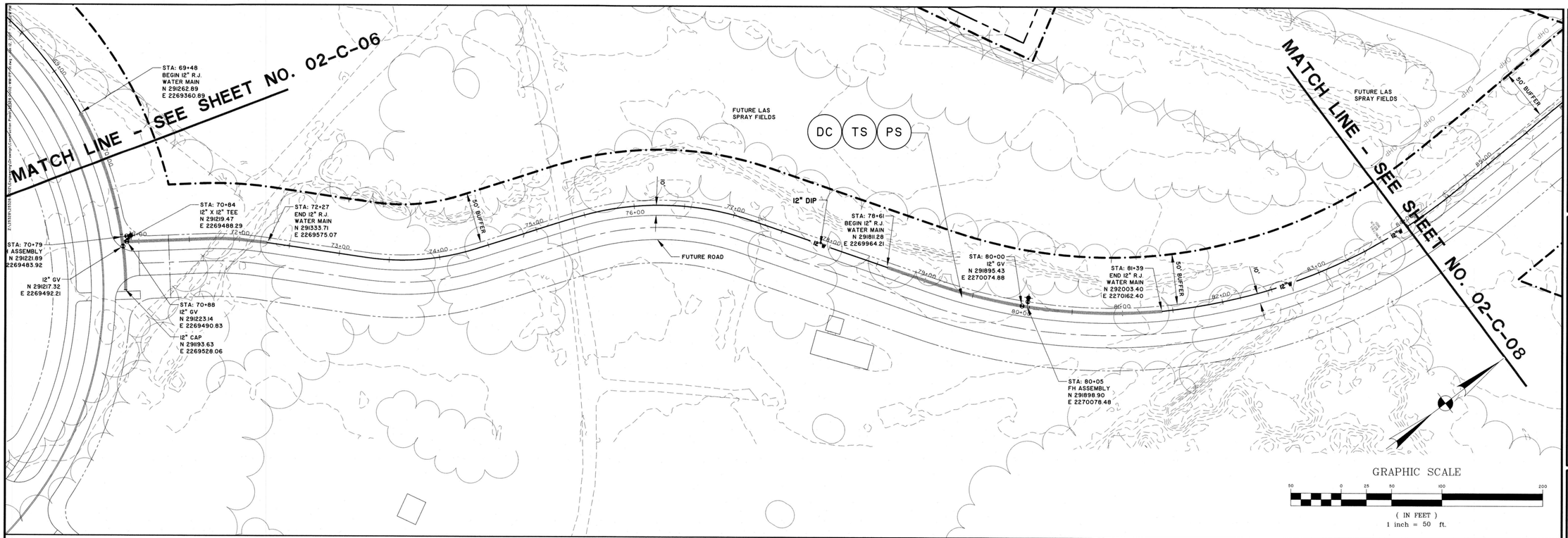
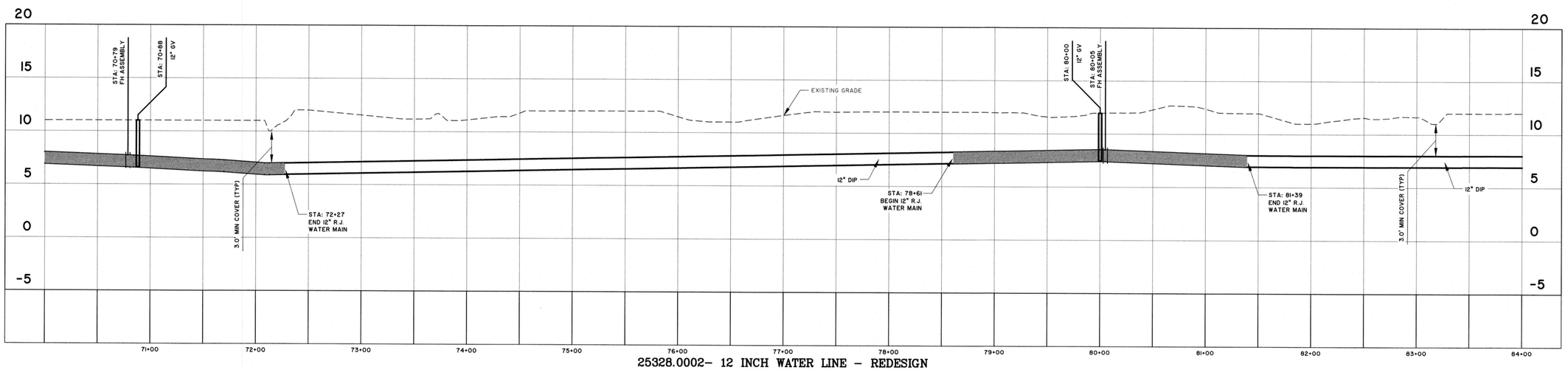
ELECTRONICALLY FILED - 2019 June 21 3:17 PM - SCPSC - Docket # 2018-102-S - Page 1 of 10





25328.0002– 12 INCH WATER LINE – REDESIGN

STATIONS: 70+00 – 84+00
SCALE: HORZ.: 1" = 50'
VERT.: 1" = 5'

SOUTH CAROLINA THOMAS & HUTTON ENGINEERING CO. No. C00285 CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 13293 MARK F. FOGLE

NO	REVISIONS	BY	DATE

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KIAWAH RIVER PLANTATION HOLDINGS, LP
CHARLESTON COUNTY, SOUTH CAROLINA

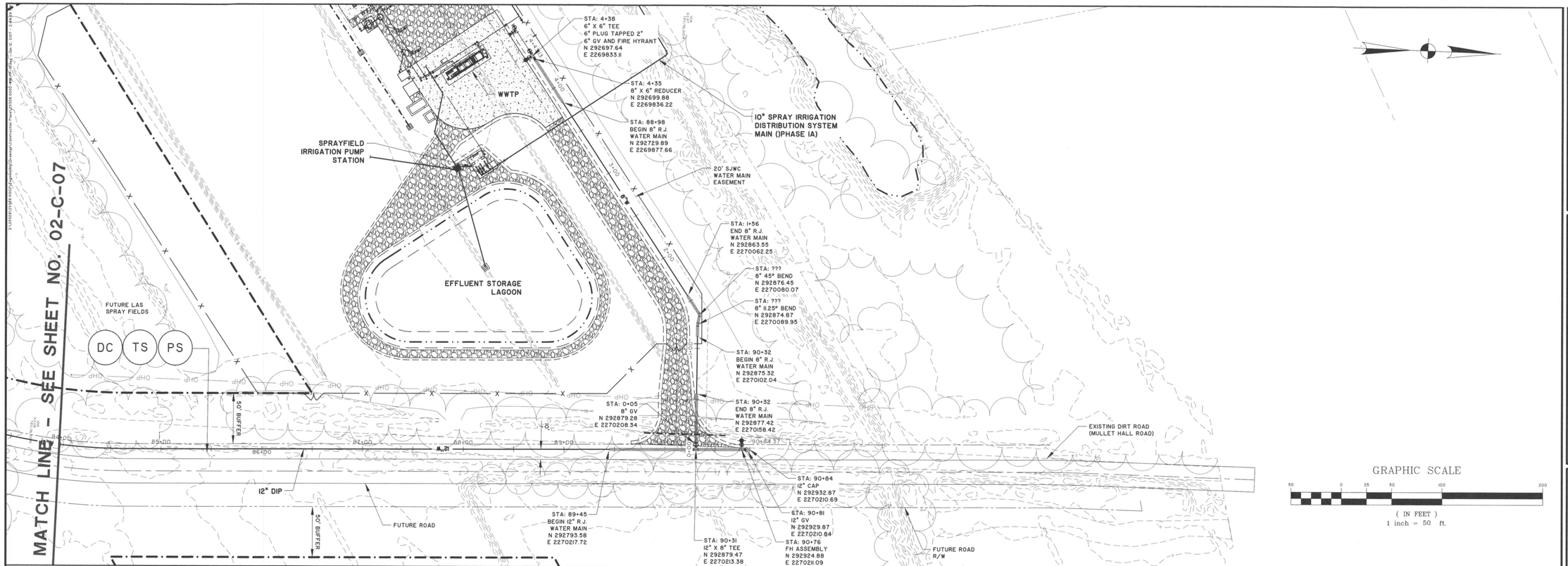
KIAWAH RIVER PLANTATION WWTP PHASE I

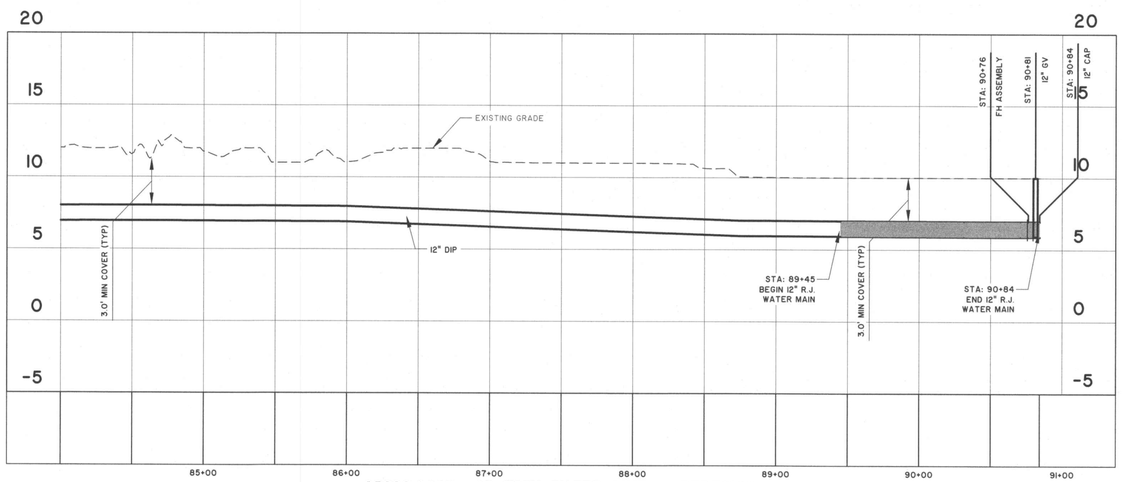
WATER MAIN - PLAN AND PROFILE

JOB NO:	J-25328.0002
DATE:	12/16/16
DRAWN:	DNF
DESIGNED:	DNF
REVIEWED:	MFY
APPROVED:	MFY
SCALE:	AS NOTED

02-C-07

ELECTRONICALLY FILED - 2019 June 21 3:17 PM - SCPSC - Docket # 2018-102-S - Page 2 of 10





25328.0002– 12 INCH WATER LINE – REDESIGN

STATIONS: 84+00 – 91+00
SCALE: HORZ.: 1" = 50'
VERT.: 1" = 5'

SOUTH CAROLINA
THOMAS & HUTTON ENGINEERING
No. C00285
CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA
REGISTERED PROFESSIONAL ENGINEER
No. 13293
MARK F. YORK

NO.	REVISIONS	BY	DATE

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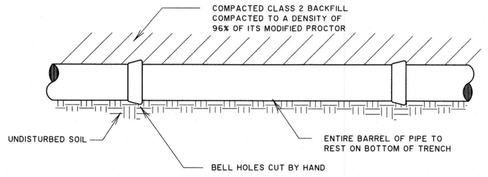
KIAWAH RIVER PLANTATION HOLDINGS, LP
CHARLESTON COUNTY, SOUTH CAROLINA

KIAWAH RIVER PLANTATION WWTP PHASE I

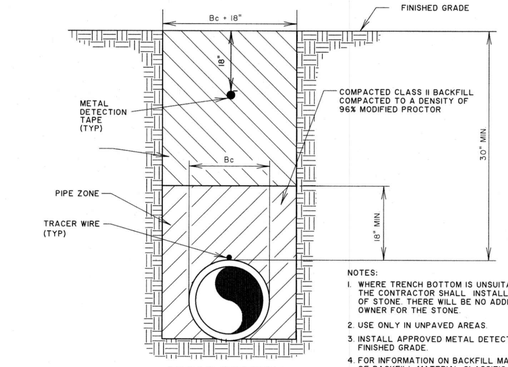
WATER MAIN - PLAN AND PROFILE

JOB NO:	J-25328.0002
DATE:	12/16/16
DRAWN:	DNF
DESIGNED:	DNF
REVIEWED:	MFY
APPROVED:	MFY
SCALE:	AS NOTED

02-C-08



LONGITUDINAL SECTION



CROSS SECTION

MAXIMUM TRENCH WIDTHS	
Bc - PIPE SIZE	WIDTH
2"	20"
2 1/2"	22"
3"	24"
4"	28"
6"	30"
8"	30"
10"	32"
12"	34"
14"	34"
16"	36"

NOTES:

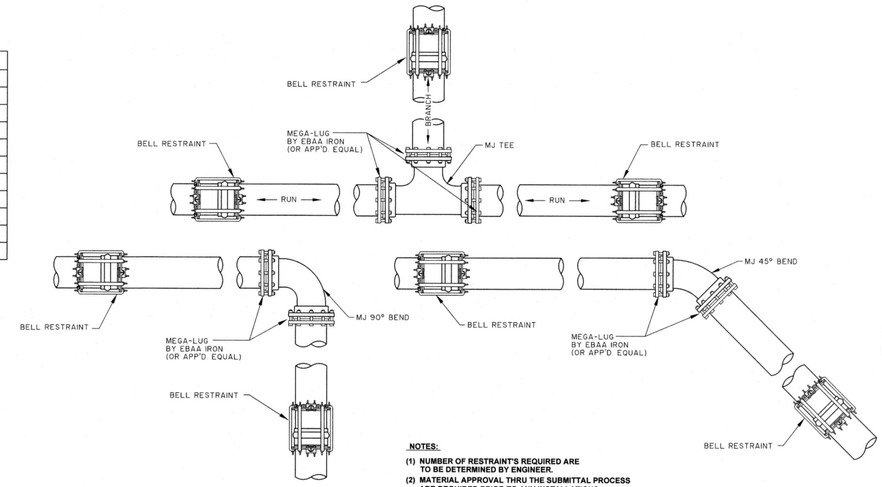
1. WHERE TRENCH BOTTOM IS UNSUITABLE TO SUPPORT PIPE, THE CONTRACTOR SHALL INSTALL PIPE ON A MIN. 4" BED OF STONE. THERE WILL BE NO ADDITIONAL COST TO THE OWNER FOR THE STONE.
2. USE ONLY IN UNPAVED AREAS.
3. INSTALL APPROVED METAL DETECTION TAPE 18" FROM FINISHED GRADE.
4. FOR INFORMATION ON BACKFILL MATERIAL SEE DESCRIPTION OF BACKFILL MATERIAL CLASSIFICATION THIS SHEET.
5. DURING BACKFILL OF PIPE TRENCHES, CONTRACTOR SHALL ADHERE TO ALL SCDOT REQUIREMENTS FOR LIFT THICKNESS AND COMPACTION STANDARDS PER THE SCDOT 2007 STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.

