHONE: 410-480-2467
 FAX: 410-480-0543

STRUCTURAL NOTES

1. BUILDING CODES
 - A. ALL CONSTRUCTION SHALL CONFORM WITH THE 2000 INTERNATIONAL BUILDING CODE AND ALL SUBSEQUENT SUPPLEMENTS.
 - B. IN ADDITION, ALL CONSTRUCTION SHALL CONFORM WITH THE GOVERNING LOCAL BUILDING CODE.
2. DESIGN LOADS
 - A. THE MINIMUM DESIGN DEAD LOADING FOR ALL FRAMING IS BASED ON THE CONSTRUCTION MATERIALS SHOWN ON THE DRAWINGS AND INDICATED IN THE SPECIFICATIONS.
 - B. MISCELLANEOUS
 - A. THE CONTRACTOR SHALL REVIEW CIVIL DRAWINGS PREPARED BY MORRIS & RITCHIE, INC., DATED 7/20/04 FOR LOCATION AND DIMENSION OF CHASES, INSERTS, OPENINGS, SLEEVES, DEPRESSIONS AND OTHER PROJECT REQUIREMENTS WHICH IMPACT THE STRUCTURAL COMPONENTS.
 - B. THE CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS SHOWN ON THE CONTRACT DRAWINGS BEFORE PROCEEDING WITH CONSTRUCTION. ALL DISCREPANCIES AND OMISSIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT.
 - C. THE CONTRACTOR SHALL NOT SUBMIT REPRODUCTIONS OF THE STRUCTURAL CONTRACT DOCUMENTS AS SHOP DRAWINGS.
 - D. SCALES SHOWN ON THE STRUCTURAL CONTRACT DRAWINGS ARE FOR GENERAL INFORMATION ONLY. DIMENSIONAL INFORMATION SHALL NOT BE OBTAINED BY SCALING THE DRAWINGS.
 - 4. FOUNDATIONS
 - A. FOUNDATIONS HAVE BEEN DESIGNED FOR AN ASSUMED NET ALLOWABLE SOIL BEARING PRESSURE OF 2500 PSF. THE ALLOWABLE SOIL BEARING PRESSURE SHALL BE FIELD VERIFIED BY A REGISTERED GEOTECHNICAL ENGINEER AND APPROVED PRIOR TO PLACING FOUNDATIONS. SHOULD THE ACTUAL SOIL BEARING PRESSURE BE LESS THAN 2500 PSF, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER.
 - B. ALL FILL PLACED UNDER FOUNDATIONS SHALL BE COMPACTED TO A DRY DENSITY OF AT LEAST 95 PERCENT OF MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D 698.
 - C. ALL EXCAVATION AND BACKFILLING OPERATIONS WITHIN THE BUILDING FOOTPRINT, INCLUDING ALL COMPACTION TESTS AND INSPECTIONS, SHALL BE DONE UNDER THE DIRECTION AND SUPERVISION OF A REGISTERED GEOTECHNICAL ENGINEER. CONTRACTOR SHALL BACKFILL AROUND PERIMETER OF RISER AT AN EVEN RATE SO AS NOT TO CAUSE AN OVERTURNING MOMENT.
 - D. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF ALL FOUNDATION AND SOIL CONDITIONS WHICH DIFFER FROM THOSE ANTICIPATED OR INDICATED IN THE CONTRACT DOCUMENTS.
 - E. ALL EXISTING SOIL CONTAINING GRAVEL, CONSTRUCTION OR DEMOLITION DEBRIS, ORGANIC SUBSTANCES, OR OTHER FOREIGN OBJECTS SHALL BE REMOVED FROM THE REGION WITHIN THE FOOTPRINT OF THE STRUCTURE.
 - 5. CAST IN PLACE CONCRETE
 - A. ALL CONCRETE CONSTRUCTION SHALL CONFORM TO THE "SPECIFICATIONS FOR ENVIRONMENTAL ENGINEERING CONCRETE STRUCTURES (ACI 308)"; AND TO THE "BUILDING CODE REQUIREMENTS FOR CONCRETE (ACI 318)".
 - B. IN ADDITION TO THE ABOVE, ALL CONCRETE WORK SHALL CONFORM TO THE FOLLOWING:
 1. RECOMMENDED PRACTICE FOR HOT WEATHER CONCRETING (ACI 305).
 2. RECOMMENDED PRACTICE FOR COLD WEATHER CONCRETING (ACI 306).
 3. RECOMMENDED PRACTICE FOR CONCRETE FORMWORK (ACI 347).
 - C. ALL CONCRETE, UNLESS NOTED OTHERWISE, SHALL BE STONE AGGREGATE CONCRETE HAVING A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3000 PSI. ALL AGGREGATE EXPOSED TO WEATHER SHALL BE ± 1%. NO ADMIXTURES HAVE AN AIR ENTRAINMENT OF 6 CONTAINING CALCIUM CHLORIDE SHALL BE PERMITTED. MAXIMUM AGGREGATE SIZE SHALL BE 3/4", WATER/CEMENT RATIO SHALL BE 0.45, MAXIMUM SLUMP SHALL BE 4"; 3" FOR SLABS ON GRADE. ALL CONCRETE, EXCEPT FOOTINGS, SHALL CONTAIN A WATER REDUCING ADMIXTURE. PORTLAND CEMENT SHALL CONFORM TO ASTM C 150 AND NORMAL WEIGHT AGGREGATES SHALL CONFORM TO ASTM C 672.
 - D. ALL REINFORCING BARS SHALL BE NEW BILLET STEEL CONFORMING TO ASTM A 615 GRADE 60. ALL WELDED WIRE FABRIC (W.W.F.) SHALL CONFORM TO ASTM A 185. LAP ALL REINFORCING BARS WITH A MINIMUM OF 48 BAR DIAMETERS AND ALL W.W.F. A MINIMUM OF TWO FULL GRIDS, UNLESS OTHERWISE INDICATED.
 - E. ALL REINFORCING SHALL BE DETAILED, FABRICATED AND PLACED IN ACCORDANCE WITH THE CRSI "MANUAL OF STANDARD PRACTICE", ACI 315" DETAILS AND DETAILING OF CONCRETE REINFORCEMENT, ACI SP 66 "DETAILING MANUAL".
 - F. ALL CONCRETE MIX DESIGNS, INCLUDING CEMENT CONTENT, WATER CEMENT RATIO, FINE AND COARSE AGGREGATE CONTENT AND ALL ADMIXTURES, SHALL BE REVIEWED BY ENGINEER PRIOR TO PLACING FIRST CONCRETE.
 - G. ALL CONCRETE SHALL BE SAMPLED AND TESTED BY THE TESTING AGENCY. THE CONTRACTOR SHALL NOTIFY THE TESTING AGENCY 48 HOURS PRIOR TO THE PLACING OF ANY CONCRETE.
 - H. GROUND BLAST FURNACE SLAG MAY BE USED TO REPLACE UP TO 50 PERCENT OF THE PORTLAND CEMENT IN A CONCRETE MIX, AND FLY ASH OR POZZOLAN MAY BE USED TO REPLACE UP TO 25 PERCENT OF PORTLAND CEMENT, SUBJECT TO THE APPROVAL OF THE STRUCTURAL ENGINEER AND SHALL CONFORM TO ASTM C 989.
 - I. MINIMUM COVER FOR ALL REINFORCING SHALL BE AS FOLLOWS UNLESS OTHERWISE INDICATED:
 - FOUNDATIONS 3 INCHES
 - WALLS 2 INCHES
 - J. THE GENERAL CONTRACTOR SHALL SUBMIT PLANS SHOWING ALL PENETRATIONS THROUGH THE FRAMED CONCRETE SLABS. THE OPENINGS SHALL BE ACCURATELY LOCATED AND DIMENSIONED.
 - 6. RETAINING WALLS
 - A. RISER WALLS HAVE BEEN DESIGNED WITH BACKFILL MATERIAL HAVING THE FOLLOWING CHARACTERISTICS:
 - G_{max} = 130.0 PCF
 - K_g = 0.40
 - K_p = 2.25
 - IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO INSURE THE BACK FILL MATERIAL MEETS THESE CHARACTERISTICS.
 - B. RISER HAS BEEN DESIGNED FOR THE FOLLOWING MINIMUM FACTORS OF SAFETY:
 - OVERTURNING 2.0
 - SLIDING 2.0
 - BOUYANCY 1.2
 - C. ALL RISER WALLS SHALL BE BRACED AND SHORED AS REQUIRED DURING BACKFILLING. BOTH SUPPORTING ELEMENTS SHALL BE IN PLACE AND DEVELOPING FULL REQUIRED STRENGTH PRIOR TO BACK FILLING OF WALLS SUPPORTED AT TOP AND BOTTOM.

CONSTRUCTION INSPECTION SCHEDULE

DETENTION AND RETENTION STRUCTURES

1. INSPECTIONS SHALL BE CONDUCTED BY THE AS-BUILT CERTIFYING ENGINEER:
 - 1. UPON THE COMPLETION OF EXCAVATION TO SUB-FOUNDATION AND WHEN REQUIRED, AND UPON THE INSTALLATION OF STRUCTURAL SUPPORTS OR REINFORCEMENT FOR STRUCTURES. INCLUDING BUT NOT LIMITED TO:
 - A. CORE TRENCHES FOR STRUCTURAL EMBANKMENT.
 - B. INLET OR OUTLET STRUCTURES AND ANTI-SEEP STRUCTURES.
 - C. WATER-TIGHT CONNECTIONS ON PIPES.
 - D. TRENCHES FOR ENCLOSED DRAIN FACILITIES.
 - E. UTILITY CROSSINGS OF EMBANKMENT.
 - 2. DURING THE PLACEMENT OF STRUCTURAL FILL AND CONCRETE, AND INSTALLATION OF PIPING AND CATCH BASINS.
 - 3. DURING BACKFILL OF FOUNDATIONS AND TRENCHES.
 - 4. DURING EMBANKMENT CONSTRUCTION.
 - 5. UPON COMPLETION OF FINAL GRADING, INSTALLATION OF FOREBAY, GABION, ETC., AND ESTABLISHMENT OF PERMANENT STABILIZATION.
 - 6. UPON COMPLETION OF INSTALLATION FOR TRASH RACKS, POND DRAINS AND VALVE.

MAINTENANCE & REPAIR SCHEDULE

MAINTENANCE AND REPAIR SHALL BE CONDUCTED IN ACCORDANCE WITH ALL FEDERAL, STATE, AND LOCAL REQUIREMENTS. IN GENERAL, THE PRACTICES CONTAINED IN THE "MAINTENANCE AND REPAIR" CHAPTER OF THE "MARYLAND DAM SAFETY MANUAL", DNR-WRA 1988, SHOULD BE FOLLOWED AND CONDUCTED UNDER THE SUPERVISION OF A QUALIFIED PROFESSIONAL ENGINEER FAMILIAR WITH DAM CONSTRUCTION, OPERATION, MAINTENANCE, AND REPAIR. IN ADDITION, THE MD-378 DAM INSPECTION CHECKLIST MAY BE USED AS A GUIDE FOR MAINTENANCE AND INSPECTION. AT A MINIMUM, THE STORMWATER MANAGEMENT FACILITY SHALL BE INSPECTED BI-ANNUALLY FOR THE FOLLOWING ITEMS:

1. CONDITION OF EMBANKMENT
2. CONDITION OF VEGETATIVE COVER
3. CONDITION OF FENCES AND MAINTENANCE ACCESS ROAD.
4. CONDITION OF SPILLWAYS AND PIPE OUTLETS.
5. CONDITION OF POND RESERVOIR STORAGE AREA.

GEOTECHNICAL NOTES & RECOMMENDATIONS

1. PER MD-378 SPECIFICATIONS, SOILS USED FOR CUTOFF TRENCH CONSTRUCTION SHALL MEET USCS CLASSIFICATION CL (LOW PLASTICITY CLAY), CH (HIGH PLASTICITY CLAY), SC (CLAYEY SAND), OR GC (CLAYEY GRAVEL).
2. MATERIALS USED FOR BACKFILL OF PIPE OUTFALL SHOULD BE SIMILAR TO THOSE USED FOR THE CUTOFF TRENCH.
3. ALTHOUGH SUBSURFACE EXPLORATIONS INDICATE THAT NO SUITABLE CUTOFF TRENCH MATERIAL EXISTS ON SITE, TEST PIT EXPLORATION MAY BE PERFORMED IN AN ATTEMPT TO IDENTIFY APPROPRIATE MATERIALS MEETING SCS SPECIFICATIONS FOR CUTOFF CONSTRUCTION.
4. IF MATERIALS SUITABLE FOR CUTOFF TRENCH CONSTRUCTION ARE NOT IDENTIFIED ON SITE, OFF-SITE BORROW MAY BE UTILIZED PROVIDED THAT IT MEETS ALL CLASSIFICATIONS REQUIRED BY MD-378, AND BE APPROVED BY A QUALIFIED GEOTECHNICAL ENGINEER IN THE FIELD.
5. MD-378 SPECIFICS THAT REFERENCE SOIL CLASSIFICATIONS SUITABLE FOR CUTOFF TRENCH CONSTRUCTION ARE ALSO SUITABLE FOR EMBANKMENT CONSTRUCTION. THE MOST PLASTIC MATERIAL (PI=11 OR MORE) AVAILABLE ON SITE SHALL BE USED FOR EMBANKMENT CONSTRUCTION.
6. FILL FOR CUTOFF TRENCH AND EMBANKMENT CONSTRUCTION SHOULD BE PLACED IN 8" LOOSE LIFTS, COMPACTED TO AT LEAST 95% OF THE MAXIMUM DRY DENSITY IN ACCORDANCE WITH THE STANDARD PROCTOR, ASTM D-698. FILL AROUND THE PIPE OUTFALL SHOULD BE PLACED IN 4" LIFTS AND COMPACTED TO THE SAME STANDARD WITH HAND EQUIPMENT. COMPACTION OF THESE AREAS SHOULD BE MONITORED BY A QUALIFIED GEOTECHNICAL ENGINEER.
7. WHERE INDICATED BY SUBSURFACE CONDITIONS, A 6" GRANULAR BEDDING SHOULD BE PLACED UNDER THE PIPE OUTFALL (BEYOND THE CONCRETE CRADE) TO PROVIDE UNIFORM PIPE SUPPORT.

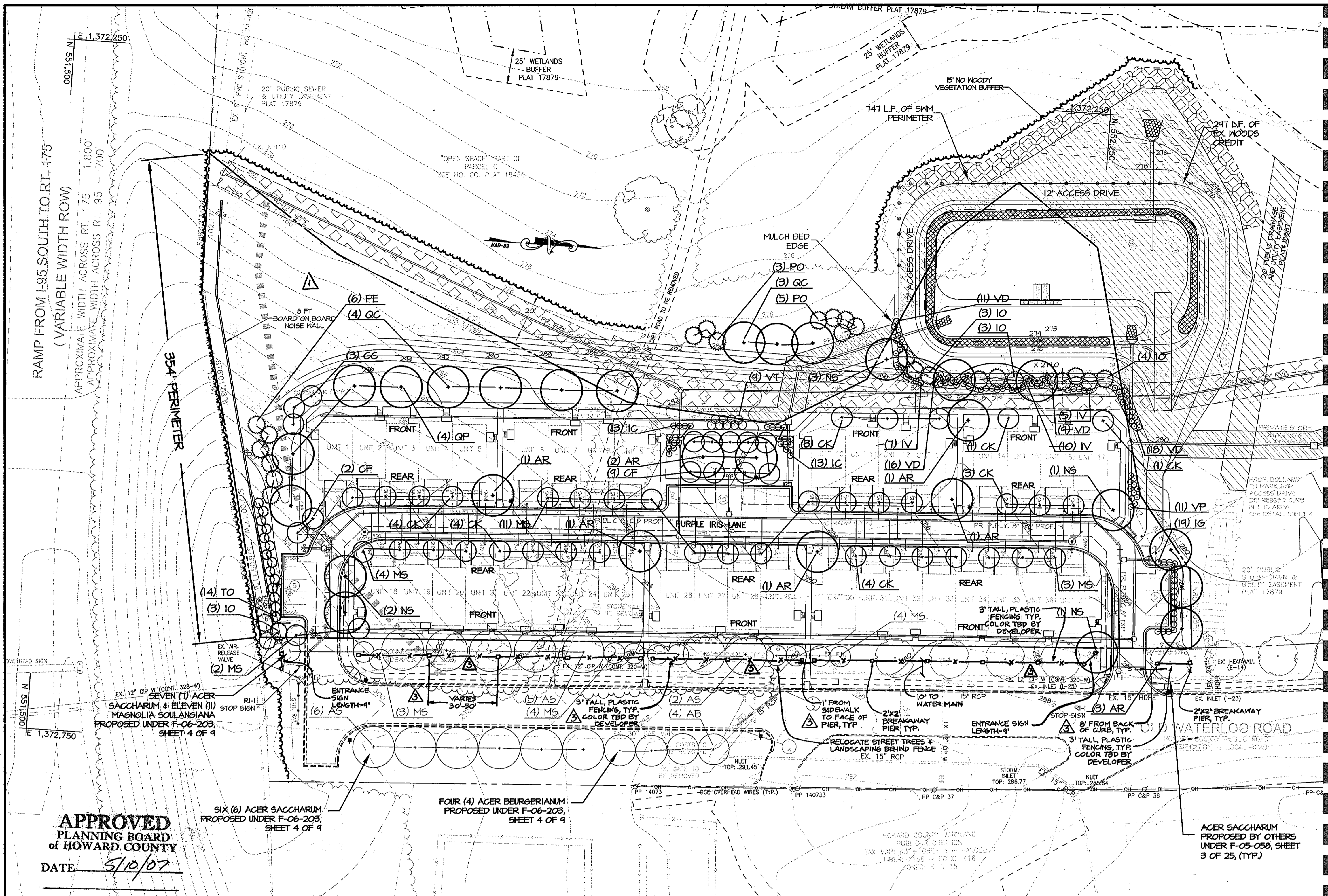
THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.

