CONSTRUCTION SEQUENCE – STAGE 1

1. OBTAIN A LAND–DISTURBING PERMIT AND SCHEDULE A PRECONSTRUCTION CONFERENCE WITH ORANGE COUNTY EROSION CONTROL OFFICER, WESLEY POOLE (919)245.2587. PRECONSTRUCTION MEETING SHALL INCLUDE A REPRESENTATIVE FROM OWASA, TOWN OF CHAPEL HILL, TOWN'S URBAN FORESTER, AND OWNER.

   NOTE: INSTALL A RURAL TYPE MAILBOX ON THE SITE TO HOLD A COPY OF THE APPROVED EROSION CONTROL PLAN AND TO PROVIDE A PLACE FOR INSPECTORS TO LEAVE INSPECTION REPORT, COMPLIANCE NOTICES, ETC.
2. INSTALL GRAVEL CONSTRUCTION ENTRANCE(S) AND TEMPORARY SILT FENCING WITH OUTLETS AS SHOWN ON THE APPROVED PLANS.
3. CONTRACTOR SHALL DEMOLISH AND CLEAR ONLY THOSE AREAS NECESSARY TO ACCESS AND INSTALL SEDIMENT BASINS AND TO INSTALL INITIAL PERIMETER DEVICES. INSTALL DIVERSION DITCHES/BERMS AND INLET PROTECTION ON EXISTING INLETS AS SHOWN.
4. CONTRACTOR TO DIVERT RUNOFF TO SB–A.
5. INSTALL INLET PROTECTION PER ORANGE COUNTY SEC STANDARDS AND SPECIFICATIONS ON ALL INLETS.
6. CALL 919.245.2587 FOR ON–SITE INSPECTION BY ORANGE COUNTY EROSION CONTROL.
10. BEGIN CLEARING, DEMOLITION OF EXISTING ASPHALT AND GRAVEL AREAS, AND GENERAL GRADING OF STAGE I AREA. MAINTAIN DEVICES AS NEEDED.
11. NO MUD SHALL BE TRACKED ONTO EXISTING PAVEMENT OR A NOTICE OF VIOLATION FROM THE EROSION CONTROL DEPARTMENT MAY ENSUE. ADDITIONAL MEASURES MAY BE NECESSARY TO ASSURE THAT NO SEDIMENT LEAVES THE SITE.
12. PROVIDE ALL DISTURBED AREAS WITH GROUND COVER WITHIN 14 CALENDAR DAYS AFTER COMPLETION OF ANY PHASE OF CLEARING, GRUBBING OR GRADING. THE SEEDING, SEEDBED PREPARATION, MULCH AND/OR ROLLED EROSION CONTROL PRODUCT INSTALLATION MUST BE IN ACCORDANCE WITH THE SEEDING SCHEDULE PROVIDED IN THIS S&E PLAN. NOTE: SLOPES IN EXCESS OF 3H:1V SHALL BE STABILIZED WITHIN 7 DAYS AND FOR MODERATE SLOPES (SLOPES LESS THAN 3H:1V) SHALL BE STABILIZED WITHIN 14 DAYS.
13. WITH APPROVAL FROM ORANGE COUNTY EROSION CONTROL INSPECTOR, CONTINUE TO STAGE 2.

CONSTRUCTION SEQUENCE – STAGE 2

1. CONTINUE MASS GRADING FROM STAGE 1.
2. UTILIZE THE SUITABLE BACKFILL MATERIAL FROM EXCAVATION. RELOCATE AND ADJUST TEMPORARY DIVERSION DITCHES AS NECESSARY. DIVERSION DITCHES SHALL REMAIN IN PLACE AND OPERATIONAL UNTIL SITE IS STABILIZED.
3. CONSTRUCT STORM DRAIN SYSTEM AS SHOWN.
4. INSTALL INLET PROTECTION ON ALL INLET STRUCTURES DURING CONSTRUCTION.
5. PROVIDE ALL DISTURBED AREAS WITH GROUND COVER WITHIN 14 CALENDAR DAYS AFTER COMPLETION OF ANY PHASE OF CLEARING, GRUBBING OR GRADING. THE SEEDING, SEEDBED PREPARATION, MULCH AND/OR ROLLED EROSION CONTROL PRODUCT INSTALLATION MUST BE IN ACCORDANCE WITH THE SEEDING SCHEDULE PROVIDED IN THIS S&E PLAN. NOTE: SLOPES IN EXCESS OF 3H:1V SHALL BE STABILIZED WITHIN 7 DAYS AND FOR MODERATE SLOPES (SLOPES LESS THAN 3H:1V) SHALL BE STABILIZED WITHIN 14 DAYS.
6. AT THE CONCLUSION OF BUILDING OR IF LAND–DISTURBING ACTIVITY IS STOPPED FOR MORE THAN 14 CONSECUTIVE CALENDAR DAYS, PERMANENT VEGETATIVE COVER SHALL BE INSTALLED IN ACCORDANCE WITH THIS S&E PLAN.
7. WHEN SITE IS AT FINAL GRADE AND NO FURTHER GRADING IS NECESSARY, CONTRACTOR SHALL STABILIZE PORTIONS OF THE SITE WITH SEED/MULCH UNTIL FINAL LANDSCAPING IS INSTALLED.
8. WHEN CONSTRUCTION IS COMPLETE, CALL OCEC TO OBTAIN FINAL INSPECTION AND CERTIFICATE OF COMPLETION TO CLOSE OUT EROSION CONTROL PERMIT.

CONSTRUCTION SEQUENCE – STAGE 3

1. CONTINUE MASS GRADING FROM STAGE 2.
2. UTILIZE THE SUITABLE BACKFILL MATERIAL FROM EXCAVATION. RELOCATE AND ADJUST TEMPORARY DIVERSION DITCHES AS NECESSARY. DIVERSION DITCHES SHALL REMAIN IN PLACE AND OPERATIONAL UNTIL SITE IS STABILIZED.
3. PROVIDE ALL DISTURBED AREAS WITH GROUND COVER WITHIN 14 CALENDAR DAYS AFTER COMPLETION OF ANY PHASE OF CLEARING, GRUBBING OR GRADING. THE SEEDING, SEEDBED PREPARATION, MULCH AND/OR ROLLED EROSION CONTROL PRODUCT INSTALLATION MUST BE IN ACCORDANCE WITH THE SEEDING SCHEDULE PROVIDED IN THIS S&E PLAN. NOTE: SLOPES IN EXCESS OF 3H:1V SHALL BE STABILIZED WITHIN 7 DAYS AND FOR MODERATE SLOPES (SLOPES LESS THAN 3H:1V) SHALL BE STABILIZED WITHIN 14 DAYS.
4. AT THE CONCLUSION OF BUILDING OR IF LAND–DISTURBING ACTIVITY IS STOPPED FOR MORE THAN 14 CONSECUTIVE CALENDAR DAYS, PERMANENT VEGETATIVE COVER SHALL BE INSTALLED IN ACCORDANCE WITH THIS S&E PLAN.
5. WHEN SITE IS AT FINAL GRADE AND NO FURTHER GRADING IS NECESSARY, CONTRACTOR SHALL STABILIZE PORTIONS OF THE SITE WITH SEED/MULCH UNTIL FINAL LANDSCAPING IS INSTALLED.
6. WHEN CONSTRUCTION IS COMPLETE, CALL OCEC TO OBTAIN FINAL INSPECTION AND CERTIFICATE OF COMPLETION TO CLOSE OUT EROSION CONTROL PERMIT.

EROSION CONTROL NOTES:

1. EROSION AND SEDIMENT CONTROL DEVICES MUST BE INSTALLED AND INSPECTED PRIOR TO ANY GRADING ON SITE. THE CONTRACTOR SHALL CALL FOR A INSPECTION BY ORANGE COUNTY SEDIMENTATION AND EROSION CONTROL (SEC) ONCE INITIAL MEASURES ARE IN PLACE.
2. REQUIRED TREE PROTECTION FENCING SHALL BE INSTALLED AND A PRE–CONSTRUCTION CONFERENCE SCHEDULED WITH THE TOWN'S URBAN FORESTER PRIOR TO BEGINNING LAND DISTURBANCE.
3. SEDIMENT/EROSION CONTROL DEVICES MUST BE CHECKED AFTER EACH STORM EVENT. EACH DEVICE IS TO BE MAINTAINED OR REPLACED IF SEDIMENT ACCUMULATION HAS REACHED ONE HALF THE CAPACITY OF THE DEVICE.
4. IN ADDITION TO THE REQUIREMENT DURING CONSTRUCTION FOR THE INSPECTION OF EROSION CONTROL DEVICES AFTER EVERY RAINFALL, THE CONTRACTOR SHALL INSPECT THE EROSION AND SEDIMENT CONTROL DEVICES AND OFFSITE ROADWAYS DAILY, MAKE ANY NECESSARY REPAIRS OR ADJUSTMENTS TO THE DEVICES, REMOVE DEPOSITION OF WET OR DRY SILT ON ADJACENT ROADWAYS AND MAINTAIN INSPECTION LOGS DOCUMENTING THE DAILY INSPECTIONS AND ANY NECESSARY REPAIRS.
5. A COPY OF THE APPROVED EROSION CONTROL PLAN MUST BE ON FILE AT THE JOB SITE AT ALL TIMES.
6. CONSTRUCTION, MAINTENANCE, AND REMOVAL OF ALL EROSION CONTROL DEVICES ARE THE RESPONSIBILITY OF THE GRADING CONTRACTOR UNLESS OTHERWISE NOTED.
7. ANY GRADING BEYOND THE DENUDED LIMITS SHOWN ON THE PLAN IS A VIOLATION OF THE COUNTY EROSION CONTROL ORDINANCE AND IS SUBJECT TO A FINE.
8. NO DEBRIS SHALL BE TRACKED ONTO ANY EXISTING PAVED AREAS OR PUBLIC RIGHT OF WAY. IF THE SITUATION OCCURS WHERE MUD, ROCK AND DEBRIS IS TRACKED ONTO PAVEMENT, THE CONTRACTOR SHALL CLEAN THE PAVEMENT AND INSTALL ADDITIONAL MEASURES TO PREVENT THE FUTURE OCCURRENCE.
9. DURING THE CONSTRUCTION PHASE, ADDITIONAL EROSION AND SEDIMENT CONTROLS MAY BE REQUIRED IF THE PROPOSED MEASURES DO NOT CONTAIN THE SEDIMENT ON SITE. THE EROSION CONTROL INSPECTOR MAY REQUIRE ADDITIONAL FIELD MEASURES AS NECESSARY TO PROVIDE ADEQUATE PROTECTION FROM RECEIVING WATER COURSES.
10. PROTECTION OF EXISTING VEGETATION: AT THE START OF GRADING INVOLVING THE STRIPPING OF TOPSOIL OR LOWERING OF EXISTING GRADE AROUND A TREE, A CLEAN, SHARP, VERTICAL CUT SHALL BE MADE AT THE EDGE OF THE TREE SAVE AREA AT THE SAME TIME AS OTHER EROSION CONTROL MEASURES ARE INSTALLED. THE TREE PROTECTION FENCING SHALL BE INSTALLED ON THE SIDE OF THE CUT FARTHEST AWAY FROM THE TREE TRUNK AND SHALL REMAIN IN PLACE UNTIL ALL CONSTRUCTION IN THE VICINITY OF THE TREES IS COMPLETE. NO STORAGE OF MATERIALS, FILL, OR EQUIPMENT AND NO TRESPASSING SHALL BE ALLOWED WITHIN THE BOUNDARY OF THE PROTECTED AREA AND SHALL BE POSTED ON THE PROTECTION FENCE. A PROTECTION FENCE CONSTRUCTED OF MATERIAL RESISTANT TO DEGRADATION BY SUN, WIND, AND MOISTURE FOR THE DURATION OF THE CONSTRUCTION, SHALL BE INSTALLED AT THE SAME TIME AS THE EROSION CONTROL MEASURES AND SHALL BE IN PLACE UNTIL ALL CONSTRUCTION IN THE VICINITY OF THE TREES IS COMPLETE.
11. A CONSTRUCTION SEQUENCE HAS BEEN PROVIDED. INSTALLATION OF ALL PROPOSED SEDIMENTATION & EROSION CONTROL MEASURES IN THE SEQUENCE(S) PROVIDED AND MAINTENANCE OF THOSE DEVICES IS REQUIRED. THE CONTRACTOR MAY BE ALLOWED, WITH PRIOR APPROVAL FROM THE OWNER, TO COORDINATE CHANGES TO THE PLAN WITH THE ON–SITE SEDIMENTATION & EROSION CONTROL INSPECTOR AND THE ENGINEER.
12. PROVIDE INLET PROTECTION AROUND ALL SITE STORM INLETS. PROTECT OPEN PIPES UNDER CONSTRUCTION WITH EITHER PLYWOOD OR WITH MESH AND GRAVEL WEIRS. RUNOFF SHALL NOT BE ALLOWED IN ANY OPEN TRENCH.
13. CONTRACTOR TO VERIFY SILT FENCE OUTLET PLACEMENT AT LOW POINTS AS THEY EXIST OR DEVELOP. ADDITIONAL SILT FENCE OUTLETS MAY BE REQUIRED TO PREVENT EROSION DURING AND AFTER CONSTRUCTION AND LAND DISTURBANCE ACTIVITIES. IF ADDITIONAL SILT FENCE OUTLETS ARE NECESSARY, CONTRACTOR TO ADD ADDITIONAL SILT FENCE OUTLETS PER ENGINEER, NCDEQ EROSION CONTROL INSPECTOR, OR OWNER DIRECTION. IF PONDING OF WATER OR SEDIMENT OCCURS ALONG SILT FENCE, CONTRACTOR SHALL INSTALL AN ADDITIONAL SILT FENCE OUTLET.
14. TEMPORARY DIVERSIONS SHALL BE MAINTAINED DAILY BY CONTRACTOR SO THAT THEY ARE FUNCTIONAL AT THE END OF EACH WORKDAY AND WHEN STOPPING WORK FOR RAIN.

TEMPORARY SKIMMER BASIN SPECIFICATIONS

1. CLEAR, GRUB, AND STRIP THE AREA UNDER THE EMBANKMENT OF ALL VEGETATION AND ROOT MAT. REMOVE ALL SURFACE SOIL CONTAINING HIGH AMOUNTS OF ORGANIC MATTER AND STOCKPILE OR DISPOSE OF IT PROPERLY. HAUL ALL OBJECTIONABLE MATERIAL TO THE DESIGNATED DISPOSAL AREA. PLACE TEMPORARY SEDIMENT CONTROL MEASURES BELOW BASIN AS NEEDED.
2. ENSURE THAT FILL MATERIAL FOR THE EMBANKMENT IS FREE OF ROOTS, WOODY VEGETATION, ORGANIC MATTER, AND OTHER OBJECTIONABLE MATERIAL. PLACE THE FILL IN LIFTS NOT THE EXCEED 9 INCHES, AND MACHINE COMPACT IT. OVER FILL THE EMBANKMENT 6 INCHES TO ALLOW FOR SETTLEMENT.
3. SHAPE THE BASIN TO THE SPECIFIED DIMENSIONS. PREVENT THE SKIMMING DEVICE FROM SETTLING INTO THE MUD BY EXCAVATING A SHALLOW PIT UNDER THE SKIMMER OR PROVIDING A LOW SUPPORT UNDER THE SKIMMER OF STONE OR TIMBER.
4. PLACE THE BARREL (TYPICALLY 4–INCH SCHEDULE 40 PVC PIPE) ON A FIRM, SMOOTH FOUNDATION OF IMPERVIOUS SOIL. DO NOT USE PERVIOUS MATERIAL SUCH AS SAND, GRAVEL, OR CRUSHED STONE AS BACKFILL AROUND THE PIPE. PLACE THE FILL MATERIAL AROUND THE PIPE SPILLWAY IN 4–INCH LAYERS AND COMPACT IT UNDER AND AROUND THE PIPE TO AT LEAST THE SAME DENSITY AS THE ADJACENT EMBANKMENT. CARE MUST BE TAKEN NOT THE RAISE THE PIPE FROM THE FIRM CONTACT WITH ITS FOUNDATION WHEN COMPACTING UNDER THE PIPE HAUNCHES.
5. PLACE A MINIMUM DEPTH OF 2 FEET OF COMPACTED BACKFILL OVER THE PIPE SPILLWAY BEFORE CROSSING IT WITH CONSTRUCTION EQUIPMENT. IN NO CASE SHOULD THE PIPE CONDUIT BE INSTALLED BY CUTTING A TRENCH THROUGH THE DAM AFTER THE EMBANKMENT IS COMPLETE.
6. ASSEMBLE THE SKIMMER FOLLOWING THE MANUFACTURER'S INSTRUCTIONS, OR AS DESIGNED.
7. LAY THE ASSEMBLED SKIMMER ON THE BOTTOM OF THE BASIN WITH THE FLEXIBLE JOINT AT THE INLET OF THE BARREL PIPE. ATTACH THE FLEXIBLE JOINT TO THE BARREL PIPE AND POSITION THE SKIMMER OVER THE EXCAVATED PIT OR SUPPORT. BE SURE TO ATTACH A ROPE TO THE SKIMMER AND ANCHOR IT TO THE SIDE OF THE BASIN. THIS WILL BE USED TO PULL THE SKIMMER TO THE SIDE FOR MAINTENANCE.
8. EARTHEN SPILLWAYS – INSTALL THE SPILLWAY IN UNDISTURBED SOIL TO THE GREATEST EXTENT POSSIBLE. THE ACHIEVEMENT OF PLANNED ELEVATIONS, GRADE, DESIGN WIDTH, AND ENTRANCE AND EXIT CHANNEL SLOPES ARE CRITICAL TO THE SUCCESSFUL OPERATION OF THE SPILLWAY. THE SPILLWAY SHOULD BE LINED WITH LAMINATED PLASTIC OR IMPERMEABLE GEOTEXTILE FABRIC. THE FABRIC MUST BE WIDE AND LONG ENOUGH TO COVER THE BOTTOM AND SIDES AND EXTEND ONTO THE TOP OF THE DAM FOR ANCHORING IN A TRENCH. THE EDGES MAY BE SECURED WITH 8–INCH STAPLES OR PINS. THE FABRIC MUST BE LONG ENOUGH TO EXTEND DOWN THE SLOPE AND EXIT ONTO STABLE GROUND. THE WIDTH OF THE FABRIC MUST BE ONE PIECE, NOT JOINED OR SPLICED; OTHERWISE WATER CAN GET UNDER THE FABRIC. IF THE LENGTH OF THE FABRIC IS INSUFFICIENT FOR THE ENTIRE LENGTH OF THE SPILLWAY, MULTIPLE SECTIONS, SPANNING THE COMPLETE WIDTH, MAY BE USED. THE UPPER SECTION (S) SHOULD OVERLAP THE LOWER SECTION(S) SO THAT WATER CANNOT FLOW UNDER THE FABRIC. SECURE THE UPPER EDGE AND SIDES OF THE FABRIC IN A TRENCH WITH STAPLES OR PINS. (ADAPTED FROM "A MANUAL FOR DESIGNING, INSTALLING, AND MAINTAINING SKIMMER SEDIMENT BASINS." FEBRUARY, 1999. J. W. FAIRCLOTH & SON.).
9. INLETS – DISCHARGE WATER INTO THE BASIN IN A MANNER TO PREVENT EROSION. USE TEMPORARY SLOPE DRAINS OR DIVERSIONS WITH OUTLET PROTECTION TO DIVERT SEDIMENT–LADEN WATER TO THE UPPER END OF THE POOL AREA TO IMPROVE BASIN TRAP EFFICIENCY (REFERENCES: RUNOFF CONTROL MEASURES AND OUTLET PROTECTION).
10. EROSION CONTROL – CONSTRUCT THE STRUCTURE SO THAT THE DISTURBED AREA IS MINIMIZED. DIVERT SURFACE WATER AWAY FROM BARE AREAS. COMPLETE THE EMBANKMENT BEFORE THE AREA IS CLEARED. STABILIZE THE EMERGENCY SPILLWAY EMBANKMENT AND ALL OTHER DISTURBED AREAS ABOVE THE CREST OF THE PRINICIPAL SPILLWAY IMMEDIATELY AFTER CONSTRUCTION (REFERENCES: SURFACE STABILIZATION).
11. INSTALL POROUS BAFFLES AS SPECIFIED IN PRACTICE 6.65, POROUS BAFFLES.
12. AFTER ALL THE SEDIMENT–PRODUCING AREAS HAVE BEEN PERMANENTLY STABILIZED, REMOVE THE STRUCTURE AND ALL THE UNSTABLE SEDIMENT. SMOOTH THE AREA TO BLEND WITH THE ADJOINING AREAS AND STABILIZE PROPERLY (REFERENCES: SURFACE STABILIZATION)

TEMPORARY SEEDING SCHEDULE

SEEDING DATE	SEEDING MIXTURE	APPLICATION RATE
JAN 1 – MAY 1	RYE (GRAIN)	120 LBS/AC
	KOBE LESPEDEZA	50 LBS/AC
MAY 1 – AUG 15	GERMAN MILLET	40 LBS/AC
AUG 15 – DEC 30	RYE (GRAIN)	120 LBS/AC

SOIL AMENDMENTS
FOLLOW RECOMMENDATIONS OF SOIL TESTS OR APPLY 4,000 LB/AC GROUND AGRICULTURE LIMESTONE AND 750 LB/AC 10–10–10 FERTILIZER (FROM AUG 15 – DEC 30, INCREASE 10–10–10 FERTILIZER TO 1000 LB/AC).

MULCH
APPLY 4000 LB/AC STRAW. ANCHOR STRAW BY TACKING WITH ASPHALT, NETTING, OR A MULCH ANCHORING TOOL. A DISK WITH BLADES SET NEARLY STRAIGHT CAN BE USED AS A MULCH ANCHORING TOOL.

MAINTENANCE
JAN 1 – AUG 15: REFERTILIZE IF GROWTH IS NOT FULLY ADEQUATE. RESEED, REFERTILIZE, AND MULCH IMMEDIATELY FOLLOWING EROSION OR OTHER DAMAGE.

AUG 15 – DEC 30: REPAIR AND REFERTILIZE DAMAGED AREAS IMMEDIATELY. TOP DRESS WITH 50 LB/AC OF NITROGEN IN MARCH. IF IT IS NECESSARY TO EXTEND TEMPORARY COVER BEYOND JUNE 15, OVERSEED WITH 50 LB/AC KOBE LESPEDEZA IN LATE FEBRUARY OR EARLY MARCH.

NOTE: USE THE TEMPORARY SEEDING SCHEDULE ONLY WHEN DATE IS NOT CORRECT TO USE THE PERMANENT SEEDING SCHEDULE.

PERMANENT SEEDING SCHEDULE

SEEDING DATE	SEEDING MIXTURE	APPLICATION RATE
AUG 25 – OCT (BEST)	TALL FESCUE	200 LBS/AC
	RYE (GRAIN)	50 LBS/AC
	GERMAN MILLET	50 LBS/AC
FEB – APR 15 (POSSIBLE)	TALL FESCUE	200 LBS/AC
	RYE (GRAIN)	50 LBS/AC
	GERMAN MILLET	50 LBS/AC

SOIL AMENDMENTS
FOLLOW RECOMMENDATIONS OF SOIL TESTS OR APPLY 4,000 LB/AC GROUND AGRICULTURE LIMESTONE AND 1000 LB/AC 10–10–10 FERTILIZER.

MULCH
APPLY 4000 LB/AC STRAW. ANCHOR STRAW BY TACKING WITH ASPHALT, NETTING, OR A MULCH ANCHORING TOOL. A DISK WITH BLADES SET NEARLY STRAIGHT CAN BE USED AS A MULCH ANCHORING TOOL.

MAINTENANCE
INSPECT AND REPAIR MULCH FREQUENTLY. REFERTILIZE IN LATE WINTER OF THE FOLLOWING YEAR; USE SOIL TESTS OR APPLY 150 LB/AC 10–10–10 FERTILIZER. MOW REGULARLY TO A HEIGHT OF 2–4 INCHES.

SEEDBED PREPARATION

AREAS TO BE SEEDED TO BE SCARIFIED 4" DEEP. A FIRM, WELL PULVERIZED, UNIFORM SEEDBED SHOULD BE PROVIDED. FERTILIZER SHALL BE PLACED DURING SCARIFICATION AS FOLLOWS:
LIME: 45 LBS / 1,000 SF
PHOSPHOROUS: 20 LBS / 1,000 SF
FERTILIZER: 17 LBS / 1,000 SF

GROUND STABILIZATION

SITE AREA DESCRIPTION	STABILIZATION TIME FRAME	STABILIZATION TIME FRAME EXCEPTIONS
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED
SLOPES 3:1 OR FLATTER	14 DAYS	7–DAYS FOR SLOPES GREATER THAN 50 FEET IN LENGTH
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE (EXCEPT FOR PERIMETERS AND HQW ZONES)

BUILDING WASTES HANDLING

- NO PAINT OR LIQUID WASTES IN STREAM OR STORM DRAINS
- DEDICATED AREAS FOR DEMOLITION, CONSTRUCTION AND OTHER WASTES MUST BE LOCATED 50' FROM STORM DRAINS AND STREAMS UNLESS NO REASONABLE ALTERNATIVES AVAILABLE.
- EARTHEN–MATERIAL STOCKPILES MUST BE LOCATED 50' FROM STORM DRAINS AND STREAMS UNLESS NO REASONABLE ALTERNATIVES AVAILABLE.
- CONCRETE MATERIALS MUST BE CONTROLLED TO AVOID CONTACT WITH SURFACE WATER, WETLANDS, OR BUFFERS.

