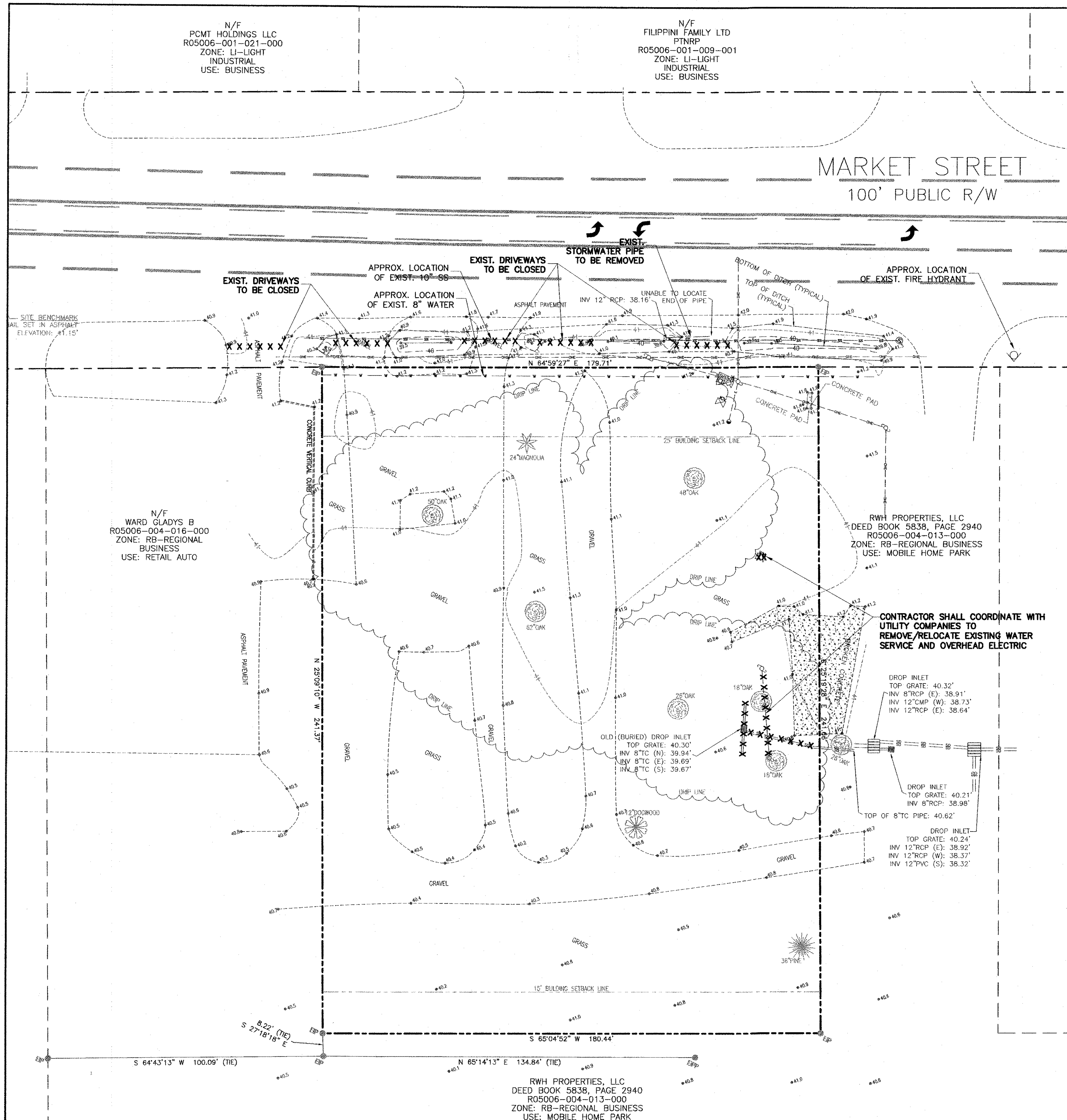
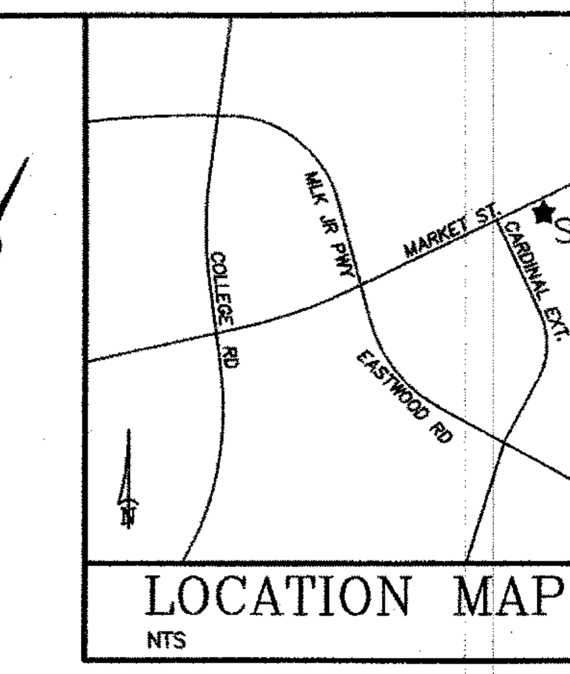




RECEIVED
OCT 01 2018
PLANNING DIVISION

SITE INVENTORY NOTES:

1. PREPARER OF THE PLAN: TRIPP ENGINEERING, P.C.
2. APPLICANT NAME: PARKWAY VOLVO
3. SITE ADDRESS OF THE DEVELOPMENT: 5932 MARKET ST.
4. PROPERTY OWNER: WILMINGTON AUTO GROUP PROP LLC
5. DEVELOPER: PARKWAY VOLVO
6. PROPERTY BOUNDARY: SEE PLAN
   TAX PARCEL INFORMATION: R05006-004-021-000
7. PROPERTY ZONING: RB-REGIONAL BUSINESS
8. ADJACENT PROPERTY OWNER INFORMATION: SEE PLAN
9. VICINITY MAP: SEE PLAN
10. TOPOGRAPHY: SEE PLAN
11. 100-YEAR FLOOD BOUNDARY: N/A
12. EXISTING DITCHES, CREEKS AND STREAMS: SEE PLAN
13. SOIL: Se; SEAGATE FINE SAND
14. CAMA AEC: N/A
15. CAMA LAND CLASSIFICATION: URBAN
16. CONSERVATION RESOURCES: NONE
    ASSOCIATED SETBACKS: N/A
17. HISTORIC OR ARCHAEOLOGICAL SITE: N/A
18. CEMETERIES, BURIAL SITES/GROUNDS: N/A
19. FORESTED AREAS, HABITAT AND DOMINANT SPECIES: N/A
20. WETLANDS: SEE PLAN
21. PROTECTED SPECIES OR HABITAT: N/A
22. EXISTING OR PROPOSED THOROUGHFARES, BIKE ROUTES, PEDESTRIAN SIDEWALKS OR TRAILS AND TRANSIT FACILITIES: SEE SITE PLAN

LEGEND

- PROPERTY BOUNDARY
- EXISTING TREE
- EXISTING SEWER
- EXISTING WATER
- EXISTING STORM WATER
- EXISTING SPOT ELEVATION

SITE PLAN

BAR SCALE 1"=20'

20' 10' 0' 20' 40' 60'

CITY OF WILMINGTON NORTH CAROLINA
Public Services • Engineering Division
APPROVED STORMWATER MANAGEMENT PLAN
Date: 11/6/2018 Permit #2018049
Signed: [signature] for RAC

Approved Construction Plan	Name	Date
Planning	Nicole Dimiceli	11/5/18
Traffic	[signature]	11-5-18
Fire	C. Dell	11/8/18

For each open utility cut of City streets, a $325 permit shall be required from the City prior to occupancy and/or project acceptance.

REVISIONS		
No./Date	Description	By

SITE INVENTORY AND DEMOLITION PLAN

PARKWAY AUTOMOTIVE PARKING

OWNER: WILMINGTON AUTO GROUP PROPERTIES LLC
ADDRESS: 5932 MARKET ST., WILMINGTON, NC

TRIPP ENGINEERING, P.C.
419 Chestnut Street
Wilmington, North Carolina 28401
Phone 910-763-5100
Fax 910-763-5631

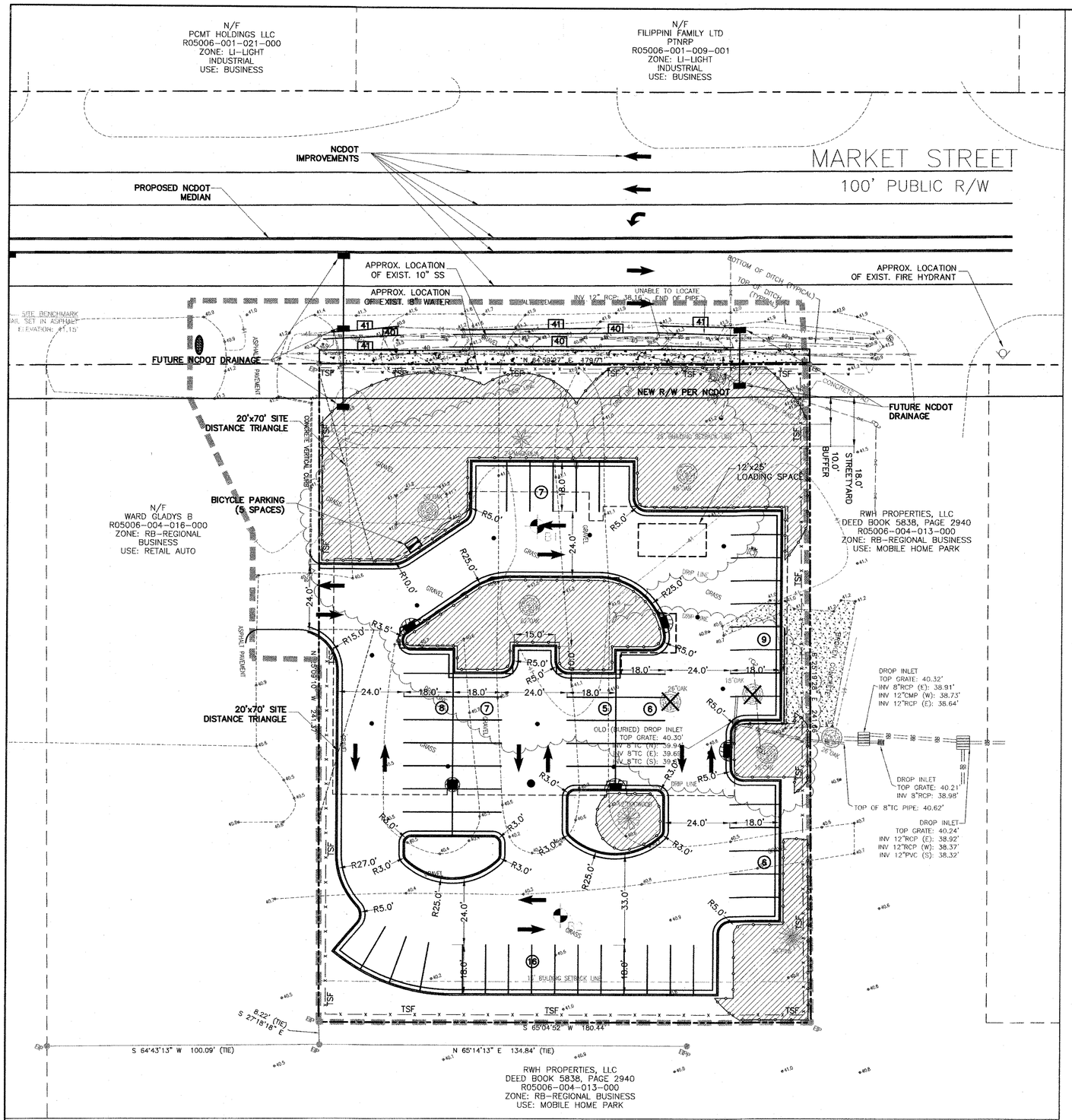
NORTH CAROLINA PROFESSIONAL SEAL 17374 ENGINEER PHILIP GREGORY TRIPP
9-4-18

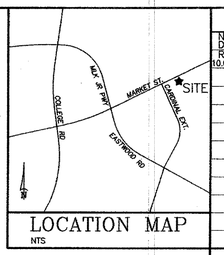
DATE 09-04-18
DESIGN PGT
DRAWN EJW

C1

SHEET 1 OF 5

17066





REVISIONS			
No./Date	Description	By
R2 10.04.18	SHIFTED DOT SIDEWALK	EJW

NOTES:

ZONING
1) TOPOGRAPHY AND TREE SURVEY COMPLETED BY ATLANTIC COAST SURVEY, PLLC.
2) PERMITTING OF BUSINESS IDENTIFICATION SIGNAGE IS A SEPARATE PROCESS. CITY OF WILMINGTON WILL NOT ALLOW OBSTRUCTIONS WITHIN THE RIGHT-OF-WAY.
3) CONTRACTOR SHALL FIELD VERIFY SIZE, MATERIAL, INVERTS AND LOCATION OF ALL EXISTING UTILITIES PRIOR TO INSTALLATION OF PROPOSED CONNECTIONS.
4) EXISTING EASEMENTS AS SHOWN
5) CONTRACTOR SHALL MAINTAIN ALL-WEATHER ACCESS FOR EMERGENCY VEHICLES AT ALL TIMES DURING CONSTRUCTION.
6) UNDERGROUND FIRE LINE(S) MUST BE PERMITTED AND INSPECTED BY THE WILMINGTON FIRE DEPARTMENT FROM THE PUBLIC RIGHT-OF-WAY TO THE BUILDING. CONTACT THE WILMINGTON FIRE DEPARTMENT DIVISION OF FIRE AND LIFE SAFETY AT 910-341-0696.
7) LIGHTING PLAN TO BE PROVIDED BY DUKE ENERGY.

TRAFFIC
1) ALL PAVEMENT MARKINGS IN PUBLIC RIGHTS-OF-WAY AND FOR DRIVEWAYS ARE TO BE THERMOPLASTIC AND MEET CITY AND/OR NCDOT STANDARDS. [DETAIL SD-13 CofW TECH STDS.]
2) ONCE STREETS ARE OPEN TO TRAFFIC CONTACT TRAFFIC ENGINEERING TO REQUEST INSTALLATION OF TRAFFIC AND STREET NAME SIGNS. PROPOSED STREET NAMES MUST BE APPROVED PRIOR TO INSTALLATION OF STREET NAME SIGNS.
3) ALL TRAFFIC CONTROL SIGNS AND MARKINGS OFF THE RIGHT-OF-WAY ARE TO BE MAINTAINED BY THE PROPERTY OWNER IN ACCORDANCE WITH MUTCD (MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES) STANDARDS.
4) CONTACT TRAFFIC ENGINEERING AT 341-7888 TO ENSURE THAT ALL TRAFFIC SIGNALS FACILITIES AND EQUIPMENT ARE SHOWN ON THE PLAN.
5) CALL TRAFFIC ENGINEERING AT 341-7888 FORTY-EIGHT HOURS PRIOR TO ANY EXCAVATION IN THE RIGHT-OF-WAY.
6) ANY BROKEN OR MISSING SIDEWALK PANELS, DRIVEWAY PANELS AND CURBING WILL BE REPLACED.
7) ALL SIGNS AND PAVEMENT MARKINGS IN AREAS OPEN TO PUBLIC TRAFFIC ARE TO MEET MUTCD (MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES) STANDARDS. [DETAIL SD 15-13 CofW TECH STDS.]
8) NO ROWS TO BE CLOSED.
9) NO STREETS PROPOSED.
10) NO OFF SITE PARKING PROPOSED.
11) TRAFFIC ENGINEERING MUST APPROVE OF PAVEMENT MARKING PRIOR TO ACTUAL STRIPING.
12) ALL PARKING STALL MARKINGS AND LANE ARROWS WITHIN THE PARKING AREAS SHALL BE WHITE.
13) STOP SIGNS AND STREET SIGNS TO REMAIN IN PLACE DURING CONSTRUCTION.
14) TACTILE WARNING MATS WILL BE INSTALLED ON ALL WHEELCHAIR RAMPS.
15) A UTILITY CUT PERMIT IS REQUIRED FOR EACH OPEN CUT OF A CITY STREET. CONTACT 341-5888 FOR MORE DETAILS. IN CERTAIN CASES AN ENTIRE RESURFACING OF THE AREA BEING OPEN CUT MAY BE REQUIRED.

