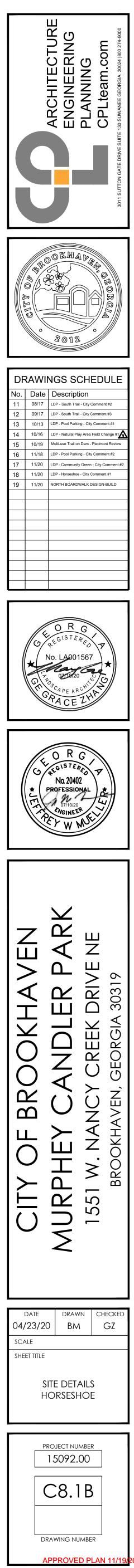
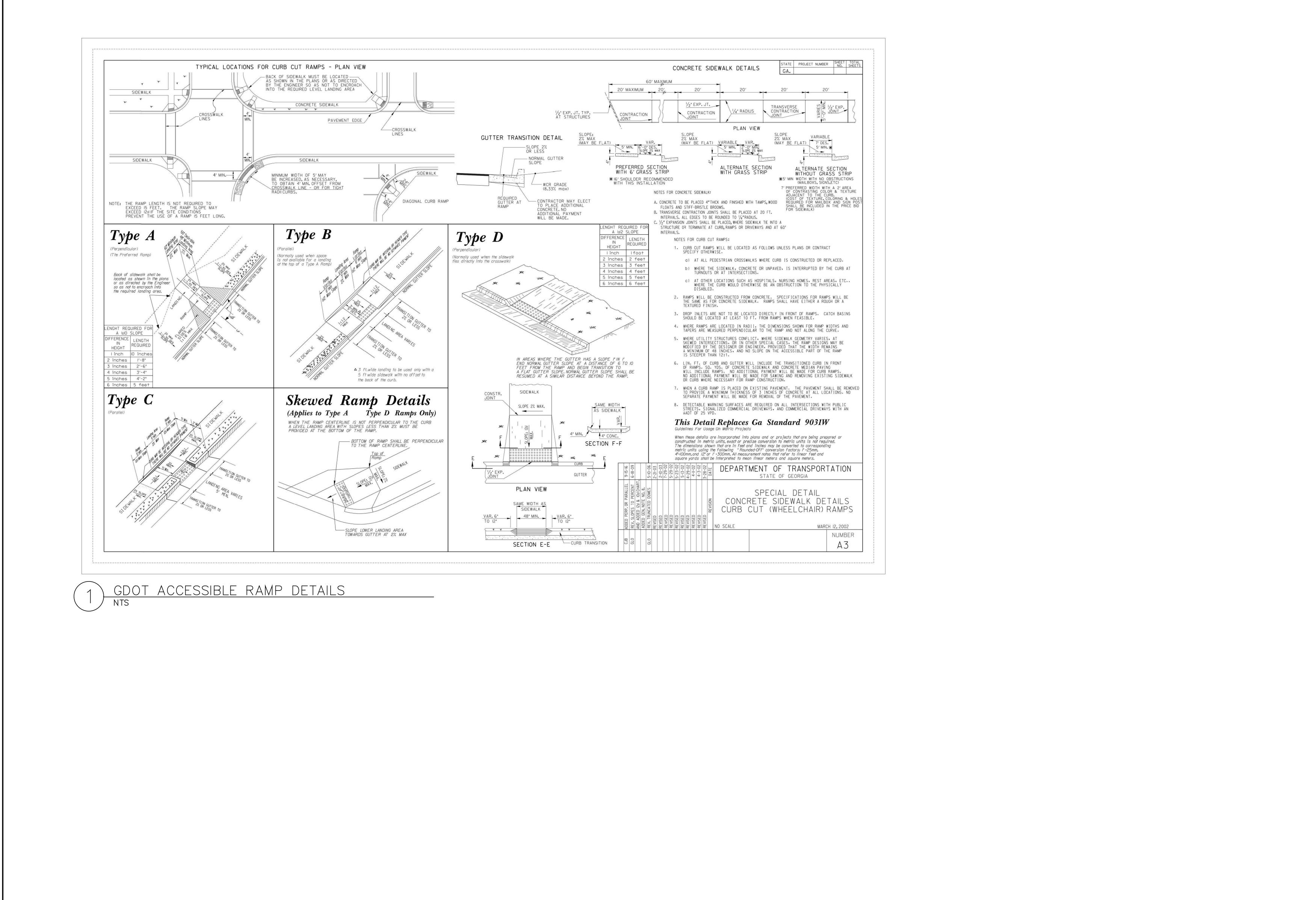


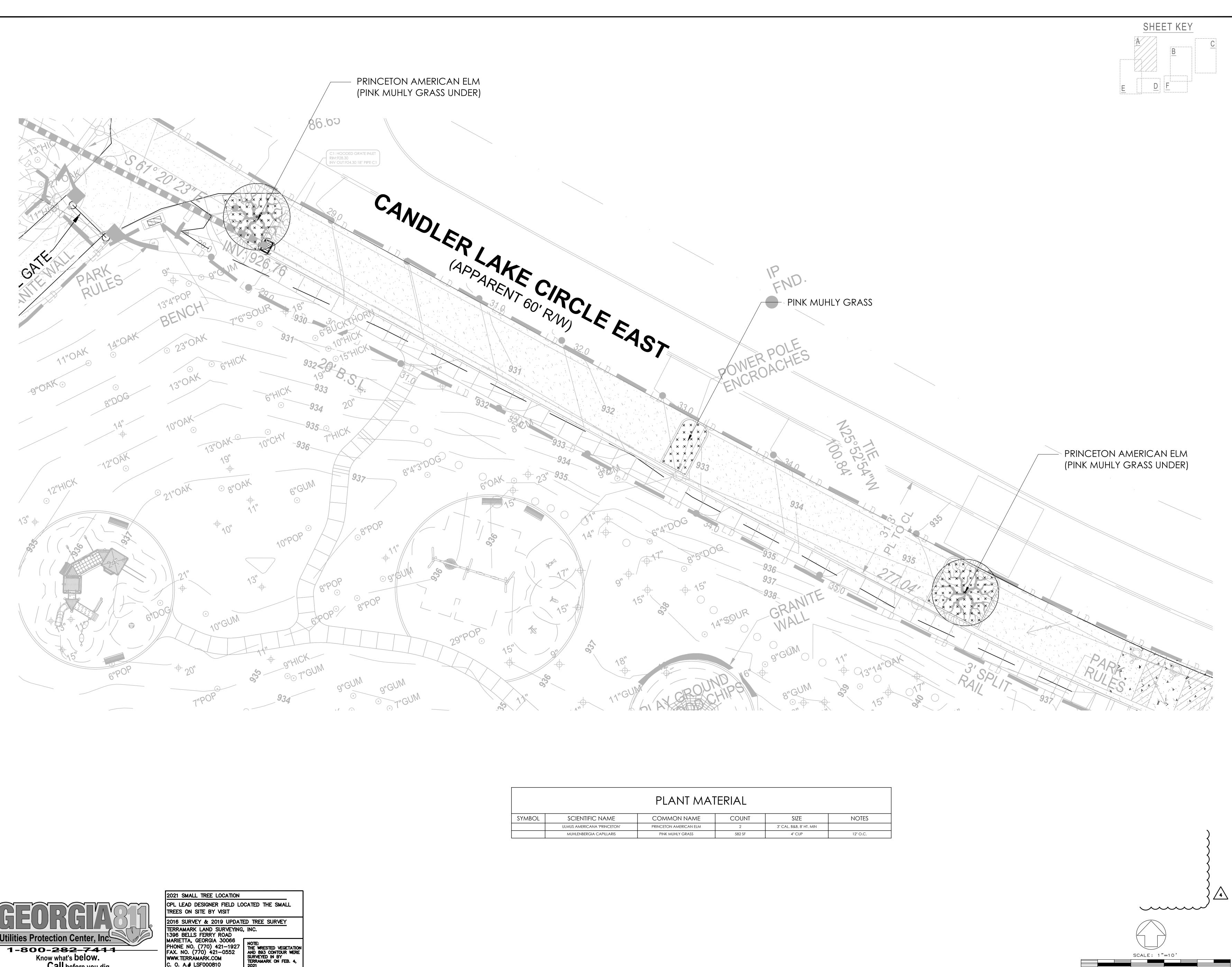
. 7/22/2017 '2:16:33 'PM \\GDOT-DSN1\GDOT-DSN1\GDOT-DSN1\GDOTLOT\QCF\GO_K [p8000. qcf 'gowens' V:\GARY\revised A-T, A-Z\A-1. prf



Permit # LDP20-00017





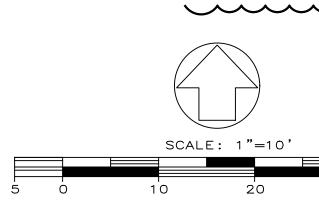


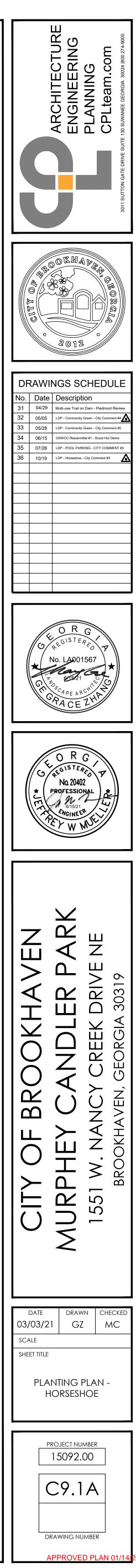


2021 SMALL TREE LOCATION						
CPL LEAD DESIGNER FIELD LOCATED THE SMALL TREES ON SITE BY VISIT						
2016 SURVEY & 2019 UPDATED TREE SURVEY						
TERRAMARK LAND SURVEYING, INC. 1396 BELLS FERRY ROAD						
MARIETTA, GEORGIA 30066 PHONE NO. (770) 421-1927 FAX. NO. (770) 421-0552 WWW.TERRAMARK.COM C. O. A.# LSF000810	NOTE: THE WRESTED VEGETATION AND 893 CONTOUR WERE SURVEYED IN BY TERRAMARK ON FEB. 4, 2021					

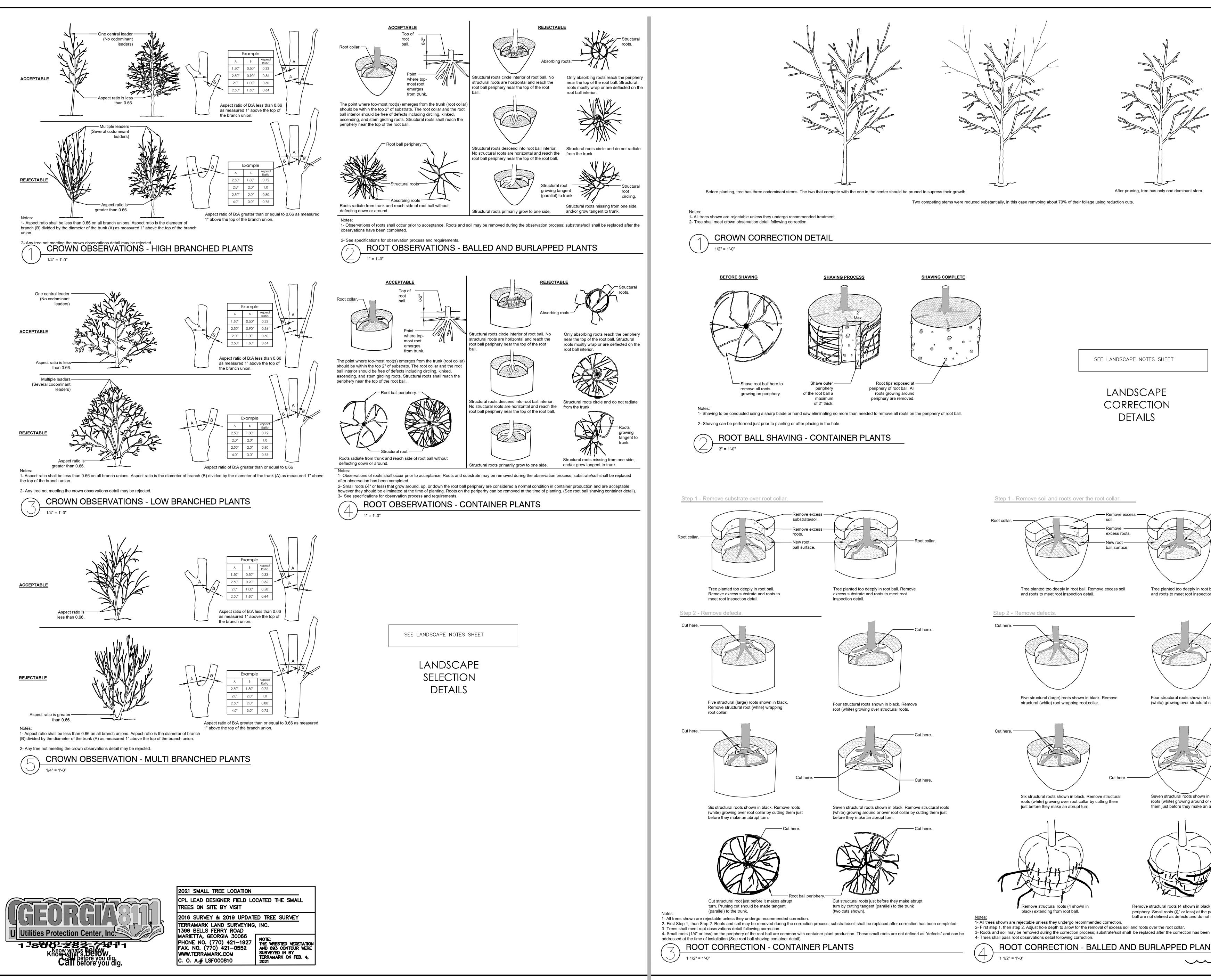
PLANT MATERIAL								
SYMBOL	SCIENTIFIC NAME	COMMON NAME	COUNT	SIZE	NOTES			
	ULMUS AMERICANA 'PRINCETON'	PRINCETON AMERICAN ELM	2	3" CAL. B&B, 8' HT. MIN				
	MUHLENBERGIA CAPILLARIS	PINK MUHLY GRASS	582 SF	4" CUP	12" O.C.			







Permit # LDP20-00017



	<section-header> Image: State of the state</section-header>
	31 04/29 Multi-use Trail on Dam - Piedmont Review 32 05/05 LDP - Community Green - City Comment #4 33 05/28 LDP - Community Green - City Comment #5 34 06/15 GSWCC Resubmiltal #1 - Scout Hut Demo 35 07/26 LDP - POOL PARKING - CITY COMMENT #3 36 10/19 LDP - Horseshoe - City Comment #3 36 10/19 LDP - Horseshoe - City Comment #3 36 10/19 LDP - Horseshoe - City Comment #3 36 10/19 LDP - Horseshoe - City Comment #3 36 10/19 LDP - Horseshoe - City Comment #3
Root collar.	CHEGISTER No. LA001567 No. LA001567 No. LA001567 CAPE ARCHING CAPE ARC
t ball. Remove excess soil ion detail. Cut here. black. Remove root roots. Cut here. Cut here.	CITY OF BROOKHAVEN MURPHEY CANDLER PARK 1551 W. NANCY CREEK DRIVE NE BROOKHAVEN, GEORGIA 30319
	DATE DRAWN CHECKED 03/03/21 GZ MC SCALE SHEET TITLE LANDSCAPE SELECTION AND CORRECTION DETAILS
ck) deflected on root ball periphery of the root ot need to be removed. en completed. NTS	PROJECT NUMBER 15092.00 C9.1B DRAWING NUMBER APPROVED PLAN 01/14/2022 Permit # LDP20-00017

GENERAL:

1. BEFORE BEGINNING ANY WORK, ALL UTILITIES AND UNDERGROUND CONSTRUCTION SHALL BE LOCATED BY THE THE LANDSCAPE CONTRACTOR SO THAT PROPER PRECAUTIONS MAY BE TAKEN NOT TO DISTURB OR DAMAGE ANY SUBSURFACE IMPROVEMENTS. WHERE PUBLIC UTILITIES ARE PRESENT. THE LANDSCAPE CONTRACTOR SHALL REQUEST ON-SITE LOCATIONS BY ALL UTILITY COMPANIES AND CONFIRM THAT SUCH LOCATIONS HAVE BEEN COMPLETED. THE LANDSCAPE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR MAKING, AT HIS OWN EXPENSE, ALL REPAIRS TO DAMAGED UTILITIES RESULTING FROM WORK COVERED BY THIS CONTRACT.

2. THE CONTRACTOR'S PRICE SHALL INCLUDE ALL LABOR AND MATERIAL NECESSARY TO COMPLETE THE WORK. INCLUDING BUT NOT LIMITED TO. MULCH. PLANTING MATERIAL, SOIL MIX, STAKING MATERIAL, WATERING, MAINTENANCE DURING CONSTRUCTION, GROUND CULTIVATION TO A MINIMUM DEPTH OF 6 INCHES OR AS INDICATED ON PLANS FOR PLANTING BEDS AND SOD AREAS, ETC.

3. GROUND CULTIVATION INCLUDES SCALPING AND REMOVING EXISTING VEGETATION DOWN TO THE SUB-GRADE. ROTOTIL 3 INCHES OF ADDITIVES SUCH AS TOP SOIL, SAND OR COMPOST (PER SOIL TEST ANALYSIS INTO THE SUBGRADE TO BREAK THROUGH AND REMOVE ALL HARDPAN, ROCKS AND DEBRIS. THIS WILL ALLOW PERCOLATION AND POSITIVE DRAINAGE. IF A ROTOTILER IS NOT SUFFICIENT TO BREAK UP THE SUBGRADE. THE CONTRACTOR IS RESPONSIBLE FOR ADDITIONAL EQUIPMENT NEEDED TO COMPLETE THE WORK AT NO ADDITIONAL EXPENSE TO THE OWNER.

4. CONTRACTOR SHALL PROVIDE INVOICES OF ALL PLANT MATERIAL TO OWNER AND LANDSCAPE ARCHITECT DURING CONSTRUCTION.

5. THE CONTRACTOR SHALL IMPLEMENT AND MAINTAIN BEST MANAGEMENT PRACTICES TO PREVENT AND MINIMIZE EROSION AND SEDIMENTATION. BMPS SHALL BE CONSISTENT WITH, AND NO LESS STRINGENT THAN, THOSE PRACTICES CONTAINED IN THE "MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA" PUBLISHED BY THE STATE SOIL AND WATER CONSERVATION COMMISSION.

6. IN CONFORMANCE WITH GDOT STANDARD SPECIFICATIONS, PLANT INSTALLATION SHALL OCCUR BETWEEN THE DATES OF OCTOBER 15 AND MARCH.

7. THE LANDSCAPE CONTRACTOR SHALL IMPLEMENT ALL MEASURES REQUIRED BY THE CITY OF BROOKHAVEN AND DEKALB COUNTY.

8. THE LANDSCAPE CONTRACTOR SHALL TAKE MEASURES TO PREVENT DUST. MUD, EQUIPMENT MARKS, ETC FROM SOILING AND DAMAGING IMPROVEMENTS. ANY DAMAGE SHALL BE THE RESPONSIBILITY OF THE LANDSCAPE CONTRACTOR.

9. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL MATERIAL QUANTITIES SHOWN ON THESE DRAWINGS BEFORE PRICING THE WORK, AND WILL BE RESPONSIBLE FOR INSTALLATION OF PLANT MATERIAL ACCORDING TO PLANS. THE PLANT SCHEDULE IS PROVIDED FOR CONTRACTOR'S CONVENIENCE ONLY.

10. PROVIDE PLANT MATERIALS TRUE TO SPECIES AND VARIETY COMPLYING WITH RECOMMENDATIONS OF "AMERICAN STANDARD FOR NURSERY STOCK" BY THE AMERICAN ASSOCIATION OF NURSERY MEN.

11. PLANTING PLANS INDICATE DIAGRAMMATIC LOCATIONS ONLY. SITE ADJUSTMENTS OF PLANTING DESIGN AND RELOCATION OF PLANT MATERIAL INSTALLED PRIOR TO DESIGN PROFESSIONAL OR OWNER'S REPRESENTATIVE'S APPROVAL SHALL BE DONE WITHOUT PENALTY OR ADDITIONAL COST TO OWNER. STAKE PLANT LOCATIONS AT SITE AND OBTAIN OWNER'S REPRESENTATIVE'S APPROVAL PRIOR TO PLANT INSTALLATION.

ELIMINATION OF EXISTING VEGETATION AND **REPLACEMENT WITH PROPOSED VEGETATION:**

1. THIS PROJECT MAY REQUIRE THE ELIMINATION OF EXISTING VEGETATION IN ORDER TO INSTALI LANDSCAPING AS SHOWN ON PLANS, EXISTING VEGETATION CONSISTS OF VARIOUS TURF GRASSES AND WEEDS. IF SO, THE CONTRACTOR SHALL ELIMINATE EXISTING VEGETATION BY SPRAYING WITH 2 SEPARATE APPLICATIONS OF ROUNDUP HERBICIDE (GLYPHOSATE), OR APPROVED EQUAL PER MANUFACTURERS RECOMMENDATIONS. THE FIRST HERBICIDE APPLICATION SHALL OCCUR ON THE ENTIRE PROJECT AREA AFTER WINTER DORMANCY WHEN THERE IS SIGNIFICANT ACTIVE GROWTH OF GRASSES AND WEEDS. THE OPTIMAL TIME FOR THIS HERBICIDE APPLICATION IS THE FIRST WEEK IN APRIL. THE SECOND APPLICATION SHALL OCCUR ON ALL PROPOSED REVEGETATED AREAS WHEN THERE IS SIGNIFICANT ACTIVE GROWTH AFTER THE FIRST HERBICIDE APPLICATION. THE SECOND APPLICATION SHALL OCCUR AT LEAST 4 WEEKS (28 DAYS) AFTER THE FIRST APPLICATION. BOTH SPRAYINGS SHALL OCCUR ON ALL LANDSCAPE MEDIAN AREAS. SUBSEQUENT INSTALLATION WORK SHALL BE DIVIDED INTO PHASES AS DELINEATED ON THE PLANS.

2. CONTRACTOR SHALL COMMENCE EACH PHASE BY SCALPING (MOWING AS CLOSELY TO THE ROUND AS POSSIBLE) ALL EXISTING VEGETATION WITHIN THE LIMITS OF DISTURBANCE FOR THAT PHASE. THE CONTRACTOR SHALL NOT SCALP UNTIL AT LEAST 10 DAYS HAVE PASSED FOLLOWING THE FINAL HERBICIDE APPLICATION. PLANTING OPERATIONS SHALL OCCUR IMMEDIATELY FOLLOWING THE SCALPING OF THE EXISTING VEGETATION. THE CONTRACTOR SHALL COMPLETE ALL WORK ON A PHASE AND SHALL HAVE THAT WORK INSPECTED AND APPROVED BY AN AUTHORIZED REPRESENTATIVE OF THE CITY OF BROOKHAVEN PRIOR TO COMMENCING WORK ON ANY OTHER PHASE.

NURSERY STOCK SELECTION:

1. PLANTS SHALL BE WATERED PRIOR TO TRANSPORTATION AND SHALL BE KEPT MOIST UNTIL PLANTED. ALL PLANTS SHALL BE PROTECTED FROM DESICCATION DURING DELIVERY WITH A PROTECTIVE COVERING OR ENCLOSED TRUCK.

2. PLANTS SHALL BE SPECIMEN QUALITY, WELL BRANCHED AND DENSELY FOLIATED WHEN IN LEAF. ALL PLANTS MUST BE HEALTHY, VIGOROUS MATERIAL, FREE OF DISEASES, INSECTS, EGGS, LARVAE, AND DEFECTS SUCH AS KNOTS, SUN-SCALD, INJURIES, ABRASIONS AND/OR DISFIGUREMENT.

3. HEIGHT AND SPREAD DIMENSIONS SPECIFIED REFER TO THE MAIN BODY OF THE PLANT AND NOT FROM BRANCH TIP TO TIP. IF A RANGE OF SIZE IS GIVEN, NO PLANT SHALL BE LESS THAN THE MINIMUM SIZE AND NOT LESS THAN 50 PERCENT OF THE PLANTS SHALL BE AS LARGE AS THE MAXIMUM SIZE SPECIFIED.

4. HARDWOOD TREES SHALL HAVE STRAIGHT TRUNKS WITH CENTRAL LEADERS. DO NOT HANDLE PLANTS BY THE TRUNK.

5. PLACE PLANTS UPRIGHT AND TURNED SO THAT THE MOST ATTRACTIVE SIDE IS VIEWED.

6. AFTER BEING DUG AT THE NURSERY SOURCE, ALL TREES IN LEAF SHALL BE ACCLIMATED FOR TWO (2) WEEKS UNDER A MIST SYSTEM PRIOR TO INSTALLATION.

7. ALL NEWLY PLANTED TREES SHALL HAVE VISIBLE ROOT FLARES AT FINISHED GRADE. NO CIRCLING ROOTS SHALL BE ALLOWED ON PLANTED TREES. THE UPPER TWO RINGS OF THE WIRE BASKET, ALL BURLAP, AND STRAPPINGS MUST BE CUT AND REMOVED PRIOR TO BACKFILL.

8. TREES LESS THAN THE CALIPER INCH SHOWN ON THE PLANS WILL NOT BE ACCEPTED. 9. PLANT HEIGHT MEASUREMENT IS TAKEN AT THE TOP OF THE MAIN BODY OF THE PLANT AND NOT AT THE TIP OF THE TOP MOST GROWTH.

11. SEE CROWN AND ROOT OBSERVATIONS DETAILS ON LANDSCAPE DETAILS SHEETS.

PLANTING SOIL MIX:

1. CONTRACTOR SHALL SUPPLY TOP SOIL AND PLANTING SOIL MIX.

- 2. THE CONTRACTOR SHALL SUPPLY A SOIL REPORT THROUGH THE LOCAL EXTENSION SERVICE OF EXISTING SOILS TO SHOW RECOMMENDED AMENDMENTS.

- REPRESENTATIVE PRIOR TO ANY BACKFILLING.
- **ALLOWANCES:** SHALL CONSIST OF THE FOLLOWING: 80% SANDY LOAM TOPSOIL (AS SPECIFIED AND AMENDED PER SOIL REPORT) 20% PREPARED ADDITIVES SHALL BE PER SOIL REPORT OR BY VOLUME AS FOLLOWS: 2 PARTS HUMUS AND/OR PEAT 1 PART STERILIZED COMPOSTED COW MANURE
- 1 PART SHREDDED, COMPOSTED HARDWOOD MULCH 7. PLANTING SOIL MIX FOR PERENNIAL BEDS CONSIST OF THE FOLLOWING: 70% SANDY LOAM TOPSOIL (AS SPECIFIED AND AMENDED PER SOIL REPORT) 30% PREPARED ADDITIVES SHALL BE PER SOIL REPORT OR BY VOLUME AS FOLLOWS: 2 PARTS HUMUS AND/OR PEAT
- SOIL REPORT.
- 9. ALLOWANCES SUBJECT TO CHANGE BASED ON SOIL REPORT.

WATERING/IRRIGATION:

- OF THE CONTRACTOR.
- REPLENISHED WHERE NECESSARY.
- OF THE SITE INDICATED ON THE LANDSCAPE PLAN.
- FITTINGS, SHALL MEET MINIMUM INDUSTRY STANDARDS. MANUFACTURER AND MODEL MUST BE SPECIFIED.
- 6. THE CONTRACTOR IS RESPONSIBLE FOR REMOVING THE TEMPORARY SYSTEM AFTER SUBSTANTIAL COMPLETION IS OBTAINED.
- LANDSCAPE MATERIAL SHOULD BE CONSULTED FOR THEIR RECOMMENDATIONS.

IREES: SHOULD BE WATERED DAILY FOR MONTH 1, EVERY OTHER DAY FOR MONTHS 2-4, AND WEEKLY FOR MONTHS 5-12. APPLY 8 GALLONS PER 4" CALIPER TREE PER APPLICATION. ADJUST RATE TO LOCAL RAINFALL AMOUNT. (ASSUME 30 GALLONS PER TREE FOR EVERY INCH OF RAINFALL).

SHRUBS: SHOULD BE WATERED DAILY FOR MONTH 1, EVERY OTHER DAY FOR MONTHS 2-4, AND WEEKLY FOR MONTHS 5-12. APPLY 1 GALLON PER SHRUB PER APPLICATION. ADJUST RATE TO LOCAL RAINFALL AMOUNT. (ASSUME 2 GALLONS PER SHRUB FOR EVERY INCH OF RAINFALL)

TURF: SHOULD RECEIVE 1-INCH OF IRRIGATION PER WEEK APRIL THROUGH SEPTEMBER, 1 /2-INCH OF RRIGATION OCTOBER THROUGH MARCH. ADJUST RATE TO LOCAL RAINFALL AMOUNT.

NATIVE GRASS BEDS: WATER EVERY OTHER DAY FOR THE FIRST MONTH. ONLY CONTINUE WATERING AFTER THAT ONLY DURING EXTENDED OR FORECASTED DRY PERIODS, AND THEN, ONLY ONCE PER WEEK.

SOD:

1. GROUND TO BE CULTIVATED AS INDICATED TO A MINIMUM DEPTH OF 6 INCHES PRIOR TO SOD INSTALLATION. IN AREAS TO RECEIVE SOD ONLY. CONTRACTOR SHALL REMOVE THE SCALPED CLIPPINGS EITHER DURING SCALPING OR AFTER THE EXISTING GRASS IS SCALPED. CONTRACTOR SHALL ADD PELLETIZED LIME TO THESE AREAS AT A RATE OF 220 LBS/ACRE (5 LBS/1,000 SF). CONTRACTOR SHALL THEN AERATE THE AREAS WITH A CORE AERATOR. IMMEDIATELY PRIOR TO SOD INSTALLATION, CONTRACTOR SHALL RAKE THE SOIL (EITHER MANUALLY OR USING A POWER RAKE) TO A DEPTH OF 1", MIXING THE PREVIOUSLY ADDED LIME INTO THE EXISTING SOIL AND BREAKING UP CORES. CONTRACTOR SHALL ONLY RAKE THE AREAS WHICH ARE TO BE SODDED THAT DAY.

2. SOD SHALL BE STRONGLY ROOTED, 2 YEAR OLD STOCK. THE SOD SHALL BE TOP QUALITY CERTIFIED SOD, FREE OF WEEDS, UNDESIRABLE NATIVE GRASSES, INSECTS AND DISEASES, AND UNIFORM IN THICKNESS. PROVIDE CERTIFICATION TAG TO OWNER. ALL SOD SHALL BE MACHINE CUT AND VIGOROUSLY GROWING (NOT DORMANT)

3. LAY SOD WITHIN 24 HOURS FROM TIME OF STRIPPING. DO NOT PLANT DORMANT SOD OR IF GROUND IS FROZEN.

4. LAY SOD TO FORM A SOLID MASS WITH TIGHTLY FITTED JOINTS. BUTT ENDS AND SIDES OF SOD STRIPS. DO NOT OVERLAP.

AND WITH JOINTS STAGGERED.

7. STAPLES FOR SOD STAKING SHALL BE NO. 11 GAUGE STEEL WIRE, U-SHAPED WITH LEGS 12 INCHES IN LENGTH AND 1" CROWN. STAPLES SHALL BE PLACED AT INTERVALS NO GREATER THAN 2' ON CENTER. TOP OF STAKES SHALL BE DRIVEN FLUSH WITH SOD AS NOT TO INTERFERE WITH MOWING OPERATIONS.

8. TAMP OR ROLL TO INSURE CONTACT WITH SOIL. WORK SIFTED SOIL INTO MINOR CRACKS BETWEEN PIECES OF SOD. REMOVE EXCESS SOIL TO AVOID SMOTHERING OF ADJACENT GRASS. 9. CONTRACTOR SHALL REMOVE NETTING FROM THE BACK OF SOD PRIOR TO INSTALLATION.

10. SOD SHALL BE WATERED IMMEDIATELY AFTER ROLLING OR TAMPING.

tilities Protection Center, 1-8680282-7411 Know what's below

2021 SMALL TREE LOCATION CPL LEAD DESIGNER FIELD LOCATED THE SMALL TREES ON SITE BY VISIT 2016 SURVEY & 2019 UPDATED TREE SURVEY ERRAMARK LAND SURVEYING, INC. 1396 BELLS FERRY ROAD MARIETTA, GEORGIA 30066 PHONE NO. (770) 421–1927 FAX. NO. (770) 421–0552 NOTE: THE WRESTED VEGETATION AND 893 CONTOUR WERE SURVEYED IN BY TERRAMARK ON FEB. 4, 2021 WWW.TERRAMARK.COM C. O. A.# LSF000810

3. THE CONTRACTOR SHALL SUPPLY A SECOND SOIL REPORT OF PROPOSED SOIL MIX WHICH SHALL MEET THE RECOMMENDATIONS IN THE FIRST SOIL REPORT.

4. EXISTING AND PROPOSED SOIL REPORTS MUST BE APPROVED BY THE OWNER OR OWNERS REPRESENTATIVE PRIOR TO ANY BACKFILLING.

5. THE PROPOSED PLANTING SOIL MIX MUST BE APPROVED BY THE OWNER OR OWNERS

6. THE PLANTING SOIL MIX FOR ON-GRADE PLANTINGS (TREES, SHRUBS & GROUND COVERS)

1 PARTS SHREDDED, COMPOSTED HARDWOOD MULCH 1 PART (50% STERILIZED COMPOSTED COW MANURE AND 50% ANGULAR BUILDERS SAND)

8. GYPSUM, LIME AND COMMERCIAL FERTILIZER SHALL ONLY BE USED AS PRESCRIBED IN THE

1. WATERING AFTER INSTALLATION AND WATER TRANSPORTATION IS THE SOLE RESPONSIBILITY

2. USE OF TREE CAMEL, OOZE TUBES OR TREE GATOR BAGS FOR TREES ARE ACCEPTABLE.

3. MULCH SHOULD BE INSPECTED EVERY 3 MONTHS TO ENSURE A DEPTH OF 4-INCHES AND

4. THE CONTRACTOR SHALL INSTALL A TEMPORARY IRRIGATION SYSTEM IN ORDER TO ESTABLISH INSTALLED PLANT MATERIAL. SUBMIT A PLAN FOR A TEMPORARY SYSTEM TO THE OWNER'S REPRESENTATIVE FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION, AND OBTAIN APPROVAL AS WARRANTED BY ALL GOVERNING AGENCIES HAVE JURISDICTION. THE SYSTEM SHALL BE DESIGNED TO PROVIDE FULL AND COMPLETE COVERAGE TO ALL LANDSCAPED AREAS

5. ALL MATERIALS USED IN THE DESIGN OF THE TEMPORARY SYSTEM, INCLUDING SPRINKLER HEADS, VALVES, VALVE BOXES, CONTROLLERS, PUMPS, BACKFLOW PREVENTORS, RAIN AND FREEZE SENSORS, DRIP EQUIPMENT, WIRE, ELECTRICAL CONNECTIONS, AND PVC PIPE AND

7. IF NO TEMPORARY SYSTEM IS PROPOSED, THE CONTRACTOR SHALL DEVELOP A SCHEDULE FOR MANUAL WATERING OF PLANTS. THIS SCHEDULE SHOULD BE INCLUDED IN ANY MAINTENANCE AGREEMENT AND/OR BONDING OF LANDSCAPE MATERIAL AND SHOULD INDICATE THE PARTY RESPONSIBLE FOR PERFORMING THE MANUAL WATERING. THE DURATION OF THE SCHEDULE OF MANUAL WATERING SHOULD BE EQUAL TO THE DURATION OF THE BOND PERIOD OR 12 MONTHS STARTING FROM THE INSTALLATION DATE, WHICHEVER IS GREATER. THE SCHEDULE SHOULD ALSO INDICATE THE AMOUNT OF WATER TO BE APPLIED PER WEEK. THE FOLLOWING IRRIGATION RATES ARE OFFERED AS A GUIDELINE; HOWEVER, THE SUPPLIER OF THE

5. IN SLOPING AREAS, SOD SHALL BE LAID WITH THE LONG EDGES PARALLEL TO THE CONTOURS

6. SOD SHALL BE SECURED IN-PLACE WITH STAPLES ON SLOPES GREATER THAN 3:1.

INSTALLATION:

GUARANTEE AND LIVABILITY OF THE PLANT.