CONTRACTOR'S MAINTENANCE PLAN:

1. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE CHECKED FOR STABILITY AND OPERATION FOLLOWING EVERY RUNOFF–PRODUCING RAINFALL BUT IN NO CASE LESS THAN ONCE EVERY WEEK. ANY NEEDED REPAIRS SHALL BE MADE IMMEDIATELY TO MAINTAIN ALL MEASURES AS DESIGNED.
2. SEDIMENT BASINS SHALL BE INSPECTED REGULARLY DURING LAND DISTURBING ACTIVITIES AND AFTER EACH RUNOFF–PRODUCING RAINFALL. SEDIMENT SHALL BE REMOVED AND THE BASIN RESTORED TO ITS ORIGINAL DIMENSIONS WHEN SEDIMENT HAS ACCUMULATED TO ONE–HALF THE DESIGN DEPTH OF EACH BASIN. PORTIONS OF THE BASIN'S GRAVEL FACING THAT ARE CONTAMINATED BY SEDIMENT SHALL BE REPLACED WITH FRESH GRAVEL DURING EACH SEDIMENT REMOVAL EPISODE.
3. SEDIMENT FENCES SHALL BE INSPECTED AT LEAST ONCE A WEEK AND AFTER EACH RUNOFF PRODUCING RAINFALL. REPAIRS SHALL BE MADE IMMEDIATELY. SEDIMENT DEPOSITS SHALL BE REMOVED AS NEEDED TO PROVIDE ADEQUATE STORAGE VOLUME FOR THE NEXT RAINFALL EVENT, AND TO REDUCE PRESSURE ON THE FENCE. FENCING MATERIALS AND SEDIMENT DEPOSITS SHALL BE REMOVED, AND THE AREA BROUGHT TO GRADE FOLLOWING STABILIZATION OF UPGRADIENT DISTURBED AREAS.
4. DIVERSION DITCHES MUST REMAIN IN PLACE UNTIL PROJECT IS STABILIZED.
5. EROSION CONTROL DURING SITE CONSTRUCTION WILL BE ACCOMPLISHED BY USE OF SILT FENCING AND SILT FENCE OUTLETS. DEVICES MUST BE EMPTIED WHEN SEDIMENT ACCUMULATION HAS REACHED 6" DEPTH.

TEMPORARY SKIMMER BASIN/TRAP DESIGN TABLE		
SEDIMENT TRAP ID	SB–A	
Drainage Area (AC.)	4.86	
Disturbed Area (AC.)	4.86	
Flow Q10 (CFS)	21.10	
Bottom Elevation (FT)	256.50	
Sediment Depth (FT)	3.5	
Freeboard (from Sediment Depth)	2.0	
Depth to Crest of Riser (FT)	3.8	
Depth to Crest of Emergency Spillway (FT)	N/A	
Side Slopes	2.0H:1V	
Spillway Length (FT)	20 (6'x6' RISER)	
Height of Berm (FT)	5.5 @ 262.00	
Top of Trap Length (FT)	142	
Top of Trap Width (FT)	82	
Storage Volume Required (FT³)	8,748	
Storage Volume Prov'd. (FT³)	27,472	
Sediment Surface Area Req'd (FT²)	9,160	
Sediment Surface Area Prov'd (FT²)	9,653	
Number of Skimmers	1	
Skimmer Size (IN)	2.00	
Skimmer Orifice Size (IN)	2.00	
Anti–Flotation Block	SEE SW SHEETS	
Riser Diameter (IN)	SEE SW SHEETS	
Barrel Diameter (IN)	SEE SW SHEETS	
Notes:		
1. Side slopes pertain only for the vertical height from the base to the top of berm, 2H:1V above that.		
2. See details on silt fence baffle spacing.		

FINAL DRAWING - NOT RELEASED FOR CONSTRUCTION

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CLIENT

WOODFIELD INVESTMENTS
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PARK APARTMENTS
FORM DISTRICT PERMIT
1250 EPHESUS CHURCH ROAD
CHAPEL HILL, NORTH CAROLINA, 27517

NORTH CAROLINA PROFESSIONAL SEAL 044862 ENGINEER NATHAN BALES
FOR REVIEW PURPOSES ONLY
NOT FOR CONSTRUCTION

REVISIONS

NO.	DATE	
1	05. 03. 2019	PER CHAPEL HILL AND OWASA COMMENTS

PLAN INFORMATION

PROJECT NO.	WDF-17000
FILENAME	WDF17000-EC1
CHECKED BY	ZNB
DRAWN BY	HMA
SCALE	N/A
DATE	02. 28. 2019

SHEET

EROSION CONTROL NOTES

EC-1

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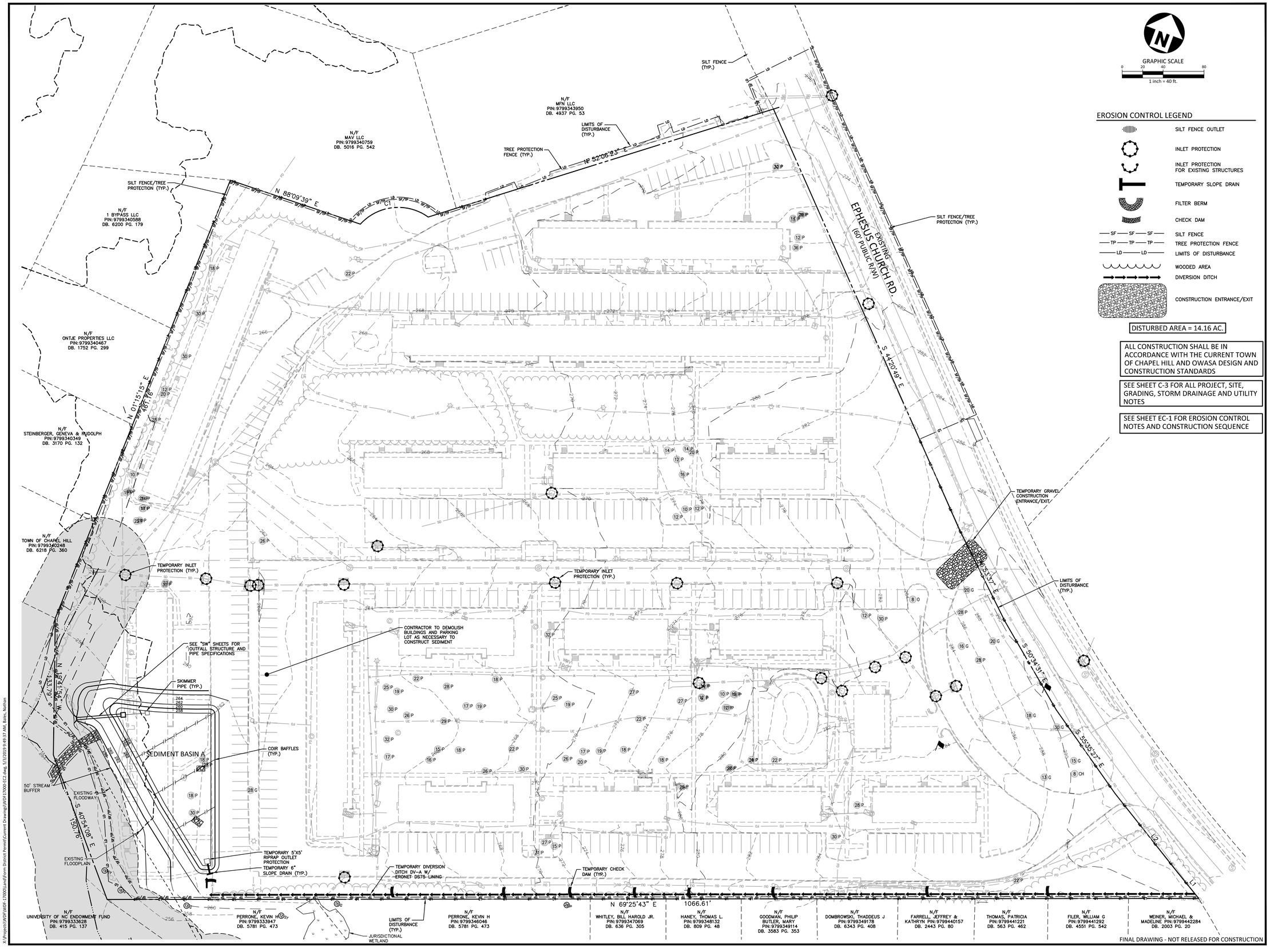

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NOT FOR CONSTRUCTION

REVISIONS

NO.	DATE	
1	05. 03. 2019	PER CHAPEL HILL AND OWASA COMMENTS

PLAN INFORMATION

PROJECT NO.	WDF-17000
FILENAME	WDF17000-EC2
CHECKED BY	ZNB
DRAWN BY	HMA
SCALE	1"=40'
DATE	02. 28. 2019

SHEET

EROSION CONTROL PLAN - STAGE 1

EC-2

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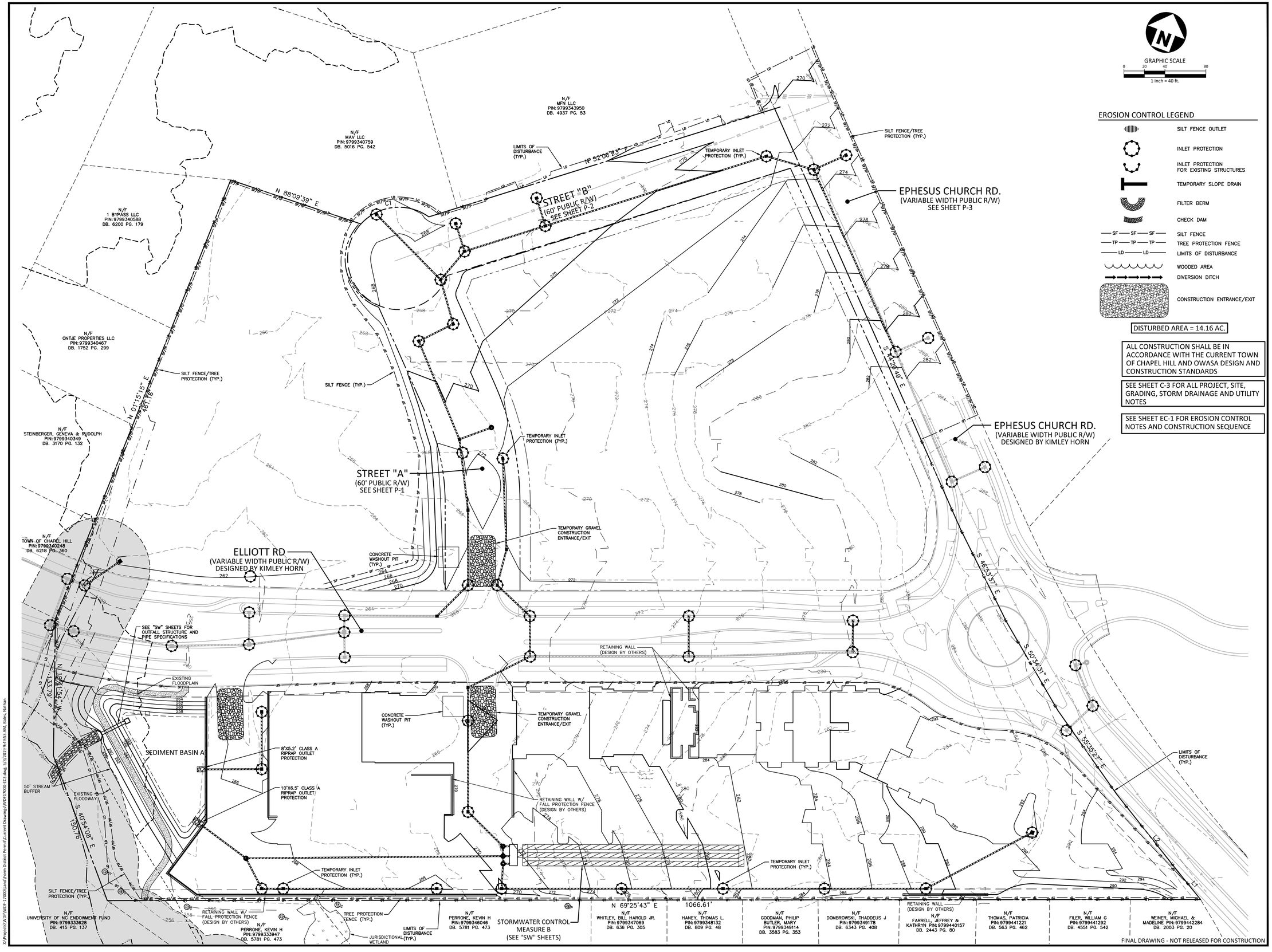

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FOR REVIEW AND COORDINATION NOT FOR CONSTRUCTION

REVISIONS

NO.	DATE	
1	05. 03. 2019	PER CHAPEL HILL AND OWASA COMMENTS

PLAN INFORMATION

PROJECT NO.	WDF-17000
FILENAME	WDF17000-EC3
CHECKED BY	ZNB
DRAWN BY	HMA
SCALE	1"=40'
DATE	02. 28. 2019

SHEET

EROSION CONTROL PLAN - STAGE 2

EC-3

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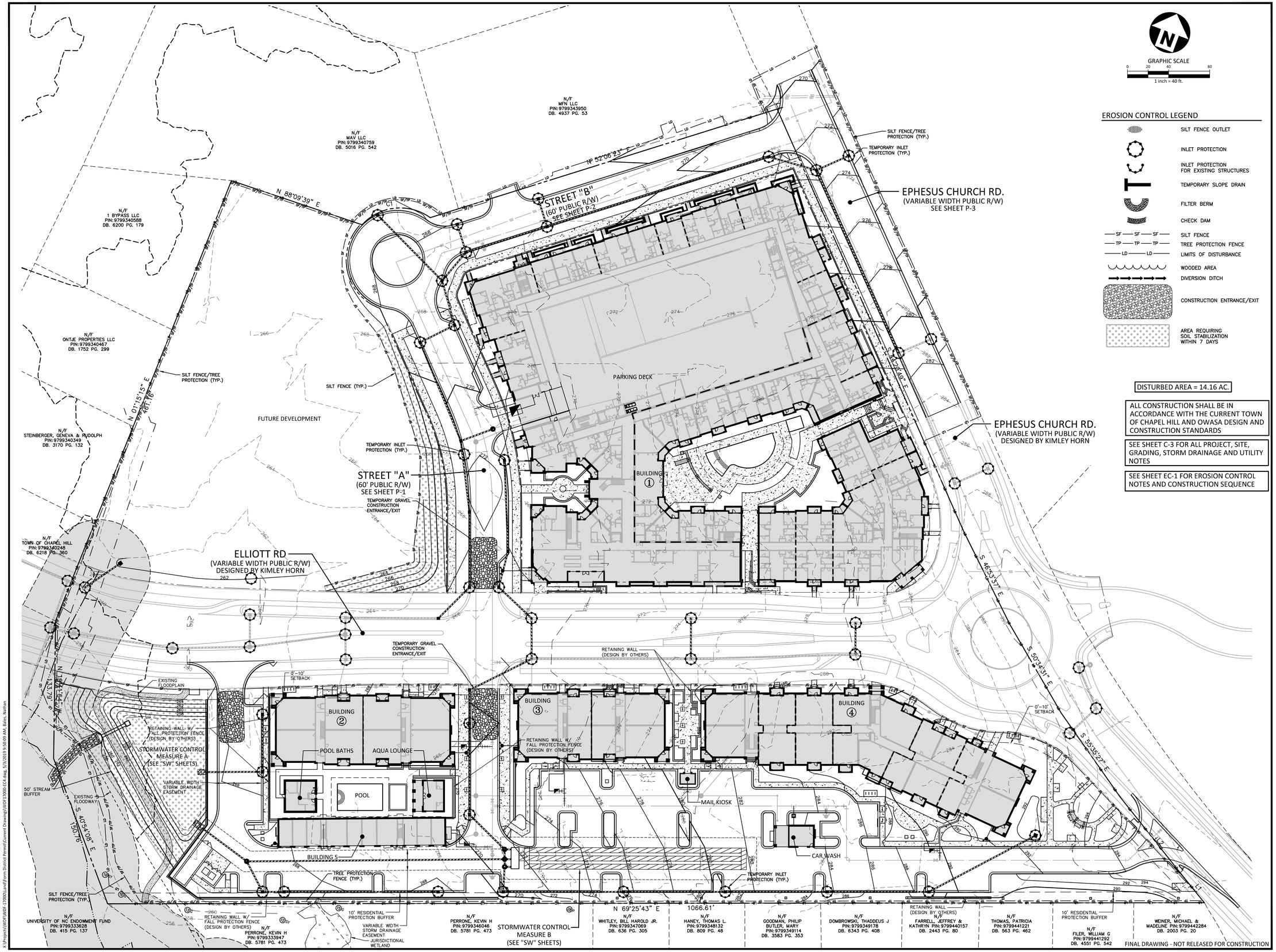

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PARK APARTMENTS
FORM DISTRICT PERMIT
1250 EPHESUS CHURCH ROAD
CHAPEL HILL, NORTH CAROLINA, 27517

NORTH CAROLINA PROFESSIONAL SEAL 044862 ENGINEER NATHAN BALES
PRELIMINARY NOT FOR CONSTRUCTION

REVISIONS

NO.	DATE	
1	05. 03. 2019	PER CHAPEL HILL AND OWASA COMMENTS

PLAN INFORMATION

PROJECT NO.	WDF-17000
FILENAME	WDF17000-EC4
CHECKED BY	ZNB
DRAWN BY	HMA
SCALE	1"=40'
DATE	02. 28. 2019

SHEET

EROSION CONTROL PLAN - STAGE 3

EC-4

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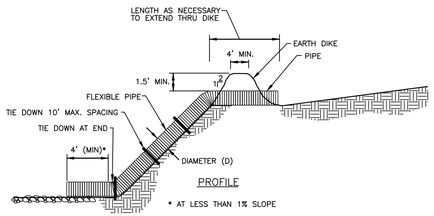
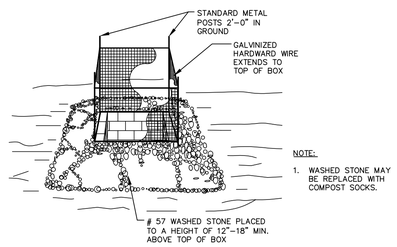


CONSTRUCTION SPECIFICATIONS:

1. THE TOP OF THE EARTH DIKE OVER THE INLET PIPE AND THOSE DIKES CARRYING WATER TO THE PIPE SHALL BE AT LEAST 1.5 FEET HIGHER AT ALL POINTS THAN THE TOP OF THE INLET PIPE.
2. THE PIPE SHALL BE FLEXIBLE WITH WATER TIGHT CONNECTING BANDS. FLEXIBLE PIPE SHOULD BE STAKED ON EITHER SIDE.
3. A RIP RAP APRON SHALL BE PROVIDED AT THE OUTLET, IF EMPTYING INTO A DISTURBED AREA.
4. THE SOIL AROUND AND UNDER THE INLET PIPE AND ENTRANCE SECTION SHALL BE HAND TAMPED IN 4" LIFTS TO THE TOP OF THE EARTH DIKE.
5. FOLLOW-UP INSPECTION AND ANY NEEDED MAINTENANCE SHALL BE PERFORMED AFTER EACH STORM BY THE FINANCIALLY RESPONSIBLE PARTY OR HIS AGENT.

TEMPORARY SLOPE DRAIN

N.T.S.



NOTE:

1. WASHED STONE MAY BE REPLACED WITH COMPOST SOCKS.

STANDARD POST & GRAVEL INLET PROTECTION

BLOCK AND GRAVEL INLET PROTECTION MAINTENANCE

INSPECT THE BARRIER AT LEAST WEEKLY AND AFTER EACH SIGNIFICANT (1/2 INCH OR GREATER) RAINFALL AND MAKE REPAIRS AS NEEDED.

REMOVE SEDIMENT AS NECESSARY TO PROVIDE ADEQUATE STORAGE VOLUME FOR SUBSEQUENT RAINS.

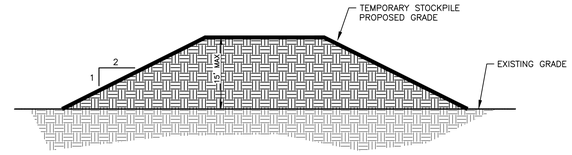
WHEN THE CONTRIBUTING DRAINAGE AREA HAS BEEN ADEQUATELY STABILIZED, REMOVE ALL MATERIALS AND ANY UNSTABLE SOIL, AND EITHER SALVAGE OR DISPOSE OF IT PROPERLY.

BRING THE DISTURBED AREA TO PROPER GRADE, THEN SMOOTH AND COMPACT IT.

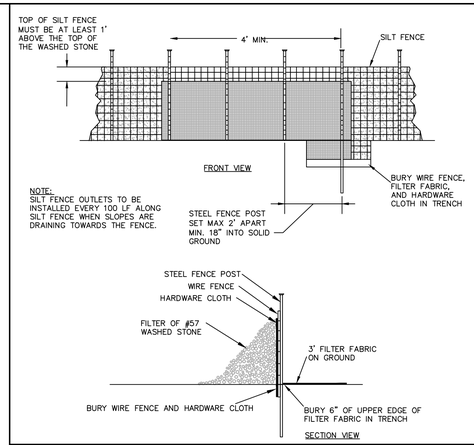
APPROPRIATELY STABILIZE ALL BARE AREAS AROUND THE INLET.

NOTES:

1. STOCKPILE HEIGHT TO NOT EXCEED 15'



TYPICAL STOCKPILE DETAIL (NTS)



NOTE:
SILT FENCE OUTLETS TO BE INSTALLED EVERY 100 LF ALONG SILT FENCE WHEN SLOPES ARE DRAINING TOWARDS THE FENCE.

STANDARD SILT FENCE OUTLET

SILT FENCE OUTLET MAINTENANCE

REMOVE SEDIMENT WHEN HALF OF STONE OUTLET IS COVERED.

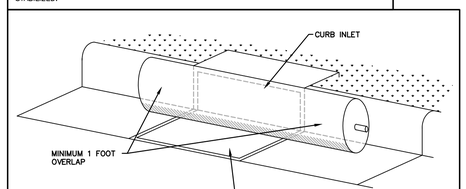
REPLACE STONE AS NEEDED TO ENSURE DEWATERING.

INSPECT SEDIMENT FENCES AT LEAST ONCE A WEEK AND AFTER EACH RAINFALL. MAKE ANY REQUIRED REPAIRS IMMEDIATELY

SHOULD THE FABRIC OF A SEDIMENT FENCE COLLAPSE, TEAR, DECOMPOSE OR BECOME INEFFECTIVE, REPLACE IT PROMPTLY.

REMOVE SEDIMENT DEPOSITS AS NECESSARY TO PROVIDE ADEQUATE STORAGE VOLUME FOR THE NEXT RAIN AND TO REDUCE PRESSURE ON THE FENCE. TAKE CARE TO AVOID UNDERMINING THE FENCE DURING CLEANOUT.

REMOVE ALL FENCING MATERIALS AND UNSTABLE SEDIMENT DEPOSITS AND BRING THE AREA TO GRADE AND STABILIZE IT AFTER THE CONTRIBUTING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.



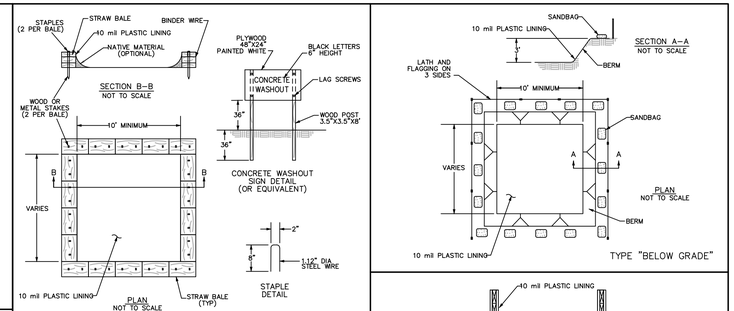
NOTE: WHERE A SITUATION OCCURS WITH A COMBINATION TYPE GRATE/INLET, EITHER COVER GRATE INLET OR BEND SEDIMENT FILTER AROUND GRATE TO ASSURE ALL SEDIMENT LADEN RUNOFF IS CAPTURED.

NOTES:

1. THE SEDIMENT FILTER SHALL BE SYNTHETIC FILTER MANUFACTURED FROM RECYCLED SYNTHETIC FIBERS.
2. THE SEDIMENT FILTER WILL BE MANUFACTURED TO BY 9" IN DIAMETER AND ARE AVAILABLE IN 4', 6', 8', 10', 12', 14' AND 16' LENGTHS AND A MINIMUM OF 24" LONGER THAN THE CURB INLET OPENING. THIS WILL ALLOW FOR SUFFICIENT LENGTH TO COVER THE INLET WITH TWELVE (12) INCHES BEYOND THE INLET ON BOTH ENDS.

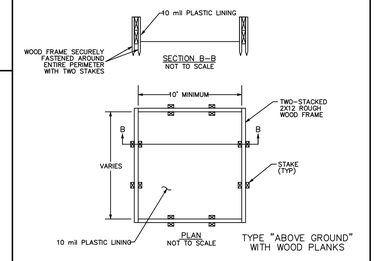
CONSTRUCTION SEQUENCE

EXISTING INLET PROTECTION



TYPE "ABOVE GRADE" WITH STRAW BALES

TYPE "BELOW GRADE"



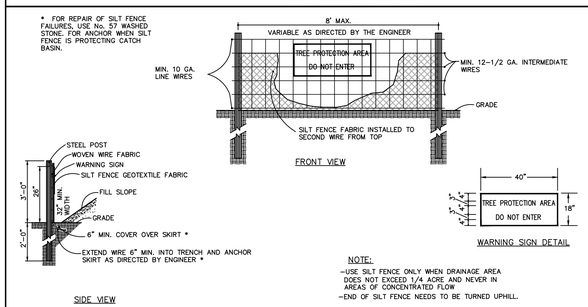
TYPE "ABOVE GROUND" WITH WOOD PLANKS

NOTES

1. ACTUAL LAYOUT TO BE DETERMINED IN THE FIELD.
2. A CONCRETE WASHOUT SIGN SHALL BE INSTALLED WITHIN 30' OF THE TEMPORARY CONCRETE WASHOUT FACILITY.
3. MATERIALS USED TO CONSTRUCT TEMPORARY CONCRETE WASHOUT FACILITIES SHALL BE REMOVED FROM THE SITE OF THE WORK AND DISPOSED OF OR RECYCLED.
4. HOLES, DEPRESSIONS, OR OTHER GROUND DISTURBANCE CAUSED BY THE REMOVAL OF THE TEMPORARY CONCRETE WASHOUT FACILITIES SHALL BE BACKFILLED, REPAIRED, AND STABILIZED TO PREVENT EROSION.