LANDSCAPING
1) A LANDSCAPING PLAN INDICATING THE LOCATION OF REQUIRED STREET TREES SHALL BE SUBMITTED TO THE CITY OF WILMINGTON TRAFFIC ENGINEERING DIVISION AND PARKS AND RECREATION DEPARTMENT FOR REVIEW AND APPROVAL PRIOR TO THE RECORDING OF THE FINAL PLAT. (SD 15-14 CofW TECH STDS)
2) NO OBSTRUCTIONS ARE PERMITTED IN THE SPACE BETWEEN THIRTY (30) INCHES AND TEN (10) FEET ABOVE THE GROUND WITHIN THE TRIANGULAR SITE DISTANCE.
3) PRIOR TO ANY CLEARING, GRADING OR CONSTRUCTION ACTIVITY, TREE PROTECTION FENCING WILL BE INSTALLED AROUND PROTECTED TREES OR GROVES OF TREES AND NO CONSTRUCTION WORKERS, TOOLS, MATERIALS, OR VEHICLES ARE PERMITTED WITHIN THE TREE PROTECTION FENCING.
4) ANY TREES AND/OR AREAS DESIGNATED TO BE PROTECTED MUST BE PROPERLY BARRICADED WITH FENCING AND PROTECTED THROUGHOUT CONSTRUCTION TO INSURE THAT NO CLEARING, GRADING OR STAGING OF MATERIALS WILL OCCUR IN THOSE AREAS.
5) NO EQUIPMENT IS ALLOWED ON SITE UNTIL ALL TREE PROTECTION FENCING AND SILT FENCING IS INSTALLED AND APPROVED. PROTECTIVE FENCING IS TO BE MAINTAINED THROUGHOUT THE DURATION OF THE PROJECT AND CONTRACTORS SHALL RECEIVE ADEQUATE INSTRUCTIONS ON TREE PROTECTION METHODS.

DRAINAGE
1) SITE TO DRAIN TO UNDERGROUND INFILTRATION.

SITE DATA:

PROPERTY OWNER	WILMINGTON AUTO GROUP PROP LLC
PROJECT ADDRESS	5932 MARKET ST
PIN NUMBER	R05006-004-021-000
AREA NOT IN A FEMA 100-YEAR FLOOD ZONE.	
ZONING DISTRICT	RB-REGIONAL BUSINESS
SETBACKS REQUIRED	FRONT: 25' REAR: 15' INTERIOR SIDE: 0' CORNER LOT SIDE: 25'
PROPOSED BUILDING SETBACKS	N/A
TRACT AREA	43,490 SF (1.00 AC)
BUILDING USE	N/A
PROPOSED BUILDING AREA (GROSS)	N/A
BUILDING LOT COVERAGE (15,850/151,429)	N/A
NUMBER OF UNITS	N/A
NUMBER OF BUILDINGS	N/A
BUILDING HEIGHT	N/A
NUMBER OF STORIES	N/A
SF PER FLOOR 1ST FLOOR (GROSS)	N/A
EXISTING IMPERVIOUS (GRAVEL):	13,560 SF (31%)
PROPOSED IMPERVIOUS (ASPHALT):	25,045 SF (58%)
PARKING REQUIRED	N/A
PARKING PROVIDED:	64
CAMA LAND USE:	URBAN
PUBLIC WATER AND SEWER BY CFPUA	
EXISTING WATER FLOW:	0 GPD
EXISTING SEWER FLOW:	0 GPD
PROPOSED WATER FLOW:	0 GPD
PROPOSED SEWER FLOW:	0 GPD

INVENTORY OF TREES TO BE REMOVED

TREE TYPE	TREE SIZE	QUANTITY
OAK	18"	1
OAK	26"	1

LEGEND

- PROPERTY BOUNDARY
- EXISTING TREE (62" OAK)
- EXISTING TREE TO BE REMOVED (62" OAK)
- TREE PROTECTION
- TSF x — x TSF TEMPORARY SILT FENCE
- LIMITS OF DISTURBANCE
- SS — SS — SS — EXISTING SEWER
- W — W — EXISTING WATER
- SD — SD — EXISTING STORM WATER
- EXCELSIOR MATTING

SITE PLAN

BAR SCALE 1"=20'

20' 10' 0' 20' 40' 60'

CITY OF WILMINGTON NORTH CAROLINA
Public Services • Engineering Division
APPROVED STORMWATER MANAGEMENT PLAN
Date: 11/6/2018 Permit #2018049
Signed: Trent Bolton for RAC

Approved Construction Plan

	Name	Date
Planning	Nicole Dimmick	11/5/18
Traffic	W Smith 11-5-18	
Fire	C Lee	11/8/18

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PARKWAY AUTOMOTIVE PARKING

OWNER: WILMINGTON AUTO GROUP PROPERTIES LLC
ADDRESS: 5932 MARKET ST., WILMINGTON, NC

SITE AND TREE REMOVAL PLAN

TRIPP ENGINEERING, P.C.
419 Chestnut Street
Wilmington, North Carolina 28401
Phone 910-763-5100
Fax 910-763-5631

NORTH CAROLINA PROFESSIONAL SEAL 17374 ENGINEER PHILIP GREGORY TRIPP

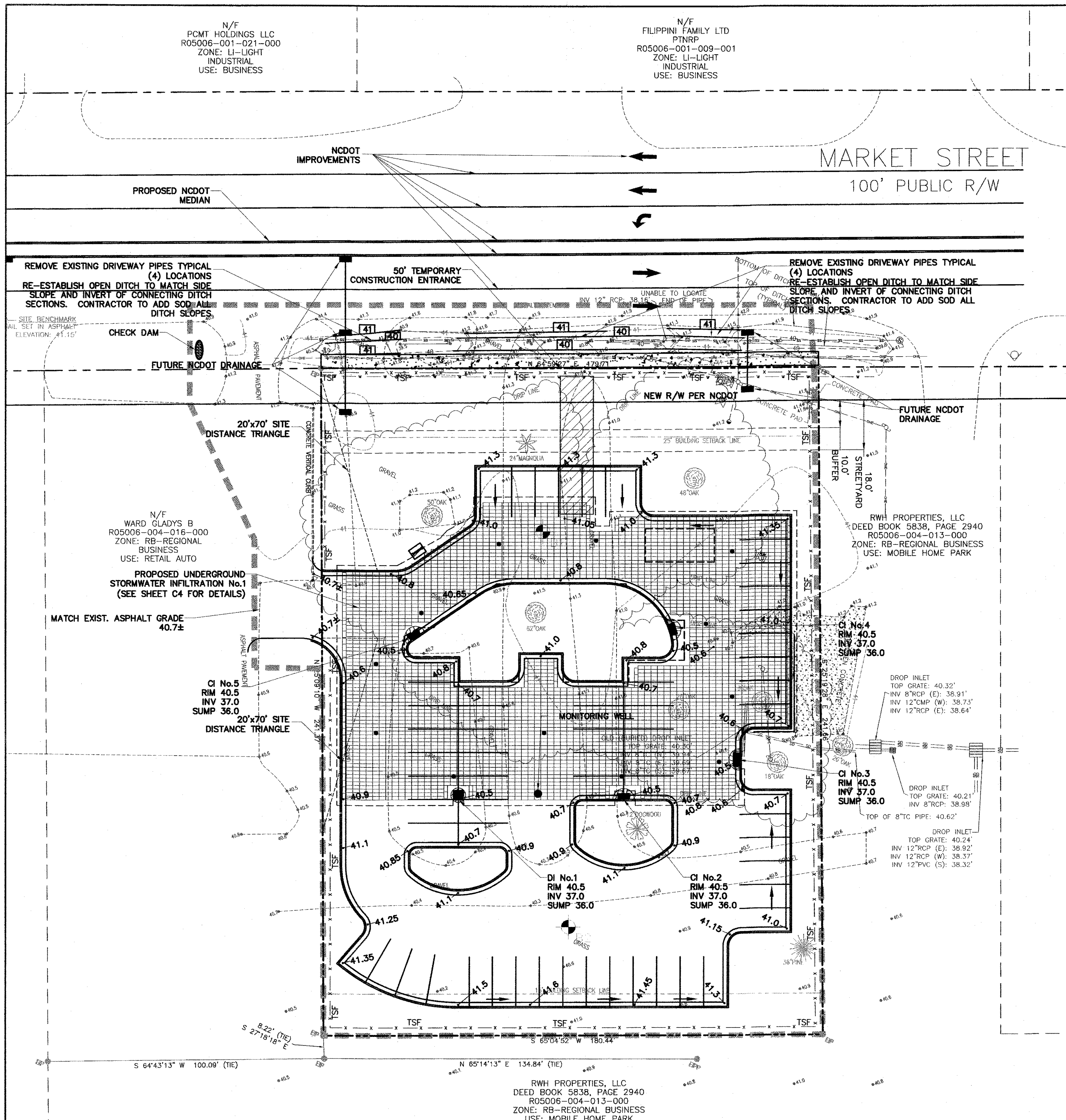
9-4-18

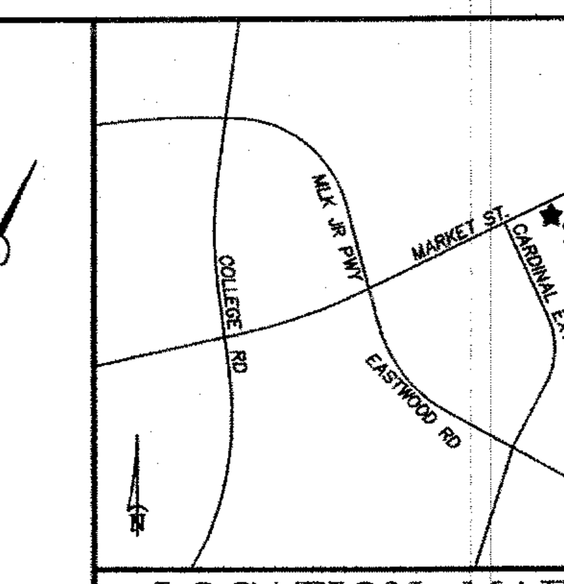
DATE 09-04-18
DESIGN PGT
DRAWN EJW

C2

SHEET 2 OF 5

17066





LOCATION MAP

NTS

Revisions		
No. / Date	Description	By
R1 09.28.18	ADDED CHECK DAM	EJW
R2 10.04.18	SHIFTED DOT SIDEWALK	EJW
R3 10.24.18	RAISED SPOTS 1"	EJW

NOTES:

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DRAINAGE

1) SITE TO DRAIN TO UNDERGROUND INFILTRATION.

SITE DATA:

PROPERTY OWNER	WILMINGTON AUTO GROUP PROP LLC
PROJECT ADDRESS	5932 MARKET ST
PIN NUMBER	R05006-004-021-000
AREA NOT IN A FEMA 100-YEAR FLOOD ZONE.	
ZONING DISTRICT	RB-REGIONAL BUSINESS
SETBACKS REQUIRED	FRONT: 25' REAR: 15' INTERIOR SIDE: 0' CORNER LOT SIDE: 25'
PROPOSED BUILDING SETBACKS	N/A
TRACT AREA	43,490 SF (1.00 AC)
BUILDING USE	N/A
PROPOSED BUILDING AREA (GROSS)	N/A
BUILDING LOT COVERAGE (15,850/151,429)	N/A
NUMBER OF UNITS	N/A
NUMBER OF BUILDINGS	N/A
BUILDING HEIGHT	N/A
NUMBER OF STORIES	N/A
SF PER FLOOR 1ST FLOOR (GROSS)	N/A
EXISTING IMPERVIOUS (GRAVEL):	13,560 SF (31%)
PROPOSED IMPERVIOUS (ASPHALT):	25,045 SF (58%)
PARKING REQUIRED	N/A
PARKING PROVIDED:	64
CAMA LAND USE:	URBAN
PUBLIC WATER AND SEWER BY CFPUA	
EXISTING WATER FLOW:	0 GPD
EXISTING SEWER FLOW:	0 GPD
PROPOSED WATER FLOW:	0 GPD
PROPOSED SEWER FLOW:	0 GPD

LEGEND

- ×37.52 EXISTING SPOT ELEVATION
- 49.5 PROPOSED SPOT ELEVATION
- TSF — x — TSF TEMPORARY SILT FENCE
- LIMITS OF DISTURBANCE
- PROPERTY BOUNDARY
- PROPOSED STORM WATER
- PROPOSED UNDERGROUND INFILTRATION

SITE PLAN

BAR SCALE 1"=20'

20' 10' 0' 20' 40' 60'

CITY OF WILMINGTON NORTH CAROLINA
Public Services • Engineering Division
APPROVED STORMWATER MANAGEMENT PLAN
Date: 11/6/2018 Permit #2018049
Signed: [signature] for RAC

Approved Construction Plan		
	Name	Date
Planning	[signature]	11/5/18
Traffic	[signature]	11-5-18
Fire	C. Welle	11/8/18

For each open utility cut of City streets, a $325 permit shall be required from the City prior to occupancy and/or project acceptance.

NORTH CAROLINA PROFESSIONAL SEAL 17374 ENGINEER PHILIP GREGORY TRIPP
9.4.18

GRADING, DRAINAGE, EROSION CONTROL AND STORMWATER MANAGEMENT PLAN

PARKWAY AUTOMOTIVE PARKING

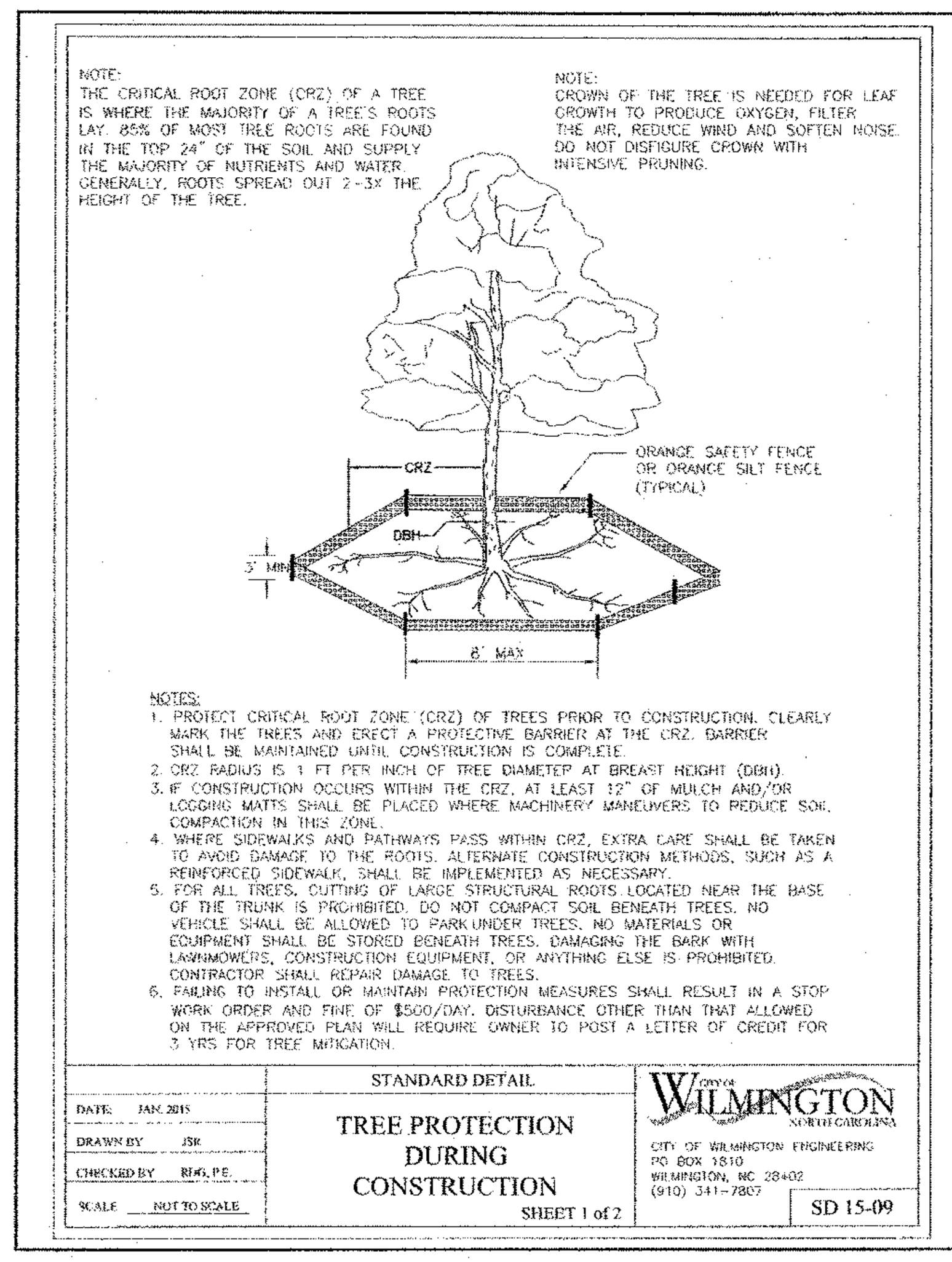
OWNER: WILMINGTON AUTO GROUP PROPERTIES LLC
ADDRESS: 5932 MARKET ST., WILMINGTON, NC