1. INSTALL TREES PLUMB. DO NOT DEPEND ON STAKING TO PULL PLANTS TO PLUMB POSITION.

AGED HARDWOOD MULCH. 4. LEAVES: MUST BE OF MEDIUM FOLIAGE, ALL GOOD LEAVES, MAXIMUM OF 10% CHLOROSIS

ALLOWED, WITH NO EXTREME SUCCULENCE. 5. IF DRAINAGE IS NOT SUFFICIENT NOTIFY PROJECT OWNER'S REPRESENTATIVE IN WRITING BEFORE INSTALLING THE PLANTS, OTHERWISE CONTRACTOR SHALL BE TOTALLY RESPONSIBLE FOR THE

2. MULCH: PROVIDE 4" THICKNESS MULCH AT ALL PLANTS AND PLANTING BEDS. UTILIZE SHREDDED,

6. UNLESS OTHERWISE SPECIFIED DUE TO SOIL CONDITIONS, SET ROOT FLARE OF ROOTBALL LEVEL WITH SURROUNDING GRADE, ROOT SYSTEM SHALL BE AS SPECIFIED IN PLANT SCHEDULE:

BALLED AND BURLAPPED ROOTS MUST BE STURDILY ESTABLISHED IN BALL THAT HAS BEEN TIGHTLY WRAPPED AND SECURELY TIED WITH TWINE OR WIRE, OR PINNED. WHERE WIRE BASKETS ARE USED ON TREES OR SHRUBS, CUT BURLAP AND WIRE BACK TO 1/4 THE BASE OF ROOTBALL AND REMOVE FROM PLANTING HOLE. REMOVE ALL STRAPS, WIRE STRAP HANGERS, ETC. FROM ROOTBALL. DO NOT ALLOW REMAINING WIRE TO PROTRUDE INTO MULCH OR TOPSOIL AREAS.

CONTAINER GROWN CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING DESIGN PROFESSIONAL OF ROOT BOUND SPECIMENS. REMOVE CONTAINER AND SCARIFY OR SHAVE ROOTBALL AS NEEDED TO REMEDIATE ROOT BOUND CONDITION. PULL SURFACE ROOTS AT TOP OF ROOTBALL OUT IN A DIRECTIONAL PATTERN TO DISCOURAGE CIRCLING ROOTS.

7. STAKING IS ONLY TO BE INSTALLED IN SPECIAL CIRCUMSTANCES AT THE DIRECTION OF THE DESIGN PROFESSIONAL. ANY STAKING MATERIAL MUST BE REMOVED AT THE END OF THE WARRANTY PERIOD.

8. ALL TREES MUST BE PLANTED A MINIMUM OF 5 FEET FROM ANY UTILITY LINE AND/OR EASEMENT. ALL UTILITIES (WATER, SEWER, GAS, FIBER OPTIC, ETC.) MUST BE INSTALLED AT LEASE FIVE (5) FEET FROM REQUIRED TREE PLANTING ISLANDS OR LANDSCAPE AREAS.

9. IF TREE SURVEY INACCURACIES ARE FOUND ON-SITE, A STOP WORK ORDER WILL BE ISSUED UNTIL REVISED PLANS ARE APPROVED AND PROCESSED BASED ON ACCURATE INFORMATION.

10. TREES AGREED UPON TO BE SAVED ARE THE RESPONSIBILITY OF THE OWNER.

11. A 4" LAYER OF MULCH WILL BE REQUIRED FOR THE CRZ OF SPECIMEN TREES. MULCH MUST BE APPLIED PRIOR TO START OF CONSTRUCTION. MULCH SHALL NOT BE PLACED DIRECTLY AGAINST TREE TRUNKS.

12. NO TRENCHING IS ALLOWED IN TREE SAVE AREAS, INCLUDING FOR THE INSTALLATION OF IRRIGATION.

13. TREE PIT DRAINAGE TESTING IS REQUIRED WHEN TREES ARE PLANTED IN PARKING LOT ISLANDS, SIDEWALK TREE PITS, ROADWAY MEDIANS, OR SIMILAR LOCATIONS. REFER TO CITY DETAILS REGARDING PLANTING PIT OR LANDSCAPE ISLAND CONSTRUCTION. FILL EACH PIT WITH WATER. IF PERCOLATION IS LESS THAN 100% WITHIN A PERIOD OF 12 HOURS, USE AN AUGER TO DRILL A 10" HOLE TO A DEPTH OF FOUR FEET BELOW THE BOTTOM OF THE PIT. FILL AUGER HOLE WITH DRAINAGE GRAVEL AND COVER WITH A SOIL SEPARATOR. RETEST PIT. IF DRAINAGE IS STILL UNSATISFACTORY, CITY ARBORIST AND/OR PROJECT ARBORIST MUST BE NOTIFIED IN WRITING OF THE LOCATIONS WITH UNSATISFACTORY DRAINAGE SO THAT A SOLUTION CAN BE ARRIVED UPON BEFORE PLANTING. ALL TESTING RESULTS MUST BE PROVIDED TO THE CITY ARBORIST.

14. ALL BUFFERS SHALL BE REPLANTED WHERE SPARSE OR AS DIRECTED BY THE CITY OF BROOKHAVEN IN ORDER TO CREATE A YEAR-ROUND OPAQUE SCREEN WITHIN 2 YEARS OF CONSTRUCTION. THIS MAY BE IN ADDITION TO WHAT IS SHOWN ON THE APPROVED LANDSCAPE PLAN.

INSPECTION:

1. THE OWNER'S REPRESENTATIVE SHALL INSPECT THE TOTAL WORK FOR ACCEPTANCE UPON REQUEST OF THE LANDSCAPE CONTRACTOR. ANY UNSATISFACTORY ITEMS SHALL BE NOTED AND MUST BE REMEDIED BY THE LANDSCAPE CONTRACTOR PRIOR TO ACCEPTANCE. UPON SATISFACTORY COMPLETION OF ALL WORK, THE OWNER'S REPRESENTATIVE SHALL CERTIFY IN WRITING ACCEPTANCE OF THE WORK. PAYMENT FOR CONTRACT WORK TO THE CONTRACTOR PURSUANT TO ISSUANCE OF ACCEPTANCE SHALL BE DEEMED THE FINAL PAYMENT FOR SAID WORK.

2. ALL PLANTING AND PLANT MATERIAL REQUIRED BY THIS CONTRACT SHALL BE IN A SATISFACTORY AND ACCEPTABLE CONDITION WHEN THE CONTRACTOR APPLIES FOR PAYMENT.

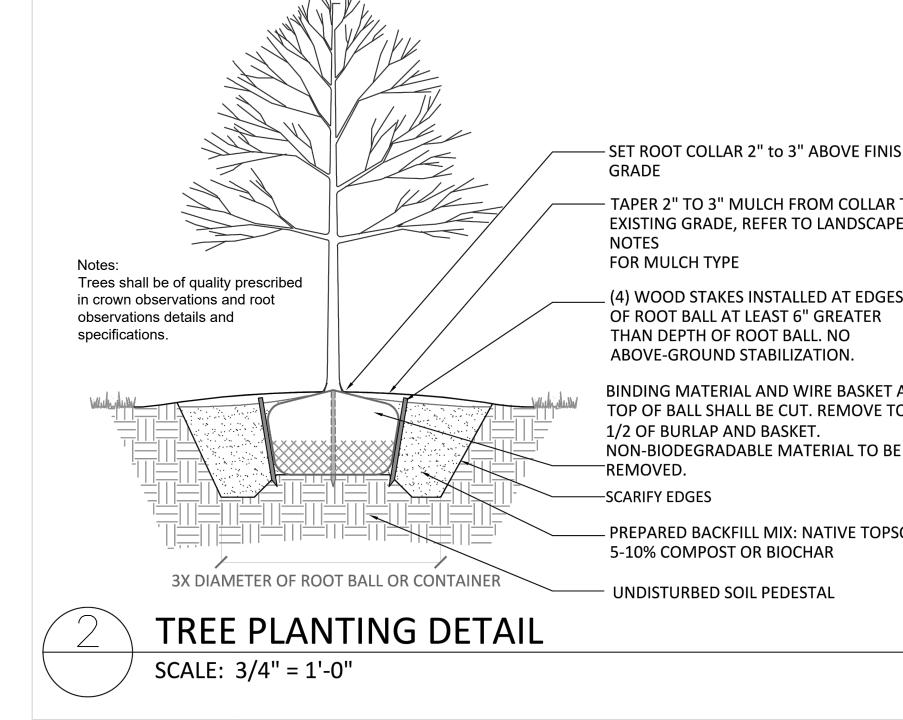
3. DESIGN PROFESSIONAL OR OWNER'S REPRESENTATIVE SHALL BE THE SOLE JUDGE OF THE QUALITY AND ACCEPTABILITY OF MATERIALS AND PLACEMENT.

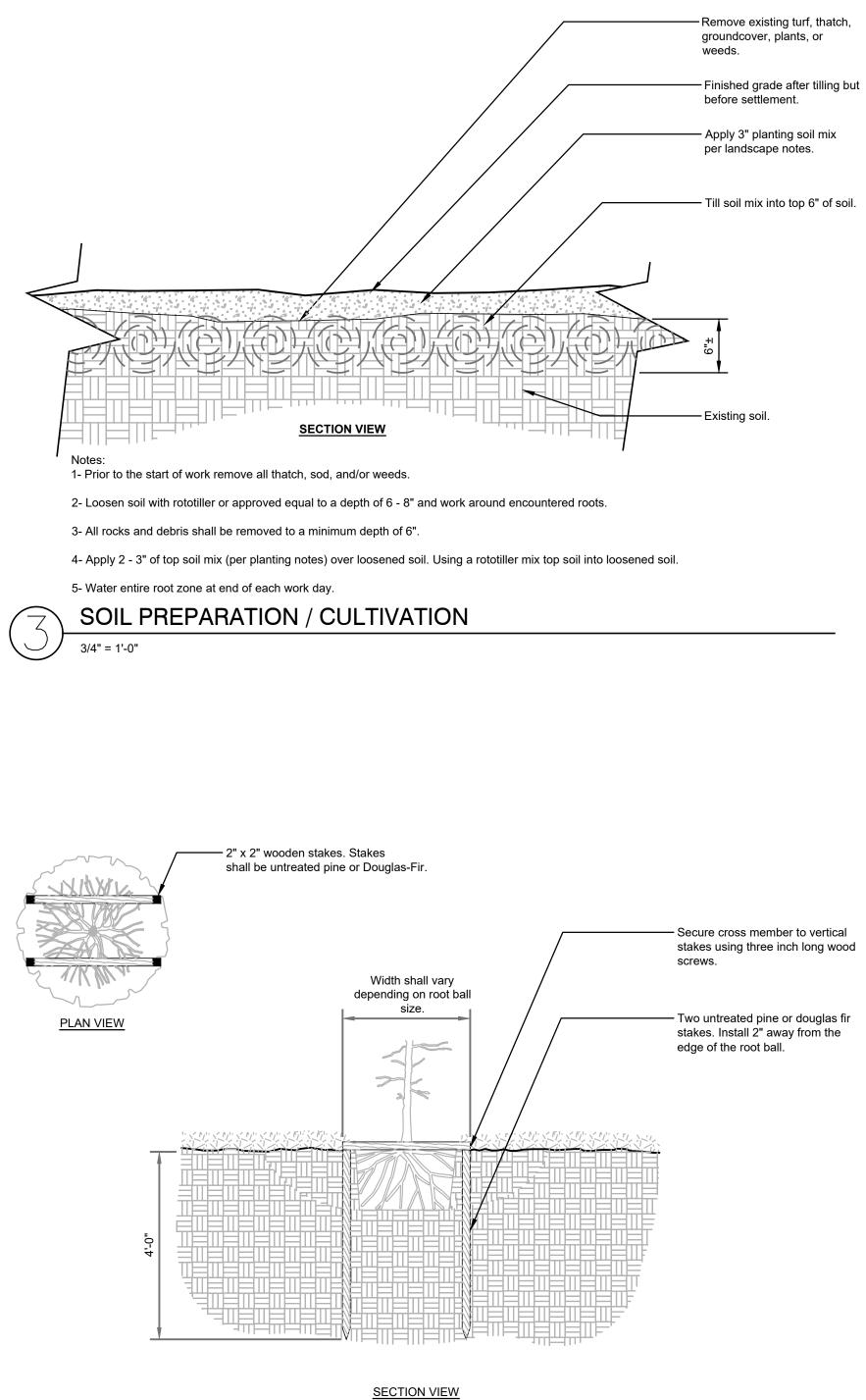
WARRANTY:

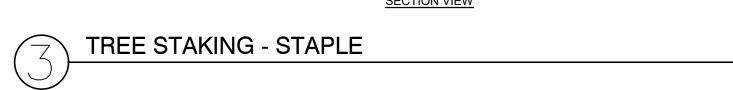
1. THE CONTRACTOR SHALL COMPLETELY WARRANTY ALL PLANT MATERIAL AS INDICATED IN THE SPECS, BEGINNING AT THE DATE OF SUBSTANTIAL COMPLETION. MAINTENANCE WORK SHALL BE PERFORMED UNTIL DATE OF FINAL ACCEPTANCE BY OWNER. THE CONTRACTOR SHALL PROMPTLY MAKE ALL REPLACEMENTS BEFORE OR AT THE END OF THE WARRANTY PERIOD (AS DIRECTED BY THE OWNER).

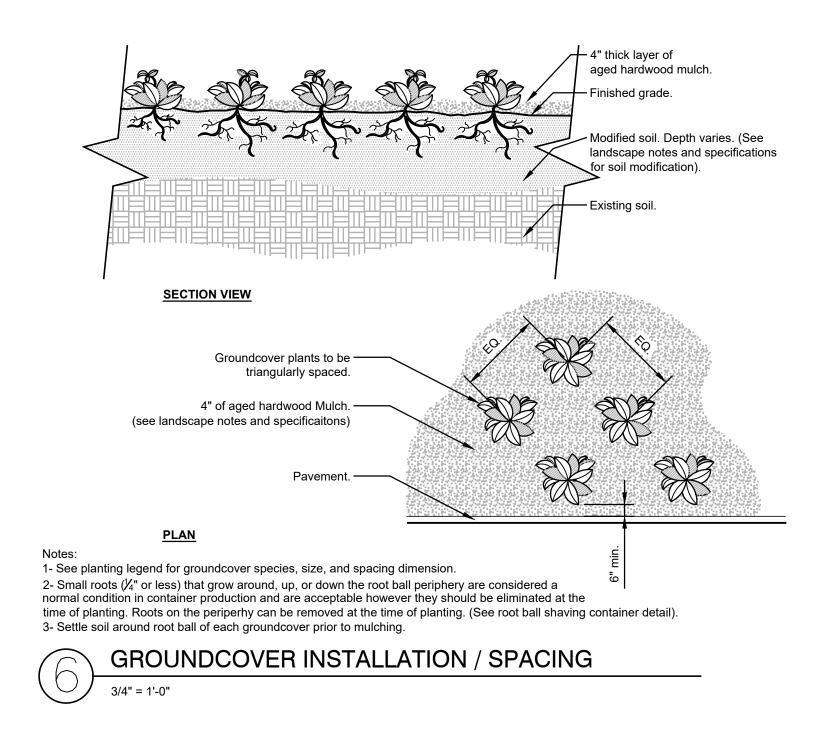
2. ANY PLANT MATERIAL WHICH DIES, TURNS BROWN OR DEFOLIATES (PRIOR TO DATE OF SUBSTANTIAL COMPLETION OF THE WORK) SHALL BE PROMPTLY REMOVED FROM THE SITE AND REPLACED WITH MATERIAL OF THE SAME SPECIES, QUANTITY, SIZE AND MEETING ALL THE PLANT LIST SPECIFICATIONS.

3. THE LANDSCAPE CONTRACTOR SHALL MAKE ALL NECESSARY REPAIRS TO GRADES, VEGETATIVE COVER AND PAVING REQUIRED BECAUSE OF PLANT REPLACEMENTS. SUCH REPAIRS SHALL BE DONE AT NO EXTRA COST TO THE OWNER.

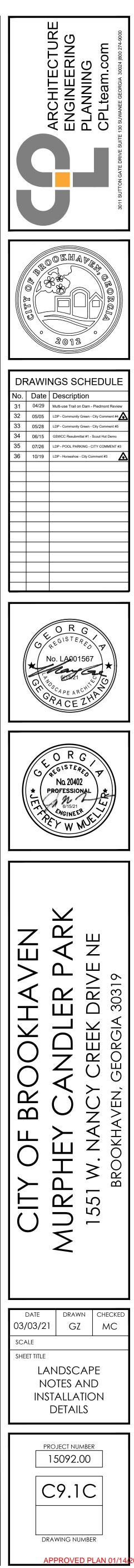








- SET ROOT COLLAR 2" to 3" ABOVE FINISHED
- TAPER 2" TO 3" MULCH FROM COLLAR TO EXISTING GRADE, REFER TO LANDSCAPE
- (4) WOOD STAKES INSTALLED AT EDGES OF ROOT BALL AT LEAST 6" GREATER
- BINDING MATERIAL AND WIRE BASKET AT TOP OF BALL SHALL BE CUT. REMOVE TOP
- PREPARED BACKFILL MIX: NATIVE TOPSOIL +



/4\

Γ	CHECKLIST # 1	THE PRIMARY PERMITTEE MUST RETAIN THE DESIGN
-	SEE SHEET 7.5B	PROFESSIONAL WHO PREPARED THE PLAN, EXCEPT WHEN THE PRIMARY PERMITTEE HAS REQUESTED IN WRITING AND EPD HAS
	CHECKLIST # 2	AGREED TO AN ALTERNATE DESIGN PROFESSIONAL, TO INSPECT THE INSTALLATION OF THE INITIAL SEDIMENT STORAGE
	JEFFREY W. MUELLER	REQUIREMENTS AND PERIMETER CONTROL BMPS WHICH THE DESIGN PROFESSIONAL DESIGNED WITHIN SEVEN (7) DAYS AFTER
	GSWCC LEVEL II CERT # 0000015136	INSTALLATION. THE DESIGN PROFESSIONAL SHALL DETERMINE IF THESE BMPS HAVE BEEN INSTALLED AND ARE BEING MAINTAINED
	<u>CHECKLIST # 3</u> NOT APPLICABLE - LIMITS OF DISTURBANCE < 50 ACRES	AS DESIGNED. THE DESIGN PROFESSIONAL SHALL REPORT THE RESULTS OF THE INSPECTION TO THE PRIMARY PERMITEE WITHIN SEVEN (7) DAYS AND THE REPMITTEE MUST CORRECT ALL
	CHECKLIST # 4	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
1	24 HOUR LOCAL CONTACT	UNLESS WEATHER RELATED SITE CONDITIONS ARE SUCH THAT ADDITIONAL TIME IS REQUIRED.
	LEE CROY - CITY OF BROOKHAVEN 4362 PEACHTREE ROAD	DESIGN PROFESSIONAL 7-DAY VISIT CERTIFICATION INSPECT THE INSTALLATION OF INITIAL SEDIMENT STORAGE
	BROOKHAVEN, GA 30319 LEE.CROY@BROOKHAVENGA.GOV	REQUIREMENTS AND PERIMETER CONTROL BMP'S WITHIN SEVEN (7) DAYS
÷.,	PH: (678) 576 9846	DATE OF INSPECTION
х.	CHECKLIST # 5	I CERTIFY THE SITE WAS IN COMPLIANCE WITH THE ES&PC PLAN
	CITY OF BROOKHAVEN 4362 PEACHTREE ROAD	ON THE DATE OF INSPECTION.
	BROOKHAVEN, GA 30319 PH: (404) 637-0513	GSWCC LEVEL II DESIGN PROFESSIONAL #
	CHRISTIAN.SIGMAN@BROOKHAVENGA.GOV	INSPECTION REVEALED THE FOLLOWING DISCREPANCIES FROM
18	CHECKLIST # 6 DISTURBED AREA PROJECT AREA	THE ES&PC PLAN.
{	HORSESHOE LOOP: 1.33 ACRES 1.68 ACRES COMMUNITY GREEN: 0.73 ACRES 0.73 ACRES NATURAL PLAY AREA: 0.43 ACRES 0.43 ACRES	
18	DAM MULTI-USE TRAIL: 0.44 ACRES 0.62 ACRES 0.64 ACRES SOUTH TRAIL: 0.64 ACRES 0.64 ACRES	
}	POOL PARKING: 0.90 ACRES 1.36 ACRES	THESE DOCUMENTS MUST BE ADDRESSED IMMEDIATELY AND A RE-INSPECTION SCHEDULED. WORK SHALL NOT PROCEED ON THE
}	TOTAL DISTURBED AREA: 4.47 ACRES	SITE UNTIL DESIGN PROFESSIONAL CERTIFICATION IS OBTAINED.
18	CHECKLIST # 7	CHECKLIST # 15
18	GPS COORDINATES	NON-EXEMPT ACTIVITIES SHALL NOT BE CONDUCTED WITHIN THE 25 OR 50 FOOT UNDISTURBED STREAM BUFFERS AS
18	HORSESHOE LOOP: 33.912886° N / -84.321489° W	MEASURED FROM THE POINT OF WRESTED VEGETATION OR WITHIN 25 FEET OF COASTAL MARSHLAND BUFFER AS MEASURED
}	COMMUNITY GREEN: 33.912886° N / -84.321489° W NATURAL PLAY AREA: 33.912975° N / -84.322414° W DAM MULTI-USE TRAIL: 33.909367° N / -84.322464° W	FROM JURISDICTIONAL DETERMINATION LINE WITHOUT FIRST ACQUIRING THE NECESSARY VARIANCES AND PERMITS.
}	SOUTH TRAIL: 33.907392° N / -84.321989° W POOL PARKING: 33.912222° N / -84.326839° W	(I). EXCEPT AS PROVIDED IN PART IV. (III). BELOW, NO CONSTRUCTION ACTIVITIES SHALL BE CONDUCTED WITHIN A 25
1	CHECKLIST # 8	FOOT BUFFER ALONG THE BANKS OF ALL STATE WATERS, AS MEASURED HORIZONTALLY FROM THE POINT WHERE VEGETATION
	REFERENCE TITLE BLOCK ALL SHEETS.	HAS BEEN WRESTED BY NORMAL STREAM FLOW OR WAVE ACTION, EXCEPT WHERE THE DIRECTOR HAS DETERMINED TO
10	<u>CHECKLIST # 9</u>	ALLOW A VARIANCE THAT IS AT LEAST AS PROTECTIVE OF NATURAL RESOURCES AND THE ENVIRONMENT IN ACCORDANCE
}	HORSESHOE LOOP: EXISTING GRAVEL PARKING ALONG CANDLER	WITH THE PROVISIONS OF O.C.G.A. 12-7-6, OR WHERE A DRAINAGE STRUCTURE OR A ROADWAY DRAINAGE STRUCTURE MUST BE
}	LAKE CIRCLE EAST TO BE IMPROVED FRESH GRAVEL SURFACE AND ADDITION OF NEW CURB AND GUTTER AND SIDEWALK.	CONSTRUCTED, PROVIDED THAT ADEQUATE EROSION CONTROL MEASURES ARE INCORPORATED IN THE PROJECT PLANS AND
1	EXISTING SURFACE OF HORSESHOE LOOP ROAD IS IN POOR CONDITION AND WILL UNDERGO FULL DEPTH RECLAMATION. ANGLED ON-STREET PARKING TO BE ADDED ALONG HORSESHOE	SPECIFICATIONS AND ARE IMPLEMENTED, OR ALONG ANY EPHEMERAL STREAM, OR WHERE BULKHEADS AND SEAWALLS
18	LOOP ROAD. CURRENT CONDITION OF ANGLED PARKING IS SPARSELY VEGETATED AND BARE SOIL WITH LEAF DEBRIS.	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
8	COMMUNITY GREEN: EXISTING SPARSELY WOODED AREA WITH	THAT ADEQUATE EROSION CONTROL MEASURES ARE INCORPORATED INTO THE PROJECT PLANS AND SPECIFICATIONS
15	LITTLE UNDERGROWTH AND MATURE TREE CANOPY WILL BE PARTIALLY CLEARED AND GRADED FOR CONSTRUCTION OF	ARE IMPLEMENTED:
}	STAGE WITH TERRACED GRASSED AREA. IMPROVEMENTS	(1) PUBLIC DRINKING WATER SYSTEM RESERVOIRS,2) STREAM CROSSINGS FOR WATER AND SEWER LINES,
1	WALLS.	PROVIDED THAT THE STREAM CROSSINGS OCCUR AT AN ANGLE, AS MEASURED FROM THE POINT OF CROSSING, WITHIN 25
18	NATURAL PLAN AREA: THE EXISTING PLAY AREAS ARE BEING RENOVATED WITH NEW ADA SIDEWALK ACCESS AND PLAY STRUCTURES AND GRADED PLAY AREAS. EXISTING CONDITIONS	DEGREES OF PERPENDICULAR TO THE STREAM AND CAUSE A WIDTH OF DISTURBANCE OF NOT MORE THAN 50 FEET WITHIN THE
8	ARE PLAYGROUND STRUCTURES ON MULCHED AREAS WITH AREAS WITH	BUFFER, AND NATIVE RIPARIAN VEGETATION IS RE-ESTABLISHED IN ANY BARE OR DISTURBED AREAS WITHIN THE BUFFER, (3) BUFFER CROSSING FOR FENCES, PROVIDED THAT THE
18	DAM MULTI-USE TRAIL: CURRENTLY A SMALL STRIP OF GRASS,	CROSSINGS OCCUR AT AN ANGLE, AS MEASURED FROM THE POINT OF CROSSING, WITHIN 25 DEGREES OF PERPENDICULAR TO
}	GUARDRAIL, AND SIDEWALK WITH A RIP-RAP TREATED SLOPE DOWN TO CANDLER LAKE EXISTS ON THE NORTH SIDE OF W	THE STREAM AND CAUSE A WIDTH OF DISTURBANCE OF NOT MORE THAN 50 FEET WITHIN THE BUFFER, AND NATIVE RIPARIAN
}	NANCY CREEK DRIVE. THE SIDEWALK WILL BE WIDENED AND INSTALLATION OF RETAINING WALL WILL BE REQUIRED. CANDLER	VEGETATION IS RE-ESTABLISHED IN ANY BARE OR DISTURBED AREAS WITHIN THE BUFFER, AND
1	LAKE WILL BE LOWERED 10FT DURING CONSTRUCTION EFFORTS.	(4) STREAM CROSSINGS FOR AERIAL UTILITY LINES, PROVIDED THAT: (A) THE NEW UTILITY LINE RIGHT-OF-WAY WIDTH DOES NOT
8	SOUTH TRAIL: EXISTING AREA IS AN UNDISTURBED, PARTIALLY WOODED AND NATURALLY VEGETATED AREA LYING BETWEEN A SPORTS COMPLEX AND NANCY CREEK. CONSTRUCTION OF	EXCEED 100 LINEAR FEET, (B) UTILITY LINES ARE ROUTED AND CONSTRUCTED SO AS TO MINIMIZE THE NUMBER OF STREAM
8	CONCRETE WALKWAY, BRIDGE AND ASSOCIATED STORMWATER	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.,
18	POOL PARKING: EXISTING CONDITIONS ARE AN ASPHALT PARKING	DISTURBANCE TO UNDERLYING VEGETATION IS MINIMIZED), AND (D) NATIVE RIPARIAN VEGETATION IS RE-ESTABLISHED IN ANY
}	LOT SERVING THE COMMUNITY POOL WITH STORMWATER SHEET	BARE OR DISTURBED AREAS WITHIN THE BUFFER. THE PLAN SHALL INCLUDE A DESCRIPTION OF THE STREAM CROSSINGS
1	NATURAL SLOPE TO CANDLER LAKE. A PORTION OF THE ASPHALT PARKING IS TO BE DEMOLISHED AND RECONSTRUCTED, STORM	WITH DETAILS OF THE BUFFER DISTURBANCE INCLUDING AREA AND LENGTH OF BUFFER DISTURBANCE, ESTIMATED LENGTH OF
18	WATER INFRASTRUCTURE AND WATER QUALITY WILL BE INTRODUCED ALONG WITH A SIDEWALK ADDITION ALONG	TIME OF BUFFER DISTURBANCE, AND JUSTIFICATION.
C	CANDLER LAKE WAY NE.	(II). NO CONSTRUCTION ACTIVITIES SHALL BE CONDUCTED WITHIN A 50 FOOT BUFFER, AS MEASURED HORIZONTALLY FROM
	REFERENCE SHEET 7.0B.	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
	CHECKLIST # 11	APPROVAL IS GRANTED BY THE DIRECTOR FOR ALTERNATE BUFFER REQUIREMENTS IN ACCORDANCE WITH THE PROVISIONS
	RECEIVING WATERS:	OF O.C.G.A. 12-7-6, OR WHERE A ROADWAY DRAINAGE STRUCTURE MUST BE CONSTRUCTED; PROVIDED, HOWEVER, THAT SMALL
	SOUTH TRAIL: NANCY CREEK, A WARM WATER, IMPAIRED STREAM	SPRINGS AND STREAMS CLASSIFIED AS 'TROUT STREAMS' WHICH DISCHARGE AN AVERAGE ANNUAL FLOW OF 25 GALLONS PER
ŝ	ALL OTHER PROJECT SITES: CANDLER LAKE TO NANCY CREEK.	MINUTE OR LESS SHALL HAVE A 25 FOOT BUFFER OR THEY MAY BE PIPED, AT THE DISCRETION OF THE PERMITTEE, PURSUANT TO
	CHECKLIST # 12	THE TERMS OF A RULE PROVIDING FOR A GENERAL VARIANCE PROMULGATED BY THE BOARD OF NATURAL RESOURCES
	SITE VISIT CERTIFICATION:	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
	I CERTIFY UNDER PENALTY OF LAW THAT THIS PLAN WAS PREPARED AFTER A SITE VISIT TO THE LOCATIONS DESCRIBED	PIPING AND PRESCRIBED METHODOLOGY FOR MINIMIZING THE IMPACT OF SUCH PIPING AND FOR MEASURING THE VOLUME OF WATER DISCHARGED BY THE STREAM. ANY SUCH PIPE MUST
	HEREIN BY MYSELF OR MY AUTHORIZED AGENT, UNDER MY SUPERVISION.	STOP SHORT OF THE DOWNSTREAM PERMITTEE'S PROPERTY, AND THE PERMITTEE MUST COMPLY WITH THE BUFFER
	an Astalas	REQUIREMENT FOR ANY ADJACENT TROUT STREAMS. THE BUFFER SHALL NOT APPLY TO THE FOLLOWING ACTIVITIES
	3/3/21 JEFFREY W. MUELLER, P.E.	PROVIDED THAT ADEQUATE EROSION CONTROL MEASURES ARE INCORPORATED INTO THE PROJECT PLANS AND SPECIFICATIONS
	CHECKLIST # 13	ARE IMPLEMENTED:
	CERTIFICATION:	 (1) PUBLIC DRINKING WATER SYSTEM RESERVOIRS, (2) STREAM CROSSINGS FOR WATER AND SEWER LINES,
. 20	"I CERTIFY THAT THE PERMITTEE'S EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN PROVIDES FOR AN APPROPRIATE	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
	AND COMPREHENSIVE SYSTEM OF BEST MANAGEMENT PRACTICES REQUIRED BY THE GEORGIA WATER QUALITY	WIDTH OF DISTURBANCE OF NOT MORE THAN 50 FEET WITHIN THE BUFFER, AND NATIVE RIPARIAN VEGETATION IS RE-ESTABLISHED
	CONTROL ACT AND THE DOCUMENT "MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA, (MANUAL)" PUBLISHED BY THE	IN ANY BARE OR DISTURBED AREAS WITHIN THE BUFFER, (3) BUFFER CROSSING FOR FENCES, PROVIDED THAT THE
	GEORGIA SOIL AND WATER CONSERVATION COMMISSION AS OF JANUARY 1 OF THE YEAR IN WHICH THE LAND-DISTURBING	CROSSINGS OCCUR AT AN ANGLE, AS MEASURED FROM THE POINT OF CROSSING, WITHIN 25 DEGREES OF PERPENDICULAR TO
	ACTIVITY WAS PERMITTED, PROVIDES FOR THE SAMPLING OF THE RECEIVING WATER(S) OR THE SAMPLING OF THE STORM WATER OUTFALL(S) AND THAT THE DESIGNED SYSTEM OF BEST	THE STREAM AND CAUSE A WIDTH OF DISTURBANCE OF NOT MORE THAN 50 FEET WITHIN THE BUFFER, AND NATIVE RIPARIAN
	OUTFALL(S) AND THAT THE DESIGNED SYSTEM OF BEST MANAGEMENT PRACTICES AND SAMPLING METHODS IS EXPECTED TO MEET THE REQUIREMENTS CONTAINED IN THE GENERAL	VEGETATION IS RE-ESTABLISHED IN ANY BARE OR DISTURBED AREAS WITHIN THE BUFFER,
8	NPDES PERMIT NO. GAR 100003."	(4) STREAM CROSSINGS FOR AERIAL UTILITY LINES, PROVIDED THAT: (A) THE NEW UTILITY LINE RIGHT-OF-WAY WIDTH DOES NOT
	an 1-3/3/21	EXCEED 100 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
	FREY W. MUELLER, P.E.	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.,
	CHECKLIST # 14	DISTURBANCE TO UNDERLYING VEGETATION IS MINIMIZED), AND (D) NATIVE RIPARIAN VEGETATION IS RE-ESTABLISHED IN ANY
	THE DESIGN PROFESSIONAL WHO PREPARED THE ES&PC PLAN IS TO INSPECT THE INSTALLATION OF THE INITIAL SEDIMENT	BARE OR DISTURBED AREAS WITHIN THE BUFFER. THE PLAN SHALL INCLUDE A DESCRIPTION OF THE
	STORAGE REQUIREMENTS AND PERIMETER CONTROL BMP'S WITH IN 7 DAYS AFTER INSTALLATION.	STREAM CROSSINGS WITH DETAILS OF THE BUFFER DISTURBANCE INCLUDING AREA AND LENGTH OF BUFFER
		DISTURBANCE, ESTIMATED LENGTH OF TIME OF BUFFER DISTURBANCE, AND JUSTIFICATION.
	ULUMUHOIL	2016 SURVEY & 2019 UPDATED TREE SURVEY TERRAMARK LAND SURVEYING, INC.
	Utilities Protection Center, Inc.	1396 BELLS FERRY ROAD MARIETTA, GEORGIA 30066
	1-800-282-7411	PHONE NO. (770) 421-1927 THE WRESTED VEGETATION FAX. NO. (770) 421-0552 AND 893 CONTOUR WERE

RVEY & 2019 UPDATED TREE SURVEY NOTE: THE WRESTED VEGETATION AND 893 CONTOUR WERE SURVEYED IN BY TERRAMARK ON FEB. 4,

ALLOCATED

CHECKLIST # 18

CHECKLIST # 19

ACTIVITIES.

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 THE NPDES PERMIT. P. CONDUCT SOIL TESTS TO IDENTIFY AND TO IMPLEMENT SITE-SPECIFIC FERTILIZER NEEDS.

FOR READY MIX CHUTE/HOPPER WASH-DOWN".

K LAND SURVEYING, INC. LS FERRY ROAD GEORGIA 30066). (770) 421-1927 (770) 421-0552 WWW.TERRAMARK.COM C. O. A.# LSF000810

Know what's below. Call before you dig.

CHECKLIST # 16

SOUTH TRAIL: THE PROPOSED PROJECT WILL RESULT IN APPROXIMATELY 140 LINEAR FEET TOTAL (2.325 S.F. TOTAL) OF BUFFER IMPACTS ALONG NANCY CREEK IN BROOKHAVEN. A VARIANCE HAS BEEN OBTAINED FROM GEORGIA EPD AND MITIGATION CREDITS FOR THE BUFFER IMPACTS HAVE BEEN

DAM MULTI-USE TRAIL: A LETTER OF NO PERMIT REQUIRED HAS BEEN ISSUED BY A THIRD PARTY ENVIRONMENTAL REVIEWER FOR IMPROVEMENTS ALONG THE DAM NO ACOE PERMIT REQUIRED BUFFER ENCROACHMENTS ARE

PROPOSED FOR HORSESHOE LOOP, COMMUNITY GREEN, NATURAL PLAY AREA, DAM MULTI-USE TRAIL, OR POOL PARKING PHASES.

CHECKLIST # 17

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.

WASTE MATERIALS SHALL NOT BE DISCHARGED TO WATERS OF THE STATE, EXCEPT AS AUTHORIZED BY A SECTION 404 PERMIT.