CONCRETE WASHOUT

* FOR REPAIR OF SILT FENCE FAILURES, USE No. 57 WASHED STONE. FOR ANCHOR WHEN SILT FENCE IS PROTECTING CATCH BASIN.



NOTE:

-USE SILT FENCE ONLY WHEN DRAINAGE AREA DOES NOT EXCEED 1/4 ACRE AND NEVER IN AREAS OF CONCENTRATED FLOW
-END OF SILT FENCE NEEDS TO BE TURNED UPHILL.

NOTES:

WARNING SIGNS TO BE MADE OF DURABLE, WEATHERPROOF MATERIAL.
LETTERS TO BE 3" HIGH MINIMUM, CLEARLY LEGIBLE AND SPACED AS DETAILED.
SIGNS SHALL BE PLACED AT 50' MAXIMUM INTERVALS.
PLACE A SIGN AT EACH END OF LINEAR TREE PROTECTION AND 50' ON CENTER THEREAFTER.
FOR TREE PROTECTION AREAS LESS THAN 200' IN PERIMETER, PROVIDE NO LESS THAN ONE SIGN PER PROTECTION AREA.
ATTACH SIGNS SECURELY TO FENCE POSTS AND FABRIC.
MAINTAIN TREE PROTECTION FENCE THROUGHOUT DURATION OF PROJECT.
ADDITIONAL SIGNS MAY BE REQUIRED BY CITY OF RALEIGH INSPECTIONS DEPARTMENT BASED ON ACTUAL FIELD CONDITIONS.
PLACE A SIGN AT EACH END OF LINEAR TREE PROTECTION AND 50' ON CENTER THEREAFTER.

STANDARD TEMPORARY SILT / TREE PROTECTION FENCE

SILT FENCE MAINTENANCE

INSPECT SEDIMENT FENCES AT LEAST ONCE A WEEK AND AFTER EACH RAINFALL. MAKE ANY REQUIRED REPAIRS IMMEDIATELY

SHOULD THE FABRIC OF A SEDIMENT FENCE COLLAPSE, TEAR, DECOMPOSE OR BECOME INEFFECTIVE, REPLACE IT PROMPTLY.

REMOVE SEDIMENT DEPOSITS AS NECESSARY TO PROVIDE ADEQUATE STORAGE VOLUME FOR THE NEXT RAIN AND TO REDUCE PRESSURE ON THE FENCE. TAKE CARE TO AVOID UNDERMINING THE FENCE DURING CLEANOUT.

REMOVE ALL FENCING MATERIALS AND UNSTABLE SEDIMENT DEPOSITS AND BRING THE AREA TO GRADE AND STABILIZE IT AFTER THE CONTRIBUTING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.

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CHAPEL HILL, NORTH CAROLINA, 27517

REVISIONS

NO.	DATE	
1	05. 03. 2019	PER CHAPEL HILL AND OWASA COMMENTS

PLAN INFORMATION

PROJECT NO.	WDF-17000
FILENAME	WDF17000-EC5
CHECKED BY	ZNB
DRAWN BY	HMA
SCALE	NTS
DATE	02. 28. 2019

SHEET

EROSION CONTROL DETAILS

EC-5

FINAL DRAWING - NOT RELEASED FOR CONSTRUCTION

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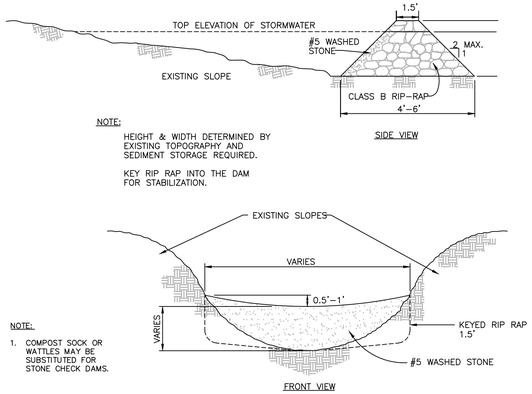


NOTE:

HEIGHT & WIDTH DETERMINED BY EXISTING TOPOGRAPHY AND SEDIMENT STORAGE REQUIRED.

KEY RIP RAP INTO THE DAM FOR STABILIZATION.

NOTE:

1. COMPOST SOCK OR WATTLES MAY BE SUBSTITUTED FOR STONE CHECK DAMS.

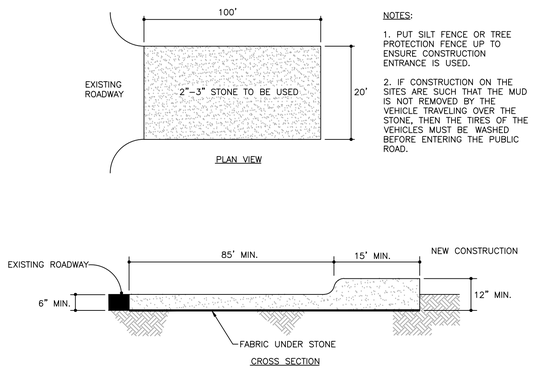
STANDARD CHECK DAM

CHECK DAM MAINTENANCE

INSPECT CHECK DAMS AND CHANNELS AT LEAST WEEKLY AND AFTER EACH SIGNIFICANT (1/2 INCH OR GREATER) RAINFALL EVENT AND REPAIR IMMEDIATELY. CLEAN OUT SEDIMENT, STRAW, LIMBS, OR OTHER DEBRIS THAT COULD CLOG THE CHANNEL WHEN NEEDED.

ANTICIPATE SUBMERGENCE AND DEPOSITION ABOVE THE CHECK DAM AND EROSION FROM HIGH FLOWS AROUND THE EDGES OF THE DAM. CORRECT ALL DAMAGE IMMEDIATELY. IF SIGNIFICANT EROSION OCCURS BETWEEN DAMS, ADDITIONAL MEASURE CAN BE TAKEN SUCH AS, INSTALLING A PROTECTIVE RIPRAP LINER IN THAT PORTION OF THE CHANNEL.

REMOVE SEDIMENT ACCUMULATED BEHIND THE DAMS AS NEEDED TO PREVENT DAMAGE TO CHANNEL VEGETATION. ALLOW THE CHANNEL TO DRAIN THROUGH THE STONE CHECK DAM, AND PREVENT LARGE FLOWS FROM CARRYING SEDIMENT OVER THE DAM. ADD STONES TO DAMS AS NEEDED TO MAINTAIN DESIGN HEIGHT AND CROSS SECTION.



NOTES:

1. PUT SILT FENCE OR TREE PROTECTION FENCE UP TO ENSURE CONSTRUCTION ENTRANCE IS USED.

2. IF CONSTRUCTION ON THE SITES ARE SUCH THAT THE MUD IS NOT REMOVED BY THE VEHICLE TRAVELING OVER THE STONE, THEN THE TIRES OF THE VEHICLES MUST BE WASHED BEFORE ENTERING THE PUBLIC ROAD.

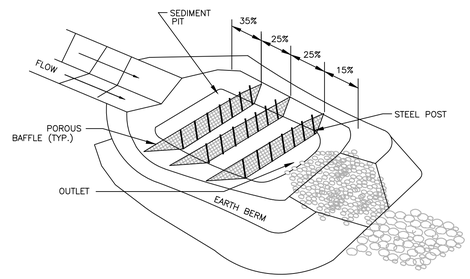
STANDARD CONSTRUCTION ENTRANCE

TEMPORARY GRAVEL CONSTRUCTION ENTRANCE MAINTENANCE

MAINTAIN THE GRAVEL PAD IN A CONDITION TO PREVENT MUD OR SEDIMENT FROM LEAVING THE CONSTRUCTION SITE. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH 2-INCH STONE.

AFTER EACH RAINFALL, INSPECT ANY STRUCTURE USED TO TRAP SEDIMENT AND CLEAN IT OUT AS NECESSARY.

IMMEDIATELY REMOVE ALL OBJECTIONABLE MATERIALS SPILLED, WASHED, OR TRACKED ONTO ANY ROADWAYS.



PERSPECTIVE VIEW

NTS

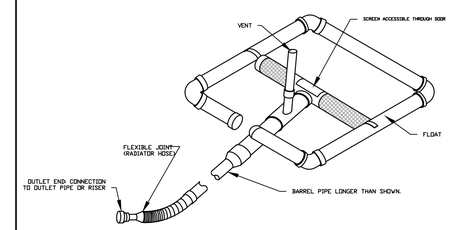
CONSTRUCTION SPECIFICATION

1. GRADE THE BASIN SO THAT THE BOTTOM IS LEVEL FRONT TO BACK AND SIDE TO SIDE.
2. INSTALL POSTS OR SAW HORSES ACROSS THE WIDTH OF THE SEDIMENT TRAP.
3. STEEL POSTS SHOULD BE DRIVEN TO A DEPTH OF 24 INCHES, SPACED AT A MAXIMUM OF 4 FEET APART, AND INSTALLED UP THE SIDES OF THE BASIN AS WELL. THE TOP OF THE FABRIC SHOULD BE 6 INCHES HIGHER THAN THE INVERT OF THE SPILLWAY. TOPS OF BAFFLES SHOULD BE 2 INCHES LOWER THAN THE TOP OF THE BERM.
4. INSTALL AT LEAST THREE ROWS OF BAFFLES BETWEEN THE INLET AND OUTLET DISCHARGE POINT.
5. WHEN USING POSTS, ADD A SUPPORT WIRE OR ROPE ACROSS THE TOP OF THE MEASURE TO PREVENT SAGGING.
6. WRAP POROUS MATERIAL, LIKE JUTE BACKED BY COIR MATERIAL, OVER A SAWHORSE OR THE TOP WIRE. HAMMER REBAR INTO THE SAWHORSE LEGS FOR ANCHORING. THE FABRIC SHOULD HAVE FIVE TO TEN PERCENT OPENINGS IN THE WEAVE. ATTACH FABRIC TO A ROPE AND A SUPPORT STRUCTURE WITH SIP TIES, WIRE, OR STAPLES.
7. THE BOTTOM AND SIDES OF THE FABRIC SHOULD BE ANCHORED IN A TRENCH OR PINNED WITH 8 INCH EROSION CONTROL MATTING STAPLES.
8. DO NOT SPLICE THE FABRIC, BUT USE A CONTINUOUS PIECE ACROSS THE BASIN.

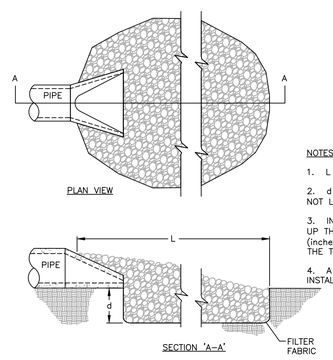
POROUS BAFFLE INSTALLATION DETAIL

MAINTENANCE PLAN:

1. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE CHECKED FOR STABILITY AND OPERATION FOLLOWING EVERY RUNOFF-PRODUCING RAINFALL BUT IN NO CASE LESS THAN ONCE EVERY WEEK. ANY NEEDED REPAIRS SHALL BE MADE IMMEDIATELY TO MAINTAIN ALL MEASURES AS DESIGNED.
2. SEDIMENT BASINS SHALL BE INSPECTED REGULARLY DURING LAND DISTURBING ACTIVITIES AND AFTER EACH RUNOFF-PRODUCING RAINFALL. SEDIMENT SHALL BE REMOVED AND THE BASIN RESTORED TO ITS ORIGINAL DIMENSIONS WHEN SEDIMENT HAS ACCUMULATED TO ONE-HALF THE DESIGN DEPTH OF EACH BASIN. PORTIONS OF THE BASIN'S GRAVEL FACING THAT ARE CONTAMINATED BY SEDIMENT SHALL BE REPLACED WITH FRESH GRAVEL DURING EACH SEDIMENT REMOVAL EPISODE.
3. SEDIMENT FENCES SHALL BE INSPECTED AT LEAST ONCE A WEEK AND AFTER EACH RUNOFF PRODUCING RAINFALL. REPAIRS SHALL BE MADE IMMEDIATELY. SEDIMENT DEPOSITS SHALL BE REMOVED AS NEEDED TO PROVIDE ADEQUATE STORAGE VOLUME FOR THE NEXT RAINFALL EVENT, AND TO REDUCE PRESSURE ON THE FENCE. FENCING MATERIALS AND SEDIMENT DEPOSITS SHALL BE REMOVED, AND THE AREA BROUGHT TO GRADE FOLLOWING STABILIZATION OF UPGRADIENT DISTURBED AREAS.
4. DIVERSION DITCHES MUST REMAIN IN PLACE UNTIL PROJECT IS STABILIZED.
5. EROSION CONTROL DURING SITE CONSTRUCTION WILL BE ACCOMPLISHED BY USE OF SILT FENCING AND SILT FENCE OUTLETS. DEVICES MUST BE EMPTIED WHEN SEDIMENT ACCUMULATION HAS REACHED 6" DEPTH.
6. RIPRAP CHANNELS SHOULD BE INSPECTED AT REGULAR INTERVALS AS WELL AS AFTER MAJOR RAIN EVENTS. REPAIRS SHOULD BE MADE IMMEDIATELY. MAINTAIN ALL VEGETATION ADJACENT TO THE CHANNEL IN A HEALTHY, VIGOROUS CONDITION TO PROTECT THE AREA FROM EROSION AND SCOUR DURING OUT-OF-BANK FLOW.



SKIMMER DETAIL



NOTES:

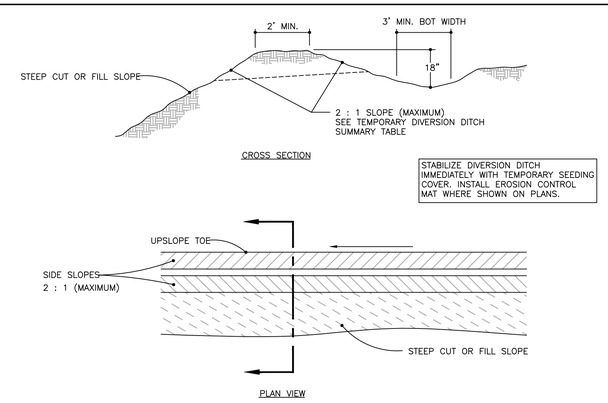
1. L = THE LENGTH OF THE RIPRAP APRON.

2. d = 1.5 TIMES THE MAXIMUM STONE DIAMETER BUT NOT LESS THAN 6" (inches).

3. IN A WELL-DEFINED CHANNEL EXTEND THE APRON UP THE CHANNEL BANKS TO AN ELEVATION OF 6" (inches) ABOVE THE MAXIMUM TAILWATER DEPTH OR TO THE TOP OF THE BANK, WHICHEVER IS LESS.

4. A FILTER BLANKET OR FILTER FABRIC SHOULD BE INSTALLED BETWEEN THE RIPRAP AND SOIL FOUNDATION.

PIPE OUTLET TO WELL-DEFINED CHANNEL



STABILIZE DIVERSION DITCH IMMEDIATELY WITH TEMPORARY SEEDING COVER. INSTALL EROSION CONTROL MAT WHERE SHOWN ON PLANS.

TEMPORARY DIVERSION DITCH

TEMPORARY DIVERSION MAINTENANCE

INSPECT TEMPORARY DIVERSIONS ONCE A WEEK AND AFTER EVERY RAINFALL.

IMMEDIATELY REMOVE SEDIMENT FROM THE FLOW AREA AND REPAIR THE DIVERSION RIDGE.

CAREFULLY CHECK OUTLETS AND MAKE TIMELY REPAIRS AS NEEDED.

WHEN THE AREA PROTECTED IS PERMANENTLY STABILIZED, REMOVE THE RIDGE AND THE CHANNEL TO BLEND WITH THE NATURAL GROUND LEVEL AND APPROPRIATELY STABILIZE IT.

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FORM DISTRICT PERMIT
1250 EPHESUS CHURCH ROAD
CHAPEL HILL, NORTH CAROLINA, 27517

NORTH CAROLINA PROFESSIONAL SEAL 044862 ENGINEER NATHAN BALES
NOT FOR CONSTRUCTION

REVISIONS

NO.	DATE	
1	05. 03. 2019	PER CHAPEL HILL AND OWASA COMMENTS

PLAN INFORMATION

PROJECT NO.	WDF-17000
FILENAME	WDF17000-EC5
CHECKED BY	ZNB
DRAWN BY	HMA
SCALE	NTS
DATE	02. 28. 2019

SHEET

EROSION CONTROL DETAILS

EC-6

FINAL DRAWING - NOT RELEASED FOR CONSTRUCTION

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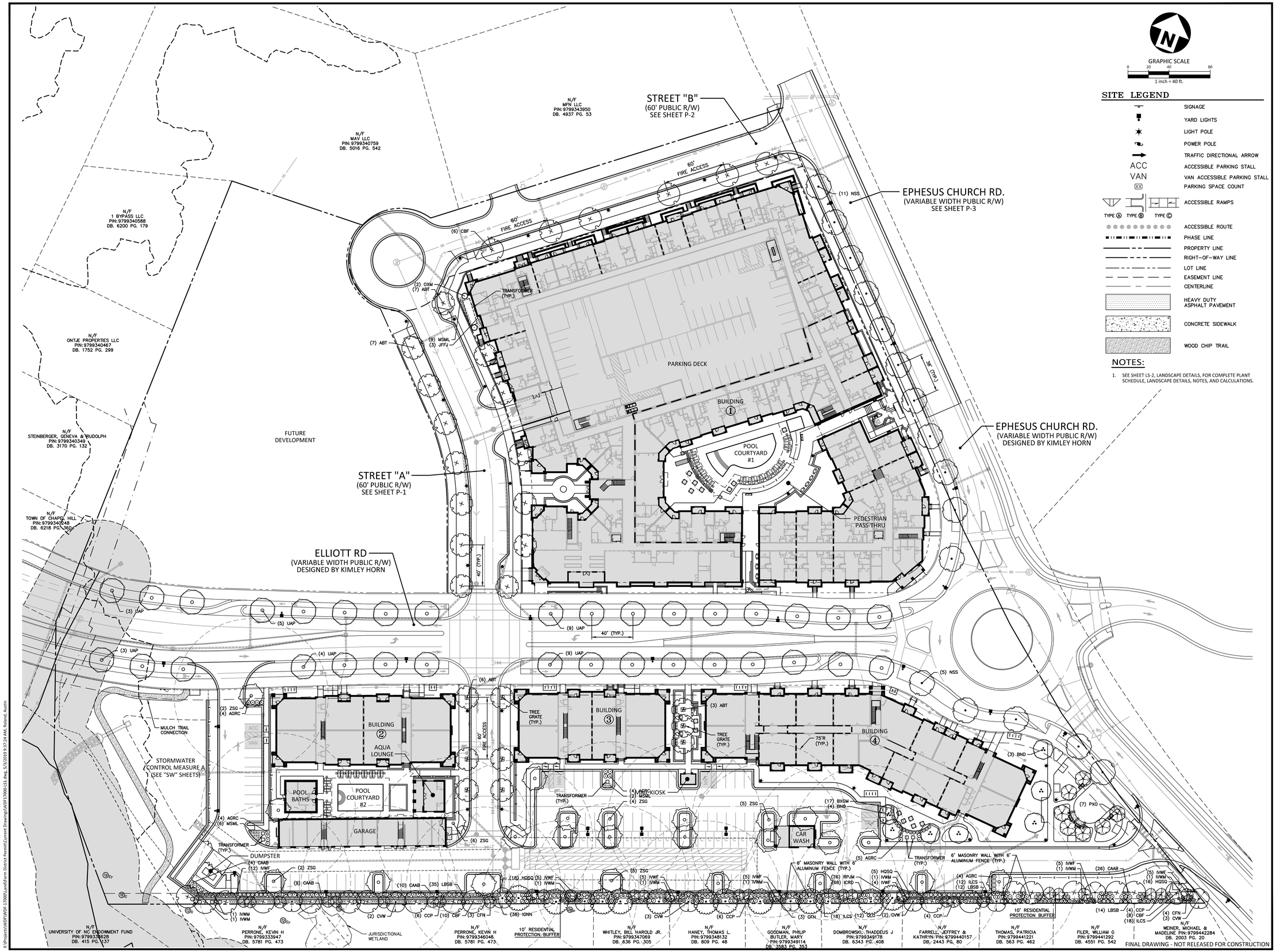

GRAPHIC SCALE
0 20 40 80
1 inch = 40 ft.

SITE LEGEND

- SIGNAGE
- YARD LIGHTS
- LIGHT POLE
- POWER POLE
- TRAFFIC DIRECTIONAL ARROW
- ACCESSIBLE PARKING STALL
- VAN ACCESSIBLE PARKING STALL
- PARKING SPACE COUNT
- ACCESSIBLE RAMPS (TYPE A, TYPE B, TYPE C)
- ACCESSIBLE ROUTE
- PHASE LINE
- PROPERTY LINE
- RIGHT-OF-WAY LINE
- LOT LINE
- EASEMENT LINE
- CENTERLINE
- HEAVY DUTY ASPHALT PAVEMENT
- CONCRETE SIDEWALK
- WOOD CHIP TRAIL

NOTES:

1. SEE SHEET LS-2, LANDSCAPE DETAILS, FOR COMPLETE PLANT SCHEDULE, LANDSCAPE DETAILS, NOTES, AND CALCULATIONS.

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CHAPEL HILL, NORTH CAROLINA, 27517

NORTH CAROLINA REGISTERED LANDSCAPE ARCHITECT NO. 1770 SHELLY A. DECKER
NOT FOR CONSTRUCTION

REVISIONS

NO.	DATE	
1	05. 03. 2019	PER CHAPEL HILL AND OWASA COMMENTS

PLAN INFORMATION

PROJECT NO.	WDF-17000
FILENAME	WDF17000-LS1
CHECKED BY	SRD
DRAWN BY	AMR
SCALE	1"=40'
DATE	02. 28. 2019

SHEET

CONCEPT LANDSCAPE PLAN

LS-1

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PLANT SCHEDULE

TREES	CODE	QTY	COMMON NAME	BOTANICAL NAME	CAL	HEIGHT	REMARKS
	ABT	23	Trident Maple	Acer buergerianum	2.5"	–	
	BND	7	Duraheat River Birch	Betula nigra 'Duraheat'	–	12' min	Multi–Stem
	CBF	24	Pyramidal European Hornbeam	Carpinus betulus 'Fastigiata'	2.5"	–	
	CCP	20	Forest Pansy Redbud	Cercis canadensis 'Forest Pansy' TM	–	6'	
	CVW	10	White Fringetree	Chionanthus virginicus	2.5"		
	CFN	10	Cloud Nine Eastern Dogwood	Cornus florida 'Cloud Nine'	–	6'	
	OXM	2	Oakland Red Holly	Ilex x 'Magland'	–	6'	
	NSS	16	Sour Gum	Nyssa sylvatica	2.5"	–	
	PXO	7	Okame Cherry	Prunus x okame	1"	8'	
	QLO	12	Overcup Oak	Quercus lyrata	2.5"	–	
	UAP	33	American Elm	Ulmus americana 'Princeton'	2.5"	–	
	ZSG	24	Sawleaf Zelkova	Zelkova serrata 'Green Vase'	2.5"	–	
SHRUBS	**CODE**	**QTY**	**COMMON NAME**	**BOTANICAL NAME**	**HEIGHT**	**SPACING**	**REMARKS**
	AGRC	21	Rose Creek Abelia	Abelia x grandiflora 'Rose Creek'	24"		
	BXGM	17	Boxwood	Buxus x 'Green Mountain'	24"		
	CAAB	49	American Beautyberry	Callicarpa americana	48" min		
	HQSQ	39	Snow Queen Oakleaf Hydrangea	Hydrangea quercifolia 'Snow Queen'	48" min		
	ICRD	68	Dwarf Chinese Holly	Ilex cornuta 'Rotunda'	48" min		
	ILCS	48	Steeds Japanese Holly	Ilex crenata 'Steeds'	48" min		
	IGNN	38	Nigra Inkberry	Ilex glabra 'Nigra'	48" min		
	IVWM	8	Winter Red Holly	Ilex verticillata 'Apollo'	48" min		Male cultivar to ensure berry production on the female
	IVWF	41	Winter Red Holly	Ilex verticillata 'Winter Red'	48" min		
	JFFJ	3	Flowering Jasmine	Jasminum floridum	36" min		
	LBSB	61	Spicebush	Lindera benzoin	48" min		
	MSML	17	Eulalia Grass	Miscanthus sinensis 'Morning Light'	–	3 gal	
	RPJM	58	PJM Rhododendron	Rhododendron x 'PJM'	48" min		Other cultivars in PJM group acceptable, all plants to match cultivar

LANDSCAPE CALCULATIONS:

BUFFER CALCULATIONS

10' SOUTHERN RESIDENTIAL PROTECTION BUFFER
REQUIREMENT:
(4 LARGE TREES, 3 SMALL TREES, 40 SHRUBS / 100 LF)

TOTAL LINEAR FOOTAGE:	1000'
LARGE TREES REQUIRED:	40
LARGE TREES PROVIDED:	46
SMALL TREES REQUIRED:	30
SMALL TREES PROVIDED:	30
SHRUBS REQUIRED:	400
SHRUBS PROVIDED:	403