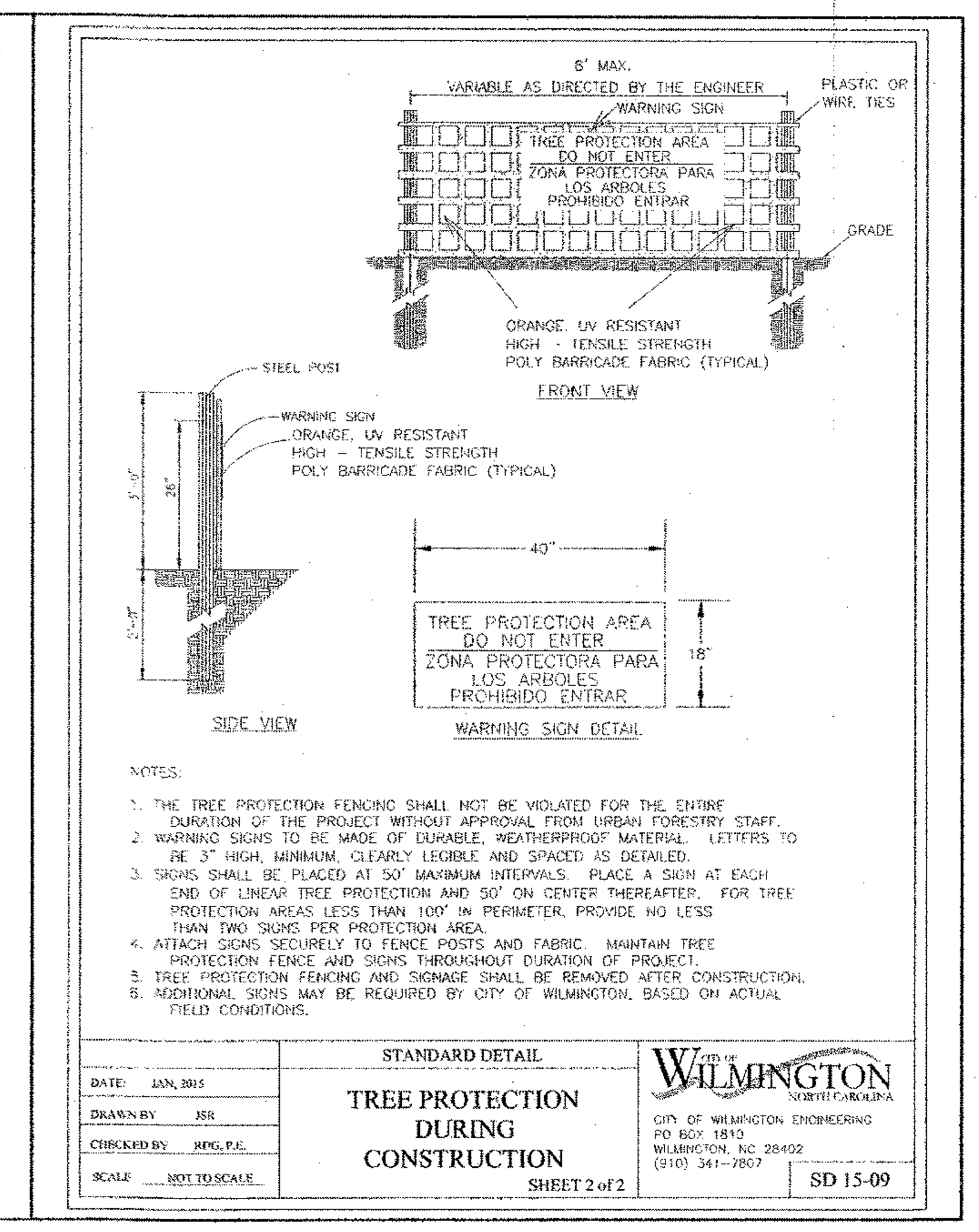
TRIPP ENGINEERING, P.C.
419 Chestnut Street
Wilmington, North Carolina 28401
Phone 910-763-5100
Fax 910-763-5631

DATE	09-04-18
DESIGN	PGT
DRAWN	EJW

C3

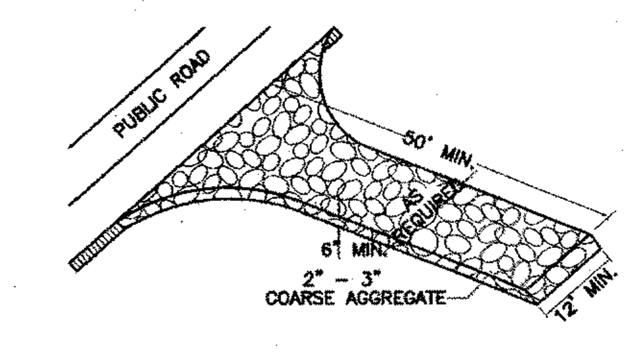
17066



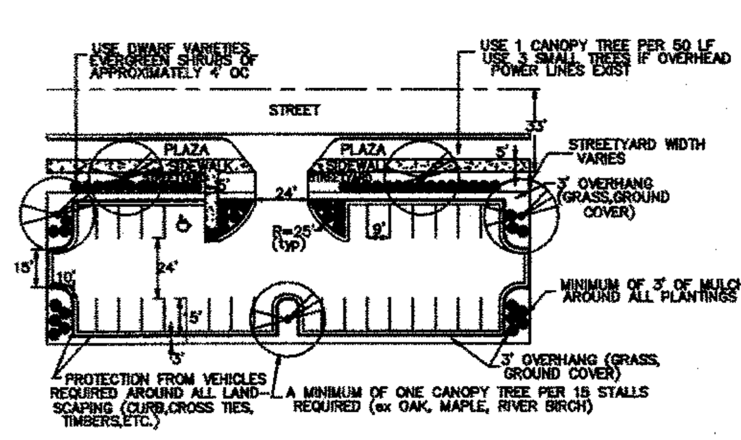


1. Variances on stall widths, angle and other dimensions will be allowed only upon approval of the Traffic Engineer.
2. Wheel stops shall be required three (3) feet from the end of parking stall when using eighteen (18) feet deep stalls.
3. Curbing, crossties, utility poles, etc., can be used as wheel stops. (Must be anchored down)
4. All medians shall be a minimum of six (6) feet wide.
5. Parking bays which terminate at a circulation way shall provide for a minimum turning radius of twenty-five (25) feet, as measured from the edge of the travel portion.
6. All parking stall markings and lane arrows shall be white.
7. All other pavement markings, signs or other traffic control devices shall conform to the latest edition and/or interpretation of the Manual on Uniform Traffic Control Devices (MUTCD).
8. No obstructions will be allowed adjacent to a parking stall which would prevent safe ingress and egress from a parked vehicle.
9. Parking in fire lanes and in non-residential driveways shall be prevented by standard signs and as needed by portable barricades.

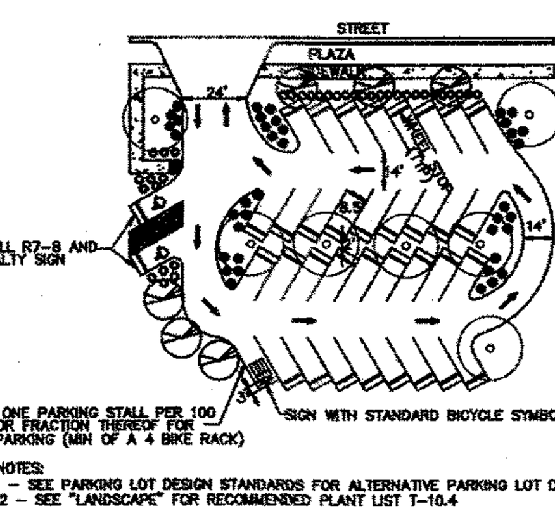
PARKING FACILITY DESIGN NOTES
SD 15-13



TEMPORARY GRAVELLED CONSTRUCTION ENTRANCE
NTS

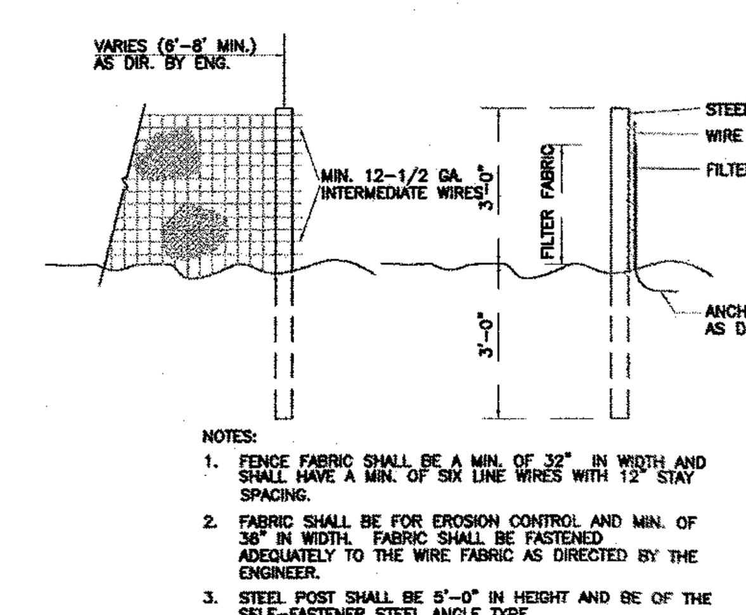


EXAMPLES OF PERIMETER LANDSCAPING



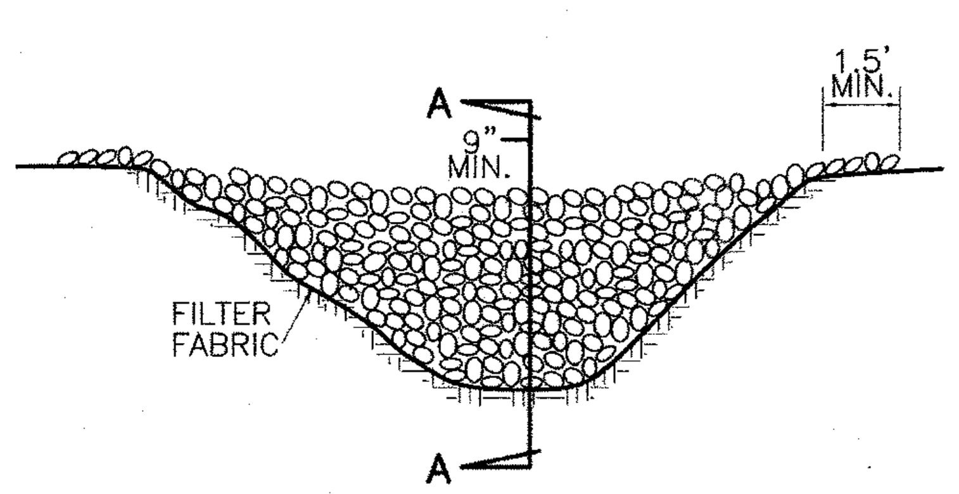
EXAMPLES OF PERIMETER LANDSCAPING

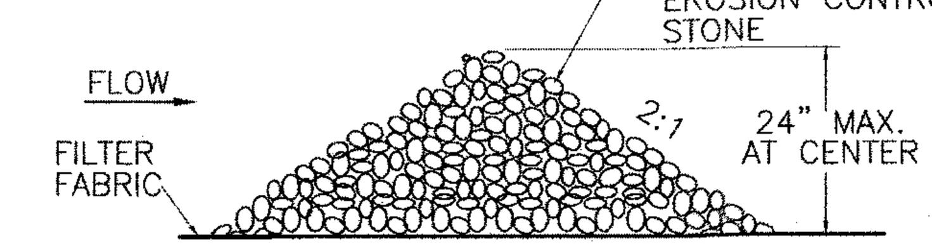
EXAMPLES OF PERIMETER LANDSCAPING
PARKING FACILITY EQUAL TO OR GREATER THAN 25 STALLS
SD 15-12
NOT TO SCALE



NOTES:
1. FENCE FABRIC SHALL BE A MIN. OF 32" IN WIDTH AND SHALL HAVE A MIN. OF SIX LINE WIRES WITH 12" STAY SPACING.
2. FABRIC SHALL BE FOR EROSION CONTROL AND MIN. OF 36" IN WIDTH. FABRIC SHALL BE FASTENED ADEQUATELY TO THE WIRE FABRIC AS DIRECTED BY THE ENGINEER.
3. STEEL POST SHALL BE 5'-0" IN HEIGHT AND BE OF THE SELF-FASTENER STEEL ANGLE TYPE.

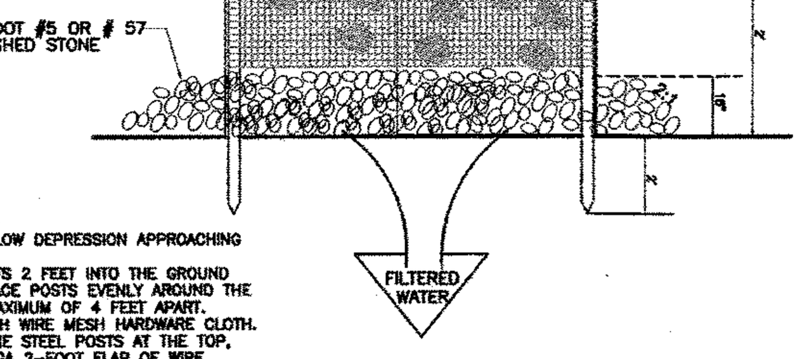
TEMPORARY SILT FENCE
NTS





CHECK DAM DETAIL
NTS

MAINTENANCE
1. INSPECT CHECK DAMS AND CHANNELS AT LEAST WEEKLY AND AFTER EACH SIGNIFICANT (½" OR GREATER) RAINFALL EVEN AND REPAIR IMMEDIATELY. CLEAN OUT SEDIMENT, STRAW, LIMBS OR OTHER DEBRIS THAT COULD CLOG THE CHANNEL WHEN NEEDED.
2. 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 MEASURES CAN BE TAKEN SUCH AS, INSTALLING A PROTECTIVE RIP-RAP LINER IN THAT PORTION OF THE CHANNEL (PRACTICE 6.31, RIP-RAP LINE AND PAVED CHANNELS
3. 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.



CONSTRUCTION SPECIFICATIONS:
1. UNIFORMLY GRADE A SHALLOW DEPRESSION APPROACHING THE INLET.
2. DRIVE 5-FOOT STEEL POSTS 2 FEET INTO THE GROUND SURROUNDING THE INLET. SPACE POSTS EVENLY AROUND THE PERIMETER OF THE INLET, A MAXIMUM OF 4 FEET APART.
3. SURROUND THE POSTS WITH WIRE MESH HARDWARE CLOTH. SECURE THE WIRE MESH TO THE STEEL POSTS AT THE TOP, MIDDLE, AND BOTTOM. PLACINGA 2-FOOT FLAP OF WIRE MESH UNDER THE GRAVEL FOR ANCHORING IS RECOMMENDED.
4. PLACE CLEAN GRAVEL (NCDOT #5 OR #57 STONE) ON A 2:1 SLOPE WITH A HEIGHT OF 16 INCHES AROUND THE WIRE, AND SMOOTH TO AN EVEN GRADE. 5. ONCE THE CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED, REMOVE ACCUMULATED SEDIMENT, AND ESTABLISH FINAL GRADING ELEVATIONS.
6. COMPACT THE AREA PROPERLY AND STABILIZED IT WITH GROUNDCOVER.

MAINTENANCE
INSPECT INLETS AT LEAST WEEKLY AND AFTER EACH SIGNIFICANT (½" OR GREATER) RAINFALL EVENT. CLEAR THE MESH WIRE OF ANY DEBRIS OR OTHER OBJECTS TO PROVIDE ADEQUATE FLOW FOR SUBSEQUENT RAINS. TAKE CARE NOT TO DAMAGE OR UNDERCUT THE WIRE MESH DURING SEDIMENT REMOVAL. REPLACE STONE AS NEEDED.