CHARLESTON COUNTY NOTES:

1. BACKFILL MUST BE PLACED AND COMPACTED IN 6" LIFTS.

1 / 02-C-09 TYPICAL WATER LINE BEDDING DETAIL

NOT TO SCALE

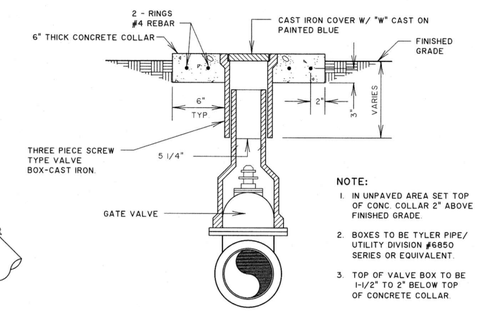


NOTES:

(1) NUMBER OF RESTRAINT'S REQUIRED ARE TO BE DETERMINED BY ENGINEER.
(2) MATERIAL APPROVAL THRU THE SUBMITTAL PROCESS ARE REQUIRED PRIOR TO ANY INSTALLATIONS.

2 / 02-C-09 TYPICAL FITTING AND JOINT RESTRAINT

NOT TO SCALE



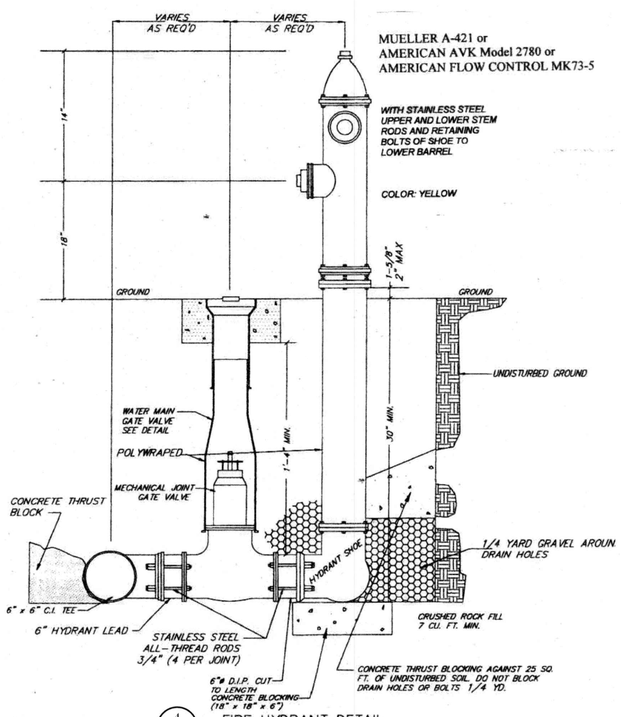
NOTE:

1. IN UNPAVED AREA SET TOP OF CONC. COLLAR 2" ABOVE FINISHED GRADE.
2. BOXES TO BE TYLER PIPE/ UTILITY DIVISION #6850 SERIES OR EQUIVALENT.
3. TOP OF VALVE BOX TO BE 1-1/2" TO 2" BELOW TOP OF CONCRETE COLLAR.

NOTE: VALVE BOXES SHALL BE SET TO MATCH FINISHED GRADES.

3 / 02-C-09 VALVE BOX DETAIL

NOT TO SCALE



4 / 02-C-09 FIRE HYDRANT DETAIL

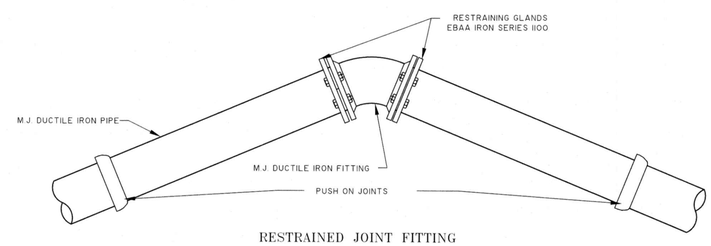
St. John's Water Company Standard Water Notes

1. Developer's engineer provides Written Notification of the Start of Construction to SJWC seven (7) days prior to commencement.
2. A Pre-Construction Conference is held at the SJWC offices. The developer or developer's engineer must inform SJWC of the engineering contract for construction oversight including the on-site inspector's name and phone number.
3. Developer's engineer or contractor must call SJWC **72 hours** prior to tapping the main water line, performing a pressure test, or conducting bacteriological tests. SJWC will have a company representative on site for each of these events. SJWC must also be notified and present for the inspection of all hydrants, valves, and thrust blocks prior to them being covered.
4. It is the responsibility of the contractor to make a water service tap on the newly constructed water line for each lot. The contractor will also be responsible for installing meter boxes at each location. SJWC will then place the meters in the meter boxes.
5. The developer's engineer is required to submit to SJWC the monthly inspection reports.
6. After a successful pressure test, the contractor must conduct bacteriological tests according to SC DHEC regulations in the presence of a SJWC representative. Two samples must show negative bacteriological results or the process must be repeated. The contractor is responsible for all costs of all testing, including water used in flushing.
7. All new fire hydrants should be tested for static and residual flows and the flows at 20 psi. These results should be documented and submitted to SJWC.
8. Conformance of construction to the approved plans and specifications is the responsibility of the developer's engineer. He will advise SJWC of any changes or modifications made during construction. SJWC shall have the right of entry to the construction site to observe and verify that the construction is in accordance with the approved plans and specifications and to witness testing of the system.
9. All valves shall open clockwise and hydrants open counterclockwise.
10. Install saw cuts at the curb to indicate the location of the meter boxes and valves. Please place a single slash in the curb for the location of a meter box, place a "V" in the curb at the valve locations, and place a "X" in the curb at all road crossing locations. If curbs are not installed on the project then pins must be placed in the asphalt roadway indicating the meter box locations.
11. The expansion connection, dual check, and two gaskets that accompany the ¾-inch Ford meter box must be given to SJWC.
12. SJWC requires five (5) paper copies of the final as-built record drawings which should have all water system appurtenances marked in the state plane coordinates. An electronic copy of the as-builts and the points file should be emailed to sjwceng@bellsouth.net.

NOTES:

1. THE FOLLOWING CONDITIONS WERE USED TO CALCULATE THE RESTRAINED LENGTHS:
   LAYING CONDITION IS TYPE 3;
   SOIL DESIGNATED AS SAND (SW);
   DEPTH IS 3 FT.;
   DESIGN PRESSURE (TEST) IS 150 PSI;
   SAFETY FACTOR IS 2.0.
2. FOR THE TEE (EACH LEG) AND REDUCER, LENGTHS ARE BASED ON BRANCHING AND REDUCING FROM THE NEXT LARGER SIZE IN THE TABLE. DEVIATIONS FROM THESE CONDITIONS MUST BE BASED ON THE ABOVE PARAMETERS.
3. FOR DUCTILE IRON PIPE PUSH ON JOINTS, GRIP RING TYPE PIPE MAY BE USED. FOR PVC PUSH ON JOINT HARNESS RESTRAINT (EBAA SERIES 1500 OR APPROVED EQUAL) SHALL BELOW THE SUPPLY AND INSTALLATION OF THE HARNESS RESTRAINTS SHALL BE CONSIDERED INCIDENTAL TO THE PIPE INSTALLATION AND NO SEPARATE PAYMENT WILL BE MADE FOR THE HARNESS RESTRAINTS.

RESTRAINED JOINT TABLE LENGTH OF RESTRAINED JOINT REQUIRED (IN L.F. EACH SIDE OF THE BEND OR FITTING)								
SIZE	11 1/4°	22 1/2°	45°	90°	TEE (EACH LEG)	DEAD END	REDUCER	VALVE
8"	6	11	22	51	55	98	50	50
10"	6	13	26	61	78	118	50	118
12"	7	15	30	71	86	139	50	139
16"	10	20	32	76	110	143	106	143



RESTRAINED JOINT FITTING
(HORIZONTAL PIPE ONLY)

NOT TO SCALE

5 / 02-C-09 RESTRAINED JOINT FITTING DETAIL

NOT TO SCALE

SOUTH CAROLINA THOMAS & HUTTON ENGINEERING CO. No. C00285 CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 13293 MARK F. YOUNG

NO.	REVISIONS	BY	DATE

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KIAWAH RIVER PLANTATION HOLDINGS, LP
CHARLESTON COUNTY, SOUTH CAROLINA

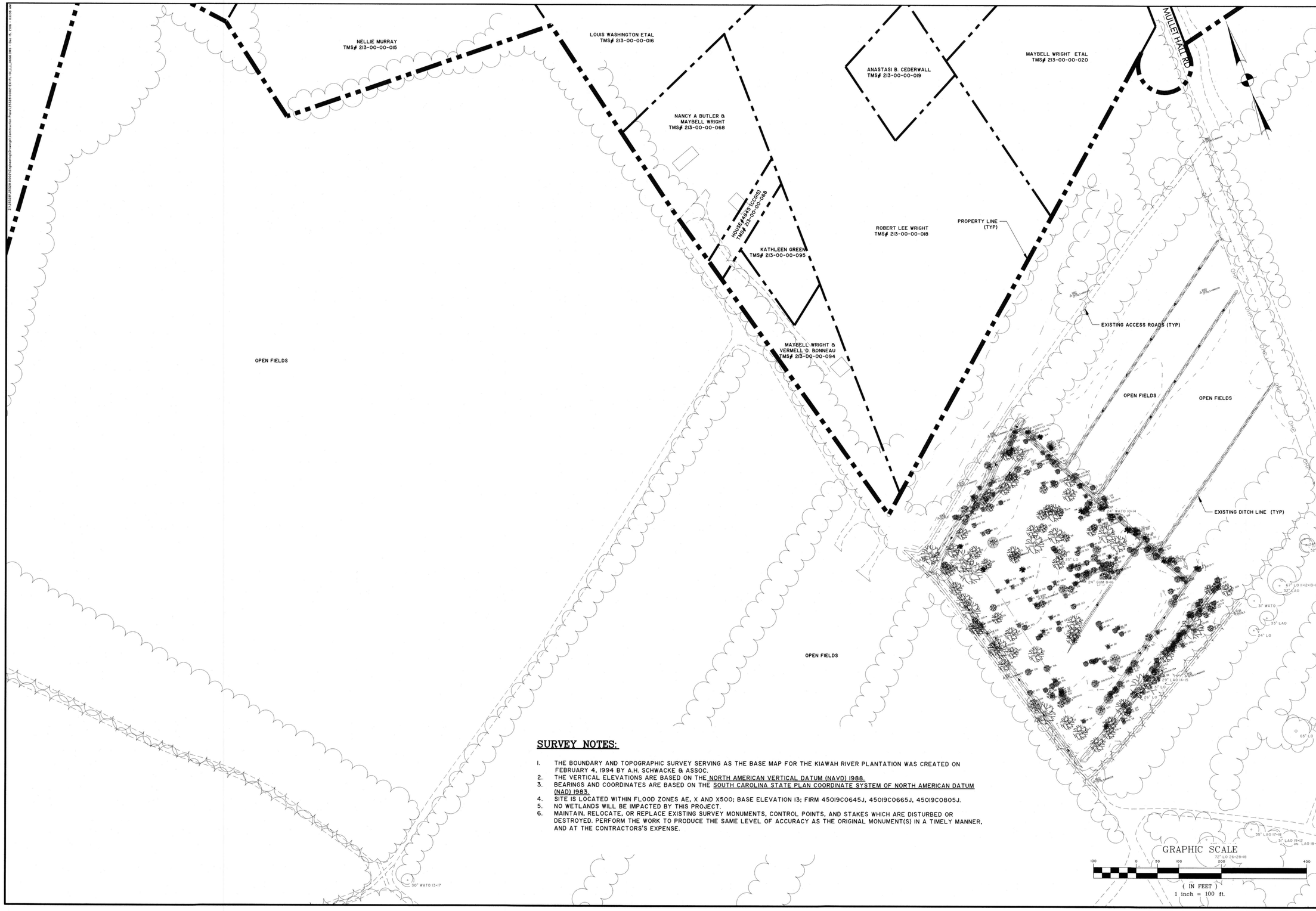
KIAWAH RIVER PLANTATION WWTP PHASE I

WATER MAIN DETAILS

JOB NO:	J-25328.0002
DATE:	12/16/16
DRAWN:	DNF
DESIGNED:	MFY
REVIEWED:	MFY
APPROVED:	MFY
SCALE:	AS NOTED

02-C-09

ELECTRONICALLY FILED - 2019 June 21 3:17 PM - SCPSC - Docket # 2018-102-S - Page 3 of 10



SURVEY NOTES:

1. THE BOUNDARY AND TOPOGRAPHIC SURVEY SERVING AS THE BASE MAP FOR THE KIAWAH RIVER PLANTATION WAS CREATED ON FEBRUARY 4, 1994 BY A.H. SCHWACKE & ASSOC.
2. THE VERTICAL ELEVATIONS ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM (NAVD) 1988.
3. BEARINGS AND COORDINATES ARE BASED ON THE SOUTH CAROLINA STATE PLAN COORDINATE SYSTEM OF NORTH AMERICAN DATUM (NAD) 1983.
4. SITE IS LOCATED WITHIN FLOOD ZONES AE, X AND X500; BASE ELEVATION 13; FIRM 45019C0645J, 45019C0665J, 45019C0805J.
5. NO WETLANDS WILL BE IMPACTED BY THIS PROJECT.
6. MAINTAIN, RELOCATE, OR REPLACE EXISTING SURVEY MONUMENTS, CONTROL POINTS, AND STAKES WHICH ARE DISTURBED OR DESTROYED. PERFORM THE WORK TO PRODUCE THE SAME LEVEL OF ACCURACY AS THE ORIGINAL MONUMENT(S) IN A TIMELY MANNER, AND AT THE CONTRACTORS'S EXPENSE.

