

ZONING

1) TOPOGRAPHY AND TREE SURVEY COMPLETED BY MARK A. STOCKS, PLS.

10 TOPOGRAPHY AND TREE SURVEY COMPLETED BY MARK A. STOCKS, PLS. 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.

SOUD WASTE

1) SITE TO USE ROLL-OUT TYPE CARTS.

TRAFFIC

1) ALL PAVEMENT MARKINGS IN PUBLIC RIGHTS-OF-WAY AND FOR DRIVEWAYS ARE TO BE THERMOPLASTIC AND MEET CITY AND/OR NCDOT STANDARDS. 2) ALL SIGNS AND PAVEMENT MARKINGS IN AREAS OPEN TO PUBLIC TRAFFIC ARE TO MEET MUTCD (MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES) STANDARDS. 3) CONTACT TRAFFIC ENGINEERING AT 341-7888 TO ENSURE THAT ALL TRAFFIC SIGNALS FACILITIES AND EQUIPMENT ARE SHOWN ON THE PLAN.

4) CALL TRAFFIC ENGINEERING AT 341-7888 FORTY-EIGHT HOURS PRIOR TO ANY EXCAVATION IN THE RIGHT-OF-WAY. 5) ANY BROKEN OR MISSING SIDEWALK PANELS, DRIVEWAY PANELS AND CURBING WILL BE 6) CONTACT TRAFFIC ENGINEERING AT 741-7888 TO DISCUSS STREET LIGHTING OPTIONS.

7) ALL TRAFFIC CONTROL SIGNS AND MARKINGS OFF THE RIGHT-OF-WAY ARE TO BE MAINTAINED BY THE PROPERTY OWNER IN ACCORDANCE WITH MUTCD STANDARDS. 8) NO ROWS TO BE CLOSED. 9) NO STREETS PROPOSED.

10) NO OFF SITE PARKING PROPOSED.

11) DRIVEWAY IS PROPOSED.

12) TRAFFIC ENGINEERING MUST APPROVE OF PAVEMENT MARKING PRIOR TO ACTUAL STRIPING. 13) ALL PARKING STALL MARKINGS AND LANE ARROWS WITHIN THE PARKING AREAS SHALL BE 14) STOP SIGNS AND STREET SIGNS TO REMAIN IN PLACE DURING CONSTRUCTION.

15) TACTILE WARNING MATS WILL BE INSTALLED ON ALL WHEELCHAIR RAMPS.

16) 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.

17) 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)

1) 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. 2) 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.

3) 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. 4) ALL PROPOSED VEGETATION WITHIN SIGHT TRIANGLES SHALL NOT INTERFERE WITH CLEAR VISUAL SIGHT LINES FROM 30"-10".

CFPUA

1) SITE TO UTILIZE EXISTING UTILITIES.

DRAINAGE

1) SITE TO DRAIN TO AN ONSITE INFILTRATION SYSTEM UNDER THE PARKING LOT.

For each open utility cut

City streets, a \$325

shall be required from the

City prior to occupancy

and/or project

<u>acceptance.</u>

Public Services • Engineering Division

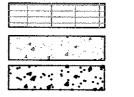
APPROVED STORMWATER MANAGEMENT PLAN

Signed: _____

FIRE AND LIFE SAFETY NOTES 1) ADDITIONAL FIRE PROTECTION AND ACCESSIBILITY REQUIREMENTS MAY BE REQUIRED DUE TO ANY SPECIAL CIRCUMSTANCES CONCERNING THE PROJECT.

SITE DATA:	
PROPERTY OWNER(S)	GPT INVESTMENTS, LLC 140 KING ARTHUR DR. WILMINGTON, NC 28403
EMAIL ADDRESS PROJECT ADDRESS(ES)	GTARLTON333@GMAIL.COM 6753 MARKET ST. 6757 MARKET ST.
PIN NUMBER(S)	R04320-001-006-000 R04320-001-007-000
AREA NOT IN A FEMA 100—YEAR FLOOI ZONING DISTRICT) Zone. RB-regional business
DISTURBED AREA	2 Ac.
SETBACKS REQUIRED	FRONT: 25' REAR: 15' SIDE: 0' CORNER LOT SIDE: 25'
PROPOSED BUILDING SETBACKS	FRONT: 94' REAR: 360' SIDE: 10.6' CORNER LOT SIDE: N/A
TRACT AREA BUILDING USE	111,580 SF (2.56 AC) AUTOMOBILE DEALER
PROPOSED BUILDING AREA (GROSS) EXISTING BUILDING AREA (GROSS) BUILDING LOT COVERAGE (4,824/111,50) NUMBER OF UNITS NUMBER OF BUILDINGS BUILDING HEIGHT	0 SF 4,824 SF 80) 4.3% 1 18
NUMBER OF STORIES SF PER FLOOR (GROSS)	4,824 SF
EXISTING ON-SITE IMPERVIOUS AREAS: EXISTING BUILDINGS	4,824 SF
EXISTING ASPHALT EXISTING CONCRETE TOTAL EXISTING IMPERVIOUS AREA	10,440 SF 2,208 SF 17,472 SF (15.6%)
PROPOSED ONSITE IMPERVIOUS AREAS: PROPOSED BUILDING	
PROPOSED ASPHALT PROPOSED CONCRETE	56,428 SF 132 SF
TOTAL PROPOSED IMPERVIOUS AREA EXISTING ONSITE IMPERVIOUS TO BE REMEDIATED IMPERVIOUS TO REMAIN FUTURE	,,
PROPOSED+EXISTING IMPERVIOUS	
PARKING REQUIRED: (AUTOMOBILE DEALE MAXIMUM: —	ER) 4,824 SF
MINIMUM: 1/500 SF (4,824/500) TOTAL PARKING PROVIDED:	10 120
CUSTOMER/EMPLOYEE PARKING INVENTORY PARKING	10 110
HANDICAP SPACES REQUIRED: (1-25 SPACES=1 HANDICAP SPACE) 10 SPACES 1 S	PROPOSED: URFACE HANDICAP SPACE
CAMA LAND USE:	URBAN
PUBLIC WATER AND SEWER BY CFPUA EXISTING WATER FLOW: EXISTING SEWER FLOW: PROPOSED WATER FLOW: PROPOSED SEWER FLOW:	600 GPD 500 GPD 300 GPD 250 GPD
BICYCLE PARKING REQUIRED (10 SPACE BICYCLE PARKING PROPOSED	