CANOPY REPLACEMENT CALCULATIONS
REQUIREMENT:
(ONE LARGE TREE PER 500 SF OF TREE CANOPY COVERAGE DEFICIT)

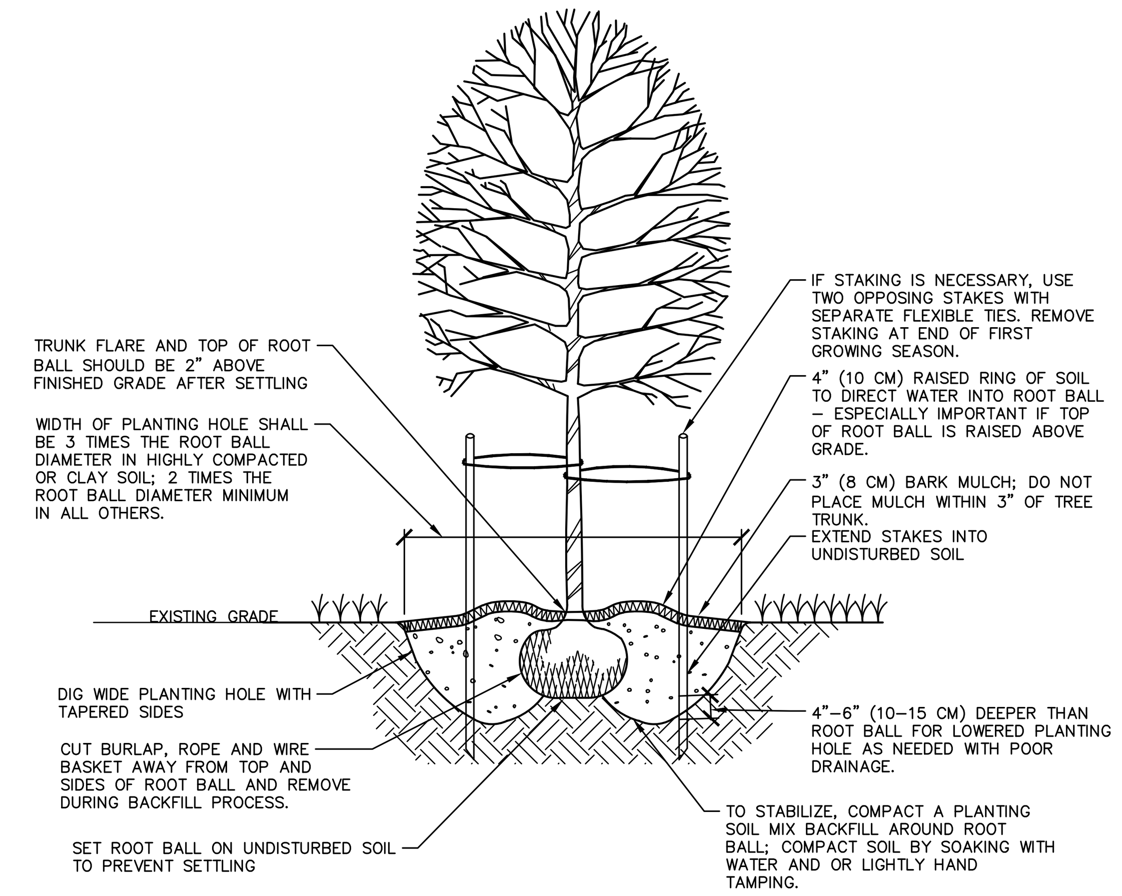
TREE CANOPY COVERAGE DEFICIT:	120,223 SF (2.76 AC)
LARGE TREE REQUIRED:	241 TREES
LARGE TREES PROVIDED:	138 TREES

LANDSCAPE CALCULATION NOTES:

1. SEE SHEET TC-1,LANDSCAPE PROTECTION & TREE COVERAGE PLAN, FOR SITE TREE CANOPY COVERAGE CALCULATIONS.
2. TREE CANOPY CALCULATIONS ARE SUBJECT TO CHANGE, FINAL TREE REPLACEMENT REQUIREMENT TO BE DETERMINED WITH FINAL SIGNED PLANS.
3. TREE REPLACEMENT TO BE PROVIDED VIA TREE PLANTING, RESERVE AREA, PAYMENT-IN-LIEU, OR A COMBINATION OF THOSE OPTIONS.

LANDSCAPE NOTES

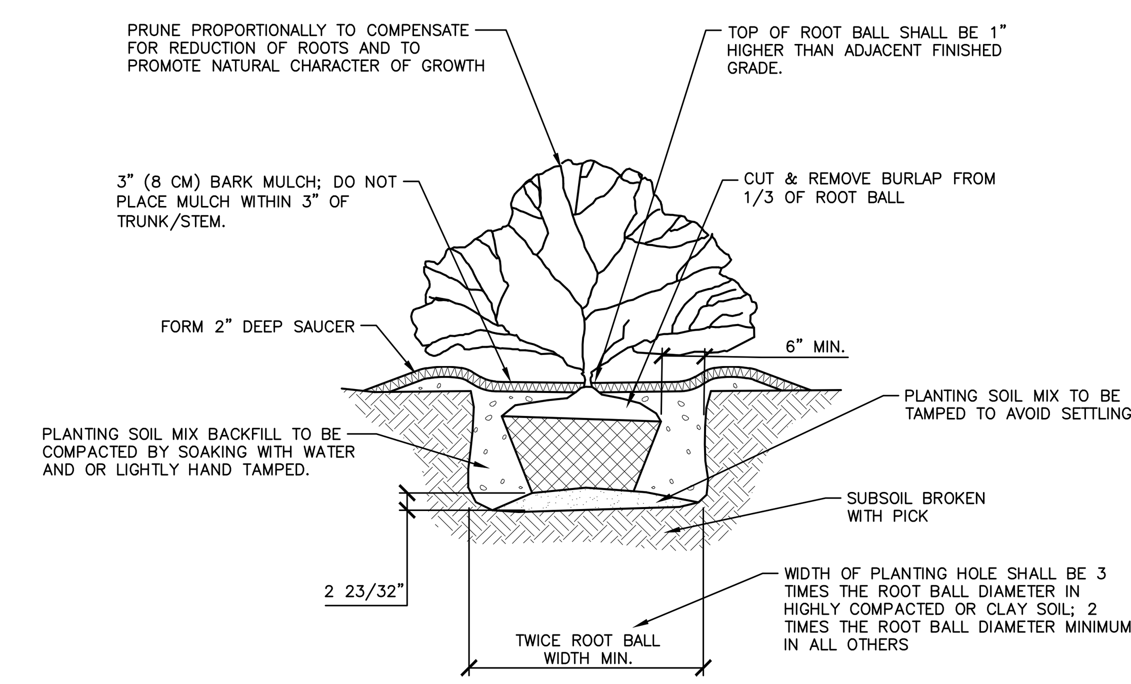
1. ALL MATERIALS AND METHODS OF CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CITY OF CHAPEL HILL, THE BLUE HILL FORM DISTRICT AND THE STATE OF NORTH CAROLINA STANDARDS AND SPECIFICATIONS.
2. CONTRACTOR IS RESPONSIBLE FOR THE SITE INSPECTION BEFORE LANDSCAPE CONSTRUCTION AND INSTALLATION IN ORDER TO BECOME FAMILIAR WITH THE EXISTING CONDITIONS.
3. LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL UNDERGROUND UTILITIES BEFORE BEGINNING DEMOLITION OR INSTALLATION.
4. CONTRACTOR SHALL NOTIFY LANDSCAPE ARCHITECT OF ANY DISCREPANCIES BETWEEN THE NOTES, SPECIFICATIONS, DRAWINGS OR SITE CONDITIONS FOR RESOLUTION PRIOR TO INSTALLATION.
5. ANY DAMAGE TO UTILITIES SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
6. THIS PLAN IS FOR PLANTING PURPOSES ONLY. FOR INFORMATION REGARDING BUILDINGS, GRADING, WALLS, ETC., REFER TO ARCHITECTURE, SITE AND GRADING PLANS.
7. VERIFICATION OF TOTAL PLANT QUANTITIES AS SHOWN IN THE PLANT SCHEDULE SHALL BE THE RESPONSIBILITY OF THE LANDSCAPE CONTRACTOR. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE LANDSCAPE ARCHITECT.
8. CONTRACTOR TO ENSURE PROPER STABILIZATION AND SEEDING OF THE SITE IN ACCORDANCE WITH APPLICABLE REGULATIONS.
9. LANDSCAPE MATERIAL SHALL BE WELL FORMED, VIGOROUS, GROWING SPECIMENS WITH GROWTH TYPICAL OF VARIETIES SPECIFIED AND SHALL BE FREE FROM DAMAGE, INSECTS AND DISEASES. MATERIAL SHALL EQUAL OR SURPASS #1 QUALITY AS DEFINED IN THE CURRENT ISSUE OF "AMERICAN STANDARD FOR NURSERY STOCK" AS PUBLISHED BY THE AMERICAN NURSERY & LANDSCAPE ASSOCIATION.
10. ALL PLANT MATERIAL IS TO BE CAREFULLY HANDLED BY THE ROOT BALL, NOT THE TRUNK, BRANCHES AND/OR FOLIAGE OF THE PLANT. MISHANDLED PLANT MATERIAL MAY BE REJECTED BY THE LANDSCAPE ARCHITECT.
11. ALL PLANT MATERIAL IS TO BE WELL ROOTED, NOT ROOT BOUND, SUCH THAT THE ROOT BALL REMAINS INTACT THROUGHOUT THE PLANTING PROCESS. DEFICIENT PLANT MATERIAL MAY BE REJECTED BY THE LANDSCAPE ARCHITECT OR OWNER.
12. ALL PLANTS TO BE A MINIMUM OF WHAT IS SPECIFIED IN THE PLANT SCHEDULE. ANY CHANGES OR SUBSTITUTIONS SHALL BE APPROVED BY THE LANDSCAPE ARCHITECT AND GOVERNING JURISDICTION PRIOR TO ANY HOLE BEING DUG.
13. CONTRACTOR TO COORDINATE WITH OWNER'S REPRESENTATIVE AND LANDSCAPE ARCHITECT TO ESTABLISH THE EXTENTS OF MULCH/SEED/SOD IF NOT SPECIFICALLY SHOWN ON PLANS.
14. CONTRACTOR SHALL PROVIDE POSITIVE DRAINAGE IN ALL PLANTING AREAS.
15. PROPOSED TREES TO BE PLANTED A MINIMUM 10 FEET FROM ANY LIGHT POLE AS MEASURED FROM TRUNK OF THE TREE TO THE POLE.
16. PROPOSED TREES TO BE PLANTED A MINIMUM 5 FEET FROM ANY FIRE HYDRANT AS MEASURED FROM TRUNK OF THE TREE TO THE HYDRANT.
17. CONTRACTOR SHALL COMPLETE SOIL TEST IN ALL PLANTING AREAS TO DETERMINE SOIL AMENDMENT REQUIREMENTS UNLESS WAIVED BY OWNER'S REPRESENTATIVE. CONTRACTOR SHALL ADJUST PH AND FERTILITY BASED UPON THE SOIL TEST RESULTS.
18. TOPSOIL SHALL BE FREE OF MATERIAL LARGER THAN 1.0 INCH IN DIAMETER OR LENGTH AND SHALL NOT CONTAIN SLAG, CINDERS, STONES, LUMPS OF SOIL, STICKS, ROOTS, TRASH, OR OTHER EXTRANEOUS MATERIAL.
19. LOOSEN SUBGRADE / SURFACE SOIL TO A MINIMUM DEPTH OF 6 INCHES. APPLY SOIL AMENDMENTS AND FERTILIZERS AS REQUIRED BY THE SOIL TEST RESULTS TO ACHIEVE A HEALTHY GROWING MEDIA AND MIX THOROUGHLY INTO TOP 4 INCHES OF SOIL. SPREAD PLANTING SOIL MIX TO A DEPTH OF 6 INCHES BUT NOT LESS THAN REQUIRED TO MEET FINISH GRADES AFTER NATURAL SETTLEMENT. DO NOT SPREAD IF PLANTING SOIL OR SUBGRADE IS FROZEN, MUDDY, OR EXCESSIVELY WET.
20. IF IMPORTED TOPSOIL IS REQUIRED, THE SUBGRADE SHALL BE SCARIFIED OR TILLED TO A DEPTH OF AT LEAST 6 INCHES PRIOR TO INSTALLATION OF IMPORTED TOPSOIL. FOLLOWING INSTALLATION OF IMPORTED TOPSOIL, THE TOPSOIL SHALL BE TILLED TO INTEGRATE THE SOIL PROFILES.
21. PLANT MATERIALS ARE TO BE GUARANTEED FOR A PERIOD OF 12 MONTHS. PLANT MATERIALS WHICH REMAIN UNHEALTHY WILL BE REPLACED BY THE LANDSCAPE CONTRACTOR BEFORE THE EXPIRATION OF THE GUARANTEE PERIOD OR IMMEDIATELY IF SO DIRECTED BY THE OWNER'S REPRESENTATIVE OR LANDSCAPE ARCHITECT.
22. ALL TREE PLANTINGS SHALL BE MULCHED TO A DEPTH OF 3 INCHES, AND WITH A MINIMUM 3 FOOT RADIUS FROM BASE OF TREE OR TO DRIPLINE. MULCH SHALL BE FREE OF TRASH AND MAINTAINED WEED FREE. MULCH SHALL NOT COVER THE ROOT FLARE. CONFIRM MULCH SPECIFICATIONS WITH OWNER'S REPRESENTATIVE OR LANDSCAPE ARCHITECT.
23. DO NOT PRUNE TREES AND SHRUBS BEFORE DELIVERY. PROTECT BARK, BRANCHES, AND ROOT SYSTEMS FROM SUN SCALD, DRYING, SWEATING, WHIPPING, AND OTHER HANDLING AND TYING DAMAGE. DO NOT BEND OR BIND-TIE TREES OR SHRUBS IN SUCH A MANNER AS TO DESTROY THEIR NATURAL SHAPE. PROVIDE PROTECTIVE COVERING OF EXTERIOR PLANTS DURING DELIVERY. DO NOT DROP EXTERIOR PLANTS DURING DELIVERY AND HANDLING.
24. DELIVER EXTERIOR PLANTS AFTER PREPARATIONS FOR PLANTING HAVE BEEN COMPLETED AND INSTALL IMMEDIATELY. IMMEDIATELY AFTER UNLOADING, STAND THE TREES UP TO REDUCE THE RISK OF SUN SCALD. PROPERLY STAGED TREES ARE STANDING, UNTIED AND SPACED. UNLESS IMMEDIATELY INSTALLED, SET EXTERIOR PLANTS AND TREES IN SHADE, PROTECT FROM WEATHER AND MECHANICAL DAMAGE, AND KEEP ROOTS MOIST.
25. SEE LANDSCAPE DETAILS FOR TREE STAKING REQUIREMENTS.
26. EXCAVATE EDGES OF ALL PLANTING BEDS TO 2 INCH DEPTH TO FORM A NEAT AND CRISP DEFINITION.
27. CONTRACTOR SHALL REMOVE DEBRIS AND FINE GRADE ALL PLANTING AREAS PRIOR TO INSTALLATION.
28. REMOVE GUY WIRES AND STAKES AT END OF WARRANTY PERIOD OR ESTABLISHMENT.
29. FINISH GRADING: GRADE PLANTING AREAS TO A SMOOTH, UNIFORM SURFACE PLANE WITH LOOSE, UNIFORMLY FINE TEXTURE. GRADE TO WITHIN PLUS OR MINUS 1/2 INCH OF FINISH ELEVATION. ROLL AND RAKE, REMOVE RIDGES, AND FILL DEPRESSIONS TO MEET FINISH GRADES. LIMIT FINISHED GRADING TO AREAS THAT CAN BE PLANTED IN THE IMMEDIATE FUTURE.



NOTES:
1. SELECT TREES THAT HAVE: STRONG CENTRAL LEADER; CROWN WITH FULL FOLIAGE; ARE GROWN IN HEAVY CLAY SOIL WITH DRIP IRRIGATION.
2. BEFORE INSTALLING PLANTING SOIL MIX BACKFILL AROUND ROOT BALL, BE SURE TO SOAK HOLE TO CONFIRM WATER FILTERS THROUGH UNDISTURBED SOIL. DESIGN ALTERNATIVE DRAINAGE SYSTEM IF REQUIRED.
3. A SOIL EXPERT CAN BE CONSULTED TO HELP MODIFY AND FERTILIZE TOPSOIL TO CREATE AN ACCEPTABLE PLANTING SOIL MIX FOR THE SITE CONDITIONS AND SPECIFIC TREE SPECIES.
4. IF USING CONTAINER GROWN TREES, USE FINGERS OR SMALL HAND TOOLS TO PULL ROOTS OUT OF THE OUTER LAYER OF POTTING SOIL; THEN CUT OR PULL APART ANY ROOTS CIRCLING THE PERIMETER OF THE CONTAINER.
5. THOROUGHLY SOAK THE TREE ROOT BALL AND ADJACENT PREPARED SOIL SEVERAL TIMES DURING THE FIRST MONTH AFTER PLANTING AND DURING DRY PERIODS.

01 TREE INSTALLATION DETAIL

SCALE: 1/2" = 1'=0"



02 SHRUB INSTALLATION DETAIL

SCALE: 1/2" = 1'=0"

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PARK APARTMENTS
FORM DISTRICT PERMIT
1250 EPHESUS CHURCH ROAD
CHAPEL HILL, NORTH CAROLINA, 27517

NORTH CAROLINA REGISTERED LANDSCAPE ARCHITECT NO. 1770 JOSHUA A. DECKER
PRELIMINARY – NOT FOR CONSTRUCTION

REVISIONS

NO.	DATE	
1	05. 03. 2019	PER CHAPEL HILL AND OWASA COMMENTS

PLAN INFORMATION

PROJECT NO.	WDF-17000
FILENAME	WDF17000-LS1
CHECKED BY	SRD
DRAWN BY	AMR
SCALE	1"=40'
DATE	02. 28. 2019

SHEET

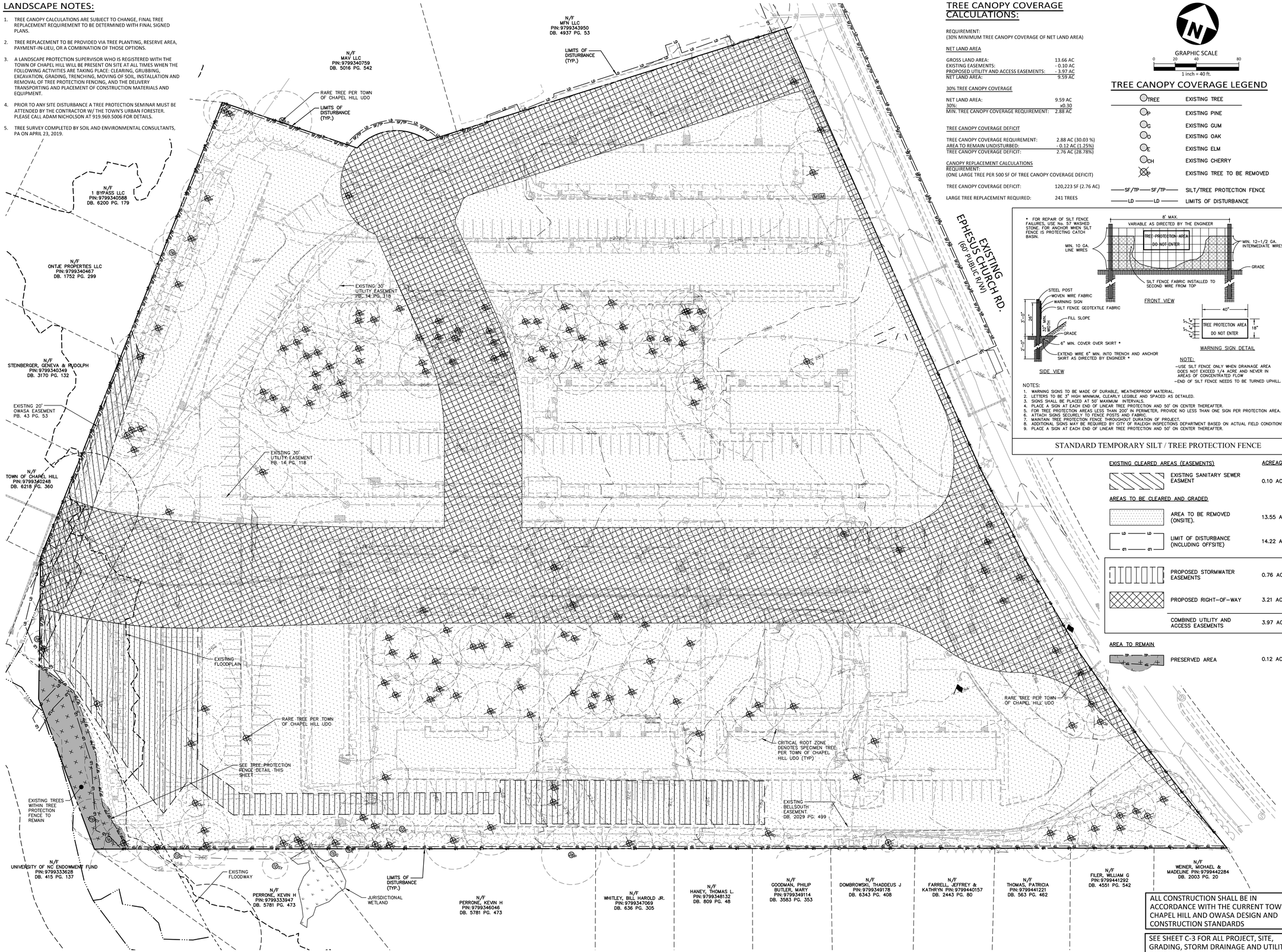
LANDSCAPE DETAILS

LS-2

FINAL DRAWING - NOT RELEASED FOR CONSTRUCTION

LANDSCAPE NOTES:

1. TREE CANOPY CALCULATIONS ARE SUBJECT TO CHANGE, FINAL TREE REPLACEMENT REQUIREMENT TO BE DETERMINED WITH FINAL SIGNED PLANS.
2. TREE REPLACEMENT TO BE PROVIDED VIA TREE PLANTING, RESERVE AREA, PAYMENT-IN-LIEU, OR A COMBINATION OF THOSE OPTIONS.
3. A LANDSCAPE PROTECTION SUPERVISOR WHO IS REGISTERED WITH THE TOWN OF CHAPEL HILL WILL BE PRESENT ON SITE AT ALL TIMES WHEN THE FOLLOWING ACTIVITIES ARE TAKING PLACE: CLEARING, GRUBBING, EXCAVATION, GRADING, TRENCHING, MOVING OF SOIL, INSTALLATION AND REMOVAL OF TREE PROTECTION FENCING, AND THE DELIVERY TRANSPORTING AND PLACEMENT OF CONSTRUCTION MATERIALS AND EQUIPMENT.
4. PRIOR TO ANY SITE DISTURBANCE A TREE PROTECTION SEMINAR MUST BE ATTENDED BY THE CONTRACTOR W/ THE TOWN'S URBAN FORESTER. PLEASE CALL ADAM NICHOLSON AT 919.969.5006 FOR DETAILS.
5. TREE SURVEY COMPLETED BY SOIL AND ENVIRONMENTAL CONSULTANTS, PA ON APRIL 23, 2019.



TREE CANOPY COVERAGE CALCULATIONS:

REQUIREMENT:
(30% MINIMUM TREE CANOPY COVERAGE OF NET LAND AREA)

NET LAND AREA

GROSS LAND AREA:	13.66 AC
EXISTING EASEMENTS:	- 0.10 AC
PROPOSED UTILITY AND ACCESS EASEMENTS:	- 3.97 AC
NET LAND AREA:	9.59 AC

30% TREE CANOPY COVERAGE

NET LAND AREA:	9.59 AC
30%:	x0.30
MIN. TREE CANOPY COVERAGE REQUIREMENT:	2.88 AC

TREE CANOPY COVERAGE DEFICIT

TREE CANOPY COVERAGE REQUIREMENT:	2.88 AC (30.03 %)
AREA TO REMAIN UNDISTURBED:	- 0.12 AC (1.25%)
TREE CANOPY COVERAGE DEFICIT:	2.76 AC (28.78%)

CANOPY REPLACEMENT CALCULATIONS
REQUIREMENT:
(ONE LARGE TREE PER 500 SF OF TREE CANOPY COVERAGE DEFICIT)

TREE CANOPY COVERAGE DEFICIT:	120,223 SF (2.76 AC)
LARGE TREE REPLACEMENT REQUIRED:	241 TREES

GRAPHIC SCALE
0 20 40 80
1 inch = 40 ft.

TREE CANOPY COVERAGE LEGEND

TREE	EXISTING TREE
P	EXISTING PINE
G	EXISTING GUM
O	EXISTING OAK
E	EXISTING ELM
CH	EXISTING CHERRY
P	EXISTING TREE TO BE REMOVED
SF/TP — SF/TP	SILT/TREE PROTECTION FENCE
LD — LD	LIMITS OF DISTURBANCE

NOTE:
-USE SILT FENCE ONLY WHEN DRAINAGE AREA DOES NOT EXCEED 1/4 ACRE AND NEVER IN AREAS OF CONCENTRATED FLOW
-END OF SILT FENCE NEEDS TO BE TURNED UPHILL.

