

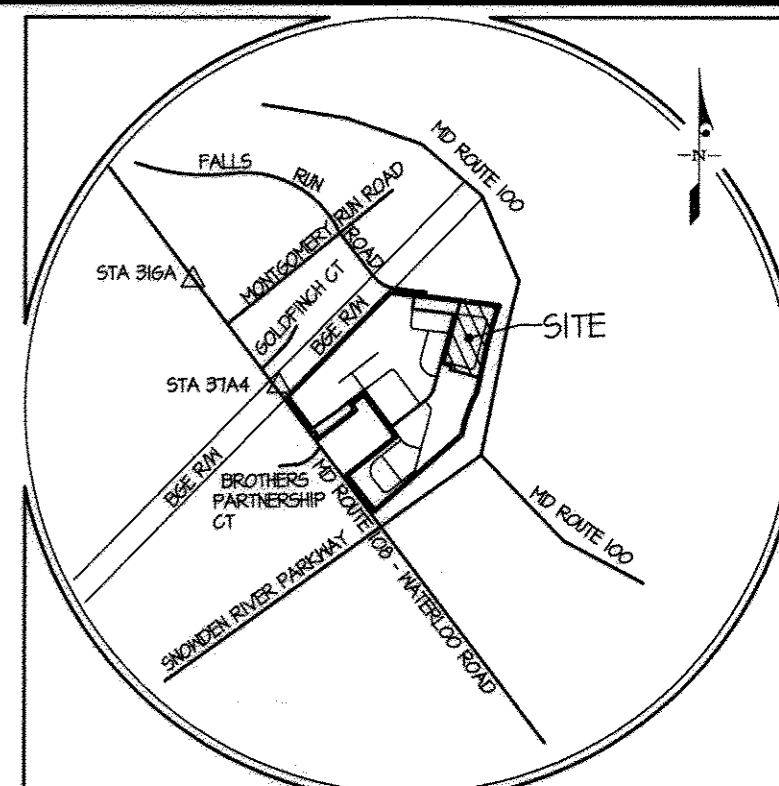
FINAL PLAN
SHIPLEY'S GRANT
PHASE VIII

LOTS D-151 - D-217, OPEN SPACE LOTS D-218 - D-221, COMMON OPEN SPACE LOT D-222 & D-223

GENERAL NOTES:

- 1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE.
2. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/ BUREAU OF ENGINEERING/ CONSTRUCTION INSPECTION DIVISION AT 410-318-1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF WORK.
3. THE CONTRACTOR SHALL NOTIFY MHS UTILITY AT 1-800-251-1111 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.

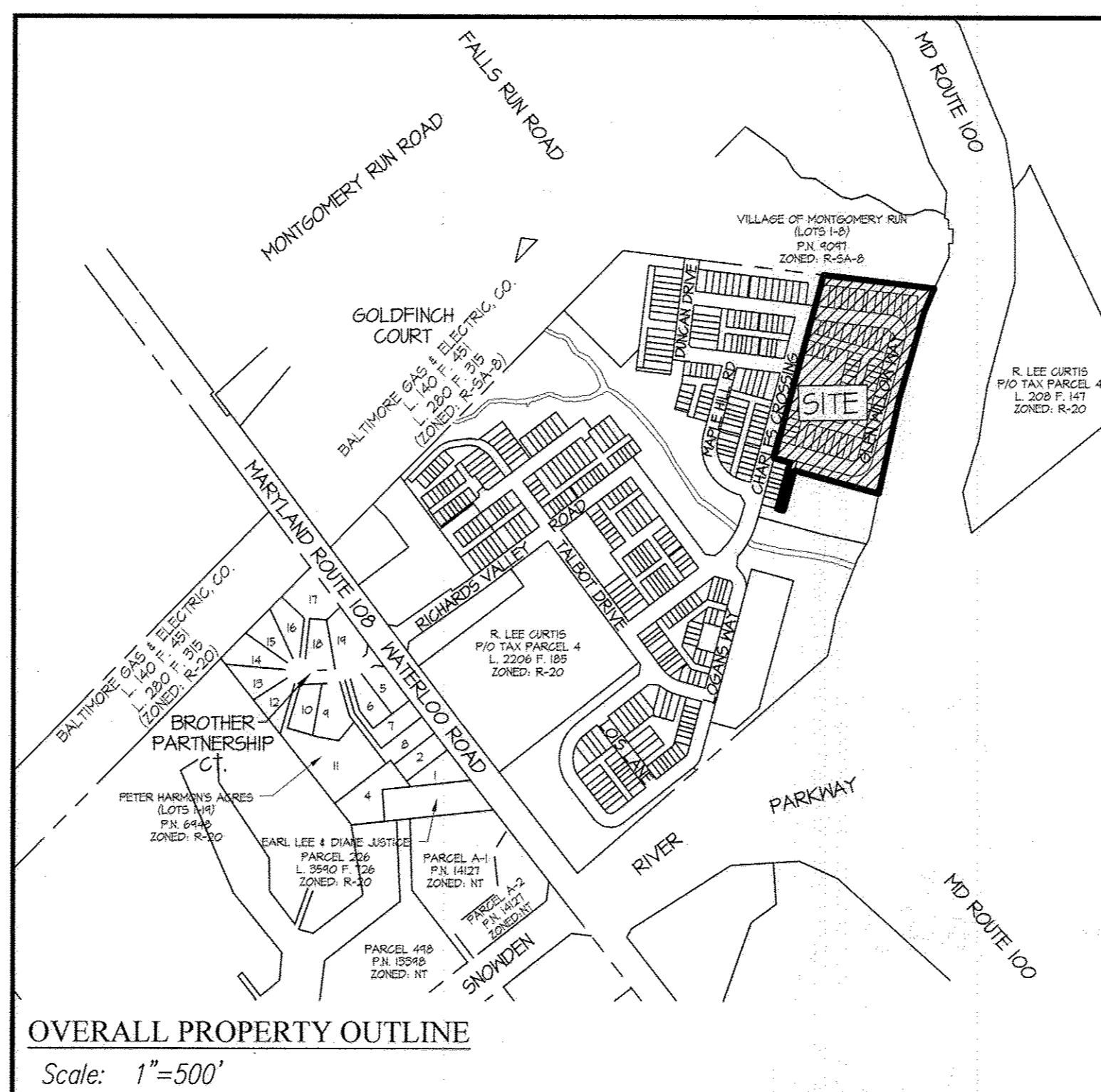
Howard County Control Stations
316A STANDARD DISC ON CONCRETE MONUMENT ELEV. = 511.65
N 564,925.15, E 1,361,061.65
31A4 STANDARD DISC ON CONCRETE MONUMENT ELEV. = 431.28
N 563,835.91, E 1,361,911.65



VICINITY MAP

SCALE: 1" = 2,000'

ADG MAP PAGE 34 GRID C-1



OVERALL PROPERTY OUTLINE

Scale: 1"=500'

SHEET INDEX

- 1. COVER SHEET
2. GLEN WILLOW WAY PLAN AND PROFILE
3. ROAD DETAILS
4. ALLEY GRADING PLAN
5. SEDIMENT CONTROL PLAN
6. SEDIMENT CONTROL NOTES AND DETAILS
7. GRADING PLAN
8. STORM DRAIN DRAINAGE AREA MAP
9. STORM DRAIN PROFILES
10. LANDSCAPE PLAN & DETAILS
11. ROAD DETAILS
12. CURB RETURN PROFILES
13. MAINTENANCE OF TRAFFIC PHASE I
14. MAINTENANCE OF TRAFFIC PHASE 2
15. CONTECH RECHARGE DETAILS
16. CONTECH RECHARGE DETAILS

Table with 3 columns: LOCATION, CREDITED O.S., NON-CREDITED O.S., TOTAL O.S. Includes rows for Lots D-218, D-219, D-220, D-221, D-222 and a TOTALS row.

\* SEE DEVELOPMENT TRACKING CHART FOR CUMULATIVE OPEN SPACE TABULATIONS.

Table with 3 columns: LOCATION, AREA (Sq. Ft.), 0.5 D-218, 24,680 S.F.

Table with 5 columns: LOCATION, PERIMETER (L.F.), PUBLIC/PRIV. ROAD FRONTAGE REQUIRED, AREA REQUIRED, AREA PROPOSED. Includes row for 0/5 D-218.

\*\* THE TND AREA REQUIREMENT IS NET FOR SHIPLEY'S GRANT AS AN ENTIRE SUBDIVISION SEE DEVELOPMENT TRACKING CHART FOR CUMULATIVE OPEN SPACE TABULATIONS.

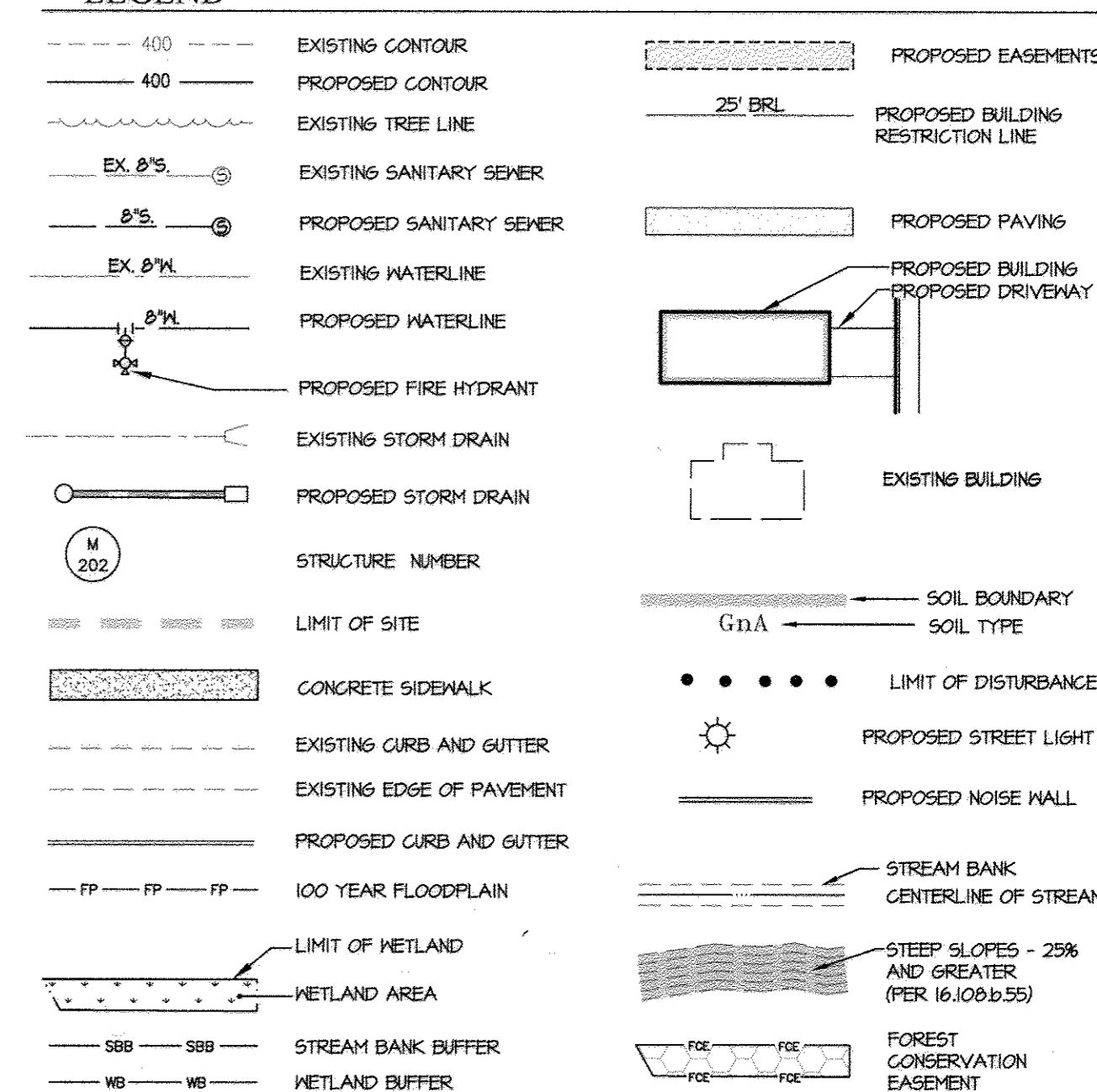
Parking Tabulations

- Pool Parking Calculations: Total number of persons permitted in the pool at one time by the Health Department = 1500 (4 x 1 person / 12 sq = 150 people)
Pool parking required @ 1 space / 10 persons permitted in the pool at one time by the Health Department = 15 spaces
Total = 165 spaces

SETBACK REQUIREMENTS

Table with 2 columns: SETBACK TYPE, SETBACK. Lists requirements for various street types and building setbacks.

LEGEND



STORMWATER MANAGEMENT INFORMATION

Table with 6 columns: LOT/PARCEL NUMBER, FACILITY NAME, PRACTICE TYPE, PUBLIC / PRIVATE, HOA MAINTAINS, MISC. Includes row for Lot D-221.

DEVELOPMENT TRACKING CHART AND SITE ANALYSIS FOR R-A-15 ZONE AREAS. Large table with columns for PHASE, PLAN STATUS, GROSS, 100 YR. FLOODPLAIN, NET, MIN. REQ'D, O/S PROV'D, MIN. REC'D, REC. O/S PROVIDED, MIN. REQ'D TND O/S^4, TND O/S PROVIDED.

DEVELOPMENT TRACKING CHART AND SITE ANALYSIS NOTES:

- 1. MINIMUM REQUIRED OPEN SPACE (O/S) IS CALCULATED AS 25% OF THE GROSS AREA.
2. PERCENT OPEN SPACE PROVIDED IS OF THE GROSS AREA.
3. MINIMUM REQUIRED RECREATION OPEN SPACE (ROS) FOR PHASE I-VI IS CALCULATED AS 400 SF PER UNIT.
4. MINIMUM REQUIRED TRADITIONAL NEIGHBORHOOD O/S IS CALCULATED AS 20% OF THE REQUIRED OPEN SPACE.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Chief, Bureau of Highways
Date: 12/15/16
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Chief, Division of Land Development
Date: 12/7/16

GLWGUTSCHICK LITTLE & WEBER, P.A.
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
3909 NATIONAL DRIVE - SUITE 250 - BURTNSVILLE OFFICE PARK
BURTNSVILLE, MARYLAND 20866
TEL: 301-421-4024 FAX: 301-980-1820

PREPARED FOR & OWNER:
BA WATERLOO TOWNHOUSES, LLC
C/O BOZZUTO HOMES, INC.
6406 IVY LANE, SUITE 700
GREENBELT, MARYLAND 20770
ATTN.: CHRIS BLOCK
301-623-3672

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 1295.



COVER SHEET
PHASE VIII
SHIPLEY'S GRANT
Lots D-151 - D-217, Open Space Lots D-218 - D-221,
Common Open Space Lot D-222 & D-223
A Resubdivision of Parcel D-2 (PN: 2107) and Common Open Space Lot D-134 (PN:2120)
HOWARD COUNTY, MARYLAND

Table with 3 columns: SCALE, ZONING, G. L. W. FILE No. Includes row: AS SHOWN, R-A-15, 13063.

- NOTES:
1. NPSU DENOTES PUBLIC WATER, SEWER, SIDEWALK MAINTENANCE & UTILITY EASEMENT
  2. ALL STORM DRAIN IS PUBLIC UNLESS NOTED OTHERWISE
  3. ALL PUBLIC ROADS ARE OWNED AND MAINTAINED BY HOWARD COUNTY UNLESS NOTED OTHERWISE
  4. ALL PRIVATE ALLEYS ARE OWNED AND MAINTAINED BY THE HOME OWNERS ASSOCIATION
  5. THE EXISTING FOREST CONSERVATION EASEMENT WITHIN PARCEL D-2 SHOWN ON PLAT NUMBER 21017 IS TO BE ABANDONED. A NEW FOREST EASEMENT WILL BE CREATED WITH THIS PHASE. SEE GENERAL NOTE 24 ON SHEET I FOR ADDITIONAL INFORMATION
  6. THERE WILL BE PARKING RESTRICTIONS ALONG GLEN WILLOW WAY PARTICULARLY AT THE 90 DEGREE TURNS. THESE RESTRICTIONS WILL BE DETERMINED BY THE HOWARD COUNTY TRAFFIC DIVISION IN THE FIELD.
  7. LOTS WITH AN ASTERISK (\*) NEXT TO THE LOT NUMBER DO NOT HAVE A 15' USABLE YARD AND WILL REQUIRE ADDITIONAL RECREATIONAL OPEN SPACE. SEE OPEN SPACE CHART ON SHEET I FOR ADDITIONAL INFORMATION
  8. BUILDING CONSTRUCTION MATERIALS SHALL BE USED TO REDUCE THE INTERIOR SOUND TO 45 DBA
  9. ALL PROPOSED PAVEMENT IS TO BE HOWARD COUNTY P-2 PAVEMENT. SEE SHEET 3 FOR PAVEMENT SECTION DETAIL.
  10. SEE SHEET 10 FOR STREET TREE LOCATIONS
  11. TRANSITION TO 7" CURB AND GUTTER AT ALL INLETS PER HO.C.O. STD DETAIL R-3.06 UNLESS NOTED OTHERWISE
  12. SEE TYPICAL SECTIONS, SHEET 3, FOR ALL CURB TYPES
  13. ALL DRIVEWAY ENTRANCES ARE PER HO.C.O. STD DETAILS R-6.01 & R-6.03 UNLESS NOTED OTHERWISE
  14. FOR THE EXTENTS OF ALLOWABLE ON STREET PARKING, SEE SHEET 4
  15. SFA UNITS DO NOT HAVE SETBACKS FROM INTERNAL LOT LINES OR RIGHT-OF-WAYS
  16. ZONING SETBACKS TO ADJACENT PROPERTIES ARE NOT SHOWN WHEN THEY FALL WITHIN THE FOREST CONSERVATION EASEMENT. NO BUILDING IS ALLOWED WITHIN THE FOREST CONSERVATION EASEMENT.

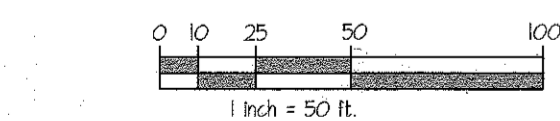
**LEGEND:**

- DRIVEWAY ENTRANCE PER HO.C.O. STD DETAILS R-6.01 & R-6.03
- STREET LIGHT. SEE TABLE THIS SHEET FOR LOCATIONS AND TYPES
- GROUND MOUNTED SIGN
- STREET LIGHT POLE MOUNTED SIGN
- INSTALL GROUND MOUNTED SIGN (R1-1)
- INSTALL STREET LIGHT POLE MOUNTED SIGN (R2-1)
- TYPE B RAMP PER HO.C.O. STD DETAIL R-4.02
- TYPE C RAMP PER HO.C.O. STD DETAIL R-4.04
- SEE RAMP DETAIL SHEET II

**PAVEMENT MARKING NOTES**

1. ALL PAVEMENT MARKINGS ARE TO BE EITHER LOCATED OR APPROVED BY THE TRAFFIC DIVISION PRIOR TO THE PLACEMENT OF ANY MARKINGS
2. ALL EXISTING PAVEMENT MARKINGS IN CONFLICT WITH PROPOSED PAVEMENT MARKINGS ARE TO BE REMOVED BY GRINDING ONLY. HOWARD COUNTY TRAFFIC (410-313-5752) WILL DETERMINE WHICH EXISTING MARKINGS SHALL BE REMOVED.

- SIGNING NOTES:**
1. ALL SIGN POSTS USED FOR TRAFFIC CONTROL SIGNS INSTALLED IN THE COUNTY RIGHT-OF-WAY SHALL BE MOUNTED ON A 2" GALVANIZED STEEL, PERFORATED SQUARE TUBE POST (1/4 GAUGE) INSERTED INTO A 2-1/2" GALVANIZED STEEL, PERFORATED SQUARE TUBE SLEEVE (1/2 GAUGE) - 3' LONG. A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON TOP OF EACH POST.
  2. ALL SIGN LOCATIONS WITHIN THE PUBLIC RIGHT OF WAY SHALL BE APPROVED BY THE HOWARD COUNTY TRAFFIC DIVISION (410-313-5752) PRIOR TO ANY INSTALLATIONS.

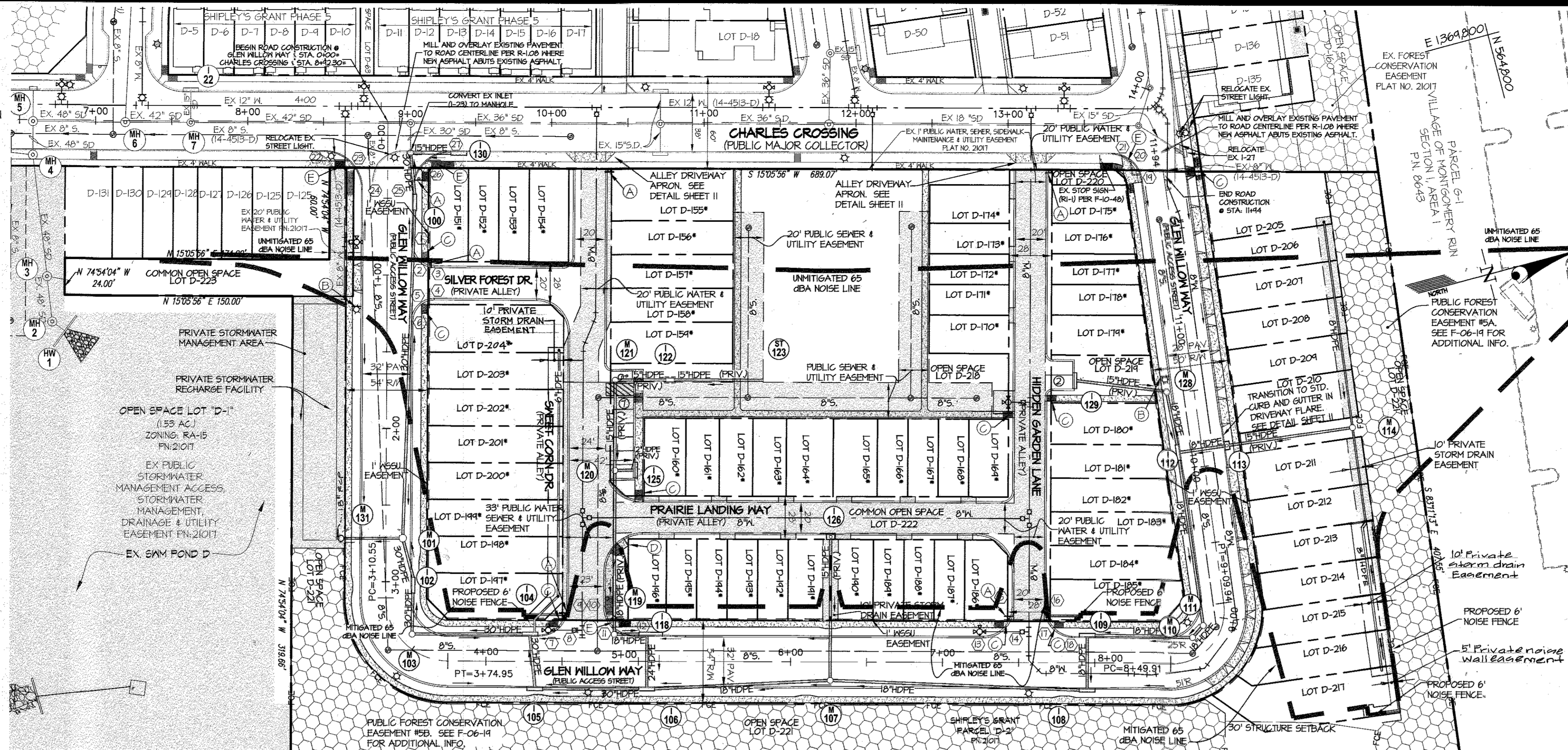


APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*[Signature]* 12/16/16  
 Chief, Bureau of Highways Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
*[Signature]* 12-15-16  
 Chief, Division of Land Development Date

*[Signature]* 12/15/16  
 Chief, Development Engineering Division Date

**GLWGUTSCHICK LITTLE & WEBER, P.A.**  
 CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS  
 3909 NATIONAL DRIVE - SUITE 250 - BURTONTOWN OFFICE PARK  
 BURTONTOWN, MARYLAND 20868  
 TEL: 301-421-4024 BALT: 410-880-1020 DC/VA: 301-989-2524 FAX: 301-421-4186



**GLEN WILLOW WAY - PLAN**  
 SCALE: 1" = 50'

**STREET LIGHT LOCATIONS**

STREET	STATION	OFFSET	TYPE
CHARLES CROSSING	13+11*	36.56' RIGHT	100 WATT
CHARLES CROSSING	8+55*	22.61' RIGHT	100 WATT
GLEN WILLOW WAY	1+22	20.10' RIGHT	100 WATT
GLEN WILLOW WAY	3+51	20.10' RIGHT	100 WATT
GLEN WILLOW WAY	4+61	20.10' RIGHT	100 WATT
GLEN WILLOW WAY	7+57	20.10' RIGHT	100 WATT
GLEN WILLOW WAY	8+83	20.68' LEFT	100 WATT
GLEN WILLOW WAY	10+54	17.89' LEFT	100 WATT

- STREET LIGHT NOTES:**
1. ALL STREET LIGHTS AND RELOCATED STREET LIGHTS TO BE LED-100 COLONIAL POST-TOP FIXTURES MOUNTED ON A 14" BLACK FIBERGLASS POLE
  2. \* DENOTES RELOCATED LIGHT

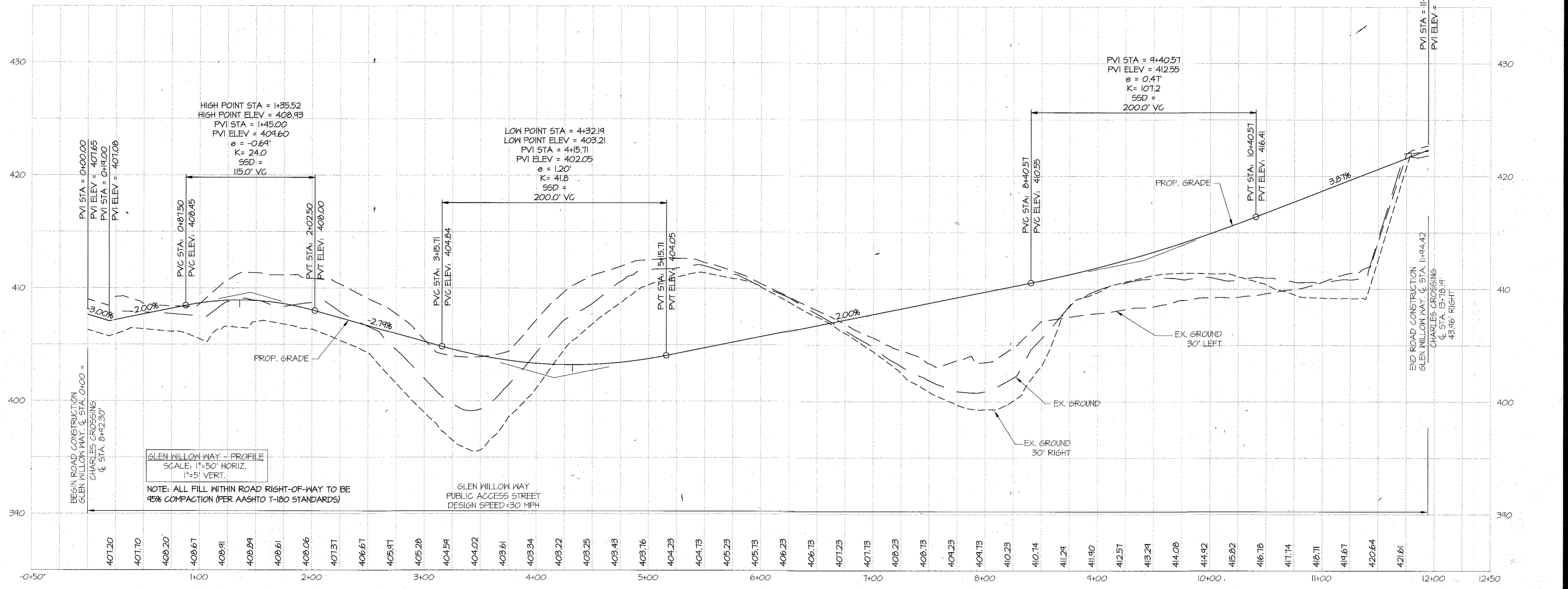
**CURVE DATA CHART - GLEN WILLOW WAY**

CURVE	STREET NAME	PC STA.	PT STA.	RADIUS	TANGENT	ARC	CHORD	BEARING	DELTA
C1	GLEN WILLOW WAY	3+10.55	3+74.95	41.00'	41.00'	64.40'	51.98'	N 60°05'56" E	40°00'00"
C2	GLEN WILLOW WAY	8+44.91	9+04.94	35.00'	40.41'	60.04'	52.94'	N 34°02'39" N	48°10'15"

**CURB FLOW LINE ELEVATION TABLE**

PT. #	ROAD NAME	STATION	OFFSET	ELEV. #	
(1)	PC	GLEN WILLOW WAY	0+80	16' L	401.82
(2)	MID	GLEN WILLOW WAY	0+90.61	20.39' L	408.36
(3)	PT	GLEN WILLOW WAY	0+95	31' L	404.02
(4)	PC	GLEN WILLOW WAY	1+15	31' L	409.02
(5)	MID	GLEN WILLOW WAY	1+19.39	20.39' L	408.55
(6)	PT	GLEN WILLOW WAY	1+30	16' L	408.44
(7)	PC	GLEN WILLOW WAY	4+34.20	16.43' L	402.74
(8)	MID	GLEN WILLOW WAY	4+48.34	22.29' L	403.31
(9)	PT	GLEN WILLOW WAY	4+54.20	36.43' L	404.00
(10)	PC	GLEN WILLOW WAY	4+71.20	36' L	403.91
(11)	MID	GLEN WILLOW WAY	4+82.98	21.90' L	403.31
(12)	PT	GLEN WILLOW WAY	4+91.20	16.43' L	403.23
(13)	PC	GLEN WILLOW WAY	7+26.74	16' L	401.79
(14)	MID	GLEN WILLOW WAY	7+40.88	21.86' L	403.31
(15)	PT	GLEN WILLOW WAY	7+46.74	36' L	409.36
(16)	PC	GLEN WILLOW WAY	7+66.74	36' L	409.36
(17)	MID	GLEN WILLOW WAY	7+72.60	21.99' L	408.71
(18)	PT	GLEN WILLOW WAY	7+86.74	16.43' L	408.98
(19)	PC	GLEN WILLOW WAY	11+40.34	14.43' L	421.78
(20)	MID	CHARLES CROSSING	13+70.88	28.74' R	422.22
(21)	PT	CHARLES CROSSING	13+64.31	20.18' R	422.51
(22)	PC	CHARLES CROSSING	8+50.87	19' R	405.24
(23)	PC	GLEN WILLOW WAY	0+26.32	23.76' R	406.17
(24)	PT	GLEN WILLOW WAY	0+44	16.43' R	401.09
(25)	PC	GLEN WILLOW WAY	0+44	16.43' R	401.09
(26)	MID	GLEN WILLOW WAY	0+26.32	23.76' L	408.01
(27)	PT	GLEN WILLOW WAY	4+33.78	19' R	408.94

\*NOTE: SEE RAMP DETAILS SHEET II FOR ADDITIONAL SPOT ELEVATIONS ALONG CURB RADIUS



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*[Signature]* 12/16/16  
 Chief, Bureau of Highways Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
*[Signature]* 12-15-16  
 Chief, Division of Land Development Date

*[Signature]* 12/15/16  
 Chief, Development Engineering Division Date

PREPARED FOR & OWNER:  
 BA WATERLOO TOWNHOUSES, LLC  
 C/O BOZZUTTO HOMES, INC.  
 6406 IVY LANE, SUITE 700  
 GREENBELT, MARYLAND 20770  
 ATTN.: CHRIS BLOCK  
 301-623-3672

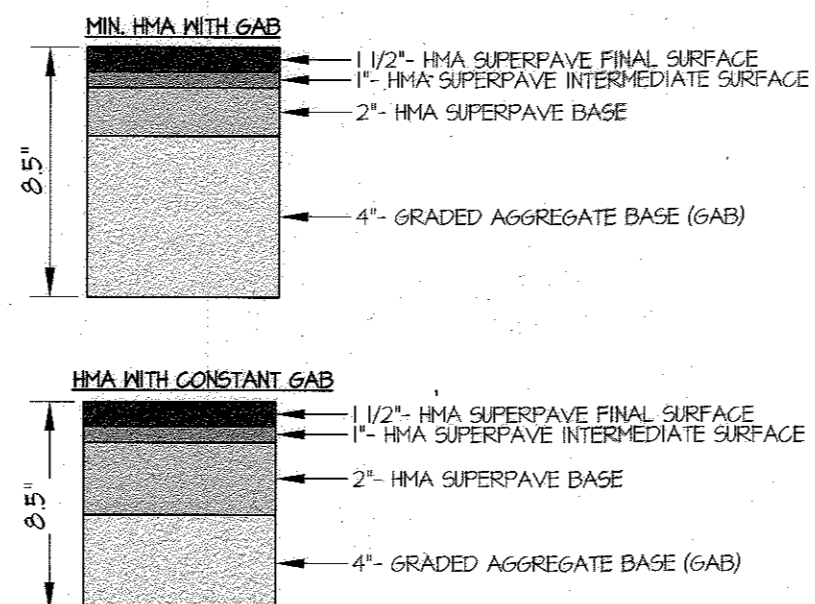
**PROFESSIONAL CERTIFICATION**  
 I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 12975  
 EXPIRATION DATE: MAY 28, 2018  
 11-9-16 *[Signature]*

**GLEN WILLOW WAY PLAN AND PROFILE**  
**PHASE VIII**  
**SHIPLEY'S GRANT**  
 Lots D-151 - D-217, Open Space Lots D-218 - D-221,  
 Common Open Space Lot D-222 & D-223  
 A Resubdivision of Parcel D-2 (PN: 21017) and Common Open Space Lot D-134 (PN:21720)  
 HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE NO.
AS SHOWN	R-A-15	13063
DATE	TAX MAP - GRID	SHEET
NOV, 2016	37- 1&2	2 OF 16

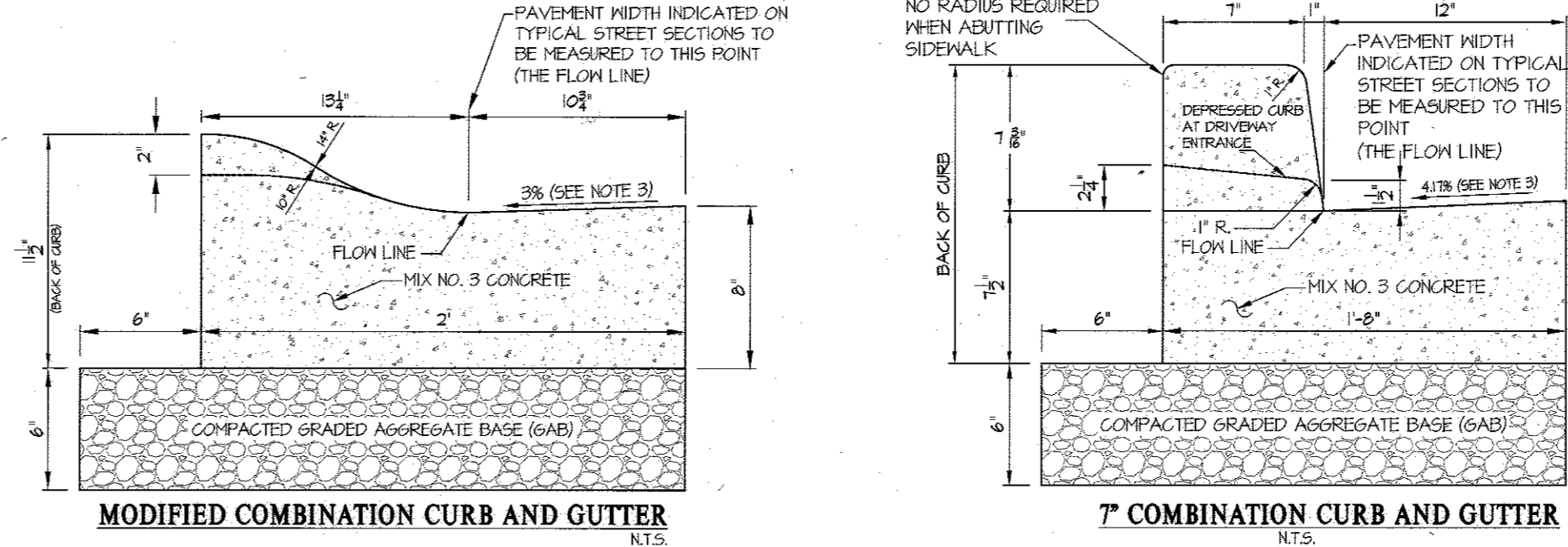
ROAD INFORMATION

ROAD NAME	STATION	ROAD CLASSIFICATION	DESIGN SPEED	A	B	C	D	E	F	G	R/W	PAVING SECTION	CURB TYPE
GLEN WILLOW WAY	0+44 TO 0+45	ACCESS STREET	25 MPH	16"	5'-6.75'	4'	4'	13.25'	54'	P-2		MODIFIED	
GLEN WILLOW WAY	0+45 TO 0+47	ACCESS STREET	25 MPH	Varies	5'-6.75'	4'	4'	13.25'	Varies	P-2		MODIFIED	
GLEN WILLOW WAY	0+47 TO 0+48	ACCESS STREET	25 MPH	14'	5'-6.75'	4'	4'	13.25'	50'	P-2		MODIFIED	



