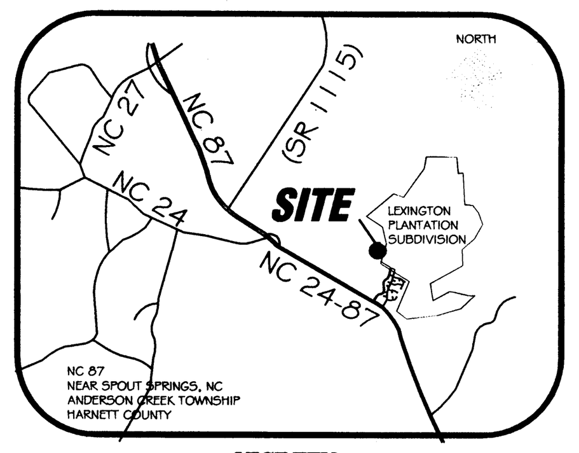


PARCEL DATA

OWNER/DEVELOPER:	VOLA, LLC P.O. BOX 1328 CARY, NC 27512
ZONING:	RA-20R

SETBACKS:
- 30' Front Setback - if street R/W is 60' or more
- 35' Front Setback - if street R/W is less than 60'
- 25' Rear Setback
- 20' Corner Setback
- 10' /5' Side Setback

PIN:	9594-09-9184
DEED REFERENCE:	BOOK 2948, PAGE 429
FLOOD PLAIN INFO:	
ZONE:	X
MAP NUMBER:	3710958400J
EFFECTIVE DATE	OCT. 3, 2006
PARCEL AREA:	3.61 ACRES
LAND USE CLASSIFICATION:	COMPACT MIXED USE/LDR

PARKING

44 STANDARD SPACES
4 HANDICAP SPACES
48 TOTAL SPACES

NOTE:
PARKING AREAS, DRIVE AISLES, ACCESS ROADS WILL HAVE AN ASPHALT OR CONCRETE SURFACE.

PARKING AREAS AND DRIVE AISLES ARE REQUIRED TO BE SCREENED/LANDSCAPED.

PROPOSED DISTURBED AREA IS UNDER ONE ACRE - NO EROSION CONTROL PLAN IS REQUIRED PER NCDENR

PROPERTY OWNER IS TO BE RESPONSIBLE FOR MAINTAINING PARKING AREAS, LANDSCAPING AND ALL OTHER SITE APPURTENANCES

THIS DEVELOPMENT IS WITHIN THE FIVE MILE MILITARY CORRIDOR OVERLAY ZONE, AND MAY BE SUBJECT TO MILITARY TRAINING ACTIVITIES.

OWNER SHALL BE RESPONSIBLE FOR MAINTENANCE OF THE PARKING AREAS, DRIVE AISLES, AND ALL LANDSCAPE BUFFERING.

LANDSCAPE BUFFERING SHALL BE IN ACCORDANCE WITH THE HARNETT COUNTY ZONING ORDINANCE.

PROJECT WILL BE SERVED WITH HARNETT COUNTY WATER AND SEWER.

THE WATER AND SEWER TAPS WILL BE INSTALLED BY PRIVATE UTILITY CONTRACTOR.

PROPERTY IS NOT IN A WATERSHED DISTRICT

STANDARD LEGEND

- WATER VALVE
- WATER METER
- FIRE HYDRANT
- SANITARY SEWER MANHOLE
- SANITARY SEWER CLEAN OUT (C.O.)
- R/W — RIGHT OF WAY
- or C.L. — CENTERLINE
- UTILITY POLE & GUY
- UTILITY POLE
- PROPERTY CORNER
- PROPERTY LINE (SURVEYED)
- PROPERTY LINE (UNSURVEYED)
- SANITARY SEWER LINE
- WATER MAIN
- UNDERGROUND TELEPHONE/CABLE
- GAS MAIN
- OVERHEAD ELECTRIC UTILITY LINES
- STORM DRAINAGE PIPE
- CENTERLINE ROAD (ALIGNMENT)
- RIGHT OF WAY
- EXISTING MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- PROPOSED BUFFER - BERM
- STREET LIGHT

LINE TABLE

LINE	LENGTH	BEARING
L1	14.58	N16°44'56"E
L2	14.48	N19°51'04"E
L3	14.48	N22°37'05"E
L4	14.48	N25°23'05"E
L5	14.48	N28°09'05"E
L6	14.48	N30°55'05"E
L7	14.48	N33°41'05"E
L8	14.48	N36°27'05"E
L9	14.48	N39°13'05"E
L10	14.48	N41°59'05"E
L11	14.48	N44°45'05"E
L12	14.48	N47°31'05"E
L13	30.90	N48°53'55"E

BUFFER REQUIREMENTS

ALL BUFFER TYPES SHALL INCLUDE:
1. A STAGGERED ROW OF LARGE MATURING TREES, SPACED NOT MORE THAN 30 FEET APART; AND
2. LOW GROWING EVERGREEN SHRUBS, EVERGREEN GROUND COVER, OR MULCH COVERING THE BALANCE OF THE BUFFER AREA.

TYPE "A" - (MINIMUM WIDTH OF 15 FEET)
OPTION 1: A ROW OF EVERGREEN SHRUBS PLACED NOT MORE THAN FOUR(4) TO SIX(6) FEET APART WHICH WILL GROW TO FORM A CONTINUOUS HEDGE OF AT LEAST SIX(6) FEET IN HEIGHT WITHIN TWO(2) YEARS OF PLANTING; OR
OPTION 2: A MASONRY WALL LOCATED WITHIN THE REQUIRED BUFFER AREA; SUCH WALL SHALL BE A MINIMUM HEIGHT OF SIX(6) FEET (ABOVE FINISHED GRADE); AND, IF A BLOCK WALL, IT SHALL BE PAINTED ON ALL SIDES; OR AN OPAQUE FENCE SIX(6) FEET IN HEIGHT; OR
OPTION 3: A BERM MEETING THE REQUIREMENTS OF HARNETT COUNTY UDO.

TYPE "D" - (MINIMUM WIDTH OF 15 FEET)
OPTION 1: A ROW OF EVERGREEN SHRUBS, 10 SHRUBS FOR EVERY REQUIRED LARGE MATURING TREE, PLACED NOT MORE THAN FOUR(4) FEET APART WHICH WILL GROW TO FORM A CONTINUOUS HEDGE OF AT LEAST SIX (6) FEET IN HEIGHT WITHIN TWO(2) YEARS OF PLANTING; OR
OPTION 2: AN OPAQUE FENCE LOCATED WITHIN THE REQUIRED BUFFER AREA; SUCH FENCE SHALL BE A MINIMUM HEIGHT OF SIX(6) FEET IN HEIGHT.

CERTIFICATION OF OWNERSHIP AND DEDICATION

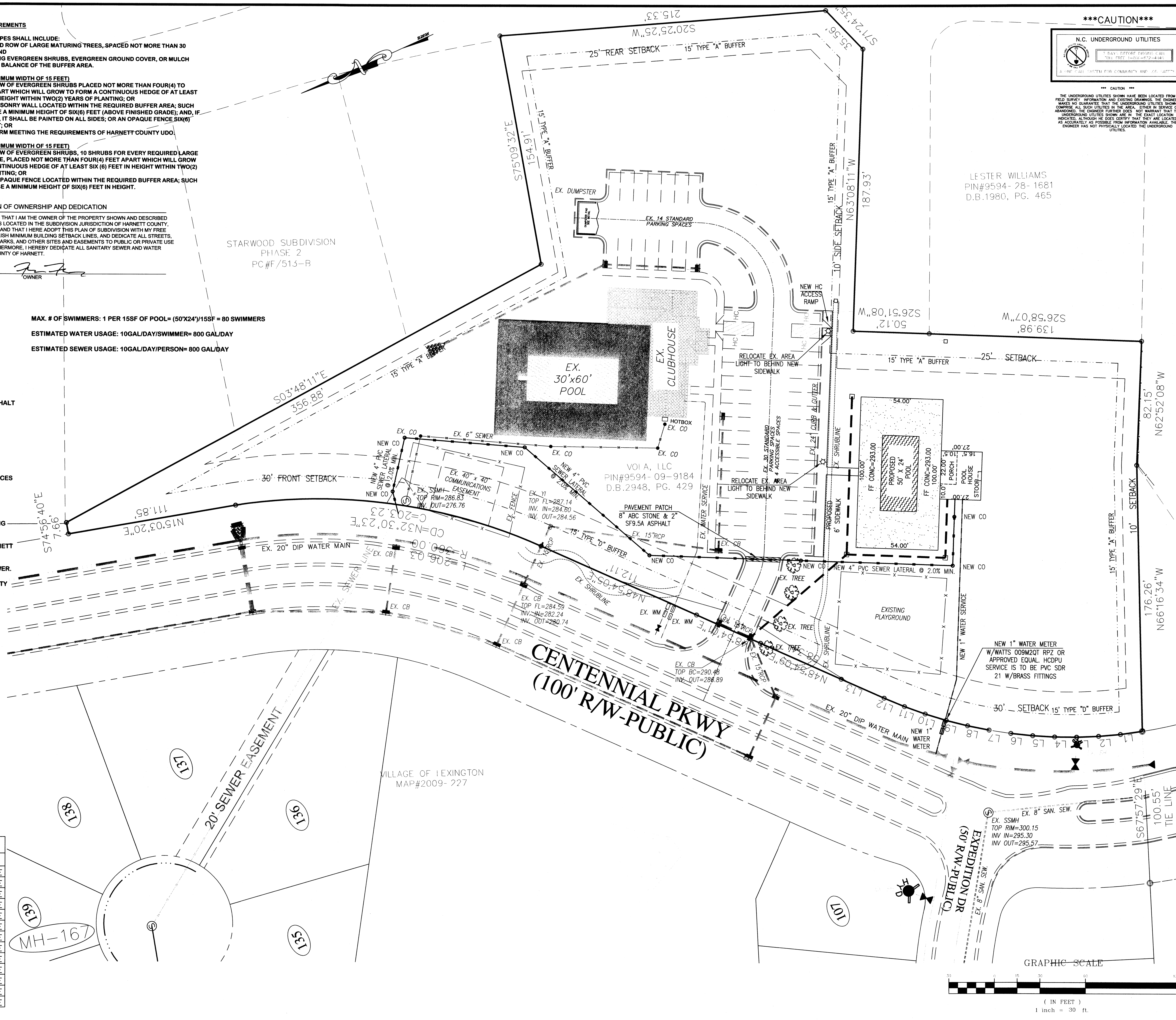
I HEREBY CERTIFY THAT I AM THE OWNER OF THE PROPERTY SHOWN AND DESCRIBED HEREON, WHICH IS LOCATED IN THE SUBDIVISION JURISDICTION OF HARNETT COUNTY, NORTH CAROLINA AND THAT I HERE ADOPT THIS PLAN OF SUBDIVISION WITH MY FREE CONSENT, ESTABLISH MINIMUM BUILDING SETBACK LINES, AND DEDICATE ALL STREETS, ALLEYS, WALKS, PARKS, AND OTHER SITES AND EASEMENTS TO PUBLIC OR PRIVATE USE AS NOTED. FURTHERMORE, I HEREBY DEDICATE ALL SANITARY SEWER AND WATER LINES TO THE COUNTY OF HARNETT.