John Mays / cs 6/19/07
 U.S.D.A. - NATURAL RESOURCES CONSERVATION SERVICE
 DATE

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

John Mays / cs 6/19/07
 HOWARD SOIL CONSERVATION DISTRICT
 DATE





PLANT LEGEND

- SHADE TREE
- ORNAMENTAL TREE
- EVERGREEN TREE
- SHRUB
- ORNAMENTAL GRASS
- AQUATIC PLANTS

LEGEND

- EX. BUILDING
- EX. CURB
- EX. EASEMENT
- EX. FENCE
- EX. FLOODPLAIN
- EX. GAS
- EX. PAVEMENT
- EX. PROPERTY LINE
- EX. ROAD CENTERLINE
- EX. SANITARY SEWER
- EX. STORM DRAIN
- EX. STREAM
- EX. 75' STREAM BUFFER
- EX. TREE LINE
- EX. WATERLINE
- EX. FIRE HYDRANT
- EX. WETLAND
- EX. WETLAND BUFFER
- PROP. 2025 658BA LINE
- PROP. 1' CONTOURS
- PROP. 2' CONTOURS
- PROP. 10' CONTOURS
- PROP. CENTERLINE OF DRAINAGE SHALE
- PROP. FENCE - SEE DETAIL SHEET 33
- PROP. CURB
- PROP. REVERSE CURB & GUTTER
- PROP. STANDARD CURB & GUTTER
- PROP. TREE LINE
- PROP. LIMIT OF DISTURBANCE
- PROP. PAVEMENT
- PROP. BUILDING SETBACK
- PROP. BUILDING SETBACK
- PROP. SANITARY SEWER LINE
- PROP. PUBLIC SANITARY SEWER LINE
- PROP. PUBLIC WATER LINE
- PROP. PRIVATE STORM DRAIN LINE
- PROP. PUBLIC STORM DRAIN LINE

PLANT SPACING CHART

SPACING "D" ROW "A" # OF PLANTS/S.F.

6" O.C.	5.20"	4.61
8" O.C.	6.93"	2.60
10" O.C.	8.66"	1.66
12" O.C.	10.40"	1.15
15" O.C.	13.00"	.738
18" O.C.	15.60"	.512
24" O.C.	20.80"	.290
30" O.C.	26.00"	.185
36" O.C.	30.00"	.128

NOTE: FOR USE ONLY WHEN PLANTS ARE SPACED EQUIDISTANT FROM EACH OTHER AS SHOWN, AND SPECIFIED IN THE PLANT LIST.

MATCHLINE - SEE SHEET 28 FOR CONTINUATION

APPROVED
PLANNING BOARD
of HOWARD COUNTY
DATE 5/10/07

PLANT LIST

Key	Quantity	Botanical Name / Common Name	Size	Root	Remarks
AR	23	<i>Acer rubrum</i> 'Red Sunset' Red Sunset Maple	2 1/2 - 3" cal. min.	B & B	Full and uniform
NS	31	<i>Nyssa sylvatica</i> Black Gum	2 1/2 - 3" cal. min.	B & B	Full and uniform
QC	7	<i>Quercus coccinea</i> Scarlet Oak	2 1/2 - 3" cal. min.	B & B	Full and uniform
QP	15	<i>Quercus palustris</i> Pin Oak	2 1/2 - 3" cal. min.	B & B	Full and uniform

TOTAL: 76 Shade Trees

Key	Quantity	Botanical Name / Common Name	Size	Root	Remarks
PV	56	<i>Panicum virgatum</i> 'Squaw' Squaw Switch Grass	1 GAL.	CONT.	Full and uniform

TOTAL: 56 Ornamental Grasses

Key	Quantity	Botanical Name / Common Name	Size	Root	Remarks
AC	6	<i>Amelanchier canadensis</i> Shadblow Serviceberry	8-10' hgt. min.	B & B	Full and uniform
CC	3	<i>Crataegus crusgalli</i> var. <i>inermis</i> Thornless Cockspur Hawthorn	2-2 1/2" cal. min.	B & B	Full and uniform
CF	21	<i>Cornus florida</i> Flowering Dogwood	8-10' hgt. min.	B & B	Full and uniform
CK	26	<i>Cornus kousa</i> Kousa Dogwood	8-10' hgt. min.	B & B	Full and uniform
CR	7	<i>Cornus florida</i> var. <i>rubra</i> Pink Flowering Dogwood	8-10' hgt. min.	B & B	Full and uniform
MA	4	<i>Malus x 'Snowdrift'</i> Snowdrift Flowering Crabapple	8-10' hgt. min.	B & B	Full and uniform
MS	23	<i>Magnolia x soulangiana</i> Saucer Magnolia	6-8' hgt. min.	B & B	Full and uniform
PS	21	<i>Prunus serrulata</i> 'Kwanzan' Kwanzan Cherry	2-2 1/2" cal. min.	B & B	Full and uniform

TOTAL: 111 Flowering Trees

Key	Quantity	Botanical Name / Common Name	Size	Root	Remarks
AS	614	<i>Andropogon glomeratus</i> Bushy Beardgrass	1 QT.	CONT.	Cultivated under hydric soil conditions
AV	614	<i>Peltandra virginica</i> Arrow Arum	1 QT.	CONT.	Cultivated under hydric soil conditions
DP	614	<i>Sagittaria latifolia</i> Duck Potato	1 QT.	CONT.	Cultivated under hydric soil conditions

TOTAL: 1842 Aquatic Plants

Key	Quantity	Botanical Name / Common Name	Size	Root	Remarks
JV	16	<i>Juniperus virginiana</i> Eastern Red Cedar	5-6' hgt.	B & B	Full and uniform
IO	22	<i>Ilex opaca</i> American Holly	6-8' hgt.	B & B	Full and uniform
PE	6	<i>Pinus strobus</i> Eastern White Pine	6-8' hgt.	B & B	Full and uniform
PO	8	<i>Picea omorika</i> Serbian Spruce	6-8' hgt.	B & B	Full and uniform
TO	14	<i>Thuja occidentalis</i> 'Nigra' Dark American Arborvitae	6-8' hgt.	B & B	Full and uniform

TOTAL: 66 Evergreen Trees

Key	Quantity	Botanical Name / Common Name	Size	Root	Remarks
FI	77	<i>Forsythia x intermedia</i> Border Forsythia	2 1/2 - 3' HT.	B & B	Full and uniform
IC	26	<i>Ilex crenata</i> 'Compacta' Compact Japanese Holly	2 1/2 - 3' HT.	B & B	Full and uniform
IG	57	<i>Ilex glabra</i> 'Compacta' Compact Inkberry	2 1/2 - 3' HT.	B & B	Full and uniform
IV	92	<i>Ilex verticillata</i> Winterberry	2 1/2 - 3' HT.	B & B	Full and uniform
VD	59	<i>Viburnum dentatum</i> Arrowwood Viburnum	2 1/2 - 3' HT.	B & B	Full and uniform
VT	9	<i>Viburnum plicatum</i> f. <i>tomentosum</i> Doublefile viburnum	2 1/2 - 3' HT.	B & B	Full and uniform
VP	78	<i>Viburnum x pragnense</i> Prague Viburnum	2 1/2 - 3' HT.	B & B	Full and uniform

TOTAL: 398 Shrubs

HOWARD RESEARCH & DEVELOPMENT SUBMISSION REQUIREMENTS

UNWOODED MIN. SHADE TREES REQUIRED 3.0/UNIT

TYPE OF UNIT: TOWNHOUSE

NUMBER OF UNITS: 66
REQUIRED SHADE TREE EQUIVALENTS: 198

PROPOSED SHADE TREE EQUIVALENTS:
104 SHADE TREES* = 104
122 FLOWERING TREES* = 61
66 EVERGREEN TREES: 33
398 SHRUBS: 242.8
TOTAL: 242.8

*33 SHADE TREES AND 11 FLOWERING TREES PROP. UNDER DING'S F-05-058 & F-06-203.

NOTE:
THIS PLAN HAS BEEN PREPARED TO MEET THE NEW TOWN "GUIDELINES FOR RESIDENTIAL PLANTING", PREPARED BY THE ROUSE COMPANY FOR COLUMBIA, MD.
A COPY OF THE LETTER FROM HRD THAT APPROVES THE FINAL LANDSCAPE PLAN HAS BEEN SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING OFFICE, FOR THE FILE.
THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE NEW TOWN ALTERNATIVE COMPLIANCE PROVISIONS SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE HOWARD COUNTY LANDSCAPE MANUAL.

*FOR LANDSCAPE GENERAL NOTES SEE SHEET 28 OF 33.

MORRIS & RITCHIE ASSOCIATES, INC.
ENGINEERS, PLANNERS, SURVEYORS AND LANDSCAPE ARCHITECTS

14280 PARK CENTER DRIVE, SUITE A
LAUREL, MARYLAND 20707
(410) 792-9792 or (301) 776-1690
FAX (410) 792-7395

SITE DEVELOPMENT PLAN
GATEWAY OVERLOOK AT BENSON EAST-OLD WATERLOO ROAD
66 SINGLE FAMILY ATTACHED CONDOMINIUM UNITS

LANDSCAPE PLAN & DETAILS

LIBER: 9779 ~ FOLIO: 80 ~ PARCEL: 382
ZONED: NT ~ TAX MAPS: 37 & 43 ~ GRIDS: 20, 21 & 23
LOTS: J, K & L ~ 6TH ELECTION DISTRICT ~ HOWARD COUNTY, MARYLAND

DATE	REVISIONS	JOB NO.:
7/24/07	ADD LOD REVISION	14719
7/16/08	ADDED ENTRANCE FEATURES	14719

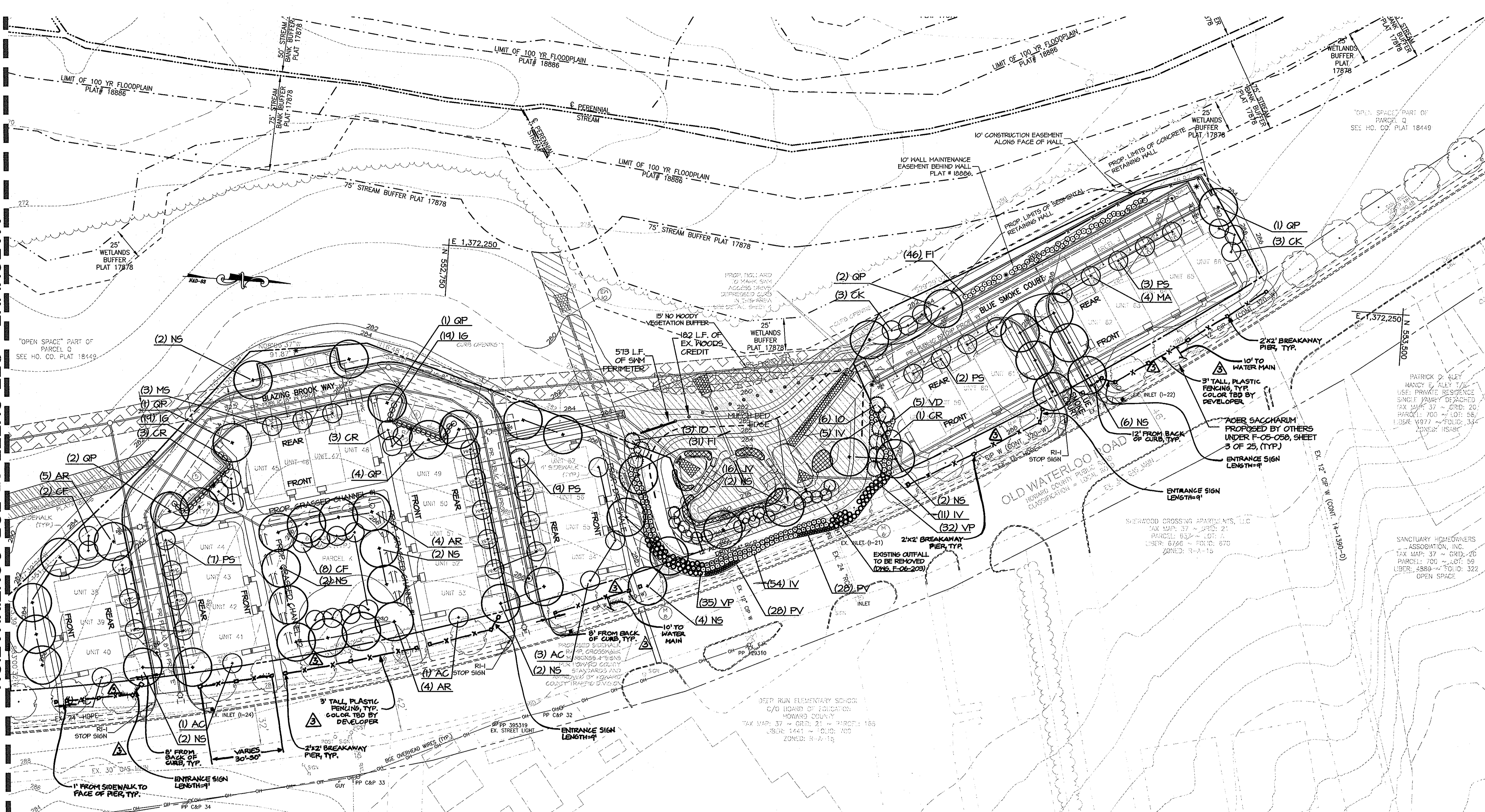
OWNER/DEVELOPER/APPLICANT	SCALE:
NAME: MR. BRIAN KNAUFF COMPANY: THE RYLAND GROUP 6011 UNIVERSITY BOULEVARD, SUITE 260 ELLCOTT CITY, MARYLAND 21043 PHONE: 410-480-2467 FAX: 410-480-0543	1"=40'

DATE	DESIGN BY:
7/24/07	DRB
7/16/08	DRB
	DRB
	DRB

SHEET: 27 OF 33

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE 6/21/07
DATE 9/22/07
DATE 6/25/07
DIRECTOR, DEPARTMENT OF PLANNING AND ZONING