P-2 PAVING SECTION

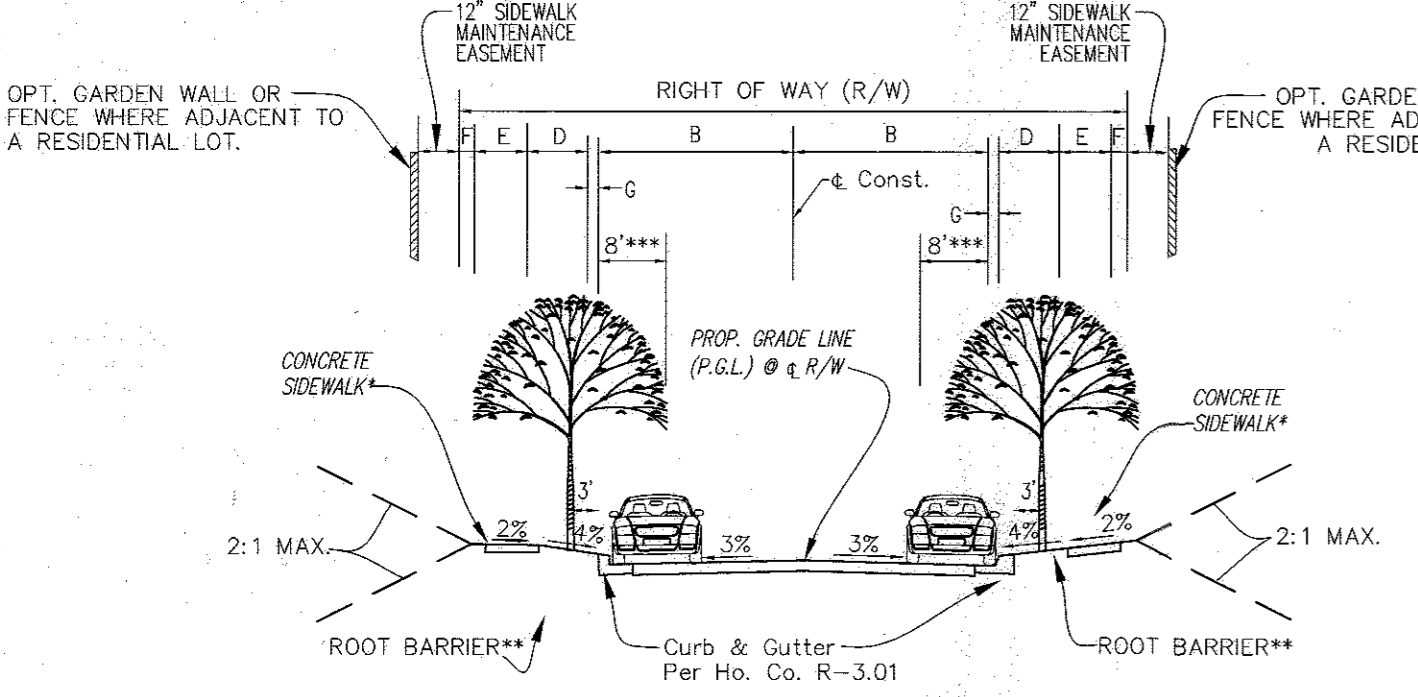
NOTE:  
1. THE VALUES SHOWN ARE FOR A CBR VALUE 5 TO 7, DEPENDING ON THE CBR VALUES OBTAINED IN THE FIELD, THE PAVING SECTIONS MAY BE REVISED, IF APPROVED BY A PROFESSIONAL SOILS ENGINEER. THESE SUBSTITUTIONS MUST ALSO BE APPROVED BY THE HOWARD COUNTY DEPT. OF PUBLIC WORKS.  
2. USE P-2 PAVING SECTION FOR ALL PUBLIC ROADS AND PRIVATE ALLEYS



MODIFIED COMBINATION CURB AND GUTTER

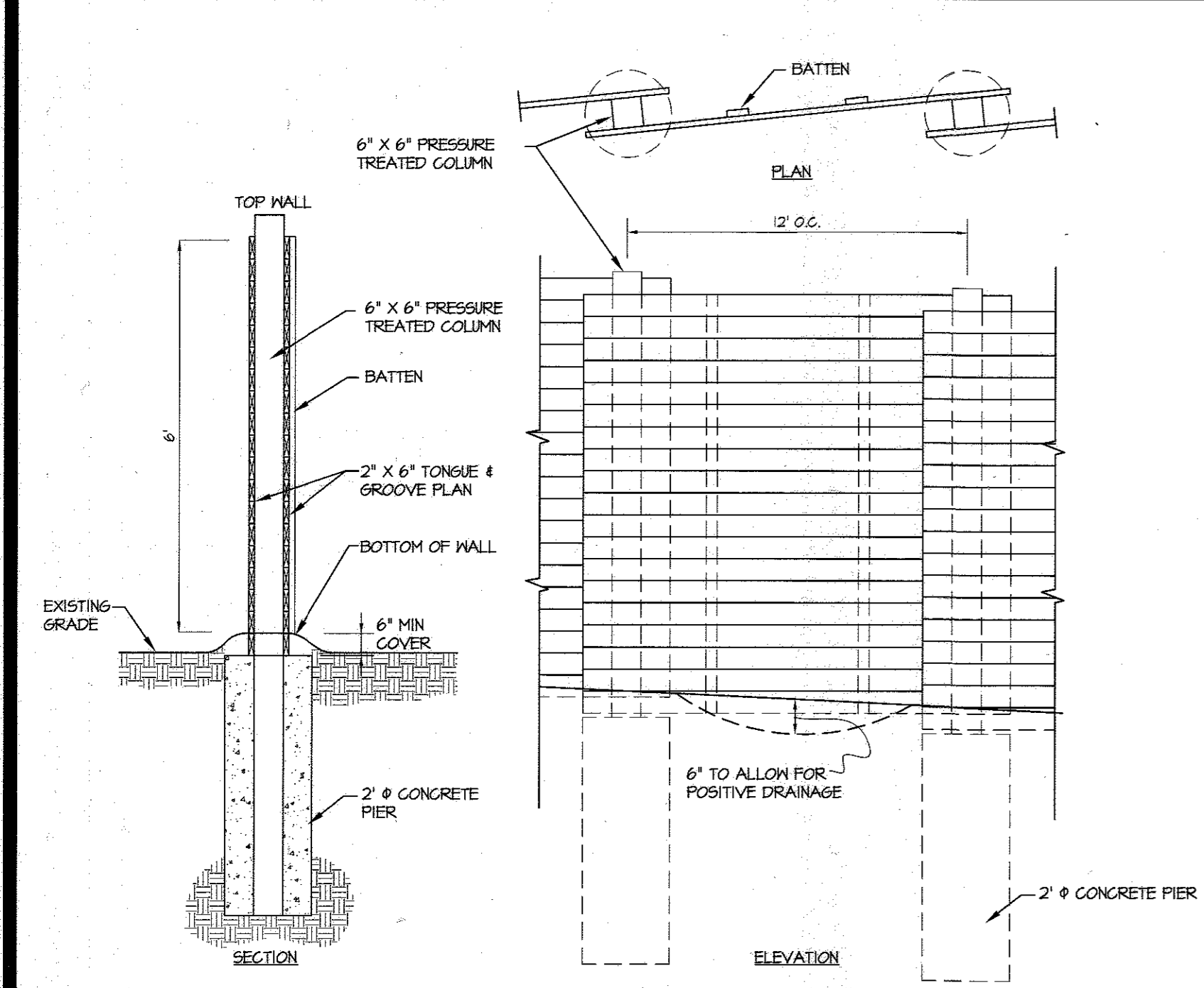
7\"/>

NOTES:  
1. A REVERSE GUTTER PAN SHALL HAVE A GUTTER SLOPE OF 4.17% AWAY FROM THE FLOW LINE, AND SHALL NOT BE USED WHERE THIS DRAINAGE CREATES A HAZARDOUS CONDITION.  
2. GUTTER PAN AT MEDIAN EDGE OF INTERMEDIATE ARTERIALS OR THE HIGH SIDE OF SUPERELEVATED SECTIONS SHALL BE SLOPED AT THE SAME RATE AND IN THE SAME DIRECTION AS THE PAVEMENT. MATCH PAVEMENT CROSS SLOPE WHEN CURB IS LOCATED ON THE LOW SIDE OF SUPERELEVATED SECTION AND THE RATE OF SUPERELEVATION IS GREATER THAN 3% FOR MODIFIED CURB AND GUTTER.  
3. A MINIMUM OF TWO (2) FEET OF COMPACTED STABILIZED EARTH, OR EQUIVALENT, SHALL SUPPORT THE ENTIRE BACK OF CURB.  
4. POSITIVE DRAINAGE SHALL BE PROVIDED BOTH BEHIND THE CURB AND ALONG THE GUTTER AND FLOW LINE.

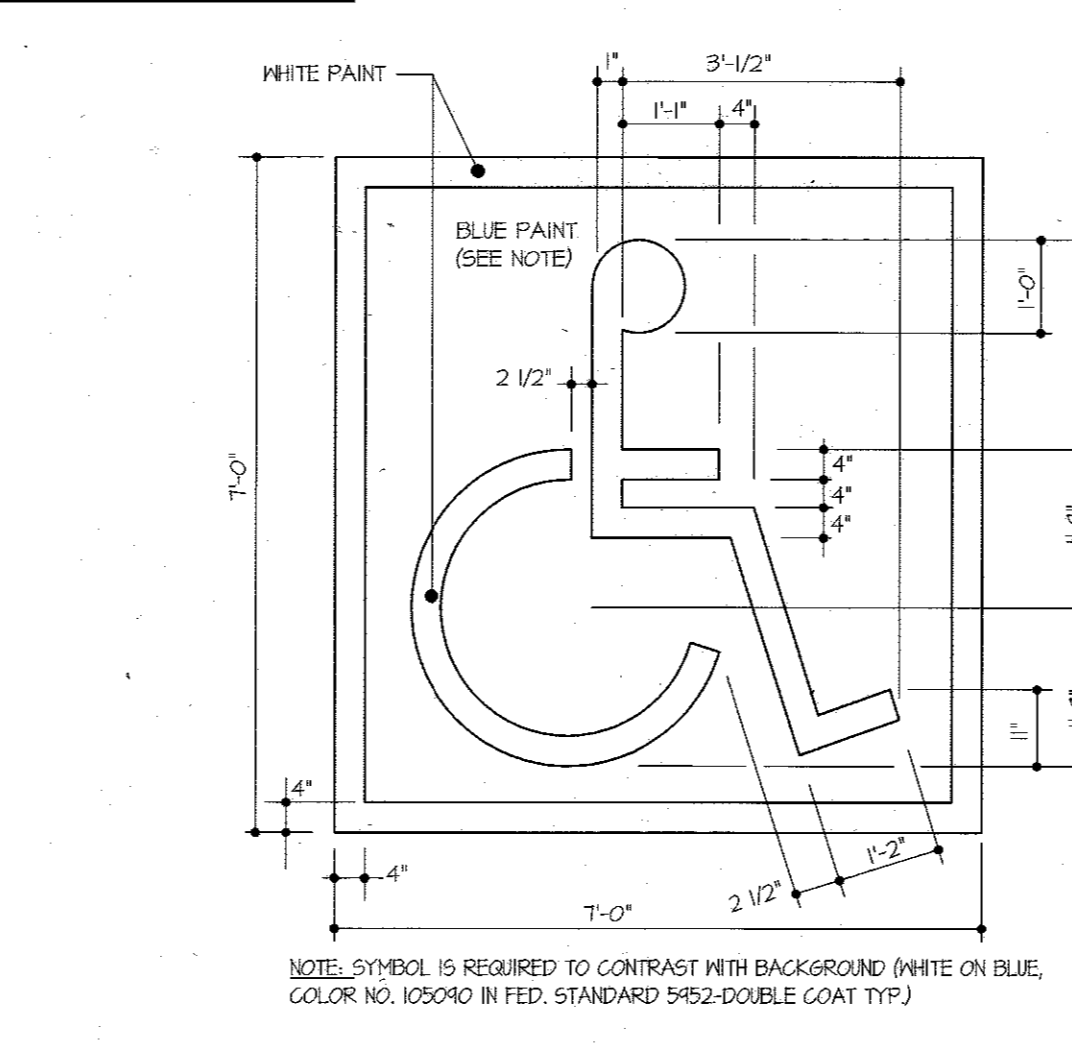
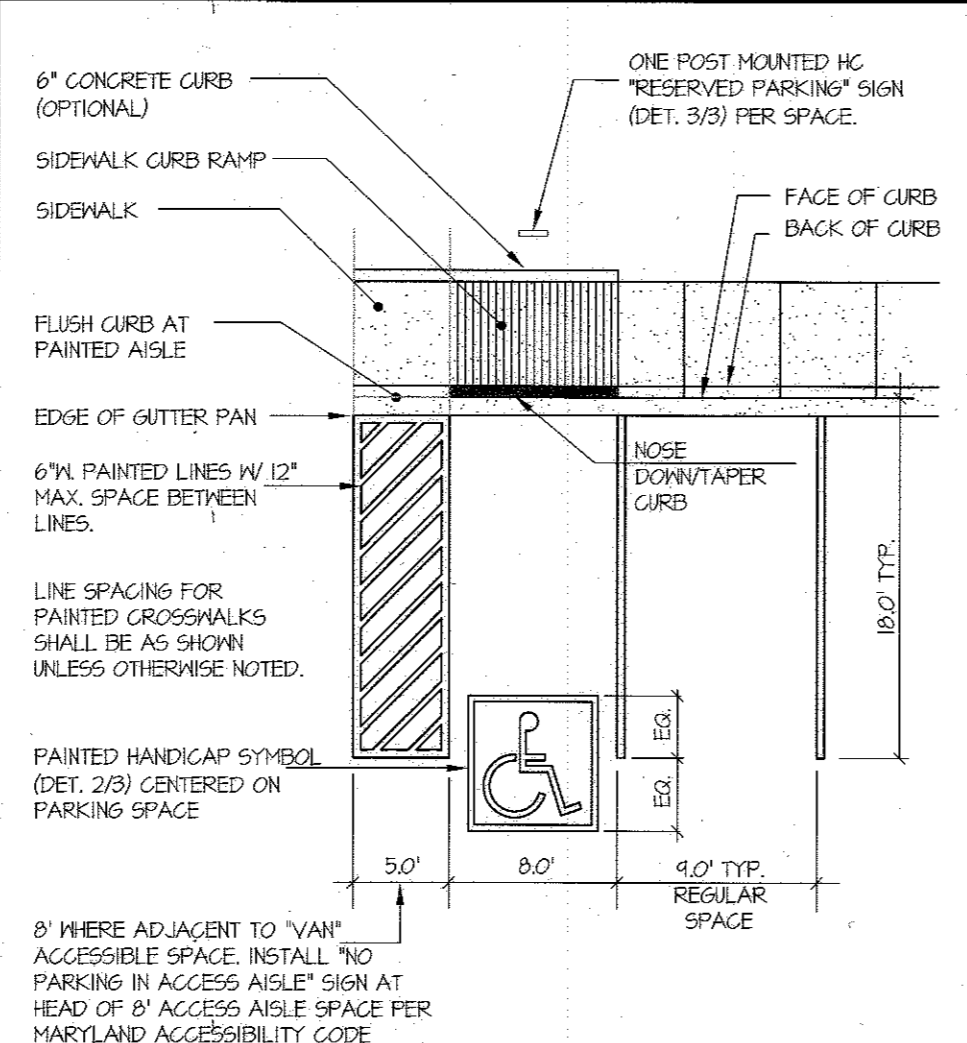


TYPICAL PUBLIC ROAD SECTION NOT TO SCALE

\* PROVIDE PASSING AREAS PER R-401  
\*\* ROOT BARRIER NECESSARY WHEN "D" DIMENSION IS LESS THAN 6"  
\*\*\* 8' ON STREET PARALLEL PARKING. SEE SHEET 4 FOR ALLOWABLE LOCATIONS. PARKING ONLY ALLOWED ON ONE SIDE OF THE STREET. SIDE MAY VARY.

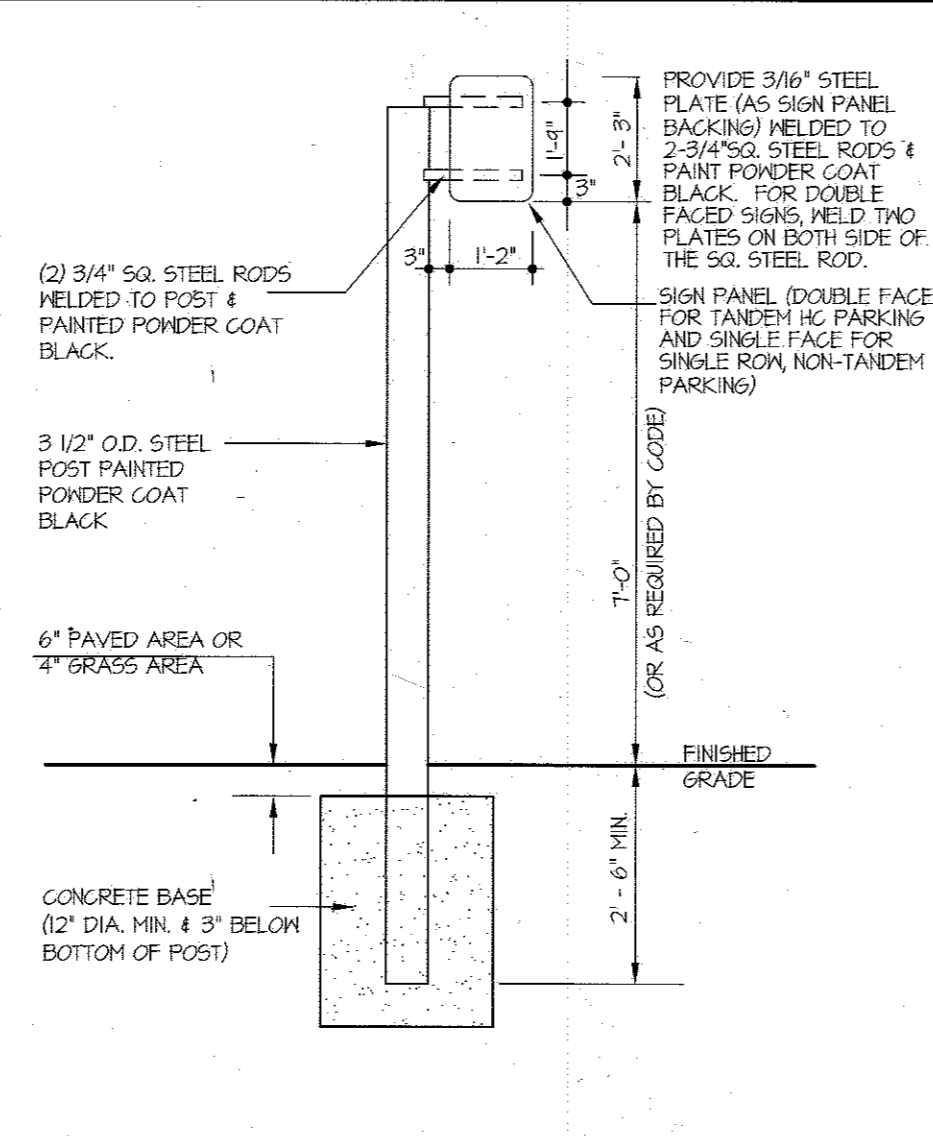


NOISE WALL SECTION DETAIL NO SCALE

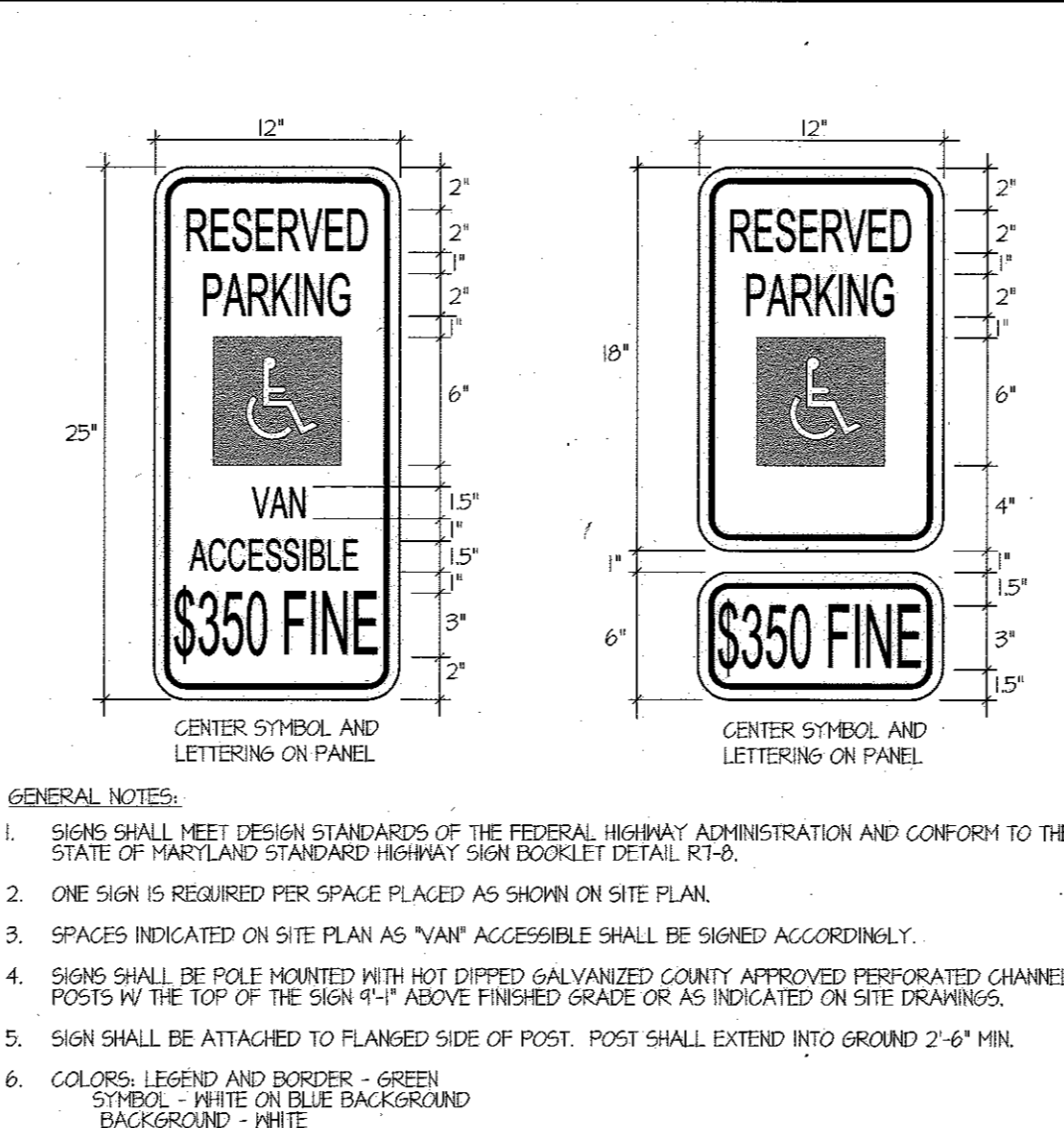


1. PARKING SPACE LAYOUT NO SCALE

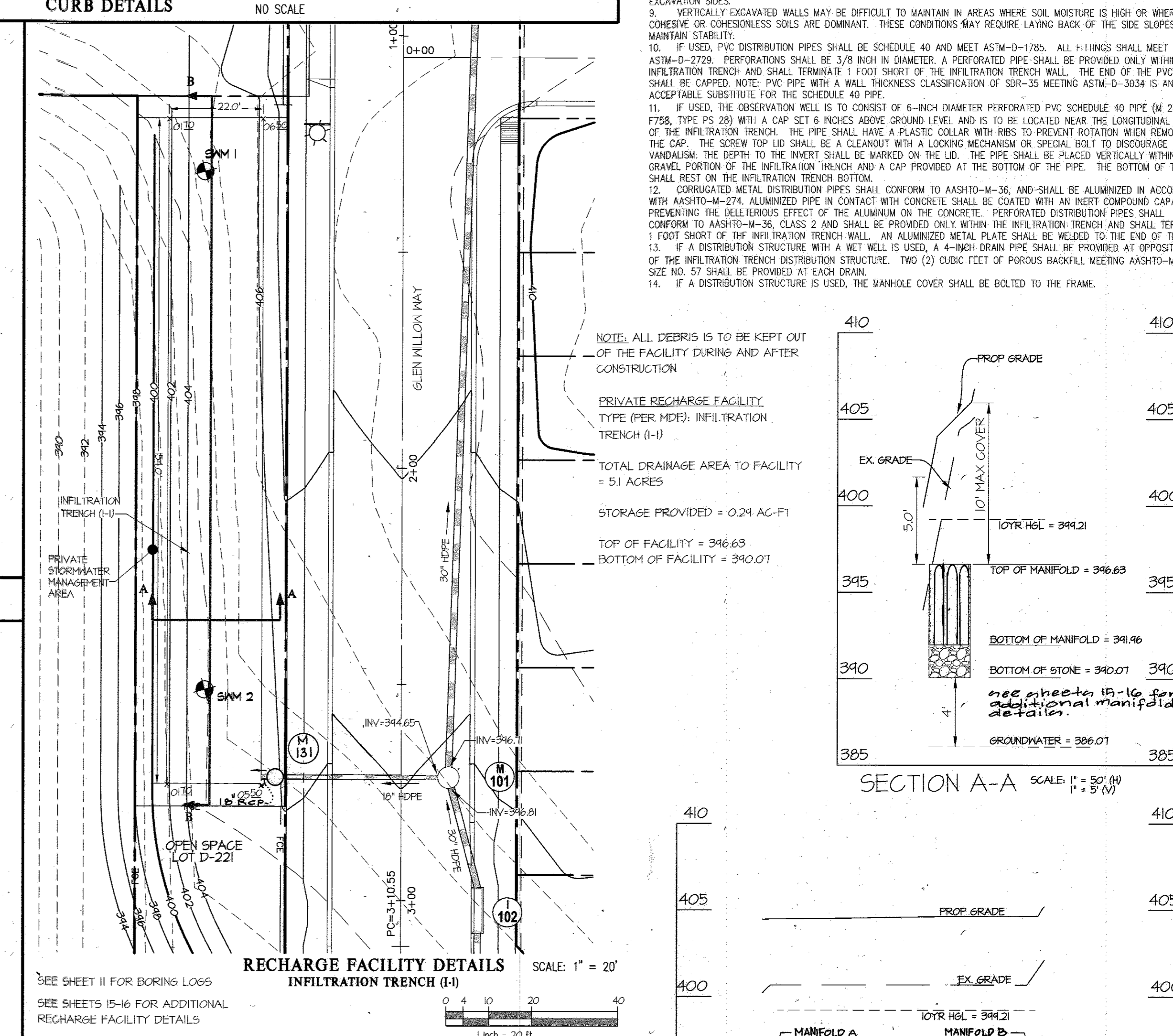
2. HANDICAP SPACE STENCIL LAYOUT NO SCALE



3. POST & SIGN DETAIL FOR PARKING RESTRICTION SIGN NO SCALE



4. HANDICAP PARKING SIGNS DETAIL NO SCALE



RECHARGE FACILITY DETAILS INfiltrATION TRENCH (I-1)

SEE SHEET II FOR BORING LOGS  
SEE SHEETS 15-16 FOR ADDITIONAL RECHARGE FACILITY DETAILS

OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED STORMWATER INFILTRATION TRENCHES

- The monitoring wells and structures shall be inspected on a quarterly basis and after every large storm event.
- Water levels and sediment build up in the monitoring wells shall be recorded over a period of several days to insure trench drainages.
- A log book shall be maintained to determine the rate at which the facility drains.
- When the facility becomes clogged so that it does not drain down within the 72 hour time period, corrective action shall be taken.
- 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 facility 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: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
Chief, Bureau of Highways  
Date: 12/1/2016

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
Chief, Division of Land Development  
Date: 12/15/16

**GLWGUTSCHICK LITTLE & WEBER, P.A.**  
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS  
3909 NATIONAL DRIVE - SUITE 250 - BURTONSVILLE OFFICE PARK  
BURTONSVILLE, MARYLAND 20866  
TEL: 301-421-4024 BALT: 410-880-1820 DC/VA: 301-988-2524 FAX: 301-421-4186

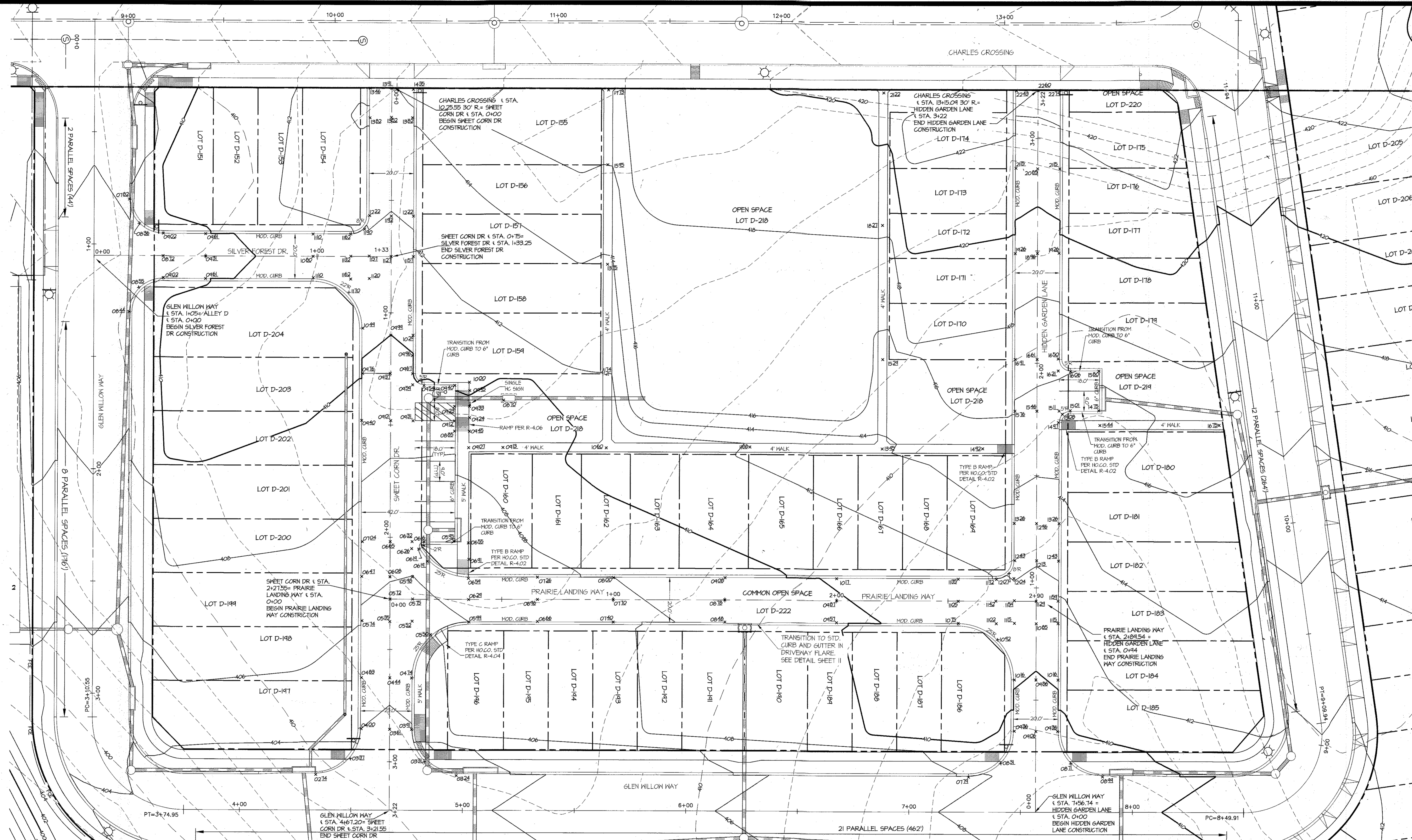
NO.	REVISION	DATE	BY	APPR.

PREPARED FOR & OWNER:  
BA WATERLOO TOWNHOUSES, LLC  
C/O BOZZUTO HOMES, INC.  
6406 IVY LANE, SUITE 700  
GREENBELT, MARYLAND 20770  
ATTN: CHRIS BLOCK  
301-823-3672

PROFESSIONAL CERTIFICATION  
I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 2295  
EXPIRATION DATE: MAY 26, 2018  
11-9-16

**ROAD DETAILS**  
PHASE VIII  
**SHIPLEY'S GRANT**  
Lots D-151 - D-217, Open Space Lots D-218 - D-221,  
Common Open Space Lot D-222 & D-223  
A Resubdivision of Parcel D-2 (PN: 21017) and Common Open Space Lot D-134 (PN:21720)  
ELECTION DISTRICT No. 1

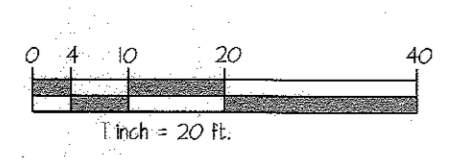
SCALE	ZONING	G. L. W. FILE NO.
AS SHOWN	R-A-15	13063
DATE	TAX MAP - GRID	SHEET
NOV., 2016	37-1&2	3 OF 16



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*Chieff*  
 Chief, Bureau of Highways  
 Date: 12/1/2016

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
*Walt Schalm*  
 Chief, Division of Land Development  
 Date: 12-15-16

*Chieff*  
 Chief, Development Engineering Division  
 Date: 12-7-16

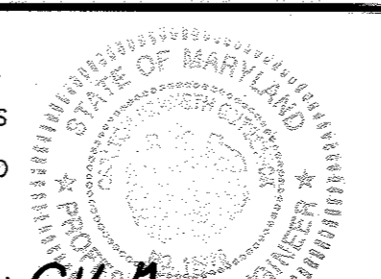


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 3909 NATIONAL DRIVE - SUITE 250 - BURTONSVILLE OFFICE PARK  
 BURTONSVILLE, MARYLAND 20866  
 TEL: 301-421-4024 BALT: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

DATE	REVISION	BY	APP'R.

PREPARED FOR & OWNER:  
 BA WATERLOO TOWNHOUSES, LLC  
 C/O BOZOTTO HOMES, INC.  
 6406 IVY LANE, SUITE 700  
 GREENBELT, MARYLAND 20770  
 ATTN: CHRIS BLOCK  
 301-623-3672

PROFESSIONAL CERTIFICATION  
 I HEREBY CERTIFY THAT THESE PLANS  
 WERE PREPARED OR APPROVED BY  
 ME, AND THAT I AM A DULY LICENSED  
 PROFESSIONAL ENGINEER UNDER THE  
 LAWS OF THE STATE OF MARYLAND,  
 LICENSE NO. 12975  
 EXPIRATION DATE: MAY 26, 2018  
 11-9-16 *Chieff*



**ALLEY GRADING PLAN**  
**PHASE VIII**  
**SHIPLEY'S GRANT**  
 Lots D-151 - D-217, Open Space Lots D-218 - D-221,  
 Common Open Space Lot D-222 & D-223  
 A Resubdivision of Parcel D-2 (PN: 21017) and Common Open Space Lot D-134 (PN:21720)  
 HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE NO.
1" = 20'	R-A-15	13063
DATE	TAX MAP - GRID	SHEET
NOV, 2016	37- 1&2	4 OF 16

SOILS (on site)  
 Map Unit Map Unit Name  
 GcC Glenelig loam, 8 to 15 percent slopes  
 SaB Sassafras loam, 2 to 5 percent slopes  
 HOWARD COUNTY SOIL MAP NUMBER: 14 - SAVAGE NE

Type K Factor  
 B 0.20  
 B 0.37

MAPLE HILL ROAD  
 (PUBLIC ACCESS STREET)

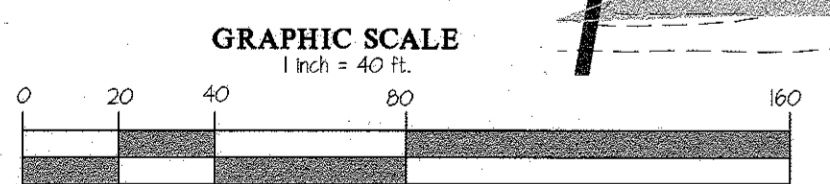
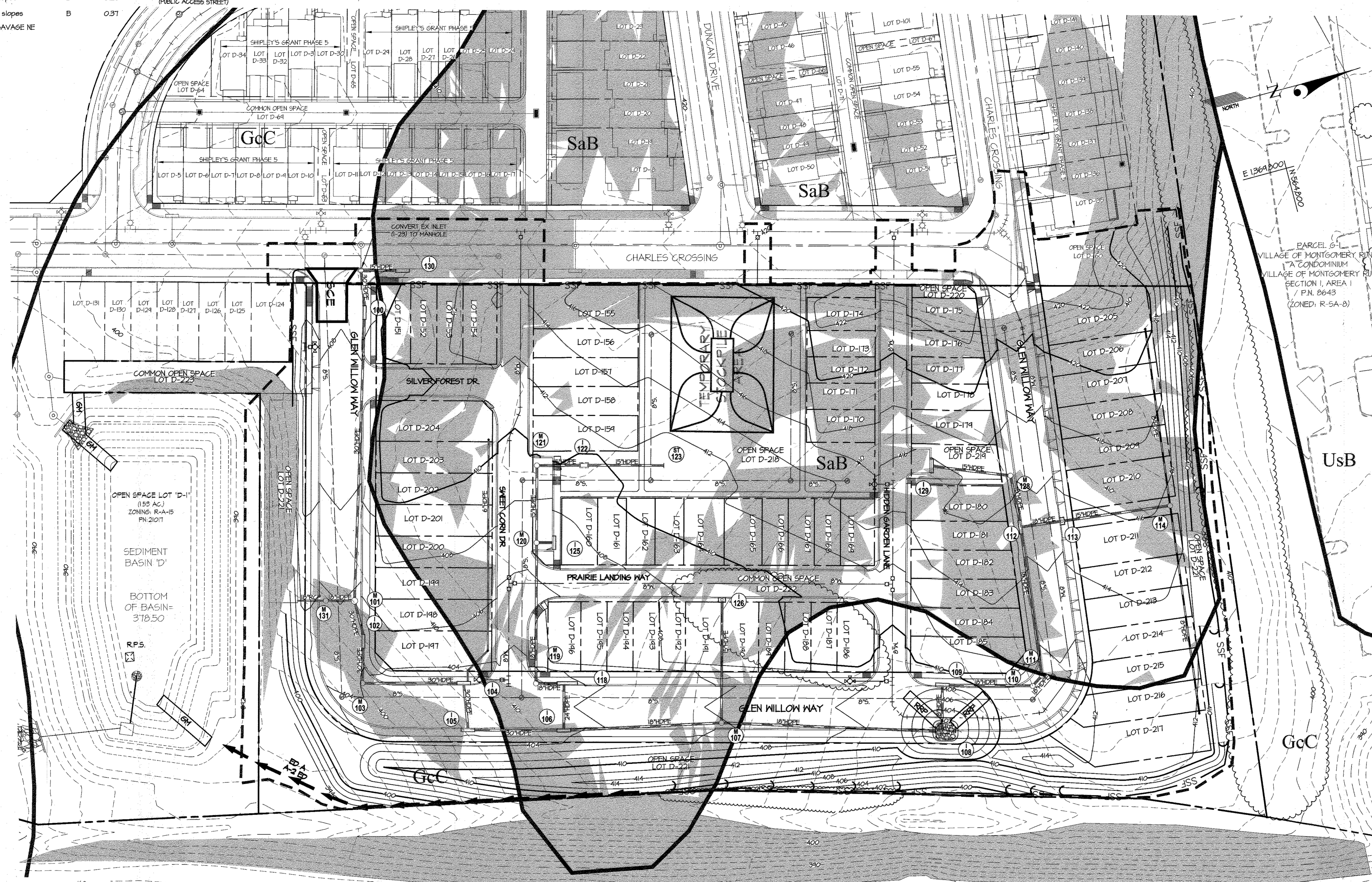
LEGEND

- LIMIT OF DISTURBANCE
- SCE STABILIZED CONSTRUCTION ENTRANCE
- SSF PROPOSED SUPER SILT FENCE
- EARTH DIKE
- PROPOSED TEMPORARY STOCKPILE AREA
- EXISTING TREELINE
- GABION INFLOW PROTECTION
- RIP-RAP INFLOW PROTECTION
- HIGHLY ERODIBLE SOIL  
 (PER HESD, SOILS WITH A SLOPE GREATER THAN 15 PERCENT OR THOSE SOILS WITH A SOIL ERODIBILITY FACTOR K GREATER THAN 0.25 AND WITH A SLOPE GREATER THAN 5 PERCENT.)