SOUTH CAROLINA THOMAS & HUTTON ENGINEERING No. C00285 CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 13293 MARK F. VOYCE

NO.	REVISIONS	BY	DATE

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KIAWAH RIVER PLANTATION HOLDINGS, LP
CHARLESTON COUNTY, SOUTH CAROLINA
KIAWAH RIVER PLANTATION WWTP PHASE I
EXISTING SITE CONDITIONS

JOB NO:	J-25328.0002
DATE:	12/16/16
DRAWN:	DNF
DESIGNED:	KEN
REVIEWED:	MFY
APPROVED:	MFY
SCALE:	1" = 100'

05-C-01

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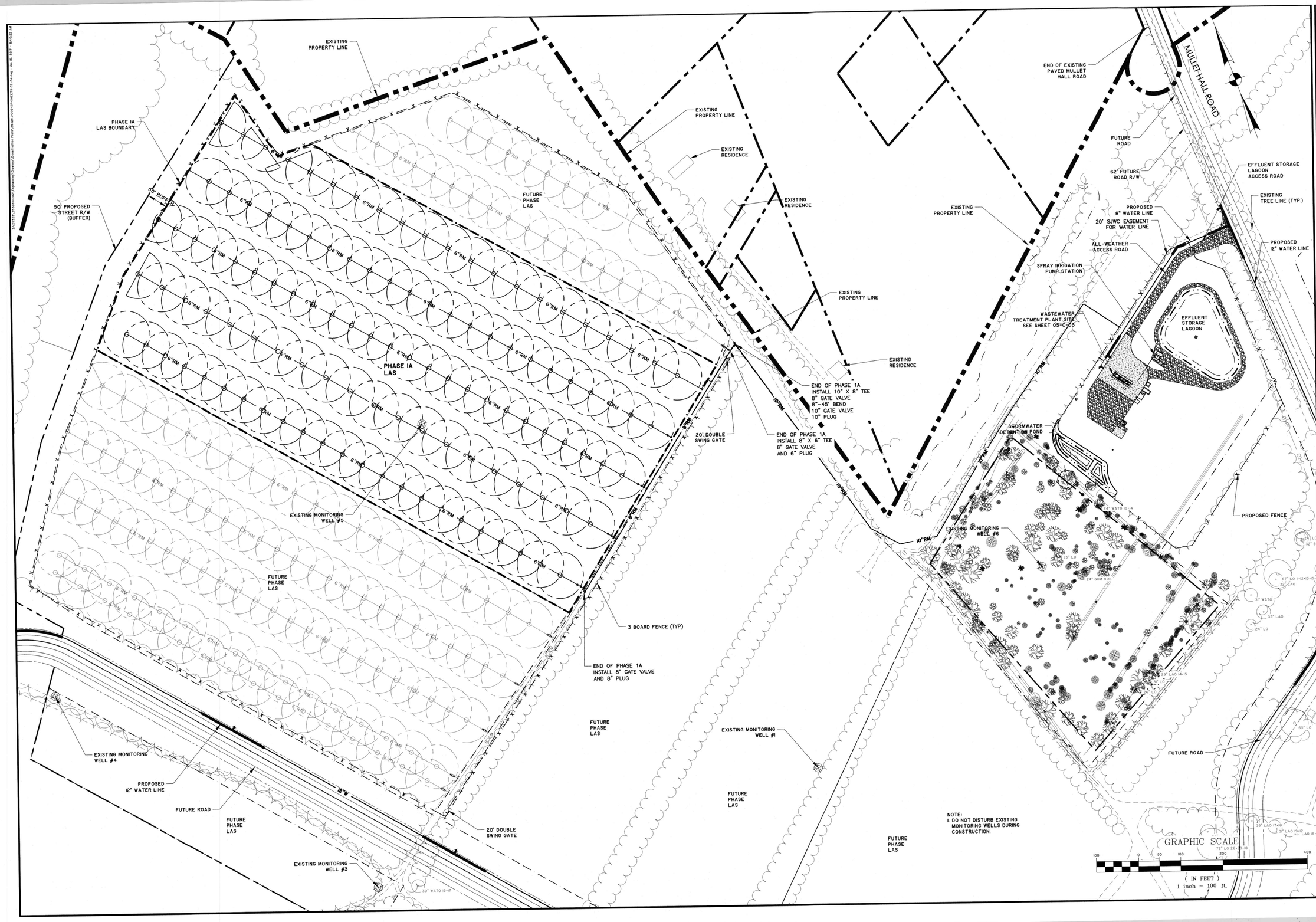

SOUTH CAROLINA PROFESSIONAL ENGINEERING CERTIFICATE OF AUTHORIZATION
THOMAS & HUTTON ENGINEERING CO.
No. C00285

SOUTH CAROLINA PROFESSIONAL ENGINEER REGISTERED
No. 12393
MARK F. YOUNG

NO.	REVISIONS	BY	DATE

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KIAWAH RIVER PLANTATION HOLDINGS, LP

CHARLESTON COUNTY, SOUTH CAROLINA

KIAWAH RIVER PLANTATION WWTP PHASE I

OVERALL SITE PLAN

JOB NO:	J-25328.0002
DATE:	12/16/16
DRAWN:	DNF
DESIGNED:	KEN
REVIEWED:	MFY
APPROVED:	MFY
SCALE:	1" = 100'

05-C-02

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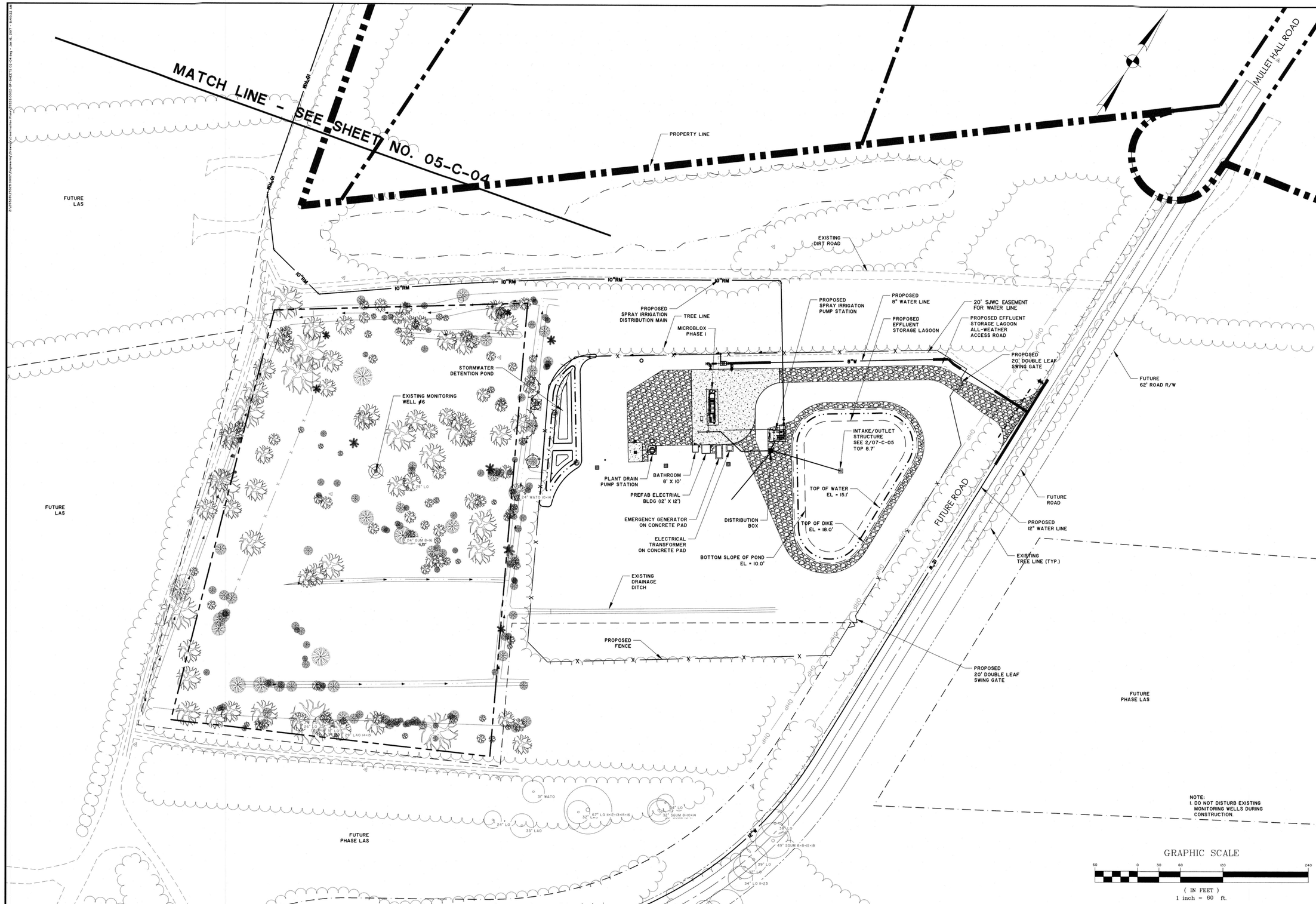

SOUTH CAROLINA THOMAS & HUTTON ENGINEERING CO. No. COA2285 CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 13293 MARK F. VOYCE

NO.	REVISIONS	BY	DATE

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682 Johnnie Dodds Boulevard • Suite 100
Mt. Pleasant, SC 29464 • 843.849.0200
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KIAWAH RIVER PLANTATION HOLDINGS, LP