06.02.2015 — DATE — OWNER

MAX. # OF SWIMMERS: 1 PER 15SF OF POOL= (50'X24')/15SF = 80 SWIMMERS

ESTIMATED WATER USAGE: 10GAL/DAY/SWIMMER= 800 GAL/DAY

ESTIMATED SEWER USAGE: 10GAL/DAY/PERSON= 800 GAL/DAY



CAUTION

N.C. UNDERGROUND UTILITIES

*** CAUTION ***
THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE ENGINEER MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE ENGINEER FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED, ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE ENGINEER HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.

SEAL: NORTH CAROLINA PROFESSIONAL ENGINEER — NORFLEET TART — 06.02.2015

Enoch Engineers, P.A.
Consulting Engineers & Surveyors
1403 NC Highway 50 South - Benson, NC 27504
NC LIC #C2061

PLAN INFORMATION:	
DESIGNED BY: E.E., PA	HORIZONTAL SCALE: 1" = 30'
DRAWN BY: EE, PA	VERTICAL SCALE: ~
CHECKED BY: FT	DATE CREATED: 04/21/2015
SURVEY INFORMATION:	

Revisions
05-20-2015: HCDPU COMMENTS
06-02-2015: SEWER REVISION

LOCATION:
NC 24-87
NEAR SPOUT SPRINGS, NC
ANDERSON CREEK TOWNSHIP
HARNETT COUNTY

PROPERTY OWNER(S):
VOLA, LLC
PO BOX 1328
CARY, NC 27512

PRELIMINARY SITE PLAN
RECREATION AREA #2 at LEXINGTON PLANTATION

EE PROJECT: 3059

S - 1

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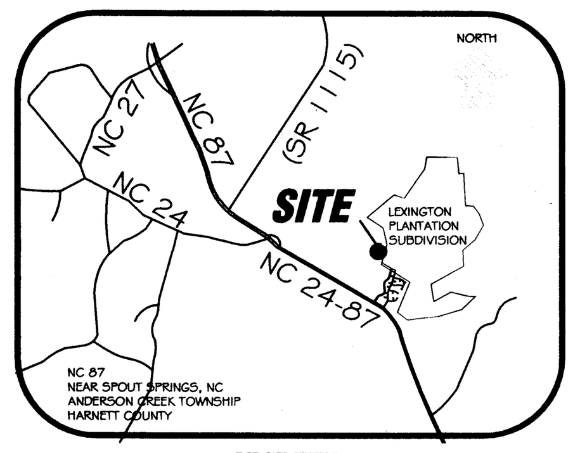


DISTURBED AREA: 0.60 acres

PURSUANT TO G.S. 143-215.1 ALL PERIMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES AND ALL SLOPES GREATER 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.

1) Ground Stabilization*

Site Area Description	Stabilization Time Frame	Stabilization Time Frame Exceptions
• Perimeter dikes, swales, ditches and slopes	7 days	None
• High Quality Water (HQW) Zones	7 days	None
• Slopes steeper than 3:1	7 days	If slopes are 10' or less in length and are not steeper than 2:1, 14 days are allowed.
• Slopes 3:1 or flatter	14 days	7-days for slopes greater than 50 feet in length
• All other areas with slopes flatter than 4:1	14 days	None (except for perimeters and HQW Zones)

* "Extensions of time may be approved by the permitting authority based on weather or other site-specific conditions that make compliance impracticable." (Section II.B(2)(b))

CONSTRUCTION SEQUENCE

1) INSTALL THE TEMPORARY CONSTRUCTION ENTRANCE.
2) INSTALL EROSION CONTROL MEASURES AS SHOWN ON PLANS.
3) COMPLETE INSTALLATION OF SITE DRAINAGE NETWORKS AND SITE SWALES WITH ASSOCIATED EROSION CONTROL PROTECTION BEFORE BEGINNING SITE GRADING.
4) GRADE SITE.
5) GRASS AREAS THAT WILL NOT BE DISTURBED.
6) INSTALL UTILITIES.
8) SEED AND MULCH ALL AREAS TO PROVIDE PERMANENT GROUNDCOVER WITHIN 14 WORKING DAYS FOLLOWING COMPLETION OF ANY PHASE OF GRADING, AND WITHIN 14 WORKING DAYS OR 90 CALENDAR DAYS, WHICHEVER PERIOD IS SHORTER, FOLLOWING COMPLETION OF CONSTRUCTION OR DEVELOPMENT.
10) MAINTAIN ALL TEMPORARY MEASURES UNTIL PERMANENT GROUND COVER IS ESTABLISHED.

SEEDING SPECIFICATIONS

SEEDBED PREPARATION
THOROUGHLY CULTIVATE LAWN AREAS BY DISCING TO A DEPTH OF 6" AND RAKING THE SURFACE SMOOTH TO REQUIRED GRADES. APPLY 4,000 LBS. OF AGRICULTURAL LIME PER ACRE AND 1,000 LBS. OF 10-10-10 OR EQUIVALENT FERTILIZER PER ACRE.

TEMPORARY SEEDING
WHERE TEMPORARY SEEDING IS REQUIRED PRIOR TO SEEDING OF PERMANENT LAWNS OR FILL SLOPES, PROCEED AS FOLLOWS:

AUG. 15TH-MAR. 1ST	SOW RYE GRAIN AT THE RATE OF 120 LBS. PER ACRE.
MAR. 1ST-AUG. 15TH	SOW GRAIN MILLET AT THE RATE OF 40 LBS. PER ACRE.

PERMANENT SEEDING

SEASON	VARIETY	RATE(LBS/ACRE)
AUG 15 - NOV 1ST	KOREAN LESPEDEZA	50
	OR KOBE LESPEDEZA	50
	AND TALL FESCUE	60
NOV 15 - MARCH 1ST	TALL FESCUE	120
	AND ABRUZZI RYE	25
MARCH 1 - APRIL 15	TALL FESCUE	120
APRIL 15 - JUNE 30	HULLED COMMON BERMUDA	12
JUNE 30 - AUG 15	TALL FESCUE	60
	AND BROWNTOP MILLET	25

MULCHING
IMMEDIATELY AFTER SEED AREA SOWN, MULCH THE ENTIRE AREA EVENLY WITH A LAYER OF WHEAT STRAW TO PROTECT AREA FROM EROSION. MULCH TO BE APPLIED AT A RATE OF 75-100 LBS. PER 1000 SQUARE FEET.

SECURING MULCH:
THE MULCH SHALL BE HELD IN PLACE BY EMULSIFIED ASPHALT BINDER ON SLOPES 2 TO 1 OR STEEPER, OR AS REQUIRED. APPLY ASPHALT AT 0.10 GALLON PER SQUARE YARD. IN HEAVY TRAFFIC AREAS, USE TYPE "RS" OR "CRS" TO MINIMIZE REMOVAL OF TACK COAT. SYNTHETIC BINDERS MAY BE USED AS RECOMMENDED BY THE MANUFACTURER TO ANCHOR THE MULCH.