NOTES:

1. STANDARD SILT FENCE MAY BE REPLACED WITH SUPER SILT FENCE AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR.
  2. WHEN SUPER SILT FENCE IS RUNNING AT A SLOPE GREATER THAN 5% FOR A DISTANCE OVER 50', CURB FENCE UP 2" FOR EVERY 2' OF ELEVATION CHANGE ALONG SILT FENCE.
  3. SEDIMENT CONTROL INSPECTOR MAY RELOCATE STABILIZED CONSTRUCTION ENTRANCES.
  4. ANY EARTH DIKE INTERRUPTED BY THE INSTALLATION OF A STORM DRAIN IS TO BE REPAIRED IMMEDIATELY.
  5. THE STANDARD SEDIMENT CONTROL PLAN MAY NOT BE USED TO OBTAIN GRADING PERMITS FOR THIS PROJECT.
  6. HOUSES MAY NOT BE CONSTRUCTED USING THIS PLAN.
- STANDARD STABILIZATION NOTE:  
 FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION MUST BE COMPLETED WITHIN:
- A) THREE (3) CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER DIKES, SPALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES STEEPER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1), AND
- B) SEVEN (7) CALENDAR DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE NOT UNDER ACTIVE GRADING.
- SEQUENCE OF CONSTRUCTION:

1. VERIFY THAT SEDIMENT BASIN D HAS NOT BEEN CONVERTED TO A STORMWATER FACILITY. IF THE BASIN HAS BEEN CONVERTED TO A FORD, A REDLINE REVISION TO THIS PLAN MUST BE SUBMITTED TO SHOW A REVISED SEDIMENT CONTROL PLAN (1 DAY)
2. OBTAIN A GRADING PERMIT AND ARRANGE A PRE-CONSTRUCTION MEETING WITH THE SEDIMENT CONTROL INSPECTOR (SCU) (1 DAY)
3. INSTALL STABILIZED CONSTRUCTION ENTRANCE (SCE), SUPER SILT FENCE, AND GABION INFLOW PROTECTION FOR THE MAY 2016 RESURFACING F-04-08. ENSURE THAT THE SEDIMENT LEVEL IN THE BASIN HAS NOT BUILT UP TO THE CLEAN OUT ELEVATION. CLEAN OUT BASIN IF NECESSARY. (5 DAYS)
4. INSTALL EARTH DIKE (5 DAYS)
5. INSTALL H-30 AND CONVERT EX 1-23 TO A MANHOLE (1 DAY)
6. INSTALL STORM DRAIN FROM EX 1-23 UP TO SSF NOT INCLUDING H-08. LEAVE INVERT OF 18" PIPE EXPOSED SO THAT RUNOFF MAY FLOW DIRECTLY INTO THE PIPE. INSTALL A BERM BEHIND THE PIPE TO FORCE ALL RUNOFF FROM THE SITE INTO THE PIPE. BLOCK PIPE OPENING FROM M-101 TO M-131. INSTALL INFLOW PROTECTION IN THE VICINITY OF H-08. (5 DAYS)
7. MASS GRADE SITE. ONCE ALL THE AREA DRAINING TO H-08 HAS BEEN BROUGHT TO SUB GRADE, FILL IN DEPRESSION AND INSTALL H-08. (30 DAYS)
8. INSTALL ALL REMAINING UTILITIES. INSTALL PRIVATE STORMWATER RECHARGE FACILITY, AND BEGIN CONSTRUCTION OF CURB & GUTTER AND PAVEMENT. BEGIN CONSTRUCTION OF SIDEWALK AND NOISE FENCE. (SIDEWALK AND NOISE FENCE CONSTRUCTION MAY BE DELAYED UNTIL THE TIME OF HOUSE CONSTRUCTION AS LONG AS SEDIMENT CONTROLS ARE STILL IN PLACE AND THE GRADING PERMIT IS STILL ACTIVE) (40 DAYS)
9. ONCE ALL OF THE AREA DRAINING TO THE STORM DRAIN SYSTEM HAS BEEN STABILIZED, REMOVE ANY REMAINING EARTH DIKES AND DO ANY FINAL GRADING IN OPEN SPACE LOT D-222. (5 DAYS)
10. STABILIZE ANY REMAINING AREA AND REMOVE ANY REMAINING SEDIMENT CONTROLS. (5 DAYS)
11. FLUSH CLEAN ALL STORM DRAIN CONSTRUCTED IN PHASE 8 (5 DAYS)
12. UNLOCK OPENING FROM M-101 TO M-131 (1 DAY)



THIS PLAN IS FOR SEDIMENT CONTROL PURPOSES ONLY

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*[Signature]* 12/1/2016  
 Chief, Bureau of Highways Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
*[Signature]* 12-15-16  
 Chief, Division of Land Development Date

*[Signature]* 12-7-16  
 Chief, Development Engineering Division Date

DEVELOPER'S/BUILDER'S CERTIFICATE  
 "I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR 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 MARYLAND DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HESD."  
*[Signature]* 11-7-16  
 SIGNATURE OF DEVELOPER/BUILDER DATE

ENGINEER'S CERTIFICATE  
 "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]* 11-9-16  
 ENGINEER'S SIGNATURE DATE

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.  
*[Signature]* 4/16/16  
 HOWARD SOIL CONSERVATION DISTRICT DATE

**GLWGUTSCHICK LITTLE & WEBER, P.A.**  
 CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS  
 3909 NATIONAL DRIVE - SUITE 250 - BURTONSVILLE OFFICE PARK  
 BURTONSVILLE, MARYLAND 20866  
 TEL: 301-421-4024 FAX: 410-880-1920 DC/VA: 301-889-2524 FAX: 301-421-4186

DATE	REVISION	BY	APPR.

PREPARED FOR & OWNER:  
 BA WATERLOO TOWNHOUSES, LLC  
 C/O BOZUTTO HOMES, INC.  
 6406 IVY LANE, SUITE 700  
 GREENBELT, MARYLAND 20770  
 ATTN: CHRIS BLOCK  
 301-623-3672

PROFESSIONAL CERTIFICATION  
 I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 12975  
 EXPIRATION DATE: MAY 28, 2018  
 11-9-16 *[Signature]*

SEDIMENT CONTROL PLAN  
 PHASE VIII  
**SHIPLEY'S GRANT**  
 Lots D-151 - D-217, Open Space Lots D-218 - D-221,  
 Common Open Space Lot D-222 & D-223  
 A Resubdivision of Parcel D-2 (PN: 21017) and Common Open Space Lot D-134 (PN:21720)  
 HOWARD COUNTY, MARYLAND  
 ELECTION DISTRICT No. 1

SCALE	ZONING	G. L. W. FILE NO.
1"=40'	R-A-15	13063
DATE	TAX MAP - GRID	SHEET
NOV, 2016	37- 1&2	5 OF 16

### B-4-2 STANDARD AND SPECIFICATIONS FOR SOIL PREPARATION, TOPSOILING, AND SOIL AMENDMENTS

**DEFINITION:** THE PROCESS OF PREPARING THE SOIL TO SUSTAIN ADEQUATE VEGETATIVE STABILIZATION.

**PURPOSE:** TO PROVIDE A SUITABLE SOIL MEDIUM FOR VEGETATIVE GROWTH.

**CONDITIONS WHERE PRACTICE APPLIES:** WHERE VEGETATIVE STABILIZATION IS TO BE ESTABLISHED.

**CRITERIA**

#### A. SOIL PREPARATION

##### 1. TEMPORARY STABILIZATION

- SEEDING PREPARATION CONSISTS OF LOOSENING SOIL TO A DEPTH OF 3 TO 5 INCHES BY MEANS OF SUITABLE AGRICULTURAL OR CONSTRUCTION EQUIPMENT, SUCH AS DISC HARROWS OR CULDS, PLOWERS OR OTHERS MOUNTED ON CONSTRUCTION EQUIPMENT. AFTER THE SOIL IS LOOSENED, IT MUST NOT BE TRACKED OR DRAGGED SMOOTH BUT LEFT IN THE ROUGHENED CONDITION. SLOPES 3:1 OR FLATTER ARE TO BE TRACKED WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE.
- APPLY FERTILIZER AND LIME AS PRESCRIBED ON THE PLANS.
- INCORPORATE THE LIME AND FERTILIZER INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS.

##### 2. PERMANENT STABILIZATION

- A SOIL TEST IS REQUIRED FOR ANY EARTH DISTURBANCE OF 5 ACRES OR MORE. THE MINIMUM SOIL CONDITIONS REQUIRED FOR PERMANENT VEGETATIVE ESTABLISHMENT ARE:
  - I. SOIL PH BETWEEN 6.0 AND 7.0.
  - II. SOLUBLE SALTS LESS THAN 500 PARTS PER MILLION (PPM).
  - III. SOIL CONTAINS LESS THAN 60 PERCENT CLAY BUT ENOUGH FINE GRAINED MATERIAL (GREATER THAN 30 PERCENT SILT PLUS CLAY) TO PROVIDE THE CAPACITY TO HOLD A MODERATE AMOUNT OF MOISTURE, AN EXCEPTION: IF LOWGRASS WILL BE PLANTED, THEN A SANDY SOIL (LESS THAN 30 PERCENT SILT PLUS CLAY) WOULD BE ACCEPTABLE.
  - IV. SOIL CONTAINS 1.5 PERCENT MINIMUM ORGANIC MATTER BY WEIGHT.
- V. SOIL CONTAINS SUFFICIENT PORE SPACE TO PERMIT ADEQUATE ROOT PENETRATION.

##### B. TOPSOILING

- TOPSOIL IS PLACED OVER PREPARED SUBSOIL PRIOR TO ESTABLISHMENT OF PERMANENT VEGETATION. THE PURPOSE IS TO PROVIDE A SUITABLE SOIL MEDIUM FOR VEGETATIVE GROWTH. SOILS OF CONCERN HAVE LOW MOISTURE CONTENT, LOW NUTRIENT LEVELS, LOW pH MATERIALS TOXIC TO PLANTS, AND/OR UNACCEPTABLE SOIL GRAINATION.
- TOPSOIL SALVAGED FROM AN EXISTING SITE MAY BE USED PROVIDED IT MEETS THE STANDARDS AS SET FORTH IN THESE SPECIFICATIONS. TYPICALLY, THE DEPTH OF TOPSOIL TO BE SALVAGED FOR A GIVEN SOIL TYPE CAN BE FOUND IN THE REPRESENTATIVE SOIL PROFILE SECTION IN THE SOIL SURVEY PUBLISHED BY USDA-NRCS.
- TOPSOILING IS LIMITED TO AREAS HAVING 2:1 OR FLATTER SLOPES WHERE:
  - a. THE TEXTURE OF THE EXPOSED SUBSOIL/PARENT MATERIAL IS NOT ADEQUATE TO PRODUCE VEGETATIVE GROWTH.
  - b. THE SOIL MATERIAL IS SO SHALLOW THAT THE ROOTING ZONE IS NOT DEEP ENOUGH TO SUPPORT PLANTS OR FURNISH CONSERVING SUPPLIES OF MOISTURE AND PLANT NUTRIENTS.
  - c. THE ORIGINAL SOIL CONTAINS A MINIMUM OF 10 PERCENT SILT PLUS CLAY TO 3 INCHES OF SOIL DEPTH AND THE SOIL IS SO ACIDIC THAT TREATMENT WITH LIMESTONE IS NOT FEASIBLE.
- AREAS HAVING SLOPES STEEPER THAN 2:1 REQUIRE SPECIAL CONSIDERATION AND DESIGN.

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

- TOPSOIL MUST BE A LOAM, SANDY LOAM, CLAY LOAM, SILT LOAM, SANDY CLAY LOAM, OR LOAMY SAND. OTHER SOILS MAY BE USED IF RECOMMENDED BY AN AGRICULTURIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE AUTHORITY. TOPSOIL MUST NOT BE A MIXTURE OF CONTRASTING TEXTURED SUBSOILS AND MUST CONTAIN LESS THAN 5 PERCENT BY VOLUME OF CONCRETE, STONES, SILT, COARSE FRAGMENTS, GRAPSEL, STICKS, ROOTS, TRASH, OR OTHER MATERIALS LARGER THAN 1.5 INCHES IN DIAMETER.
- TOPSOIL MUST BE FREE OF NOXIOUS PLANTS OR PLANT PARTS SUCH AS BEREMUDA GRASS, QUACK GRASS, JOHNSON GRASS, NETTLE, SPORON IVY, THISTLE, OR OTHERS AS SPECIFIED.
- TOPSOIL SUBSTITUTES OR AMENDMENTS, AS RECOMMENDED BY A QUALIFIED AGRICULTURIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY, MAY BE USED IN LIEU OF NATURAL TOPSOIL.

##### C. SOIL AMENDMENTS (FERTILIZER AND LIME SPECIFICATIONS)

- SOIL TESTS MUST BE PERFORMED TO DETERMINE THE EXACT RATIOS AND APPLICATION RATES FOR BOTH LIME AND FERTILIZER ON SITES HAVING DISTURBED AREAS OF 5 ACRES OR MORE. SOIL ANALYSIS MUST BE PERFORMED BY A RECOGNIZED PRIVATE OR COMMERCIAL LABORATORY. SOIL SAMPLES TAKEN FOR ENGINEERING PURPOSES MAY ALSO BE USED FOR CHEMICAL ANALYSIS.
- FERTILIZERS MUST BE UNIFORM IN COMPOSITION, FREE FLOWING AND SUITABLE FOR ACCURATE APPLICATION BY APPROPRIATE EQUIPMENT. MANURE MAY BE SUBSTITUTED FOR FERTILIZER WITH PRIOR APPROVAL FROM THE APPROPRIATE APPROVAL AUTHORITY. FERTILIZERS MUST ALL BE DELIVERED TO THE SITE FULLY LABELED ACCORDING TO THE APPLICABLE LAWS AND MUST BEAR THE NAME, TRADE NAME, OR TRADEMARK AND WARRANTY OF THE PRODUCER.
- LIME MATERIALS MUST BE GRIND LIME (HYDRATED) OR BURNT LIME MAY BE SUBSTITUTED EXCEPT WHEN HYDROSEEDING WHICH CONTAINS AT LEAST 50 PERCENT TOTAL OXIDES (CALCIUM OXIDE PLUS MAGNESIUM OXIDE). LIMESTONE MUST BE GRIND TO SUCH FINENESS THAT AT LEAST 10 PERCENT WILL PASS THROUGH A #100 MESH SIEVE AND 80 PERCENT WILL PASS THROUGH A #20 MESH SIEVE. LIME AND FERTILIZER ARE TO BE EVENLY DISTRIBUTED AND INCORPORATED INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS. WHERE THE SUBSOIL IS EITHER HIGHLY ACIDIC OR COMPOSED OF HEAVY CLAYS, SPECIAL CARE SHOULD BE TAKEN AT THE RATE OF 4 TO 8 TONS/ACRE (200-400 POUNDS PER 1000 SQUARE FEET) PRIOR TO THE PLACEMENT OF TOPSOIL.

### H-5 STANDARDS AND SPECIFICATIONS FOR DUST CONTROL

**DEFINITION:** CONTROLLING THE SUSPENSION OF DUST PARTICLES FROM CONSTRUCTION ACTIVITIES.

**PURPOSE:** TO PREVENT BLOWING AND MOVEMENT OF DUST FROM EXPOSED SOIL SURFACES TO REDUCE ON AND OFF-SITE DAMAGE INCLUDING HEALTH AND TRAFFIC HAZARDS.

**CONDITIONS WHERE PRACTICE APPLIES:** AREAS SUBJECT TO DUST BLOWING AND MOVEMENT WHERE ON AND OFF-SITE DAMAGE IS LIKELY WITHOUT TREATMENT.

**CRITERIA**

- WEEDS: SEE SECTION B-4-2 SOIL PREPARATION, TOPSOILING, AND SOIL AMENDMENTS, SECTION B-4-3 SEEDING AND MULCHING, AND SECTION B-4-4 TEMPORARY STABILIZATION. MULCH MUST BE ANCHORED TO PREVENT BLOWING.
- VEGETATIVE COVER: SEE SECTION B-4-4 TEMPORARY STABILIZATION.
- RELEASE: TILL TO ROUGHEN SURFACE AND BRING CLDS TO THE SURFACE. BRING PLOWING ON WINDWARD SIDE OF SITE. CHISEL-TYPE PLOWS SPACED ABOUT 12 INCHES APART, SPRING-TOOTHED HARROWS, AND SIMILAR PLOWS ARE EXAMPLES OF EQUIPMENT THAT MAY PROVIDE THE DESIRED EFFECT.
- EROSION SPRINKLE SITES WITH WATER UNTIL THE SURFACE IS MOIST AS NEEDED. THE SITE MUST NOT BE IRRIGATED TO THE POINT THAT BURD CROPS.
- BARRELS: SOIL BANK FENCES, SILT FENCES, SNOW FENCES, BURLAP FENCES, STRAW BALES, AND SIMILAR MATERIAL CAN BE USED TO CONTROL AIR CURRENTS AND SOIL BLOWING.
- CHEMICAL TREATMENT: USE OF CHEMICAL TREATMENT REQUIRES APPROVAL BY THE APPROPRIATE PLAN REVIEW AUTHORITY.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

*John M. Williams* 11-7-16  
Chief, Bureau of Highways

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

*John M. Williams* 12-5-16  
Chief, Division of Land Development

*John M. Williams* 12-7-16  
Chief, Development Engineering Division

### B-4-3 STANDARDS AND SPECIFICATIONS FOR SEEDING AND MULCHING

**DEFINITION:** THE APPLICATION OF SEEDS AND MULCH TO ESTABLISH VEGETATIVE COVER.

**PURPOSE:** TO PROTECT DISTURBED SOILS FROM EROSION DURING AND AT THE END OF CONSTRUCTION.

**CONDITIONS WHERE PRACTICE APPLIES:** TO THE SURFACE OF ALL PERMITTER CONTROLS, SLOPES, AND ANY DISTURBED AREA NOT UNDER ACTIVE GRADING.

**CRITERIA**

#### A. SEEDING

- ALL SEED MUST MEET THE REQUIREMENTS OF THE MARYLAND STATE SEED LAW. ALL SEED MUST BE SUBJECT TO TESTING BY A RECOGNIZED SEED LABORATORY.
- SEED USED MUST HAVE BEEN TESTED WITHIN THE 6 MONTHS IMMEDIATELY PRECEDING THE DATE OF SOILING SUCH MATERIAL ON ANY PLAN. REFER TO TABLE B-4 REGARDING THE QUALITY OF SEED. SEED TAGS MUST BE AVAILABLE UPON REQUEST TO THE INSPECTOR TO VERIFY THE TYPE OF SEED AND SEEDING RATE.

#### B. MULCHING

- INCORPORATE SEED INTO THE SUBSOIL AT THE RATES PRESCRIBED ON TEMPORARY SEEDING TABLE B.1, OR PERMANENT SEEDING TABLE B.3, OR SITE-SPECIFIC SEEDING SUMMARIES.
- SEEDING MUST BE DONE IN TWO DIRECTIONS, PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION. ROLL THE SEEDING AREA WITH A WEIGHTED ROLLER TO PROVIDE GOOD SEED TO SOIL CONTACT.
- DRILL OR TOPDRESSER SEEDING: MECHANIZED SEEDING WITH APPLY AND COVER SEED WITH STRAW MULCH TO PROTECT SEED FROM EROSION.
- CULTIPACKING SEEDERS ARE REQUIRED TO BURY THE SEED IN SUCH A FASHION AS TO PROVIDE AT LEAST 1/4 INCH OF SOIL COVERING SEEDED MIXTURE WITHIN 3 FEET OF PLANTING.
- APPLY SEED IN TWO DIRECTIONS, PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION.
- HYDROSEEDING: APPLY SEED UNIFORM WITH HYDROSEEDER (SLURRY INCLUDES SEED AND FERTILIZER).
  - i. FERTILIZER IS BEING APPLIED AT THE TIME OF SEEDING, THE APPLICATION RATES SHOULD NOT EXCEED THE FOLLOWING: NITROGEN, 100 POUNDS PER ACRE TOTAL SOLUBLE NITROGEN; P205 (PHOSPHORUS), 200 POUNDS PER ACRE TOTAL SOLUBLE P205; AND K2O (POTASSIUM), 200 POUNDS PER ACRE.
  - ii. LIME: USE ONLY GRIND AGRICULTURAL LIMESTONE (UP TO 3 TONS PER ACRE MAY BE APPLIED BY HYDROSEEDING). NORMALLY, NOT MORE THAN 3 TONS PER ACRE SHOULD BE APPLIED AT ANY ONE TIME. DO NOT USE SLOTTED OR GRATED LIME WHEN HYDROSEEDING.
  - iii. SEED AND FERTILIZER ON SITE AND SEED IMMEDIATELY AND WITHOUT INTERRUPTION.
  - iv. WHEN HYDROSEEDING DO NOT INCORPORATE SEED INTO THE SOIL.

#### B.1. MULCHING

- MULCH MATERIALS (IN ORDER OF PREFERENCE):
  - a. STRAW CONSISTING OF THOROUGHLY THRESHED WHEAT, RYE, OAT, OR BARLEY AND REASONABLY BRIGHT IN COLOR. STRAW IS TO BE FREE OF NOXIOUS WEED SEEDS AS WELL AS THE WOOD CELLULOSE FIBER MULCH WILL REMAIN IN UNIFORM SUSPENSION IN WATER UNDER AGITATION AND WILL BLEND WITH SEED.
  - b. MULCH MATERIALS MUST BE MANUFACTURED AND PROCESSED IN SUCH A MANNER THAT THE WOOD CELLULOSE FIBER MULCH WILL REMAIN IN UNIFORM SUSPENSION IN WATER UNDER AGITATION AND WILL BLEND WITH SEED.
  - c. MULCH MATERIALS MUST BE MANUFACTURED AND PROCESSED IN SUCH A MANNER THAT THE WOOD CELLULOSE FIBER MULCH WILL REMAIN IN UNIFORM SUSPENSION IN WATER UNDER AGITATION AND WILL BLEND WITH SEED.
  - d. MULCH MATERIALS MUST BE MANUFACTURED AND PROCESSED IN SUCH A MANNER THAT THE WOOD CELLULOSE FIBER MULCH WILL REMAIN IN UNIFORM SUSPENSION IN WATER UNDER AGITATION AND WILL BLEND WITH SEED.
  - e. MULCH MATERIALS MUST BE MANUFACTURED AND PROCESSED IN SUCH A MANNER THAT THE WOOD CELLULOSE FIBER MULCH WILL REMAIN IN UNIFORM SUSPENSION IN WATER UNDER AGITATION AND WILL BLEND WITH SEED.

### B-4-4 STANDARDS AND SPECIFICATIONS FOR TEMPORARY STABILIZATION

**DEFINITION:** TO STABILIZE DISTURBED SOILS WITH VEGETATION FOR UP TO 6 MONTHS.

**PURPOSE:** TO USE FAST-GROWING VEGETATION THAT PROVIDES COVER ON DISTURBED SOILS. CONDITIONS WHERE PRACTICE APPLIES EXPOSED SOILS WHERE GROUND COVER IS NEEDED FOR A PERIOD OF 6 MONTHS OR LESS. FOR LONGER DURATION OF TIME, PERMANENT STABILIZATION PRACTICES ARE REQUIRED.

**CONDITIONS WHERE PRACTICE APPLIES:** EXPOSED SOILS WHERE GROUND COVER IS NEEDED FOR 6 MONTHS OR MORE.

**CRITERIA**

- SELECT ONE OR MORE OF THE SPECIES OR SEED MIXTURES LISTED IN TABLE B.1 FOR THE APPROPRIATE PLANT HARDNESS ZONE (FROM FIGURE B.1), AND ENTER THEM IN THE TEMPORARY SEEDING SUMMARY BELOW ALONG WITH APPLICATION RATES, SEEDING DATES, AND SEEDING DATES IN THE PERMANENT SEEDING SUMMARY. WHEN TABLE B.1 PLANTS HAVE FERTILIZER AND LIME RATES MUST BE PUT ON THE PLAN.
- FOR SITES HAVING SOIL TESTS PERFORMED, USE AND SHOW THE RECOMMENDED RATES BY THE TESTING AGENCY. SOIL TESTS ARE NOT REQUIRED FOR TEMPORARY SEEDING.
- WHEN STABILIZATION IS REQUIRED OUTSIDE OF A SECOND SEEDING, APPLY SEED AND MULCH OR STRAW MULCH ALONE AS PRESCRIBED IN SECTION B-4-3A.1.B AND MAINTAIN UNTIL THE NEXT SEEDING SEASON.

**TEMPORARY SEEDING SUMMARY**

HARDNESS ZONE: 6a	SEED MIXTURE:	FERTILIZER RATE (10-10-10)	LIME RATE
No. 1	SPECIES: ANNUAL RYEGRASS	APPLICATION RATE (lb/ac): 40 lb/ac	SEEDING DATES: Mar. 1 to May 15
		SEEDING DEPTHS: 0.5 INCHES	SEEDING RATES: 436 lb/acre (10 lb./1,000 sq)
No. 2	SPECIES: PERENNIAL RYEGRASS	APPLICATION RATE (lb/ac): 20 lb/ac	SEEDING DATES: May 16 to July 31
		SEEDING DEPTHS: 0.5 INCHES	SEEDING RATES: 436 lb/acre (10 lb./1,000 sq)

### HOWARD COUNTY SOIL CONSERVATION DISTRICT (HSCD) STANDARD SEDIMENT CONTROL NOTES

- A PRE-CONSTRUCTION MEETING MUST OCCUR WITH THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS, CONSTRUCTION INSPECTION DIVISION (CID), 410-318-1055 AFTER THE FUTURE LOD AND PROTECTED AREAS ARE MARKED CLEARLY IN THE FIELD. A MINIMUM OF 48 HOUR NOTICE TO CID MUST BE GIVEN AT THE FOLLOWING STAGES:
  - a. PRIOR TO THE START OF EARTH DISTURBANCE.
  - b. PRIOR TO THE START OF THE INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING.
  - c. PRIOR TO THE START OF ANOTHER PHASE OF CONSTRUCTION OR OPENING OF ANOTHER GRADING UNIT.
  - d. PRIOR TO THE REMOVAL OR MODIFICATION OF SEDIMENT CONTROL PRACTICES.

OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE. OTHER RELATED STATE AND FEDERAL PERMITS SHALL BE REFERENCED, TO ENSURE COORDINATION AND TO AVOID CONFLICTS WITH THIS PLAN.

- ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, AND REVISIONS THEREOF.
- FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION IS REQUIRED WITHIN THREE (3) CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER DIKES, SHALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES STEEPER THAN 3:1 HORIZONTAL TO 1 VERTICAL (3:1) AND SEVEN (7) CALENDAR DAYS AS TO ALL OTHER DISTURBED AREAS ON THE PROJECT SITE EXCEPT FOR THOSE AREAS UNDER ACTIVE GRADING.
- ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, FOR TOPSOIL (SEC. B-4-2), PERMANENT SEEDING (SEC. B-4-3), TEMPORARY SEEDING (SEC. B-4-4) AND MULCHING (SEC. B-4-3). TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE APPLIED BETWEEN THE FALL AND SPRING SEEDING DATES IF THE GROUND IS FROZEN.
- INCREMENTAL STABILIZATION (SEC. B-4-4) SPECIFICATIONS SHALL BE ENFORCED IN AREAS WITH 15' OF CUT AND/OR FULL STOCKPILES (SEC. B-4-8) IN EXCESS OF 20 FT. MUST BE BLENDED WITH STABLE OUTLET. ALL CONCENTRATED FLOW, STEEP SLOPE, AND HIGHLY ERODIBLE AREAS SHALL RECEIVE SOIL STABILIZATION MULCH (SEC. B-4-6).
- ALL SEDIMENT CONTROL STRUCTURES ARE TO BE REMOVED IN PLACE, AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMITTED FOR THEIR REMOVAL. HAS BEEN OBTAINED FROM THE CID.

**SITE ANALYSIS:**

TOTAL AREA OF SITE	6.12± AC.
AREA DISTURBED	7.1± AC.
AREA TO BE ROOFED OR PAVED	2.0± AC.
AREA TO BE VEGETATIVELY STABILIZED	5.1± AC.
TOTAL CUT	35,000± CY*
TOTAL FILL	35,000± CY*
OFF-SITE HAS/BE BORROW	NA
AREA LOCATION	

- ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
- ADDITIONAL SEDIMENT CONTROL MUST BE PROVIDED, IF DEEMED NECESSARY BY THE CID, THE SITE AND ALL CONTROLS SHALL BE INSPECTED BY THE CONTRACTOR WEEKLY, AND THE NEXT DAY AFTER EACH RAIN EVENT. A WRITTEN REPORT BY THE CONTRACTOR, MADE AVAILABLE UPON REQUEST, IS PART OF EVERY INSPECTION AND SHOULD INCLUDE:
  - \* INSPECTION DATE
  - \* INSPECTION TYPE (ROUTINE, PRE-Storm Event, DURING RAIN EVENT)
  - \* NAME AND TITLE OF INSPECTOR
  - \* WEATHER INFORMATION (CURRENT CONDITIONS AS WELL AS TIME AND AMOUNT OF LAST RECORDED PRECIPITATION)
  - \* BRIEF DESCRIPTION OF PROJECT'S STATUS (E.G. PERCENT COMPLETE) AND/OR CURRENT ACTIVITIES
  - \* EVIDENCE OF SEDIMENT DISCHARGES
  - \* IDENTIFICATION OF PLAN DEFICIENCIES
  - \* IDENTIFICATION OF SEDIMENT CONTROLS THAT REQUIRE MAINTENANCE
  - \* IDENTIFICATION OF MISSING OR IMPROPERLY INSTALLED SEDIMENT CONTROLS
  - \* COMPLIANCE STATUS REGARDING THE SEQUENCE OF CONSTRUCTION AND STABILIZATION REQUIREMENTS
  - \* PHOTOGRAPHS
  - \* MONITORING/SAMPLING
  - \* MAINTENANCE AND/OR CORRECTIVE ACTION PERFORMED
  - \* OTHER INSPECTION ITEMS AS REQUIRED BY THE GENERAL PERMIT FOR STORMWATER ASSOCIATED WITH CONSTRUCTION ACTIVITIES (NPDES, MDE).

#### PERMANENT SEEDING SUMMARY

HARDNESS ZONE: 6a	SEED MIXTURE:	FERTILIZER RATE	LIME RATE
1	SPECIES: Certified Tall Fescue blend (95% by weight); Falcon IV, Penn 1901 & Rebel Essex	APPLICATION RATE: 6-8 lb/1000 sq ft.	SEEDING DATES: Mar. 1 to May 15
		SEEDING DEPTHS: 1/4" - 1/2" in.	SEEDING RATES: 1.0 lb./1000 sq ft. (45 lb./acre)
2	SPECIES: Certified Kentucky Bluegrass blend (5% by weight); Courtyard, Raven & Yankee	APPLICATION RATE: 1/4" - 1.0 lb./1000 sq ft.	SEEDING DATES: Aug. 15 to Oct. 15
		SEEDING DEPTHS: 1/4" - 1/2" in.	SEEDING RATES: 436 lb/acre (10 lb./1,000 sq ft.)

- OTHER CULTIVARS LISTED AS "OTHER" IN THE MOST CURRENT UMD 11-77 MAY ALSO BE USED
- SOIL TO PROVIDE QUICK COVER ON DISTURBED AREAS (2:1 GRADE OR FLATTER).

#### GENERAL SPECIFICATIONS

- CLASS OF TURFGRASS: SOD MUST BE MARYLAND STATE CERTIFIED. SOD LABELS MUST BE MADE AVAILABLE TO THE CID FOREMAN AND INSPECTOR.
- SOD MUST BE MACHINE CUT TO A UNIFORM SOIL THICKNESS OF 3/4 INCH, PLUS OR MINUS 1/4 INCH, AT THE TIME OF CUTTING. MEASUREMENT FOR THICKNESS MUST EXCLUDE TOP WEEPER BENCH AND THATCH. BROWN PATCH AND TORN OR UNDEVELOPED SOD WILL NOT BE ACCEPTABLE.
- STANDARD SIZE SECTIONS OF SOD MUST BE TIGHTLY JOINED TO SUPPORT THEIR OWN WEIGHT AND RETAIN THEIR SIZE AND SHAPE WHEN STORED VERTICALLY WITH THEIR OWN GRASP ON THE UPPER 10 PERCENT OF THE SECTION.
- SOD MUST NOT BE HARVESTED OR TRANSPORTED WHEN MOISTURE CONTENT (EXCESSIVELY DRY OR WET) MAY ADVERSELY AFFECT ITS SURVIVAL.
- SOD MUST BE HARVESTED, DELIVERED, AND INSTALLED WITHIN A PERIOD OF 36 HOURS. SOD NOT TRANSPORTED WITHIN THIS PERIOD MUST BE APPROVED BY AN AGRICULTURIST OR SOIL SCIENTIST PRIOR TO ITS INSTALLATION.
- DURING PERIODS OF EXCESSIVELY HIGH TEMPERATURE OR IN AREAS HAVING DRY SUBSOIL, LOCALLY IRRIGATED SODS SHOULD BE PREPARED PRIOR TO LAYING THE SOD.
- LAY THE FIRST ROW OF SOD IN A STRAIGHT LINE WITH SUBSEQUENT ROWS PLACED PARALLEL TO IT AND THIGHTLY WEDGED AGAINST EACH OTHER. STAGGER LATERAL JOINTS TO PROMOTE MORE UNIFORM ROOTING. SODS SHOULD BE TIGHTLY JOINED TOGETHER AND OVERLAPPED AND THAT ALL JOINTS ARE BUTTED TIGHT TO PREVENT VOID SPACES WHICH WOULD CAUSE AIR DRYING OF THE ROOTS.
- WEEDER CONTROL: LAY SOD WITH THE LONG EDGES PARALLEL TO THE CONTOUR AND WITH STAGGERED JOINTS, ROW AND TAMP. PEG OR OTHERWISE SECURE THE SOD TO PREVENT SLIPPAGE ON SLOPES. INSURE SOIL CONTACT EXISTS BETWEEN ROOTS AND THE UNDERLYING SOIL SURFACE.
- WATER THE SOD IMMEDIATELY FOLLOWING ROLLING AND TAMPING UNTIL THE UNDERSIDE OF EACH SOD IS FULLY SATURATED WITH WATER. THE SOD ARE THOROUGHLY WET COMPLETELY BEFORE ANY OTHER SITE PREPARATION OR INSTALLATION OF ANY OTHER CONTROL PRACTICES.
- WATER THE SOD IMMEDIATELY FOLLOWING ROLLING AND TAMPING UNTIL THE UNDERSIDE OF EACH SOD IS FULLY SATURATED WITH WATER. THE SOD ARE THOROUGHLY WET COMPLETELY BEFORE ANY OTHER SITE PREPARATION OR INSTALLATION OF ANY OTHER CONTROL PRACTICES.
- IN THE ABSENCE OF ADEQUATE RAINFALL, WATER DAILY DURING THE FIRST WEEK OR AS OFTEN AND SUFFICIENTLY AS NECESSARY TO MAINTAIN MOIST SOIL TO A DEPTH OF 4 INCHES. WATER SOON DURING THE HEAT OF THE DAY TO PREVENT WILTING.
- IF THE SOIL IS EXTREMELY DRY, WATERING IS REQUIRED AS NECESSARY TO MAINTAIN ADEQUATE MOISTURE CONTENT.
- DO NOT MOW UNTIL THE SOD IS FULLY ROOTED. NO MORE THAN 1/3 OF THE GRASS LEAF MUST BE REMOVED BY THE INITIAL CUTTING OR SUBSEQUENT CUTTINGS. MAINTAIN A GRASS HEIGHT OF AT LEAST 3 INCHES UNLESS OTHERWISE SPECIFIED.

#### SOD INSTALLATION

- ALL SILT FENCE AND SUPER SILT FENCE SHALL BE PLACED ON-THE-CONTOUR, AND BE IMERICATED AT 25/MINIMUM INTERVALS, WITH LOWER ENDS CURLED UPWARD BY 2" IN ELEVATION.
- STREAM CHANNELS MUST NOT BE DISTURBED DURING THE FOLLOWING RESTRICTED TIME PERIODS (INCLUSIVE):
  - \* USE I AND IF MARCH 1 - JUNE 15
  - \* USE II AND III OCTOBER 1 - APRIL 30
  - \* USE IV MARCH 1 - MAY 31
- A COPY OF THIS PLAN, THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, AND ASSOCIATED PERMITS SHALL BE ON-SITE AND AVAILABLE WHEN THE SITE IS ACTIVE.

