CONSTRUCTION PLANS FOR

STRATFIELD DRIVE DRAINAGE IMPROVEMENTS-PHASE 2

CITY OF BROOKHAVEN

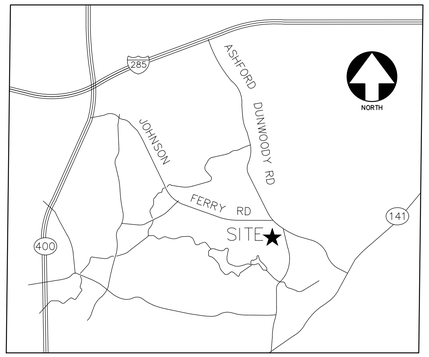
ZONED R-75
DEKALB COUNTY PARCELS: 18 301 07 010, 18 301 07 011, 18 301 07 012, 18 301 08 007, 18 301 08 008, 18 301 08 009, 18 301 08 010, 18 301 08 003

Prepared for

CITY OF BROOKHAVEN

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Ca	Cartecay silt loam, frequently flooded	1.2	0.6%
CuC	Cecil-Urban land complex, 2 to 10 percent slopes	71.0	34.9%
PIE	Pacolet sandy loam, 15 to 30 percent slopes	11.8	5.8%
PuE	Pacolet-Urban land complex, 10 to 25 percent slopes	89.8	44.1%
Ud	Urban land	10.2	5.0%
W	Water	19.5	9.6%
Totals for Area of Interest		**203.6**	**100.0%**



Vicinity Map
N.T.S.

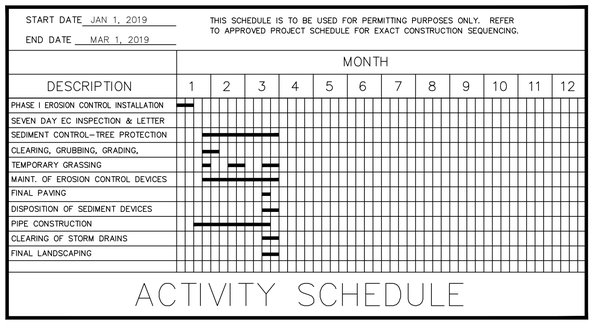
TOTAL AREA = 0.53 AC.
NEW CONSTRUCTION DISTURBED AREA = 0.53 AC.

BOUNDARY, TOPOGRAPHIC & TREE SURVEY REFERENCE:

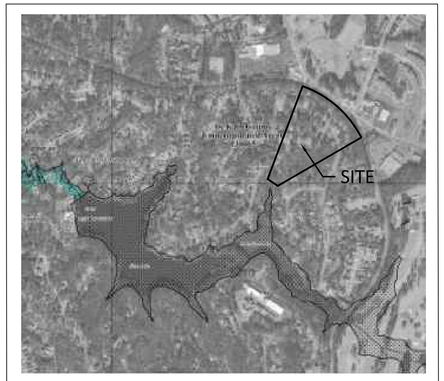
PORTIONS (PIPE CORRIDOR P1–A1) OF THE BOUNDARY, TOPOGRAPHIC AND TREE INFORMATION DEPICTED ON THIS LDP WERE TAKEN FROM A BOUNDARY & TOPOGRAPHIC SURVEY BY LOWE ENGINEERS DATED JANUARY 23, 2018. REMAINING SURVEY AND PLAT INFORMATION WAS OBTAINED FROM THE CITY OF BROOKHAVEN, AND CITY GIS SYSTEM.

START DATE JAN 1, 2019
END DATE MAR 1, 2019

THIS SCHEDULE IS TO BE USED FOR PERMITTING PURPOSES ONLY. REFER TO APPROVED PROJECT SCHEDULE FOR EXACT CONSTRUCTION SEQUENCING.



ACTIVITY SCHEDULE



NORTH

FLOOD PLAIN STATEMENT:

BY GRAPHIC PLOTTING ONLY, NO PORTION OF THIS SITE IS WITHIN THE LIMITS OF A 100 YEAR FLOOD HAZARD AREA AS PER F.I.R.M. DEKALB COUNTY, GEORGIA, AND INCORPORATED AREAS, COMMUNITY PANEL NO. 13089C0014J. PANELS BEAR AN EFFECTIVE DATE OF 05/16/2013.

THIS SITE IS NOT LOCATED WITHIN A ZONE DEFINED BY FIRM COMMUNITY PANEL NUMBER 13089C0014J FOR UNINCORPORATED DEKALB COUNTY, GEORGIA.

FLOOD MAP
N.T.S.

STORMWATER MANAGEMENT: STORMWATER MANAGEMENT IS ALREADY PROVIDED FOR THE NEIGHBORHOOD BY SILVER LAKE. THIS LDP IS A STORM SEWER INFRASTRUCTURE PLAN WITH NO ADDITIONAL IMPERVIOUS AREA PROPOSED. WATER QUALITY TREATMENT IS NOT REQUIRED FOR THIS LDP SINCE NO ADDITIONAL IMPERVIOUS AREA IS PROPOSED.

STATE WATERS NOTES:

1. NO DISTURBANCE IS PROPOSED TO STATE WATERS.
2. NO STATE WATERS ARE ON OR WITHIN 200 FEET OF THE PROPERTY.

INDEX

Sheet #	Title
C0.00	COVER SHEET
C1.00	EXISTING CONDITIONS
C1.20	STORM DEMOLITION PLAN
C2.00	STORM SEWER IMPROVEMENT PLAN
C3.00	STORM SEWER IMPROVEMENT PROFILE
C4.00	STORM SEWER TABS, QUANTITIES
C5.00	EROSION CONTROL PLAN
C6.00	EROSION CONTROL DETAILS
C6.10	EROSION CONTROL DETAILS
C6.20	EROSION CONTROL DETAILS
C6.30	NPDES
C6.40	NPDES
C6.50	NPDES
C6.60	NPDES
C7.00	STORM DETAILS
C7.10	STORM DETAILS
C7.20	TRAFFIC DETAILS
C7.30	TRAFFIC DETAILS
C8.00	TRAFFIC CONTROL PLAN

REVISIONS

REVISION	DATE	SHEET NUMBER(S)

OWNER/DEVELOPER/PRIMARY PERMITTEE:
CITY OF BROOKHAVEN PUBLIC WORKS
4362 PEACHTREE ROAD
BROOKHAVEN, GA 30319
CONTACT: GREG SCOTCHIE
470–495–4822

ENGINEER/SURVEYOR:
LOWE ENGINEERS
990 HAMMOND DR. ~ SUITE 900
ATLANTA, GEORGIA 30328
CONTACT: HELEN SIMPSON
PHONE: (770) 857–8428

24 HOUR CONTACT:
GREG SCOTCHIE
CITY OF BROOKHAVEN
470–495–4822
GREG.SCOTCHIE@BROOKH

GSWCC Georgia Soil and Water Conservation Commission
HELEN L SIMPSON
Level II Certified Design Professional
Certification Number 0000077050
Issued: 04/29/2016 Expires: 04/29/2019

811 Know what's below. Call before you dig

IF YOU DIG GEORGIA...
CALL US FIRST!
UTILITIES PROTECTION CENTER
IT'S THE LAW

DESIGN PROFESSIONAL'S CERTIFICATIONS

I CERTIFY THAT THE PERMITTEE'S EROSION, SEDIMENTATION, AND POLLUTION CONTROL PLAN PROVIDES FOR AN APPROPRIATE AND COMPREHENSIVE SYSTEM OF BEST MANAGEMENT PRACTICES REQUIRED BY THE GEORGIA WATER QUALITY CONTROL ACT AND THE DOCUMENT "MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA" PUBLISHED BY THE STATE SOIL AND WATER CONSERVATION COMMISSION AS OF JANUARY 1 OF THE YEAR IN WHICH THE LAND–DISTURBING ACTIVITY WAS PERMITTED, PROVIDES FOR THE SAMPLING OF THE RECEIVING WATER(S) OR THE SAMPLING OF THE STORM WATER OUTFALLS AND THE DESIGNED SYSTEM OF BEST MANAGEMENT PRACTICES AND SAMPLING METHODS IS EXPECTED TO MEET THE REQUIREMENTS CONTAINED IN THE GENERAL NPDES PERMIT NUMBER GAR 100001 FOR STAND ALONE PROJECTS.

I CERTIFY THAT THE PLAN PREPARER OR THE DESIGNEE THEREOF VISITED THE PROJECT SITE PRIOR TO THE CREATION OF THE PERMITTEE'S EROSION, SEDIMENTATION, AND POLLUTION CONTROL PLAN OR THAT SUCH A VISIT WAS NOT REQUIRED IN ACCORDANCE WITH RULES AND REGULATIONS ESTABLISHED BY THE BOARD AS SPECIFIED IN SECTION 12–7–9 OF THE OFFICIAL CODE OF GEORGIA.

I CERTIFY UNDER THE PENALTY OF LAW THAT THIS DOCUMENT AND ALL ATTACHMENTS WERE PREPARED UNDER MY DIRECTION OR SUPERVISION IN ACCORDANCE WITH A SYTEM DESIGNED TO ASSURE THAT QUALIFIED PERSONNEL PROPERLY GATHER AND EVALUATE THE INFORMATION SUBMITTED. BASED ON MY INQUIRY OF THE PERSON OR PERSONS WHO MANAGE THE SYSTEM, OR THOSE PERSONS DIRECTLY RESPONSIBLE FOR GATHERING THE INFORMATION, THE INFORMATION SUBMITTED IS, TO THE BEST OF MY KNOWLEDGE AND BELIEF, TRUE, ACCURATE, AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT FOR KNOWING VIOLATIONS.

DATE DESIGN PROFESSIONAL'S SIGNATURE

REVISIONS
NO. DATE

STRATFIELD DRIVE DRAINAGE IMPROVEMENTS - PHASE 2
LOCATED IN
20th DISTRICT
CITY OF BROOKHAVEN, DeKALB COUNTY

GEORGIA REGISTERED No. 040044 PROFESSIONAL ENGINEER HELEN L. SIMPSON

DATE: 10/23/2018

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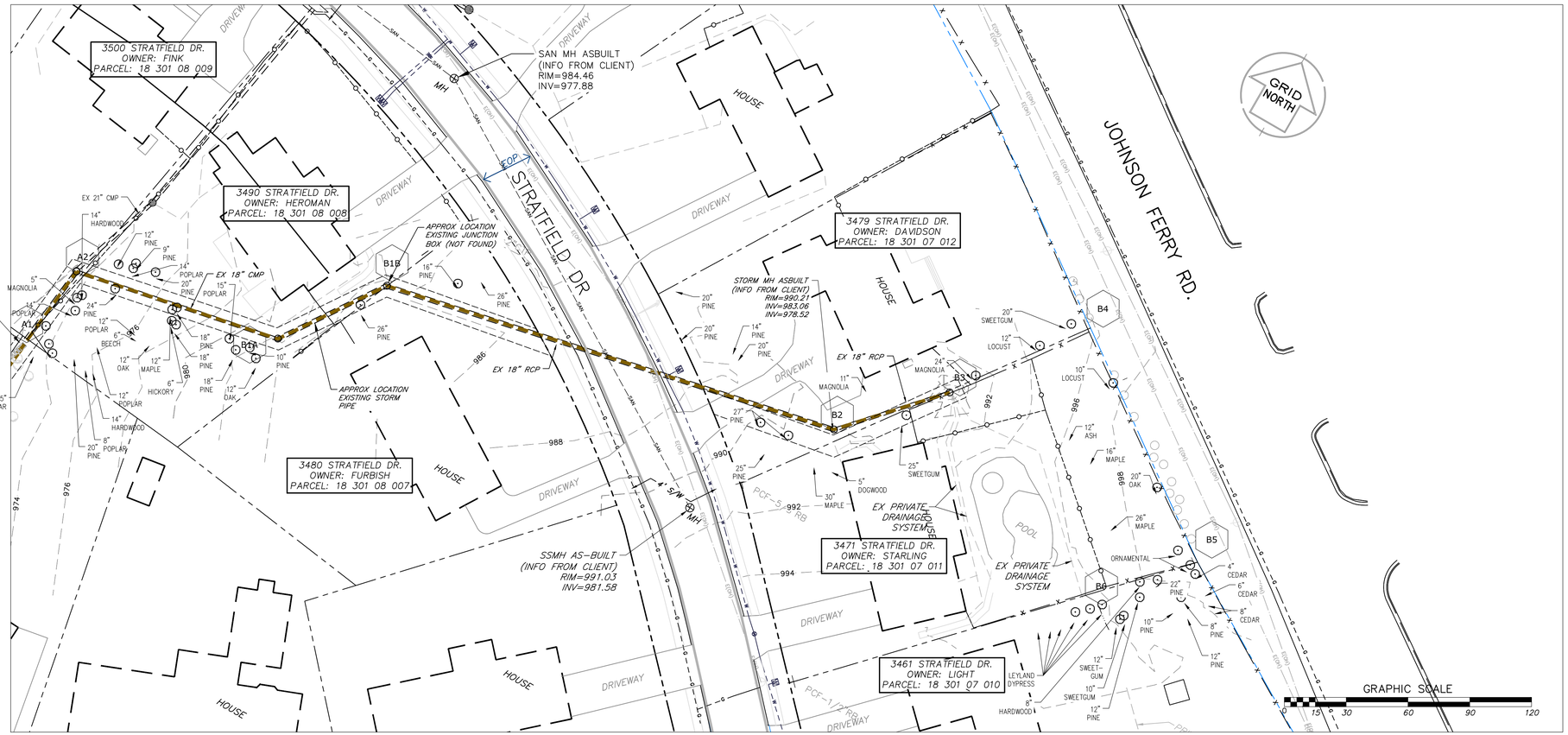
PROJECT #: 18-0009
DRAWN BY: HLS, BSA
CHECKED BY: HLS

COVER SHEET

LOWE ENGINEERS 6 Anniversary
990 HAMMOND DRIVE
SUITE 900
ATLANTA, GEORGIA 30328
TEL.: 770–857–8400
FAX: 770–857–8401

SHEET C0.00

NOT ISSUED FOR PERMIT REVIEW



NOTE: THE CONTRACTOR IS RESPONSIBLE FOR CALLING FOR UTILITY LOCATIONS PRIOR TO THE START OF THE PROJECT. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE HIS WORK WITH ANY UTILITY OWNER WHOM MAY BE IN CONFLICT WITH HIS WORK. NO CLAIMS FOR EXTRA COMPENSATION WILL BE CONSIDERED.

REVISIONS	
NO.	DATE

STRATFIELD DRIVE DRAINAGE IMPROVEMENTS - PHASE 2

LOCATED IN
20th DISTRICT
CITY OF BROOKHAVEN, DeKALB COUNTY

GEORGIA REGISTERED No. 040044 PROFESSIONAL ENGINEER HELEN L. SIMPSON

DATE: 10/23/2018

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PROJECT #: 18-0009
DRAWN BY: HLS, BSA
ENGINEED BY: HLS

EXISTING CONDITIONS

LOWE ENGINEERS
990 HAMMOND DRIVE
SUITE 900
ATLANTA, GEORGIA 30328
TEL.: 770-857-8400
FAX: 770-857-8401

SHEET
C1.00

NOT ISSUED FOR PERMIT REVIEW

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GRAPHIC SCALE

0 10 20 40 60 80

REVISIONS	
NO.	DATE

STRATFIELD DRIVE DRAINAGE IMPROVEMENTS - PHASE 2

LOCATED IN
20th DISTRICT,
CITY OF BROOKHAVEN, DeKALB COUNTY

GEORGIA REGISTERED No. 045044 PROFESSIONAL ENGINEER HELEN L. SIMPSON

DATE: 10/23/2018

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PROJECT #:	DRAWN BY:	DESIGNED BY:
18-0009	HLS, BSA	HLS

STORM DEMOLITION PLAN

LOWE ENGINEERS
990 HAMMOND DRIVE
SUITE 900
ATLANTA, GEORGIA 30328
TEL.: 770-857-8400
FAX: 770-857-8401

SHEET
C1.20

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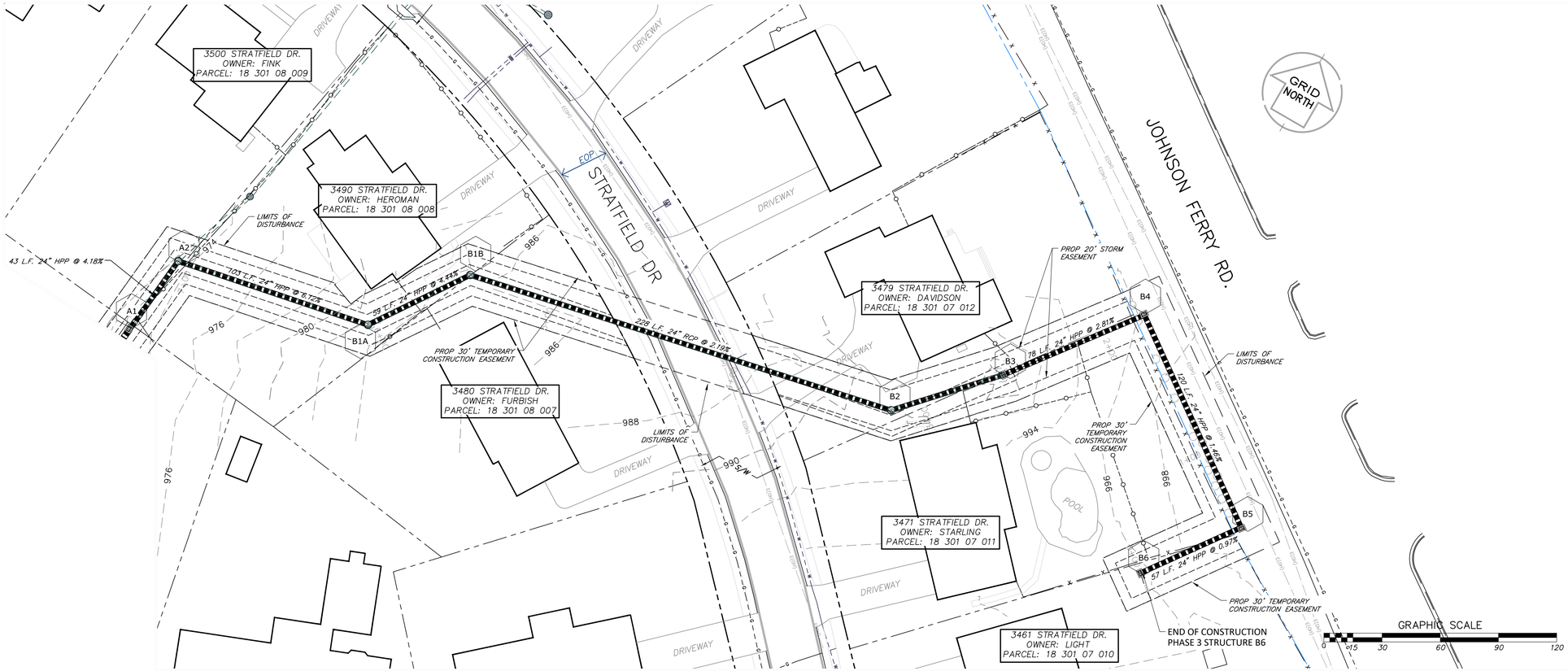

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REVISIONS	
NO.	DATE

STRATFIELD DRIVE DRAINAGE IMPROVEMENTS - PHASE 2

LOCATED IN
20th DISTRICT
CITY OF BROOKHAVEN, DeKALB COUNTY

GEORGIA REGISTERED No. 040044 PROFESSIONAL ENGINEER HELEN L. SIMPSON

DATE: 10/23/2018

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PROJECT #:	DRAWN BY:	CHECKED BY:
18-0009	HLS, BSA	HLS

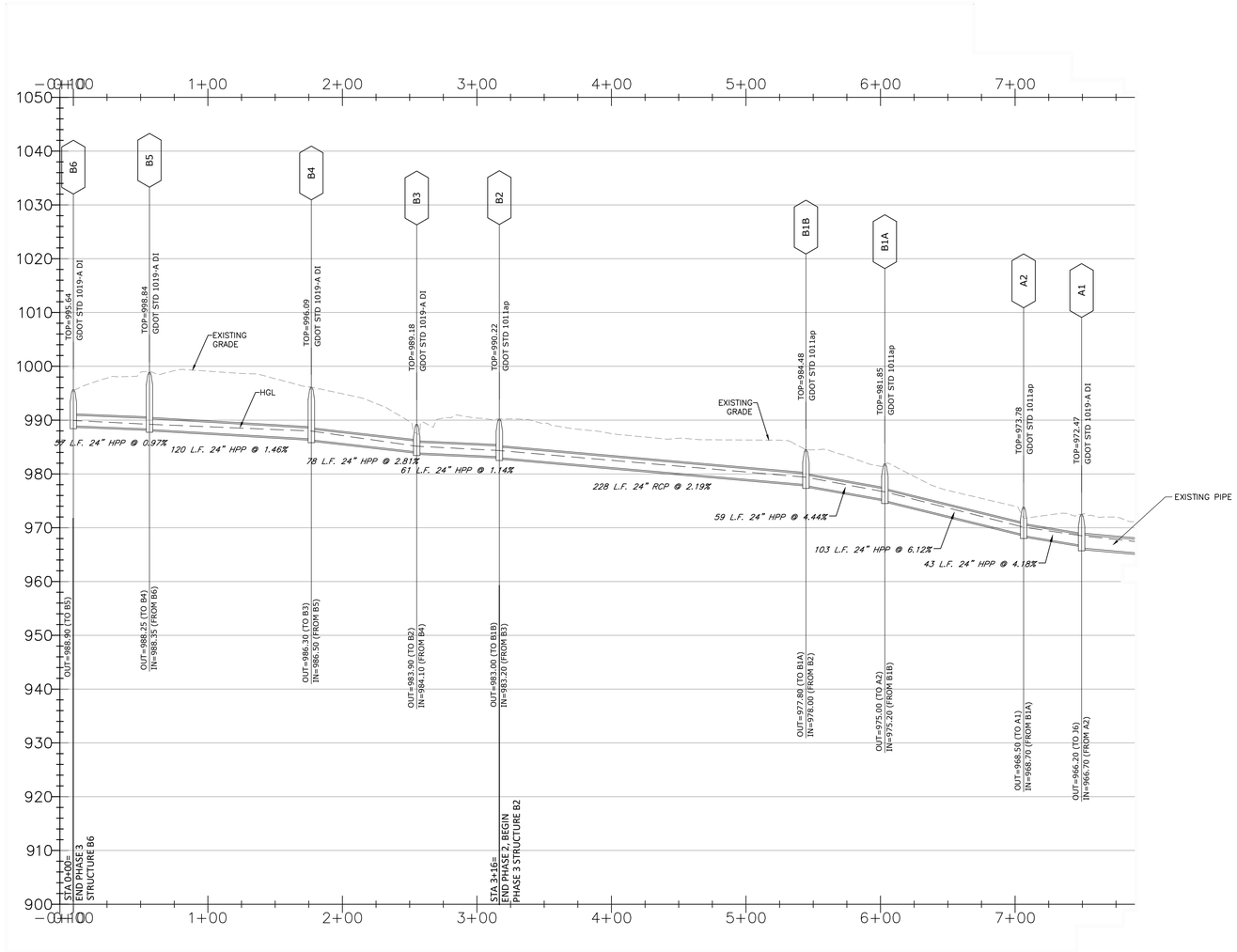
STORM SEWER IMPROVEMENT PLAN

LOWE ENGINEERS
6 Anniversary
990 HAMMOND DRIVE
SUITE 900
ATLANTA, GEORGIA 30328
TEL.: 770-857-8400
FAX: 770-857-8401

SHEET
C2.00

NOT ISSUED FOR PERMIT REVIEW

PROPOSED STORM DRAINAGE IMPROVEMENT PROFILE



NOTE: HPP PIPE OR EQUIVALENT WITH ADJUSTED BEDDING AS NEEDED

REVISIONS		
NO.	DATE	
7	09/14/18	JG-JA W/E XING

STRATFIELD DRIVE DRAINAGE IMPROVEMENTS - PHASE 2

LOCATED IN
20th DISTRICT
CITY OF BROOKHAVEN, DeKALB COUNTY

GEORGIA REGISTERED No. 040944 PROFESSIONAL ENGINEER HELEN L. SIMPSON

DATE: 10/23/2018

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PROJECT #: 18-0009
DRAWN BY: HLS, BSA
CHECKED BY: HLS

STORM SEWER IMPROVEMENT PROFILE

LOWE ENGINEERS
990 HAMMOND DRIVE
SUITE 900
ATLANTA, GEORGIA 30328
TEL.: 770-857-8400
FAX: 770-857-8401

SHEET
C3.00

NOT ISSUED FOR PERMIT REVIEW

ITEM	QUANTITY	UNIT
SAWCUT CONCRETE SIDEWALK	22	LF
DEMO & REPLACE CONCRETE SIDEWALK	416	SF
DEMO & REPLACE CURB & GUTTER	83	LF
CONCRETE DRIVEWAY (DEMO & REPLACE)	606	SF
SAWCUT CONCRETE DRIVEWAY	61	LF
DEMO & REPLACE ASPHALT PAVING	994	SF
DEMO 18" CMP	103	LF
DEMO 24" CMP	43	LF
DEMO 18" RCP	287	LF
DEMO STORM JUNCTION BOXES	6	EA
DEMO CHAIN LINK FENCING	188	LF
DEMO WOOD FENCING	265	LF
INSTALL CHAIN LINK FENCING (+ 1 GATE)	90	LF
INSTALL WOOD FENCING (+ 3 GATES)	292	LF
DEMO & REPLACE WATER MAIN	42	LF
DEMO & REPLACE GAS MAIN	42	LF
REMOVE TREES	55	EA
CONCRETE CRADLE SANITARY CROSSING	1	EA
SEDIMENT TRAPS:		
SD2W	2	EA
SD1S	3	EA
SD2SS	3	EA
SILT FENCE	2,860	LF
Ds2 SEEDING	21,733	SF
Ds3 SEEDING	3,454	SF
Ds4 SEEDING	21,150	SF
LIMITS OF DISTURBED AREA	23,127	SF
24" RCP	228	LF
24" HPP	521	LF
STORM JUNCTION DROP INLET	5	EA
STORM JUNCTION BOX	4	EA
TRAFFIC CONTROL SIGNS	1	LS

NOTES:
TRENCH EXCAVATION & BACKFILL TO BE INCLUDED IN PIPE PRICE

NOTES:
PROPOSING MUNICIPAL STORM SEWER INFRASTRUCTURE IMPROVEMENTS WITHIN THE CAMBRIDGE SUBDIVISION. THE EXISTING STORM SEWER WILL BE REMOVED AND REPLACED WITH A PIPE SYSTEM TO ADEQUATELY CARRY THE 25 YEAR STORM.

SITE AREA: 0.53 ACRES
DISTURBED ACREAGE: 0.53 ACRES
NO PROPOSED IMPERVIOUS AREA WITH THIS LDP

ZONING: R-75

FRONT SETBACK	30 FEET FOR LOCAL ROADWAY
REAR SETBACK	40 FEET
SIDE INTERIOR SETBACK	7.5 FEET
SIDE CORNER SETBACK	N/A
MINIMUM HEATED FLOOR AREA	1,600 SF
PARKING SPACE(S)/DWELLING UNIT	4 SPACES
MINIMUM REQUIRED LOT AREA	10,000 SF
MINIMUM REQUIRED LOT FRONTAGE	30 FEET FOR LOCAL ROADWAY
MIN REQ'D LOT WIDTH AT BUILDING LINE	75 FEET
MAXIMUM BUILDING HEIGHT	40 FEET
MAXIMUM LOT COVERAGE	35%

EXISTING IMPERVIOUS SURFACE AREA: N/A WITH INFRASTRUCTURE PROJECT

NO PROPOSED RETAINING WALLS WITH THIS LDP. SEE ASBUILT SURVEY FOR EXISTING RETAINING WALL DETAILS

NO STATE WATERS ARE LOCATED ONSITE NOR WITHIN 200 FEET OF THE SITE.

A RIGHT OF WAY ENCROACHMENT PERMIT IS REQUIRED FOR ANY DISTURBANCE WITHIN THE RIGHT OF WAY

CALL BEFORE YOU DIG (800) 282-7411

Storm Sewer Tabulation

Page 1

Station Line	Station To Line	Len (ft)	Drng Area Incr (ac)	Drng Area Total (ac)	Rnoff coeff (C)	Area x C Incr	Area x C Total	Tc Inlet (min)	Tc Syst (min)	Rain (I) (in/hr)	Total flow (cfs)	Cap full (cfs)	Vel (ft/s)	Pipe Size (in)	Pipe Slope (%)	Invert Elev Dn (ft)	Invert Elev Up (ft)	HGL Elev Dn (ft)	HGL Elev Up (ft)	Grnd / Rim Elev Dn (ft)	Grnd / Rim Elev Up (ft)	Line ID
1	End	100.500	0.05	23.19	0.60	0.03	13.02	5.0	19.9	5.4	69.73	121.5	9.18	48	2.05	939.89	941.95	942.06	944.47	0.00	950.16	P1-P2
2	1	32.800	0.05	17.64	0.60	0.03	9.29	5.0	19.7	5.4	49.92	110.9	6.80	48	1.71	942.03	942.59	944.47	944.71	950.16	950.49	P2-P3
3	2	207.800	0.27	17.34	0.65	0.18	9.04	5.0	19.2	5.4	49.14	85.19	10.50	36	4.67	943.59	953.30	945.23	955.58	950.49	959.96	P3-J3
4	3	122.500	1.10	17.07	0.65	0.72	8.86	5.0	18.9	5.5	48.54	120.5	8.88	36	3.27	953.50	957.50	955.58	959.77	959.96	965.28	J3-J4
5	4	51.000	4.40	15.07	0.50	2.20	7.61	10.0	18.8	5.5	41.77	77.05	10.26	30	3.53	958.00	959.80	959.77	961.96	965.28	966.07	J4-J5
6	5	97.000	1.40	10.67	0.38	0.53	5.41	5.0	18.5	5.5	29.88	67.14	7.42	30	2.68	960.00	962.60	961.96	964.46	966.07	968.11	J5-J6
7	6	154.700	0.00	9.27	0.00	0.00	4.87	0.0	18.0	5.6	27.25	60.80	7.58	30	2.20	962.80	966.20	964.46	967.98	968.11	973.01	J6-A1
8	7	43.000	0.00	9.27	0.00	0.00	4.87	0.0	17.9	5.6	27.30	46.28	11.00	24	4.19	966.70	968.50	967.98	970.31	973.01	974.00	A1-A2
9	8	103.000	0.00	4.43	0.00	0.00	2.20	0.0	17.5	5.7	12.44	55.94	5.26	24	6.12	968.70	975.00	970.31	976.27	974.00	980.66	A2-B1A
10	9	58.600	0.00	4.43	0.00	0.00	2.20	0.0	17.2	5.7	12.52	47.64	6.64	24	4.44	975.20	977.80	976.27	979.07	980.66	984.00	B1A-B1B
11	10	230.500	0.13	4.43	0.00	0.00	2.20	5.0	16.3	5.8	12.82	35.57	6.74	24	2.47	978.00	983.70	979.07	984.99	984.00	989.70	B1B-B2
12	11	63.700	0.52	4.30	0.00	0.00	2.20	5.0	16.0	5.9	12.91	23.71	6.33	24	1.10	983.80	984.50	984.99	985.79	989.70	989.50	B2-B3
13	12	78.300	0.25	3.78	0.00	0.00	2.20	5.0	15.7	5.9	13.01	30.24	6.35	24	1.79	984.60	986.00	985.79	987.30	989.50	996.50	B3-B4
14	13	120.200	0.25	3.53	0.00	0.00	2.20	5.0	15.2	6.0	13.18	29.54	6.77	24	1.71	986.20	988.25	987.30	989.56	996.50	997.00	B4-B5
15	14	56.600	3.28	3.28	0.67	2.20	2.20	15.0	15.0	6.0	13.26	22.30	6.39	24	0.97	988.35	988.90	989.56	990.21	997.00	994.00	B5-B6
16	8	46.500	0.00	4.84	0.00	0.00	2.68	0.0	5.9	8.1	21.65	14.69	9.00	21	0.86	970.89	971.29	972.64	973.51	974.00	974.89	A2-A3
17	16	120.600	1.23	4.84	0.61	0.75	2.68	5.0	5.7	8.2	21.84	39.00	9.21	21	6.06	971.29	978.60	973.75	980.24	974.89	983.55	A3-A4
18	17	31.700	2.96	3.61	0.55	1.63	1.93	5.0	5.6	8.2	15.76	16.37	8.92	18	2.43	978.60	979.37	980.24	980.95	983.55	983.81	A4-A5
19	18	51.900	0.65	0.65	0.46	0.30	0.30	5.0	5.0	8.4	2.51	11.75	1.42	18	1.25	979.37	980.02	982.16	982.19	983.81	983.12	A5-A6
20	4	29.300	0.90	0.90	0.60	0.54	0.54	5.0	5.0	8.4	4.53	8.88	4.83	18	2.05	960.90	961.50	961.66	962.32	965.28	965.00	L1-J4
21	1	26.000	0.25	0.50	0.90	0.23	0.45	5.0	5.5	8.2	3.69	39.23	2.58	24	8.62	942.16	944.40	944.47	945.07	950.16	952.89	P2-K1
22	21	32.500	0.25	0.25	0.90	0.23	0.23	5.0	5.0	8.4	1.89	7.54	3.47	18	1.48	944.55	945.03	945.07	945.55	952.89	953.17	K1-K2