MATCHLINE - SEE SHEET 27 FOR CONTINUATION



LEGEND

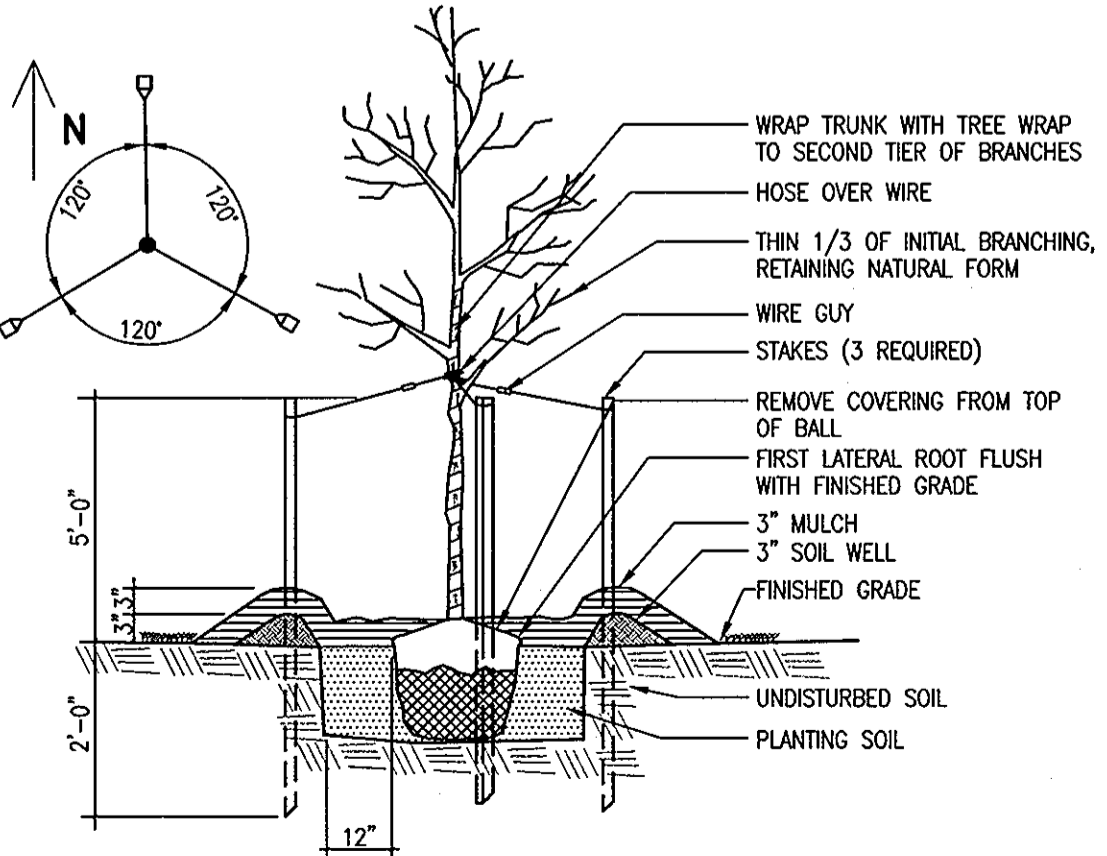
[Symbol]	EX. BUILDING
[Symbol]	EX. CURB
[Symbol]	EX. EASEMENT
[Symbol]	EX. FENCE
[Symbol]	EX. FLOORPLAN
[Symbol]	EX. GAS
[Symbol]	EX. PAVEMENT
[Symbol]	EX. PROPERTY LINE
[Symbol]	EX. ROAD CENTERLINE
[Symbol]	EX. SANITARY SEWER
[Symbol]	EX. STORM DRAIN
[Symbol]	EX. STREAM
[Symbol]	EX. 75' STREAM BUFFER
[Symbol]	EX. TREE LINE
[Symbol]	EX. WATERLINE
[Symbol]	EX. FIRE HYDRANT
[Symbol]	EX. WETLAND
[Symbol]	EX. WETLAND BUFFER
[Symbol]	PROP. 2025 6580A LINE
[Symbol]	PROP. 1' CONTOURS
[Symbol]	PROP. 2' CONTOURS
[Symbol]	PROP. 10' CONTOURS
[Symbol]	PROP. CENTERLINE OF DRAINAGE SWALE
[Symbol]	PROP. FENCE - SEE DETAIL SHEET 33
[Symbol]	PROP. CURB
[Symbol]	PROP. REVERSE CURB & GUTTER
[Symbol]	PROP. STANDARD CURB & GUTTER
[Symbol]	PROP. TREE LINE
[Symbol]	PROP. LIMIT OF DISTURBANCE
[Symbol]	PROP. PAVEMENT
[Symbol]	PROP. BUILDING
[Symbol]	PROP. BUILDING SETBACK
[Symbol]	PR. PRIVATE 8" PVC
[Symbol]	PR. PUBLIC 8" PVC
[Symbol]	PR. PRIVATE 15" SD
[Symbol]	PR. PUBLIC 15" SD
[Symbol]	PROP. PRIVATE SANITARY SEWER LINE
[Symbol]	PROP. PUBLIC SANITARY SEWER LINE
[Symbol]	PROP. PUBLIC WATER LINE
[Symbol]	PROP. PRIVATE STORM DRAIN LINE
[Symbol]	PROP. PUBLIC STORM DRAIN LINE
[Symbol]	PUBLIC SD & UTILITY ESMT
[Symbol]	PUBLIC SEWER & UTILITY ESMT
[Symbol]	PUBLIC WATER & UTILITY ESMT
[Symbol]	PUBLIC WATER, SEWER, & UTILITY ESMT
[Symbol]	PRIVATE SWM ESMT
[Symbol]	PRIVATE STORM DRAIN ESMT
[Symbol]	NO WOODY VEGETATION BUFFER
[Symbol]	ABANDONED 20' PUBLIC SEWER & UTILITY ESMT
[Symbol]	20' PUBLIC SD & UTILITY ESMT
[Symbol]	ABANDONED 20' PUBLIC SD & UTILITY ESMT
[Symbol]	CONSTRUCTION AND MAINTENANCE EASEMENT FOR RETAINING WALL

PLANT LEGEND

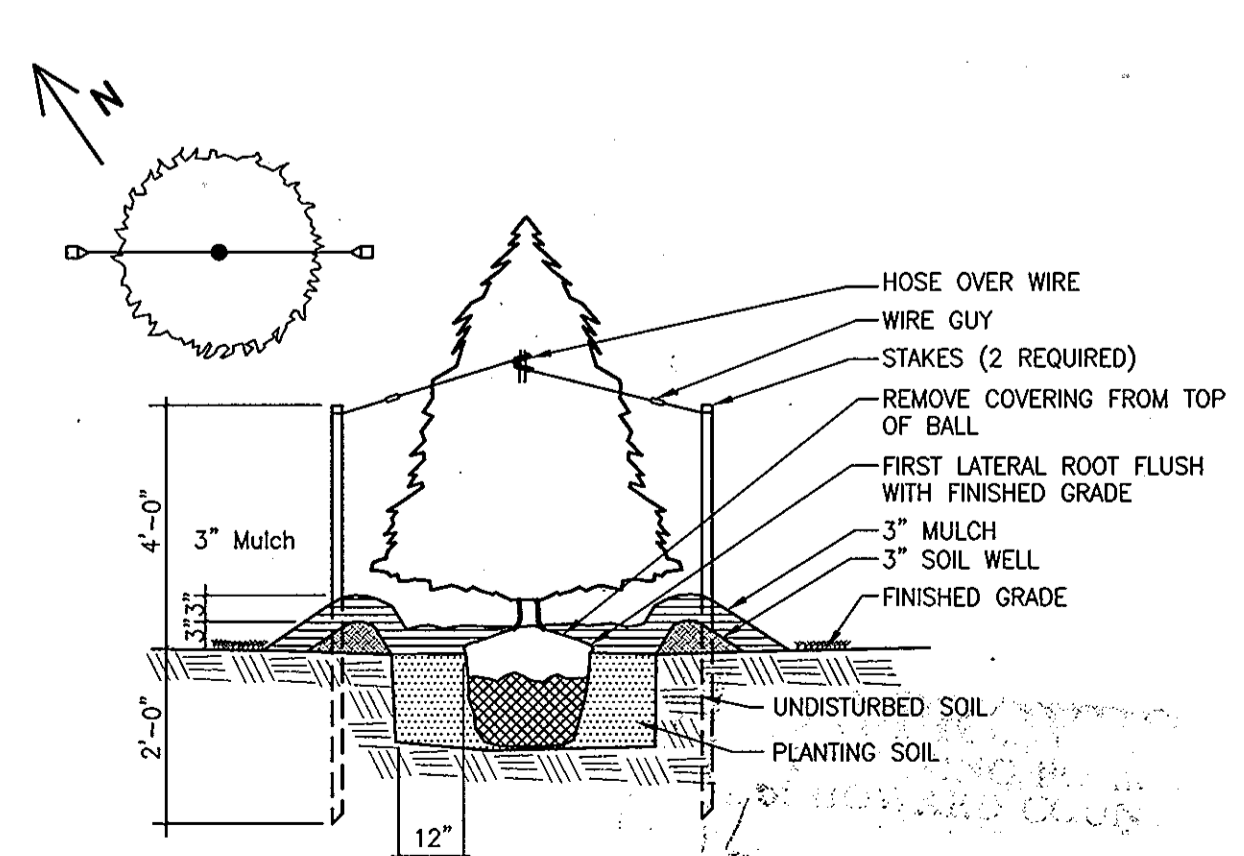
[Symbol]	SHADE TREE
[Symbol]	EX. TREE
[Symbol]	ORNAMENTAL TREE
[Symbol]	PROP. TREE - BY OTHERS (ACER SACCHARUM)
[Symbol]	EVERGREEN TREE
[Symbol]	SHRUB
[Symbol]	ORNAMENTAL GRASS
[Symbol]	AQUATIC PLANTS
[Symbol]	STREET LIGHT
[Symbol]	SWM PERIMETER
[Symbol]	SWM CREDIT

LANDSCAPE PLAN GENERAL NOTES

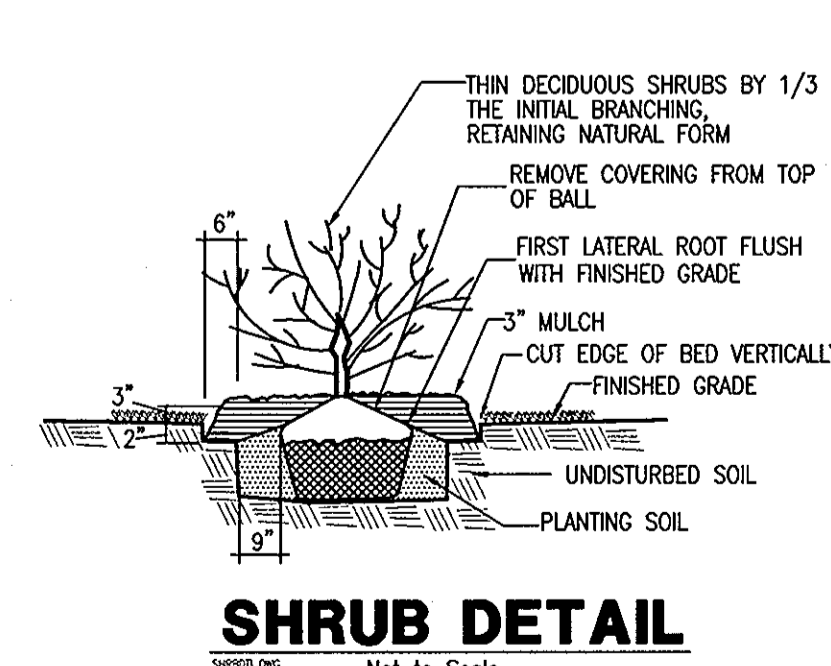
- All plant materials shall be nursery grown and shall comply with the American Standard for Nursery Stock (ANSI Z60.1), latest edition, published by the American Association of Nurserymen.
- Contractor shall contact "Miss Utility" and shall verify the location of all underground utilities within the project area prior to installation of plant material.
- Proposed locations of plant material shall be staked in the field by the Contractor for approval by Owner's Representative prior to planting.
- Plant material and beds shall receive a minimum 3-inch depth of mulch.
- All areas disturbed by planting operations shall be repaired by the Contractor to the satisfaction of the Owner's Representative.
- Quantities of trees, evergreens, and shrubs noted on the plant list are based upon the graphic symbols shown on the Drawings. Contractor shall provide and install these items based upon graphic symbol quantities. Contact Owner's Representative if a difference is found between the quantities noted in the plant list and the symbol count of plant materials shown on the Drawings.
- This project is subject to the Planting Specifications Section of the Architectural Committee Guidelines for Residential Construction in Columbia. Additionally, planting procedures and materials shall comply with the Landscape Specification Guidelines for Baltimore-Washington metropolitan areas, latest edition, approved by the Landscape Contractors Association of Maryland, Washington and Virginia.
- Financial surety for the required landscaping has been posted as part of the DPW developers agreement in the amount of \$61,440.00 (76 shade trees @ \$300.00 ea., 178 flowering/evergreen trees @ \$150.00 ea., 398 shrubs @ \$30.00 ea.). This amount represents the required landscaping obligations.



DECIDUOUS TREE DETAIL
NOT TO SCALE



EVERGREEN TREE DETAIL
NOT TO SCALE



SHRUB DETAIL
Not to Scale

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 [Signature] 10/21/07
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 [Signature] 6/22/07
 CHIEF, DIVISION OF LAND DEVELOPMENT
 [Signature] 6/27/07
 DIRECTOR, DEPARTMENT OF PLANNING AND ZONING

APPROVED
PLANNING BOARD
 OF HOWARD COUNTY
 DATE 5/10/07

OWNER/DEVELOPER/APPLICANT
 NAME: MR. BRIAN KNAUFF
 COMPANY: THE RYLAND GROUP
 6011 UNIVERSITY BOULEVARD, SUITE 260
 ELLICOTT CITY, MARYLAND 21043
 PHONE: 410-480-2467
 FAX: 410-480-0543

MRA

MORRIS & RITCHIE ASSOCIATES, INC.
 ENGINEERS, PLANNERS, SURVEYORS AND LANDSCAPE ARCHITECTS

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SITE DEVELOPMENT PLAN
 GATEWAY OVERLOOK AT BENSON EAST-OLD WATERLOO ROAD
 66 SINGLE FAMILY ATTACHED CONDOMINIUM UNITS

LANDSCAPE PLAN & DETAILS

LIBER: 9779 ~ FOLIO: 80 ~ PARCEL: 382
 ZONED: NT ~ TAX MAPS: 37 & 43 ~ GRIDS: 20, 21 & 23
 LOTS: J, K & L ~ 6TH ELECTION DISTRICT ~ HOWARD COUNTY, MARYLAND

DATE	REVISIONS	JOB NO.:
7/16/08	ADDED ENTRANCE FEATURES	14719
		SCALE: 1"=40'
		DATE: 4/24/07
		DRAWN BY: DRB
		DESIGN BY: DRB
		REVIEW BY: DRB
		SHEET: 28 OF 33