EXISTING SPOT ELEVATION EXISTING CONTOUR PROPOSED STORMWATER TEMPORARY SILT FENCE LIMITS OF DISTURBANCE



PROPOSED RAINTANKS **EXISTING CONCRETE** PROPOSED CONCRETE

SITE PLAN BAR SCALE 1"=30'

17374 ENCINEER. GREGOR 10-23-18 PGT DESIGN EJW DRAWN

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OTORSPORTS TS LLC

RADING, ND STO

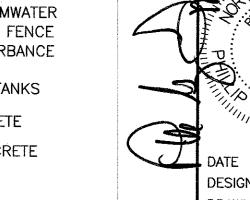
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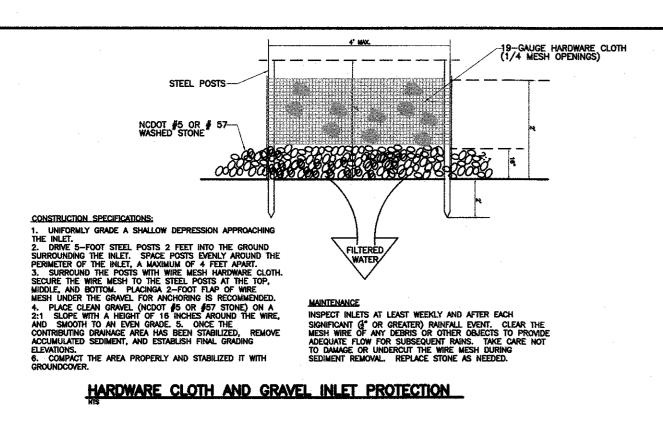
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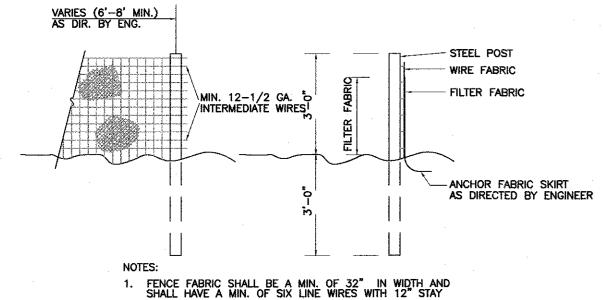
LEGEND

PROPOSED SPOT ELEVATION



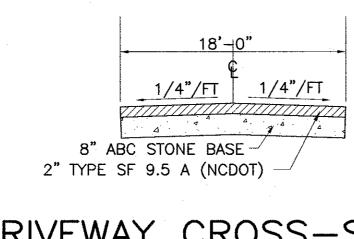
SHEET 3 OF 6



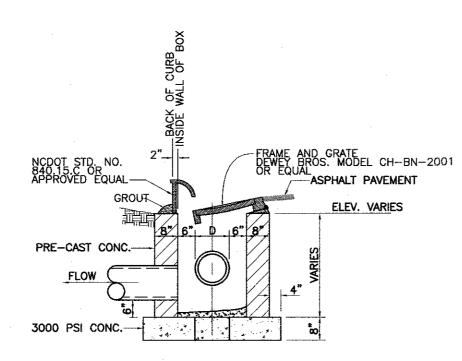


2. FABRIC SHALL BE FOR EROSION CONTROL AND MIN. OF 36" IN WIDTH. FABRIC SHALL BE FASTENED ADEQUATELY TO THE WIRE FABRIC AS DIRECTED BY THE 3. STEEL POST SHALL BE 5'-0" IN HEIGHT AND BE OF THE SELF-FASTENER STEEL ANGLE TYPE.