Stratfield Drive | Number of lines: 24 | Run Date: 3/20/2018

NOTES:Intensity = 73.16 / (Inlet time + 13.10) ^ 0.75; Return period =Yrs. 25 ; c = cir e = ellip b = box

Storm Sewers v12.00

REVISIONS
NO. DATE

STRATFIELD DRIVE DRAINAGE IMPROVEMENTS - PHASE 2
LOCATED IN
20th DISTRICT
CITY OF BROOKHAVEN, DeKALB COUNTY

GEORGIA REGISTERED No. 045044 PROFESSIONAL ENGINEER HELEN L. SIMPSON

DATE: 10/23/2018

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PROJECT#: 18-0009
DRAWN BY: HLS, BSA
CHECKED BY: HLS

STORM SEWER TABS, QUANTITIES

LOWE ENGINEERS
990 HAMMOND DRIVE
SUITE 900
ATLANTA, GEORGIA 30328
TEL.: 770-857-8400
FAX: 770-857-8401

SHEET C4.00

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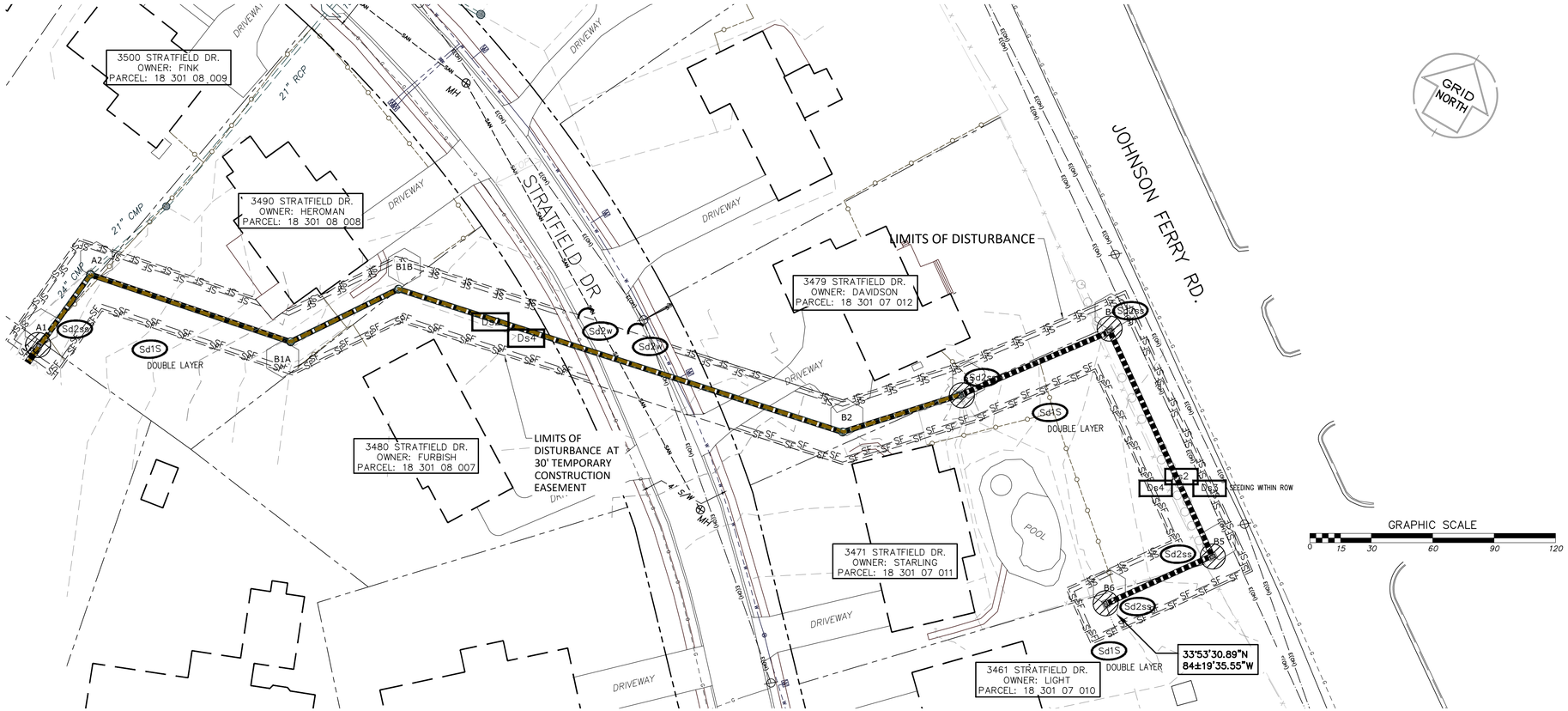

THE CONSTRUCTION ENTRANCES AND EXITS FROM THE ROADWAY RIGHT OF WAYS TO THE RESIDENT YARDS SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOW OF MUD ON TO PUBLIC RIGHT-OF-WAY. THIS MAY REQUIRE PERIODIC REPAIR AND/OR CLEAN-OUT OF ANY STRUCTURES USED TO TRAP SEDIMENT. ALL MATERIALS SPILLED, DROPPED, WASHED, OR TRACKED FROM VEHICLE ONTO PUBLIC ROADWAY OR INTO STORM DRAIN MUST BE REMOVED.

PRIOR TO COMMENCING LAND DISTURBANCE ACTIVITY, THE LIMITS OF LAND DISTURBANCE SHALL BE CLEARLY AND ACCURATELY DEMARCATED WITH STAKES, RIBBONS, OR OTHER APPROPRIATE MEANS. THE LOCATION AND EXTENT OF ALL AUTHORIZED LAND DISTURBANCE SHALL OCCUR WITHIN THE APPROVED LIMITS INDICATED ON THE APPROVED PLANS.

IMMEDIATELY AFTER THE ESTABLISHMENT OF CONSTRUCTION ENTRANCES/EXIT AND ADJACENT WASH AREAS LOCATIONS, ALL PERIMETER EROSION CONTROL DEVICES AND STORM WATER MANAGEMENT DEVICES SHALL BE INSTALLED PRIOR TO ANY OTHER CONSTRUCTION.

OWNER AGREES TO PROVIDE AND MAINTAIN OFF-STREET PARKING ON THE SUBJECT PROPERTY DURING THE ENTIRE CONSTRUCTION PERIOD.

THE CONTRACTOR SHALL FURNISH AND MAINTAIN ALL NECESSARY BARRICADES WHILE ROADWAY FRONTAGE IMPROVEMENTS ARE BEING MADE.

THE CONSTRUCTION OF THE SITE WILL INITIATE WITH THE INSTALLATION OF EROSION CONTROL MEASURES SUFFICIENT TO CONTROL SEDIMENT DEPOSITS AND EROSION. ALL SEDIMENT CONTROL WILL BE MAINTAINED UNTIL ALL UP STREAM GROUND WITHIN THE CONSTRUCTION AREA HAS BEEN COMPLETELY STABILIZED WITH PERMANENT VEGETATION AND ALL ROADS/DRIVEWAYS HAVE BEEN PAVED.

FAILURE TO INSTALL, OPERATE OR MAINTAIN ALL EROSION CONTROL MEASURES WILL RESULT IN ALL CONSTRUCTION BEING STOPPED ON THE JOB SITE UNTIL SUCH MEASURES ARE CORRECTED CONSISTENT WITH THE CITY OF BROOKHAVEN EROSION CONTROL ORDINANCE.

A COPY OF THE APPROVED LAND DISTURBANCE PLAN AND PERMIT SHALL BE PRESENT ON THE SITE WHENEVER LAND DISTURBANCE ACTIVITY IS IN PROGRESS.

ALL SEWER EASEMENTS DISTURBED MUST BE DRESSED AND GRASSED TO CONTROL EROSION.

Sd2P	INLET SEDIMENT TRAP, CURB INLET PROTECTION
Sd2ss	INLET SEDIMENT TRAP, SILT SAVER PROTECTION
Sd2w	SEDIMENT BARRIER WASH AREA AT CONSTRUCTION ENTRANCES TO RESIDENCE YARDS, SILT SAVER TRAVEL LANE WATTLE
Sd1S	SEDIMENT BARRIER, SENSITIVE AREA
Ds2	DISTURBED AREA STABILIZATION, TEMPORARY SEEDING
Ds3	DISTURBED AREA STABILIZATION, PERM SEEDING WITHIN ROW
Ds4	DISTURBED AREA STABILIZATION, WITH SODDING

EROSION CONTROL BMP'S WILL BE INSTALLED AS INDICATED WITHIN THE PHASED EROSION CONTROL PLANS HEREIN, AND MAINTAINED THROUGHOUT ALL PHASES OF CONSTRUCTION IN ORDER TO REDUCE SEDIMENT AND POLLUTANT LEVELS IN STORMWATER DISCHAREGES LEAVING THE SITE. THESE MEASURES SHALL BE MAINTAINED IN GOOD WORKING ORDER FOR THE DURATION OF CONSTRUCTION AND UNTIL THE SITE IS PERMANENTLY STABILIZED.

OWNER/DEVELOPER/PRIMARY PERMITTEE:
CITY OF BROOKHAVEN PUBLIC WORKS
4362 PEACHTREE ROAD
BROOKHAVEN, GA 30319
CONTACT: GREG SCOTCHIE
470-495-4822

ENGINEER/SURVEYOR:
LOWE ENGINEERS
990 HAMMOND DR. ~ SUITE 900
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GCSWCC Georgia Soil and Water Conservation Commission
HELEN L SIMPSON
Level II Certified Design Professional
Certification Number 0000077050
Issued 04/29/2016 Expires 04/29/2019

REVISIONS	
NO.	DATE

STRATFIELD DRIVE DRAINAGE IMPROVEMENTS - PHASE 2

LOCATED IN
20th DISTRICT
CITY OF BROOKHAVEN, DeKALB COUNTY

GEORGIA REGISTERED No. 040944 PROFESSIONAL ENGINEER HELEN L. SIMPSON

DATE: 10/23/2018

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PROJECT #	DRAWN BY:	CHECKED BY:
18-0009	HLS, BSA	HLS

EROSION CONTROL PLAN

LOWE ENGINEERS
6 Anniversary
990 HAMMOND DRIVE
SUITE 900
ATLANTA, GEORGIA 30328
TEL.: 770-857-8400
FAX: 770-857-8401

SHEET
C5.00

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Sd2

INLET SEDIMENT TRAP

DEFINITION

A temporary protective device formed at or around an inlet to a storm drain to trap sediment.

PURPOSE

- Prevent sediment from entering a storm drainage system prior to permanent stabilization of the disturbed area draining to the inlet.

INSTALLATION

- Install according to the approved plan.
- Do not install on paved surfaces where safety is a concern.
- Sediment traps must be self-draining unless otherwise protected.
- Install at or around all storm drain drop inlets that receive runoff from disturbed areas.
- Construct on natural ground surface, excavated surface, or on machine compacted fill.

Excavated Sediment Traps

- An excavation created around the inlet to provide additional sediment storage.
- Provide a minimum depth of 1.5 ft for sediment storage.
- The side slopes shall not be steeper than 2:1.
- The drainage area entering the trap shall be no greater than 1 acre.

Sd2

Filter Fabric with Supporting Frame Sd2-F

- Applicable where the inlet drains a relatively flat area (<5% slope).
- Use Type S steel posts.
- Space stakes evenly around perimeter at a maximum of 3 ft apart.
- Drive stakes into the ground ~18" deep.
- The fabric shall be 36" tall and entrenched at least 12" and backfill with crushed stone or compacted soil.
- Securely fasten the fabric and wire to the posts.

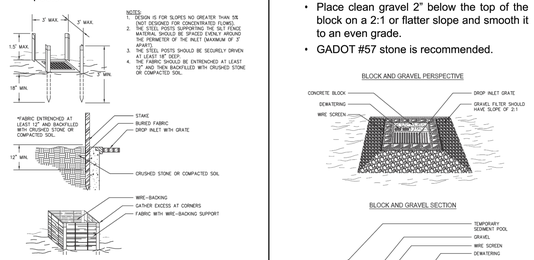

Figure 1. Filter Fabric with Supporting Frame Installation Requirements (Sd2-F)

Block and Gravel Drop Inlet Protection Sd2-Bg

- Applicable where heavy flows are expected and a overflow capacity is necessary to prevent excessive ponding.

Sd2

- Excavate foundation at least 2" below the crest of the storm drain.
- On each side of the structure, place one block in the bottom row on its side to allow pool drainage.
- Place the bottom row of blocks against the edge of the storm drain.
- Add support by placing 2"x4" wood studs through block openings.
- Fit hardware cloth or wire mesh with 1/2" openings over all block openings to hold gravel in place.
- Place clean gravel 2" below the top of the block on a 2:1 or flatter slope and smooth it to an even grade.
- GADOT #57 stone is recommended.

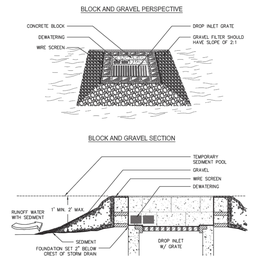

Figure 2. Block and Gravel Drop Inlet Protection Installation Requirements (Sd2-Bg)

Sd2

Baffle Box Sd2-B

- Applicable for inlets receiving a higher volume or velocity.
- Construct 2"x4" boards spaced a maximum of 1" apart OR of plywood with weep holes 2" in diameter.
- Place weep holes ~6" on center vertically or horizontally.
- Place gravel outside of the box and around the inlet at a depth of 2-4".
- Wrap entire box in Type C filter fabric and entrench at a depth of 12".

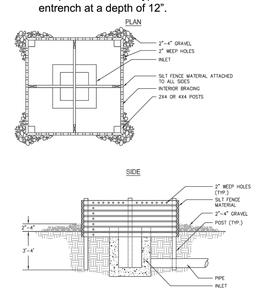

Figure 3. Baffle Box Installation Requirements (Sd2-B)

Gravel Drop Inlet Protection Sd2-G

- Applicable where heavy concentrated flows are expected.
- 3:1 or flatter slope toward the inlet.

Sd2

- Leave a minimum 1 ft wide level stone area between the structure and the inlet to prevent gravel from entering the inlet.
- Place stone 3" in diameter or larger on the slope toward the inlet.
- Place 1/2" to 3/4" gravel on the slope away from the inlet at a minimum thickness of 1 foot.

Sod Inlet Protection Sd2-S

- Applicable only at the time of permanent seeding in order to protect the inlet from sediment and mulch material.
- Place the sod to form a turf mat covering the soil for a distance of 4 ft from each side of the inlet.
- Stagger sod strips so that adjacent ends are not aligned.

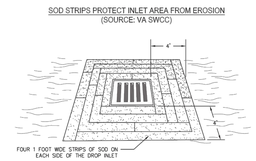

Figure 4. Sod Inlet Protection Installation Requirements (Sd2-S)

Curb Inlet Protection Sd2-P

- Applicable once pavement has been installed.
- The method of inlet protection shall be removed if a safety hazard is created.

Sd2

- For the "pigs-in-a-blanket" method, wrap 8" concrete blocks in filter fabric and span across catch basin inlet.
- Face openings in blocks outward.
- Leave a gap of ~4" between the inlet filter and the inlet to allow for overflow and prevent hazardous ponding in the roadway.
- Another method uses gravel bags constructed by wrapping GADOT #57 stone with filter fabric, wire, plastic mesh, or equivalent material.

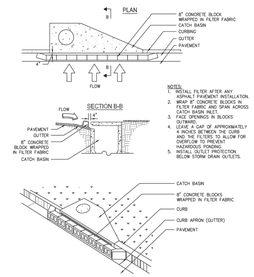

Figure 5. Curb Inlet Protection Installation Requirements (Sd2-P)

Sd2

MAINTENANCE

- Inspect, clear, and/or repair trap at the end of each working day.
- Do not remove inlet protection and wash sediment into the inlet.
- Remove sediment when accumulation has reached one-half the height of the trap.
- Remove sediment from curb inlet protection immediately.
- Remove all materials and any sediment once the contributing drainage area has been permanently stabilized.
- Appropriately stabilize all disturbed areas around the inlet.

REFERENCES

Ds4 Disturbed Area Stabilization (With Sodding)

Sd1 Sediment Barrier

Ds2

DISTURBED AREA STABILIZATION

(WITH TEMPORARY SEEDING)

DEFINITION

The establishment of temporary vegetative cover with fast growing seedings for seasonal protection on disturbed or denuded areas.

PURPOSE

- Reduce runoff and sediment damage of down stream resources
- Protect the soil surface from erosion
- Improve wildlife habitat
- Improve aesthetics
- Improve tilth, infiltration, and aeration as well as organic matter for permanent plantings

INSTALLATION

- Apply mulch or temporary grassing to all exposed areas within 14 days of disturbance.
- Applicable to rough graded areas that will be exposed for less than 6 months.
- Coordinate with permanent measures to ensure economical and effective stabilization.
- Take note of which species are not appropriate for companion crop plantings.
- When the soil has been sealed by rainfall or consists of smooth cut slopes, scarify the soil in order to provide a place for the seed to lodge and germinate.

Ds2

- Apply agricultural lime at the rate determined by soil test pH.
- Apply lime before land preparation and incorporate with a disk, ripper, or chisel.
- On steep slopes, apply fertilizer hydraulically.
- Select grass or grass-legume mixtures based on the area and season of the year.
- Apply seed uniformly by hand, cyclone seeder, drill, culti-packer-seeder, or hydraulic seeder.
- The appropriate depth of planting is 10x the seed diameter.
- Apply irrigation at a rate that will not cause runoff and erosion. Thoroughly wet the soil to insure germination of the seed.

MAINTENANCE

- Re-seed areas where an adequate stand of temporary vegetation fails to emerge.
- If optimum conditions for temporary vegetation is lacking, mulch can be used a singular erosion control device.

REFERENCES

Ds1 Disturbed Area Stabilization (With Mulching Only)

Tac Tackifiers

Ds2

Figure 2. Browntop Millet

Figure 3. Ryegrass

Figure 3. Rye

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Table 1. Some Temporary Plant Species, Seeding Rates and Planting Dates

Species	Rates Per 1,000 sq. ft.	Rates per Acre	Planting Dates by Region		
			M-L	P	C
Barley Alone Barley in Mixtures	3.3 lbs. .6 lbs.	3 bu. .5 bu.	9/1-10/31	9/15-11/15	10/1-12/31
Lespedeza, Annual Lespedeza in Mixtures	0.9 lbs. 0.2 lbs.	40 lbs. 10 lbs.	3/1-3/31	3/1-3/31	2/1-2/28
Lovegrass, Weeping Lovegrass in Mixtures	0.1 lbs. .05 lbs.	4lbs. 2 lbs.	4/1-5/31	4/1-5/31	3/1-5/31
Millet, Browntop Millet in Mixtures	.9 lbs. .2 lbs.	40 lbs. 10 lbs.	4/15-6/15	4/15-6/30	4/15- 6/30
Millet, Pearl	1.1 lbs.	50 lbs.	5/15-7/15	5/1-7/31	4/15-8/15
Oats Alone Oats in Mixtures	2.99 lbs. .7 lbs.	4 bu. 1 bu.	9/15 -11/15	9/15-11/15	9/15-11/15

Ds2

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Table 1. Some Temporary Plant Species, Seeding Rates and Planting Dates (continued)

Ds2

Species	Rates Per 1,000 sq. ft.	Rates per Acre	Planting Dates by Region		
			M-L	P	C
Rye (Grain) Alone Rye in Mixtures	3.9 lbs. .6 lbs.	3 bu. .5 bu.	8/15-10/31	9/15/-11/30	10/1-12/31
Ryegrass	0.9 lbs.	40 lbs.	8/15-11/15	9/1-12/15	9/15-12/31
Sudangrass	1.4 lbs.	60 lbs.	5/1-7/31	5/1-7/31	4/1-7/31
Triticale Alone Triticale in Mixtures	3.3 lbs. .6 lbs	3 bu. .5 bu.	NA	NA	10/15-11/30
Wheat Alone Wheat in Mixtures	4.1 lbs. .7 lbs.	3 bu. .5 bu.	9/15 -11/30	10/1-12/15	10/15-12/31

1. Unusual site conditions may require heavier seeding rates.
2. Seeding dates may need to be altered to fit temperature variations and local conditions.
3. For Major Land Resource Areas (MLRAs), see page 60.
4. Seeding rates are based on pure live seed (PLS).
5. SITE LOCATED WITHIN THE PIEDMONT REGION; P

25

Table 2. Fertilizer Requirements for Temporary Vegetation

Types of Species	Planting Year	Fertilizer (N-P-K)	Rate (lbs./acre)	N Top Dressing Rate (lbs./acre)
Cool season grasses	First Second Maintenance	6-12-12 6-12-12 10-10-10	1500 1000 400	50-100 --- 30
Cool seasn grasses & legumes	First Second Maintenance	6-12-12 0-10-10 0-10-10	1500 1000 400	0-50 --- ---
Temporary cover crops seeded alone	First	10-10-10	500	30
Warm season grasses	First Second Maintenance	6-12-12 6-12-12 10-10-10	1500 800 400	50-100 50-100 30

Ds2

Tr

TREE PROTECTION

DEFINITION

The protection of desirable trees from injury during construction activity.

PURPOSE

- Ensure the survival of desirable trees where they will be effective for erosion and sediment control, watershed protection, landscape beautification, dust and pollution control, noise reduction, shade and other environmental benefits while the land is being converted.

SPECIFICATIONS

- Contact the local government to obtain information regarding tree ordinances BEFORE ES&PC plans are designed.

Tree Protection Zones

(1) Measure the diameter of the tree trunk in inches 4.5 ft from the ground. This is the Diameter Breast Height (DBH).

(2) Multiply this value by 1.5. This result is the radius of the root protection zone in ft Also considered the critical rooting distance.

Tr

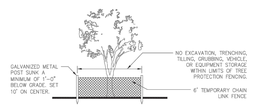

Figure 1. Chain Link Fence Installation

Tree Protection Zone Fencing

Tree protection zone fencing may be one of the following:

- For areas of large remnant forest to be protected, use 4 ft high orange plastic fabric fencing stapled in 3 locations to 2x4 treated wood stakes. Set stakes 6 ft on center. Do not use rebar as stakes.
- For single family homes use a treated wood fencing. It may have orange fabric attached to it.
- For all other developments use 6 ft high chain link fencing attached to galvanized metal post.

*Please refer to the American National Standard(ANSI) or the International Society of Arborculture for more information regarding standards for adequate tree protection.

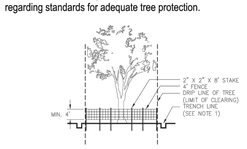

Figure 2. "Snow" Fence Installation

GEORGIA SOIL AND WATER CONSERVATION COMMISSION

HELEN L SIMPSON
Level II Certified Design Professional

CERTIFICATION NUMBER 0000077050
ISSUED 04/29/2016 EXPIRES 04/29/2019

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STRATFIELD DRIVE DRAINAGE IMPROVEMENTS - PHASE 2

LOCATED IN
20th DISTRICT
CITY OF BROOKHAVEN, DeKALB COUNTY

GEORGIA REGISTERED No. 045944 PROFESSIONAL ENGINEER HELEN L. SIMPSON

DATE: 10/23/2018

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PROJECT #: 18-0009
DRAWN BY: HLS, BSA
DESIGNED BY: HLS

EROSION CONTROL DETAILS

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TEL.: 770-857-8400
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LOWE ENGINEERS

SHEET C6.00

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Ds3

DISTURBED AREA STABILIZATION
(WITH PERMANENT SEEDING)

DEFINITION

The planting of perennial vegetation such as trees, shrubs, vines, grasses, or legumes on exposed areas for final permanent stabilization.

PURPOSE

- Protect the soil surface from erosion
- Reduce damage from sediment and runoff to down-stream areas
- Improve wildlife habitat and visual resources
- Improve aesthetics

INSTALLATION

- Use conventional planting methods where possible.
- Final Stabilization means that 100% of the soil surface is uniformly covered in permanent vegetation with a density of 70% or greater, or landscaped according to the plan (uniformly covered landscaping materials in planned lanscaped areas), or equivalent permanent stabilization measures.
- Select plants species based on site and soil conditions, planned use and maintenance of the area, time of year, method of planting, and the needs of the land user. (Refer to Table 1)

Ds3

- Apply agricultural lime at a rate of 1-2 tons/acre unless soil tests indicate otherwise. Please refer to Table 2 for initial fertilization, nitrogen, topdressing, and maintenance fertilizer requirements for each species.
- Apply seed hydraulically. If using conventional methods, use a culti-packer seeder, drill, rotary seeder, or by hand.
- Cover the seed lightly with 1/8"-1/4" of soil for small seed and 1/2"-1" of soil for large seed when using a cultipacker.
- Check seed tags for % germination & % purity in order to calculate Pure Live Seed (PLS), which is the percentage of the seeds that are pure and will germinate.
- Mulch is required for all permanent vegetation applications. Please refer to **Ds1** for application rates and anchoring methods for different materials.
- Irrigate when the soil is dry and at a rate that will not cause runoff.

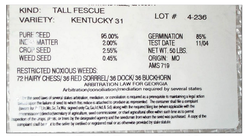
KIND: TALL FESCUE
VARIETY: KENTUCKY 31
LOT # 4-236
PURE SEED 95.00% GERMINATION 85%
INERT MATTER 2.00% TEST DATE 11/04
CROP SEED 2.50% NET WT. 50 LBS.
WEED SEED 0.45% ORIGIN: MO
AMS 719
RESTRICTED NOXIOUS WEEDS:
72 HAIRY CHESS; 36 RED SORREL; 36 DOCK; 36 BUCKHORN
ARBITRATION: LAW FOR GEORGIA

Figure 1. Typical Tag on a Bag of Seed

PLS Example

Tall Fescue

85% germination & 95% purity

PLS = 0.85 germination x 0.95 purity

PLS = 80.75%

Seeding rate = 50 lbs. PLS/acre = 61.92 lbs/acre
PLS 80.75% PLS

Ds3

Table 1. Some Permanent Plant Species, Seeding Rates, and Planting Dates

Species	Rates per Acre	Rates per 1,000 sq. ft	Planting Dates by Region M- L	P	C	Remarks
Bahia, Pensacola Alone or with temporary cover With other perennials	60 lbs. 30 lbs.	1.4 lbs. 0.7 lb.	---	4/1 -5/31	3/1-5/31	Low growing; sod producing; will spread into Bermuda lawns.
Bahia, Wilmington Alone or with temporary cover With other perennials	60 lbs. 30 lbs.	1.4 lbs. 0.7 lb.	3/15-5/31	3/1-5/31	—	Same as above
Bermuda, Common (Hulled seed) Alone With other perenials	10 lbs. 6 lbs.	0.2 lb. 0.1 lb.	---	4/1-5/31	3/15-5/31	Quick cover; low growing; sod forming; needs full sun.
Bermuda, Common (Unhulled seed) With temporary cover With other perennials	10 lbs. 6 lbs.	0.2 lb. 0.1 lb	---	10/1-2/28	11/1-1/31	Plant with Winter annuals. Plant with Tall Fescue

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Ds3

Table 1. Some Permanent Plant Species, Seeding Rates, and Planting Dates (continued)

Species	Rates per Acre	Rates per 1,000 sq. ft	Planting Dates by Region M- L	P	C	Remarks
Bermuda Springs Common lawn and forage hybrids	40 cu. ft.	0.9 cu.ft.	4/15-6/15	4/1-6/15	4/1-5/31	1 cu. ft. = 650 sprigs 1 bu. = 1.25 cu. ft. or 800 sprigs
	Sod plugs 3' x3'					
Centipede	Blcok Sod Only	Block Sod Only	---	11/1-5/31	11/1-5/31	Drought tolerant. Full sun or partial shade.
Crown Vetch With winter annuals or cool season grasses	15 lbs.	0.3 lb.	9/1-10/15	9/1-10/15	--	Mix with 30 lbs. Tall Fescue or 15 lbs. Rye; inoculate seed; plant only North of Atlanta.
Fescue, Tall Alone With other perennials	50 lbs. 30 lbs.	1.1 lbs. 0.7 lb.	3/1-4/15 or 8/15-10/15	9/1-10/15	---	Can be mixed with perennial Lespedezas or Crown Vetch; not for droughty soils or heavy use areas

29

Ds3

Table 1. Some Permanent Plant Species, Seeding Rates, and Planting Dates (continued)

Species	Rates per Acre	Rates per 1,000 sq. ft	Planting Dates by Region M- L	P	C	Remarks
Lovegrass, weeping Alone With other perennials	4 lbs. 2 lbs.	0.1 lb. 0.05 lb.	4/1-5/31	3/15-5/31	3/1-5/31	Quick cover; drought tolerant; grows well with Sericea Lespedeza on road-banks and other steep slopes; short lived.
Maidencane sprigs	2' x 3' spacing		2/1-3/31	2/1-3/31	2/1-3/31	For very wet sites such as river banks and shorelines. Dig sprigs locally.
Panicgrass, Altantic Coastal	20 lbs.	0.5 lb.	---	3/1-4/30	3/1-4/30	Grows well on coastal sand dunes; mix with Sericea Lespedeza but not on sand dune.
Red Canary Grass With other perennials	50 lbs. 30 lbs.	1.1 lbs. 0.7 lb.	8/15-10/15	9/1-10/15	——	Grows similar to Tall Fescue; for wet sites

32

Ds3

Table 1. Some Permanent Plant Species, Seeding Rates, and Planting Dates (continued)

Species	Rates per Acre	Rates per 1,000 sq. ft	Planting Dates by Region M- L	P	C	Remarks
Lespedeza, Sericea Scarified	60 lbs.	1.4 lbs.	4/1-5/31	3/15-5/31	3/1-5/15	Widely adapted and low maintenance; takes 2-3 years to establish; inoculate seed with EL inoculant; mix with Weeping lovegrass, Common Bermuda, Bahia or Tall Fescue.
Unscarified	75 lbs.	1.7 lbs.	9/1-2/28	9/1-2/28	9/1-2/28	Mix with Tall Fescue or winter annuals.
Seed-bearing hay	3 tons	138 lbs.	10/1-2/28	10/1-1/31	10/15-1/15	Cut when seed is mature but before it shatters. Add Tall Fescue or winter annuals.

30

Ds3

Table 1. Some Permanent Plant Species, Seeding Rates, and Planting Dates (continued)

Species	Rates per Acre	Rates per 1,000 sq. ft	Planting Dates by Region M- L	P	C	Remarks
Lespedeza Ambro Virgata or Appalow Scarified	60 lbs.	1.4 lbs.	4/1-5/31	3/15-5/31	3/1-5/15	Spreading growth with height of 18"-24"; good in urban areas; slow to develop good stands; mix with Weeping Lovegrass, Common Bermuda, Bahia Tall Fescue or winter annuals; do not mix with Sericea Lespedeza; inoculate seed with EL inoculant.
Unscarified	75 lbs.	1.7 lbs.	9/1-2/28	9/1-2/28	9/1-2/28	
Lespedeza, Shrub (Lespedeza Bicolor or Lespedeza Thumbergii) Plants	3' x 3' spacing		10/1-3/31	11/1-3/15	11/15-2/28	Plant in small clumps for wildlife food and cover.

31

Ds3

Table 2. Fertilizer Requirements for Permanent Vegetation

Types of Species	Planting Year	Fertilizer (N-P-K)	Rate (lbs./ acre)	N Top Dressing Rate (lbs./acre)
Cool season grasses	First Second Maintenance	6-12-12 6-12-12 10-10-10	1500 1000 400	50-100 --- 30
Cool grasses and legumes	First Second Maintenance	6-12-12 0-10-10 0-10-10	1500 1000 400	0-50 --- ---
Warm season grasses	First Second Maintenance	6-12-12 6-12-12 10-10-10	1500 800 400	50-100 50-100 30
Warm season grasses and legumes	First Second Maintenance	6-12-12 0-10-10 0-10-10	1500 1000 400	50 --- ---

34

Ds3

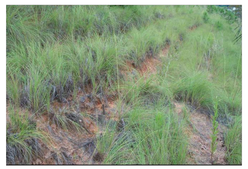

Figure 2. Weeping Lovegrass

Figure 3. Sericea Lespedeza

Figure 4. Common Bermuda

Ds3

MAINTENANCE

- Re-seed areas where an adequate stand of vegetation fails to emerge or where a poor stand exists.
- Maintain at least 6" of top growth under any use and management.
- Exclude traffic until the plants are well established.
- Please refer to Table 2 for second year and maintenance fertilizer rates.
- Apply one ton of agricultural lime every 4-6 years or as indicated by soil tests.
- Mow Bermudagrass, Bahiagrass, and Tall Fescue as desired.
- Mow Sericea Lespedeza only after frost to ensure that the seeds are mature.

REFERENCES

- **Ds1** Disturbed Area Stabilization (With Mulching Only)
- **Ds2** Disturbed Area Stabilization (With Temporary Seeding)
- **Ss** Slope Stabilization

Ds3

Table 1. Some Permanent Plant Species, Seeding Rates, and Planting Dates (continued)

Species	Rates per Acre	Rates per 1,000 sq. ft	Planting Dates by Region M- L	P	C	Remarks
Sunflower, Aztec Maximillian	10 lbs.	0.2 lb.	4/15-5/31	4/15-5/31	4/1-5/31	Mix with Weeping Lovegrass or other low growing grasses or legumes.