PREPARED FOR & OWNER: BA WATERLOO TOWNHOMES, LLC C/O BOZOTTO HOMES, INC. 6406 IYV LANE, SUITE 700 GREENBELT, MARYLAND 20770 ATTN: CHRIS BLOCK 301-623-3672

### PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 12973 EXPIRATION DATE: MAY 26, 2018

*John A. Roberts* 11-9-16  
PROFESSIONAL ENGINEER

### B-4-5 STANDARDS AND SPECIFICATIONS FOR PERMANENT STABILIZATION

**DEFINITION:** TO STABILIZE DISTURBED SOILS WITH PERMANENT VEGETATION.

**PURPOSE:** TO USE LONG-LIVED PERENNIAL GRASSES AND LEGUMES TO ESTABLISH PERMANENT GROUND COVER ON DISTURBED SOILS.

**CONDITIONS WHERE PRACTICE APPLIES:** EXPOSED SOILS WHERE GROUND COVER IS NEEDED FOR 6 MONTHS OR MORE.

**CRITERIA**

#### A. SEED MIXTURES

- GENERAL USE:
  - a. SELECT ONE OR MORE OF THE SPECIES OR MIXTURES LISTED IN TABLE B.3 FOR THE APPROPRIATE PLANT HARDNESS ZONE (FROM FIGURE B.1) AND BASED ON THE SITE CONDITION OR PURPOSE FOUND ON TABLE B.2. ENTER SELECTED MIXTURE(S), APPLICATION RATES, AND SEEDING DATES IN THE PERMANENT SEEDING SUMMARY. THE SUMMARY IS TO BE PLACED ON THE PLAN.
  - b. ADDITIONAL PLANTING SPECIFICATIONS FOR EXCEPTIONAL SITES SUCH AS SHORELINES, STREAM BANKS, OR DUNES OR FOR SPECIAL PURPOSES SUCH AS WILDLIFE OR AESTHETIC TREATMENT MAY BE FOUND IN USDA-NRCS TECHNICAL FIELD OFFICE GUIDE, SECTION 342 - CRITICAL AREA PLANTING.
  - c. STABILIZE AREAS WITHIN THREE DAYS OF RE-CALCULATION. STABILIZE FLOW CHANNELS FOR CLEAR WATER TRAFFIC WITHIN 24 HOURS OF RE-CALCULATION.
  - d. FOR AREAS RECEIVING LOW MAINTENANCE, APPLY URFA FERTILIZER (46-0-0) AT 3 TO 1/2 POUNDS PER 1000 SQUARE FEET (USE POUNDS PER ACRE) AT THE TIME OF SEEDING IN ADDITION TO THE SOIL AMENDMENTS SHOWN IN THE PERMANENT SEEDING SUMMARY.
- TURFGRASS MIXTURES:
  - a. AREAS WHERE TURFGRASS MAY BE DESIRED INCLUDE LAWNS, PARKS, PLAYGROUNDS, AND SPECIALTY SITES WHICH WILL RECEIVE A MEDIUM TO HIGH LEVEL OF MAINTENANCE.
  - b. SELECT ONE OR MORE OF THE SPECIES OR MIXTURES LISTED BELOW BASED ON THE SITE CONDITIONS OR PURPOSES. SELECTED MIXTURE(S), APPLICATION RATES, AND SEEDING DATES IN THE PERMANENT SEEDING SUMMARY. THE SUMMARY IS TO BE PLACED ON THE PLAN.

- KENTUCKY BLUEGRASS: FULL SUN MIXTURE: FOR USE IN AREAS THAT RECEIVE INTENSIVE MANAGEMENT. IRRIGATION IS REQUIRED IN THE AREAS OF CENTRAL MARYLAND AND EASTERN SHORE. RECOMMENDED CERTIFIED KENTUCKY BLUEGRASS CULTIVARS SEEDING RATE: 1.5 TO 2.0 POUNDS PER 1000 SQUARE FEET. CHOOSE A MINIMUM OF THREE KENTUCKY BLUEGRASS CULTIVARS WITH EACH RANGING FROM 10 TO 35 PERCENT OF THE TOTAL MIXTURE BY WEIGHT.
- KENTUCKY BLUEGRASS/PERENNIAL RYE: FULL SUN MIXTURE: FOR USE IN FULL SUN AREAS WHERE RAPID ESTABLISHMENT IS NECESSARY AND WHEN TURF WILL RECEIVE MEDIUM TO INTENSIVE MANAGEMENT. CERTIFIED PERENNIAL RYEGRASS CULTIVARS/CERTIFIED KENTUCKY BLUEGRASS SEEDING RATE: 2 POUNDS MIXTURE PER 1000 SQUARE FEET. CHOOSE A MINIMUM OF THREE KENTUCKY BLUEGRASS CULTIVARS WITH EACH RANGING FROM 10 TO 35 PERCENT OF THE TOTAL MIXTURE BY WEIGHT.
- TALL FESCUE/KENTUCKY BLUEGRASS: FULL SUN MIXTURE: FOR USE IN DROUGHT PRONE AREAS AND/OR FOR AREAS RECEIVING LOW TO MEDIUM MANAGEMENT IN FULL SUN. RECOMMENDED MIXTURE INCLUDES: CERTIFIED TALL FESCUE CULTIVARS 95 TO 100 PERCENT, CERTIFIED KENTUCKY BLUEGRASS CULTIVARS 0 TO 5 PERCENT. SEEDING RATE: 5 TO 10 POUNDS PER 1000 SQUARE FEET. ONE OR MORE CULTIVARS MAY BE BLENDED.
- KENTUCKY BLUEGRASS/RYE FESCUE: SHADE MIXTURE: FOR USE IN AREAS WITH SHADE AND/OR MODERATE MANAGEMENT. CERTIFIED KENTUCKY BLUEGRASS CULTIVARS 30 TO 40 PERCENT, CERTIFIED RYE FESCUE AND 60 TO 70 PERCENT. SEEDING RATE: 1/2 TO 3 POUNDS PER 1000 SQUARE FEET.

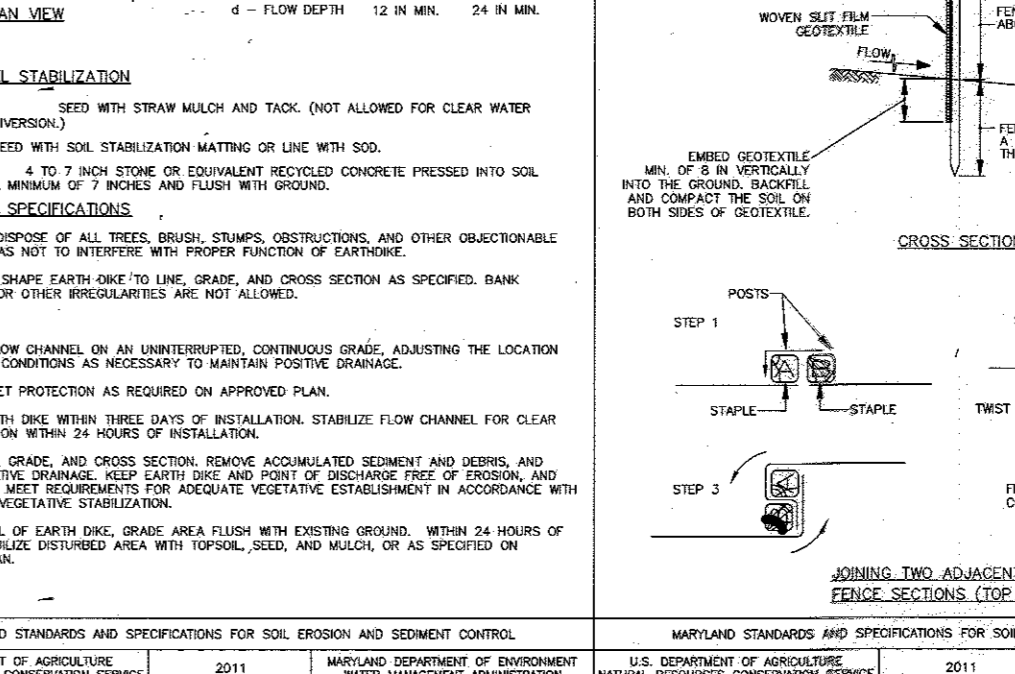
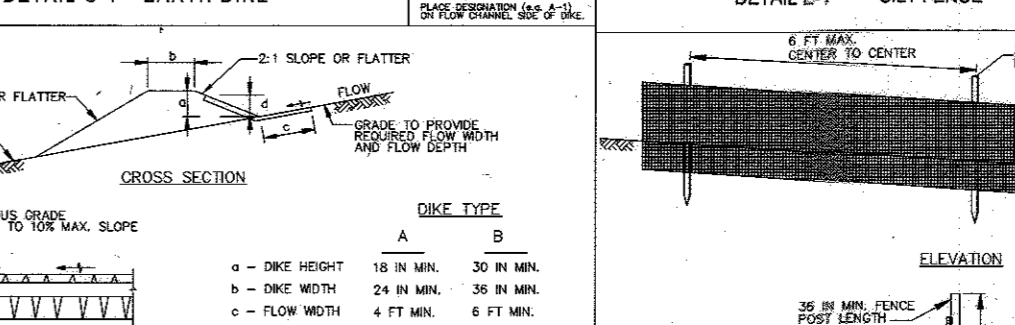
#### NOTES:

- SELECT TURFGRASS VARIETIES FROM THOSE LISTED IN THE MOST CURRENT UNIVERSITY OF MARYLAND PUBLICATION, AGRONOMY WEED #77, "TURFGRASS CULTIVAR RECOMMENDATIONS FOR MARYLAND".
- CHOOSE CERTIFIED MATERIAL. CERTIFIED MATERIAL IS THE BEST GUARANTEE OF CULTIVAR PURITY. THE CERTIFICATION PROGRAM OF THE MARYLAND DEPARTMENT OF AGRICULTURE, TURF AND SEED SECTION, PROVIDES A RELIABLE MEANS OF CONSUMER PROTECTION AND ASSURES A PURE GENETIC LINE.

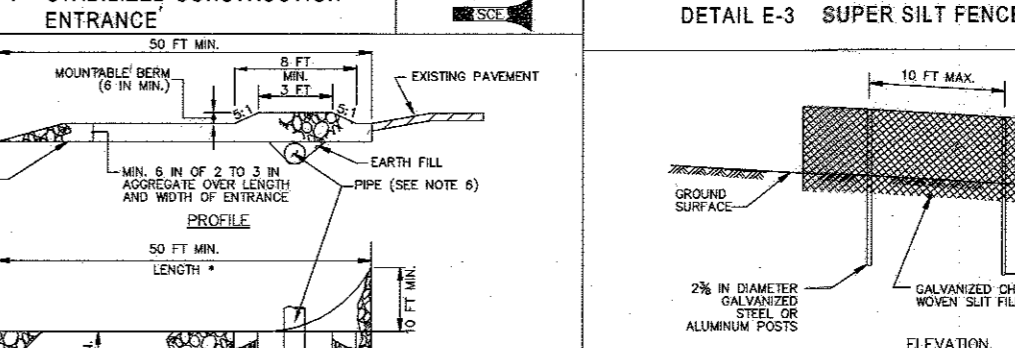
#### IDEAL TIMES OF SEEDING FOR TURF GRASS MIXTURES

- WESTERN MD: MARCH 15 TO JUNE 1, AUGUST 1 TO OCTOBER 1 (HARDNESS ZONE: 5b)
- SOUTHERN MD: MARCH 15 TO MAY 15, AUGUST 15 TO OCTOBER 15 (HARDNESS ZONE: 6b)
- CENTRAL MD/EASTERN SHORE: MARCH 1 TO MAY 15, AUGUST 15 TO OCTOBER 15 (HARDNESS ZONE: 7a, 7b)
- TALL AREAS TO RECEIVE SEED BY DISKING OR OTHER APPROVED METHODS TO A DEPTH OF 2 TO 4 INCHES. LEVEL AND GAZE THE AREAS TO PREPARE A PROPER SEEDING BED.
- REMOVE STONES AND DEBRIS OVER 1/2 INCHES IN DIAMETER. THE RESULTING SEEDING MUST BE IN SUCH CONDITION THAT FUTURE MOWING OF GRASSES WILL POS NO DIFFICULTY.
- IF SOIL MOISTURE IS DEFICIENT, SUPPLY NEW SEEDINGS WITH ADEQUATE WATER FOR PLANT GROWTH (1/2 TO 1 INCH EVERY 3 TO 4 DAYS DEPENDING ON SOIL TEXTURE) UNTIL THEY ARE FULLY ESTABLISHED. THIS IS ESPECIALLY TRUE WHEN SEEDINGS ARE MADE LATE IN THE PLANTING SEASON, IN ANABORNALLY DRY OR HOT SEASONS, OR ON ADVERSE SITES.

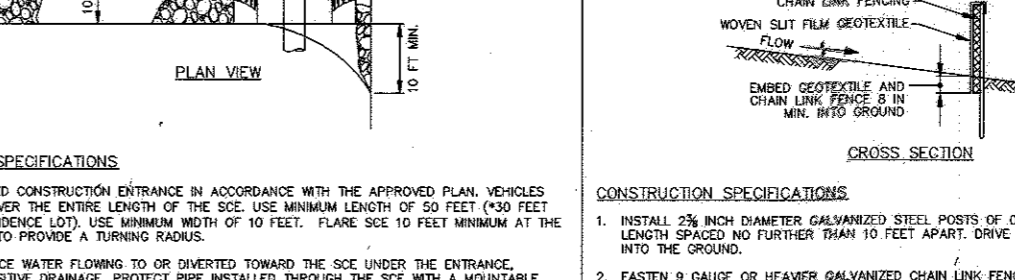
### DETAIL C-1 EARTH DIKE



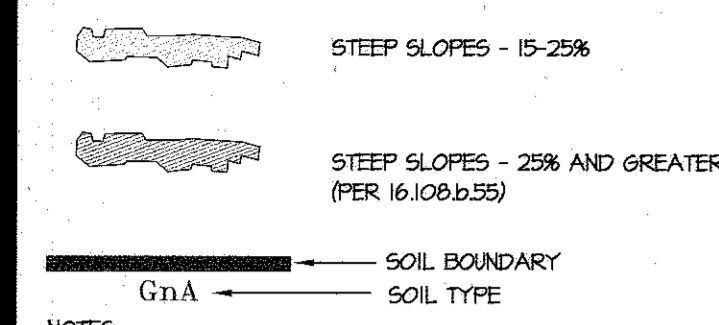
### DETAIL B-1 STABILIZED CONSTRUCTION ENTRANCE



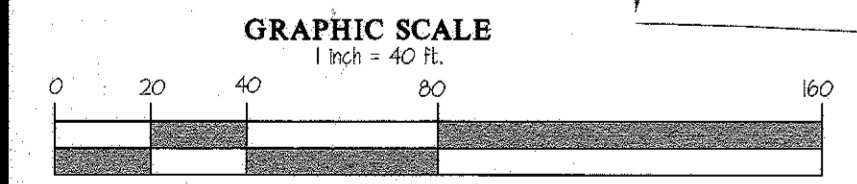
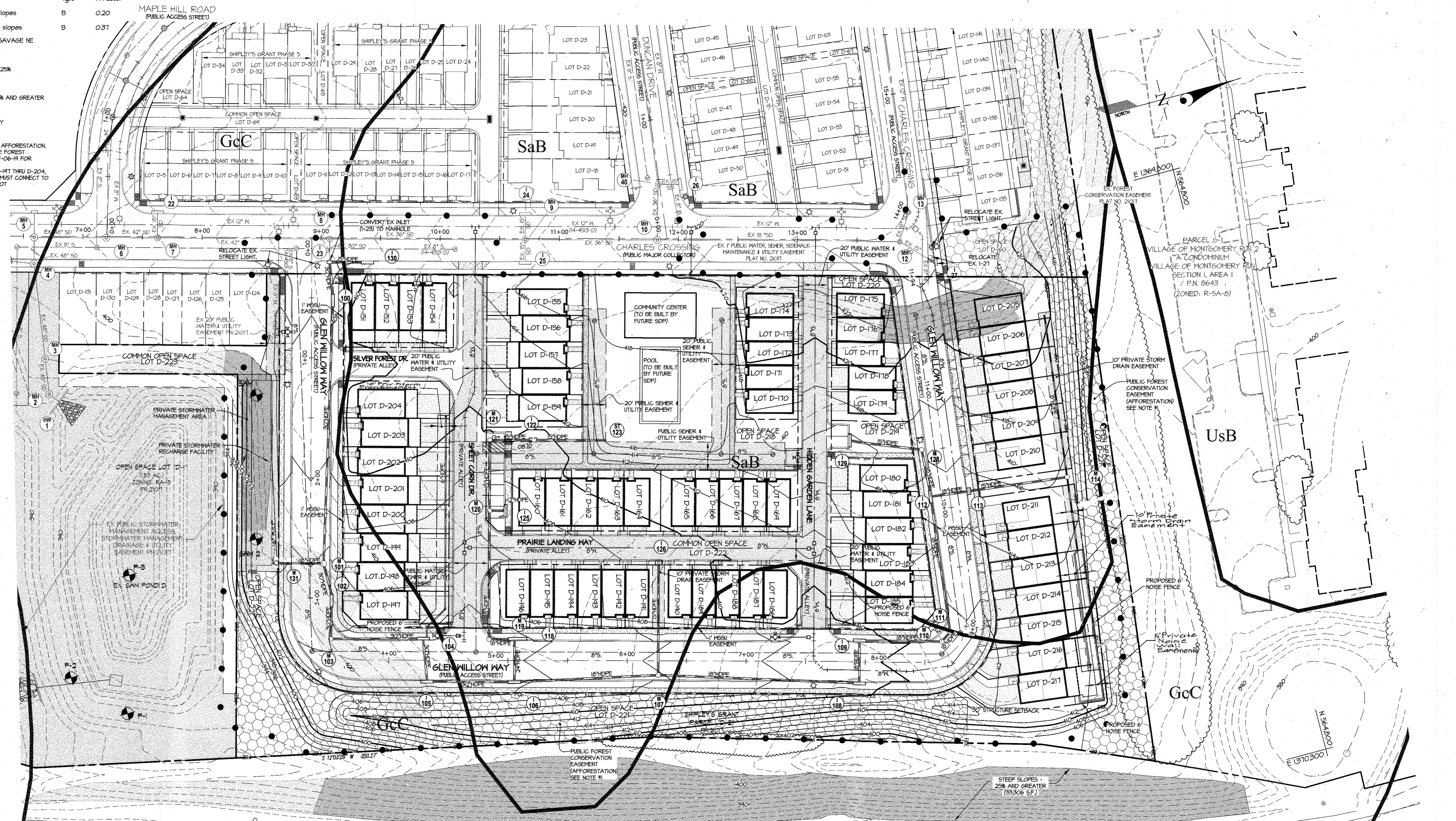
### DETAIL E-3 SUPER SILT FENCE



SOILS (on site)  
 Map Unit Name Type K Factor  
 GgC Glenalg loam, 8 to 15 percent slopes B 0.20  
 SaB Sassafras loam, 2 to 5 percent slopes B 0.37  
 HOWARD COUNTY SOIL MAP NUMBER: 14 - SAVAGE NE



NOTES:  
 1. ALL FOREST CONSERVATION ON PHASE 8 IS AFFORESTATION. ALL GRADINGS SHOWN WILL OCCUR BEFORE THE FOREST CONSERVATION EASEMENT IS PLANTED. SEE F-06-14 FOR ADDITIONAL INFORMATION.  
 2. ALL REAR ROOF DOWNSPOUTS FOR LOTS D-141 THRU D-204, LOTS D-205 THRU D-210, & D-211 THRU D-217 MUST CONNECT TO THE UNDERDRAIN PIPE AT THE BACK OF THE LOT.



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*[Signature]* 12/1/2016  
 Chief, Bureau of Highways Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
*[Signature]* 12-15-16  
 Chief, Division of Land Development Date

*[Signature]* 12-7-16  
 Chief, Development Engineering Division Date

**GLW GUTSCHICK LITTLE & WEBER, P.A.**  
 CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS  
 3909 NATIONAL DRIVE - SUITE 250 - BURTONSVILLE OFFICE PARK  
 BURTONSVILLE, MARYLAND 20866  
 TEL: 301-421-4024 BALT: 410-880-1820 DC/VA: 301-589-2524 FAX: 301-421-4186

DATE	REVISION	BY	APPR.

PREPARED FOR & OWNER:  
 BA WATERLOO TOWNHOUSES, LLC  
 C/O BOZZUTO HOMES, INC.  
 6406 IVY LANE, SUITE 700  
 GREENBELT, MARYLAND 20770  
 ATTN.: CHRIS BLOCK  
 301-623-3672

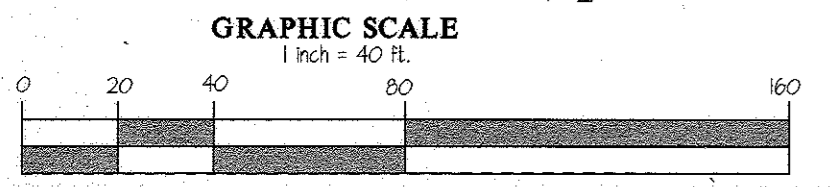
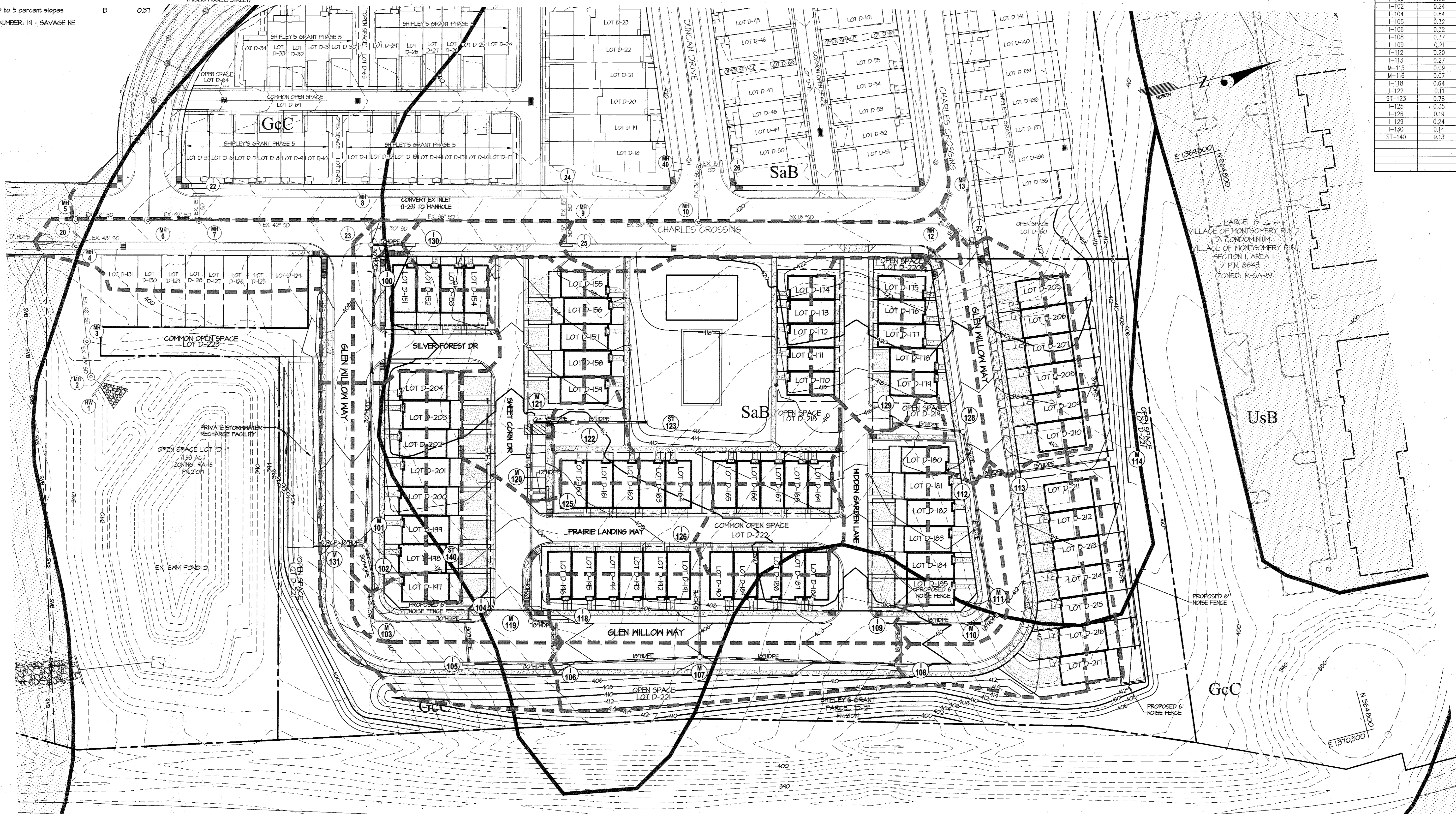
PROFESSIONAL CERTIFICATION  
 I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 12975  
 EXPIRATION DATE: MAY 28, 2018  
 11-9-16 *[Signature]*

**GRADING PLAN**  
**PHASE VIII**  
**SHIPLEY'S GRANT**  
 Lots D-151 - D-217, Open Space Lots D-218 - D-221,  
 Common Open Space Lot D-222 & D-223  
 A Resubdivision of Parcel D-2 (PN: 2107) and Common Open Space Lot D-134 (PN:21720)  
 HOWARD COUNTY, MARYLAND  
 ELECTION DISTRICT No. 1

SCALE	ZONING	G. L. W. FILE NO.
1"=40'	R-A-15	13063
DATE	TAX MAP - GRID	SHEET
NOV, 2016	37- 1&2	7 OF 16

SOILS (on site)  
 Map Unit Name  
 Type K Factor  
 GgC Glenelg loam, 8 to 15 percent slopes  
 B 0.20  
 SaB Sassafras loam, 2 to 5 percent slopes  
 B 0.31  
 HOWARD COUNTY SOIL MAP NUMBER: 14 - SAVAGE NE

C' FACTOR COMPUTATIONS			
STRUCTURE	AREA (AC.)	C'	IMPERVIOUS
I-100	0.25	0.76	85%
I-102	0.24	0.76	85%
I-104	0.54	0.76	85%
I-105	0.32	0.76	85%
I-106	0.32	0.76	85%
I-108	0.37	0.76	85%
I-109	0.21	0.76	85%
I-112	0.20	0.76	85%
I-113	0.27	0.76	85%
M-115	0.09	0.76	85%
M-116	0.07	0.76	85%
I-118	0.64	0.76	85%
I-122	0.11	0.76	85%
ST-123	0.78	0.76	85%
I-125	0.35	0.76	85%
I-126	0.19	0.76	85%
I-129	0.24	0.76	85%
I-130	0.14	0.76	85%
ST-140	0.13	0.86	100%



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*[Signature]* 12/12/2016  
 Chief, Bureau of Highways Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
*[Signature]* 12-15-16  
 Chief, Division of Land Development Date

*[Signature]* 12-7-16  
 Chief, Development Engineering Division Date

**GLW GUTSCHICK LITTLE & WEBER, P.A.**  
 CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS  
 3909 NATIONAL DRIVE - SUITE 250 - BURTONSVILLE OFFICE PARK  
 BURTONSVILLE, MARYLAND 20866  
 TEL: 301-421-4024 FAX: 301-421-4186

DATE	REVISION	BY	APP'R.

PREPARED FOR & OWNER:  
 BA WATERLOO TOWNHOUSES, LLC  
 C/O BOZUTTO HOMES, INC.  
 6406 IVY LANE, SUITE 700  
 GREENBELT, MARYLAND 20770  
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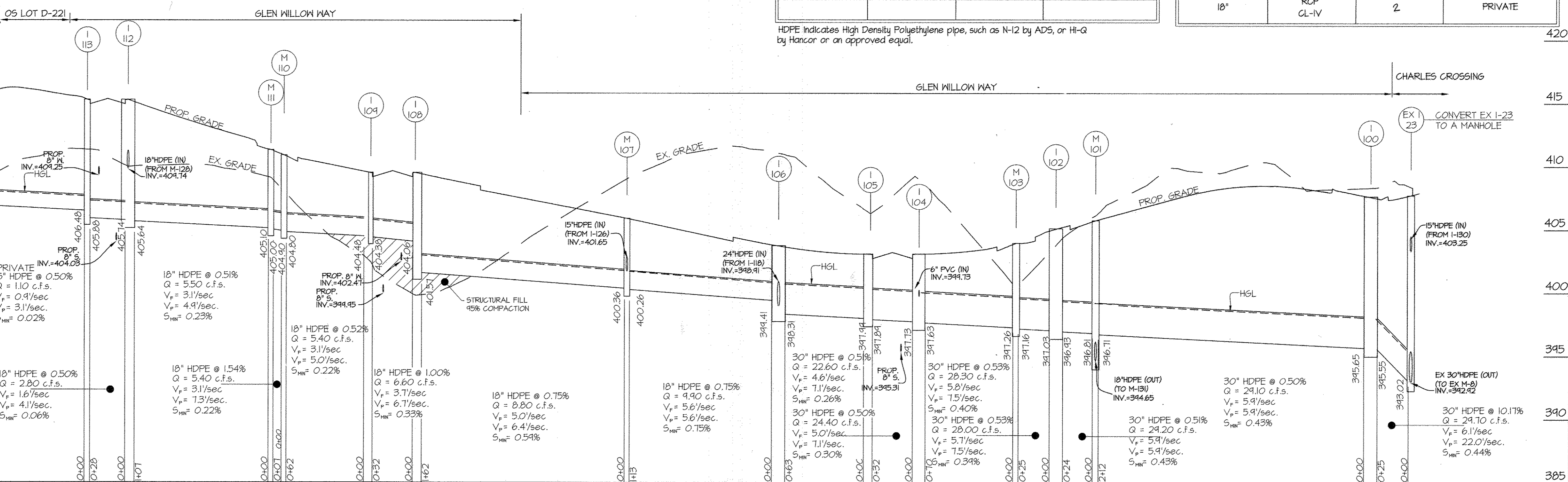
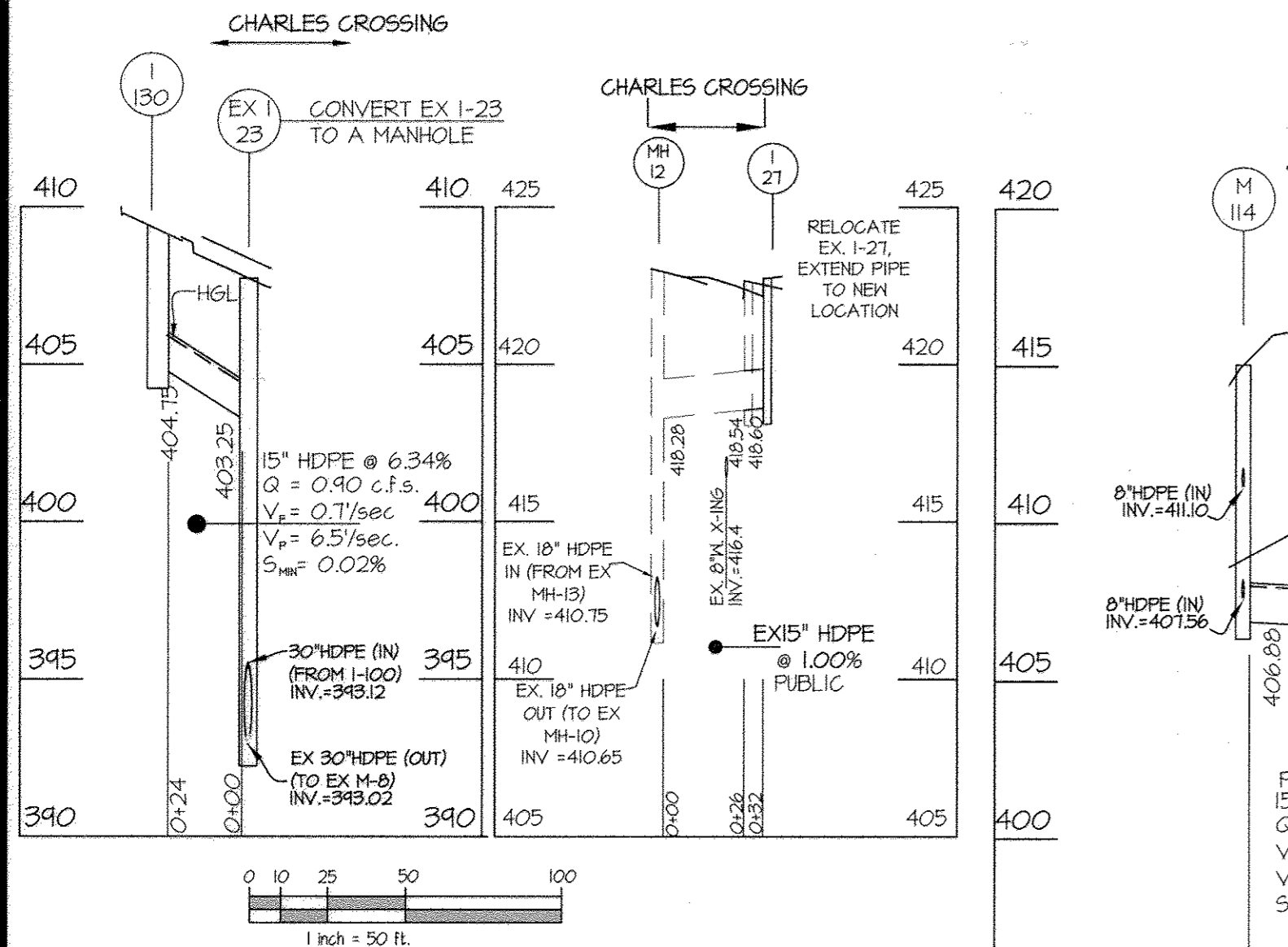
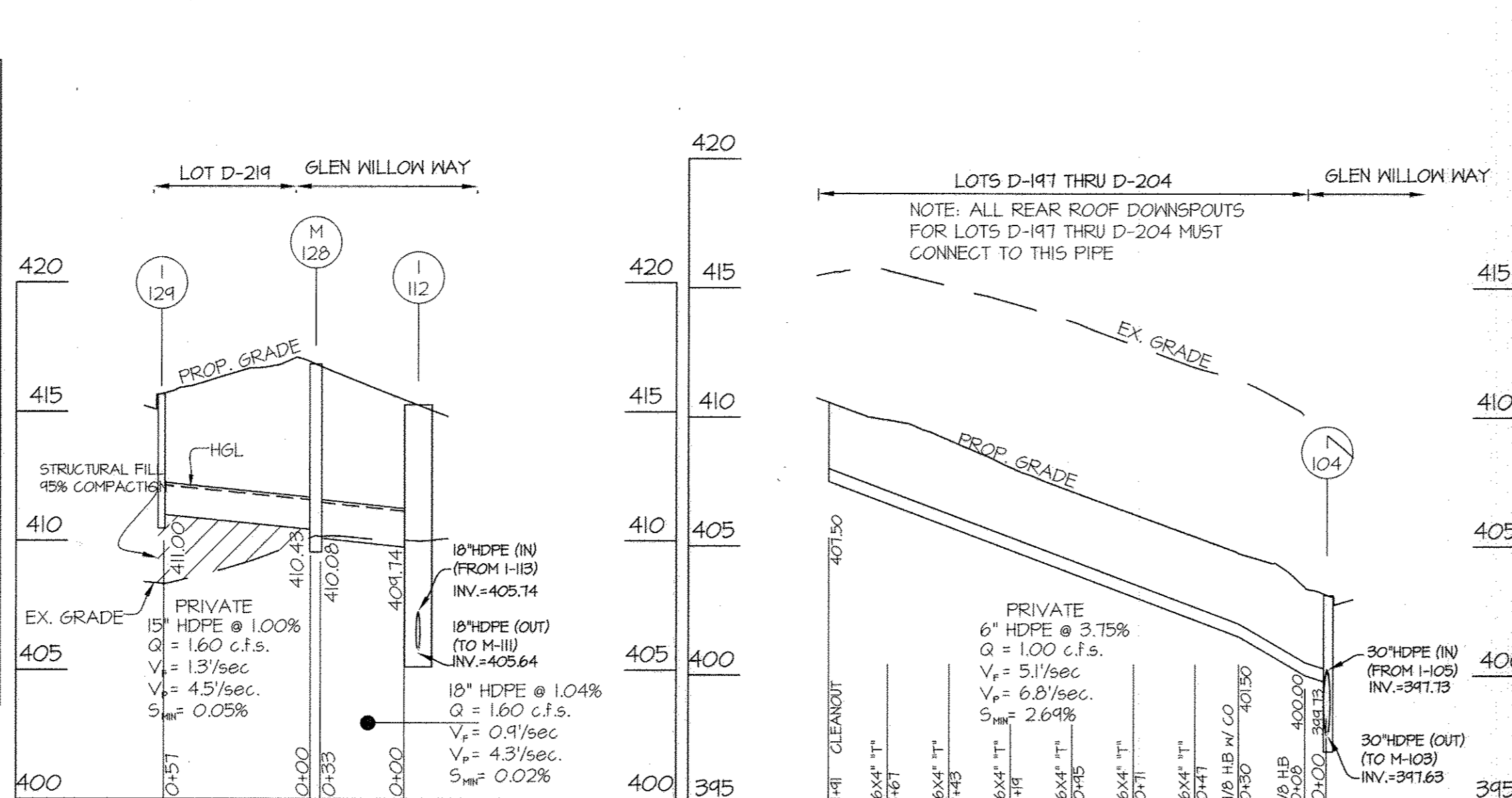
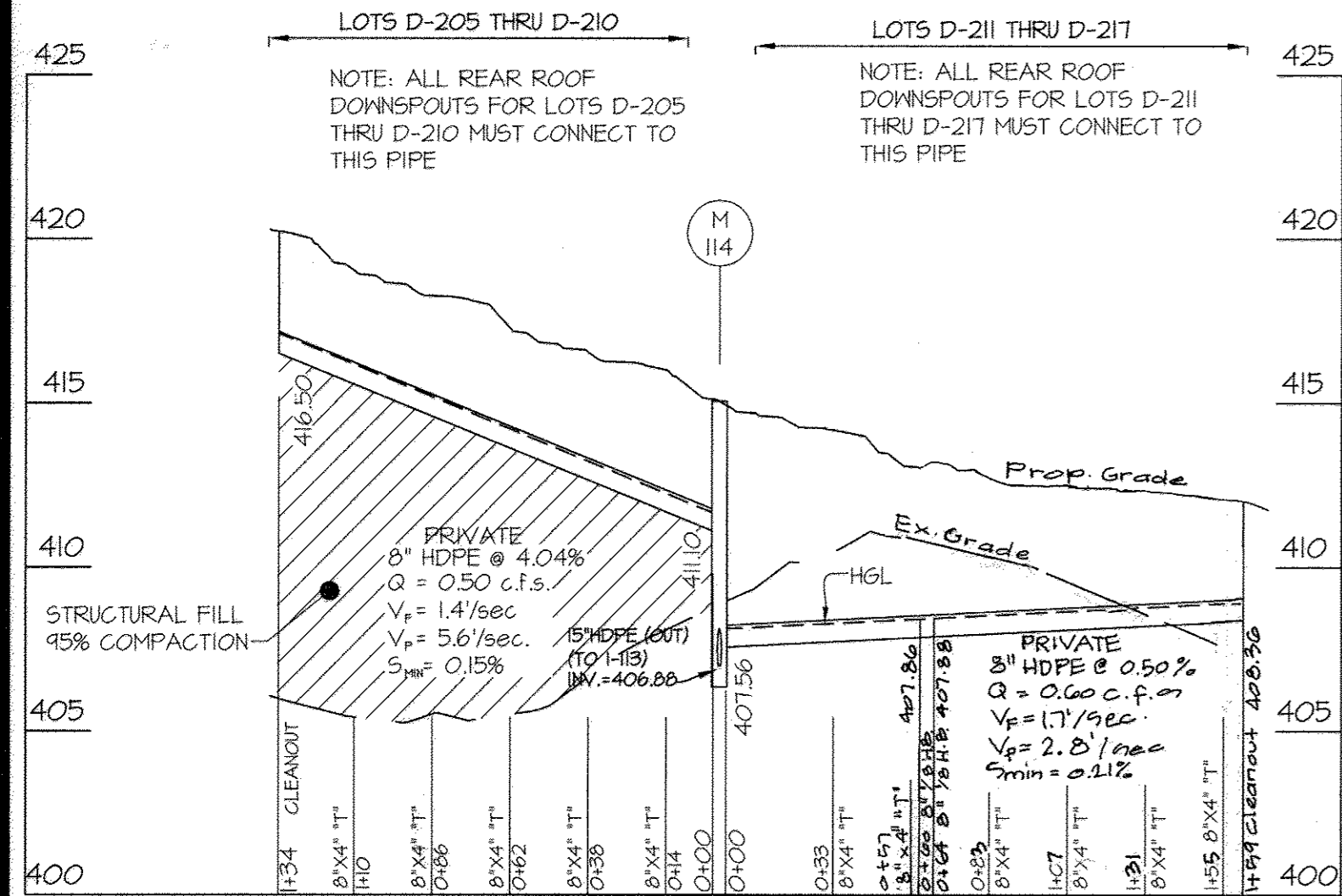
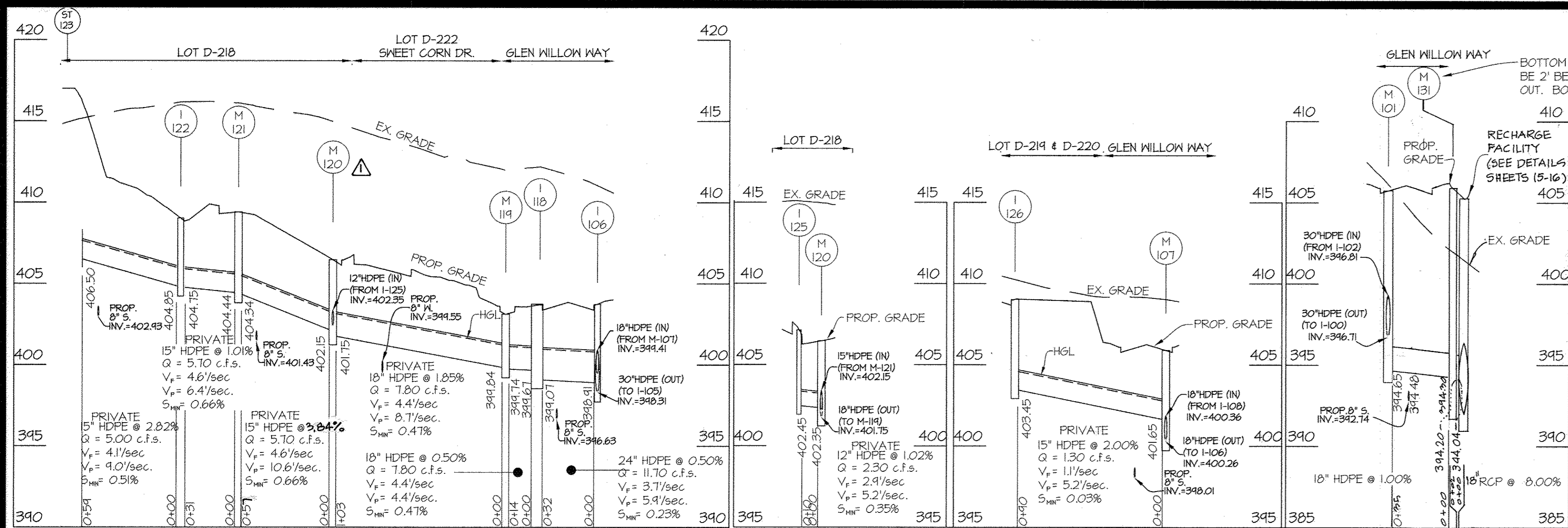
PROFESSIONAL CERTIFICATION  
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 EXPIRATION DATE: MAY 26, 2018  
 11-9-16 *[Signature]*