TEMPORARY SILT FENCE

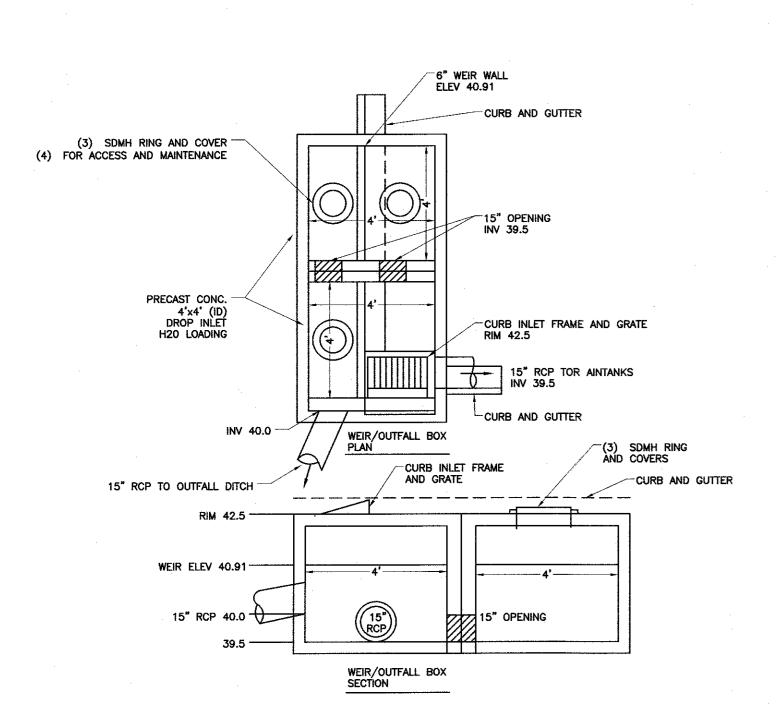


DRIVEWAY CROSS-SECTION



SHEET 1 OF 1

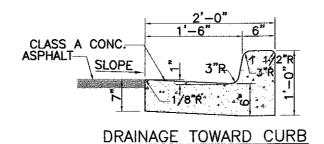
SEE PLAN FOR PIPE ORIENTATION & SIZES CURB INLET DETAIL



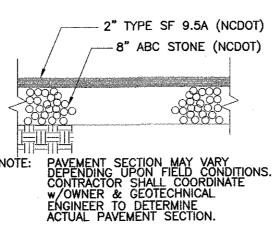
WEIR/OUTFALL BOX

Signed:

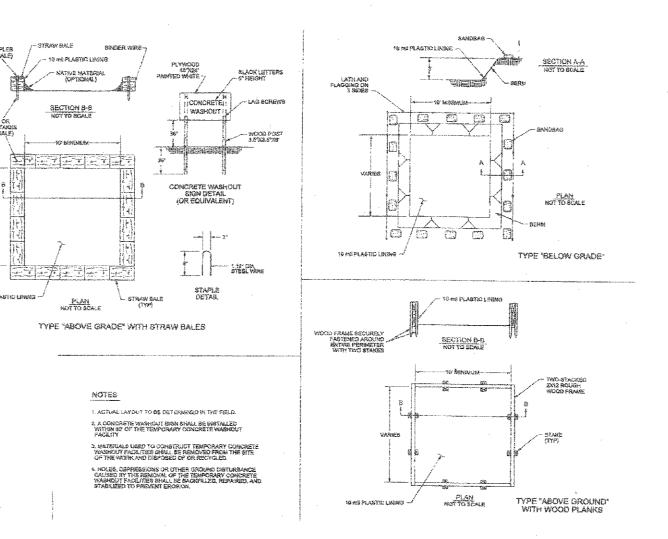
CLASS A CONC. DRAINAGE AWAY FROM CURB



CURB SECTION



CITY OF WILMINGTON PAVEMENT SECTION



1. PROVIDE TURNING RADIUS SUFFICIENT TO ACCOMMODATE LARGE

BY ALL CONSTRUCTION VEHICLES.

3. MUST BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR DIRECT FLOW OF MUD ONTO STREETS.

PERIODIC TOPPRESSING WITH STONE WILL BE RECESSARY.

CLEANED UP IMMEDIATELY.

5. LOCATE GRAVEL CONSTRUCTION ENTRANCE AT ALL POINTS OF INGRESS AND EGRESS UNTIL SITE IS STABILIZED. PROVIDE

FREQUENT CHECKS OF THE DEVICE AND TIMELY MAINTENANCE. NUMBER AND LOCATION OF CONSTRUCTION ENTRANCES TO

7. USE CLASS 'A' STONE OR OTHER COARSE AGGREGATE APPROVED BY THE ENGINEER. 8. INSTALL CONSTRUCTION ENTRANCES IN A WAY TO PREVENT VEHICLES

FROM BYPASSING CONSTRUCTION ENTRANCE LEAVING PROJECT SITE

2. LOCATE ENTRANCES TO PROVIDE FOR UTILIZATION

4. ANY MATERIAL TRACKED ONTO THE ROADWAY MUST BE

NOTE: PLACE FILTRATION GEOTEXTILE BENEATH STONE

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

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

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

COUNTY IS NOT AUTHORIZED TO ENFORCE THIS PAGE OF THE PLANS AND IT IS NOT A PART OF THE APPROVED PLANS.