STRUCTURAL NOTES

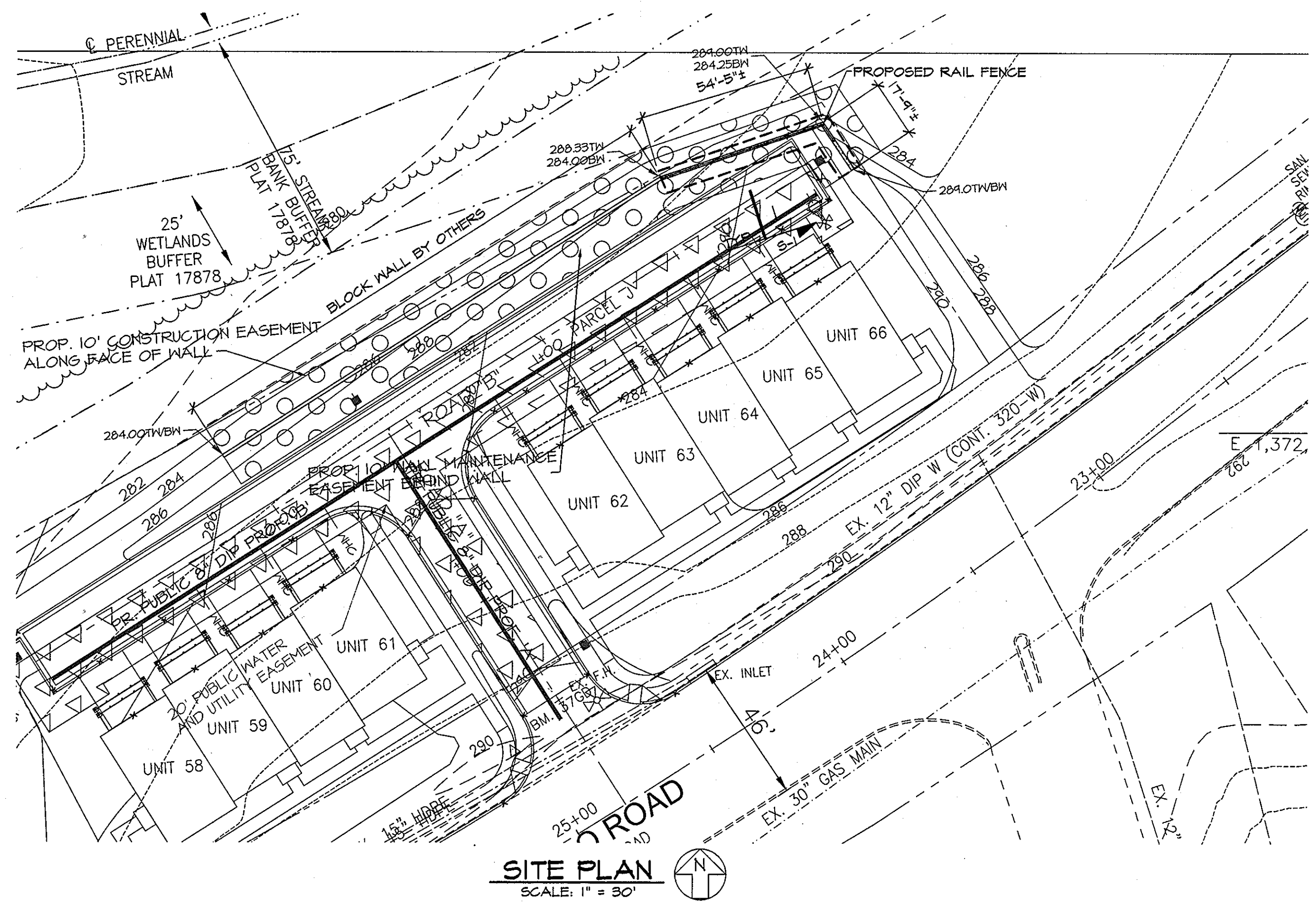
1. BUILDING CODES
 - A. ALL CONSTRUCTION SHALL CONFORM WITH THE 2003 IBC BUILDING CODE AND ALL APPLICABLE SUPPLEMENTS.
 - B. IN ADDITION, ALL CONSTRUCTION SHALL CONFORM WITH THE GOVERNING LOCAL BUILDING CODE.
3. MISCELLANEOUS
 - A. SHOP DRAWINGS FOR ALL STRUCTURAL ELEMENTS SHOWN ON THE CONTRACT DOCUMENTS MUST BE SUBMITTED BY THE CONTRACTOR OR OWNER FOR REVIEW BY THE ENGINEER. IF THE CONTRACTOR OR OWNER FAILS TO SUBMIT THE SHOP DRAWINGS, THE ENGINEER WILL NOT BE RESPONSIBLE FOR STRUCTURAL CERTIFICATION AND DESIGN OF THE PROJECT. THE SHOP DRAWINGS SHALL INDICATE ANY DEVIATIONS OR OMISSIONS FROM THE CONTRACT DOCUMENTS. THE GENERAL CONTRACTOR SHALL REVIEW ALL SHOP DRAWINGS PRIOR TO SUBMISSION AND MAKE ALL CORRECTIONS DEEMED NECESSARY.
 - B. THE CONTRACTOR SHALL REVIEW THE CIVIL DRAWINGS PREPARED BY LOIEDERMAN SOLTESZ ASSOCIATES FOR LOCATION AND DIMENSION OF OPENINGS, SLEEVES, ELEVATIONS AND OTHER PROJECT REQUIREMENTS WHICH IMPACT THE STRUCTURAL COMPONENTS.
 - C. THE CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS SHOWN ON THE CONTRACT DRAWINGS BEFORE PROCEEDING WITH CONSTRUCTION. ALL DISCREPANCIES AND OMISSIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT.
 - D. THE CONTRACTOR SHALL NOT SUBMIT REPRODUCTIONS OF THE STRUCTURAL CONTRACT DOCUMENTS AS SHOP DRAWINGS.
 - E. SCALES SHOWN ON THE STRUCTURAL CONTRACT DRAWINGS ARE FOR GENERAL INFORMATION ONLY. DIMENSIONAL INFORMATION SHALL NOT BE OBTAINED BY SCALING THE DRAWINGS.
 - B. THE CONTRACTOR SHALL LOCATE ALL UTILITIES IN THE AREA OF CONSTRUCTION AND PREVENT DAMAGE TO THEM. SHOULD DAMAGE OCCUR TO ANY UTILITIES, THE CONTRACTOR IS REQUIRED TO REPAIR THE DAMAGE TO THE SATISFACTION OF THE OWNER AT HIS OWN EXPENSE.
9. RETAINING WALLS
 - A. FOOTINGS FOR ALL RETAINING WALLS HAVE BEEN DESIGNED FOR AN ASSUMED NET ALLOWABLE SOIL BEARING PRESSURE OF 2000 PSF. THE ALLOWABLE SOIL BEARING PRESSURE SHALL BE FIELD VERIFIED BY A REGISTERED GEOTECHNICAL ENGINEER USING THE DYNAMIC CONE PENETROMETER TEST (ASTM STP-399) AND APPROVED PRIOR TO PLACING FOOTINGS. TESTING DOCUMENTATION SHALL BE PROVIDED TO THE HOWARD COUNTY INSPECTOR PRIOR TO PLACING FOOTINGS. SHOULD THE ACTUAL SOIL BEARING PRESSURE BE LESS THAN 2000 PSF, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER.
 - B. RETAINING WALLS HAVE BEEN DESIGNED WITH BACK FILL MATERIAL HAVING THE FOLLOWING CHARACTERISTICS:

SATURATED DENSITY	=	125 PCF
ϕ	=	30 DEGREES
Ka	=	0.37
COHESION	=	0

 IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO INSURE THE BACK FILL MATERIAL MEETS THESE CHARACTERISTICS.
 - D. RETAINING WALLS HAVE BEEN DESIGNED FOR THE FOLLOWING MINIMUM FACTORS OF SAFETY:

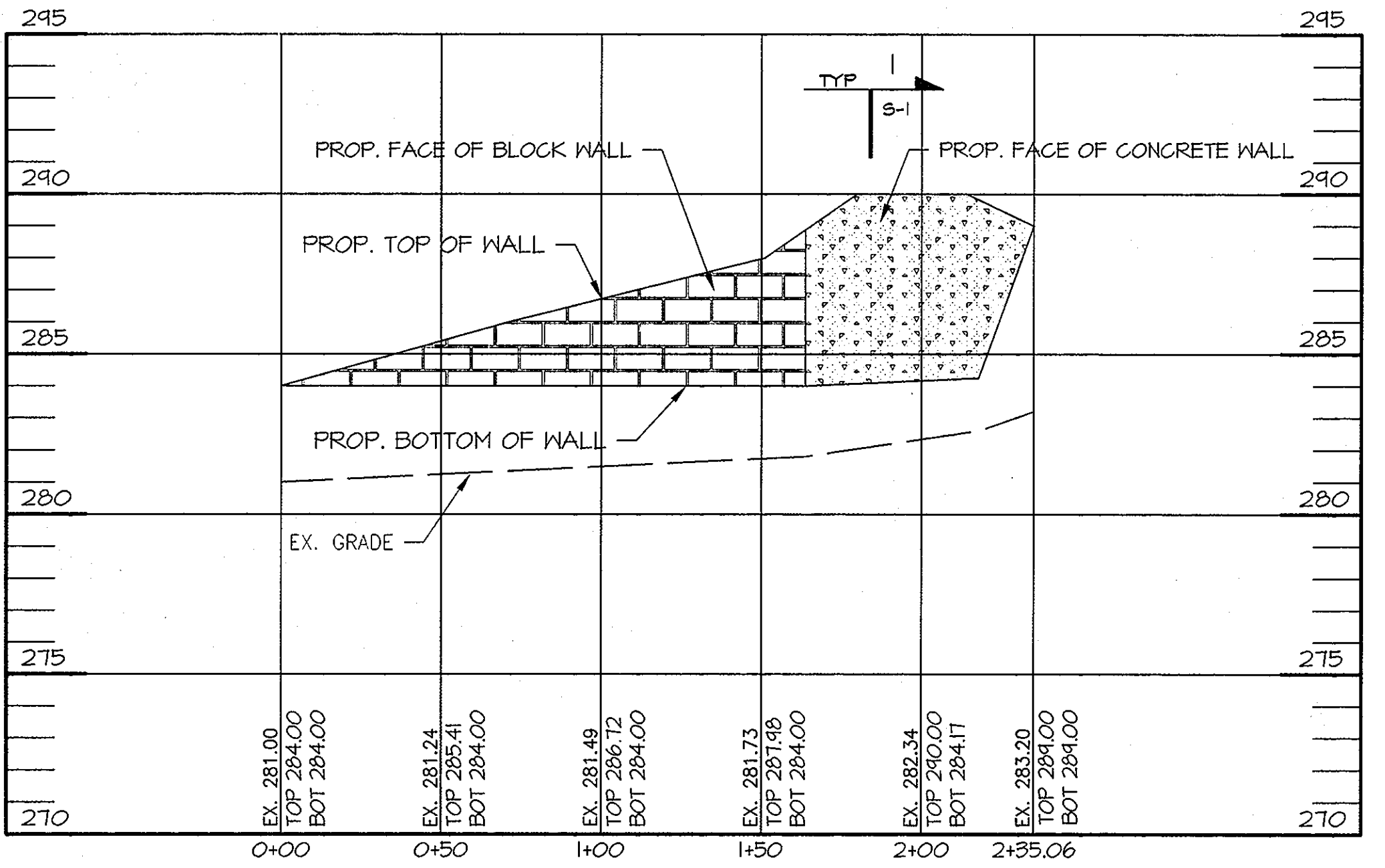
SLIDING	2.0
OVERTURNING	2.0
 - E. CONSTRUCTION OF ALL RETAINING WALLS SHALL BE PERFORMED UNDER THE SUPERVISION OF A REGISTERED GEOTECHNICAL ENGINEER.

9. STRUCTURAL FILL
 - A. NEW FILL MATERIAL AND EXISTING BASE MATERIAL SHALL BE FREE OF ALL REFUSE, DEBRIS, AND ORGANIC MATTER AND SHALL BE APPROVED FOR USE BY A REGISTERED GEOTECHNICAL ENGINEER.
 - B. FILL MATERIAL SHALL BE DEPOSITED IN 8 INCH MAXIMUM LOOSE LIFTS AND COMPACTED TO A DRY DENSITY OF AT LEAST 95 PERCENT OF MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D 648. FILL SHALL BE PLACED AND COMPACTED IN 8 INCH LOOSE LIFTS TO DESIRED FINISHED GRADE UNDER THE GUIDANCE AND OBSERVATION OF A PROFESSIONAL GEOTECHNICAL ENGINEER REGISTERED IN THE STATE OF MARYLAND. TESTING REPORT SHALL BE MADE AVAILABLE TO THE HOWARD COUNTY INSPECTOR UPON COMPLETION OF CONSTRUCTION.
 - C. WHEN WORK IS INTERRUPTED BY RAIN, FILL OPERATIONS SHALL NOT RESUME UNTIL FIELD TESTS INDICATE THAT THE MOISTURE CONTENT AND SOIL DENSITY OF THE TOP 8 INCHES OF FILL IS WITHIN THE LIMITS SPECIFIED.
 - D. ALL FILL MATERIAL SHALL BE PLACED IN SUCH A MANNER THAT THE SURFACE IS SLOPED TO PREVENT THE PONDING OF WATER.
10. CAST IN PLACE CONCRETE
 - A. ALL CONCRETE CONSTRUCTION SHALL CONFORM TO THE "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS (ACI 301)"; AND TO THE "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE (ACI 318)".
 - B. ALL CONCRETE, UNLESS NOTED OTHERWISE, SHALL BE STONE AGGREGATE CONCRETE HAVING A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3500 PSI. ALL CONCRETE EXPOSED TO WEATHER SHALL HAVE AN AIR ENTRAINMENT OF 6% +/- 1%. NO ADMIXTURES CONTAINING CALCIUM CHLORIDE SHALL BE PERMITTED. MAXIMUM AGGREGATE SIZE SHALL BE 1", AND MAXIMUM SLUMP SHALL BE 5", 4" FOR SLABS ON GRADE. ALL CONCRETE, EXCEPT FOOTINGS, SHALL CONTAIN A WATER REDUCING ADMIXTURE. PORTLAND CEMENT SHALL CONFORM TO ASTM C 150 AND NORMAL WEIGHT AGGREGATES SHALL CONFORM TO ASTM C 33.
 - C. ALL REINFORCING BARS SHALL BE NEW BILLET STEEL CONFORMING TO ASTM A 615 GRADE 60. ALL WELDED WIRE FABRIC (W.W.F.) SHALL CONFORM TO ASTM A 185. LAP ALL REINFORCING BARS A MINIMUM OF 48 BAR DIAMETERS AND ALL W.W.F. A MINIMUM OF TWO FULL GRIDS, UNLESS OTHERWISE INDICATED.
 - D. ALL REINFORCING SHALL BE DETAILED, FABRICATED AND PLACED IN ACCORDANCE WITH THE CRSI "MANUAL OF STANDARD PRACTICE", ACI 315 "DETAILS AND DETAILING OF CONCRETE REINFORCEMENT", ACI 308 "DETAILING MANUAL".
 - E. ALL CONCRETE MIX DESIGNS, INCLUDING CEMENT CONTENT, WATER CEMENT RATIO, FINE AND COARSE AGGREGATE CONTENT AND ALL ADMIXTURES, SHALL BE REVIEWED BY ENGINEER PRIOR TO PLACING FIRST CONCRETE.
 - F. ALL CONCRETE SHALL BE SAMPLED AND TESTED BY THE TESTING AGENCY. THE CONTRACTOR SHALL NOTIFY THE TESTING AGENCY 48 HOURS PRIOR TO THE PLACING OF ANY CONCRETE.
 - G. GROUND BLAST FURNACE SLAG MAY BE USED TO REPLACE UP TO 50 PERCENT OF THE PORTLAND CEMENT IN A CONCRETE MIX, AND FLY ASH OR POZZOLAN MAY BE USED TO REPLACE UP TO 25 PERCENT OF PORTLAND CEMENT, SUBJECT TO THE APPROVAL OF THE STRUCTURAL ENGINEER AND SHALL CONFORM TO ASTM C 984.



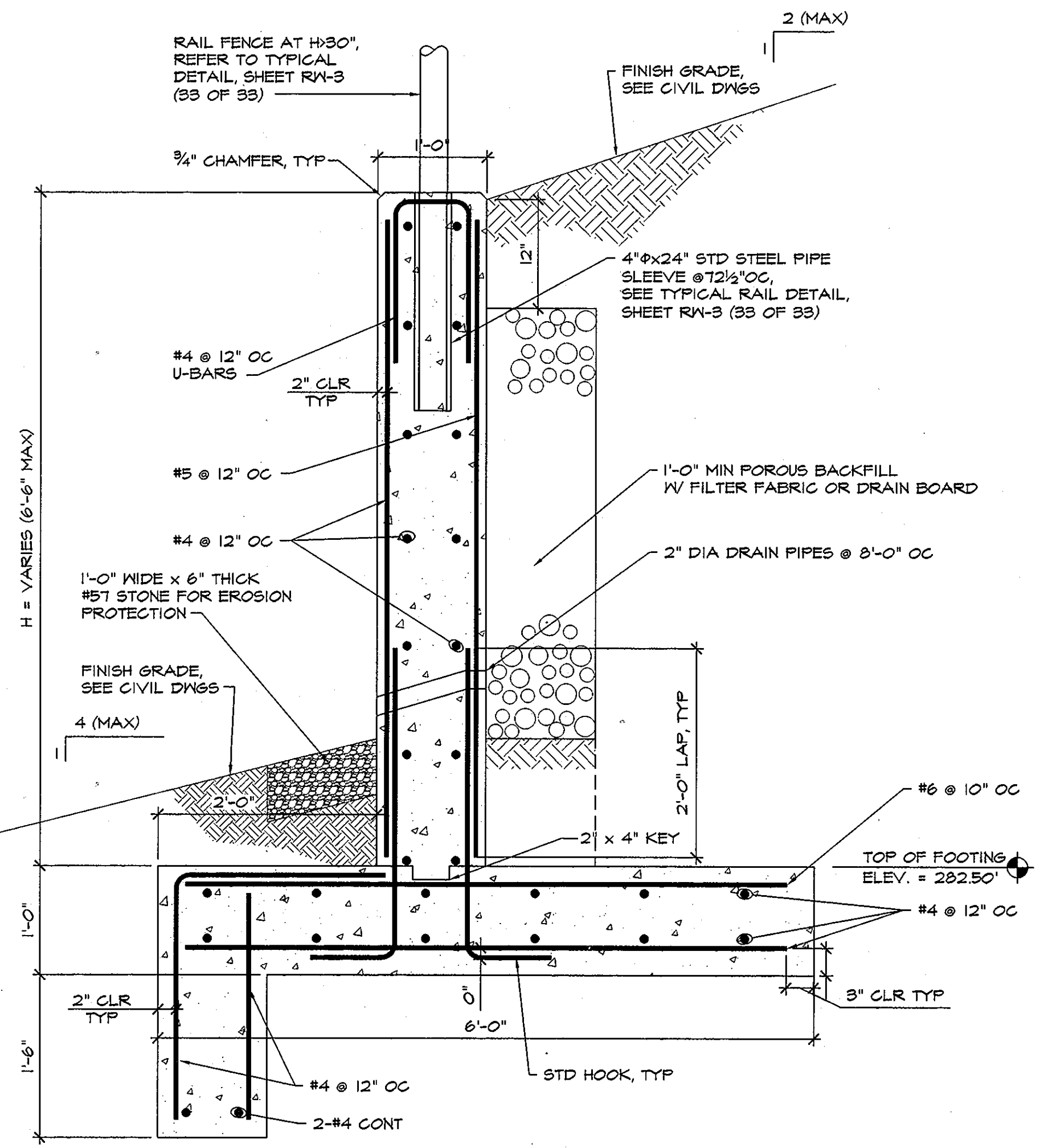
SITE PLAN NOTES:

1. ALL EASEMENTS AND BUFFERS ARE INDICATED ON CIVIL DRAWINGS PREPARED BY MORRIS AND RITCHIE ASSOCIATES, INC LOCATIONS INDICATED ON THESE PLANS ARE FOR REFERENCE ONLY. REFER TO CIVIL DRAWINGS FOR EXACT LOCATIONS.
2. RETAINING WALLS AND SUPPORTS SHALL BE LOCATED OUTSIDE ALL HOWARD COUNTY RIGHT-OF-WAYS AND EASEMENTS. WALLS AND SUPPORTS SHALL NOT BE MODIFIED WITHOUT APPROVAL FROM ENGINEER OF RECORD IF OVERLAPS OCCUR.