33

1. Rates are for broadcasted seed. If a seed drill is used, reduce the rates by one-half.
2. PLS is an abbreviation for Pure Live Seed. Refer to Glossary for an explanation of this term.
3. The resource areas are defined in the Glossary. See page 60 for Resource Area.
4. Seeding rates are based on pure live seeds (PLS).
5. SITE LOCATED WITHIN THE PIEDMONT REGION; P

Ds3

Ds4

DISTURBED AREA STABILIZATION
(WITH SODDING)

DEFINITION

A permanent vegetative cover using sods on highly erodible or critically eroded lands.

PURPOSE

- Establish immediate ground cover
- Reduce runoff and erosion
- Improve aesthetics and land value
- Reduce dust and sediments
- Stabilize waterways and critical areas
- Filter sediments, nutrients and bugs
- Reduce downstream complaints
- Reduce likelihood of legal action
- Reduce likelihood of work stoppage due to legal action
- Increase "good neighbor" benefits

INSTALLATION

- Bring soil surface to final grade. Clear surface of trash, woody debris, stones and clods larger than 1". Apply sod to soil surfaces only and not frozen surfaces, or gravel type soils.

Ds4

- Topsoil properly applied will help guarantee a stand. Don't use topsoil recently treated with herbicides or soil sterilants.
- Mix fertilizer into soil surface. Fertilize based on soil tests or Table 1. For fall planting of warm season species, half the fertilizer should be applied at planting and the other half in the spring.
- Agricultural lime should be applied based on soil tests or at a rate of 1-2 tons/acre.
- Lay sod with tight joints and in straight lines. Don't overlap joints. Stagger joints and do not stretch sod.

Table 1. Fertilizer Requirements for Soil Surface Application

Fertilizer Type (lbs./acre)	Fertilizer Rate (lbs./sq.ft.)	Fertilizer Rate	Season
10-10-10	1000	.025	Fall

- On slopes steeper than 3:1, sod should be anchored with pins or other approved methods.
- Installed sod should be rolled or tamped to provide good contact between sod and soil.
- Irrigate sod and soil to a depth of 4" immediately after installation.
- Sod should not be cut or spread in extremely wet or dry weather.
- Irrigation should be used to supplement rainfall for a minimum of 2-3 weeks.

MATERIALS

- Sod selected should be certified. Sod grown in the general area of the project is desirable.
- Sod should be machine cut and contain 3/4" (+ or - 1/4") of soil, not including shoots or thatch.

Ds4

- Sod should be cut to the desired size within ±5%. Torn or uneven pads should be rejected.
- Sod should be cut and installed within 36 hours of digging.
- Avoid planting when subject to frost heave or hot weather, if irrigation is not available.
- The sod type should be shown on the plans or installed according to Table 2. See page 60 for your Resource Area.

Table 2. Sod Planting Requirements

Grass	Varieties	Resource Area	Growing Season
Bermudagrass	Common Tifway Tifgreen Tiflawn	M-L, P,C P,C P,C P,C	Warm weather
Bahiagrass	Pensacola	P,C	Warm weather
Centipede	—	P,C	Warm weather
St. Augustine	Common Bitterblue Raleigh	C	Warm weather
Zoysia	Emerald Myer	P,C	Warm weather
Tall Fescue	Kentucky 31	M-L, P	Cool weather

MAINTENANCE

- Re-sod areas where an adequate stand of sod is not obtained.
- New sod should be mowed sparingly. Grass height should not be cut less than 2"-3" or as specified.
- Apply one ton of agricultural lime as indicated by soil test or every 4-6 years.

Ds4

- Fertilize grasses in accordance with soil tests or Table 3.

Table 3. Fertilizer Requirements for Sod

Types of Species	Planting Year	Fertilizer (N-P-K)	Rate (lbs./acre)	Nitrogen Top Dressing Rate (lbs./acre)
Cool season grasses	First Second Maintenance	6-12-12 6-12-12 10-10-10	1500 1000 400	50-100 --- 30
Warm season grassed	First Second Maintenance	6-12-12 6-12-12 10-10-10	1500 800 400	50-100 50-100 30

REFERENCES

- **Ds1** Disturbed Area Stabilization (With Mulching Only)
- **Ds2** Disturbed Area Stabilization (With Temporary Seeding)
- **Ds3** Disturbed Area Stabilization (With Permanent Vegetation)
- **Ss** Slope Stabilization

GCSWCC Georgia Soil and Water Conservation Commission
HELEN L SIMPSON
Level II Certified Design Professional
Certification Number 0000077050
Issued: 04/29/2016 Expires: 04/29/2019

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REVISIONS
NO. DATE

STRATFIELD DRIVE DRAINAGE IMPROVEMENTS - PHASE 2
LOCATED IN
20th DISTRICT
CITY OF BROOKHAVEN, DeKALB COUNTY

GEORGIA REGISTERED No. 040944 PROFESSIONAL ENGINEER HELEN L. SIMPSON

DATE: 10/23/2018

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PROJECT #: 18-0009
DRAWN BY: HLS, BSA
CHECKED BY: HLS

EROSION CONTROL DETAILS

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990 HAMMOND DRIVE
SUITE 900
ATLANTA, GEORGIA 30328
TEL.: 770-857-8400
FAX: 770-857-8401

SHEET C6.10

NOT ISSUED FOR PERMIT REVIEW

Sd1

SEDIMENT BARRIER

DEFINITION

A temporary structure made up of porous material typically supported by steel or wood posts. Types include silt fence, brush piles, mulch berms, compost filter socks or other filtering material.

PURPOSE

- Minimize and prevent sediment carried by sheet flow from leaving the site.
- Retain the sediment on the disturbed area.
- Filter sediment from runoff.

INSTALLATION

- Install according to the approved plan.
- Do not install across streams, ditches, waterways, or other concentrated flow areas.
- The type of sediment barrier depends on whether the area is sensitive or non-sensitive.
- For silt fence, Type C will be classified as sensitive and Type A & B will be classified as non-sensitive.
- Install along the contour.
- Along all state waters and other sensitive areas, 2 rows of Type S shall be used. The 2 rows shall be placed a minimum of 36" apart.

Sd1

- Overlap barriers 18" when using multiple types of sediment barriers in a single run on a site.
- When storing runoff behind the sediment barrier, the maximum continuous slope length behind the sediment barrier shall not exceed those found in Table 1.
- Provide a riprap spalsh pad or other protection device at any point where flow may overtop the sediment barrier.

Installation Methods

Static Slicing Method

- Using a machine, pull a narrow blade through the ground to create a 12" deep slit, and simultaneously insert the silt fence fabric into the slit behind the blade.
- Roll a tractor wheel along both sides of the slit in the ground 2-4 times to achieve compaction
- Drive posts 18" into ground and attach fabric.

Figure 1. Static Slicing Machine

Trenching Method

- Dig a 2"-6" wide trench with a 6" excavation.
- Drive posts 18" into ground and attach fabric.
- The best trenching method typically requires triple the time and effort to achieve results comparable to the static slicing method.

Sd1

Sensitive Areas Sd1-S

Sediment barriers being used as Type S shall have a support spacing of no greater than 4 ft on center, with each being driven into the ground a minimum of 18".

Type C Silt Fence

- 36" wide with wire reinforcement or equivalent backing
- To be used where runoff velocities are particularly high or where slopes exceed a vertical height of 10 ft.

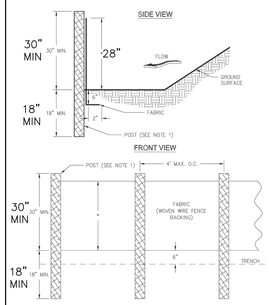


Figure 1. Type "C" Silt Fence

Sd1

Sd1-NS Non-Sensitive Areas

Sediment barriers being used as Type NS shall have a support spacing of no greater than 6 ft on center, with each being driven into the ground a minimum of 18".

Type A Silt Fence

- 36" wide fabric
- To be used where the life of the project is greater than or equal to 6 months.

Type B Silt Fence

- 22" wide fabric
- Limit to use on minor projects, such as residential home sites or small commercial developments where permanent stabilization will be achieved in less than 6 months.
- Same flow rate as Type A.

BRUSH BARRIER SECTION

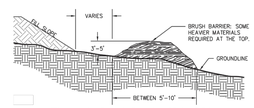


Figure 1. Brush Barrier (Sd1-BB)

Brush Barrier (only during timber clearing)

- Intermingle brush so as not to form a solid dam.
- Should be wind-rowed on the contour as nearly as possible.
- Minimum base width is 5 ft and should be no wider than 10 ft.
- The height should be between 3-5 ft.

Sd1

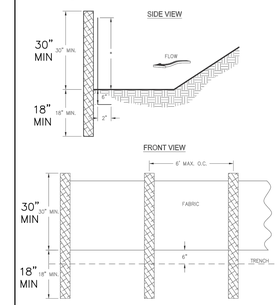


Figure 2. Type "A" & "B" Silt Fence

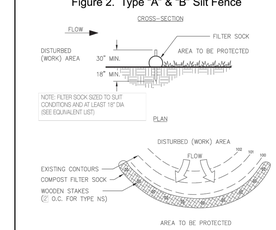


Figure 3. Compost Filter Sock - Type "B"

Sd1

Table 1. Criteria for Sediment Barrier Placement

Land Slope (%)	Maximum Slope Length Behind Fence (ft)
<2	100
2-5	75
5-10	50
10-20	25
>20	15

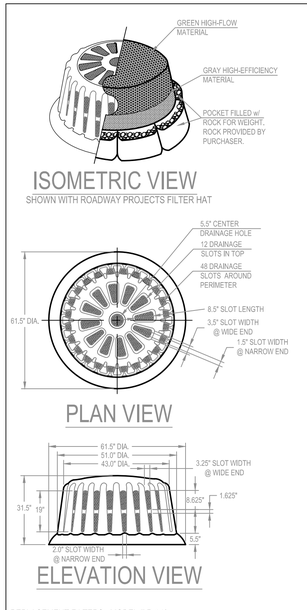
MAINTENANCE

- Remove the sediment once it has accumulated to one-half the original height of the barrier.
- Replace barrier whenever it has deteriorated to such an extent that the effectiveness of the product is reduced (~ 6 months) or the height of the product is not maintaining 80% of its properly installed height.
- Remove and dispose of all accumulated sediment at the barrier before it is removed.
- Leave in place until all disturbed areas are permanently stabilized.

Table 2. Post Size

Type	Min. Length	Type of Post	Size of Post
NS	4'	Oak Steel Soft Wood	1.5"x1.5" 1.15lb/ft min 3" or 2"x4"
S	4'	Oak Steel	2"x2" 1.15lb/ft. min

Figure 1. Thomas Carpenter, CPESC, Carpenter Erosion Control.



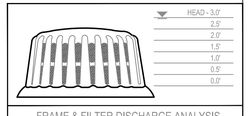
REPLACEMENT FILTERS: MODEL # R-140

FILTER OPTIONS
FILTER HAT IS AVAILABLE IN THREE OPTIONS:
1) ALL HIGH-FLOW MATERIAL
2) ALL HIGH-EFFICIENCY MATERIAL
3) HIGH-FLOW MATERIAL ON TOP HALF OF HAT, HIGH-EFFICIENCY MATERIAL ON BOTTOM HALF (THIS FILTER COVER IS RECOMMENDED FOR ALL ROADWAY PROJECTS.)
IT IS THE PURCHASERS RESPONSIBILITY TO PURCHASE APPROPRIATE FILTER HAT. PURCHASER SHALL PROVIDE ROCK FOR FILTER POCKETS.

FILTER HAT INSTALLATION
FILTER HAT SLIDES DIRECTLY OVER FILTER FRAME. TO KEEP FILTER FRAME IN PLACE OVER STORM STRUCTURE, ROCK POCKETS ARE SEWN DIRECTLY INTO FILTER HAT MATERIAL. EVERY FILTER HAT COMES IN ONE PIECE FOR EASY INSTALLATION.

MAINTENANCE
ALL TEMPORARY EROSION, SEDIMENTATION, & POLLUTION CONTROL PRACTICES SHOULD BE INSPECTED DAILY. CONTRACTOR SHALL REMOVE SEDIMENT AND DISPOSE OF IN A PROPER MANNER. INSPECT R-100A DAILY FOR CUTS, ABRASIONS, AND PROPER INSTALLATION. REPLACE OR REPOSITION AS NECESSARY.

SPECIFICATIONS
FILTER FABRIC SILT-SAVER HAT SHALL BE BASED ON DESIGN PROFESSIONAL'S SPECIFICATIONS.



FRAME & FILTER DISCHARGE ANALYSIS

HEAD (FT)	EQUATION USED	OPENING AREA (SF)	FRAME FLOW (CFS)	FILTER AREA (SF)	FILTERED FLOW (CFS)
0.5	O	2.1	7	6	2
1.0	O	3.9	19	12	3
1.5	O	7.0	41	18	5
2.0	O	8.0	54	24	7
2.5	O	9.2	70	30	9
3.0	O	9.2	77	----	77

DUE TO NARROW SLOT, A TRANSITION WILL OCCUR BETWEEN WEIR AND ORIFICE CONDITIONS. ORIFICE FLOW WILL PROVIDE A MORE CONSERVATIVE ESTIMATE OF FLOW, THEREFORE THE LESSER OF THE ORIFICE AND WEIR FLOWS WILL BE USED FOR EACH STAGE CALCULATION.

FILTER MATERIAL ALLOWS 129 gpm/SF OR 0.29cfs/SF
ORIFICE EQUATION (O) = Q=0.6A(2gh)^0.5
P = FEET PERIMETER
h = HEAD IN FEET
Q = CAPACITY IN cfs
A = FREE OPEN AREA OF FRAME
g = 32.2 FEET-PER-SECOND/SECOND

OR EQUIVALENT

ROUND FRAME & FILTER ASSEMBLY
Model # R-100A

FRAME MATERIAL: BLACK 0.25" HMWPE
FILTER FABRIC MATERIAL: REFER TO SPEC
SCALE: NOT TO SCALE
LAST UPDATED: APRIL 2010

SILT-SAVER, INC. 1094 CULPEPPER DRIVE, CONYERS, GA 30094 PHONE: (770) 388-7818 FAX: (770) 388-7640 TOLL FREE: 1-888-382-SILT (7458) www.siltsaver.com

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- Designed for Flexibility
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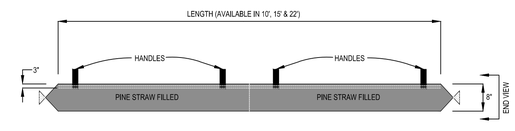
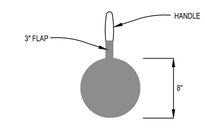


OR EQUIVALENT



END VIEW

MODEL #
TLW 10 TLW 15 TLW 22

WEIGHTED TRAVEL LANE WATTLE WITH PINE STRAW IN HIGH VISIBILITY GREEN

MATERIAL: HIGH VISIBILITY GREEN
FABRIC MATERIAL: POLYESTER
SCALE: NOT TO SCALE
LAST UPDATED: JULY 2015

SILT-SAVER, INC. 1094 CULPEPPER DRIVE, CONYERS, GA 30094 PHONE: (770) 388-7818 FAX: (770) 388-7640 TOLL FREE: 1-888-382-SILT (7458) www.siltsaver.com

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HELEN L SIMPSON
Level II Certified Design Professional
Certification Number 0000077050
Issued: 04/29/2016 Expires: 04/29/2019

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NO. DATE

STRATFIELD DRIVE DRAINAGE IMPROVEMENTS - PHASE 2
LOCATED IN
20th DISTRICT
CITY OF BROOKHAVEN, DeKALB COUNTY

GEORGIA REGISTERED No. 040944 PROFESSIONAL ENGINEER HELEN L. SIMPSON

DATE: 10/23/2018

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PROJECT #: 18-0009
DRAWN BY: HLS, BSA
CHECKED BY: HLS

EROSION CONTROL DETAILS

LOWE ENGINEERS 6 Anniversary
990 HAMMOND DRIVE
SUITE 900
ATLANTA, GEORGIA 30328
TEL.: 770-857-8400
FAX: 770-857-8401

SHEET
C6.20

NOT ISSUED FOR PERMIT REVIEW

State of Georgia
Department of Natural Resources
Environmental Protection Division

Authorization To Discharge Under The
National Pollutant Discharge Elimination System
Storm Water Discharges Associated With Construction Activity
For Infrastructure Construction Projects

In compliance with the provisions of the Georgia Water Quality Control Act (Georgia Laws 1964, p. 416, as amended), hereinafter called the "State Act," the Federal Clean Water Act, as amended (33 U.S.C.1251 et seq.), hereinafter called the "Clean Water Act," and the Rules and Regulations promulgated pursuant to each of these Acts, new and existing storm water point sources within the State of Georgia that are required to have a permit, upon submittal of a Notice of Intent, are authorized to discharge storm water associated with construction activity to the waters of the State of Georgia in accordance with the limitations, monitoring requirements and other conditions set forth in Parts I through VI hereof.

This is a modification of the permit which became effective September 24, 2013.

This permit shall become effective on July 1, 2016.

This permit and the authorization to discharge shall expire at midnight, July 31, 2018.

Signed this 30th day of June 2016.

Director,
Environmental Protection Division

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Part I. COVERAGE UNDER THIS PERMIT

A. Permit Area.

This permit regulates point source discharges of storm water to the waters of the State of Georgia from construction activities, as defined in this permit.

B. Definitions. All terms used in this permit shall be interpreted in accordance with the definitions as set forth in the Georgia Water Quality Control Act (Act) and the Georgia Rules and Regulations for Water Quality Control Chapter 391-3-6 (Rules), unless otherwise defined in this permit:

1. "Best Management Practices" (BMPs) means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent and minimize erosion and resultant sedimentation, which are consistent with, and no less stringent than, those practices contained in the "Manual for Erosion and Sediment Control in Georgia" (Manual) published by the State Soil and Water Conservation Commission as of January 1 of the year in which the land-disturbing activity was permitted to prevent or reduce the pollution of waters of Georgia. BMPs also include treatment requirements, operating procedures, and practices to control site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

2. "Buffer" means the area of land immediately adjacent to the banks of State waters in its natural state of vegetation, which facilitates the protection of water quality and aquatic habitat.

3. "Certified Personnel" means a person who has successfully completed the appropriate certification course approved by the State Soil and Water Conservation Commission.

4. "Commencement of Construction" means the initial disturbance of soils associated with clearing, grading, or excavating activities or other construction activities.

5. "Construction Activity" means the disturbance of soils associated with clearing, grading, excavating, filling of land, or other similar activities which may result in soil erosion. Construction activity does not include agricultural and silvicultural practices, but does include agricultural buildings.

6. "CPESC" means Certified Professional in Erosion and Sediment Control with current certification by EnviroCert International, Inc. (www.EnviroCertIntl.org).

7. "CWA" means Federal Clean Water Act (formerly referred to as the Federal Water Pollution Control Act or Federal Water Pollution Control Act Amendments of 1972).

8. "Design Professional" means a professional licensed by the State of Georgia in the field of: engineering, architecture, landscape architecture, forestry, geology, or land surveying; or a person that is a Certified Professional in Erosion and Sediment Control (CPESC) with a current certification by EnviroCert International, Inc. Design Professionals shall practice in a manner that complies with applicable Georgia law governing professional licensure.

9. "Director" means the Director of the Environmental Protection Division or an authorized representative.

10. "Division" means the Environmental Protection Division of the Department of Natural Resources.

11. "Erosion" means the process by which land surface is worn away by the action of wind, water, ice or gravity.

12. "Erosion, Sedimentation and Pollution Control Plan" or "Plan" means a plan for the control of soil erosion, sediment and pollution resulting from a construction activity.

13. "Filling" means the placement of any soil or solid material either organic or inorganic on a natural ground surface or an excavation.

14. "Final Stabilization" means that all soil disturbing activities at the site have been completed, and that for unpaved areas and areas not covered by permanent structures, 100% of the soil surface is uniformly covered in permanent vegetation with a density of 70% or greater, or landscaped according to the Plan (uniformly covered with landscaping materials in planned landscaped areas), or equivalent permanent stabilization measures as defined in the Manual (excluding a crop of annual vegetation and a seeding of target crop perennials appropriate for the region). For infrastructure construction projects on land used for agricultural or silvicultural purposes, final stabilization may be accomplished by stabilizing the disturbed land for its agricultural or silvicultural use.

15. "General Contractor" means the operator of the infrastructure construction or site.

16. "Impossible" means the monitoring location(s) are either physically or legally inaccessible, or access would cause danger to life or limb.

17. "Infrastructure Construction" or "Infrastructure Construction Project" means construction activities that are not part of a common development that include the construction, installation and maintenance of roadway and railway projects and conduits, pipes, pipelines, substations, cables, wires, trenches, vaults, manholes and similar or related structures for the conveyance of natural gas (or other types of gas), liquid petroleum products, electricity, telecommunications (telephone, data, television, etc.), water, storm water or sewage.

18. "Infrastructure Company" or "Infrastructure Contractor" means, for the purposes of this Permit, an entity or sub-contractor that is responsible, either directly or indirectly, for infrastructure construction or an infrastructure construction project.

19. "Local Issuing Authority" means the governing authority of any county or municipality which is certified pursuant to Official Code of Georgia Section 12-7-8(a).

20. "Mass Grading" means the movement of earth by mechanical means to alter the gross topographic features (elevations, slopes, etc.) to prepare a site for final grading and the construction of facilities (buildings, roads, parking, etc.).

21. "Nephelometric Turbidity Unit (NTU)" means a numerical unit of measure based upon photometric analytical techniques for measuring the light scattered by fine particles of a substance in suspension.

22. "NOI" means Notice of Intent to be covered by this permit (see Part II).

23. "Normal Business Hours" means Monday thru Friday, 8:00 AM to 5:00 PM, excluding any non-working Saturday, non-working Sunday and non-working Federal holiday.

24. "NOT" means Notice of Termination (see Part VI).

25. "Operator" means the entity that has the primary day-to-day operational control of those activities at the construction site necessary to ensure compliance with Erosion, Sedimentation and Pollution Control Plan requirements and permit conditions.

26. "Other Water Bodies" means ponds, lakes, marshes and swamps which are waters of the State.

27. "Outfall" means the location where storm water, in a discernible, confined and discrete conveyance, leaves a facility or construction site or, if there is a receiving water on site, becomes a point source discharging into that receiving water.

28. "Owner" means the legal title holder to the real property on which is located the facility or site where construction activity takes place. For purposes of this permit, this definition does not include the legal title holder to property on which the only construction activity planned and being conducted is by a infrastructure company or infrastructure contractor and the legal title holder has no significant control over design and implementation of the construction activity.

29. "Permittee" means any entity that has submitted a Notice of Intent.

30. "Phase" or "Phased" means sub-parts or segments of infrastructure construction projects where the sub-part or segment is constructed and stabilized prior to completing the entire construction site.

31. "Point Source" means any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure or container from which pollutants are or may be discharged. This term also means sheetflow which is later conveyed via a point source to waters of the State. This term does not include return flows from irrigated agriculture or agricultural storm water runoff.

32. "Primary Permittee" means the Owner or the Operator or both of a tract of land for a construction project subject to this permit.

33. "Proper design" and "properly designed" means designed in accordance with the design requirements and specifications contained in the "Manual for Erosion and Sediment Control in Georgia" (Manual) published by the State Soil and Water Conservation Commission as of January 1 of the year in which the land-disturbing activity was permitted and amendments to the Manual as approved by the State Soil and Water Conservation Commission up until the date of NOI submittal.

34. "Receiving Water(s)" means all perennial and intermittent waters of the State into which the runoff of storm water from a construction activity will actually discharge, either directly or indirectly.

35. "Roadway Project(s)" means traveled ways including but not limited to roads, sidewalks, multi-use paths and trails, and airport runways and taxiways. This term also includes the accessory components to a roadway project that are necessary for the structural integrity of the roadway and the applicable safety requirements. These accessory components include but are not limited to slopes, shoulders, storm water drainage ditches and structures, guardrails, lighting, signage, cameras and fences and exclude subsequent landscaping and beautification projects.

36. "Sediment" means solid material, both organic and inorganic, that is in suspension, is being transported, or has been moved from its site of origin by, wind, water, ice, or gravity as a product of erosion.

37. "Sedimentation" means the action or process of forming or depositing sediment.

38. "Sheetflow" means runoff which flows over the ground surface as a thin, even layer, not concentrated in a channel.

39. "Site" or "Construction Site" means a facility of any type on which construction activities are occurring or are to occur which may result in the discharge of pollutants from a point source into the waters of the State.

40. "Storm Water" means storm water runoff, snow melt runoff, and surface runoff and drainage.

41. "Structural Erosion and Sediment Control Practices" means measures for the stabilization of erosive or sediment producing areas by utilizing the mechanical properties of matter for the purpose of either changing the surface of the land or storing, regulating or disposing of runoff to prevent excessive sediment loss.

42. "Sub-contractor" means an entity employed or retained by the permittee to conduct any type of construction activity (as defined in this permit) at an infrastructure construction site. Sub-contractors must complete the appropriate certification course approved by the Georgia Soil and Water Conservation Commission in accordance with the provisions of O.C.G.A. 12-7-19. Sub-contractors are not permittees unless they meet the definition of either a primary, secondary or tertiary permittee.

43. "Surface Water Drainage Area" means the hydrologic area starting from the lowest downstream point where the storm water from the construction activity enters the receiving water(s) and following the receiving water(s) upstream to the highest elevation of land that divides the direction of water flow. This boundary will connect back with the storm water entrance point. Boundary lines follow the middle of the highest ground elevation or halfway between contour lines of equal elevation.

44. "Trout Streams" means waters of the State classified as either primary trout waters or secondary trout waters, as designated in the Rules and Regulations for Water Quality Control, Chapter 391-3-6 at www.gaepd.org.

45. "USGS Topographic Map" means a current quadrangle, 7½ minute series map prepared by the United States Department of the Interior, Geological Survey.

46. "Vegetative Erosion and Sediment Control Practices" means measures for the stabilization of erosive or sediment producing areas by covering the soil with: (1) permanent seeding, sprigging or planting, producing long-term vegetative cover; (2) temporary seeding, producing short-term vegetative cover; or (3) sodding, covering areas with a turf of perennial sod forming grass.

47. "Waters Supporting Warm Water Fisheries" means all waters of the State that sustain, or have the potential to sustain, aquatic life but excluding trout streams.

48. "Waters of Georgia" or "Waters of the State" means any and all rivers, streams, creeks, branches, lakes, reservoirs, ponds, drainage systems, springs, wells, wetlands, and all other bodies of surface or subsurface water, natural or artificial, lying within or forming a part of the boundaries of the State which are not entirely confined and retained completely upon the property of a single individual, partnership, or corporation.

C. Eligibility.

1. Construction Activities. This permit authorizes, subject to the conditions of this permit:

a. all discharges of storm water associated with infrastructure construction projects that will result in contiguous land disturbances equal to or greater than one (1) acre occurring on or before, and continuing after, the effective date of this permit, (henceforth referred to as existing storm water discharges from construction activities) except for discharges identified under Part I.C.2. Contiguous means areas of land disturbances that are in actual contact to create a connected, uninterrupted area of land disturbance. However, for purposes of this permit, contiguous areas of land disturbances include those areas of land disturbances solely separated by drilling and boring activities, waters of the State and adjacent State-mandated buffers, roadways and/or railways. In addition, contiguous areas of land disturbances include all areas of land disturbances at a sole roadway intersection and/or junction;

b. all discharges of storm water associated with infrastructure construction projects that will result in contiguous land disturbances equal to or greater than one (1) acre occurring after the effective date of this permit, (henceforth referred to as storm water discharges from construction activities), except for discharges identified under Part I.C.3. Contiguous means areas of land disturbances that are in actual contact to create a connected, uninterrupted area of land disturbance. However, for purposes of this permit, contiguous areas of land disturbances include those areas of land disturbances solely separated by drilling and boring activities, waters of the State and adjacent State-mandated buffers, roadways and/or railways. In addition, contiguous areas of land disturbances include all areas of land disturbances at a sole roadway intersection and/or junction;

c. coverage under this permit is not required for discharges of storm water associated with infrastructure construction projects that consist solely of routine maintenance for the original purpose of the facility that is performed to maintain the original line and grade and the hydraulic capacity, as applicable. The permittee shall, as a minimum, implement and maintain best management practices, including sound conservation and engineering practices to prevent and minimize erosion and resultant sedimentation, which are consistent with, and no less stringent than, those practices contained in the "Manual for Erosion and Sediment Control in Georgia" (Manual) published by the State Soil and Water Conservation Commission as of January 1 of the year in which the land-disturbing activity is being conducted. In order to be eligible for this exemption the project must comply with the following conditions: (1) no mass grading shall occur on the project, (2) the project shall be stabilized by the end of each day with temporary or permanent stabilization measures, (3) the project shall have a duration of less than 120 calendar days, and (4) final stabilization must be implemented at the end of the maintenance project; and

d. coverage under this permit is not required for discharges of storm water associated with infrastructure road construction projects that consist solely of routine maintenance for the original purpose of the facility that is performed to maintain the original line and grade and vehicular capacity, as applicable. The permittee shall, as a minimum, implement and maintain best management practices, including sound conservation and engineering practices to prevent and minimize erosion and resultant sedimentation, which are consistent with, and no less stringent than, those practices contained in the "Manual for Erosion and Sediment Control in Georgia" (Manual) published by the State Soil and Water Conservation Commission as of January 1 of the year in which the land-disturbing activity is being conducted. In order to be eligible for this exemption the project must comply with the following conditions: (1) no mass grading shall occur on the project, (2) the project shall be stabilized by the end of each day with temporary or permanent stabilization measures, (3) the project shall have a duration of less than 120 calendar days, and (4) final stabilization must be implemented at the end of the maintenance project; and

e. coverage under this permit is not required for discharge of storm water associated with railroad construction projects and emergency re-construction conducted pursuant to the Federal Railway Safety Act, the Interstate Commerce Commission Termination Act and which consist solely of routine maintenance for the original purpose of the facility that is performed to maintain the original line and grade and the hydraulic capacity, as applicable. The construction activity should, at a minimum, implement and maintain best management practices, including sound conservation and engineering practices to prevent and minimize erosion and resultant sedimentation consistent with the requirements of the Federal Railway Safety Act and applicable requirements of the Clean Water Act.

2. Mixed Storm Water Discharges. This permit may only authorize a storm water discharge from a construction site or construction activities mixed with a storm water discharge from an industrial source or activity other than construction where:

a. the industrial source or activity other than construction is located on the same site as the construction activity and is an integral part of the construction activity;

b. the storm water discharges associated with industrial activity from the areas of the site where construction activities are occurring are in compliance with the terms of this permit; and

c. storm water discharges associated with industrial activity from the areas of the site where industrial activity other than construction are occurring are covered by a different NPDES general permit or individual permit authorizing such discharges and the discharges are in compliance with a different NPDES permit.

3. Limitations on Coverage. The following storm water discharges from construction sites are not authorized by this permit:

a. storm water discharges associated with an industrial activity that originate from the site after construction activities have been completed and the site has undergone final stabilization;

b. discharges that are mixed with sources of non-storm water other than discharges which are identified in Part III.A.2. of this permit and which are in compliance with Part IV.D.7. (non-storm water discharges) of this permit;

c. storm water discharges associated with industrial activity that are subject to an existing NPDES individual or general permit. Such discharges may be authorized under this permit after an existing permit expires provided the existing permit did not establish numeric limitations for such discharges; and

d. storm water discharges from construction sites that the Director (EPD) has determined to be or may reasonably be expected to be contributing to a violation of a water quality standard.

4. Compliance with Water Quality Standards. No discharges authorized by this permit shall cause violations of Georgia's in-stream water quality standards as provided by the Rules and Regulations for Water Quality Control, Chapter 391-3-6-.03.

D. Authorization.

1. Any person desiring coverage under this permit must submit a Notice of Intent (NOI) to the EPD and the NOI must be received by the EPD in accordance with the requirements of Part II, using NOI forms provided by the EPD (or an exact photocopy thereof), in order for storm water discharges from construction sites to be authorized.

2. Unless notified by the Director to the contrary, a permittee who submits an NOI in accordance with the requirements of this permit is authorized to discharge storm water from construction sites under the terms and conditions of this permit fourteen (14) days after the date that the NOI is postmarked. The Director may deny coverage under this permit and require submittal of an application for an individual NPDES permit or alternative general NPDES permit based on a review of the NOI or other information. Should the Director deny coverage under this permit, coverage under this permit is authorized until the date specified in the notice of denial by the Director.

3. Where a new permittee is to begin work on-site after an NOI for the facility/construction site has been submitted, that new permittee must submit a new NOI in accordance with Part II.

E. Continuing Obligations of Permittees. Unless and until responsibility for a site covered under this permit is properly terminated according to the terms of the permit, the current permittee remains responsible for compliance with all applicable terms of the permit and for any violations of said terms.

Part II. NOTICE OF INTENT REQUIREMENTS

A. Deadlines for Notification.

1. Except as provided in Part II.A.2., II.A.3. and II.A.5., Owners or Operators or both who intend to obtain coverage under this general permit for storm water discharges from a construction site (where construction activities begin after issuance of this permit), shall submit a Notice of Intent (NOI) in accordance with the requirements of this Part at least fourteen (14) days prior to the commencement of construction activities.

2. For sites where construction activities, subject to this permit, are occurring on the effective date of this permit, the Owner or Operator or both shall submit a re-issuance NOI for an existing construction site in accordance with the requirements of this part no later than ninety (90) days after the effective date of this permit. Failure to comply with this requirement shall constitute a violation of the Georgia Water Quality Control Act for each day until the Owner or Operator or both submit an initial NOI for a new construction site in accordance with Part II.A.1., comply

with the special conditions in Part III., prepare and submit a new Erosion, Sedimentation and Pollution Control Plan in accordance with Part IV., and pay all applicable fees in accordance with Part II.D.