4. CONCRETE MATERIALS MUST BE CONTROLLED TO AVOID CONTACT WITH SURFACE WATERS, WETLANDS OR BUFFERS.

SEDIMENT BASINS
1. OUTLET STRUCTURES MUST WITHDRAW FROM BASIN SURFACE UNLESS DRAINAGE AREA IS LESS THAN 1 ACRE.

BUILDING WASTE HANDLING

1. NO PAINT OR LIQUID WASTES IN STREAMS OR STORM DRAINS.

2. SAME RAIN GAUGE AND INSPECTIONS AFTER 0.5" RAIN EVENT.

FOR THE PURPOSES OF ENFORCEMENT ACTION UNDER THE COUNTY CODE.

APPROVED.

5. RECORDS MUST BE KEPT FOR 3 YEARS AND AVAILABLE UPON REQUEST.

6. ELECTRONICALLY AVAILABLE RECORDS MAY BE SUBSTITUTED UNDER CERTAIN CONDITIONS.

NSPECTIONS

1. SAME WEEKLY INSPECTION REQUIREMENTS.

2. USE ONLY DWQ-APPROVED FLOCCULENTS.

BE DETERMINED BY THE ENGINEER

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 DESCRIPTION OF THE PROMPT OF TH 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

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/gcre)		
	Rye (grain) Annual lespedeza (Kobe in	120		
LATE WINTER & EARLY SPRING	Piedmont and Coastal Plain, Korean in Mountains) Omit annual lespedeza when	50		
	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 &	Mountains — Above 2500 ft: Feb. 15—May Selow 2500 ft: Feb. 1—May	15 1		
EARLY SPRING	Piedmont — Jan. 1—May 1 Coastal Plain — Dec. 1—Apr. 15			
SUMMER	Mountains — May 15—Aug 15 Piedmont — May 1—Aug 15 Coastol Plain — Apr. 15—Aug 15			

Mountains - Aug 15-Dec 15 Coastal Plain and Piedmant - Aug 15-Dec 30 SOIL AMENDMENTS FOLLOW RECOMMENDATIONS OF SOIL TESTS OR APPLY 2.00 LF/ACRE GROUND AGRICULTURAL LIMESTONE AND 750 LB/ACRE 10-10-10 FERTILIZER. 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

> MAINTENANCE REFERTILIZE IF GROWTH IS NOT FULLY ADEQUATE. RESEED, REFERTILIZE AND MULCH IMMEDIATELY FOLLOWING EROSION OR OTHER DAMAGE.

SPRING- PERMANENT (SEEDING MIXTURE	-SUMMER GRASSING DETAIL
SPECIES	RATE (lb/gcre)
PENSACOLA BAHIAGRASS	50
SERICEA LESPEDEZA COMMON BERMUDA GRASS	30 10
GERMAN MILLET TALL FESCULE	10 50
PEL FESCOL	30
SEEDING NOTES	
	RED, OMIT SERICEA. 7 ON ISOLATED SITES WHERE IT CANNOT BE— E REPLACED WITH 5 Ib/GCTG CENTIPEDE GRASS.
SEEDING DATES	
APRIL 1 - JULY 15	

SOIL AMENDMENTS APPLY LIME AND FERTILIZER ACCORDING TO SOIL TESTS, OR APPLY 3,000 Ib/acre GROUND AGRICULTURE LIMESTONE AND 500 Ib/acre 10-10-10 FERTILIZER.

MULCH

REFERTILIZE THE FOLLOWING APRIL WITH 50 Ib/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.

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 DUMPING OF PAINT OR OTHER LIQUID BUILDING MATERIAL

WASTES IN STORM DRAINS IS PROHIBITED. 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. . ANY HARDENED CONCRETE RESIDUE WILL BE DISPOSED OF, OR RECYCLED ON SITE, IN ACCORDANCE WITH LOCAL AND STATE SOLID WASTE REGULATIONS. 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: 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.

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 AUTHORITY BASED ON WEATHER OR OTHER SITE—SPECIFIC CONDITIONS THAT MAKE COMPLIANCE IMPRACTICABLE. . 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 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

NPDES GROUND STABILIZATION CRITERIA SITE WORK NOTES THE CONTRACTOR SHALL VISIT THE SITE AND BECOME FAMILIARIZED WITH EXISTING CONDITIONS BOTH ON AND IMMEDIATELY ADJACENT TO THE SITE. CLEARING: CONTRACTOR SHALL REMOVE ALL TREES AND VEGETATION WITHIN MITS OF CONSTRUCTION UNLESS OTHERWISE DESIGNATED TO REMAIN. GRUBBING AND STRIPPING: CONTRACTOR SHALL RAKE AND REMOVE ROOTS. DRGANIC MATERIAL OR ANY OTHER UNSUITABLE MATERIAL WITHIN LIMITS OF ONSTRUCTION. MUCKING: CONTRACTOR SHALL COORDINATE WITH OWNER AND THEIR