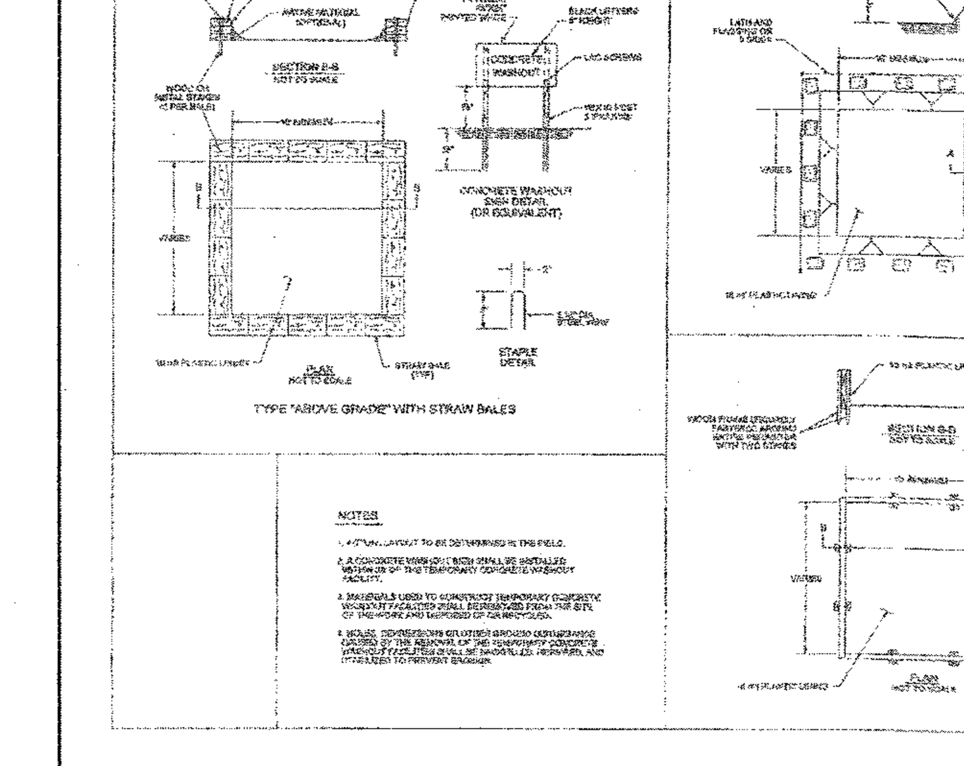
HARDWARE CLOTH AND GRAVEL INLET PROTECTION
NTS

BUILDING WASTE HANDLING
1. NO PAINT OR LIQUID WASTES IN STREAMS OR STORM DRAINS.
2. DEDICATED AREAS FOR DEMOLITION, CONSTRUCTION AND OTHER WASTES MUST BE LOCATED 50' FROM STORM DRAINS AND STREAMS UNLESS NO REASONABLE ALTERNATIVES AVAILABLE.
3. EARTHEN-MATERIALS STOCKPILES MUST BE LOCATED 50' FROM STORM DRAINS AND STREAMS UNLESS NO REASONABLE ALTERNATIVES AVAILABLE.
4. CONCRETE MATERIALS MUST BE CONTROLLED TO AVOID CONTACT WITH SURFACE WATERS, WETLANDS OR BUFFERS.

INSPECTIONS
1. SAME WEEKLY INSPECTION REQUIREMENTS.
2. SAME RAIN GAUGE AND INSPECTIONS AFTER 0.5" RAIN EVENT.
3. INSPECTIONS ARE ONLY REQUIRED DURING "NORMAL BUSINESS HOURS".
4. INSPECTION REPORTS MUST BE AVAILABLE ON-SITE DURING BUSINESS HOURS UNLESS A SITE-SPECIFIC EXEMPTION IS APPROVED.
5. RECORDS MUST BE KEPT FOR 3 YEARS AND AVAILABLE UPON REQUEST.
6. ELECTRONICALLY AVAILABLE RECORDS MAY BE SUBSTITUTED UNDER CERTAIN CONDITIONS.

SEDIMENT BASINS
1. OUTLET STRUCTURES MUST WITHDRAW FROM BASIN SURFACE UNLESS DRAINAGE AREA IS LESS THAN 1 ACRE.
2. USE ONLY DWQ-APPROVED FLOCCULENTS.

NPDES-SPECIFIC PLAN SHEETS NOTES
1. THIS PAGE IS SUBMITTED TO COMPLY WITH NPDES GENERAL STORMWATER PERMIT NCG010000.
2. THIS PAGE CAN BE APPROVED BY THE COUNTY PURSUANT TO NPDES GENERAL STORMWATER PERMIT NCG010000 ONLY.
3. THIS PAGE OF THE APPROVED PLANS IS ENFORCEABLE EXCLUSIVELY PURSUANT TO NPDES GENERAL STORMWATER PERMIT NCG010000.
4. THE COUNTY IS NOT AUTHORIZED TO ENFORCE THIS PAGE OF THE PLANS AND IT IS NOT A PART OF THE APPROVED PLANS FOR THE PURPOSES OF ENFORCEMENT ACTION UNDER THE COUNTY CODE.



MAINTENANCE
1. CONCRETE WASHOUTS SHOULD BE INSPECTED DAILY AND AFTER HEAVY RAINS. DAMAGES SHOULD BE REPAIRED PROMPTLY. IF FILLED TO BE OVER 75% CAPACITY WITH RAIN WATER IT SHOULD BE VACUUMED OR ALLOWED TO EVAPORATE TO AVOID OVERFLOWS. BEFORE HEAVY RAINS THE CONTAINERS LIQUID LEVEL SHOULD BE LOWERED OR THE CONTAINER COVERED TO AVOID AN OVERFLOW DURING RAIN. WHEN SOLIDS HAVE HARDENED THEY SHOULD BE REMOVED AND RECYCLED.

CONCRETE WASHOUT DETAIL
NTS

NPDES GROUND STABILIZATION CRITERIA

SITE AREA DESCRIPTION	STABILIZATION TIMEFRAME	STABILIZATION TIMEFRAME 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)

TEMPORARY SEEDING SPECIFICATION
SEEDING MIXTURE

	SPECIES	RATE (lb/acre)
LATE WINTER & EARLY SPRING	Rye (grain)	120
	Annual lespedeza (Kobe in Piedmont and Coastal Plain, Korean in Mountains)	50
	Omit annual lespedeza when duration of temporary cover is not to extend beyond June.	
	German Millet	40
SUMMER	In the Piedmont and mountains, a small-stemmed sundangrass may be substituted at a rate of 50 lf/acre	
FALL	German Millet	40

SEEDING DATES

LATE WINTER & EARLY SPRING	Mountains - Above 2500 ft: Feb. 15-May 15 Below 2500 ft: Feb. 1-May 1 Piedmont - Jan. 1-May 1 Coastal Plain - Dec. 1-Apr. 15
SUMMER	Mountains - May 15-Aug 15 Piedmont - May 1-Aug 15 Coastal Plain - Apr. 15-Aug 15
FALL	Mountains - Aug 15-Dec 15 Coastal Plain and Piedmont - Aug 15-Dec 30

SOIL AMENDMENTS
FOLLOW RECOMMENDATIONS OF SOIL TESTS OR APPLY 2,000 LF/ACRE GROUND AGRICULTURAL LIMESTONE AND 750 LB/ACRE 10-10-10 FERTILIZER.

MULCH
APPLY 4,000 LB/ACRE 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
REFERTILIZE IF GROWTH IS NOT FULLY ADEQUATE. RESEED, REFERTILIZE AND MULCH IMMEDIATELY FOLLOWING EROSION OR OTHER DAMAGE.

PERMANENT GRASSING DETAIL
SEEDING MIXTURE

	SPECIES	RATE (lb/acre)
SPRING SUMMER	PENSACOLA BAHIAGRASS	50
	SERICEA LESPEDEZA	30
	COMMON BERMUDAGRASS	10
	GERMAN MILLET	10
	TALL FESCUE	50
FALL WINTER	TALL FESCUE (BLEND OF 2 OR 3 IMPROVED VARIETIES)	200
	RYE (GRAIN)	25

SEEDING NOTES (SPRING-SUMMER)
1. WHERE A NEAT APPEARANCE IS DESIRED, OMIT SERICEA.
2. USE COMMON BERUDAGRASS ONLY ON ISOLATED SITES WHERE IT CANNOT BECOME A PEST. BERMUDAGRASS MAY BE REPLACED WITH 5 lb/acre CENTIPEDEGRASS.

SEEDING DATES

SPRING SUMMER	APRIL 1 - JULY 15
FALL WINTER	JANUARY - APRIL AUGUST - DECEMBER

SOIL AMENDMENTS

SPRING SUMMER	APPLY LIME AND FERTILIZER ACCORDING TO SOIL TESTS, OR APPLY 3,000 lb/acre GROUND AGRICULTURE LIMESTONE AND 500 lb/acre 10-10-10 FERTILIZER.
FALL WINTER	APPLY LIME AND FERTILIZER ACCORDING TO SOIL TESTS, OR APPLY 3,000-5,000 lb/acre GROUND AGRICULTURE LIMESTONE (USE THE LOWER RATE ON SANDY SOILS) AND 1,000 lb/acre 10-10-10 FERTILIZER.

MULCH
APPLY 4,000 lb/acre GRAIN STRAWOR EQUIVALENT COVER OF ANOTHER SUITABLE MULCH. ANCHOR BY TACKING WITH ASPHALT, ROVING, OR NETTING OR BY CRIMPING WITH A MULCH ANCHORING TOOL. A DISK WITH BLADES SET NEARLY STRAIGHT CAN BE USED AS A MULCH ANCHORING TOOL.

MAINTENANCE

SPRING SUMMER	REFERTILIZE THE FOLLOWING APRIL WITH 50 lb/acre NITROGEN. REPEAT AS GROWTH REQUIRES. MAY BE MOWED ONLY ONCE A YEAR. WHERE A NEAT APPEARANCE IS DESIRED, OMIT SERICEA AND MOW AS OFTEN AS NEEDED.
FALL WINTER	FERTILIZE ACCORDING TO SOIL TESTS OR APPLY 40 LF/ACRE NITROGEN IN JANUARY OR FEBRUARY, 40 LB IN SEPTEMBER AND 40 LB IN NOVEMBER, FROM A 12-4-8, 16-4-8, OR SIMILAR TURF FERTILIZER. AVOID FERTILIZER APPLICATIONS DURING WARM WEATHER, AS THIS INCREASES STAND LOSSES TO DISEASE. RESEED, FERTILIZE, AND MULCH DAMAGED AREAS IMMEDIATELY. MOW TO A HEIGHT OF 2.5-3.5 INCHES AS NEEDED.

SITE POLLUTANTS NOTES
1. LOCATE AREAS DEDICATED FOR MANAGEMENT OF LAND CLEARING AND DEMOLITION DEBRIS, CONSTRUCTION AND DOMESTIC WASTE, AND HAZARDOUS OR TOXIC WASTE. THIS LOCATION SHALL BE AT LEAST 50' AWAY FROM STORM DRAIN INLETS AND SURFACE WATERS UNLESS IT CAN BE SHOWN THAT NO OTHER ALTERNATIVES ARE REASONABLY AVAILABLE.
2. DUMPING OF PAINT OR OTHER LIQUID BUILDING MATERIAL WASTES IN STORM DRAINS IS PROHIBITED.
3. LITTER AND SANITARY WASTE-THE PERMITTEE SHALL CONTROL THE MANAGEMENT AND DISPOSAL OF LITTER AND SANITARY WASTE FROM THE SITE.
4. LOCATE EARTHEN-MATERIAL STOCK PILE AREAS AT LEAST 50' AWAY FROM STORM DRAIN INLETS AND SURFACE WATERS UNLESS IT CAN BE SHOWN THAT NO OTHER ALTERNATIVES ARE REASONABLY AVAILABLE.
5. CONCRETE MATERIALS ONSITE, INCLUDING EXCESS CONCRETE, MUST BE CONTROLLED AND MANAGED TO AVOID CONTACT WITH SURFACE WATERS, WETLANDS OR BUFFERS. NO CONCRETE OR CEMENT SLURRY SHALL BE DISCHARGED FROM THE SITE.
6. ANY HARDENED CONCRETE RESIDUE WILL BE DISPOSED OF, OR RECYCLED ON SITE, IN ACCORDANCE WITH LOCAL AND STATE SOLID WASTE REGULATIONS.
7. SOIL STABILIZATION SHALL BE ACHEIVED ON ANY AREA OF A SITE WHERE LAND-DISTURBING ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED ACCORDING TO THE FOLLOWING SCHEDULE:
i. ALL PERIMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES AND ALL SLOPES STEEPER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1) SHALL BE PROVIDED TEMPORARY OR PERMANENT STABILIZATION WITH GROUND COVER AS SOON AS PRACTICABLE BUT IN ANY EVENT WITHIN 7 CALENDAR DAYS FROM THE LAST LAND DISTURBING ACTIVITY.
ii. ALL OTHER DISTURBED AREAS SHALL BE PROVIDED TEMPORARY OR PERMANENT STABILIZATION WITH GROUND COVER AS SOON AS PRACTICABLE BUT IN ANY EVENT WITHIN 14 CALENDAR DAYS FROM THE LAST LAND-DISTURBING ACTIVITY.
8. CONDITIONS-IN MEETING THE STABILIZATION REQUIREMENTS ABOVE, THE FOLLOWING CONDITIONS OR EXEMPTIONS SHALL APPLY:
ij. EXTENSIONS OF TIME MAY BE APPROVED BY THE PERMITTING AUTHORITY BASED ON WEATHER OR OTHER SITE-SPECIFIC CONDITIONS THAT MAKE COMPLIANCE IMPRACTICABLE.
ii. ALL SLOPES 50' IN LENGTH OR GREATER SHALL APPLY TO GROUND COVER WITHIN 7 DAYS EXCEPT WHEN THE SLOPE IS FLATTER THAN 4:1. SLOPES LESS THAN 50' SHALL APPLY GROUND COVER WITHIN 14 DAYS EXCEPT WHEN SLOPES ARE STEEPER THAN 3:1, THE 7-DAY REQUIREMENT APPLIES.
iii. ANY SLOPED AREA FLATTER THAN 4:1 SHALL BE EXEMPT FROM THE 7-DAY GROUND COVER REQUIREMENT.
iv. SLOPES 10' OR LESS IN LENGTH SHALL BE EXEMPT FROM THE 7-DAY GROUND COVER REQUIREMENT EXCEPT WHEN THE SLOPE IS STEEPER THAN 2:1.
v. ALTHOUGH STABILIZATION IS USUALLY SPECIFIED AS GROUND COVER, OTHER METHODS, SUCH AS CHEMICAL STABILIZATION, MAY BE ALLOWED ON A CASE-BY-CASE BASIS.
vi. FOR PORTIONS OF PROJECTS WITHIN THE SEDIMENT CONTROL COMMISSION-DEFINED "HIGH QUALITY WATER ZONE" (15A NCAC 04A. 0105), STABILIZATION WITH GROUND COVER SHALL BE ACHIEVED AS SOON AS PRACTICABLE BUT IN ANY EVENT ON ALL AREAS OF THE SITE WITHIN 7 CALENDAR DAYS FROM THE LAST LAND-DISTURBING ACT.

SITE WORK NOTES
1. THE CONTRACTOR SHALL VISIT THE SITE AND BECOME FAMILIARIZED WITH EXISTING CONDITIONS BOTH ON AND IMMEDIATELY ADJACENT TO THE SITE.
2. CLEARING: CONTRACTOR SHALL REMOVE ALL TREES AND VEGETATION WITHIN LIMITS OF CONSTRUCTION UNLESS OTHERWISE DESIGNATED TO REMAIN.
3. GRUBBING AND STRIPPING: CONTRACTOR SHALL RAKE AND REMOVE ROOTS, STUMPS, VEGETATION, DEBRIS, EXISTING STRUCTURES ABOVE AND BELOW GRADE, ORGANIC MATERIAL OR ANY OTHER UNSUITABLE MATERIAL WITHIN LIMITS OF CONSTRUCTION.
4. MUCKING: CONTRACTOR SHALL COORDINATE WITH OWNER AND THEIR GEOTECHNICAL REPRESENTATIVE TO COORDINATE REMOVAL OF ANY SOFT AREAS.
5. DISPOSAL: CLEARED, GRUBBED, STRIPPED OR OTHER WASTE MATERIAL SHALL BE REMOVED FROM SITE AND DISPOSED OF IN A PROPERLY PERMITTED FACILITY.
6. FILL AND COMPACTION SHOULD COMPLY WITH GEOTECHNICAL REPORT.
7. THE CONTRACTOR SHALL NOTE THAT THE GRADING PLAN MAY NOT REPRESENT A BALANCED EARTHWORK CONDITION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CUT AND FILL QUANTITIES AND COMPLETE INSTALLATION TO SPECIFIED GRADES.
8. THE CONTRACTOR SHALL FURNISH SUITABLE BORROW MATERIAL FROM AN OFF-SITE PROPERLY PERMITTED FACILITY AS REQUIRED.
9. THE CONTRACTOR IS RESPONSIBLE FOR THE LOCATION AND PROTECTION OF ALL EXISTING UTILITIES DURING CONSTRUCTION. BEFORE COMMENCING ANY EXCAVATIONS IN OR ALONG ROADWAYS OR RIGHT-OF-WAYS, PUBLIC AREAS OR IN PRIVATE EASEMENTS, THE CONTRACTOR SHALL NOTIFY ALL APPROPRIATE PERSONNEL OF THEIR INTENT TO EXCAVATE, IN WRITING, NOT LESS THAN 10 DAYS PRIOR TO EXCAVATING.
10. THE CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE DISCONNECTION/ RECONNECTION AND/OR THE RELOCATION OF ALL EXISTING UTILITIES WITH APPROPRIATE PERSONNEL.
11. EXISTING SURVEYING PERFORMED BY MARK A. STOCKS, PLS AND SUPPLIED BY THE OWNER.
12. THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AT THE SITE. FURTHERMORE THE CONTRACTOR SHALL REPORT ALL DISCREPANCIES OR QUESTIONS TO THE ENGINEER PRIOR TO INSTALLATION.
13. THE CONTRACTOR SHALL PROVIDE ANY AND ALL LAYOUT REQUIRED TO CONSTRUCT HIS WORK UNLESS OTHERWISE DIRECTED BY OWNER.
14. ALL PVC UTILITY MAINS SHALL BE INSTALLED WITH A MINIMUM OF 36" COVER AT FINAL GRADE.
15. ALL SERVICE CONNECTIONS SHALL BE INSTALLED TO MEET ALL LOCAL AND STATE CODES. METERS, TAPS, MATERIALS, WORKMANSHIP AND ALL FEES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL COMPLY WITH ALL REQUIREMENTS.
16. ALL PAVEMENT, BASE AND SUBGRADE SHALL CONFORM TO NCDOT STANDARDS INCLUDING WORKMANSHIP, MATERIALS AND EQUIPMENT. APPROPRIATE BARRICADES, SIGNS, LIGHTS OR OTHER TRAFFIC CONTROL DEVICES SHALL BE PROVIDED IN ACCORDANCE WITH NCDOT TO MAINTAIN SAFETY AND TWO WAY TRAFFIC.
17. ALL AREAS SHALL BE GRADED FOR POSITIVE DRAINAGE. THE CONTRACTOR SHALL REPORT ANY DISCREPANCIES TO THE ENGINEER PRIOR TO INSTALLATION. ALL AREAS SHALL BE SLOPED TO DRAIN AWAY FROM BUILDINGS AT ALL TIMES.
18. CONCRETE STORM DRAINAGE PIPE SHALL BE CLASS III WITH RUBBER GASKETED JOINTS AND INSTALLED IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS.
19. USE WHITE LANE MARKING PAINT FOR ALL PAVEMENT MARKINGS. PAINT SHALL BE A CHLORINATED RUBBER ALKYD, FS TT-P-115, TYPE III, FACTORY MIXED, QUICK DRYING, NON BLEEDING. REFLECTIVE MATERIAL MAY BE ADDED AT OWNER'S OPTION FOR NIGHT REFLECTING.
20. DUCTILE IRON SHALL BE CLASS 50.
21. CONCRETE FOR WALKS, CURBS AND DRIVES SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI @ 28 DAYS - AIR ENTRAINED.
22. FIELD TESTING SHALL BE DONE BY AN INDEPENDENT TESTING LABORATORY PAID FOR BY THE OWNER. FURTHER TESTING REQUIRED DUE TO A FAILED TEST WILL BE PAID FOR BY THE CONTRACTOR.
23. SEE GEOTECHNICAL REPORT NO. __________, DATED __________, BY __________ FOR ADDITIONAL REQUIREMENTS.