3. A discharger is not precluded from submitting an NOI in accordance with the requirements of this part after the dates provided in Parts II.A.1. or II.A.2. of this permit. In such instances, EPD may bring an enforcement action for failure to submit an NOI in a timely manner or for any unauthorized discharges of storm water associated with construction activity that have occurred on or after the dates specified in Part II.A.1. and II.A.2.

4. Where an Owner or an Operator or both changes after an NOI has been filed, the subsequent Owner or Operator or both must file a change of information NOI in accordance with this Part by the earlier to occur of (a) seven (7) days before beginning work at the facility/construction site; or (b) thirty (30) days from acquiring legal title to the facility/construction site. In the event a lender or other secured creditor acquires legal title to the facility/construction site, such party must file a change of information NOI in accordance with this Part by the earlier to occur of (a) seven (7) days before beginning work at the facility/construction site; or (b) thirty (30) days from acquiring legal title to the facility/construction site. Stabilization and BMP installation and/or maintenance measures of a disturbed site, by the subsequent Owner or Operator, may occur in advance of filing a new NOI, without violation of this permit. Failure to comply with this requirement shall constitute a violation of the Georgia Water Quality Control Act for each day until the Owner or Operator or both submit an initial NOI for a new construction site in accordance with Part II.A.1., comply with the special conditions in Part III., prepare and submit a new Erosion, Sedimentation and Pollution Control Plan in accordance with Part IV., and pay all applicable fees in accordance with Part II.D.

5. For sites where construction activities will result in land disturbance equal to or greater than one (1) acre that are required as a result of storm- or emergency-related repair work, the Owner or Operator or both shall notify the appropriate EPD District Office within three (3) days of commencement of said construction activities. The Owner or Operator or both shall submit the NOI to the appropriate EPD District Office as soon as possible after the storm- or emergency-related event but no later than fourteen (14) days after the commencement of construction activities and shall submit the Plan in accordance with Part IV.A.6.

B. Notice of Intent Contents.

1. Primary Permittee. A single Notice of Intent for the primary permittee (i.e., one NOI signed by the Owner or the Operator or both) shall be signed in accordance with Part V.G.1. of this permit and shall include the following information:

a. The project construction site name, GPS locations (decimal degrees) of the beginning and end of the infrastructure project, construction site location, city (if applicable) and county of the construction site for which the notification is submitted. The construction site location information must be sufficient to accurately locate the construction site;

b. The Owner's legal name, address, telephone number and email address; and if available, the Operator's legal name, address, telephone number and email address; and if applicable, the Duly Authorized Representative's legal name and/or position name, telephone number and email address;

c. The name, telephone number and email address of the individual to whom the permittee has assigned the responsibility for the daily operational control (i.e., construction superintendent, etc.) of the construction site;

d. The name of the initial receiving water(s) or if unnamed, the first named blue line stream indicated on the appropriate USGS Topographic map, and when the discharge is through a municipal separate storm sewer system (MS4), the name of the local government operating the municipal separate storm sewer system and the name of the receiving water(s) which receives the discharge from the MS4, and the permittee's determination of whether the receiving water(s) supports warm water fisheries or is a trout

stream as indicated in the Rules and Regulations for Water Quality Control, Chapter 391-3-6 at www.gaepd.org.

e. The name of the receiving water(s) located within one (1) linear mile upstream of and within the same watershed as, any portion of an Impaired Stream Segment identified as "not supporting" its designated use(s) shown on Georgia's most current "305(b)/303(d) List Documents (Final)" for the criteria violated, "Bio F" (Impaired Fish Community) and/or "Bio M" (Impaired Macroinvertebrate Community), within Category 4a, 4b or 5, and the potential cause is either "NP" (nonpoint source) or "UR" (urban runoff) at www.gaepd.org/Documents/305b.html;

f. An estimate of project start date and completion date, a schedule for the timing of the various construction activities, the number of acres of the site on which soil will be disturbed, and the surface water drainage area (if applicable). For projects that begun on or before the effective date of this permit, the start date must be the actual start date of construction;

g. The following certification shall be signed in accordance with Part V.G.1. of this permit:

"I certify that to the best of my knowledge and belief, that the Erosion, Sedimentation and Pollution Control Plan (Plan) was prepared by a design professional, as defined by this permit, that has completed the appropriate certification course approved by the Georgia Soil and Water Conservation Commission in accordance with the provisions of O.C.G.A. 12-7-19 and that I will adhere to the Plan and comply with all permit requirements."

h. The type of construction activity category (from those listed on the NOI) conducted at the site;

i. The location of the receiving water(s) or outfall(s) or a combination of receiving water(s) and outfall(s) to be sampled on a map or drawing of appropriate scale. When it is determined by the primary permittee that some or all of the outfall(s) will be sampled, the applicable nephelometric turbidity unit (NTU) selected from Appendix B (i.e., based upon the size of the construction site and the surface water drainage area) must be shown for each outfall to be sampled.

j. For infrastructure projects disturbing more than 50 acres, which began after the effective date of this permit, include a single copy of the Erosion, Sedimentation and Pollution Control Plan;

k. NOIs may be submitted for separate phases of projects with a total planned disturbance greater than 5.0 acres, provided that each phase shall not be less than 1.0 acre. Phased NOIs shall include all documentation required by this permit for each phase, including fees; and

l. Any other information specified on the NOI in effect at the time of submittal.

C. Notice of Intent Submittal. NOIs are to be submitted by ***return receipt certified mail*** (or similar service) to both the appropriate EPD District Office according to the schedule in Appendix A of this permit and to the Local Issuing Authority in jurisdictions authorized to issue a Land Disturbance Activity permit for the permittee's construction site pursuant to O.C.G.A. 12-7-1, et seq. If an electronic submittal service is provided by EPD then the NOI may be submitted electronically. If required, a paper copy must also be submitted by return receipt certified mail or similar service. The permittee shall retain a copy of the proof of submittal at the construction site or the proof of submittal shall be readily available at a designated alternative location from commencement of construction until such time as a Notice of Termination (NOT) is submitted in accordance with Part VI.

D. Fees. Any applicable fees shall be submitted by the **Primary Permittee** in accordance with Rules and Regulations for Water Quality Control (Rules) promulgated by the Board of Natural Resources. By submitting an NOI for coverage under this permit the primary permittee agrees to pay any fees required, now or in the future, by such Rules authorized under O.C.G.A. Section 12-5-23(a)(5)(A), which allows the Board of Natural Resources to

establish a fee system. Fees may be assessed on land disturbing activity proposed to occur on or after the effective date of this permit and shall be paid in accordance with such Rules.

E. Renotification. Upon issuance of a new or different general permit for some or all of the storm water discharges covered by this permit, the permittee is required to notify the EPD of their intent to be covered by the new or different general permit. The permittee must submit a new Notice of Intent in accordance with the notification requirements of the new or different general permit.

PART III. SPECIAL CONDITIONS, MANAGEMENT PRACTICES, PERMIT VIOLATIONS AND OTHER LIMITATIONS

A. Prohibition on Non-Storm Water Discharges.

1. Except as provided in Part I.C.2. and III.A.2., all discharges covered by this permit shall be composed entirely of storm water.

2. The following non-storm water discharges may be authorized by this permit provided the non-storm water component of the discharge is explicitly listed in the Erosion, Sedimentation and Pollution Control Plan and is in compliance with Part IV.D.7.; discharges from fire fighting activities; fire hydrant flushing; potable water sources including water line flushing; irrigation drainage; air conditioning condensate; springs; uncontaminated ground water; and foundation or footing drains where flows are not contaminated with process materials or pollutants.

3. This permit does not authorize the discharge of soaps or solvents used in vehicle and equipment washing.

4. This permit does not authorize the discharge of wastewater from washout and cleanout of stucco, paint, form release oils, curing compounds and other construction materials.

B. Releases in Excess of Reportable Quantities.

1. The discharge of hazardous substances or oil in the storm water discharge(s) from a site shall be prevented. This permit does not relieve the permittee of the reporting requirements of Georgia's Oil or Hazardous Material Spills or Releases Act (O.C.G.A. §§12-14-2, et seq.), 40 CFR Part 117 and 40 CFR Part 302. Where a release containing a hazardous substance in an amount equal to or in excess of a reporting quantity established under either Georgia's Oil or Hazardous Material Spills or Releases Act (O.C.G.A. §§12-14-2, et seq.), 40 CFR 117 or 40 CFR 302 occurs during a 24 hour period, the permittee is required to notify EPD at (404) 656-4863 or (800) 241-4113 and the National Response Center (NRC) at (800) 424-8802 in accordance with the requirements of Georgia's Oil or Hazardous Material Spills or Releases Act (O.C.G.A. §§12-14-2, et seq.), 40 CFR 117 and 40 CFR 302 as soon as he/she has knowledge of the discharge.

This permit does not authorize the discharge of hazardous substances or oil resulting from an on-site spill.

C. Discharges into, or within One Mile Upstream of and within the Same Watershed as, Any Portion of a Biota Impaired Stream Segment.

Any permittee who intends to obtain coverage under this permit for storm water discharges associated with construction activity into an Impaired Stream Segment, or within one (1) linear mile upstream of and within the same watershed as, any portion of an Impaired Stream Segment identified as "not supporting" its designated use(s), as shown on Georgia's most current "305(b)/303(d) List Documents (Final)" at the time of NOI submittal, must submit a Notification of Impacts Statement of Part III.C. of this permit if the Impaired Stream Segment has been listed for criteria violated, "Bio F" (Impaired Fish Community) and/or "Bio M" (Impaired Macroinvertebrate Community), within Category 4a, 4b or 5, and the potential cause is either "NP" (nonpoint source) or "UR" (urban runoff). Those discharges that are located within one (1) linear mile of an Impaired Stream Segment, but are not located

within the watershed of any portion of that stream segment, are excluded from this requirement. Georgia's 305(b)/303(d) List Documents (Final)" can be viewed on the EPD website, www.gaepd.org/Documents/305b.html.

1. If a Total Maximum Daily Load (TMDL) Implementation Plan for sediment has been finalized at least six (6) months prior to the permittee's submittal of the NOI, the Erosion, Sedimentation and Pollution Control Plan (Plan) must address any site-specific conditions or requirements included in the TMDL Implementation Plan that are applicable to the permittee's discharge(s) to the Impaired Stream Segment within the timeframe specified in the TMDL Implementation Plan. If the TMDL Implementation Plan establishes a specific numeric wasteload allocation that applies to an permittee's discharge(s) to the Impaired Stream Segment, then the permittee must incorporate that allocation into the Erosion, Sedimentation and Pollution Control Plan and implement all necessary measures to meet that allocation. A list of TMDL Implementation Plans can be viewed on the EPD website, www.gaepd.org.

2. In order to ensure that the permittee's discharge(s) do not cause or contribute to a violation of State water quality standards, the Plan must include at least four (4) of the following best management practices (BMPs) for those areas of the site which discharge into or within one (1) linear mile upstream and within the same watershed as the Impaired Stream Segment:

a. During all construction activities as defined in this permit, double the width of the 25 foot undisturbed vegetated buffer along all State waters requiring a buffer and the 50 foot undisturbed vegetated buffer along all State waters classified as "trout streams" requiring a buffer. During construction activities, EPD will not grant variances to any such buffers that are increased in width pursuant to this section.

b. Increase all temporary sediment basins and retrofitted storm water management basins to provide sediment storage of at least 3600 cubic feet (134 cubic yards) per acre drained.

c. Use baffles in all temporary sediment basins and retrofitted storm water management basins to at least double the conventional flow path length to the outlet structure.

d. A large sign (minimum 4 feet x 8 feet) must be on the site on the actual start date of construction visible from a public roadway identifying the construction site, the permittee(s), and the contact person(s) and telephone number(s) until a NOT has been submitted.

e. Use anionic polyacrylamide (PAM) and/or mulch to stabilize all areas left disturbed for more than seven (7) calendar days in accordance with Part III.D.1. of this permit.

f. Conduct turbidity sampling after every rain event of 0.5 inch or greater within any 24 hour period, recognizing the exceptions specified in Part IV.D.6.d. of this permit.

g. Comply with the applicable end-of-pipe turbidity effluent limit, without the "BMP defense" as provided for in O.C.G.A. 12-7-6(a)(1).

h. Reduce the total planned site disturbance to less than 50% impervious surfaces (excluding any State-mandated buffer areas from such calculations). All calculations must be included on the Plan.

i. Limit the amount of disturbed area at any one time to no greater than 25 acres or 50% of the total planned site, whichever is less. All calculations must be included on the Plan.

j. Use "Dirt II" techniques available on the EPD website, www.gaepd.org (e.g., seep berms, sand filters, anionic PAM) to model and manage all construction storm water runoff (including sheet flow). All calculations must be included on the Plan.

k. Add appropriate organic soil amendments (e.g., compost) and conduct pre- and post-construction soil sampling to a depth of 6 (six) inches to document improved levels of soil carbon after final stabilization of the construction site.

l. Use mulch filter berms, in addition to a silt fence, on the site perimeter wherever construction storm water (including sheet flow) may be discharged. Mulch filter berms cannot be placed in waterways or areas of concentrated flow.

m. Apply the appropriate Georgia Department of Transportation approved erosion control matting or blankets or bonded fiber matrix to all slopes steeper than 3:1. All graphical illustrations must be included on the Plan.

n. Use appropriate erosion control matting or blankets instead of concrete in all construction storm water ditches and storm drainages designed for a 25 year, 24 hour rainfall event.

o. Use anionic PAM under a passive dosing method (e.g., flocculant blocks) within all construction storm water ditches and storm drainages that feed into temporary sediment basins and retrofitted management basins.

p. Install sod for a minimum 20 foot width (in lieu of seeding) after final grade has been achieved, along the site perimeter wherever construction storm water (including sheet flow) may be discharged.

q. Conduct soil tests to identify and to implement site-specific fertilizer needs.

r. Certified personnel shall conduct inspections at least once every seven (7) calendar days and within 24 hours of the end of the storm that is 0.5 inches rainfall or greater in accordance with Part IV.D.4.a.(3)...(a) – (c) of this permit.

s. Apply the appropriate compost blankets (minimum depth 1.5 inches) to protect soil surfaces until vegetation is established during the final stabilization phase of the construction activity.

t. Use alternative BMPs whose performance has been documented to be superior to conventional BMPs as certified by a Design Professional (unless disapproved by EPD or the State Soil and Water Conservation Commission).

u. Limit the total planned site disturbance to less than 15% impervious surfaces (excluding any State-mandated buffer areas from such calculations). All calculations must be included on the Plan.

D. Management Practices and Permit Violations.

1. Best management practices, as set forth in this permit, are required for all construction activities, and must be implemented in accordance with the design specifications contained in the "Manual for Erosion and Sediment Control in Georgia" (Manual) published by the State Soil and Water Conservation Commission as of January 1 of the year in which the land-disturbing activity was permitted to prevent or reduce the pollution of waters of Georgia. Proper design, installation, and maintenance of best management practices shall constitute a complete defense to any action by the Director or to any other allegation of noncompliance with Part III.D.3. and Part III.D.4.

2. Except as required to install the initial sediment storage requirements and perimeter control BMPs as described in Part IV.D.3., the initial sediment storage requirements and perimeter control BMPs must be installed and implemented prior to conducting any other construction activities (e.g., clearing, grubbing and grading) within the construction site or when applicable, within phased sub-parts or segments of the construction site. Failure to comply shall constitute a violation of this permit for each day on which construction activities occur. The design professional who prepared the Plan must inspect the initial sediment storage requirements and perimeter control BMPs in accordance with Part IV.A.5. within seven (7) days after installation.

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(i). Except as provided in Part IV.(iii). below, no construction activities shall be conducted within a 25 foot buffer along the banks of all State waters, as measured horizontally from the point where vegetation has been wrested by normal stream flow or wave action, except where the Director has determined to allow a variance that is at least as protective of natural resources and the environment in accordance with the provisions of O.C.G.A. 12-7-6, or where a drainage structure or a roadway drainage structure must be constructed, provided that adequate erosion control measures are incorporated in the project plans and specifications and are implemented, or along any ephemeral stream, or where bulkheads and seawalls must be constructed to prevent the erosion of the shoreline on Lake Oconee and Lake Sinclair. The buffer shall not apply to the following activities provided that adequate erosion control measures are incorporated into the project plans and specifications are implemented:

(1) public drinking water system reservoirs;
(2) fences,
(3) stream crossings for water lines and sewer lines, provided that the stream crossings occur at an angle, as measured from the point of crossing, within 25 degrees of perpendicular to the stream and cause a width of disturbance of not more than 50 feet within the buffer, and native riparian vegetation is re-established in any bare or disturbed areas within the buffer and
(4) stream crossings for any utility lines of any electric membership corporation or municipal electrical system or any public utility under the regulatory jurisdiction of the Public Service Commission, any utility under the regulatory jurisdiction of the Federal Energy Regulatory Commission, any cable television system as defined in Code Section 36-18-1, or any agency or instrumentality of the United States engaged in the generation, transmission or distribution of power, provided that: (a) the stream crossings occur at an angle, as measured from the point of crossing, within 25 degrees of perpendicular to the stream and cause a width of disturbance of not more than 50 feet within the buffer, (b) native riparian vegetation is re-established in any bare or disturbed areas within the buffer and (c) the entity is not a secondary permittee for a project located within a common development or sale under this permit,
(5) stream crossings for aerial utility lines, provided that: (a) the new utility line right-of-way width does not exceed 200 linear feet, (b) utility lines are routed and constructed so as to minimize the number of stream crossings and disturbances to the buffer, (c) only trees and tree debris are removed from within the buffer resulting in only minor soil erosion (i.e., disturbance to underlying vegetation is minimized), and (d) native riparian vegetation is re-established in any bare or disturbed areas within the buffer. The Plan shall include a description of the stream crossings with details of the buffer disturbance including area and length of buffer disturbance, estimated length of time of buffer disturbance, and justification;
(6) right-of-way posts, guy-wires, anchors, survey markers and the replacement or maintenance of existing utility structures within the current right-of-way undertaken or financed in whole or in part by the Department of Transportation, the Georgia Highway Authority or the State Road and Tollway Authority or undertaken by any county or municipality, provided that: (a) the area of land disturbance does not exceed 100 square feet per structure, (b) the area of buffer vegetation to be cut (not grubbed) does not exceed 1,000 square feet per structure, (c) native riparian vegetation is re-established in any bare or disturbed areas within the buffer and (d) the entity is not a secondary permittee for a project located within a common development or sale under this permit; and
(7) right-of-way posts, guy-wires, anchors, survey markers and the replacement or maintenance of existing utility structures within the current right-of-way undertaken by any electric membership corporation or municipal electrical system or any public utility under the regulatory jurisdiction of the Public Service Commission, any utility under the regulatory jurisdiction of the Federal Energy Regulatory Commission, any cable television system as defined in Code Section 36-18-1, or any agency or instrumentality of the United States engaged in the generation, transmission or distribution of power, provided that: (a) the area of land disturbance does not exceed 100 square feet per structure, (b) the area of buffer vegetation to be cut (not grubbed) does not exceed 1,000 square feet per structure, (c) native riparian vegetation is re-established in any bare or disturbed areas within the buffer and (d) the entity is not a secondary permittee for a project located within a common development or sale under this permit.

(ii). No construction activities shall be conducted within a 50 foot buffer, as measured horizontally from the point where vegetation has been wrested by normal stream flow or wave action, along the banks of any State waters classified as "trout streams" except when approval is granted by the Director for alternate buffer requirements in

accordance with the provisions of O.C.G.A. 12-7-6, or where a roadway drainage structure must be constructed; provided, however, that small springs and streams classified as 'trout streams' which discharge an average annual flow of 25 gallons per minute or less shall have a 25 foot buffer or they may be piped, at the discretion of the permittee, pursuant to the terms of a rule providing for a general variance promulgated by the Board of Natural Resources including notification of such to EPD and the Local Issuing Authority of the location and extent of the piping and prescribed methodology for minimizing the impact of such piping and the impact on the quality of water discharged by the stream. Any such pipe must stop short of the downstream permittee's property, and the permittee must comply with the buffer requirement for any adjacent trout streams. The buffer shall not apply to the following activities provided that adequate erosion control measures are incorporated into the project plans and specifications are implemented:

(1) public drinking water system reservoirs,
(2) fences,
(3) stream crossings for water lines and sewer lines, provided that the stream crossings occur at an angle, as measured from the point of crossing, within 25 degrees of perpendicular to the stream and cause a width of disturbance of not more than 50 feet within the buffer, and native riparian vegetation is re-established in any bare or disturbed areas within the buffer
(4) stream crossings for any utility lines of any electric membership corporation or municipal electrical system or any public utility under the regulatory jurisdiction of the Public Service Commission, any utility under the regulatory jurisdiction of the Federal Energy Regulatory Commission, any cable television system as defined in Code Section 36-18-1, or any agency or instrumentality of the United States engaged in the generation, transmission or distribution of power, provided that: (a) the stream crossings occur at an angle, as measured from the point of crossing, within 25 degrees of perpendicular to the stream and cause a width of disturbance of not more than 50 feet within the buffer, (b) native riparian vegetation is re-established in any bare or disturbed areas within the buffer and (c) the entity is not a secondary permittee for a project located within a common development or sale under this permit,
(5) stream crossings for aerial utility lines, provided that: (a) the new utility line right-of-way width does not exceed 200 linear feet, (b) utility lines are routed and constructed so as to minimize the number of stream crossings and disturbances to the buffer, (c) only trees and tree debris are removed from within the buffer resulting in only minor soil erosion (i.e., disturbance to underlying vegetation is minimized), and (d) native riparian vegetation is re-established in any bare or disturbed areas within the buffer. The Plan shall include a description of the stream crossings with details of the buffer disturbance including area and length of buffer disturbance, estimated length of time of buffer disturbance, and justification;
(6) right-of-way posts, guy-wires, anchors, survey markers and the replacement or maintenance of existing utility structures within the current right-of-way undertaken or financed in whole or in part by the Department of Transportation, the Georgia Highway Authority or the State Road and Tollway Authority or undertaken by any county or municipality, provided that: (a) the area of land disturbance does not exceed 100 square feet per structure, (b) the area of buffer vegetation to be cut (not grubbed) does not exceed 1,000 square feet per structure, (c) native riparian vegetation is re-established in any bare or disturbed areas within the buffer and (d) the entity is not a secondary permittee for a project located within a common development or sale under this permit; and
(7) right-of-way posts, guy-wires, anchors, survey markers and the replacement or maintenance of existing utility structures within the current right-of-way undertaken by any electric membership corporation or municipal electrical system or any public utility under the regulatory jurisdiction of the Public Service Commission, any utility under the regulatory jurisdiction of the Federal Energy Regulatory Commission, any cable television system as defined in Code Section 36-18-1, or any agency or instrumentality of the United States engaged in the generation, transmission or distribution of power, provided that: (a) the area of land disturbance does not exceed 100 square feet per structure, (b) the area of buffer vegetation to be cut (not grubbed) does not exceed 1,000 square feet per structure, (c) native riparian vegetation is re-established in any bare or disturbed areas within the buffer and (d) the entity is not a secondary permittee for a project located within a common development or sale under this permit.

(iii). Except as provided in Part IV(iv) below, no construction activities shall be conducted within a 25 foot buffer along coastal marshlands, as measured horizontally from the coastal marshland-upland interface, as determined in accordance with Part 4 of Article 4 of Chapter 5 of Title 12, the "Coastal Marshlands Protection Act of 1970,

and the rules and regulations promulgated thereunder, except where the director determines to allow a variance that is at least as protective of natural resources and the environment in accordance with the provisions of O.C.G.A. 12-7-6, or where otherwise allowed by the director pursuant to Code Section 12-5-286, or for maintenance of any currently serviceable structure, landscaping, or hardscaping, including bridges, roads, parking lots, golf courses, golf cart paths, retaining walls, bulkheads, and patios, provided that adequate erosion control measures are incorporated into the project plans and specifications and such measures are fully implemented, or where a drainage structure or roadway drainage structure is constructed or maintained, provided that adequate erosion control measures are incorporated into the project plans and specifications and such measures are fully implemented, or on the landward side of any currently serviceable shoreline stabilization structure, or for the maintenance of any manmade storm-water detention basin, golf course pond, or impoundment that is located entirely within the property of a single individual, partnership, or corporation, provided that adequate erosion control measures are incorporated into the project plans and specifications and such measures are fully implemented. The buffer shall not apply to the following activities provided that adequate erosion control measures are incorporated into the project plans and specifications and such measures are fully implemented:

(1) Public drinking water system reservoirs,
(2) Crossings for utility lines that cause a width of disturbance of not more than 50 feet within the buffer
(3) Any land-disturbing activity conducted pursuant to and in compliance with a valid and effective land-disturbing permit issued subsequent to April 22, 2014, and prior to December 31, 2015,
(4) Any lot for which the preliminary plat has been approved prior to December 31, 2015 if roadways, bridges, or water and sewer lines have been extended to such lot prior to the effective date of this Act and if the requirement to maintain a 25 foot buffer would consume at least 18 percent of the high ground of the platted lot otherwise available for development,
(5) Fences,
(6) Crossings for aerial utility lines, provided that: (a) the new utility line right-of-way width does not exceed 200 linear feet, (b) utility lines are routed and constructed so as to minimize the number of crossings and disturbances to the buffer, (c) only trees and tree debris are removed from within the buffer resulting in only minor soil erosion (i.e., disturbance to underlying vegetation is minimized), and (d) vegetation is re-established in any bare or disturbed areas within the buffer. The Plan shall include a description of the crossings with details of the buffer disturbance including area and length of buffer disturbance, estimated length of time of buffer disturbance, and justification;
(7) Right-of-way posts, guy wires, anchors, survey markers and the replacement and maintenance of existing utility structures within the current right-of-way undertaken or financed in whole or in part by the Department of Transportation, the Georgia Highway Authority or the State Road and Tollway Authority or undertaken by any county or municipality, provided that: (a) the area of land disturbance does not exceed 100 square feet per structure, (b) the area of buffer vegetation to be cut (not grubbed) does not exceed 1,000 square feet per structure, (c) native riparian vegetation is re-established in any bare or disturbed areas within the buffer and (d) the entity is not a secondary permittee for a project located within a common development or sale under this permit; and
(8) Right-of-way posts, guy wires, anchors, survey markers and the replacement and maintenance of existing utility structures within the current right-of-way by any electric membership corporation or municipal electrical system or any public utility under the regulator jurisdiction of the Public Service Commission, any utility under the regulatory jurisdiction of the Federal Energy Regulatory Commission, any cable television system as defined in Code Section 36-18-1, or any agency or instrumentality of the United States engaged in the generation, transmission or distribution of power, provided that: (a) the area of land disturbance does not exceed 100 square feet per structure, (b) the area of buffer vegetation to be cut (not grubbed) does not exceed 1,000 square feet per structure, (c) native riparian vegetation is re-established in any bare or disturbed areas within the buffer and (d) the entity is not a secondary permittee for a project located within a common development or sale under this permit; and

(iv). Except as provided above, for buffers required pursuant to Part IV.(i). and (ii) and (iii), no construction activities shall be conducted within a buffer and a buffer shall remain in its natural, undisturbed, state of vegetation until all land-disturbing activities on the construction site are completed. During coverage under this permit, a buffer cannot be thinned or trimmed of vegetation and a protective vegetative cover must remain to protect water quality and aquatic habitat and a natural canopy must be left in sufficient quantity to keep shade on the stream bed or marsh.

The Erosion, Sedimentation and Pollution Control Plan shall identify all potential sources of pollution which may reasonably be expected to affect the quality of storm water discharges from the construction site. In addition, the Plan shall describe and the applicable permittee shall ensure the implementation of practices which will be used to reduce the pollutants in storm water discharges associated with construction activity at the site and to assure compliance with the terms and conditions of this permit. The applicable permittee must implement and maintain the provisions of the Plan required under this part as a condition of this permit.

Except as provided in Part IV.A.2., a single Erosion, Sedimentation and Pollution Control Plan must be prepared by the primary permittee for the infrastructure construction project.

A. Deadlines for Plan Preparation and Compliance.

1. Except as provided in Part IV.A.2.and Part IV.A.6., the Erosion, Sedimentation and Pollution Control Plan shall be completed prior to submitting the NOI and prior to conducting any construction activity by any permittee.

2. For construction activities that began on or before the effective date of this permit and were subject to the regulations under the previous permit, the permittee(s) shall continue to operate under the existing Plan.

3. For construction activities that begin after the effective date of this permit, the primary permittee shall be required to prepare the Plan for that phase of the infrastructure development that corresponds with the NOI being submitted and the primary permittee(s) shall implement the Plan on or before the day construction activities begin.

4. Additional Plan Submittals.

a. For all projects identified under Part I.C.1.b., in a jurisdiction where there is no certified Local Issuing Authority-regulating that project, a single copy of the Plan must be submitted to the EPD Watershed Protection Branch and a second copy of the Plan must be submitted to the appropriate EPD District Office prior to or concurrent with the NOI submittal. The second copy of the Plan may be submitted to the appropriate EPD District Office as a Portable Document Format (PDF) file on CD-ROM or other storage device. The EPD Watershed Protection Branch will review Plans for deficiencies using the applicable Erosion, Sedimentation and Pollution Control Plan Checklist established by the State Soil and Water Conservation Commission as of January 1 of the year in which the land-disturbing activity was permitted

b. For sites that are equal to or greater than 50 acres of disturbed area, regardless of the existence of a certified Local Issuing Authority in the jurisdiction, one of the following submissions is also required:

(i) for all projects which begin after the effective date of this permit a single copy of the NOI and a single copy of the Plan shall be submitted to the appropriate EPD District Office. This copy of the Plan may be submitted to the appropriate EPD District Office as a Portable Document Format (PDF) file on CD-ROM or other storage device.

(ii) for all projects which began on or before the effective date of this permit single copy of the NOI and a single copy of the Plan, if amended, shall be submitted to the appropriate EPD District Office. This copy of the Plan may be submitted to the appropriate EPD District Office as a Portable Document Format (PDF) file on CD-ROM or other storage device.

c. For all projects where the construction activity as indicated on the existing NOI has changed, the amended Plans must be submitted in accordance with Part IV.A.4.a. In addition, the permittee must file a change of information NOI in accordance with Part II.

5. For infrastructure projects that begin construction activity after the effective date of this permit, the primary permittee must retain the design professional who prepared the Erosion, Sedimentation and Pollution Control Plan, or an alternative design professional approved by EPD in writing, to inspect the installation of the initial sediment storage requirements and perimeter control BMPs within seven (7) days after installation. Alternatively, for linear infrastructure projects, the primary permittee must retain the design professional who prepared the Erosion, Sedimentation and Pollution Control Plan, or an alternative design professional approved by EPD in writing, to inspect (a) the installation of the sediment storage requirements and perimeter control BMPs for the "*initial segment*" of the linear infrastructure project and (b) all sediment basins within the entire linear infrastructure project within seven (7) days after installation. For the purposes of the specific requirements in Part IV.A.5., the disturbed acreage of the "*initial segment*" of a linear infrastructure project must be equal to or greater than 10% of the total estimated disturbed acreage for the linear infrastructure project but not less than one (1) acre. The design professional shall determine if these BMPs have been installed and are being maintained as designed. The design professional shall report the results of the inspection to the primary permittee within seven (7) days and the permittee must correct all deficiencies within two (2) business days of receipt of the inspection report from the design professional unless weather related site conditions are such that additional time is required.

6. For storm- or emergency-related repair work, the permittee shall implement appropriate BMPs and certified personnel (provided by the primary permittee) shall inspect at least once every seven (7) calendar days and within 24 hours of the end of a storm that is 0.5 inches rainfall or greater. If the storm or emergency-related repair work will not be completed within sixty (60) days of commencement of construction activity, a single copy of the Plan shall be submitted to EPD and the permittee shall comply with all requirements of this permit on the sixty-first (61st) day.

B. Signature and Plan Review.

1. The Erosion, Sedimentation and Pollution Control Plan shall be signed in accordance with Part IV., and be retained on the site (or, if not possible, at a readily accessible location) which generates the storm water discharge in accordance with Part IV.F. of this permit.

2. The primary permittee shall make Plans available upon request to the EPD; to designated officials of the local government reviewing soil erosion and sedimentation control plans, grading plans, or storm water management plans, or in the case of a storm water discharge associated with construction activity which discharges through a municipal separate storm sewer system with an NPDES permit, to the local government operating the municipal separate storm sewer system.

3. EPD may notify the primary permittee at any time that the Plan does not meet one or more of the minimum requirements of this Part. Within seven (7) days of such notification (or as otherwise agreed to by EPD), the primary permittee shall make the required changes to the Plan and shall submit to EPD that the amended Plan or a written certification that the requested changes have been made.

C. Keeping Plans Current. The primary permittee(s) shall amend their Plan whenever there is a change in design, construction, operation, or maintenance, which has a significant effect on BMPs with a hydraulic component (i.e., those BMPs where the design is based upon rainfall intensity, duration and return frequency of storms) or if the Plan proves to be ineffective in eliminating or significantly minimizing pollutants from sources identified under Part IV.D.3. of this permit. Amendments to the Plan must be certified by a design professional as provided in this permit.