STUMPS, VEGETATION, DEBRIS, EXISTING STRUCTURES ABOVE AND BELOW GRADE, EOTECHNICAL REPRESENTATIVE TO COORDINATE REMOVAL OF ANY SOFT AREAS. DISPOSAL: CLEARED, GRUBBED, STRIPPED OR OTHER WASTE MATERIAL SHAL BE REMOVED FROM SITE AND DISPOSED OF IN A PROPERLY PERMITTED FACILITY. FILL AND COMPACTION SHOULD COMPLY WITH GEOTECHNICAL REPORT. THE CONTRACTOR SHALL NOTE THAT THE GRADING PLAN MAY NOT EPRESENT A BALANCED EARTHWORK CONDITION. THE CONTRACTOR SHALL BE

ESPONSIBLE FOR CUT AND FILL QUANTITIES AND COMPLETE INSTALLATION TO THE CONTRACTOR SHALL FURNISH SUITABLE BORROW MATERIAL FROM AN OFF-SITE PROPERLY PERMITTED FACILITY AS REQUIRED. THE CONTRACTOR IS RESPONSIBLE FOR THE LOCATION AND PROTECTION OF L EXISTING UTILITIES DURING CONSTRUCTION. BEFORE COMMENCING ANY XCAVATIONS IN OR ALONG ROADWAYS OR RIGHT-OF-WAYS, PUBLIC AREAS OR PRIVATE EASEMENTS, THE CONTRACTOR SHALL NOTIFY ALL APPROPRIATE ERSONNEL 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

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. ____ FOR ADDITIONAL REQUIREMENTS.

CONSTRUCTION SEQUENCE 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 SIT AS REQUIRED TO ALLOW PROPER FUNCTIONING. RESTORE POND 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 8. MAINTAIN ALL EROSION CONTROL MEASURES UNTIL PROJECT IS

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

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. 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. SEDIMENT WILL BE REMOVED FROM BEHIND THE SEDIMENT FENCE ALL PERIMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES 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 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 ABOVE, THE FOLLOWING CONDITIONS OR EXEMPTIONS SHALL APPLY: NO LONGER DRAINS OR WHEN THE ROCK IS DISLODGED. BAFFLES WILL EXTENSIONS OF TIME MAY BE APPROVED BY THE PERMITTING 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 . 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

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. FLOCCULATES WILL BE USED TO ADDRESS TURBIDITY ISSUES. THE PUMPS, TANKS, HOSES AND INJECTION SYSTEMS WILL BE CHECKED FOR PROBLEMS OR TURBID DISCHARGES DAILY.

Date Description By

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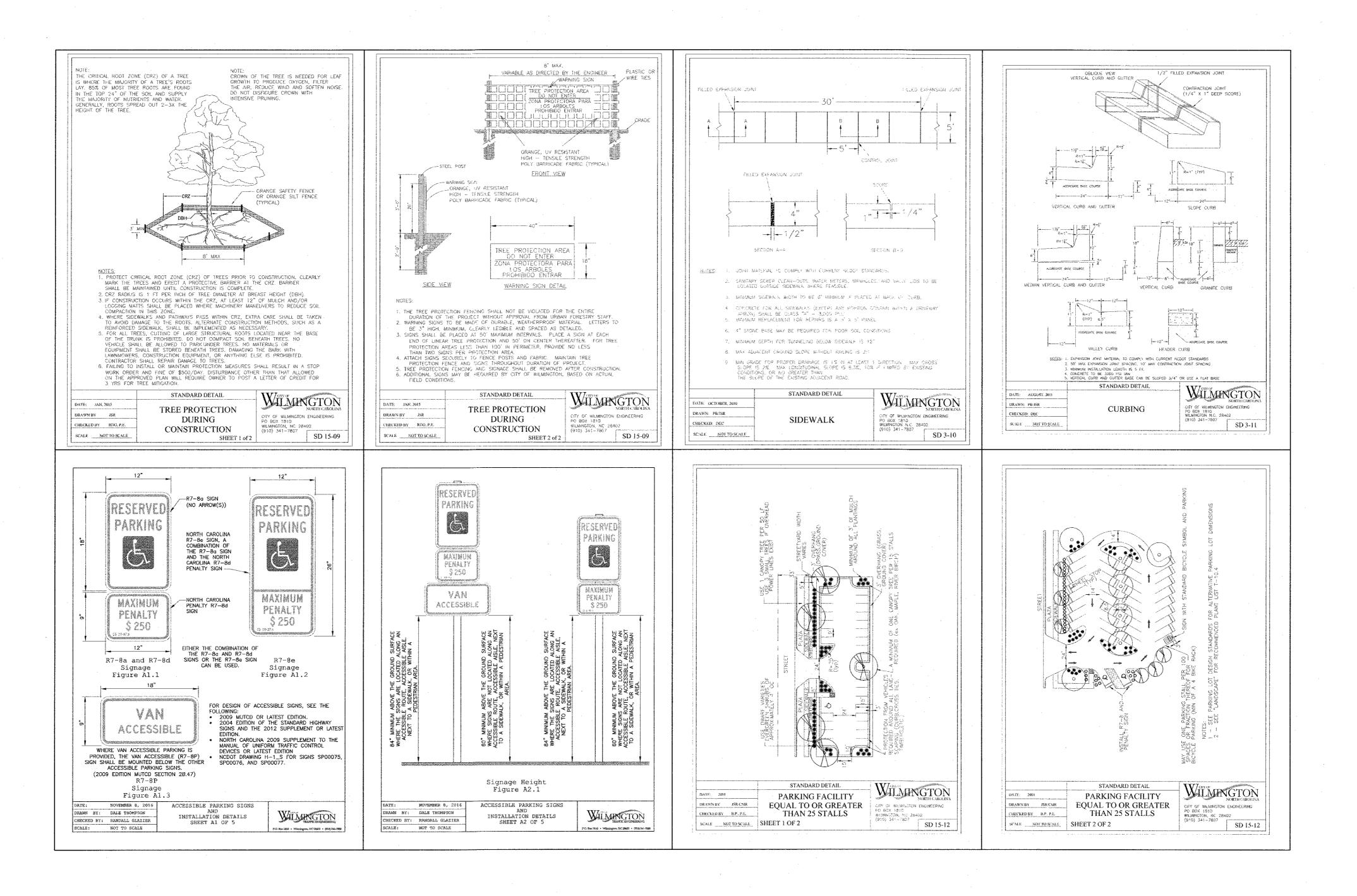
10-23-18 DATE PGT DESIGN EJW DRAWN