TEMPORARY CHANNEL LININGS IF REQUIRED SHALL BE INSTALLED IN AREAS AS SHOWN ON PLANS, OR AS REQUIRED TO PREVENT EROSION. LININGS AREA TO BE LEFT IN PLACE THROUGHOUT PERMANENT SEEDING PROCEDURE.

MAINTENANCE
I. TEMPORARY SEEDING:
RESEED AND MULCH AREAS WHERE SEEDLING EMERGENCE IS POOR, OR WHERE EROSION OCCURS, AS SOON AS POSSIBLE. DO NOT MOW. PROTECT FROM TRAFFIC AS MUCH AS POSSIBLE.

II. PERMANENT SEEDING:
GENERALLY, A STAND OF VEGETATION CANNOT BE DETERMINED TO BE FULLY ESTABLISHED UNTIL SOIL COVER HAS BEEN MAINTAINED FOR ONE FULL YEAR FROM PLANTING. INSPECT SEEDED AREAS FOR FAILURE AND MAKE NECESSARY REPAIRS AND RESEEDINGS WITHIN THE SAME SEASON, IF POSSIBLE.

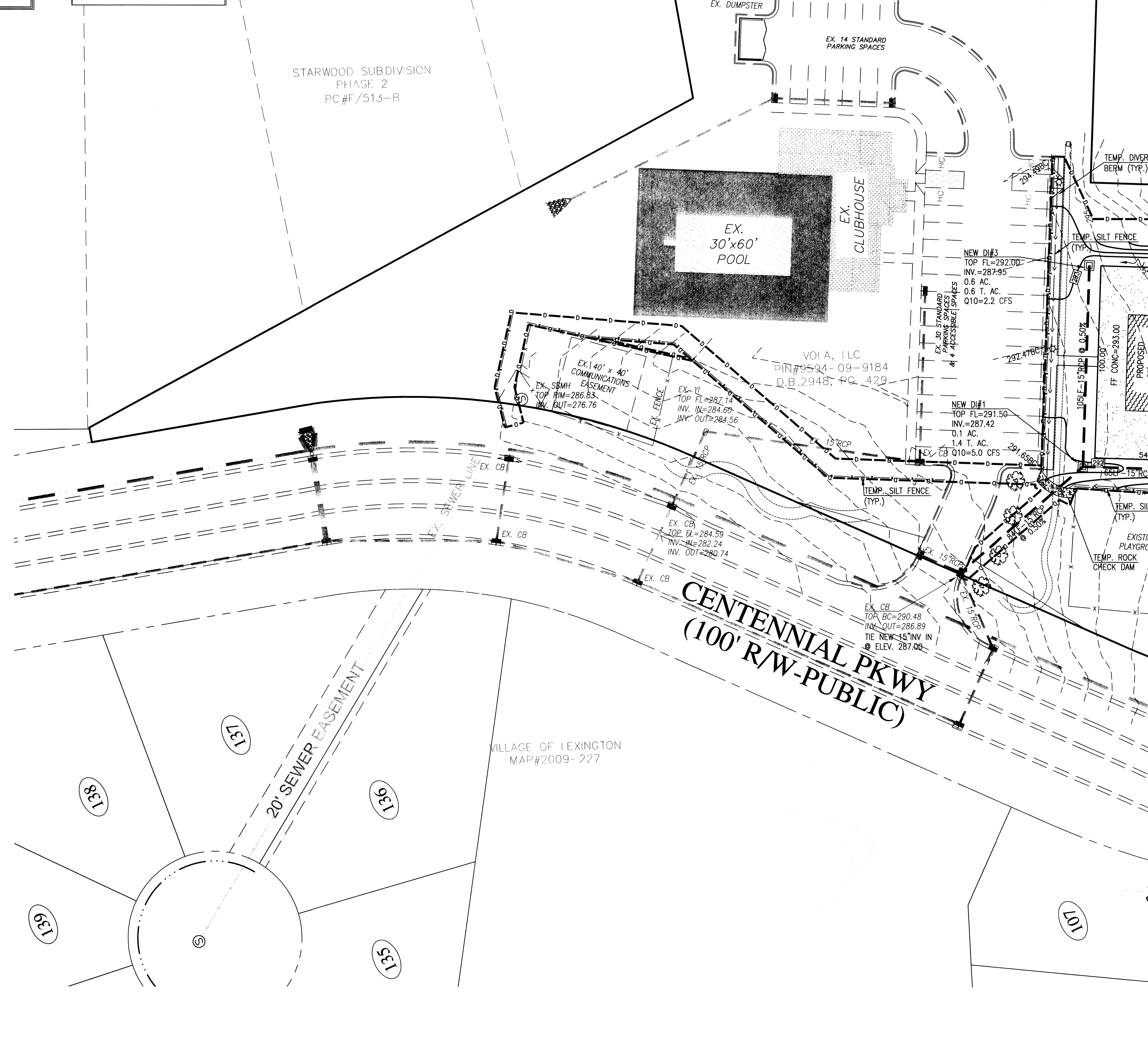
RESEEDING--IF A STAND HAS INADEQUATE COVER, RE-EVALUATE CHOICE OF PLANT MATERIALS AND QUANTITIES OF LIME AND FERTILIZER. RE-ESTABLISH THE STAND AFTER SEEDBED PREPARATION OR OVER-SEED THE STAND. CONSIDER SEEDING TEMPORARY, ANNUAL SPECIES IF THE TIME OF YEAR IS NOT APPROPRIATE FOR PERMANENT SEEDING.

NOTE: Pursuant to G.S. 113A-57(2), the angle for graded slopes and fills shall be no greater than the angle that can be retained by vegetative cover or other adequate erosion-control devices or structures. In any event, slopes left exposed will, within 14 calendar days of completion of any phase of grading be planted or otherwise provided with temporary or permanent ground cover, devices, or structures sufficient to restrain erosion. Pursuant to G.S. 113A-57(3), provisions for permanent ground cover sufficient to restrain erosion must be accomplished for all disturbed areas within 14 working days or 90 calendar days (whichever is shorter) following completion of construction or development.

VEGETATION MANTAINANCE:
IF A STAND HAS INADEQUATE COVER, RE-EVALUATE CHOICE OF PLANT MATERIALS AND QUANTITIES OF LIME AND FERTILIZER. RE-ESTABLISH THE STAND AFTER SEEDBED PREPARATION OR OVER-SEED THE STAND. CONSIDER SEEDING TEMPORARY, ANNUAL SPECIES IF THE TIME OF THE YEAR IS NOT APPROPRIATE FOR PERMANENT SEEDING.

STANDARD LEGEND

WATER VALVE
WATER METER
FIRE HYDRANT
SANITARY SEWER MANHOLE
SANITARY SEWER CLEAN OUT (C.O.)
R/W — RIGHT OF WAY
or C.L. — CENTERLINE
UTILITY POLE & GUY
UTILITY POLE
PROPERTY CORNER
PROPERTY LINE (SURVEYED)
PROPERTY LINE (UNSURVEYED)
SANITARY SEWER LINE
WATER MAIN
UNDERGROUND TELEPHONE/CABLE
GAS MAIN
OVERHEAD ELECTRIC UTILITY LINES
STORM DRAINAGE PIPE
CENTERLINE ROAD (ALIGNMENT)
RIGHT OF WAY
EXISTING MINOR CONTOUR
EXISTING MAJOR CONTOUR
PROPOSED CONTOUR



CAUTION

N.C. UNDERGROUND UTILITIES

3 DAYS BEFORE DIGGING CALL TOLL FREE 1-800-632-4949

A ONE CALL SYSTEM FOR COMMUNITY AND JOB SAFETY

*** CAUTION ***

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Enoch Engineers, P.A.
CONSULTING ENGINEERS & SURVEYORS
1403 NC Highway 50 South - Benson, NC 27504
Phone: (919) 894-7765 Fax: (919) 894-8190
E-mail: general@enochengineers.com
NC LIC. #C2061

Revisions
05-20-2015: HCDPU COMMENTS
06-02-2015: SEWER REVISION

PLAN INFORMATION:	
DESIGNED BY: E.E., PA	HORIZONTAL SCALE: 1" = 30'
DRAWN BY: EE, PA	VERTICAL SCALE: ~
CHECKED BY: FT	DATE CREATED: 02/10/2015
SURVEY INFORMATION:	

