STORMWATER MANAGEMENT PLAN

FOR

MUY TACO BELL

LOCATION OF SITE

1300 HOLTON AVE.
TAKOMA PARK, MD 20912
MONTGOMERY COUNTY, MARYLAND

STANDARD DRAWING LEGEND

FOR ENTIRE PLAN SET
(NOT TO SCALE)

EXISTING NOTE	TYPICAL NOTE TEXT	PROPOSED NOTE
	ONSITE PROPERTY LINE / R.O.W. LINE	
	NEIGHBORING PROPERTY LINE / INTERIOR PARCEL LINE	
	EASEMENT LINE	
	SETBACK LINE	
	CONCRETE CURB & GUTTER	CURB AND GUTTER; SPILL CURB; TRANSITION CURB; DEPRESSED CURB AND GUTTER
	UTILITY POLE WITH LIGHT	
	POLE LIGHT	
	TRAFFIC LIGHT	
	UTILITY POLE	
	TYPICAL LIGHT	
	ACORN LIGHT	
	TYPICAL SIGN	
	PARKING COUNTS	
170 / 169	CONTOUR LINE	190 / 187
TC 516.4 OR 516.4	SPOT ELEVATIONS	TC 516.00 BC 515.50
SAN #	SANITARY LABEL	SAN #
	STORM LABEL	
	SANITARY SEWER LATERAL	SL
	UNDERGROUND WATER LINE	W
	UNDERGROUND ELECTRIC LINE	E
	UNDERGROUND GAS LINE	G
OH	OVERHEAD WIRE	OH
T	UNDERGROUND TELEPHONE LINE	T
	STORM SEWER	
S	SANITARY SEWER MAIN	S
	HYDRANT	
	SANITARY MANHOLE	
	STORM MANHOLE	
WM	WATER METER	
	WATER VALVE	
	GAS VALVE	
	GAS METER	
	TYPICAL END SECTION	
	HEADWALL OR ENDWALL	
	YARD INLET	
	CURB INLET	
	CLEAN OUT	
	ELECTRIC MANHOLE	
	TELEPHONE MANHOLE	
	ELECTRIC BOX	
	ELECTRIC PEDESTAL	
	MONITORING WELL	
	TEST PIT	
	BENCHMARK	
	BORING	

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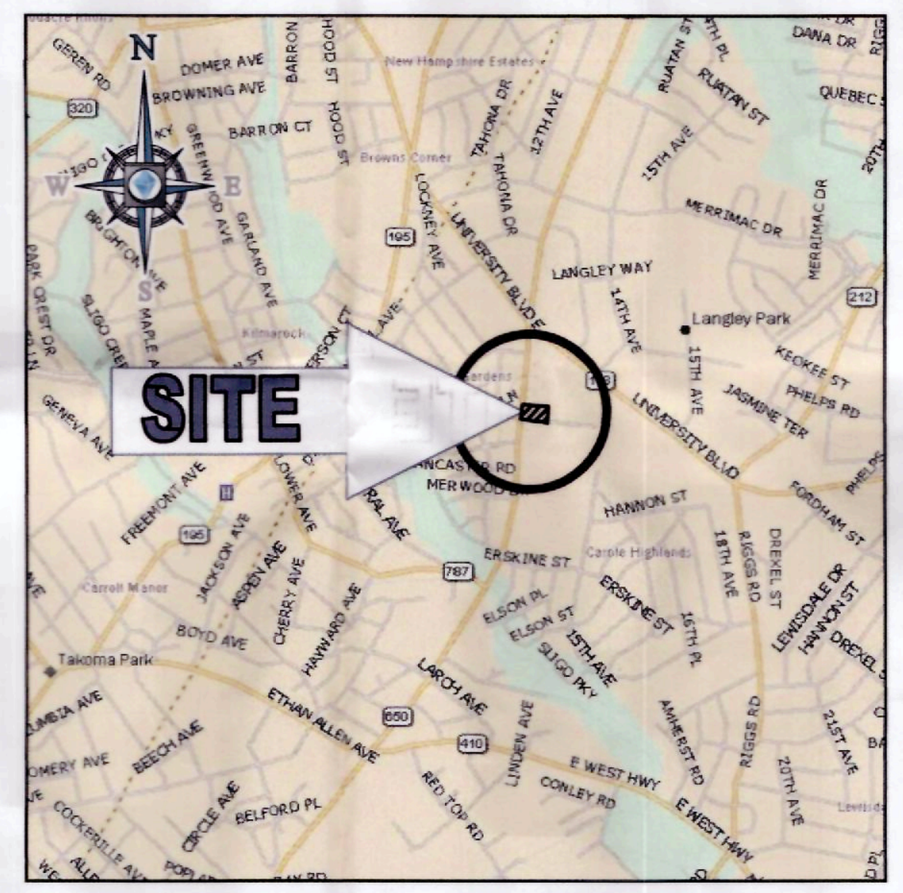
STANDARD ABBREVIATIONS

FOR ENTIRE PLAN SET

AC	ACRES	POG	POINT OF GRADE
ADA	AMERICANS WITH DISABILITY ACT	PROP	PROPOSED
ARCH	ARCHITECTURAL	PT	POINT OF TANGENCY
BC	BOTTOM OF CURB	PTCR	POINT OF TANGENCY, CURB RETURN
BF	BASEMENT FLOOR	PVC	POLYVINYL CHLORIDE PIPE
BK	BLOCK	PVI	POINT OF VERTICAL INTERSECTION
BL	BASELINE	PVT	POINT OF VERTICAL TANGENCY
BLDG	BUILDING	R	RADIUS
BM	BUILDING BENCHMARK	RCP	REINFORCED CONCRETE PIPE
BRL	BUILDING RESTRICTION LINE	RET WALL	RETAINING WALL
CF	CUBIC FEET	R/W	RIGHT OF WAY
CL	CENTERLINE	S	SLOPE
CMP	CORRUGATED METAL PIPE	SAN	SANITARY SEWER
CONN	CONNECTION	SF	SQUARE FEET
CONC	CONCRETE	STA	STATION
CPP	CORRUGATED PLASTIC PIPE	STM	STORM
CY	CUBIC YARDS	S/W	SIDEWALK
DEC	DECORATIVE	TBR	TO BE REMOVED
DEP	DEPRESSED	TBRL	TO BE RELOCATED
DIP	DUCTILE IRON PIPE	TC	TOP OF CURB
DOM	DOMESTIC	TELE	TELEPHONE
ELEC	ELECTRIC	TPF	TREE PROTECTION FENCE
ELEV	ELEVATION	TW	TOP OF WALL
EP	EDGE OF PAVEMENT	TYP	TYPICAL
ES	EDGE OF SHOULDER	UG	UNDERGROUND
EW	END WALL	UP	UTILITY POLE
EX	EXISTING	W	WIDE
FES	FLARED END SECTION	WL	WATER LINE
FF	FINISHED FLOOR	WM	WATER METER
FH	FIRE HYDRANT	±	PLUS OR MINUS
FG	FINISHED GRADE	°	DEGREE
G	GRADE	Ø	DIAMETER
GF	GARAGE FLOOR (AT DOOR)	#	NUMBER
GH	GRADE HIGHER SIDE OF WALL		
GL	GRADE LOWER SIDE OF WALL		
GRT	GRATE		
GV	GATE VALVE		
HDPE	HIGH DENSITY POLYETHYLENE PIPE		
HP	HIGH POINT		
HOR	HORIZONTAL		
HW	HEADWALL		
INT	INTERSECTION		
INV	INVERT		
LF	LINEAR FOOT		
LOC	LIMITS OF CLEARING		
LOD	LIMITS OF DISTURBANCE		
LOS	LINE OF SIGHT		
LP	LOW POINT		
L/S	LANDSCAPE		
MAX	MAXIMUM		
MIN	MINIMUM		
MH	MANHOLE		
MJ	MECHANICAL JOINT		
OC	ON CENTER		
PA	POINT OF ANALYSIS		
PC	POINT CURVATURE		
PCCR	POINT OF COMPOUND CURVATURE, CURB RETURN		
PI	POINT OF INTERSECTION		



LOCATION MAP
COPYRIGHT 2003
DELORME STREET ATLAS 2004 PLUS USA
SCALE: 1"=2000'

DESIGN CERTIFICATION;

I hereby certify that this plan has been designed in accordance with the Title 16 of City of Takoma park Code & the current Maryland Stormwater Design Manual, Volumes I & II and the Maryland Department of the Environment Stormwater Management Regulations.