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

CHECKLIST # 20

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. CHECKLIST # 2

ANY DISTURBED AREA LEFT EXPOSED FOR A PERIOD GREATER THAN 14 DAYS SHALL BE STABILIZED WITH MULCH OR TEMPORARY SEEDING

CHECKLIST # 22

THE APPLICABLE PORTION OF THE PRIMARY PERMITTEES ES&PC PLAN IS TO BE PROVIDED TO EACH SECONDARY PERMITTEE PRIOR TO THE SECONDARY CONDUCTING ANY CONSTRUCTION ACTIVITY AND THAT EACH SECONDARY SHALL SIGN THE PLAN OR PORTION OF THE PLAN APPLICABLE TO THEIR SITE. LIST OF THE NAMES AND ADDRESSES OF ALL SECONDARY PERMITTEE SHALL BE COMPLETED ON SHEET C7.0B.

CHECKLIST # 23

THE SITE IS WITHIN 1 MILE OF AN IMPAIRED STREAM.

THE FOLLOWING "CHECKED" ADDITIONAL ERO BMP'S ARE TO BE USED PER PART III, C, IF THE STATEMENT ABOVE IDENTIFIES ANY IMPAIRED STREAMS WITHIN 1 MILE OF THE PROJECT SITE:

D. A LARGE SIGN (MIN. 4 FEET X 8 FEET) MUST BE POSTED ON THE SITE BY THE ACTUAL START DATE OF CONSTRUCTION. THE SIGN MUST BE VISIBLE FROM A PUBLIC ROADWAY. THE SIGN MUST IDENTIFY THE FOLLOWING: (1) CONSTRUCTION SITE, (2) THE PERMITTEE(S), (3) THE CONTACT PERSON(S) AND TELEPHONE NUMBER(S), AND (4) THE PERMITTEE HOSTED WEBSITE WHERE THE PLAN CAN BE VIEWED MUST BE PROVIDED ON THE SUBMITTED NOI. THE SIGN MUST REMAIN ON SITE AND THE PLAN MUST BE AVAILABLE ON THE PROVIDED WEBSITE UNTIL A UNTIL A N.O.T. HAS BEEN SUBMITTED.

U. CONDUCT INSPECTIONS DURING THE INTERMEDIATE GRADING AND DRAINAGE BMP PHASE AND DURING THE FINAL **BMP PHASE OF THE PROJECT BY THE DESIGN PROFESSIONAL** WHO PREPARED THE PLAN IN ACCORDANCE WITH SECTION IV.A.G OF THE PERMIT.

CHECKLIST # 24

THE TMDL PLAN FOR THE NANCY CREEK WATERSHED HAS BEEN CREATED. THE CITY OF BROOKHAVEN HAS PREPARED AND IMPLEMENTED THE NANCY CREEK WATERSHED IMPROVEMENT PLAN WITH THE GOAL OF REDUCING FECAL COLIFORM LEVELS AND SEDIMENT LOADING. THIS PROJECT WILL INCLUDE THE RESTORATION OF STREAM BUFFERS BY LIMITING THE AMOUNT OF TURFGRASS INSTALLED AND RE-INTRODUCING NATIVE VEGETATION IN THE RIPARIAN BUFFER. ADDITIONAL PROJECTS ARE PLANNED AS PART OF THE NANCY CREEK WATERSHED IMPROVEMENT PLAN TO INTRODUCE BIORETENTION AREAS, ENHANCED SWALES AND OTHER GREEN BMPS.

CHECKLIST # 25

TRUCK WASH-DOWN FACILITY

USE FOR THE CONCRETE WASHDOWN OF TOOLS, CONCRETE MIXER CHUTES, HOPPERS, AND REAR OF VEHICLES. WASHOUT OF THE DRUM AT THE CONSTRUCTION SITE IS PROHIBITED THE CONTRACTOR SHALL EXCAVATE A PIT OUTSIDE OF STATE WATER BUFFERS, AT LEAST 25 FEET FROM ANY STORM DRAIN AND OUTSIDE OF THE TRAVEL WAY, INCLUDING SHOULDERS, FOR A WASH/PIT AREA. THE PIT SHALL BE LARGE ENOUGH TO STORE ALL WASH-DOWN WATER WITHOUT OVERTOPPING THE PIT. IMMEDIATELY AFTER THE WASH-DOWN OPERATIONS ARE COMPLETED AND AFTER THE WASH-DOWN WATER HAS SOAKED INTO THE GROUND, THE PIT SHALL BE FILLED IN, AND THE

GROUND ABOVE SHALL BE GRADED TO MATCH THE ELEVATION OF

THE SURROUNDING AREAS SMOOTHED OUT. ALTERNATE WASH DOWN PLANS MUST BE APPROVED BY THE PROJECT ENGINEER. WASH-DOWN PLANS DESCRIBE PROCEDURES THAT PREVENT WASH DOWN WATER FROM ENTERING STREAMS AND RIVERS. NEVER DISPOSE OF WASH-DOWN WATER DOWN A STORM DRAIN. ESTABLISH A WASH-DOWN WATER PIT LOCATION THAT INCLUDES THE FOLLOWING: (1) THE PIT IS LOCATED AWAY FROM A STORM DRAIN, STREAM OR RIVER, (2) THE PIT IS ACCESSIBLE TO THE VEHICLE BEING USED FOR WASH-DOWN. (3) THE PIT HAS ENOUGH VOLUME FOR WASH-DOWN WATER, AND (4) MAKE SURE YOU HAVE PERMISSION TO USE THE AREA FOR WASH-DOWN. ON SOME SITES, YOU MAY NOT HAVE PERMISSION OR ACCESS TO A LOCATION WHICH ALLOWS FOR A WASH-DOWN PIT. IN THOSE CASES, THE CONTRACTOR MAY HAVE TO WASH-DOWN INTO A WHEELBARROW OR OTHER CONTAINER AND CARRY THE CONTAINER FOR TRANSPORT TO A PROPER DISPOSAL SITE. FOR ADDITIONAL INFORMATION, REFER TO THE GEORGIA SMALL BUSINESS ENVIRONMENTAL ASSISTANCE PROGRAM'S "A GUIDE

CHECKLIST # 26

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 1-800-424-8802 and 1-202-426-2675.

FOR SPILLS OF AN UNKNOWN AMOUNT, THE NATIONAL RESPONSE CENTER (NRC) WILL BE CONTACTED WITHIN 24 HOURS AT 1-800-424-8802 and 1-202-426-2675. FOR SPILLS GREATER THAN 25 GALLONS AND NO SURFACE WATER IMPACTS OCCUR, THE GEORGIA EPD 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 EQUIP.) 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 CHECKLIST #27

CONTRACTOR IS REQUIRED TO COVER ALL BUILDING MATERIALS AND BUILDING PRODUCTS ON SITE WITH HEAVY GAUGE PLASTIC TARPS AT ALL TIMES WHEN NOT IN USE. CONTRACTOR SHALL LIMIT AMOUNT OF BUILDING MATERIALS AND BUILDING PRODUCTS TO THE MINIMAL AMOUNT NECESSARY FOR EACH PHASE OF CONSTRUCTION.

CHECKLIST # 28

IORSESHOE LOOP: THE INCREASE OF IMPERVIOUS SURFACES IS UNDER 5,000 S.F. CANDLER LAKE WILL CONTINUE TO PROVIDE WATER QUALITY BMP FOR THIS AREA. COMMUNITY GREEN: THE INCREASE OF IMPERVIOUS SURFACES

IS UNDER 5,000 S.F. CANDLER LAKE WILL CONTINUE TO PROVIDE WATER QUALITY BMP FOR THIS AREA. NATURAL PLAY AREA: THE INCREASE OF IMPERVIOUS SURFACES S UNDER 5,000 S.F. CANDLER LAKE WILL CONTINUE TO PROVIDE

WATER QUALITY BMP FOR THIS AREA. DAM MULTI-USE TRAIL: THE INCREASE OF IMPERVIOUS SURFACES IS UNDER 5,000 S.F. CANDLER LAKE WILL CONTINUE TO PROVIDE WATER QUALITY BMP FOR THIS AREA. SOUTH TRAIL: A 15 FT WIDE FILTER STRIP WILL PROVIDE WATER

QUALITY IN ACCORDANCE WITH TABLE 49.2.1-1 FROM THE GSWMM. POOL PARKING: PROPRIETARY WATER QUALITY UNIT TO PROVIDE 83% TSS REMOVAL AS POINT SOURCE TREATMENT.

CHECKLIST # 29

PRACTICES TO BE USED TO REDUCE POLLUTANTS IN STORM WATER DISCHARGE:

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 ON-SITE VEHICLE 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 DISCHARGED 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.

CHECKLIST # 30

SEE SHEET 7.0B FOR ACTIVITIES SCHEDULE

CHECKLIST # 3

INSPECTIONS

A. PRIMARY PERMITTEE

(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; (B) ALL LOCATIONS AT THE PRIMARY PERMITEE'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 AND RECORD RAINFALL WITHIN DISTURBED AREAS OF THE SITE THAT HAVE NOT MET FINAL STABILIZATION ONCE EVERY 24 HOURS EXCEPT ANY NON-WORKING SATURDAY, NON-WORKING SUNDAY AND NON-WORKING FEDERAL HOLIDAY. THE DATA COLLECTED FOR THE PURPOSE OF COMPLIANCE WITH THIS PERMIT SHALL BE REPRESENTATIVE OF THE MONITORED ACTIVITY. 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 SEVEN (7) 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 HAS BEEN SUBMITTED) 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 PERMIT.

CHECKLIST # 32

D. SAMPLING FREQUENCY.

MINUTES OR AS SOON AS POSSIBLE.

(2). HOWEVER, WHERE MANUAL AND AUTOMATIC SAMPLING ARE IMPOSSIBLE (AS DEFINED IN THIS PERMIT), OR ARE BEYOND THE PERMITTEE'S CONTROL, THE PERMITTEE SHALL TAKE SAMPLES AS SOON AS POSSIBLE, BUT IN NO CASE MORE THAN TWELVE (12) HOURS AFTER THE BEGINNING OF THE STORMWATER DISCHARGE

(3). SAMPLING BY THE PERMITTEE SHALL OCCUR FOR THE FOLLOWING EVENTS:

(A). FOR EACH AREA OF THE SITE THAT DISCHARGES TO A RECEIVING WATER OR FROM AN OUTFALL, THE FIRST RAIN EVENT THAT REACHES OR EXCEEDS 0.5 INCH WITH A STORMWATER DISCHARGE THAT OCCURS DURING NORMAL BUSINESS HOURS AS DEFINED IN THIS PERMIT AFTER ALL CLEARING AND GRUBBING OPERATIONS HAVE BEEN COMPLETED, BUT PRIOR TO COMPLETION OF MASS GRADING OPERATIONS, IN THE DRAINAGE AREA OF THE LOCATION SELECTED AS THE SAMPLING LOCATION;

(B). IN ADDITION TO (A) ABOVE, FOR EACH AREA OF THE SITE THAT DISCHARGES TO A RECEIVING WATER OR FROM AN OUTFALL, THE FIRST RAIN EVENT THAT REACHES OR EXCEEDS 0.5 INCH WITH A STORMWATER DISCHARGE THAT OCCURS DURING NORMAL BUSINESS HOURS AS DEFINED IN THIS PERMIT EITHER 90 DAYS AFTER THE FIRST SAMPLING EVENT OR AFTER ALL MASS GRADING OPERATIONS HAVE BEEN COMPLETED, BUT PRIOR TO SUBMITTAL OF A NOT. IN THE DRAINAGE AREA OF THE LOCATION SELECTED AS THE SAMPLING LOCATION, WHICHEVER COMES FIRST

(C). AT THE TIME OF SAMPLING PERFORMED PURSUANT TO (A) AND (B) ABOVE, IF BMPs IN ANY AREA OF THE SITE THAT DISCHARGES TO A RECEIVING WATER OR FROM AN OUTFALL ARE NOT PROPERLY DESIGNED, INSTALLED AND MAINTAINED. CORRECTIVE ACTION SHALL BE DEFINED AND IMPLEMENTED WITHIN TWO (2) BUSINESS DAYS, AND TURBIDITY SAMPLES SHALL BE TAKEN FROM DISCHARGES FROM THAT AREA OF THE SITE FOR EACH SUBSEQUENT RAIN EVENT THAT REACHES OR EXCEEDS 0.5 INCH DURING NORMAL BUSINESS HOURS* UNTIL THE SELECTED TURBIDITY STANDARD IS ATTAINED, OR UNTIL POST-STORM EVENT INSPECTIONS DETERMINE THAT BMPs ARE PROPERLY DESIGNED, INSTALLED AND MAINTAINED;

(D). WHERE SAMPLING PURSUANT TO (A), (B) OR (C) ABOVE IS REQUIRED BUT NOT POSSIBLE (OR NOT REQUIRED BECAUSE THERE WAS NO DISCHARGE), THE PERMITTEE, IN ACCORDANCE WITH PART IV .D.4.A.(6), MUST INCLUDE A WRITTEN JUSTIFICATION IN THE INSPECTION REPORT OF WHY SAMPLING WAS NOT PERFORMED. PROVIDING THIS JUSTIFICATION DOES NOT RELIEVE THE PERMITTEE OF ANY SUBSEQUENT SAMPLING OBLIGATIONS UNDER (A), (B), OR (C) ABOVE; AND

(E). EXISTING CONSTRUCTION ACTIVITIES, I.E., THOSE THAT ARE OCCURRING ON OR BEFORE THE EFFECTIVE DATE OF THIS PERMIT, THAT HAVE MET THE SAMPLING REQUIRED BY (A) ABOVE SHALL SAMPLE IN ACCORDANCE WITH (B). THOSE EXISTING CONSTRUCTION ACTIVITIES THAT HAVE MET THE SAMPLING REQUIRED BY (B) ABOVE SHALL NOT BE REQUIRED TO CONDUCT ADDITIONAL SAMPLING OTHER THAN AS REQUIRED BY (C) ABOVE

*NOTE THAT THE PERMITTEE MAY CHOOSE TO MEET THE REQUIREMENTS OF (A) AND (B) ABOVE BY COLLECTING TURBIDITY SAMPLES FROM ANY RAIN EVENT THAT REACHES OR EXCEEDS 0.5 INCH AND ALLOWS FOR SAMPLING AT ANY TIME OF THE DAY OR WEEK.

E. REPORTING.

1. THE APPLICABLE PERMITTEES ARE REQUIRED TO SUBMIT THE SAMPLING RESULTS TO THE EPD AT THE ADDRESS SHOWN IN PART II.C. BY THE FIFTEENTH DAY OF THE MONTH FOLLOWING THE REPORTING PERIOD. REPORTING PERIODS ARE MONTHS DURING WHICH SAMPLES ARE TAKEN IN ACCORDANCE WITH THIS PERMIT. SAMPLING RESULTS SHALL BE IN A CLEARLY LEGIBLE FORMAT. UPON WRITTEN NOTIFICATION, EPD MAY REQUIRE THE APPLICABLE PERMITTEE TO SUBMIT THE SAMPLING RESULTS ON A MORE FREQUENT BASIS. SAMPLING AND ANALYSIS OF ANY STORMWATER DISCHARGE(S) OR THE RECEIVING WATER(S) BEYOND THE MINIMUM FREQUENCY STATED IN THIS PERMIT MUST BE REPORTED IN A SIMILAR MANNER TO THE EPD. THE SAMPLING REPORTS MUST BE SIGNED IN ACCORDANCE WITH PART V.G.2. SAMPLING REPORTS MUST BE SUBMITTED TO EPD USING THE ELECTRONIC SUBMITTAL SERVICE PROVIDED BY EPD. SAMPLING REPORTS MUST BE SUBMITTED TO EPD UNTIL SUCH TIME AS A NOT IS SUBMITTED IN ACCORDANCE WITH PART VI.

INFORMATION. A. THE RAINFALL AMOUNT, DATE, EXACT PLACE AND TIME OF SAMPLING OR MEASUREMENTS; B. THE NAME(S) OF THE CERTIFIED PERSONNEL WHO PERFORMED THE SAMPLING AND MEASUREMENTS; C. THE DATE(S) ANALYSES WERE PERFORMED; D. THE TIME(S) ANALYSES WERE INITIATED; E. THE NAME(S) OF THE CERTIFIED PERSONNEL WHO PERFORMED THE ANALYSES;

F. REFERENCES AND WRITTEN PROCEDURES, WHEN AVAILABLE, ETC., USED TO DETERMINE THESE RESULTS; "EXCEEDS 1000 NTU;" AND . CERTIFICATION STATEMENT THAT SAMPLING WAS CONDUCTED PER THE PLAN.

CHECKLIST # 33

F. RETENTION OF RECORDS.

1. THE PRIMARY PERMITTEE SHALL RETAIN THE FOLLOWING RECORDS AT THE CONSTRUCTION SITE OR THE RECORDS SHALL BE READILY AVAILABLE AT A DESIGNATED ALTERNATE LOCATION FROM COMMENCEMENT OF CONSTRUCTION UNTIL SUCH TIME AS A NOT IS SUBMITTED IN ACCORDANCE WITH PART VI:

CONTROL PLAN REQUIRED BY THIS PERMIT:

THE INSPECTION CONDUCTED IN ACCORDANCE WITH PART IV.A.5. OF THIS PERMIT:

NAME(S) OF 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 SITE 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 CERTIFICATION THAT THE BEST MANAGEMENT PRACTICES ARE IN COMPLIANCE WITH THE EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN AND THIS PERMIT. THE REPORT SHALL BE SIGNED IN ACCORDANCE WITH PART V.G.2. OF THIS

(1). THE PRIMARY PERMITTEE MUST SAMPLE IN ACCORDANCE WITH THE PLAN AT LEAST ONCE FOR EACH RAINFALL EVENT DESCRIBED BELOW. FOR A QUALIFYING EVENT, THE PERMITTEE SHALL SAMPLE AT THE BEGINNING OF ANY STORMWATER DISCHARGE TO A MONITORED RECEIVING WATER AND/OR FROM A MONITORED OUTFALL LOCATION WITHIN IN FORTY-FIVE (45)

2. ALL SAMPLING REPORTS SHALL INCLUDE THE FOLLOWING

FOR THE ANALYTICAL TECHNIQUES OR METHODS USED: G. THE RESULTS OF SUCH ANALYSES, INCLUDING THE BENCH SHEETS, INSTRUMENT READOUTS, COMPUTER DISKS OR TAPES, H. RESULTS WHICH EXCEED 1000 NTU SHALL BE REPORTED AS

3. ALL WRITTEN CORRESPONDENCE REQUIRED BY THIS PERMIT SHALL BE SUBMITTED BY RETURN RECEIPT CERTIFIED MAIL (OR SIMILAR SERVICE) TO THE APPROPRIATE DISTRICT OFFICE OF THE EPD ACCORDING TO THE SCHEDULE IN APPENDIX A OF THIS PERMIT. 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 THE DESIGNATED LOCATION FROM COMMENCEMENT OF CONSTRUCTION UNTIL SUCH TIME AS A NOT IS SUBMITTED IN ACCORDANCE WITH PART

A. A COPY OF ALL NOTICES OF INTENT SUBMITTED TO EPD: B. A COPY OF THE EROSION, SEDIMENTATION AND POLLUTION C. THE DESIGN PROFESSIONAL'S REPORT OF THE RESULTS OF

D. A COPY OF ALL SAMPLING INFORMATION, RESULTS, AND

REPORTS REQUIRED BY THIS PERMIT:

WITH PART IV.D.4.A.(2). OF THIS PERMIT.

E. A COPY OF ALL INSPECTION REPORTS GENERATED IN ACCORDANCE WITH PART IV.D.4.A. OF THIS PERMIT; F. A COPY OF ALL VIOLATION SUMMARIES AND VIOLATION SUMMARY REPORTS GENERATED IN ACCORDANCE WITH PART III.D.2. OF THIS PERMIT; AND G. DAILY RAINFALL INFORMATION COLLECTED IN ACCORDANCE

2. COPIES OF ALL NOTICES OF INTENT, NOTICES OF TERMINATION, INSPECTION REPORTS, SAMPLING REPORTS (INCLUDING ALL CALIBRATION AND MAINTENANCE RECORDS AND ALL ORIGINAL STRIP CHART RECORDINGS FOR CONTINUOUS MONITORING INSTRUMENTATION) OR OTHER REPORTS REQUESTED BY THE EPD, EROSION, SEDIMENTATION AND POLLUTION CONTROL PLANS, RECORDS OF ALL DATA USED TO COMPLETE THE NOTICE OF INTENT TO BE COVERED BY THIS PERMIT AND ALL OTHER RECORDS REQUIRED BY THIS PERMIT SHALL BE RETAINED BY THE PERMITTEE WHO EITHER PRODUCED OR USED IT FOR A PERIOD OF AT LEAST THREE YEARS FROM THE DATE THAT THE NOT IS SUBMITTED IN ACCORDANCE WITH PART VI OF THIS PERMIT. THESE RECORDS MUST BE MAINTAINED AT THE PERMITTEE'S PRIMARY PLACE OF BUSINESS OR AT A DESIGNATED ALTERNATIVE LOCATION ONCE THE CONSTRUCTION ACTIVITY HAS CEASED AT THE PERMITTED SITE. THIS PERIOD MAY BE EXTENDED BY REQUEST OF THE EPD AT ANY TIME UPON WRITTEN NOTIFICATION TO THE PERMITTEE.

CHECKLIST # 34

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.
- 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.

CHECKLIST # 35

REFERENCE PLAN CHECKLIST ON 7.0B FOR DIRECTION. MAXIMUM ALLOWABLE INCREASE 25 NTU.

CHECKLIST # 36

REFERENCE PLAN CHECKLIST AND MAP ON 7.0C FOR DIRECTION. CHECKLIST # 37

NARRATIVE OF EROSION/SEDIMENT CONTROL PRACTICES:

INITIAL PHASE: SITE PREPARATION.

THIS STAGE RELATES TO ALL ACTIVITIES PRIOR TO CONSTRUCTION ACTIVITIES AND SHALL BE COMPLETED INTO THREE SUB-STAGES, ACCORDING TO THE FOLLOWING ORDER:

A. INSTALLATION OF TEMPORARY SILT FENCES, FILTER SOCKS, AND INLET PROTECTION AS SHOWN ON PLANS. SILT FENCES SHALL SPECIALLY BE USED AS PREVENTIVE FILTERS TO PROTECT EXISTING PONDS, LAKES AND STREAMS. THEY MUST BE APPLIED UPSTREAM OF PONDS/LAKES AND DOWNSTREAM OF CONSTRUCTION.

B. ACCESS STABILIZATION: CONSTRUCTION EXITS SHALL PROVIDE STABLE ACCESS TO SITES. THEY MUST BE CHECKED DAILY AND REPAIRED AS NEEDED. THEY MUST BE REMOVED AFTER CONSTRUCTION AND RESTORED TO PRE-EXISTING CONDITIONS.

C . CLEARING AND GRUBBING OPERATIONS: DURING THIS SUB-STAGE, ALL EXPOSED AREAS MUST BE COVERED WITH TEMPORARY MULCH. THE MULCH SHALL BE APPLIED TO ALL EXPOSED AREAS WITHIN FOURTEEN DAYS OF DISTURBANCE AND THEY WILL BE MAINTAINED SO THAT AT LEAST NINETY PERCENT OF THE SOIL SURFACE IS COVERED. THE MATERIALS WILL BE APPLIED UNIFORMLY AND ANCHORED IMMEDIATELY AFTER APPLICATION. MULCH CAN BE USED AS A SINGLE EROSION CONTROL DEVICE FOR UP TO SIX MONTHS. TEMPORARY SEEDING, AN ALTERNATIVE TO MULCH, CAN BE USED ON ROUGH GRADED AREAS THAT WILL BE EXPOSED FOR LESS THAN SIX MONTHS. IF THE AREA IS EXPECTED TO BE UNDISTURBED FOR LONGER THAN SIX MONTHS, PERMANENT VEGETATIVE COVER SHALL BE USED. TEMPORARY SEEDING SHALL BE APPLIED TO ALL EXPOSED AREAS WITHIN FOURTEEN DAYS OF DISTURBANCE. PLANT SPECIES THAT WILL GERMINATE QUICKLY AND PROVIDE AMPLE PROTECTIVE COVER FOR THAT AREA AND SEASON OF THE YEAR SHALL BE SELECTED. IN MOST CASES, TEMPORARY VEGETATION CAN BE ESTABLISHED WITHOUT MULCH EXCEPT ON STEEP SLOPES AND IN CONCENTRATED FLOW AREAS. SEEDING MUST BE APPLIED ACCORDING TO THE PURE LIVE SEED (PLS) RATES.

INTERMEDIATE PHASE: INTERMEDIATE AND FINAL CONSTRUCTION ACTIVITIES.

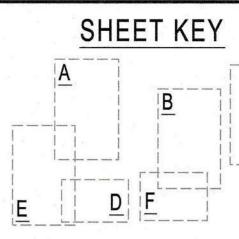
DURING THIS STAGE, GRADING OPERATIONS TAKE PLACE. APPROVED TEMPORARY AND PERMANENT VEGETATIVE AND STRUCTURAL BMPS MUST BE APPLIED AS SHOWN ON PLANS. ON AREAS WHERE TEMPORARY VEGETATIVE BMPS HAVE TO BE APPLIED, ALL BMPS MENTIONED FOR CLEARING AND GRUBBING SHALL APPLY. PERMANENT VEGETATIVE BMPS (SODDING, MATTING AND BLANKETS) MUST BE LAID AND ANCHORED APPROPRIATELY (START AT TOP OF SLOPE AND WORK DOWN)

PERMANENT VEGETATIVE BMPS SHALL BE APPLIED IMMEDIATELY TO ROUGH GRADED AREAS THAT WILL BE UNDISTURBED FOR LONGER THAN SIX MONTHS. THIS PRACTICE OR SODDING SHALL ALSO BE APPLIED IMMEDIATELY TO ALL AREAS AT FINAL GRADE. LOW MAINTENANCE AND NATIVE PLANT SPECIES APPROPRIATE FOR THE REGION SHALL BE PLANTED, ESTABLISHED, AND MAINTAINED SO THAT AT LEAST SEVENTY PERCENT OF THE SOIL IS COVERED WITH PERENNIAL VEGETATION FOR LONG-TERM EROSION CONTROL, FOR ADEQUATE PLANT GROWTH, THE SOIL MUST HAVE PROPER PH AND AMPLE PLANT FOOD. SUITABLE AND ANCHORED MULCH IS REQUIRED FOR ALL SITES PLANTED WITH PERMANENT VEGETATION, EXCEPT WHERE EROSION CONTROL BLANKETS OR BLACK SOD ARE USED. ALL INSTALLED MATS AND BLANKETS MUST BE INSPECTED PERIODICALLY AFTER STORM EVENTS UNTIL THE AREAS BECOME PERMANENTLY STABILIZED WITH VEGETATION. ANY DISLOCATION OR FAILURE SHALL BE REPAIRED IMMEDIATELY.

THE TEMPORARY AND PERMANENT STRUCTURAL BMPS ARE SHOWN ON PLANS. TO PROVIDE EROSION CONTROL AT POINT OF CONCENTRATED FLOW AND HIGH FLOW VELOCITIES, ROCK FILTER DAM AND STONE DUMPED RIP RAP SHALL BE USED.

SEDIMENT BARRIER MUST BE INSTALLED ALONG CONTOURS WITH ENDS POINTING UPHILL EXCEPT IN WATERWAYS OR AREAS OF CONCENTRATED FLOW, TEMPORARY SEDIMENT BARRIER MUST BE PLACED AROUND STORM DRAIN INLETS THAT RECEIVE RUNOFF FROM DISTURB AREAS EXCEPT WHERE VEHICULAR TRAFFIC WILL BE AFFECTED.

CHECK-DAMS (OR DITCH-CHECKS) MUST BE PLACED IN SMALL OPEN CHANNELS (DITCH), NOT IN LIVE STREAMS, SEED AND MULCH AREA BENEATH THE CHECK-DAM AFTER ITS REMOVAL. STORM DRAIN OUTLET PROTECTION, SHALL BE PLACED AT THE DOWNDRAIN OUTLET. PERMANENT DOWNDRAIN STRUCTURES



CONSTRUCTED OF CONCRETE, PIPE, PRE-FABRICATED SECTIONAL CONDUIT OR OTHER ADEQUATE MATERIALS APPROVED BY GDOT STANDARDS AND SPECS.

FINAL PHASE:

ALL PERMANENT, POST-CONSTRUCTION BMPS ARE SHOWN IN THE CONSTRUCTION PLANS AND IN THE ESPCP PLAN. THE POST-CONSTRUCTION BMPS FOR THIS PROJECT INCLUDE GRASSING, RIP-RAP AT PIPE OUTLETS FOR VELOCITY DISSIPATION AND OUTLET STABILIZATION. THE POST-CONSTRUCTION BMPS WILL PROVIDE PERMANENT STABILIZATION OF THE SITE AND PREVENT ACCELERATED TRANSPORTATION OF SEDIMENT AND POLLUTANTS INTO RECEIVING WATERS.

SEDIMENT SHALL NOT BE WASHED INTO INLETS. IT SHALL BE REMOVED FROM THE SEDIMENT TRAPS AND DISPOSED OF AND STABILIZED SO THAT IT WILL NOT ENTER THE INLETS AGAIN. MULCH OR TEMPORARY GRASSING SHALL BE APPLIED TO ALL EXPOSED AREAS WITHIN FOURTEEN DAYS OF LAND DISTURBANCE. ALL DISTURBED AREAS LEFT MULCHED AFTER THIRTY DAYS SHALL BE STABILIZED WITH PERMANENT GRASSING.

THE CONTRACTOR SHALL MAINTAIN ALL EROSION CONTROL MEASURES UNTIL PERMANENT GROUND COVER IS ESTABLISHED.

ALL SIDEWALK SHOULDERS SHOULD BE GRASSED AS SOON AS FINAL GRADE IS ACHIEVED BEHIND CURBS.

SEDIMENT AND EROSION CONTROL MEASURES SHOULD BE CHECKED AFTER EACH RAIN EVENT. EACH DEVICE IS TO BE MAINTAINED OR REPLACED IF SEDIMENT ACCUMULATION HAS REACHED ONE HALF THE CAPACITY OF THE DEVICE.

ADDITIONAL DEVICES MUST BE INSTALLED IF NEW CHANNELS HAVE DEVELOPED.

EROSION CONTROL MEASURES MUST 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 AS DIRECTED BY THE ONSITE INSPECTOR OR THE DESIGN PROFESSIONAL.

CHECKLIST # 38

REFERENCE ALL PLAN SHEETS

CHECKLIST # 39

REFERENCE ALL PLAN SHEETS.

CHECKLIST # 40

REFERENCE ALL PLAN SHEETS.

CHECKLIST # 41

NO ALTERNATIVE BMP WILL BE USED.

CHECKLIST # 42

NO ALTERNATIVE BMP WILL BE USED.

CHECKLIST # 43

SEE PLAN SHEETS FOR BUFFERS.

CHECKLIST # 44

ALL WETLANDS ARE DELINEATED ON THE PLAN SHEETS.

CHECKLIST # 45

SEE HYDROLOGY STUDY.

CHECKLIST # 46

SEE HYDROLOGY STUDY

CHECKLIST # 47 PRE-DEVELOPED: 10,499.8 CFS

POST-DEVELOPED: 10,500.8 CFS

CHECKLIST # 48

SEE ST CHART ON EACH PLAN SHEET WHICH HAS THE STORM DRAIN OUTLET PROTECTION LOCATIONS, DISCHARGES & VELOCITIES.

CHECKLIST # 49

SEE SOIL SERIES CHART SHEET 7.0B

CHECKLIST # 50

SEE EACH PLAN SHEET FOR LIMITS OF DISTURBANCE

CHECKLIST # 51

SEDIMENT STORAGE WILL BE ACCOMPLISHED THROUGH THE USE OF EXCAVATED INLET TRAPS, DOUBLE ROW SILT FENCE, AND TEMPORARY SEDIMENT TRAPS. SEDIMENT TRAPS HAVE BEEN DESIGNED TO PROVIDE 67 CUBIC YARDS PER DISTURBED AREA.

CHECKLIST # 52

REFERENCE ALL PLAN SHEETS CHECKLIST # 53

REFERENCE DETAIL SHEETS

CHECKLIST # 54

REFERENCE ALL PLAN SHEETS

CONSERVATION COMMISSION MAR 18 2021 APPROVE ## 7960

24-HR EMERGENCY CONTACT: LEE CROY CITY OF BROOKHAVEN 4362 PEACHTREE ROAD BROOKHAVEN, GA 30319 CELL: (678) 576 9846

3/5/2021

Projects (CIty of

Brookhaven) R-Josh



Jeffrey W Mueller Level II Certified Design Professional

EXTRACATION NUMBER 0000015136 **BENED:** 08/18/2018 **BENED:** 08/18/2021



	EROSION, SEDIMENTATION & POLLUTION CONTROL PLAN CHECKLIST COMMON DEVELOPMENT CONSTRUCTION PROJECTS (Primary and Tertiary Permittees)	7.0A Y	17 Clearly note the BMPs with a h
Project Name:	SWCD: MURPHY CANDLER PARK Address:	7.0A Y	18 Clearly note th
	BROOKHAVEN, DEKALB Date on Plans: 02/04/2021		authorized by
	of person filling out checklist: Jeff Hueler JHueler@CkarkPatterson.com	7.0A Y	19 Clearly note s
Plan Include	ed		erosion and s
Page # Y/N	TO BE SHOWN ON ES&PC PLAN	7.0A Y	20 Clearly note s
7.0B Y	1 The applicable Erosion, Sedimentation and Pollution Control Plan Checklist established by the Commission as		approved Plan
	of January 1 of the year in which the land-disturbing activity was permitted.		measures sh
	(The completed Checklist must be submitted with the ES&PC Plan or the Plan will not be reviewed)	7.0A Y	21 Clearly note th
ALL	2 Level II certification number issued by the Commission, signature and seal of the certified design professional.		stabilized with
	(Signature, seal and Level II number must be on each sheet pertaining to ES&PC Plan or the Plan will not be reviewed)	7.0A Y	22 Indication that secondary pe
7.0A Y	3 Limit of disturbance shall be no greater than 50 acres at any one time without prior written authorization from		shall sign the
	the EPD District Office. If EPD approves the request to disturb 50 acres or more at any one time, the Plan		permittees. *
	must include at least 4 of the BMPs listed in Appendix 1 of this checklist. *	7.0A Y	23 Any construct
	(A copy of the written approval by EPD must be attached to the Plan for the Plan to be reviewed.)		mile upstrear
7.0A Y	4 The name and phone number of the 24-hour local contact responsible for erosion, sedimentation and pollution controls.		comply with F
7.0A Y	5 Provide the name, address, email address, and phone number of the primary permittee or tertiary permittee.		those areas of
7.0A Y	6 Note total and disturbed acreage of the project or phase under construction.	7.0A Y	24 If a TMDL Imp
7.0A Y	7 Provide the GPS location of the construction exit for the site. Give the Latitude and Longitude in decimal		Item 23 above conditions or
	degrees.		25 BMPs for con
7.0A Y	8 Initial date of the Plan and the dates of any revisions made to the Plan including the entity who requested the	7.0A Y	of the drum a
	revisions.		26 Provide BMPs
7.0A Y	9 Description of the nature of construction activity.	7.0A Y	27 Description of
7.08 Y	10 Provide vicinity map showing site's relation to surrounding areas. Include designation of specific phase, if	7.0A Y	AND THE REAL PROPERTY AND ADDRESS OF A DECK
	necessary.	7.0A Y	28 Description of
7.0A Y	11 Identify the project receiving waters and describe all sensitive adjacent areas including streams, lakes,		water that wil
·	residential areas, wetlands, marshlands, etc. which may be affected.	7.0A Y	29 Description of
7.0A Y	12 Design professional's certification statement and signature that the site was visited prior to development of the	7.0B Y	30 Description ar
-	ES&PC Plan as stated on Part IV page 23 of the permit.		portions of the excavation and
7.0A Y	13 Design professional's certification statement and signature that the permittee's ES&PC Plan provides for an	7.0A Y	31 Provide comp
	appropriate and comprehensive system of BMPs and sampling to meet permit requirements as stated on Part IV pg 22 of the permit.	7.0A Y	permittee.
7.0A Y	14 Clearly note the statement that "The design professional who prepared the ES&PC Plan is to inspect the installation of the	7.0A Y	32 Provide comp
	initial sediment storage requirements and perimeter control BMPs within 7 days after installation."	7.0A Y	33 Provide comp
	in accordance with Part IV.A.5 page 27 of the permit. *		34 Description of
7.0A Y	15 Clearly note the statement that "Non-exempt activities shall not be conducted within the 25 or 50-foot undisturbed	personal design of the second design of	
كلما للنتغذ	stream buffers as measured from the point of wrested vegetation or within 25-feet of the coastal marshland buffer	7.08 Y	35 Appendix B ra
	as measured from the Jurisdictional Determination Line without first acquiring the necessary variances	7.0C Y	36 Delineate all s
	and permits."		which storm w
7.0A Y	16 Provide a description of any buffer encroachments and indicate whether a buffer variance is required.	7.0A Y	37 A description
			 initial sedir BMPs, and (3)
			perimeter cont

		APPENDIX 1 THE ES&PC PLAN MUST INCLUDE AT LEAST FOUR (4) OF THE FOLLOWING BMPS FOR THOSE AREAS OF
		THE SITE WHICH DISCHARGE TO A IMPAIRED STREAM SEGMENT AND FOR SITES WHICH EPD HAS
		APPROVED IN WRITING A REQUEST TO DISTURB 50 ACRES OR MORE AT ANY ONE TIME.
		The four items chosen must be appropriate for the site conditions.
Plan	Included	The four terms chosen must be appropriate for the site contaitons.
age #	Y/N	
age #		a. During construction activities, double the width of the 25 foot undisturbed vegetated buffer along all
	L	2. During construction activities, double the width of the 25 loot 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.
		 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.
.50	Y	 d. A large sign (minimum 4 feet x 8 feet) must be posted on site by the actual start date of construction. The sign must be visible from a public roadway. The sign must identify the following: (1) construction site, (2) the permittee(s), (3) the contact person(s) and telephone number(s), and (4) the permittee-hosted website where the Plan can be viewed must be provided on the submitted NOI. The sign must remain on site and the Plan must be available on the provided website until a NOT has been submitted.
		e. Use flocculants or coagulants and/or mulch to stabilize areas left disturbed for more than seven (7) calendar days in accordance with Section III. D.1. of the NPDES Permit.
5C	Y	f. Conduct turbidity sampling after every rain event of 0.5 inch or greater within any 24 hour period, recognizing the exceptions specified in Section IV.D.6.d. of the NPDES Permits.
		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 to model and manage construction storm water runoff (including sheet flow). All calculations must be included on the Plan. (https://epd.georgia.gov/erosion-and-sedimentation)
		k. Add appropriate organic soil amendments (e.g., compost) and conduct pre- and post-construction soil sampling to a depth of six (6) inches to document improved levels of soil carbon after final stabilization of the construction site.
		 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. Use appropriate erosion control slope stabilization instead of concrete in all construction storm water ditches and storm drainages designed for a 25 year, 24 hour rainfall event.
		n. Use flocculants or coagulants under a passive dosing method (e.g., flocculant blocks) within construction storm water ditches and storm drainages that feed into temporary sediment basins and retrofitted management basins.
		 Install sod for a minimum 20 foot width (in lieu of seeding) after final grade has been achieved, along the site perimeter wherever storm water (including sheet flow) may be discharged.