WALL PROFILE

HOR. 1" = 40'
VERT. 1" = 4'



SECTION 2/S-3

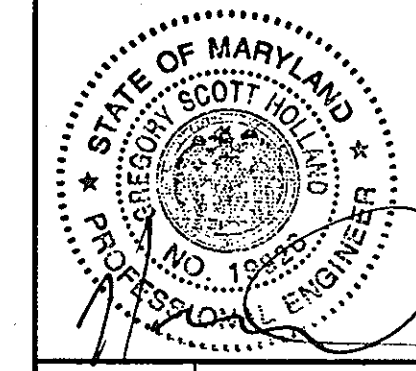
SCALE: 1" = 1'-0"

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 Chief, Development Engineering Division
 Chief, Division of Land Development
 Director, Department of Planning and Zoning

APPROVED
 PLANNING BOARD
 OF HOWARD COUNTY
 DATE: 5/10/07



MORRIS & RITCHIE ASSOCIATES, INC.
 ENGINEERS, PLANNERS, SURVEYORS AND LANDSCAPE ARCHITECTS
 1220-C East Joppa Road
 Suite 505
 TOWSON, MARYLAND 21286
 (410) 821-1690
 FAX (410) 821-1748



GATEWAY OVERLOOK
Concrete Retaining Wall
Structural Details

DATE	REVISIONS	JOB NO.:
		14719
		SCALE: AS NOTED
		DATE: 03/16/07
		DRAWN BY: NDB
		DESIGN BY: NDB
		REVIEW BY: GSH
		SHEET: 30 OF 33

SEGMENTAL RETAINING WALL SPECIFICATIONS

PART 1 - GENERAL

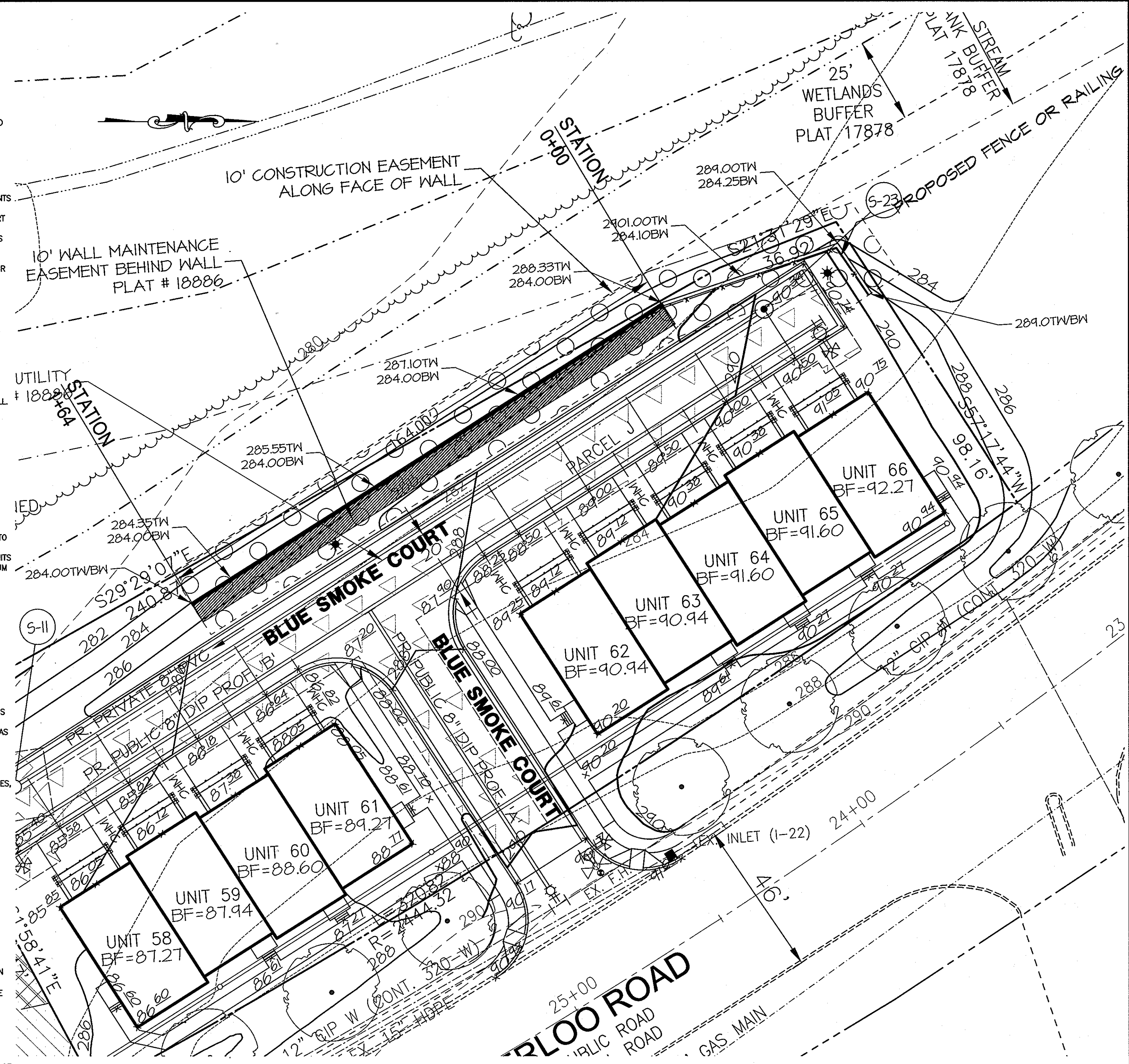
- 1.1 WORK INCLUDES
- FURNISHING AND INSTALLING SEGMENTAL RETAINING WALL UNITS, GEGRID REINFORCEMENT, WALL FILL, AND BACKFILL TO THE LINES AND GRADES SHOWN ON THE CONSTRUCTION DRAWINGS AND AS SPECIFIED HEREIN. THE CONTRACT ALSO INCLUDES THE FURNISHING AND INSTALLING ALL APPURTENANT MATERIALS, EQUIPMENT, AND LABOR REQUIRED FOR CONSTRUCTION OF THE GEGRID REINFORCED, SEGMENTAL RETAINING WALL. ALL EXISTING AND PROPOSED CONSTRUCTION AND SITE GRADING INFORMATION WAS REFERENCED FROM THE SITE DEVELOPMENT PLAN, SHEET 7, DATED 9-1-06, REVISED 11-30-06, PREPARED BY MORRIS & RITCHE, ASSOCIATES, INC.
- 1.2 REFERENCE STANDARDS
- A. ASTM C90 - HOLLOW LOAD BEARING MASONRY UNITS.
 - B. ASTM C146 - SAMPLING AND TESTING CONCRETE MASONRY UNITS.
 - C. ASTM C145 - SOLID LOAD BEARING CONCRETE MASONRY UNITS.
 - D. GEOSYNTHETIC RESEARCH INSTITUTE (GRI), GRI-064 - DETERMINATION OF LONG TERM DESIGN STRENGTH OF GEORGRIDS.
 - E. ASTM D 638 - TEST METHOD FOR TENSILE PROPERTIES OF PLASTIC.
 - F. ASTM D 1248 - SPECIFICATION OF POLYETHYLENE PLASTICS MOLDING AND EXTRUSION MATERIALS.
 - G. ASTM D 4218 - TEST METHOD FOR CARBON BLACK CONTENT IN POLYETHYLENE COMPOUNDS BY THE MUFFLE FURNACE TECHNIQUE.
 - H. ASTM D 3034 - SPECIFICATION FOR POLYVINYL CHLORIDE (PVC) PIPE.
 - I. ASTM C 1372 - SPECIFICATIONS FOR SEGMENTAL RETAINING WALL UNITS.
 - J. GRI-064 - DETERMINATION OF LONG-TERM DESIGN STRENGTH OF GEORGRIDS.
 - K. GRI-065 - DETERMINATION OF GEGRID (SOIL) PULLOUT.
- 1.3 DELIVERY, STORAGE AND HANDLING
- A. CONTRACTOR SHOULD CHECK THE MATERIALS UPON DELIVERY TO ASSURE THAT PROPER MATERIAL HAS BEEN RECEIVED.
 - B. CONTRACTOR SHOULD PREVENT EXCESSIVE MUD, WET CEMENT, EPOXY, AND LIKE MATERIALS WHICH MAY AFFIX THEMSELVES, FROM COMING IN CONTACT WITH THE MATERIALS.
 - C. GEORGRIDS SHOULD BE STORED ABOVE -20' F.
 - D. CONTRACTOR SHOULD PROTECT THE MATERIALS FROM DAMAGE. DAMAGED MATERIAL SHOULD NOT BE INCORPORATED INTO THE REINFORCED RETAINING WALL.
- 1.4 SUBMITTALS/CERTIFICATION
- THE CONTRACTOR SHALL SUBMIT A MANUFACTURER'S CERTIFICATION, PRIOR TO THE START OF THE WORK, THAT THE RETAINING WALL SYSTEM COMPONENTS MEET THE REQUIREMENTS OF ASTM C 1372 AND OTHER REQUIREMENTS SPECIFIED HEREIN. THIS CERTIFICATION SHOULD BE PROVIDED TO THE GEOTECHNICAL ENGINEER FOR REVIEW AND APPROVAL PRIOR TO WALL CONSTRUCTION.

PART 2 - PRODUCTS

- 2.1 DEFINITIONS
- A. GEGRID IS A HIGH DENSITY POLYETHYLENE, POLYESTER, OR POLYPROPYLENE GRID, SPECIFICALLY FABRICATED FOR USE AS A SOIL REINFORCEMENT.
 - B. CONCRETE RETAINING WALL UNITS ARE AS DETAILLED ON THE DRAWINGS AND AS SPECIFIED HEREIN.
 - C. GEOSYNTHETIC DRAINAGE COMPOSITES ARE POLYETHYLENE NET STRUCTURE WITH NON-WOVEN GEOTEXTILES BONDED TO BOTH SIDES.
 - D. EROSION CONTROL BLANKETS CONSIST OF A WEB OF POLYOLEFIN FIBERS SECURELY BOUNDED BY POLYOLEFIN THREADS BETWEEN TWO HIGH STRENGTH POLYOLEFIN NETS.
 - E. BACKFILL IS THE SOIL WHICH IS USED AS FILL FOR THE REINFORCED SOIL MASS.
 - F. FOUNDATION SOIL IS THE IN-SITU SOIL OR CONTROLLED COMPACTED FILL PLACED BELOW THE BOTTOM OF THE RETAINING WALL AND GEGRID ZONE.
 - G. DRAINAGE MATERIALS INCLUDE THE STONE PLACED WITHIN AND 1-FOOT BEHIND THE CONCRETE UNITS, THE PERFORATED LONGITUDINAL PVC PIPES, THE LATERAL SOLID PVC PIPES AND THE DRAINAGE GEOCOMPOSITE, IF REQUIRED.
- 2.2 MATERIALS
- THE CONTRACTOR SHOULD SUBMIT MANUFACTURER'S CATALOG AND SAMPLES OF THE PROPOSED MATERIALS FOR APPROVAL BY THE PROJECT GEOTECHNICAL ENGINEER A MINIMUM OF SEVEN DAYS BEFORE THE START OF CONSTRUCTION. MATERIALS SHOULD BE TRANSPORTED TO THE SITE ONLY AFTER APPROVAL OF THE PROPOSED MATERIALS BY THE PROJECT GEOTECHNICAL ENGINEER.
- A. CONCRETE UNITS
 - 1. MASONRY UNITS SHOULD BE KEYSTONE STANDARD 1 RETAINING WALL UNITS. SUBSTITUTION OF OTHER CONCRETE UNITS MAY BE ALLOWED WITH THE PRIOR APPROVAL OF THE GEOTECHNICAL ENGINEER.
 - 2. CONCRETE WALL UNITS SHOULD HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3000 PSI, IN ACCORDANCE WITH ASTM C-90. THE CONCRETE SHOULD HAVE ADEQUATE FREEZE/THAW PROTECTION WITH A MAXIMUM MOISTURE ABSORPTION OF 6 PERCENT.
 - 3. MODULAR CONCRETE MATERIALS SHALL CONFORM TO THE REQUIREMENTS OF ASTM C 1372 - STANDARD SPECIFICATIONS FOR SEGMENTAL RETAINING WALL UNITS.
 - 4. THE UNITS SHALL PASS 100 FREEZE/THAW CYCLES IN WATER WITH LESS THAN 1% WEIGHT LOSS IN ACCORDANCE WITH ASTM C 1372.
 - 5. EXTERIOR DIMENSIONS MAY VARY. UNITS ARE REQUIRED TO HAVE A MINIMUM OF 1.0 SQUARE FOOT OF FACE AREA EACH.
 - 6. UNITS SHOULD HAVE ANGLED SIDES AND BE CAPABLE OF ATTAINING CONCAVE AND CONVEX ALIGNMENT CURVES IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
 - 7. UNITS SHOULD BE INTERLOCKED WITH NON-CORROSIVE REINFORCED FIBERGLASS PINS.
 - 8. UNITS SHOULD BE INTERLOCKED AS TO PROVIDE A MAXIMUM OF 24-INCH OF SETBACK PER BLOCK, WHERE REQUIRED.
 - B. LEVELING PAD
 - 1. MATERIAL FOR LEVELING PAD/FOOTING SHOULD CONSIST OF LEAN CONCRETE WITH A MINIMUM COMPRESSIVE STRENGTH OF 2,000 PSI AT 28 DAYS.
 - C. FIBERGLASS CONNECTING PINS
 - 1. THERMOSET ISOPHTHALIC POLYESTER RESIN PULTRUDED FIBERGLASS REINFORCEMENT RODS, A MINIMUM ONE-HALF INCH IN DIAMETER.
 - 2. PINS SHOULD HAVE A MINIMUM FLEXURAL STRENGTH OF 128,000 PSI AND SHORT BEAM SHEAR OF 6,400 PSI.
 - 3. FOR SUBSTITUTE CONCRETE UNITS, USE OF OTHER COMPATIBLE CONNECTOR SYSTEMS MAY BE ALLOWED WITH THE PRIOR APPROVAL OF THE GEOTECHNICAL ENGINEER.
 - D. GEGRID
 - 1. GEGRID SHALL BE MIRAGRID 3XT, OR EQUIVALENT AS APPROVED BY THE GEOTECHNICAL ENGINEER. THE GEGRID SHOULD HAVE A LONG-TERM DESIGN STRENGTH OF 3,000 POUNDS PER FOOT. THE LONG-TERM DESIGN STRENGTH IS DEFINED AS THE ULTIMATE STRENGTH DIVIDED BY REDUCTION FACTORS FOR CREEP, DURABILITY, INSTALLATION DAMAGE AND AN OVERALL FACTOR OF SAFETY.
 - E. REINFORCED BACKFILL
 - 1. REINFORCED BACKFILL SOILS SHOULD BE #57 STONE.
 - F. CONTROLLED FILL
 - 1. CONTROLLED FILL SOILS TO BE PLACED OUTSIDE THE REINFORCED BACKFILL AREA AND WHERE SPECIFIED SHOULD CONSIST OF ON-SITE OR BORROW SOILS MEETING THE REQUIREMENTS OF AASHTO A-4 OR MORE GRANULAR. ALL FILL MATERIALS PROPOSED TO BE PLACED BEHIND THE REINFORCED BACKFILL SHOULD BE PLACED AS CONTROLLED FILL COMPACTED TO 95 PERCENT OF MAXIMUM DRY DENSITY IN ACCORDANCE WITH THE STANDARD PROCTOR, ASTM D-698.
 - G. LOW-PERMEABILITY SOIL
 - 1. LOW-PERMEABILITY SOILS TO BE PLACED AT THE TOP OF THE WALL WHERE SPECIFIED SHOULD CONSIST OF SANDY, SILTY OR CLAYEY SOILS MEETING THE REQUIREMENTS OF ML, CL, SM, OR SC WITH A MINIMUM OF 25% PASSING THE #200 SIEVE.
 - H. UNIT CORE/DRAINAGE FILL
 - 1. OPEN-GRADED SOILS TO BE PLACED WITHIN THE VOIDS OF THE RETAINING WALL UNITS AND A MINIMUM OF 12 INCHES BEHIND THE UNITS, WHERE SPECIFIED, SHOULD CONSIST OF ASTM #57 STONE AND SHOULD BE WRAPPED IN FILTER FABRIC.
 - I. DRAINAGE PIPE
 - 1. THE DRAINAGE PIPES SHOULD BE PERFORATED OR SLOTTED PVC PIPE MANUFACTURED IN ACCORDANCE WITH ASTM D-3034.
 - J. FILTER FABRIC
 - 1. FILTER FABRIC SHOULD BE NON-WOVEN, POLYPROPYLENE GEOTEXTILE, 140N MANUFACTURED BY NICOLON MIRAFI GROUP OR APPROVED EQUIVALENT.
 - K. EROSION CONTROL BLANKET
 - 1. EROSION CONTROL BLANKET SHOULD BE TENSAR TB 1000 MANUFACTURED BY THE TENSAR CORPORATION OR APPROVED EQUIVALENT.