MATTHEW K. JONES
Name

Signature

39999
Maryland registration number
P.E., R.L.S or R.L.A (circle)

05/05/16
Date

AS BUILT CERTIFICATION

I hereby certify that the stormwater management facility shown on the plans has (have) been constructed in accordance with the plans approved by the City of Takoma Park except as noted in red on the "AS BUILT" drawings

Name

Signature

Maryland registration number

Date

MDE No.

Facility Identification (number and/or type)

"Certify" means to state or declare a professional opinion based on sufficient and appropriate site inspections and material test conducted during construction.

APPLICATION NO.: SWP 16-05-01
STORMWATER MANAGEMENT
Takoma Park, MD

[✓] Permit [ ] Waiver
[ ] Exemption [ ] Variance

[✓] Approved [ ] Not Approved
[ ] Approved as Noted [ ] Revise & Resubmit

Approval inconsistent with any provision of Takoma Park Municipal Code Title 16 most current Ordinance which is not specifically noted and identified as an authorized deviation from the Ordinance does not relieve the applicant of responsibility for compliance with all provisions of the Ordinance.

Ali Khalilian 10-24-2016
City Engineer Date

SHEET INDEX

SHEET TITLE	SHEET NUMBER
COVER SHEET	SWM-1
STORMWATER MANAGEMENT PLAN	SWM-2
MICRO - BIORETENTION DETAILS	SWM-3

BOHLER ENGINEERING

16701 MELFORD BLVD , SUITE 310
BOWIE, MARYLAND 20715
Phone: (301) 809-4500
Fax: (301) 809-4501
BFox@BohlerEng.com
CONTACT: BRADFORD FOX, P.E.

REFERENCES

ALTA/ACSM LAND TITLE SURVEY:
BOHLER ENGINEERING
"18115 GEORGIA AVENUE
ELECTION DISTRICT NO.8
MONTGOMERY COUNTY, MARYLAND"
DATE: 12/10/14
REVISED: 01/08/15
PROJECT NO.: SB14200601

- **GEOTECHNICAL REPORT:**
GEOTECHNICAL REPORT TITLED: "SUBSURFACE EXPLORATION, LABORATORY TESTING, AND GEOTECHNICAL ENGINEERING ANALYSES"
PREPARED BY: ESC
DATED: 10 / 02 / 14
REVISED: 5/ 01 / 15
PROJECT NO.: 02:7394-E

OWNER
JBG/TAKOMA RETAIL CENTER, L.L.C.
4445 WILLARD AVE., SUITE 400
CHEVY CHASE, MD 20815
PHONE: 301-657-0700
CONTACT: CARTER DAVIS

DEVELOPER/APPLICANT
RJP CONSULTING GROUP
100 East Lancaster Avenue, Suite 200
DOWNINGTON, PA 19335
PHONE: 610-518-2930
CONTACT: WILL LEWIS

CIVIL ENGINEER
BOHLER ENGINEERING
16701 MELFORD BOULEVARD, SUITE 310
BOWIE, MD 20715
PHONE: (301) 809 - 4500
CONTACT: MATTHEW K. JONES, P.E.

GEOTECHNICAL ENGINEER
ECS MID-ATLANTIC, LLC
1340 CHARWOOD ROAD, SUITE A
HANOVER, MD 21076
PHONE: (410) 859-4300
CONTACT: ZACHARY ADCOCK

ARCHITECT
GLMV ARCHITECTURE
1525 E. DOUGLAS
WITCHITA, KS 67211
PHONE: (316)265-9367
CONTACT: CARMEN ONKEN

NOTES

1. NO FLOODPLAINS EXIST ON THE PROPERTY PER FEMA MAP #24031C0480D.
2. NO WETLANDS EXIST ON-SITE.
3. NO STORMDRAIN WAS ENCOUNTERED IN SITE VICINITY DURING THE PREPARATION OF THE ALTA/ACSM LAND TITLE SURVEY PREPARED BY BOHLER ENGINEERING DATED JANUARY 09, 2015. THIS CONDITION WAS CONFIRMED BY THE CITY ENGINEER IN THE STORMWATER CONCEPT APPLICATION LETTER DATED MARCH 19, 2015.

City of Takoma Park

DEPARTMENT OF PUBLIC WORKS
Telephone: 301-891-7633
5/12/2015May 12, 2015FAX: 301-585-2405

31 Oswego Avenue
Silver Spring, MD 20910

Mr. Bradford Fox, P.E.
Bohler Engineering
16701 Melford Blvd.
Bowie, MD 20715

May 12, 2015

Re: SWC 15-03-01 Takoma
7681 New Hampshire Avenue,
Takoma Park MD (Taco Bell)

Dear Mr. Fox:

This is to inform you that the above reference application has been reviewed. The referenced Concept Approval application and response package submitted on 5/12/2015 were found acceptable. A tree protection plan approved by the City Arborist, if required for this project should be obtained as a condition of this approval.

Please refer to Takoma Code title 16 for complete description of Stormwater Management Plan Permit requirements. A summary expert of SWM Permit requirement documents is listed below for your convenience.

1. SWM Permit application,
2. Three (3) Copies of the final SWM plans
3. Sediment and Erosion Control set of plans approved by MC DPS.
4. Construction cost estimate of SWM facilities for the propose of setting the Bond
5. A Permit fee Equal to 10 % of the total cost of SWM facilities
6. A performance Bond equal to the approved construction cost of the SWM facilities
7. Declaration of Covenants inspection/Maintenance of Stormwater Management System
8. Maintenance schedule developed for the life of SWM facilities installed on the Plans
9. Schedule for staged inspection and reports (Takoma Code 16.04.210, 16.04.260).
10. Takoma Park Code Section 16.04.30 provides that "

"*The City Manager, in his or her sole discretion, may accept the certification of a registered professional engineer licensed in Maryland in lieu of any inspection during construction required by this chapter*".

Under this option, the owner shall in a letter name the professional engineer registered in Maryland who would be providing inspection and certification for all the stages of construction described in the referenced section of Takoma Code including preparation and presentation of the final As- Built plans and certifications.

SWC 15-03-01 for 7681 New Hampshire Avenue, Takoma Park MD (Taco Bell)

Upon Completion of the project and prior to Bond release, an as-built plan of the SWM facilities along with certification by a professional engineer shall be submitted to this department. I appreciate the opportunity to be of service; should you require additional assistance please call the undersigned at 301-8917620.

Sincerely,

Ali Khalilian, P.E.
City Engineer
City of Takoma Park
cc: Daryl Braithwaite
Todd Bolton
File

PROFESSIONAL CERTIFICATION
I, MATTHEW K. JONES, HEREBY CERTIFY THAT THESE DOCUMENTS 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. 39999, EXPIRATION DATE: 3/15/2017

BOHLER ENGINEERING™
SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING · PROGRAM MANAGEMENT · LANDSCAPE ARCHITECTURE
SUSTAINABLE DESIGN · PERMITTING SERVICES · TRANSPORTATION SERVICES

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- UPSTATE NEW YORK
- BOSTON, MA
- NEW YORK METRO
- PHILADELPHIA/SOUTHERN NJ
- LEHIGH VALLEY, PA
- SOUTHEASTERN, PA
- BALTIMORE, MD
- SOUTHERN MARYLAND
- NORTHERN VIRGINIA
- CENTRAL VIRGINIA
- CHARLOTTE, NC
- RALEIGH, NC

REVISIONS

REV	DATE	COMMENT	BY

DIG WITH CARE · CALL BEFORE YOU DIG

THE FOLLOWING STATES REQUIRE NOTIFICATION BY EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN THE STATE. IN VIRGINIA, MARYLAND, THE DISTRICT OF COLUMBIA, NORTH CAROLINA AND DELAWARE CALL - **811**
(WV 1-800-245-4848) (PA 1-800-242-1776) (DC 1-800-257-7777) (VA 1-800-552-7001) (MD 1-800-257-7777) (DE 1-800-282-8555)

NOT APPROVED FOR CONSTRUCTION

PROJECT No.:	MB14200601
DRAWN BY:	JDC
CHECKED BY:	BLF
DATE:	05/05/16
SCALE:	AS SHOWN
CAD I.D.:	SW1

PROJECT:

TAKOMA PARK TACO BELL

FOR

MUY TACO BELL

LOCATION OF SITE
1300 HOLTON LANE
TAKOMA PARK, MD 20912
MONTGOMERY COUNTY
LOTS 55 & 56
GUDE AND ABRAHAM'S

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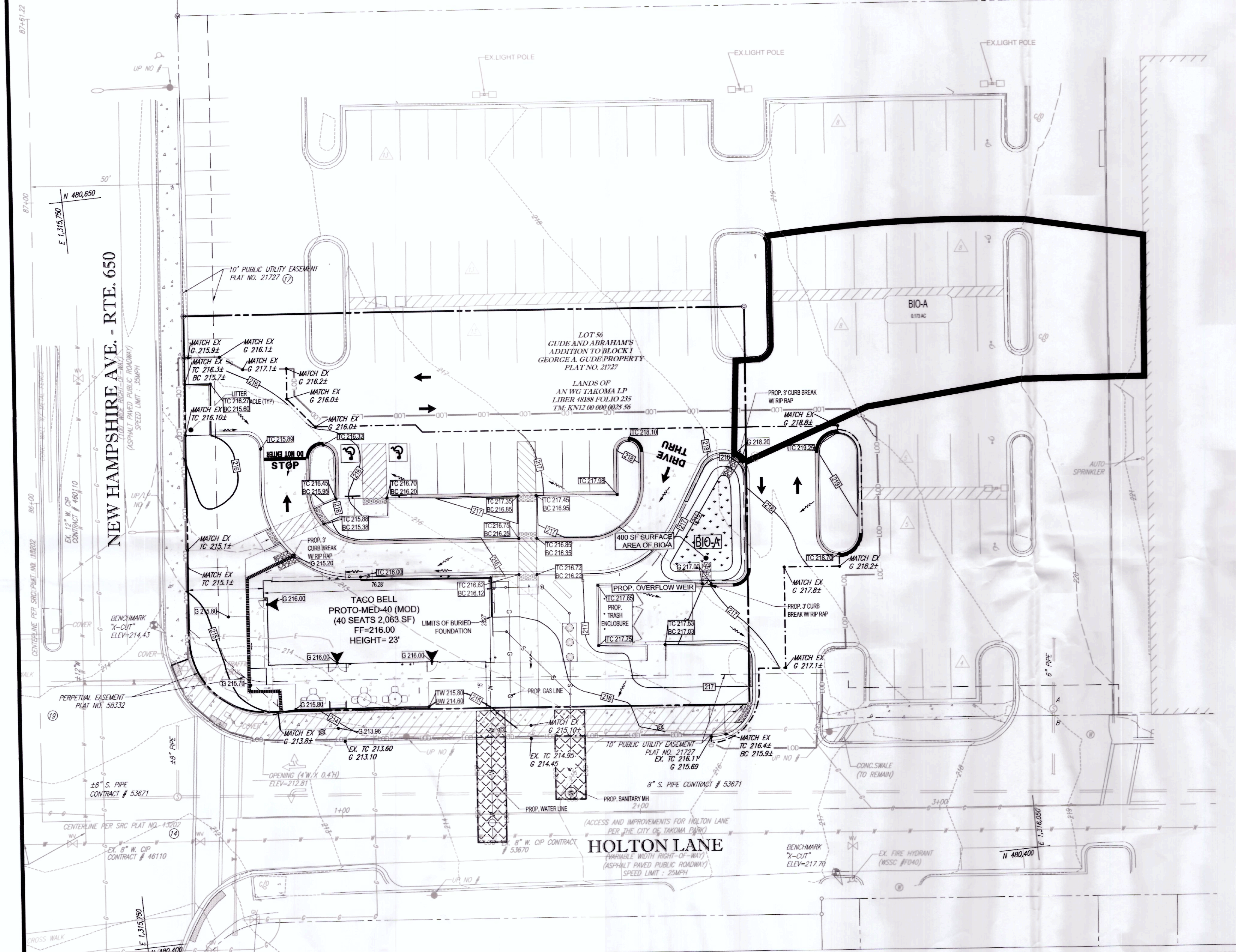
16701 MELFORD BLVD , SUITE 310
BOWIE, MARYLAND 20715
Phone: (301) 809-4500
Fax: (301) 809-4501
MD@BohlerEng.com