**STORM DRAIN DRAINAGE AREA MAP**  
**PHASE VIII**  
**SHIPLEY'S GRANT**  
 Lots D-151 - D-217, Open Space Lots D-218 - D-221,  
 Common Open Space Lot D-222 & D-223  
 A Resubdivision of Parcel D-2 (PN: 21017) and Common Open Space Lot D-134 (PN:21720)  
 HOWARD COUNTY, MARYLAND

LEGEND		
	STORM DRAIN DRAINAGE DIVIDE	
	'B' TYPE SOILS	
	'D' TYPE SOILS	
	Fa	

SCALE	ZONING	G. L. W. FILE NO.
1"=40'	R-A-15	13063
DATE	TAX MAP - GRID	SHEET
NOV., 2016	37- 1&2	8 OF 16





NO	TYPE	WIDTH (INSIDE)	TOP ELEVATION						STD. DETAIL	REMARKS	LOCATIONS
			PROPOSED		AS-BUILT		INVERT				
			UPPER	LOWER	UPPER	LOWER	UPPER	LOWER			
I-100	COG-10	4'	401.96	401.75			395.65	395.55	MD-314.31	PUBLIC	
M-101	MANHOLE	5'	405.73				396.81	394.65	HO. CO. 6.513	PUBLIC / SEE SHEET 3 FOR INVERTED SIFON DETAIL	
I-102	COG-10	4'	405.46	405.18			397.03	396.43	MD-314.31	PUBLIC	
M-103	MANHOLE	5'	403.95				397.26	397.16	HO. CO. 6.513	PUBLIC	
I-104	A-10	4'	403.33	403.33			399.73	397.63	HO. CO. D.4.03	PUBLIC	
I-105	A-10	4'	403.33	403.33			397.99	397.89	HO. CO. D.4.03	PUBLIC	
I-106	A-10	4'	404.06	403.88			399.41	398.31	HO. CO. D.4.03	PUBLIC	
M-107	MANHOLE	4'	405.89				401.65	400.26	HO. CO. 6.512	PUBLIC	
I-108	A-10	2'-6"	404.85	404.63			404.06	401.51	HO. CO. D.4.03	PUBLIC	
I-109	A-10	2'-6"	404.85	404.63			404.48	404.38	HO. CO. D.4.03	PUBLIC	
M-110	MANHOLE	4'	410.87				404.90	404.80	HO. CO. 6.512	PUBLIC	
M-111	MANHOLE	4'	411.29				405.10	405.00	HO. CO. 6.512	PUBLIC	
I-112	A-10	2'-6"	415.74	415.30			409.74	405.64	HO. CO. D.4.03	PUBLIC	
I-113	A-5	2'-6"	415.61	415.41			406.48	405.88	HO. CO. D.4.01	PUBLIC	
M-114	MANHOLE	4'	415.10				411.10	406.88	HO. CO. 6.512	PRIVATE	
I-116	COG-15	3'	404.17	403.88			399.67	399.07	MD-314.31	PUBLIC	
M-119	MANHOLE	4'	403.10				399.84	399.74	HO. CO. 6.512	PUBLIC	
M-120	MANHOLE	4'	406.46				402.35	401.75	HO. CO. 6.512	PRIVATE	
M-121	MANHOLE	4'	409.67				404.44	404.34	HO. CO. 6.512	PRIVATE	
I-122	DOUBLE 5	2'-7.5"	408.70				404.85	404.75	HO. CO. D.4.23	PRIVATE	
I-125	A-10	2'-6"	407.15	406.53			402.45		HO. CO. D.4.03	PRIVATE	
I-126	A-5	2'-6"	409.32	409.20			403.45		HO. CO. D.4.01	PRIVATE	
M-128	MANHOLE	4'	416.83				410.43	410.08	HO. CO. 6.512	PUBLIC	
I-129	A-10	2'-6"	415.97	415.33			411.00		HO. CO. D.4.03	PRIVATE	
I-130	A-10	2'-6"	410.05	409.59			404.75		HO. CO. D.4.03	PUBLIC	
M-131	MANHOLE	4'	405.90				399.90	399.20	HO. CO. 6.512	SEE DETAIL SHEET 3 FOR ADDITIONAL INFO	

SIZE	TYPE	QUANTITY (LF)	REMARKS
15"	HDPE	30	PUBLIC
18"	HDPE	599	PUBLIC
24"	HDPE	32	PUBLIC
30"	HDPE	454	PUBLIC

SIZE	TYPE	QUANTITY (LF)	REMARKS
6"	HDPE	191	PRIVATE
8"	HDPE	293	PRIVATE
12"	HDPE	10	PRIVATE
15"	HDPE	374	PRIVATE
18"	HDPE	103	PRIVATE
18"	RCP CL-V	2	PRIVATE

HDPE indicates High Density Polyethylene pipe, such as N-12 by ADS, or H-Q by Hancor or an approved equal.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*[Signature]* 12/1/16  
 Chief, Bureau of Highways

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
*[Signature]* 12-15-16  
 Chief, Division of Land Development

*[Signature]* 12-7-16  
 Chief, Development Engineering Division

**GLWGUTSCHICK LITTLE & WEBER, P.A.**  
 CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS  
 3909 NATIONAL DRIVE - SUITE 250 - BURTONSVILLE OFFICE PARK  
 BURTONSVILLE, MARYLAND 20866  
 TEL: 301-421-4024 BALT: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4166

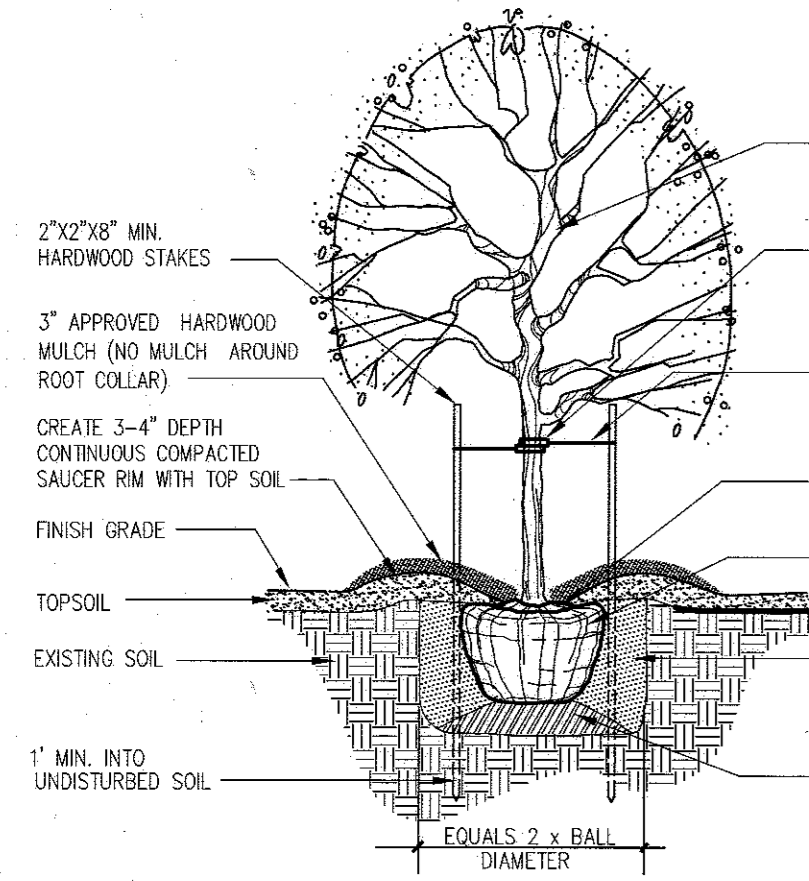
DATE	REVISION	BY	APPR.
02.17.17	M4-112 relocated	JD	DDs

PREPARED FOR & OWNER:  
 BA WATERLOO TOWNHOUSES, LLC  
 C/O BOZUTTO HOMES, INC.  
 6406 IVY LANE, SUITE 700  
 GREENBELT, MARYLAND 20770  
 ATTN: CHRIS BLOCK  
 301-623-3672

PROFESSIONAL CERTIFICATION  
 I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 38715  
 EXPIRATION DATE: MAY 25, 2018  
 11-9-16 *[Signature]*

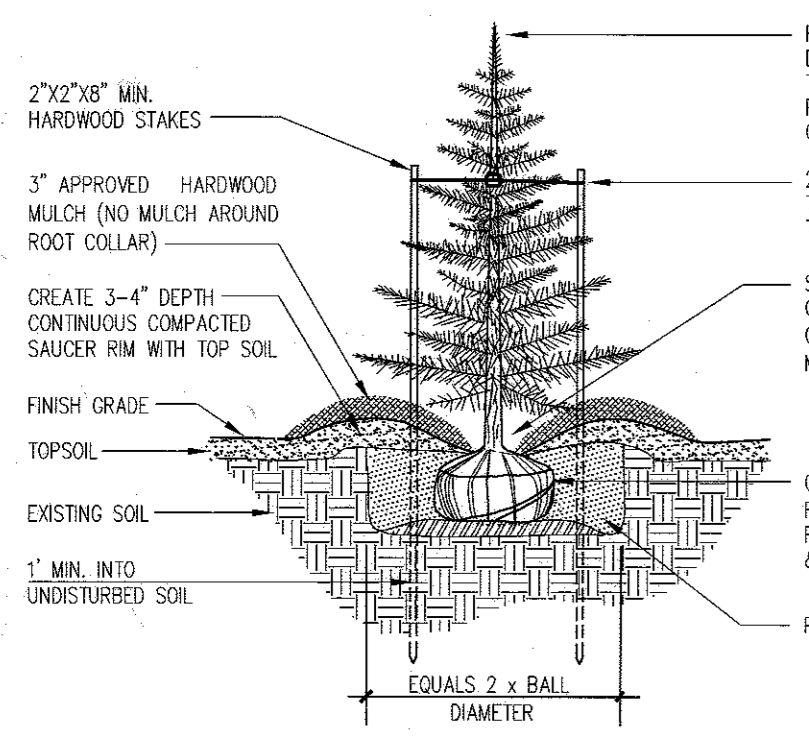
**STORM DRAIN PROFILES**  
 PHASE VIII  
**SHIPLEY'S GRANT**  
 Lots D-151 - D-217, Open Space Lots D-218 - D-221, Common Open Space Lot D-222 & D-223  
 A Resubdivision of Parcel D-2 (PN: 21017) and Common Open Space Lot D-134 (PN:21720)  
 HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE NO.
1" = 50' (H) 1" = 5' (V)	R-A-15	13063
DATE	TAX MAP - GRID	SHEET
NOV, 2016	37-1&2	9 OF 16



NOTE: ALL SUPPORTING DEVICES (STAKES, WIRES, ETC.) SHALL BE REMOVED AFTER 2 GROWING SEASONS.

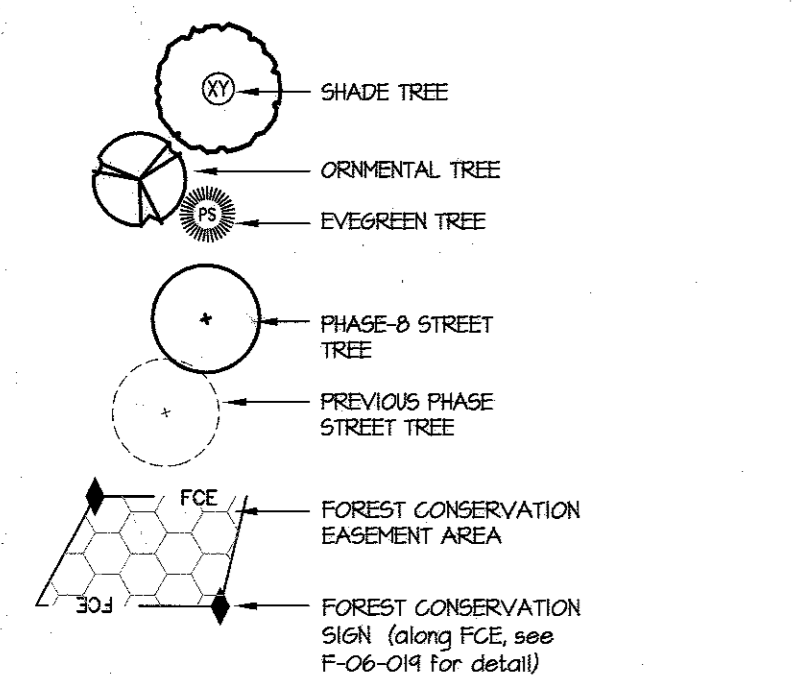
**DECIDUOUS TREE PLANTING DETAIL**  
FOR PLANTING MATERIAL UP TO 3 1/2" CALIPER



NOTE: ALL SUPPORTING DEVICES (STAKES, WIRES, ETC.) SHALL BE REMOVED AFTER 2 GROWING SEASONS.

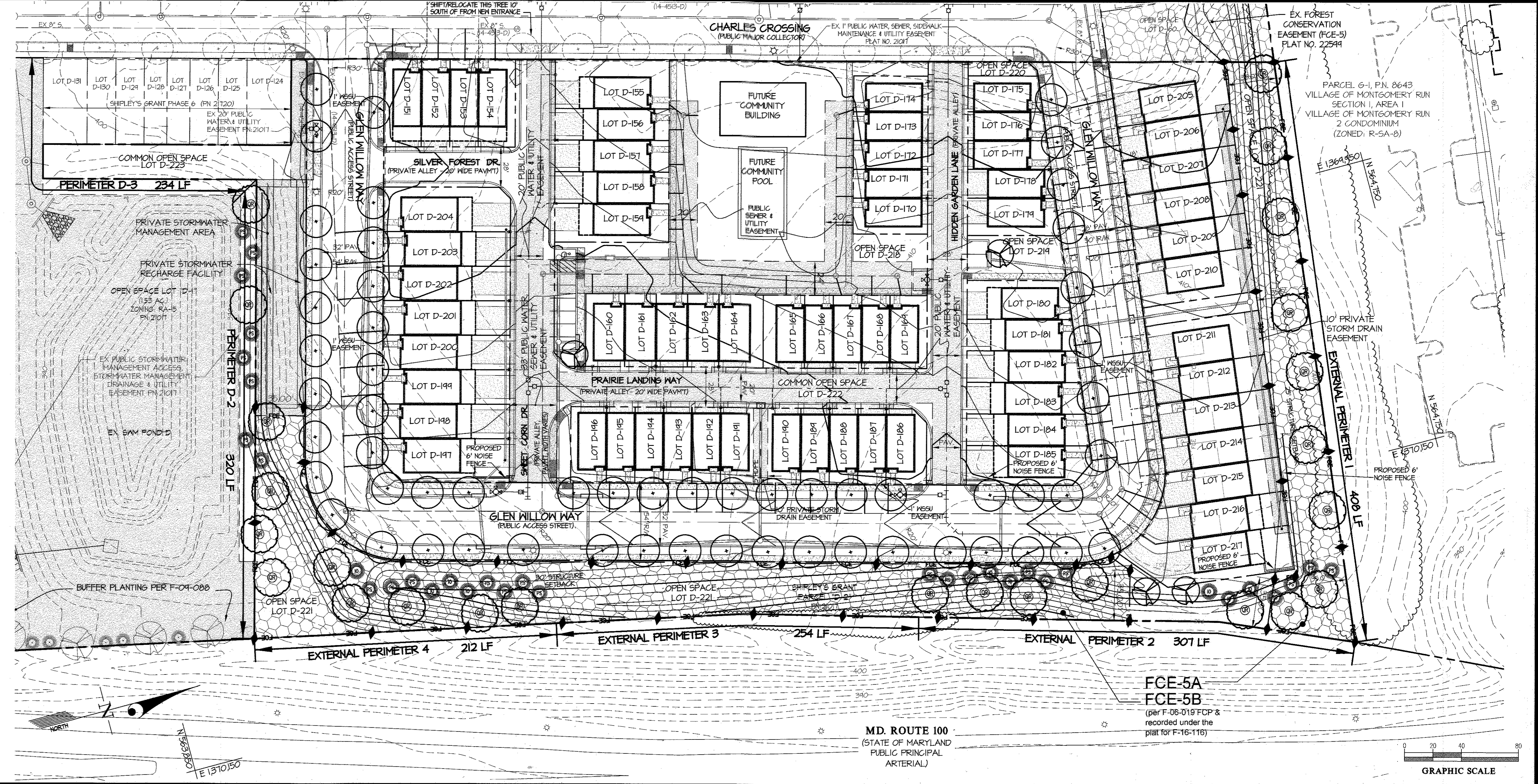
**EVERGREEN TREE PLANTING DETAIL**

**LANDSCAPE LEGEND:**



**LANDSCAPE NOTES**

- THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH SECTION 16.024 OF THE HOWARD COUNTY CODE & THE HOWARD COUNTY LANDSCAPE MANUAL.
- CONTRACTOR SHALL NOTIFY ALL UTILITIES AT LEAST (5) FIVE DAYS BEFORE STARTING WORK. ALL GENERAL NOTES, ESPECIALLY THOSE REGARDING UTILITIES, ON SHEET NO. 1 SHALL APPLY.
- FIELD VERIFY UNDERGROUND UTILITY LOCATIONS AND EXISTING CONDITIONS BEFORE STARTING PLANTING WORK. CONTACT CONSTRUCTION MANAGER OR OWNER IF ANY RELOCATIONS ARE REQUIRED.
- PLANT QUANTITIES SHOWN ON THE PLANT LIST ARE PROVIDED FOR THE CONVENIENCE OF THE CONTRACTOR ONLY. IF DISCREPANCIES EXIST BETWEEN QUANTITIES SHOWN ON THE PLAN AND THOSE SHOWN ON THE PLANT LIST, THE QUANTITIES ON THE PLAN SHALL TAKE PRECEDENCE.
- ALL PLANT MATERIAL SHALL BE FULL, HEAVY, WELL FORMED, SYMMETRICAL AND CONFORM TO THE A.A.N. SPECIFICATIONS. ALL PLANT MATERIAL SHALL BE INSTALLED IN ACCORDANCE WITH THE LANDSCAPE MANUAL.
- AT THE TIME OF PLANT INSTALLATION, ALL SHRUBS AND TREES LISTED AND APPROVED ON THE LANDSCAPE PLAN SHALL COMPLY WITH THE PROPER HEIGHT REQUIREMENT IN ACCORDANCE WITH THE HOWARD COUNTY LANDSCAPE MANUAL. IN ADDITION, NO SUBSTITUTIONS OR RELOCATIONS OF THE REQUIRED PLANTINGS MAY BE MADE WITHOUT PRIOR REVIEW AND APPROVAL FROM THE DEPARTMENT OF PLANNING AND ZONING. ANY DEVIATION FROM THE APPROVED LANDSCAPE PLAN MAY RESULT IN DELAY OR DELAY IN THE RELEASE OF LANDSCAPE SURETY UNTIL SUCH TIME AS ALL REQUIRED MATERIALS ARE PLANTED AND/OR REVISIONS ARE MADE TO THE APPLICABLE PLANS.
- ALL AREAS DISTURBED BY CONSTRUCTION ACTIVITIES BUT NOT OTHERWISE PLANTED, PAVED, OR MULCHED SHALL BE SODDERED OR SEEDED IN ACCORDANCE WITH THE PERMANENT SEEDING SPECIFICATION. A MINIMUM OF 4" OF TOPSOIL SHALL BE PROVIDED TO ALL PLANTING AREAS (FOR TOPSOIL SPEC, SEE SHEET 0).
- THE CONTRACTOR SHALL NOTIFY THE OWNER IN WRITING IF HE/SHE ENCOUNTERS SOIL DRAINAGE CONDITIONS THAT MAY BE DETRIMENTAL TO THE GROWTH OF THE PLANTS.
- ALL EXPOSED EARTH WITHIN THE LIMITS OF PLANTING BEDS SHALL BE MULCHED WITH SHREDDED HARDWOOD MULCH PER THE PLANTING DETAILS.
- DO NOT PLANT WITHIN THE PUBLIC WATER, SEWER AND UTILITY EASEMENT.
- THE OWNER, TENANTS AND/OR THEIR AGENTS SHALL BE RESPONSIBLE FOR MAINTENANCE OF THE REQUIRED LANDSCAPING INCLUDING BOTH PLANT MATERIALS AND BERMS, FENCES AND WALLS. ALL PLANT MATERIALS SHALL BE MAINTAINED IN GOOD GROWING CONDITION AND WHEN NECESSARY, REPLACED WITH NEW MATERIALS TO ENSURE CONTINUED COMPLIANCE WITH APPLICABLE REGULATIONS. ALL OTHER REQUIRED LANDSCAPING SHALL BE PERMANENTLY MAINTAINED IN GOOD CONDITION, AND WHEN NECESSARY, REPAIRED OR REPLACED.
- SCHEDULES "A", "B" AND "D" ARE PROVIDED FOR LANDSCAPE SURETY CALCULATION PURPOSES. FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING SHALL BE POSTED TO THE DPW DEVELOPER'S AGREEMENT IN THE AMOUNT OF \$182,000.00 AS FOLLOWS:  
 21 SHADE TREES AT \$800/TREE = \$16,800.00  
 34 EVERGREEN TREES @ \$500/TREE = \$17,000.00
- FOR LANDSCAPE INSPECTION TO OBTAIN THE RELEASE OF THE SURETY, CONTACT HOWARD COUNTY DEPT. OF PLANNING & ZONING AT 410-813-2950. STREET TREES ARE BONDED SEPARATELY THROUGH DPW AND INSPECTED BY CID.



PERIMETER	LAND USE	ADJACENT LAND USE	TYPE OF BUFFER	LINEAR FEET OF ROADWAY FRONTAGE/ PERIMETER	CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET) DESCRIBE BELOW IF NEEDED.	CREDIT FOR WALL, FENCE OR BERM (YES, NO, LINEAR FEET) DESCRIBE BELOW IF NEEDED.	NUMBER OF PLANTS REQUIRED			PLANTS PROVIDED
							SHADE TREES	EVERGREEN TREES	SHRUBS	
EXTERNAL PERIMETER 1	SFA SIDE/REAR	OTHER (APARTMENT)	'A' Buffer	405'	NO	NO	1	0	0	1 SHADE TREES
EXTERNAL PERIMETER 2	SFA SIDE/REAR	ROADWAY	'C' Buffer	307'	NO	NO	0	15	0	7 SHADE, 2 ORN. 4 15 EVG. TREES
EXTERNAL PERIMETER 3	SFA FRONT	ROADWAY	No Buffer	254'	NO	NO	0	0	0	
EXTERNAL PERIMETER 4	SFA SIDE/REAR	ROADWAY	'C' Buffer	212'	NO	NO	5	11	0	5 SHADE 4 11 EVG. TREES

PERIMETER	LAND USE	ADJACENT LAND USE	TYPE OF BUFFER	LINEAR FEET OF ROADWAY FRONTAGE/ PERIMETER	CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET) DESCRIBE BELOW IF NEEDED.	CREDIT FOR WALL, FENCE OR BERM (YES, NO, LINEAR FEET) DESCRIBE BELOW IF NEEDED.	NUMBER OF PLANTS REQUIRED			PLANTS PROVIDED
							SHADE TREES	EVERGREEN TREES	SHRUBS	
SFM PERIMETER D-2	SFM FACILITY	OPEN SPACE/ROADWAY	'B' Buffer	320'	NO	NO	6	0	0	6 SHADE 4 0 EVG. TREES
SFM PERIMETER D-3	SFM FACILITY	RESIDENTIAL	'B' Buffer	234'	NO	NO	5	6	0	DEFERRED TO SITE PLAN FOR LOTS D-124 THRU D-151

NUMBER OF PARKING SPACES	NUMBER OF SHADE TREES REQUIRED (1 PER 10 SPACES)	NUMBER OF ISLANDS REQUIRED	NUMBER OF TREES PROVIDED	OTHER TREES (2) (SUBSTITUTION)	NUMBER OF ISLANDS PROVIDED
4	1	1	0	2	1

BUILDING TYPE	SHADE TREES	SHRUBS	COMMENTS
SINGLE FAMILY ATTACHED	1 SHADE TREE PER SFA LOT (LOTS D-151 THRU D-216) = 65 TREES	NONE REQUIRED	DEFERRED TO SFP
SINGLE FAMILY ATTACHED	B-BUFFER SHALL BE PROVIDED FOR SIDE/REAR OF LOTS ORIENTED TO ROADWAY (LOTS D-151, D-155, D-174, D-175, D-185, D-189) AT SFP PLAN STAGE		DEFERRED TO SFP

THE BUFFERS SHOWN IN THE SCHEDULES ARE IN ACCORDANCE WITH THE LANDSCAPE MANUAL, CHAPTER IV, TABLE-1

BUFFER TYPE	LANDSCAPE CHARACTER	SHADE TREES/LF	EVERGREEN/LF	SHRUBS/LF
A	LIGHT BUFFER	1:60	0	0
B	MODERATE BUFFER	1:50	1:40	0
C	HEAVY BUFFER	1:40	1:20	0

**PUBLIC STREET TREE REQUIREMENTS**

LOCATION	LINEAR FT. (CENTERLINE)	NUMBER OF TREES REQUIRED	NUMBER OF TREES PROVIDED
GLEN WILLOW WAY	1/64	50 (at apprx. 40' o.c. each side)	50

- STREET TREE GENERAL NOTES:
- MAINTAIN THE FOLLOWING MINIMUM DISTANCE WHEN PLANTING STREET TREES:
    - 20' FROM STREET LIGHTS
    - 50' FROM STREET SIGNS AND ROAD INTERSECTIONS
    - 5' FROM A FIRE HYDRANT OR A STORM DRAIN INLET
    - 10' FROM A DRIVEWAY
  - WHEN THE DISTANCE BETWEEN THE CURB AND THE SIDEWALK IS LESS THAN 6-FT., AND WHERE TREES ARE PLANTED CLOSER THAN 3-FT. TO THE SIDEWALK, A BIOLOGIC ROOT BARRIER SHALL BE PROVIDED.

SYMBOL	QTY.	NAMES (BOTANICAL / SCIENTIFIC)	SIZE	ROOT/COMMENTS
(S)	50	ACER NIBERUM / 'Nimbus' / ARMSTRONG COLUMNAR RED MAPLE	2 1/2-3" CAL	B4B (STREET TREE)
(S)	25	QUERCUS RUBRA / NORTHERN RED OAK	2 1/2-3" CAL	B4B
(S)	4	CERCIS CANADENSIS / EASTERN REDBUD	2" CAL. MIN.	B4B
(E)	25	PINUS STROBUS / EASTERN WHITE PINE	6-8' HT.	B4B, Single intact leader
(E)	4	ILEX OPACA / AMERICAN HOLLY	6' HT. MIN.	B4B, Single intact leader

**DEVELOPER'S/BUILDER'S CERTIFICATE**

WE CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE ACCORDING TO THE PLAN, SECTION 16.024 OF THE HOWARD COUNTY CODE AND THE HOWARD COUNTY LANDSCAPE MANUAL. WE FURTHER CERTIFY THAT UPON COMPLETION A LETTER OF LANDSCAPE INSTALLATION ACCOMPANIED BY AN EXECUTED ONE YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.

Cli Bl 11.7.16  
NAME DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
Chief, Bureau of Highways 12/12/2016

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
Chief, Division of Land Development 12.15.16

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
Chief, Development Engineering Division 12.7.16

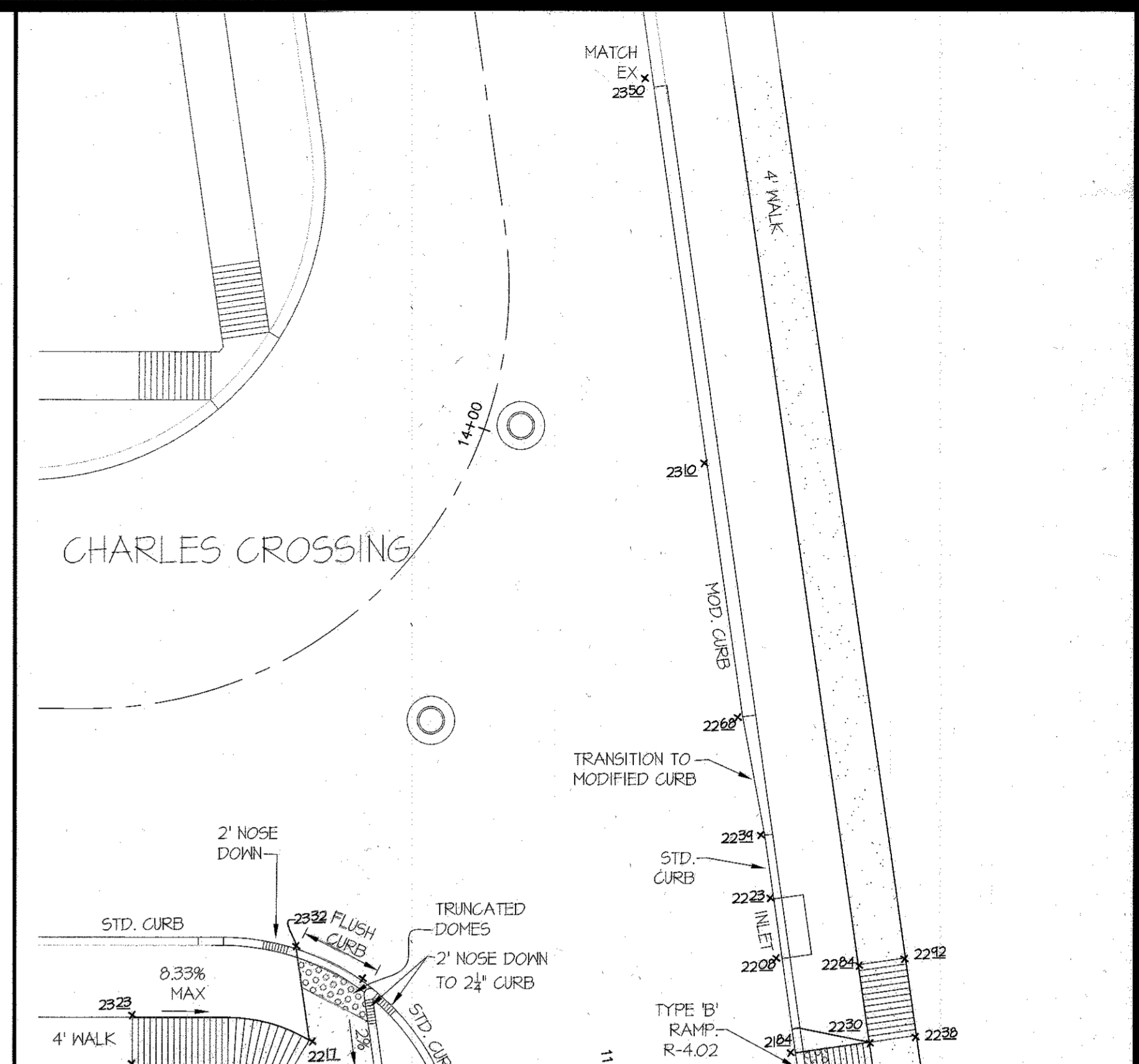
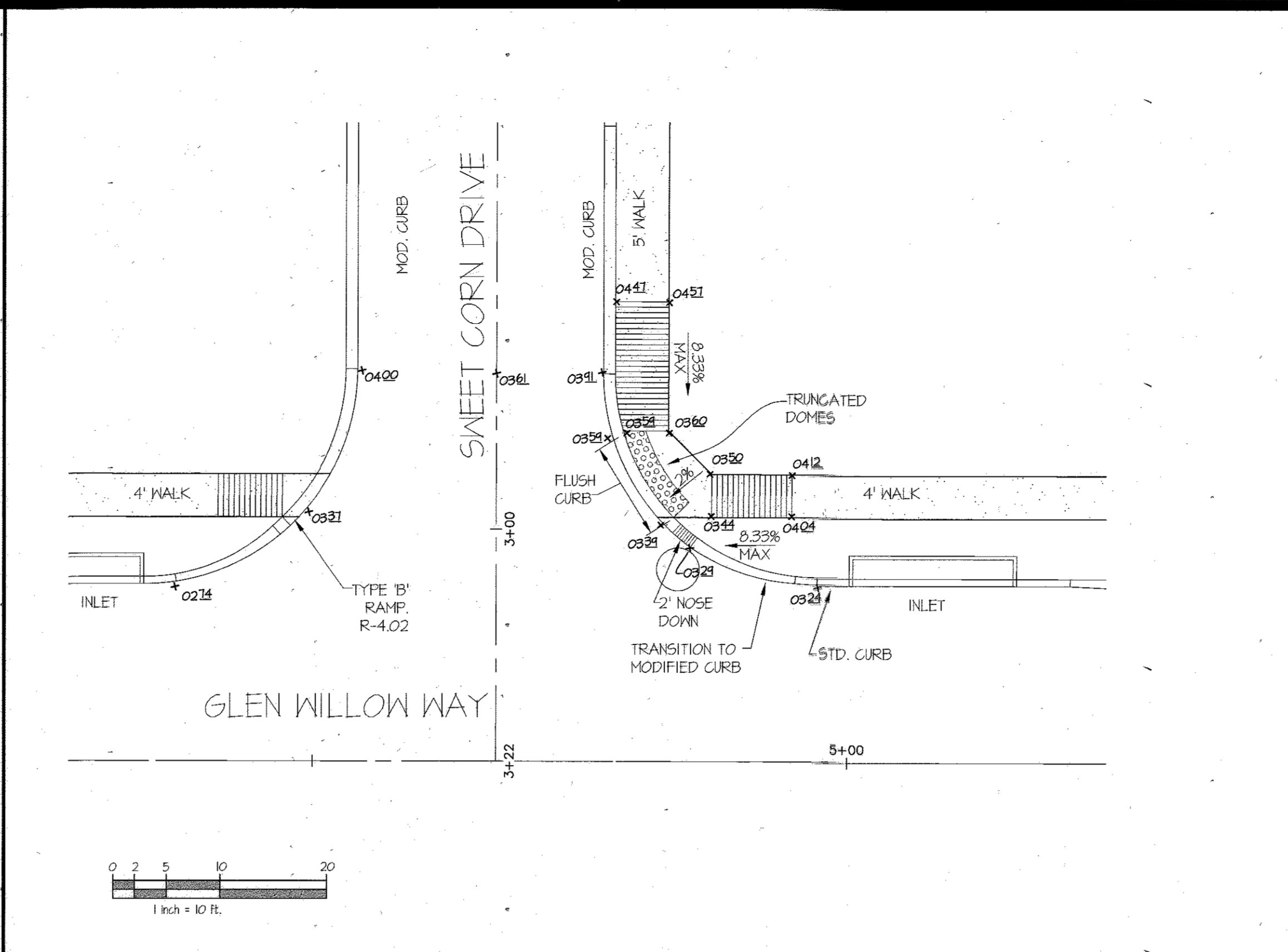
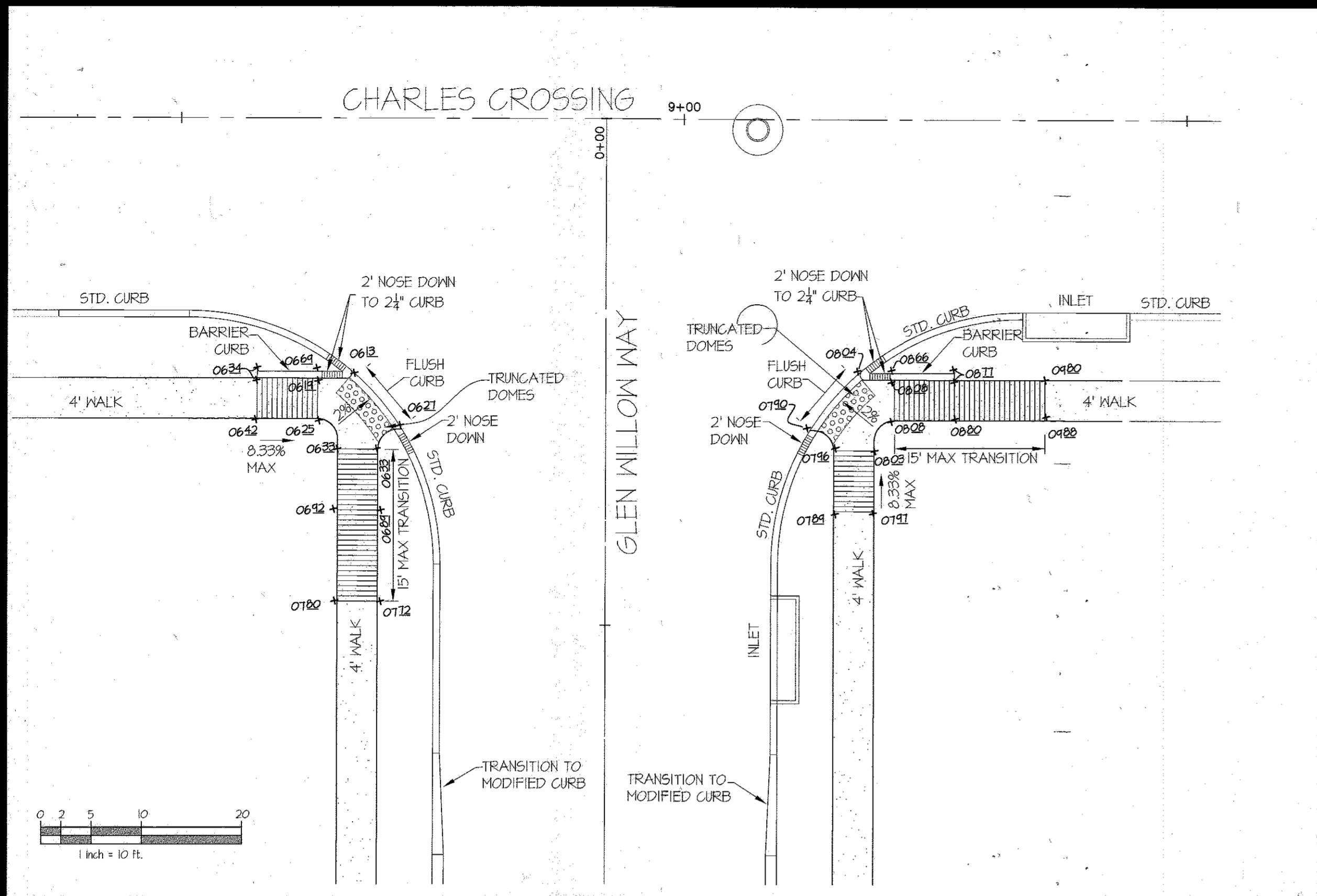
DATE	REVISION	BY	APP'R.