D. Contents of Plan. The Erosion, Sedimentation and Pollution Control Plan shall include, as a minimum, best management practices, including sound conservation and engineering practices to prevent and minimize erosion and resultant sedimentation, which are consistent with, and no less stringent than, those practices contained in

the "Manual for Erosion and Sediment Control in Georgia" (Manual) published by the State Soil and Water Conservation Commission as of January 1 of the year in which the land-disturbing activity was permitted, as well as the following:

1. Checklist. Each plan shall include a completed Erosion, Sedimentation and Pollution Control Plan Checklist established by the State Soil and Water Conservation Commission as of January 1 of the year in which the land-disturbing activity was permitted and amendments to the applicable Checklist as approved by the State Soil and Water Conservation Commission up until the date of the NOI submittal. The applicable checklists are available on the EPD website, www.gaepd.org.

2. Site description. Each site-specific Plan shall provide a description of pollutant sources and other information as indicated:

a. A description of the nature of the construction activity;

b. A detailed description and chart or timeline of the intended sequence of major activities which disturb soils for major portions of the site (i.e., initial sediment storage requirements and perimeter BMPs, clearing and grubbing activities, excavation activities, grading activities, infrastructure activities, immediate and final stabilization activities);

c. Estimates of the total area of the site and the total area of the site that is expected to be disturbed by excavation, grading, or other activities;

d. An estimate of the runoff coefficient or peak discharge flow of the site prior to the construction activities and after construction activities are completed and existing data describing the soil or the quality of any discharge from the site;

e. A site-specific map or series of drawings indicating drainage patterns and approximate slopes anticipated after major grading activities, areas of soil disturbance, an outline of areas which are not to be disturbed, the location of major structural and nonstructural controls identified in the Plan, the location of areas where stabilization practices are expected to occur, surface waters (including wetlands), and locations where storm water is discharged to a surface water; and

f. Identify the receiving water(s) and areal extent of wetland acreage at the site;

3. Controls. Each Plan shall include a description of appropriate controls and measures that will be implemented at the construction site including: (1) initial sediment storage requirements and perimeter control BMPs, (2) intermediate grading and drainage BMPs, and (3) final BMPs. For construction sites where there will be no mass grading and the initial sediment storage requirements and perimeter control BMPs, intermediate grading and drainage BMPs, and final BMPs are the same, the Plan may combine all of the BMPs into a single phase Plan. The Plan will include appropriate staging and access requirements for construction equipment. The Plan will clearly describe for each major activity identified in Part IV.D.2.b., appropriate control measures and the timing during the construction process that the measures will be implemented. The primary permittee is encouraged to utilize the document, Developing Your Stormwater Pollution Prevention Plan: A Guide for Construction Sites, EPA 833-R-060-04, May 2007 (www.epa.gov/npdes/pubs/sw_swppp_guide.pdf), when preparing the Plan. The description and implementation of controls shall address the following minimum components:

a. Erosion and sediment controls.

(1). Stabilization measures. A description of interim and permanent stabilization measures, including site-specific scheduling of the implementation of the measures. Site plans should ensure that existing vegetation is preserved and that disturbed portions of the site are stabilized. Stabilization measures may include: temporary seeding, permanent seeding, mulching, geotextiles, sod stabilization, vegetative buffer strips, protection of trees, preservation of mature

vegetation, and other appropriate measures. A record of the dates when major grading activities occur, when construction activities temporarily or permanently cease on a portion of the site, and when stabilization measures are initiated shall be included in the Plan. Except as provided in paragraphs IV.D.3.(a).(1).(a). and (b). below, stabilization measures shall be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, but in no case more than 14 days after the construction activity in that portion of the site has temporarily or permanently ceased.

(a). Where the initiation of stabilization measures by the 14th day after construction activity temporarily or permanently cease is precluded by snow cover or other adverse weather conditions, stabilization measures shall be initiated as soon as practicable.

(b). Where construction activity will resume on a portion of the site within 21 days from when activities ceased, (e.g., the total time period that construction activity is temporarily ceased is less than 21 days) then stabilization measures do not have to be initiated on that portion of site by the 14th day after construction activity temporarily ceased.

(2). Structural practices. A description of structural practices to divert flows from exposed soils, store flows or otherwise limit runoff and the discharge of pollutants from exposed areas of the site to the degree attainable. Such practices may include silt fences, earth dikes, drainage swales, sediment traps, check dams, subsurface drains, pipe slope drains, level spreaders, storm drain inlet protection, rock outlet protection, reinforced soil retaining systems, gabions, and temporary or permanent sediment basins. Structural practices should be placed on upland soils to the degree attainable. The installation of these devices may be subject to Section 404 of the CWA.

(3). Sediment basins. For common drainage locations a temporary (or permanent) sediment basin providing at least 1800 cubic feet (67 cubic yards) of storage per acre drained, or equivalent control measures, shall be provided until final stabilization of the site. The 1800 cubic feet (67 cubic yards) of storage area per acre drained does not apply to flows from offsite areas and flows from on-site areas that are either undisturbed or have undergone final stabilization where such flows are diverted around both the disturbed area and the sediment basin. For drainage locations where a temporary sediment basin providing at least 1800 cubic feet (67 cubic yards) of storage per acre drained, or equivalent controls is not attainable, sediment traps, silt fences, wood mulch berms or equivalent sediment controls are required for all side slope and down slope boundaries of the construction area. When the sediment fills to a volume at most of 22 cubic yards per acre for each acre of drainage area, the sediment shall be removed to restore the original design volume. This sediment must be properly disposed. Sediment basins may not be feasible at some construction projects. Careful consideration must be used to determine when a sediment basin cannot be used and/or when 67 cubic yards of storage per acre drained is not attainable and a written justification explaining the decision(s) must be included in the Plan. Perennial and intermittent waters of the State shall not be used for temporary or permanent sediment detention.

When discharging from sediment basins and impoundments, permittees are required to utilize outlet structures that withdraw water from the surface, unless infeasible. If outlet structures that withdraw water from the surface are not feasible, a written justification explaining this decision must be included in the Plan. Outlet structures that withdraw water from the surface are temporary BMPs and must be removed prior to submitting Notice of Termination. For construction activities where the NOI was submitted prior to January 1, 2014, this requirement of the permit is not applicable.

(4). Alternative BMPs. The use of alternative BMPs whose performance has been documented to be equivalent or superior to conventional BMPs as certified by a Design Professional may be allowed (unless disapproved by EPD or the State Soil and Water Conservation Commission).

(5). High performance BMPs. The use of infiltration trenches, seep berms, sand filters, dry wells, polyacrylamide, etc. for minimizing point source discharges except for large rainfall events is encouraged.

b. Storm water management. A description of measures that will be installed during the construction process to control pollutants in storm water discharges that will occur after construction operations have been completed. Structural measures should be placed on upland soils to the degree attainable. The installation of these devices may be subject to Section 404 of the CWA. This permit only addresses the installation of storm water management measures, and not the ultimate operation and maintenance of such structures after the construction activities have been completed and the site has undergone final stabilization. Operators are only responsible for the installation and maintenance of storm water management measures prior to final stabilization of the site, and are not responsible for maintenance after storm water discharges associated with construction activity have been eliminated from the site.

(1). Such practices may include: storm water detention structures (including wet ponds); storm water detention structures; flow attenuation by use of open vegetated swales and natural depressions; infiltration of runoff on-site; and sequential systems (which combine several practices). The Plan shall include an explanation of the technical basis used to select the practices to control pollution where flows exceed pre-development levels.

(2). Velocity dissipation devices shall be placed at discharge locations and along the length of any outfall channel for the purpose of providing a non-erosive velocity flow from the structure to a water course so that the natural physical and biological characteristics and functions are maintained and protected (e.g., no significant changes in the hydrological regime of the receiving water(s)).

(3). Installation and use of Green Infrastructure approaches and practices that mimic natural processes and direct storm water where it can be infiltrated, evapotranspirated or re-used with significant utilization of soils and vegetation rather than traditional hardscape collection, conveyance and detention systems. Green Infrastructure practices are encouraged to the maximum extent practicable. Green Infrastructure practices or approaches include permeable or porous paving, vegetated swales instead of curbs and gutters, green roofs, tree boxes, rain gardens, constructed wetlands, infiltration planters, vegetated median strips, protection and enhancement of riparian buffers and floodplains, and the overall reduction in site disturbance and impervious area. Design information on Green Infrastructure practices and other ways to manage storm water can be found in the Georgia Stormwater Management Manual (www.georgiastormwater.com) and the Georgia Green Growth Guidelines (www.coastalgadeq.org/stormwater/green-guide). Additional information on Green Infrastructure can be found at water.epa.gov/infrastructure/greeninfrastructure/index.cfm .

c. Other controls.

(1). Waste disposal. Locate waste collection areas away from streets, gutters, watercourses and storm drains. Waste collection areas, such as dumpsters, are often best located near construction site entrances to minimize traffic on disturbed soils. The Plan should include secondary containment around liquid waste collection areas to further minimize the likelihood of contaminated discharges. Solid materials, including building materials, shall not be discharged to waters of the State, except as authorized by a Section 404 permit.

(2). Off-site vehicle tracking of dirt, soils, and sediments and the generation of dust shall be minimized or eliminated to the maximum extent practical. The Plan shall include the best management practice to be implemented at the site or construction activity.

(3). Nothing in this permit relieves a permittee from any obligations to comply with all applicable State and/or local regulations of waste disposal, sanitary sewer, septic and petroleum storage systems.

(4). The Plan shall include best management practices for the remediation of all petroleum spills and leaks as appropriate.

(5). The Plan shall include best management practices for concrete washdown of tools, concrete mixer chutes, hoppers and the rear of vehicles. Washout of the drum at the construction site is prohibited. Additional information about best management practices for concrete washout is available at www.epa.gov/npdes/pubs/concretewashout.pdf.

(6) All permittees are required to minimize the discharge of pollutants from dewatering trenches and excavations. Discharges are prohibited unless managed by appropriate controls.

4. Inspections.

a. Permittee requirements.

(1). Each day when any type of construction activity has taken place at a primary permittee's site, certified personnel provided by the primary permittee shall inspect: (a) all areas at the primary permittee's site where petroleum products are stored, used, or handled for spills and leaks from vehicles and equipment and (b) all locations at the primary permittee's site where vehicles enter or exit the site for evidence of off-site sediment tracking. These inspections must be conducted until a Notice of Termination is submitted.

(2). Measure rainfall once every 24 hours except any non-working Saturday, non-working Sunday and non-working Federal holiday until a Notice of Termination is submitted. Measurement of rainfall may be suspended if all areas of the site have undergone final stabilization or established a crop of annual vegetation and a seeding of target perennials appropriate for the region.

(3). Certified personnel (provided by the primary permittee) shall inspect the following at least once every fourteen (14) calendar days and within 24 hours of the end of a storm that is 0.5 inches rainfall or greater (unless such storm ends after 5:00 PM on any Friday or on any non-working Saturday, non-working Sunday or any non-working Federal holiday in which case the inspection shall be completed by the end of the next business day and/or working day, whichever occurs first): (a) disturbed areas of the primary permittee's construction site ; (b) areas used by the primary permittee for storage of materials that are exposed to precipitation ; and (c) structural control measures. Erosion and sediment control measures identified in the Plan applicable to the primary permittee's site shall be observed to ensure that they are operating correctly. Where discharge locations or points are accessible, they shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving water(s). For areas of a site that have undergone final stabilization or established a crop of annual vegetation and a seeding of target perennials appropriate for the region, the permittee must comply with Part IV.D.4.a.(4). These inspections must be conducted until a Notice of Termination is submitted.

(4). Certified personnel (provided by the primary permittee) shall inspect at least once per month during the term of this permit (i.e., until a Notice of Termination is submitted to EPD) the areas of the site that have undergone final stabilization or established a crop of annual vegetation and a seeding of target perennials appropriate for the region. These areas shall be inspected for evidence of, or the potential for, pollutants entering the drainage system and the receiving water(s). Erosion and sediment control measures identified in the Plan shall be observed to ensure that they are operating correctly. Where discharge locations or points are accessible, they

shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving water(s).

(5). Based on the results of each inspection, the site description and the pollution prevention and control measures identified in the Erosion, Sedimentation and Pollution Control Plan, the Plan shall be revised as appropriate not later than seven (7) calendar days following each inspection. Implementation of such changes shall be made as soon as practical but in no case later than seven (7) calendar days following each inspection.

(6). A report of each inspection that includes the name(s) of certified personnel making each inspection, the date(s) of each inspection, construction phase (i.e., initial, intermediate or final), major observations relating to the implementation of the Erosion, Sedimentation and Pollution Control Plan, and actions taken in accordance with Part IV.D.4.a.(5). of the permit shall be made and retained at the site or be readily available at a designated alternate location until the entire site or that portion of a construction project that has been phased has undergone final stabilization and a Notice of Termination is submitted to EPD. Such reports shall be readily available by end of the second business day and/or working day and shall identify all incidents of best management practices that have not been properly installed and/or maintained as described in the Plan. Where the report does not identify any incidents, the inspection report shall contain a statement that the best management practices are in compliance with the Erosion, Sedimentation and Pollution Control Plan. The report shall be signed in accordance with Part V.G.2. of this permit.

5. Maintenance. The Plan shall include a description of procedures to ensure the timely maintenance of vegetation, erosion and sediment control measures and other protective measures identified in the site plan.

6. Sampling Requirements. This permit requires the monitoring of nephelometric turbidity in receiving water(s) or outfalls in accordance with this permit. The following procedures constitute EPD's guidelines for sampling turbidity.

a. *Sampling Requirements* shall include the following:

(1) A USGS topographic map, a topographic map or a drawing (referred to as a topographic map) that is a scale equal to or more detailed than a 1:24000 map showing the location of the infrastructure construction: (a) the location of all perennial and intermittent streams and other water bodies as shown on a USGS topographic map, and all other perennial and intermittent streams and other water bodies located during mandatory field verification, into which the storm water is discharged and (b) the receiving water and/or outfall sampling locations for each representative stormwater outfall. When the permittee has chosen to use a USGS topographic map and the receiving water(s) is not shown on the USGS topographic map, the location of the receiving water(s) must be hand-drawn on the USGS topographic map from where the storm water(s) enters the receiving water(s) to the point where the receiving water(s) combines with the first blue line stream shown on the USGS topographic map;

(2). A written narrative of site specific analytical methods used to collect and analyze the samples including quality control/quality assurance procedures. This narrative must include precise sampling methodology for each sampling location;

(3). When the permittee has determined that some or all outfalls will be sampled, a rationale must be included on the Plan for the NTU limit(s) selected from Appendix B. This rationale must include the size of the construction site, the calculation of the size of the surface water drainage area, and the type of receiving water(s) (i.e., trout stream or supporting warm water fisheries); and

(4). Any additional information EPD determines necessary to be part of the Plan. EPD will provide written notice to the permittee of the information necessary and the time line for submittal.

b. *Sample Type.* All sampling shall be collected by "grab samples" and the analysis of these samples must be conducted in accordance with methodology and test procedures established by 40 CFR Part 136 (unless other test procedures have been approved); the guidance document titled "NPDES Storm Water Sampling Guidance Document, EPA 833-B-92-001" and guidance documents that may be prepared by the EPD.

(1). Sample containers should be labeled prior to collecting the samples.

(2). Samples should be well mixed before transferring to a secondary container.

(3). Large mouth, well cleaned and rinsed glass or plastic jars should be used for collecting samples. The jars should be cleaned thoroughly to avoid contamination.

(4). Manual, automatic or rising stage sampling may be utilized. Samples required by this permit should be analyzed immediately, but in no case later than 48 hours after collection. However, samples from automatic samplers must be collected no later than the next business day after their accumulation, unless flow through automated analysis is utilized. If automatic sampling is utilized and the automatic sampler is not activated during the qualifying event, the permittee must utilize manual sampling or rising stage sampling during the next qualifying event. Dilution of samples is not required. Samples may be analyzed directly with a properly calibrated turbidimeter. Samples are not required to be cooled.

(5). Sampling and analysis of the receiving water(s) or outfalls beyond the minimum frequency stated in this permit must be reported to EPD as specified in Part IV.E.

c. *Sampling Points.*

(1). For construction activities the primary permittee must sample all perennial and intermittent streams and other water bodies shown on the USGS topographic map and all other field verified perennial and intermittent streams and other water bodies, or all outfalls into such streams and other water bodies, or a combination thereof. However, provided for in and in accordance with Part IV.D.6.c.(2). of this permit, primary permittees on an infrastructure construction project may sample the representative perennial and intermittent streams, other water bodies or outfalls, or a combination thereof. Samples taken for the purpose of compliance with this permit shall be representative of the monitored activity and representative of the water quality of the receiving water(s) and/or the storm water outfalls using the following minimum guidelines:

(a). The upstream sample for each receiving water(s) must be taken immediately upstream of the confluence of the first storm water discharge from the permitted activity (i.e., the discharge farthest upstream at the site) but downstream of any other storm water discharges not associated with the permitted activity. Where appropriate, several upstream samples from across the receiving water(s) may need to be taken and the arithmetic average of the turbidity of these samples used for the upstream turbidity value.

(b). The downstream sample for each receiving water(s) must be taken downstream of the confluence of the last storm water discharge from the permitted activity (i.e., the discharge farthest downstream at the site) but upstream of any other storm water discharge not associated with the permitted activity. Where appropriate, several downstream samples from across the receiving water(s) may need to be taken and the arithmetic average of the turbidity of these samples used for the downstream turbidity value.

(c). Ideally the samples should be taken from the horizontal and vertical center of the receiving water(s) or the storm water outfall channel(s).

(d). Care should be taken to avoid stirring the bottom sediments in the receiving water(s) or in the outfall storm water channel.

(e). The sampling container should be held so that the opening faces upstream.

(f). The samples should be kept free from floating debris.

(g). Permittees do not have to sample sheetflow that flows onto undisturbed natural areas or areas stabilized by this project. For purposes of this section, stabilized shall mean, for unpaved areas and areas not covered by permanent structures,, 100% of the soil surface is uniformly covered in permanent vegetation with a density of 70% or greater, or landscaped according to the Plan (uniformly covered with landscaping materials in planned landscaped areas), or equivalent permanent stabilization measures as defined in the Manual (excluding a crop of annual vegetation and a seeding of target crop perennials appropriate for the region). For infrastructure construction projects on land used for agricultural or silvicultural purposes, final stabilization may be accomplished by stabilizing the disturbed land for its agricultural or silvicultural use.

(h). All sampling pursuant to this permit must be done in such a way (including generally accepted sampling methods, locations, timing, and frequency) as to accurately reflect whether storm water runoff from the construction site is in compliance with the standard set forth in Parts III.D.3. or III.D.4., whichever is applicable.

(2). For infrastructure construction projects, the permittee is not required to sample a perennial or intermittent stream or other water bodies

B. Continuation of the Expired General Permit. This permit expires on the date shown on the cover page of this permit. However, an expired general permit continues in force and effect until a new general permit is issued, final and effective.

C. Need to Halt or Reduce Activity Not a Defense. It shall not be a defense for the permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

D. Duty to Mitigate. The permittee shall take all reasonable steps to minimize or prevent any discharge in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

E. Duty to Provide Information. The permittee shall furnish to the Director; a State agency approving soil erosion and sedimentation control plans, grading plans, or storm water management plans; or in the case of a storm water discharge associated with construction activity which discharges through a municipal separate storm sewer system with an NPDES permit, to the local government operating the municipal separate storm sewer system, any information which is requested to determine compliance with this permit. In the case of information submitted to the EPD such information shall be considered public information and available under the Georgia Open Records Act.

F. Other Information. When the permittee becomes aware that he/she failed to submit any relevant facts or submitted incorrect information in the Notice of Intent or in any other report required to be submitted to the EPD, the permittee shall promptly submit such facts or information.

G. Signatory Requirements. All Notices of Intent, Notice of Terminations, inspection reports, sampling reports, or other reports requested by the EPD shall be signed as follows:

1. All Notices of Intent and Notices of Termination shall be signed as follows:

   a. For a corporation: by a responsible corporate officer. For the purpose of this permit, a responsible corporate officer means: (1) a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation; or (2) the manager of one or more manufacturing, production or operating facilities provided the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;

   b. For a partnership or sole proprietorship: by a general partner or the proprietor, respectively; or

   c. For a municipality, State, Federal, or other public facility: by either a principal executive officer or ranking elected official; and

   d. Changes to authorization. If an authorization under Part II.B. is no longer accurate, a change of information NOI satisfying the requirements of Part II.B. must be submitted to the EPD prior to or together with any inspection reports, sampling reports, or other reports requested by the EPD to be signed by a person described above or by a duly authorized representative of that person.

2. All inspection reports, sampling reports, or other reports requested by the EPD shall be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:

   a. The authorization is made in writing by a person(s) described above and submitted to the EPD;

   b. The authorization specifies either an individual or a position having responsibility for specified operation(s) of the regulated facility or activity, such as the position of manager, Operator, superintendent, or position of equivalent responsibility or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may be either a named individual or any individual occupying a named position); and

   c. *Certification.* Reports delineated in Part V.G.2. shall be signed by the permittee or duly authorized representative and shall make the following certification:

      "I certify under penalty of law that this report and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that certified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

H. Oil and Hazardous Substance Liability. Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject under the Georgia Hazardous Waste Management Act, O.C.G.A. § 12-8-60, et seq. or under Chapter 14 of Title 12 of the Official Code of Georgia Annotated; nor is the Operator relieved from any responsibilities, liabilities or penalties to which the permittee is or may be subject under Section 311 of the Clean Water Act or Section 106 of Comprehensive Environmental Response Compensation And Liability Act.

I. Property Rights. The issuance of this permit does not convey any property rights of any sort, nor any exclusive privileges, nor does it authorize any injury to private property nor any invasion of personal rights, nor any infringement of Federal, State or local laws or regulations.

J. Severability. The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit shall not be affected thereby.

K. Other Applicable Environmental Regulations and Laws. Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable State law or regulation under authority preserved by Section 510 of the Clean Water Act. Nothing in this permit, unless explicitly stated, exempts the permittee from compliance with other applicable local, state and federal ordinances, rules, regulations, and laws. Furthermore, it is not a defense to compliance with this permit that a local government authority has approved the permittee's Erosion, Sedimentation and Pollution Control Plan or failed to take enforcement action against the permittee for violations of the Erosion, Sedimentation and Pollution Control Plan, or other provisions of this permit.

No condition of this permit shall release the permittee from any responsibility or requirements under other environmental statutes or regulations.

L. Proper Operation and Maintenance. The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit and with the required plans. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. Proper operation and maintenance requires the operation of backup or auxiliary facilities or similar systems, installed by a permittee only when necessary to achieve compliance with the conditions of the permit.

M. Inspection and Entry. The permittee shall allow the Director or an authorized representative of EPA or EPD or, in the case of a construction site which discharges through a municipal separate storm sewer system with an NPDES permit, an authorized representative of the municipal operator of the separate storm sewer system receiving the discharge, upon the presentation of credentials and other documents as may be required by law, to:

1. Enter upon the permittee's premises where a regulated facility or activity is located or conducted or where records must be kept under the conditions of this permit;

2. Have access to and copy at reasonable times, any records that must be kept under the conditions of this permit; and

3. Inspect at reasonable times any facilities or equipment (including monitoring and control equipment).

N. Permit Actions. This permit may be revoked and reissued, or terminated for cause including but not limited to changes in the law or regulations. The filing of a request by the permittee for termination of the permit, or a notification of planned changes or anticipated noncompliance, does not stay any permit condition.

Part VI. TERMINATION OF COVERAGE

A. Notice of Termination Eligibility. Notice of Termination signed in accordance with Part V.G.1. of this permit must be submitted:

1. For infrastructure construction projects, by the permittee where the entire project has undergone final stabilization, all storm water discharges associated with construction activity that are authorized by this permit have ceased, the site is in compliance with this permit and all temporary BMPs have been removed. The permittee may also submit a Notice of Termination for each phase of the infrastructure project, not to exceed four (4) phases, that have undergone final stabilization and all storm water discharges associated with construction activity for that phase authorized by this permit have ceased. Except for the final phase, the disturbed acreage for each phase must be equal to or greater than 25% of the total estimated disturbed acreage for the infrastructure project. For the final phase, the disturbed acreage for the final phase must be equal to or greater than 10% of the total estimated disturbed acreage for the infrastructure project. The Notice of Termination for each phase of the infrastructure project must include the GPS locations (decimal degrees) of the beginning and end of each phase and if applicable, a map identifying significant landmarks.

2. By the Owner or Operator or both when the Owner or Operator or both of the site changes. Where storm water discharges will continue after the identity of the Owner or Operator or both changes, the permittee must, prior to filing the Notice of Termination, notify any subsequent Owner or Operator or both of the permitted site as to the requirements of this permit.

B. Notice of Termination Contents:

1. The NPDES permit number for the storm water discharge associated with construction activity identified by the Notice of Termination (i.e., GAR100002 – Infrastructure);

2. The project construction site name, site location, GPS locations (decimal degrees) of the beginning and end of the infrastructure construction project or if applicable, of each phase in accordance with Part VI.A.1.,construction site location and if applicable, a map identifying significant landmarks, city (if applicable) and county of the site for which the notification is submitted. This information must correspond to the similar information as provided on the NOI. The construction site location information must be sufficient to accurate locate the construction site;

3. The owner's legal name, address, telephone number and email address and the operator's legal name, address, telephone and email address;

PETROLEUM SPILL CLEANUP AND CONTROL PRACTICES:

- LOCAL, STATE AND MANUFACTURER'S RECOMMENDED METHODS FOR SPILL CLEANUP WILL BE CLEARLY POSTED AND PROCEDURES WILL BE MADE AVAILABLE TO SITE PERSONNEL.
- MATERIAL AND EQUIPMENT NECESSARY FOR SPILL CLEANUP WILL BE KEPT IN THE MATERIAL STORAGE AREAS. TYPICAL MATERIALS AND EQUIPMENT INCLUDES, BUT IS NOT LIMITED TO, BROOMS, DUSTPANS, MOPS, RAGS, GLOVES, GOGGLES, CAT LITTER, SAND, SAWDUST AND PROPERLY LABELED PLASTIC AND METAL WASTE CONTAINERS.
- SPILL PREVENTION PRACTICES AND PROCEDURES WILL BE REVIEWED AFTER A SPILL AND ADJUSTED AS NECESSARY TO PREVENT FUTURE SPILLS.
- ALL SPILLS WILL BE CLEANED UP IMMEDIATELY UPON DISCOVERY. ALL SPILLS WILL BE REPORTED AS REQUIRED BY LOCAL, STATE AND FEDERAL REGULATIONS.
- **FOR SPILLS THAT IMPACT SURFACE WATER (LEAVE A SHEEN ON SURFACE WATER), THE NATIONAL RESPONSE CENTER (NRC) WILL BE CONTACTED WITHIN 24 HOURS AT 1-(800)-426-2675.**
- **FOR SPILLS GREATER THAN 25 GALLONS AND NO SURFACE WATER IMPACTS OCCUR, THE GEORGIA E.P.D. WILL BE CONTACTED WITHIN 24 HOURS.**
- **FOR SPILLS LESS THAN 25 GALLONS AND NO SURFACE WATER IMPACTS OCCUR, THE SPILL WILL BE CLEANED UP AND LOCAL AGENCIES WILL BE CONTACTED AS REQUIRED.**

THE CONTRACTOR SHALL NOTIFY THE LICENSED PROFESSIONAL WHO PREPARED THIS PLAN IF MORE THAN 1320 GALLONS OF PETROLEUM IS STORED ONSITE (THIS INCLUDES CAPACITIES OF EQUIPMENT) OR IF ANY ONE PIECE OF EQUIPMENT HAS A CAPACITY GREATER THAN 660 GALLONS. THE CONTRACTOR WILL NEED A SPILL PREVENTION CONTAINMENT AND COUNTERMEASURES PLAN PREPARED BY THAT LICENSED PROFESSIONAL.

PRODUCT SPECIFIC PRACTICES
PETROLEUM BASED PRODUCTS-CONTAINERS FOR PRODUCTS SUCH AS FUELS, LUBRICANTS, AND TARS WILL BE INSPECTED DAILY FOR LEAKS AND SPILLS. THIS INCLUDES ONSITE VEHICLES AND MACHINERY DAILY INSPECTIONS AND REGULAR PREVENTATIVE MAINTENANCE OF SUCH EQUIPMENT. EQUIPMENT MAINTENANCE AREAS WILL BE LOCATED AWAY FROM STATE WATERS, NATURAL DRAINS, AND STORM WATER DRAINAGE INLETS. IN ADDITION, TEMPORARY FUELING TANKS SHALL HAVE A SECONDARY CONTAINMENT LINER TO PREVENT/MINIMIZE SITE CONTAMINATION. DISCHARGE OF OILS, FUELS, AND LUBRICANTS IS PROHIBITED. PROPER DISPOSAL METHODS WILL INCLUDE COLLECTION IN A SUITABLE CONTAINER AND DISPOSAL AS REQUIRED BY LOCAL AND STATE REGULATIONS.

PAINTS/FINISHES/SOLVENTS-ALL PRODUCTS WILL BE STORED IN TIGHTLY SEALED ORIGINAL CONTAINERS WHEN NOT IN USE. EXCESS PRODUCT WILL NOT BE DISCHARGE TO THE STORM WATER COLLECTION SYSTEM. EXCESS PRODUCT, MATERIALS USED WITH THESE PRODUCTS, AND PRODUCT CONTAINERS WILL BE DISPOSED OF ACCORDING TO MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS.

CONCRETE TRUCK WASHING-NO CONCRETE TRUCKS WILL BE ALLOWED TO WASH OUT OR DISCHARGE SURPLUS CONCRETE OR DRUM WASH WATER ONSITE.

FERTILIZER/HERBICIDES-THESE PRODUCTS WILL BE APPLIED AT RATES THAT DO NOT EXCEED THE MANUFACTURER'S SPECIFICATIONS OR ABOVE THE GUIDELINES SET FORTH IN THE CROP ESTABLISHMENT OR IN THE GSWCC MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA. ANY STORAGE OF THESE MATERIALS WILL BE UNDER ROOF IN SEALED CONTAINERS.

BUILDING MATERIALS-NO BUILDING OR CONSTRUCTION MATERIALS WILL BE BURIED OR DISPOSED OF ONSITE. ALL SUCH MATERIAL WILL BE DISPOSED OF IN PROPER WASTE DISPOSAL PROCEDURES.

I CERTIFY UNDER PENALTY OF LAW THAT THIS PLAN WAS PREPARED AFTER A SITE VISIT TO THE LOCATIONS DESCRIBED HEREIN BY MYSELF OR MY AUTHORIZED AGENT, UNDER MY SUPERVISION.

I CERTIFY THAT THE PERMITTEE'S EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN PROVIDES FOR AN APPROPRIATE AND COMPREHENSIVE SYSTEM OF BEST MANAGEMENT PRACTICES REQUIRED BY THE GEORGIA WATER CONTROL ACT AND THE DOCUMENT "MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA" (MANUAL) PUBLISHED BY THE STATE SOIL AND WATER CONSERVATION COMMISSION AS OF JANUARY 1 OR THE YEAR IN WHICH THE LAND-DISTURBING ACTIVITY WAS PERMITTED, PROVIDES FOR THE SAMPLING OF THE RECEIVING WATER(S) OR THE SAMPLING OF THE STORM WATER OUTFALLS AND THAT THE DESIGNED SYSTEM OF BEST MANAGEMENT PRACTICES AND SAMPLING METHODS IS EXPECTED TO MEET THE REQUIREMENTS CONTAINED IN THE GENERAL NPDES PERMIT NO. GAR 100002.

I CERTIFY THAT THE PERMITTEE'S EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN PROVIDES FOR THE MONITORING OF: (A) ALL PERENNIAL AND INTERMITTENT STREAMS AND OTHER WATER BODIES SHOWN ON THE USGS TOPOGRAPHIC MAP AND ALL OTHER FIELD VERIFIED PERENNIAL AND INTERMITTENT STREAMS AND OTHER WATER BODIES, OR (B) WHERE ANY SUCH SPECIFIC IDENTIFIED PERENNIAL OR INTERMITTENT STREAM AND OTHER WATER BODY IS NOT PROPOSED TO BE SAMPLED, I HAVE DETERMINED IN MY PROFESSIONAL JUDGEMENT, UTILIZING THE FACTORS REQUIRED IN THE GENERAL NPDES PERMIT NO GAR 100002, THAT THE INCREASE IN THE TURBIDITY OF EACH SPECIFIC IDENTIFIED SAMPLED RECEIVING WATER WILL BE REPRESENTATIVE OF THE INCREASE IN THE TURBIDITY OF A SPECIFIC IDENTIFIED UN-SAMPLED RECEIVING WATER.

_____ _____
DATE DESIGN PROFESSIONAL SIGNATURE

4. The name of the receiving water(s), and when the discharge is through a municipal separate storm sewer system (MS4), the name of the local government operating the municipal separate storm sewer system and the name of the receiving water(s) which receives the discharge from the MS4;

5. Copies of all sampling reports and/or a written justification why sampling was not conducted. Copies of all sampling reports may be submitted as a Portable Document Format (PDF) file on CD-ROM or other storage device;

6. Copy of the permittee's most current Notice of Intent;

7. Any other information specified on the NOT in effect at the time of submittal; and

8. The following certification signed in accordance with Part V.G.1. (signatory requirements):

   "I certify under penalty of law that either: (a) all storm water discharges associated with construction activity authorized by this permit have ceased, the site is in compliance with this permit and all temporary BMPs have been removed or ; (b) I am no longer an Owner or Operator at the construction site and a new Owner or Operator has assumed operational control of the permitted construction site where I previously had ownership or operational control; and that discharging pollutants in storm water associated with construction activity to waters of Georgia is unlawful under the Georgia Water Quality Control Act and the Clean Water Act where the discharge is not authorized by a NPDES permit."