1 THE FOLLOWING BMPS FOR THOSE AREAS OF M SEGMENT AND FOR SITES WHICH EPD HAS 50 ACRES OR MORE AT ANY ONE TIME.			q.	Certified personnel fr calendar days and w accordance with Sec and tertiary permitter
itions.			ſ.	Apply the appropriate vegetation is established
the 25 foot undisturbed vegetated buffer along all disturbed vegetated buffer along all State waters uring construction activities, EPD will not grant in width.			S.	Use alternative BMP BMPs as certified by Water Conservation document found at w
fitted storm water management basins to provide cubic yards) per acre drained.			t.	Limit the total planne mandated buffer are
retrofitted storm water management basins to at the outlet structure.		7.5C	Y u.	Conduct inspections BMP phase of the pr
osted on site by the actual start date of lic roadway. The sign must identify the following: contact person(s) and telephone number(s), and can be viewed must be provided on the submitted nust be available on the provided website until a			v.	Section IV.A.5 of the The Plan must include a conduct inspections durin
abilize areas left disturbed for more than seven (7) . of the NPDES Permit.				the Georgia Stormwa stringent design mar
of 0.5 inch or greater within any 24 hour period, /.D.6.d. of the NPDES Permits.				* This requirement is diffe Certified personnel for pri
ffluent limit, without the "BMP defense" as				(7) calendar days and wit greater in accordance wit
than 50% impervious surfaces (excluding any ons). All calculations must be included on the Plan.				
e to no greater than 25 acres or 50% of the total nust be included on the Plan.				
osite to model and manage construction storm s must be included on the Plan. on)				
compost) and conduct pre- and post-construction nent improved levels of soil carbon after final				
on the site perimeter wherever construction storm Mulch filter berms cannot be placed in waterways				
n instead of concrete in all construction storm				

APPRO	XIN	<u>IAT</u>	ΈA	ACT	IVIT	Y :	SCH	IED	ULI	Ε		
ANTICIPATED START DATE: FIL ANTICIPATED COMPLETION DATI		RY 20		1								
					N. 16	WE	EK					
DESCRIPTION	1	2	3	4	5	6	7	8	9	10	11	12
SEDIMENT CONTROL-TIME PROTECTION		1111		-								
INSTALL INITIAL EROSION CONTROL BUPS		╡┼┼┼										
DEMOLITION												
CLEVRING & GRUBBING												
GRADENC												
APPLICATION OF TEMPORARY GRASSING												
STORM												
final padage												
MAINT. OF EROSION CONTROL DEMOES												
APPLICATION OF PERMANENT GRABBING												
FINAL LANDSCAPING												
Disposition of sediment devices												
		IIII										



2016 SURVEY & 2019 UPDATED TREE SURVEY TERRAMARK LAND SURVEYING, INC. 1396 BELLS FERRY ROAD MARIETTA, GEORGIA 30066 PHONE NO. (770) 421-1927 FAX. NO. (770) 421-0552 WWW.TERRAMARK.COM C. O. A.# LSF000810

NOTE: THE WRESTED VEGETATION AND 893 CONTOUR WERE SURVEYED IN BY TERRAMARK ON FEB. 4, 2021

see pla 38 Plan addresses BMPs for all phases of common development including individual building lots and out-parcels, t that "Amendments/revisions to the ES&PC Plan which have a significant effect on mponent must be certified by the design professional. etc. regardless of who owns or operates the individual sites. Include a typical and any situational lots applicable. t that "Waste materials shall not be discharged to waters of the State, except as ₽₽ 04 permit." 39 Graphic scale and North arrow. t "The escape of sediment from the site shall be prevented by the installation of 40 Existing and proposed contour lines with contour lines drawn at an interval in accordance with the following: trol measures and practices prior to land disturbing activities." Map Scale Ground Slope Contour Intervals, ft. 1 inch = 100ft or at "Erosion control measures will be maintained at all times. If full implementation of the Flat 0 - 2% 0.5 or 1 Rolling 2 - 8% 1 or 2 rovide for effective erosion control, additional erosion and sediment control larger scale 2,5 or 10 Steep 8% + nented to control or treat the sediment source." 1 Use of alternative BMPs whose performance has been documented to be equivalent to or superior to t "Any disturbed area left exposed for a period greater than 14 days shall be conventional BMPs as certified by a Design Professional (unless disapproved by EPD or the Georgia Soil mporary seeding." and Water Conservation Commission). Please refer to the Alternative BMP Guidance Document found at ble portion of the primary permittees ES&PC Plan is to be provided to each www.gaswcc.org. to the secondary conducting any construction activity and that each secondary N/A 42 Use of alternative BMP for application to the Equivalent BMP List. Please refer to Appendix A-2 of the Manual ion of the Plan applicable to their site. List the names and addresses of all secondary for Erosion & Sediment Control in Georgia 2016 Edition. 43 Delineation of the applicable 25-foot or 50-foot undisturbed buffers adjacent to State waters and any additional which discharges storm water into an Impaired Stream Segment, or within 1 linear buffers required by the Local Issuing Authority. Clearly note and delineate all areas of impact. in the same watershed as any portion of an Biota Impaired Stream Segment, must the permit. Include the completed Appendix 1 listing all the BMPs that will be used for 44 Delineation of on-site wetlands and all State waters located on and within 200 feet of the project site. nich discharge to the Impaired Stream Segment. * 45 Delineation and acreage of contributing drainage basins on the project site. see hy Plan for sediment has been finalized for the Impaired Stream Segment (identified in 46 Provide hydrology study and maps of drainage basins for both the pre- and post-developed conditions. * months prior to submittal of NOI, the ES&PC Plan must address any site-specific 47 An estimate of the runoff coefficient or peak discharge flow of the site prior to and after construction activities are ts included in the TMDL Implementation Plan. * completed. * own of tools, concrete mixer chutes, hoppers and the rear of the vehicles. Washout see plan 48 Storm-drain pipe and weir velocities with appropriate outlet protection to accommodate discharges without uction site is prohibited. sheets erosion. Identify/Delineate all storm water discharge points. ediation of all petroleum spills and leaks. **7.0B** Y 49 Soil series for the project site and their delineation. provide cover for building materials and building products on site. * Y 50 The limits of disturbance for each phase of construction. see plan es that will be installed during the construction process to control pollutants in storm 51 Provide a minimum of 67 cubic yards of sediment storage per acre drained using a temporary sediment basin, construction operations have been completed. retrofitted detention pond, and/or excavated inlet sediment traps for each common drainage location. Sediment s that will be used to reduce the pollutants in storm water discharges. storage volume must be in place prior to and during all land disturbance activities until final stabilization of the meline of the intended sequence of major activities which disturb soils for the major site has been achieved. A written justification explaining the decision to use equivalent controls when a itial perimeter and sediment storage BMPs, clearing and grubbing activities, sediment basin is not attainable must be included in the Plan for each common drainage location in which a y activities, temporary and final stabilization). 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 nents of inspections and record keeping by the primary permittee or tertiary 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 nents of sampling frequency and reporting of sampling results. * withdraw water from the surface, unless infeasible. If outlet structures that withdraw water from the surface are

or retention of records as per Part IV.F. of the permit. nethods to be used to collect and analyze the samples from each location. * ITU values at all outfall sampling points where applicable. *

ations if applicable, perennial and intermittent streams and other water bodies into arged. * te controls and measures that will be implemented at the construction site including:

e requirements and perimeter control BMPs, (2) intermediate grading and drainage s. For construction sites where there will be no mass grading and the initial ntermediate grading and drainage BMPs, and final BMPs are the same, the Plan may combine all of the BMPs into a single phase.

> el for primary permittees shall conduct inspections at least twice every seven (7) d within 24 hours of the end of the storm that is 0.5 inches rainfall or greater in Section IV.D.4.a.(3)(a) - (c); secondary permittees, Section IV.D.4.b.(3)(a) - (c); ittees Section IV.D.4.c.(3)(a) - (c) *

> priate compost blankets (minimum depth 1.5 inches) to protect soil surfaces until blished during the final stabilization phase of the construction activity.

IPs whose performance has been documented to be superior to conventiona by a Design Professional (unless disapproved by EPD or the Georgia Soil and on Commission). (If using this item please refer to the Alternative BMP guidance t www.gaswcc.georgia.gov)

nned site disturbance to less than 15% impervious surfaces (excluding any state areas from such calculations). All calculations must be included in the Plan.

s during the intermediate grading and drainage BMP phase and during the final project by the design professional who prepared the Plan in accordance with statement that the primary permittee must retain the design professional who prepared the Plan to g the intermediate grading and drainage BMP phase and during the final BMP phase. uction BMPs (e.g., runoff reduction BMPs) which remove 80% TSS as outlined in

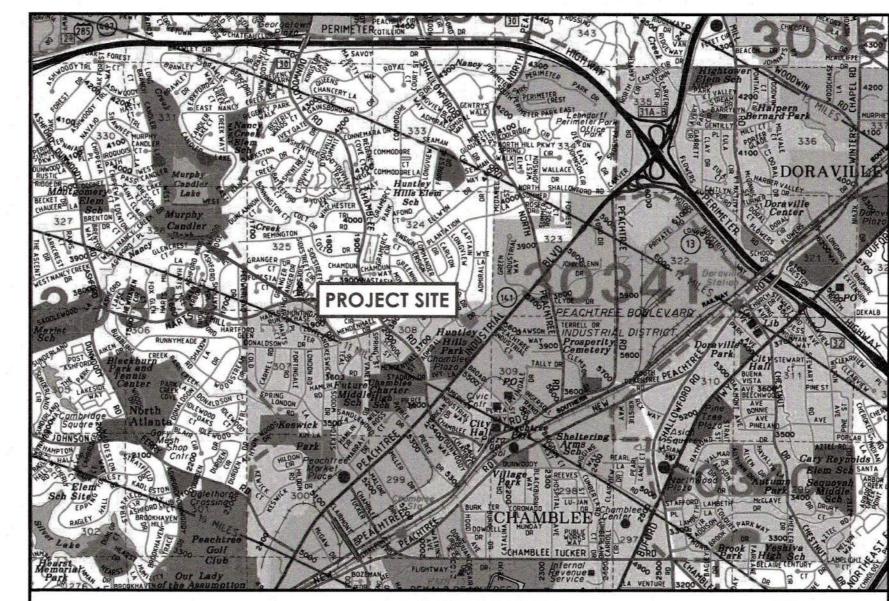
water Management Manual known as the Blue Book or an equivalent or more Effective January 1, 2020 different for infrastructure projects:

primary permittees shall conduct inspections at least once every seven within 24 hours of the end of the storm that is 0.5 inches rainfall or with Section IV.D.4.a.(3)(a) - (c) of the permit.

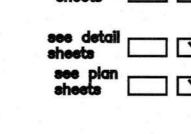
- Y 52 Location of Best Management Practices that are consistent with, and no less stringent than, the Manual for Erosion and Sediment Control in Georgia. Use uniform coding symbols from the Manual, Chapter 6, with leaend. 53 Provide detailed drawings for all structural practices. Specifications must, at a minimum, meet the guidelines set forth in the Manual for Erosion and Sediment Control in Georgia. 54 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

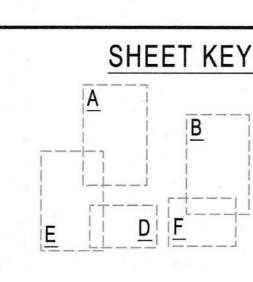
not feasible, a written justification explaining this decision must be included in the Plan.

of year that seeding will take place and for the appropriate geographic region of Georgia. * This requirement of the Common Development permit is not applicable to Tertiary Permittees with a Plan(s) for a typical individual lot(s), if the total land disturbance within the construction site is less than five (5) acres and the total land disturbance within each individual lot is less than one (1) acre. If applicable, the * checklist item would be N/A. Effective January 1, 2020



VICINITY MAP NOT TO SCALE







Hydrologic Soil Group

Totals for Area of Interest

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
CeC	Cecil sandy loam, 6 to 10 percent slopes	В	1.0	1.0%
CuC	Cecil-Urban land complex, 2 to 10 percent slopes	В	2.2	2.0%
MdE	Madison sandy loam, 15 to 30 percent slopes	В	0.6	0.6%
PfD	Pacolet sandy loam, 10 to 15 percent slopes	В	15.3	14.3%
PfE	Pacolet sandy loam, 15 to 30 percent slopes	В	4.7	4.4%
PuE	Pacolet-Urban land complex, 10 to 25 percent slopes	В	21.3	19.9%
Tf	Toccoa sandy loam, 0 to 2 percent slopes, frequently flooded	A	6.3	5.9%
Ud	Urban land		25.0	23.3%
W	Water		20.0	18.6%
Wf	Wehadkee silt loam, frequently flooded	B/D	10.8	10.0%

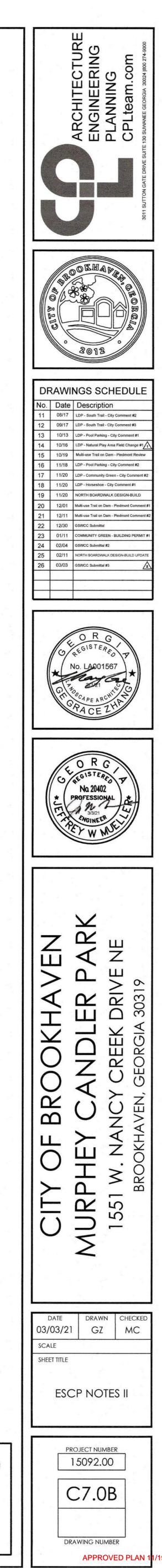
24-HR EMERGENCY CONTACT: LEE CROY CITY OF BROOKHAVEN 4362 PEACHTREE ROAD BROOKHAVEN, GA 30319 CELL: (678) 576 9846



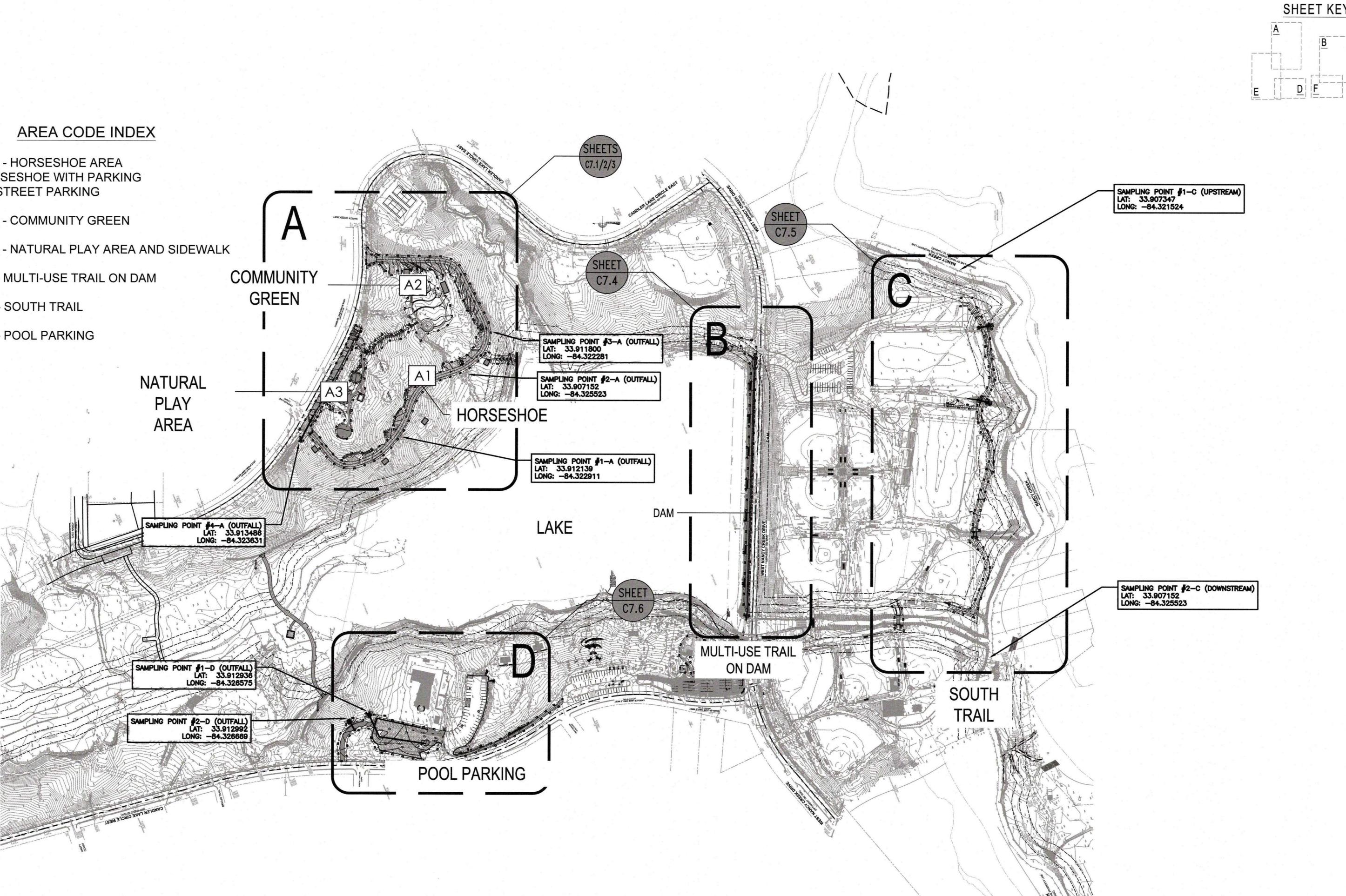
100.0%

107.3





- 1. AREA A1 HORSESHOE AREA HORSESHOE WITH PARKING ON STREET PARKING
- 2. AREA A2 COMMUNITY GREEN
- 3. AREA A3 NATURAL PLAY AREA AND SIDEWALK
- 4. AREA B MULTI-USE TRAIL ON DAM
- 5. AREA C SOUTH TRAIL
- 6. AREA D POOL PARKING



MONITORING CHART:

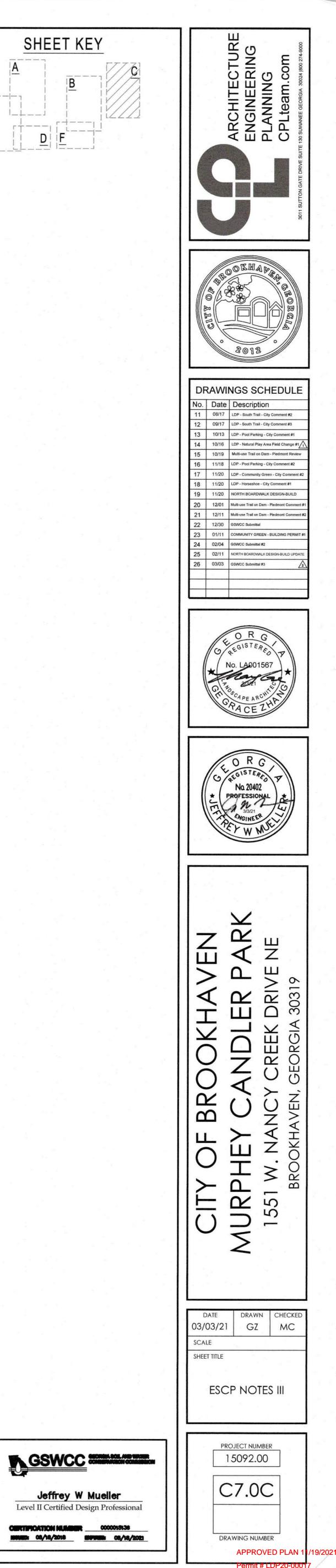
Conduct Turbidity and Total Suspended Solids (TSS) Sampling after every rain event of 0.5 inches or greater within any 24 hour period, recognizing the exceptions specified in Part M.D.6.d of the NPDES Permit GAR 100001. Representative Sampling is not used on this project.

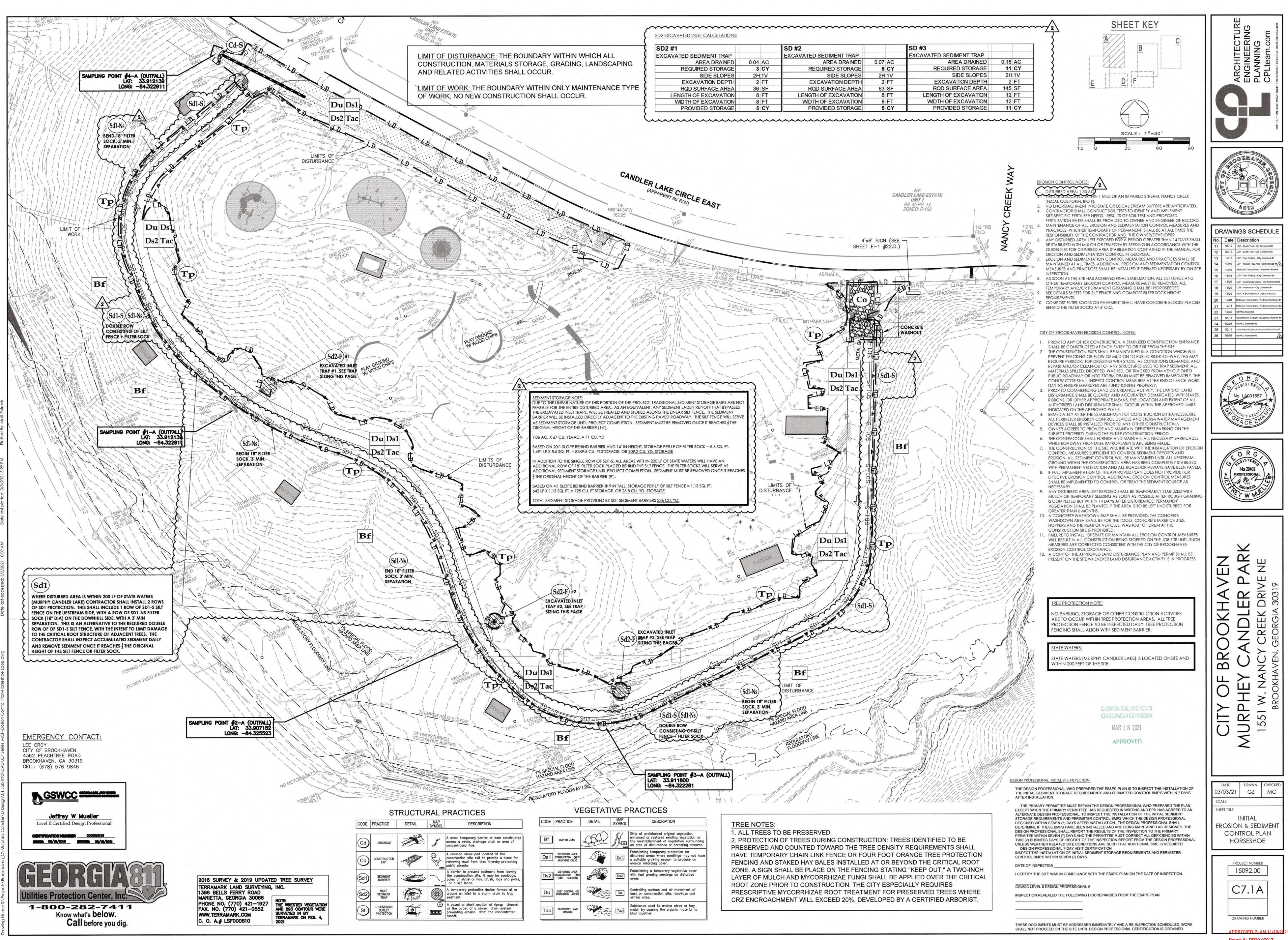
Monitoring Site	Primary or Alternate Site	Location Description	Name of Receiving Water	Applicable construction Phase	()utfall or	Drainage Area for Receiving Water (SQ MI)	Area	Warm or Cold Water Stream	Appendix B NTU value (Outfall Monitoring	Allowable NTU increase (for Receiving Water)
South Trail	Primary	Sample Location #1 & #2	Nancy Creek	All	Receiving Water	13.95	0.57	Warm	NA	25
Pool Parking	Primary	Sample Location #1D & #2D	Candler Lake	All	Outfall	13.95	0.9	Warm	50	NA
Horseshoe Loop	Primary	Sample Location #1A, #2A, #3A & #4A	Candler Lake	All	Outfall	13.95	0.99	Warm	50	NA
Community Green	Primary	Sample Location #1A, #2A & #3A	Candler Lake	All	Outfall	13.95	0.73	Warm	50	NA
Natural Play	Primary	Sample Location #4A	Candler Lake	All	Outfall	13.95	0.41	Warm	50	NA



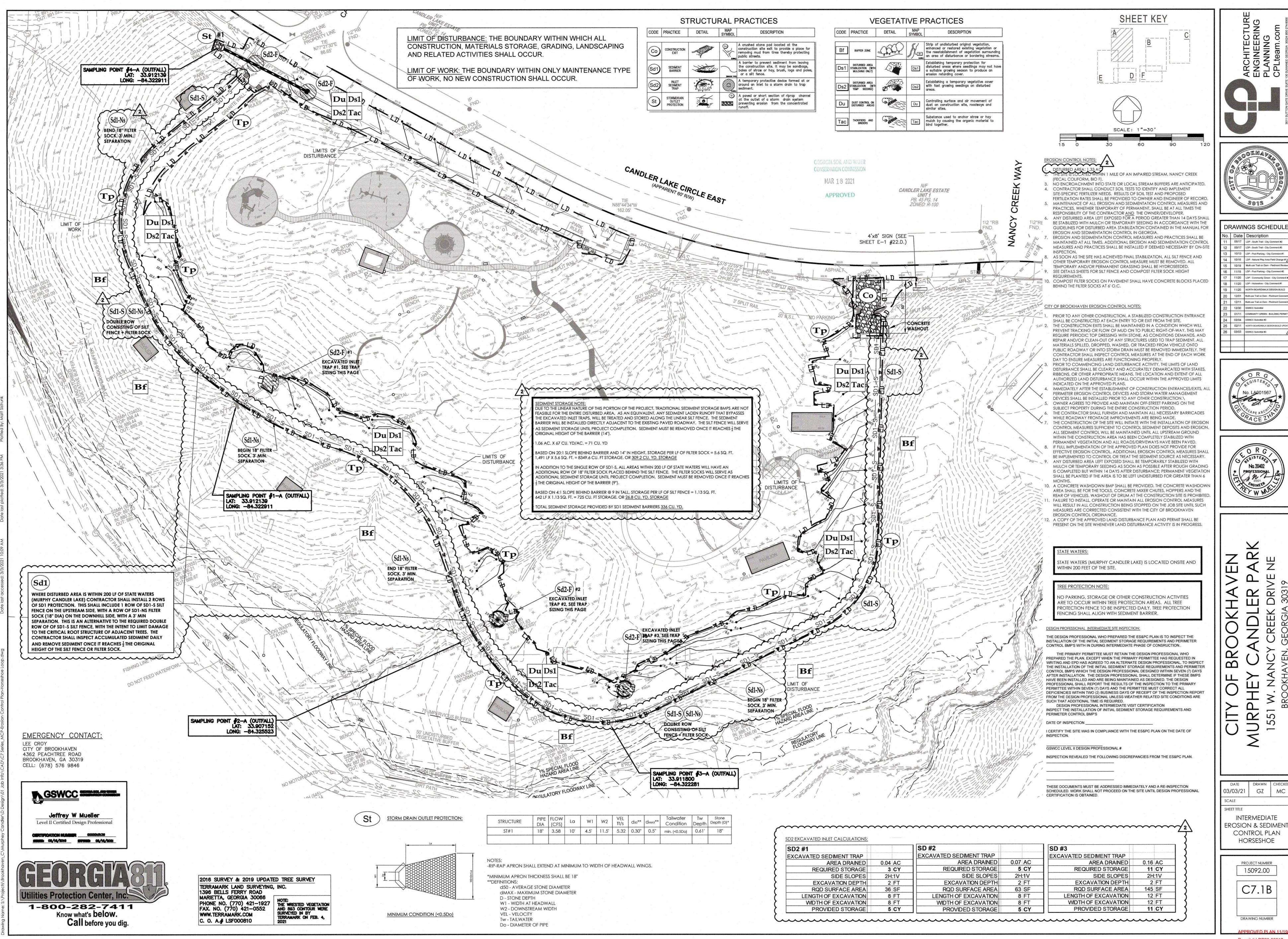
016 SURVEY & 2019 UPDAT	ED TREE SURVEY
ERRAMARK LAND SURVEYING 396 BELLS FERRY ROAD	, INC.
ARIETTA, GEORGIA 30066 PHONE NO. (770) 421-1927 AX. NO. (770) 421-0552 WWW.TERRAMARK.COM C. O. A.# LSF000810	NOTE: THE WRESTED VEGETATION AND 893 CONTOUR WERE SURVEYED IN BY TERRAMARK ON FEB. 4, 2021

24-HR EMERGENCY CONTACT: LEE CROY CITY OF BROOKHAVEN 4362 PEACHTREE ROAD BROOKHAVEN, GA 30319 CELL: (678) 576 9846



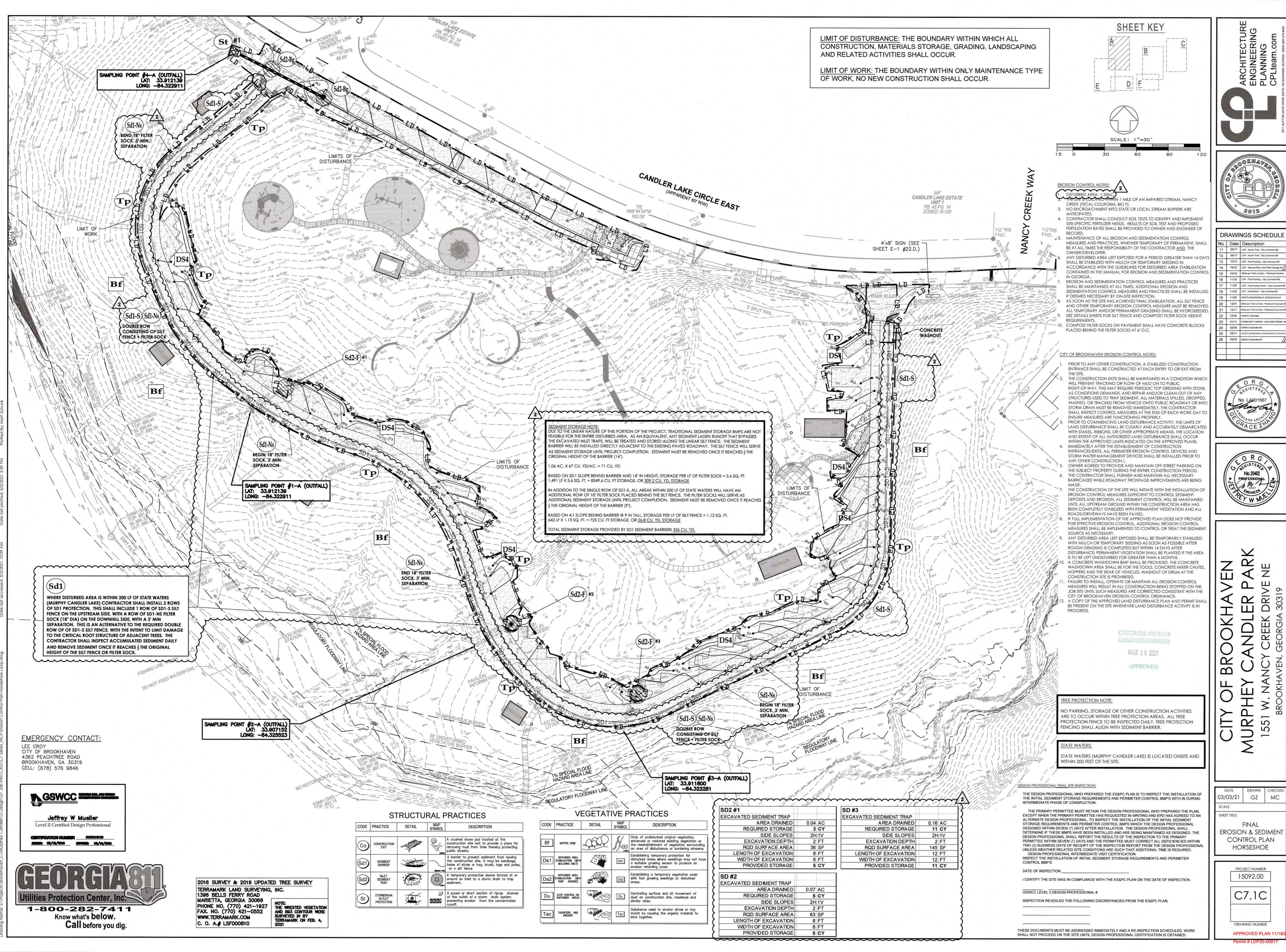


Permit # LDP20-00017



SD2 #1		SD #2		SD #3	
EXCAVATED SEDIMENT TRAP		EXCAVATED SEDIMENT TRAP		EXCAVATED SEDIMENT TRAP	
AREA DRAINED	0.04 AC	AREA DRAINED	0.07 AC	AREA DRAINED	0.16 AC
REQUIRED STORAGE	3 CY	REQUIRED STORAGE	5 CY	REQUIRED STORAGE	11 CY
SIDE SLOPES	2H:1V	SIDE SLOPES	2H:1V	SIDE SLOPES	2H:1V
EXCAVATION DEPTH	2 FT	EXCAVATION DEPTH	2 FT	EXCAVATION DEPTH	2 FT
RQD SURFACE AREA	36 SF	RQD SURFACE AREA	63 SF	RQD SURFACE AREA	145 SF
LENGTH OF EXCAVATION	8 FT	LENGTH OF EXCAVATION	8 FT	LENGTH OF EXCAVATION	12 FT
WIDTH OF EXCAVATION	8 FT	WIDTH OF EXCAVATION	8 FT	WIDTH OF EXCAVATION	12 FT
PROVIDED STORAGE	5 CY	PROVIDED STORAGE	5 CY	PROVIDED STORAGE	11 CY

Permit # LDP20-00017



ccessed: 3/3/2021 10:09 AM Date last plotted: 3/3/2021 3:39 PM

Projects/Brookhaven_C\Murphey Candler\D Design\01 Job Info\CAD\C7 Series_MCP-Erosion Control Plan-Horseshoe Loop.dwg

Buffer Zone Bf screen for "visual pollution" and reduce construction noise. General buffers may be enhanced to achieve desired goals. Vegetated Stream Buffers Buffers bordering streams are critical due to the invaluable protection of streams from sedimentation. Stream buffers are also useful in cooling rivers and providing food and cover for wildlife. Refer to the minimum requirements in Act 599 (O.C.G.A. 1-7-1, et. seq.) and Chapters 16 and 18 of the NRCS Engineering Field Hand-DEFINITION In most cases, the buffer zone will be incorpo-A strip of undisturbed, original vegetation, rated into the permanent vegetative cover. Refer to enhanced or restored existing vegetation or the specification Ds3 - Disturbed Area Stabilization re-establishment of vegetation surrounding an (With Permanent Vegetation). area of disturbance or bordering streams, ponds, wetlands, lakes and coastal waters. DESIGN SPECIFICATIONS Important design factors such as slope, hy-PURPOSE drology, width and structure shall be considered. To provide a buffer zone serving one or more of three zones. While Georgia's Environmental Protection Diviof the following purposes: sion enforces minimum stream buffer requirements, expanding the stream buffer width is Reduce storm runoff velocities

always encouraged. If any land-disturbing activity, including exempt and non-exempt practices. occurs within the GA EPD mandated stream buffers, cut and fills within the buffer shall be stabilized with appropriate matting or blanket. **General Buffers** A width should be selected to permit the zone

to filter and infiltrate runoff, but also to act as a

to serve the purpose(s) as listed above. Supplemental plantings may be used to increase the effectiveness of the buffer zone.