DATE	REVISION	BY	APP'R.

PREPARED FOR & OWNER:  
BA WATERLOO TOWNHOUSES, LLC  
C/O BOZUTTO HOMES, INC.  
6406 IVY LANE, SUITE 700  
GREENBELT, MARYLAND 20770  
ATTN.: CHRIS BLOCK  
301-623-3672

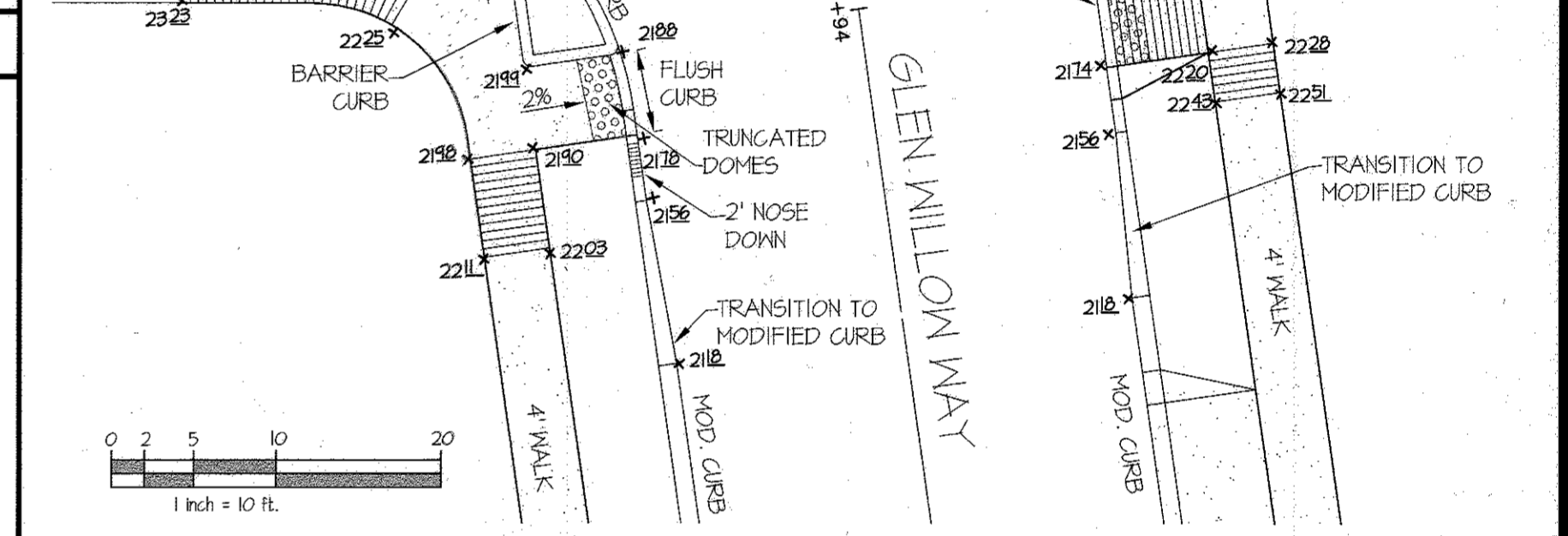
**LANDSCAPE PLAN**  
**PHASE VIII**  
**SHIPLEY'S GRANT**  
Lots D-151 - D-217, Open Space Lots D-218 - D-221,  
Common Open Space Lot D-222 & D-223  
A Resubdivision of Parcel D-2 (PN: 21017) and Common Open Space Lot D-134 (PN:21720)  
ELECTION DISTRICT No. 1  
HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE NO.
1"=40'	R-A-15	13063
DATE	TAX MAP - GRID	SHEET
NOV., 2016	37- 1&2	10 OF 16



1 SIDEWALK RAMP DETAILS SCALE: 1" = 10'

2 SIDEWALK RAMP DETAILS SCALE: 1" = 10'



3 SIDEWALK RAMP DETAILS SCALE: 1" = 10'

**SPECIALIZED ENGINEERING**  
BORING NUMBER SWM-02  
PAGE 1 OF 1

CLIENT: Bozutto Homes, Inc. PROJECT NAME: Shilley Grant Phase 8 SWM Borings  
PROJECT NUMBER: 159498 PROJECT LOCATION: Ellicott City, Maryland  
DATE STARTED: 6/16/15 COMPLETED: 6/16/15 GROUND ELEVATION: 401.47 ft HOLE SIZE: 3.14 in.  
DRILLING CONTRACTOR: Connolly and Associates, Inc. DRILLING METHOD: HSA  
LOGGED BY: J. Powell CHECKED BY: L. Helms

ELEVATION (ft)	DEPTH (ft)	MATERIAL DESCRIPTION	SAMPLE TYPE	SAMPLE DEPTH (ft)	RECOVERY %	BLOW COUNTS (blows/ft)	% < #20 SIEVE	% < #40 SIEVE	SPT N VALUE
400	0.0	TOPSOIL (1")	SS	0.0	100	3-3.3	0	0	0
	1.5	SILTY SAND: brown, fine to coarse grained, trace roots, moist, loose, (SM)	SS	1.5	33	2-3.3	0	0	0
	4.0	SANDY SILT: brownish yellow, trace mica, moist, loose, (ML)	SS	2.5	100	3-3.7	0	0	0
	8.5	SILTY SAND: yellowish brown and pinkish brown, fine to medium grained, moist, medium dense, (SM)	SS	5.0	100	3-5.6	100.0	43	0
	10.0	SILTY SAND: brownish yellow and red, fine to medium grained, moist, medium dense, (SM)	SS	8.5	100	4-8.10	100	16	0
	13.5	SILTY SAND: olive, fine to medium grained, trace fine gravel, moist, medium dense, (SM)	SS	13.5	100	8-12.18	100	30	0
	18.5	SILTY SAND: dark olive with reddish brown, fine to medium grained, moist, medium dense, (SM)	SS	18.5	100	9-11.10	100	24	0
	23.5	SILTY SAND: dark olive and brownish red, fine grained, trace mica, trace quartz gravel, moist, dense, (SM)	SS	23.5	100	12-16.21	100	37	0

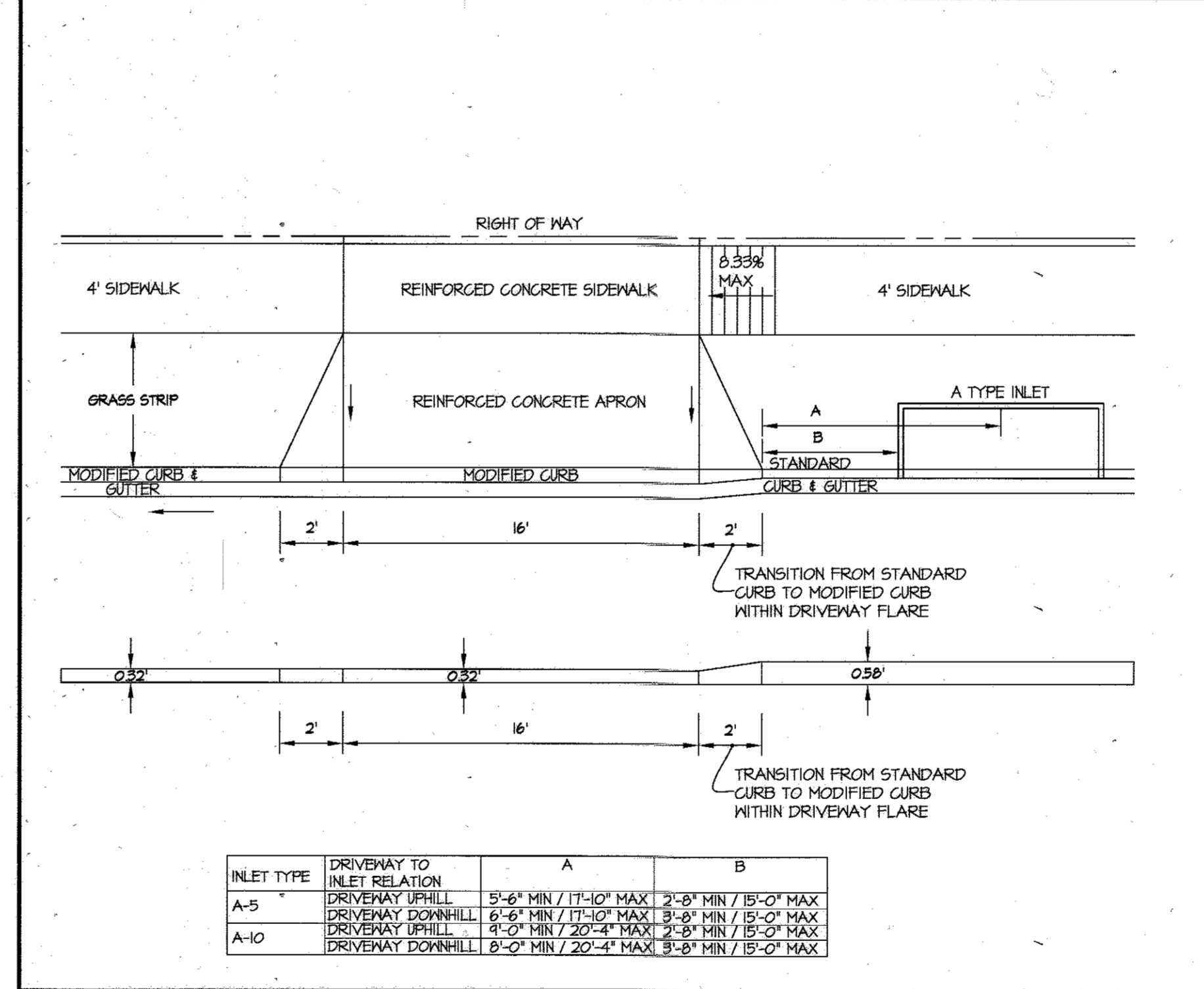
7504 Connolly Drive, Suite G, Hanover, Maryland 21076 (410) 768-4800 / (410) 768-4803 fax

**SPECIALIZED ENGINEERING**  
BORING NUMBER SWM-01  
PAGE 1 OF 1

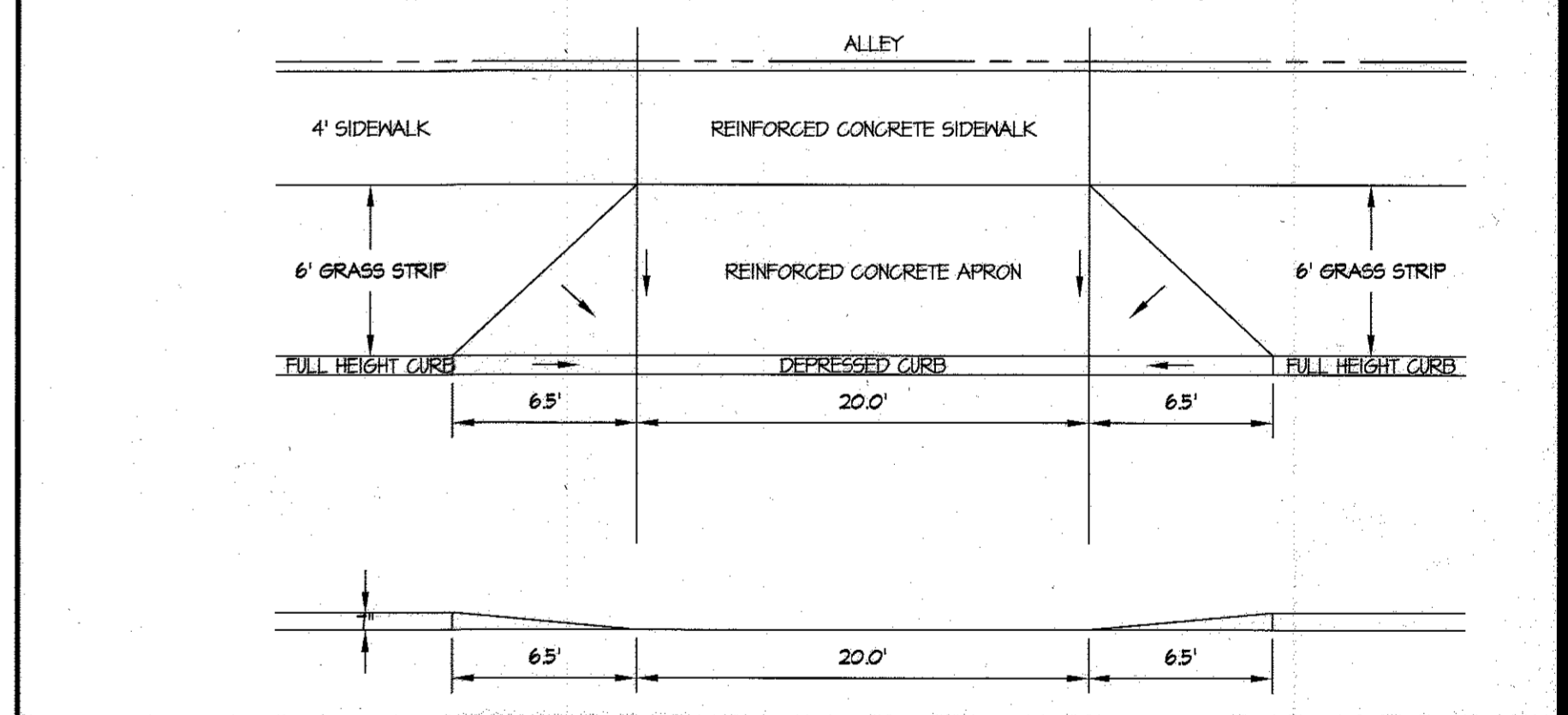
CLIENT: Bozutto Homes, Inc. PROJECT NAME: Shilley Grant Phase 8 SWM Borings  
PROJECT NUMBER: 159498 PROJECT LOCATION: Ellicott City, Maryland  
DATE STARTED: 6/16/15 COMPLETED: 6/16/15 GROUND ELEVATION: 405.07 ft HOLE SIZE: 3.14 in.  
DRILLING CONTRACTOR: Connolly and Associates, Inc. DRILLING METHOD: HSA  
LOGGED BY: J. Powell CHECKED BY: L. Helms

ELEVATION (ft)	DEPTH (ft)	MATERIAL DESCRIPTION	SAMPLE TYPE	SAMPLE DEPTH (ft)	RECOVERY %	BLOW COUNTS (blows/ft)	% < #20 SIEVE	% < #40 SIEVE	SPT N VALUE
400	0.0	TOPSOIL (1")	SS	0.0	100	2-4.4	0	0	0
	1.5	FILL: dark yellowish brown sandy silt, trace gravel, moist, loose	SS	1.5	58	2-4.5	0	0	0
	4.0	SILTY SAND: grayish green with light brownish yellow, fine to medium grained, with mica, moist, loose, (SM)	SS	2.5	100	2-4.5	0	0	0
	8.0	SILTY SAND: reddish yellow, fine grained, trace mica, moist, medium dense, (SM)	SS	5.0	100	5-5.7	100.0	37.3	0
	10.0	SILTY SAND: reddish yellow, fine grained, trace mica, moist, medium dense, (SM)	SS	8.5	100	4-5.8	100	13	0
	13.0	DECOMPOSED ROCK: very dense	SS	13.0	100	14-33.40	100	25.6	0
	18.5	DECOMPOSED ROCK: very dense	SS	18.5	100	33-50.6"	100	50.5"	0

7504 Connolly Drive, Suite G, Hanover, Maryland 21076 (410) 768-4800 / (410) 768-4803 fax



CURB TRANSITION AT DRIVEWAY APRON NO SCALE



ALLEY DRIVEWAY APRON NO SCALE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
 Chief, Bureau of Highways  
 Date: 12/1/2016

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
 Chief, Division of Land Development  
 Date: 12-15-16

Chief, Development Engineering Division  
 Date: 12-7-16

**GLWGUTSCHICK LITTLE & WEBER, P.A.**  
 CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS  
 3909 NATIONAL DRIVE - SUITE 250 - BURTONSVILLE OFFICE PARK  
 BURTONSVILLE, MARYLAND 20866  
 TEL: 301-421-4024 BALT: 410-883-1820 DC/VA: 301-399-2524 FAX: 301-421-4156

DATE	REVISION	BY	APP'R.

DATE	REVISION	BY	APP'R.

PREPARED FOR & OWNER:  
 BA WATERLOO TOWNHOUSES, LLC  
 C/O BOZUTTO HOMES, INC.  
 6406 IYV LANE, SUITE 700  
 GREENBELT, MARYLAND 20770  
 ATTN: CHRIS BLOCK  
 301-623-3672

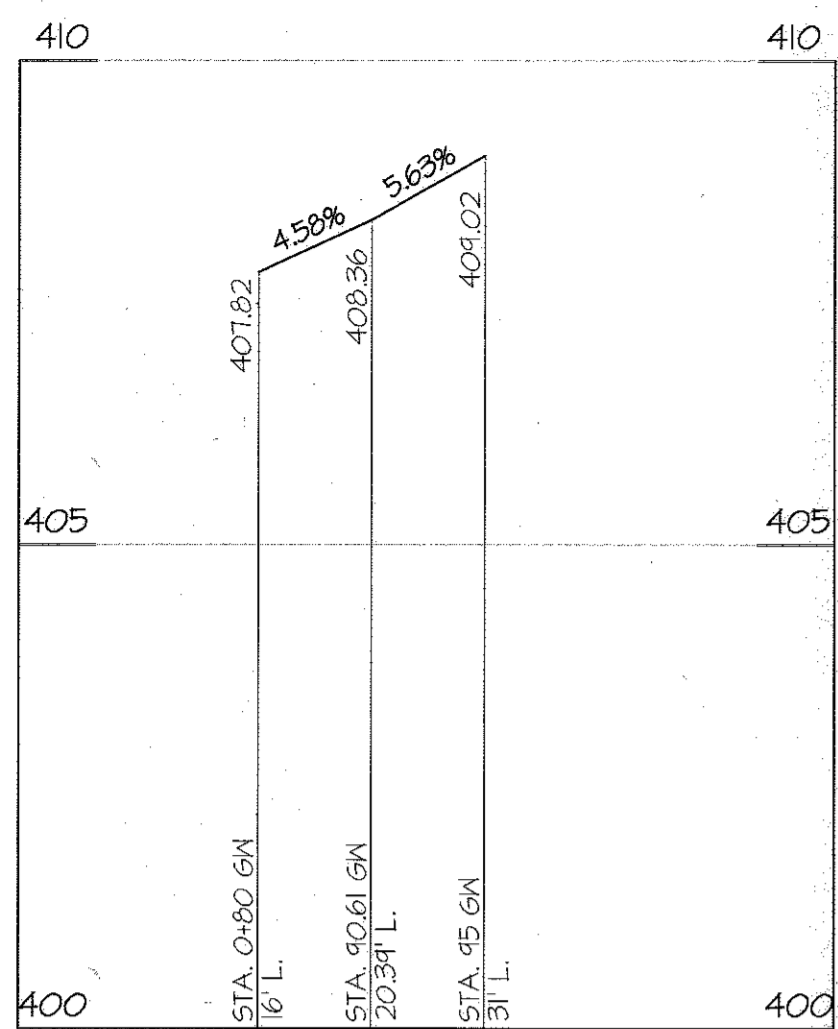
PROFESSIONAL CERTIFICATION  
 I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 12975  
 EXPIRATION DATE: MAY 26, 2018  
 11/16/16

ROAD DETAILS  
 PHASE VIII  
 SHIPLEY'S GRANT  
 Lots D-151 - D-217, Open Space Lots D-218 - D-221,  
 Common Open Space Lot D-222 & D-223  
 A Resubdivision of Parcel D-2 (PN: 21017) and Common Open Space Lot D-134 (PN: 21720)  
 HOWARD COUNTY, MARYLAND

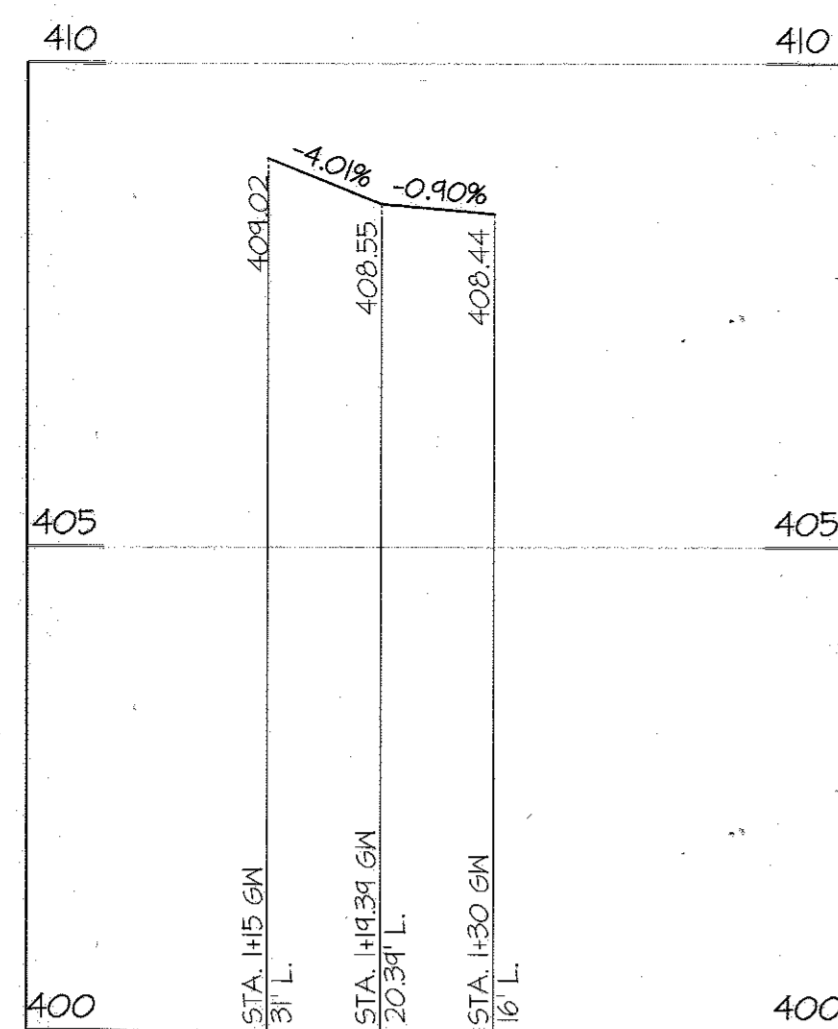
SCALE	ZONING	G. L. W. FILE NO.
AS SHOWN	R-A-15	13063
DATE	TAX MAP - GRID	SHEET
NOV., 2016	37-1&2	11 OF 16

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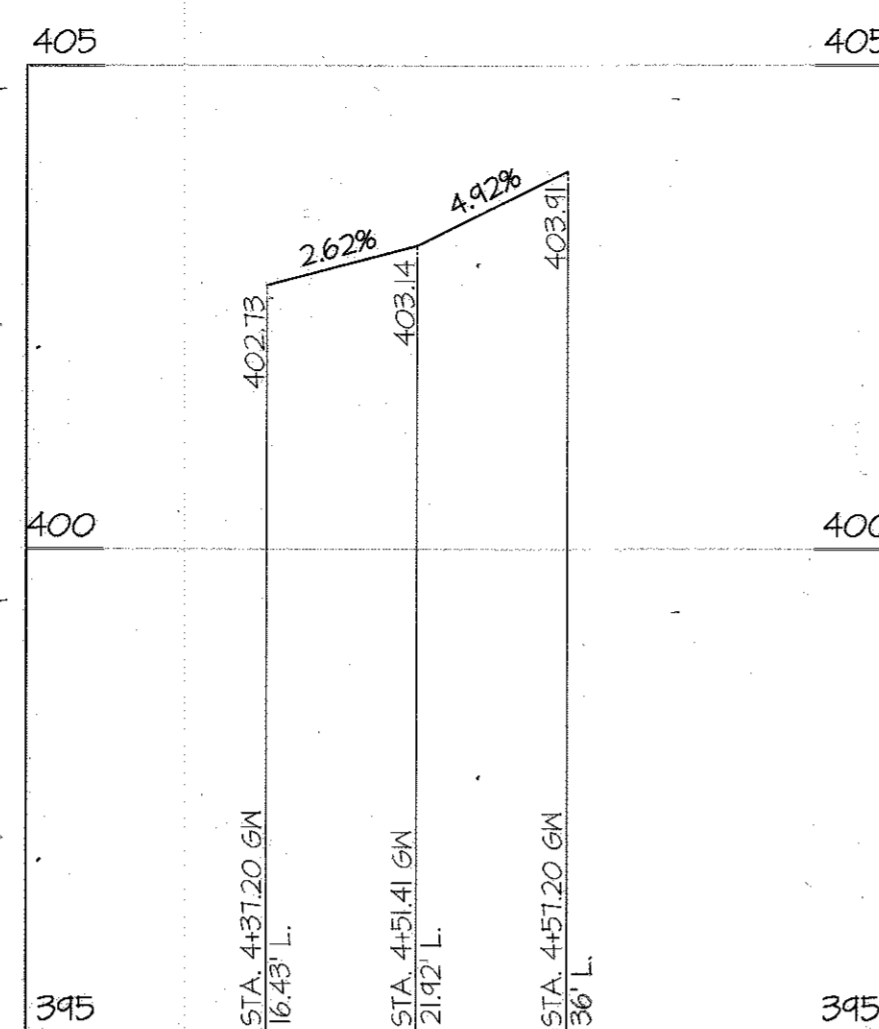
16-116



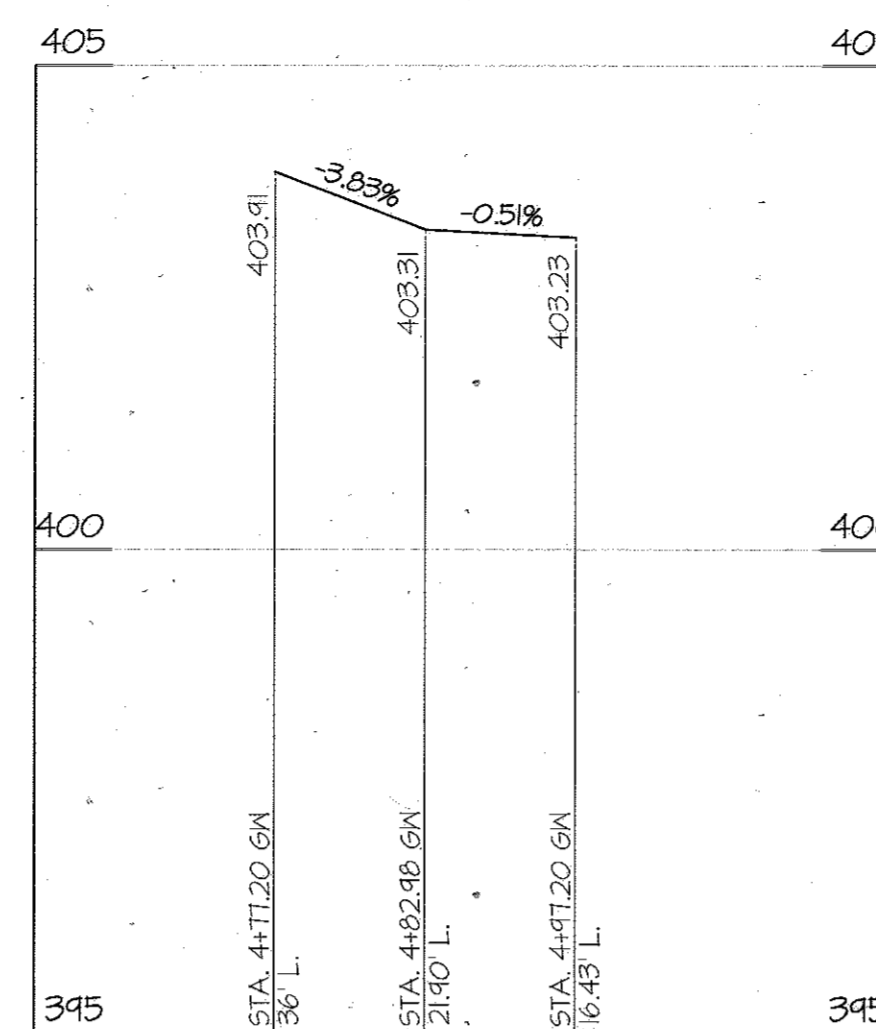
E.O.P. RETURN PROFILE FOR GLEN WILLOW WAY AND ALLEY D (WEST)



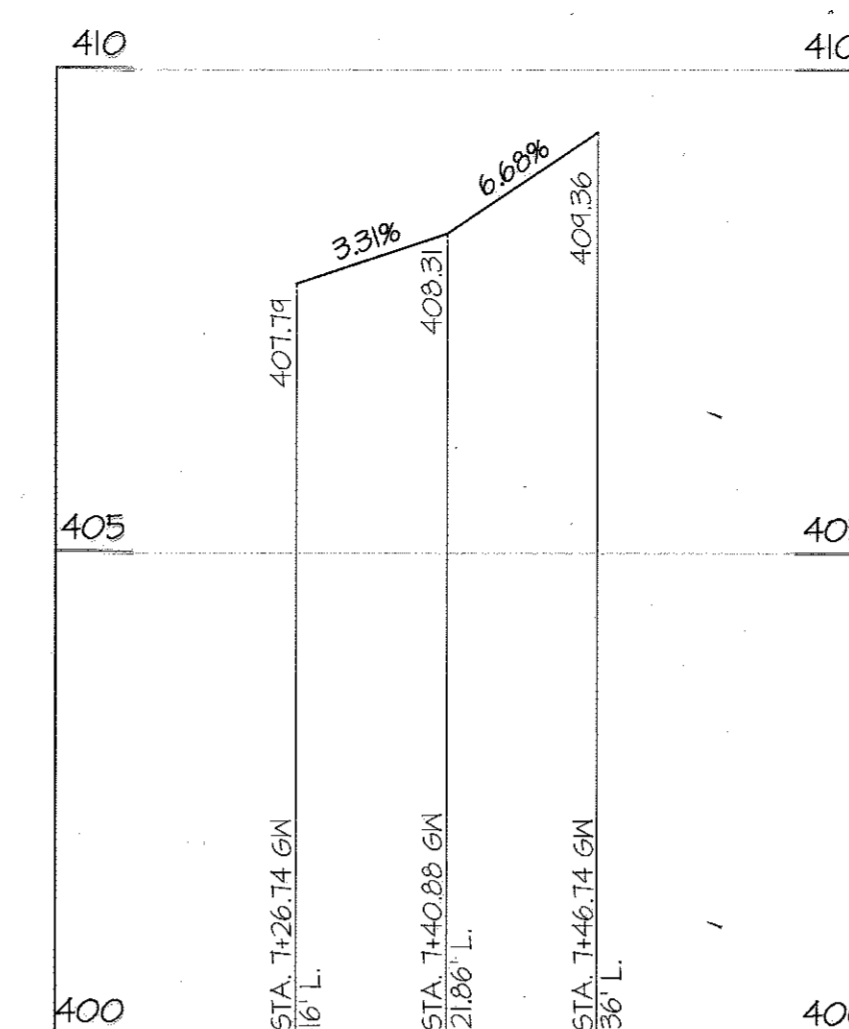
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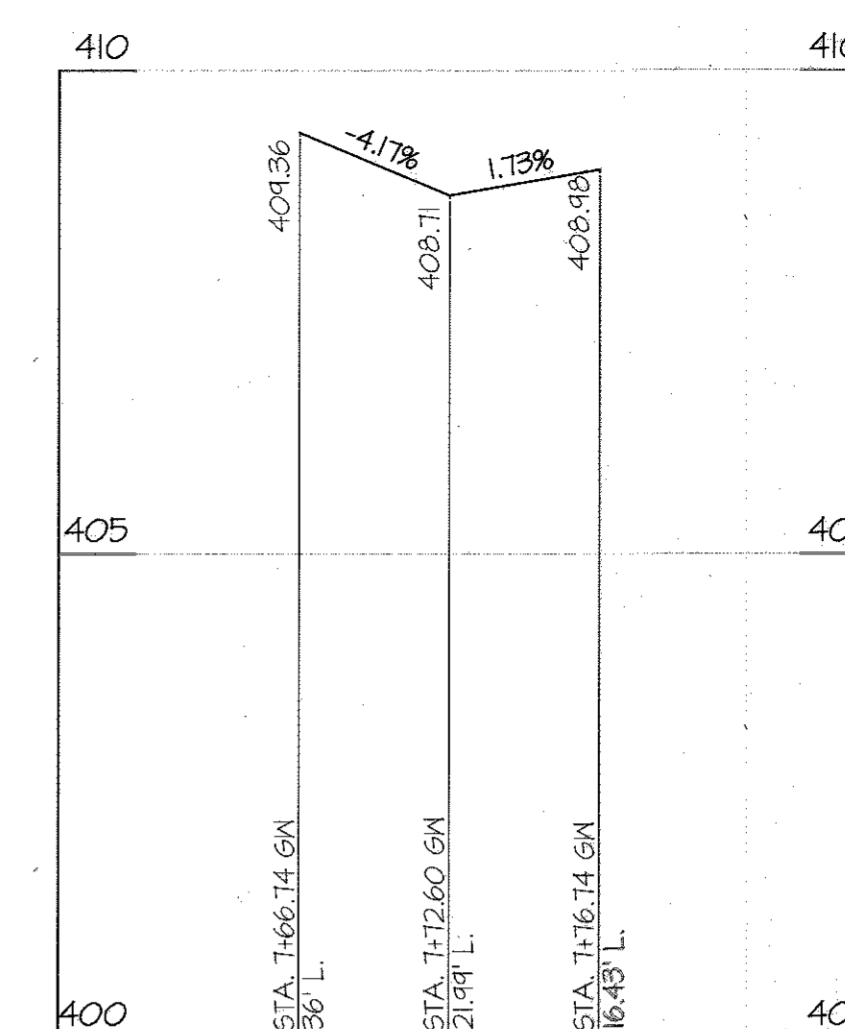
E.O.P. RETURN PROFILE FOR GLEN WILLOW WAY AND ALLEY B (SOUTH)