LOCATION:
NC 24-87
NEAR SPOUT SPRINGS, NC
ANDERSON CREEK TOWNSHIP
HARNETT COUNTY

PROPERTY OWNER(S):
VOLA, LLC
PO BOX 1328
CARY, NC 27512

GRADING & EROSION CONTROL PLAN RECREATION AREA #2 at LEXINGTON PLANTATION

EE PROJECT: 3059

S - 2

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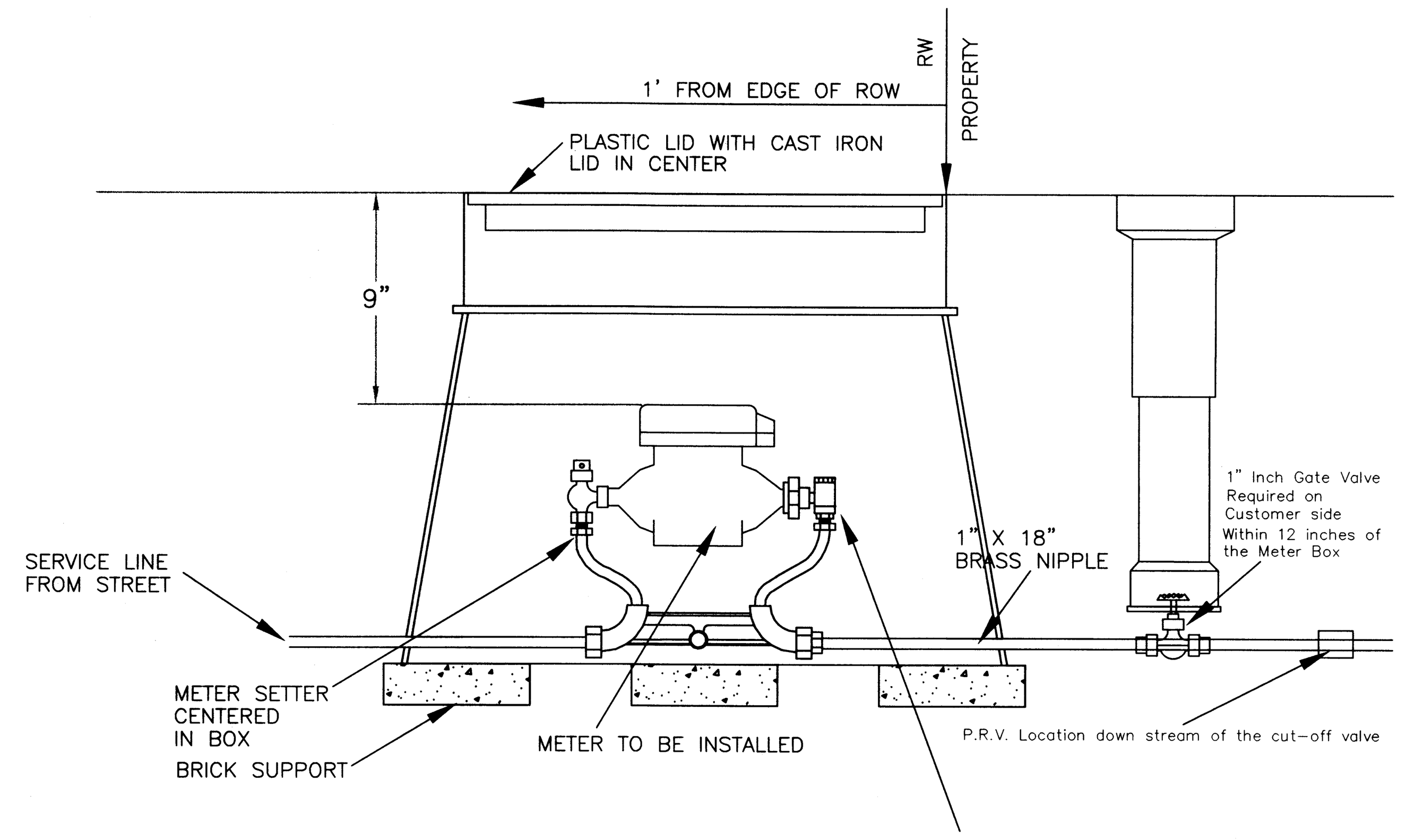
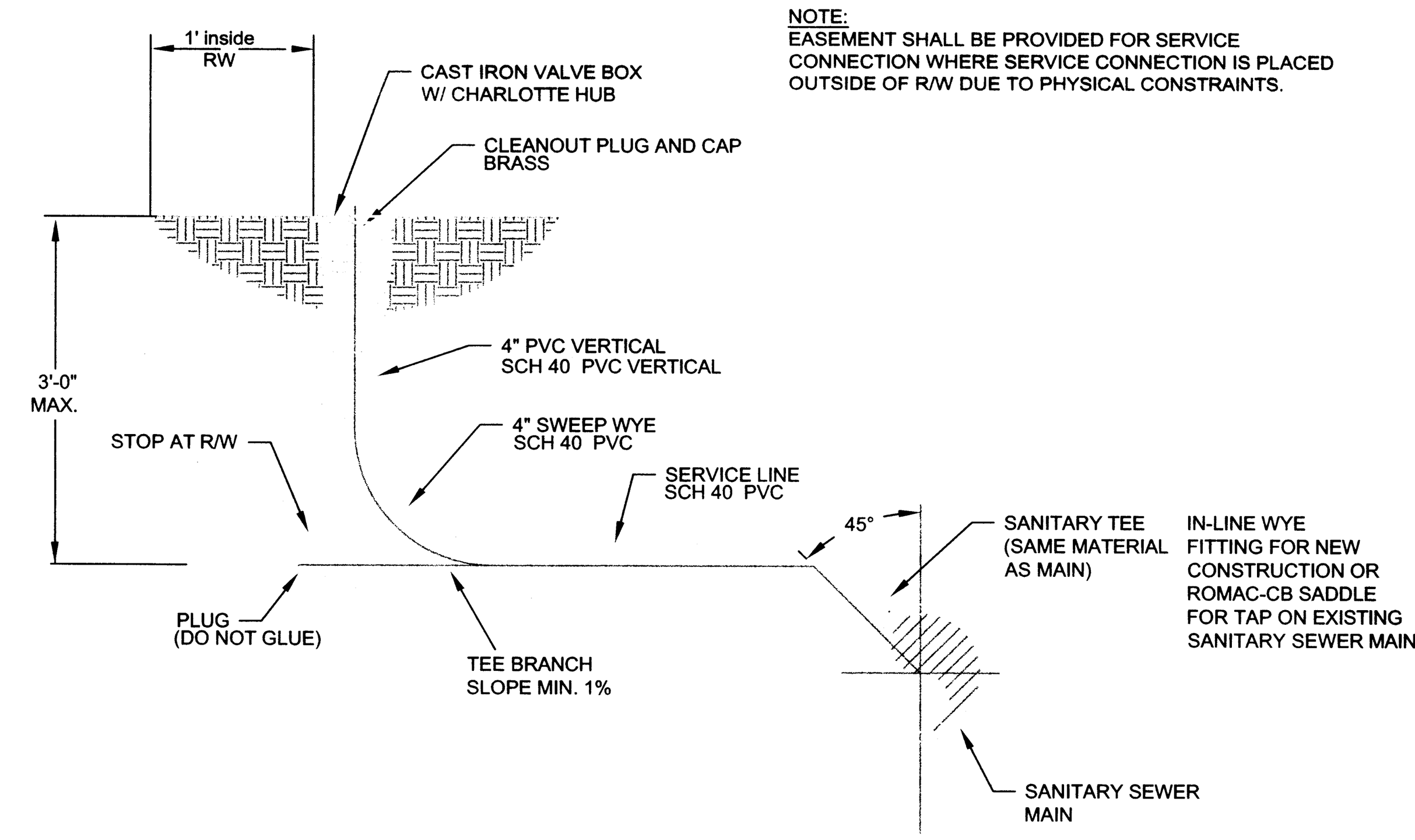


1. METER AND SERVICE LINE NOT IN CONTRACT UNLESS SPECIFIED
2. INCLUDE STONE IN PRICE OF METER BOX.
3. METER SETTER SIZE AS NOTED ON PLANS.
4. ALL BRASS FITTINGS SHALL BE COMPRESSION TYPE.

METER SETTER WITH DOUBLE CHECK VALVE (BACKFLOW PREVENTER)

TYPICAL 1" METER SETTER INSTALLATION DETAIL (W 16)