C. Notice of Termination Submittal. All Notices of Termination by this permit shall be submitted by ***return receipt certified mail*** (or similar service) to the appropriate EPD District Office according to the schedule in Appendix A of this permit and to the Local Issuing Authority in conditions authorized to issue a Land Disturbance Activity permit for the permittee's construction site pursuant to O.C.G.A. 12-7-1, et seq. If an electronic submittal service is provided by the EPD then the Notice of Termination may be submitted electronically; if required, a paper copy must also be submitted by return receipt certified mail or similar service.

APPENDIX A

EPD DISTRICT OFFICES

All required correspondence, including but not limited to the Notice of Intents, Notice of Terminations, certifications, Erosion, Sedimentation and Pollution Control Plans and any other reports, shall be sent to the following District Offices of EPD.

A. For facilities/construction sites located in the following counties: Bibb, Bleckley, Chattahoochee, Crawford, Dooly, Harris, Houston, Jones, Lamar, Macon, Marion, Meriwether, Monroe, Muscogee, Peach, Pike, Pulaski, Schley, Talbot, Taylor, Troup, Twiggs, Upson

Information shall be submitted to: West Central District Office
Georgia Environmental Protection Division
2640 Shurling Drive
Macon, GA 31211-3576
(478) 751-6612

B. For facilities/construction sites located in the following counties: Burke, Columbia, Emanuel, Glascock, Jefferson, Jenkins, Johnson, Laurens, McDuffie, Montgomery, Richmond, Screven, Treutlen, Warren, Washington, Wheeler, Wilkinson

Information shall be submitted to: East Central District Office
Georgia Environmental Protection Division
3525 Walton Way Extension
Augusta, GA 30909-1821
(706) 667-4343

C. For facilities/construction sites located in the following counties: Baldwin, Banks, Barrow, Butts, Clarke, Elbert, Franklin, Greene, Hall, Hancock, Hart, Jackson, Jasper, Lincoln, Madison, Morgan, Newton, Oconee, Oglethorpe, Putnam, Stephens, Taliaferro, Walton, Wilkes

Information shall be submitted to: Northeast District Office
Georgia Environmental Protection Division
745 Gaines School Road
Athens, GA 30605-3129
(706) 369-6376

D. For facilities/construction sites located in the following counties: Carroll, Clayton, Coweta, DeKalb, Douglas, Fayette, Fulton, Gwinnett, Heard, Henry, Rockdale, Spalding

Information shall be submitted to: Mountain District - Atlanta Satellite
Georgia Environmental Protection Division
4244 International Parkway, Suite 114
Atlanta, GA 30354-3906
(404) 362-2671

E. For facilities/construction sites located in the following counties: Bartow, Catoosa, Chattooga, Cherokee, Cobb, Dade, Dawson, Fannin, Floyd, Forsyth, Gilmer, Gordon, Habersham, Haralson, Lumpkin, Murray, Paulding, Pickens, Polk, Rabun, Towns, Union, Walker, White, Whitfield

Information shall be submitted to: Mountain District - Cartersville Office
Georgia Environmental Protection Division
P.O. Box 3250
Cartersville, GA 30120-1705
(770) 387-4900

F. For facilities/construction sites located in the following counties: Appling, Atkinson, Bacon, Brantley, Bryan, Bulloch, Camden, Candler, Charlton, Chatham, Clinch, Coffee, Effingham, Evans, Glynn, Jeff Davis, Liberty, Long, McIntosh, Pierce, Tattnall, Toombs, Ware, Wayne

Information shall be submitted to: Coastal District - Brunswick Office
Georgia Environmental Protection Division
400 Commerce Center Drive
Brunswick, GA 31523-8251
(912) 264-7284

G. For facilities/construction **sites located in the following counties:** Baker, Ben Hill, Berrien, Brooks, Calhoun, Clay, Colquitt, Cook, Crisp, Decatur, Dodge, Dougherty, Early, Echols, Grady, Irwin, Lanier, Lee, Lowndes, Miller, Mitchell, Quitman, Randolph, Seminole, Stewart, Sumter, Telfair, Terrell, Thomas, Tift, Turner, Webster, Wilcox, Worth

Information shall be submitted to: Southwest District Office
Georgia Environmental Protection Division
2024 Newton Road
Albany, GA 317701-3576
(912) 430-4144

H. For facilities/construction sites required to submit Plans required under Part IV.A.4.a. of this Permit:

Information shall be submitted to: Watershed Protection Branch
Environmental Protection Division
2 Martin Luther King Jr. Drive
Suite 1152 East
Atlanta, Georgia 30334
404-463-1511

APPENDIX B

Nephelometric Turbidity Unit (NTU) TABLES

Trout Streams

Surface Water Drainage Area, square miles

Site Size, acres	0-4.99	5-9.99	10-24.99	25-49.99	50-99.99	100-249.99	250-499.99	500+
1.00-10	25	50	75	150	300	500	500	500
10.01-25	25	25	50	75	150	200	500	500
25.01-50	25	25	25	50	75	100	300	500
50.01-100	20	25	25	35	59	75	150	300
100.01+	20	20	25	25	25	50	60	100

Waters Supporting Warm Water Fisheries

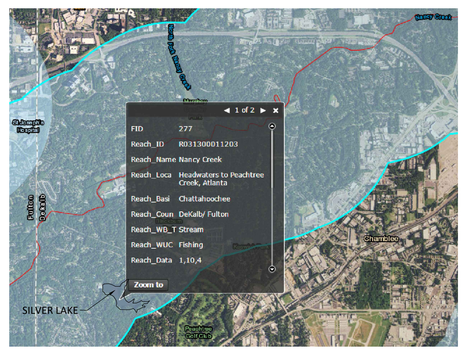
Surface Water Drainage Area, square miles

Site Size, acres	0-4.99	5-9.99	10-24.99	25-49.99	50-99.99	100-249.99	250-499.99	500+
1.00-10	75	150	200	400	750	750	750	750
10.01-25	50	100	100	200	300	500	750	750
25.01-50	50	50	100	100	200	300	750	750
50.01-100	50	50	50	100	100	150	300	600
100.01+	50	50	50	50	50	100	200	100

To use these tables, select the size (acres) of the construction site. Then, select the surface water drainage area (square miles). The NTU matrix value arrived at from the above tables is the one to use in Part III.D.4.

Example 1: For a site size of 12.5 acres and a "trout stream" drainage area of 37.5 square miles, the NTU value to use in Part III.D.4. is 75 NTU.

Example 2: For a site size of 51.7 acres and "waters supporting warm water fisheries" drainage area of 72 square miles, the NTU value to use in Part III.D.4. is 100 NTU.



EROSION CONTROL NOTES

1. DESCRIPTION: THE CITY OF BROOKHAVEN IS PROPOSING THIS CONSTRUCTION WHICH CONTAINS 0.53 ACRES OF DISTURBED AREA TO IMPROVE AN EXISTING INADEQUATE STORM SEWER SYSTEM. THE UPPER END OF THE SYSTEM WILL INTAKE OFFSITE STORM RUNOFF THAT IS CURRENTLY FLOODING RESIDENTIAL YARDS IN HEAVY STORMS. THE TWO MOST DOWNSTREAM PIPES AT THE OUTFALL, APPROXIMATELY 580 FEET UPSTREAM OF SILVER LAKE, WERE PART OF A PREVIOUS IMPROVEMENT PROJECT APPROXIMATELY 3 YEARS AGO AND WILL NOT REQUIRE ADDITIONAL IMPROVEMENTS. WETLANDS WERE NOT FOUND WITHIN THE PROPOSED CONSTRUCTION LIMITS.
2. OWNER/DEVELOPER: MULTIPLE HOMEOWNERS THROUGHOUT THE SUBDIVISION. THE CITY OF BROOKHAVEN HAS BEEN COORDINATING WITH THESE HOMEOWNERS.
3. NAME AND PHONE NUMBER OF THE 24-HOUR LOCAL CONTACT PERSON RESPONSIBLE FOR EROSION CONTROL EMERGENCIES IS: MR GREG SCOTCHIE 470-495-4822
4. TOTAL DISTURBED AREA: 0.53 ACRES. PROPOSED IMPERVIOUS AREA: 0.00 ACRES.
5. THE DESIGN PROFESSIONAL WHO PREPARED THE ES&PC PLAN IS TO INSPECT THE INSTALLATION OF THE INITIAL SEDIMENT STORAGE REQUIREMENTS, PERIMETER CONTROL BMP'S, AND SEDIMENT BASINS IN ACCORDANCE WITH PART IV.A.5 WITHIN 7 DAYS AFTER INSTALLATION.
6. NON-EXEMPT ACTIVITIES SHALL NOT BE CONDUCTED WITHIN THE 25 OR 50 FOOT UNDISTURBED STREAM BUFFERS AS MEASURED FROM THE POINT OF WRESTED VEGETATION OR WITHIN 25-FEET OF THE COASTAL MARSHLAND BUFFER AS MEASURED FOR THE JURISDICTIONAL DETERMINATION LINE WITHOUT FIRST ACQUIRING THE NECESSARY VARIANCES AND PERMITS.
7. AMENDMENTS/REVISIONS TO THE ES&PC PLAN WHICH HAVE A SIGNIFICANT EFFECT ON BMP'S WITH A HYDRAULIC COMPONENT MUST BE CERTIFIED BY THE DESIGN PROFESSIONAL.
8. WASTE MATERIALS SHALL NOT BE DISCHARGED TO WATERS OF THE STATE, EXCEPT AS AUTHORIZED BY A SECTION 404 PERMIT
9. THE ESCAPE OF SEDIMENT FROM THE SITE SHALL BE PREVENTED BY THE INSTALLATION OF EROSION AND SEDIMENT CONTROL MEASURES AND PRACTICES PRIOR TO LAND DISTURBING ACTIVITIES.
10. EROSION CONTROL MEASURES WILL BE MAINTAINED AT ALL TIMES. IF FULL IMPLEMENTATION OF THE APPROVED PLAN DOES NOT PROVIDE FOR EFFECTIVE EROSION CONTROL, ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IMPLEMENTED TO CONTROL OR TREAT THE SEDIMENT SOURCE.
11. ANY DISTURBED AREA LEFT EXPOSED FOR A PERIOD GREATER THAN 7 DAYS SHALL BE STABILIZED WITH MULCH OR TEMPORARY SEEDING.
12. MAINTENANCE OF ALL SOIL EROSION AND SEDIMENTATION CONTROL MEASURES AND PRACTICES, WHETHER TEMPORARY OR PERMANENT, SHALL BE AT ALL TIMES THE RESPONSIBILITY OF THE PROPERTY OWNER.
13. DISTURBED AREAS SHALL BE STABILIZED WITH TEMPORARY VEGETATION OR MULCH IF LAND-DISTURBING ACTIVITIES CEASE FOR MORE THAN 14 CALENDAR DAYS.
14. ALL FILL SLOPES SHALL HAVE SILT FENCE PLACED AT THE SLOPE'S TOE.
15. EROSION CONTROL MATTING SHALL BE INSTALLED ON ALL SLOPES STEEPER THAN 3:1.
16. THE RECEIVING WATER(S) IS SILVER LAKE WHICH THEN OUTFALLS TO NANCY CREEK. NANCY CREEK IS DESIGNATED AS AN IMPAIRED STREAM AND WITHIN 1 MILE OF THE IMPROVEMENT PROJECT. NO IMPERVIOUS AREA IS PROPOSED WITH THIS LINEAR UTILITY PLAN.
17. NO WETLANDS HAVE BEEN IDENTIFIED WITHIN THE LIMITS OF DISTURBANCE OF THE PROJECT.

EROSION CONTROL NOTES

18. ALL TEMPORARY BMP'S WILL BE REMOVED UPON STABILIZATION OF THE DISTURBED AREA.
19. ANY CHANGES TO THE ES&PC PLAN WHICH HAVE SIGNIFICANT EFFECT ON THE BMPS WITH A HYDRAULIC OR DESIGN COMPONENT MUST BE CERTIFIED BY THE DESIGN PROFESSIONAL AND MUST BE APPROVED BY CHEROKEE COUNTY.
20. WASTE MATERIALS SHALL NOT BE DISCHARGED TO WATERS OF THE STATE EXCEPT AS AUTHORIZED BY A SECTION 404 PERMIT.
21. THE ES&PC PLAN IS IN COMPLIANCE WITH WASTE DISPOSAL, SANITARY SEWER OR SEPTIC TANK REGULATIONS.
22. SEE SHEET THIS SHEET FOR SPILL PREVENTION NOTES.
23. IF PRIMARY PERMITTEE CHANGES DURING THE COURSE OF A PROJECT, THE NEW PRIMARY PERMITTEE MUST SUBMIT COPIES OF THE NEW NOI TO THE COUNTY LAND DISTURBANCE INSPECTOR.
24. TWO COPIES OF THE NPDES NOTICE OF INTENT MUST BE PROVIDED TO THE LAND DISTURBANCE INSPECTOR PRIOR TO INITIATING CONSTRUCTION.
25. FAILURE OF THE CONTRACTOR TO PERFORM THE PRESCRIBED EROSION CONTROL PRACTICES SHALL RESULT IN THE IMMEDIATE ISSUANCE OF A STOP-WORK ORDER FOR THE PROJECT SITE, PURSUANT TO UDC 3.1.1.F.2.D.
26. BEGINNING APRIL 1, 2007, AT LEAST ONE PERSON FROM EACH WORK CREW/COMPANY/ENTITY INVOLVED IN LAND DISTURBANCE ACTIVITY ON A PROJECT OR SITE MUST HAVE COMPLETED THE LEVEL 1A EROSION EDUCATION & TRAINING COURSE AND BE CERTIFIED BY GSWCC.
27. THE APPLICABLE PORTION OF ES&PC PLAN IS TO BE PROVIDED TO EACH SECONDARY PERMITTEE PRIOR TO THE SECONDARY CONDUCTING ANY CONSTRUCTION ACTIVITY AND IN THE EVENT OF ANY CHANGE TO THE PLAN.
28. THE DESIGN PROFESSIONAL WHO PREPARED THE ES&PC PLAN IS TO INSPECT THE INSTALLATION OF BMPS WITHIN 7 DAYS AFTER THE CONSTRUCTION ACTIVITY BEGINS. PROOF OF SITE VISIT SHOULD BE KEPT ON SITE.
29. SEDIMENT STORAGE VOLUME MUST BE IN PLACE PRIOR TO AND DURING ALL LAND DISTURBING ACTIVITIES UNTIL FINAL STABILIZATION OF THE SITE HAS BEEN ACHIEVED.

811 Know what's below. Call before you dig

IF YOU DIG GEORGIA...
CALL US FIRST!
UTILITIES PROTECTION CENTER
IT'S THE LAW

GSWCC Georgia Soil and Water Conservation Commission
HELEN L SIMPSON
Level II Certified Design Professional
Certification Number 0000077050
Issued 04/29/2016 Expires 04/29/2019

REVISIONS
NO. DATE

STRATFIELD DRIVE DRAINAGE IMPROVEMENTS - PHASE 2
LOCATED IN
20th DISTRICT
CITY OF BROOKHAVEN, DeKALB COUNTY

GEORGIA REGISTERED No. 045044 PROFESSIONAL ENGINEER HELEN L. SIMPSON

DATE: 10/23/2018

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PROJECT#: 18-0009
DRAWN BY: HLS, BSA
DESIGNED BY: HLS

NPDES

990 HAMMOND DRIVE
SUITE 900
ATLANTA, GEORGIA 30328
TEL.: 770-857-8400
FAX: 770-857-8401

LOWE ENGINEERS 40 Anniversary

SHEET C6.50

NOT ISSUED FOR PERMIT REVIEW

EROSION, SEDIMENTATION & POLLUTION CONTROL PLAN CHECKLIST
INFRASTRUCTURE CONSTRUCTION PROJECTS

SWCD:

Project Name: STRATFIELD DRIVE **Address:**

City/County: CITY OF BROOKHAVEN **Date on Plans:** 03/19/2018

Name&email of person filling out checklist: HELEN SIMPSON

TO BE SHOWN ON ES&PC PLAN

Plan Page #	Included Y/N	
0.00	Y	1 The applicable Erosion, Sedimentation and Pollution Control Plan Checklist established by the Commission as of January 1 of the year in which the land-disturbing activity was permitted. (The completed Checklist must be submitted with the ES&PC Plan or the Plan will not be reviewed)
0.00	Y	2 Level II certification number issued by the Commission, signature and seal of the certified design professional. (Signature, seal and Level II number must be on each sheet pertaining to ES&PC Plan or the Plan will not be reviewed) The Level II certification must be issued to the Design Professional whose signature and seal are on the Plan.
0.00	Y	3 The name and phone number of the 24-hour local contact responsible for erosion, sedimentation and pollution controls. May be shown on ES&PC Plan sheets and/or ES&PC notes.
0.00	Y	4 Provide the name, address and phone number of primary permittee. May be shown on cover sheet, ES&PC Plan or under ES&PC notes.
0.00	Y	5 Note total and disturbed acreage of the project or phase under construction. Must be shown on ES&PC Plan or under ES&PC notes.
5.00	Y	6 Provide the GPS locations of the beginning and end of the Infrastructure project. Give the Latitude and Longitude in decimal degrees. GPS locations of the begining and end of the infrastructure project must be shown on cover sheet and may also be shown on ES&PC Plan sheets and ES&PC notes. It must match the NOI.
0.00	Y	7 Initial date of the Plan and the dates of any revisions made to the Plan including the entity who requested the revisions. The initial Plan date should be shown on all pages. With each resubmittal, the revision date, and the entity requesting revisions should be shown on cover sheet and each sheet that has been revised.
5.00	Y	8 Description of the nature of construction activity. Provide a description of the existing site and a description of the proposed project. These must be shown on ES&PC Plan or under ES&PC notes.
0.00	Y	9 Provide vicinity map showing site's relation to surrounding areas. Include designation of specific phase, if necessary. Site location must be delineated showing surrounding area roads and highways. If the project is being done in phases, each individual phase must be delineated and labeled. This information is important for Plan Reviewers if a site visit is . needed, or if the site needs to be located on another map.
6.50	Y	10 Identify the project receiving waters and describe all sensitive adjacent areas including streams, lakes, residential areas, wetlands, marshlands, etc. which may be affected. The name of the initial receiving water(s) or if unnamed the first named blue line stream indicated on the appropriate USGS Topographic map, and when the discharge is through a municipal separate storm sewer system (MS4), the name of the local government operating the municipal separate storm sewer system and the name of the receiving water(s) which receives the discharge from the MS4, and the permittee's determination of whether the receiving water(s) supports warm water fisheries or is a trout stream. Describe any neighboring area which could be affected by the post-developed runoff from the site.
6.50	Y	11 Design professional's certification statement and signature that the site was visited prior to development of the ES&PC Plan as stated on page 15 of the permit. The following statement and the signature of the design professional must be shown on the ES&PC Plan or under ES&PC notes. "I certify under penalty of law that this Plan was prepared after a site visit to the locations described herein by myself or my authorized agent, under my supervision."
C6.50	Y	12 Design professional's certification statement and signature that the permittee's ES&PC Plan provides for an appropriate and comprehensive system of BMPs and sampling to meet permit requirements as stated on page 15 of the permit.* The following statement and the signature of the design professional must be shown on the ES&PC Plan or under ES&PC notes. "I certify that the permittee's Erosion, Sedimentation and Pollution Control Plan provides for an appropriate and comprehensive system of Best Management Practices required by the Georgia Water Quality Control Act and the document "Manual for Erosion and Sediment Control in Georgia" (Manual) published by the State Soil and Water Conservation Commission as of January 1 of the year in which the land-disturbing activity was permitted, provides for the sampling of the receiving water(s) or the sampling of the storm water outfalls and that the designed system of Best Management Practices and sampling methods is expected to meet the requirements contained in the General NPDES Permit No. GAR 100002."
C6.50	Y	13 Design professional certification statement and signature that the permittee's ES&PC Plan provides for representative sampling as stated on page 26 of permit as applicable.* The following statement and the signature of the design professional must be shown on the ES&PC Plan or under ES&PC notes."I certify that the permittee's Erosion, Sedimentation and Pollution Control Plan provides for the monitoring of: (a) all perennial and intermittent streams and other water bodies shown on the USGS topographic map and all other field verified perennial and intermittent steams and other water bodies, or (b) where any such specific identified perennial or intermittent stream and other water body is not proposed to be sampled, I have determined in my professional judgment, utilizing the factors required in the General NPDES Permit No. GAR 100002, that the increase in the turbidity of each specific identified sampled receiving water will be representative of the increase in the turbidity of a specific identified un-sampled receiving water."
C0.00	Y	14 Clearly note the statement that "The design professional who prepared the ES&PC Plan is to inspect the installation of the initial sediment storage requirements,perimeter control BMPs and sediment basins in accordance with part IV.A.5. within 7 days after installation."* The Plan must include a statement indicating that the primary permittee must retain the design professional who prepared the Plan, or an alternative professional approved by EPD in writing, to inspect the installation of the initial sediment storage requirements and perimeter control BMPs within (7) days after installation. Alternatively, for linear infrastructure projects, the primary permittee must retain the design professional who prepared the Plan, or alternative design professional approved by EPD in writing to inspect (a) the installation of sediment storage requirements and perimeter control BMPs for the "initial segment" of the linear infrastructure project and (b) all sediment basins within the entire linear infrastructure project within (7) days after the installation. For the purposes of the specific requirements in Part IV.A.5., the disturbed acerage of the "initial segment" of a linear infrastructure project must be equal to or greater than 10% of the total estimated disturbed acreage for the linear infrastructure project but not less than one(1) acre. The design professional shall determine if these BMPs have been installed and are being maintained as designed. The design professional shall report the results of the inspection to the primary permittee within (7) days and the permittee must correct all deficiencies within (2) business days of receipt of the inspection report from the design professional unless weather related site conditions are such that additional time is required.
C6.50	Y	15 Clearly note the statement that "Non-exempt activities shall not be conducted within the 25 or 50-foot undisturbed stream buffers as measured from the point of wrested vegetation or within 25-feet of the coastal marshland buffer as measured from the Jurisdictional Determination Line without first acquiring the necessary variances and permits." See Part IV. EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN (I) and (II) on pages 15,16 & 17 of the permit and show under ES&PC notes.
N/A		16 Provide a description of any buffer encroachments and indicate whether a buffer variance is required. When the project requires an approved buffer variance from the GA EPD, an indication shall be shown on the ES&PC Plan. A description of the encroachment activity must be shown on the ES&PC Plan or under ES&PC notes.
C6.50	Y	17 Clearly note the statement that "Amendments/revisions to the ES&PC Plan which have a significant effect on BMPs with a hydraulic component must be certified by the design professional."* See part IV. C. on page 19 of the permit. This can be clarified in a narrative and shown under ES&PC notes. Revisions or amendments should be submitted to the Local Issuing Authority for review.
C6.50	Y	18 Clearly note the statement that "Waste materials shall not be discharged to waters of the State, except as authorized by a section 404 permit."* The Plan must include a description of how waste materials, including waste building materials, construction and demolition debris, concrete washout, excavated sediment, etc., will be properly disposed of. Any disposal of solid waste to waters of the State is prohibited unless authorized by a Section 404 permit.
C6.50	Y	19 Clearly note statement that "The escape of sediment from the site shall be prevented by the installation of erosion and sediment control measures and practices prior to land disturbing activities." Must be shown on ES&PC Plan or under ES&PC notes.
C6.50	Y	20 Clearly note statement that "Erosion control measures will be maintained at all times. If full implementation of the approved plan does not provide for effective erosion control, additional erosion and sediment control measures shall be implemented to control or treat the sediment source." Must be shown on ES&PC Plan or under ES&PC notes.
C6.50	Y	21 Clearly note the statement "Any disturbed area left exposed for a period greater than 14 days shall be stabilized with mulch or temporary seeding." Must be shown on ES&PC Plan or under ES&PC notes.
C6.50		22 Any construction activity which discharges storm water into an Impaired Stream Segment, or within 1 linear mile upstream of and within the same watershed as, any portion of an Biota Impaired Stream Segment must comply with Part III. C. of the Permit. Include the completed Appendix 1 listing all the BMPs that will be used for those areas of the site which discharge to the Impaired Stream Segment.* If any storm water associated with construction activities discharges into an Impaired Stream Segment that has been listed for the criteria violated, "Bio F" (Impaired Fish Community) and/or "Bio M" (Impaired Macroinvertebrate Community), within Category 4a, 4b or 5, and the potential cause is either "NP" (nonpoint source) or "UR" (urban runoff), the ES&PC Plan must include at least four (4) of the BMP's listed in Part III.C.2. (a) - (t) of the Permit. The impaired Stream Segment(s) should be delineated on the ES&PC Plan. Georgia's most current and subsequent "305(b)/303(d) List Documents (Final)' can be veiwed on the GAEPD website. www.gaepd.org/Documents/305b.html
C6.50		23 If a TMDL Implementation Plan for sediment has been finalized for the Impaired Stream Segment (identified in item 22 above) at least six months prior to submittal of NOI, the ES&PC Plan must address any site-specific conditions or requirements included in the TMDL Implementation Plan.* List of TMDL Implementation Plans can be viewed on the GAEPD website, www.gaepd.org. The TMDL Implementation Plan for sediment should be delineated on the ES&PC Plan.
C5.00	Y	24 BMPs for concrete washdown of tools, concrete mixer chutes, hoppers and the rear of the vehicles. Washout of the drum at the construction site is prohibited.* When the project allows the concrete washdown of tools, concrete mixer chutes, hoppers and rear of the vehicles on the project site, delineate the location of the area provided for washing and provide detail of BMPs that will be used. If the project does not allow the concrete washdown on the project site, note that on the Plan.
C6.50	Y	25 Provide BMPs for the remediation of all petroleum spills and leaks. The Plan must provide BMPs and guidance for the prevention of spills and leaks of petroleum products from any areas where such products are stored or used as well as guidance for the proper remediation of any spills and leaks that do occur. This information can be in the form of a separate Spill Prevention/Spill Response document so long as that information accompanies the Plan.
C5.00	Y	26 Description of the measures that will be installed during the construction process to control pollutants in storm water that will occur after construction operations have been completed.* The Plan must contain a description of the measures that will be installed during the construction process to control pollutants in storm water that will occur after construction operations have been completed. These may include storm water detention and retention structures, use of vegetated swales and natural depressions for flow attenuation or a combination of these practices (sequential systems). The Plan must also include a technical explanation of the basis used to select these practices where flows will exceed pre-development levels. The Plan must indicate that velocity dissipation devices will be placed at discharge locations and along the length of any outflow channel in order to provide a non-erosive flow so that the natural physical and biological characteristics and functions of the water course are maintained and protected. The installation of these devices may be subject to Section 404 of the Federal Clean Water Act. Note: The permittee is only responsible for the installation and maintenance of storm water management devices prior to final stabilization of the site and not the operation and maintenance of such structures after construction activities have been completed.
C5.00	Y	27 Description of the practices that will be used to reduce the pollutants in storm water discharges.* The Plan must identify all potential sources of storm water pollution expected to be present on the site and provide a narrative explaining how the pollutants will be minimized in the storm water discharges.
C0.00	Y	28 Description and chart or timeline of the intended sequence of major activities which disturb soils for the major portions of the site (i.e., initial perimeter and sediment storage BMPs, clearing and grubbing activities, excavation activities, utility activities, temporary and final stabilization). Activity schedule must be site specific. The narrative description and timeline for each phase of construction may be shown on ES&PC Plan sheet or under ES&PC notes.
C6.50	Y	29 Provide complete requirements of inspections and record keeping by the primary permittee.* The Plan must include all of the inspections and record keeping requirements of the primary permittee as stated in Part IV.D.4.a. on page 23 of the Permit. The complete inspection and record keeping requirements shall be shown on the Plan under ES&PS notes.
C6.50	Y	30 Provide complete requirements of sampling frequency and reporting of sampling results.* See page 26 Sampling Frequency and page 25 section E. Reporting in the permit. Complete sampling frequency and reporting requirements are to be shown on the Plan under ES&PC notes.
C6.50	Y	31 Provide complete details for retention of records as per Part IV.F. of the permit.* See page 28 section F. Retention of Records in the permit. Complete details of retention of records are to be shown on the Plan under ES&PC notes.
C6.50	Y	32 Description of analytical methods to be used to collect and analyze the samples from each location.* This narrative must be shown on the Plan under ES&PC notes and shall include quality control/assurance procedures and precise sampling methodology for each sampling location.
C6.50	Y	33 Appendix B rationale for NTU values at all outfall sampling points where applicable.* When the permittee has determined that some or all outfalls will be monitored, a rationale must be shown on the Plan under ES&PC notes which includes the NTU limit(s) selected from Appendix B. This rationale must include the size of the construction site, the calculation of the size of the surface water drainage area, and the type of receiving water(s) (i.e., trout stream or supporting warm water fisheries).
C5.00	Y	34 Delineate all sampling locations, perennial and intermittent streams and other water bodies into which storm water is discharged.* The Plan shall include a USGS topographic map, a topographic map or a drawing (referred to as a topographic map) that is a scale equal to or more detailed than a 1:24000 map showing the locations of the site or the common development. The map must include (a) the location of all perennial and intermittent streams and other water bodies as shown on a USGS topographic map, and all other perennial and intermittent streams and other water bodies located during the mandatory field verification, into which the storm water is discharged and (b) the receiving water and/or outfall sampling locations. When the permittee has chosen to use a USGS topographic map and the receiving water(s) is not shown on the USGS topographic map, the location of the receiving water(s) must be hand-drawn on the USGS topographic map from where the storm water(s) enters the receiving water(s) to the point where the receiving water(s) combines with the first blue line stream shown on the USGS topographic map.
C5.00	Y	35 A description of appropriate controls and measures that will be implemented at the construction site including: (1) initial sediment storage requirements and perimeter control BMPs, (2) intermediate grading and drainage BMPs, and (3) final BMPs. For construction sites where there will be no mass grading and the initial perimeter control BMPs, intermediate grading and drainage BMPs, and final BMPs are the same, the plan may combine all of the BMPs into a single phase.* The Plan must be shown in a minimum of three phases with each phase shown on a separate sheet. Initial phase of the Plan must include the required 67 cy per acre sediment storage, construction exit, tree-save fence if applicable and any other BMPs necessary to prevent sediment from leaving the site such as silt fence, inlet protection on existing storm drain structures, diversions, check dams, temporary ground cover, etc. Limits of disturbance for the initial phase are to be only the areas needed to install initial BMPs. The intermediate phase should show rough grading and utility construction. BMPs should include initial inlet protection, additional silt fence as needed, any revised sediment storage needed as drainage basins are altered, outlet protection, retrofit if applicable, matting with temporary or permanent vegetation as needed, temporary down drains, filter rings, etc. Final phase of Plan should show finished grade, curbing and paving if applicable, building construction if applicable, etc. BMPs should include permanent vegetation, appropriate inlet protection, etc. For construction sites where there will be no mass grading and the initial perimeter control BMPs, intermediate grading and drainage BMPs, and the final BMPs are the same, the Plan may combine all of the BMPs into a single phase Plan. The Plan will include appropriate staging and access requirements for construction equipment.
C5.00	Y	36 Graphic scale and North arrow. The graphic scale and North arrow must be clearly shown on all phases of the ES&PC Plan sheets.
C5.00	Y	37 Existing and proposed contour lines with contour lines drawn at an interval in accordance with the following: Existing Contours — USGS 1": 2000' Topographical Sheets Proposed Contours — 1" : 400' Centerline Profile The initial, intermediate, and final phase sheets of the Plan must show the proposed grade in bold contour lines with the above intervals overlaying the original contour lines. Elevations of both the existing and proposed contour lines must be shown.
N/A		38 Use of alternative BMPs whose performance has been documented to be equivalent to or superior to conventional BMPs as certified by a Design Professional (unless disapproved by EPD or the Georgia Soil and Water Conservation Commission). Please refer to the Alternative BMP Guidance Document found at www.gaswcc.org. Please refer to the Alternative BMP Guidance Document found at www.gaswcc.georgia.gov
N/A		39 Use of alternative BMP for application to the Equivalent BMP List. Please refer to Appendix A-2 of the Manual for Erosion & Sediment Control in Georgia 2016 Edition.* Please refer to Appendix A-2 of the Manual for Erosion & Sediment Control in Georgia 2016 Edition.
N/A		40 Delineation of the applicable 25-foot or 50-foot undisturbed buffers adjacent to State waters and any additional buffers required by the Local Issuing Authority. Clearly note and delineate all areas of impact. The State Law of Georgia mandates these minimum undisturbed buffers, but the Local Issuing Authorities are allowed to require more stringent buffers of State waters. The minimum undisturbed buffers required by the State and all other buffers of State waters required by the issuing authority must be delineated. Any undisturbed buffer area that is impacted by the project site must be noted on the Plan.
N/A		41 Delineation of on-site wetlands and all State waters located on and within 200 feet of the project site. ALL STATE WATERS LOCATED ON AND WITHIN 200 FEET OF THE PROJECT SITE MUST BE DELINEATED ON ALL PHASES OF THE PLAN. When a project is located in a jurisdiction with a certified Local Issuing Authority and the LIA must make a determination of State waters that are not delineated on the plan, the Plan review could be delayed for beyond the full forty-five day review time allowed to the LIA, or the full thirty-five day review time allowed to the District if the District is reviewing the plan. For all projects in a jurisdiction where there is no certified Local Issuing Authority regulating that project, EPD is responsible for State waters determinations and there is no time limits for reviewing the Plan. ALL WETLANDS LOCATED WITHIN THE PROJECT SITE ONLY MUST BE DELINEATED. If the Local Issuing Authority requires an undisturbed buffer of wetlands, delineate required buffer.
C5.00	Y	42 Delineation and acreage of contributing drainage basins on the project site. All exsisting drainage basins on the project site and their acreage must be delineated on the exisitng conditions and/or on the initial phase of the plan. As the basins are altered or new ones created during intermediate and fnal phases, the new basins and their acreage must be delineated throughout each phase of the Plan.
C0.00	Y	43 Delineate on-site drainage and off-site watersheds using USGS 1" .2000' topographical sheets. Hydrology study and drainage maps should be separate from the Plan. Maps should include each individual basin draining to, through and from the project site, with each one delineated, labeled and showing its total acreage.
C5.00	Y	44 An estimate of the runoff coefficient or peak discharge flow of the site prior to and after construction activities are completed. The Plan must provide both pre- and post-construction estimates of the runoff coefficient or peak discharge flow for the site. This can be in the form of a hydrologic study so long as that study is made a part of the Plan and accompanies the Plan. A complete hydrologic study is not a required element of the Plan, only the pre and post-construction estimates of the run-off coefficient or peak discharge flow for the site.
C1.20	Y	45 Storm-drain pipe and weir velocities with appropriate outlet protection to accommodate discharges without erosion. Identify/Delineate all storm water discharge points. The storm-drain pipe and weir velocities must show the flow characteristics of the pipe at full flow, including pipe diameter, flow rate (cfs), velocity (fps), and tailwater conditions. This information should be shown in a chart shown on storm-drain profile sheet, ES&PC intermediate phase sheet or on the ES&PC detail sheet that shows outlet protection. The dimensions of the apron must include length (La), width at the headwall (W1), down-stream width (W2), average stone diameter (d50), and stone depth (D) designed in accordance with Figures 6-24.1 and 6-24.2 in the Manual. These should be shown in a chart on ES&PC intermediate and/or final phase sheet or ES&PC detail sheet with outlet protection. velocity dissipation devices shall be placed at all discharge locations and along the length of any outfall channel for the purpose of providing a non-erosive velocity flow from the structure to a water course so that the natural physical and biological functions and characteristics are maintained and protected.
C0.00	Y	46 Soil series for the project site and their delineation. Soil series delineations are required for the Plan review and can be found on the NRCS web site. The highest level of soil survey required for the project site, such as a level three or level four survey for projects that will be using septic systems, must be delineated on the Plan. The soil series delineation should be shown on the existing site Plan or the initial phase Plan. A chart listing the soils located on the project should be shown on the sheet with their delineation.
C5.00	Y	47 The limits of disturbance for each phase of construction. The limits of disturbance for the initial phase should delineate only the area required to be disturbed for the installation of perimeter control and initial sediment storage. The intermediate phase should delineate the entire area to be disturbed for that phase, such as grading, drainage, utilities installed, etc. The fina phase should delineate any additional areas to be disturbed such as individual lots, etc.
C5.00	Y	48 Provide a minimum of 67 cubic yards of sediment storage per acre drained using a temporary sediment basin, retrofitted detention pond, and/or excavated inlet sediment traps for each common drainage location. Sediment storage volume must be in place prior to and during all land disturbance activities until final stabilization of the site has been achieved. A written justification explaining the decision to use equivalent controls when a sediment basin is not attainable must be included in the Plan for each common drainage location in which a sediment basin is not provided. A written justification as to why 67 cubic yards of storage is not attainable must also be given. Worksheets from the Manual must be included for structural BMPs and all calculations used by the design professional to obtain the required sediment storage when using equivalent controls. When discharging from sediment basins and impoundments, permittees are required to utilize outlet structures that withdraw water from the surface, unless infeasible. If outlet structures that withdraw water from the surface are not feasable, a written justification explaining this decision must be included in the plan. For each common drainage location, a temporary (or permanent) sediment basin (Sd3, Sd4, Rt, or excavated Sd2) providing at least 67 cubic yards of storage per acre drained, or equivalent control measures, shall be provided until final stabilization of the site. The 67cubic yards of storage per acre does not apply to flows from off-site areas and flows from on-site areas that are either undisturbed or have undergone final stabilization where such flows are diverted around both the disturbed area and the sediment basin. Sediment basins may not be appropriate for some common drainage locations and a written justification explaining the decision not to use sediment basins must be included in the Plan. Worksheets from the Manual must be completed and shown on the Plan or attached to the Plan for each temporary sediment basin designed for the project. All cross sections and details required per the Manual for Sd3's must be shown on the ES&PC detail section of the Plan. Completed worksheets from the Manual must be shown on the Plan for each retrofit and excavated inlet sediment trap. When the design professional chooses to use equivalent controls the calculations used to obtain the required 67 cubic yards per acre drained must be included on the Plan. If outlet structures that withdraw water from the surface are not feasible , a written justification explaining this decision must be included in the Plan.
C5.00	Y	49 Location of Best Management Practices that are consistent with and no less stringent than the Manual for Erosion and Sediment Control in Georgia. Use uniform coding symbols from the Manual, Chapter 6, with legend. BMPs for all phases of the Plan must be consistent with and no less stringent than the Manual and shown using uniform coding symbols from the Manual. The uniform coding symbols legend from the Manual must be included and may be shown on detail sheet or any of the ES&PC Plan sheets.
C0.00-C5.00	Y	50 Provide detailed drawings for all structural practices. Specifications must, at a minimum, meet the guidelines set forth in the Manual for Erosion and Sediment Control in Georgia. The erosion and sediment control detail sheet must show a detailed drawing for each structural BMP shown on the Plan. All BMPs and details shown must, at a minimum, meet the guidelines given in the Manual. Note that a worksheet is provided in the Manual for most structural BMPs that must be included on the ES&PC Plan or detail sheet.
C6.0	Y	51 Provide vegetative plan, noting all temporary and permanent vegetative practices. Include species, planting dates and seeding, fertilizer, lime and mulching rates. Vegetative plan shall be site specific for appropriate time of year that seeding will take place and for the appropriate geographic region of Georgia. Must be shown on ES&PC Plan, on the ES&PC detail sheet or under ES&PC notes.