M. K. JONES
PROFESSIONAL ENGINEER
05/05/16

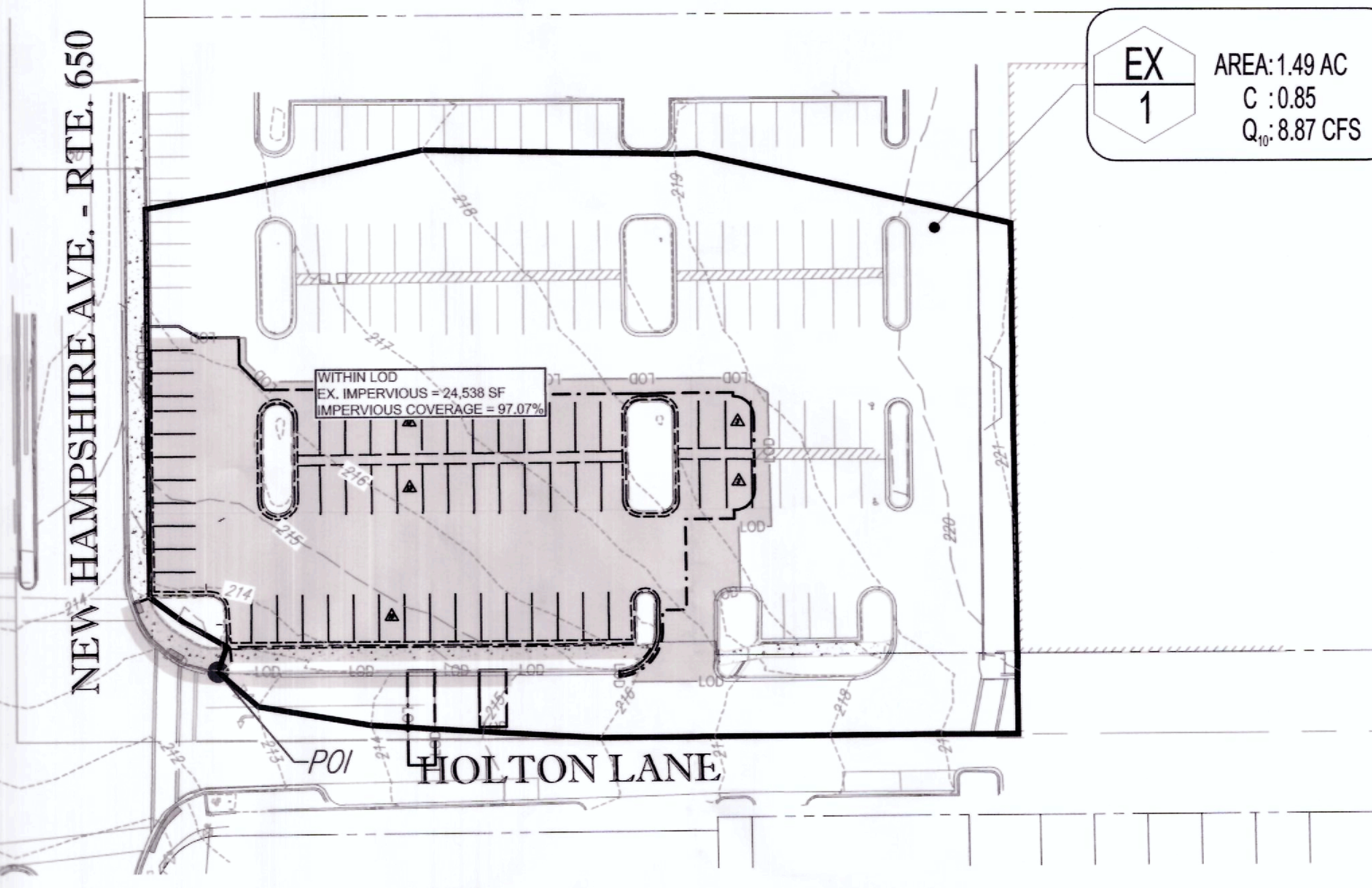
SHEET TITLE:
COVER PAGE

SHEET NUMBER:
SWM-1
OF 3

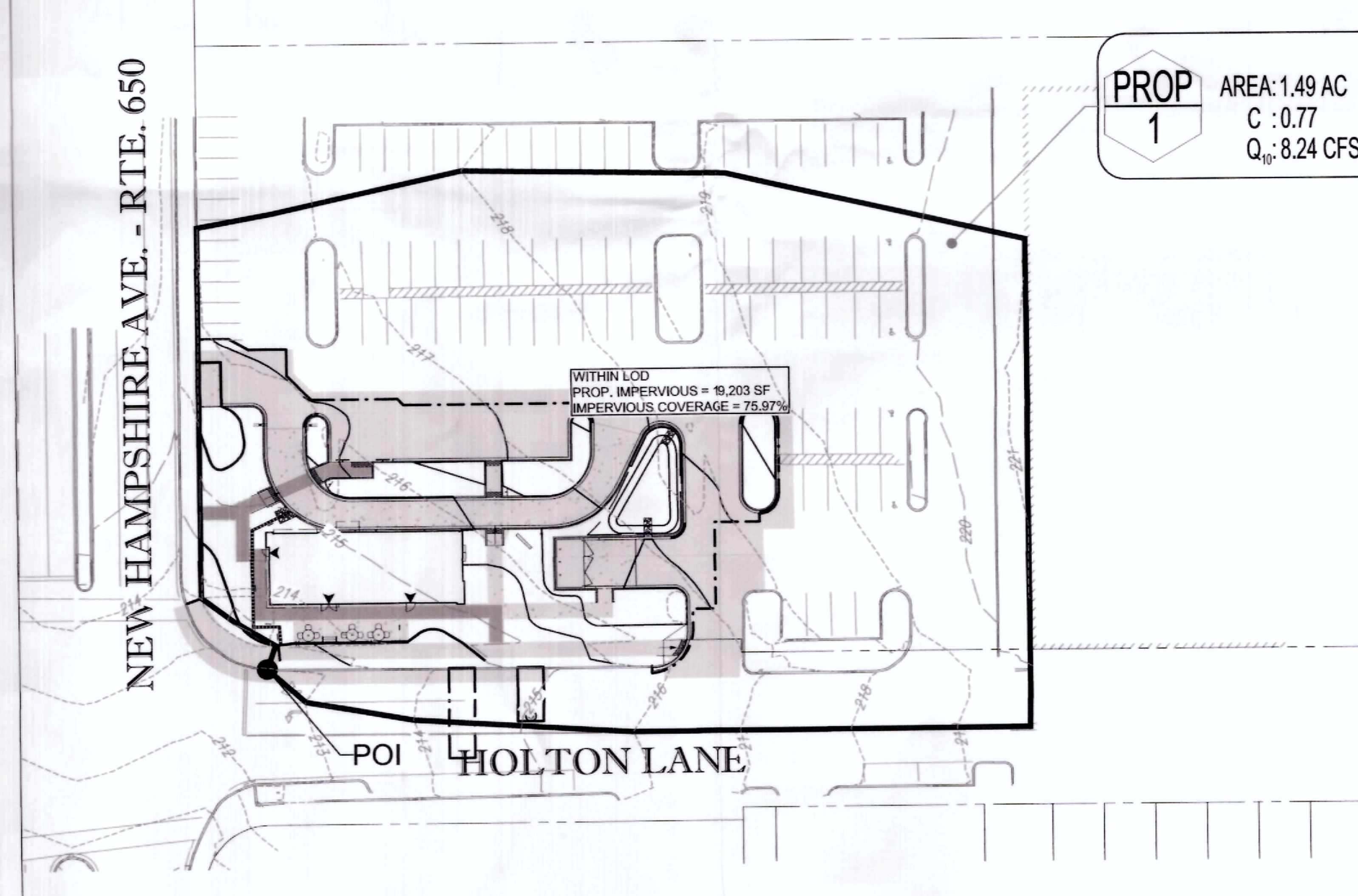


20 10 5 0 20

1"= 20'



PRE-DEVELOPMENT DRAINAGE AREA
1"=50'



POST-DEVELOPMENT DRAINAGE AREA
1"=50'

SOILS LEGEND

400"	URBAN LAND

*NOTE: ALL SOILS ON SITE ARE URBAN LAND

LIMIT OF DISTURBANCE = 0.58 ± AC.

ESD PRACTICE SUMMARY

	AREA (SF)	MICRO-BIO ESDv PROVIDED (CF)
BIO-A	7536	1187

APPLICATION NO.:__________
STORMWATER MANAGEMENT
Takoma Park, MD

[ ] Permit [ ] Waiver
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Ali Khalilian 10-24-2016

City Engineer Date

GENERAL NOTES

1. THIS PLAN IS BASED UPON THE FOLLOWING ALTA/ACSM LAND TITLE SURVEY:

   PREPARED BY: BOHLER ENGINEERING
   TITLED: "TACO BELL- TAKOMA PARK
   7681 NEW HAMPSHIRE AVE.
   (13TH) ELECTION DISTRICT
   MONTGOMERY COUNTY, MARYLAND"
   FIELD DATE: 12/09/14
   DATED: 12/10/14
   PROJECT NO.: SB14200601

2. NO ERODIBLE SOILS OR STEEP SLOPES EXIST WITHIN THE LIMITS OF DISTURBANCE.

3. REDEVELOPMENT STORMWATER WQv COMPUTATIONS:

   LIMIT OF DISTURBANCE = 0.58 ACRES
   EXISTING IMPERVIOUS AREA = 0.53 ACRES
   PROPOSED IMPERVIOUS AREA = 0.42 ACRES
   REDUCED IMPERVIOUS AREA = 0.11 ACRES OR 21.6%
   TOTAL REQUIRED AREA TO BE TREATED = 6,573 SF
   TOTAL PROVIDED AREA TO BE TREATED = 7,536 SF

   VOLUME REQUIRED TO BE TREATED = 1,041 CF
   VOLUME PROVIDED TO BE TREATED = 1,188 CF

LEGEND

IMPERVIOUS AREA WITHIN LOD	(shaded)
LIMITS OF DISTURBANCE (LOD)	— LOD —
DRAINAGE AREA	(heavy line)

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TAKOMA PARK TACO BELL

FOR

MUY TACO BELL

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MD@BohlerEng.com

M. K. JONES
PROFESSIONAL ENGINEER
05/05/16

SHEET TITLE:
STORMWATER MANAGEMENT PLAN

SHEET NUMBER:
SWM-2
OF 3

Appendix B.4. Construction Specifications for Environmental Site Design Practices

Base Course - The base course shall be AASHTO No. 3 or 4 course aggregate with an assumed open pore space of 30% ($n = 0.30$).

3. Reinforced Turf

Reinforced Grass Pavement (RGP) – Whether used with grass or gravel, the RGP thickness shall be at least 1¾" thick with a load capacity capable of supporting the traffic and vehicle types that will be carried.

B.4.C Specifications for Micro-Bioretention. Rain Gardens, Landscape Infiltration & Infiltration Berms

1. Material Specifications

The allowable materials to be used in these practices are detailed in Table B.4.1.

2. Filtering Media or Planting Soil

The soil shall be a uniform mix, free of stones, stumps, roots or other similar objects larger than two inches. No other materials or substances shall be mixed or dumped within the micro-bioretention practice that may be harmful to plant growth, or prove a hindrance to the planting or maintenance operations. The planting soil shall be free of Bermuda grass, Quackgrass, Johnson grass, or other noxious weeds as specified under COMAR 15.08.01.05.

The planting soil shall be tested and shall meet the following criteria:

- Soil Component - Loamy Sand or Sandy Loam (USDA Soil Textural Classification)
- Organic Content - Minimum 10% by dry weight (ASTM D 2974). In general, this can be met with a mixture of loamy sand (60%-65%) and compost (35% to 40%) or sandy loam (30%), coarse sand (30%), and compost (40%).
- Clay Content - Media shall have a clay content of less than 5%.
- pH Range – Should be between 5.5 - 7.0. Amendments (e.g., lime, iron sulfate plus sulfur) may be mixed into the soil to increase or decrease pH.

There shall be at least one soil test per project. Each test shall consist of both the standard soil test for pH, and additional tests of organic matter, and soluble salts. A textural analysis is required from the site stockpiled topsoil. If topsoil is imported, then a texture analysis shall be performed for each location where the topsoil was excavated.

3. Compaction

It is very important to minimize compaction of both the base of bioretention practices and the required backfill. When possible, use excavation hoes to remove original soil. If practices are

excavated using a loader, the contractor should use wide track or marsh track equipment, or light equipment with turf type tires. Use of equipment with narrow tracks or narrow tires, rubber tires with large lugs, or high-pressure tires will cause excessive compaction resulting in reduced infiltration rates and is not acceptable. Compaction will significantly contribute to design failure.

Compaction can be alleviated at the base of the bioretention facility by using a primary tilling operation such as a chisel plow, ripper, or subsoiler. These tilling operations are to refracture the soil profile through the 12 inch compaction zone. Substitute methods must be approved by the engineer. Rototillers typically do not till deep enough to reduce the effects of compaction from heavy equipment.

Rototill 2 to 3 inches of sand into the base of the bioretention facility before backfilling the optional sand layer. Pump any ponded water before preparing (rototilling) base.

When backfilling the topsoil over the sand layer, first place 3 to 4 inches of topsoil over the sand, then rototill the sand/topsoil to create a gradation zone. Backfill the remainder of the topsoil to final grade.

When backfilling the bioretention facility, place soil in lifts 12" to 18". Do not use heavy equipment within the bioretention basin. Heavy equipment can be used around the perimeter of the basin to supply soils and sand. Grade bioretention materials with light equipment such as a compact loader or a dozer/loader with marsh tracks.