CONSTRUCTION SEQUENCE
1. NO CUT SLOPE OR FILL SLOPE SHALL EXCEED A RISE OR FALL OF ONE FOOT FOR EVERY RUN OF 3 FEET (1 VERTICAL TO 3 HORIZONTAL).
2. NO SEDIMENT WILL BE ALLOWED TO EXIT THE SITE. ALL EROSION SHALL BE CONTROLLED INCLUDING SIDE SLOPES DURING AND AFTER CONSTRUCTION.
3. INSTALL PRIMARY EROSION CONTROL MEASURES BEFORE BEGINNING CONSTRUCTION INCLUDING BUT NOT LIMITED TO GRAVELED CONSTRUCTION ENTRANCE, SILT FENCE, CHECK DAMS, ETC. INSTALL ALL SECONDARY EROSION CONTROL MEASURES AS SOON AS POSSIBLE AFTER BEGINNING CONSTRUCTION.
4. ALL EROSION CONTROL MEASURES TO BE INSPECTED AFTER EACH RAIN. SILT FENCE AND INLET PROTECTION ARE TO BE CLEANED WHEN 0.5 FEET OF SEDIMENT HAVE ACCUMULATED IN FRONT OF THE DEVICE OR WHEN THEY LEAK OR FAIL. SEDIMENT TRAPS ARE CLEANED OUT AS STATED OR WHEN HALF FULL.
5. IF APPLICABLE, CONSTRUCT PROPOSED RETENTION POND TO ACT AS A SEDIMENT BASIN DURING CONSTRUCTION. REMOVE ACCUMULATION OF SILT AS REQUIRED TO ALLOW PROPER FUNCTIONING. RESTORE POND TO DESIGN LEVELS AT THE COMPLETION OF CONSTRUCTION. 6. IF APPLICABLE, INSTALL DROP INLETS WITH INLET PROTECTION TO ACT AS SILT TRAPS DURING CONSTRUCTION. REMOVE ACCUMULATED SILT AS NEEDED TO PREVENT SILT FROM ENTERING STORM DRAIN PIPING.
7. A 4" LAYER OF TOPSOIL SHALL BE APPLIED TO ALL NEW AREAS TO BE GRASSED.
8. MAINTAIN ALL EROSION CONTROL MEASURES UNTIL PROJECT IS COMPLETE.
9. MORE STRINGENT MEASURES MAY BE REQUIRED TO HALT EROSION IF THOSE ON THIS PLAN PROVE TO BE LESS EFFECTIVE.
10. REMOVE ALL TEMPORARY EROSION CONTROL MEASURES UPON COMPLETION OF CONSTRUCTION. ALL PERMANENT MEASURES SHALL BE WELL ESTABLISHED PRIOR TO PROJECT COMPLETION.

MAINTENANCE PLAN
1. ALL EROSION AND SEDIMENT CONTROL PRACTICES WILL BE CHECKED FOR STABILITY AND OPERATION FOLLOWING EVERY RUNOFF-PRODUCING RAINFALL, BUT IN NO CASE, LESS THAN ONCE EVERY WEEK AND WITHIN 24 HOURS OF EVERY HALF INCH RAINFALL.
2. ALL POINTS OF EGRESS WILL HAVE CONSTRUCTION ENTRANCES THAT WILL BE PERIODICALLY TOP-DRESSED WITH AN ADDITIONAL 2 INCHES OF #4 STONE TO MAINTAIN PROPER DEPTH. THEY WILL BE MAINTAINED IN A CONDITION TO PREVENT MUD OR SEDIMENT FROM LEAVING THE SITE. IMMEDIATELY REMOVE OBJECTIONABLE MATERIAL SPILLED, WASHED OR TRACKED ONTO THE CONSTRUCTION ENTRANCE OR ROADWAYS.
3. SEDIMENT WILL BE REMOVED FROM HARDWARE CLOTH AND GRAVEL INLET PROTECTION, BLOCK AND GRAVEL INLET, ROCK DOUGHNUT INLET PROTECTION AND ROCK PIPE INLET PROTECTION WHEN THE DESIGNED STORAGE CAPACITY HAS BEEN HALF FILLED WITH SEDIMENT. ROCK WILL BE CLEANED OR REPLACED WHEN THE SEDIMENT POOL NO LONGER DRAINS AS DESIGNED. DEBRIS WILL BE REMOVED FROM THE ROCK AND HARDWARE CLOTH TO ALLOW PROPER DRAINAGE. SILT SACKS WILL BE EMPTIED ONCE A WEEK AND AFTER EVERY RAIN EVENT. SEDIMENT WILL BE REMOVED FROM AROUND BEAVER DAMS, DANDY SACKS AND SOCKS ONCE A WEEK AND AFTER EVERY RAIN EVENT. 4. DIVERSION DITCHES WILL BE CLEANED OUT IMMEDIATELY TO REMOVE SEDIMENT OR OBSTRUCTIONS FROM THE FLOW AREA. THE DIVERSION RIDGES WILL ALSO BE REPAIRED. SWALES MUST BE TEMPORARILY STABILIZED WITHIN 21 CALENDAR DAYS OF CEASE OF ANY PHASE OF ACTIVITY ASSOCIATED WITH A SWALE.
5. SEDIMENT WILL BE REMOVED FROM BEHIND THE SEDIMENT FENCE WHEN IT BECOMES HALF FILLED. THE SEDIMENT FENCE WILL BE REPAIRED AS NECESSARY TO MAINTAIN A BARRIER. STAKES MUST BE STEEL. STAKE SPACING WILL BE 6 FEET MAX. WITH THE USE OF EXTRA STRENGTH FABRIC, WITHOUT WIRE BACKING. STAKE SPACING WILL BE 8 FEET MAX. WHEN STANDARD STRENGTH FABRIC AND WIRE BACKING ARE USED. IF ROCK FILTERS ARE DESIGNED AT LOW POINTS IN THE IN THE SEDIMENT FENCE THE ROCK WILL BE REPAIRED OR REPLACED IF IT BECOMES HALF FULL OF SEDIMENT, NO LONGER DRAINS AS DESIGNED OR IS DAMAGED.
6. SEDIMENT WILL BE REMOVED FROM SEDIMENT TRAPS WHEN THE DESIGNED STORAGE CAPACITY HAS BEEN HALF FILLED WITH SEDIMENT. THE ROCK WILL BE CLEANED OR REPLACED WHEN THE SEDIMENT POOL NO LONGER DRAINS OR WHEN THE ROCK IS DISLODGED. BAFFLES WILL BE REPAIRED OR REPLACED IF THEY COLLAPSE. TEAR, DECOMPOSE OR BECOME INEFFECTIVE. THEY WILL BE REPLACED PROMPTLY. SEDIMENT WILL BE REMOVED WHEN DEPOSITS REACH HALF THE HEIGHT OF THE 1ST BAFFLE. FLOATING SKIMMERS WILL BE INSPECTED WEEKLY AND WILL BE KEPT CLEAN.
7. SEDIMENT WILL BE REMOVED FROM THE SEDIMENT BASIN WHEN THE DESIGN STORAGE CAPACITY HAS BEEN HALF FILLED WITH SEDIMENT. ROCK WILL BE CLEANED OR REPLACED WHEN THE SEDIMENT POOL NO LONGER DRAINS OR IF THE ROCK IS DISLODGED. BAFFLES WILL BE REPAIRED OR REPLACED IF THEY TEAR, DECOMPOSE OR BECOME INEFFECTIVE. THEY WILL BE REPLACED PROMPTLY. SEDIMENT WILL BE REMOVED FROM BAFFLES WHEN DEPOSITS REACH HALF THE HEIGHT OF THE 1ST BAFFLE. FLOATING SKIMMERS WILL BE INSPECTED WEEKLY AND WILL BE KEPT CLEAN.
8. ALL SEEDED AREAS WILL BE FERTILIZED, RESEEDED AS NECESSARY, AND MULCHED ACCORDING TO SPECIFICATIONS IN THE VEGETATIVE PLAN TO MAINTAIN A VIGOROUS, DENSE VEGETATIVE COVER. ALL SLOPES WILL BE STABILIZED WITHIN 21 CALENDAR DAYS. ALL OTHER AREAS WILL BE STABILIZED WITHIN 15 WORKING DAYS.
9. FLOCCULATES WILL BE USED TO ADDRESS TURBIDITY ISSUES. THE PUMPS, TANKS, HOSES AND INJECTION SYSTEMS WILL BE CHECKED FOR PROBLEMS OR TURBID DISCHARGES DAILY.

CITY OF WILMINGTON NORTH CAROLINA
Public Services • Engineering Division
APPROVED STORMWATER MANAGEMENT PLAN
Date: 11/6/2018 Permit #2018049
Signed: [signature] for RAC

Approved Construction Plan	Name	Date
Planning	Nicole Dreibelbis	11/5/18
Traffic	[signature]	11-5-18
Fire	[signature]	11/8/18

For each open utility cut of City streets, a $325 permit shall be required from the City prior to occupancy and/or project acceptance.

REVISIONS

No./Date	Description	By
R1 09.28.18	REMOVE EXCELSIOR DTL	EJW

DETAILS AND NOTES

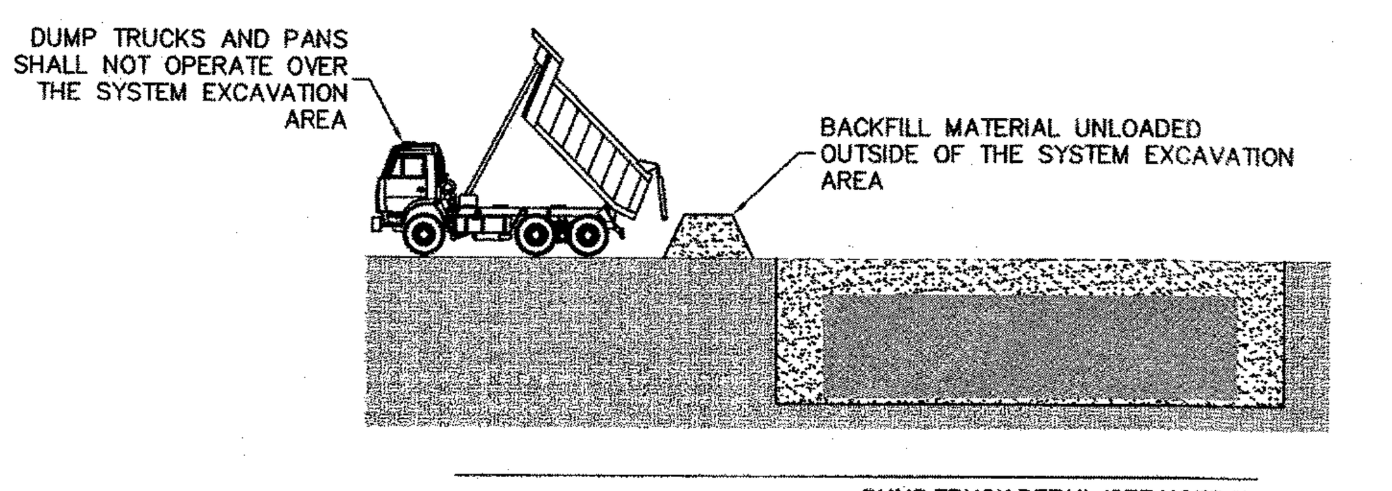
PARKWAY AUTOMOTIVE PARKING
OWNER: WILMINGTON AUTO GROUP PROPERTIES LLC
ADDRESS: 5932 MARKET ST., WILMINGTON, NC

TRIPP ENGINEERING, P.C.
419 Chestnut Street
Wilmington, North Carolina 28401
Phone 910-763-5100
Fax 910-763-5631

9-4-18
NORTH CAROLINA PROFESSIONAL SEAL 17374 ENGINEER PHILIP GREGORY TRIPP

DATE 09-04-18
DESIGN PGT
DRAWN EJW

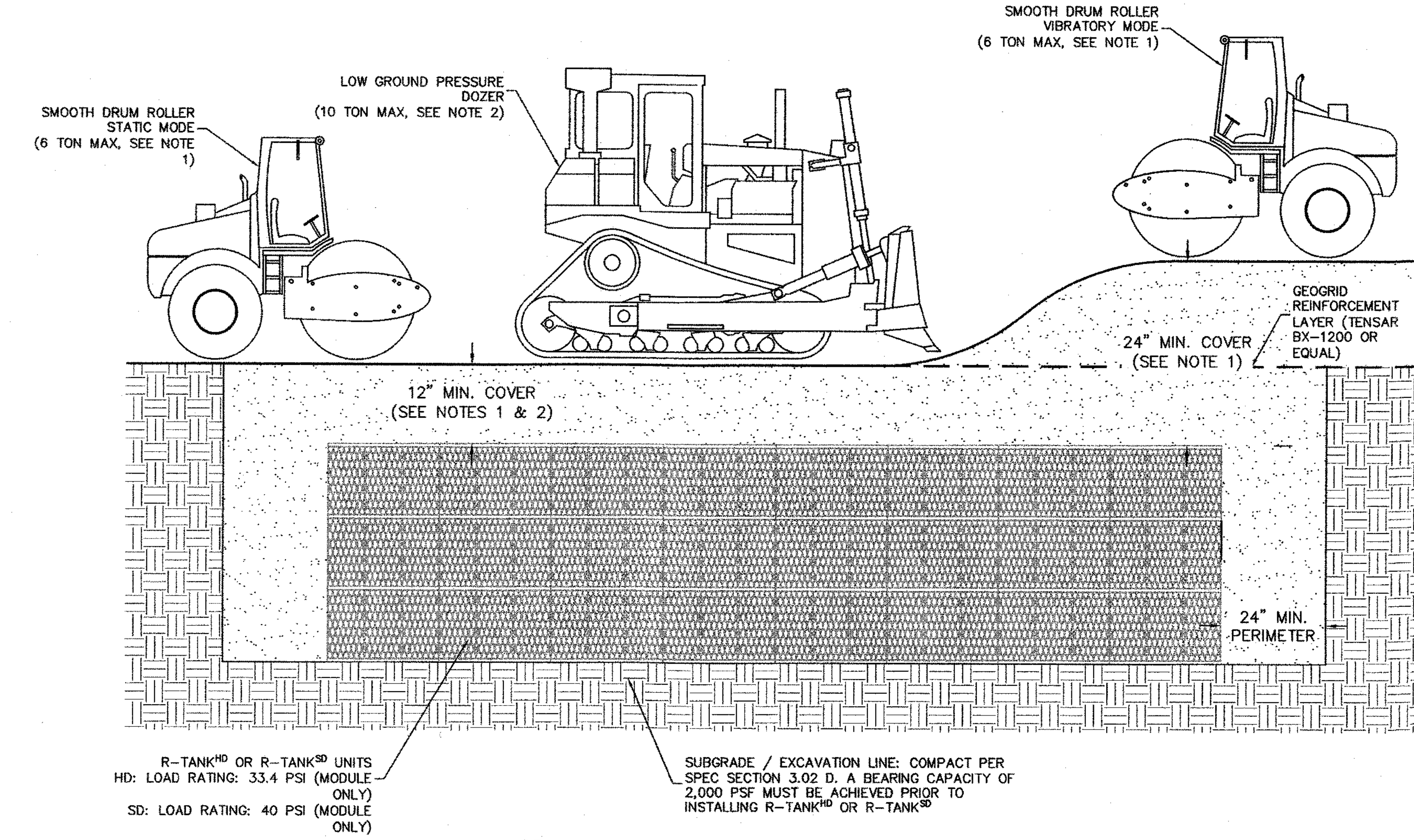
C4
SHEET 4 OF 5
17066



DUMP TRUCK DETAIL (SEE NOTE 3)