*If using this checklist for a project that is less than 1 acre and not part of a common development but within 200 ft of a perennial stream the * checklist items would be N/A.

Effective January 1, 2018

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GSWCC Georgia Soil and Water Conservation Commission

HELEN L SIMPSON
Level II Certified Design Professional

Certification Number 0000077050
Issued 04/29/2016 Expires 04/29/2019

REVISIONS
NO. DATE

STRATFIELD DRIVE DRAINAGE IMPROVEMENTS - PHASE 2
LOCATED IN 20th DISTRICT
CITY OF BROOKHAVEN, DeKALB COUNTY

GEORGIA REGISTERED No. 040944 PROFESSIONAL ENGINEER HELEN L. SIMPSON

DATE: 10/23/2018

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PROJECT #: 18-0009
DRAWN BY: HLS, BSA
DESIGNED BY: HLS

NPDES

LOWE ENGINEERS & CONSULTANTS
6 Anniversary
990 HAMMOND DRIVE
SUITE 900
ATLANTA, GEORGIA 30328
TEL.: 770-857-8400
FAX: 770-857-8401

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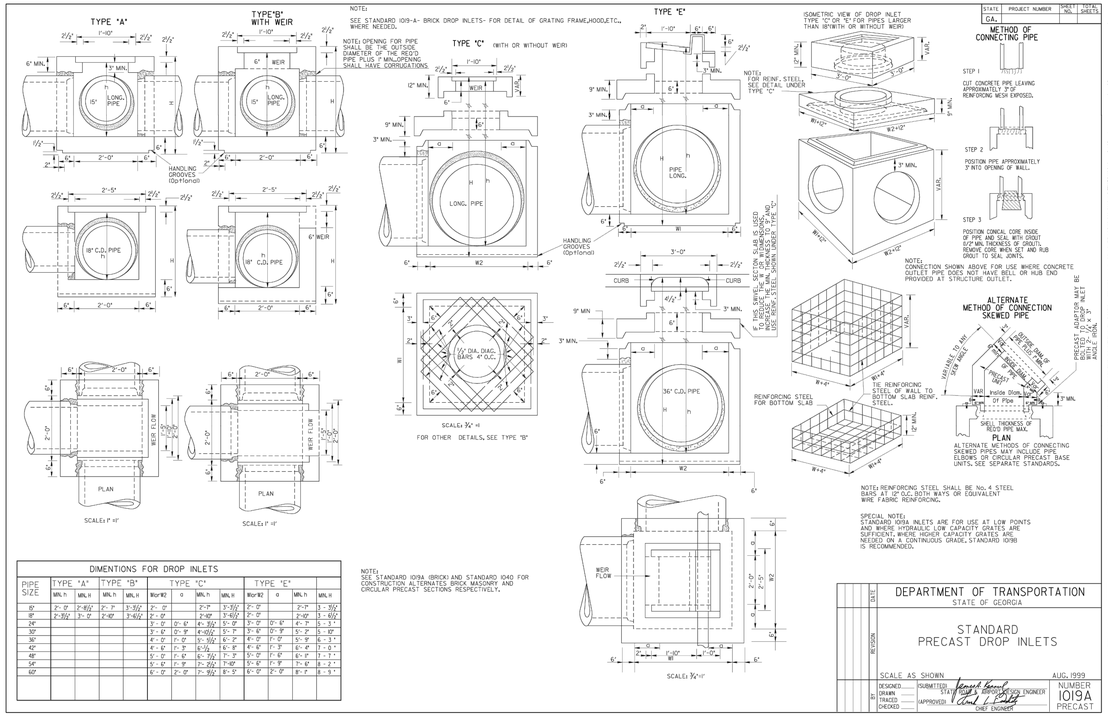
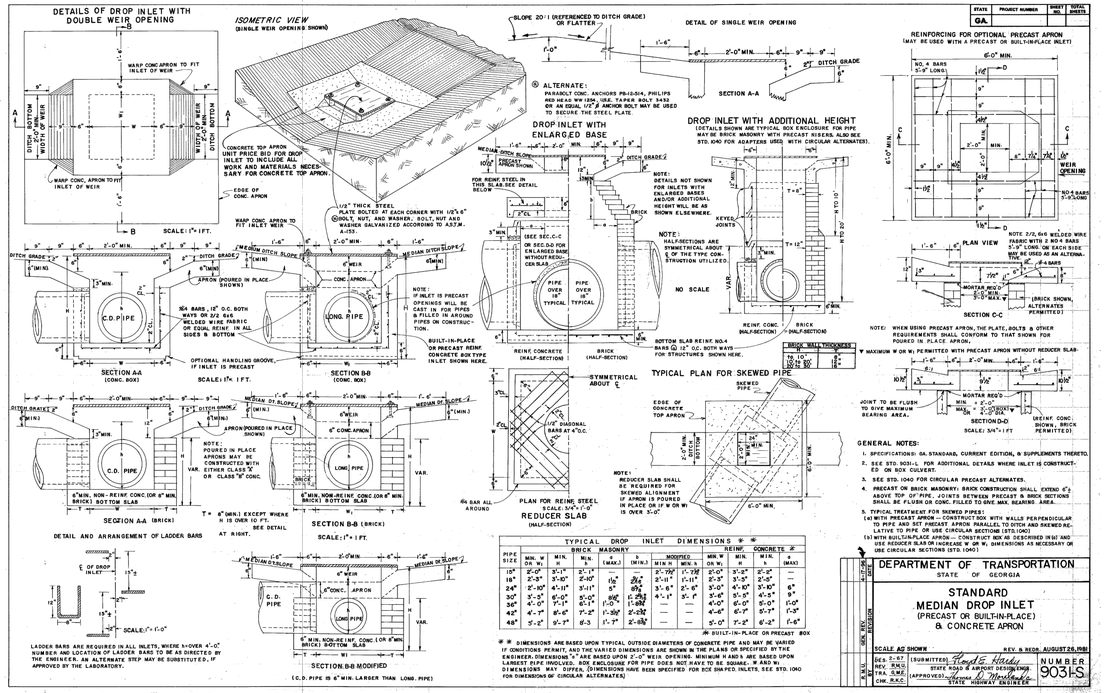
SHEET C6.60



DIMENTIONS FOR DROP INLETS												
PIPE SIZE	TYPE "A"		TYPE "B"		TYPE "C"				TYPE "E"			
	MIN. h	MIN. H	MIN. h	MIN. H	W or W1	G	MIN. h	MIN. H	W or W1	G	MIN. h	MIN. H
15"	2'-0"	2'-6½"	2'-0"	3'-3½"	2'-0"	—	2'-0"	3'-3½"	2'-0"	—	2'-0"	3'-3½"
18"	2'-3½"	3'-0"	2'-6"	3'-6½"	2'-0"	—	2'-6"	3'-6½"	2'-0"	—	2'-0"	3'-6½"
24"	—	—	—	—	3'-0"	0'-6"	4'-3½"	5'-0"	3'-0"	0'-9"	4'-7"	5'-3"
30"	—	—	—	—	3'-6"	0'-9"	4'-10½"	5'-7"	3'-6"	0'-9"	5'-2"	5'-10"
36"	—	—	—	—	4'-0"	1'-0"	5'-5½"	6'-2"	4'-0"	1'-0"	5'-9"	6'-3"
42"	—	—	—	—	4'-6"	1'-0"	6'-1½"	6'-8"	4'-6"	1'-0"	6'-4"	7'-0"
48"	—	—	—	—	5'-0"	1'-6"	6'-7½"	7'-3"	5'-0"	1'-6"	6'-11"	7'-7"
54"	—	—	—	—	5'-6"	1'-9"	7'-2½"	7'-8"	5'-6"	1'-9"	7'-6"	8'-2"
60"	—	—	—	—	6'-0"	2'-0"	7'-9½"	8'-5"	6'-0"	2'-0"	8'-1"	8'-9"

NOTE: SEE STANDARD 1019A (BRICK) AND STANDARD 1040 FOR CONSTRUCTION ALTERNATES BRICK MASONRY AND CIRCULAR PRECAST SECTIONS RESPECTIVELY.



GENERAL NOTES:

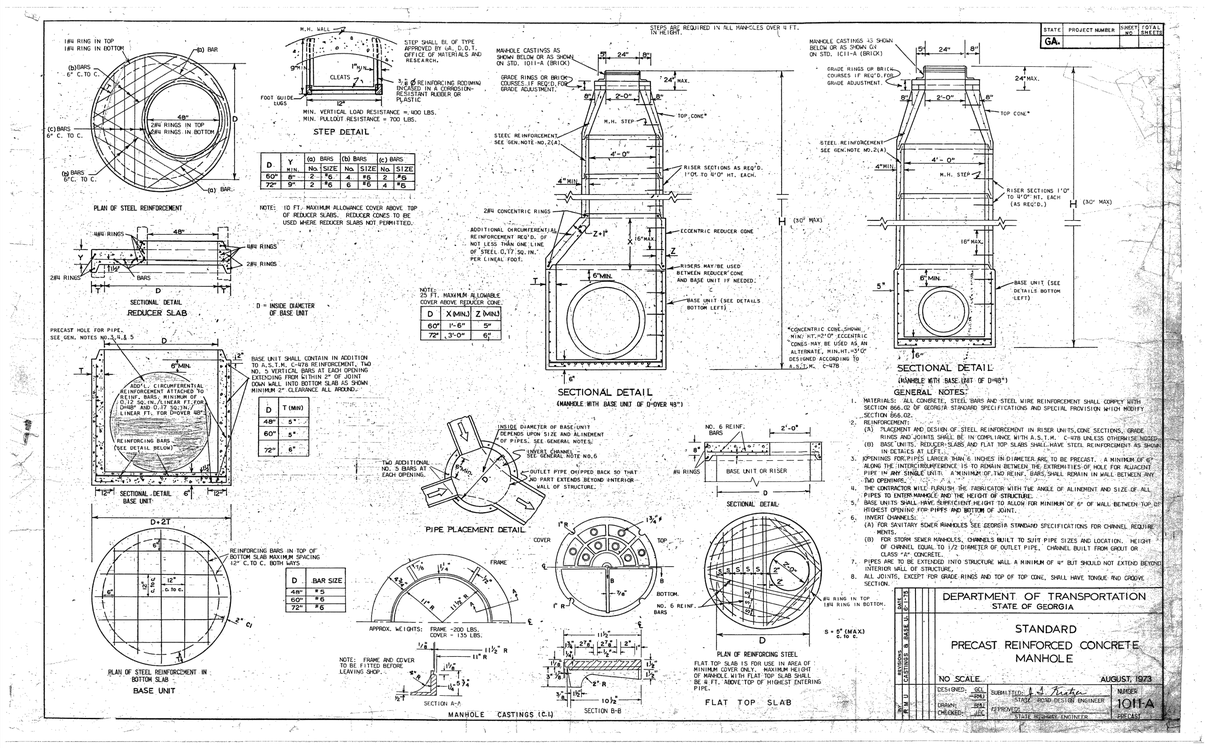
1. SPECIFICATIONS: GA. STANDARD, CURRENT EDITION, & SUPPLEMENTS THERETO.
2. SEE STD. 9031-L, FOR ADDITIONAL DETAILS WHERE INLET IS CONSTRUCTED ON BOX CULVERT.
3. SEE STD. 1040 FOR CIRCULAR PRECAST ALTERNATES.
4. PRECAST OR BRICK MASONRY: BRICK CONSTRUCTION SHALL EXTEND 6" ± ABOVE TOP OF PIPE. JOINTS BETWEEN PRECAST & BRICK SECTIONS SHALL BE FILLED OR CONC. FILLED TO GIVE MAX. BEARING AREA.
5. TYPICAL TREATMENT FOR SKEWED PIPES:
   (a) WITH PRECAST APRON — CONSTRUCT BOX WITH WALLS PERPENDICULAR TO PIPE AND SET PRECAST APRON PARALLEL TO DITCH AND PARALLEL TO PIPE OR USE CIRCULAR SECTIONS (STD.1040)
   (b) WITH BUILT-IN-PLACE APRON — CONSTRUCT BOX AS DESCRIBED IN (a) AND USE REDUCER SLAB OR INCREASE W OR W1 DIMENSIONS AS NECESSARY OR USE CIRCULAR SECTIONS (STD. 1040)

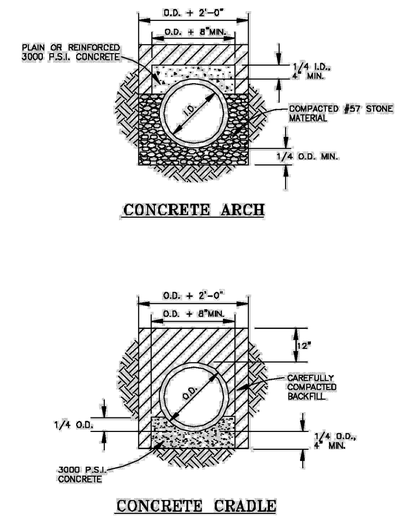
TYPICAL DROP INLET DIMENSIONS ✻ ✻

PIPE SIZE	BRICK MASONRY MIN. W OR W1	MIN. H	MIN. h	G (MAX.)	MODIFIED MIN. W OR W1	MIN. H	MIN. h	REINF. CONCRETE ✻ MIN. W OR W1	MIN. H	MIN. h
15"	2'-0"	3'-1"	2'-1"		2'-7½"	1'-7½"	2'-0"	3'-0"	2'-0"	—
18"	2'-0"	3'-6"	2'-6"	1½"	2'-7½"	2'-1"	2'-0"	3'-0"	2'-0"	—
24"	2'-10"	4'-11"	3'-11"	3"	3'-1"	2'-6"	3'-0"	4'-10"	3'-10"	6"
30"	3'-5"	6'-4"	5'-4"	6½"	3'-7"	3'-1"	4'-0"	5'-4"	4'-3"	9"
36"	4'-0"	7'-9"	6'-11"	9½"	4'-1"	3'-7"	4'-6"	6'-0"	5'-0"	1'-0"
42"	4'-7"	8'-6"	7'-8"	1'-3½"	2'-6½"	—	4'-6"	6'-7"	5'-7"	1'-3"
48"	5'-2"	9'-7"	8'-3	1'-7"	2'-8½"	—	5'-0"	7'-3"	6'-2"	1'-6"

✻ BUILT-IN-PLACE OR PRECAST BOX

✻ ✻ DIMENSIONS ARE BASED UPON TYPICAL OUTSIDE DIAMETERS OF CONCRETE PIPE AND MAY BE VARIED IF CONDITIONS PERMIT, AND THE VARIED DIMENSIONS ARE SHOWN IN THE PLANS OR SPECIFIED BY THE ENGINEER. DIMENSIONS "G" ARE BASED UPON 2'-0" WEIR OPENING. MINIMUM H AND h ARE BASED UPON LARGEST PIPE INVOLVED. BOX ENCLOSURE FOR PIPE DOES NOT HAVE TO BE SQUARE. W AND W1 DIMENSIONS MAY DIFFER. DIMENSIONS HAVE BEEN SPECIFIED FOR BOX SHAPED INLETS. SEE STD. 1040 FOR DIMENSIONS OF CIRCULAR ALTERNATES.





REVISIONS
DATE:
NO.:

STRATFIELD DRIVE DRAINAGE IMPROVEMENTS - PHASE 2

LOCATED IN
20th DISTRICT
CITY OF BROOKHAVEN, DeKALB COUNTY

GEORGIA REGISTERED No. 040044 PROFESSIONAL ENGINEER HEREN L. SIMPSON

DATE: 10/23/2018

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PROJECT #: 18-0009
DRAWN BY: HLS, BSA
DESIGNED BY: HLS

STORM DETAILS

LOWE ENGINEERS
990 HAMMOND DRIVE
SUITE 900
ATLANTA, GEORGIA 30328
TEL.: 770-857-8400
FAX: 770-857-8401

SHEET C7.00

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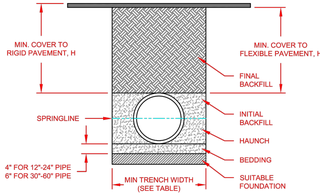
HP STORM TRENCH INSTALLATION DETAIL



NOTES:

1. ALL PIPE SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH ASTM D2321, "STANDARD PRACTICE FOR UNDERGROUND INSTALLATION OF THERMOPLASTIC PIPE FOR SEWERS AND OTHER GRAVITY FLOW APPLICATIONS", LATEST ADDITION, WITH THE EXCEPTION THAT THE INITIAL BACKFILL MAY EXTEND TO THE CROWN OF THE PIPE. SOIL CLASSIFICATIONS ARE PER THE LATEST VERSION OF ASTM D2321. CLASS IVB MATERIALS (MH, CH) AS DEFINED IN PREVIOUS VERSIONS OF ASTM D2321 ARE NOT APPROPRIATE BACKFILL MATERIALS.
2. MEASURES SHOULD BE TAKEN TO PREVENT MIGRATION OF NATIVE FINES INTO BACKFILL MATERIAL, WHEN REQUIRED.
3. FOUNDATION: WHERE THE TRENCH BOTTOM IS UNSTABLE, THE CONTRACTOR SHALL EXCAVATE TO A DEPTH REQUIRED BY THE ENGINEER AND REPLACE WITH SUITABLE MATERIAL AS SPECIFIED BY THE ENGINEER. AS AN ALTERNATIVE AND AT THE DISCRETION OF THE DESIGN ENGINEER, THE TRENCH BOTTOM MAY BE STABILIZED USING A GEOTEXTILE MATERIAL.
4. BEDDING: SUITABLE MATERIAL SHALL BE CLASS I, II, III, OR IV. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER. COMPACTION SHALL BE SPECIFIED BY THE ENGINEER IN ACCORDANCE WITH TABLE 3 FOR THE APPLICABLE FILL HEIGHTS LISTED. UNLESS OTHERWISE NOTED BY THE ENGINEER, MINIMUM BEDDING THICKNESS SHALL BE 4" (100mm) FOR 12"-24" (300mm-600mm) DIAMETER PIPE; 6" (150mm) FOR 30"-60" (750mm-1500mm) DIAMETER PIPE. THE MIDDLE 1/3 BENEATH THE PIPE INVERT SHALL BE LOOSELY PLACED. PLEASE NOTE, CLASS IV MATERIAL HAS LIMITED APPLICATION AND CAN BE DIFFICULT TO PLACE AND COMPACT; USE ONLY WITH THE APPROVAL OF A SOIL EXPERT.
5. INITIAL BACKFILL: SUITABLE MATERIAL SHALL BE CLASS I, II, III, OR IV IN THE PIPE ZONE EXTENDING TO THE CROWN OF THE PIPE. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER. MATERIAL SHALL BE INSTALLED AS REQUIRED IN ASTM D2321, LATEST EDITION. COMPACTION SHALL BE SPECIFIED BY THE ENGINEER IN ACCORDANCE WITH TABLE 3 FOR THE APPLICABLE FILL HEIGHTS LISTED. PLEASE NOTE, CLASS IV MATERIAL HAS LIMITED APPLICATION AND CAN BE DIFFICULT TO PLACE AND COMPACT; USE ONLY WITH THE APPROVAL OF A SOIL EXPERT.
6. MINIMUM COVER: MINIMUM COVER, H, IN NON-TRAFFIC APPLICATIONS (GRASS OR LANDSCAPE AREAS) IS 12" (300mm) FROM THE TOP OF PIPE TO GROUND SURFACE. ADDITIONAL COVER MAY BE REQUIRED TO PREVENT FLOTATION. FOR TRAFFIC APPLICATIONS; CLASS I OR II MATERIAL COMPACTED TO 90% SPD AND CLASS III COMPACTED TO 95% SPD IS REQUIRED. FOR TRAFFIC APPLICATIONS, MINIMUM COVER, H, IS 12" (300mm) UP TO 48" (1200mm) DIAMETER PIPE AND 24" (600mm) OF COVER FOR 60" (1500mm) DIAMETER PIPE, MEASURED FROM TOP OF PIPE TO BOTTOM OF FLEXIBLE PAVEMENT OR TO TOP OF RIGID PAVEMENT.
7. FOR ADDITIONAL INFORMATION SEE TECHNICAL NOTE 2.04.

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TABLE 1, RECOMMENDED MINIMUM TRENCH WIDTHS

PIPE DIAM	MIN. TRENCH WIDTH
12" (300mm)	30" (762mm)
15" (375mm)	34" (864mm)
18" (450mm)	39" (991mm)
24" (600mm)	48" (1219mm)
30" (750mm)	56" (1422mm)
36" (900mm)	64" (1626mm)
42" (1050mm)	72" (1829mm)
48" (1200mm)	80" (2032mm)
60" (1500mm)	96" (2438mm)

TABLE 2, MINIMUM RECOMMENDED COVER BASED ON VEHICLE LOADING CONDITIONS

PIPE DIAM.	SURFACE LIVE LOADING CONDITION	
	H-25	HEAVY CONSTRUCTION (75T AXLE LOAD) *
12" - 48" (300mm - 1200mm)	12" (305mm)	48" (1219mm)
60" (1500mm)	24" (610mm)	60" (1524mm)

* VEHICLES IN EXCESS OF 75T MAY REQUIRE ADDITIONAL COVER

TABLE 3, MAXIMUM COVER FOR ADS HP STORM PIPE, ft

	CLASS I	CLASS II			CLASS III		CLASS IV
PIPE DIA	COMPACTED	95%	90%	85%	95%	90%	95%
12" (300mm)	41 (12.5m)	28 (8.5m)	21 (6.4m)	16 (4.9m)	20 (6.1m)	16 (4.9m)	16 (4.9m)
15" (375mm)	42 (12.8m)	29 (8.8m)	21 (6.4m)	16 (4.9m)	21 (6.4m)	16 (4.9m)	16 (4.9m)
18" (450mm)	44 (13.4m)	30 (9.1m)	21 (6.4m)	16 (4.9m)	22 (6.7m)	17 (5.2m)	16 (4.9m)
24" (600mm)	37 (11.3m)	26 (7.9m)	18 (5.5m)	14 (4.3m)	19 (5.8m)	14 (4.3m)	14 (4.3m)
30" (750mm)	39 (11.9m)	27 (8.2m)	19 (5.8m)	14 (4.3m)	19 (5.8m)	15 (4.6m)	14 (4.3m)
36" (900mm)	28 (8.5m)	20 (6.1m)	14 (4.3m)	10 (3.0m)	14 (4.3m)	11 (3.4m)	10 (3.0m)
42" (1050mm)	30 (9.1m)	21 (6.4m)	14 (4.3m)	10 (3.0m)	15 (4.6m)	11 (3.4m)	10 (3.0m)
48" (1200mm)	29 (8.8m)	20 (6.1m)	14 (4.3m)	9 (2.7m)	14 (4.3m)	10 (3.0m)	10 (3.0m)
60" (1500mm)	29 (8.8m)	20 (6.1m)	14 (4.3m)	9 (2.7m)	14 (4.3m)	10 (3.0m)	9 (2.7m)

FILL HEIGHT TABLE GENERATED USING AASHTO SECTION 12, LOAD RESISTANCE FACTOR DESIGN (LRFD) PROCEDURE WITH THE FOLLOWING ASSUMPTIONS:
NO HYDROSTATIC PRESSURE
UNIT WEIGHT OF SOIL (γs) = 120 PCF

REV.	DESCRIPTION	BY	MM/DD/YY	CHK'D
6	REV. MAXIMUM COVER HEIGHTS	RWD	01/11/17	

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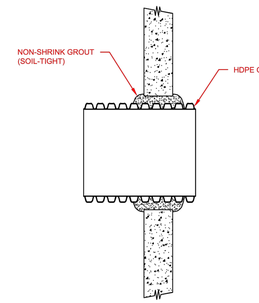
TRENCH INSTALLATION DETAIL (HP STORM)	ADS, 4640 TRUEMAN BLVD HILLIARD, OHIO 43026	DRAWN BY	JNB
		DATE	01/29/09
		SUB. BY	
DRAWING NUMBER: STD-101D	ADVANCED DRAINAGE SYSTEMS, INC.	SCALE	NTS
		SHEET	1 OF 1

12"-60" HDPE OR PP SOIL-TIGHT GROUTED MANHOLE CONNECTION



NOTES:
SEE STANDARD DETAIL STD-201 AND TECHNICAL NOTE: 5.04 CONNECTIONS TO MANHOLES AND STRUCTURES FOR INSTALLATION RECOMMENDATIONS.

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REV.	DESCRIPTION	BY	MM/DD/YY	CHK'D
0	RENAMED DRAWING	TJR	03/10/16	

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12"-60" HDPE PP SOIL-TIGHT GROUTED MH CONNECTION	ADS, 4640 TRUEMAN BLVD HILLIARD, OHIO 43026	DRAWN BY	BRV
		DATE	9/15/06
		SUB. BY	
DRAWING NUMBER: STD-202	ADVANCED DRAINAGE SYSTEMS, INC.	SCALE	NTS
		SHEET	1 OF 1

ADS HP STORM 12"- 60" PIPE SPECIFICATION

Scope
This specification describes 12- through 60-inch (300 to 1500 mm) ADS HP Storm pipe for use in gravity-flow storm drainage applications.

Pipe Requirements
ADS HP Storm pipe shall have a smooth interior and annular exterior corrugations.
- 12- through 60-inch (300 to 1500 mm) pipe shall meet ASTM F2881 or AASHTO M330
- Manning's "n" value for use in design shall be 0.012

Joint Performance
Pipe shall be joined using a bell & spigot joint meeting the requirements of ASTM F2881 or AASHTO M330. The joint shall be watertight according to the requirements of ASTM D3212. Gaskets shall meet the requirements of ASTM F477. Gasket shall be installed by the pipe manufacturer and covered with a removable, protective wrap to ensure the gasket is free from debris. A joint lubricant available from the manufacturer shall be used on the gasket and bell during assembly. 12- through 60-inch (300 to 1500 mm) diameters shall have an exterior bell wrap installed by the manufacturer.

Fittings
Fittings shall conform to ASTM F2881 or AASHTO M330. Bell and spigot connections shall utilize a welded or integral bell and valley or inline gaskets meeting the watertight joint performance requirements of ASTM D3212.

Field Pipe and Joint Performance
To assure watertightness, field performance verification may be accomplished by testing in accordance with ASTM F1417 or ASTM F2487. Appropriate safety precautions must be used when field-testing any pipe material. Contact the manufacturer for recommended leakage rates.

Material Properties
Polypropylene compound for pipe and fitting production shall be impact modified copolymer meeting the material requirements of ASTM F2881, Section 5 and AASHTO M330, Section 6.1.

Installation
Installation shall be in accordance with ASTM D2321 and ADS recommended installation guidelines, with the exception that minimum cover in traffic areas for 12- through 48-inch (300 to 1200 mm) diameters shall be one foot (0.3 m) and for 60-inch (1500 mm) diameter the minimum cover shall be 2 ft. (0.6 m) in single run applications. Backfill for minimum cover situations shall consist of Class 1 (compacted), Class 2 (minimum 90% SPD), or Class 3 (minimum 95%) material. Maximum fill heights depend on embedment material and compaction level; please refer to Technical Note 2.04. Contact your local ADS representative or visit our website at www.ads-pipe.com for a copy of the latest installation guidelines.