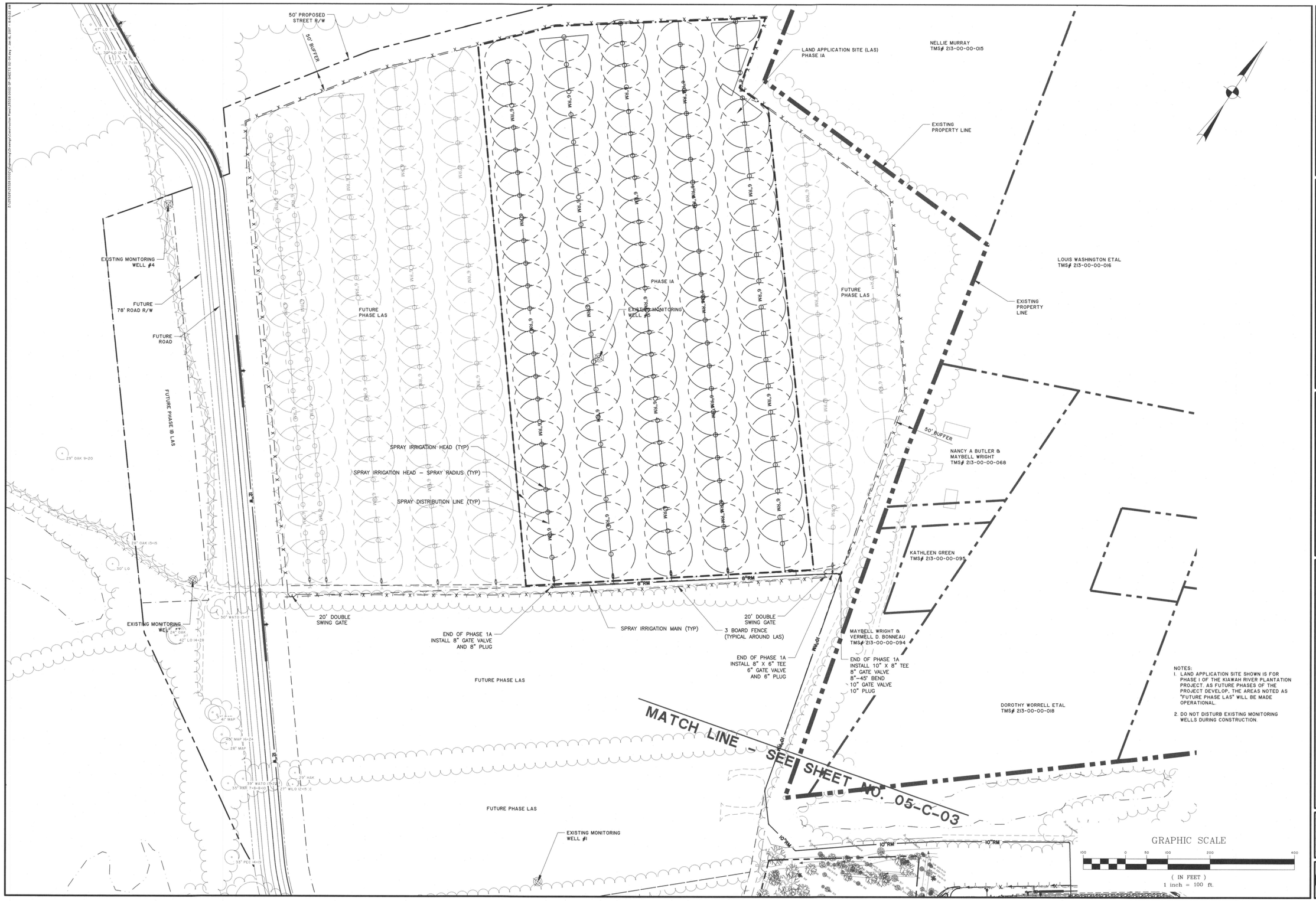
CHARLESTON COUNTY, SOUTH CAROLINA

KIAWAH RIVER PLANTATION WWTP PHASE I

WWTP & EFFLUENT STORAGE LAGOON SITE PLAN

JOB NO:	J-25328.0002
DATE:	12/16/16
DRAWN:	DNF
DESIGNED:	KEN
REVIEWED:	MFY
APPROVED:	MFY
SCALE:	1"=60'

05-C-03



NOTES:
1. LAND APPLICATION SITE SHOWN IS FOR PHASE I OF THE KIAWAH RIVER PLANTATION PROJECT. AS FUTURE PHASES OF THE PROJECT DEVELOP, THE AREAS NOTED AS "FUTURE PHASE LAS" WILL BE MADE OPERATIONAL.
2. DO NOT DISTURB EXISTING MONITORING WELLS DURING CONSTRUCTION.

SOUTH CAROLINA NOLTY WHITAKER THOMAS & HUTTON ENGINEERING CO. No. C00285 CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 13293 MARK F. YOUNG

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KIAWAH RIVER PLANTATION HOLDINGS, LP
CHARLESTON COUNTY, SOUTH CAROLINA

KIAWAH RIVER PLANTATION WWTP PHASE I

LAS SITE PLAN - PHASE I

JOB NO:	J-25328.0002
DATE:	12/16/16
DRAWN:	DNF
DESIGNED:	KEN
REVIEWED:	MFY
APPROVED:	MFY
SCALE:	1" = 100'

05-C-04

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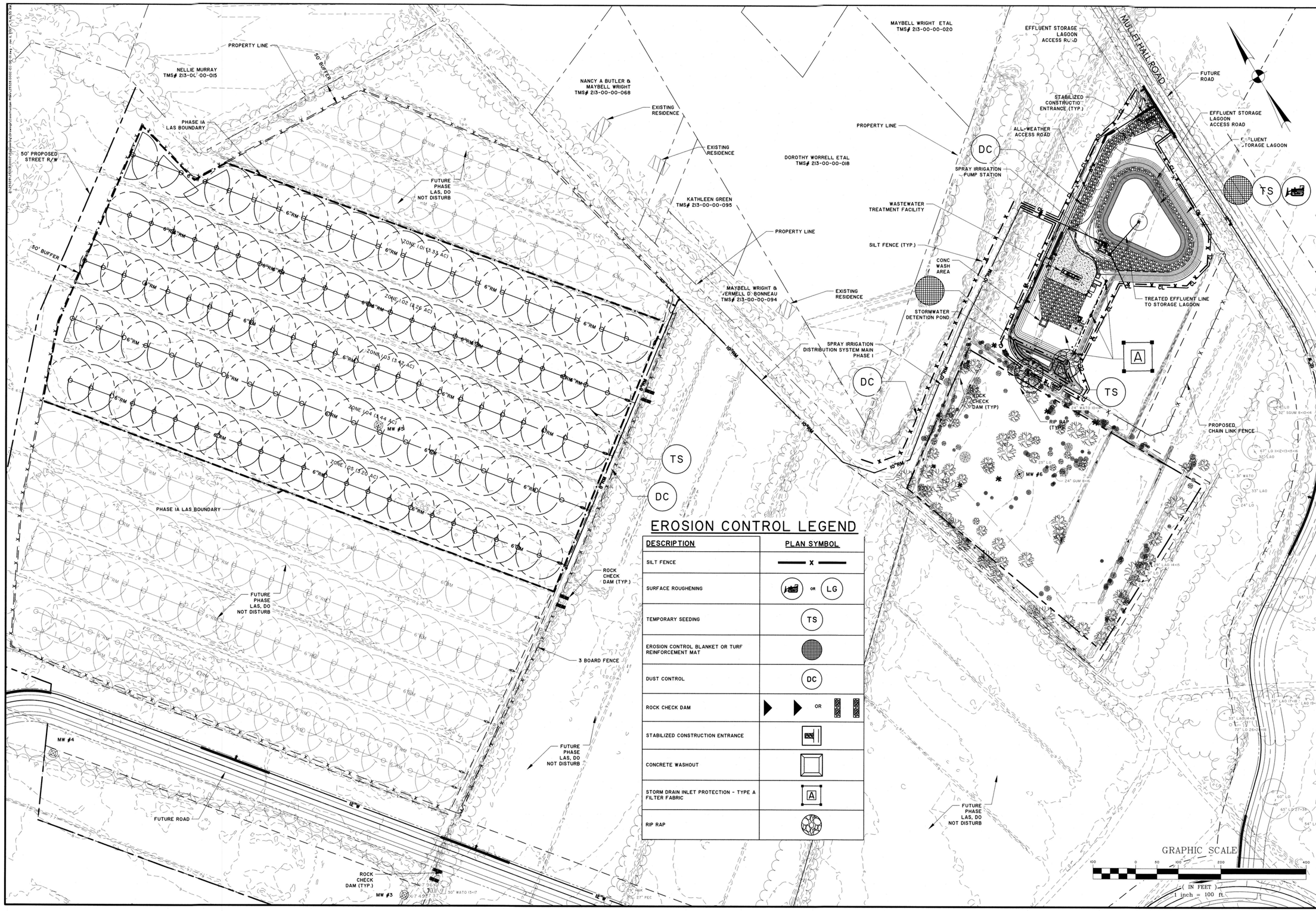

EROSION CONTROL LEGEND

DESCRIPTION	PLAN SYMBOL
SILT FENCE	— x —
SURFACE ROUGHENING	OR LG
TEMPORARY SEEDING	TS
EROSION CONTROL BLANKET OR TURF REINFORCEMENT MAT	
DUST CONTROL	DC
ROCK CHECK DAM	OR
STABILIZED CONSTRUCTION ENTRANCE	
CONCRETE WASHOUT	
STORM DRAIN INLET PROTECTION - TYPE A FILTER FABRIC	A
RIP RAP	

SOUTH CAROLINA THOMAS & HUTTON ENGINEERING CO. No. COA0265 CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA PROFESSIONAL ENGINEER No. 13293 REGISTERED MARK F. YONTZ

NO.	REVISIONS	BY	DATE

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KIAWAH RIVER PLANTATION HOLDINGS, LP
CHARLESTON COUNTY, SOUTH CAROLINA

KIAWAH RIVER PLANTATION WWTP PHASE I

EROSION & SEDIMENT CONTROL PLAN - INITIAL PHASE

JOB NO:	J-25328.0002
DATE:	7/31/15
DRAWN:	DNF
DESIGNED:	KEN
REVIEWED:	MFY
APPROVED:	MFY
SCALE:	1"=100'

05-C-05

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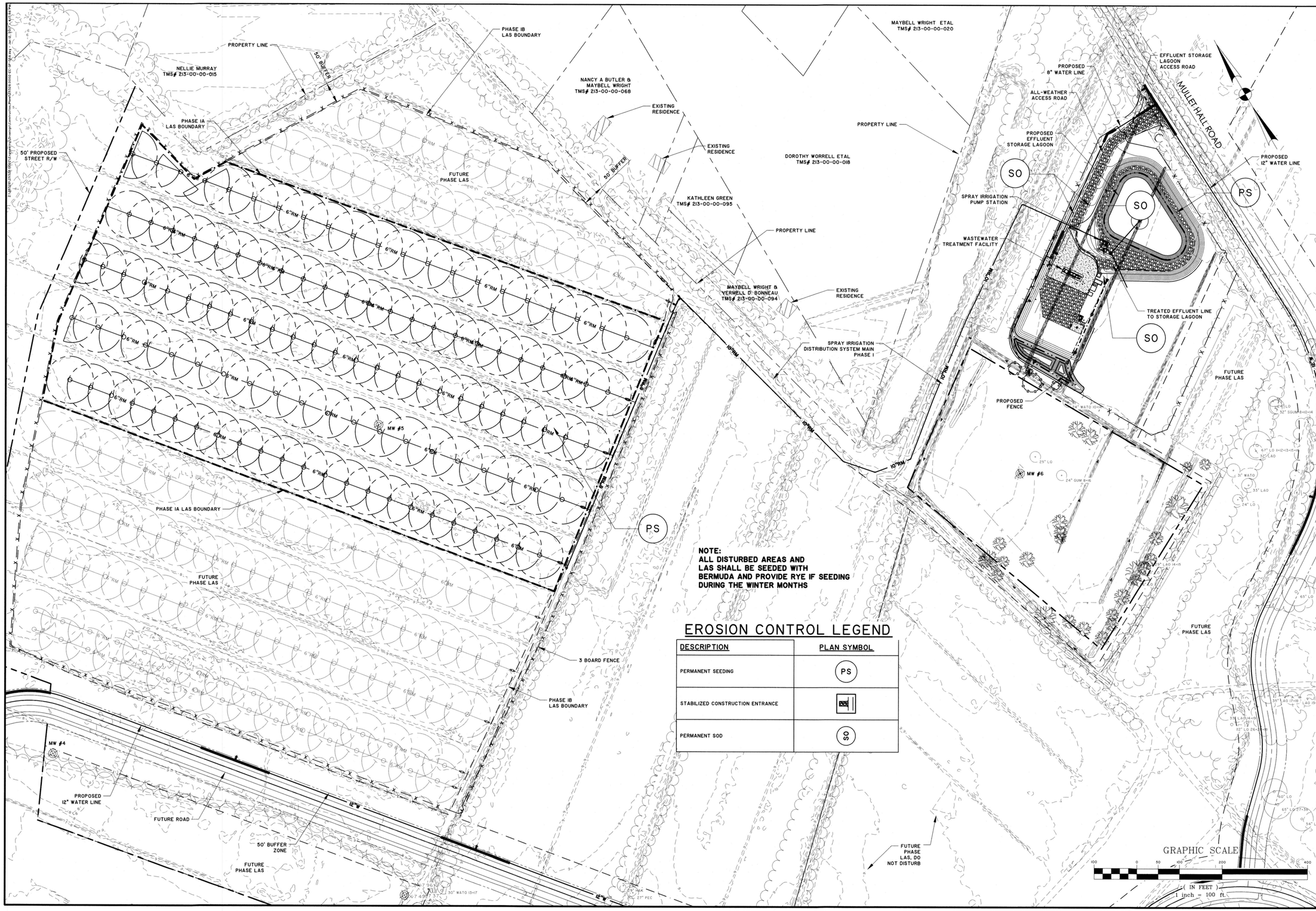

NOTE:
ALL DISTURBED AREAS AND LAS SHALL BE SEEDED WITH BERMUDA AND PROVIDE RYE IF SEEDING DURING THE WINTER MONTHS

EROSION CONTROL LEGEND

DESCRIPTION	PLAN SYMBOL
PERMANENT SEEDING	PS
STABILIZED CONSTRUCTION ENTRANCE	
PERMANENT SOD	SO

SOUTH CAROLINA THOMAS & HUTTON ENGINEERING CO. No. C00285 CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA PROFESSIONAL ENGINEER No. 13293 MARK F. VOGT

NO	REVISIONS	BY	DATE

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KIAWAH RIVER PLANTATION HOLDINGS, LP
CHARLESTON COUNTY, SOUTH CAROLINA

KIAWAH RIVER PLANTATION WWTP PHASE I

EROSION & SEDIMENT CONTROL PLAN - FINAL PHASE

JOB NO:	J-25328.0002
DATE:	10/20/16
DRAWN:	DNF
DESIGNED:	KEN
REVIEWED:	MFY
APPROVED:	MFY
SCALE:	1"=100'

05-C-05A

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I. SITE DESCRIPTION

A. PROJECT DESCRIPTION

A.1. PROJECT AREA	50.5 ACRES
A.2. AREA DISTURBED	10.9 ACRES
A.3. PERCENT IMPERVIOUS AREA BEFORE CONSTRUCTION	0 %
A.4. RUNOFF COEFFICIENT BEFORE CONSTRUCTION	77 CN
A.5. PERCENT IMPERVIOUS AREA AFTER CONSTRUCTION	1.0 %
A.6. RUNOFF COEFFICIENT AFTER CONSTRUCTION	80 CN

B. DESCRIPTION OF CONSTRUCTION ACTIVITY

WORK CONSISTS OF CLEARING, GRADING, SITE WORK AND UTILITY INSTALLATIONS

C. RUNOFF DATA

C.1 SOIL CLASSIFICATIONS: HYDROLOGIC SOIL GROUP A/D - (Ka) Kiawah

C.2 LAND USE(S): AGRICULTURAL

D. RECEIVING WATERS

D.1. CLOSEST RECEIVING WATERS: KIAWAH RIVER
D.2 ULTIMATE RECEIVING WATERS: ATLANTIC OCEAN

E. FLOOD

E.1. FEMA FLOOD ZONE(S): AE, X AND X500
E.2. FEMA INSURANCE MAPS(S): 45019C0645J, 45019C0665J, 45019C0805J

II. CONTROL MEASURES

1. EROSION AND SEDIMENT CONTROLS

PRIOR TO START OF CONSTRUCTION, ALL EXTERIOR SILT FENCE WILL BE INSTALLED AS SHOWN ON THE PLANS.