Vegetated Stream Buffers The structure of vegetated stream buffers should be considered to determine if the buffer must be enhanced to achieve the necessary goals. The size of the stream as well as the topography of the area must be considered to determine the appropriate width of the vegetated stream buffer. A vegetated stream buffer of 50 feet or greater can protect waters from excess sedimentation. The buffer should be increased 2 feet in width for every 1% slope (measured along a line perpendicular to the stream bank). Surface water pollution can be reduced with a 100 foot or wider vegetative buffer.

6-15

6-16

Table 6-1.2 - Native Plant Guide - continued

Act as screen for "visual pollution"

Improve aesthetics on the disturbed land

· Cooling rivers and streams by creating

shade provide food and cover for wildlife

· Protect channel banks from scour and

A natural strip of vegetation should be pre-

served and, if needed, supplemented to form the

buffer zone. There are two types of buffer zones.

A strip of undisturbed, original land surround-

ing the disturbed site. It can be useful not only

Reduce construction noise

· Filtering and infiltrating runoff

and aquatic organisms

Flood protection

erosion

CONDITIONS

General Buffers

GSWCC 2016 Edition

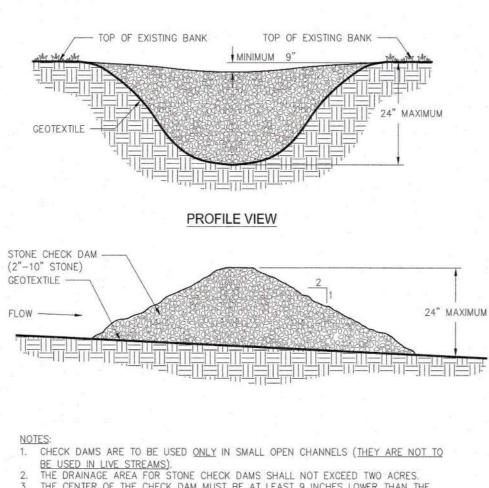
6-20

Stream					
Species	Region	Zone	Wildlife Value	Notes	
Hibiscus aculeatus				Use on open level	
Hibiscus				floodplain areas and	
Comfort root	С	Shrub	Unknown	Depression in C.	
Hibiscus militaris					
Hibiscus				Use on open level	
Halberd-leaved				floodplain areas and	
Marshmallow	C	Shrub	Unknown	Depression in C.	
Hibiscus lasiocarpus				Use on open level	
Hibiscus	С	Shrub	Unknown	floodplain areas and	
Hibiscus moscheutos		and the second second		Use on open level	
Hibiscus	С	Shrub	Unknown	floodplain areas and	
Ilex coriacea					
Sweet Gallberry	С	Shrub	Unknown		
llex decidua					
Possumhaw	P,C	Shrub	High, food, nest sites.	Sun or shade.	
llex glabra				Stoloniferous. Sun to	
Bitter gallberry or Inkberry	С	Shrub	High	some shade.	
llex opaca					
American holly	M,P,C	Tree	High, food, cover nests.	Prefers shade.	
Ilex verticilata			High, cover and fruits for	Full sun to some shade	
			birds. Holds berries in	seasonally flooded	
Winterberry	M,P	Shrub	winter.	areas.	
llex vomitoria	WI,F	Onrub	winter.	Small tree, very	
Yaupon	С	Shrub	High, songbirds	adaptable, suckers.	
Juglans nigra	0	Onrub	righ, songoilds	Temporarily flooded	
Black Walnut	M.P	Tree	Good	wetlands along	
Juniperus virginiana	WI,F	nee	6000	Tolerant to some shad	
Eastern red cedar	M,P,C	Tree	High, food	in youth.	
Leucothoe axillaris	141,1 ,0	nee	Tilgri, toou	iii youui.	
Leucothoe	С	Shrub	Low	Partial shade.	
Lindera benzoin	<u> </u>	Onitab	EOW	Shade, acidic soils.	
Common spicebush	м	Shrub	High, songbirds	Good Understory	
Liriondendron tulipefera	IAI	Sinub	righ, songolius	Tolerant to partial	
Tulip poplar	M.P	Tree	Low	shade.	
Liquidambar styraciflua	IVI,F	nee	LOW	sildue.	
Sweetgum	M.P.C	Tree	Low	Partial shade	
Lvonia lucida	WI,F,C	nee	LOW	Faluai Sliade.	
Lyonia or Fetterbush	с	Shrub	Low	Cum	
Magnolia Virginia	C	SIIIUD	Low	Sun.	
Sweetbay	P.C	Tree	Manufaur	Charle televest	
Myrica cerifera	P,0	Tiee	Very low	Shade tolerant.	
	С	Charle	Madavata	Links about	
Southern wax myrtle	U	Shrub	Moderate	Light shade.	
Nyssa ogeche	С	Trees	Illah fadi an h	Malland	
Ogeechee lime	C	Tree	High, fruit, cavity nesters.	Wetland tree	
Nyssa sylvatica					
Blackgum or sourgum	M,P,C	Tree	Moderate, seeds	Sun to partial shade.	
Nyssa aquatica		-			
Swamp tupelo	С	Tree	High	Prefers shade.	

GSWCC 2016 Edition



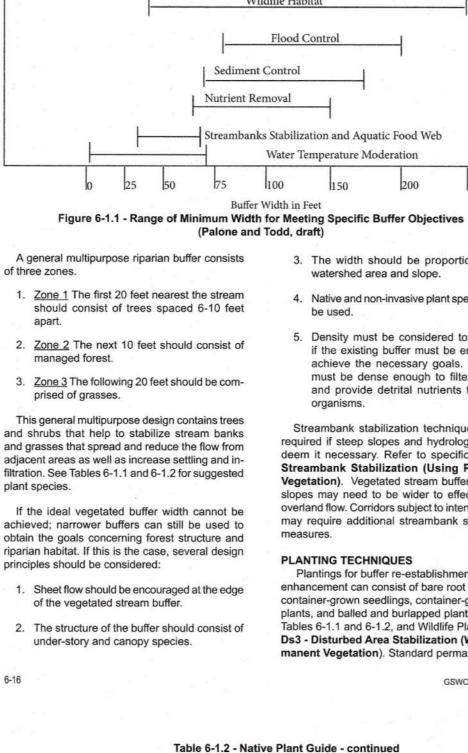
CROSS SECTION



THE CENTER OF THE CHECK DAM MUST BE AT LEAST 9 INCHES LOWER THAN THE THE DAM HEIGHT SHOULD BE A MAXIMUM OF 2 FEET FROM CENTER TO RIM EDGE.
 THE SIDE SLOPES OF THE CHECK DAM SHALL NOT EXCEED A 2:1 SLOPE.
 GEOTEXTILE SHALL BE USED TO PREVENT THE MITIGATION OF SUBGRADE SOIL PARTICLES INTO THE STONES (REFER TO AASHTO M288-96, SECTION 7.3, TABLE 3). Figure 6-12.2



6-82



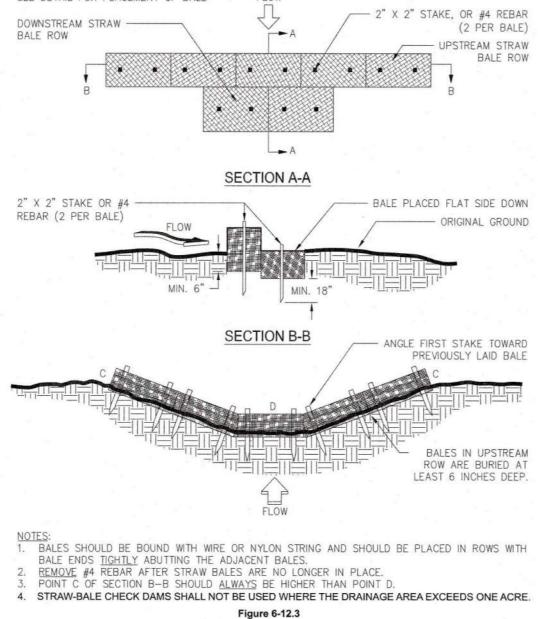
Species	Region	Stream Zone
Ostrya Virginiana		
Hophornbeam	M,P,C	Tree
Persea borbonia		
Red bay	С	Tree
Pinus taeda		
Loblolly pine	P,C	Tree
Platanus occidentalis		
Sycamore	M,P,C	Tree
Populus deltoides		
Eastern cottonwood	M,P,C	Tree
Quercus alba		
White oak	M,P,C	Tree
Quercus laurifolia		Shire and shire
Swamp laurel oak	С	Tree
Quercus lyrata		
Overcup oak	P,C	Tree
Quercus michauxii		
Swamp chestnut oak	M,P,C	Tree
Quercus nigra		
Water oak	M,P,C	Tree
Quercus pagoda		
Cherrybark oak	M,P	Tree
Quercus phellos		
Willow oak	M,P,C	Tree
Quercus shumardii		
Shumard oak	P,C	Tree
Salix nigra		Shrub 8
Black willow	M,P,C	Tree
Rhododendron atlanticum		
Coast azelea	P,C	Shrub
Rhododendron viscosum		
Swamp azelea	C C	Shrub
Styrax american	С	Shrub
Taxodium distichum		
Bald cypress	С	Tree
Tsuga canadensis		
Eastern hemlock	M	Tree
Viburnum nudum		
Swamp haw	M,P,C	Shrub

Legen Region M = Mountains P = Piedmont

C = Coastal Plain

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2016 SURVEY & 2019 UPDATED TREE SURVEY TERRAMARK LAND SURVEYING, INC. 1396 BELLS FERRY ROAD MARIETTA, GEORGIA 30066 NOTE: THE WRESTED VEGETATION AND 893 CONTOUR WERE SURVEYED IN BY PHONE NO. (770) 421-1927 FAX. NO. (770) 421-0552 WWW.TERRAMARK.COM TERRAMARK ON FEB. 4, C. O. A.# LSF000810

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Wildlife Habitat Flood Control Streambanks Stabilization and Aquatic Food Web Water Temperature Moderation

3. The width should be proportional to the watershed area and slope. 4. Native and non-invasive plant species should be used.

5. Density must be considered to determine if the existing buffer must be enhanced to achieve the necessary goals. Vegetation must be dense enough to filter sediment and provide detrital nutrients for aquatic organisms.

Streambank stabilization techniques may be required if steep slopes and hydrologic patterns deem it necessary. Refer to specification Sb -Streambank Stabilization (Using Permanent Vegetation). Vegetated stream buffers on steep slopes may need to be wider to effectively filter overland flow. Corridors subject to intense flooding may require additional streambank stabilization measures

PLANTING TECHNIQUES Plantings for buffer re-establishment and enhancement can consist of bare root seedlings,

container-grown seedlings, container-grown plants, and balled and burlapped plants. Refer to Tables 6-1.1 and 6-1.2, and Wildlife Plantings in Ds3 - Disturbed Area Stabilization (With Permanent Vegetation). Standard permanent ero-GSWCC 2016 Edition

Wildlife Value Note Tolerant of all sunlight Moderate conditions. Good food, for quail and bluebirds. Understory tree. Transplants well. Rap growth in full sun avasive roots. Ra growth. Prefers moist well High High, food drained soils. Sloughs & bottoms. Wetter sites than white Full to partial sun. High, mast Rapid growth, full su Nesting Very fragrant suckers

Very low Good perching site Tolerates all ligh conditions Shade tolerant sion control grasses and legumes may be used in denuded areas for quick stabilization. Refer to specification Ds3 - Disturbed Area Stabilization (With Permanent Vegetation). Availability, cost, associated risk, equipment, planting procedures, and planting density must be considered when choosing planting types.

Soil preparation and maintenance are essential for the establishment of planted vegetation. Soi fertility, weed control, herbaceous cover, as well as additional associated products may be required.

OPERATIONS AND MAINTENANCE Areas closest to the stream should be maintained with minimal impact.

Watering

During periods of drought as well as during the initial year, watering may be necessary in all buffer areas planted for enhancement. Weed Control

Weeds can be removed by hand or with careful spraying. Replanting

It is imperative that the structure of the vegetated stream buffer be maintained. If the buffer has been planted, it is suggested that the area be monitored to determine if plant material must be replaced. See Tables 6-1.1 and 6-1.2 for suggested plant species. Provisions for the protection of new plantings from destruction or damage from beavers shall be incorporated into the plan.

Fertilizer If appropriate vegetation is chosen, it is unlikely that fertilizer will be necessary. Local Contacts:

USDA Natural Resources Conservation Service Georgia Forestry Commission

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Cd Check Dam

DEFINITION A temporary grade control constructed across a swale, drainage ditch, or

area of concentrated flow. PURPOSE To minimize the erosion rate by reducing the

velocity of the storm water in areas of concentrated flow CONDITIONS

This practice is applicable for use in small open channels and is not to be used in a live stream. Specific applications include: 1. Temporary or permanent swales or ditches

in need of protection during establishment of grass linings. 2. Temporary or permanent swales or ditches

that, due to their short length of service or other reasons, cannot receive a permanent non-erodible lining for an extended period of time.

3. Other locations where small localized erosion and resulting sedimentation prob lems exist.

DESIGN CRITERIA Check dams should be designed using 2.0 cfs. For any flows exceeding 2.0 cfs, check dams may be used in conjunction with other BMPs in the channel. Dam height should be 24 inches

maximum measured to the center of the check

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6-21

- 2" X 2" STAKE, OR #4 REBAR

- BALE PLACED FLAT SIDE DOWN

----- ANGLE FIRST STAKE TOWARD

PREVIOUSLY LAID BALE

BALES IN UPSTREAM

ROW ARE BURIED AT

6-83

LEAST 6 INCHES DEEP.

- ORIGINAL GROUND

(2 PER BALE)

BALE ROW

(Co Construction Exit



DEFINITION A stone stabilized pad located at any point where traffic will be leaving a construction site to a public right-of-way, street, alley, sidewalk or parking area or any other area where there is a

transition from bare soil to a paved area.

PURPOSE To reduce or eliminate the transport of mud from the construction area onto public rights-ofway by motor vehicles or by runoff.

CONDITIONS This practice is applied at appropriate points of construction egress. Geotextile underliners are required to stabilize and support the pad aggregates.

DESIGN CRITERIA Formal design is not required. The following standards shall be used:

Aggregate Size Stone will be in accordance with National Stone Association R-2 (1.5 to 3.5 inch stone).

Pad Thickness The gravel pad shall have a minimum thickness of 6 inches.

Pad Width At a minimum, the width should equal fu width of all points of vehicular egress, but not less than 20 feet wide.

Pad Length The gravel pad shall have a minimum length

6-89

Drainage Area

For stone check dams, the drainage area shall not exceed two acres. For straw-bale check dams and compost filter socks, the drainage area shall not exceed one acre. Side Slopes

Side slopes shall be 2:1 or flatter.

Spacing Two or more check dams in a series shall be used for drainage areas greater than one (1) acre. Maximum spacing between dams should be such that the toe of the upstream dam is at the same elevation as the top of the downstream dam. (See Figure 6-12.1)

A geotextile should be used as a separator between the graded stone and the soil base and abutments. The geotextile will prevent the migration of soil particles from the subgrade into the graded stone. The geotextile shall be selected/ specified in accordance with AASHTO M288-06 Section 7.3, Separation Requirements, Table 3. Geotextiles shall be "set" into the subgrade soils. The geotextile shall be placed immediately adjacent to the subgrade without any voids and extend five feet beyond the downstream toe of the dam to prevent scour.

CONSTRUCTION SPECIFICATIONS Stone Check Dams (Cd-S

Stone check dams should be constructed of graded size 2-10 inch stone. Mechanical or hand placement shall be required to insure compete coverage of the entire width of the ditch or swale and that the center of the dam is lower than the edges. The center of the check dam must be at least 9 inches lower than the outer edges. (See Figure 6-12.2)

Straw-bale Check Dams (Cd-Hb Staked and embedded straw-bales may be

used as temporary check dams in concentrated flow areas while vegetation is becoming established. They shall not be used where the drainage area exceeds one acre. Straw-bales should be installed per Figure 6-12.3.

of 50 feet. When the construction is less than 50' from the paved access, the length shall be from the edge of existing pavement to the permitted building being constructed.

If the action of the vehicle traveling over the gravel pad does not sufficiently remove the mud, the tires should be washed prior to entrance onto public rights-of-way. When washing is required, it shall be done on an area stabilized with crushed stone and provisions that intercept the sediment-

laden runoff and direct it into an approved sediment trap or sediment basin. The exit shall be located or protected to pre-

vent sediment from leaving the site. CONSTRUCTION SPECIFICATIONS It is recommended that the egress area be

excavated to a depth of 3 inches and be cleared of all vegetation and roots. **Diversion Ridge**

On sites where the grade toward the paved area is greater than 2%, a diversion ridge 6 to 8 inches high with 3:1 side slopes shall be constructed across the foundation approximately 15 feet above the road.

Geotextile The geotextile underliner must be placed the full length and width of the entrance. Geotextile selection shall be based on AASHTO M288-06 specification:

1. For subgrades with a CBR greater than or equal to 3 or shear strength greater than 90 kPa, geotextile must meet requirements of section AASHTO M288-06 Section 7.3, Separation Requirements.

2. For subgrades with a CBR between 1 and

and Permanent Erosion Control (Geotextile

Property Requirements) ..

3 or sheer strength between 30 and 90 kPa, geotextile must meet requirements of section AASHTO M288-06 Section 8, Geotextile Property Requirements for Subsurface Drainage, Separation, Stabilization,

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Table 6-1.1 - Unrooted Hardwood Cuttings

			Tolerance		
Species	Region	Tolerance To Flooding	Tolerance To Drought	To Deposition	Tolerance To Shade
Acer negundo					
Boxelder	C,P,M	н	н	н	L
Baccharis halimifolia	1			-	
Groundsel bush	C,P (lower)	M	M	н	L
Cornus amomum					
Silky dogwood	P,M	L	M	L	M
Cornus sericia					
Ssp. slolonifera					
Red osier dogwood	P,M	L	M	н	M
Crataegus sp.					
Hawthon	C,P,M	М	н	L	L
Populus deltoids					
Eastern cottonwood	C,P,M	M	M	н	L
Salix sp. interior	1	1			
Sandbar willow	C,P,M	н	L	н	L
Salix nigra					
Black willow	C,P,M	н	н	н	L
Salix purpurea		2			
Streamco willow	C,P,M	Н	M	н	L
Salix x colleti			No.		
Bankers willow	P,M	н	М	н	L
Sambucus canadensis		0.465	005		
American elderberry	P,M	н	M	M	М
Viburnum denlatum					
Arrowwood viburnum	C,P,M	М	M	M	М
Viburnum lentago					
Nannyberry viburnum	C,P,M	M	M	L	M

Tolerance to Flooding, Drought, Deposition, and Shade: H = High

M = Medium L = Low

Whenever possible, harvest hardwood cuttings as close to the repair site as possible. Many of the above grow naturally along streams, in adjacent wetlands, along sewer and power line easements, and where streams enter lakes and along lake shores. Willows generally grow profusely in stormwater detention ponds in urban areas.

6-18

6-17

Installation

Bales should be bound with wire or nylon string. Twine bound bales are less durable. The bales should be placed in rows with bale ends tightly abutting the adjacent bales.

Downstream Row (Refer to Figure 6-12.3) Dig a trench across the small channel, wide enough and deep enough so that the top of the row of bales placed on their long, wide side is level with the ground. The tops of bales across the center of the channel should all be level and set at the same elevation. Place the bales in position and stake them according to the instructions below.

Upstream Roy Dig another trench across the small channel, upstream and immediately adjacent to the first row of bales. The trench should be wide enough to accommodate a row of bales set vertically on their long edge. The trench should be deep enough so that at least 6 inches of each bale is below ground starting with the bale in the channel bottom. The trench should be as level as possible so that the tops of the bales across the

center of the channel are level and water can flow evenly across them. Continue this trench up the side slopes of the small channel to a point where the unburied bottom line of the highest bale (Point "C", Figure 6-12.3) is higher than the top of the bales that are in the center of the channel (Point "D", Figure 6-12.3). Anchorage

Drive standard 2 x 2 stakes or #4 rebar through the bales and into the ground 1 1/2 to 2 feet for anchorage. The first stake in each bale should be driven toward a previously laid bale to force the bales together (See Figure 6-12.3). Reference: Colorado NRCS Straw Bale Check

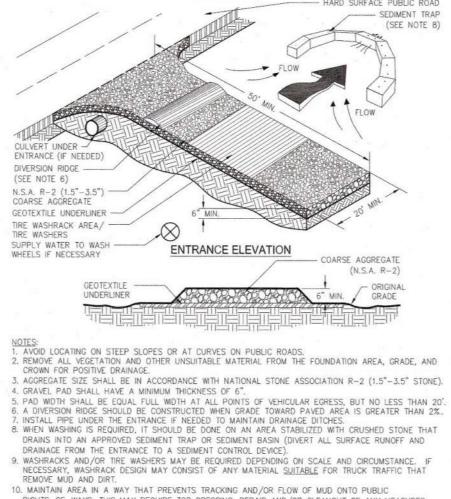
Compost Filter Sock (Cd-Fs) The filter sock should be staked in the center.

If the compost fi Iter sock is to be left as a permanent filter or part of the natural landscape, it may be seeded at time of installation for establishment of permanent vegetation. Compost filter media used for compost filter sock

filler material shall be weed free and derived from GSWCC 2016 Edition

MAINTENANCE

The exit shall be maintained in a condition that will prevent tracking or flow of mud onto public rights-of-way. This may require periodic top dressing with 1.5-3.5 inch stone, as conditions demand, and repair and/or cleanout of any structures to trap sediment. All materials spilled,



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SHEET KEY

DIIF

Adapted from the USDA/NRCS Engineering Field Handbook, Chapter 18

Region C = Coastal P = Piedmont

M =Mountain

Rooting of all species will be improved if nearby vegetation is pruned to increase sunlight penetration.

ALWAYS OBTAIN PERMISSION FROM THE PROPERTY OWNER BEFORE HARVESTING PLANTS!

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a well-decomposed source of organic matter. The compost shall be produced using an aerobic composting process meeting CFR 503 regulations including time and temperature data.

The compost shall be free of any refuse, contaminants or other materials toxic to plant growth. Non-composted products will not be accepted

Test methods for the items below should follow US Composting Council Test Methods for the Examination of Composting and Compost guidelines for laboratory procedures:

- A pH 5 0-8 0 in accordance with TMECC 04.11-A, "Electrometric pH Determinations for Compost".
- B. Particle size 99% passing a 2-inch (50 mm) sieve and a maximum of 40% passing a 3/8-inch (~ 9.5 mm) sieve, in accordance with TMECC 02.02-B, "Sample Sieving for Aggregate Size Classification' (Note - In the field, product commonly is between 1/2 and 2 inches (12.5 and 50 mm) particle size).
- C. Moisture content of less than 60% in accordance with standardized test methods for moisture determination.
- D. Material shall be relatively free (<1% by dry weight) of inert or foreign manmade

materials.

E. Sock containment system for compost filter media shall be a photodegradable or biodegradable knitted mesh material and should have 1/8 to 3/8 inch (3.2 to 9.5 mm) openings.

MAINTENANCE Periodic inspection and required maintenance must be provided. Sediment shall be removed when it reaches a depth of one-half the original dam height or before. If the area is to be mowed, check dams shall be removed once final stabilization has occurred. Otherwise check dams may remain in place permanently. After removal, the area beneath the dam shall be seeded and mulched immediately

dropped, washed, or tracked from vehicles or

site onto roadways or into storm drains must be

6-80

6-90

M,P,C Tree High seed and browse. Red Maple Rapid growt Alnus serrulai Rapid growth. Stabl M,P,C Shrub Moderate, Cover streambank. Sun Smooth alde Amorpha frutico False indigo Aronia arbutifoli M,P,C Shrub Red chokeberr M,P,C Shrub Moderate cover and food. Shrub. Important food for fox and simina trilol M,P,C Tree possum. Pawpaw Betula nigra **River Burch** M,P,C Tree Good for cavity nester. Full sun. Carpinus caroliniar M.P.C Tree American hombeau Low Partial shade Carva cordiform Bitternut hickory Tree Moderate, food Wet bottoms. Catalpa bigno P.C Tree Catalpa tree Celtis laevigata Sugarberry Celtis occidentalis Tree High food cover Partial shade Partial shade Hackberry Moderate, ducks and Cephalantus Occidentalis Sun. shorebirds are users. Shrub Nectar for hummingbirds. Buttonbush Chionanthus virginicus Fringe tree Clethra alnifolia PC Tolerant of shade. Moderate Sweet pepperbus Good landscape val Cornus amomu ligh, songbirds. Silky dogwood Cornus stricta Shrub Mammals Good bank stabilize M.P Shrub Swamp dogwo Cornus florida High stabilizer in shade. Shade tolerant lowering dogw M,P,C Tree High, birds, food vrilla racer Light shade. iospyros Virgir Mammals Not shade tolerant. Persimmon Fraxinus carolinian apid growing Carolina ash Streambank grower Sun to partial shade Fraxinus pennsylva Rapid grower Green ash Full sun. Gleditsia aquatir Water locust Gleditsia triacanth Honey locust Full sun, thorns.

Table 6-1.2 - Native Plant Guide

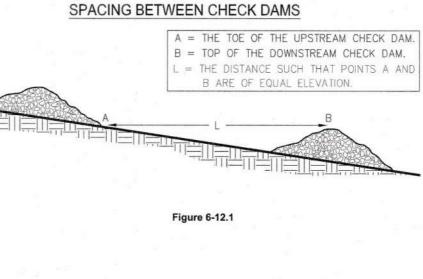
NATIVE PLANT GUIDE FOR STREAMBANK

PLANTING ROOTED STOCK

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6-19

TO BE SHOWN ON THE EROSION AND SEDIMENT CONTROL PLAN 1.cfs in the channel/ditch that the check dam is being used in: see plan sheets 2. Above 2.0 cfs: Yes_____ No___X 3. If Yes, list BMP being used in conjunction with check dams: N/A STONE CHECK DAM



GSWCC 2016 Edition CONTRACT AND A CONTRACT AND AND A CONTRACT AND A CO - HAY BALES CONCRETE WASHOUT DETAIL

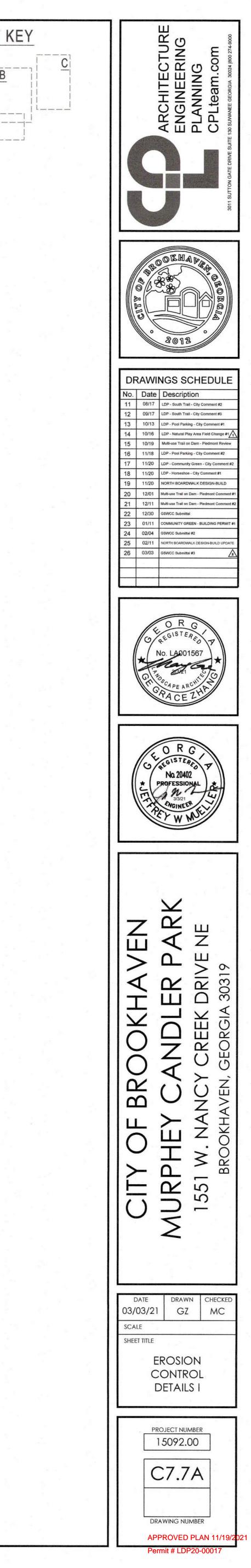
CRUSHED STONE CONSTRUCTION EXIT EXIT DIAGRAM

removed immediately

HARD SURFACE PUBLIC ROAD - SEDIMENT TRAF (SEE NOTE 8) ENTRANCE ELEVATION DARSE AGGREGA (N.S.A. R-2)

 ORAVEL PAGE STALL HAVE A MINIMUM INTRAMEMENT OF 3.
 PAD WIDTH SHALL BE EQUAL FULL WIDTH AT ALL POINTS OF VEHICULAR EGRESS, BUT NO LESS THAN 20'.
 A DIVERSION RIDGE SHOULD BE CONSTRUCTED WHEN GRADE TOWARD PAVED AREA IS GREATER THAN 2%.
 INSTALL PIPE UNDER THE ENTRANCE IF NEEDED TO MAINTAIN DRAINAGE DITCHES.
 WHEN WASHING IS REQUIRED, IT SHOULD BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN (DIVERT ALL SURFACE RUNOFF AND 9. WASHRACKS AND/OR TIRE WASHERS MAY BE REQUIRED DEPENDING ON SCALE AND CIRCUMSTANCE. IF NECESSARY, WASHRACK DESIGN MAY CONSIST OF ANY MATERIAL SUITABLE FOR TRUCK TRAFFIC THAT REMOVE MUD AND DIRT. RIGHTS-OF-WAYS. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.

Figure 6-14.1





Applying plant residues or other suitable materials, produced on the site if possible, to the soil surface. PURPOSE

To reduce runoff and erosion

DEFINITION

- To conserve moisture To prevent surface compaction or crusting
- To control undesirable vegetation
- To modify soil temperature
- To increase biological activity in the soil REQUIREMENT FOR REGULATORY

COMPLIANCE Mulch or temporary grassing shall be applied to all exposed areas within 14 days of disturbance. Mulch can be used as a singular erosion control device for up to six months, but it shall be applied at the appropriate depth, depending on the material used, anchored and have a continu-

ous 90% cover or greater of the soil surface. Maintenance shall be required to maintain appropriate depth and 90% cover. Temporary

vegetation may be employed instead of mulch if the area will remain undisturbed for less than six months. If any area will remain undisturbed for greater

than six months, permanent vegetative techniques shall be employed. Refer to Ds2 -Dis-GSWCC 2016 Edition

turbed Area Stabilization (With Temporary Seeding), Ds3 - Disturbed Area Stabilization (With Permanent Seeding), and Ds4 - Disturbed Area Stabilization (With Sodding).

SPECIFICATIONS Mulching Without Seeding

This standard applies to graded or cleared areas where seedings may not have a suitable growing season to produce an erosion retardant cover, but can be stabilized with a mulch cover.

- Site Preparation 1. Grade to permit the use of equipment for
- applying and anchoring mulch. 2. Install needed erosion control measures as required such as dikes, diversions, berms,
- terraces and sediment barriers. 3. Loosen compact soil to a minimum depth of 3 inches.

Mulching Materials Select one of the following materials and

- apply at the depth indicated: 1. Dry straw or hay shall be applied at a depth of 2 to 4 inches providing complete soil coverage. One advantage of this material is easy application.
- 2. Wood waste (chips, sawdust or bark) shall be applied at a depth of 2 to 3 inches. Organic material from the clearing stage of development should remain on site, be chipped, and applied as mulch. This method of mulching can greatly reduce erosion control costs.
- 3. Polyethylene film shall be secured over banks or stockpiled soil material for temporary protection. This material can be salvaged and re-used.
- **Applying Mulch** When mulch is used without seeding, mulch
- shall be applied to provide full coverage of the exposed area.

1. Dry straw or hay mulch and wood chips shall be applied uniformly by hand or by mechanical equipment.

6-27

2. If the area will eventually be covered with perennial vegetation, 20-30 pounds of nitrogen per acre in addition to the normal amount shall be applied to offset the uptake of nitrogen caused by the decomposition of the organic mulches.

3. Apply polyethylene film on exposed areas. Anchoring Mulch

immediately after application.

the soil with a disk harrow with the disk set straight or with a special "packer disk." Disks may be smooth or serrated and should be 20 inches or more in diameter and 8 to 12 inches apart. The edges of the disk should be dull enough not to cut the mulch but to press it into the soil leaving much of it in an erect position. Straw or hay mulch shall be anchored

Straw or hay mulch can be pressed into

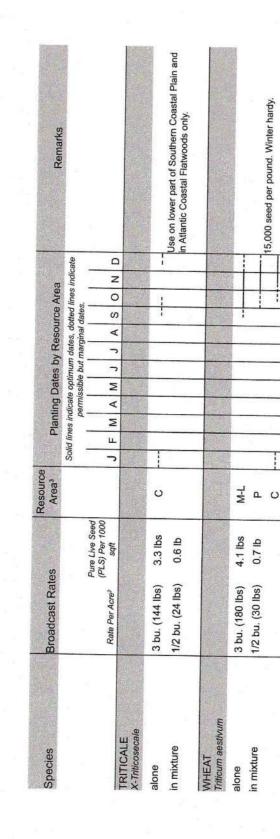
Straw or hay mulch spread with special blower-type equipment may be anchored. Tackifers, binders and hydraulic mulch with tackifier specifically desgined for tacking straw can be substituted for emulsified asphalt. Please refer to specification Tac-Tackifers. Plastic mesh or netting with mesh no larger than one inch by one inch shall be installed according to manufacturer's specifications.

2. Netting of the appropriate size shall be used to anchor wood waste. Openings of the netting shall not be larger than the average size of the wood waste chips.

3. Polyethylene film shall be anchor trenched at the top as well as incrementally as

necessary.

6-28



DISTURBED AREA STABILIZATION Ds4 (WITH SODDING)

- C D

C P M-I

r ⊂ ∩

1. Immediate erosion control, green surface,

2. Reduced failure as compared to seed as well

Sodding is preferable to seed in waterways and

swales because of the immediate protection of the

channel after application. Sodding must be staked

in concentrated flow areas (See Figure 6-6.1).

3. Can be established nearly year-round.

and quick use.

as the lack of weeds.

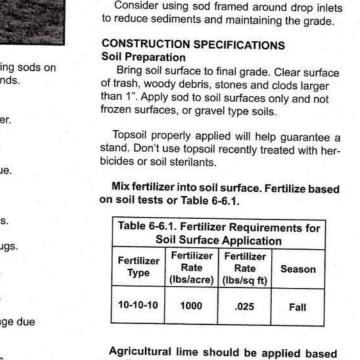
F A O



- PURPOSE
- · Reduce runoff and erosion.
- Reduce dust and sediments.
- Stabilize waterways, critical areas.
- Reduce downstream complaints.
- to legal action. Increase "good neighbor" benefits.
- CONDITIONS This application is appropriate for areas that equire immediate vegetative co on inlets
- grass swales, and waterways with intermittent PLANNING CONSIDERATIONS
- Sodding can initially be more costly than seeding, but the advantages justify the increased good contact between sod and soil. initial costs:



GEORGIA81 Utilities Protection Center, Inc.	
1-800-282-7411 Know what's below. Call before you dig.	



on soil tests or at a rate of 1 to 2 tons per acre. Lay sod with tight joints and in straight lines.

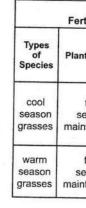
- Don't overlap joints. Stagger joints and do not stretch sod (See Figure 6-6.2) On slopes steeper than 3:1, sod should be
- anchored with pins or other approved methods. Installed sod should be rolled or tamped to provide

6-51

C. O. A.# LSF000810

- 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.
- 1. Sod should be machine cut and contain 3/4" (+ or -1/4") of soil, not including shoots or thatch.
- 2. Sod should be cut to the desired size within + or -5%. Torn or uneven pads should be rejected.
- 3. Sod should be cut and installed within 36 hours of digging.
- 4. Avoid planting when subject to frost heave or hot weather, if irrigation is not available. 5. The sod type should be shown on the plans
- or installed according to Table 6-6.2. See Figure 6-4.1 for your Resource Area. MAINTENANCE Re-sod areas where an adequate stand of sod is not obtained. New sod should be mowed paringly. Grass height should not be cut less

than 2"-3" or as specified (See Figure 6-6.2). Apply one ton of agricultural lime as indicated by soil test or every 4-6 years. Fertilize grasses in accordance with soil tests or Table 6-6.3.