Pipe Dimensions

Nominal Pipe I.D. in (mm)	12 (300)	15 (375)	18 (450)	24 (600)	30 (750)	36 (900)	42 (1050)	48 (1200)	60 (1500)
Average Pipe I.D. in (mm)	12.2 (310)	15.1 (384)	18.2 (462)	24.1 (612)	30.2 (767)	36.0 (914)	42.0 (1067)	47.9 (1217)	59.9 (1521)
Average Pipe O.D. in (mm)	14.5 (368)	17.7 (450)	21.4 (544)	28.0 (711)	35.5 (902)	41.5 (1054)	47.4 (1204)	54.1 (1374)	67.1 (1704)
Minimum Pipe Stiffness * @ 5% Deflection #/in./in. (kN/m²)	75 (517)	60 (414)	56 (386)	50 (345)	46 (317)	40 (276)	35 (241)	35 (241)	30 (207)

*Minimum pipe stiffness values listed; contact a representative for average values.

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TECHNICAL NOTE

Post Installation Testing of HP Storm

TN 5.20
August 2016

Introduction
Storm sewer is often tested after or during installation to ensure a sound installation was accomplished. Types of post installation field testing include deflection testing and joint testing. Specific testing required for the project will be found in the project specifications. This technical note is not meant to supersede any project specification, but should be used in conjunction with the project specification and national testing standards as it relates specifically to HP Storm pipe.

Deflection Testing
An important feature of any flexible pipe is its ability to deflect, or oval, under load without structural distress. Deflection allows the load to be transferred from the pipe to the surrounding backfill. The result is flexible pipe can withstand very high loads as a relatively light structure. Flexible pipe – including HP Storm – *must* deflect in order to mobilize the strength of the surrounding backfill.

According to current thermoplastic design procedures, deflection is defined as a service limit. The designer, considering all site conditions, will set this service limit in order to perform a proper design evaluation. Deflection in excess of this service limit does not necessarily result in strength limits being exceeded, i.e. system failure. For more information on service and strength limit states, see the *Structures* section of the Drainage Handbook. HP Storm can be expected to perform satisfactorily in most applications with 5% or 7.5% deflection and so it is typical of designers to choose a service limit in this range.

When testing for allowable deflection limits, the minimum inside diameter should be used when establishing mandrel sizing. The minimum inside diameter accounts for the allowable manufacturing tolerances. Table 1 lists the inside diameters that result from 5% and 7.5% deflection from the minimum inside diameter. Values listed in Table 1 should be used for sizing mandrels for deflection testing. Mandrels may be obtained from a variety of commercial suppliers.

Table 1
HP Storm Recommended Mandrel Settings

Pipe Type	Pipe Diameter	Minimum Inside Diameter*	Inside Diameter with 5% Deflection	Inside Diameter with 7.5% Deflection
Dual Wall	12	11.88	11.29	10.99
	15	14.78	14.11	13.74
	18	17.82	16.93	16.48
	24	23.76	22.57	21.98
	30	29.70	28.22	27.47
	36	35.64	33.86	32.97
	42	41.58	39.50	38.46
	48	47.52	45.14	43.96
	60	59.40	56.43	54.95

* Value is the larger of ASTM F2881 and AASHTO M330. If designing to a specific standard, please review allowable minimum diameter

It is important to understand that mandrel testing is a go/no-go test. If any line were to not pass a mandrel, it is important to ascertain the cause. Obstructions in the line, not associated with deflection, may influence the test. Visual inspection is recommended in the event of a no-go result.

Joint Testing
Joint testing is an important part of any gravity sewer system, both in testing for infiltration and exfiltration. Infiltration aids to estimate the amount of sewer water that will be conveyed to, and ultimately treated by, the waste water treatment plant. Exfiltration aids to estimate the loss of sewage water into the surrounding soil. The two primary ways of testing sewer pipe joints for infiltration and/or exfiltration is using air or water to create a constant pressure within the system.

Exfiltration Testing with Air
Air is a compressible gas and so it is extremely important one adheres to the appropriate safety regulations outlined in OSHA and project specifications. There are two primary national testing standards that may be applied to joint testing HP Storm: ASTM F1417 *Standard Test Method for Installation Acceptance of Plastic Gravity Sewer Lines Using Low-Pressure Air*, and ASTM F3058 *Preliminary Field Testing of Thermoplastic Pipe Joints for Gravity Flow (Non-Pressure) Sewer Lines*. When either standard is specified by the project plans, one should review the standards carefully and follow the testing procedure and safety precautions outlined. The below commentary on the ASTM testing procedures should be considered a summary and does not replace the testing procedures outlined in their respective specifications.

ASTM F1417 entails testing a run of pipe from one manhole to the next adjacent manhole. Inflatable plugs are positioned into the manholes and secured. Air is introduced into the pipe line and gradually builds pressure. Once the line has been pressurized and is stable at 4.0-psi, the pressure is decreased to 3.5-psi at which time the line must not lose more than 0.5- or 1.0-psi (whichever is specified by the design engineer) in the specified amount of time. Table 2 below summarizes the minimum time that must be reached for less than 0.5- or 1.0-psi of pressure drop, depending on the diameter and length of pipe being tested.

Table 2
Time to Pressure Drop for HP Storm (per ASTM F1417)

Pipe Diameter	Pressure Drop (psi)	Minimum Test Time (min:sec)	Length for Minimum Time, (ft)	Time for Longer Lengths, (sec)	Time for Length Shown, (min:sec)							
					100 ft	150 ft	200 ft	250 ft	300 ft	350 ft	400 ft	450 ft
12	0.5	5:40	199	1.709 L	5:40	5:40	5:42	7:08	8:33	9:58	11:24	12:50
	1.0	11:20		3.418 L	11:20	11:20	11:24	14:15	17:05	19:56	22:47	25:38
15	0.5	7:05	159	2.671 L	7:05	7:05	8:54	11:08	13:21	15:35	17:48	20:02
	1.0	14:10		5.342 L	14:10	14:10	17:48	22:15	26:42	31:09	35:36	40:04
18	0.5	8:30	133	3.846 L	8:30	9:37	12:49	16:01	19:14	22:26	25:38	28:51
	1.0	17:00		7.692 L	17:00	19:13	25:38	32:03	38:27	44:52	51:16	57:41
24	0.5	11:20	99	6.837 L	11:24	17:57	22:48	28:30	34:11	39:53	45:35	51:17
	1.0	22:40		13.764 L	22:47	34:11	43:34	56:58	68:22	79:46	91:10	102:33
30	0.5	14:10	80	10.683 L	17:48	26:43	35:37	44:31	53:25	62:19	71:13	80:07
	1.0	28:20		21.366 L	35:37	53:25	71:13	89:02	106:50	124:38	142:26	160:15

Data taken from ASTM F 1417[1] and Uni-Bell, Uni-B-6-98[2].
It may not be necessary to hold the test for the entire time period listed above when it is evident that the rate of air loss is zero or less than the allowable pressure drop and authorized by the approving authority[3].

When the pipe is large enough to be physically accessed, it may be desirable to test individual joints for safety reasons. In these cases, one may consider joint testing in accordance with ASTM F3058, also known as a joint isolation test. ADS recommends a joint isolation test, in lieu of a full line test, for testing pipe diameters 36" and larger for safety reasons. This test is typically done with air, though water may also be used, and involves the use of special testing equipment. The equipment consists of two inflatable bladders, placed on each side of the joint, creating an open center cavity between them. The bladders are inflated and then the center cavity is pressurized to 3.5 psi. The joint passes the test if the pressure is held for 5 seconds without dropping more than 1.0-psi. For all practical purposes, this is a go/no-go test. Final acceptance of the pipeline per this testing method shall be at the discretion of the Design Engineer. One

advantage of this type of test is the ability for the installer to quickly test the joint immediately after installation, allowing for any corrective measures to be taken early on in the project.

Infiltration/Exfiltration with Water
Testing gravity sewer joints via water infiltration or exfiltration is a common practice. For HP Storm, this testing should be conducted in accordance with ASTM F2487 *Standard Practice for Infiltration and Exfiltration Acceptance Testing of Installed Corrugated High Density Polyethylene Pipelines*. These standards entail first observing the ground water conditions and, if applicable, measuring the infiltration rate of the ground water through the joints. If ground water is not applicable, then the line is filled with water and the leakage is observed through exfiltration.

Manholes shall be tested separately and independently of the pipe line to the requirements established in the project specifications. When water level is measured in the manhole for the exfiltration test, the leakage associated with the manhole shall be subtracted from the overall leakage of the test section to establish a pass or fail grade for the pipe.

Allowable Leakage
The allowable leakage rate for HP Storm is 100 gallons/in-dia/mi-pipe/day for both infiltration and exfiltration when done in accordance with ASTM F2487.

Conclusion
ADS HP Storm is intended for gravity flow storm sewer applications and may be tested for deflection and joint tightness as discussed in this technical document. It is important to note that the testing procedures are no different than for other storm sewer products currently being used in the market. This document does not purport to address the safety concerns associated with testing HP Storm. Any questions associated with testing HP Storm can be directed to your local representative.

References
1. ASTM F1417, *Standard Test Method for Installation Acceptance of Plastic Gravity Sewer Lines Using Low-Pressure Air*, ASTM, 2005
2. *F3058, Preliminary Field Testing of Thermoplastic Pipe Joints for Gravity Flow (non-Pressure) Sewer Lines*, ASTM, 2016.
3. Uni-B-6-98, *Recommended Practice for Low-Pressure Air Testing of Installed Sewer Pipe,* Uni-Bell PVC Pipe Association, 1998
4. ASTM F2487, *Standard Practice for Infiltration and Exfiltration Acceptance Testing of Installed Corrugated High Density Polyethylene Pipelines*, ASTM, 2006
5. ASTM F2881, *Standard Specification for 12 to 60 in. (300 to 1500 mm) Polypropylene (PP) Dual Wall Pipe and Fittings for Non-Pressure Storm Sewer Applications*, ASTM, 2011

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NO. DATE

STRATFIELD DRIVE DRAINAGE IMPROVEMENTS - PHASE 2
LOCATED IN 20th DISTRICT
CITY OF BROOKHAVEN, DeKALB COUNTY

GEORGIA REGISTERED No. 040944 PROFESSIONAL ENGINEER HELEN L. SIMPSON

DATE: 10/23/2018

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DESIGNED BY: HLS

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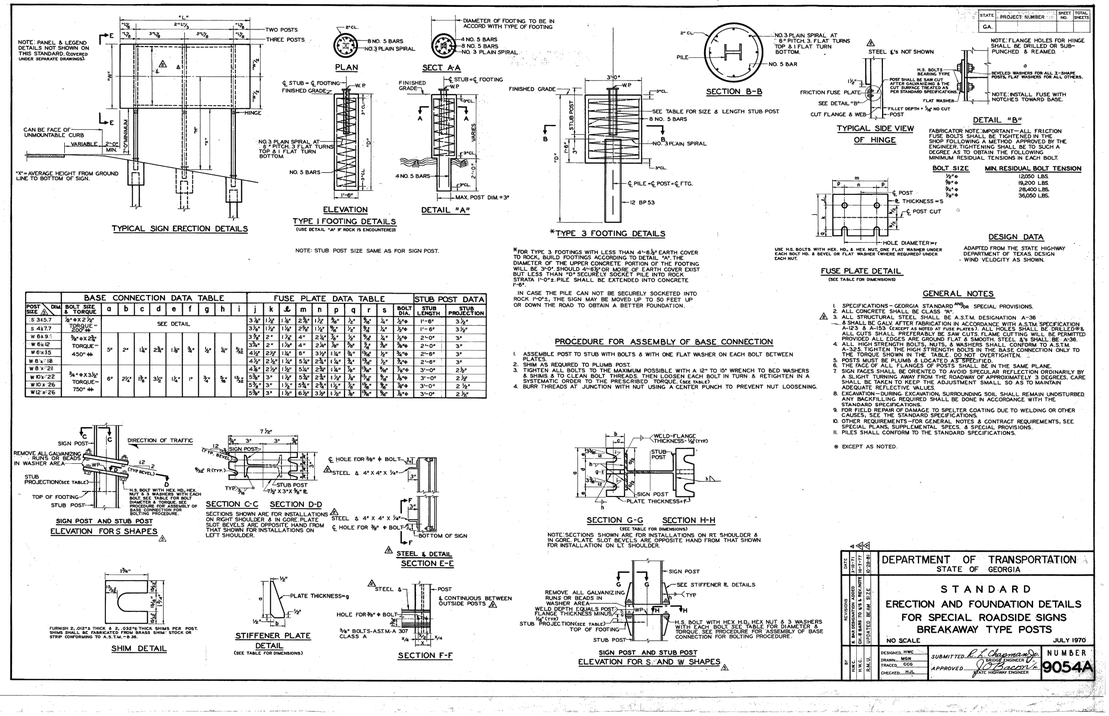

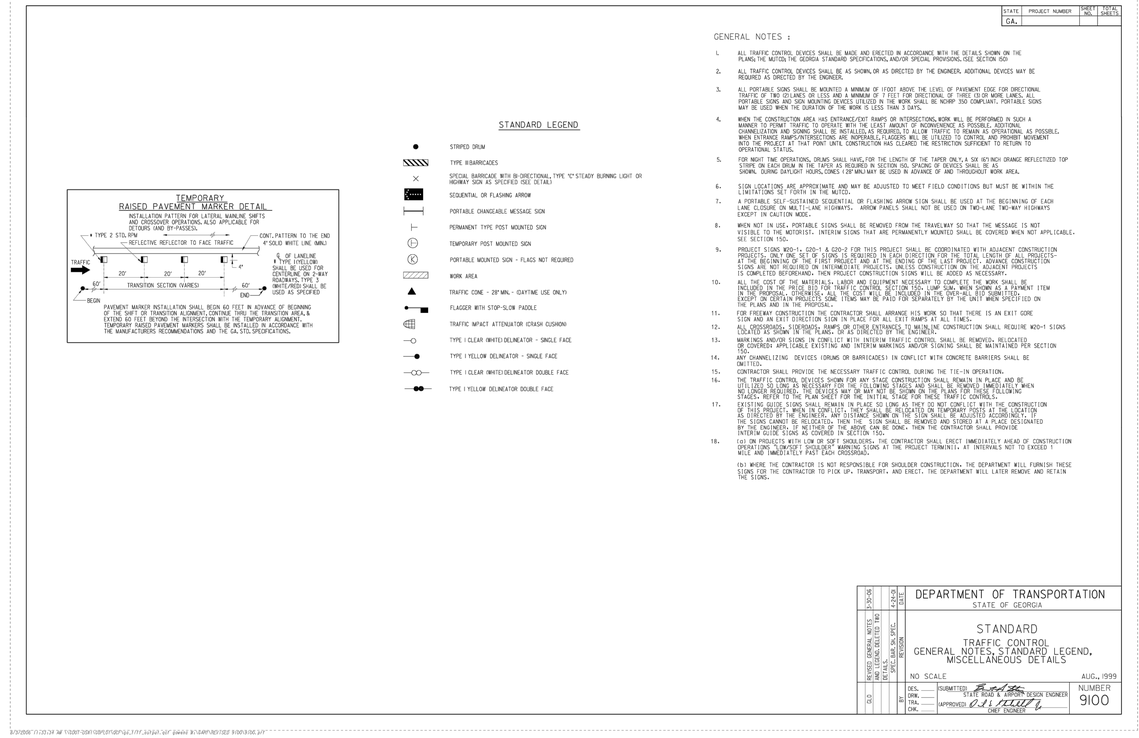

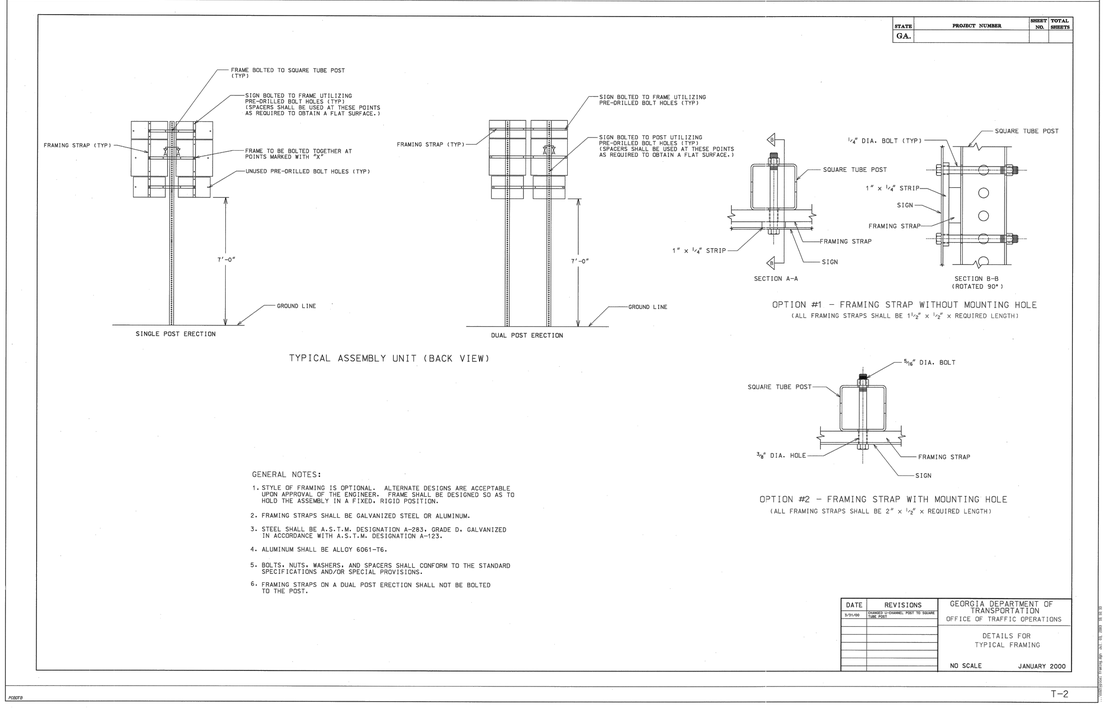

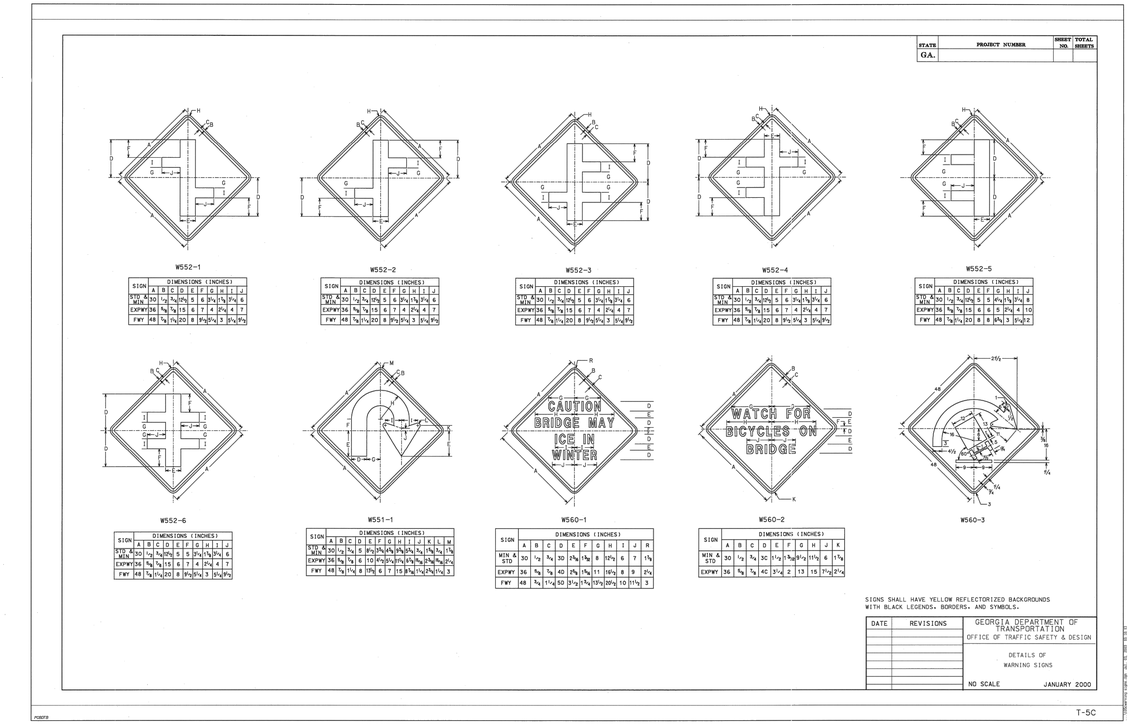

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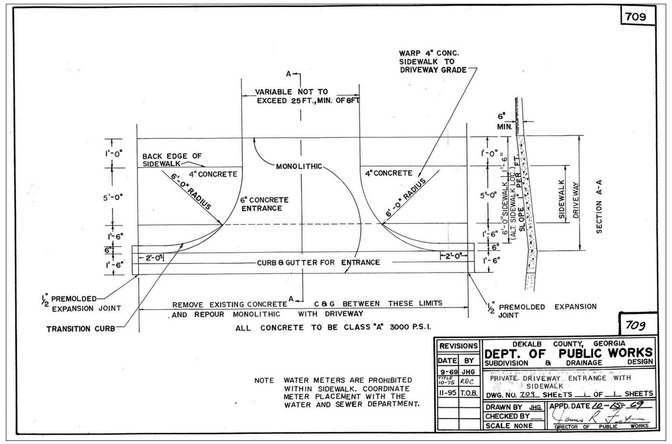

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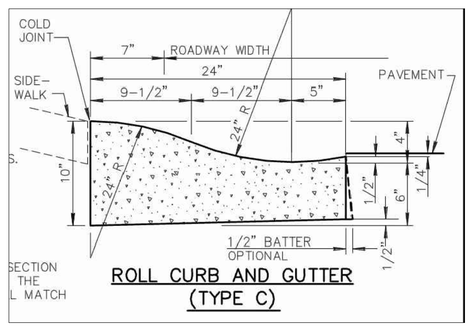

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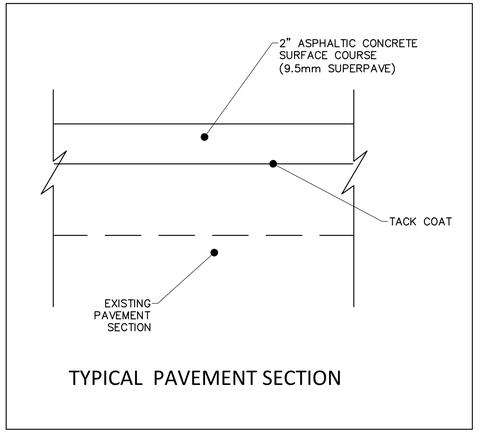

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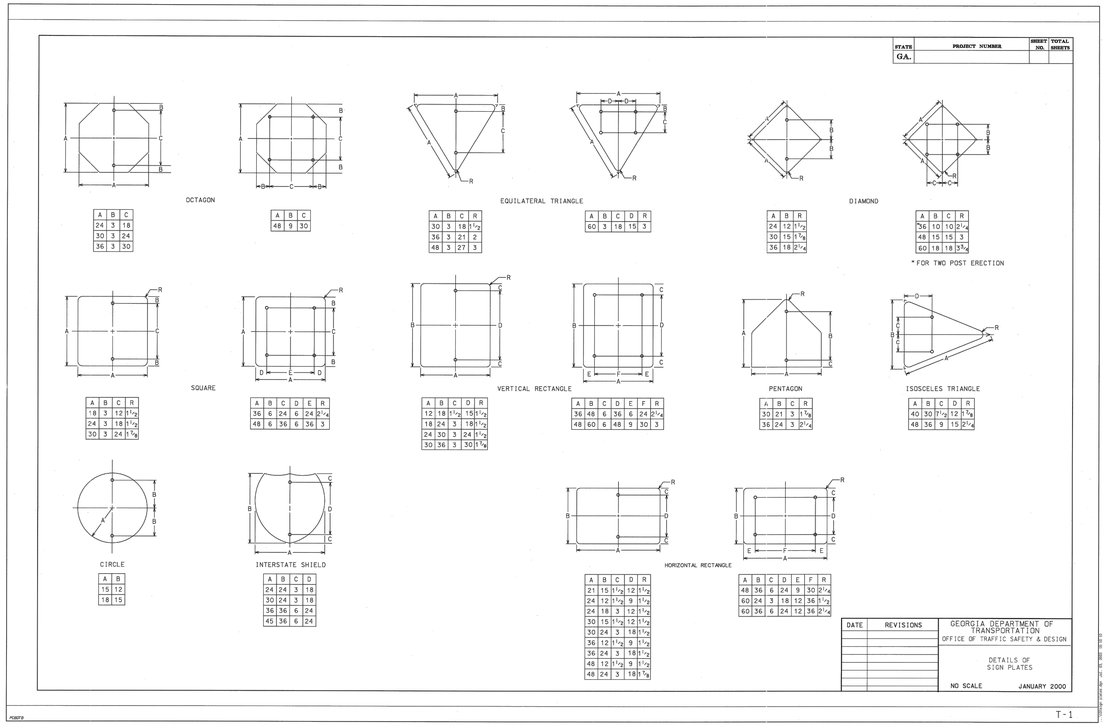

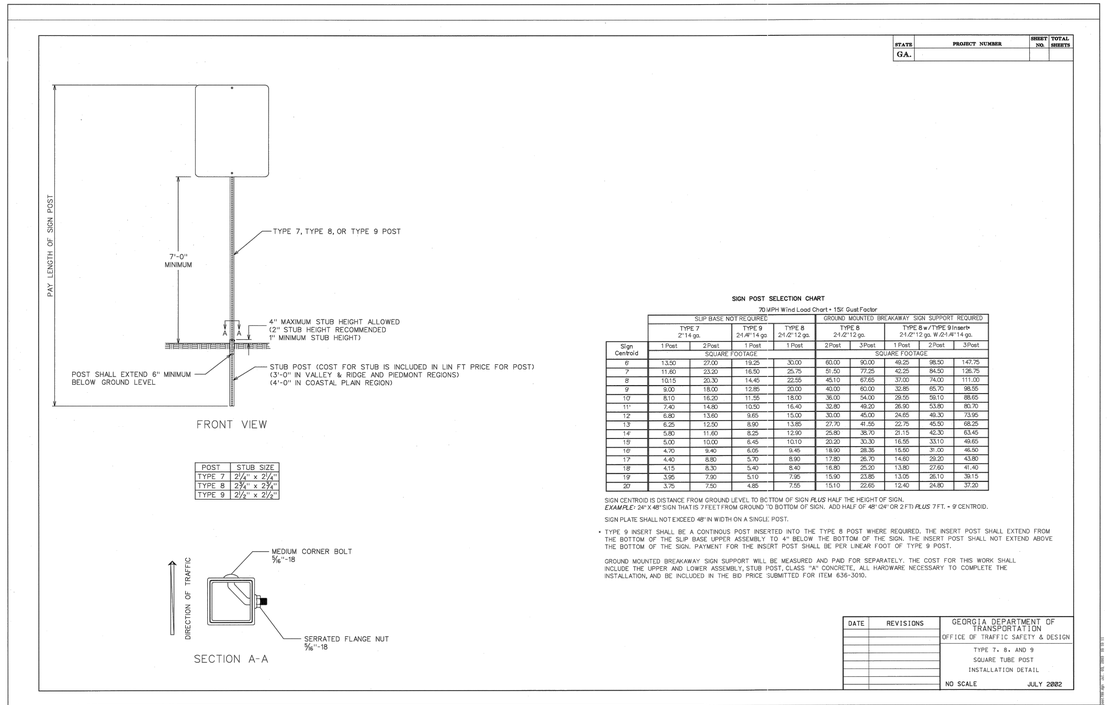

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NOTES:

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2. OVERALL LAYOUT OF SIGNAGE IS BASED ON GDOT STANDARD 9107. GENERAL NOTES, LEGEND, AND MISCELLANEOUS DETAILS ABOUT THE CONFIGURATION OF TRAFFIC CONTROL DEVICES FOR A LANE BLOCKAGE ARE PROVIDED IN GDOT STANDARD 9100.

3. SIGNS SHALL BE INSTALLED ON BREAKAWAY SIGN SUPPORTS IN ACCORDANCE WITH GDOT DETAIL T-3B. SIGN POST INSTALLATION SHALL BE IN ACCORDANCE WITH GDOT DETAIL T-3A. SEE DRAWING GABRKSY146 FOR GDOT DETAILS T-3A AND T-3B. SIGN PLATES SHALL BE IN ACCORDANCE WITH GDOT DETAIL T-1 (SEE DRAWING GABRKSY145).

4. IF DURING THE COURSE OF CONSTRUCTION IT IS DETERMINED THAT ANY ASPECT OF THIS TEMPORARY TRAFFIC CONTROL PLAN PROVES TO BE INADEQUATE DUE TO TRAFFIC CONDITIONS, THE CONTRACTOR SHALL NOTIFY THE CITY AND ENGINEER IMMEDIATELY.

5. THE CITY MAY AT THEIR DISCRETION REQUIRE INSTALLATION OF ADDITIONAL TRAFFIC CONTROL DEVICES IF IT IS DETERMINED THAT ADDITIONAL DEVICES ARE NECESSARY TO IMPROVE TRAFFIC CONDITIONS.

6. ANY ASPECTS OF TRAFFIC CONTROL NOT INCLUDED IN GDOT STANDARDS AND DETAILS SHALL BE SHOWN AND PLACED IN ACCORDANCE WITH THE MUTCD, CURRENT EDITION. ALL SIGNS SHALL CONFORM TO THE MUTCD STANDARDS AND BROOKHAVEN FOR COLOR, SIZE, REFLECTIVITY, HEIGHT, AND PLACEMENT.

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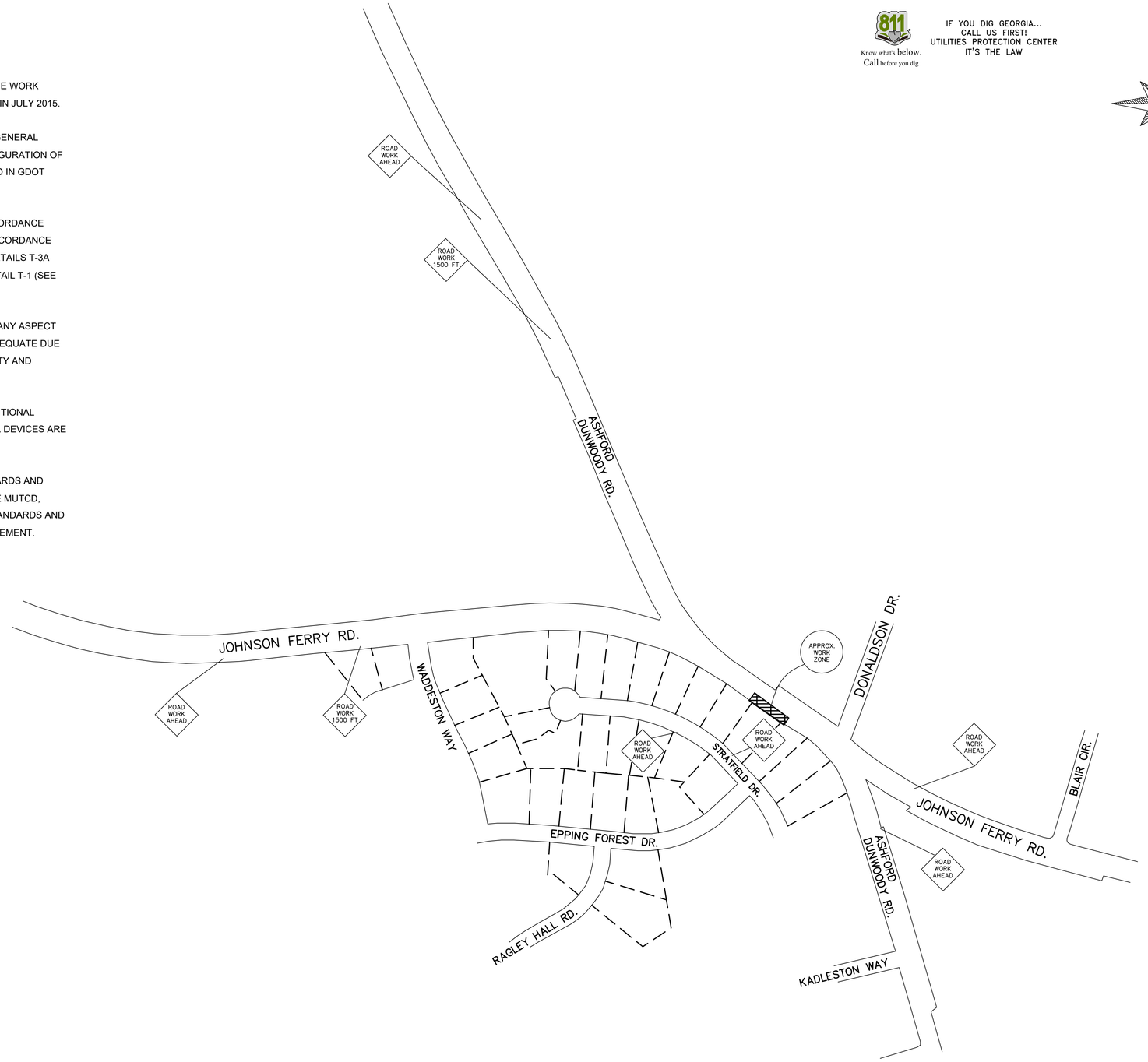

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STRATFIELD DRIVE DRAINAGE IMPROVEMENTS - PHASE 2

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