1.1. CLEARING

1.1.1. AS CLEARING IS COMPLETED, ADDITIONAL SILT FENCE WILL BE INSTALLED WHERE NECESSARY, SUCH AS POINTS WHERE FLOWS BECOME CHANNELIZED, AND OTHER POINTS WHERE EXCESSIVE RUNOFF VELOCITIES MAY OCCUR.
1.1.2. INSTALL CONSTRUCTION ENTRANCES / EXITS BEFORE BEGINNING CLEARING
1.1.3. CONSTRUCTION DELAYS IN ANY ONE AREA GREATER THAN 14 DAYS PRIOR TO START OF ROUGH GRADING WILL MANDATE STABILIZATION PROCEDURES. ACCEPTABLE METHODS OF STABILIZATION INCLUDE MULCHING AND TEMPORARY SEEDING.
1.1.4. MAINTAIN EXISTING VEGETATION WHENEVER POSSIBLE AND MINIMIZE THE AREA OF DISTURBANCE. RETAIN AND PROTECT TREES TO ENHANCE FUTURE LANDSCAPING EFFORTS AND REDUCE RAINDROP IMPACT.
1.1.5. INSTALL ALL SEDIMENT CONTROL PRACTICES PRIOR TO ANY UP-SLOPE SOIL DISTURBING ACTIVITIES.
1.1.6. PHASE CONSTRUCTION ACTIVITIES TO MINIMIZE THE AREAS DISTURBED AT ONE TIME. THIS WILL ALSO ALLOW COMPLETED AREAS TO BE STABILIZED AND RE-VEGETATED BEFORE DISTURBING ADJACENT SITES. THE NEED FOR TEMPORARY EROSION CONTROL MEASURES MAY BE AVOIDED BY COMPLETING A PHASE AND INSTALLING PERMANENT EROSION CONTROL MEASURES WHEN THE FINAL GRADE IS ATTAINED.
1.1.7. MAINTAIN AND PROTECT ALL NATURAL WATERWAYS. RETAIN AT LEAST A 35-FOOT UNDISTURBED BUFFER OF NATURAL VEGETATION ALONG ALL WATERWAYS TO FILTER OUT SEDIMENT AND OTHER POLLUTANTS. MAINTAIN A 45-FOOT UNDISTURBED BUFFER AROUND SENSITIVE WATERS.
1.1.8. INSTALL SILT FENCE (OR BIO ROLLS/ROCK SOCK PRODUCTS) ON THE DOWN-SLOPE PERIMETER OF ALL DISTURBED AREAS PRIOR TO ANY SOIL DISTURBING ACTIVITIES (INCLUDING CLEARING AND GRUBBING). SILT FENCE CAN TREAT A MAXIMUM OF 100 SQUARE FEET PER LINEAL FOOT OF FENCE. INSTALL SILT FENCE IN SHORTER REACHES ON THE CONTOUR WITH EACH END TURNED UP-SLOPE . SWALES AND SHORELAND AREAS SHOULD ALSO BE PROTECTED WITH SILT FENCE, BIO ROLLS, OR ROCK SOCKS.
1.1.9. IN AREAS OF CONCENTRATED FLOW INSTALL STRAW BALE CHECKS, ROCK CHECK DAMS, TRIANGULAR DIKES, BIO ROLL BLANKETS, OR ROCK SOCKS TO SLOW RUNOFF AND TRAP SEDIMENT.

1.1.10. USE TEMPORARY SLOPE DRAINS OR ROCK CHUTES TO MOVE WATER DOWN STEEP SLOPES.

1.1.11. CONSTRUCT SEDIMENT BASINS FOR DRAINAGE AREAS GREATER THAN 10 ACRES

1.2. ROUGH GRADING

1.2.1. ALL EXISTING CONTROLS WILL BE MAINTAINED DURING ROUGH GRADING, DELAYS OF GREATER THAN 14 DAYS PRIOR TO START OF NEXT ACTIVITY WILL MANDATE STABILIZATION PROCEDURES. ACCEPTABLE METHODS OF STABILIZATION INCLUDE MULCHING AND TEMPORARY SEEDING.
1.2.2. ALL AREAS NOT SUBJECT TO FURTHER CONSTRUCTION (DRAINAGE, SANITARY SEWER, ROADS, WATER DISTRIBUTION SYSTEMS, OR STORM WATER FACILITIES) SHALL BE GRASSED WITH A PERMANENT COVER.
1.2.3. COVER ANY STOCK PILED TOPSOIL WITH PLASTIC (OR OTHER IMPERVIOUS COVERING) OR USE A TEMPORARY SEED MIX. USE STOCKPILED TOPSOIL AS EARTHEN BERMS TO SERVE AS TEMPORARY SEDIMENT BASINS.

1.3. DRAINAGE

1.3.1. ALL EXISTING CONTROLS WILL BE MAINTAINED DURING DRAINAGE INSTALLATION.
1.3.2. CONSTRUCTION DRAINAGE WILL BE ROUTED THROUGH LAKES, WHICH WILL ACT AS SEDIMENT BASINS OR OTHER ACCEPTABLE SEDIMENT BASINS/TRAPS.
1.3.3. STORM DRAIN INLET PROTECTION AS SHOWN ON DETAIL SHEET SHALL BE INSTALLED ON ALL CURB INLETS, STORM DRAIN MANHOLES, JUNCTION BOXES, AND GRATE INLETS.
1.3.4. DELAYS OF GREATER THAN 14 DAYS PRIOR TO START OF THE NEXT CONSTRUCTION SEQUENCE WILL MANDATE STABILIZATION PROCEDURES. ACCEPTABLE METHODS OF STABILIZATION INCLUDE MULCHING AND TEMPORARY SEEDING.
1.3.5. ALL STORM LINES NOT IN STREETS OR OTHER PAVED AREAS ARE TO BE MULCHED AND SEEDED WITHIN 5 DAYS AFTER BACKFILL.

1.4. WASTE DISTRIBUTION SYSTEM INSTALLATION

1.4.1. ALL EXISTING CONTROLS WILL BE MAINTAINED DURING INSTALLATION OF THE WATER DISTRIBUTION SYSTEM.
1.4.2. DELAYS OF GREATER THAN 14 DAYS PRIOR TO START OF NEXT ACTIVITY WILL MANDATE STABILIZATION PROCEDURES. ACCEPTABLE METHODS OF STABILIZATION INCLUDE MULCHING AND TEMPORARY SEEDING.

1.5. WASTEWATER COLLECTION SYSTEM INSTALLATION

1.5.1. ALL EXISTING CONTROLS WILL BE MAINTAINED DURING INSTALLATION OF THE WASTEWATER SYSTEM.
1.5.2. DELAYS OF GREATER THAN 14 DAYS PRIOR TO START OF NEXT ACTIVITY WILL MANDATE STABILIZATION PROCEDURES. ACCEPTABLE METHODS OF STABILIZATION INCLUDE MULCHING AND TEMPORARY SEEDING.

1.6. CONSTRUCTION OF ROADS

1.6.1. ALL EXISTING CONTROLS WILL BE MAINTAINED DURING ROAD CONSTRUCTION.
1.6.2. DELAYS OF GREATER THAN 14 DAYS PRIOR TO START OF NEXT ACTIVITY WILL MANDATE STABILIZATION PROCEDURES. ACCEPTABLE METHODS OF STABILIZATION INCLUDE MULCHING AND TEMPORARY SEEDING.

1.7. GRASSING

1.7.1. ALL EXISTING CONTROLS WILL BE MAINTAINED UNTIL GRASSING IS ESTABLISHED
1.7.2. ANY AREAS THAT ERODE OR WHERE GRASS DOES NOT ESTABLISH ITSELF SHALL BE RE-GRADED AND RE-GRASSED.

2. STORM WATER MANAGEMENT

RUNOFF FROM THIS PROJECT WILL DISCHARGE INTO A STORM WATER MANAGEMENT SYSTEM. TREATMENT WILL OCCUR IN STORM WATER DETENTION PONDS.

3. OTHER CONTROLS

3.1. WASTE DISPOSAL

3.1.1. NO SOLID MATERIALS, INCLUDING BUILDING MATERIALS, SHALL BE DISCHARGED TO ANY RECEIVING WATERS.
3.1.2. OFFSITE VEHICLE TRACKING OF SEDIMENTS AND THE GENERATION OF DUST SHALL BE MINIMIZED.
3.1.3. THIS PLAN SHALL COMPLY WITH STATE AND/OR LOCAL WASTE DISPOSAL, SANITARY SEWER OR SEPTIC SYSTEM REGULATIONS.
3.1.4. DUST CONTROL ON DISTURBED AREAS - CONTROLLING SURFACE AND AIR MOVEMENT OF DUST ON CONSTRUCTION SITE AND HAUL ROUTES. THE PURPOSE OF THE MEASURE IS TO REDUCE THE PRESENCE OF AIRBORNE SUBSTANCES, WHICH MAY BE HARMFUL OR INJURIOUS TO HUMAN HEALTH, WELFARE OR SAFETY, OR TO ANIMALS OR PLANT LIFE.

III. MAINTENANCE

1. MAINTENANCE PROGRAM
1.1. THE SITE SUPERINTENDENT, OR HIS/HER REPRESENTATIVE, SHALL MAKE VISUAL INSPECTIONS OF ALL MECHANICAL CONTROLS AND NEWLY STABILIZED AREAS (I.E. SEEDED AND MULCHED AND/OR SODDED AREAS) ON A DAILY BASIS; ESPECIALLY AFTER HEAVY RAINFALL EVENT TO INSURE THAT ALL CONTROLS ARE MAINTAINED AND PROPERLY FUNCTIONING. ANY DAMAGED CONTROLS SHALL BE REPAIRED PRIOR TO THE END OF THE WORK DAY INCLUDING RE-SEEDING AND MULCHING OR RE-SODDING IF NECESSARY.

1.2. 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 SEDIMENTATION CONTROL MEASURES SHALL BE IMPLEMENTED TO CONTROL OR TREAT THE SEDIMENT SOURCE. ALL DRAINAGE SWALES, POCKETS, DEPRESSION, LOW LINES, AND OUTLET DITCHES SHALL DRAIN EFFECTIVELY AT ALL TIMES. SETTLEMENT OR WASHING THAT MAY OCCUR SHALL BE REPAIRED BY THE CONTRACTOR. SEDIMENT WILL BE REMOVED FROM BEHIND THE SEDIMENT FENCE WHEN IT REACHES 1/3 THE HEIGHT OF THE FENCE. THE SEDIMENT FENCE WILL BE REPAIRED AS NECESSARY TO MAINTAIN AN EFFECTIVE BARRIER. MAINTAIN THE CONSTRUCTION EXIT IN A CONDITION TO PREVENT MUD OR SEDIMENT FROM LEAVING THE SITE. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE. IMMEDIATELY REMOVE ALL OBJECTIONABLE MATERIALS SPILLED, WASHED, OR TACKED ONTO PUBLIC ROADWAYS. RESEED AND MULCH AREA WHERE SEEDING EMERGENCE IS POOR, OR WHERE EROSION OCCURS. PROTECT FROM TRAFFIC AS MUCH AS POSSIBLE. INSPECT ALL MULCHES PERIODICALLY, AND AFTER RAINSTORMS TO CHECK FOR EROSION, DISLOCATION OR FAILURE. IF WASHOUT OCCURS, REPAIR THE SLOPE GRADE, RESEED AND REINSTALL MULCH. FOLLOW THE CONSTRUCTION SEQUENCE THROUGHOUT THE PROJECT DEVELOPMENT. WHEN CHANGES IN CONSTRUCTION ACTIVITIES ARE NEEDED, AMEND THE SEQUENCE SCHEDULE IN ADVANCE TO MAINTAIN MANAGEMENT CONTROL. IF MAJOR CHANGES ARE NECESSARY, SEND A COPY OF THE MODIFIED SCHEDULE TO THE ENGINEER, SEDIMENT AND EROSION CONTROL MEASURES WILL REMAIN IN PLACE AND BE MAINTAINED UNTIL THE DISTURBED AREAS ARE STABILIZED.