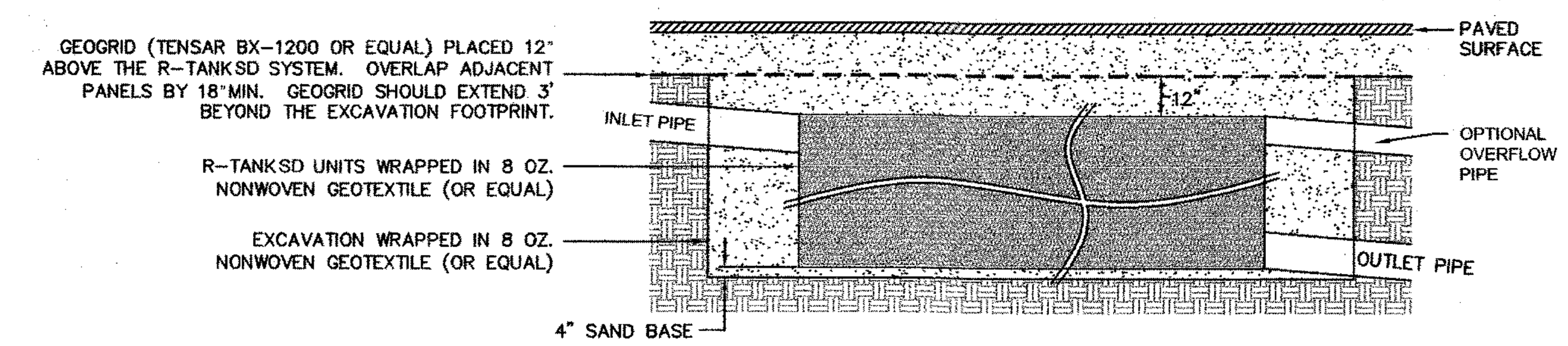
NOTES:

1. FOLLOWING PLACEMENT OF SIDE BACKFILL, A UNIFORM 12" LIFT OF THE FREELY DRAINING MATERIAL (SPEC SECTION 2.03 B) SHALL BE PLACED OVER THE R-TANK AND LIGHTLY COMPACTED USING A WALK-BEHIND TRENCH ROLLER. ALTERNATELY, A ROLLER (MAXIMUM GROSS VEHICLE WEIGHT OF 6 TONS) MAY BE USED. ROLLER MUST REMAIN IN STATIC MODE UNTIL A MINIMUM OF 24" OF COVER HAS BEEN PLACED OVER THE MODULES. SHEEP FOOT ROLLERS SHOULD NOT BE USED. **SPEC SECTION 3.05 A**
2. ONLY LOW PRESSURE TIRE OR TRACK VEHICLES (LESS THAN 7 PSI AND OPERATING WEIGHT OF LESS THAN 20,000 LBS) SHALL BE OPERATED OVER THE R-TANK SYSTEM DURING CONSTRUCTION. **SPEC SECTION 3.05 B**
3. DUMP TRUCKS AND PANS SHALL NOT BE OPERATED WITHIN THE R-TANK SYSTEM AT ANY TIME. WHERE NECESSARY, THE HEAVY EQUIPMENT SHOULD UNLOAD IN AN AREA ADJACENT TO THE R-TANK SYSTEM AND THE MATERIAL SHOULD BE MOVED OVER THE SYSTEM WITH TRACKED EQUIPMENT. **SPEC SECTION 3.05 B**
4. ENSURE THAT ALL UNRELATED CONSTRUCTION TRAFFIC IS KEPT AWAY FROM THE LIMITS OF EXCAVATION UNTIL THE PROJECT IS COMPLETE AND FINAL SURFACE MATERIALS ARE IN PLACE. NO NON-INSTALLATION RELATED LOADING SHOULD BE ALLOWED OVER THE R-TANK SYSTEM UNTIL THE FINAL DESIGN SECTION HAS BEEN CONSTRUCTED (INCLUDING PAVEMENT). **SPEC SECTION 3.05 C**
5. SEE R-TANK INSTALLATION GUIDE OR CONTACT YOUR LOCAL ACF REPRESENTATIVE FOR ADDITIONAL INFORMATION.



R-TANK^{SD} CONSTRUCTION EQUIPMENT COVER DETAIL

NTS



R-TANK^{SD} TANK WRAP & EXCAVATION LINER DETAIL

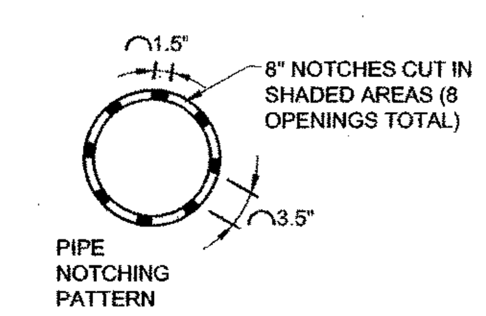
NTS

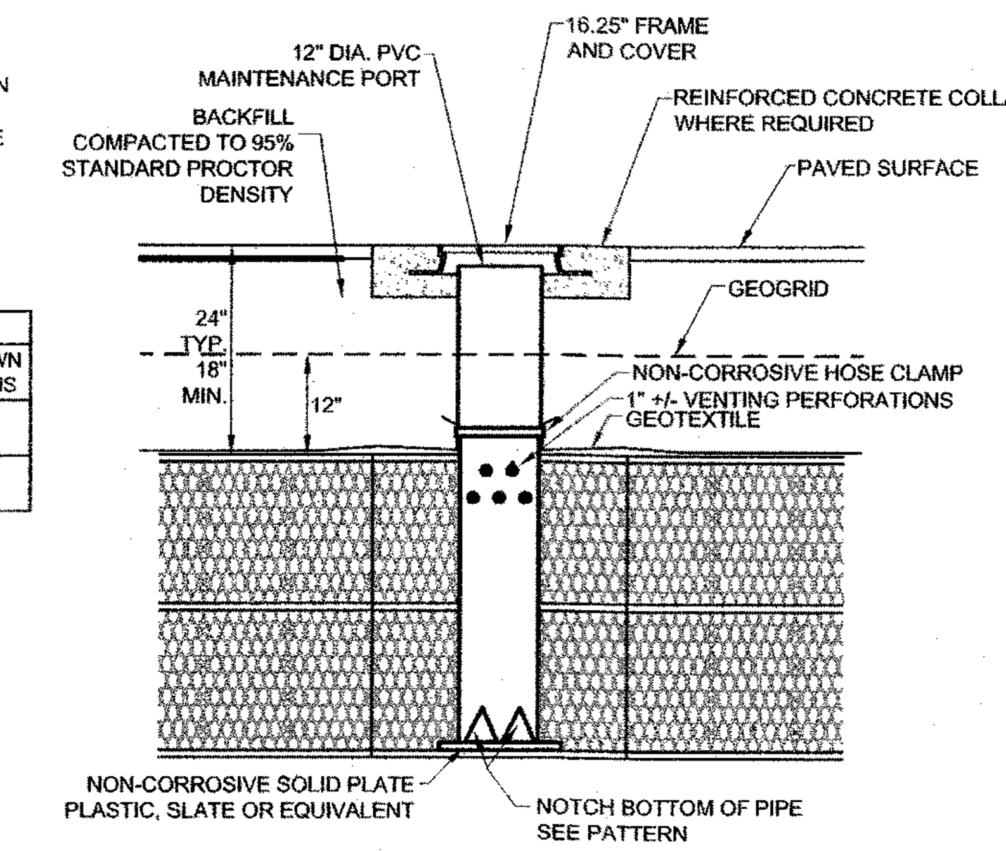
NOTES

- THIS PORT IS USED TO PUMP WATER INTO THE SYSTEM AND RE-SUSPEND ACCUMULATED SEDIMENT SO THAT IT MAY BE PUMPED OUT.
- MINIMUM REQUIRED MAINTENANCE INCLUDES A QUARTERLY INSPECTION DURING THE FIRST YEAR OF OPERATION AND A YEARLY INSPECTION THEREAFTER. FLUSH AS NEEDED.
- ONLY R-TANK^{HD} AND R-TANK^{SD} MAY BE USED IN TRAFFIC APPLICATIONS.

DEPTH SUMMARY

TYPE	A	B
R-TANK	12" MIN - 36" MAX	AS SHOWN ON PLANS
R-TANK^{HD}	20" MIN - 6.99' MAX	12"
R-TANK^{SD}	18" MIN - 9.99' MAX	12"

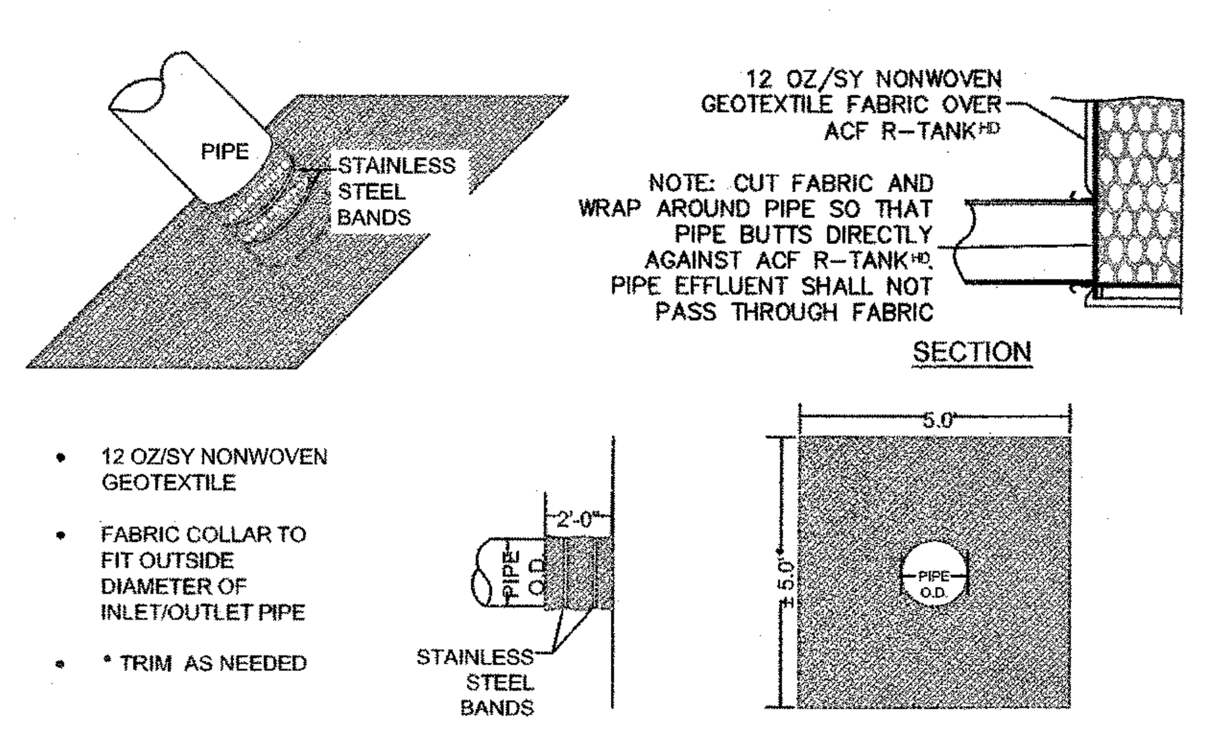




R-TANK^{SD} TYPICAL MAINTENANCE PORT DETAIL

NTS

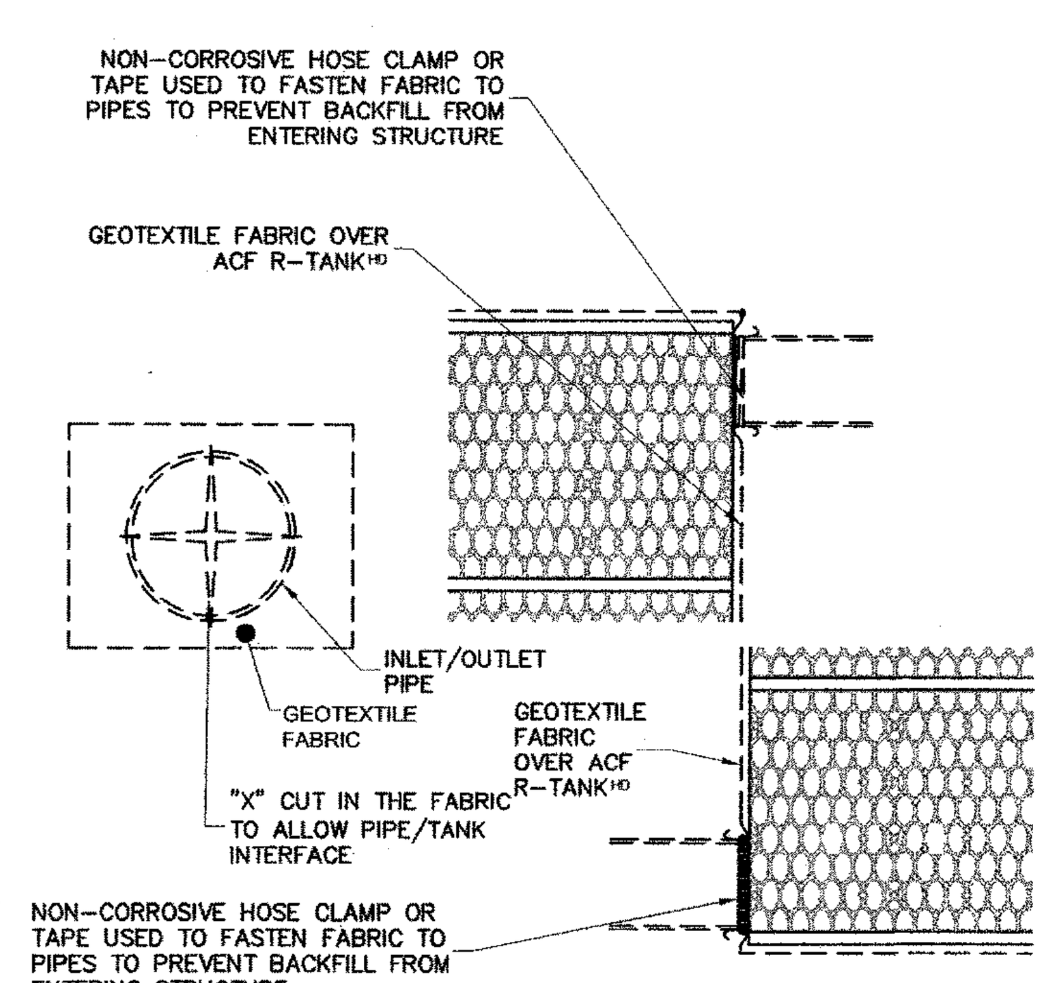
END VIEW OF PIPE/FABRIC CONNECTION. CUT AN "X" IN THE FABRIC SLIGHTLY LARGER THAN PIPE, PULL THE FABRIC AROUND THE PIPE TO CREATE THE "BOOT" AND THEN SECURE WITH A HOSE-CLAMP.