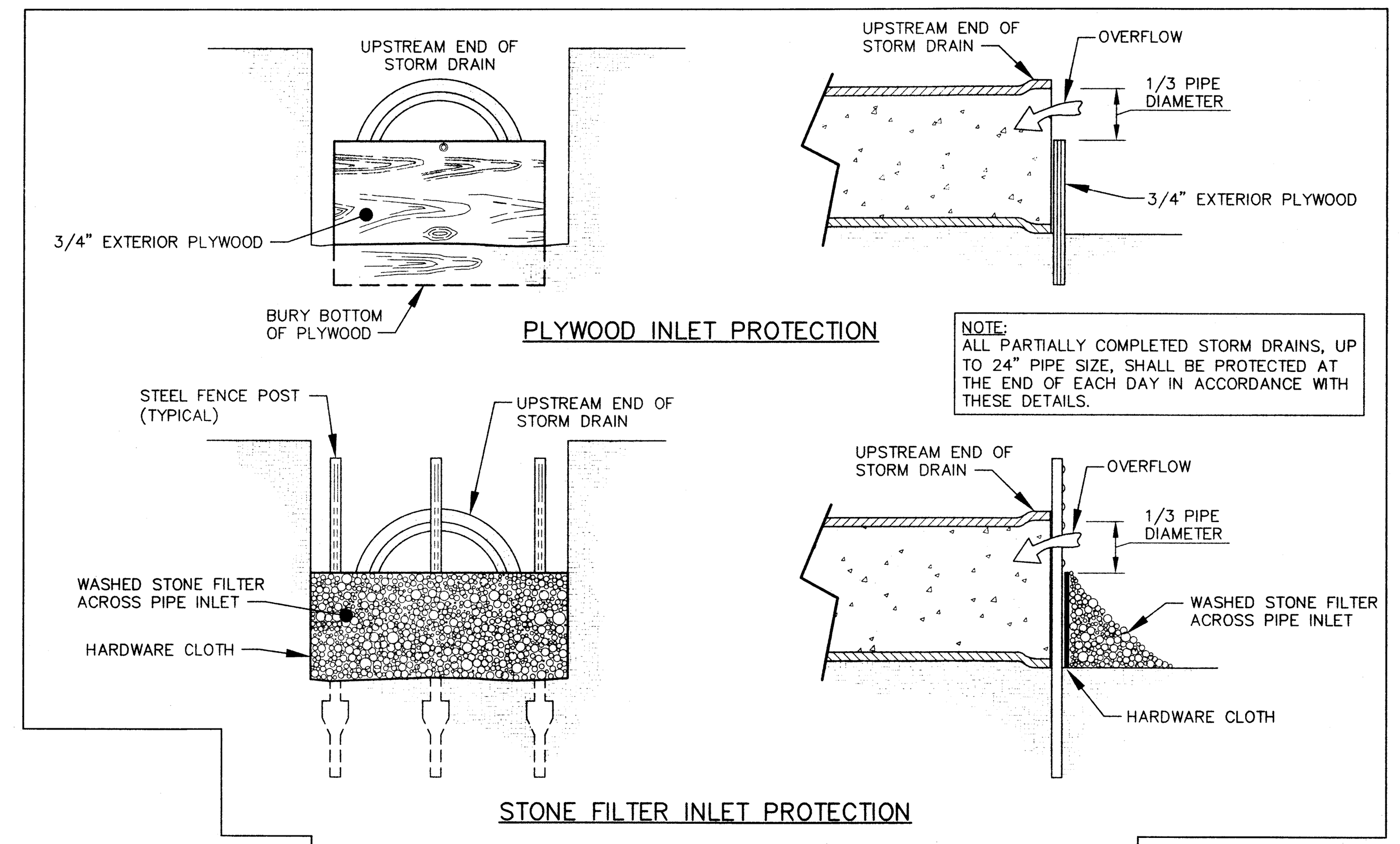
NO SCALE



NOTE:
EASEMENT SHALL BE PROVIDED FOR SERVICE CONNECTION WHERE SERVICE CONNECTION IS PLACED OUTSIDE OF R/W DUE TO PHYSICAL CONSTRAINTS.

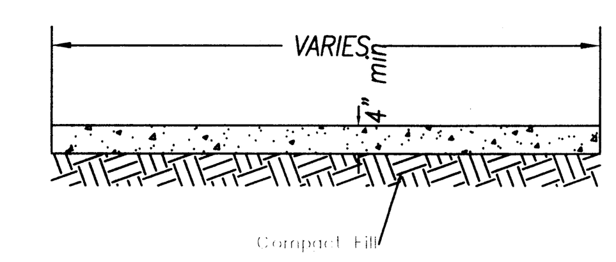
TYPICAL SEWER SERVICE CONNECTION DETAIL (S 29)

NO SCALE

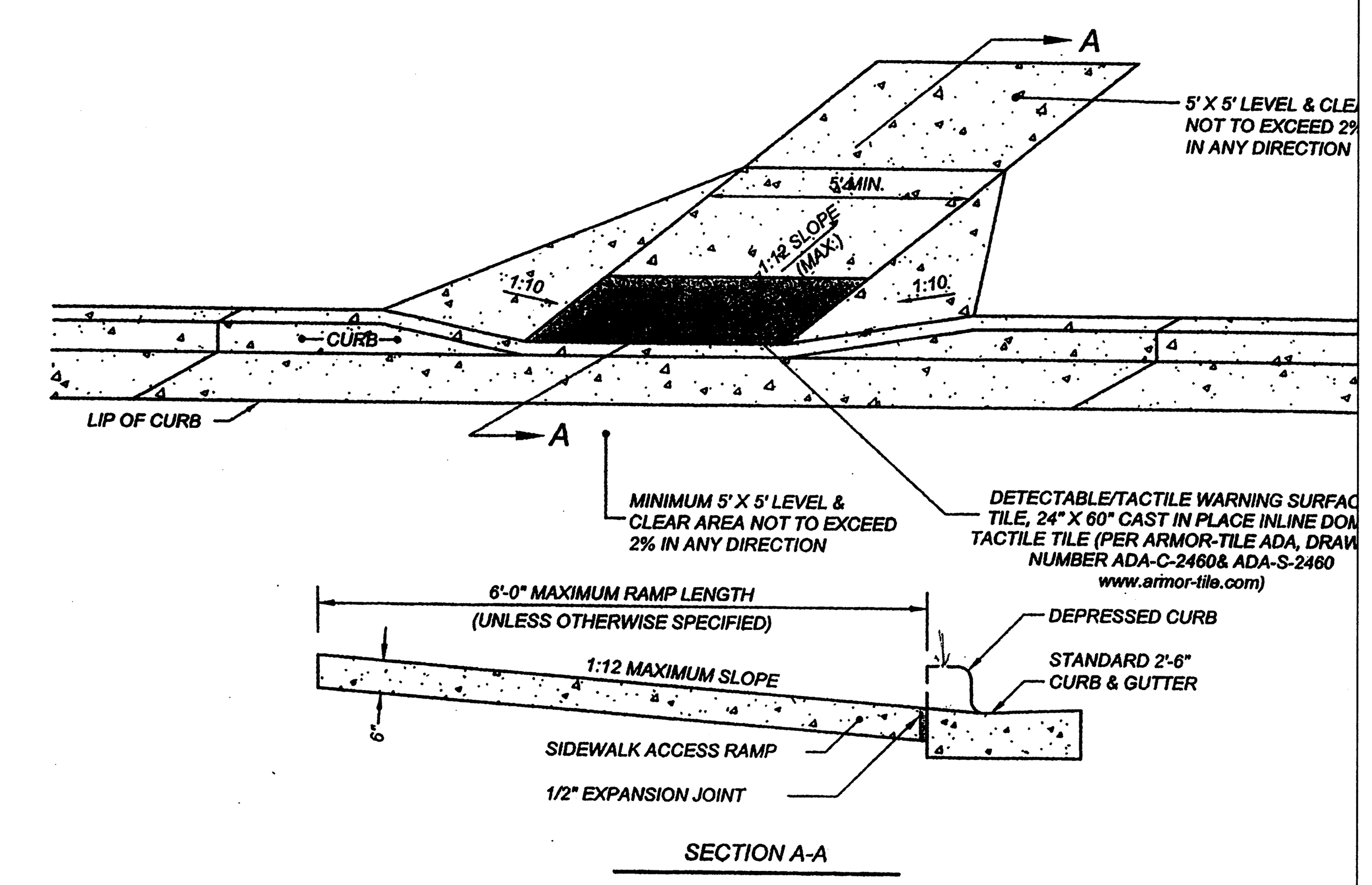


NOTE:
ALL PARTIALLY COMPLETED STORM DRAINS, UP TO 24" PIPE SIZE, SHALL BE PROTECTED AT THE END OF EACH DAY IN ACCORDANCE WITH THESE DETAILS.

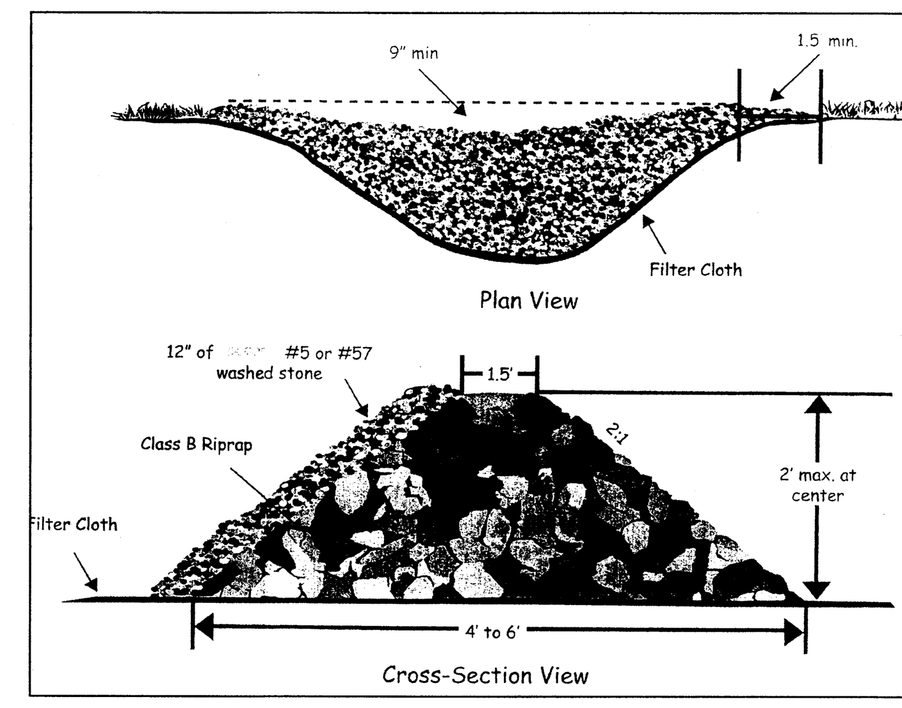
STANDARD PIPE INLET PROTECTION (PLYWOOD & STONE)