2. SILT FENCE

SILT FENCES WILL BE MONITORED DURING CONSTRUCTION. ANY SILT FENCE WHICH IS NOT FUNCTIONING PROPERLY WILL BE PROMPTLY REPAIRED. CLEAN OUT THE SILT FENCE WHEN IT REACHES 1/3 THE HEIGHT OF THE FENCE OR REPLACE WITH FUNCTIONAL SILT FENCE WITHIN 24 HOURS. USE OF HOSES AND WATER TO FLUSH THE SEDIMENT INTO THE STORM INLETS IS UNACCEPTABLE.

3. SEDIMENTATION BASINS

SEDIMENTATION BASINS WHICH ARE AT 50% USED CAPACITY OR APPROACHING SUCH CAPACITY SHALL BE RE-EXCAVATED TO ORIGINAL DIMENSIONS AND THE SILT PROPERLY DISPOSED OF.

4. SEDIMENT LOGS/ROLLS

SEDIMENT LOGS/ROLLS OR OTHER CONTROL MEASURES WHICH BEGIN TO DISINTEGRATE OR FUNCTION INEFFECTIVELY SHALL BE PROMPTLY REPLACED.

5. VEGETATION COVER

ANY VEGETATION COVER SERVING TO STABILIZE DISTURBED SOILS WHICH IS ITSELF DISTURBED SHALL IMMEDIATELY BE REPLACED.

6. CONSTRUCTION ENTRANCE

MAINTAIN ROCK CONSTRUCTION ENTRANCE AND CLEAN ADJACENT ROADS OF ANY MUD TRACKED ONTO THEM.

IV. INSPECTIONS

1. QUALIFIED PERSONNEL WILL INSPECT DISTURBED AREAS OF THE CONSTRUCTION SITE, AREAS USED FOR STORAGE OF MATERIALS THAT ARE EXPOSED TO PRECIPITATION THAT HAVE NOT BEEN FINALLY STABILIZED, STRUCTURAL CONTROL MEASURES, AND LOCATIONS WHERE VEHICLES ENTER OR EXIT THE SITE AT LEAST ONCE EVERY SEVEN CALENDAR DAYS. WHERE SITES HAVE BEEN FINALLY STABILIZED SUCH INSPECTIONS SHALL BE CONDUCTED AT LEAST ONCE EVERY MONTH DURING THE WARRANTY PERIOD.

2. DISTURBED AREAS AND AREAS USED FOR STORAGE OF MATERIALS THAT ARE EXPOSED TO PRECIPITATION SHALL BE INSPECTED FOR EVIDENCE OF, OR THE POTENTIAL FOR, POLLUTANTS ENTERING THE DRAINAGE SYSTEM. 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 WATERS. LOCATIONS WHERE VEHICLES ENTER OR EXIT THE SITE SHALL BE INSPECTED FOR EVIDENCE OF OFFSITE SEDIMENT TRACKING.

3. A WRITTEN REPORT SUMMARIZING THE SCOPE OF THE INSPECTION, NAME(S) AND QUALIFICATIONS OF PERSONNEL MAKING THE INSPECTION, THE DATE(S) OF THE INSPECTION, WEATHER INFORMATION FOR THE PERIOD SINCE THE LAST INSPECTION (OR SINCE COMMENCEMENT OF CONSTRUCTION ACTIVITY) INCLUDING A BEST ESTIMATE OF THE BEGINNING OF EACH STORM EVENT, DURATION OF EACH STORM EVENT, APPROXIMATE AMOUNT OF RAINFALL FOR EACH STORM EVENT (IN INCHES) AND WHETHER ANY DISCHARGES OCCURRED, LOCATION(S) OF DISCHARGES OF SEDIMENT OR OTHER POLLUTANTS FROM THE SITE, LOCATION(S) OF BMP'S THAT NEED MAINTENANCE, LOCATION(S) OF BMP'S THAT FAILED TO OPERATE AS DESIGNED OR PROVED INADEQUATE FOR A PARTICULAR LOCATION, LOCATION(S) WHERE ADDITIONAL BMP'S ARE NEEDED THAT DID NOT EXIST AT THE TIME OF INSPECTION AND ANY CORRECTIVE ACTION REQUIRED INCLUDING ANY CHANGES TO SWPPP NECESSARY AND IMPLEMENTATION DATES.

4. THE REPORT SHALL BE MAINTAINED AT LEAST THREE YEARS FROM THE DATE THE SITE IS FINALLY STABILIZED. THE REPORT MUST BE SIGNED AND SHALL CONTAIN A CERTIFICATION THAT THE FACILITY IS IN COMPLIANCE WITH THE STORM WATER POLLUTION PREVENTION PLAN AND THE NPDES PERMIT REFERENCED ABOVE. THE CONTRACTOR SHALL MAINTAIN THIS REPORT. THE REPORT SHALL BE SUBMITTED TO THE ENGINEER AND OWNER.

V. LONG TERM MAINTENANCE OF DRAINAGE AND STORM WATER MANAGEMENT SYSTEM

THE ROADS AND DRAINAGE SYSTEM WILL BE OWNED AND MAINTAINED BY ______________ AFTER CONSTRUCTION IS COMPLETE.

VI. SC DHEC STANDARD NOTES

1. IF NECESSARY, SLOPES WHICH EXCEED EIGHT (8) VERTICAL FEET SHOULD BE STABILIZED WITH SYNTHETIC OR VEGETATIVE MATS, IN ADDITION TO GRASSING / HYDROSEEDING. IT MAY BE NECESSARY TO INSTALL TEMPORARY SLOPE DRAINS DURING CONSTRUCTION. TEMPORARY BERMS MAY BE NEEDED UNTIL THE SLOPE IS BROUGHT TO GRADE.

2. STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS PRACTICABLE IN PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED, BUT IN NO CASE MORE THAN FOURTEEN (14) DAYS AFTER WORK HAS CEASED, EXCEPT AS STATED BELOW:

2.1. WHERE STABILIZATION BY THE 14TH DAY IS PRECLUDED BY SNOW COVER OR FROZEN GROUND CONDITIONS STABILIZATION MEASURES MUST BE INITIATED AS SOON AS PRACTICABLE.
2.2. WHERE CONSTRUCTION ACTIVITY ON A PORTION OF THE SITE IS TEMPORARILY CEASED, AND EARTH-DISTURBING ACTIVITIES WILL BE RESUMED WITHIN 14 DAYS, TEMPORARY STABILIZATION MEASURES DO NOT HAVE TO BE INITIATED ON THAT PORTION OF THE SITE.

3. ALL SEDIMENT AND EROSION CONTROL DEVICES SHALL BE INSPECTED ONCE EVERY CALENDAR WEEK. IF SITE INSPECTIONS IDENTIFY BMP'S THAT ARE DAMAGED OR ARE NOT OPERATING EFFECTIVELY, MAINTENANCE MUST BE PERFORMED AS SOON AS PRACTICAL OR AS REASONABLY POSSIBLE BEFORE THE NEXT STORM EVENT WHENEVER PRACTICAL.

4. PROVIDE SILT FENCE AND/OR OTHER CONTROL DEVICES, AS MAY BE REQUIRED, TO CONTROL SOIL EROSION DURING UTILITY CONSTRUCTION. ALL DISTURBED AREAS SHALL BE CLEANED, GRADED AND STABILIZED WITH GRASSING IMMEDIATELY AFTER THE UTILITY INSTALLATION. FILL, COVER, AND TEMPORARY SEEDING AT THE END OF EACH DAY ARE RECOMMENDED. IF WATER IS ENCOUNTERED WHILE TRENCHING, THE WATER SHOULD BE FILTERED TO REMOVE ANY SEDIMENTS BEFORE BEING PUMPED INTO ANY WATERS OF THE STATE.

5. ALL EROSION CONTROL DEVICES SHALL BE PROPERLY MAINTAINED DURING ALL PHASES OF CONSTRUCTION UNTIL THE COMPLETION OF ALL CONSTRUCTION ACTIVITIES AND ALL DISTURBED AREAS HAVE BEEN STABILIZED. ADDITIONAL CONTROL DEVICES MAY BE REQUIRED DURING CONSTRUCTION IN ORDER TO CONTROL EROSION AND/OR OFFSITE SEDIMENTATION. ALL TEMPORARY CONTROL DEVICES SHALL BE REMOVED ONCE CONSTRUCTION IS COMPLETE AND THE SITE IS STABILIZED.

6. THE CONTRACTOR MUST TAKE NECESSARY ACTION TO MINIMIZE THE TRACKING OF MUD ONTO THE PAVED ROADWAY FROM CONSTRUCTION AREAS AND THE GENERATION OF DUST. THE CONTRACTOR SHALL DAILY REMOVE MUD/SOIL FROM PAVEMENT AS MAY BE REQUIRED.

7. RESIDENTIAL SUBDIVISIONS REQUIRE EROSION CONTROL FEATURES FOR INFRASTRUCTURE AS WELL AS FOR INDIVIDUAL LOT CONSTRUCTION. INDIVIDUAL PROPERTY OWNERS SHALL FOLLOW THESE PLANS DURING CONSTRUCTION OR OBTAIN APPROVAL OF AN INDIVIDUAL PLAN IN ACCORDANCE WITH S.C. REG. 72-300 AND SCR100000.

8. TEMPORARY DIVERSION BERMS AND/OR DITCHES WILL BE PROVIDED AS NEEDED DURING CONSTRUCTION TO PROTECT WORK AREAS FROM UPSLOPE RUNOFF AND/OR TO DIVERT SEDIMENT LADEN WATER TO APPROPRIATE TRAPS OR STABLE OUTLETS.

9. ALL WATERS OF THE STATE (WOS), INCLUDING WETLANDS, ARE TO BE FLAGGED OR OTHERWISE CLEARLY MARKED IN THE FIELD. A DOUBLE ROW OF SILT FENCE IS TO BE INSTALLED IN ALL AREAS WHERE A 50-FOOT BUFFER CAN NOT BE MAINTAINED BETWEEN THE DISTURBED AREA AND ALL WOS. A 10-FOOT BUFFER SHOULD BE MAINTAINED BETWEEN THE LAST ROW OF SILT FENCE AND ALL WOS

10. LITTER, CONSTRUCTION DEBRIS, OILS, FUELS, AND BUILDING PRODUCTS WITH SIGNIFICANT POTENTIAL FOR IMPACT (SUCH AS STOCKPILES OF FRESHLY TREATED LUMBER) AND CONSTRUCTION CHEMICALS THAT COULD BE EXPOSED TO STORM WATER MUST BE PREVENTED FROM BECOMING A POLLUTANT SOURCE IN STORM WATER DISCHARGES.

11. A COPY OF THE SWPPP, INSPECTION RECORDS AND RAINFALL DATA MUST BE RETAINED AT THE CONSTRUCTION SITE OR A NEARBY LOCATION EASILY ACCESSIBLE DURING NORMAL BUSINESS HOURS, FROM THE DATE OF COMMENCEMENT OF CONSTRUCTION ACTIVITIES TO THE DATE THAT FINAL STABILIZATION IS REACHED.

12. INITIATE STABILIZATION MEASURES ON ANY EXPOSED STEEP SLOPE (3H:1V OR GREATER) WHERE LAND DISTURBING ACTIVITIES HAVE PERMANENTLY OR TEMPORARILY CEASED, AND WILL NOT RESUME FOR A PERIOD OF 7 CALENDAR DAYS.

13. MINIMIZE SOIL COMPACTION IN AREAS NOT UNDER PAVEMENTS AND /OR STRUCTURES AND, UNLESS INFEASIBLE, PRESERVE TOPSOIL.

14. MINIMIZE THE DISCHARGE OF POLLUTANTS FROM EQUIPMENT AND VEHICLE WASHING, WHEEL WASH WATER AND OTHER WASH WATERS. WASH WATERS MUST BE TREATED IN A SEDIMENT BASIN OR ALTERNATIVE CONTROL THAT PROVIDES EQUAL OR BETTER TREATMENT PRIOR TO DISCHARGE.

15. MINIMIZE THE DISCHARGE OF POLLUTANTS FROM DEWATERING OF TRENCHES AND EXCAVATED AREAS. THESE DISCHARGES ARE TO BE ROUTED THROUGH APPROPRIATE BMPS (SEDIMENT BASIN, FILTER BAG, ETC.).

16. THE FOLLOWING DISCHARGES ARE PROHIBITED:

16.1. WASTEWATER FROM WASHOUT OF CONCRETE, UNLESS MANAGED BY AN APPROPRIATE CONTROL;
16.2. WASTEWATER FROM WASHOUT AND CLEANOUT OF OF STUCCO, PAINT, FORM RELEASE OILS, CURING COMPOUNDS AND OTHER CONSTRUCTION MATERIALS;
16.3. FUELS, OILS OR OTHER POLLUTANTS USED IN VEHICLE AND EQUIPMENT OPERATION AND MAINTENANCE; AND
16.4. SOAPS OR SOLVENTS USED IN VEHICLE AND EQUIPMENT WASHING.

17. AFTER CONSTRUCTION ACTIVITIES BEGIN, INSPECTIONS MUST BE CONDUCTED AT A MINIMUM OF AT LEAST ONCE EVERY CALENDAR WEEK AND MUST BE CONDUCTED UNTIL FINAL STABILIZATION IS REACHED ON ALL AREAS OF THE CONSTRUCTION SITE.