- 12 OZ/SY NONWOVEN GEOTEXTILE
- FABRIC COLLAR TO FIT OUTSIDE DIAMETER OF INLET/OUTLET PIPE
- * TRIM AS NEEDED

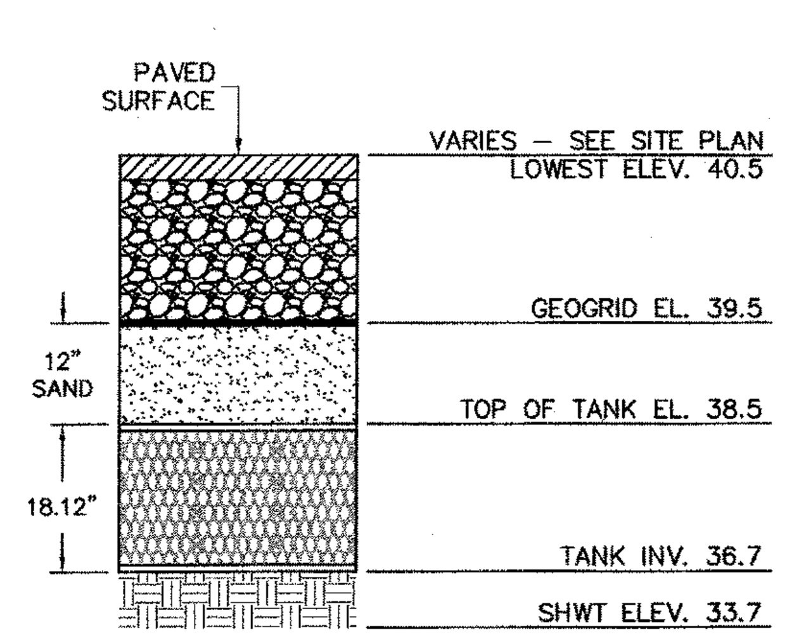
GEOTEXTILE BOOT FOR R-TANK^{SD} DETAIL

NTS



R-TANK^{SD} TYPICAL TANK INLET/OUTLET DETAIL

NTS



SINGLE R-TANK^{SD} ELEVATION

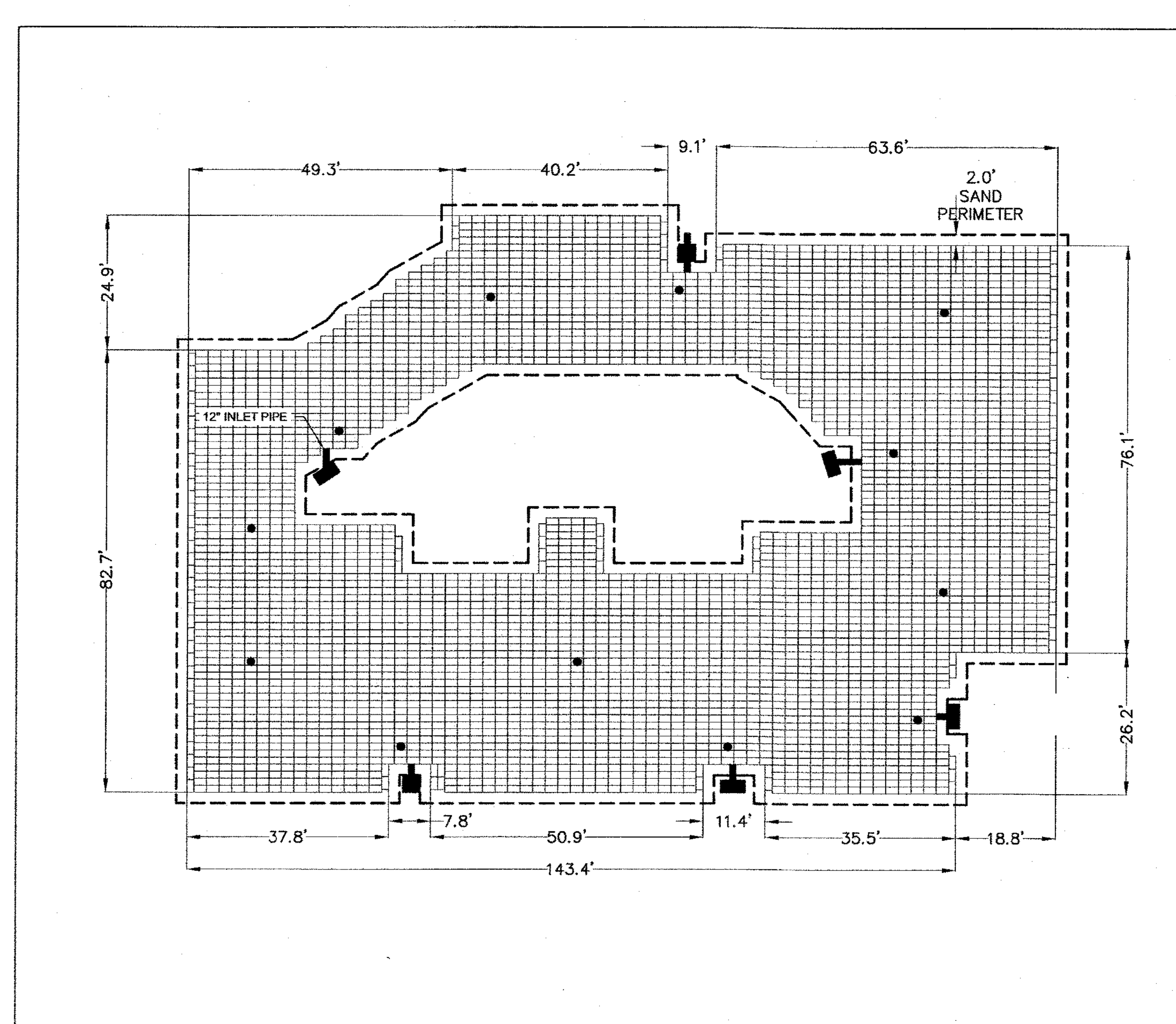
NTS

Approved Construction Plan

	Name	Date
Planning	Nicole D Smith	11/5/18
Traffic	[signature]	11-8-18
Fire	C. [signature]	11/15/18

CITY OF WILMINGTON NORTH CAROLINA
Public Services • Engineering Division
APPROVED STORMWATER MANAGEMENT PLAN
Date: 11/6/2018 Permit #2018049
Signed: [signature] for RAC

For each open utility cut of City streets, a $325 permit shall be required from the City prior to occupancy and/or project acceptance.



R-TANK^{SD} SYSTEM No. 1 LAYOUT

1"=20'

PART 1 - GENERAL

1.01 Related Documents
A. Drawings, technical specification and general provisions of the Contract as modified herein apply to this section.

1.02 Description of Work Included
A. Provide excavation and base preparation per geotechnical engineer's recommendations and/or as shown on the design drawings, to provide adequate support for project design loads and safety from excavation sidewall collapse. Excavations shall be in accordance with the owner's and OSHA requirements.
B. Provide and install R-Tank, R-TankHD, or R-TankSD system (hereafter called R-Tank) and all related products including fill materials, geotextiles, geogrids, inlet and outlet pipe with connections per the manufacturer's installation guidelines provided in this section.
C. Provide and construct the cover of the R-Tank system including; stone backfill, structural fill cover, and pavement section as specified.
D. Protect R-Tank system from construction traffic after installation until completion of all construction activity in the installation area.

1.03 Quality Control
A. All materials shall be manufactured in ISO certified facilities.
B. Installation Contractor shall demonstrate the following experience:
1. A minimum of three R-Tank or equivalent projects completed within 2 years; and,
2. A minimum of 25,000 cubic feet of storage volume completed within 2 years.
3. Contractor experience requirement may be waived if the manufacturer's representative provides on-site training and review during construction.
C. Installation Personnel: Performed only by skilled workers with satisfactory record of performance on bulk earthworks, pipe, chamber, or pond/landfill construction projects of comparable size and quality.
D. Contractor must have manufacturer's representative available for site review if requested by Owner.

1.04 Submittals
A. Submit proposed R-Tank layout drawings. Drawings shall include typical section details as well as the required base elevation of stone and tanks, minimum cover requirements and tank configuration.
B. Submit manufacturer's product data, including compressive strength and unit weight.
C. Submit manufacturer's installation instructions.
D. Submit R-Tank sample for review. Reviewed and accepted samples will be returned to the Contractor.
E. Submit material certificates for geotextile, geogrid, base course and backfill materials.
F. Submit required experience and personnel requirements as specified in Section 1.03.
G. Any proposed equal alternative product substitution to this specification must be submitted for review and approved prior to bid opening. Review package should include third party reviewed performance data that meets or exceeds criteria in Table 2.01 B.

1.05 Delivery, Storage, and Handling
A. Protect R-Tank and other materials from damage during delivery, and store UV sensitive materials under tarp to protect from sunlight when time from delivery to installation exceeds two weeks. Storage of materials should be on smooth surfaces, free from dirt, mud and debris.
B. Handling is to be performed with equipment appropriate to the materials and site conditions, and may include hand, handcart, forklifts, extension lifts, etc.
C. Cold weather:
1. Care must be taken when handling plastics when air temperature is 40 degrees or below as plastic becomes brittle.
2. Do not use frozen materials or materials mixed or coated with ice or frost.
3. Do not build on frozen ground or wet, saturated or muddy subgrade.

1.06 Preinstallation Conference.
A. Prior to the start of the installation, a preinstallation conference shall occur with the representatives from the design team, the general contractor, the excavation contractor, the R-Tank installation contractor, and the manufacturer's representative.

1.07 Project Conditions
A. Coordinate installation for the R-Tank system with other on-site activities to eliminate all non-installation related construction traffic over the completed R-Tank system. No loads heavier than the design loads shall be allowed over the system, and in no case shall loads higher than a standard AASHTO HS20 (or HS25, depending on design criteria) load be allowed on the system at any time.
B. Protect adjacent work from damage during R-Tank system installation.
C. All pre-treatment systems to remove debris and heavy sediments must be in place and functional prior to operation of the R-Tank system. Additional pretreatment measures may be needed if unit is operational during construction due to increased sediment loads.
D. Contractor is responsible for any damage to the system during construction.

PART 2 - PRODUCTS

2.01 R-Tank Units
A. R -Tank - Injection molded plastic tank plates assembled to form a 95% void modular structure of predesigned height (custom for each project).
B. R-Tank units shall meet the following Physical & Chemical Characteristics:

PROPERTY	DESCRIPTION	R-Tank^{LD} VALUE	R-Tank^{HD} VALUE	R-Tank^{SD} VALUE	R-Tank^{UD} VALUE
Void Area	Volume available for water storage	95%	95%	95%	95%
Surface Void Area	Percentage of exterior available for infiltration	90%	90%	90%	90%
Compressive Strength	ASTM D 2412 / ASTM F 2418	30.0 psi	33.4 psi	42.9 psi	134.2 psi
HS-20 Minimum Cover	Cover required to support HS-20 loads	N/A	20"	18"	12" (STONE BACKFILL)
HS-25 Minimum Cover	Cover required to support HS-25 loads	N/A	24"	19"	15" (STONE BACKFILL)
Maximum Cover	Maximum allowable cover depth	3 feet	< 7 feet	< 10 feet	5 feet
Unit Weight	Weight of plastic per cubic foot of tank	3.29 lbs / cf	3.62 lbs/cf	3.96 lbs / cf	4.33 lbs / cf
Rib Thickness	Thickness of load-bearing members	0.18 inches	0.18 inches	0.18 inches	N/A
Service Temperature	Safe temperature range for use	-14 – 167° F	-14 – 167° F	-14 – 167° F	-14 – 167° F

2.02 Geosynthetics
A. Geotextile. A geotextile envelope is required to prevent backfill material from entering the R-Tank modules.
1. Standard Application: The standard geotextile shall be an 8 oz per square yard nonwoven geotextile (ACF N080 or equivalent).
2. Infiltration Applications: When water must infiltrate/exfiltrate through the geotextile as a function of the system design, a woven monofilament (ACF M200 or equivalent) shall be used.
B. Geogrid. For installations subject to traffic loads and/or when required by project plans, install geogrid (ACF BX12 or equivalent) to reinforce backfill above the R-Tank system. Geogrid is often not required for non-traffic load applications.

2.03 Backfill & Cover Materials
A. Bedding Materials: Stone (smaller than 1.5" in diameter) or soil (GW, GP, SW, or SP as classified by the Unified Soil Classification System) shall be used below the R-Tank system (3" minimum). Material must be free from lumps, debris, and any sharp objects that could cut the geotextile. Material shall be within 3 percent of the optimum moisture content as determined by ASTM D698 at the time of installation. For infiltration applications bedding material shall be free draining.
B. Side and Top Backfill: Free draining stone (smaller than 1.5" in diameter) or soil (GW, GP, SW, or SP as classified by the Unified Soil Classification System) shall be used adjacent to (24" minimum) and above (for the first 12") the R-Tank system. Material must be free from lumps, debris and any sharp objects that could cut the geotextile. Material shall be within 3 percent of the optimum moisture content as determined by ASTM D698 at the time of installation.
C. Additional Cover Materials: Structural Fill shall consist of granular materials meeting the gradational requirements of SM, SP, SW, GM, GP or GW as classified by the Unified Soil Classification System. Structural fill shall have a maximum of 25 percent passing the No. 200 sieve, shall have a maximum clay content of 10 percent and a maximum Plasticity Index of 4. Material shall be within 3 percent of the optimum moisture content as determined by ASTM D698 at the time of installation.

2.04 Other Materials
A. Utility Marker: Install metallic tape at corners of R-Tank system to mark the area for future utility detection.

PART 3 - EXECUTION

3.01 Assembly of R-Tank Units
A. On-site assembly of tanks shall be performed in accordance with the R-Tank Installation Manual, Section 2.

3.02 Layout and Excavation
A. Installer shall stake out, excavate, and prepare the subgrade area to the required plan grades and dimensions, ensuring that the excavation is at least 2 feet greater than R-Tank dimensions in each direction allowing for installation of geotextile filter fabric, R-Tank modules, and free draining backfill materials.
B. All excavations must be prepared with OSHA approved excavated sides and sufficient working space.
C. Protect partially completed installation against damage from other construction traffic by establishing a perimeter with high visibility construction tape, fencing, barricades, or other means until construction is complete.
D. Base of the excavation shall be uniform, level, and free of lumps or debris and soft or yielding subgrade areas. A minimum 2,000 pounds per square foot bearing capacity is required.
1. Standard Applications: Compact subgrade to a minimum of 95% of Standard Proctor (ASTM D698) density or as required by the Owner's engineer.
2. Infiltration Applications: Subgrade shall be prepared in accordance with the contract documents. Compaction of subgrade should not be performed in infiltration applications.
E. Unsuitable Soils or Conditions: All questions about the base of the excavation shall be directed to the owner's engineer, who will approve the subgrade conditions prior to placement of stone. The owner's engineer shall determine the required bearing capacity of the R-Tank subgrade; however in no case shall a bearing capacity of less than 2,000 pounds per square foot be provided.
1. If unsuitable soils are encountered at the subgrade, or if the subgrade is pumping or appears excessively soft, repair the area in accordance with contract documents and/or as directed by the owner's engineer.
2. If indications of the water table are observed during excavation, the engineer shall be contacted to provide recommendations.
3. Do not start installation of the R-Tank system until unsatisfactory subgrade conditions are corrected and the subgrade conditions are accepted by the owner's engineer.

3.03 Preparation of Base
A. Place a thin layer (3" unless otherwise specified) of bedding material (Section 2.03 A), over the subgrade to establish a level working platform for the R-Tank modules. Level to within ½" (+/- ¼") or as shown on the plans. Native subgrade soils or other materials may be used if determined to meet the requirements of 2.03 A and are accepted by the owner's engineer.
1. Standard Applications: Static roll or otherwise compact bedding materials until they are firm and unyielding.
2. Infiltration Applications: Bedding materials shall be prepared in accordance with the contract documents.
B. Outline the footprint of the R-Tank system on the excavation floor using spray paint or chalk line to ensure a 2' perimeter is available around the R-Tank system for proper installation and compaction of backfill.

3.04 Installation of the R-Tanks
A. Where a geotextile wrap is specified on the stone base, cut strips to length and install in excavation, removing wrinkles so material lays flat. Overlap geotextile a minimum 12" or as recommended by manufacturer.
B. Where an impervious liner (for containment) is specified, install the liner per manufacturer's recommendations and the contract documents. The R-Tank units shall be separated from impervious liner by a non-woven geotextile fabric installed accordance with Section 3.04A.
C. Install R-Tank modules by placing side by side, in accordance with the design drawings. No lateral connections are required. It is advisable to use a string line to form square corners and straight edges along the perimeter of the R-Tank system. The modules are to be oriented as per the design drawing (15.75" x 28.15") with required depth as shown on plans. The large side plate of the tank should be placed on the perimeter of the system. This will typically require that the two ends of the tank area will have a row of tanks placed perpendicular to all other tanks. If this is not shown in the construction drawings, it is a simple field adjustment that will have minimal effect on the overall system footprint. Refer to R-Tank Installation Guide for more details.
D. Wrap the R-Tank top and sides in specified geotextile. Cut strips of geotextile so that it will cover the sides and top, encapsulating the entire system to prevent soil entry into the system. Overlap geotextile 12" or as recommended by manufacturer. Take great care to avoid damage to geotextile (and, if specified, impervious liner) during placement.
E. Identify locations of inlet, outlet and any other penetrations of the geotextile (and optional liner). These connections should be installed flush (butted up to the R-Tank) and the geotextile fabric shall be cut to enable hydraulic continuity between the connections and the R-Tank units. These connections shall be secured using pipe boots with stainless steel pipe clamps. Support pipe in trenches during backfill operations to prevent pipe from settling and damaging the geotextile, impervious liner (if specified) or pipe. Connecting pipes at 90 degree angles facilitates construction, unless otherwise specified. Ensure end of pipe is installed snug against R-Tank system.
F. Install Inspection and Maintenance Ports in locations noted on plans. At a minimum one maintenance port shall be installed within 10' of each inlet & outlet connection, and with a maximum spacing of one maintenance port for every 2,500 square feet. Install all ports as noted in the R-Tank Installation Guide.
If required, install ventilation pipes and vents as specified on drawings to provide ventilation for proper hydraulic performance. The number of pipes and vents will depend on the size of the system. Vents are often installed using a 90 degree elbow with PVC pipe into a landscaped area with 'U" bend or venting bollard to inhibit the ingress of debris. A ground level concrete or steel cover can be used.