CROSS-SECTION DETAIL
Flat Sidewalk
NTS



STANDARD HANDICAP RAMP DETAIL



ROCK CHECK DAM

(NOT TO SCALE)

CONSTRUCTION

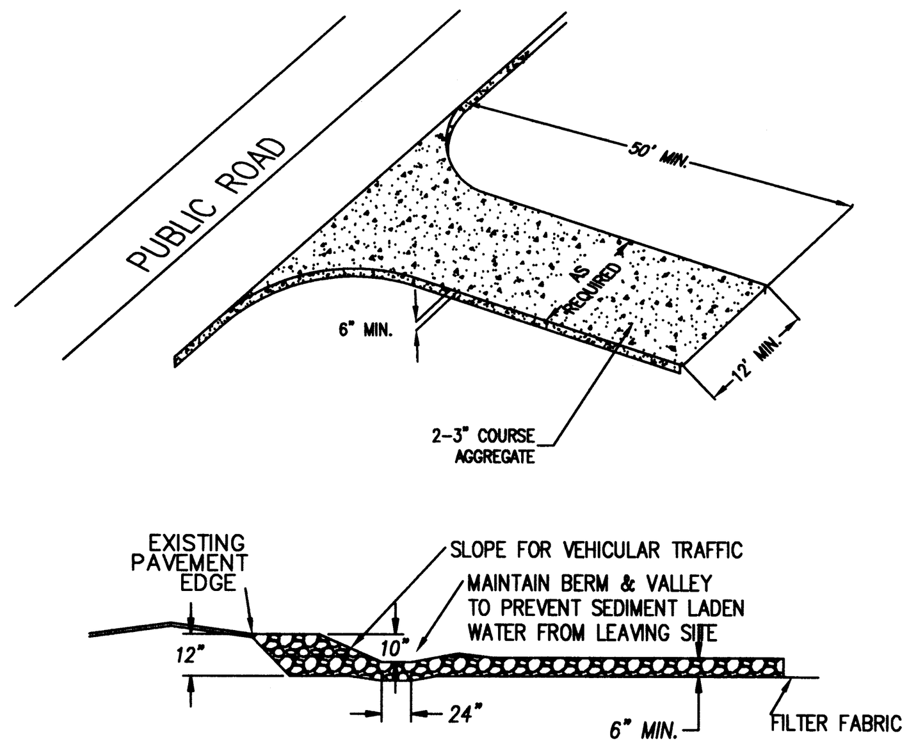
1. PLACE STRUCTURAL STONE (CLASS B) TO THE LINES AND DIMENSIONS SHOWN ON THE PLAN ON A FILTER FABRIC FOUNDATION. THE CREST WIDTH OF THE DAM SHOULD BE A MINIMUM OF 2 FEET.
2. KEEP THE CENTER STONE SECTION AT LEAST 9 INCHES BELOW THE END WHERE THE DAM ABUTS THE CHANNEL BANKS.
3. PLACE SEDIMENT CONTROL STONE (#5 OR #57) ON THE UPSTREAM SIDE OF THE DAM THAT IS A MINIMUM OF 1 FOOT THICK.
4. PROVIDE AN APRON THAT IS 3 TIMES THE HEIGHT OF THE DAM. THE APRON WIDTH IS AT LEAST 4 FEET LONG. UNDERCUT THE APRON SO THAT THE TOP OF THE APRON IS FLUSH WITH THE SURROUNDING GRADE.
5. EXTEND THE STONE AT LEAST 1.5 FEET BEYOND THE DITCH BANK TO KEEP WATER FROM CUTTING AROUND THE ENDS OF THE CHECK DAM.
6. EXCAVATE SEDIMENT STORAGE AREA TO THE DIMENSIONS SHOWN ON THE PLAN.

MAINTENANCE

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

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

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



TEMPORARY CONSTRUCTION ENTRANCE

(NOT TO SCALE)

DESIGN CRITERIA

AGGREGATE SIZE - USE 2-3 INCH WASHED STONE.

DIMENSIONS OF GRAVEL PAD:
THICKNESS: 6 INCHES MINIMUM
WIDTH: 12-FEET MINIMUM OR FULL WIDTH AT ALL POINTS OF THE VEHICULAR ENTRANCE AND EXIT AREA, WHICHEVER IF GREATER
LENGTH: 50-FEET MINIMUM

LOCATION - LOCATE CONSTRUCTION ENTRANCES AND EXITS TO LIMIT SEDIMENT FROM LEAVING THE SITE AND TO PROVIDE FOR MAXIMUM UTILITY BY ALL CONSTRUCTION VEHICLES. AVOID STEEP GRADES, AND ENTRANCES AT CURVES IN PUBLIC ROADS.

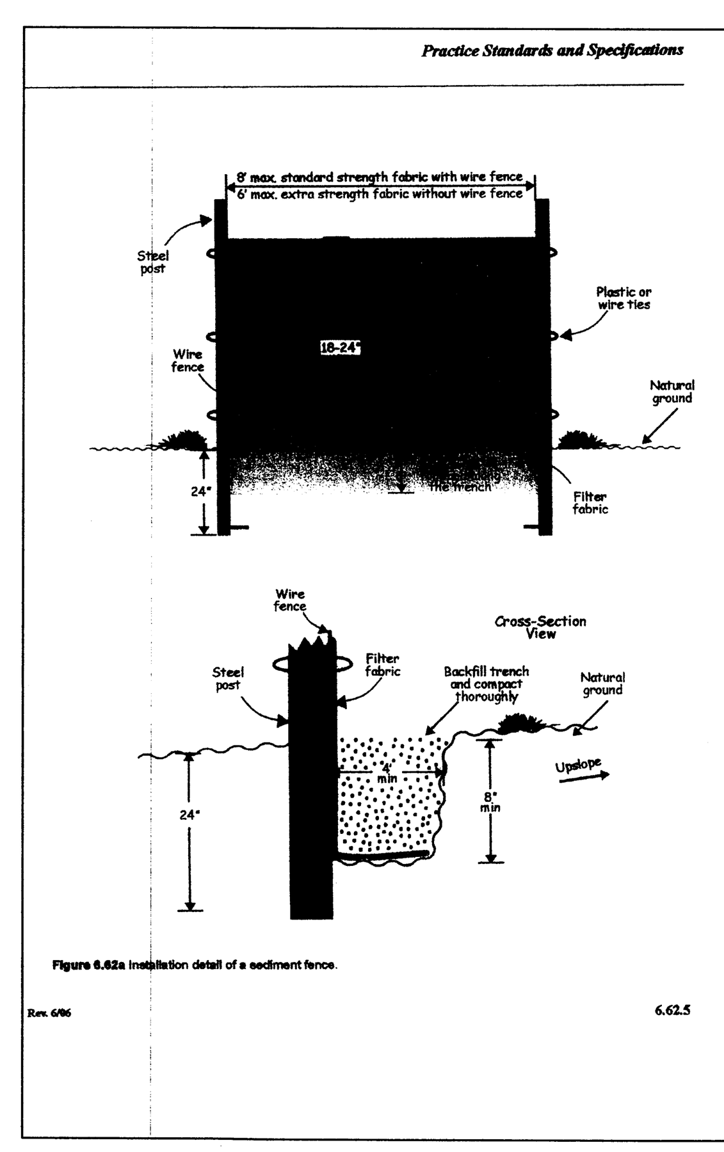
WASHING - IF CONDITIONS AT THE SITE ARE SUCH THAT MOST OF THE MUD AND SEDIMENT ARE NOT REMOVED BY VEHICLES TRAVELING OVER THE GRAVEL, THE TIRES SHOULD BE WASHED. WASHING SHOULD BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO A SEDIMENT TRAP OR OTHER SUITABLE DISPOSAL AREA. A WASH RACK MAY ALSO BE USED TO MAKE WASHING MORE CONVENIENT AND EFFECTIVE.

CONSTRUCTION SPECIFICATIONS

1. CLEAR THE ENTRANCE AND EXIT AREA OF ALL VEGETATION, ROOTS, AND OTHER OBJECTIONABLE MATERIAL AND PROPERLY GRADE IT.
2. PLACE THE GRAVEL TO THE SPECIFIC GRADE AND DIMENSIONS SHOWN ON THE PLANS, AND SMOOTH IT.
3. PROVIDE DRAINAGE TO CARRY WATER TO SEDIMENT TRAP OR OTHER SUITABLE OUTLET.
4. USE GEOTEXTILE FABRICS BECAUSE THEY IMPROVE STABILITY OF THE FOUNDATION IN LOCATIONS SUBJECT TO SEEPAGE OR HIGH WATER TABLE.

MAINTENANCE

MAINTAIN THE GRAVEL PAD IN A CONDITION TO PREVENT MUD OR SEDIMENT FROM LEAVING THE CONSTRUCTION SITE. THIS MAY REQUIRE PERIODIC TOPDRESSING WITH 2-INCH STONE. AFTER EACH RAINFALL, INSPECT ANY STRUCUTRE USED TO TRAP SEDIMENT AND CLEAN IT OUT AS NECESSARY. IMMEDIATELY REMOVE ALL OBJECTIONABLE MATERIALS SPILLED, WASHED, OR TRACKED ONTO PUBLIC ROADWAYS.