18. IF EXISTING BMPS NEED TO BE MODIFIED OR IF ADDITIONAL BMPS ARE NECESSARY TO COMPLY WITH THE REQUIREMENTS OF PERMIT SCR100000 AND/OR SC'S WATER QUALITY STANDARDS, IMPLEMENTATION MUST BE COMPLETED BEFORE THE NEXT STORM EVENT WHENEVER PRACTICABLE. IF IMPLEMENTATION BEFORE THE NEXT STORM EVENT IS IMPRACTICABLE, THE SITUATION MUST BE DOCUMENTED IN THE SWPPP AND ALTERNATIVE BMPS MUST BE IMPLEMENTED AS SOON AS REASONABLY POSSIBLE.

19. A PRE-CONSTRUCTION CONFERENCE MUST BE HELD FOR EACH CONSTRUCTION SITE WITH AN APPROVED ON-SITE SWPPP PRIOR TO THE IMPLEMENTATION OF CONSTRUCTION ACTIVITIES. FOR NON-LINEAR PROJECTS THAT DISTURB 10 ACRES OR MORE, THIS CONFERENCE MUST BE HELD ON-SITE UNLESS THE DEPARTMENT HAS APPROVED OTHERWISE.

VII. EROSION, SEDIMENTATION & POLLUTION CONTROL NOTES

1. THE IMPLEMENTATION OF THESE EROSION SEDIMENT CONTROL (ESC) PLANS AND THE CONSTRUCTION, MAINTENANCE, REPLACEMENT, AND UPGRADING OF THESE ESC FACILITIES IS THE RESPONSIBILITY OF THE CONTRACTOR UNTIL ALL CONSTRUCTION IS COMPLETED AND APPROVED AND VEGETATION/LANDSCAPING IS ESTABLISHED.

2. THE ESC FACILITIES SHOWN ON THIS PLAN MUST BE CONSTRUCTED IN CONJUNCTION WITH ALL CLEARING AND GRADING ACTIVITIES, AND IN SUCH A MANNER AS TO INSURE THAT SEDIMENT AND SEDIMENT LADEN WATER DO NOT ENTER THE DRAINAGE SYSTEM, ROADWAYS, OR VIOLATE APPLICABLE WATER STANDARDS.

3. THE ESC FACILITIES SHOWN ON THIS PLAN ARE THE MINIMUM REQUIREMENTS FOR ANTICIPATED SITE CONDITIONS. DURING THE CONSTRUCTION PERIOD, THESE ESC FACILITIES SHALL BE UPGRADED AS NEEDED FOR UNEXPECTED STORM EVENTS AND TO ENSURE THAT SEDIMENT AND SEDIMENT LADEN WATER DO NOT LEAVE THE SITE.

4. THE ESC FACILITIES SHALL BE INSPECTED DAILY BY THE CONTRACTOR AND MAINTAINED AS NECESSARY TO ENSURE THEIR CONTINUED FUNCTIONING.

5. THE ESC FACILITIES ON INACTIVE SITES SHALL BE INSPECTED AND MAINTAINED A MINIMUM OF ONCE A MONTH OR WITHIN THE 24 HOURS FOLLOWING A MAJOR STORM EVENT.

6. AT NO TIME SHALL MORE THAN ONE FOOT OF SEDIMENT BE ALLOWED TO ACCUMULATE WITHIN A CATCH BASIN. ALL CATCH BASINS AND CONVEYANCE LINES SHALL BE CLEANED PRIOR TO PAVING AND PRIOR TO FINAL INSPECTION. THE CLEANING OPERATION SHALL NOT FLUSH SEDIMENT LADEN WATER INTO THE DOWNSTREAM SYSTEM.

7. STABILIZED CONSTRUCTION ENTRANCES SHALL BE INSTALLED AT THE BEGINNING OF CONSTRUCTION AND MAINTAINED FOR THE DURATION OF THE PROJECT. ADDITIONAL MEASURES MAY BE REQUIRED TO INSURE THAT ALL PAVED AREAS ARE KEPT CLEAN FOR THE DURATION OF THE PROJECT.

8. BEFORE COMMENCING ANY LAND DISTURBING ACTIVITY, THE EXISTING STORM WATER INLET(S) THAT RECEIVING RUNOFF FROM THE PROPOSED WORK AREA SHALL BE PROTECTED. THE TEMPORARY INLET PROTECTION MUST REMAIN IN PLACE UNTIL THE CONSTRUCTION ACTIVITY IS COMPLETED, THE STREET HAS BEEN SWEPT AND ANY EXPOSED SOILS ARE STABILIZED. THE CONTRACTOR IS ALSO RESPONSIBLE FOR REMOVING ANY TEMPORARY INLET PROTECTION INSTALLED; AFTER ALL DISTURBED AREAS ARE STABILIZED. TEMPORARY PROTECTION OF THE INLETS MAY BE ACCOMPLISHED BY ONE OR MORE OF THE FOLLOWING:

8.1. USE OF GRAVEL BAGS TO FILTER THE SEDIMENT FROM ANY RUNOFF. TO MAKE A GRAVEL BAG, USE A BAG MADE OF GEOTEXTILE FABRIC (NOT BURLAP) AND FILL WITH EITHER 3/4 INCH ROCK OR 1/4 INCH PEA GRAVEL.
8.2. USE OF SEDIMENT LOGS TO FILTER THE SEDIMENT FROM ANY RUNOFF (AVAILABLE THROUGH LOCAL EROSION CONTROL SUPPLIERS).
8.3. USE OF ABOVE OR UNDER-GRATE FILTER BAGS OR DEVICES TO FILTER THE SEDIMENT FROM ANY RUNOFF (AVAILABLE THROUGH EROSION CONTROL SUPPLIERS).

9. WATER MAY NOT BE DISCHARGED IN A MANNER THAT CAUSES EROSION, SEDIMENTATION, OR FLOODING ON THE SITE, ON DOWNSTREAM PROPERTIES, IN THE RECEIVING CHANNELS, OR IN ANY STORM WATER INLET. WHEN SITE DEWATERING, WATER PUMPED FROM THE SITE, INCLUDING TRENCHES, SHALL BE TREATED BY ONE OF THE FOLLOWING:

9.1. TEMPORARY SEDIMENTATION BASINS
9.2. SEDIMENT FILTERING BAGS

10. THE CONTRACTOR SHALL VERIFY THE SIZE AND LOCATION OF ALL EXISTING UTILITIES. EXISTING UTILITIES ARE ALL UTILITIES THAT EXIST ON THE PROJECT IN AN ORIGINAL, RELOCATED OR NEWLY INSTALLED POSITION. THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR THE COST OF REPAIRS TO DAMAGED UNDERGROUND OR OVERHEAD FACILITIES, EVEN IF THE UTILITY IS NOT SHOWN ON THE SITE DEVELOPMENT PLANS. THE CONTRACTOR SHALL CONTACT THE LOCAL UTILITIES PROTECTION CENTER TO COORDINATE THE MARKING OF EXISTING UTILITY LINES A MINIMUM OF 96 HOURS PRIOR TO COMMENCEMENT OF ANY WORK.

11. THE CONTRACTOR SHALL FLUSH ALL INLETS AND PIPE AT THE COMPLETION OF CONSTRUCTION TO REMOVE SILT AND DEBRIS. THE CLEANING AND FLUSHING OF INLETS AND PIPE (EXISTING AND PROPOSED) SHALL BE CONSIDERED PART OF THE COST FOR THE PROJECT.

12. EGRESS FROM THE SITE SHALL BE CONTROLLED SUCH THAT VEHICLES LEAVING THE SITE MUST TRAVERSE CONSTRUCTION EXITS TO REMOVE MUD FROM TIRES.

13. SCHEDULE CONSTRUCTION ACTIVITIES TO MINIMIZE THE EXPOSED AREA AND DURATION OF EXPOSURE. IN SCHEDULING, TAKE INTO ACCOUNT THE SEASON AND THE WEATHER FORECAST.

14. EROSION CONTROL MEASURES ARE THE MINIMUM REQUIRED. THE CONTRACTOR SHALL PROVIDE ADDITIONAL CONTROL MEASURES AS DICTATED BY ACTUAL FIELD CONDITIONS AT THE TIME OF CONSTRUCTION IN ORDER TO PREVENT EROSION AND CONTROL SEDIMENT. EROSION AND SEDIMENT CONTROL MEASURES WILL REMAIN IN PLACE AND BE MAINTAINED UNTIL THE ENTIRE PROJECT IS TERMINATED OR SUSPENDED FOR AND INDEFINITE LENGTH OF TIME, ALL DISTURBED AREAS SHALL BE PLANTED WITH PERMANENT VEGETATION.

15. THE DATA, TOGETHER WITH ALL OTHER INFORMATION SHOWN ON THESE PLANS, OR IN ANY WAY INDICATED THEREBY, WHETHER BY DRAWINGS OR NOTES, OR IN ANY OTHER MANNER, IS BASED UPON FIELD INVESTIGATIONS AND IS BELIEVED TO BE INDICATIVE OF ACTUAL CONDITIONS. HOWEVER, THE SAME IS SHOWN AS INFORMATION ONLY, IS NOT GUARANTEED AND DOES NOT BIND THOMAS & HUTTON, OR THE OWNER IN ANY WAY.

16. CONTRACTOR SHALL MAINTAIN SITE ON A DAILY BASIS TO PROVIDE FOR POSITIVE DRAINAGE. CONTRACTOR, AT HIS COST, SHALL GRADE SITE AND PROVIDE NECESSARY TEMPORARY DRAINAGE SWALES TO INSURE STORM WATER DOES NOT POND ON SITE.

17. SITE DRAINAGE SHALL BE ESTABLISHED TO PREVENT ANY PONDED WATER CONDITIONS WITHIN THE CONSTRUCTION AREA AND TO FACILITATE STORM WATER DISCHARGE.

18. THE ESCAPE OF SEDIMENT FROM THE SITE SHALL BE PREVENTED BY THE INSTALLATION OF EROSION AND SEDIMENT CONTROL MEASURES AND PRACTICES PRIOR TO, OR CONCURRENT WITH, LAND DISTURBING ACTIVITIES.

19. LIME RATES AND ANALYSIS:
19.1. AGRICULTURAL LIME SHALL BE APPLIED AT THE RATE SHOWN IN THE SEEDING SECTION 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 APPLICATION SHALL BE WITHIN THE SPECIFICATIONS OF THE SOUTH CAROLINA DEPARTMENT OF AGRICULTURE.

20. MULCHING:

MULCHING IS REQUIRED FOR ALL PERMANENT VEGETATION APPLICATIONS. MULCH APPLIED TO SEEDED AREAS SHALL ACHIEVE 75% SOIL COVER. SELECT THE MULCHING MATERIAL FROM THE FOLLOWING AND APPLY AS INDICATED:

20.1. 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 TWO TONS PER ACRE. DRY HAY SHALL BE APPLIED AT THE RATE OF 2 1/2 TONS PER ACRE.
20.2. WOOD CELLULOSE MULCH OR WOOD PULP FIBER SHALL BE USED WITH HYDRAULIC SEEDING. IT SHALL BE APPLIED AT A RATE OF 500 POUNDS PER ACRE. DRY STRAW OR DRY HAY SHALL BE APPLIED (AT THE RATE INDICATED ABOVE) AFTER HYDRAULIC SEEDING.
20.3. ONE THOUSAND POUNDS OF WOOD CELLULOSE OR WOOD PULP FIBER, WHICH INCLUDES A TACKIFIER, SHALL BE USED WITH HYDRAULIC SEEDING ON SLOPES 3/4:1 OR STEEPER.
20.4. SERICEA LESPEDEZA HAY CONTAINING MATURE SEED SHALL BE APPLIED AT A RATE OF 3 TONS PER ACRE.
20.5. PINE STRAW OR PINE BARK SHALL BE APPLIED AT A THICKNESS OF 3 INCHES FOR BEDDING PURPOSES. OTHER SUITABLE MATERIALS IN SUFFICIENT QUANTITY MAY BE USED WHERE ORNAMENTALS OR OTHER GROUND COVERS ARE PLANTED. THIS IS NOT APPROPRIATE FOR SEEDED AREAS.
20.6. WHEN USING TEMPORARY EROSION CONTROL BLANKETS OR BLACK SOD, MULCH IS NOT REQUIRED.
20.7. ON SLOPES GREATER THAN 10 FEET IN LENGTH AND 4:1 OR STEEPER, USE THE FOLLOWING EROSION CONTROL BLANKETS THAT HAVE BEEN PROPERLY ANCHORED TO THE SLOPE ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS:

- 2:1 SLOPES OR STEEPER: - STRAW/COCONUT BLANKET OR HIGH VELOCITY WOOD BLANKET
- 3:1 SLOPES OR STEEPER: - WOOD OR STRAW BLANKET WITH NET ON BOTH SIDES
- 4:1 SLOPES OR FLATTER: - WOOD OR STRAW MULCH BLANKET WITH NET ON ONE SIDE

VIII. HOUSEKEEPING

THESE PERFORMANCE STANDARDS APPLY TO ALL SITES.