4. Plant Material

Recommended plant material for micro-bioretention practices can be found in Appendix A, Section A.2.3.

5. Plant Installation

Compost is a better organic material source, is less likely to float, and should be placed in the invert and other low areas. Mulch should be placed in surrounding to a uniform thickness of 2" to 3". Shredded or chipped hardwood mulch is the only accepted mulch. Pine mulch and wood chips will float and move to the perimeter of the bioretention area during a storm event and are not acceptable. Shredded mulch must be well aged (6 to 12 months) for acceptance.

Rootstock of the plant material shall be kept moist during transport and on-site storage. The plant root ball should be planted so 1/8th of the ball is above final grade surface. The diameter of the planting pit shall be at least six inches larger than the diameter of the planting ball. Set and maintain the plant straight during the entire planting process. Thoroughly water ground bed cover after installation.

Trees shall be braced using 2" by 2" stakes only as necessary and for the first growing season only. Stakes are to be equally spaced on the outside of the tree ball.

Grasses and legume seed should be drilled into the soil to a depth of at least one inch. Grass and legume plugs shall be planted following the non-grass ground cover planting specifications.

The topsoil specifications provide enough organic material to adequately supply nutrients from natural cycling. The primary function of the bioretention structure is to improve water quality. Adding fertilizers defeats, or at a minimum, impedes this goal. Only add fertilizer if wood chips or mulch are used to amend the soil. Rototill urea fertilizer at a rate of 2 pounds per 1000 square feet.

7. Miscellaneous

These practices may not be constructed until all contributing drainage area has been stabilized

MAINTENANCE INSPECTION SCHEDULE

	YEAR 1				
	Spring	Summer	Fall	Winter	As Needed
Mulching	X				X
Raking Mulch	X	X	X	X	X
Weeding	X	X	X	X	X
Pruning			X	X	X
New Planting	X		X		
Watering					X
Removing Debris	X	X	X	X	X

EVERY THREE YEARS	
Mulching	X
Raking Mulch	X
Weeding	X
Pruning	X
New Planting	X
Watering	X
Removing Debris	X

MAINTENANCE INSPECTION SCHEDULE NOTES

1. ALL MAINTENANCE INSPECTION SHALL CONFORM TO CITY OF TAKOMA PARK CODE SECTION 16.04.260.
2. INSPECTION REPORTS FOR ESD TREATMENT PRACTICES AND STRUCTURAL STORMWATER MANAGEMENT SYSTEMS SHALL INCLUDE THE FOLLOWING (IF APPLICABLE):THE DATE OF INSPECTION, THE NAME OF THE INSPECTOR, AN ASSESSMENT OF THE QUALITY OF THE STORMWATER MANAGEMENT SYSTEM RELATED TO ESD TREATMENT PRACTICE EFFICIENCY AND THE CONTROL OF RUNOFF TO THE MEP, THE CONDITION OF VEGETATION OR FILTER MEDIA, FENCES OR OTHER SAFETY DEVICES, SPILLWAYS, VALVES, OR OTHER CONTROL STRUCTURES, EMBANKMENTS, SLOPES, AND SAFETY BENCHES; RESERVOIR OR TREATMENT AREAS; OUTLET OR INLET CHANNELS OR STRUCTURES, UNDERGROUND DRAINAGE, SEDIMENT LOAD AND DEBRIS ACCUMULATION IN STORAGE AND FOREBAY AREAS, ANY NONSTRUCTURAL PRACTICES TO THE EXTENT PRACTICABLE, OR ANY OTHER ITEM THAT COULD AFFECT THE PROPER FUNCTION OF THE STORMWATER MANAGEMENT SYSTEM; AND A DESCRIPTION OF NEEDED MAINTENANCE.
3. IF, AFTER AN INSPECTION, THE CONDITION OF A STORMWATER MANAGEMENT FACILITY PRESENTS AN IMMEDIATE DANGER TO THE PUBLIC HEALTH OR SAFETY BECAUSE OF AN UNSAFE CONDITION OR IMPROPER CONSTRUCTION OR POOR MAINTENANCE, THE CITY OF TAKOMA PARK SHALL TAKE SUCH ACTION AS MAY BE NECESSARY TO PROTECT THE PUBLIC AND MAKE THE FACILITY SAFE. THE OWNER(S) OF THE FACILITY SHALL BE ASSESSED ANY COSTS OF SUCH ACTION, AND THE COST SHALL BE A LIEN ON THE PROPERTY, WHICH MAY BE PLACED ON THE TAX BILL AND COLLECTED AS PROPERTY TAXES BY THE CITY OF TAKOMA PARK.
4. AFTER NOTIFICATION IS PROVIDED TO THE OWNER OF ANY DEFICIENCIES DISCOVERED FROM AN INSPECTION OF A STORMWATER MANAGEMENT SYSTEM, THE OWNER SHALL HAVE 30 DAYS OR SUCH OTHER TIME FRAME MUTUALLY AGREED TO BETWEEN THE CITY OF TAKOMA PARK AND THE OWNER, TO CORRECT THE DEFICIENCIES. THE CITY OF TAKOMA PARK SHALL THEN CONDUCT A SUBSEQUENT INSPECTION TO ENSURE COMPLETION OF THE REPAIRS.
5. IF REPAIRS ARE NOT PROPERLY UNDERTAKEN AND COMPLETED, ENFORCEMENT PROCEDURES AS SET FORTH IN THIS CHAPTER SHALL BE FOLLOWED BY THE CITY OF TAKOMA PARK.

GENERAL NOTE:

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW ALL OF THE DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THIS PROJECT WORK SCOPE PRIOR TO THE INITIATION OF CONSTRUCTION. SHOULD THE CONTRACTOR FIND A CONFLICT WITH THE DOCUMENTS RELATIVE TO THE SPECIFICATIONS OR APPLICABLE CODES, IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE PROJECT ENGINEER OF RECORD IN WRITING PRIOR TO THE START OF CONSTRUCTION. FAILURE BY THE CONTRACTOR TO NOTIFY THE PROJECT ENGINEER SHALL CONSTITUTE ACCEPTANCE OF FULL RESPONSIBILITY BY THE CONTRACTOR TO COMPLETE THE SCOPE OF THE WORK AS DEFINED BY THE DRAWINGS AND IN FULL CONFORMANCE WITH LOCAL REGULATIONS AND CODES.

Table B.4.1 Materials Specifications for Micro-Bioretention, Rain Gardens & Landscape Infiltration-			
Material	**Specification**	**Size**	**Notes**
Plantings	see Appendix A, Table A.4	n/a	plantings are site-specific
Planting soil [2' to 4' deep]	loamy sand (60 - 65%) & compost (35 – 40%) or sandy loam (30%), coarse sand (30%) & compost (40%)	n/a	USDA soil types loamy sand or sandy loam; clay content < 5%
Organic content	Min. 10% by dry weight (ASTM D 2974)		
Mulch	shredded hardwood		aged 6 months, minimum; no pine or wood chips
Pea gravel diaphragm	pea gravel: ASTM-D-448	NO. 8 OR NO. 9 (1/8" TO 3/8")	
Curtain drain	ornamental stone: washed cobbles	stone: 2" to 5"	
Geotextile		n/a	PE Type 1 nonwoven
Gravel (underdrains and infiltration berms)	AASHTO M-43	NO. 57 OR NO. 6 AGGREGATE (3/8" to 3/4")	
Underdrain piping	F 758, Type PS 28 or AASHTO M-278	4" to 6" rigid schedule 40 PVC or SDR35	Slotted or perforated pipe; 3/8" perf. @ 6" on center, 4 holes per row; minimum of 3" of gravel over pipes; not necessary underneath pipes. Perforated pipe shall be wrapped with ¼-inch galvanized hardware cloth
Poured in place concrete (if required)	MSHA Mix No. 3; $f'_c = 3500$ psi @ 28 days, normal weight, air-entrained; reinforcing to meet ASTM-615-60	n/a	on-site testing of poured-in-place concrete required: 28 day strength and slump test; all concrete design (cast-in-place or pre-cast) *not using previously approved State or local standards* requires design drawings sealed and approved by a professional structural engineer licensed in the State of Maryland - design to include meeting ACI Code 350.R/89; vertical loading [H-10 or H-20]; allowable horizontal loading (based on soil pressures); and analysis of potential cracking
Sand	AASHTO-M-6 or ASTM-C-33	0.02" to 0.04"	Sand substitutions such as Diabase and Graystone (AASHTO) #10 are not acceptable. No calcium carbonated or dolomitic sand substitutions are acceptable. No "rock dust" can be used for sand.