SILT FENCE DETAIL

(NOT TO SCALE)

CONSTRUCTION

1. CONSTRUCT THE SEDIMENT BARRIER OF STANDARD STRENGTH OR EXTRA STRENGTH SYNTHETIC FILTER FABRICS.
2. ENSURE THAT THE HEIGHT OF THE SEDIMENT FENCE DOES NOT EXCEED 24 INCHES ABOVE THE GROUND SURFACE. (HIGHER FENCES MAY IMPOUND VOLUMES OF WATER SUFFICIENT TO CAUSE FAILURE OF THE STRUCTURE.)
3. CONSTRUCT THE FILTER FABRIC FROM A CONTINUOUS ROLL CUT TO THE LENGTH OF THE BARRIER TO AVOID JOINTS. WHEN JOINTS ARE NECESSARY, SECURELY FASTEN THE FILTER CLOTH ONLY AT A SUPPORT POST WITH 4 FEET MINIMUM OVERLAP TO THE NEXT POST.
4. SUPPORT STANDARD STRENGTH FILTER FABRIC BY WIRE MESH FASTENED SECURELY TO THE UPSLOPE SIDE OF THE POSTS. EXTEND THE WIRE MESH SUPPORT TO THT BOTTOM OF THE TRENCH. FASTEN THE WIRE REINFORCEMENT, THEN FABRIC ON THE UPSLOPE SIDE OF THE FENCE POST. WIRE OR PLASTIC ZIP TIES SHOULD HAVE MINIMUM 50 POUND TENSILE STRENGTH.
5. WHEN A WIRE MESH SUPPORT FENCE IS USED, SPACE POSTS A MAXIMUM OF 8 FEET APART. SUPPORT POSTS SHOULD BE DRIVEN SECURELY INTO THE GROUND A MINIMUM OF 24 INCHES.
6. EXTRA STRENGTH FILTER FABRIC WITH 6 FEET POST SPACING DOE NOT REQUIRE WIRE MESH SUPPORT FENCE. SECURELY FASTEN THE FILTER FABRIC DIRECTLY TO POSTS. WIRE OR PLASTIC ZIP TIES SHOULD HAVE MINIMUM 50 POUND TENSILE STRENGTH.
7. EXCAVATE A TRENCH APPROXIMATELY 4 INCHES WIDE AND 8 INCHES DEEP ALONG THE PROPOSED LINE OF POSTS AND UPSLOPE FROM THE BARRIER (FIGURE 6.62a).
8. PLACE 12 INCHES OF THE FABRIC ALONG THE BOTTOM AND SIDE OF THE TRENCH.
9. BACKFILL THE TRENCH WITH SOIL PLACED OVER THE FILTER FABRIC AND COMPACT. THOROUGH COMPACTION OF THE BACKFILL IS CRITICAL TO SILT FENCE PERFORMANCE.
10. DO NOT ATTACH FILTER FABRIC TO EXISTING TREES.

INSTALLATION SPECIFICATIONS

1. THE BASE OF BOTH END POSTS SHOULD BE AT LEAST ONE FOOT HIGHER THAN THE MIDDLE OF THE FENCE. CHECK WITH A LEVEL IF NECESSARY.
2. INSTALL POSTS 4 FEET APART IN CRITICAL AREAS AND 6 FEET APART ON STANDARD APPLICATIONS.
3. INSTALL POSTS 2 FEET DEEP ON THE DOWNSTREAM SIDE OF THE SILT FENCE, AND AS CLOSE AS POSSIBLE TO THE FABRIC, ENABLING POSTS TO SUPPORT THE FABRIC FROM UPSTREAM WATER PRESSURE.
4. INSTALL POSTS WITH THE NIPPLES FACING AWAY FROM THE SILT FABRIC.
5. ATTACH THE FABRIC TO EACH POST WITH THREE TIES, ALL SPACED WITHIN THE TOP 8 INCHES OF FABRIC. ATTACH EACH TIE DIAGONALLY 45 DEGREES THROUGH THE FABRIC, WITH EACH PUNCTURE AT LEAST 1 INCH VERTICALLY APART. ALSO, EACH TIE SHOULD BE POSITIONED TO HANG ON A POST NIPPLE WHEN TIGHTENED TO PREVENT SAGGING.
6. WRAP APPROXIMATELY 6 INCHES OF FABRIC AROUND THE END POSTS AND SECURE WITH 3 TIES.
7. NO MORE THAN 24 INCHES OF A 36 INCH FABRIC IS ALLOWED ABOVE GROUND LEVEL.
8. THE INSTALLATION SHOULD BE CHECKED AND CORRECTED FOR ANY DEVIATIONS BEFORE COMPACTION.
9. COMPACTION IS VITALLY IMPORTANT FOR EFFECTIVE RESULTS. COMPACT THE SOIL IMMEDIATELY NEXT TO THE SILT FENCE FABRIC WITH THE FRONT WHEEL OF THE TRACTOR, SKID STEER, OR ROLLER EXERTING AT LEASY 60 POUNDS PER SQUARE INCH. COMPACT THE UPSTREAM SIDE FIRST, AND THEN EACH SIDE TWICE FOR A TOTAL OF 4 TRIPS.

MAINTENANCE

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

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

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

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

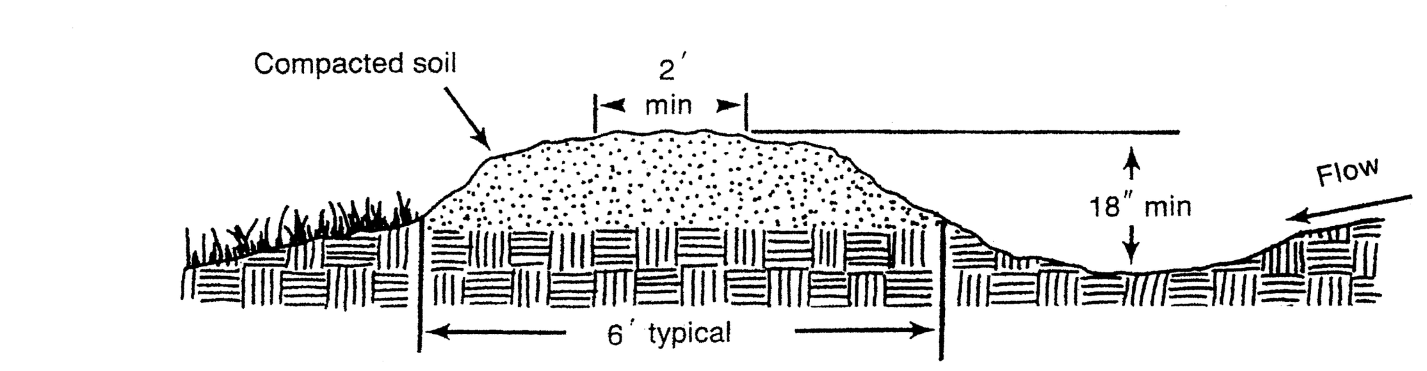


Figure 6.20a Temporary earthen diversion dike.

6.20.1

CONSTRUCTION SPECIFICATIONS

1. REMOVE AND PROPERLY DISPOSE OF ALL TREES, BRUSH, STUMPS, AND OTHER OBJECTIONAL MATERIAL.
2. ENSURE THAT THE MINIMUM CONSYRUCTED CROSS SECTION MEETS ALL DESIGN REQUIREMENTS.
3. ENSURE THAT THE TOP OF THE DIKE IS NOT LOWER AT ANY POINT THAN THE DESIGN ELEVATION PLUS THE SPECIFIED SETTLEMENT.
4. PROVIDE SUFFICIENT ROOM AROUND DIVERSIONS TO PERMIT MACHINE REGRADING AND CLEANOUT.
5. VEGETATE THE RIDGE IMMEDIATELY AFTER CONSTRUCTION, UNLESS IT WILL REMAIN IN PLACE LESS THAN 30 WORKING DAYS.

MAINTENANCE

INSPECT TEMPORARY DIVERSIONS ONCE A WEEK AND AFTER EVERY RAINFALL. IMMEDIATELY REMOVE SEDIMENT FROM THE FLOW AREA AND REPAIR THE DIVERSION RIDGE.

CHECK OUTLETS AND MAKE TIMELY REPAIRS AS NEEDED TO AVOID GULLY FORMATION. WHEN THE AREA ABOE THE TEMPORARY DIVISERSION IS PERMANENTLY STABILIZED, REMOVE THE DIVERSION AND FILL AND STABLIZED THE CHANNEL TO BLEND WITH THE NATURAL SURFACE.