1. PETROLEUM PRODUCTS: INCLUDING OIL, GASOLINE, LUBRICANTS AND ASPHALTIC SUBSTANCES.

1.1. HAVE EQUIPMENT TO CONTAIN AND CLEAN UP PETROLEUM SPILLS IN FUEL STORAGE AREAS OR ON MAINTENANCE AND FUELING VEHICLES
1.2. STORE IN COVERED AREAS PROTECTED WITH DIKES

2. SPILLS: PREVENTION AND RESPONSE.

2.1. STORE AND HANDLE MATERIALS TO PREVENT SPILLS
2.2. TIGHTLY SEALED CONTAINERS, NEAT AND SECURE STACKING, ETC.
2.3. REDUCE STORM WATER CONTACT IF SPILL OCCURS
2.3.1. CLEANUP PROCEDURES SHOULD BE CLEARLY POSTED.
2.3.2. CLEANUP MATERIALS SHOULD BE READILY AVAILABLE
2.3.3. STOP THE SOURCE
2.3.4. CONTAIN THE SPILL

3. NON-STORM WATER DISCHARGES

THE FOLLOWING NON-STORMWATER DISCHARGES MUST BE PROTECTED FROM CAUSING POLLUTION OR EROSION:

3.1. DISCHARGES FROM FIRE-FIGHTING ACTIVITIES
3.2. FIRE HYDRANT FLUSHINGS
3.3. WATERS USED TO WASH VEHICLES WHERE DETERGENTS ARE NOT USED
3.4. WATER USED TO CONTROL DUST
3.5. POTABLE WATER INCLUDING UNCONTAMINATED WATER LINE FLUSHINGS
3.6. ROUTINE EXTERNAL BUILDING WASH DOWN THAT DOES NOT USE DETERGENTS
3.7. PAVEMENT WASH WATERS WHERE SPILLS OR LEAKS OF TOXIC OR HAZARDOUS MATERIALS HAVE NOT OCCURRED (UNLESS ALL SPILLED MATERIAL HAS BEEN REMOVED) AND WHERE DETERGENTS ARE NOT USED
3.8. UNCONTAMINATED AIR CONDITIONING OR COMPRESSOR CONDENSATE
3.9. UNCONTAMINATED GROUND WATER OR SPRING WATER
3.10. FOUNDATION OR FOOTING DRAINS WHERE FLOWS ARE NOT CONTAMINATED WITH PROCESS MATERIALS SUCH AS SOLVENTS
3.11. UNCONTAMINATED EXCAVATION DEWATERING
3.12. LANDSCAPE IRRIGATION
3.13. DECHLORINATED SWIMMING POOL DISCHARGES.

4. CONSTRUCTION WASTES: DEMOLITION RUBBLE, PACKAGING MATERIALS, SCRAP BUILDING SUPPLIES, ETC.

4.1. SELECT A DESIGNATED WASTE COLLECTION AREA
4.2. PROVIDE LIDS FOR WASTE CONTAINERS
4.3. WHEN POSSIBLE LOCATE CONTAINERS IN COVERED AREA
4.4. MAINTAIN CONSISTENT REMOVAL SCHEDULE FOR WASTE

5. PESTICIDES: REDUCE THE AMOUNT OF PESTICIDES AVAILABLE FOR CONTACT WITH STORM WATER.

5.1. STORE IN A DRY COVERED AREA
5.2. INSTALL CURBS OR DIKES AROUND STORAGE AREA TO PROTECT AGAINST SPILLS
5.3. STRICTLY FOLLOW RECOMMENDED APPLICATION RATES

6. FERTILIZERS AND DETERGENTS: REDUCE THE AMOUNT OF FERTILIZERS AND DETERGENTS AVAILABLE FOR CONTACT WITH STORM WATER.

6.1. LIMIT APPLICATION OF FERTILIZERS TO THE MINIMUM NEEDED
6.2. APPLY MORE FREQUENTLY BUT AT LOWER APPLICATION RATES
6.3. LIMIT USE OF DETERGENTS ON-SITE
6.4. DO NOT DISCHARGE WASH WATER INTO STORM WATER SYSTEM
6.5. MAINTAIN STRUCTURAL AND VEGETATIVE BMP'S
6.6. APPLY ACCORDING TO SOIL TEST RECOMMENDATIONS PRIOR TO SEEDING

IX. GRASSING NOTES

1. SOD:

ALL SOD SHALL BE NURSERY GROWN AS CLASSIFIED IN THE ASPS GSS. MACHINE CUT SOD AT A UNIFORM THICKENS OF 3/4" WITHIN A TOLERANCE OF 1/4", EXCLUDING TOP GROWTH AND THATCH. EACH INDIVIDUAL SOD PIECE SHALL BE STRONG ENOUGH TO SUPPORT ITS OWN WEIGHT WHEN LIFTED BY THE ENDS. BROKEN PODS, IRREGULARLY SHAPED PIECES, AND TORN OR UNEVEN ENDS WILL BE REJECTED. WOOD PEGS AND / OR WIRE STAPLES SHALL REPLACE SOD WITH AN EQUAL SOD COMPOSITION AS THAT WHICH IS EXISTING. IF NO SOD TYPE EXIST. THEN THE FOLLOWING SOD COMPOSITION SHALL BE USED.

2. SODDING SCHEDULE:

LAY SOD FROM MAY 1 TO SEPTEMBER 15 FOR SPRING PLANTING AND FROM SEPTEMBER 15 TO NOVEMBER 1 FOR FALL PLANTING.

3. SEED:

ALL SEED SHALL CONFORM TO ALL STATE LAWS AND TO ALL REQUIREMENTS AND REGULATIONS OF THE SOUTH CAROLINA DEPARTMENT OF AGRICULTURE. THE SEVERAL VARIETIES OF SEED SHALL BE INDIVIDUALLY PACKAGED OR BAGGED, AND TAGGED TO SHOW NAME OF SEED, NET WEIGHT, ORIGIN, GERMINATION, LOT NUMBER, AND OTHER INFORMATION REQUIRED BY THE DEPARTMENT OF AGRICULTURE.

3.1. PENNISETUM GLAUCIUM (BROWNTOP MILLET): TESTING 98 PERCENT PURITY AND 85 PERCENT GERMINATION.
3.2. BERMUDA COMMON: TESTING 98 PERCENT PURITY AND 85 PERCENT GERMINATION.
3.3. DOMESTIC ITALIAN RYE: TESTING 98 PERCENT PURITY AND 90 PERCENT GERMINATION.

4. MISCELLANEOUS:

4.1. PERMANENT SEEDING SHALL COVER ALL DISTURBED AREA NOT TO BE COVERED BY LANDSCAPE PLANTING BEDS, STRUCTURE, OR PAVEMENT.
4.2. SEED ALL DISTURBED AREAS WITHIN SEVEN DAYS OF FINAL GRADING AND TEMPORARY SEED/MULCH ALL AREAS THAT WILL BE LEFT INACTIVE FOR MORE THAN FOURTEEN (14) DAYS.
4.3. ALL PERMANENT GRASS PLANTINGS SHALL BE MULCHED
4.4. CENTIPEDE SOD CAN BE USED AS PERMANENT COVER ANYTIME EXCEPT JUNE THRU OCTOBER
4.5. IF GRASSING OCCURS DURING A MONTH REQUIRING TEMPORARY COVER, THE CONTRACTOR SHALL APPLY PERMANENT COVER (IN ADDITION TO THE TEMPORARY COVER) AT THE APPROPRIATE TIME AT NO NO ADDITIONAL COST. THE CONTRACTOR MUST ACHIEVE A STRAND OF PERMANENT GRASS WITH AT LEAST 95% COVER. BARE SPOTS CAN NOT BE MORE THAN 1 INCH SQUARE IN ANY 10 SF

X. PERMANENT STABILIZATION

NEWLY SEEDED OR SODDED AREAS MUST BE PROTECTED FROM VEHICLE TRAFFIC,EXCESSIVE PEDESTRIAN TRAFFIC, AND CONCENTRATED RUNOFF UNTIL THE VEGETATION IS WELL ESTABLISHED. IF NECESSARY, AREAS MUST BE RE-WORKED AND RE-STABILIZED IF GERMINATION IS SPARSE, PLANT COVERAGE IS SPOTTY ,OR TOPSOIL EROSION IS EVIDENT. ONE OR MORE OF THE FOLLOWING MAY APPLY TO THE SITE.

4.1. SEEDED AREAS

FOR SEEDED AREAS, PERMANENT STABILIZATION MEANS A 90% COVER OF THE DISTURBED AREA WITH MATURE, HEALTHY PLANTS WITH NO EVIDENCE OF WASHING OR RILLING OF THE TOPSOIL.

4.2. SODDED AREAS

FOR SODDED AREAS, PERMANENT STABILIZATION MEANS THE COMPLETE BINDING OF THE SOD ROOTS INTO THE APPROVED MULCH MATERIAL.

4.3. PERMANENT MULCH

FOR MULCHED AREAS, PERMANENT MULCHING MEANS TOTAL COVERAGE OF THE EXPOSED AREA WITH AN APPROVED MULCH MATERIAL.

4.4. RIPRAP

FOR AREAS STABILIZED WITH RIPRAP, PERMANENT STABILIZATION MEANS THAT SLOPES STABILIZED WITH RIPRAP HAVE AN APPROPRIATE BACKING OF AN APPROVED GEOTEXTILE TO PREVENT SOIL MOVEMENT FROM BEHIND THE RIPRAP.

4.5. DITCHES, CHANNELS, AND SWALES

FOR OPEN CHANNELS, PERMANENT STABILIZATION MEANS THE CHANNEL IS STABILIZED WITH MATURE VEGETATION AT LEAST THREE INCHES IN HEIGHT, WITH WELL-GRADED RIPRAP LINING, OR WITH ANOTHER NON-EROSIVE LINING CAPABLE OF WITHSTANDING THE ANTICIPATED FLOW VELOCITIES AND FLOW DEPTHS WITHOUT RELIANCE ON CHECK DAMS TO SLOW FLOW. THERE MUST BE NO EVIDENCE OF SLUMPING OF THE LINING, UNDERCUTTING OF THE BANKS, OR DOWN CUTTING OF THE CHANNEL.

XI. FERTILIZER REQUIREMENTS

1. TEMPORARY SEEDING FERTILIZER

APPLY A MINIMUM OF 500 LBS PER ACRE OF A COMPLETE 10-10-10 FERTILIZER (11.5 POUNDS PER 1000 SQUARE FEET) OR EQUIVALENT DURING TEMPORARY SEEDING OF GRASSES UNLESS A SOIL TEST INDICATES A DIFFERENT REQUIREMENT. INCORPORATE FERTILIZER AND LIME (IF USED) INTO THE TOP 4-6 INCHES OF THE SOIL BY DISKING OR OTHER MEANS WHERE CONDITIONS ALLOW. LIME IS NOT REQUIRED FOR TEMPORARY SEEDING UNLESS A SOIL TEST SHOWS THAT THE SOIL PH IS BELOW 5.0. IT IS DESIRABLE TO APPLY LIME DURING THE TEMPORARY SEEDING OPERATION TO BENEFIT THE LONG-TERM PERMANENT SEEDING. APPLY A MINIMUM OF 1.5 TONS OF LIME / ACRE (70LBS. / 1000 SQ. FT.).

2. PERMANENT SEEDING FERTILIZER

APPLY A MINIMUM OF 1000 LBS PER ACRE OF A COMPLETE 10-10-10 FERTILIZER (23 POUNDS PER 1000 SQUARE FEET) OR EQUIVALENT DURING PERMANENT SEEDING OF GRADES UNLESS A SOIL TEST INDICATES A DIFFERENT REQUIREMENT. INCORPORATE FERTILIZER AND LIME (IF USED) INTO THE TOP 4-6 INCHES OF THE SOIL BY DISKING OR OTHER MEANS WHERE CONDITIONS ALLOW. DO NOT MIX THE LIME AND THE FERTILIZER PRIOR TO THE FIELD APPLICATION. UNLESS A SPECIFIC SOIL TEST INDICATES OTHERWISE, APPLY 1 & 1/2 TONS OF GROUND COARSE TEXTURED AGRICULTURAL LIMESTONE PER ACRE (70 LBS. / 1000 SQ.FT.).

XII. SWPP PREPARER CERTIFICATION

I HAVE PLACED MY SIGNATURE AND SEAL ON THE DESIGN DOCUMENTS SUBMITTED SIGNIFYING THAT I ACCEPT RESPONSIBILITY FOR THE DESIGN OF THE SYSTEM. FURTHER, I CERTIFY TO THE BEST OF MY KNOWLEDGE AND BELIEF THAT THE DESIGN IS CONSISTENT WITH THE REQUIREMENTS OF TITLE 48, CHAPTER 14 OF THE CODE OF LAWS OF SC, 1976 AS AMENDED, PURSUANT TO REGULATION 72-300 ET SEQ. (IF APPLICABLE), AND IN ACCORDANCE WITH THE TERMS AND CONDITIONS OF SCR100000.

SOUTH CAROLINA — THOMAS & HUTTON ENGINEERING CO. No. C00285 — CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA — PROFESSIONAL ENGINEER — No. 15293 — MARK F. YODICE

NO	REVISIONS	BY	DATE

THOMAS & HUTTON
Engineering | Surveying | Planning | GIS | Consulting
682 Johnnie Dodds Boulevard • Suite 100
Mt. Pleasant, SC 29464 • 843.849.0200
www.thomasandhutton.com

KIAWAH RIVER PLANTATION HOLDINGS, LP
CHARLESTON COUNTY, SOUTH CAROLINA

KIAWAH RIVER PLANTATION WWTP PHASE I

SWPPP NOTES

JOB NO:	J-25328.0002
DATE:	12/16/16
DRAWN:	DNF
DESIGNED:	KEN
REVIEWED:	MFY
APPROVED:	MFY
SCALE:	NTS

05-C-06