NOTES:
1. WARNING SIGNS TO BE MADE OF DURABLE, WEATHERPROOF MATERIAL.
2. LETTERS TO BE 3" HIGH MINIMUM, CLEARLY LEGIBLE AND SPACED AS DETAILED.
3. SIGNS SHALL BE PLACED AT 50' MAXIMUM INTERVALS.
4. PLACE A SIGN AT EACH END OF LINEAR TREE PROTECTION AND 50' ON CENTER THEREAFTER.
5. FOR TREE PROTECTION AREAS LESS THAN 200' IN PERIMETER, PROVIDE NO LESS THAN ONE SIGN PER PROTECTION AREA.
6. ATTACH SIGNS SECURELY TO FENCE POSTS AND FABRIC.
7. MAINTAIN TREE PROTECTION FENCE THROUGHOUT DURATION OF PROJECT.
8. ADDITIONAL SIGNS MAY BE REQUIRED BY CITY OF RALEIGH INSPECTIONS DEPARTMENT BASED ON ACTUAL FIELD CONDITIONS.
9. PLACE A SIGN AT EACH END OF LINEAR TREE PROTECTION AND 50' ON CENTER THEREAFTER.

STANDARD TEMPORARY SILT / TREE PROTECTION FENCE

EXISTING CLEARED AREAS (EASEMENTS)	ACREAGE
EXISTING SANITARY SEWER EASMENT	0.10 AC
AREAS TO BE CLEARED AND GRADED	
AREA TO BE REMOVED (ONSITE).	13.55 AC
LIMIT OF DISTURBANCE (INCLUDING OFFSITE)	14.22 AC
PROPOSED STORMWATER EASEMENTS	0.76 AC
PROPOSED RIGHT-OF-WAY	3.21 AC
COMBINED UTILITY AND ACCESS EASEMENTS	3.97 AC
AREA TO REMAIN	
PRESERVED AREA	0.12 AC

ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CURRENT TOWN OF CHAPEL HILL AND OWASA DESIGN AND CONSTRUCTION STANDARDS

SEE SHEET C-3 FOR ALL PROJECT, SITE, GRADING, STORM DRAINAGE AND UTILITY NOTES

FINAL DRAWING - NOT RELEASED FOR CONSTRUCTION

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CHAPEL HILL, NORTH CAROLINA, 27517

NORTH CAROLINA REGISTERED LANDSCAPE ARCHITECT NO. 1770 JOSHUA A. DECKER
NOT FOR CONSTRUCTION

REVISIONS

NO.	DATE	
1	05. 03. 2019	PER CHAPEL HILL AND OWASA COMMENTS

PLAN INFORMATION

PROJECT NO.	WDF-17000
FILENAME	WDF17000-TC1
CHECKED BY	SRD
DRAWN BY	AMR
SCALE	1"=40'
DATE	02. 28. 2019

SHEET

LANDSCAPE PROTECTION & TREE COVERAGE PLAN

TC-1

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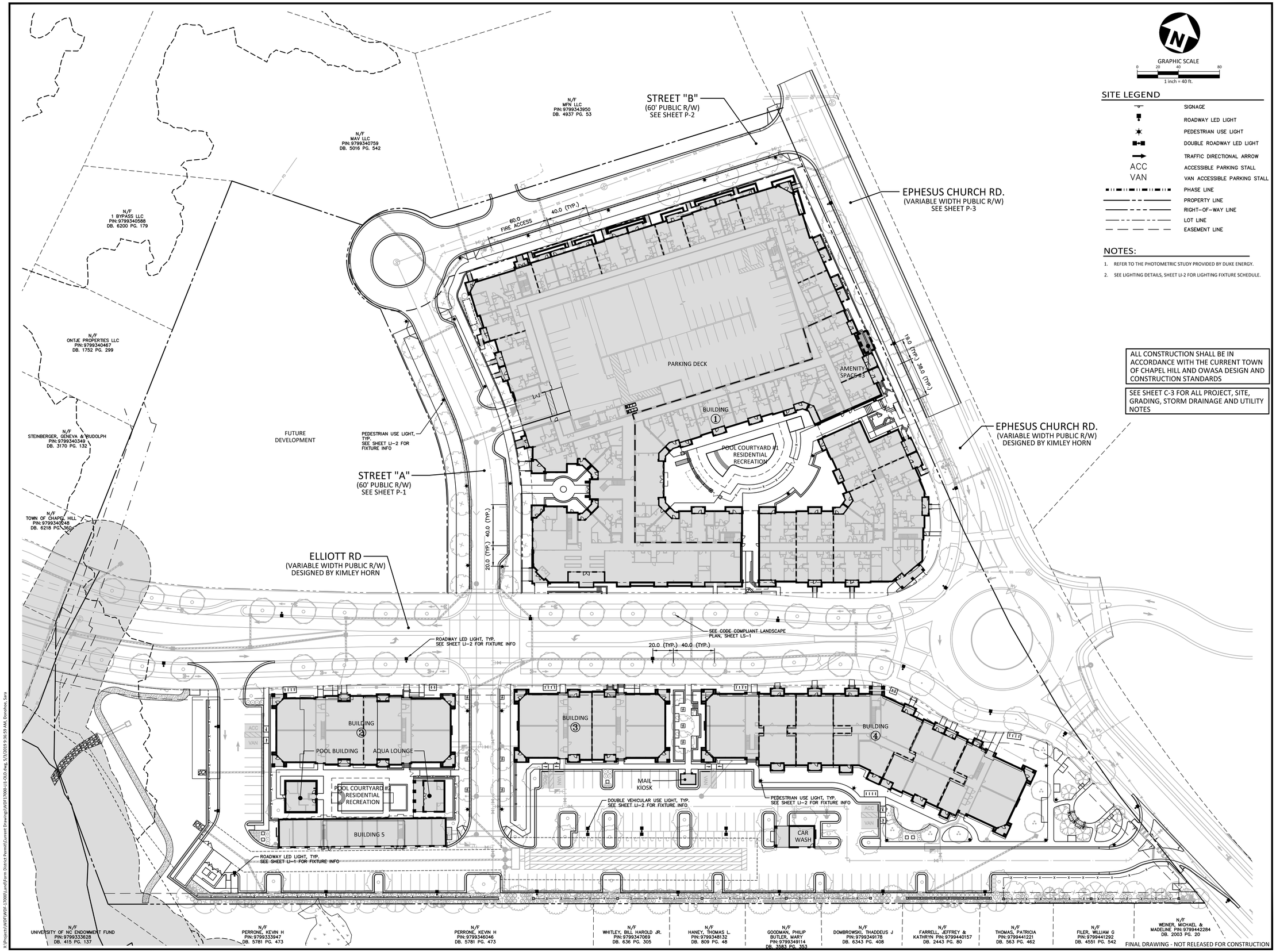

GRAPHIC SCALE

0 20 40 80

1 inch = 40 ft.

SITE LEGEND

	SIGNAGE
	ROADWAY LED LIGHT
	PEDESTRIAN USE LIGHT
	DOUBLE ROADWAY LED LIGHT
	TRAFFIC DIRECTIONAL ARROW
ACC	ACCESSIBLE PARKING STALL
VAN	VAN ACCESSIBLE PARKING STALL
	PHASE LINE
	PROPERTY LINE
	RIGHT–OF–WAY LINE
	LOT LINE
	EASEMENT LINE

NOTES:

1. REFER TO THE PHOTOMETRIC STUDY PROVIDED BY DUKE ENERGY.
2. SEE LIGHTING DETAILS, SHEET LI-2 FOR LIGHTING FIXTURE SCHEDULE.

ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CURRENT TOWN OF CHAPEL HILL AND OWASA DESIGN AND CONSTRUCTION STANDARDS

SEE SHEET C-3 FOR ALL PROJECT, SITE, GRADING, STORM DRAINAGE AND UTILITY NOTES

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PLAN INFORMATION

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FILENAME	WDF17000-LS1
CHECKED BY	SRD
DRAWN BY	AMR
SCALE	1"=40'
DATE	02. 28. 2019

SHEET

LIGHTING PLAN

LI-1

FINAL DRAWING - NOT RELEASED FOR CONSTRUCTION

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LIGHTING FIXTURE SCHEDULE

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	QTY	FINISH	WATTS	COLOR TEMP	MOUNTING
	DUKE ENERGY / SINGLE ROADWAY LED / VEHICULAR USE LIGHT	11	BLACK	SEE CUT SHEET	SEE CUT SHEET	POLE MOUNT
	DUKE ENERGY / SINGLE SANIBEL LED / PEDESTRIAN USE LIGHT	15	BLACK	SEE CUT SHEET	SEE CUT SHEET	POLE MOUNT
	DUKE ENERGY / DOUBLE ROADWAY LED / DOUBLE VEHICULAR USE LIGHT	4	BLACK	SEE CUT SHEET	SEE CUT SHEET	POLE MOUNT
	DUKE ENERGY / ROADWAY LED & SANIBEL LED/ COMBINED PEDESTRIAN & VEHICULAR USE LIGHT	43	BLACK	SEE CUT SHEET	SEE CUT SHEET	POLE MOUNT

DUKE ENERGY. PROGRESS

Outdoor Lighting

Roadway LED

VEHICULAR USE AREAS

The Roadway LED is a green solution and great fit for streets, roads, long, narrow areas and parking lots. This energy-efficient luminaire delivers the light where it is needed while increasing visibility and reducing spill light to adjoining properties. Choose low to medium light output on wood or fiberglass poles (or mount on an existing pole). Available with one to four fixtures per pole, depending on the fixture/pole combination selected.

LED *(Light Emitting Diode)*	50 | 75 | 105 | 150 | 215 | 280 watts
Mounting heights	25', 30', 35'
Color	Gray, Black
Poles	Fiberglass Metal *(special conditions)* Wood

For additional information, visit us at duke-energy.com/OutdoorLighting or call us toll free at 866.769.6417.

DUKE ENERGY. PROGRESS

Outdoor Lighting

Sanibel LED

PEDESTRIAN USE AREAS

The beauty of the stylish Sanibel LED is its remarkable versatility. Its sleek simplicity, with a gently curved bracket that helps cast light downward, is at home virtually anywhere – from more formal traditional neighborhoods to beachfront communities and other casual locales.

LED *(Light Emitting Diode)*	75 watts, 150 watts
Mounting heights	12', 16', 29'
Color	Black
Pole	Smooth round concrete

For additional information, visit us at duke-energy.com/OutdoorLighting or call us toll free at 866.769.6417.

DUKE ENERGY. PROGRESS

Outdoor Lighting

Roadway LED

Light source: LED *(white)*
Lumens: 4,807 – 25,050 *(fixture dependent)*

Wattage	Light Pattern	IESNA Backlight-Uplight – Glare (BUG) Rating
LED 50	IESNA Type III *(medium oval)*	B1-U0-G1
LED 75	IESNA Type II *(long oval)*	B1-U0-G2
LED 105	IESNA Type II *(long oval)*	B2-U0-G3
LED 150	IESNA Type III *(medium oval)*	B2-U0-G2
LED 215	IESNA Type III *(medium oval)*	B3-U0-G3
LED 280	IESNA Type III *(medium oval)*	B3-U0-G4

light distribution pattern

Color temperature: 4,000K
Warm-up and restrike time: Instant on *(no warm-up or restrike time.)*

Poles available:

Name	*Mounting height*	*Color*
Fiberglass	25', 30', 35'	Gray
Fiberglass	25', 30', 35'	Black *(additional cost)*
Wood	25', 30', 35'	Standard
Metal *(special conditions)**	25', 30', 35'	Gray

Features	Benefits
Little or no installation cost	Frees up capital for other projects
Design services by lighting professionals included	Meets industry standards and lighting ordinances
Maintenance included	Eliminates high and unexpected repair bills
Electricity included	Less expensive than metered service
Warranty included	Worry-free
One low monthly cost on your electric bill	Convenience and savings for you
Turnkey operation	Provides hassle-free installation and service
Backed by over 40 years of experience	A name you can trust today … and tomorrow

**2' raised foundation available when required.*

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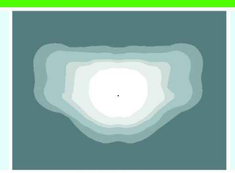
DUKE ENERGY. PROGRESS

Outdoor Lighting

Sanibel LED

Light source: LED *(white)*

Wattage	BUG Rating	Light Pattern	Lumens	Color Temp
75W	B1-U0-G1	IESNA Type III (oval)	6,320	4,000K
150W	B2-U0-G2		16,160	



light distribution pattern

Pole available:

Name	*Mounting height*	*Color*
Smooth round concrete	12', 16', 29'	Black

Features	Benefits
Little or no installation cost	Frees up capital for other projects
Design services by lighting professionals included	Meets industry standards and lighting ordinances
Maintenance included	Eliminates high and unexpected repair bills
Electricity included	Less expensive than metered service
Warranty included	Worry-free
One low monthly cost on your electric bill	Convenience and savings for you
Turnkey operation	Provides hassle-free installation and service
Backed by over 40 years of experience	A name you can trust today … and tomorrow

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FINAL DRAWING - NOT RELEASED FOR CONSTRUCTION

McADAMS

The John R. McAdams Company, Inc.
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CLIENT

WOODFIELD INVESTMENTS
11425 HORSEMAN'S TRAIL
RALEIGH, NC 27613
PHONE: 919. 535. 8947

PARK APARTMENTS
FORM DISTRICT PERMIT
1250 EPHESUS CHURCH ROAD
CHAPEL HILL, NORTH CAROLINA, 27517

NORTH CAROLINA REGISTERED LANDSCAPE ARCHITECT NO. 1770 JOSHUA A. DECKER
NOT FOR CONSTRUCTION

REVISIONS

NO.	DATE	
1	05. 03. 2019	PER CHAPEL HILL AND OWASA COMMENTS

PLAN INFORMATION

PROJECT NO.	WDF-17000
FILENAME	WDF17000-LI1
CHECKED BY	SRD
DRAWN BY	AMR
SCALE	-
DATE	02. 28. 2019

SHEET

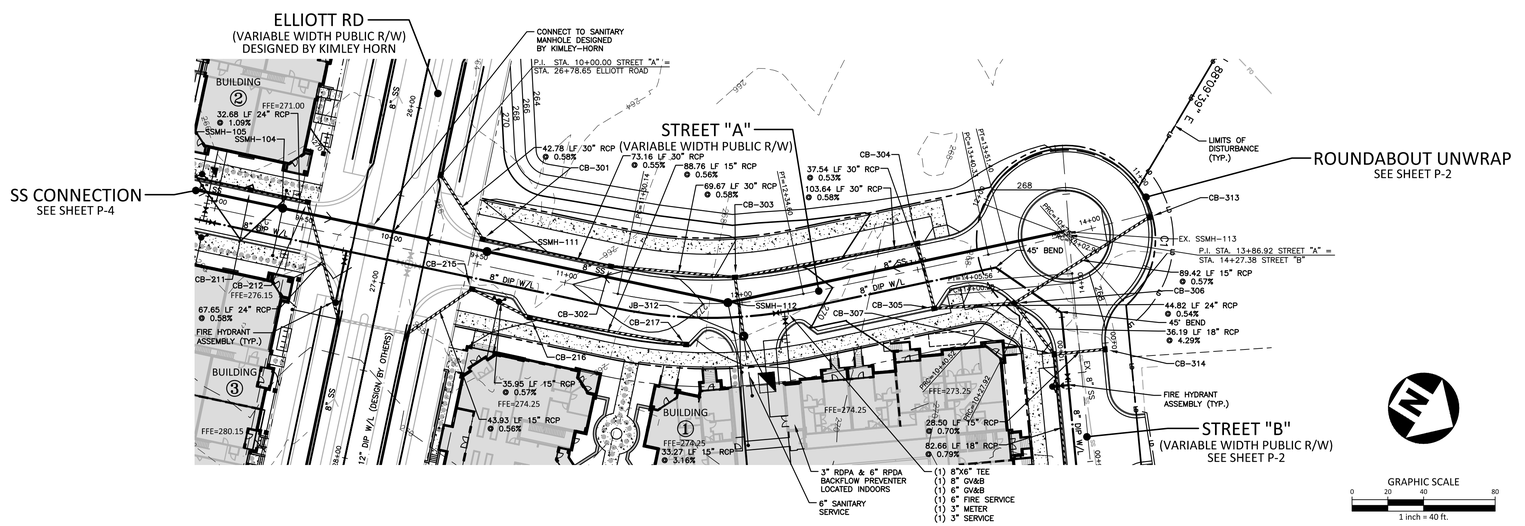
LIGHTING DETAILS

LI-2

X:\Projects\WDF\WDF-17000\Land\Form District Permit\Current Drawings\WDF17000-LI1-DLD.dwg, 5/3/2019 9:45:36 AM, Donohoo, Sara

ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CURRENT TOWN OF CHAPEL HILL AND OWASA DESIGN AND CONSTRUCTION STANDARDS

SEE SHEET C-3 FOR ALL PROJECT, SITE, GRADING, STORM DRAINAGE AND UTILITY NOTES



CB-211
T/C=269.95
INV IN=265.45 (CB-212)
INV OUT=265.35

CB-212
T/C=270.75
INV IN=265.90 (KH-213)
INV OUT=265.80

CB-215
T/C=271.65
INV IN=267.75 (CB-216)
INV OUT=267.65

CB-216
T/C=271.50
INV IN=268.05 (CB-217)
INV OUT=267.95

CB-217
T/C=271.80
INV OUT=268.55

CB-301
T/C=271.65
INV IN=260.20 (CB-302)
INV OUT=260.10

CB-302
T/C=271.95
INV IN=260.70 (CB-303)
INV OUT=260.60

CB-303
T/C=271.70
INV IN=261.20 (CB-304)
INV IN=262.35 (JB-312)
INV OUT=261.10

CB-304
T/C=269.15
INV IN=261.90 (CB-305)
INV OUT=261.80

CB-305
T/C=268.90
INV IN=262.60 (CB-306)
INV OUT=262.10

CB-306
T/C=268.25
INV IN=263.35 (CB-307)
INV IN=263.60 (CB-313)
INV OUT=262.85

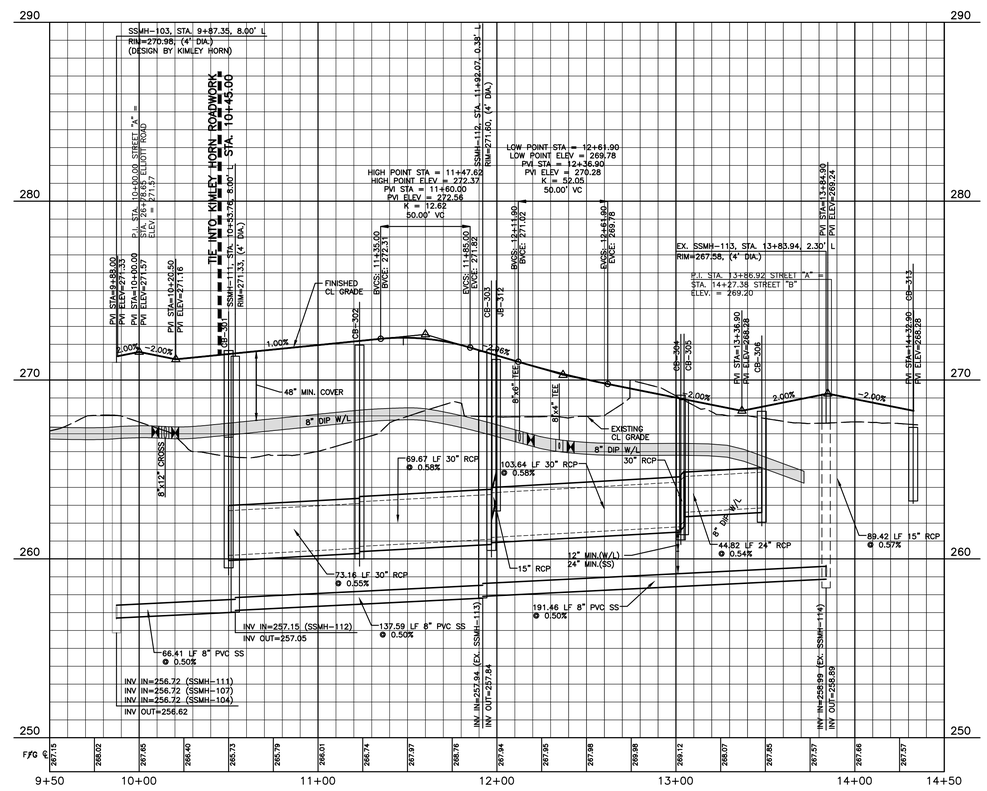
CB-307
T/C=268.50
INV IN=265.00 (CB-308)
INV IN=265.15 (CB-314)
INV OUT=264.90

CB-314
T/C=268.60
INV OUT=265.35

JB-312
RIM=271.15
INV OUT=263.40

CB-313
T/C=267.35
INV OUT=264.10

STREET "A"



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DEVELOPER

WOODFIELD INVESTMENTS
11425 HORSEMAN'S TRAIL
RALEIGH, NC 27613
PHONE: 919. 535. 8947

REVISIONS

NO.	DATE	
1	05. 03. 2019	PER CHAPEL HILL AND OWASA COMMENTS

NORTH CAROLINA PROFESSIONAL SEAL 044862 ENGINEER JONATHAN BALES
NOT FOR CONSTRUCTION UNTIL FINAL APPROVAL

PARK APARTMENTS

FORM DISTRICT PERMIT

1250 EPHESUS CHURCH ROAD

CHAPEL HILL, NORTH CAROLINA, 27517

PLAN INFORMATION

PROJECT NO.	WDF-17000
FILENAME	WDF17000-P1
CHECKED BY	ZNB
DRAWN BY	HMA
SCALE	1"=40'/1"=4'
DATE	02. 28. 2019

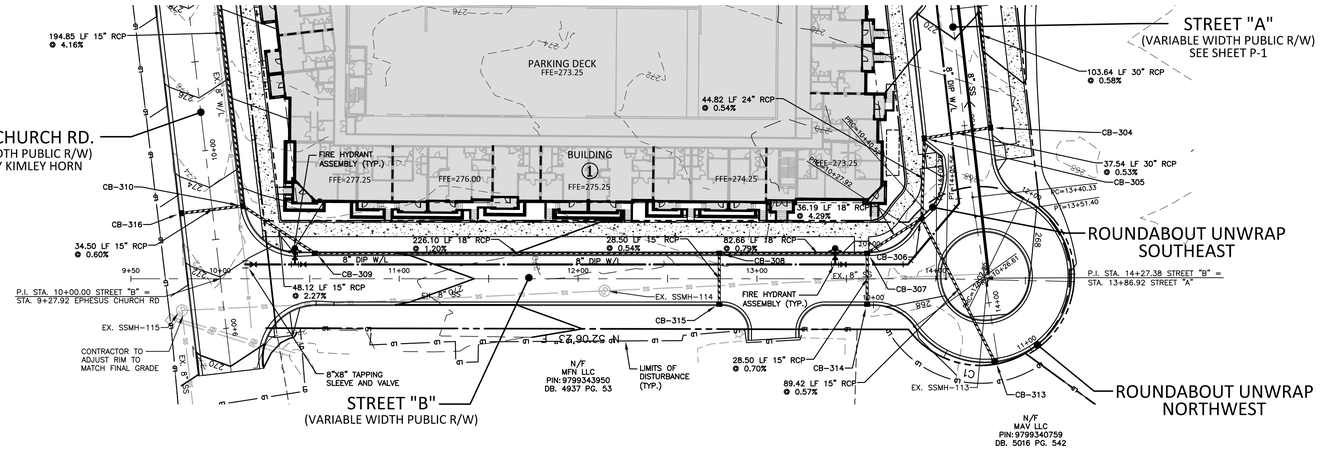
PLAN AND PROFILE

STREET "A", STA. 10+00 THRU STA. 14+50

P-1

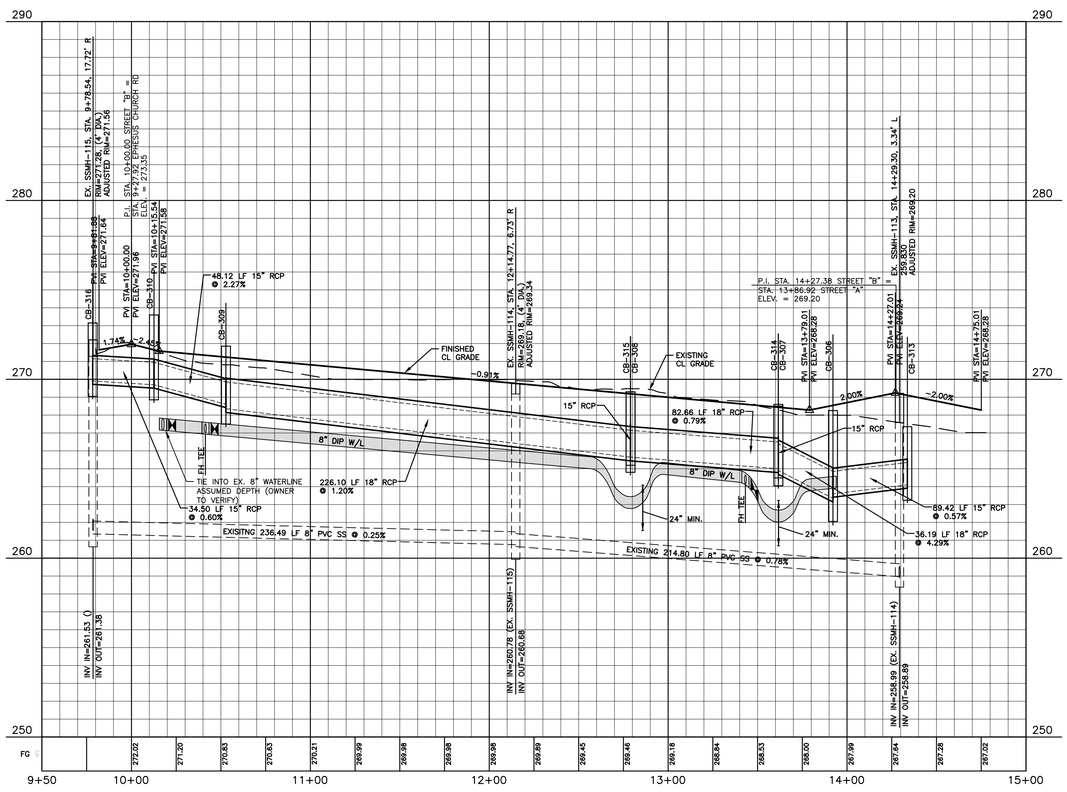
ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CURRENT TOWN OF CHAPEL HILL AND OWASA DESIGN AND CONSTRUCTION STANDARDS