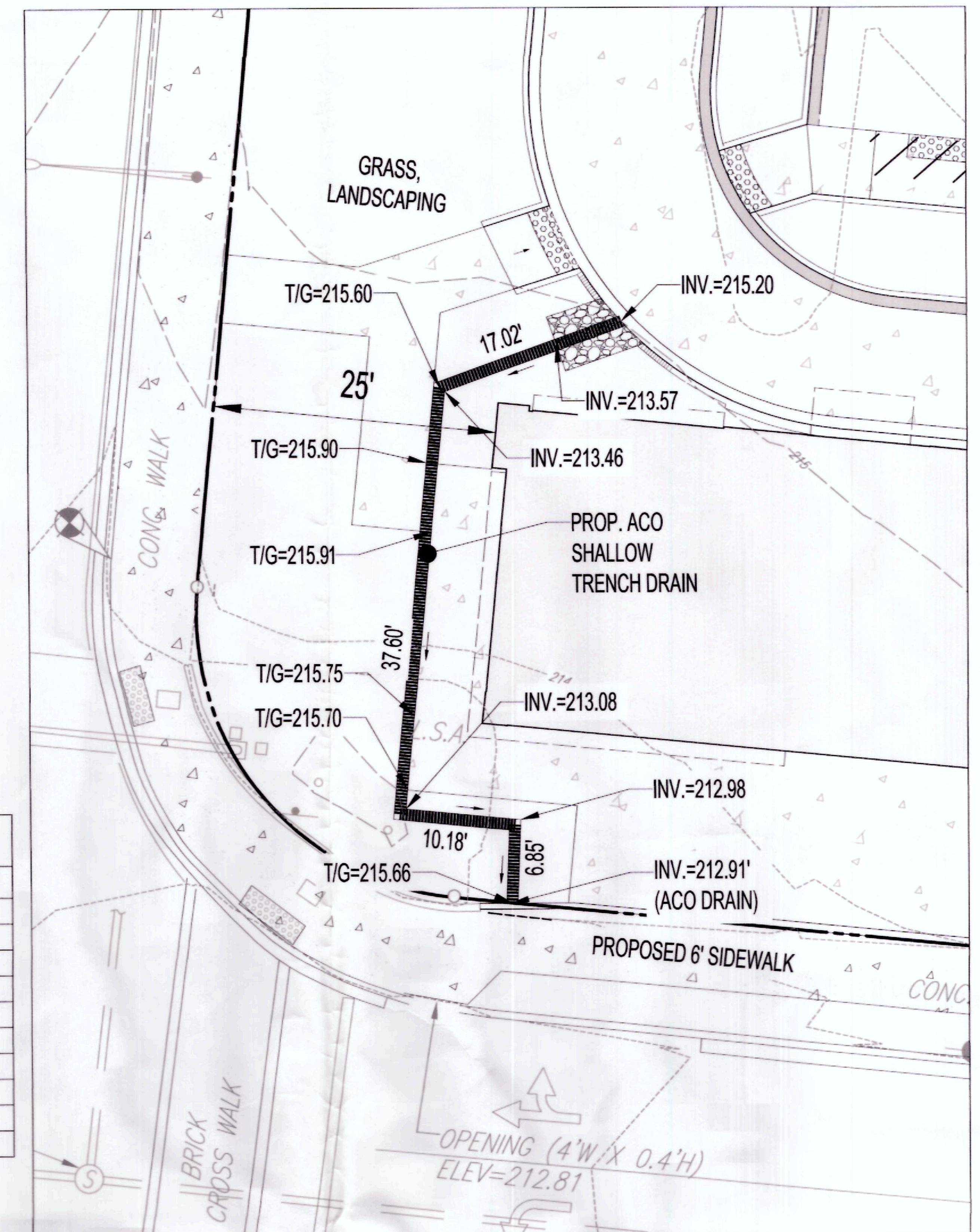
LANDSCAPE SCHEDULE

KEY	QTY.	BOTANICAL NAME	COMMON NAME	SIZE	REMARKS
SHADE TREE(S)					
BN	3	BETULA NIGRA	MULTI STEM RIVER BIRCH	12-14'	B+B
SUBTOTAL:	3				
DECIDUOUS SHRUB(S)					
CSF	15	CORNUS SERICEA 'FLAVIRAMEA'	YELLOW TWIG DOGWOOD	2-3'	B+B
SUBTOTAL:	15				
PERENNIAL(S)					
IVC	90	IRIS VERSICOLOR	BLUE FLAG IRIS	PLUG	
JE	143	JUNCUS EFFUSUS	COMMON RUSH	PLUG	
SUBTOTAL:	233				

SAND SPECIFICATIONS:

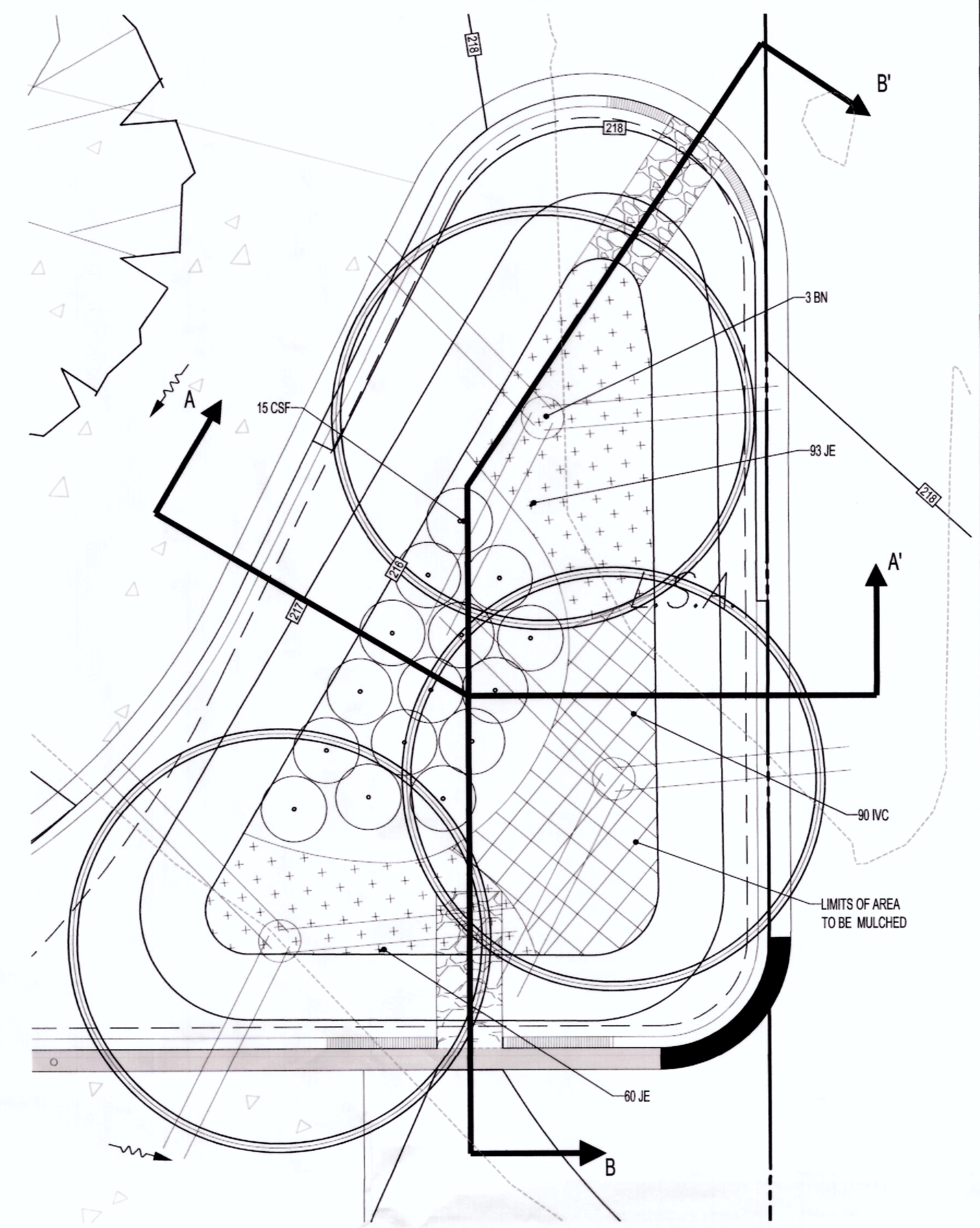
Washed ASTM C33 Fine Aggregate Concrete Sand is utilized for stormwater management applications in Montgomery County. In addition to the ASTM C33 specification, sand must meet ALL of the following conditions:

1. Sand must meet gradation requirements for ASTM C-33 Fine Aggregate Concrete Sand. AASHTO M-6 gradation is also acceptable.
2. Sand must be silica based ... no limestone based products may be used. If the material is white or gray in color, it is probably not acceptable.
3. Sand must be clean. Natural, unwashed sand deposits may not be used. Likewise, sand that has become contaminated by improper storage or installation practices will be rejected.
4. Manufactured sand or stone dust is not acceptable under any circumstance.