SHEET 4 OF 6 17041

Approved Construction Plan <u>Date</u> Planning

Public Services • Engineering Division APPROVED STORMWATER MANAGEMENT PLAN

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



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

Approved	Construction	<u>Pl</u> an		\
	<u>Name</u>	<u>Date</u>		\
Planning				Public
Traffic				APPROV
Fire				Date:
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CITY OF MORTH CAROLINA
Public Services • Engineering Division APPROVED STORMWATER MANAGEMENT PLAN
Date: Permit #
Signed:

SP 0 NOTES ETAILS

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Date Description By

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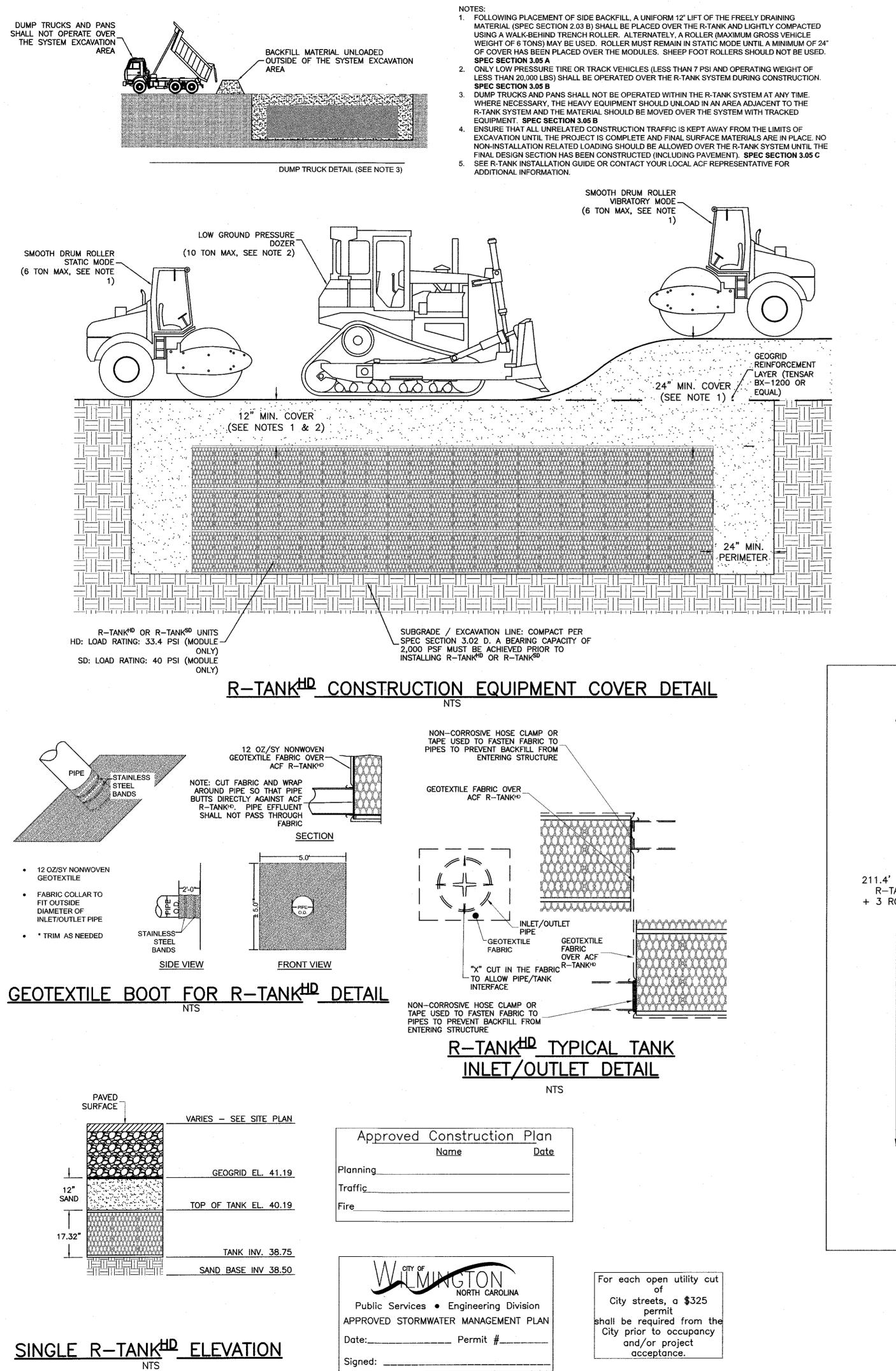
TRIPP ENGINEERING,
419 Chestnut Street
Wilmington, North Carolina 284
Phone 910-763-5100
Fax 910-763-5631
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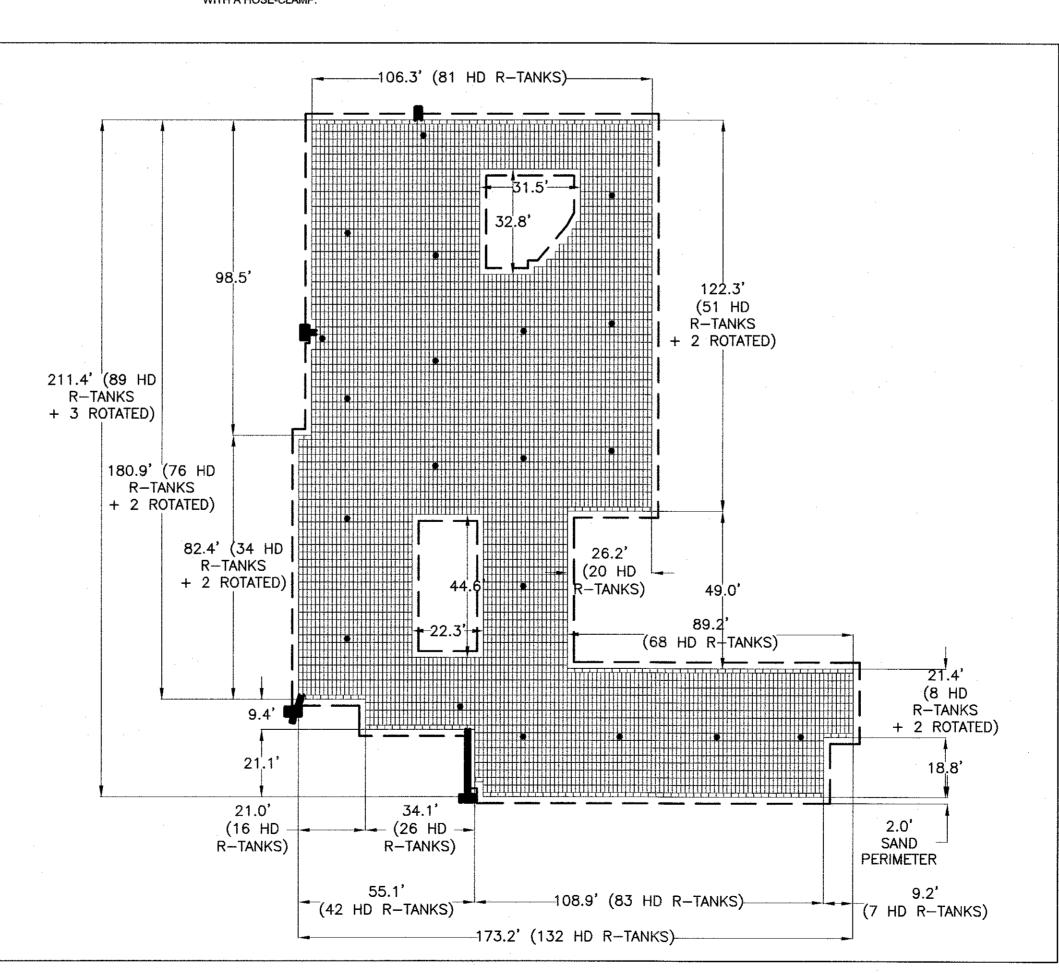
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SHEET 5 OF 6 17041