SEE SHEET C-3 FOR ALL PROJECT, SITE, GRADING, STORM DRAINAGE AND UTILITY NOTES

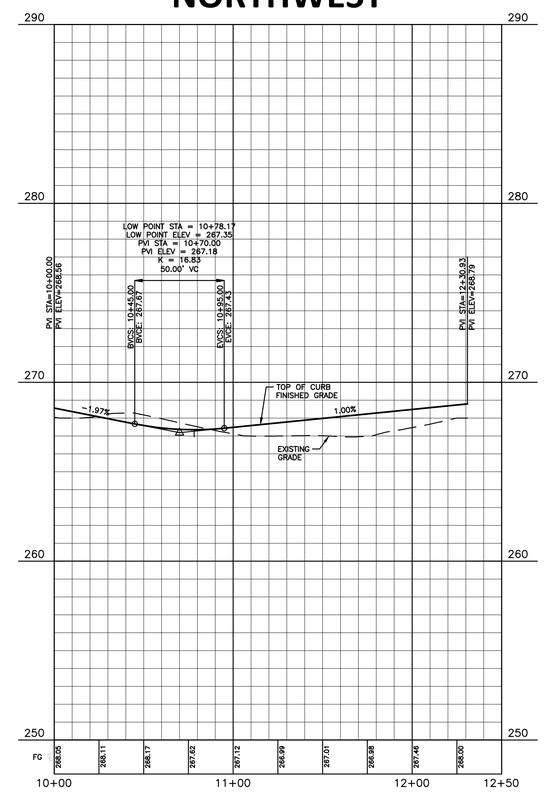


CB-304 T/C=269.15 INV IN=261.90 (CB-305) INV OUT=261.80	CB-308 T/C=269.30 INV IN=265.65 (CB-309) INV IN=265.90 (CB-315) INV OUT=265.65	CB-313 T/C=267.35 INV OUT=264.10
CB-305 T/C=268.90 INV IN=262.60 (CB-306) INV OUT=262.10	CB-309 T/C=271.85 INV IN=268.60 (CB-310) INV OUT=268.35	CB-314 T/C=268.60 INV OUT=265.35
CB-306 T/C=268.25 INV IN=263.35 (CB-307) INV IN=263.60 (CB-313) INV OUT=262.85	CB-310 T/C=273.60 INV IN=269.80 (KH-311) INV IN=269.70 (CB-316) INV OUT=269.70	CB-315 T/C=269.30 INV OUT=266.05
CB-307 T/C=268.50 INV IN=265.00 (CB-308) INV IN=265.15 (CB-314) INV OUT=264.90		CB-316 T/C=273.15 INV OUT=269.90

STREET "B"



ROUNDABOUT UNWRAP NORTHWEST



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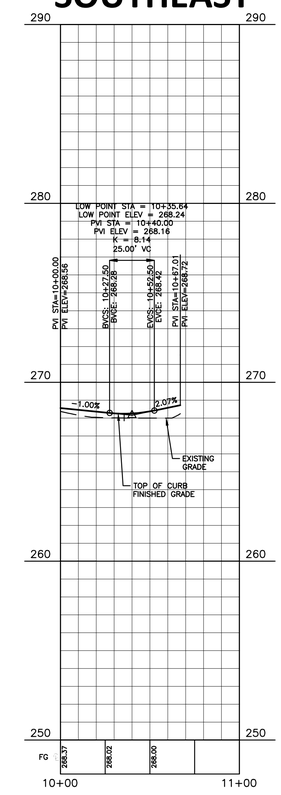

FINAL DRAWING - NOT RELEASED FOR CONSTRUCTION

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McADAMS

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DEVELOPER

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11425 HORSEMAN'S TRAIL
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PHONE: 919. 535. 8947

REVISIONS

NO.	DATE	
1	05. 03. 2019	PER CHAPEL HILL AND OWASA COMMENTS

NORTH CAROLINA PROFESSIONAL SEAL 044862 ENGINEER JONATHAN BALES
NOT FOR CONSTRUCTION UNTIL SEALED

PARK APARTMENTS

FORM DISTRICT PERMIT
1250 EPHESUS CHURCH ROAD
CHAPEL HILL, NORTH CAROLINA, 27517

PLAN INFORMATION

PROJECT NO.	WDF-17000
FILENAME	WDF17000-P1
CHECKED BY	ZNB
DRAWN BY	HMA
SCALE	1"=40'/1"=4'
DATE	02. 28. 2019

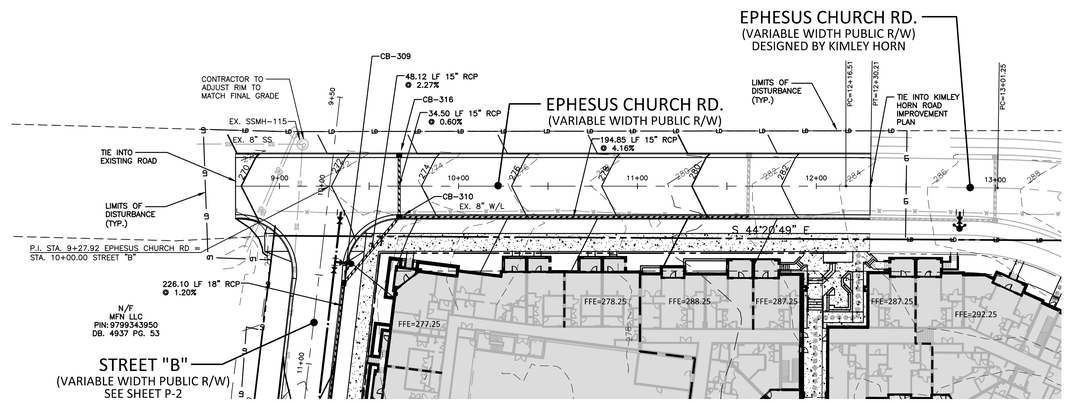
PLAN AND PROFILE

STREET "B", STA. 10+00 THRU STA. 15+00
ROUNDABOUT UNWRAP NW, STA. 10+00 THRU STA. 12+50
ROUNDABOUT UNWRAP SE, STA. 10+00 THRU STA. 11+00

P-2

ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CURRENT TOWN OF CHAPEL HILL AND OWASA DESIGN AND CONSTRUCTION STANDARDS

SEE SHEET C-3 FOR ALL PROJECT, SITE, GRADING, STORM DRAINAGE AND UTILITY NOTES



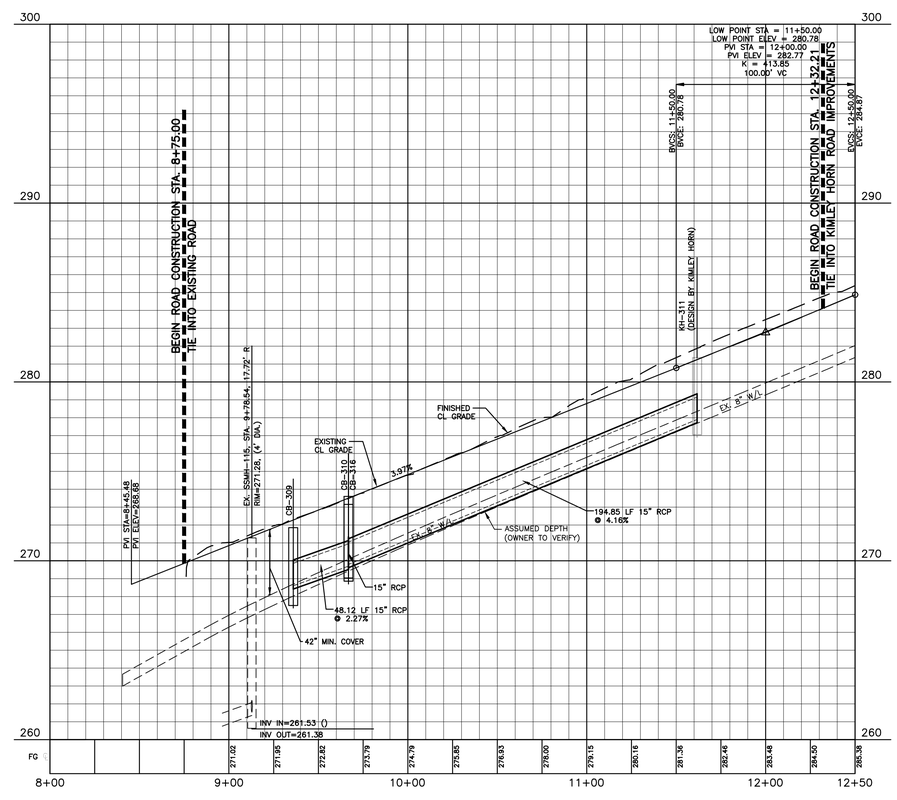
CB-309
T/C=271.85
INV IN=268.60 (CB-310)
INV OUT=268.35

CB-310
T/C=273.60
INV IN=269.80 (KH-311)
INV IN=269.70 (CB-316)
INV OUT=269.70

CB-316
T/C=273.15
INV OUT=269.90

GRAPHIC SCALE
0 20 40 80
1 inch = 40 ft.

EPHESUS CHURCH RD



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REVISIONS

NO.	DATE	
1	05. 03. 2019	PER CHAPEL HILL AND OWASA COMMENTS

NORTH CAROLINA PROFESSIONAL SEAL 044862 ENGINEER NATHAN BALES

FINAL DRAWING - NOT FOR CONSTRUCTION

PARK APARTMENTS

FORM DISTRICT PERMIT

1250 EPHESUS CHURCH ROAD

CHAPEL HILL, NORTH CAROLINA, 27517

PLAN INFORMATION

PROJECT NO.	WDF-17000
FILENAME	WDF17000-P1
CHECKED BY	ZNB
DRAWN BY	HMA
SCALE	1"=40'/1"=4'
DATE	02. 28. 2019

PLAN AND PROFILE

EPHESUS CHURCH RD, STA. 8+23 THRU STA. 12+50

P-3

JB-202
RIM=270.55
INV IN=265.35 (CB-203)
INV OUT=264.75

SCMB-1
RIM=270.85
INV IN=264.50 (JB-202)
INV IN=264.30 (JB-209)
INV OUT=259.00

CB-203
T/C=270.30
INV IN=266.20 (CB-204)
INV OUT=266.10

CB-204
T/C=275.95
INV IN=272.20 (CB-205)
INV OUT=271.95

CB-205
T/C=281.00
INV IN=277.25 (CB-206)
INV OUT=277.15

CB-206
T/C=284.10
INV IN=280.35 (CB-207)
INV OUT=280.25

CB-207
T/C=289.05
INV IN=284.80 (DI-208)
INV OUT=284.70

DI-208
T/G=291.00
INV OUT=287.25

JB-209
RIM=271.25
INV IN=264.45 (CB-210)
INV OUT=264.35

CB-210
T/C=270.75
INV IN=264.85 (CB-211)
INV OUT=264.75

CB-211
T/C=269.95
INV IN=265.45 (CB-212)
INV OUT=265.35

CB-212
T/C=270.75
INV IN=265.90 (KH-213)
INV OUT=265.80

CB-220
T/C=267.50
INV OUT=264.25

ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CURRENT TOWN OF CHAPEL HILL AND OWASA DESIGN AND CONSTRUCTION STANDARDS

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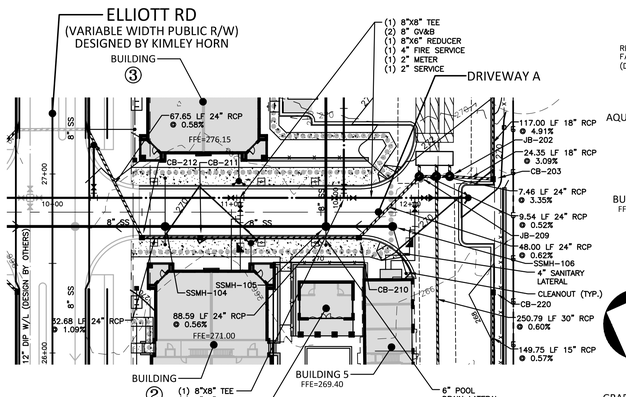
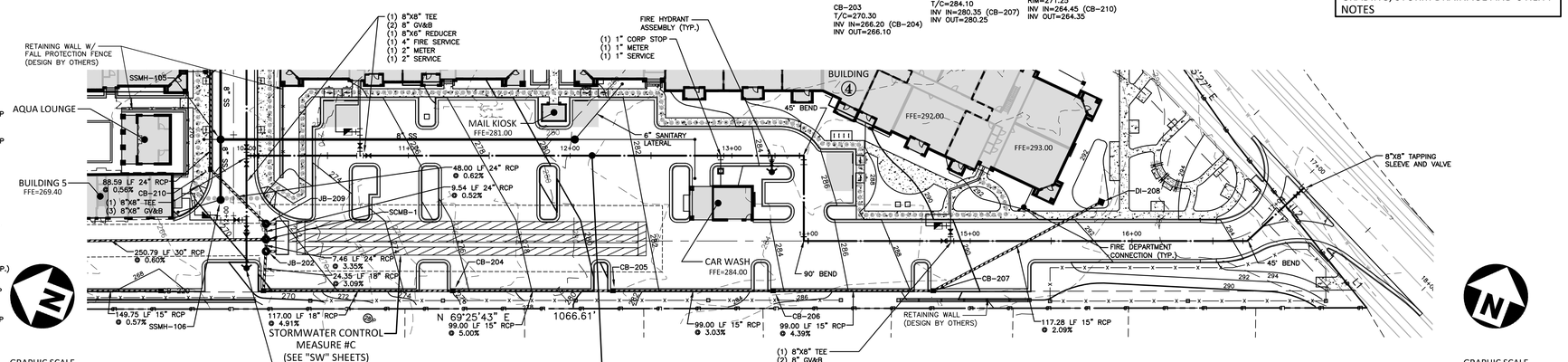
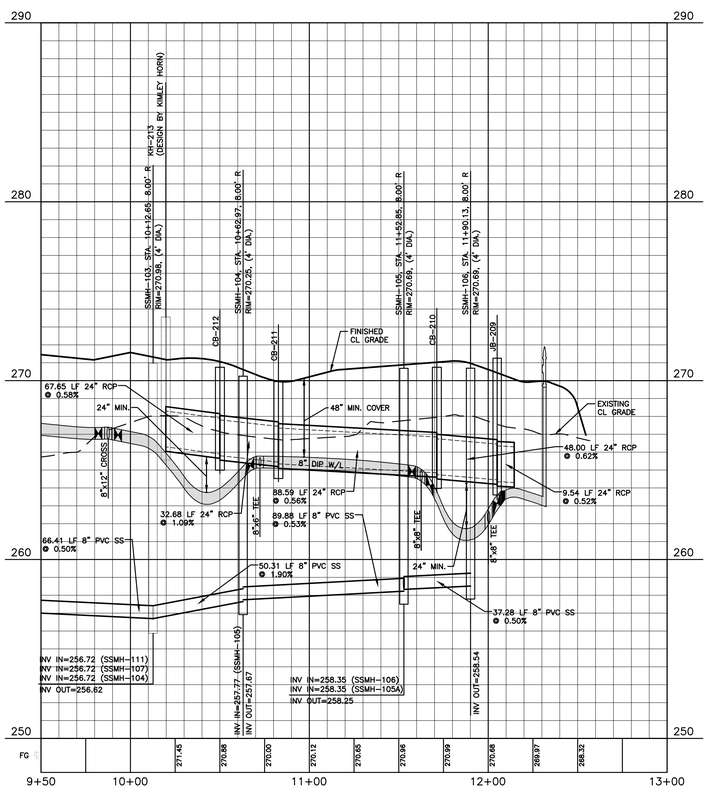
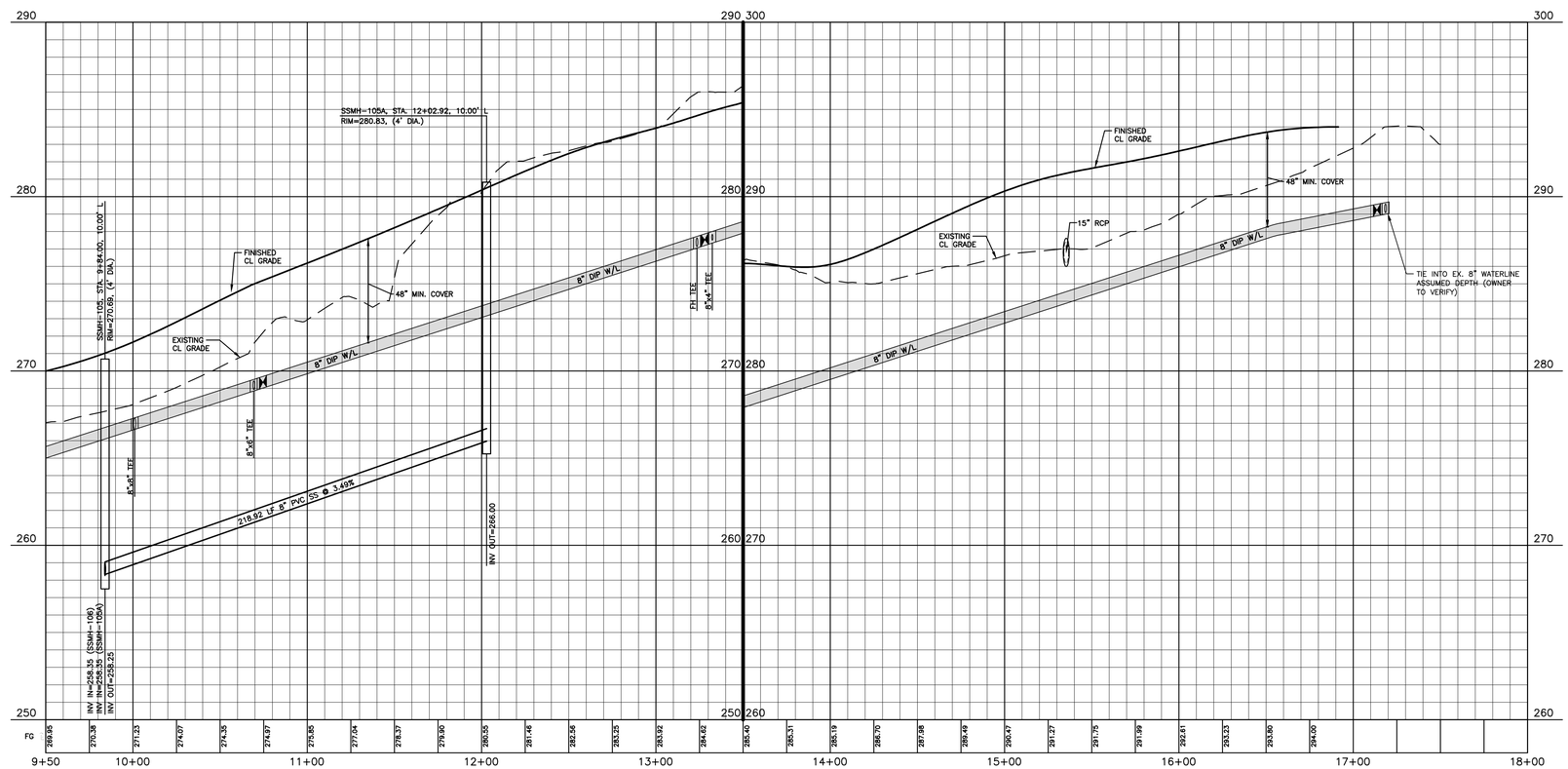




DRIVEWAY A



WATERLINE CONNECTION



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REVISIONS

NO.	DATE	
1	05. 03. 2019	PER CHAPEL HILL AND OWASA COMMENTS

NORTH CAROLINA PROFESSIONAL SEAL 044862 ENGINEER JONATHAN BALES
NOT FOR CONSTRUCTION

PARK APARTMENTS
FORM DISTRICT PERMIT
1250 EPHESUS CHURCH ROAD
CHAPEL HILL, NORTH CAROLINA, 27517

PLAN INFORMATION

PROJECT NO.	WDF-17000
FILENAME	WDF17000-P1
CHECKED BY	ZNB
DRAWN BY	HMA
SCALE	1"=40'/1"=4'
DATE	02. 28. 2019

PLAN AND PROFILE
DRIVEWAY A, STA. 9+50 THRU STA. 13+00
WL CONNECTION, STA. 9+50 THRU STA. 18+00

P-4

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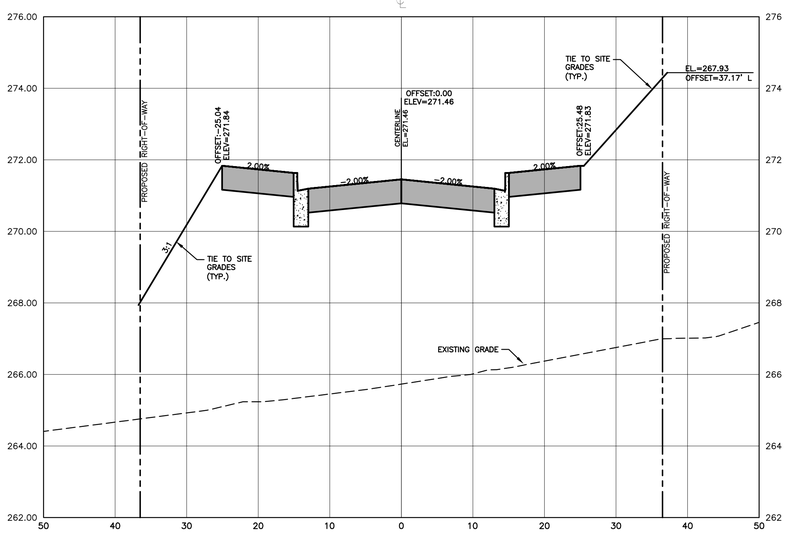
10+50



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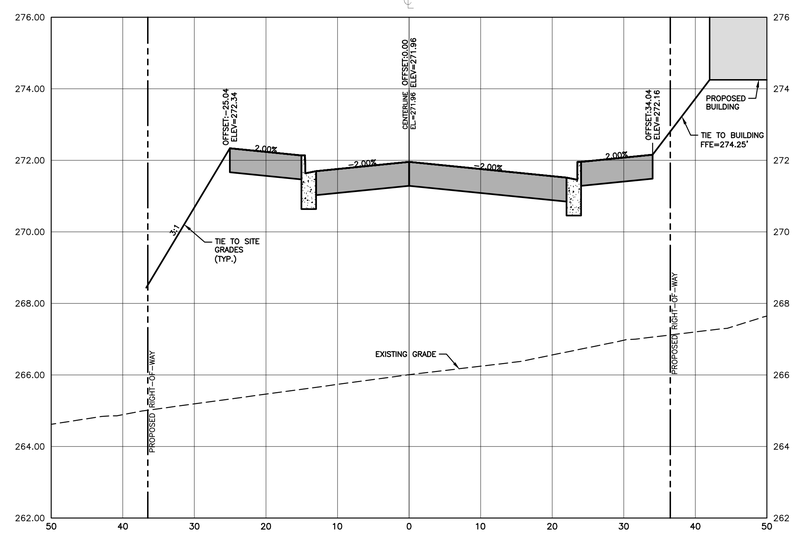

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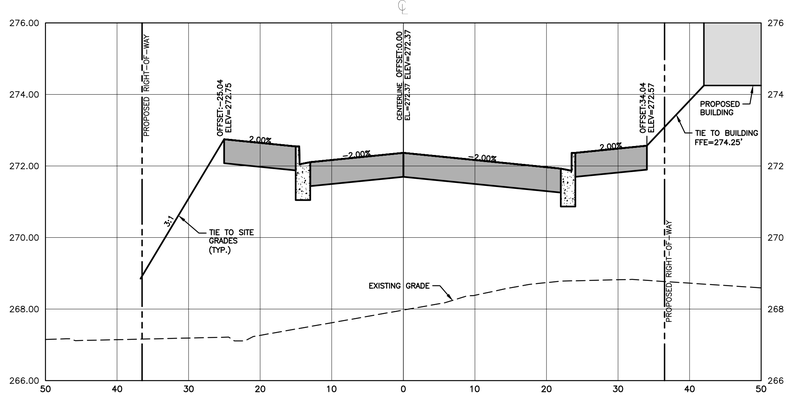
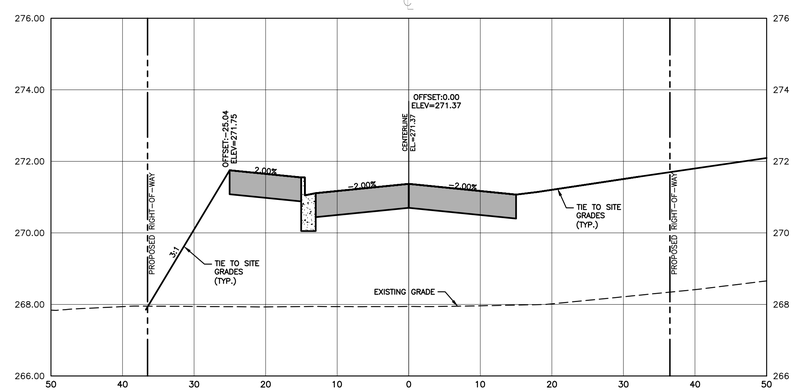