TRENCH DRAIN SCHEMATIC

NOT TO SCALE



MICROBIORETENTION #1 PLAN VIEW

1"=5'

APPLICATION NO.: SWP16-05-01
STORMWATER MANAGEMENT
Takoma Park, MD

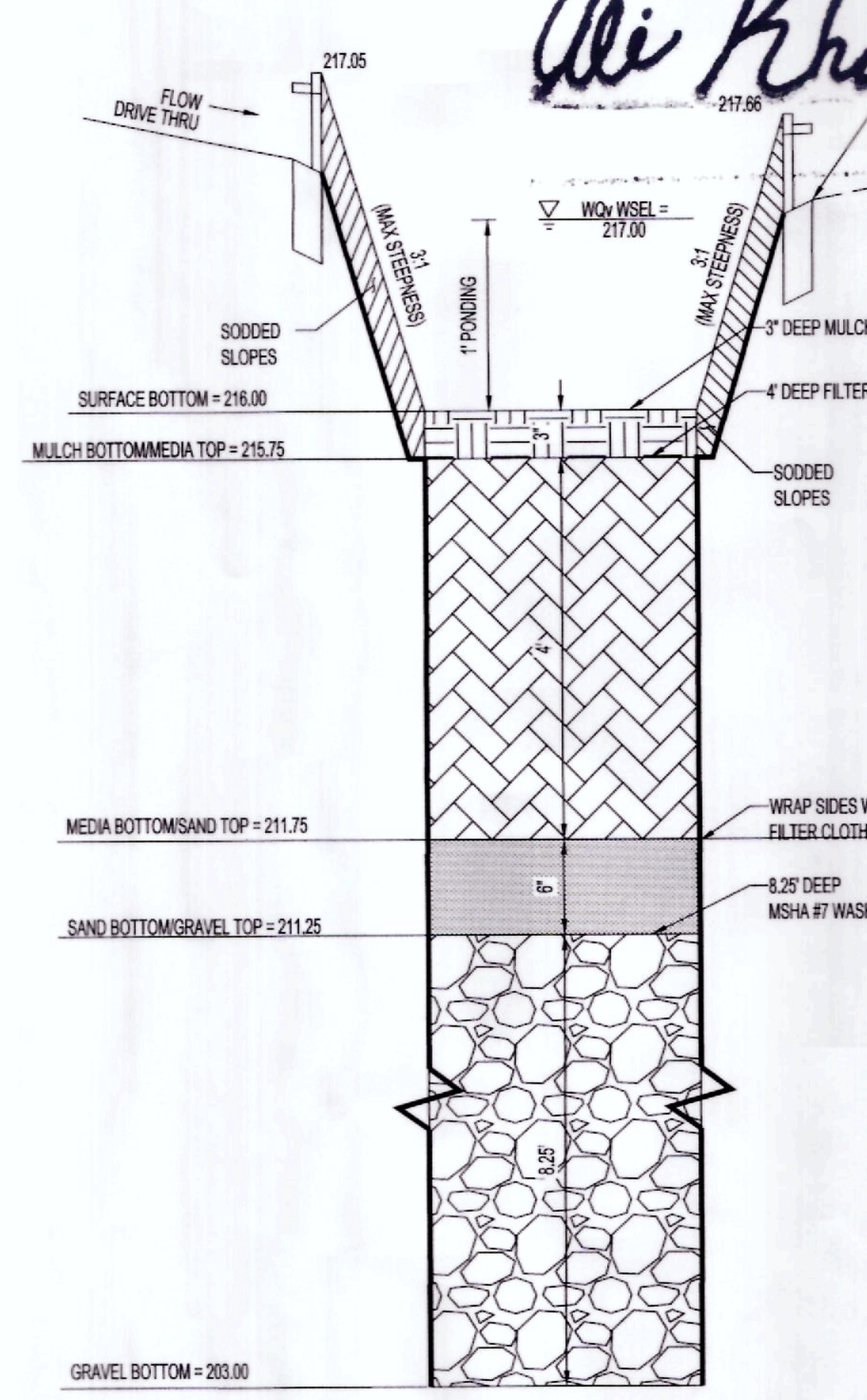
[ ] Permit [ ] Waiver
[ ] Exemption [ ] Variance

[ ] Approved [ ] Not Approved
[ ] Approved as Noted [ ] Revise & Resubmit

Approval inconsistent with any provision of Takoma Park Municipal Code Title 16 or current Ordinance which is not specifically noted and identified as an authorized deviation from the Ordinance does not relieve the applicant of responsibility for compliance with all provisions of the Ordinance.

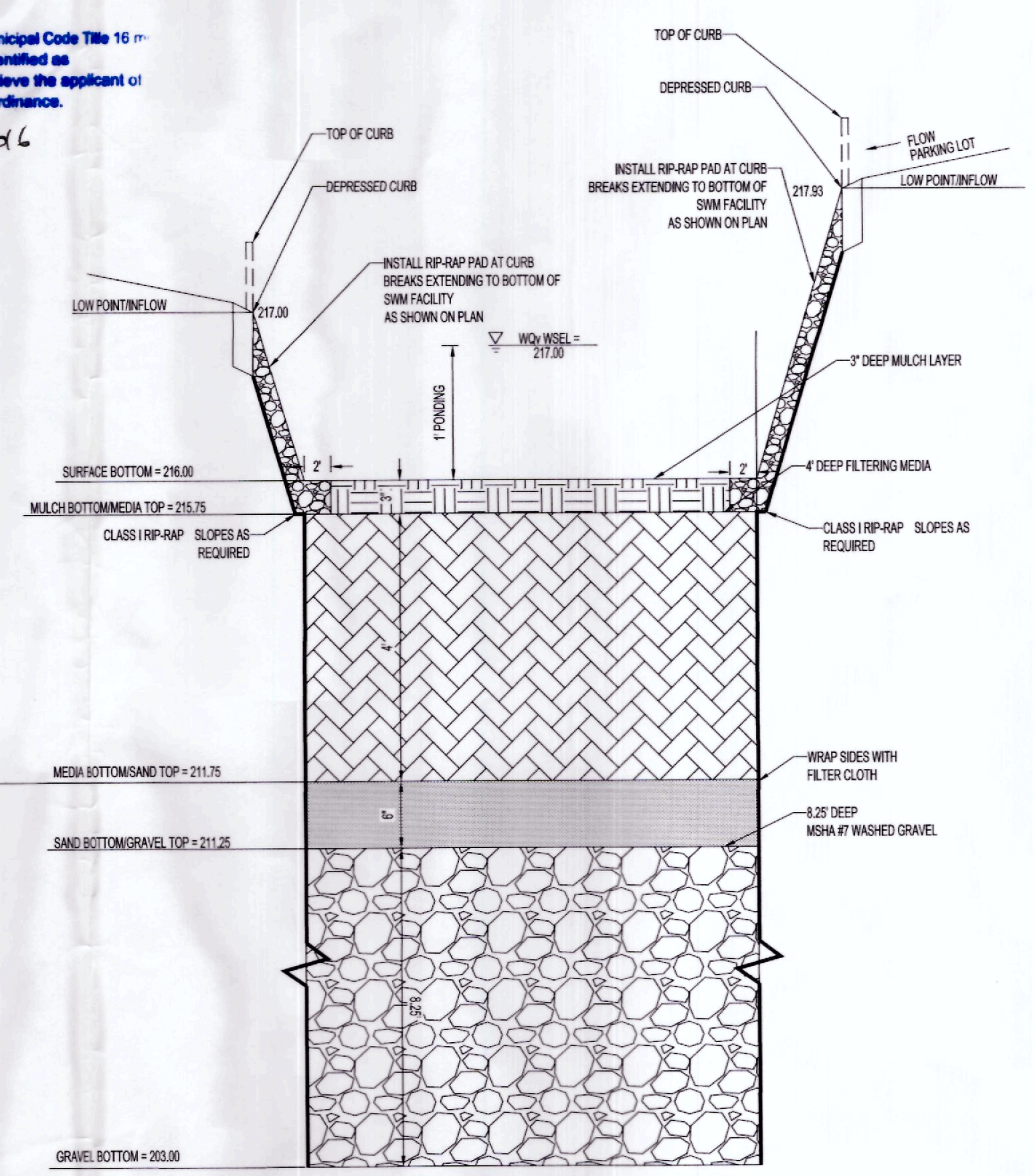
Ali Khalilian 10-24-2016

City Engineer Date



CROSS SECTION A-A'