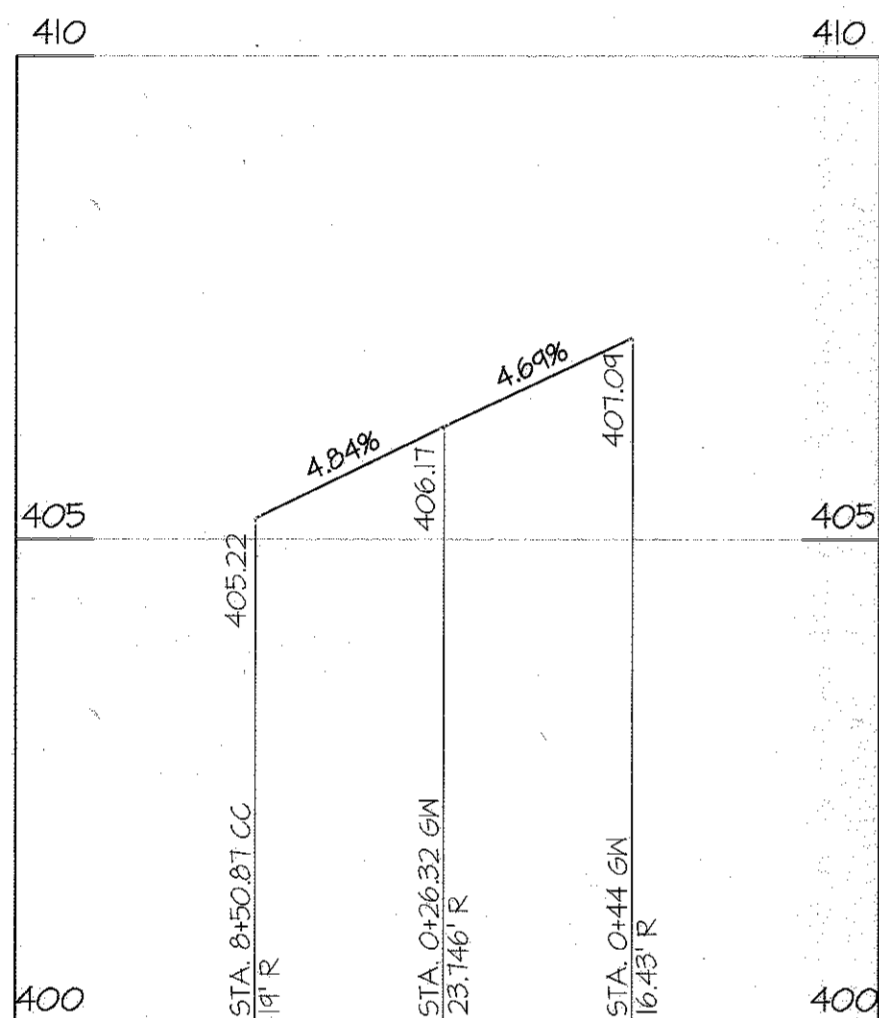
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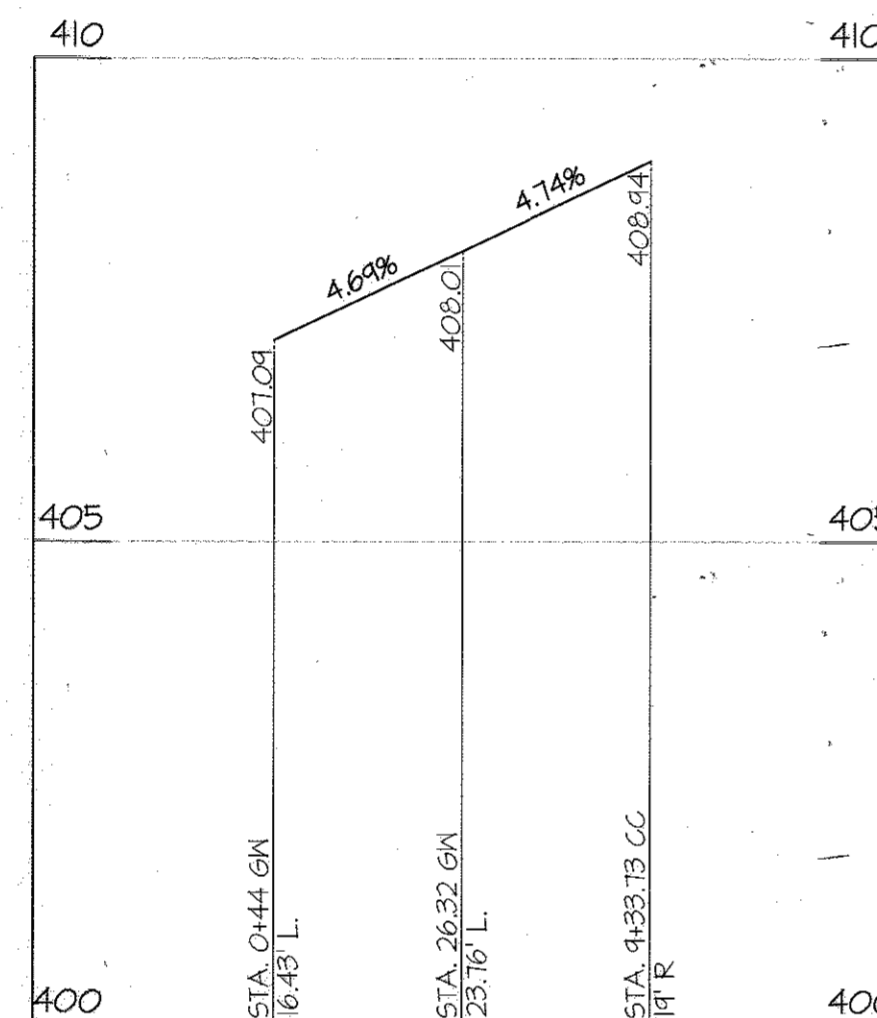
E.O.P. RETURN PROFILE FOR GLEN WILLOW WAY AND HIDDEN GARDEN LANE (SOUTH)



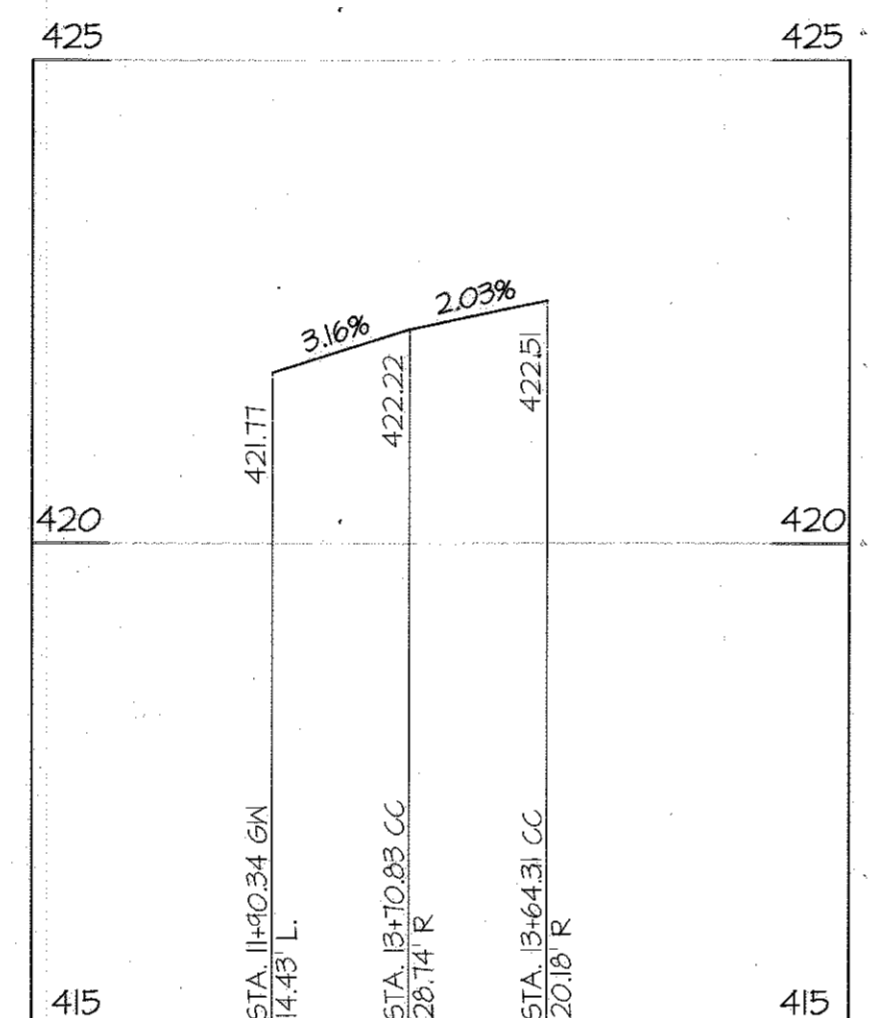
E.O.P. RETURN PROFILE FOR GLEN WILLOW WAY AND HIDDEN GARDEN LANE (NORTH)



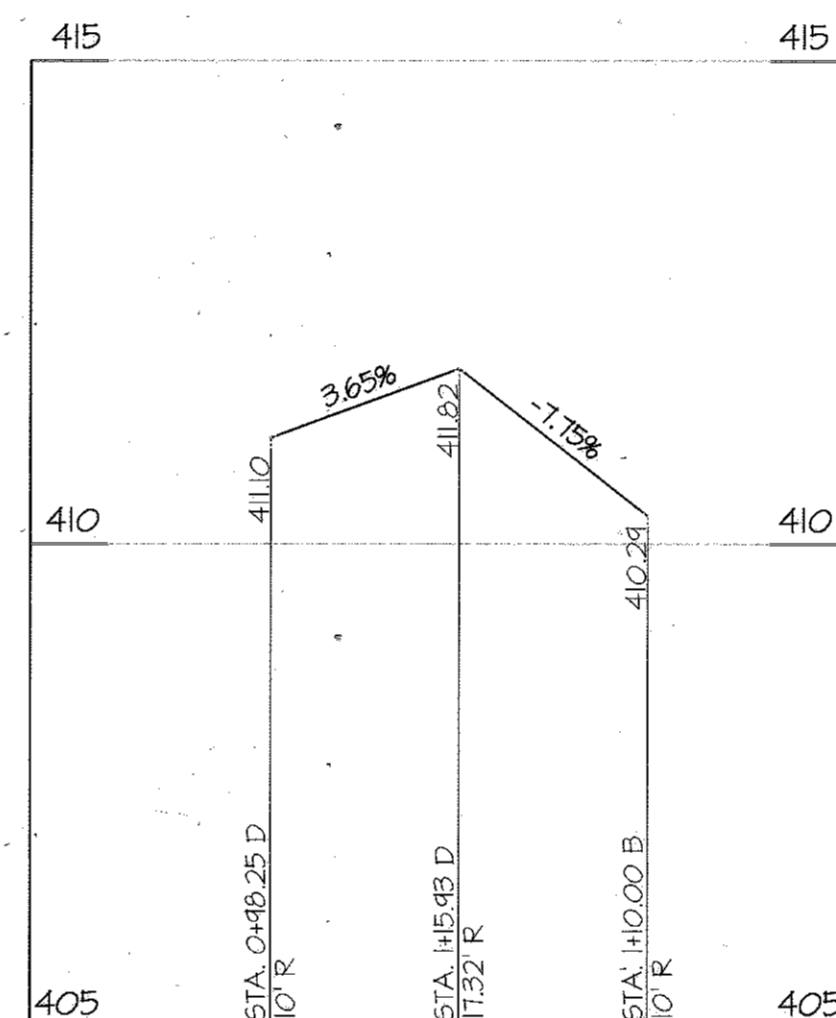
E.O.P. RETURN PROFILE FOR GLEN WILLOW WAY AND CHARLES CROSSING (SOUTH)



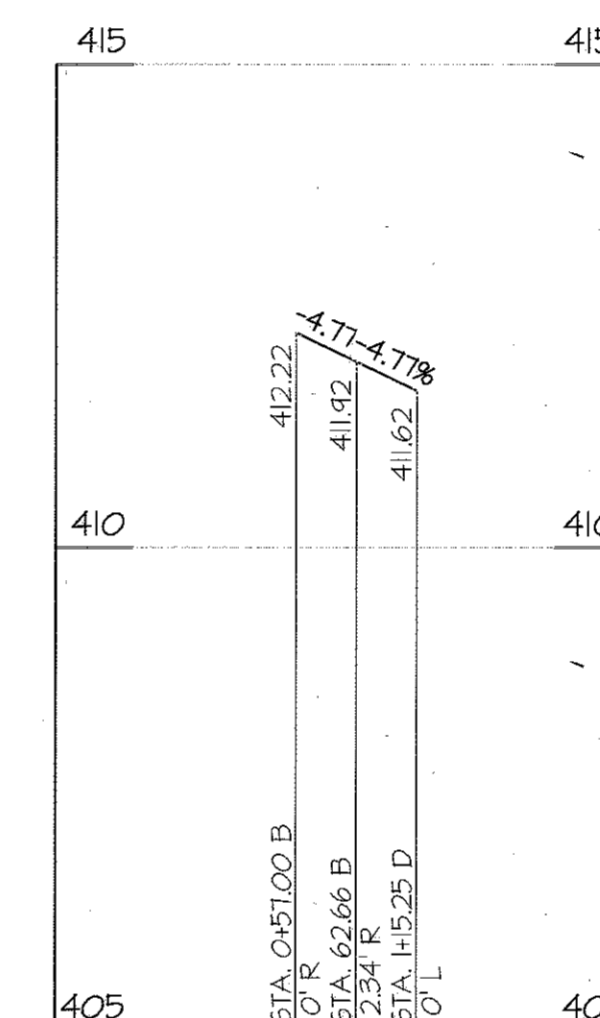
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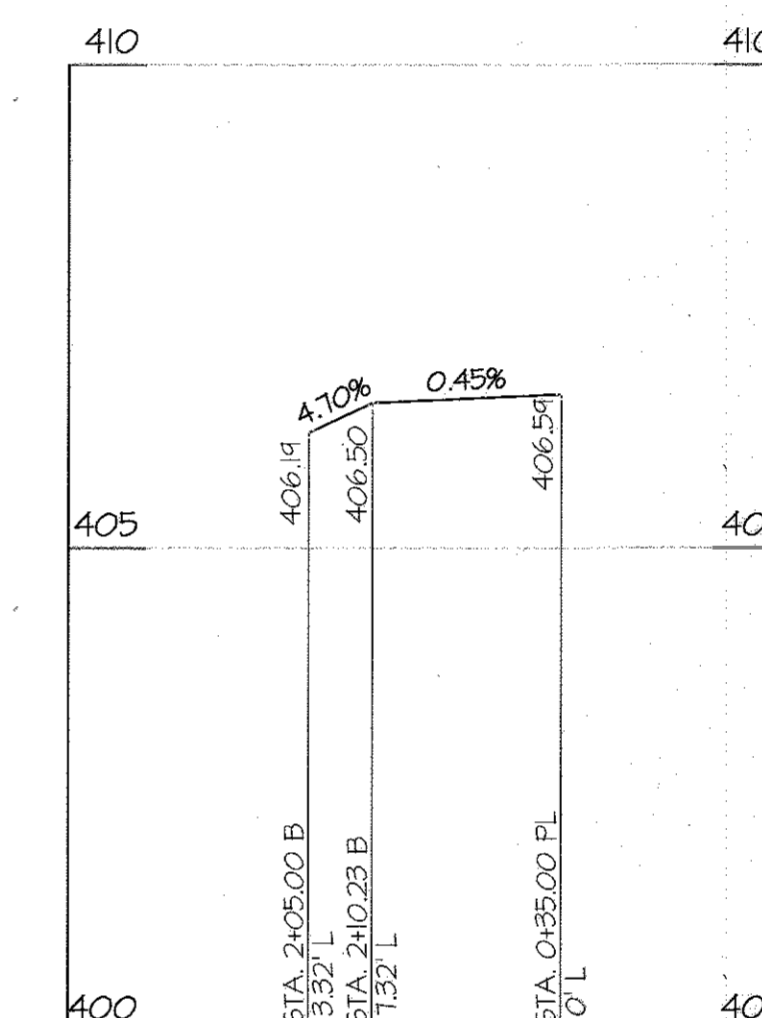
E.O.P. RETURN PROFILE FOR GLEN WILLOW WAY AND CHARLES CROSSING (NORTH-2)



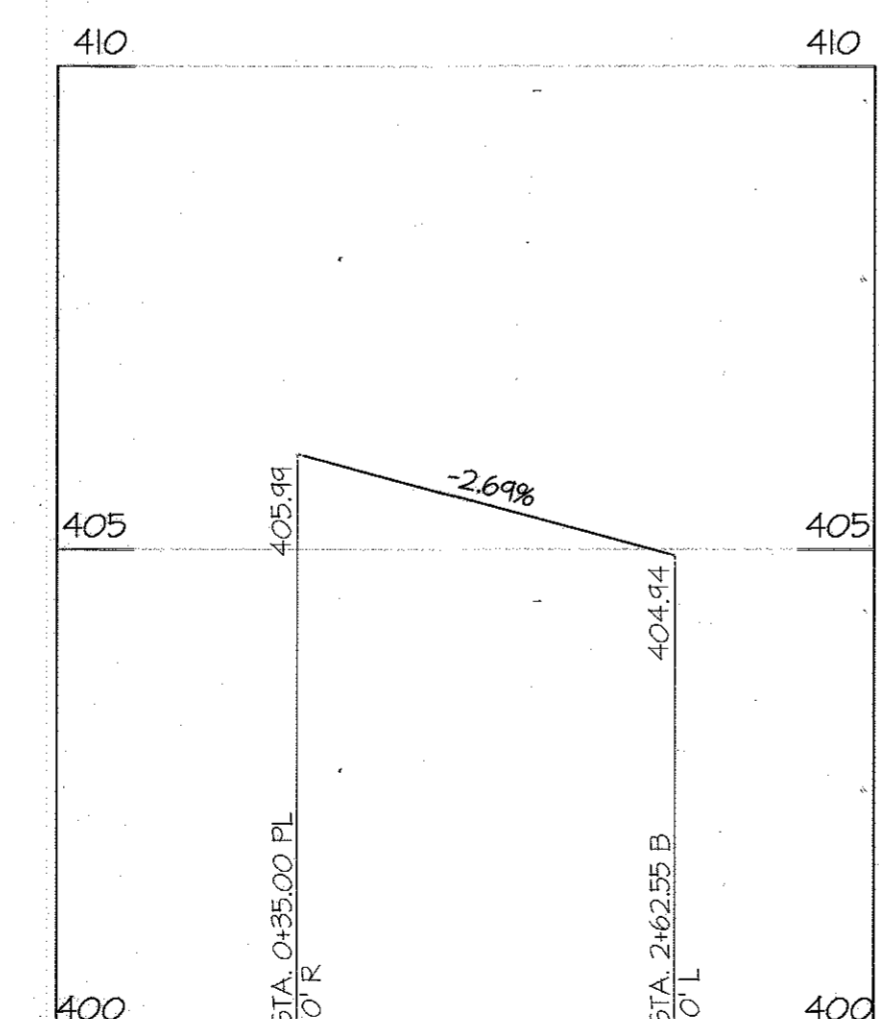
E.O.P. RETURN PROFILE FOR ALLEY D AND ALLEY B (EAST)



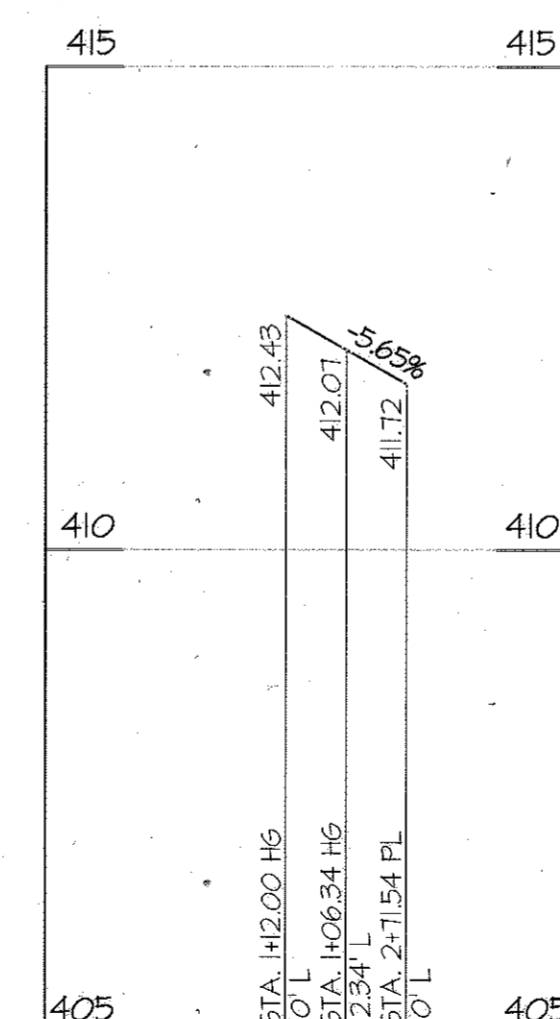
E.O.P. RETURN PROFILE FOR ALLEY D AND ALLEY B (WEST)



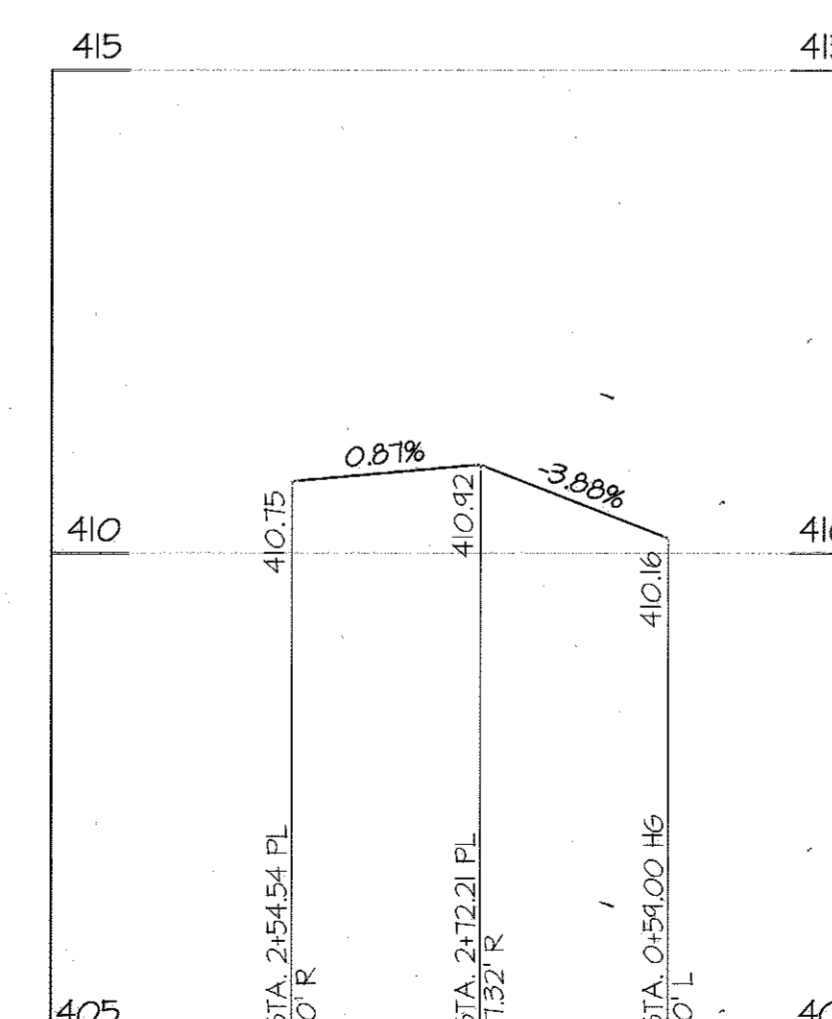
E.O.P. RETURN PROFILE FOR ALLEY B AND PRAIRIE LANDING WAY (WEST)



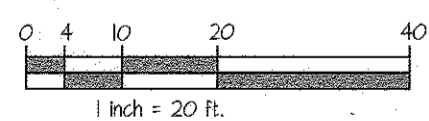
E.O.P. RETURN PROFILE FOR ALLEY B AND PRAIRIE LANDING WAY (EAST)



E.O.P. RETURN PROFILE FOR HIDDEN GARDEN AND PRAIRIE LANDING WAY (WEST)



E.O.P. RETURN PROFILE FOR HIDDEN GARDEN AND PRAIRIE LANDING WAY (EAST)



NOTE:  
 GW = GLEN WILLOW WAY  
 CC = CHARLES CROSSING  
 B = ALLEY B  
 D = ALLEY D  
 PL = PRAIRIE LANDING WAY  
 HG = HIDDEN GARDEN

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*[Signature]* 12/16/16  
 Chief, Bureau of Highways Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
*[Signature]* 12-15-16  
 Chief, Division of Land Development Date

*[Signature]* 12-7-16  
 Chief, Development Engineering Division Date

**GLW GUTSCHICK LITTLE & WEBER, P.A.**  
 CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS  
 3909 NATIONAL DRIVE - SUITE 250 - BURTONSVILLE OFFICE PARK  
 BURTONSVILLE, MARYLAND 20866  
 TEL: 301-421-4024 BALT: 410-880-1820 DC/VA: 301-988-2524 FAX: 301-421-4186

PREPARED FOR & OWNER:  
 BA WATERLOO TOWNHOUSES, LLC  
 C/O BOZOTTO HOMES, INC.  
 6406 IVY LANE, SUITE 700  
 GREENBELT, MARYLAND 20770  
 ATTN: CHRIS BLOCK  
 301-623-3672

PROFESSIONAL CERTIFICATION  
 I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 12975  
 EXPIRATION DATE: MAY 26, 2018  
 11-9-16 *[Signature]*



**CURB RETURN PROFILES**

**PHASE VIII SHIPLEY'S GRANT**

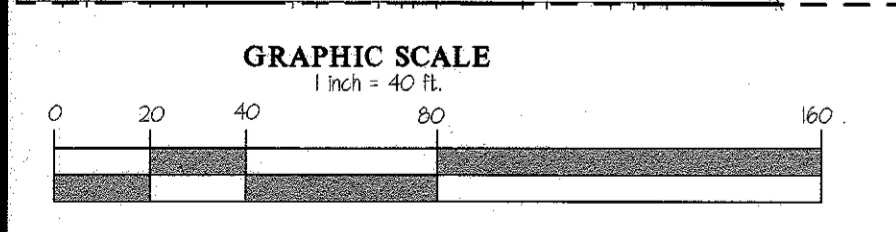
**Lots D-151 - D-217, Open Space Lots D-218 - D-221, Common Open Space Lot D-222 & D-223**

A Resubdivision of Parcel D-2 (PN: 21017) and Common Open Space Lot D-134 (PN:21720)

SCALE 1" = 20' (H) 1" = 2' (V)	ZONING R-A-15	G. L. W. FILE NO. 13063
DATE NOV, 2016	TAX MAP - GRID 37- 1&2	SHEET 12 OF 16



LOGAN'S WAY (PUBLIC ACCESS STREET) 16+00 17+00  
 PC = 17+71.48  
 10' (2+48) = 14'



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*J. Mevius* 12/1/2016  
 Chief, Bureau of Highways Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
*Kathleen* 12-15-16  
 Chief, Division of Land Development Date

*Ch. Ch.* 12-7-16  
 Chief, Development Engineering Division Date

**GLW GUTSCHICK LITTLE & WEBER, P.A.**  
 CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS  
 3909 NATIONAL DRIVE - SUITE 250 - BURTONSVILLE OFFICE PARK  
 BURTONSVILLE, MARYLAND 20886  
 TEL: 301-421-4024 BALT: 410-880-1820 DC/VA: 301-988-2524 FAX: 301-421-4186

LEGEND

- CHANNELIZING DEVICE
- ▬ FLAGGER
- ▬ PROPOSED SIGN
- ▨ WORK AREA
- ◊ SIGN

NO.	DATE	REVISION	BY	APP'R.

LOT D-158 LOT D-157 LOT D-156 LOT D-155  
 SHEET CORN DR (PRIVATE ALLEY)  
 SILVER FOREST DR (PRIVATE ALLEY)  
 COMMON OPEN SPACE LOT D-223  
 GLEN WILLOW WAY (PUBLIC ACCESS STREET)  
 0+11

LOT D-151 LOT D-152 LOT D-153 LOT D-154  
 SHEET CORN DR (PRIVATE ALLEY)  
 COMMON OPEN SPACE LOT D-222  
 COMMON OPEN SPACE LOT D-221  
 COMMON OPEN SPACE LOT D-218  
 COMMON OPEN SPACE LOT D-217  
 COMMON OPEN SPACE LOT D-216  
 COMMON OPEN SPACE LOT D-215  
 COMMON OPEN SPACE LOT D-214  
 COMMON OPEN SPACE LOT D-213  
 COMMON OPEN SPACE LOT D-212  
 COMMON OPEN SPACE LOT D-211  
 COMMON OPEN SPACE LOT D-210  
 COMMON OPEN SPACE LOT D-209  
 COMMON OPEN SPACE LOT D-208  
 COMMON OPEN SPACE LOT D-207  
 COMMON OPEN SPACE LOT D-206  
 COMMON OPEN SPACE LOT D-205

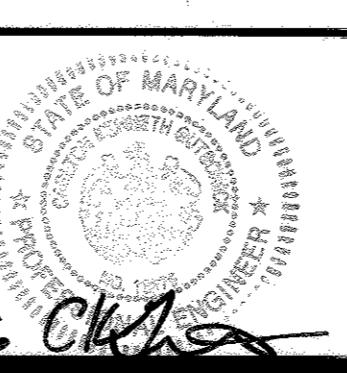
LOT D-178 LOT D-177 LOT D-176 LOT D-175  
 HIDDEN GARDEN LANE (PRIVATE ALLEY)  
 COMMON OPEN SPACE LOT D-220  
 COMMON OPEN SPACE LOT D-219  
 COMMON OPEN SPACE LOT D-218  
 COMMON OPEN SPACE LOT D-217  
 COMMON OPEN SPACE LOT D-216  
 COMMON OPEN SPACE LOT D-215  
 COMMON OPEN SPACE LOT D-214  
 COMMON OPEN SPACE LOT D-213  
 COMMON OPEN SPACE LOT D-212  
 COMMON OPEN SPACE LOT D-211  
 COMMON OPEN SPACE LOT D-210  
 COMMON OPEN SPACE LOT D-209  
 COMMON OPEN SPACE LOT D-208  
 COMMON OPEN SPACE LOT D-207  
 COMMON OPEN SPACE LOT D-206  
 COMMON OPEN SPACE LOT D-205

LOT D-181 LOT D-182 LOT D-183 LOT D-184  
 SHEET CORN DR (PRIVATE ALLEY)  
 COMMON OPEN SPACE LOT D-220  
 COMMON OPEN SPACE LOT D-219  
 COMMON OPEN SPACE LOT D-218  
 COMMON OPEN SPACE LOT D-217  
 COMMON OPEN SPACE LOT D-216  
 COMMON OPEN SPACE LOT D-215  
 COMMON OPEN SPACE LOT D-214  
 COMMON OPEN SPACE LOT D-213  
 COMMON OPEN SPACE LOT D-212  
 COMMON OPEN SPACE LOT D-211  
 COMMON OPEN SPACE LOT D-210  
 COMMON OPEN SPACE LOT D-209  
 COMMON OPEN SPACE LOT D-208  
 COMMON OPEN SPACE LOT D-207  
 COMMON OPEN SPACE LOT D-206  
 COMMON OPEN SPACE LOT D-205

- GENERAL NOTES:
- SEE MDSHA BOOK OF STANDARD FOR HIGHWAYS, INCIDENTAL STRUCTURES AND TRAFFIC CONTROL APPLICATIONS FOR NOTES AND TYPICAL DETAILS.
  - ALL SIGNS, CHANNELIZING DEVICES, AND OTHER TRAFFIC CONTROL DEVICES SHALL BE IN CONFORMANCE WITH THE LATEST EDITION OF THE MUTCD.
  - ANY WORK WITHIN THE TRAVEL LANES OR WITHIN 2' OF THE FACE OF CURB IS PROHIBITED OUTSIDE OF 4 AM TO 3 PM, MONDAY THRU FRIDAY UNLESS NOTED SPECIFIED IN THE CONTRACT DOCUMENTS.
  - THE POSTED SPEED LIMIT FOR CHARLES CROSSING IS 25 MPH.
  - USE THIS OPERATION FOR WORK IN CHARLES CROSSING THAT DOES NOT CROSS THE CENTERLINE (SEWER CONNECTIONS AND MILLING AND OVERLAY).
  - RESTORE ALL DISTURBANCE TO EXISTING GRADE AT THE END OF EVERY DAY.
  - REMOVE ALL CHANNELIZING DEVICES AT THE END OF EVERY DAY SO ALL ROADWAYS AND DRIVENWAYS ARE UNOBSTRUCTED.

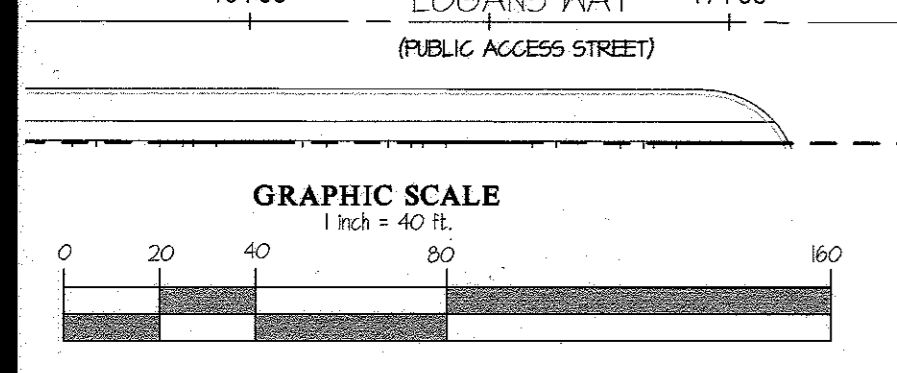
PREPARED FOR & OWNER:  
 BA WATERLOO TOWNHOUSES, LLC  
 C/O BOZUTTO HOMES, INC.  
 6406 IVY LANE, SUITE 700  
 GREENBELT, MARYLAND 20770  
 ATTN: CHRIS BLOCK  
 301-623-3672

PROFESSIONAL CERTIFICATION  
 I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 12975  
 EXPIRATION DATE: MAY 28, 2018  
 11-9-16 *CK*



**MAINTENANCE OF TRAFFIC - PHASE I**  
**PHASE VIII**  
**SHIPLEY'S GRANT**  
 Lots D-151 - D-217, Open Space Lots D-218 - D-221,  
 Common Open Space Lot D-222 & D-223  
 A Resubdivision of Parcel D-2 (PN: 21017) and Common Open Space Lot D-134 (PN:21720)  
 HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE NO.
1"=40'	R-A-15	13063
DATE	TAX MAP - GRID	SHEET
NOV., 2016	37- 1&2	13 OF 16



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*Amelina* 12/12/16  
 Chief, Bureau of Highways Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
*Kat Sedwick* 12-15-16  
 Chief, Division of Land Development Date

*Ch. Edwards* 12-7-16  
 Chief, Development Engineering Division Date

- LEGEND
- CHANNELIZING DEVICE
  - ▬ TYPE 3 BARRICADE
  - ▬ PROPOSED SIGN
  - ▨ WORK AREA
  - ◻ SIGN

**GLWGUTSCHICK LITTLE & WEBER, P.A.**  
 CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS  
 3509 NATIONAL DRIVE - SUITE 250 - BURTONSVILLE OFFICE PARK  
 BURTONSVILLE, MARYLAND 22066  
 TEL: 301-421-4024 BALT: 410-860-1820 DC/VA: 301-389-2524 FAX: 301-421-4186

DATE	REVISION	BY	APPR.

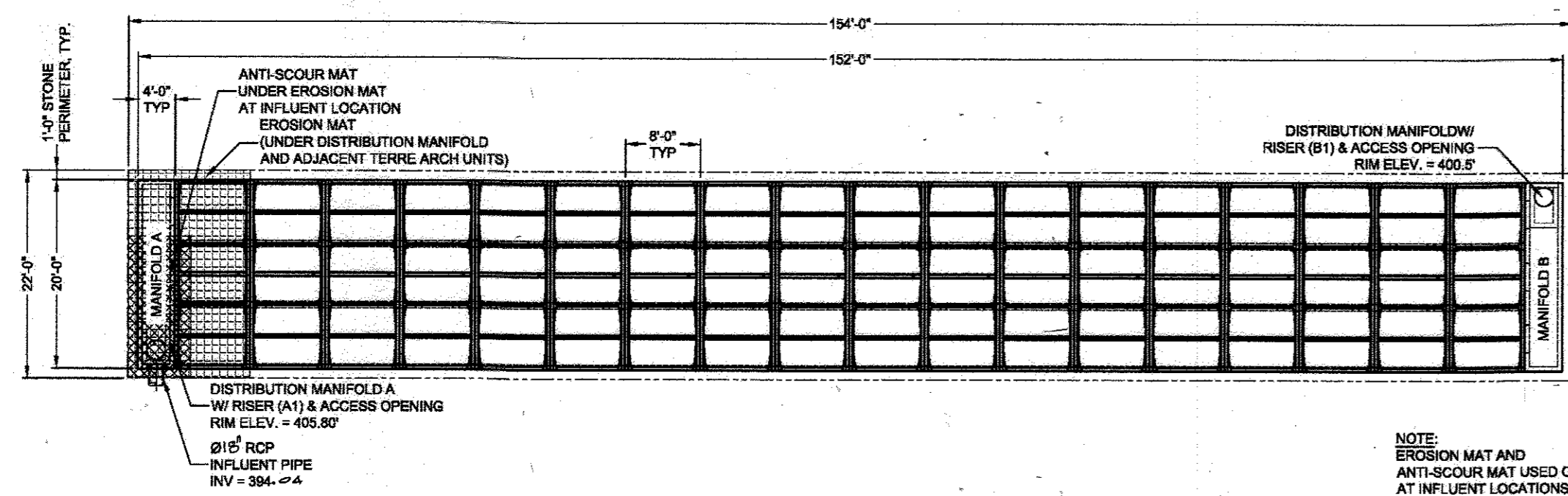
PREPARED FOR & OWNER:  
 BA WATERLOO TOWNHOUSES, LLC  
 C/O BOZUTTO HOMES, INC.  
 6406 IVY LANE, SUITE 700  
 GREENBELT, MARYLAND 20770  
 ATTN: CHRIS BLOCK  
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 EXPIRATION DATE: MAY 28, 2018  
*Ch. Edwards*

**MAINTENANCE OF TRAFFIC - PHASE 2**  
**PHASE VIII**  
**SHIPLEY'S GRANT**  
 Lots D-151 - D-217, Open Space Lots D-218 - D-221, Common Open Space Lot D-222 & D-223  
 A Resubdivision of Parcel D-2 (PN: 21017) and Common Open Space Lot D-134 (PN:21720)  
 HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE NO.
1"=40'	R-A-15	13063
DATE	TAX MAP - GRID	SHEET
NOV., 2016	37-1&2	14 OF 16

- GENERAL NOTES:
- SEE MSHA BOOK OF STANDARD FOR HIGHWAYS, INCIDENTAL STRUCTURES AND TRAFFIC CONTROL APPLICATIONS FOR NOTES AND TYPICAL DETAILS.
  - ALL SIGNS, CHANNELIZING DEVICES, AND OTHER TRAFFIC CONTROL DEVICES SHALL BE IN CONFORMANCE WITH THE LATEST EDITION OF THE MUTCD.
  - ANY WORK WITHIN THE TRAVEL LANES OR WITHIN 2' OF THE FACE OF CURB IS PROHIBITED OUTSIDE OF 9 AM TO 3 PM, MONDAY THRU FRIDAY UNLESS NOTED SPECIFIED IN THE CONTRACT DOCUMENTS.
  - THE POSTED SPEED LIMIT FOR CHARLES CROSSING IS 25 MPH.
  - USE THIS OPERATION FOR WORK IN CHARLES CROSSING THAT CROSSES THE CENTERLINE (WATER CONNECTIONS).
  - RESTORE ALL DISTURBANCE TO EXISTING GRADE AT THE END OF EVERY DAY.
  - REMOVE ALL CHANNELIZING DEVICES AND BARRICADES AT THE END OF EVERY DAY SO ALL ROADWAYS AND DRIVEWAYS ARE UNOBSTRUCTED.