12+00



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DEVELOPER

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REVISIONS

NO.	DATE	
1	05. 03. 2019	PER CHAPEL HILL AND OWASA COMMENTS

NORTH CAROLINA PROFESSIONAL SEAL 044862 ENGINEER NATHAN BALES
FOR REVIEW AND COORDINATION NOT FOR CONSTRUCTION

PARK APARTMENTS

FORM DISTRICT PERMIT

1250 EPHESUS CHURCH ROAD

CHAPEL HILL, NORTH CAROLINA, 27517

PLAN INFORMATION

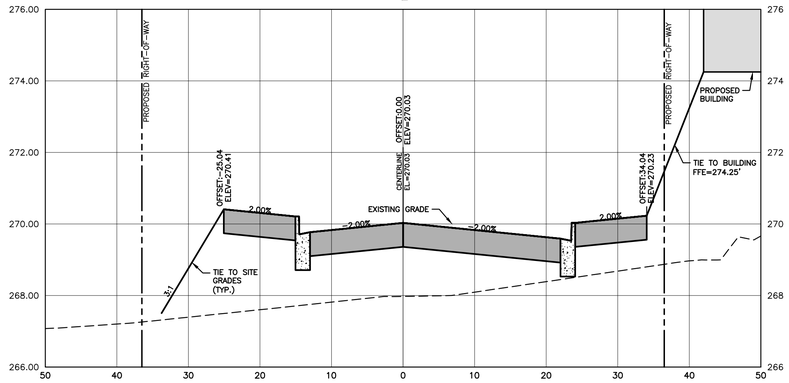
PROJECT NO.	WDF-17000
FILENAME	WDF17000-XS1
CHECKED BY	ZNB
DRAWN BY	HMA
SCALE	1"=10'/1"=2'
DATE	02. 28. 2019

CROSS SECTIONS

STREET "A", STA. 10+50 THRU STA. 12+00

XS-1

12+50



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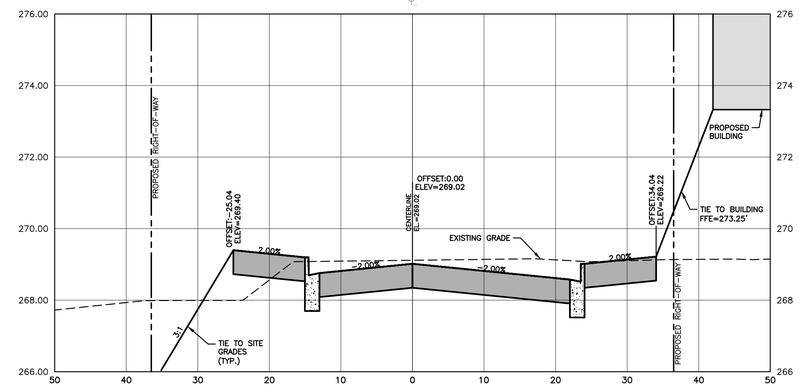

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NORTH CAROLINA PROFESSIONAL SEAL 044862 ENGINEER NATHAN BALES
FOR REVIEW ONLY
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PARK APARTMENTS

FORM DISTRICT PERMIT

1250 EPHESUS CHURCH ROAD

CHAPEL HILL, NORTH CAROLINA, 27517

PLAN INFORMATION

PROJECT NO.	WDF-17000
FILENAME	WDF17000-XS1
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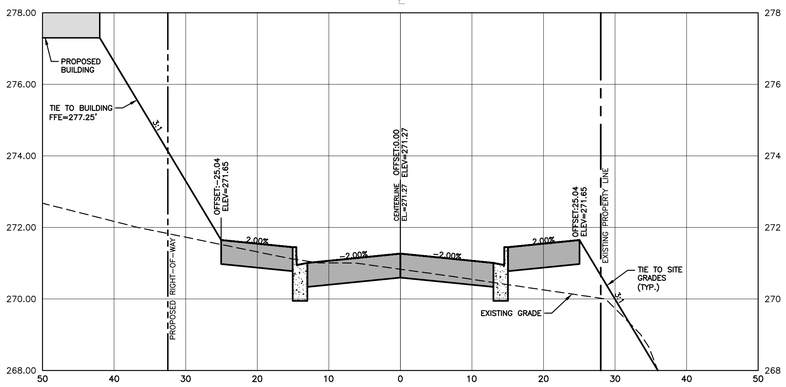
DRAWN BY	HMA
SCALE	1"=10'/1"=2'
DATE	02. 28. 2019

CROSS SECTIONS

STREET "A", STA. 12+50 THRU STA. 13+50

XS-2

10+50



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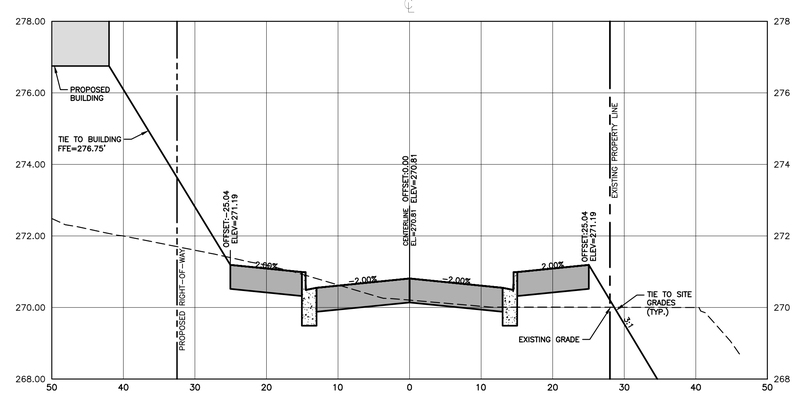

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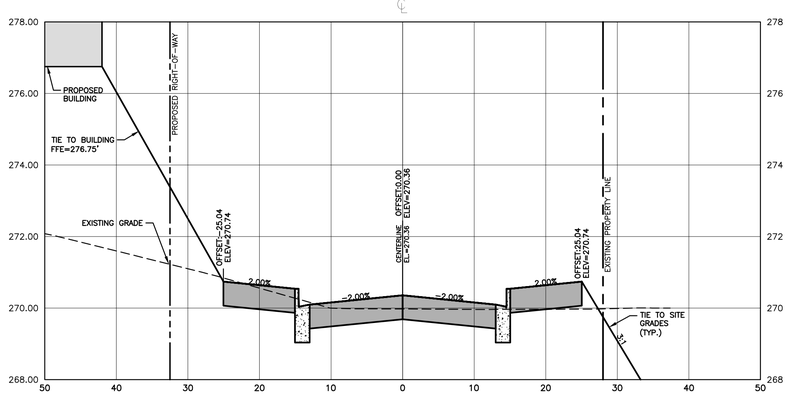
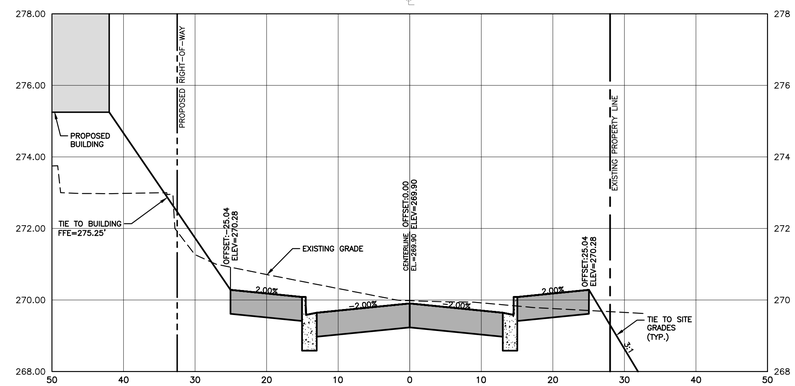


12+00



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REVISIONS

NO.	DATE	
1	05. 03. 2019	PER CHAPEL HILL AND OWASA COMMENTS

NORTH CAROLINA PROFESSIONAL SEAL 044862 ENGINEER NATHAN BALES
FINAL DRAWING NOT FOR CONSTRUCTION

PARK APARTMENTS

FORM DISTRICT PERMIT
1250 EPHESUS CHURCH ROAD
CHAPEL HILL, NORTH CAROLINA, 27517

PLAN INFORMATION

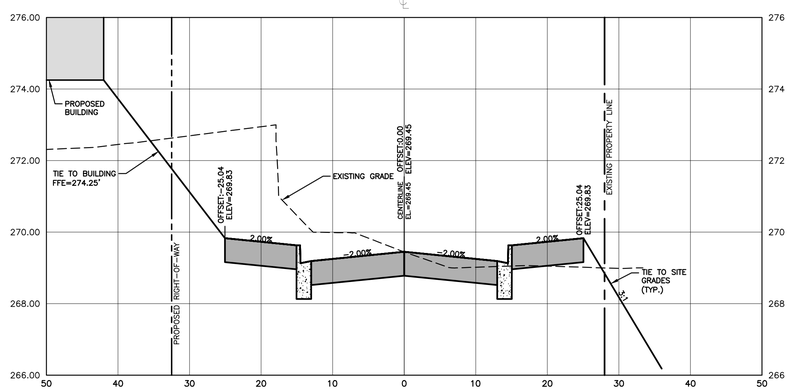
PROJECT NO.	WDF-17000
FILENAME	WDF17000-XS1
CHECKED BY	ZNB
DRAWN BY	HMA
SCALE	1"=10'/1"=2'
DATE	02. 28. 2019

CROSS SECTIONS

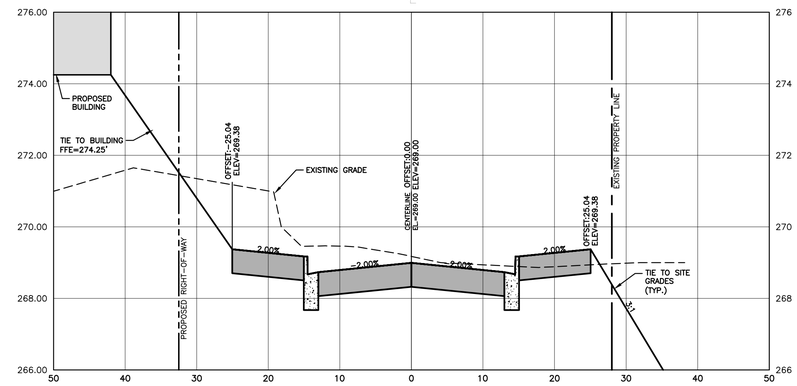
STREET "B", STA. 10+50 THRU STA. 12+00

XS-3

12+50



13+00



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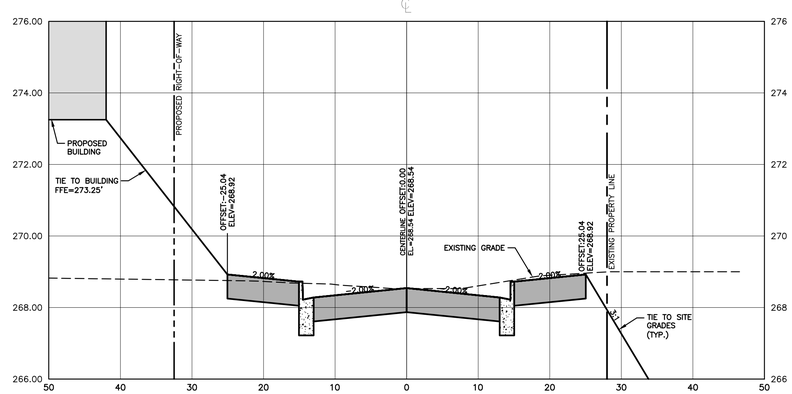

X:\Projects\WDF\WDF-17000\Land\Form District Permit\Current Drawings\WDF17000-XS1.dwg, 5/7/2019 9:47:59 AM, Bales, Nathan

FINAL DRAWING - NOT RELEASED FOR CONSTRUCTION

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DEVELOPER

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RALEIGH, NC 27613
PHONE: 919. 535. 8947

REVISIONS

NO.	DATE	
1	05. 03. 2019	PER CHAPEL HILL AND OWASA COMMENTS

FOR REVIEW AND COORDINATION ONLY
NORTH CAROLINA PROFESSIONAL SEAL 044862 ENGINEER NATHAN BALES
NOT FOR CONSTRUCTION

PARK APARTMENTS

FORM DISTRICT PERMIT

1250 EPHESUS CHURCH ROAD

CHAPEL HILL, NORTH CAROLINA, 27517

PLAN INFORMATION

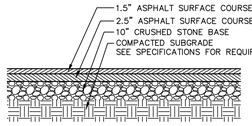
PROJECT NO.	WDF-17000
FILENAME	WDF17000-XS1
CHECKED BY	ZNB
DRAWN BY	HMA
SCALE	1"=10'/1"=2'
DATE	02. 28. 2019

CROSS SECTIONS

STREET "A", STA. 12+50 THRU STA. 13+50

XS-4

NOTE:
THE PAVEMENT SECTIONS SHOWN ARE PRELIMINARY. THE CONTRACTOR SHALL VERIFY PAVEMENT DESIGN WITH THE GEOTECHNICAL ENGINEER PRIOR TO PROCEEDING WITH CONSTRUCTION.

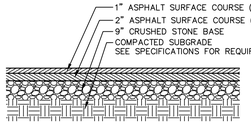


SUBGRADE COMPACTED TO A MINIMUM 98% STANDARD PROCTOR MAXIMUM DRY DENSITY (ASTM D 698) REFER TO SOILS REPORT IF AVAILABLE.

ON-SITE ASPHALT HEAVY DUTY TRAFFIC PAVEMENT DETAIL

N.T.S.

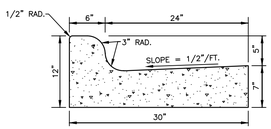
NOTE:
THE PAVEMENT SECTIONS SHOWN ARE PRELIMINARY. THE CONTRACTOR SHALL VERIFY PAVEMENT DESIGN WITH THE GEOTECHNICAL ENGINEER PRIOR TO PROCEEDING WITH CONSTRUCTION.



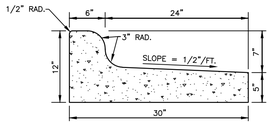
SUBGRADE COMPACTED TO A MINIMUM 98% STANDARD PROCTOR MAXIMUM DRY DENSITY (ASTM D 698) REFER TO SOILS REPORT IF AVAILABLE.

ON-SITE ASPHALT PARKING PAVEMENT DETAIL

N.T.S.



STANDARD 30" CURB AND GUTTER



30" SPILL CURB AND GUTTER

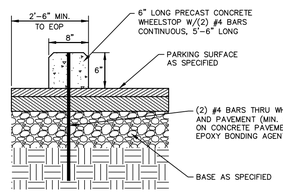
NOTES:

1. 10' MAXIMUM BETWEEN DUMMY JOINTS. 15' MAXIMUM BETWEEN DUMMY JOINTS ON MACHINE POURS.
2. 1/2" EXPANSION JOINT EVERY 50'.
3. 3000 PSI CONCRETE MINIMUM, 4" SLUMP MAXIMUM.
4. LIQUID MEMBRANE CURING COMPOUND SHALL MEET THE REQUIREMENTS OF SECTION 1026-2 OF NCDOT STANDARDS AND SPECIFICATIONS FOR ROADS AND STRUCTURES.
5. ALL CONSTRUCTION JOINTS SHALL BE FILLED WITH FILLER AND SEALER IN ACCORDANCE WITH NCDOT ROADWAY STANDARD DETAIL 846.01. THE JOINT MATERIAL SHALL CONFORM TO SECTION 1028-2 OF THE NCDOT STANDARDS AND SPECIFICATIONS FOR ROADS AND STRUCTURES.
6. REFER TO NCDOT DETAIL 846.01 FOR CURB AND GUTTER SUPERELEVATION RATES.

30" CURB AND GUTTER

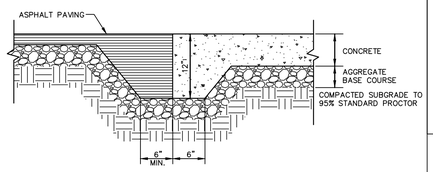
N.T.S.

NOTE: CURB STOP SHALL BE SLOTTED, FOR DRAINAGE



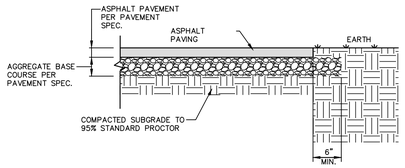
WHEEL STOP

N.T.S.



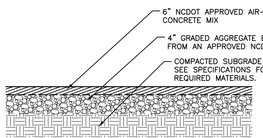
ASPHALT TO CONCRETE PAVEMENT TRANSITION

N.T.S.



ASPHALT EDGE DETAIL

N.T.S.



HEAVY DUTY CONCRETE PAVEMENT DETAIL

N.T.S.

NOTE:
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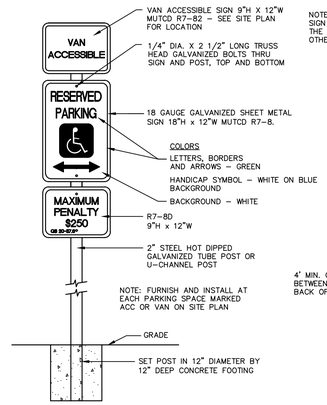
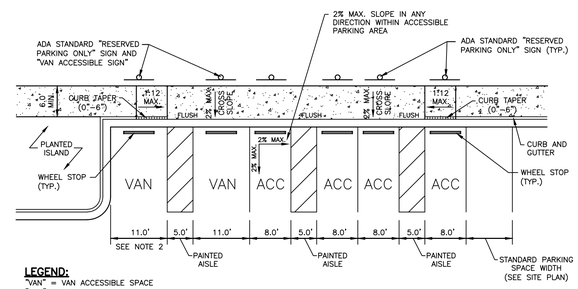


ACCESSIBLE PARKING SPACE SIGN

N.T.S.



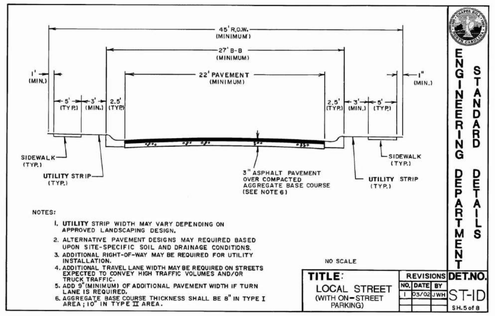
LEGEND:
"VAN" = VAN ACCESSIBLE SPACE
"ACC" = STANDARD ACCESSIBLE SPACE

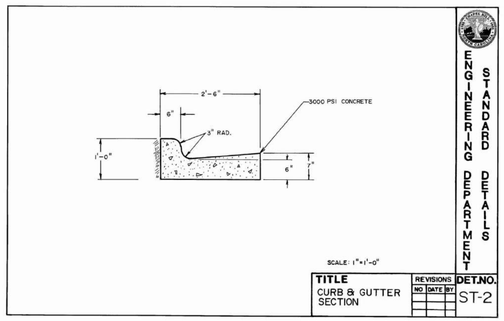
NOTES:

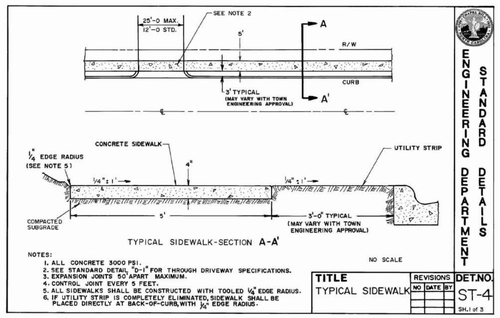
1. CURB AND GUTTER, WALK AND RAMP TO BE PLACED SEPARATELY.
2. ACCESSIBLE PARKING SPACE WIDTH TO BE MEASURED FROM THE EDGE OF PAVEMENT WHERE CURB AND GUTTER IS ADJACENT TO THE ACCESSIBLE SPACE.
3. ALL ACCESSIBLE SPACES SHALL BE IDENTIFIED BY ABOVE-GROUND SIGNS ONLY.
4. STRIPING IS WHITE ON DARK PAVEMENT AND BLACK ON LIGHT PAVEMENT.
5. VAN ACCESSIBLE SPACES TO BE 11.0' MINIMUM WIDTH.

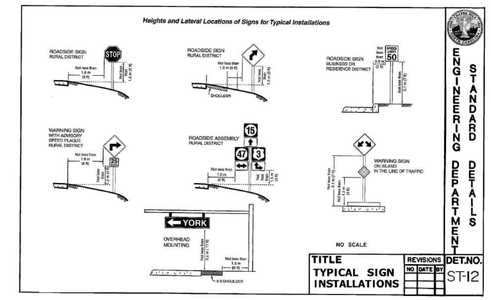
TYPICAL ACCESSIBLE PARKING SPACE LAYOUT, RAMP AND SIGN LOCATIONS

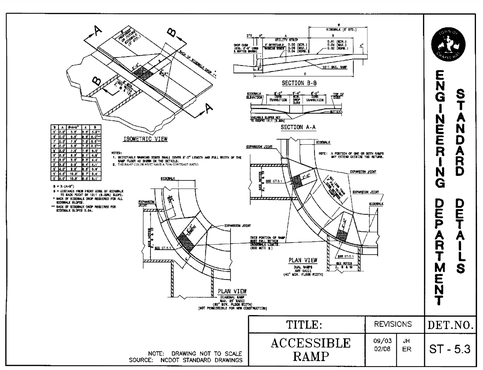
N.T.S.











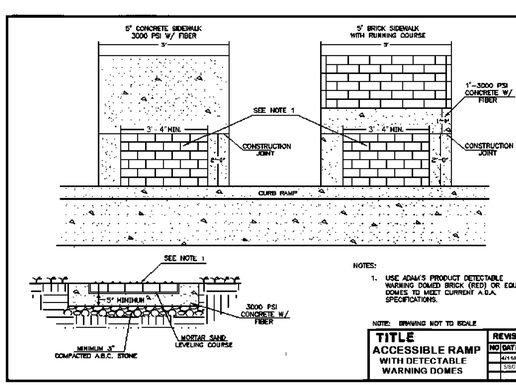
NOTES:

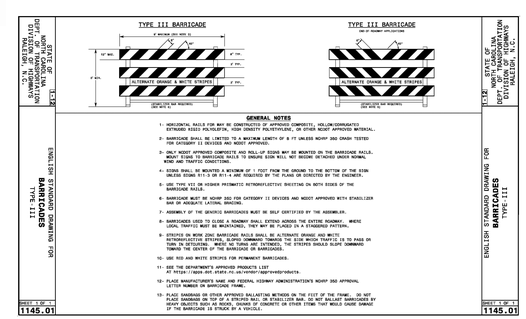
1. CONSTRUCT THE WALKING SURFACE WITH SLIP RESISTANCE AND A 70% CONTRASTING COLOR TO THE SIDEWALK.
2. CROSSWALK WIDTHS AND CONFIGURATION MAY VARY BUT MUST CONFORM TO TRAFFIC DESIGN STANDARDS.
3. PROVIDE WHEELCHAIR RAMPS AT LOCATIONS AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER. LOCATE WHEELCHAIR RAMPS TO ALLOW PEDESTRIANS TO CROSS THE STREET WITH MINIMUM DEVIATION. ADJUST UTILITIES, DRAINAGE INLETS, ETC. AFFECT PLACEMENT WHERE TWO RAMPS ARE INSTALLED. PLACE NOT LESS THAN TWO FEET OFFSET FULL HEIGHT CURB BETWEEN THE RAMPS. PLACE DUAL RAMPS AS PERPENDICULAR TO THE TRAVEL LANE BEING CROSSED AS POSSIBLE.
4. DO NOT EXCEED 0.08 (12:1) SLOPE ON THE WHEELCHAIR RAMP IN RELATIONSHIP TO THE GRADE OF THE STREET.
5. CONSTRUCT WHEELCHAIR RAMPS 40" (3'-4") OR GREATER FOR DUAL RAMPS AND 60" (5'-0") OR GREATER FOR DIAGONAL RAMPS.
6. USE CONCRETE WITH A SIDEWALK FINISH IN ORDER TO OBTAIN A ROUGH NON-SKID TYPE SURFACE.
7. PLACE A 1/2" EXPANSION JOINT WHERE THE CONCRETE WHEELCHAIR RAMP JOINS THE CURB AS SHOWN ON DETAIL ST-5A.
8. PLACE THE INSIDE PEDESTRIAN CROSSWALK LINES NO CLOSER IN THE INTERSECTION BY BISECTING THE INTERSECTION RADII, WITH ALLOWANCE OF A 4' CLEAR ZONE IN THE VEHICULAR TRAVELWAY WHEN ONE RAMP IS INSTALLED. (SEE NOTE 13)
9. COORDINATE THE CURB CUT AND THE PEDESTRIAN CROSSWALK LINES SO THE FLOOR OF THE WHEELCHAIR RAMP WILL FALL WITHIN THE PEDESTRIAN CROSSWALK LINES. PLACE DIAGONAL RAMPS WITH FLARED SIDES SO 24" OF FULL HEIGHT CURB FALLS WITHIN THE CROSSWALK MARKINGS ON EACH SIDE OF THE FLARES.
10. CONSTRUCT THE PEDESTRIAN CROSSWALK A MINIMUM OF 6 FEET. A CROSSWALK WIDTH OF 8 FEET OR GREATER IS DESIRABLE.
11. USE STOP LINES, NORMALLY PERPENDICULAR TO THE LANE LINES, WHERE IT IS IMPORTANT TO INDICATE THE POINT BEHIND WHICH VEHICLES ARE REQUIRED TO STOP IN COMPLIANCE WITH A TRAFFIC SIGNAL, STOP SIGN OR OTHER LEGAL REQUIREMENT. AN UNUSUAL APPROACH SKEW MAY REQUIRE THE PLACEMENT OF THE STOP LINE TO BE PARALLEL TO THE INTERSECTION ROADWAY.
12. TERMINATE PARKING A MINIMUM OF 20 FEET BACK OF PEDESTRIAN CROSSWALK.
13. PLACE ALL PAVEMENT MARKINGS IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) PUBLISHED BY THE FEDERAL HIGHWAY ADMINISTRATION AND THE NORTH CAROLINA SUPPLEMENT TO THE MUTCD.