NOT TO SCALE



CROSS SECTION B-B'

NOT TO SCALE

MICRO-BIORETENTION INSPECTION CHECKLIST		
STAGE	CITY INSPECTOR	OWNER/DEVELOPER
MANDATORY NOTIFICATION: INSPECTION AND APPROVAL OF EACH PRACTICE IS REQUIRED AT THESE POINTS PRIOR TO PROCEEDING WITH CONSTRUCTION. THE PERMITTEE IS REQUIRED TO GIVE THE CITY OF TAKOMA PARK CITY ENGINEER TWENTY FOUR (24) HOURS NOTICE (CITY OF TAKOMA PARK TELEPHONE 301-891-7633). THE CITY OF TAKOMA PARK CITY ENGINEER MAY WAIVE AN INSPECTION, AND ALLOW THE OWNER/DEVELOPER TO MAKE THE REQUIRED INSPECTION PER A PRIOR SCHEDULED ARRANGEMENT WHICH HAS BEEN CONFIRMED WITH THE CITY OF TAKOMA PARK CITY ENGINEER IN WRITING. WORK COMPLETED WITHOUT THE CITY ENGINEER APPROVAL MAY RESULT IN THE PERMITTEE HAVING TO REMOVE AND RECONSTRUCT THE UNAPPROVED WORK. **UPON COMPLETION OF THE PROJECT, A FORMAL STORMWATER MANAGEMENT AS-BUILT MUST BE SUBMITTED TO THE CITY OF TAKOMA PARK UNLESS A RECORD DRAWING CERTIFICATION HAS BEEN ALLOWED INSTEAD.** EACH OF THE STEPS LISTED BELOW MUST BE VERIFIED BY EITHER THE CITY OF TAKOMA PARK CITY ENGINEER OR THE OWNER/DEVELOPER.		
1. DURING EXCAVATION TO SUBGRADE		
2. DURING PLACEMENT OF AND BACKFILL OF UNDERDRAIN SYSTEMS		
3. DURING PLACEMENT OF GEOTEXTILES AND ALL FILTER MEDIA		
4.DURING CONSTRUCTION OF APPURTENANT CONVEYANCE SYSTEMS SUCH AS FLOW DIVERSION STRUCTURES, PRE-FILTERS AND FILTERS, INLETS, OUTLETS, ORIFICES, AND FLOW DISTRIBUTION STRUCTURES		
5. UPON COMPLETION OF FINAL GRADING AND ESTABLISHMENT OF PERMANENT STABILIZATION		

MICRO-BIORETENTION INSPECTION NOTES

1. ALL CONSTRUCTION INSPECTION AND CONSTRUCTION CONTROL SHALL CONFORM TO CITY OF TAKOMA PARK CODE SECTION 16.04.260.
2. THE OWNER/DEVELOPER SHALL NOTIFY THE CITY OF TAKOMA PARK AT LEAST 48 HOURS BEFORE COMMENCING ANY WORK IN CONJUNCTION WITH SITE DEVELOPMENT, THE STORMWATER MANAGEMENT PERMIT AND UPON COMPLETION OF THE PROJECT.
3. REGULAR INSPECTIONS SHALL BE MADE AND DOCUMENTED FOR EACH ESD PLANNING TECHNIQUE AND PRACTICE AT THE STAGES OF CONSTRUCTION SPECIFIED IN THE DESIGN MANUAL BY THE CITY OF TAKOMA PARK, ITS AUTHORIZED REPRESENTATIVE, OR CERTIFIED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF MARYLAND. AT A MINIMUM, ALL ESD AND OTHER NONSTRUCTURAL PRACTICES SHALL BE INSPECTED UPON COMPLETION OF FINAL GRADING, THE ESTABLISHMENT OF PERMANENT STABILIZATION, AND BEFORE ISSUANCE OF USE AND OCCUPANCY APPROVAL.
4. WRITTEN INSPECTION REPORTS SHALL INCLUDE: THE DATE AND LOCATION OF THE INSPECTION, WHETHER CONSTRUCTION WAS IN COMPLIANCE WITH THE APPROVED STORMWATER MANAGEMENT PLAN, ANY VARIATIONS FROM THE APPROVED CONSTRUCTION SPECIFICATIONS AND ANY VIOLATIONS THAT EXIST.
5. THE OWNER/DEVELOPER AND ON-SITE PERSONNEL SHALL BE NOTIFIED IN WRITING WHEN VIOLATIONS ARE OBSERVED. WRITTEN NOTIFICATION SHALL DESCRIBE THE NATURE OF THE VIOLATION AND THE REQUIRED CORRECTIVE ACTION.
6. NO WORK SHALL PROCEED ON THE NEXT PHASE OF DEVELOPMENT UNTIL THE CITY OF TAKOMA PARK INSPECTS AND APPROVES THE WORK PREVIOUSLY COMPLETED AND FURNISHES THE DEVELOPER WITH THE RESULTS OF THE INSPECTION AS SOON AS POSSIBLE AFTER COMPLETION OF EACH REQUIRED INSPECTION. ONCE CONSTRUCTION IS COMPLETE, AS-BUILT PLAN CERTIFICATION SHALL BE SUBMITTED BY EITHER A PROFESSIONAL ENGINEER OR PROFESSIONAL LAND SURVEYOR LICENSED IN THE STATE OF MARYLAND TO ENSURE THAT ESD PLANNING TECHNIQUES, TREATMENT PRACTICES, AND STRUCTURAL STORMWATER MANAGEMENT MEASURES AND CONVEYANCE SYSTEMS COMPLY WITH THE SPECIFICATIONS CONTAINED IN THE APPROVED PLANS. AT A MINIMUM, AS-BUILT CERTIFICATION SHALL INCLUDE A SET OF DRAWINGS COMPARING THE APPROVED STORMWATER MANAGEMENT PLAN WITH WHAT WAS CONSTRUCTED. THE CITY OF TAKOMA PARK MAY REQUIRE ADDITIONAL INFORMATION.
7. ONCE CONSTRUCTION IS COMPLETE, AS-BUILT PLAN CERTIFICATION SHALL BE SUBMITTED BY EITHER A PROFESSIONAL ENGINEER OR PROFESSIONAL LAND SURVEYOR LICENSED IN THE STATE OF MARYLAND TO ENSURE THAT ESD PLANNING TECHNIQUES, TREATMENT PRACTICES, AND STRUCTURAL STORMWATER MANAGEMENT MEASURES AND CONVEYANCE SYSTEMS COMPLY WITH THE SPECIFICATIONS CONTAINED IN THE APPROVED PLANS. AT A MINIMUM, AS-BUILT CERTIFICATION SHALL INCLUDE A SET OF DRAWINGS COMPARING THE APPROVED STORMWATER MANAGEMENT PLAN WITH WHAT WAS CONSTRUCTED. THE CITY OF TAKOMA PARK MAY REQUIRE ADDITIONAL INFORMATION.

PROFESSIONAL CERTIFICATION

I, MATTHEW K. JONES, HEREBY CERTIFY THAT THESE DOCUMENTS 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. 39999, EXPIRATION DATE: 3/15/2017

BOHLER ENGINEERING™

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REVISIONS			
REV	DATE	COMMENT	BY

THE FOLLOWING STATES REQUIRE NOTIFICATION BY EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN THE STATE. IN VIRGINIA, MARYLAND, THE DISTRICT OF COLUMBIA, NORTH CAROLINA AND DELAWARE CALL - 811
(WV 1-800-245-4848) (PA 1-800-242-1776) (DC 1-800-257-7777) (VA 1-800-552-7001) (MD 1-800-257-7777) (DE 1-800-282-8555)

NOT APPROVED FOR CONSTRUCTION

PROJECT No.:	MB14200601
DRAWN BY:	JDC
CHECKED BY:	BLF
DATE:	05/05/16
SCALE:	AS SHOWN
CAD I.D.:	SW1

PROJECT:

TAKOMA PARK TACO BELL

FOR

MUY TACO BELL

LOCATION OF SITE
1300 HOLTON LANE
TAKOMA PARK, MD 20912
MONTGOMERY COUNTY
LOTS 55 & 56
GUDE AND ABRAHAM'S

BOHLER ENGINEERING
16701 MELFORD BLVD , SUITE 310
BOWIE, MARYLAND 20715
Phone: (301) 809-4500
Fax: (301) 809-4501
MD@BohlerEng.com

M. K. JONES
PROFESSIONAL ENGINEER
05/05/16

SHEET TITLE:

MICRO - BIO DETAILS

SHEET NUMBER:

SWM-3
OF 3