2016 SURVEY & 2019 UPDATED TREE SURVEY TERRAMARK LAND SURVEYING, INC. 1396 BELLS FERRY ROAD MARIETTA, GEORGIA 30066 PHONE NO. (770) 421-1927 FAX. NO. (770) 421-0552 WWW.TERRAMARK.COM

6-52

NOTE: THE WRESTED VEGETATION AND 893 CONTOUR WERE SURVEYED IN BY TERRAMARK ON FEB. 4,

de

- highly erodible or critically eroded lands.
- Establish immediate ground cover.
- · Improve aesthetics and land value.
- · Filter sediments, nutrients and bugs
- Reduce likelihood of legal action.
- Reduce likelihood of work stoppage due

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Table 6-6.3 rtilizer Requirements for Sod					
nting Year	Fertilizer (N-P-K)	Rate (lbs./acre)	Nitrogen Top Dressing Rate (Ibs./acre)		
first	6-12-12	1500	50-100		
econd	6-12-12	1000	-		
ntenance	10-10-10	400	30		
first	6-12-12	1500	50-100		
econd	6-12-12	800	50-100		
ntenance	10-10-10	400	30		

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6-54

DEFINITION The establishment of temporary vegetative

Disturbed Area Stabilization

Ds2

(With Temporary

Seeding)



- cover with fast growing seedings for seasonal protection on disturbed or denuded areas. PURPOSE
- •To reduce runoff and sediment damage of down stream resources To protect the soil surface from erosion
- To improve wildlife habitat
- To improve aesthetics To improve tilth, infiltration and aeration as
- well as organic matter for permanent plantings
- REQUIREMENT FOR REGULATORY COMPLIANCE Mulch or temporary grassing shall be applied
- to all exposed areas within 14 days of disturbance. Temporary grassing, instead of mulch, can be applied to rough graded areas that will be exposed for less than six months. If an area is expected to be undisturbed for longer than six months, permanent perennial vegetation shall be used. If optimum planting conditions for temporary grassing is lacking, mulch can be used as a singular erosion control device for up to six months but it shall be applied at the appropriate depth, anchored, and have a continuous 90% cover or greater of the soil surface. Refer to
- specification Ds1-Disturbed Area Stabilization (With Temporary Seeding). GSWCC 2016 Edition

for seed to lodge and germinate. Lime and Fertilizer Agricultural lime is required unless soil tests indicate otherwise. Apply agricultural lime at a rate determined by soil test for pH. Quick acting lime should be incorporated to modify pH during the germination period. Bio stimulants should also be considered when there is less than 3% organic matter in the soil. Graded areas require lime application. Soils must be tested to determine required amounts of fertilizer and amendments. Fertilizer should be applied before land preparation and incorporated with a disk, ripper, or chisel. On slopes too steep for, or inaccessible to equipment, fertilizer shall be hydraulically applied, preferably in the first pass with seed and some hydraulic mulch, then topped with the remaining required application rate.

CONDITIONS

Temporary vegetative measures should

be coordinated with permanent measures to

assure economical and effective stabilization.

Most types of temporary vegetation are ideal

to use as companion crops until the permanent

vegetation is established. Note: Some species

of temporary vegetation are not appropriate for

companion crop plantings because of their po-

tential to out-compete the desired species (e.g.

Excessive water run-off shall be reduced by

properly designed and installed erosion control

practices such as closed drains, ditches, dikes,

No shaping or grading is required if slopes can

be stabilized by hand-seeded vegetation or if hy-

When a hydraulic seeder is used, seedbed

preparation is not required. When using conven-

tional or hand-seeding, seedbed preparation is

not required if the soil material is loose and not

sists of smooth cut slopes, the soil shall be pitted.

trenched or otherwise scarified to provide a place

When soil has been sealed by rainfall or con-

diversions, sediment barriers and others.

draulic seeding equipment is to be used.

annual ryegrass). Contact NRCS or the local

SWCD for more information.

SPECIFICATIONS

Grading and Shaping

Seedbed Preparation

sealed by rainfall.

6-29

Select a grass or grass-legume mixture suitable to the area and season of the year. Seed shall be applied uniformly by hand, cyclone seeder, drill, culti-packer-seeder, or hydraulic seeder (slurry including seed and fertilizer). Drill or cultipacker seeders should normally place seed one-quarter to one-half inch deep. Appropriate depth of planting is ten times the seed diameter. Soil should be "raked" lightly to cover seed with soil if seeded by hand. See Table 6-4.1

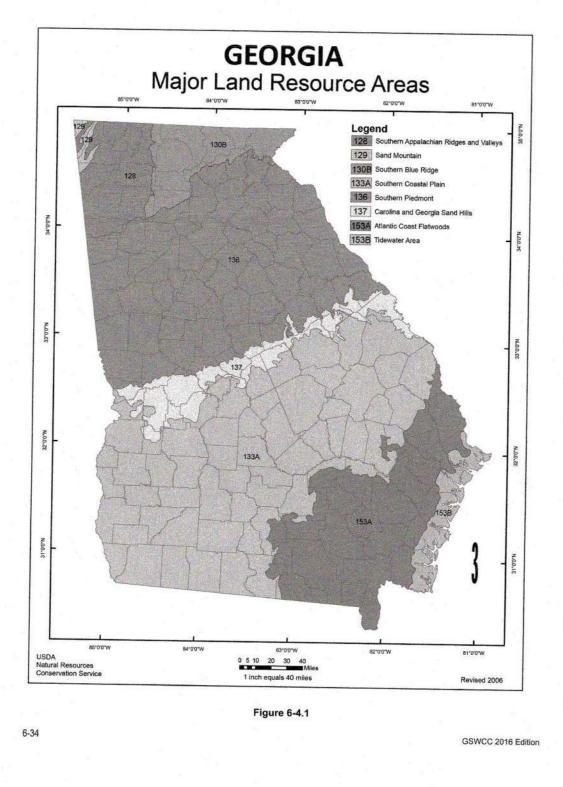
Mulching Temporary vegetation can, in most cases, be established without the use of mulch, provided there is little to no erosion potential. However, the use of mulch can often accelerate and enhance

germination and vegetation establishment. Mulch without seeding should be considered for short term protection. Refer to Ds1 - Disturbed Area Stabilization (With Mulching Only).

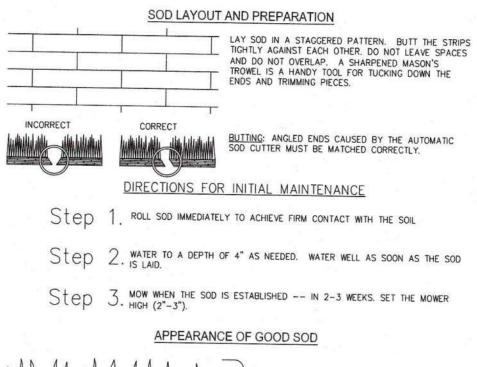
During times of drought, water shall be applied at a rate not causing runoff and erosion. The soil shall be thoroughly wetted to a depth that will insure germination of the seed. Subsequent applications should be made when

6-30

needed.



SOD MAINTENANCE AND INSTALLATION



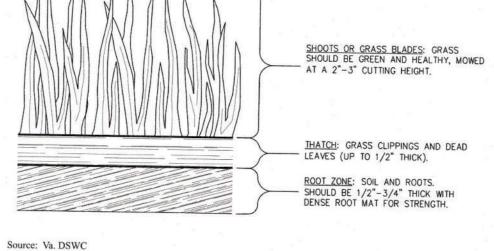


Figure 6-6.2

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Dust Control on **Disturbed Areas**



Du

on construction sites, roads, and demolition sites. PURPOSE •To prevent surface and air movement of dust from exposed soil surfaces.

 To reduce the presence of airborne substances that may be harmful or injurious to human health, welfare, or safety, or to animals or plant life.

CONDITIONS This practice is applicable to areas subject to surface and air movement of dust where on and off-site damage may occur without treatment. METHOD AND MATERIALS

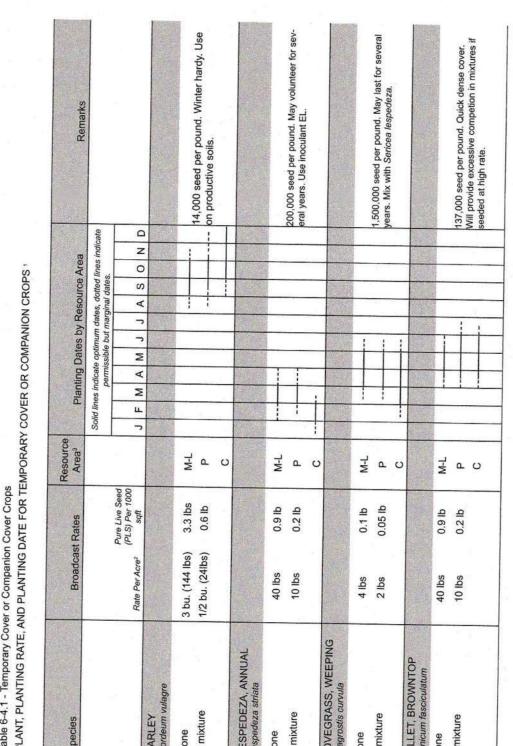
A. Temporary Methods Mulches. See standard Ds1 - Disturbed Area Stabilization (With Mulching Only). Synthetic resins may be used instead of asphalt to bind mulch material. Refer to specification Tac - Tackifiers. Resins should be used according to manufacturer's

Vegetative Cover. See specification Ds2 -Disturbed Area Stabilization (With Temporary eeding).

ecommendations.

Spray-on Adhesives. These are used on mineral soils (not effective on muck soils). Keep traffic off these areas. Refer to specification Tac - Tackifiers. Tillage. This practice is designed to roughen and bring clods to the surface. It is an emergency GSWCC 2016 Edition

Tall Fescue Kentucky M-L,P weather SHEET KEY



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measure that should be used before wind erosion starts. Begin plowing on windward side of site. Chisel-type plows spaced about 12 inches apart, spring-toothed harrows, and similar plows are examples of equipment that may produce the desired effect.

Irrigation. This is generally done as an emergency treatment. Site is sprinkled with water until the surface is wet. Repeat as needed.

Barriers. Solid board fences, snowfences, burlap fences, crate walls, bales of hay and similar naterial can be used to control air currents and soil blowing. Barriers placed at right angles to prevailing currents at intervals of about 15 times their height are effective in controlling wind erosion. Calcium Chloride. Apply at rate that will keep

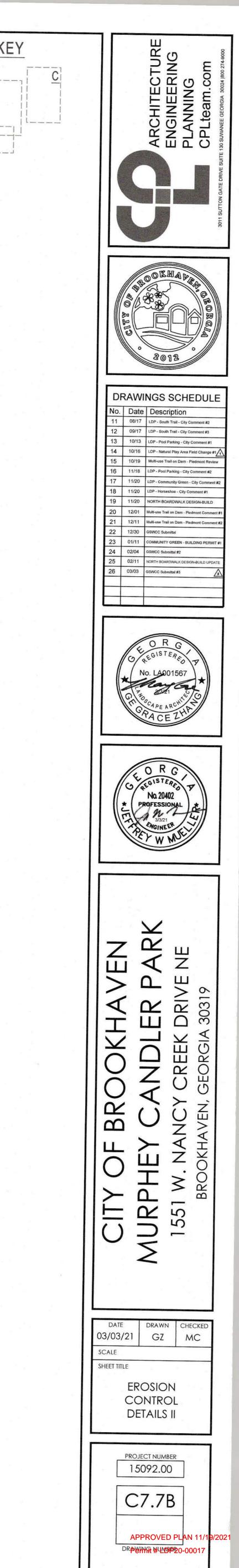
surface moist. May need retreatment. **B.** Permanent Methods

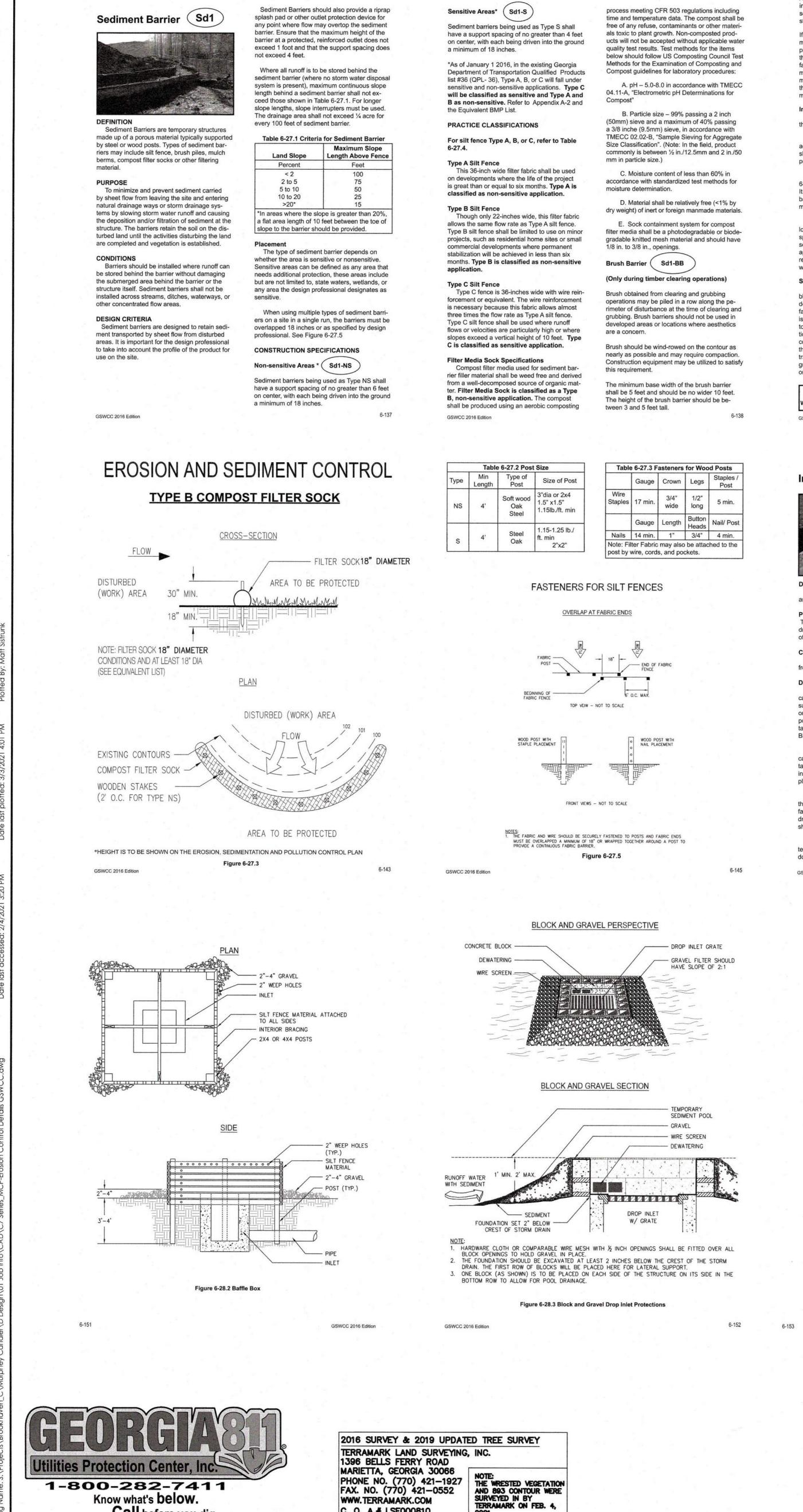
Permanent Vegetation. See specification Ds3 -Disturbed Area Stabilization (With Permanent Vegetation). Existing trees and large shrubs may afford valuable protection if left in place.

Topsoiling. This entails covering the surface with less erosive soil material. See specification Tp - Topsoiling.

Stone. Cover surface with crushed stone or coarse gravel. See specification Cr-Construction Road Stabilization.

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Gauge	Crown	Legs	Staples / Post
17 min.	3/4" wide	1/2" long	5 min.
Gauge	Length	Button Heads	Nail/ Post
14 min.	1"	3/4"	4 min.

6-145



A brush barrier is a good tool to use in developing pasture in an agricultural situation to prevent sediment from leaving the site until the pasture is stabilized.

If greater filtering capacity is required, a commercially available sediment barrier may be placed on the side of the brush barrier receiving the sediment-laden runoff. The lower edge of the fabric must be buried in a 6-inch deep trench immediately uphill from the barrier. The upper edge must be stapled, tied or otherwise fastened to the brush barrier. Edges of adjacent fabric pieces must overlap each other. See Figure 6-27.5.

Installation Sediment barriers should be installed along the contour. Temporary sediment barriers shall be installed

according to the following specifications as shown on the plans or as directed by the design professional.

For installation of the barriers, See Figures 6-27.1, 6-27.2, 6-27.3 and 6-27.4, respectively. It is important to remember that not all sediment barriers need to be trenched into the ground but most taller sediment barriers do.

Post installation shall start at the center of a low point (if applicable) with the remaining posts spaced no greater than 6 feet apart for Type NS sediment barriers and no greater than 4 feet apart for Type C sediment barriers. For post size requirements, see Table 6-27.2. Fasteners for

wood posts are listed in Table 6-27.3. Static Slicing Method The static slicing machine pulls a narrow blade through the ground to create a slit 12" deep, and simultaneously inserts the silt fence fabric into this slit behind the blade. The blade is designed to slightly disrupt soil upward next to the slit and to minimize horizontal compaction, thereby creating an optimum condition for compacting the soil vertically on both sides of the fabric. Compaction is achieved by rolling a tractor wheel along both sides of the slit in the ground 2 to 4 times to achieve nearly the same

or greater compaction as the original undisturbed

DEFINITION

PURPOSE

CONDITIONS

from disturbed areas.

DESIGN CRITERIA

BMP is preferred.

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A temporary protective device formed at o

To prevent sediment from entering a storm

of the disturbed area draining to the inlet.

around an inlet to a storm drain to trap sediment.

drainage systems prior to permanent stabilization

All storm drain drop inlets that receive runoff

Through testing there are two different

supported. In areas where BMPs are being used

potentially negative effects of ponding should be

on paved surfaces, or safety is a concern, the

taken into account. In such cases, a high flow

On unpaved areas where ponding will not

taken into account. If high retention is not used

in this situation a rationale shall be given on the

Sediment traps must be self-draining unless

fashion that will not present a safety hazard. The

drainage area entering the inlet sediment trap

If runoff may bypass the protected inlet, a

temporary dike should be constructed on the

down slope side of the structure. Also, a stone

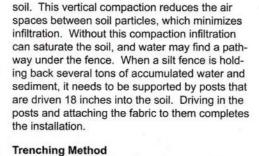
plan and an unpaved application should apply.

they are otherwise protected in an approved

shall be no greater than one acre.

cause a safety hazard, high retention shall be

categories (high retention and high flow)



Trenching machines have been used for over twenty-five years to dig a trench for burying part of the filter fabric underground. Usually the trench is about 2-"6" wide with a 6" excavation. Post setting and fabric installation often precede compaction, which make effective compaction more difficult to achieve. EPA supported an independent technology evaluation (ASCE 2001), which compared three progressively better variations of the trenching method with static slicing method. The static slicing method performed better than two lower performance levels of the trenching method, and was as good as or better than the trenching method's highest performance level. The best trenching method typically required nearly triple the time and effort to achieve

results comparable to the static slicing method. Along all state waters and other sensitive areas, two rows of Type S sediment barriers shall be used. The two rows of Type S should be placed a minimum of 36 inches apart.

MAINTENANCE Sediment shall be removed once it has accumulated to one-half the original height of the barrier.

Sediment barriers shall be replaced whenever they have deteriorated to such an extent that the effectiveness of the product is reduced (approximately six months) or the height of the product is not maintaining 80% of its properly installed

Temporary sediment barriers shall remain in place until disturbed areas have been permanently stabilized. All sediment accumulated at the barrier shall be removed and properly disposed of before the barrier is removed.

TO BE SHOWN ON THE EROSION, SEDIMENTATION, AND POLLUTION CONTROL PLAN When a SEDIMENT BARRIER is used, show the product height in inches for each barrier being used on site. GSWCC 2016 Edition

filter ring may be used on the up slope side of the inlet to slow runoff and filter larger soil par Inlet Sediment Trap (Sd2) ticles. Refer to Fr-Stone Filter Ring.

CONSTRUCTION SPECIFICATIONS Excavated Inlet Sediment Trap

An excavation may be created around the inlet sediment trap to provide additional sediment storage. The trap shall be sized to provide a minimum storage capacity calculated at the rate of 67 cubic yards per acre of drainage area. A minimum depth of 1.5 feet for sediment storage should be provided. Side slopes shall not be steeper than 2:1.

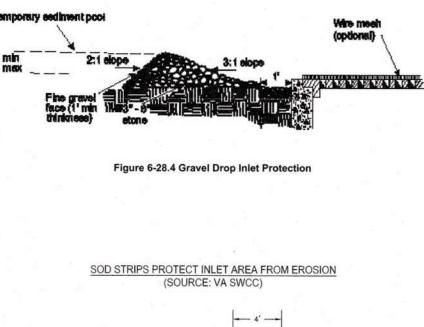
Sediment traps may be constructed on natural ground surface, on an excavated surface, or on machine compacted fill, provided they have a non-erodible outlet.

Filter Fabric with Sd2 -F Supporting Frame This method of inlet protection is applicable

where the inlet drains a relatively flat area (slope no greater than 5%) and shall not apply to inlets receiving concentrated flows, such as in street or highway medians. As shown in Figure 6-28.1, Type S silt fence supported by steel posts should be used. The stakes shall be spaced evenly around the perimeter of the inlet a maximum of 3 feet apart, and securely driven into the ground, approximately 18 inches deep. The fabric shall be 36 inches tall and entrenched 12 inches and backfilled with crushed stone or compacted soil. Fabric and wire shall be securely fastened to the posts, and fabric ends must be overlapped a minimum of 18 inches or wrapped together around a post to provide a continuous fabric barrier around the inlet.

(Sd2 -B) Baffle Box

For inlets receiving runoff with a higher volume or velocity, a baffle box inlet sediment trap should be used. As shown in Figure 6-28.2, the baffle box shall be constructed of 2" x 4" boards spaced a maximum of 1 inch apart or of plywood with weep holes 2 inches in diameter. The weep holes shall be placed approximately 6 inches on center vertically and horizontally. Gravel shall be placed outside the box, all around the inlet, to a depth of 2 to 4 inches. The entire box is wrapped



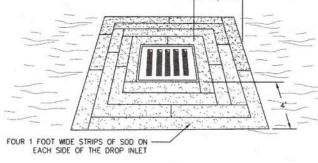


Figure 6-28.5 Sod Inlet Protection

REFERENCES ASCE 2001. Environmental Technology Verification Report for Installation of Silt Fence Using the Tommy Static Slicing Method, CERF Report #40565. Washington, DC: American Society of Civil Engineers.

www.epa.gov/etv/pubs/08_vs_tommy.pdf html?query=D6462-03&siteType=store-standards&searchType=standards-full

pages/resources/ Silt%20Fence%20That%20Works%20Manual.pdf tion. Santa Barbara, CA: Forester Press.

pubs/sw_swppp_guide.pdf

in Type C filter fabric that shall be entrenched 12 inches and backfilled.

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Block and Gravel Sd2 -Bg **Drop Inlet Protection**

This method of inlet protection is applicable where heavy flows are expected and where an overflow capacity is necessary to prevent excessive ponding around the structure. As shown in Figure 6-28.3, one block is placed on each side of the structure on its side in the bottom row to allow pool drainage. The foundation should be excavated at least 2 inches below the crest of the storm drain. The bottom row of blocks is placed against the edge of the storm drain for lateral support and to avoid washouts when overflow occurs. If needed, lateral support may be given to subsequent rows by placing 2" x 4" wood studs through block openings. Hardware cloth or comparable wire mesh with 1/2 inch openings shall be fitted over all block openings to hold gravel in place. Clean gravel should be placed 2 inches below the top of the block on a 2:1 slope or flatter and smoothed to an even grade. DOT #57 washed stone is recommended.

Gravel drop Inlet Protection (Sd2-G

This method of inlet protection is applicable where heavy concentrated flows are expected. As shown in Figure 6-28.4, stone and gravel are used to trap sediment. The slope toward the inlet shall be no steeper than 3:1. A minimum 1 foot wide level stone area shall be left between the structure and around the inlet to prevent gravel from entering the inlet. On the slope toward the inlet, stone 3 inches in diameter and larger should be used. On the slope away from the inlet, 1/2 to 3/4 inch gravel (#57 washed stone) should be used at a minimum thickness of 1 foot. Sod Inlet Protection Sd2-S

This method of inlet protection is applicable only at the time of permanent seeding, to protect the inlet from sediment and mulch material until permanent vegetation has become established. As shown in Figure 6-28.5, the sod shall be placed to form a turf mat covering the soil for

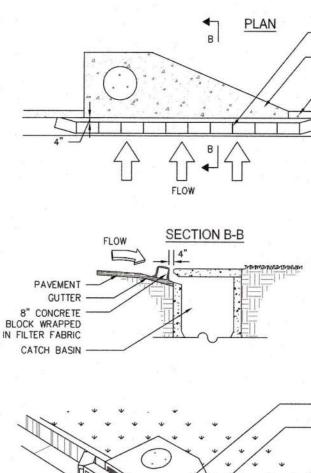
6-148

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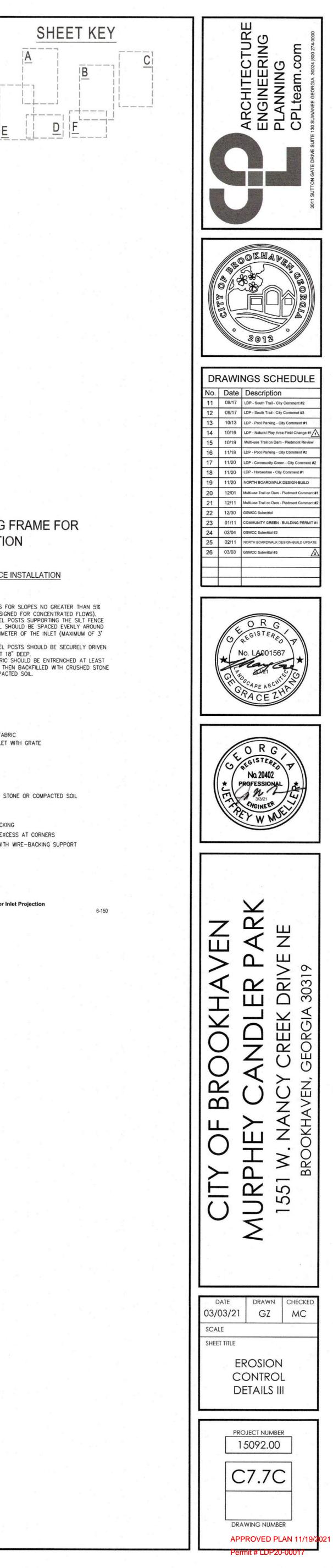
CURB INLET FILTER "PIGS IN BLANKET"



N

Figure 6-28.6 Curb Inlet Filter "Pigs in Blanket"





ASTM 2003. Standard Practice for Silt Fence Installation, D 6462-03(2008). West Conshohocken, PA: American Society of Testing Materials International. www.astm.org/SEARCH/search-reskin. Carpenter, Thomas 2000. Silt Fence That Works. Ankey, Iowa: Thomas Carpenter. www.tommy-sfm.com/ Fifield, Jerald S. 2011. Designing and Reviewing Effective Sediment and Erosion Control Plans, 3rd Edi-U.S. Environmental Protection Agency 2007. Developing Your Stormwater Pollution Prevention Plan, EPA 833-R-06-004. Washington: EPA. Available from EPA hardcopy 800-490-9198 or www.epa.gov/npdes/

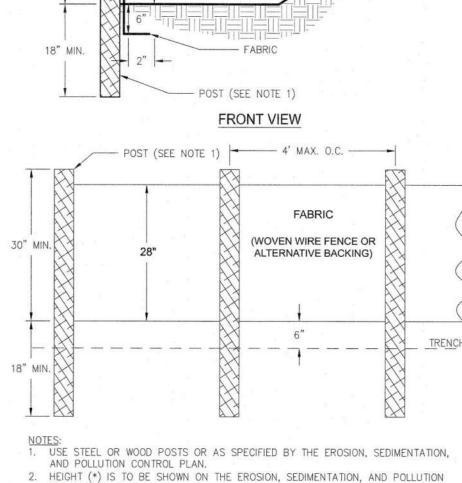


Figure 6-27.2

CONTROL PLAN.

salvaged or disposed of properly. The disturbed

smoothed and compacted. Appropriately stabilize

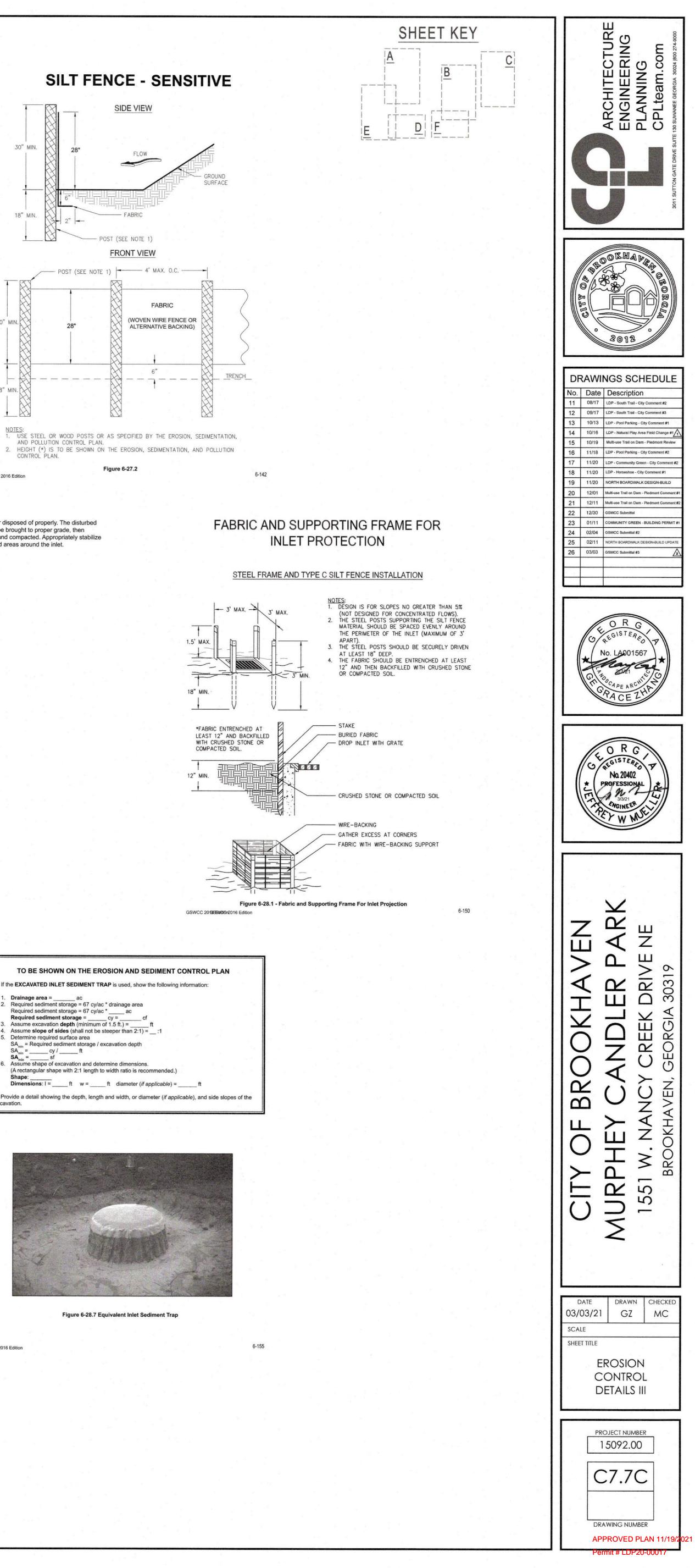
area shall be brought to proper grade, then

all disturbed areas around the inlet.

excavation.

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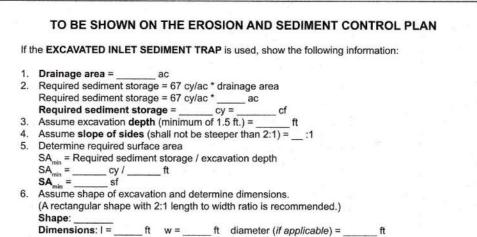




Figure 6-28.7 Equivalent Inlet Sediment Trap

a distance of 4 feet from each side of the inlet structure. Sod strips shall be staggered so that adjacent strip ends are not aligned. Curb Inlet Protection (Sd2-P) Once pavement has been installed, a curb inlet filter shall be installed on inlets receiving runoff from disturbed areas. This method of inle

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One method of curb inlet protection uses "pigs-in-a-blanket"- 8-inch concrete blocks wrapped in filter fabric. See Figure 6-28.6. Another method uses gravel bags constructed by wrapping DOT #57 stone with filter fabric, wire plastic mesh, or equivalent material.

protection shall be removed if a safety hazard is

A gap of approximately 4 inches shall be left between the inlet filter and the inlet to allow for overflow and prevent hazardous ponding in the roadway. Proper installation and maintenance are crucial due to possible ponding in the roadway, resulting in a hazardous condition. Several other methods are available to prevent the entry of sediment into storm drain in-

Figure 6-28.7 shows one of these alternative MAINTENANCE

The trap shall be inspected daily and after each rain, and repairs made as needed. Sediment shall be removed when the sediment has accumulated to one-half the height of the trap. Sediment shall be removed from curb inlet protection immediately. For excavated inlet sediment traps, sediment shall be removed when one-half of the sediment storage capacity has been lost to sediment accumulation. Sod inlet protection

shall be maintained as specified in Ds4 - Disturbed Area Stabilization (With Sodding). Sediment shall not be washed into the inlet. It shall be removed from the sediment trap, disposed of and stabilized so that it will not enter

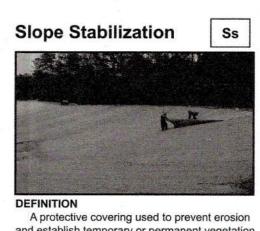
the inlet again. When the contributing drainage area has been permanently stabilized, all materials and any sediment shall be removed, and either

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8" CONCRETE BLOCK WRAPPED IN FILTER FABRIC - CATCH BASIN - CURBING - GUTTER - PAVEMEN NOTES: 1. INSTALL FILTER AFTER ANY INSTALL FILTER AFTER ANY ASPHALT PAVEMENT INSTALLATION 2. WRAP 8" CONCRETE BLOCKS IN FILTER FABRIC AND SPAN ACROSS CATCH BASIN INLET. 5. FACE OPENINGS IN BLOCKS LEAVE A GAP OF APPROXIMATELY 4 INCHES BETWEEN THE CURB AND THE FILTERS TO ALLOW FOR OVERFLOW TO PREVENT HAZARDOUS PONDING. 5. INSTALL OUTLET PROTECTION BELOW STORM DRAIN OUTLETS.

- CATCH BASIN 8" CONCRETE BLOCKS WRAPPED IN FILTER FABRIC - CURB APRON (GUTTER) - PAVEMEN

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and establish temporary or permanent vegetation on steep slopes, shore lines, or channels. PURPOSE To provide a cover layer that stabilizes the soil

and acts as a rain drop impact dissipater while providing a microclimate that protects young vegetation and promotes its establishment. If using slope stabilization to reinforce channels, please refer to specification, Ch- Channel Stablization.

CONDITIONS Slope stabilization can be applied to flat areas or slopes where the erosion hazard is high and slope protection is needed during the establishment of vegetation.

PLANNING CONSIDERATIONS Care must be taken to choose the type of slope stabilization product that is most appropriate for the specific needs of a project. Two general types of slope stabilization products are discussed within this specification.

Rolled Erosion Control Products (RECP) A natural fiber blanket with single or double photodegradable or biodegradable nets.

Hydraulic Erosion Control Products (HECP) HECP shall utilize straw, cotton, wood or other natural based fibers held together by a soil binding agent that works to stabilize soil particles. Paper mulch should not be used for erosion control.

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water condition.