PART 3 - EXECUTION

- 3.1 EXCAVATION
- A. THE CONTRACTOR SHOULD EXCAVATE TO THE LINES AND GRADES SHOWN ON THE CONSTRUCTION DRAWINGS. UNDER NO CIRCUMSTANCES SHOULD THE EXCAVATION LINES AND GRADES BE EXCEEDED, EXCEPT WITH OWNER'S APPROVAL. THE CONTRACTOR SHOULD PROTECT THE EXCAVATION FROM SLOUGHING BY PLACING A MEMBRANE OVER THE FACE OF THE EXCAVATION.
 - B. PRIOR TO RETAINING WALL CONSTRUCTION AND THE PLACEMENT OF FILL, ALL TOPSOIL SHOULD BE STRIPPED AND REMOVED FROM THE SITE.
 - C. EXCAVATIONS SHOULD BE SLOPED OR OTHERWISE SUPPORTED IN ACCORDANCE WITH OCCUPATION SAFETY AND HEALTH ADMINISTRATION (OSHA) AND OTHER LOCAL AND STATE REGULATIONS.
- 3.2 FOUNDATION SUBGRADE PREPARATION
- A. FOUNDATION SOIL SHOULD BE EXCAVATED AS REQUIRED FOR INSTALLATION OF LEVELING PAD, GEGRID AND OTHER ELEMENTS AND AS SHOWN ON THE CONSTRUCTION DRAWINGS.
 - B. ALLOWABLE BEARING PRESSURE FOR NATURAL AND CONTROLLED, COMPACTED FILL SOILS SHOULD BE AS SPECIFIED IN PART 5.
 - C. FOUNDATION SOIL SHOULD BE TESTED BY THE ENGINEER TO ASSURE THAT THE ACTUAL FOUNDATION SOIL STRENGTH MEETS OR EXCEEDS THE ASSUMED DESIGN STRENGTH. SOILS NOT MEETING REQUIRED STRENGTH SHOULD BE REMOVED AND REPLACED WITH CONTROLLED, COMPACTED MATERIAL.
 - D. THE EXPOSED FOUNDATION SUBGRADE SHOULD BE PROOFROLLED WITH A LOADED DUMP TRUCK, IF POSSIBLE. ANY SOFT OR UNSTABLE AREAS IDENTIFIED DURING PROOFROLLING SHOULD BE OVEREXCAVATED AND BACKFILLED WITH CONTROLLED FILL. OVER-EXCAVATED AREAS SHOULD BE FILLED WITH SELECT AND APPROVED MATERIAL AND COMPACTED TO 95 PERCENT OF THE MAXIMUM DRY DENSITY IN ACCORDANCE WITH THE STANDARD PROCTOR, ASTM D-698.
 - E. ANY FILLS REQUIRED TO ESTABLISH SLOPING SURFACES IN FRONT OF THE WALLS SHOULD CONSIST OF CONTROLLED FILL AND SHOULD BE PLACED, COMPACTED AND FIELD TESTED IN ACCORDANCE WITH THE REQUIREMENTS SPECIFIED HEREIN.
 - F. THE CONTRACTOR MAY ELECT TO EXTEND THE FOUNDATIONS OF THE WALL THROUGH THE NEWLY PLACED STRUCTURAL FILL MATERIAL DOWN TO THE ORIGINAL SUBGRADE ELEVATION.
- 3.3 LEVELING PAD
- A. THE LEVELING PAD SHOULD BE PLACED AS SHOWN ON THE CONSTRUCTION DRAWINGS WITH A MINIMUM THICKNESS OF 12 INCHES.
 - B. LEVELING PAD MATERIALS SHOULD BE INSTALLED UPON UNDISTURBED IN-SITU SOILS OR CONTROLLED, COMPACTED BACKFILL.
 - C. LEVELING PAD SHOULD BE PREPARED TO INSURE COMPLETE CONTACT OF RETAINING WALL UNIT WITH BASE. GAPS SHOULD NOT BE ALLOWED.
- 3.4 UNIT INSTALLATION
- A. FIRST COURSE OF CONCRETE WALL UNITS SHOULD BE PLACED ON THE LEVELING PAD. USE LEAN CONCRETE OR CEMENT/SAND MORTAR TO SET AND LEVEL THE FIRST COURSE. THE UNITS SHOULD BE CHECKED FOR LEVEL AND ALIGNMENT. THE FIRST COURSE IS THE MOST IMPORTANT TO PROVIDE ACCURATE AND ACCEPTABLE RESULTS.
 - B. INSURE THAT UNITS ARE IN FULL CONTACT WITH BASE.
 - C. UNITS ARE PLACED SIDE BY SIDE FOR FULL LENGTH OF WALL ALIGNMENT. ALIGNMENT MAY BE DONE BY MEANS OF A STRING LINE OR OFFSET FROM BASE LINE.
 - D. INSTALL FIBERGLASS CONNECTING PIN.
 - E. LAY UP EACH COURSE INSURING THAT THE CONNECTING PINS ARE INSERTED THROUGH FRONT SLOT OF THE UNIT, AND INTO THE RECEIVING SLOT IN THE COURSE BENEATH. GREAT PRECURE TO THE EXTENT OF WALL HEIGHT.
 - F. AT THE END OF EACH COURSE WHERE THE WALL CHANGES ELEVATION, UNITS SHOULD BE TURNED INTO THE BACKFILL. UNITS SHOULD BE LAID AS TO CREATE THE MINIMUM RADIUS POSSIBLE. UNLESS OTHERWISE SHOWN ON THE DRAWINGS, A MINIMUM OF ONE UNIT SHOULD BE INSTALLED INTO THE GRADE. ONLY THE FRONT FACE OF THE UNITS SHOULD BE VISIBLE FROM THE SIDE OF THE EXCAVATION.
 - G. CONVEX AND CONCAVE CURVES SHOULD BE MADE USING COMPACT UNITS OR BY TRIMMING THE STANDARD 1 UNITS AS REQUIRED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
 - H. CAP UNITS SHOULD BE INSTALLED AND BONDED WITH CONSTRUCTION ADHESIVE OR EPOXY CEMENT AS REQUIRED BY MANUFACTURER.
 - I. CONTRACTOR SHOULD PROVIDE POSITIVE DRAINAGE FOR THE BACK OF THE RETAINING WALL DURING CONSTRUCTION.
- 3.5 GEGRID INSTALLATION
- A. ALL UTILITIES IN THE VICINITY OF ANY RETAINING WALL OR GEGRID REINFORCEMENT MUST BE INSTALLED AND PROPERLY BACKFILLED PRIOR TO PLACING THE GEGRID SOIL REINFORCEMENT OR CONSTRUCTING THE WALL.
 - B. THE GEGRID SOIL REINFORCEMENT SHOULD BE LAID HORIZONTALLY ON COMPACTED BACKFILL AND CONNECTED TO THE CONCRETE WALL UNITS. HOOK GRID OVER THE FIBERGLASS CONNECTING PIN, PULL TIGHT, AND ANCHOR BEFORE BACKFILL IS PLACED ON THE GEGRID.
 - C. SLACK IN THE GEGRID AT THE WALL UNIT CONNECTIONS SHOULD BE REMOVED IN A MANNER, AND TO SUCH A DEGREE, AS APPROVED BY THE ENGINEER.
 - D. GEGRID SHOULD BE LAID AT THE PROPER ELEVATION AND ORIENTATION AS SHOWN ON THE CONSTRUCTION DRAWINGS OR AS DIRECTED BY THE ENGINEER.
 - E. CORRECT ORIENTATION (ROLL DIRECTION) OF THE GEGRID SHOULD BE VERIFIED BY THE CONTRACTOR.
 - F. GEORGRIDS SHOULD BE SECURED IN-PLACE WITH STAPLES, PINS, SAND BAGS, OR BACKFILL AS REQUIRED BY FILL PROPERTIES, FILL PLACEMENT PROCEDURES, OR WEATHER CONDITIONS, OR AS DIRECTED BY THE ENGINEER.
 - G. OVERLAPS
 - 1. UNAXIAL GEORGRID DOES NOT NEED TO BE OVERLAPPED IN THE ACROSS THE ROLL DIRECTION, EXCEPT TO CONTAIN THE FILL AT THE SLOPE FACE WHEN WRAP-AROUND FACING IS USED. UNAXIAL GRID SHOULD BE OVERLAPPED 48" IN THE ROLLED DIRECTION.
 - 2. A LAYER OF SOIL A MINIMUM OF 4 INCHES IN THICKNESS SHOULD BE SPREAD BETWEEN UNAXIAL GEORGRID LAYERS IN THE AREA TO BE OVERLAPPED, OR AS DIRECTED.
- 3.6 FILL PLACEMENT
- A. WALL BACKFILL MATERIAL SHOULD BE PLACED IN NO MORE THAN 8-INCH LIFTS AND COMPACTED TO 95 PERCENT OF THE STANDARD PROCTOR (ASTM D-698).
 - B. BACKFILL SHOULD BE PLACED, SPREAD, AND COMPACTED IN SUCH A MANNER THAT MINIMIZES THE DEVELOPMENT OF WRINKLES IN AND/OR MOVEMENT OF THE GEGRID.
 - C. ONLY HAND-OPERATED COMPACTION EQUIPMENT SHALL BE ALLOWED WITHIN 4 FEET OF THE WALL FACE.
 - D. BACKFILL SHOULD BE PLACED FROM THE WALL OUTWARD TO INSURE THAT THE GEGRID REMAINS TAUT.
 - E. TRACKED CONSTRUCTION EQUIPMENT SHOULD NOT BE OPERATED BEHIND OR ABOVE THE WALL.
 - F. RUBBER-TIRED EQUIPMENT MAY PASS OVER THE GEGRID REINFORCEMENT AT SLOW SPEEDS, LESS THAN 10 MPH. SUDDEN BRAKING AND SHARP TURNING SHOULD BE AVOIDED.
 - G. PLACE FILTER FABRIC BETWEEN THE UNIT CORE/DRAINAGE FILL AND THE REINFORCED BACKFILL AS SHOWN ON PLANS. THE FILTER FABRIC SHOULD BE EMBEDDED A MINIMUM OF TWO FEET INTO THE REINFORCED FILL.
 - H. THE SLOPING SURFACE ON THE TOE SIDE OF RETAINING WALLS SHOULD BE PROTECTED BY INSTALLING THE PERMANENT EROSION CONTROL BLANKET AND LOAMING AND SEEDING IN ACCORDANCE WITH PROJECT REQUIREMENTS.
- 3.7 DRAINAGE
- A. DRAINAGE FILL SHOULD BE PLACED BEHIND THE WALL TO THE LIMITS SHOWN. THE DRAINAGE FILL SHOULD BE A MINIMUM OF 12-INCHES THICK AND SHOULD MEET THE REQUIREMENTS OF ASTM #57 STONE. THE DRAINAGE FILL SHOULD BE WRAPPED IN FILTER FABRIC (MIRAFI 140N OR EQUAL) AS SHOWN ON THE DRAWINGS.
 - B. POSITIVE DRAINAGE SHOULD BE MAINTAINED DURING AND AFTER CONSTRUCTION. SOILS WITHIN THE REINFORCED ZONE THAT BECOME WET DURING CONSTRUCTION SHOULD BE DRIED TO OPTIMUM MOISTURE OR REMOVED.
 - C. INSTALL THE PERFORATED DRAINAGE PIPES AND LATERAL DRAINAGE PIPES INCREMENTALLY ALONG WITH THE INSTALLATION OF CONCRETE UNITS AND PLACEMENT OF FILL.



RETAINING WALL LOCATION PLAN

SCALE: 1" = 20'

THE LOCATION PLAN WAS ADOPTED FROM THE SITE DEVELOPMENT PLAN, SHEET 7, DATED 09/01/06, AND LAST REVISED 04/24/07, PREPARED BY MORRIS & RITCHE ASSOCIATES, INC.

PART 4 - CONSTRUCTION OBSERVATION AND TESTING

- A. RETAINING WALLS SHOULD BE CONSTRUCTED UNDER THE OBSERVATION OF GTA. GTA'S PARTICIPATION WILL FACILITATE COMPLIANCE WITH GTA'S RECOMMENDATIONS AND ALLOW CHANGES TO BE MADE IN THE EVENT THAT SUBSURFACE CONDITIONS ARE FOUND TO VARY FROM THOSE ANTICIPATED DURING THIS DESIGN. GTA WILL NOT BE RESPONSIBLE FOR PROBLEMS RELATED TO THE CONSTRUCTION OF THIS WALL IF WE ARE NOT RETAINED FOR CONSTRUCTION OBSERVATION.
- B. THE REQUIRED BEARING PRESSURE BENEATH THE FOOTING OF THE WALL SHOULD BE VERIFIED IN THE FIELD BY A CERTIFIED SOILS TECHNICIAN. TESTING DOCUMENTATION MUST BE PROVIDED TO THE GEOTECHNICAL ENGINEER PRIOR TO THE START OF WALL CONSTRUCTION. THE REQUIRED TEST PROCEDURE SHALL BE THE DYNAMIC CONE PENETROMETER (DCP) TEST.
- C. THE SUITABILITY OF FILL MATERIAL SHOULD BE CONFIRMED BY THE ON-SITE SOILS TECHNICIAN.