**ASSEMBLY**  
SCALE: 1" = 15'  
LOADING: HS25  
BOTTOM OF ARCH ELEV. = 391.96'  
BOTTOM OF STONE ELEV. = 390.07'

NOTE  
EROSION MAT AND  
ANTI-SCOUR MAT USED ONLY  
AT INFLUENT LOCATIONS

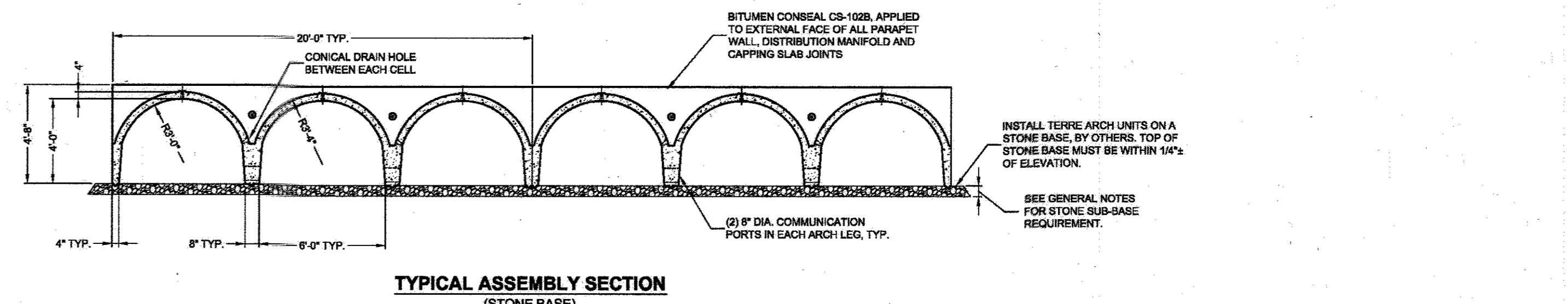
BILL OF MATERIALS				
PIECE	QTY	DESCRIPTION	SIZE	HEIGHT
	16	TERRE ARCH 48	7'-11 1/2" x 19'-11 1/2"	4'-8"
A & B	2	DISTRIBUTION MANIFOLD WITH RISER	4'-0" x 19'-11 1/2"	4'-8"
A1 & B1	2 PLACES	RISER	SEE DETAILS	SEE DETAILS
	2	EJW #41600389, OR EQ., FRAME & COVER	924"	4"
	1 PC.	ANTI-SCOUR MAT (TENCATE OFF 56600 WHITE-CC-HONEYCOMB FILTER)	8'-8" x 15' (11.1 SY PER PC.)	N/A
	1 PC.	EROSION GRID (TENSAR BX1200)	13' x 22' (31.8 SY PER PC.)	N/A
	610 LF	CONSEAL CS102-B (1 1/2")	N/A	N/A

STRUCTURE WEIGHTS  
HEAVIEST PICK WEIGHT = 25000 LBS  
ARCH = 18000 LBS EACH  
MANIFOLD = 25000 LBS MAX  
CAPPING SLAB = 3500 LBS EACH

FILTER FABRIC REQUIRED, 8 OZ.  
NON WOVEN, PROVIDED BY OTHERS.  
APPROX. AREA = 1,320 SY

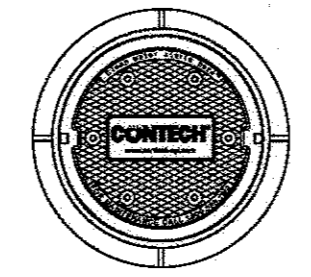
THE UNDERSIGNED HEREBY APPROVES THE ATTACHED (6) PAGES.  
*Cliff*  
CUSTOMER DATE 12-8-16

 605 Global Way, Suite 113, Linthicum, MD 21090 866-740-3318 410-740-9490 866-378-8511 FAX		 TERRE ARCH 48 - 547996-10 SHIPLEY'S GRANT PHASE VIII ELLICOTT CITY, MD SITE DESIGNATION: I-1		PROJECT NO. 547996 SHEET NO. 10 DATE 8/23/16 DESIGNED: BCL DRAWN: KJW CHECKED: APPROVED:
--	--	---	--	---

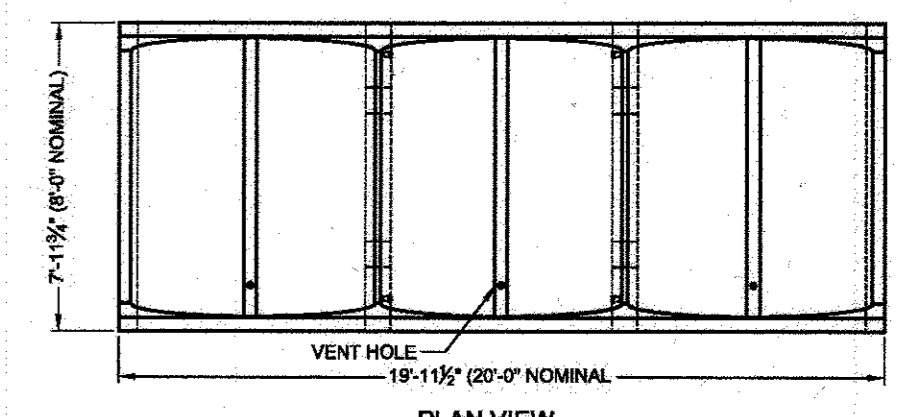


TYPICAL ASSEMBLY SECTION (STONE BASE)

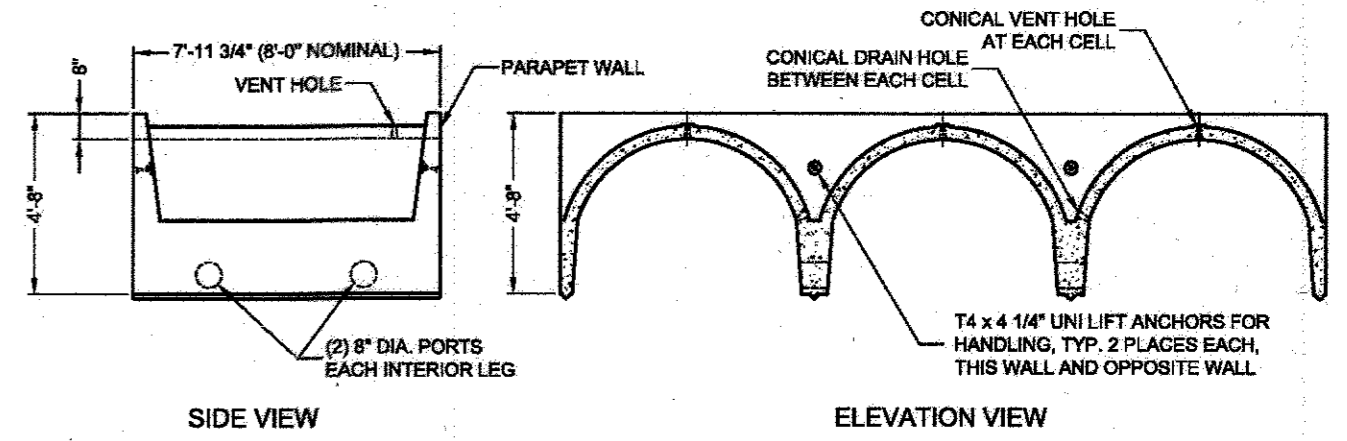
924" x 4" EJW #41600389, OR EQUIVALENT



FRAME AND COVER TYPICAL CASTINGS



PLAN VIEW

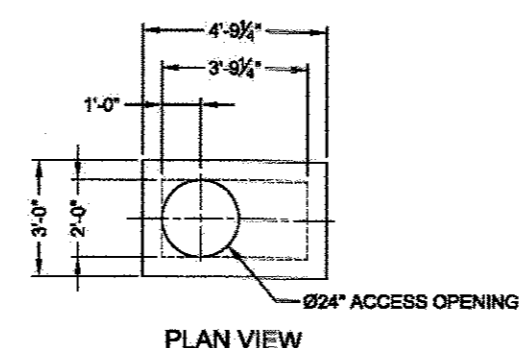


SIDE VIEW

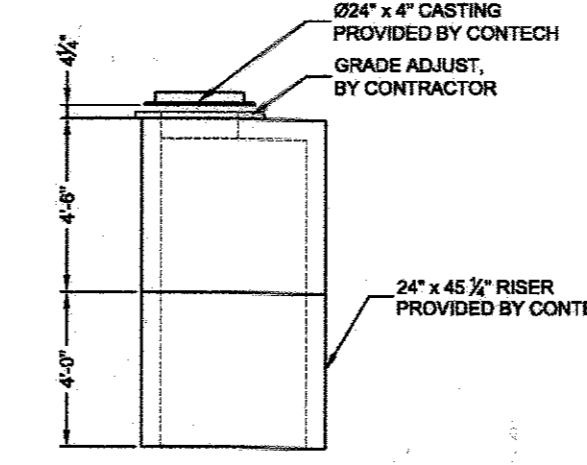
ELEVATION VIEW

TYPICAL TERRE ARCH 48 DETAIL (STONE BASE)

 605 Global Way, Suite 113, Linthicum, MD 21090 866-740-3318 410-740-9490 866-378-8511 FAX		 TERRE ARCH 48 - 547996-10 SHIPLEY'S GRANT PHASE VIII ELLICOTT CITY, MD SITE DESIGNATION: I-1		PROJECT NO. 547996 SHEET NO. 10 DATE 8/23/16 DESIGNED: BCL DRAWN: KJW CHECKED: APPROVED:
--	--	---	--	---

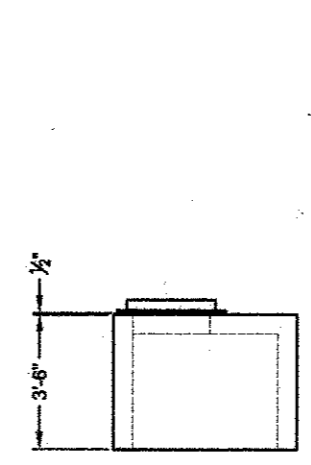


PLAN VIEW



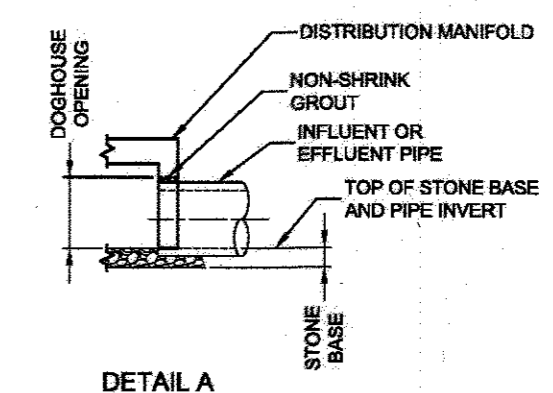
ELEVATION VIEW

RISER A1

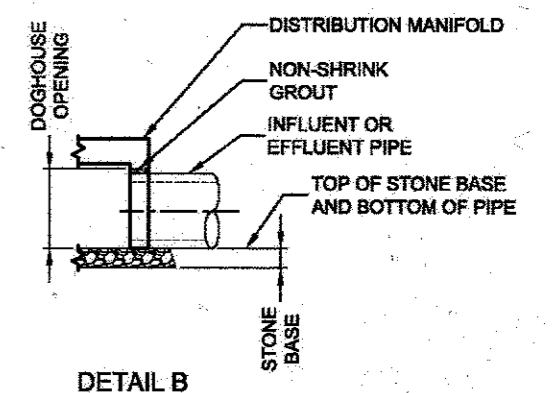


ELEVATION VIEW

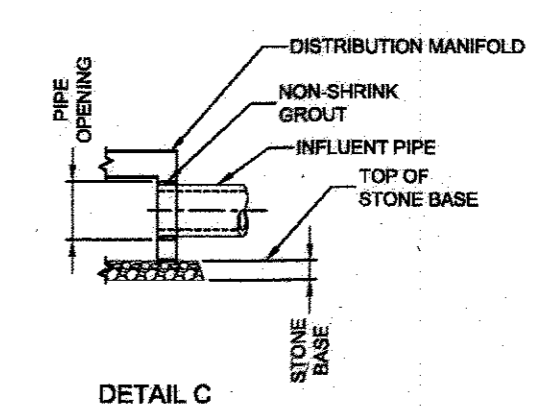
RISER B1



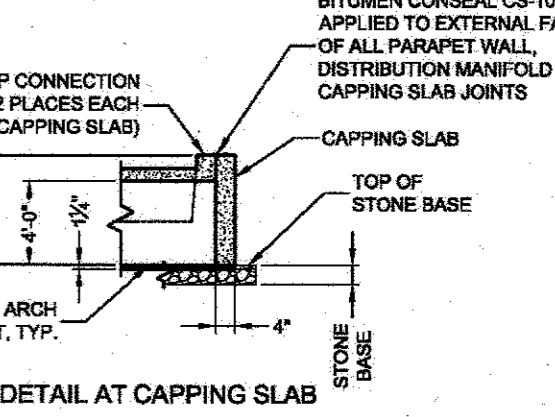
DETAIL A



DETAIL B



DETAIL C



DETAIL AT CAPPING SLAB

PIPE AND CAPPING SLAB DETAILS (STONE BASE)

 605 Global Way, Suite 113, Linthicum, MD 21090 866-740-3318 410-740-9490 866-378-8511 FAX		 TERRE ARCH 48 - 547996-10 SHIPLEY'S GRANT PHASE VIII ELLICOTT CITY, MD SITE DESIGNATION: I-1		PROJECT NO. 547996 SHEET NO. 10 DATE 8/23/16 DESIGNED: BCL DRAWN: KJW CHECKED: APPROVED:
--	--	---	--	---

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*M. McNeill*  
Chief, Bureau of Highways Date 12-15-16

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
*K. Schaefer*  
Chief, Division of Land Development Date 12-15-16

*A. L. Clark*  
Chief, Development Engineering Division Date 12-7-16

**GLW GUTSCHICK LITTLE & WEBER, P.A.**  
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS  
3909 NATIONAL DRIVE - SUITE 250 - BURTONSVILLE OFFICE PARK  
BURTONSVILLE, MARYLAND 20868  
TEL: 301-421-4024 BAL: 410-880-1920 DC/VA: 301-988-2524 FAX 301-421-4186

DATE	REVISION	BY	APP'R.

PREPARED FOR & OWNER:  
BA WATERLOO TOWNHOUSES, LLC  
C/O BOZUTTO HOMES, INC.  
6406 IVY LANE, SUITE 700  
GREENBELT, MARYLAND 20770  
ATTN: CHRIS BLOCK  
301-623-3672

PROFESSIONAL CERTIFICATION  
I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 12875  
EXPIRATION DATE: MAY 28, 2018  
*11-9-16*

CONTECH RECHARGE DETAILS  
PHASE VIII  
SHIPLEY'S GRANT  
Lots D-151 - D-217, Open Space Lots D-218 - D-221,  
Common Open Space Lot D-222 & D-223  
A Resubdivision of Parcel D-2 (PN: 21017) and Common Open Space Lot D-134 (PN:21720)  
HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE NO.
AS SHOWN	R-A-15	13063
DATE	TAX MAP - GRID	SHEET
NOV, 2016	37-1&2	15 OF 16

THE TERRE ARCH™ (PATENT PENDING 11/669,437 (10-30-2007)) UNDERGROUND DETENTION SYSTEM AS DESIGNED AND MANUFACTURED BY TERRE HILL STORMWATER SYSTEMS. CONTACT YOUR CONTECH REPRESENTATIVE FOR MORE INFORMATION. [www.contechES.com](http://www.contechES.com)

CONCRETE  $f_c$  5,000 PSI AT 28 DAYS; WITH ASTM C-33 #57 OR #67 COARSE AGGREGATE AND FIBER REINFORCING.

DEFORMED STEEL REINFORCING CONFORMS TO ASTM A615 GRADE 60. WELDED WIRE FABRIC CONFORMS TO ASTM A185. DEFORMED WELDED WIRE FABRIC OF EQUAL SIZE MAY BE SUBSTITUTED FOR SMOOTH WELDED WIRE FABRIC AND SHALL CONFORM TO ASTM A497.

UNI LIFT ANCHORS MANUFACTURED BY UNIVERSAL FORM CLAMP COMPANY, OR EQUIVALENT. UNI LIFT ANCHORS TYPICAL FOR HANDLING.

JOINT SEALING MATERIAL SHALL BE BITUMEN CONSEAL CS-102B JOINT MATERIAL MANUFACTURED BY CONCRETE SEALANTS, INC. AND CONFORMING TO FEDERAL SPECIFICATION SS 3-210A. JOINT SEALANT MUST BE INSTALLED IN ACCORDANCE WITH CONCRETE SEALANTS, INC. RECOMMENDATIONS.

EROSION & ANTI-SCOUR MATS SHALL BE INSTALLED UNDER DISTRIBUTION MANIFOLDS AT EACH INFLUENT PIPE LOCATION. EROSION GRID TO BE TENSAR BX1200 GEOTEXTILE AS MANUFACTURED BY TENSAR INTERNATIONAL, OR EQUIVALENT. ANTI-SCOUR MAT TO BE TENCATE GFF 58800 WHITE-CC-HONEYCOMB FILTER AS MANUFACTURED BY TENCATE GEOTECHNICS NORTH AMERICA, OR EQUIVALENT. MANIFOLD FRAMES AND COVERS ARE SUPPLIED BY CONTECH. CASTINGS SHALL MEET AASHTO M306 AND BE CAST WITH THE CONTECH LOGO. CONTRACTOR SHALL SUPPLY AND INSTALL ANY GRADE RINGS OR RISERS REQUIRED TO BRING THE CASTINGS FLUSH WITH FINISHED GRADE.

EXCAVATION, COMPACTED STONE BASE, BACKFILL AND GRADING BY CONTRACTOR.

IT IS RECOMMENDED THAT AN INSPECTION BE MADE ON A QUARTERLY BASIS AND AFTER EACH SIGNIFICANT RAINFALL EVENT. ANY ACCUMULATED DEBRIS/SEDIMENTATION THAT IMPAIRS THE PERFORMANCE OF THE SYSTEM SHALL BE REMOVED THROUGH THE PROVISION OF FULL ACCESS INTO ALL AREAS OF THE UNDERGROUND STORAGE SYSTEM.

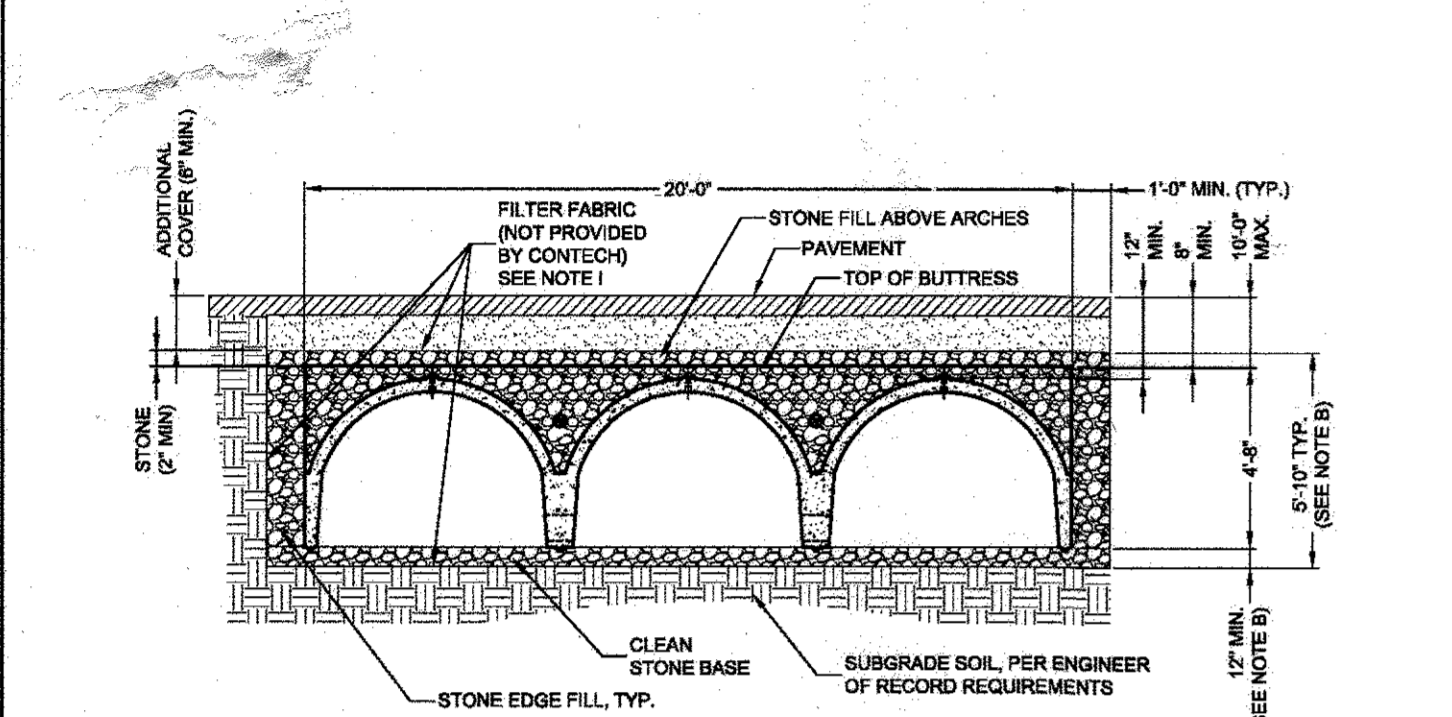
EXCAVATION, DEWATERING AND SHORING OF EXCAVATION WILL BE BY CONTRACTOR. THIS SHALL BE ACCOMPLISHED IN ACCORDANCE WITH PROJECT SPECIFICATIONS AS PROVIDED BY ENGINEER OF RECORD AND OSHA REQUIREMENTS.

THE TERRE ARCH PRECAST CONCRETE UNDERGROUND STORAGE SYSTEMS ARE DESIGNED TO MEET STORAGE CAPACITY REQUIREMENTS, AND HS-20 LOADING REQUIREMENTS.

**TERRE ARCH PERFORMANCE, DESIGN AND INSTALLATION SPECIFICATIONS**

THE TERRE ARCH IS A PRECAST CONCRETE MODULAR ROMAN ARCH STRUCTURE CONSISTING OF THREE CONNECTED PARALLEL SECTIONS FOR SUBSURFACE STORAGE OF STORMWATER. ACCESSORY COMPONENTS SUCH AS INFLOW AND OUTFLOW STRUCTURES, E.G. MANIFOLDS ARE DESIGNED, ENGINEERED, AND MANUFACTURED TO MATCH SPECIFIC NEEDS:

1. DETENTION FOR CONTROLLED DISCHARGE THROUGH AN OUTLET CONTROL STRUCTURE
2. INFILTRATION TO RECHARGE THE GROUND WATER
3. HS-20 LOAD RATING. 12" MINIMUM OF COVER OVER ARCH (8" OVER PARAPET WALL). STONE IS RECOMMENDED FOR THE FIRST 6" OF COVER ABOVE THE ARCH.
4. MAXIMUM COVER UP TO 10 FT.
5. A STORMWATER TREATMENT SYSTEM SHOULD BE PLACED IN FRONT OF THE TERRE ARCH TO PREVENT ENTRY OF SEDIMENT, OIL, GREASE, LITTER, AND DEBRIS TO THE MAXIMUM EXTENT PRACTICAL.
6. STRUCTURE HAS 3,000 PSI COMPRESSIVE STRENGTH AND 100 YEAR DESIGN LIFE
7. 150 SQ.FT. (6 FEET BY 25 FEET) INFILTRATION SURFACE PER STRUCTURE
8. 608 CU.FT. OF STORAGE IN CUSTOMARY INSTALLATION, I.E. VALLEYS BETWEEN ARCHES FILLED WITH STONE TO 6" ABOVE TOP OF ARCH. (608 CU.FT. SPACE TYPICAL IN STONE). ASSUMES 12" STONE BEDDING DEPTH.
9. EACH STRUCTURE IS LESS THAN 22,500 LBS. ALLOWING SHIPMENT OF 2 STRUCTURES PER TRUCK AND PLACEMENT FROM TRUCK INTO THE PREPARED EXCAVATION BY LIGHT CRANE.
10. VENTILATION AND DRAINING CRISERS IN TOP AND VALLEY AREAS OF ARCHES
11. COMMUNICATION HOLES IN THE INTERIOR LEGS OF THE ARCH CELLS TO ALLOW FLOW BETWEEN SECTIONS.
12. EROSION GRID AND ANTI-SCOUR MATTING IS REQUIRED AT ALL INFLUENT LOCATIONS (EXCLUDES SYSTEMS INSTALLED ON A BASE SLAB)
13. FILTER FABRIC OR GEOTEXTILE IS RECOMMENDED WHERE SILT MIGRATION FROM THE SIDES OR TOP INTO THE VOID SPACE OF THE STONE IS POSSIBLE
14. CONTECH SHALL SUBMIT DOCUMENTATION AS REQUESTED BY ENGINEER OF RECORD TO VERIFY PERFORMANCE AND DESIGN SPECIFICATIONS
15. EACH TERRE ARCH SHALL CONTAIN LIFTING POINTS WITH UNI-LIFT PINS. MANUFACTURER SHALL LOAN THE LIFTING HARDWARE TO THE CONTRACTOR, WHICH SHALL BE THE PROPERTY OF MANUFACTURER. CONTRACTOR SHALL PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING CAPACITY AND REACH TO UNLOAD AND SET THE STRUCTURES
16. MINIMUM SOIL BEARING PRESSURE IS 3000 P.S.F.
17. A MINIMUM OF 12" OF CLEAN, ANGULAR STONE BEDDING IS REQUIRED BELOW THE SYSTEM. THE TOP 2" OF STONE SHALL BE #5 AASHTO (CLEAN 1/2" STONE) AND THE REMAINDER OF THE STONE BASE SHALL BE #5 AASHTO (CLEAN 1 1/2" STONE)



**PRODUCT INSTALLATION PROCEDURES**

- A. CONTRACTOR SHALL EXCAVATE ACCORDING TO THE LATEST DATED APPROVED DRAWING SET. DEWATER AND SHORE IN ACCORDANCE WITH PROJECT SPECIFICATIONS, AS PROVIDED BY ENGINEER OF RECORD
- B. REFER TO NOTE 16 & 17 ABOVE FOR BEDDING CONSIDERATIONS
- C. ARCHES SHALL BE PLACED WITHIN A NOMINAL 8'-0" BY 20'-0" MATRIX
- D. REMAINING BACKFILL STONE ABOVE AND AROUND PERIMETER SHALL BE #5 AASHTO (CLEAN 1 1/2" STONE) OR OTHER SUITABLE STONE AS APPROVED BY ENGINEER OF RECORD
- E. CONTRACTOR TO PLACE ANTI-SCOUR MATS (TENCATE GFF 58800 WHITE-CC-HONEYCOMB FILTER, OR EQUIVALENT) PRIOR TO EROSION GRID TENSAR BX1200, OR EQUIVALENT)
- F. SET DISTRIBUTION MANIFOLDS BEFORE ADJACENT ARCH WHERE POSSIBLE. PLACE RISER SECTIONS ON MANIFOLDS
- G. PLACE CONSEAL ON TOP OF THE PARAPET WALL BETWEEN ARCH MANIFOLD AND CAPPING SLAB JOINTS TO PREVENT MIGRATION OF FINES INTO THE JOINT GAP
- H. PRIOR TO ALLOWING ANY TOP LOADING, ALL PERIMETER SPACE BETWEEN THE EDGE OF THE ARCH SYSTEM AND THE SOIL SHALL BE FILLED WITH AT LEAST 12" OF STONE
- I. BULLDOZERS MAY BE USED (DI OR SMALLER) ONCE COVER IS A MINIMUM OF 6" OF STONE ABOVE PARAPET WALL ELEVATION.
- J. USE VIBRATING ROLLING EQUIPMENT TO STABILIZE THE TOP STONE AND SETTLE THE ARCHES INTO THE SUB-BASE
- K. ONCE SPECIFIED STONE COVER IS ACHIEVED, FILTER FABRIC IS RECOMMENDED TO PREVENT MIGRATION OF FINES INTO THE STONE VOIDS.
- L. PLACE ADDITIONAL SOIL AMENDMENTS PER GRADING REQUIREMENTS AS NEEDED
- M. CONTRACTOR SHALL REMOVE ALL MATERIAL AND DEBRIS FROM THE TERRE ARCH
- N. WARRANTY: 1 YEAR FROM DATE OF DELIVERY FOR MATERIAL IN THE EVENT THAT THE MATERIAL SUPPLIED IS NOT FREE FROM DEFECTS. EQUIPMENT SHALL BE INSTALLED AND USED ONLY IN THE PARTICULAR APPLICATION FOR WHICH IT WAS SPECIFICALLY MANUFACTURED
- O. TERRE ARCH INSTALLATION MAY REQUIRE DISTRIBUTION BOXES AND END CAPS AS SHOWN ON THE DRAWINGS
- P. CONTRACTOR SHALL PROVIDE, INSTALL AND GROUT PIPES USING NON-SHRINK GROUT. MATCH PIPE INVERTS WITH ELEVATIONS SHOWN

**PRODUCT SUBSTITUTION PROCEDURES**

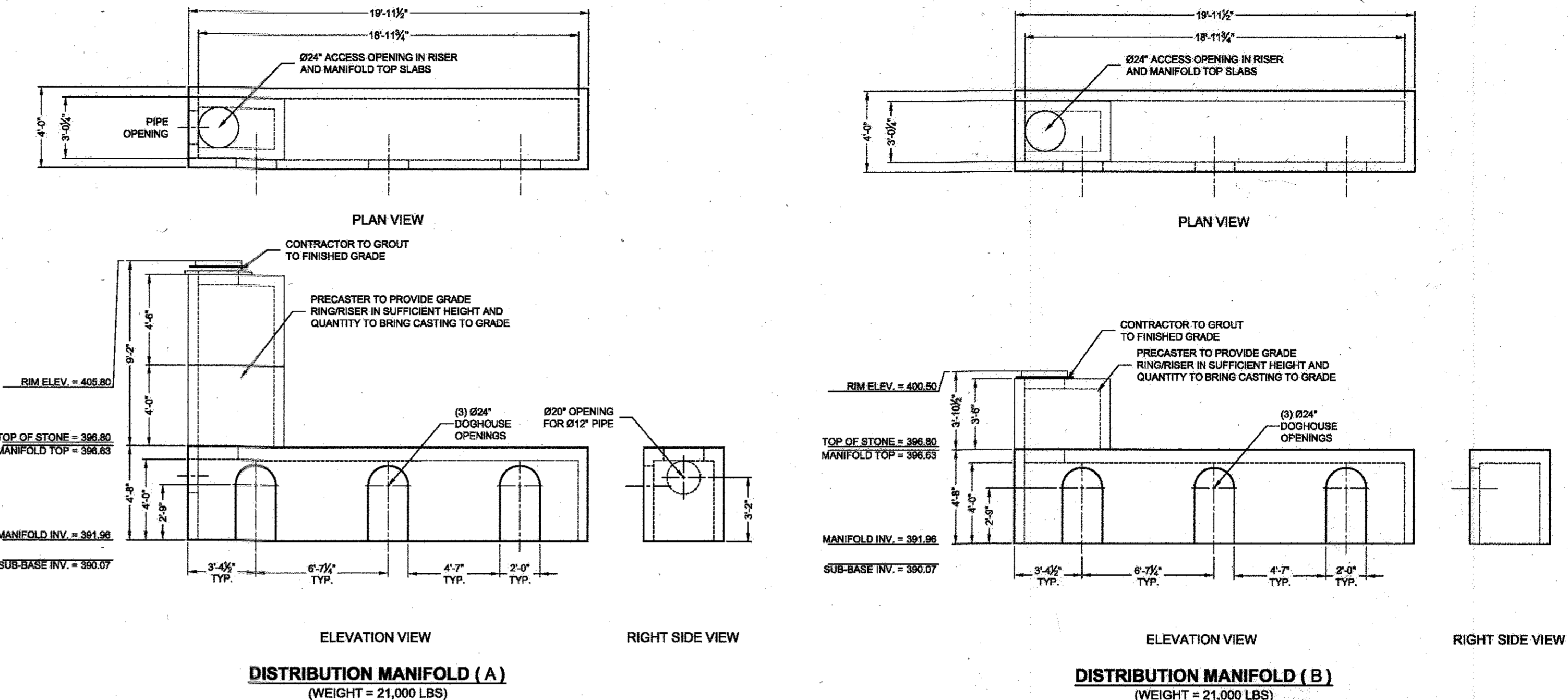
NO UNDERGROUND STORMWATER STORAGE SYSTEM SHALL BE APPROVED AS AN EQUIVALENT SUBSTITUTION FOR A TERRE ARCH SYSTEM UNLESS THE ENGINEER OF RECORD SHALL RECEIVE AND APPROVE DRAWINGS AND SPECIFICATIONS STAMPED AND SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE WHEREIN THE PROJECT IS LOCATED SHOWING THE FOLLOWING:

- PROJECT SPECIFIC SIZING CALCULATIONS CLEARLY SHOWING THAT THE UNIT MEETS OR EXCEEDS THE PERFORMANCE AND DESIGN SPECIFICATIONS OF THE TERRE ARCH

**MAINTENANCE PROCEDURES**

- WHEN A STORMWATER TREATMENT SYSTEM IS PLACED IN FRONT OF THE TERRE ARCH SYSTEM NO CLEAN OUT OR MAINTENANCE IS ANTICIPATED, AS LONG AS THE STORMWATER TREATMENT SYSTEM IS PROPERLY MAINTAINED
- INSPECTION CAN BE ACCOMPLISHED FROM GRADE WITH PROPER EQUIPMENT BY ENTRY THROUGH THE ACCESS OPENINGS
- SYSTEM SHALL CONTAIN SUFFICIENT DISTRIBUTION MANIFOLDS TO ALLOW ENTRY FOR INSPECTION AND MAINTENANCE INTO EACH TERRE ARCH

SUBJECT TO CHANGE WITHOUT NOTICE.  
VERIFY LATEST INFORMATION WITH CONTECH ENGINEERED SOLUTIONS, LLC [www.contechES.com](http://www.contechES.com)



<b>CONTECH</b> ENGINEERED SOLUTIONS LLC 605 Global Way, Suite 113, Luthiersville, MD 21090 888-740-3318 410-740-8490 888-376-8511 FAX		<b>TERRE ARCH</b> PATENT PENDING CONTECH FABRICATION DRAWING		<b>TERRE ARCH 48 - 547996-10</b> SHIPLEY'S GRANT PHASE VIII ELLCOTT CITY, MD SITE DESIGNATION: I-1		PROJECT NO. 547996 SHEET NO. 10 DATE 8/23/16 DESIGNED BY BCL DRAWN BY KJV CHECKED BY _____ APPROVED BY _____ SHEET NO. 5 OF 6	
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<b>TA1</b> 19'-8 1/2" 4'-0" 3'-0"			<b>TA2</b> 7'-8" 4'-0" 3'-0"			<b>TA3</b> 7'-8" 4'-0" 3'-0"			<b>TA4</b> 19'-8 1/2" 4'-0" 3'-0"			<b>TA5</b> 7'-8" 4'-0" 3'-0"			<b>TA6</b> 7'-8" 4'-0" 3'-0"			<b>TA7</b> 7'-9 1/4" 4'-0" 3'-0"		
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TA48 ARCH - STEEL BOM			
NAME	BAR SIZE	QTY/ LENGTH	TOTAL LENGTH
TA1	E86	2 @ 28'-7 1/2"	57'-3"
TA2	E85	4 @ 22'-2"	88'-8"
TA3	E85	4 @ 9'-10"	39'-4"
TA4	E86	4 @ 4'-6"	18'-0"
TA5	E85	4 @ 7'-0 1/4"	28'-1"
TA6	E85	2 @ 19'-8"	31'-0"
TA7	E84	2 @ 10'-9 1/4"	21'-4 1/2"
TA8	E84	6 @ 7'-9"	46'-6"
TA9	E84	12 @ 1'-9"	18'-0"
TA10	E85	2 @ 19'-0"	30'-0"

TA48 ARCH - CONCRETE BOM			
DESCRIPTION	QTY	UNIT	CL. YD.
5000 PSI SCC ASTM STANDARD	4.75	CU. YD.	
FERRIC FIBER 2 1/4" (3 LB/CU.YD.)	14.25	LBS.	
T4 X 4 1/4 UNI LIFT ANCHORS	4	EA.	

<b>CONTECH</b> ENGINEERED SOLUTIONS LLC 605 Global Way, Suite 113, Luthiersville, MD 21090 888-740-3318 410-740-8490 888-376-8511 FAX		<b>TERRE ARCH</b> PATENT PENDING CONTECH FABRICATION DRAWING		<b>TERRE ARCH 48 - 547996-10</b> SHIPLEY'S GRANT PHASE VIII ELLCOTT CITY, MD SITE DESIGNATION: I-1		PROJECT NO. 547996 SHEET NO. 10 DATE 8/23/16 DESIGNED BY BCL DRAWN BY KJV CHECKED BY _____ APPROVED BY _____ SHEET NO. 6 OF 6	
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APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*Howard*  
 Chief, Bureau of Highways  
 Date 12/16/16

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
*K. J. ...*  
 Chief, Division of Land Development  
 Date 12-15-16

*Ch...*  
 Chief, Development Engineering Division  
 Date 12-7-16

**GLWGUTSCHICK LITTLE & WEBER, P.A.**  
 CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS  
 3909 NATIONAL DRIVE - SUITE 250 - BURTONSVILLE OFFICE PARK  
 BURTONSVILLE, MARYLAND 20866  
 TEL: 301-421-4024 BALT: 410-880-1020 DC/VA: 301-989-2524 FAX: 301-421-4186

DES.	DRN.	CHK.	DATE	REVISION	BY	APP'R.

PREPARED FOR & OWNER:  
 BA WATERLOO TOWNHOUSES, LLC  
 C/O BOZOTTO HOMES, INC.  
 6406 IVY LANE, SUITE 700  
 GREENBELT, MARYLAND 20770  
 ATTN.: CHRIS BLOCK  
 301-623-3672

PROFESSIONAL CERTIFICATION  
 I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 12975  
 EXPIRATION DATE: MAY 28, 2018  
 11-7-16 *CKA*

**CONTECH RECHARGE DETAILS**  
**PHASE VIII**  
**SHIPLEY'S GRANT**  
 Lots D-151 - D-217, Open Space Lots D-218 - D-221,  
 Common Open Space Lot D-222 & D-223  
 A Resubdivision of Parcel D-2 (PN: 21017) and Common Open Space Lot D-134 (PN:21720)  
 HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE NO.
AS SHOWN	R-A-15	13063
DATE	TAX MAP - GRID	SHEET
NOV, 2016	37- 1&2	16 OF 16

CONTECH ENGINEERED SOLUTIONS LLC  
 605 Global Way, Suite 113, Luthiersville, MD 21090  
 888-740-3318 410-740-8490 888-376-8511 FAX  
**CONTECH FABRICATION DRAWING**