CRITERIA Rolled Erosion Control Products (RECPs) and Hydraulic Erosion Control Products (HECPs): Installation and stapling of RECPs and application rates for the HECPs shall

conform to manufacturer's guidelines for application ·Short-Term RECPs as a minimum shall be

used to stabilize concentrated flow areas with a velocity less than 5ft/sec on slopes 3:1 or greater with a height of 10 feet or greater. Materials – HECP

Hydraulic erosion control products shall be prepackaged from the manufacturer. Field mixing of performance enhancing additives will not be allowed. Fiberous components should be all natural or biodegradable.

Products shall be determined to be non-toxic in accordance with EPA-821-R-02-012. Materials – RECP

Blankets shall be nontoxic to vegetation, seed, or wildlife. Products shall be determined to be non-toxic in accordance with EPA-821-R-02-012. At minimum, the plastic or biode-

gradable netting shall be stitched to the fibrous matrix to maximize strength and provide for ease of handling. RECPs are categorized as follows:

a. Short-Term (functional longevity 12 mo.)

i. Photodegradable

TO BE SHOWN ON THE EROSION AND SEDIMENT CONTROL PLAN

The dimensions of the apron including length (La), width at the headwall (W₁), downstream width (W₂),

The flow characteristics of the pipe at full flow including pipe diameter, flow rate (cfs), velocity (fps), and tail-

average stone diameter (d50), and stone depth (D) designed in accordance with Figures 6-34.1 and 6-34.2.

Straw blankets with a top and bottom side photo degradable net. The maximum size of the mesh should be openings of 1/2" X 1/2". The blanket should be sewn together on 1.5" centers with degradable thread. Minimum thickness should be 0.35" and minimum density should be 0.5 lbs per square yard.

ii. Biodegradable Straw blanket with a top and bottom side biodegradable jute net. The top side net should consist of machine direction strands that are

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direction strands (leno weave). The bottom net may be leno weave or otherwise to meet requirements. The approximate size of the mesh should be openings of 0.5" X 1.0". The blanket should be sewn together on 1.5" centers with degradable thread. Minimum thickness should be 0.25" and minimum density should be 0.5 lbs per square yard.

twisted together and then interwoven with cross

b. Extended-Term (functional longevity 24 mo.)

i.Photodegradable

Blankets that consist of 70% straw and 30% coconut with a top and bottom side photodegradable net. The top net should have ultraviolet additives to delay breakdown. The maximum size of the mesh should be openings of 0.65" X 0.65". The blanket should be sewn together on 1.5" centers with degradable thread. Minimum thickness should be 0.35" and minimum density should be 0.6 lbs per square yard.

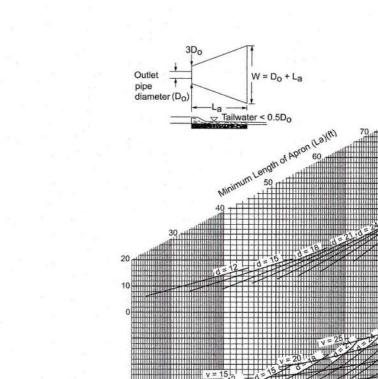
NOTES

ii.Biodegradable Blankets that consist of 70% straw and 30% coconut with a top and bottom side biodegradable jute net. The top side net should consist of machine direction strands that are twisted together and then interwoven with cross direction strands (leno weave). The bottom net may be leno weave or otherwise to meet requirements. The approximate size of the mesh should be openings of 0.5" X 1.0". The blanket should be sewn together on 1.5" centers with degradable thread. Minimum thickness should be 0.25" and minimum density should be 0.65 lbs per square yard.

c. Long-Term (functional longevity 36 mo.)

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i. Photodegradable Blankets that consist of 100% coconut with a top and bottom side photodegradable net. Each net should have ultraviolet additives to delay breakdown. The maximum size of the mesh should be openings of 0.65" X 0.65". The blanket should be sewn together on 1.5" centers with degradable thread. Minimum thickness should be 0.3" and minimum density should be 0.5 lbs per square yard.



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The ratio of the vertical cut distance to the horizontal distance shall be less than 1:1 and the horizontal portion of the "step" shall slope toward the vertical wall.

Individual vertical cuts shall not be more than 30 inches on soft soil material and not more than 40 inches in rocky materials.

2. Grooving consists of using machinery to create a series of ridges and depressions that run perpendicular to the slope (on the contour).

Grooves may be made with any appropriate implement that can be safely operated on the slope and that will not cause undue compaction. Suggested implements include discs, tillers, spring harrows, and the teeth on a front-end loader bucket. Such grooves shall not be less than 3 inches deep nor further than 15 inches apart.

Fill Slopes Steeper than 3:1 Fill slopes with a gradient steeper than 3:1 should not be mowed. They shall be grooved or allowed to remain rough as they are constructed. Method (1) or (2) below may be used.

1. Groove according to #2 of "Cut Slopes Steeper than 3:1". 2. As lifts of the fill are constructed, soil and

rock material may be allowed to fall naturally onto the slope surface (see Figure 6-35.1). Colluvial materials (soil deposits at the base of slopes or from old stream beds) shall not be used

in fills as they flow when saturated. Cuts, Fills, and Graded Areas That Will Be Mowed (less than 3:1)

Mowed slopes should not be steeper than 3:1. Excessive roughness is undesirable where mowing is planned.

These areas may be roughened with shallow grooves such as remain after tilling, discing, harrowing, raking, or use of a multipacker-seeder. The al pass of any such tillage implement shall be or the contour (perpendicular to the slope).

Grooves formed by such implements shall be not less than one inch deep and not further than 12 inches apart.

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Fill slopes that are left rough as constructed may be smoothed with a dragline or pickchain to facilitate mowing.

Roughening With Tracked Machinery Roughening with tracked machinery on clayed soils is not recommended unless no alternatives are available. Undue compaction of surface soil results from this practice. Sandy soils do not compact severely and may be tracked. In no case is tracking as effective as the other rough-

ening methods described. When tracking is the chosen surface roughening technique, it shall be done by operating tracked machinery up and down the slope to leave horizontal depressions in the soil. As few passes of the machinery as possible should be made to minimize compaction

Roughened areas shall be seeded and mulched as soon as possible to obtain optimum seed germination and seeding growth. Refer to specifications Ds1, Ds2, Ds3, and Ds4 - Disturbed Area Stabilization (With Mulching Only, Temporary Seeding, Permanent Vegeta-

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tion, and Sodding), respectively.

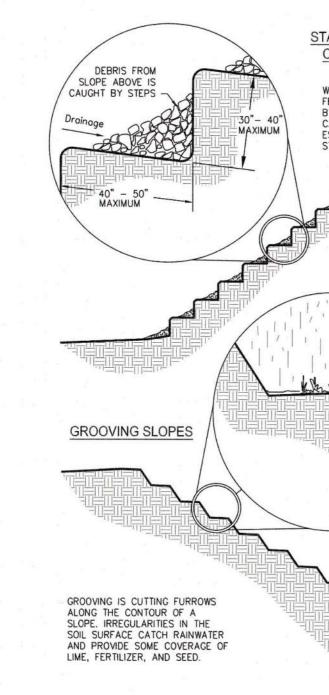


Figure 6-35.1

Discharge (ft³/sec)

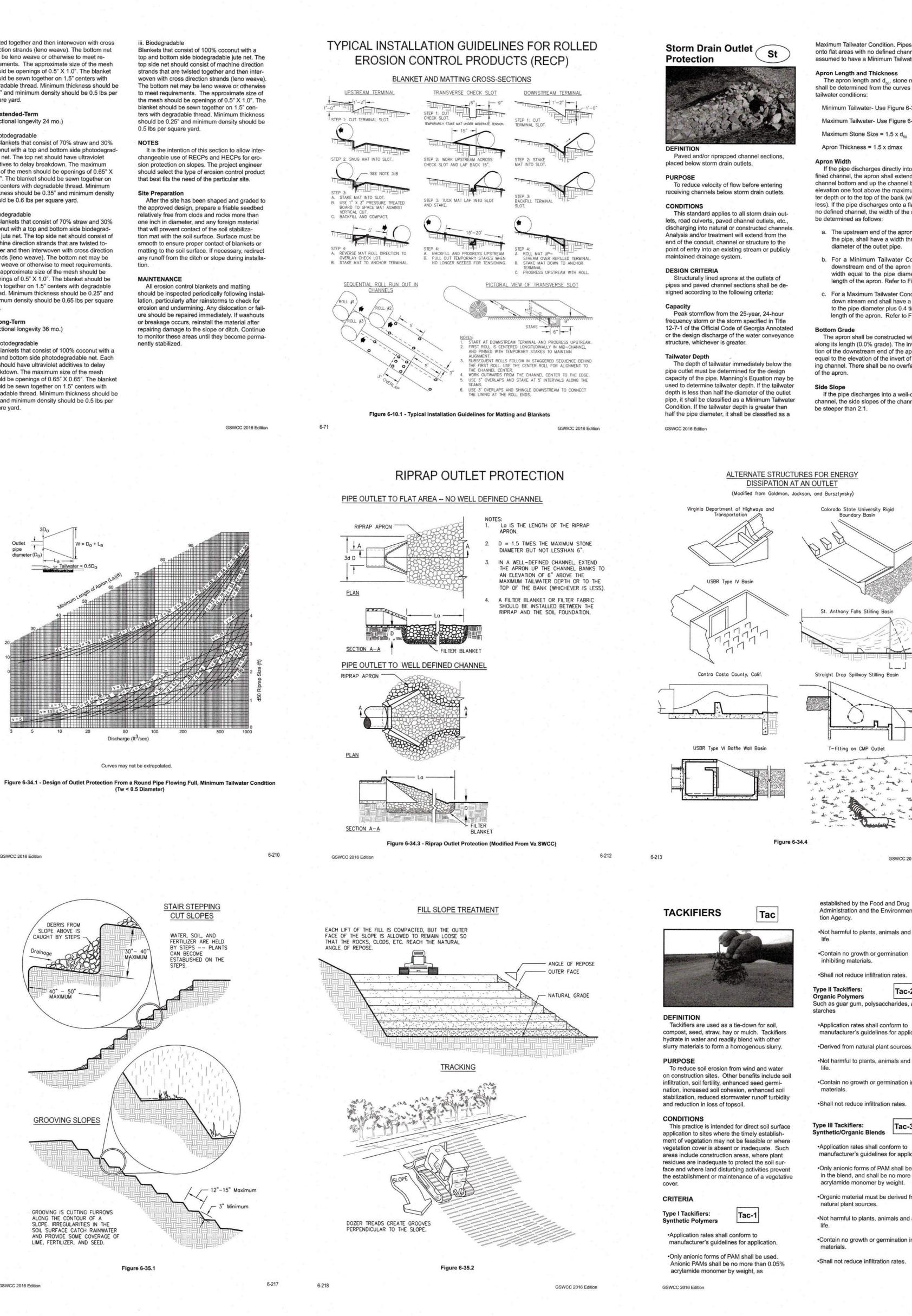
Curves may not be extrapolated

(Tw < 0.5 Diameter)



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TERRAMARK LAND SURVEYING 1396 BELLS FERRY ROAD	, INC.
MARIETTA, GEORGIA 30066 PHONE NO. (770) 421-1927 FAX. NO. (770) 421-0552 WWW.TERRAMARK.COM C. O. A.# LSF000810	NOTE: THE WRESTED VEGETATION AND 893 CONTOUR WERE SURVEYED IN BY TERRAMARK ON FEB. 4, 2021

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Maximum Tailwater Condition. Pipes that outlet onto flat areas with no defined channel may be assumed to have a Minimum Tailwater Condition. Apron Length and Thickness

The apron length and d_{so}, stone median size, shall be determined from the curves according to tailwater conditions: Minimum Tailwater- Use Figure 6-34.1 Maximum Tailwater- Use Figure 6-34.2

Maximum Stone Size = 1.5 x d_{sn} Apron Thickness = 1.5 x dmax Apron Width

If the pipe discharges directly into a well-defined channel, the apron shall extend across the channel bottom and up the channel banks to an elevation one foot above the maximum tailwater depth or to the top of the bank (whichever is less). If the pipe discharges onto a flat area with no defined channel, the width of the apron shall be determined as follows:

a. The upstream end of the apron, adjacent to the pipe, shall have a width three times the diameter of the outlet pipe.

b. For a Minimum Tailwater Condition, the downstream end of the apron shall have a width equal to the pipe diameter plus the length of the apron. Refer to Figure 6-34.1. c. For a Maximum Tailwater Condition, the down stream end shall have a width equal to the pipe diameter plus 0.4 times the

length of the apron. Refer to Figure 6-34.2. Bottom Grade The apron shall be constructed with no slope along its length (0.0% grade). The invert elevation of the downstream end of the apron shall be equal to the elevation of the invert of the receiv-

ing channel. There shall be no overfall at the end of the apron. Side Slope If the pipe discharges into a well-defined channel, the side slopes of the channel shall not

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Colorado State University Rigid Boundary Basin St. Anthony Falls Stilling Basin Straight Drop Spillway Stilling Basin

T-fitting on CMP Outlet

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Administration and the Environmental Protect tion Agency. •Not harmful to plants, animals and aquatic

 Contain no growth or germination inhibiting materials.

 Shall not reduce infiltration rates Type II Tackifiers: Tac-2 Organic Polymers Such as guar gum, polysaccharides, and

 Application rates shall conform to manufacturer's guidelines for application. •Derived from natural plant sources.

•Not harmful to plants, animals and aquatic ·Contain no growth or germination inhibiting

Shall not reduce infiltration rates.

Type III Tackifiers: Tac-3 Synthetic/Organic Blends Application rates shall conform to manufacturer's guidelines for application. •Only anionic forms of PAM shall be used in the blend, and shall be no more than 0.05% acrylamide monomer by weight.

 Organic material must be derived from natural plant sources. Not harmful to plants, animals and aquatic

•Contain no growth or germination inhibiting materials.

6-73

Shall not reduce infiltration rates.

The apron shall be located so that there are no bends in the horizontal alignment.

Geotextile Geotextiles should be used as a separator between the graded stone, the soil base, and the abutments. The geotextile will prevent the migration of soil particles from the subgrade into the graded stone. The geotextile shall be specified in accordance with AASHTO M288-06 Section 8, Geotextile Property Requirements. The geotextile should be placed immediately adjacent to the subgrade without any voids.

Materials The apron may be lined with riprap, grouted riprap, or concrete. The median sized stone for riprap, d₅₀, shall be determined from the curves, Figures 6-34.1 and 6-34.2, according to the tailwater condition. The gradation, quality and placement of riprap shall conform to Appendix C.

Refer to Figure 6-34.4, for alternative structures to achieving energy dissipation at an outlet. For information regarding the selection and design of these alternative energy dissipators, refer to: FHWA Standard (REF. Hydraulic Design of En ergy Dissipators for Culverts and Channels; HEC No. 14, FHWA, Available from the Superintendent of Documents, U.S. Government Printing Office,

Washington, D.C. 20402. CONSTRUCTION SPECIFICATIONS

1. Ensure that the subgrade for the filter and riprap follows the required lines and grades shown in the plan. Compact any fill required in the subgrade to the density of the surrounding undisturbed material. Low areas in the subgrade on undisturbed soil may also

be filled by increasing the riprap thickness. 2. The riprap and gravel filter must conform to the specified grading limits shown on the plans.

3. Geotextile must meet design requirements and be properly protected from punching or tearing during installation. Repair any damage by removing the riprap and placing another piece of filter fabric over the damaged

area. All connecting joints should overlap a

Surface Roughening

DEFINITION

Providing a rough soil surface with horizontal depressions created by operating a tillage or other suitable implement on the contour, or by leaving slopes in a roughened condition by not fine-grading them.

PURPOSE The purposes of surface roughening are to aid in establishment of vegetative cover with seed, to reduce runoff velocity and increase infiltration, reduce erosion and provide for sediment trapping.

CONDITIONS All slopes steeper than 3:1 require surface roughening, either stair-step grading, grooving, furrowing, or tracking if they are to be stabilized with vegetation. However, if the slope is to be stabilized with erosion control blankets or soil reinforcement matting, the soil surface should

Areas with grades less steep than 3:1 should have the soil surface lightly roughened and loosened to a depth of 2 to 4 inches prior to seeding Areas that have been graded and will not be stabilized immediately may be roughened to reduce runoff velocity until seeding takes place. Slopes

DESIGN CRITERIA

not be roughened.

Graded areas with smooth, hard surfaces give a false impression of "finished grading" and a job well done. It is difficult to establish vegetation on such surfaces due to reduced wate infiltration and the potential for erosion. Rough

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Type IV Tackifiers: Organic Tackifiers with

Synthetic Fibers Application rates shall conform to manufacture turer's guidelines for application.

 Organic material must be derived from natural plant sources.

•Not harmful to plants, animals and aquatic

 Contain no growth or germination inhibiting materials.

 Shall not reduce infiltration rates. ·Synthetic fibers shall be of nylon or polyester blends.

Type V Tackifiers: Tac-5 Synthetic/Organic Blends with Synthetic Fibers

·Application rates shall conform to manufacturer's guidelines for application. •Only anionic forms of PAM shall be used

in the blend, and shall be no more than 0.05% acrylamide monomer by weight. •Organic material must be derived from natural plant sources.

•Not harmful to plants, animals and aquatic

·Contain no growth or germination inhibiting materials. ·Shall not reduce infiltration rate.

•Synthetic fibers shall be of nylon or polyester blends.

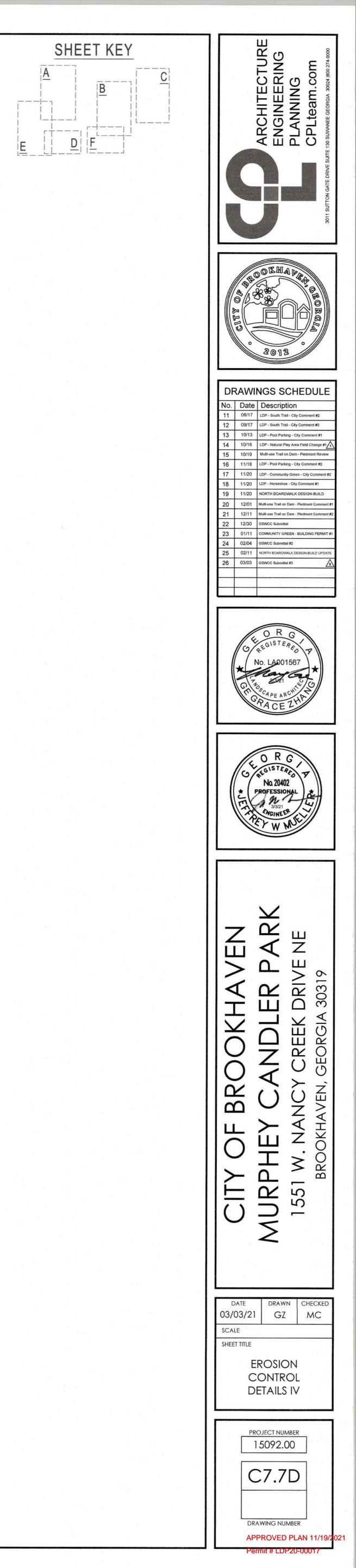
MAINTENANCE Tackified areas should be checked after every rain event. Periodic inspections and required maintenance must be provided per manufacturer's recommendations.

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minimum of 1 ft. If the damage is extensive, replace the entire filter fabric. 4. Riprap may be placed by equipment, but take

- care to avoid damaging the filter. 5. The minimum thickness of the riprap should
- be 1.5 times the maximum stone diameter. 6. Construct the apron on zero grade with no overfall at the end. Make the top of the riprap at the downstream end level with the receiving area or slightly below it.
- . Ensure that the apron is properly aligned with the receiving stream and preferably straight throughout its length. If a curve is needed to fit site conditions, place it in the upper section of the apron.
- 8. Immediately after construction, stabilize all disturbed areas with vegetation. Stone quality - Select stone for riprap from
- field stone or quarry stone. The stone should be hard, angular, and highly weather-resistant. The specific gravity of the individual stones should be at least 2.5. 10. Filter - Install a filter to prevent soil movement
- through the openings in the riprap. The filter should consist of a graded gravel layer or a synthetic filter cloth. See Appendix C; p. C-1. MAINTENANCE

Inspect riprap outlet structures after heavy rains to see if any erosion around or below the riprap has taken place or if stones have been dislodged. Immediately make all needed repairs to prevent further damage.



place may appear unattractive or unfinished at first, but encourage water infiltration, speed up the establishment of vegetation, and decrease runoff velocity. Rough, loose soil surfaces give lime, fertilizer and seed some natural coverage. Niches in the surface provide microclimates that generally provide a cooler and more favorable moisture level than hard flat surfaces. This aids

slope surfaces with uneven soil and rocks left in

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seed germination. There are different methods of achieving a roughened soil surface on a slope, and the selection of an appropriate method depends upon the type of slope. Roughening methods include stair-step grading, grooving, and tracking. Factors to be considered in choosing a method are slope steepness, mowing requirements, and whether the slope is formed by cutting or filling.

1. Disturbed areas that will not require mowing may be stair-step graded, grooved, or left rough after filling.

2. Stair-step grading is particularly appropriate in soils containing large amounts of soft rock Each "step" catches material that sloughs from above, and provides a level site where vegetation can become established.

- 3. Areas that will be mowed (these areas should have slopes less steep than 3:1) may have small furrows left by discing, harrowing, raking, or seed planting machinery operated on the contour.
- 4. It is important to avoid excessive compacting of the soil surface when scarifying. Tracking with bulldozer treads is preferable to no roughening at all, but it is not as effective as other forms of roughening, as the soil surface is severly compacted and runoff is increased.

 Stair-step grading may be carried out or any material soft enough to be ripped with a bulldozer. Slopes consisting of soft rock

CONSTRUCTION SPECIFICATIONS

Cut Slopes Steeper than 3:1

Cut slopes with a gradient steeper than 3:1 should not be mowed. They shall be stair-step graded or grooved (see Figure 6-35.1).

with some subsoil are particularly suited to stair-step grading.

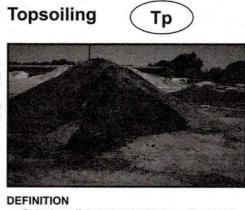
6-215

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Tac-4

with a stable rock face do not require roughening or stabilization.

Su



- Stripping off the more fertile top soil, storing it, then spreading it over the disturbed area after completion of construction activities.
- PURPOSE To provide a suitable soil medium for vegetative growth on areas where other measures will not produce or maintain a desirable stand.
- CONDITIONS This practice is recommended for sites of 2:1 or flatter slopes where: 1. The texture of the exposed subsoil or parent
- material is not suitable to produce adequate vegetative growth. 2. The soil material is so shallow that the rooting zone is not deep enough to support plants
- with continuing supplies of moisture and 3. The soil to be vegetated contains material
- toxic to plant growth. CONSTRUCTION SPECIFICATIONS Materials
- Topsoil should be friable and loamy, free of debris, objectionable weeds and stones and contain no toxic substance that may be harmful

to plant growth. A pH range of 5.0-7.5 is acceptable. Soluble salts should not exceed 500 ppm. Field exploration should be made to deter-

mine whether the quantity and quality of surface soil justifies stripping. GSWCC 2016 Edition

GALVANIZED METAL

POST SUNK A

10' ON CENTER.

6' TEMPORARY

FENCE FOR TREE

CHAIN LINK

PROTECTION

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per acre.

3/4:1 or steeper.

per acre.

tion establishment enhancement, and erosion

rial from the following and apply as indicated:

control effectiveness. Select the mulching mate-

1. Dry straw or dry hay of good quality and free

of weed seeds can be used. Dry straw shall

be applied at the rate of 2 tons per acre. Dry

hay shall be applied at a rate of 2 1/2 tons

2. Wood cellulose mulch or wood pulp fiber

3. One thousand pounds of wood cellulose or

4. Sericea Lespedeza hay containing mature

5. Pine straw or pine bark shall be applied at a

seed shall be applied at a rate of three tons

thickness of 3 inches for bedding purposes.

Other suitable materials in sufficient quantity

ground covers are planted. This is not ap-

may be used where ornamentals or other

kets or block sod, mulch is not required.

propriate for seeded areas.

shall be used with hydraulic seeding. It shall

be applied at the rate of 500 pounds per acre.

Dry straw or dry hay shall be applied (at the

rate indicated above) after hydraulic seeding.

wood pulp fiber, which includes a tackifier.

shall be used with hydraulic seeding on slopes

BARRIER (TYP.)

MINIMUM OF 1'-0"

BELOW GRADE. SET

TREE PROTECTION

CHAIN LINK FENCE DETAIL

FOR ADDED PROTECTION

-PROVIDE 4" DEEP ORGANIC MULCH OVER ANY UNPROTECTED ROOT ZONE.

Figure 6-38.2

-PROVIDE TEMPORARY IRRIGATION WHERE PRACTICAL AND FEASIBLE.

A SER

Parties -

-

- Stripping should be confined to the immediate construction area.
- A 4 to 6 inch stripping depth is common, but may vary depending on the particular soil. opsoil pH
- If pH value is less than 6.0, lime shall be applied and incorporated with the topsoil to adjust he pH to 6.5 or higher. Topsoils containing soluble salts greater than 500 parts per million shall not be used.
- ockpiles The location of topsoil stockpiles should not obstruct natural drainage or cause off-site environmental damage.

Stabilization Stockpiles shall be contained by sediment barriers to prevent sedimentation on adjacent areas. Stockpiles shall be stabilized in accordance with specifications Ds1 and Ds2 - Disturbed Area Stabilization (With Mulching) and (With Temporary Grassing), respectively, or Tac-Tackifiers

Site Preparation (Where topsoil is to be added)

Topsoiling - When topsoiling, maintain needed erosion control practices such as diversions, grade stabilization structures, berms, dikes, level spreaders, waterways, sediment basins, etc.

Grading - Grades on the areas to be topsoiled that have been previously established shall be maintained.

Liming - Soil tests should be used to determine the pH of the soil. Where the pH of the subsoil is 5.0 or less or composed of heavy clays, agricultural limestone shall be spread at the rate of 100 pounds per 1,000 square feet. Lime shall be distributed uniformly over designated areas and worked into the soil in conjunction with tillage operations as described in the following procedure.

Bonding - Use one of the following methods to insure bonding of topsoil and subsoil:

1. Tilling. After the areas to be topsoiled have

6-223

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scarifying to a depth of at least 3 inches to permit bonding of the topsoil to the subsoil. 2. Tracking. Passing a bulldozer over the entire surface area of the slope to leave horizontal depressions.

been brought to grade, and immediately prior

to dumping and spreading the topsoil, the

subgrade shall be loosened by discing or

Applying Topsoil 1. Topsoil should be handled only when it is dry enough to work without damaging soil

structure

2. A uniform application of 5 inches (unsettled) is recommended, but may be adjusted at the discretion of the design professional.

Disturbed Area Stabilization (With Permanent Ds3 legetation)



as trees, shrubs, vines, grasses, or legumes on exposed areas for final permanent stabilization. Permanent perennial vegetation shall be used to achieve final stabilization.

PURPOSE

 To protect the soil surface from erosion To reduce damage from sediment and runoff to down-stream areas To improve wildlife habitat and visual resources

 To improve aesthetics REQUIREMENT FOR REGULATORY

COMPLIANCE This practice shall be applied immediately to rough graded areas that will be undisturbed for longer than six months. This practice or sodding shall be applied immediately to all areas at final grade. 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 and areas located outside the waste disposal limits of a landfill cell that has been certified by the GA EPD for waste disposal, 100% of the soil surface s uniformlycovered 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.

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4" to 6" 4" to 6" 3" to 5" 4" to 6"

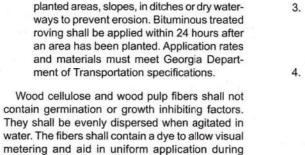
Irrigation will be applied at a rate that will not cause runoff.

- Topdressing will be applied on all temporary and permanent (perennial) species planted alone or in mixtures with other species. Recommended rates of application are listed in Table 6-5.1.
- Second Year and Maintenance Fertilization Second year fertilizer rates and maintenance fertilizer rates are listed in Table 6-5.1.
- Lime Maintenance Application Apply one ton of agricultural lime every 4 to 6 years or as indicated by soil tests. Soil tests can be conducted to determine more accurate requirements, if desired.
- Use and Management Mow Sericea Lespedeza only after frost to ensure that the seeds are mature. Mow between
- November and March. Bermudagrass, Bahiagrass and Tall Fescue may be mowed as desired. Maintain at least 6 inches
- of top growth under any use and management Moderate use of top growth is beneficial after establishment. Exclude traffic until the plants are well estab-
- lished. Because of the guail nesting season mowing should not take place between May and September.

ities Protection Center, 1-800-282-7411 Know what's below. Call before you dig.

seeding.

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Applying Mulch Straw or hay mulch will be spread uniformly within 24 hours after seeding and/or plant-

6. When using temporary erosion control blanverified nontoxic through EPA 2021.0 testing. Refer to Tackifiers-Tac 7. Bituminous treated roving may be applied on one-half bushel per acre.

> than one inch by one inch may be needed to anchor straw or hay mulch on unstable soils and concentrated flow areas. These materials shall be installed and anchored according to manufacturer's specifications.

Mulch is used as a bedding material to conserve moisture and control weeds in nurseries, ornamental beds, around shrubs, and on bare areas on lawns.

2016 SURVEY & 2019 UPDATED TREE SURVEY TERRAMARK LAND SURVEYING, INC. 1396 BELLS FERRY ROAD MARIETTA, GEORGIA 30066 PHONE NO. (770) 421-1927 FAX. NO. (770) 421-0552 AND 893 CONTOUR WERE WWW.TERRAMARK.COM C. O. A.# LSF000810

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SURVEYED IN BY TERRAMARK ON FEB. 4,

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low		
ing to c		

NO EXCAVATION, TRENCHING

TILLING. GRUBBING, VEHICLE,

OR EQUIPMENT STORAGE

WITHIN LIMITS OF TREE

- 6' TEMPORARY CHAIN

BARRIER CONSTRUCTED TO PROTECT

SHALL BE LOCATED AT THE LIMITS OF

THE TREE'S CRITICAL ROOT ZONE (

RADIUS OF ONE AND A HALF FEET

PER INCH OF THE TREE'S DIAMETER

AT BREAST HEIGHT). BARRIER SHALL

DURATION OF THE PROJECT AND IS

TO REMAIN IN PLACE UNTIL THE

NOTICE OF TERMINATION.

BE KEPT IN GOOD CONDITION FOR THI

TREE TRUNK, CROWN, AND ROOT

SYSTEM FROM INJURY. BARRIERS

LINK FENCE

PROTECTION FENCING.

ing. The mulch may be spread by bl spreading equipment, other spread or by hand. Mulch shall be applied to of the soil surface.

Wood cellulose or wood fiber mulch shall be applied uniformly with hydraulic seeding equipment. Anchoring Mulch

- Anchor straw or hay mulch immediately after application by one of the following methods: 1. Hay and straw mulch shall be pressed into the soil immediately after the mulch is spread. A special "packer disk" or disk harrow with the disks set straight may be used
- The disks may be smooth or serrated and should be 20 inches or more in diameter and 8 to 12 inches apart. The edges of the disks shall be dull enough to press the mulch into the ground without cutting it, leaving much of it in an erect position. Mulch shall not be plowed into the soil.
- 2. Synthetic tackifiers, binders or hydraulic mulch specifically designed to tack straw, shall be applied in conjunction with or immediately after the mulch is spread. Synthetic tackifiers shall be mixed and applied according to manufacturer's specifications All tackifiers, binders or hydraulic mulch specifically designed to tack straw should be
- 3. Rye or wheat can be included with Fall and Winter plantings to stabilize the mulch. They
- shall be applied at a rate of one-quarter to 4. Plastic mesh or netting with mesh no larger
- **Bedding Material**

Depth	Per 1,000	
(Inches)	Square Feet	Per Acre
1	3.1	134
2	6.2	268
3	9.3	403
4	12.4	537
5	15.5	672

Tree Protection Tr

to remove trees with a specified diameter. It is important for property owners and design professionals to contact the local government to obtain information regarding tree ordinances BEFORE ES&PC plans are designed. Failure to do so could result in heavy fines or delay in construc-

> DESIGN CRITERIA No formal design is required. However, in planning, a number of criteria must be consid-

tree protection specifications written in their local

ordinances. In some areas a permit is needed

- Tree Protection Zones: Measure the diameter of the tree trunk in inches at 4.5 feet from the ground. This is called the Diameter Breast Height or DBH.
- 2. Multiply this value by 1.5. This result is the radius of the root protection zone in feet. This is also considered the critical rooting distance

Once the size of the area is determined, consider fencing materials. Orange tree save fencing or black silt fencing are commonly used.

These materials are easy to install but they often get knocked down or removed when it is inconvenient to go around the tree save area. In some cases more permanent materials, such as chain link fencing, may be required. Whatever fencing material is used, it must be maintained throughout the construction process.

Tree Protection Zone Fencing: Tree protection zone fencing may be one of the following:

1. For areas of large remnant forest to be protected use 4 feet high orange plastic fabric fencing stapled in three locations to treated wood 2x4 stakes. Set stakes 6 feet on center. Rebar is not to be used for stakes. Figure 6-38.1

2. For single family homes use a treated wood fencing as shown on detail. It may have orange fabric attached to it.

3. For all other developments use 6 feet high 6-225

soil erosion shall be diverted to a safe outlet. Diversions and other treatment practices shall conform with the appropriate standards and specifications.

Lime and Fertilizer Rates and Analysis Agricultural lime is required at the rate of one to two tons per acre unless soil tests indicate otherwise. Graded areas require lime application. If lime is applied within six months of planting permanent perennial vegetation, additional lime

is not required. Agricultural lime shall be within the specifications of the Georgia Department of Lime spread by conventional equipment shall be "ground limestone." Ground limestone is calcitic or

dolomitic limestone ground so that 90 percent of the material will pass through a 10-mesh sieve, not less than 50 percent will pass through a 50-mesh sieve and not less than 25 percent will pass through a 100-mesh sieve.

Fast-acting lime spread by hydraulic seeding equipment should be "finely around limestone" spanning from the 180 micron size to the 5 micron size. Finely ground limestone is calcitic or dolomitic limestone ground so that 95 percent of the material will pass through a 100-mesh sieve.

It is desirable to use dolomitic limestone in the Sand Hills, Southern Coastal Plain and Atlantic Coast Flatwoods MLRAs. (See Figure 6-4.1)

Agricultural lime is generally not required where only trees are planted. Initial fertilization, nitrogen, topdressing, and

maintenance fertilizer requirements for each species or combination of species are listed in Table 6-5.1.

Lime and Fertilizer Application

When hydraulic seeding equipment is used, the initial fertilizer shall be mixed with seed. innoculant (if needed), and wood cellulose or wood pulp fiber mulch and applied in a slurry. The innoculant, if needed, shall be mixed with the seed prior to being placed into the hydraulic seeder. The slurry mixture will be agitated during application to keep the ingredients thoroughly mixed. The mixture will be spread uniformly over the area within one hour after being placed in the

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TYPE OF SPECIES	YEAR	ANALYSIS OR EQUIVALENT N-P-K	RATE	N TOP DRESSING RATE
1. Cool season grasses	First Second Maintenance	6-12-12 6-12-12 10-10-10	1500 lbs./ac. 1000 lbs./ac. 400 lbs./ac.	50-100 lbs./ac. 1/2/
	wantenance	10-10-10	400 IDS./ac.	
2. Cool season	First	6-12-12	1500 lbs./ac.	0-50 lbs./ac. 1/
grasses and	Second	0-10-10	1000 lbs./ac.	
legumes	Maintenance	0-10-10	400 lbs./ac.	-
3. Ground covers	First	10-10-10	1300 lbs./ac. 3/	
	Second	10-10-10	1300 lbs./ac. 3/	-
	Maintenance	10-10-10	1100 lbs./ac.	
4. Pine seedlings	First	20-10-5	one 21-gram pellet	
	a second s		per seedling placed	
			in the closing hole	
5. Shrub Lespedeza	First	0-10-10	700 lbs./ac.	
	Maintenance	0-10-10	700 lbs./ac. 4/	
6. Temporary cover crops seeded alone	First	10-10-10	500 lbs./ac.	30 lbs./ac. 5/
7. Warm season	First	6-12-12	1500 lbs./ac.	50-100 lbs./ac. 2/6/
grasses	Second	6-12-12	800 lbs./ac.	50-100 lbs./ac. 2/
	Maintenance	10-10-10	400 lbs./ac.	30 lbs./ac.
8. Warm season	First	6-12-12	1500 lbs./ac.	50 lbs./ac./6/
grasses and	Second	0-10-10	1000 lbs./ac.	
legumes	Maintenance	0-10-10	400 lbs./ac.	