PART 5 - DESIGN CRITERIA

- A. REQUIRED MINIMUM ALLOWABLE FOUNDATION BEARING PRESSURE IS 2,000 PSF.
- B. DESIGN INTERNAL FRICTION ANGLE FOR REINFORCED SOIL = 30 DEGREES.
- C. DESIGN MOIST UNIT WEIGHT FOR REINFORCED SOIL = 120 PCF.
- D. FOUNDATION AND RETAINED SOIL INTERNAL FRICTION ANGLE = 28 DEGREES AND COHESION = 0 PSF.
- E. FOUNDATION AND RETAINED SOIL DESIGN MOIST UNIT WEIGHT = 120 PCF.
- F. RETAINING WALLS ARE NOT DESIGNED TO RESIST HYDROSTATIC PRESSURE.
- G. THIS RETAINING WALL DESIGN WAS BASED ON THE FOLLOWING MINIMUM FACTORS-OF-SAFETY (F.S.):
 - F.S. FOR SLIDING: 1.5
 - F.S. FOR OVERTURNING: 2.0
 - F.S. FOR PULLOUT: 1.5
 - F.S. FOR BEARING CAPACITY: 3.0
 - F.S. FOR GLOBAL STABILITY: 1.5

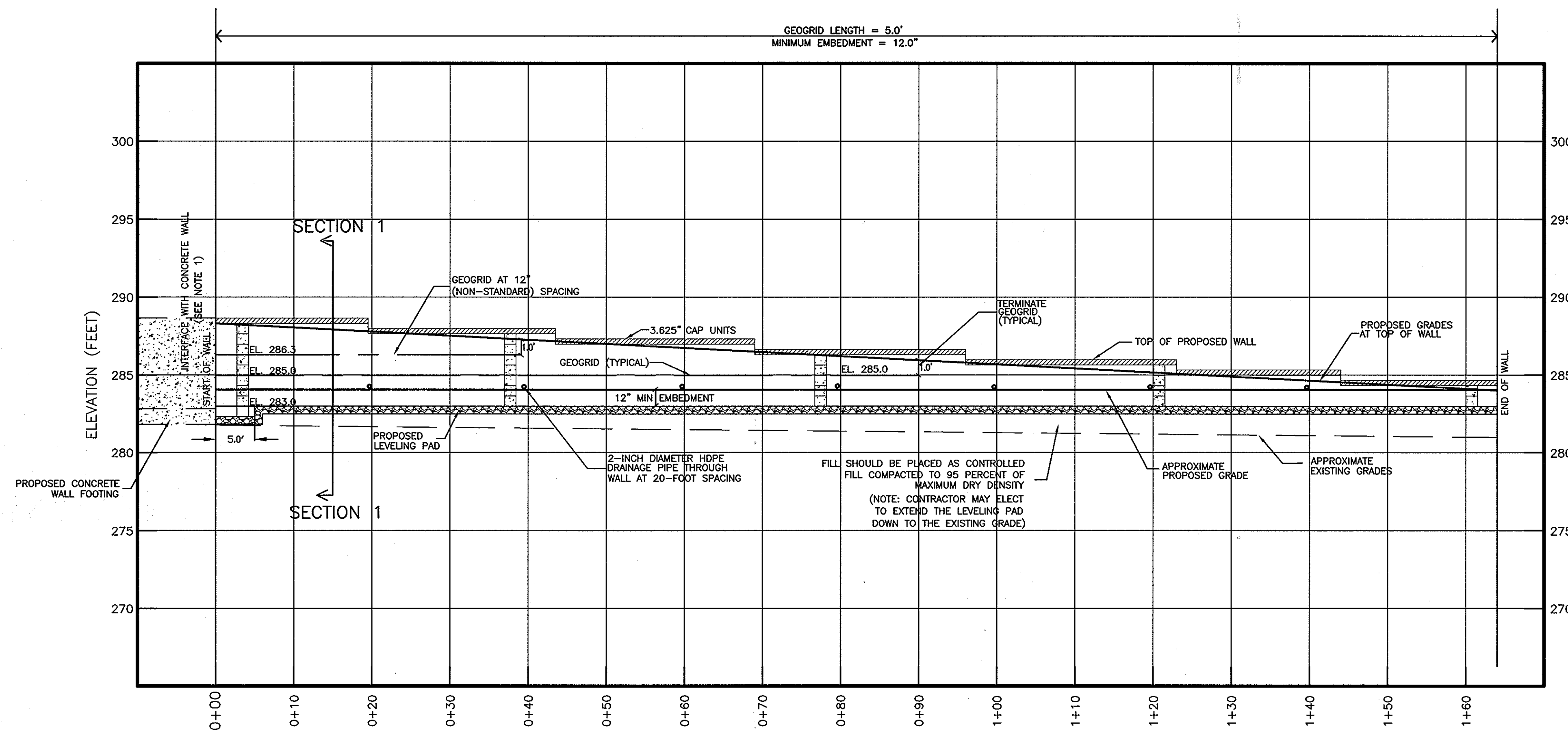
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[Signature] 6/21/07
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
[Signature] 6/22/07
 CHIEF, DIVISION OF LAND DEVELOPMENT
[Signature] 6/25/07
 DIRECTOR, DEPARTMENT OF PLANNING AND ZONING

APPROVED
 PLANNING BOARD
 OF HOWARD COUNTY

DATE: 5/18/07

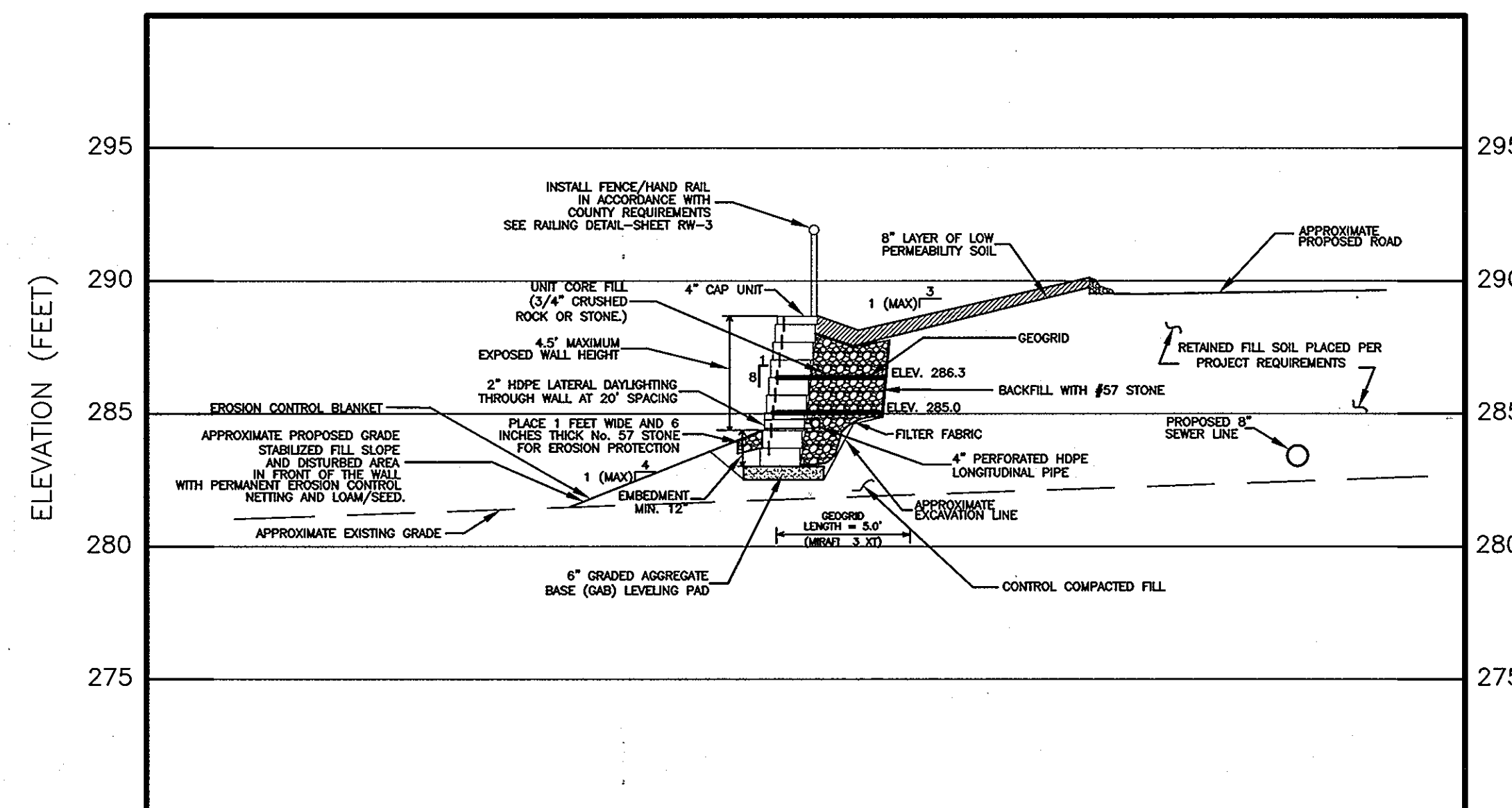
		<p>GEO-TECHNOLOGY ASSOCIATES, INC. GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS 14280 PARK CENTER DRIVE, SUITE A LAUREL, MARYLAND 20707 (410) 792-9792 or (301) 776-1690 FAX: (410) 792-7395 WWW.MRAGTA.COM</p>	<p>RW-1</p>
<p>DATE</p>	<p>REVISIONS</p>	<p>JOB NO.: 051290</p>	<p>SCALE: AS SHOWN</p>
<p>11/30/06</p>	<p>ADDED CALLOUTS/ DETAILS OF PROPOSED DEVELOPMENT AND EASEMENTS</p>	<p>DATE: 09/06/06</p>	<p>DESIGNED BY: GTA</p>
<p>04/24/07</p>	<p>ADDED HOWARD COUNTY SIGNATURE BLOCKS & SDP #. UPDATED BASE DRAWING BY MRA.</p>	<p>DRAWN BY: JPW</p>	<p>REVIEW BY: RPM</p>
		<p>SHEET: 31 OF 33</p>	



NOTE 1: THE JOINT BETWEEN THE PROPOSED KEYSTONE WALL AND THE CONCRETE WALL SHOULD BE SEALED WITH A SILICON BASED, LOW MODULUS, FLEXIBLE, ELASTOMERIC SEALANT APPROVED BY THE GEOTECHNICAL ENGINEER.

RETAINING WALL PROFILE

HORIZONTAL SCALE: 1" = 10'
VERTICAL SCALE: 1" = 5'



RETAINING WALL - SECTION 1 (APPROXIMATE STATION 0+15)

HORIZONTAL SCALE: 1" = 5'
VERTICAL SCALE: 1" = 5'

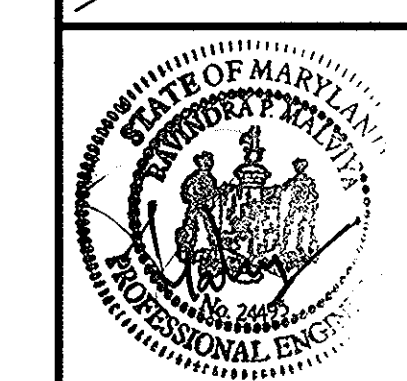
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 Chief, Development Engineering Division
 Chief, Division of Land Development
 Director, Department of Planning and Zoning
 DATE: 12/1/07
 DATE: 4/22/10
 DATE: 4/25/10

APPROVED
 PLANNING BOARD
 of HOWARD COUNTY
 DATE: 5/10/07

RW-2

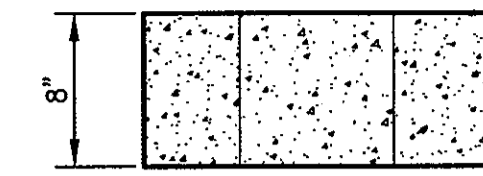


GEO-TECHNOLOGY ASSOCIATES, INC.
 GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS
 14280 PARK CENTER DRIVE, SUITE: A
 LAUREL, MARYLAND 20707
 (410) 792-9792 or (301) 776-1690
 FAX: (410) 792-7395
 WWW.MRAGTA.COM



GATEWAY OVERLOOK TOWNHOMES
 RETAINING WALL
 PROFILE AND SECTION
 HOWARD COUNTY, MARYLAND

DATE	REVISIONS	JOB NO.: 051290
11/30/06	UPDATED CROSS-SECTION	SCALE: AS SHOWN
04/24/07	ADDED HOWARD COUNTY SIGNATURE BLOCKS & SDP #.	DATE: 09/06/06
		DESIGNED BY: GTA
		DRAWN BY: JPW
		REVIEW BY: RPM
		SHEET: 32 OF 33