TITLE:	REVISIONS		DET.NO.
ACCESSIBLE RAMP	09/03	JH	ST - 5.4

SOURCE: NCDOT STANDARD DRAWINGS

ENGINEERING DEPARTMENT STANDARD DETAILS





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PARK APARTMENTS
FORM DISTRICT PERMIT
1250 EPHESUS CHURCH ROAD
CHAPEL HILL, NORTH CAROLINA, 27517

NORTH CAROLINA PROFESSIONAL SEAL 044862 ENGINEER JONATHAN BALES
NOT FOR CONSTRUCTION UNTIL SEALED

REVISIONS

NO.	DATE	
1	05. 03. 2019	PER CHAPEL HILL AND OWASA COMMENTS

PLAN INFORMATION

PROJECT NO.	WDF-17000
FILENAME	WDF17000-D1
CHECKED BY	ZNB
DRAWN BY	HMA
SCALE	NTS
DATE	02. 28. 2019

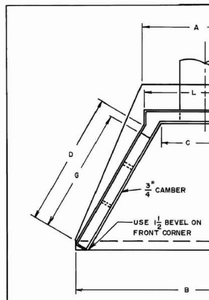
SHEET

SITE DETAILS

D-1

FINAL DRAWING - NOT RELEASED FOR CONSTRUCTION

X:\Projects\WDF\WDF-17000\Land\Form District Permit\Current Drawings\WDF17000-D1.dwg, 5/3/2019 9:48:38 AM, Bales, Nathan



NOTE:
1. SEE STANDARD DETAIL SD-1D AND SD-1E FOR DIMENSIONS.
2. SEE STANDARD DETAIL SD-1A FOR SECTION A-A'.
3. USE 3500 P.S.I. CONCRETE.

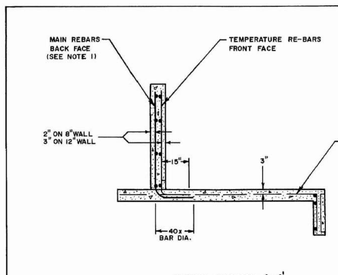
EDGE OF FOOTING

PLAN VIEW

NO SCALE

TITLE	REVISIONS			DET.NO.
REINFORCED CONCRETE HEADWALL	NO	DATE	BY	SD-1
				SH 1 of 6

ENGINEERING DEPARTMENT STANDARD DETAILS



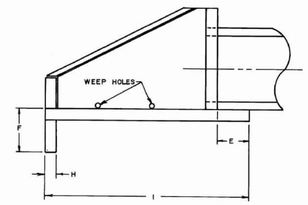
CROSS SECTION A-A'

NOTS:
1.) USE NO.4 REBAR @ 12" O.C. BOTH FACES HORIZONTAL & VERTICAL.
2.) SEE STANDARD DETAIL SD-1D AND SD-1E FOR DIMENSIONS.

NO SCALE

TITLE	REVISIONS			DET.NO.
REINFORCED CONCRETE HEADWALL	NO	DATE	BY	SD-1A
				SH.2 of 6

ENGINEERING DEPARTMENT STANDARD DETAILS



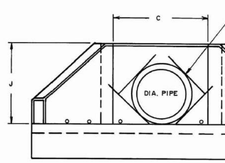
SIDE VIEW

NOTE:
1. SEE STANDARD DETAIL SD-1D AND SD-1E FOR DIMENSIONS.

NO SCALE

TITLE	REVISIONS			DET.NO.
REINFORCED CONCRETE HEADWALL	NO	DATE	BY	SD-1B
				SH 3 of 6

ENGINEERING DEPARTMENT STANDARD DETAILS



FRONT VIEW

NOTES:
1. SEE STANDARD DETAIL SD-1D AND SD-1E FOR DIMENSIONS.
2. WEEP HOLES USED WITH 15"-42" PIPE WILL BE PLACED 6" INSIDE WING, 48"-96" PIPE, WEEP HOLES WILL BE 8" INSIDE WING.
3. PLACE 4 REBARS AROUND PIPE IN BOTH FACES TO PROTECT AGAINST DIAGONAL TENSION.

NO SCALE

TITLE	REVISIONS			DET.NO.
REINFORCED CONCRETE HEADWALL	NO	DATE	BY	SD-1C
				SH 4 of 6

ENGINEERING DEPARTMENT STANDARD DETAILS

DIMENSIONS FOR REINFORCED CONCRETE SINGLE PIPE HEADWALL WITH WING WALLS

PIPE SIZE	SHELL THICKNESS	WALL THICKNESS	SLAB THICKNESS	A*	B*	C*	D	E	F	G	H	I	J	K	L*
15"	2 1/4"	8"	6"	4'-0"	9'-4"	3'-7"	4'-2"	1'-0"	1'-6"	3'-8"	6"	5'-8"	2'-7"	1'-0"	5'-2"
18"	2 1/2"	8"	6"	5'-5"	10'-5"	3'-11"	4'-8"	1'-0"	1'-6"	4'-5"	6"	6'-3"	2'-11"	1'-0"	5'-6"
24"	3"	8"	6"	6'-6"	12'-4"	4'-8"	6'-3"	1'-0"	1'-6"	5'-9"	6"	7'-5"	3'-6"	1'-0"	6'-1"
30"	3 1/2"	8"	6"	7'-3"	14'-3"	5'-1"	7'-7"	1'-0"	1'-6"	7'-1"	6"	8'-7"	4'-1"	1'-0"	6'-8"
36"	4"	8"	6"	7'-9"	15'-1"	5'-8"	7'-10"	1'-6"	2'-0"	7'-4"	6"	9'-4"	4'-8"	1'-6"	7'-3"
42"	4 1/2"	8"	6"	8'-4"	17'-0"	6'-3"	9'-2"	1'-6"	2'-0"	8'-8"	6"	10'-6"	5'-3"	1'-6"	7'-10"
48"	5"	8"	6"	9'-4"	18'-11"	6'-10"	10'-8"	1'-6"	2'-0"	10'-0"	6"	11'-7"	6'-0"	1'-6"	8'-8"
54"	5 1/2"	8"	6"	10'-1"	19'-9"	7'-5"	10'-9"	1'-6"	2'-0"	10'-3"	8"	11'-10"	6'-5"	2'-0"	9'-0"
60"	6"	12"	6"	10'-10"	22'-5"	8'-0"	12'-1"	2'-0"	2'-6"	11'-7"	8"	14'-0"	7'-0"	2'-0"	10'-4"
66"	6 1/2"	12"	6"	11'-8"	24'-4"	8'-7"	13'-5"	2'-0"	2'-6"	12'-11"	8"	15'-6"	7'-7"	2'-0"	10'-11"
72"	7"	12"	8"	12'-5"	25'-1"	9'-2"	13'-7"	2'-0"	2'-6"	13'-1"	8"	15'-3"	8'-2"	2'-6"	11'-6"
78"	7 1/2"	12"	8"	13'-4"	27'-0"	9'-9"	14'-11"	2'-0"	2'-6"	14'-5"	8"	16'-5"	8'-9"	2'-6"	12'-1"
84"	8"	12"	8"	13'-10"	27'-9"	10'-4"	15'-1"	2'-0"	2'-6"	14'-7"	8"	16'-7"	9'-4"	3'-0"	12'-8"
90"	8 1/2"	12"	8"	14'-10"	29'-9"	10'-11"	16'-6"	2'-0"	2'-6"	16'-0"	8"	17'-10"	9'-11"	3'-0"	13'-3"
96"	9"	12"	10"	15'-10"	30'-8"	11'-8"	16'-8"	2'-0"	2'-6"	16'-2"	12"	17'-11"	10'-6"	3'-6"	13'-10"
102"	9 1/2"	14"	10"	16'-11"	32'-10"	12'-1"	18'-0"	2'-0"	2'-6"	17'-6"	12"	19'-4"	11'-1"	3'-6"	14'-10"
108"	10"	14"	10"	17'-6"	33'-9"	12'-8"	18'-3"	2'-0"	2'-6"	17'-8"	12"	19'-7"	11'-8"	4'-0"	15'-5"
114"	10 1/2"	16"	10"	18'-5"	35'-10"	13'-3"	19'-7"	2'-0"	2'-6"	19'-1"	12"	21'-0"	12'-3"	4'-0"	16'-3"
120"	11"	16"	10"	19'-5"	37'-10"	13'-10"	20'-11"	2'-0"	2'-6"	20'-0"	12"	22'-2"	12'-10"	4'-0"	16'-11"

CONCRETE DOUBLE PIPE HEADWALL

A	B	C	L
8'-6"	18'-0"	7'-3"	8'-9"
9'-4"	14'-4"	7'-10"	9'-5"
10'-10"	16'-10"	9'-0"	10'-9"
12'-4"	19'-4"	9'-2"	11'-9"
13'-1"	20'-9"	11'-4"	12'-11"
14'-7"	23'-3"	12'-5"	14'-1"
16'-2"	23'-9"	13'-9"	15'-3"
17'-6"	27'-2"	14'-10"	16'-3"
18'-10"	30'-5"	16'-0"	18'-4"
20'-4"	32'-11"	17'-2"	19'-6"
21'-7"	34'-5"	18'-4"	20'-8"
23'-1"	36'-9"	19'-6"	21'-10"
24'-9"	38'-1"	20'-8"	23'-0"
25'-9"	40'-8"	21'-10"	24'-2"
27'-4"	42'-0"	23'-0"	25'-4"
29'-0"	44'-11"	24'-2"	26'-11"
30'-8"	46'-4"	25'-4"	28'-1"
31'-8"	49'-1"	26'-6"	29'-6"
33'-3"	51'-8"	27'-8"	30'-9"

NOTE:
1. REFER TO DETAIL SD-1E FOR SINGLE AND DOUBLE PIPE HEADWALL REINFORCING SCHEDULE.
2. *SEE DOUBLE PIPE HEADWALL DIMENSIONS FOR A, B, C, & L, ALL OTHER DIMENSIONS REMAIN THE SAME FOR EITHER DOUBLE OR SINGLE PIPE.
3. ALLOW 2' BETWEEN PIPES FOR DOUBLE PIPE HEADWALL.

TITLE	REVISIONS			DET.NO.
REINFORCED CONCRETE HEADWALL	NO	DATE	BY	SD-1D
				SH.5 of 6

ENGINEERING DEPARTMENT STANDARD DETAILS

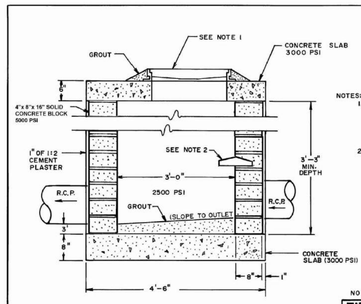
REINFORCING SCHEDULE

PIPE SIZE	BACK FACE: WALL REINFORCEMENT HORIZONTAL	BACK FACE: WALL REINFORCEMENT VERTICAL	BACK FACE: SLAB REINFORCEMENT	FRONT FACE: TEMP. REINFORCEMENT IN FRONT FACE OF WALLS (COMPRESSION STEEL)	CUBIC YARDS OF CONCRETE FOR SINGLE PIPE	CUBIC YARDS OF CONCRETE FOR DOUBLE PIPE
15"	No. 3 @ 12" O.C.	No.3 @ 12" O.C.	6"x6" 10-10 WIRE MESH REINF.	No.4 @ 18" HOR. AND VERT.	1.61	2.24
18"	"	"	"	"	1.96	2.70
24"	"	"	"	"	2.87	3.64
30"	"	"	"	"	3.49	4.72
36"	"	"	"	"	4.21	5.75
42"	"	"	"	"	4.90	7.05
48"	"	"	"	"	6.33	8.52
54"	"	No.4 @ 12" O.C.	"	"	7.23	9.74
60"	"	"	"	"	11.25	14.74
66"	No.4 @ 12" O.C.	"	6"x6" 6"x6" WIRE MESH REINF.	"	14.67	19.44
72"	"	"	"	No.4 @ 12" HOR. AND VERT.	15.75	20.96
78"	"	"	"	"	18.04	23.89
84"	"	No.5 @ 12" O.C.	"	"	19.32	25.99
90"	"	"	"	"	21.92	28.95
96"	No.5 @ 12" O.C.	No.6 @ 12" O.C.	"	"	26.38	35.30
102"	"	No.6 @ 10" O.C.	"	"	32.26	42.53
108"	"	"	"	"	34.21	45.15
114"	"	No.8 @ 12" O.C.	"	"	40.78	53.26
120"	"	"	"	"	44.97	58.59

NOTE:
1. REFER TO STANDARD DETAIL SD-1D FOR SINGLE AND DOUBLE PIPE DIMENSIONS.

TITLE	REVISIONS			DET.NO.
REINFORCED CONCRETE HEADWALL	NO	DATE	BY	SD-1E
				SH 6 of 6

ENGINEERING DEPARTMENT STANDARD DETAILS



NOTES:
1. USE EAST JORDAN IRON WORKS MANHOLE RING & SOLID COVER IN SIDEWALKS & YARD AREAS. USE MANHOLE RING & SOLID COVER IN STREETS.
2. MANHOLE STEPS @ 15" O.C., 1st STEP IS 2' FROM TOP.

NO SCALE

TITLE	REVISIONS			DET.NO.
JUNCTION BOX DETAIL	NO	DATE	BY	SD-3

ENGINEERING DEPARTMENT STANDARD DETAILS

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CHAPEL HILL, NORTH CAROLINA, 27517

NORTH CAROLINA PROFESSIONAL SEAL 044862 ENGINEER NATHAN BALES
PRELIMINARY NOT FOR CONSTRUCTION

REVISIONS

NO.	DATE	
1	05. 03. 2019	PER CHAPEL HILL AND OWASA COMMENTS

PLAN INFORMATION

PROJECT NO.	WDF-17000
FILENAME	WDF17000-D1
CHECKED BY	ZNB
DRAWN BY	HMA
SCALE	NTS
DATE	02. 28. 2019

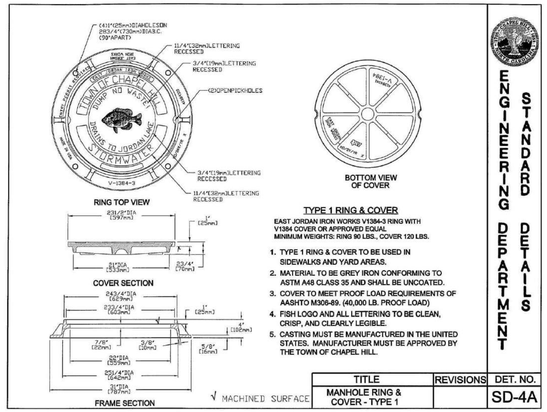
SHEET

STORM DRAINAGE DETAILS

D-2

FINAL DRAWING - NOT RELEASED FOR CONSTRUCTION

X:\Projects\WDF\WDF-17000\Land\Form District Permit\Current Drawings\WDF17000-D1.dwg, 5/3/2019 9:48:41 AM, Bales, Nathan



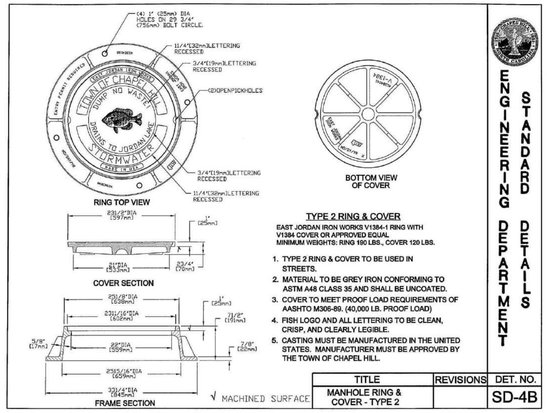
TYPE 1 RING & COVER

EAST JORDAN IRON WORKS V1384-3 RING WITH V1384 COVER OR APPROVED EQUAL
MINIMUM WEIGHTS: RING 90 LBS., COVER 120 LBS.

1. TYPE 1 RING & COVER TO BE USED IN SIDEWALKS AND YARD AREAS.
2. MATERIAL TO BE GREY IRON CONFORMING TO ASTM A48 CLASS 35 AND SHALL BE UNCOATED.
3. COVER TO MEET PROOF LOAD REQUIREMENTS OF AASHTO M306-89. (40,000 LB. PROOF LOAD)
4. FISH LOGO AND ALL LETTERING TO BE CLEAN, CRISP, AND CLEARLY LEGIBLE.
5. CASTING MUST BE MANUFACTURED IN THE UNITED STATES. MANUFACTURER MUST BE APPROVED BY THE TOWN OF CHAPEL HILL.

ENGINEERING DEPARTMENT STANDARD DETAILS

TITLE	REVISIONS	DET. NO.
MANHOLE RING & COVER - TYPE 1		SD-4A



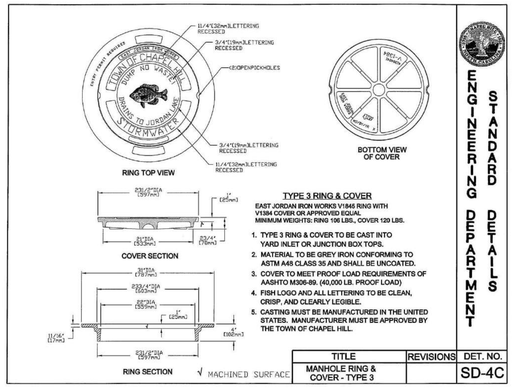
TYPE 2 RING & COVER

EAST JORDAN IRON WORKS V1384-1 RING WITH V1384 COVER OR APPROVED EQUAL
MINIMUM WEIGHTS: RING 190 LBS., COVER 120 LBS.

1. TYPE 2 RING & COVER TO BE USED IN STREETS.
2. MATERIAL TO BE GREY IRON CONFORMING TO ASTM A48 CLASS 35 AND SHALL BE UNCOATED.
3. COVER TO MEET PROOF LOAD REQUIREMENTS OF AASHTO M306-89. (40,000 LB. PROOF LOAD)
4. FISH LOGO AND ALL LETTERING TO BE CLEAN, CRISP, AND CLEARLY LEGIBLE.
5. CASTING MUST BE MANUFACTURED IN THE UNITED STATES. MANUFACTURER MUST BE APPROVED BY THE TOWN OF CHAPEL HILL.

ENGINEERING DEPARTMENT STANDARD DETAILS

TITLE	REVISIONS	DET. NO.
MANHOLE RING & COVER - TYPE 2		SD-4B



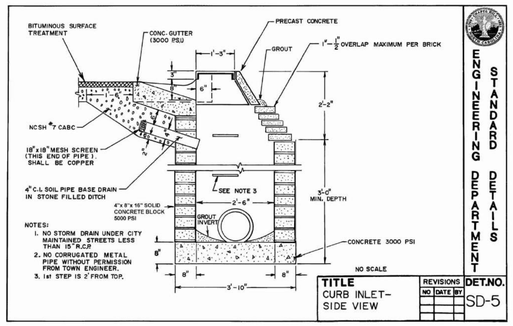
TYPE 3 RING & COVER

EAST JORDAN IRON WORKS V1346 RING WITH V1384 COVER OR APPROVED EQUAL
MINIMUM WEIGHTS: RING 196 LBS., COVER 120 LBS.

1. TYPE 3 RING & COVER TO BE CAST INTO YARD INLET OR JUNCTION BOX TOPS.
2. MATERIAL TO BE GREY IRON CONFORMING TO ASTM A48 CLASS 35 AND SHALL BE UNCOATED.
3. COVER TO MEET PROOF LOAD REQUIREMENTS OF AASHTO M306-89. (40,000 LB. PROOF LOAD)
4. FISH LOGO AND ALL LETTERING TO BE CLEAN, CRISP, AND CLEARLY LEGIBLE.
5. CASTING MUST BE MANUFACTURED IN THE UNITED STATES. MANUFACTURER MUST BE APPROVED BY THE TOWN OF CHAPEL HILL.

ENGINEERING DEPARTMENT STANDARD DETAILS

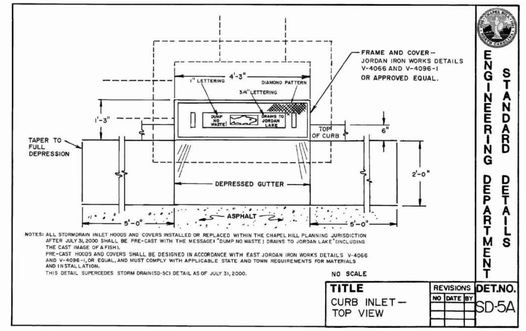
TITLE	REVISIONS	DET. NO.
MANHOLE RING & COVER - TYPE 3		SD-4C



NOTES:
1. NO STORM DRAIN UNDER CITY MAINTAINED STREETS LESS THAN 15" R.C.P.
2. NO CORRUGATED METAL PIPE WITHOUT PERMISSION FROM TOWN ENGINEER.
3. 1st STEP IS 2' FROM TOP.

ENGINEERING DEPARTMENT STANDARD DETAILS

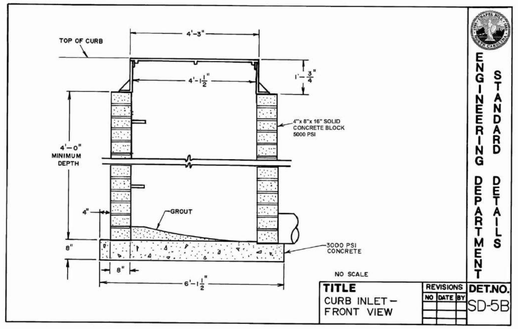
TITLE	REVISIONS (NO / DATE / BY)	DET.NO.
CURB INLET– SIDE VIEW		SD-5



NOTES: ALL STORMDRAIN INLET HOODS AND COVERS INSTALLED OR REPLACED WITHIN THE CHAPEL HILL PLANNING JURISDICTION AFTER JULY 31,2000 SHALL BE PRE-CAST WITH THE MESSAGE "DUMP NO WASTE! DRAINS TO JORDAN LAKE" (INCLUDING THE CAST IMAGE OF A FISH).
PRE-CAST HOODS AND COVERS SHALL BE DESIGNED IN ACCORDANCE WITH EAST JORDAN IRON WORKS DETAILS V-4066 AND V-4096-1,OR EQUAL, AND MUST COMPLY WITH APPLICABLE STATE AND TOWN REQUIREMENTS FOR MATERIALS AND INSTALLATION.
THIS DETAIL SUPERCEDES STORM DRAIN(SD-5C) DETAIL AS OF JULY 31, 2000.

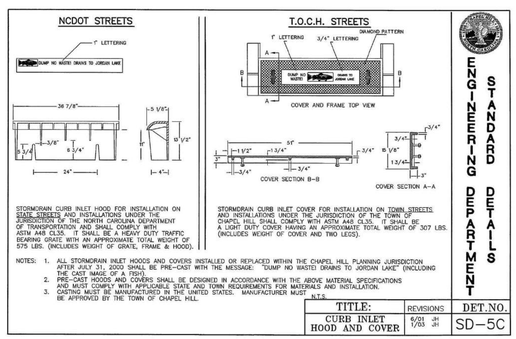
ENGINEERING DEPARTMENT STANDARD DETAILS

TITLE	REVISIONS (NO / DATE / BY)	DET.NO.
CURB INLET– TOP VIEW		SD-5A



ENGINEERING DEPARTMENT STANDARD DETAILS

TITLE	REVISIONS (NO / DATE / BY)	DET.NO.
CURB INLET– FRONT VIEW		SD-5B



STORMDRAIN CURB INLET HOOD FOR INSTALLATION ON STATE STREETS AND INSTALLATIONS UNDER THE JURISDICTION OF THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION AND SHALL COMPLY WITH ASTM A48 CL35. IT SHALL BE A HEAVY DUTY TRAFFIC BEARING GRATE WITH AN APPROXIMATE TOTAL WEIGHT OF 575 LBS. (INCLUDES WEIGHT OF GRATE, FRAME & HOOD).

STORMDRAIN CURB INLET COVER FOR INSTALLATION ON TOWN STREETS AND INSTALLATIONS UNDER THE JURISDICTION OF THE TOWN OF CHAPEL HILL SHALL COMPLY WITH ASTM A48 CL35. IT SHALL BE A LIGHT DUTY COVER HAVING AN APPROXIMATE TOTAL WEIGHT OF 307 LBS. (INCLUDES WEIGHT OF COVER AND TWO LEGS).

NOTES:
1. ALL STORMDRAIN INLET HOODS AND COVERS INSTALLED OR REPLACED WITHIN THE CHAPEL HILL PLANNING JURISDICTION AFTER JULY 31, 2000 SHALL BE PRE-CAST WITH THE MESSAGE: "DUMP NO WASTE! DRAINS TO JORDAN LAKE" (INCLUDING THE CAST IMAGE OF A FISH).
2. PRE-CAST HOODS AND COVERS SHALL BE DESIGNED IN ACCORDANCE WITH THE ABOVE MATERIAL SPECIFICATIONS AND MUST COMPLY WITH APPLICABLE STATE AND TOWN REQUIREMENTS FOR MATERIALS AND INSTALLATION.
3. CASTING MUST BE MANUFACTURED IN THE UNITED STATES. MANUFACTURER MUST BE APPROVED BY THE TOWN OF CHAPEL HILL.

ENGINEERING DEPARTMENT STANDARD DETAILS

TITLE:	REVISIONS	DET.NO.
CURB INLET HOOD AND COVER	6/01 JH 1/03 JH	SD–5C

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NORTH CAROLINA PROFESSIONAL SEAL 044862 ENGINEER ZACHARY NATHAN BALES
NOT FOR CONSTRUCTION

REVISIONS

NO.	DATE	
1	05. 03. 2019	PER CHAPEL HILL AND OWASA COMMENTS

PLAN INFORMATION

PROJECT NO.	WDF-17000
FILENAME	WDF17000-D1
CHECKED BY	ZNB
DRAWN BY	HMA
SCALE	NTS
DATE	02. 28. 2019

SHEET

STORM DRAINAGE DETAILS

D-3

FINAL DRAWING - NOT RELEASED FOR CONSTRUCTION

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