Table 6-5.1. Fertilizer Requirements

1/ Apply in spring following seeding. 2/ Apply in split applications when high rates are used.

3/ Apply in 3 split applications. 4/ Apply when plants are pruned

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5/ Apply to grass species only. 6/ Apply when plants grow to a height of 2 to 4 inches.

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hydroseeder. Finely ground limestone can be applied in the mulch slurry or in combination with the top dressing. When conventional planting is to be done, lime

chain link fencing attached to galvanized

metal post as shown on detail. Figure

For more information about standards for ad-

national Society of Arboriculture.

equate tree protection, refer to guidance by the

American National Standard (ANSI) or the Inter-

6-38.2

the following ways: 1. Apply before land preparation so that it will be mixed with the soil during seedbed preparation.

ute in furrows.

Broadcast after steep surfaces are scarified, pitted or trenched.

seedling.

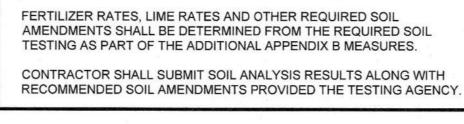
Refer to Tables 6-4.1, 6-5.2, 6-5.3 and 6-5.4 for approved species. Species not listed shall be approved by the State Resource Conservationist of the Natural Resources Conservation Service before they are used.

characteristics, site and soil conditions, planned use and maintenance of the area; time of year of planting, method of planting; and the needs and desires of the land user.

and can be planted alone. Examples of these are Common Bermuda, Tall Fescue, and Weeping

cea Lespedeza, are slow to become established and should be planted with another perennial species. The additional species will provide quick cover and ample soil protection until the target perennial species become established. For example, Common seeding combinations are 1) Weeping Lovegrass with Sericea Lespedeza (scarified) and 2) Tall

ion crops. Annual companion crops should be used only when the perennial species are not planted during their optimum planting period. A common



Species	Broadcast Rates	Resource Area ³	
			So
	Pure Live Seed (PLS Rate Per Acre ² Per 1000 so)	J
FESCUE, TALL Festuca arundinacea			
alone	50 lbs 1.1 lb	M-L	
with other perennials	30 lbs 0.7 lb	Р	
KUDZU Pueraria thumbergiana			
Plants or crowns	3' - 7' apart	ALL	
LESPEDEZA SERICEA Lespedeza cuneata			
scarified	60 lbs 1.4 lb	M-L P C	
unscarified	75 lbs 1.7 lb	M-L P C	
		M-L P	
seed- bearing hay	3 tons 1338 lbs	c	

and fertilizer shall be applied uniformly in one of

4. A fertilizer pellet shall be placed at root depth

2. Mix with the soil used to fill the holes, distrib-

in the closing hole beside each pine tree

Plant Selection

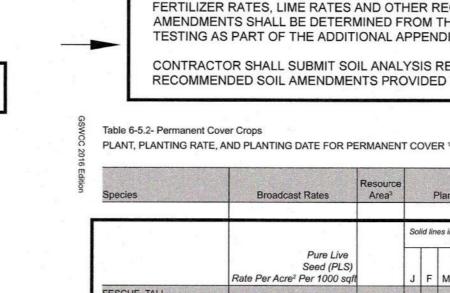
Plants shall be selected on the basis of species

Some perennial species are easily established

Lovegrass. Other perennials, such as Bahia Grass and Seri-

Fescue with Sericea Lespedeza (unscarified). Plant selection may also include annual compan-

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DEFINITION

To protect desirable trees from injury during construction activity. PURPOSE

To 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 from forest to urban-type uses.

CONSTRUCTION ACTIVITIES

Trees can be damaged or killed by a wide variety of construction activities. Obvious injuries such as broken branches or torn bark deplete the tree's resources and provide entry points for insects, or for diseases such as Oak Wilt.

The worst damage, however, often remains hidden underground. Roots are one of the most vital parts of a tree. They are responsible for nutrient and water uptake, energy storage and anchoring the plant. It is critical that you protect roots that lie in the path of construction.

Soil compaction is the leading killer of urban trees. Tree roots need loose soil to grow, obtain oxygen, and absorb water and nutrients. Stock piled building materials, heavy machinery, and excessive foot traffic, all damage soil structure.

tree health declines. Requirement for Regulatory Compliance Many cities and counties in Georgia have

Lacking good soil aeration, roots suffocate and

Wildlife Plantings

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Commercially available plants beneficial to wildlife species include the following: Mast Bearing Trees

Beech, Black Cherry, Blackgum, Chestnut, Chinkapin, Hackberry, Hickory, Honey Locust, Native Oak, Persimmon, Sawtooth Oak and

All trees that produce nuts or fruits are favored by many game species. Hickory provides nuts used mainly by squirrels and bear.

Shrubs and Small Trees Bayberry, Bicolor Lespedeza, Crabapple, Dogwood, Huckleberry or Native Blueberry, Mountain

Laurel, Native Holly, Red Cedar, Red Mulberry, Sumac, Wax Myrtle, Wild Plum and Blackberry. Plant in patches without tall trees to develop

by many kinds of wildlife, except for lespedeza that produces seeds used by quail and songbirds. Grasses, Legumes, Vines and Temporary Cover Bahiagrass, Bermudagrass, Grass-Legume

mixtures, Partridge Pea, Annual Lespedeza, Orchardgrass (for mountains), Browntop Millet (for temporary cover), and Native grapes.

Provides herbaceous cover in clearings for a game bird brood-rearing habitat. Appropriate legumes such as vetches, clovers, and lespedezas may be mixed with grass, but they may die out after a few years. CONSTRUCTION SPECIFICATIONS

Grading and Shaping Grading and shaping may not be required where hydraulic seeding and fertilizing equipment is to be used. Vertical banks shall be sloped to enable plant establishment.

When conventional seeding and fertilizing are to be done, grade and shape where feasible and practical, so that equipment can be used safely and efficiently during seedbed preparation, seeding, mulching and maintenance of the vegetation.

Concentrations of water that will cause excessive

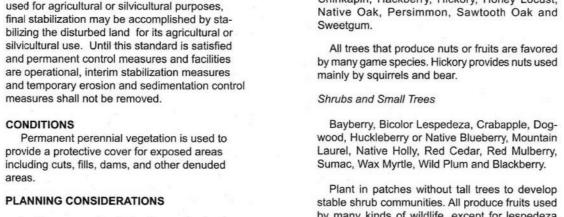
2. When mixed plantings are done during marginal planting periods, companion crops shall 3. No-till planting is effective when planting is done following a summer or winter annual cover crop. Sericea lespedeza planted no-till into stands of rye is an excellent procedure.

4. Block sod provides immediate cover. It is especially effective in controlling erosion adjacent to concrete flumes and other structures. Refer to Specification Ds4-Disturbed Area Stabilization (With Sodding).

5. Irrigation should be used when the soil is dry or when summer plantings are done. 6. Low maintenance plants, as well as natives, should be used to ensure long-lasting ero-

. Mowing should not be performed during the quail nesting season (May to September). 8. Wildlife plantings should be included in critical area plantings.

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PLANNING CONSIDERATIONS 1. Use conventional planting methods where possible.

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Permanent vegetation shall consist of, planted

nial vegetation appropriate for the region, such

that within the growing season a 70% coverage

by perennial vegetation shall be achieved. Final

stabilization applies to each phase of construc-

tion. For linear construction projects on land

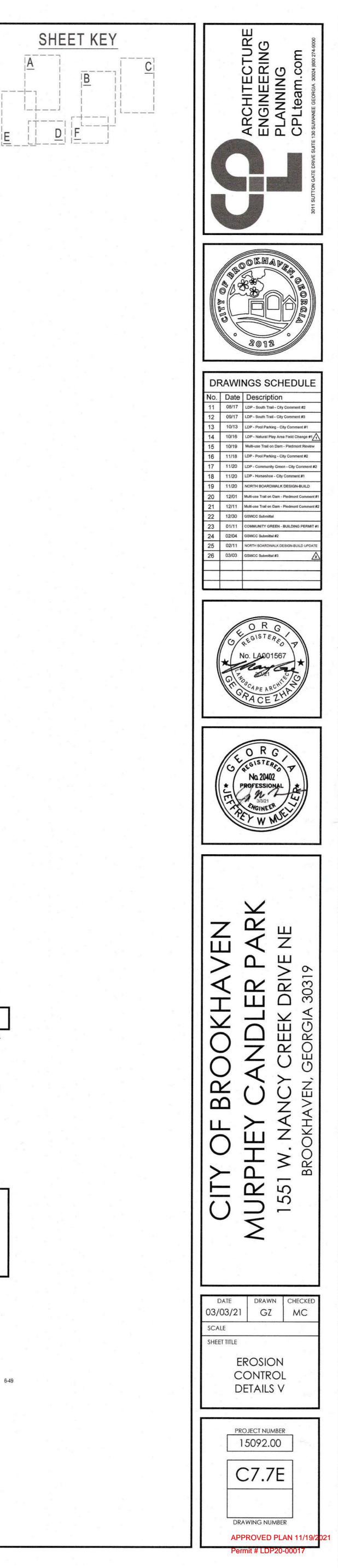
CONDITIONS

be used.

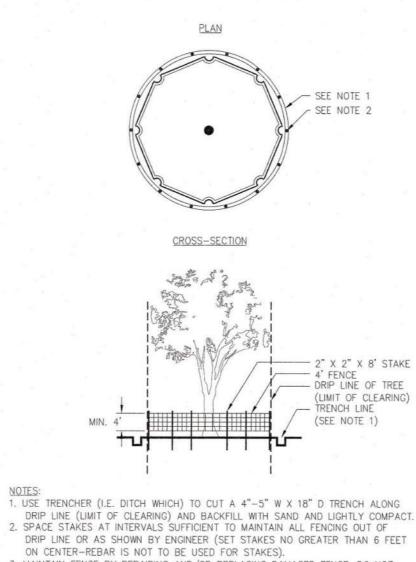
sion control.

area

trees, shrubs, perennial vines; or a crop of peren-



TREE PROTECTION "SNOW" FENCE



ON CENTER-REBAR IS NOT TO BE USED FOR STAKES). 3. MAINTAIN FENCE BY REPAIRING AND/OR REPLACING DAMAGED FENCE. DO NOT

REMOVE FENCING PRIOR TO LANDSCAPING OPERATIONS 4. DO NOT STORE OR STACK MATERIALS, EQUIPMENT, OR VEHICLES WITHIN FENCED

5. FENCE SHALL BE ORANGE VINYL "SNOW FENCE" 4' HIGH MINIMUM. Figure 6-38.1

6-226

mixture is Brown Top Millet with Common Bermuda in mid-summer. Care should be taken in selecting companion crop species and seeding rates because annual crops will compete with perennial species for water, nutrients, and growing space. A high seeding rate of the companion crop may prevent the establishment of perennial species. Ryegrass shall not be used in any seeding mixtures containing perennial species due to its ability to out-compete desired species chosen

for permanent perennial cover. Seed Quality The term "pure live seed" is used to express the quality of seed and is not shown on the labe Pure live seed, PLS, is expressed as a percentage of the seeds that are pure and will germinate. Information on percent germination and purity can be found on seed tags. PLS is deter-

mined by multiplying the percent of pure seed with the percent of germination; i.e., (PLS = % germination x % purity) EXAMPLE:

Common Bermuda seed 70% germination, 80% purity PLS = 70% germination x 80% purity

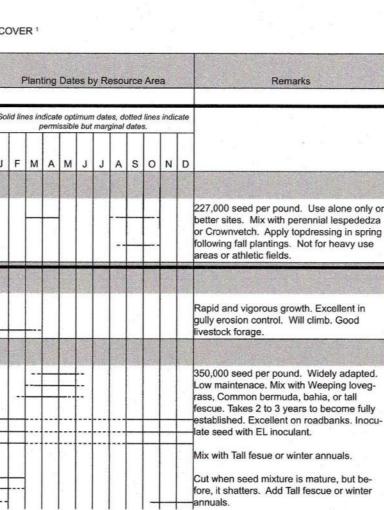
PLS = 56% The percent of PLS helps you determine the amount of seed you need. If the seeding rate is 10 bounds PLS and the bulk seed is 56 % PLS, the

bulk seeding rate is: 10 lbs. PLS/acre = 17.9 lbs/acre

You would need to plant 17.9 lbs/acre to provide 10 lbs/acre of pure live seed.

Seedbed Preparation Seedbed preparation may not be required where hydraulic seeding and fertilizing equipment is to be used (but is strongly recommended for any seeding process, when possible). When conventional seeding is to be used, seedbed preparation will be done as follows:

Broadcast plantings 1. Tillage, at a minimum, shall adequately 6-37



loosen the soil to a depth of 4 to 6 inches; alleviate compaction; incorporate lime and fertilizer; smooth and firm the soil; allow for the proper placement of seed, sprigs, or plants; and allow for the anchoring of straw or hay mulch if a disk is to be used.

- . Tillage may be done with any suitable equipment.
- 3. Tillage should be done on the contour where feasible. On slopes too steep for the safe operation

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- of tillage equipment, the soil surface shall be pitted or trenched across the slope with appropriate hand tools to provide two places 6 to 8 inches apart in which seed may lodge and germinate. Hydraulic seeding may also be used.
- Individual Plants 1. Where individual plants are to be set, the soil shall be prepared by excavating holes, opening furrows, or dibble planting.
- 2. For nursery stock plants, holes shall be large enough to accommodate roots without crowding.
- 3. Where pine seedlings are to be planted, subsoil under the row 36 inches deep on the contour four to six months prior to planting. Subsoiling should be done when the soil is dry, preferably in August or September.

Innoculants All legume seed shall be inoculated with appropriate nitrogen-fixing bacteria. The innoculant shall be a pure culture prepared specifically for the seed species and used within the dates on

the container. A mixing medium recommended by the manufacturer shall be used to bond the innoculant to the seed. For conventional seeding, use twice the amount of innoculant recommended by the

manufacturer. For hydraulic seeding, four times the amount of innoculant recommended by the manufacturer shall be used. All inoculated seed shall be protected from the

sun and high temperatures and shall be planted 6-38

the same day inoculated. No inoculated seed shall remain in the hydroseeder longer than one hour.

Hydraulic Seeding Mix the seed (innoculated if needed), fertilizer and wood cellulose or wood pulp fiber mulch with water and apply in a slurry uniformly over the area to be treated. Apply within one hour after the mixture is made.

Conventional Seeding eeding will be done on a treshly prepare and firmed seedbed. For broadcast planting, use a culti-packer-seeder, drill, rotary seeder, other mechanical seeder, or hand seeding to distribute

the seed uniformly over the area to be treated. Cover the seed lightly with 1/8 to 1/4 inch of soil for small seed and 1/2 to 1 inch for large seed when using a cultipacker or other suitable equipment No-Till Seeding

No-till seeding is permissible into annual cover crops when planting is done following maturity of the cover crop or if the temporary cover stand is sparse enough to allow adequate growth of the permanent (perennial) species. No-till seed ing shall be done with appropriate no-till seeding equipment. The seed must be uniformly distributed and planted at the proper depth.

Individual Plants Shrubs, vines and sprigs may be planted with appropriate planters or hand tools. Pine trees shall be planted manually in the subsoil furrow. Each plant shall be set in a manner that will

avoid crowding the roots.

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Nursery stock plants shall be planted at the same depth or slightly deeper than they grew at the nursery. The tips of vines and sprigs must be at or slightly above the ground surface.

Where individual holes are dug, fertilizer shall be placed in the bottom of the hole, two inches of soil shall be added and the plant shall be set in the hole.

Mulch is required for all permanent vegetation applications. Mulch applied to seeded areas shall achieve 75% to 100% soil cover. When

selecting a mulch, design professionals should consider the mulch's functional longevity, vegeta-GSWCC 2016 Editio

Common Name	Scientific Name	Mature Height	Plant Spacing	Comments
Creeping Liriope	Liriope spicata	10-12 in.	1 ft.	Spreads by runners.
Big Leaf Periwinkle	Vinca major	12-15 in.	4 ft.	Lilac flowers in spring. Semi-shade.
Common Periwinkle	Vinca minor	5-6 in.	4 ft.	Lavender blue flowers in spring. Semi-shade
Cherokee Rose	Rosa laevigate	2 ft.	5 ft	Rampant grower. Not for restricted spaces. State flower.
Memoria Rose	Rosa weuchuriana	2 ft	5 ft.	Rampant grower.
St. Johnswort	Hypericum calycenum	8-12 in.	St.	Semi-shade.
Anthony Waterer Spirea	Spirea burnalda	3-4 ft.	5 ft.	Sun.
Thunberg Spirea	Spirea thinbergii	3-4 ft.	5 ft.	Sun.
APPROVED GR	ROUNDCOVERS IN I	BUFFER ZONE:		
	- ATHYRIUM FILIX AR - LIATRIS GRA			

Rock Filter Dam Rd



drainageways or in conjunction with a temporary sediment trap.

PURPOSE This structure is installed to serve as a sediment filtering device in drainageways or outlets for sediment traps (See Temporary Sediment Trap - Sd4). In some cases, it may also reduce the velocity of stormwater flow through a channel. This structure is not intended to substantially impound water.

CONDITIONS This practice is applicable for use in small channels that drain 50 acres or less. The rock filter dam must be used in conjunction with other appropriate sediment control measures to reduce the amount of sediment leaving the channel.

DESIGN CRITERIA The following standards shall be followed:

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Temporary

DEFINITION

PURPOSE

CONDITIONS

in live streams.

construction.

GSWCC 2016 Edition

DEFINITION

PURPOSE

the use of the wall.

CONDITIONS

Retaining Wall

DESIGN CRITERIA

local, state and federal level.

lack of a pipe or riser.

ticles that remain suspended.

Sediment Trap

Drainage Area The drainage area to the dam shall not exceed 50 acres.

The dam should not be higher than the channel banks or exceed the elevation of the upstream property line. The center of the rock dam should be at least nine inches lower than the outer edges of the dam at the channel banks. Side Slopes

Sd4

The side slopes shall be 2:1 or flatter.

A small temporary pond that drains a dis-

To collect and store sediment from uphill

sites cleared and or graded during construction.

Intended for use on small tributary areas with

no unusual drainage features. Effective against

coarse sediment, but not against silt or clay par-

Temporary sediment traps are constructed

Natural draws or swells are favorable locations

to build the traps. They should be easily acces-

sible for frequent maintenance and inspections.

Design and construction shall comply with

The total drainage area of a temporary sedi-

ment trap is up to 5 acres, depending on type of

bankment shall not exceed 5.5 feet as measured

from the downstream toe of slope to the top of

the berm. Top width of an embankment shall be

Re

The height of a temporary sediment trap em-

laws, ordinances, rules and regulations on the

Temporary sediment traps shall never be placed

early in the construction process at locations

that will require minimal clearing and grading.

turbed area so that sediment can settle out. The

principle feature distinguishing a temporary sedi-

ment trap from a temporary sediment basin is the

tion of soil particles from the subgrade into the graded stone. The geotextile shall be specified in accordance with AASHTO M288-06 Section

The dam shall be located as close to the

source of sediment as possible and so that it

will not cause water to back up on upstream

The stone size shall be determined by the

design criteria established in Riprap - Appendix

C. The rock dam can be faced with smaller stone

on the upstream side for additional filtering effect. However, this may make the dam more prone to

The width accross the top of the dam should

Geotextiles should be used as a separator

abutments. The geotextile will prevent the migra-

between the graded stone, the soil base, and the

adjacent property or into state waters.

Stone Size

clogging.

Geotextile

op Width

be no less than six feet.

8, Geotextile Property Requirements. The geotextile should be placed immediately adjacent to the subgrade without any voids and extend five feet beyond the downstream toe of the dam to prevent scour. CONSTRUCTION SPECIFICATIONS Mechanical or hand placement will be re-

completely across the channel and securely ties into both channel banks. The center of the dam must be no less than nine inches lower than the lowest side, to serve as a type of weir. Gabions can be installed to serve as rock filter dams, but should follow recommended sizing and installation specifications. Refer to specification Ga -

Rock dams should be removed once dis-

6-123

6-124

CONSTRUCTION SPECIFICATIONS The basic design guidlines are applicable to the type of temporary sediment trap constructed. The main differences are with regards to the type of outlet structures. The following types of construction are acceptable under the designated conditions:

TO BE SHOWN ON THE EROSION AND SEDIMENT CONTROL PLAN

. Figure 6-24.1, noting rock size as specified in Appendix C

2. Top and bottom widths.

Overflow (Sd4-A)

An overflow temporary sediment trap is limited to small areas less than 1 acre, typically with gentle slopes (1 or 2 percent) and without major grading operations. The maximum life span of an overflow trap is 6 months. If water enters the trap with very low velocities, the same amount of water will be slowly displaced and leave the other end of the sediment trap. Silt fence, straw bale barriers or grass filter strips are used to "polish" the overflow water as it leaves the sediment trap. See Figure 6-30.1

Combination Straw Bale and Silt Fence Outlet (Sd4-B) The combination outlet uses straw bales and silt fence to dewater the sediment trap. Proper installation and staking of the straw bales, and wire backing on the silt fence are required for the materials to resist 1 foot or more of ponded water. The combination straw bale and silt fence outlet is limited to 1 acre total drainage area, and has a life span of less than 1 year. This type of outlet requires frequent maintenance and adjust-

ments to ensure the released stormwater is free from sediment. See Figure 6-30.2

Rock Outlet (Sd4-C) The rock outlet relies on filtering through layers of aggregate, rock or riprap material to dewater the sediment trap. It is the sturdiest of the sediment trap designs and generally requires less maintenance. It can be used for drainage area up to 5 acres and has a life span of 1 year. See Figure 6-30.3

Emergency Spillway The emergency overflow outlet of a temporary sediment trap must be stabilized with rock, geotextile, vegetation, or another suitable material that is resistant to erosion. It must be installed to safely convey stormwater runoff for the 10-year storm event.

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6-185

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REMOVE RIPRAP AND REPLACE WITH -COMPACTED STRUCTURAL FILL, ALL STRUCTURAL FILL SHOULD BE APPROVED BY THE GEOTECHNICAL ENGINEER

EXISTING RIP RAP -SPILLWAY EL. 885.50 -

_____ LAKE

Use in conjunction with cut or fill slopes that, because of space limitations or unstable material, do not allow the stable slope criteria listed **DESIGN CRITERIA**

Consideration should be given to all of the alternative methods with regard to construction of the quired to insure that the rock dam extends Gabion. See Figure 6-24.1

MAINTENANCE turbed areas have been stabilized. Periodic inspection and required maintenance must be provided. Sediment shall be removed when it reaches a depth of one-half of the original height of the dam.

at least as wide as the height of the sediment

trap embankment, with a minimum width of 3 Maximum pond depth of a sediment trap is 4 feet as measured from the bottom of the trap to the invert of the emergency spillway. Slopes shall not exceed 2:1 (H:V) for excavated areas and for compacted embankments. Side slopes

should be (3:1) or flatter allowing people and

equipment to safely negotiate slopes or to enter

the sediment trap. The length to width ratio must be greater than (2:1) (L:W) for the principal flowpaths in order to maximize residence time of stormwater within the sediment trap. Baffles may be required to

A typical baffle design uses 4'x8' sheets of exterior grade plywood 1/2 inch thick, mounted on 4"x4" hardwood posts.

prevent short-circuiting of the flow.

Minimum volume of a temporary sediment trap shall be 67 cubic yards per acre for the total drainage area. The volume shall be measured at an elevation equivalent to the spillway invert.

Volume of a temporary sediment trap in heavily disturbed areas should be 134 cubic yards per acre for the total drainage area. This includes an upper area with a minimum of 67 cubic yards per acre drained, which is dewatered using one of the outlet design methods provided, and a lower wet zone for sediment storage and settling.

The volume should be calculated from existing and proposed contours, or by measured cross sections. An approximate method for calculating the volume of traps using a natural draw is:

 $V = 0.4 \times A \times D$ V = Sediment storage volume (below invert

- of emergency spillway) A = Surface area (at level of emerency
- spillway) D = Maximum depth (from emergency spillway invert)

The cleanout volume for a temporary sediment trap is 1/3 of the total storage volume. Cleanout volume shall be calculated and marked with a stake at the outlet of the trap.

wall. Some methods are:

- 1. Concrete masonry
- 2. Concrete cribbing
- 3. Gabions
- 4. Steel piling

stone drywall, rock riprap, etc. To assist in the stabilization of cut or fill slopes where stable slopes are not attainable without

above, e.g. cuts into steep hillsides on small lots or cuts into hillsides behind shopping centers to provide loading space.

A wall constructed of one or more of the fol-

lowing: concrete masonry, reinforced concrete

cribbing, treated timbers, steel pilings, gabions,

General

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The design of a retaining wall is a complicated process. Many factors must be taken into account such as: stresses and forces outside and within the wall, allowable height and minimum thickness. Other considerations are: foundation design with respect to loadings, bearing values of soils and footing dimensions. Additional design factors are safety hazards, subsurface and surface drainage and appearance.

Each situation requires a specific design that is within the capabilities of the design professional

Utilities Protection Center, In 1-800-282-7411 Know what's below. Call before you dig.

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9. Geotextile reinforced steep slopes

5. Stone drywall 6. Rock riprap, etc. 7. Treated timbers

Geotextile wrapped-face wall

ROCK FILTER DAM

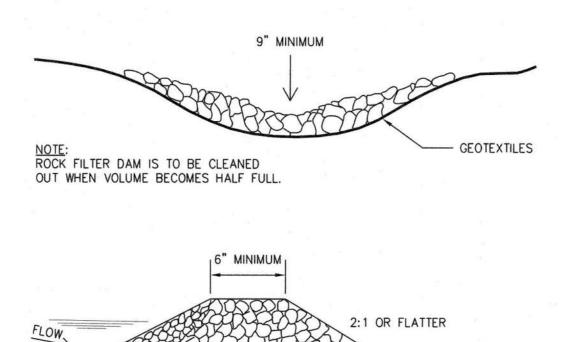


Figure 6-24.1

NOTE: ROCK SIZE DETERMINED ACCORDING TO SPECIFICATIONS SET FORTH IN APPENDIX C

3-5 LB. STONE

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SOIL AND RIPRAP

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REFERENCE:

City of Knoxville BMP Manual Best Management

Practices, Knoxville, TN, May 2003

GEOTEXTILES -

riprap stone sizes and filter bedding stone sizes. N.S.A. Graded riprap stone sizes are shown in Table C-1. N.S.A. Filter bedding stone sizes are shown in Table C-1 and C-2.

D.O.T. Graded riprap stone sizes are shown in Table C-3.

D.O.T. Filter bedding stone sizes are shown in Table C-4.

Data for stone center waterways are shown in Table C-5 and Figure C-3.

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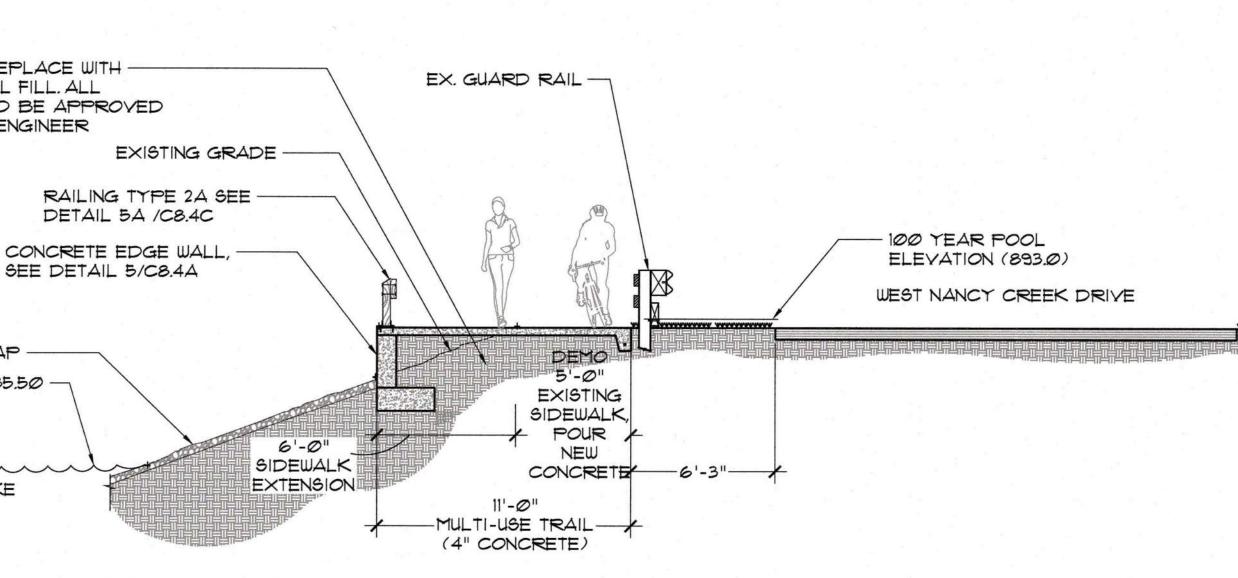
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Flow Velocity (ft./sec.)	N.S.A. No.1	Max.	Size Inches (Sq. Opening Avg. ²
2.5	R-1	1 1/2	3/4
4.5	R-2	3	1.1/2
6.5	R-3	6	3
9.0	R-4	12	6
11.5	R-5	18	9
13.0	R-6	24	12
14.5	R-7	30	15
8	1		

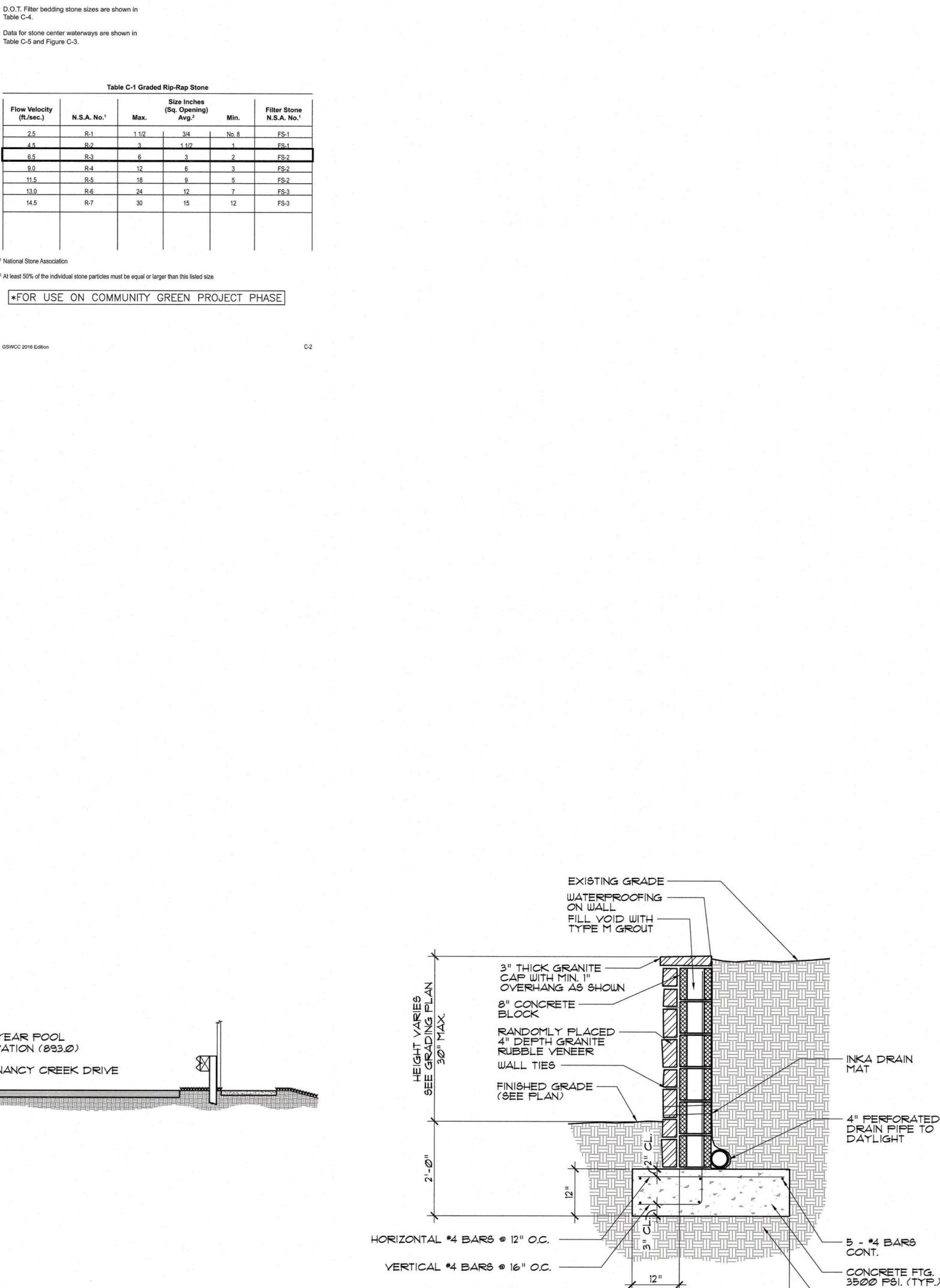
TEMPORARY SEDIMENT TRAP COURTESY OF CITY OF KNOXVILLE BMP EROSION AND SEDIMENT ROCK OUTLET - EXCAVATED MATERIAL WILL INCREASE FIRMLY "KEY" EMBANKMENT -INTO NATURAL GROUND STORAGE VOLUME AND PROVIDE FILI MATERIA TOP OF BERM -----RECOMMENDED MINIMUM RATIO OF MINIMUM TOP WIDTH ~3' ----LENGTH-TO-WIDTH (L:W) IS 2:1 MAXIMUM SLOPES 2:1 ----EMERGENCY _____ SPILLWAY (MIN. DEPTH = 1.5'CROSS-SECTION SEE APPENDIX C FOR -- MINIMUM TOP WIDTH = EMBANKMENT STONE SIZING HEIGHT (3 FOOT MINIMUM) MINIMUM DISTANCE 1.5' TO SPILLWAY INVERT-MAX. SLOPE 2:1 MAXIMUM DEPTH -(67 CUBIC YARDS -----RIPRAP -----PER ACRE) ADDITIONAL VOLUME FOR -----GEOTEXTILE FABRIC SILT STORAGE (OPTIONAL) (KEYED INTO GROUND) PROFILE THROUGH EMBANKMENT TYPICAL RIPRAP DEPTH FOR -- MAXIMUM SLOPE 2:1 OVERFLOW WEIR = 2 FEET SPILLWAY WIDTH NATURAL GROUND -COMPACT FILL IN MAXIMUM -6" LAYERS GEOTEXTILE FABRIC BETWEEN -TYPICAL WIDTH = 3 FEET

Figure 6-30.3



TYPICAL RETAINING WALL SECTION DAM MULTIUSE TRAIL

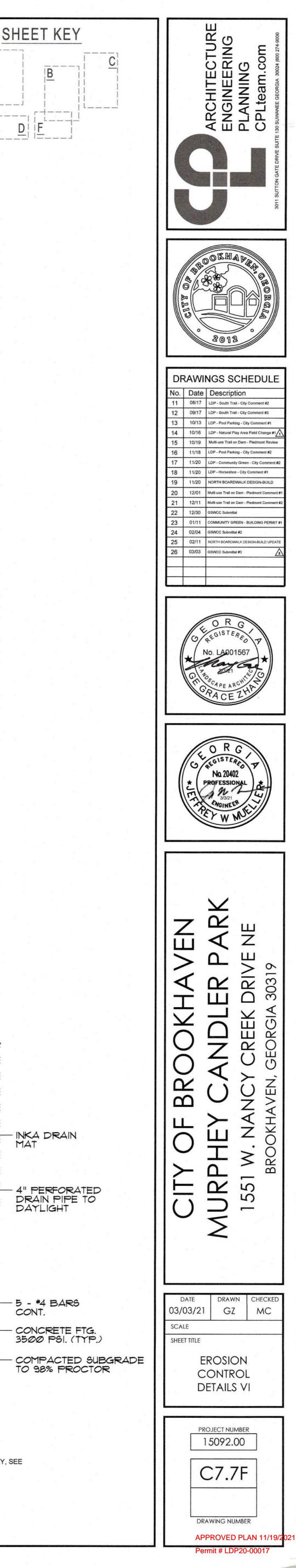
*NOT FOR CONSTRUCTION, USE FOR EXAMPLE REFERENCE ONLY, SEE ACTUAL STRUCTURAL DETAIL FOR EXACT DIMENSIONS



TYPICAL RETAINING WALL SECTION COMMUNITY GREEN

*NOT FOR CONSTRUCTION, USE FOR EXAMPLE REFERENCE ONLY, SEE ACTUAL STRUCTURAL DETAIL FOR EXACT DIMENSIONS

3'-4"



r+---