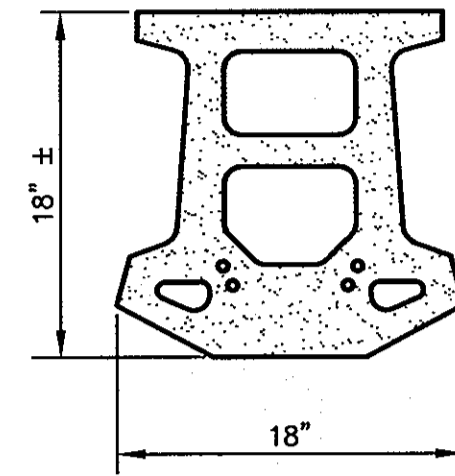
STANDARD II ELEVATION



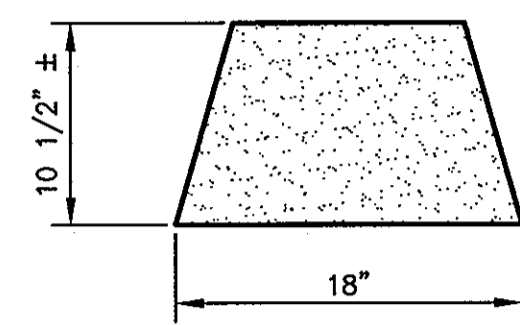
CAP UNIT ELEVATION



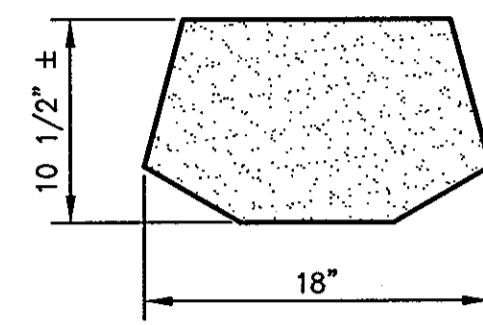
CAP UNIT ELEVATION



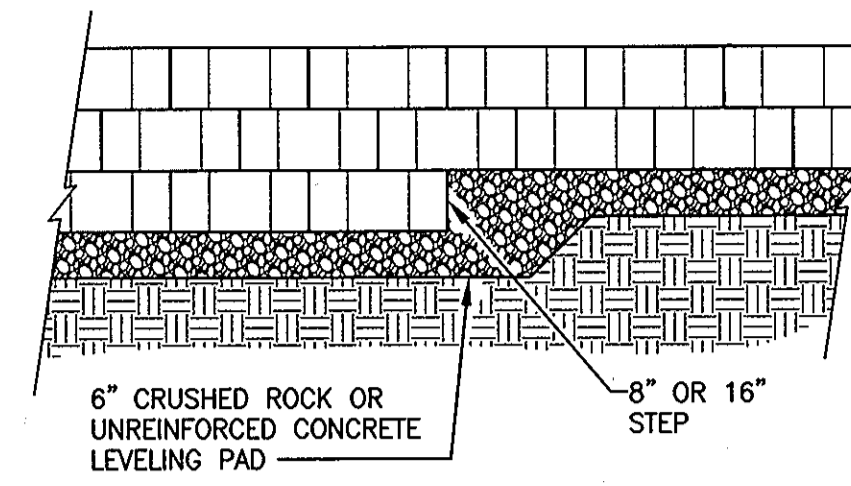
STANDARD II PLAN
STANDARD II UNIT



CAP UNIT PLAN
UNIVERSAL
CAP UNIT OPTION

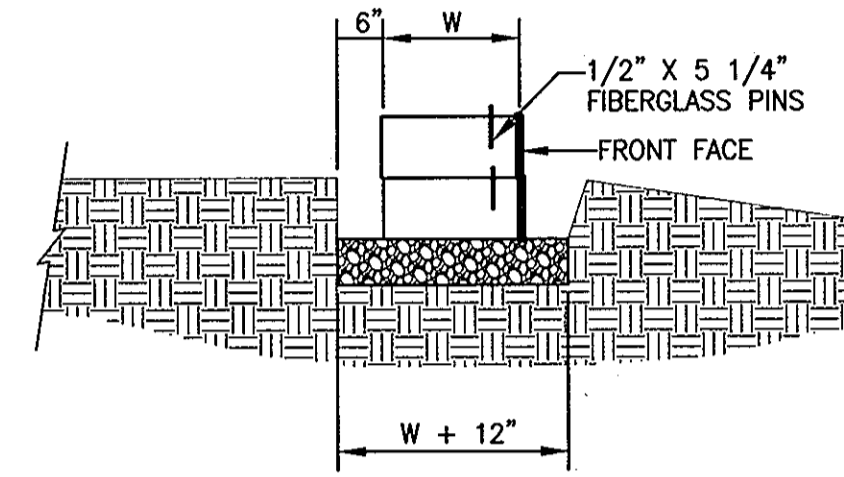


CAP UNIT PLAN
3-PLANE SPLIT
CAP UNIT OPTION



ELEVATION

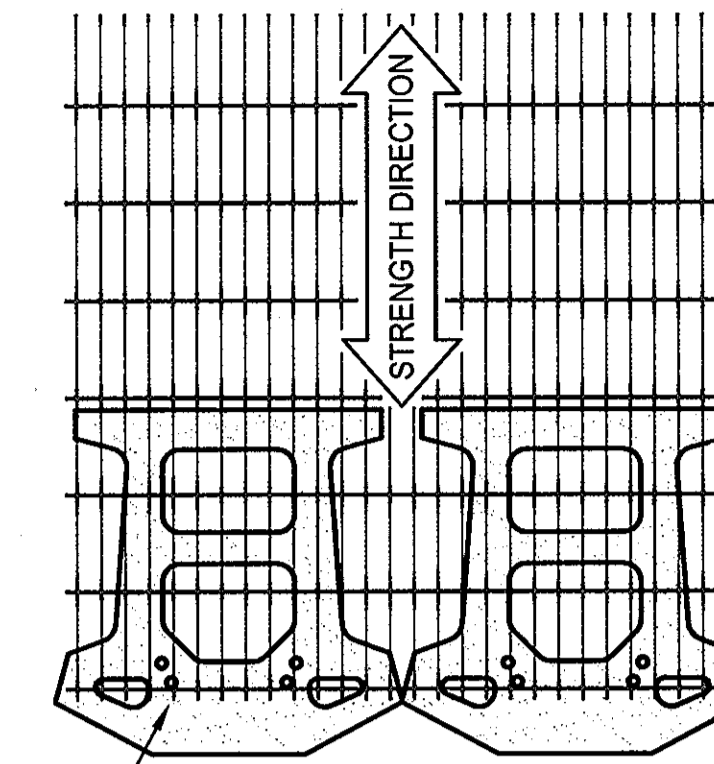
NOTE:
1. THE LEVELING PAD IS TO BE CONSTRUCTED OF CRUSHED STONE OR 2000 PSI ± UNREINFORCED CONCRETE.



SECTION

LEVELING PAD DETAIL

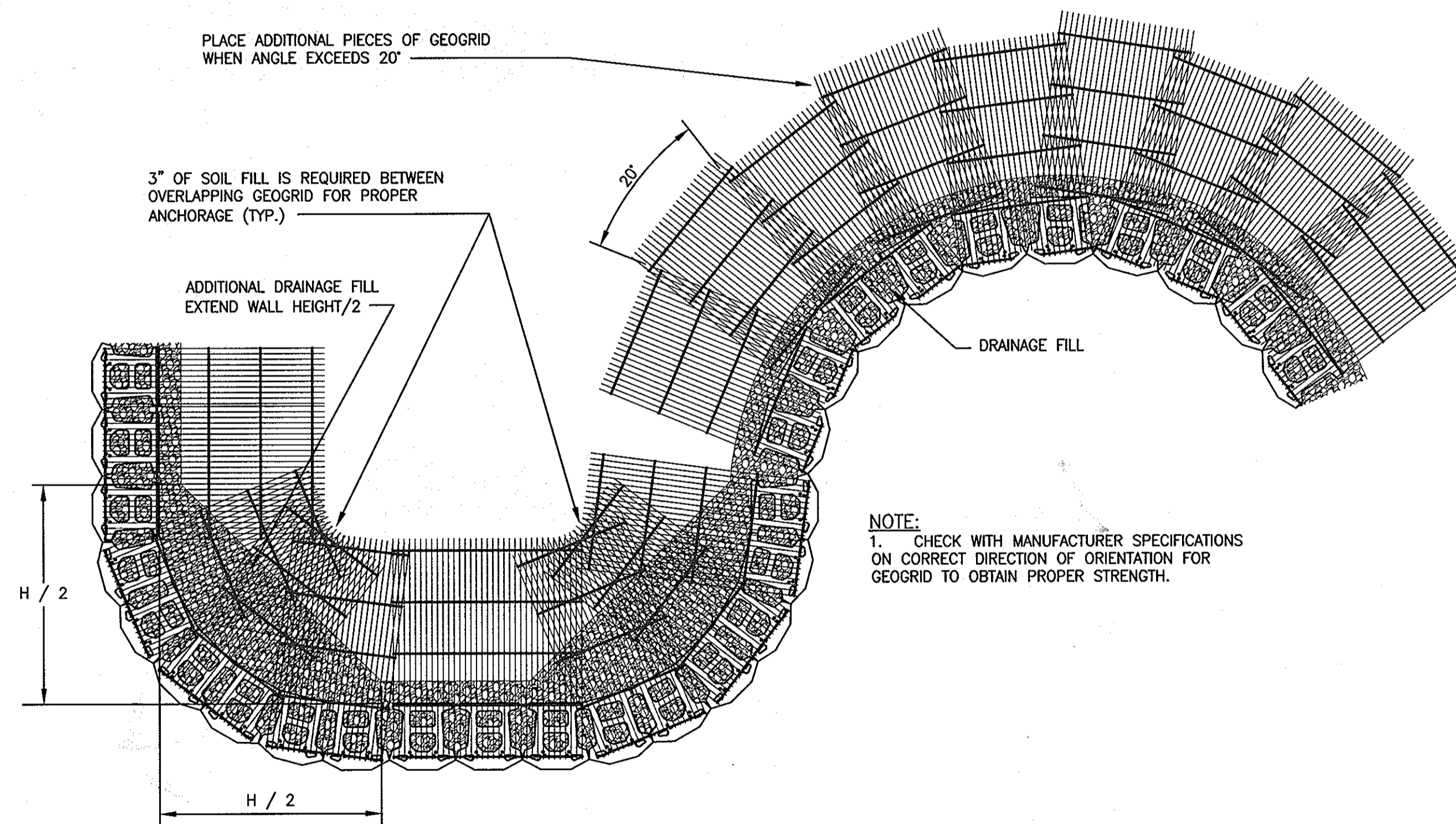
NOT TO SCALE



GEOGRID IS TO BE PLACED ON LEVEL BACKFILL AND EXTENDED OVER THE FIBERGLASS PINS. PLACE NEXT UNIT. PULL GRID TAUGHT AND BACKFILL. STAKE AS REQUIRED.

GRID & PIN CONNECTION

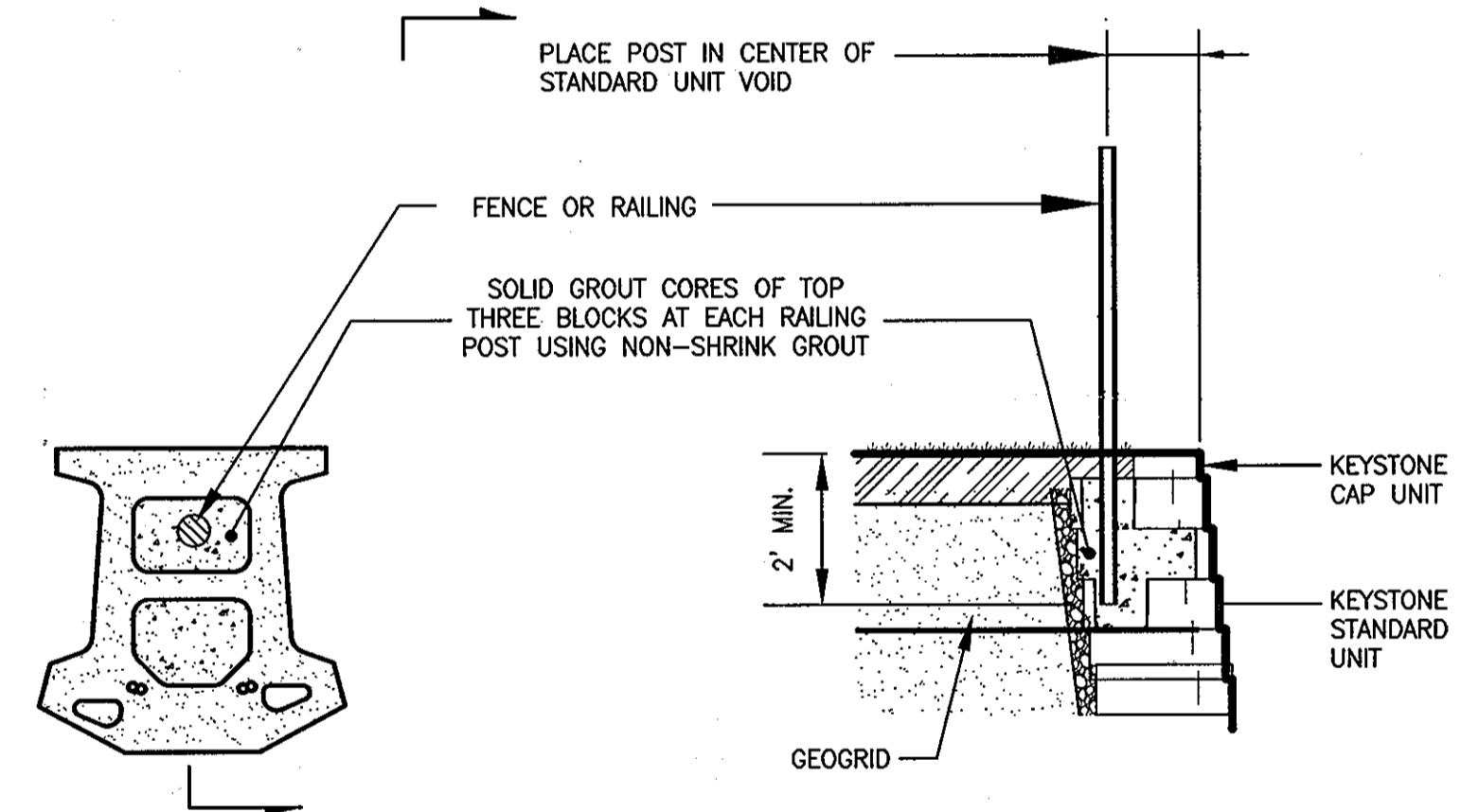
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GEOGRID INSTALLATION ON CURVES

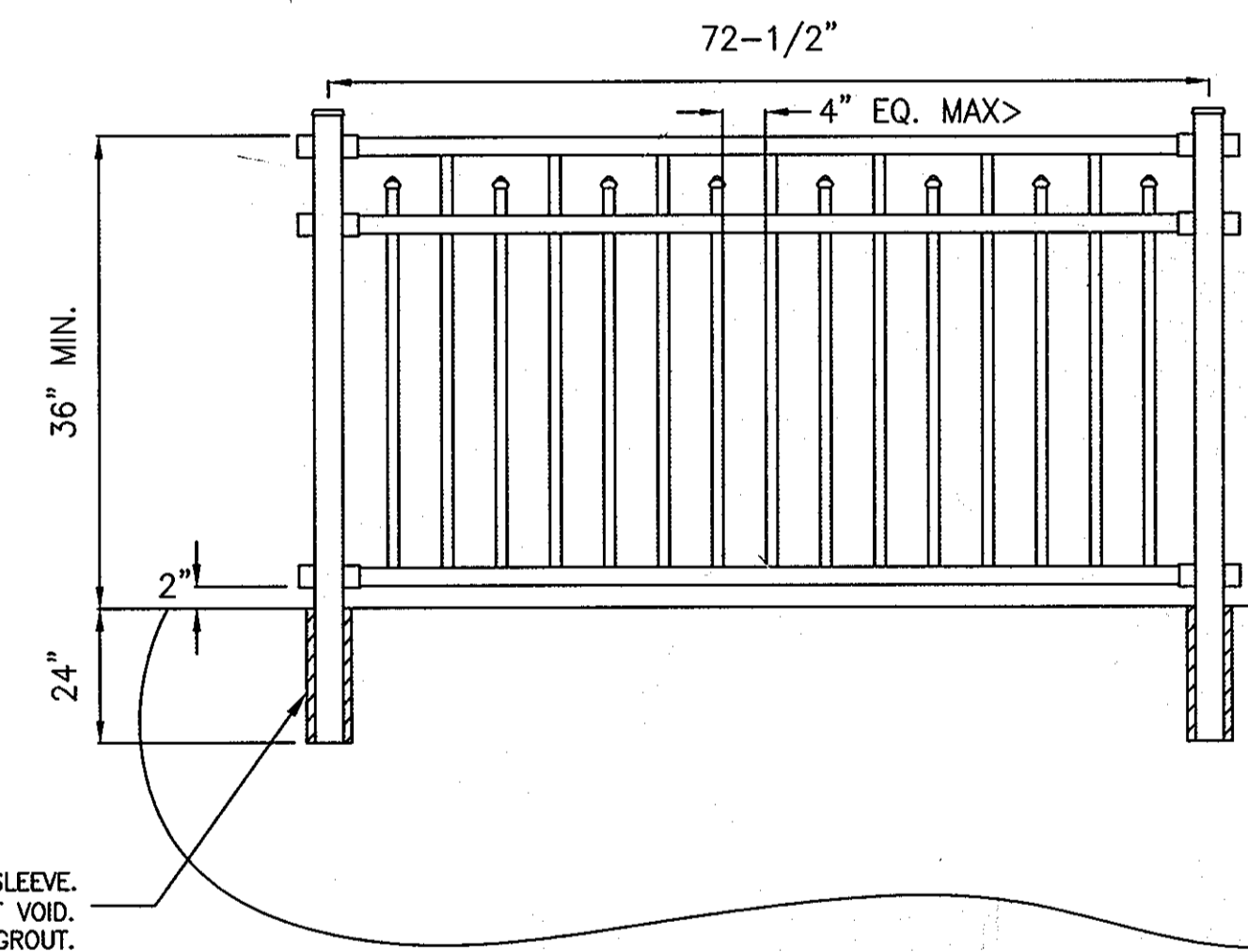
NOT TO SCALE

NOTE:
1. CHECK WITH MANUFACTURER SPECIFICATIONS ON CORRECT DIRECTION OF ORIENTATION FOR GEOGRID TO OBTAIN PROPER STRENGTH.



ORNAMENTAL FENCE TYPICAL DETAIL

NOT TO SCALE



4" DIAMETER STEEL OR PVC-SLEEVE. INSTALL POST IN CENTER OF UNIT VOID. GROUT POST USING NON-SHRINK GROUT.

BLACK ALUMINUM DECORATIVE FENCE
RESIDENTIAL STRENGTH - #200 (OR EQUAL)
MANUFACTURED BY JERITH MANUFACTURING COMPANY, INC.
SIMILAR FENCE SUPPLY BY OTHER MANUFACTURER MAY BE USED WITH PRIOR APPROVAL OF THE DESIGN ENGINEER.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chad Vanaman 6/24/07
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Carole Krametz 6/24/07
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Mark A. Lavell 6/25/07
DIRECTOR, DEPARTMENT OF PLANNING AND ZONING DATE

APPROVED
PLANNING BOARD
of HOWARD COUNTY

DATE 5/10/07

		RW-3	
		GEO-TECHNOLOGY ASSOCIATES, INC. GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS 14280 PARK CENTER DRIVE, SUITE A LAUREL, MARYLAND 20707 (410) 792-9792 or (301) 776-1690 FAX: (410) 792-7395 WWW.MRAGTA.COM	
		GATEWAY OVERLOOK TOWNHOMES RETAINING WALL TYPICAL DETAILS HOWARD COUNTY, MARYLAND	
DATE	REVISIONS	JOB NO.: 051290	
11/30/06	ADDED DETAILS FOR FENCE	SCALE: AS SHOWN	
04/24/07	ADDED HOWARD COUNTY SIGNATURE BLOCKS & SDP #.	DATE: 09/06/06	
		DESIGN BY: GTA	
		DRAWN BY: JPW	
		REVIEW BY: RPM	
		SHEET: 33 OF 33	