GEOGRID (TENSAR BX-1200 OR EQUAL) PLACED 12" SURFACE ABOVE THE R-TANKHD SYSTEM. OVERLAP ADJACENT PANELS BY 18"MIN. GEOGRID SHOULD EXTEND 3" BEYOND THE EXCAVATION FOOTPRINT. OPTIONAL OVERFLOW R-TANKHD UNITS WRAPPED IN 8 OZ. NONWOVEN GEOTEXTILE (OR EQUAL) EXCAVATION WRAPPED IN 8 OZ. OUTLET PIPE NONWOVEN GEOTEXTILE (OR EQUAL) 4" SAND BASE — R-TANKHO TANK WRAP & EXCAVATION LINER DETAIL NOTES
THIS PORT IS USED TO PUMP WATER INTO THE SYSTEM AND RE-SUSPEND ACCUMULATED SEDIMENT SO THAT I MAY BE PUMPED OUT. MINIMUM REQUIRED MAINTENANCE -16.25" FRAME INCLUDES A QUARTERLY INSPECTION AND COVER 12" DIA. PVC DURING THE FIRST YEAR OF MAINTENANCE PORT OPERATION AND A YEARLY INSPECTION -REINFORCED CONCRETE COLLAR THEREAFTER. FLUSH AS NEEDED. WHERE REQUIRED ONLY R-TANKHO AND R-TANKSD MAY BE COMPACTED TO 95% USED IN TRAFFIC APPLICATIONS. PAVED SURFACE STANDARD PROCTOR DENSITY **DEPTH SUMMARY** ~GEOGRID AS SHOWN -NON-CORROSIVE HOSE CLAMP R-TANK 12" MIN - 36" MAX ON PLANS -1" +/- VENTING PERFORATIONS -GEOTEXTILE R-TANK^{HD} 20" MIN - 6.99' MAX R-TANK^{SD} 18" MIN - 9.99' MAX ~8" NOTCHES CUT IN ---SHADED AREAS (8 **OPENINGS TOTAL)** NON-CORROSIVE SOLID PLATE PLASTIC, SLATE OR EQUIVALENT SEE PATTERN NOTCHING R-TANKHD TYPICAL MAINTENANCE PORT DETAIL 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. -106.3' (81 HD R-TANKS)-31.5 122.3' (51 HD R-TANKS + 2 ROTATED) R-TANKS 180.9' (76 HD R-TANKS + 2 ROTATED)



R-TANKHO SYSTEM No. 1 LAYOUT

PART 1 - GENERAL

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.

Protect R-Tank system from construction traffic after installation until completion of all construction activity in the installation area.

All materials shall be manufactured in ISO certified facilities. Installation Contractor shall demonstrate the following experience

A minimum of three R-Tank or equivalent projects completed within 2 years; and,

Contractor experience requirement may be waived if the manufacturer's representative provides on-site training and review during construction nstallation 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.

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 Submit manufacturer's product data, including compressive strength and unit weight.

Submit R-Tank sample for review. Reviewed and accepted samples will be returned to the Contractor. Submit material certificates for geotextile, geogrid, base course and backfill materials

Submit required experience and personnel requirements as specified in Section 1.03. 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

Handling is to be performed with equipment appropriate to the materials and site conditions, and may include hand, handcart, forklifts, extension lifts, extension Care must be taken when handling plastics when air temperature is 40 degrees or below as plastic becomes brittle Do not use frozen materials or materials mixed or coated with ice or frost.

installation exceeds two weeks. Storage of materials should be on smooth surfaces, free from dirt, mud and debris.

Do not build on frozen ground or wet, saturated or muddy subgrade.

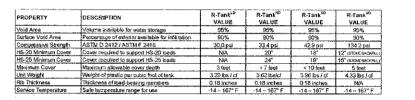
A. Prior to the start of the installation, a preinstallation conference shall occur with the representatives from the design team, the general contractor, the excavation

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.

Protect adjacent work from damage during R-Tank system installation 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 treatment measures may be needed if unit is operational during construction due to increased sediment loads. Contractor is responsible for any damage to the system during construction.

PART 2 - PRODUCTS

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:



Geotextile. A geotextile envelope is required to prevent backfill material from entering the R-Tank modules. Standard Application: The standard geotextile shall be an 8 oz per square yard nonwoven geotextile (ACF N080 or equivalent). 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.

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 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 instal 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 Uniffied 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

2.04 Other Materials 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.

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. All excavations must be prepared with OSHA approved excavated sides and sufficient working space.

Protect partially completed installation against damage from other construction traffic by estable 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 Standard Applications: Compact subgrade to a minimum of 95% of Standard Proctor (ASTM D698) density or as required by the Owner's engineer Infiltration Applications: Subgrade shall be prepared in accordance with the contract documents. Compaction of subgrade should not be performed in infiltration

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. 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

cuments and/or as directed by the owner's engineer. If indications of the water table are observed during excavation, the engineer shall be contacted to provide recommendations 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

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" (+/- ½") 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. Standard Applications: Static roll or otherwise compact bedding materials until they are firm and unvielding Infiltration Applications: Bedding materials shall be prepared in accordance with the contract documents.

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

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.

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 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, impelvious liner (if specified) or pipe. Connecting pipes at 90 degree angles facilitates construction, unless otherwise specified. Ensure end of pipe is installed snug against

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:

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. 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

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 shall be maintained to within 12" across the footprint of the R-Tank system. Do not exceed maximum cover 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

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 up 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. 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 m-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.

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. 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 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.

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