3.05 Backfilling of the R-Tank Units
A. Backfill and fill with recommended materials as follows:
1. Place freely draining backfill materials (Section 2.03 B) around the perimeter in lifts with a maximum thickness of 12". Each lift shall be placed around the entire perimeter such that each lift is no more than 24" higher than the side backfill along any other location on the perimeter of the R-Tank system. No fill shall be placed over top of tanks until the side backfill has been completed.
2. Each lift shall be compacted at the specified moisture content to a minimum of 95% of the Standard Proctor Density until no further densification is observed (for self-compacting stone materials). The side lifts must be compacted with walk behind compaction equipment. Even when "self-compacting" backfill materials are selected, a walk behind vibratory compactor must be used.
3. Take care to ensure that the compaction process does not allow the machinery to come into contact with the modules due to the potential for damage to the geotextile and R-Tank units.
4. No compaction equipment is permissible to operate directly on the R-Tank modules.
5. Following placement of side backfill, a uniform 12" lift of the freely draining material (Section 2.03 B) shall be placed over the R-Tank and lightly compacted using a walk-behind trench roller. Alternately, a roller (maximum gross vehicle weight of 6 tons) may be used. Roller must remain in static mode until a minimum of 24" of cover has been placed over the modules. Sheep foot rollers should not be used.
6. Install a geogrid (required for traffic applications) over the initial 12" lift of backfill. Geogrid shall extend a minimum of 3 feet beyond the limits of the excavation wall.
7. Following placement and compaction of the initial cover, subsequent lifts of structural fill (Section 2.03 C) shall be placed at the specified moisture content and compacted to a minimum of 95% of the Standard Proctor Density and shall cover the entire footprint of the R-Tank system. During placement of fill above the system, unless otherwise specified, a uniform elevation of fill shall be maintained to within 12" across the footprint of the R-Tank system. Do not exceed maximum cover depths listed in Table 2.01 B.
8. Place additional layers of geotextile and/or geogrid at elevations as specified in the design details. Each layer of geosynthetic reinforcement placed above the R-Tank system shall extend a minimum of 3 feet beyond the limits of the excavation wall.
B. Only low pressure tire or track vehicles shall be operated over the R-Tank system during construction. No machinery should drive on top of the tank until a minimum of 18" of backfill and compaction is achieved. Dump Trucks and Pans shall not be operated within the R-Tank system footprint at any time. Where necessary the heavy equipment should unload in an area adjacent to the R-Tank system and the material should be moved over the system with tracked equipment.
C. Ensure that all unrelated construction traffic is kept away from the limits of excavation until the project is complete and final surface materials are in place. No non-installation related loading should be allowed over the R-Tank system until the final design section has been constructed (including pavement).
D. Place surfacing materials, such as groundcovers (no large trees), or paving materials over the structure with care to avoid displacement of cover fill and damage to surrounding areas.
E. Backfill depth over R-Tank system must be within the limitations shown in the table in Section 2.01 B. If the total backfill depth does not comply with this table, contact engineer or manufacturer's representative for assistance.

PART 4 - USING THE SYSTEM

4.01 Maintenance Requirements
A. A routine maintenance effort is required to ensure proper performance of the R-Tank system. The Maintenance program should be focused on pretreatment systems. Ensuring these structures are clean and functioning properly will reduce the risk of contamination of the R-Tank system and stormwater released from the site. Pre-treatment systems shall be inspected yearly, or as directed by the regulatory agency and by the manufacturer (for proprietary systems). Maintain as needed using acceptable practices or following manufacturer's guidelines (for proprietary systems).
B. Inspection and/or Maintenance Ports in the R-Tank system will need to be inspected for accumulation of sediments at least quarterly through the first year of operation and at least yearly thereafter. This is done by removing the cap of the port and using a measuring device long enough to reach the bottom of the R-Tank system and stiff enough to push through the loose sediments, allowing a depth measurement.
C. If sediment has accumulated to the level noted in the R-Tank Maintenance Guide or beyond a level acceptable to the Owner's engineer, the R-Tank system should be flushed.
D. A flushing event consists of pumping water into the Maintenance Port and/or adjacent structure, allowing the turbulent flows through the R-Tank system to re-suspend the fine sediments. If multiple Maintenance Ports have been installed, water should be pumped into each port to maximize flushing efficiency. Sediment-laden water can be filtered through a Dirtbag or approved equivalent if permitted by the locality.

REVISIONS

Date	Description	By
R3 10.24.18	UPDATED TANK ELEV.	EJW

R-TANK SYSTEM DETAILS AND NOTES
INFILTRATION SYSTEM
PARKWAY AUTOMOTIVE PARKING
OWNER: WILMINGTON AUTO GROUP PROPERTIES LLC
ADDRESS: 5932 MARKET ST., WILMINGTON, NC

TRIPP ENGINEERING, P.C.
419 Chestnut Street
Wilmington, North Carolina 28401
Phone 910-763-5100
Fax 910-763-5631

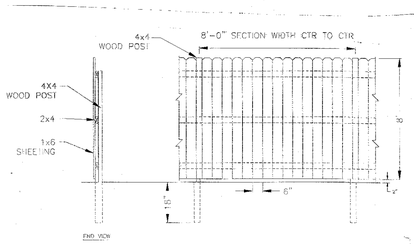
NORTH CAROLINA PROFESSIONAL SEAL 17374 ENGINEER PHILLIP GREGORY TRIPP 9.4.18

DATE 09-04-18
DESIGN PGT
DRAWN EJW

C5

SHEET 5 OF 5

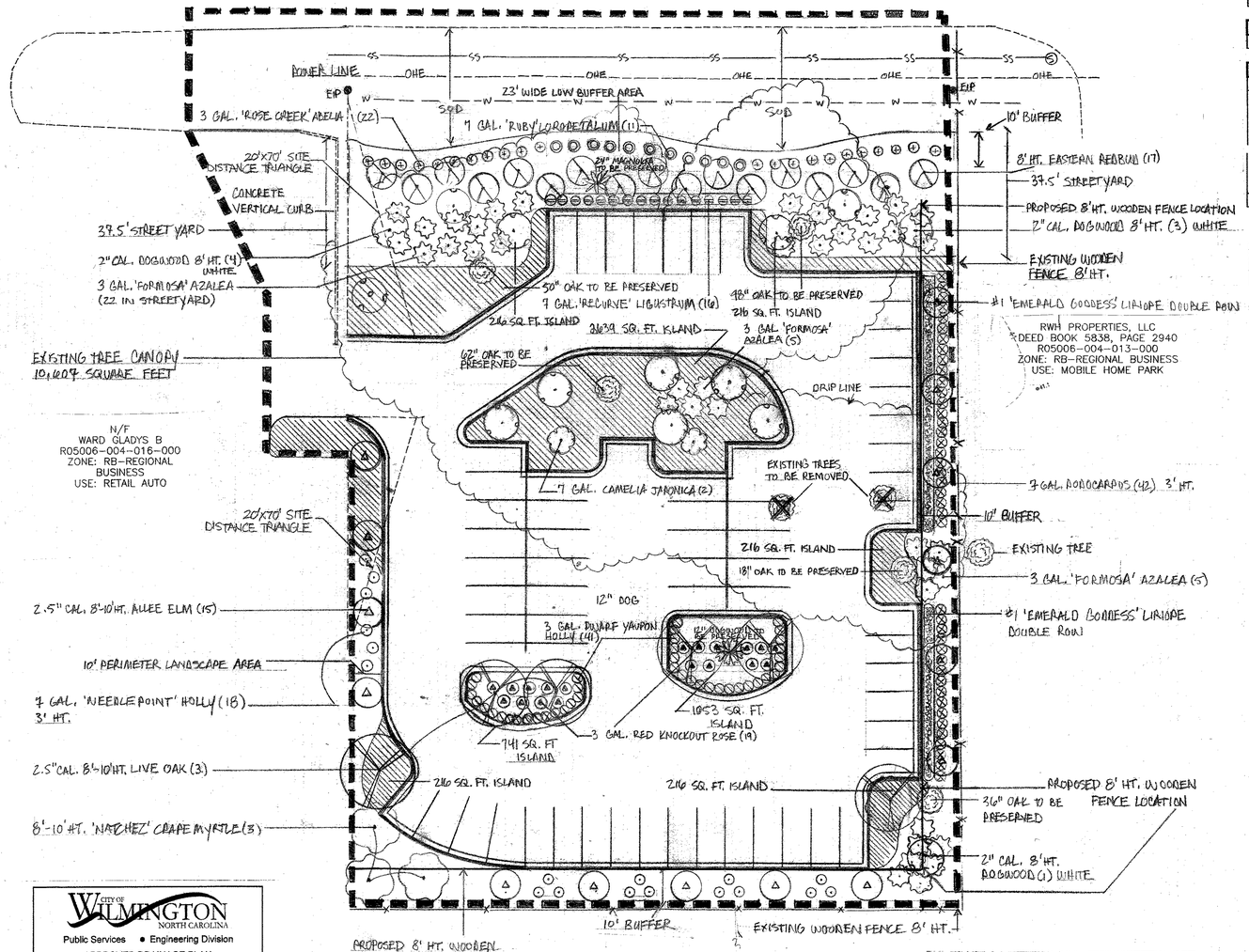
17041



VERTICAL WOOD FENCE
N.T.S.

N/F
FILIPPINI FAMILY LTD
PTNRP
R05006-001-009-001
ZONE: LI-LIGHT INDUSTRIAL
USE: BUSINESS

MARKET STREET



RWH PROPERTIES, LLC
DEED BOOK 5838, PAGE 2940
R05006-004-013-000
ZONE: RB-REGIONAL BUSINESS
USE: MOBILE HOME PARK

Site Data
Address: 5932 Market St.
Property Owner: Wilmington Auto Goup Prop LLC
PIN Number: R05006-004-021-000
Zoning District: RB- Regional Business
Project Area: 43,560 SF (1.00 Acre)

Landscape Requirements

Parking Lot Canopy Coverage

	Required	Provided
(25,045 SF x 20%)	5,009 SF, 7 Trees	**Ex. Tree Canopy=10,607 Sq. Ft.**
		5 Large Shade Trees
		(4 x 707 = 2,828 sq. ft.)
		6 Small Shade Trees
		(6 x 314 = 1,814 sq. ft.)
		Total SF Provided=19,871

Street Yard Planting

Market St.	4500 SF (180 x 25)	4,500 SF
Understory Trees Required	**23 (3/600 SF)**	**23 Proposed**
Shrubs Required	**45(6/600 SF)**	**55 Proposed**

Total Parcel (43,560 SF) x 6% = 2,613.6 sq. ft. landscape required
Total Landscape provided = 17,026 sq. ft.

Foundation Planting
N/A

Retained Trees Counted Tward Minimum Required

Qty	Size	Common Name	Credits
1	50"	Oak	8
1	48"	Oak	8
1	62"	Oak	10
1	18"	Oak	4
1	36"	Oak	6
1	24"	Magnolia	4
1	12"	Dogwood	3
	Total Tree Credits		43

Buffer Yard

Required	Provided
13 Trees (380/30 LF)	**15 Trees**

Tree Requirements Per Disturbed Acre
15 trees per disturbed acre must be retained or planted on site

Required : 1 Acre Disturbed x 15 Trees = 15 Required Trees
Tree Credits: 43 Existing Tree Credits
Total: 96 Trees Provided

Mitigation
Trees to be removed

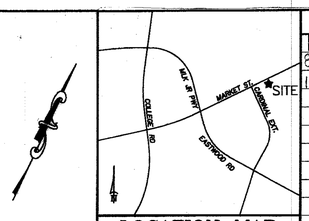
Qty	Size	Common Name	% Mitigation
1	18"	Oak	100
1	26"	Oak	100

Trees Required: (44 x 2 x 100%) / 3 = 30 Trees Required

Perimeter Landscape

Required	Provided
7 Trees (178/27LF)	**7 Trees**

QTY	SIZE	PLANT TYPE	SCIENTIFIC NAME	HEIGHT SPEC	SYMBOL
TREES					
3	8/10'	Crape Myrtle Natchez	Lagerstroemia indica 'Natchez'	8' HT.	
14	2"	White Flowering Dogwood	Cornus florida	8' HT.	
15	2.5"	Allee Elm	Ulmus parvifolia 'Allee'	8'-10' HT	
6	2.5"	Live Oak	Quercus virginiana	8'-10' HT.	
17	8'	Eastern Redbud	Cercis canadensis	8' HT.	
SHRUBS					
41	3 gal.	Dwarf Yaupon Holly	Ilex vomitoria 'Bordeaux'	18" HT.	
22	3 gal.	Rose Creek Abelia	Abelia x grandiflora 'Rose Creek'	18" HT.	
11	7 gal.	Ruby Loropetalum	Loropetalum Chinese 'Ruby'	36" HT.	
42	7 gal.	Podocarpus	Podocarpus macrophyllus	36" HT.	
2	7 gal.	Camellia Sp.	Camellia japonica	24" HT.	
18	7 gal.	Needlepoint Holly	Ilex cornuta 'Needlepoint'	36" HT.	
16	7 gal.	Recurve Ligustrum	Ligustrum japonicum 'Recurve'	36" HT.	
39	3 gal	Formosa Azalea	Azalea indica 'Formosa'	18" HT.	
19	3 gal	Red Knockout Rose	Rosa x 'Knockout'	20" HT.	
GROUNDCOVERS					
5,434	SQ. FT.	Asiatic Jasmine	Trachleospermum sp.	4-6 HT.	
614	SQ. FT.	Emerald Goddess Liriope	Liriope muscari 'Emerald Goddess'	12" HT.	
	SQ. FT.	Cenitpede Sod	Eremochloa ophiuroides		



REVISIONS

No./ Date	Description	By
8.15.18	REVISE	LL
10.31.18	REVISE	LL

PARKWAY AUTOMOTIVE PARKING
OWNER: WILMINGTON AUTO GROUP PROPERTIES LLC
ADDRESS: 5932 MARKET ST.; WILMINGTON, NC

CITY OF WILMINGTON NORTH CAROLINA
Public Services • Engineering Division
APPROVED DRAINAGE PLAN
Date:_____ Permit #_____
Signed: _____

CITY OF WILMINGTON NORTH CAROLINA
Public Services • Engineering Division
APPROVED PLAN - NO PERMIT REQUIRED
Signed: _____

STORMWATER MANAGEMENT PLAN
APPROVED
CITY OF WILMINGTON
ENGINEERING DEPARTMENT
DATE 11/6/2018 PERMIT # 20180049
SIGNED Trent Butler for RAC

Approved Construction Plan

	Name	Date
Planning	Nicole Dynicki	11/5/18
Public Utilities	N/A	
Traffic	[signature]	11-5-18
Fire	[signature]	11/5/18

For each open utility cut of City streets, a $325 permit shall be required from the City prior to occupancy and/or project acceptance.

LANDSCAPING

PRIOR TO ANY CLEARING, GRADING OR CONSTRUCTION ACTIVITY, TREE PROTECTION FENCING WILL BE INSTALLED AROUND PROTECTED TREES OR GROVES OF TREES AND NO CONSTRUCTION WORKERS, TOOLS, MATERIALS, OR VEHICLES ARE PERMITTED WITHIN THE TREE PROTECTION FENCING.

WRIGHTSVILLE BEACH LANDSCAPING SINCE 1989
PATRICK FREEMAN 910.693.1089 Horticulture & Design patrick@wrightsvillelandscape.com

LEGEND

PROPERTY BOUNDARY
62"OAK EXISTING TREE
62"OAK EXISTING TREE TO BE REMOVED

SITE PLAN

BAR SCALE 1"=20'

20' 10' 0' 20' 40' 60'

PLAN L1	DATE 10/14/18
DRAWN BY	
CHK'D BY	SHT. NO.

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