TEMPORARY DIVERSION DITCH

(NOT TO SCALE)

Enoch Engineers, P.A.
Consulting Engineers & Surveyors
1403 NC Highway 50 South - Benson, NC 27504
Phone: (919) 894-7765 Fax: (919) 894-8190
NC LIC. #C2061

Revisions
05-20-2015: HCDPU COMMENTS

PLAN INFORMATION:
DESIGNED BY: E.E., PA
DRAWN BY: EE, PA
CHECKED BY: FT
SURVEY INFORMATION:
HORIZONTAL SCALE: ~
VERTICAL SCALE: ~
DATE CREATED: 02/10/2015

LOCATION:
NC 24-87
NEAR SPOUT SPRINGS, NC
ANDERSON CREEK TOWNSHIP
HARNETT COUNTY

PROPERTY OWNER(S):
VOLA, LLC
PO BOX 1328
CARY, NC 27512

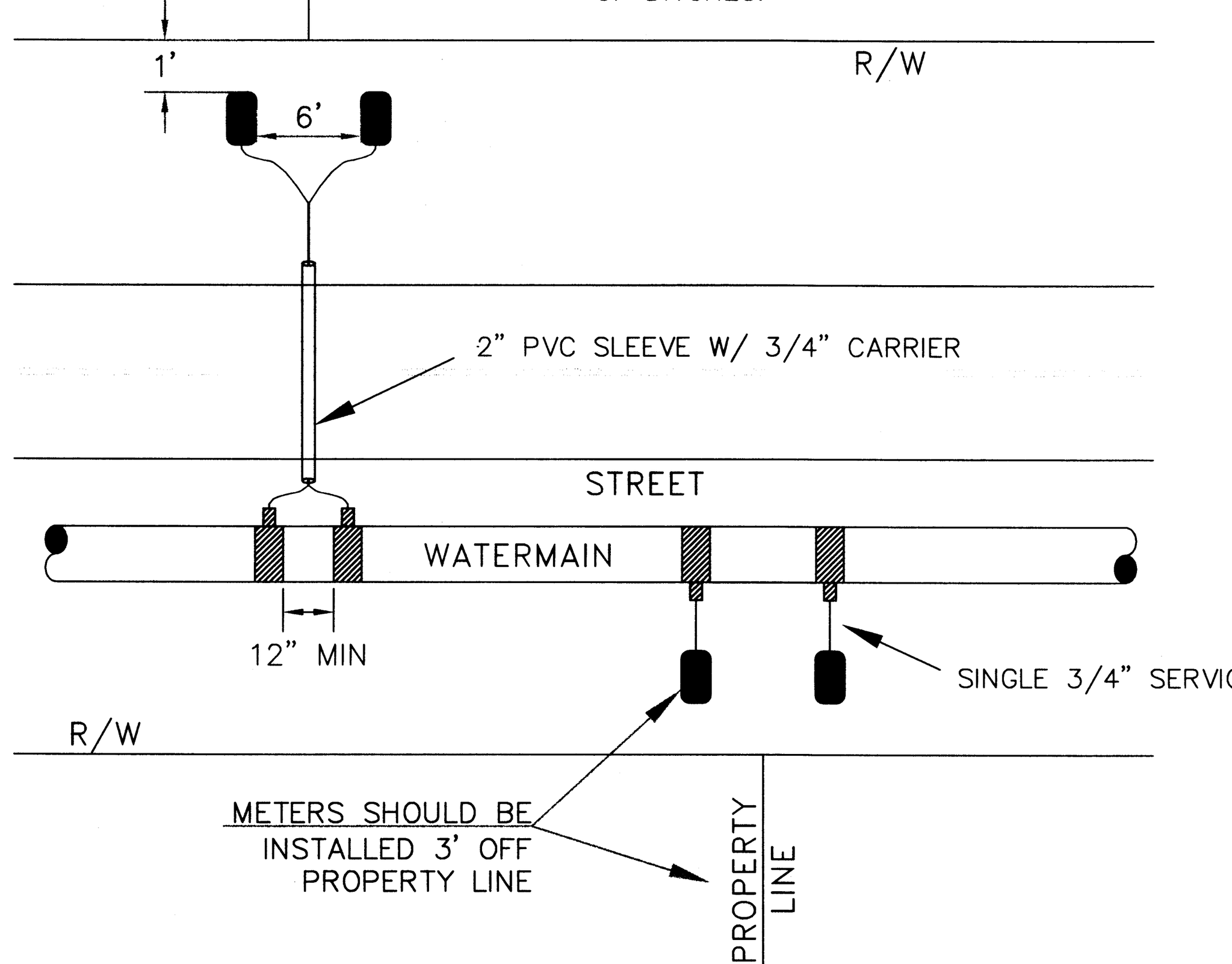
DETAILS
RECREATION AREA #2 at LEXINGTON PLANTATION

EE PROJECT: 3059

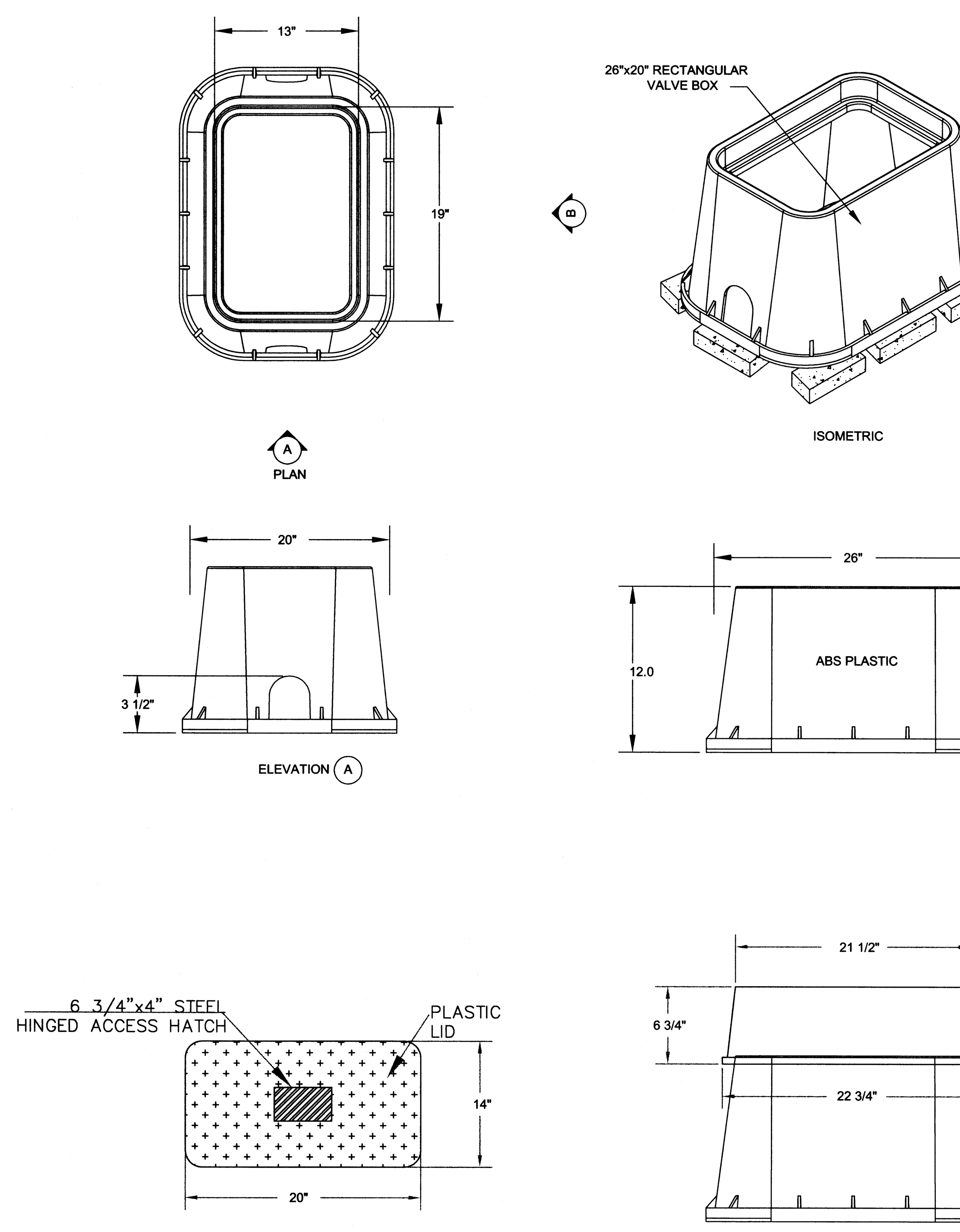
D - 1
3 of 4

X:\projects\3059-A_Norwood Property DESIGN\dwg\3059-DESIGN COMMONS\RecSite - V2010.dwg

NOTES:
1. INSTALL METER AT R/W
2. "TWO (2)–3/4" SERVICE LINES MUST BE INSTALLED INSIDE A 2" SLEEVE."
3. "TWO (2)–1" SERVICE LINES MUST BE INSTALLED INSIDE A 3" SLEEVE."
4. SLEEVES SHOULD BE SCHEDULE 40 PVC PIPE.
5. SEE DETAIL FOR SERVICE MATERIAL AND METER SETTING
6. SERVICE LINE SHALL BE 3' BELOW FINISHED GRADE OF DITCHES.



TYPICAL DOMESTIC WATER SERVICE INSTALLATION DETAIL (W 12)
NO SCALE



TYPICAL METER BOX DETAIL FOR 1" SERVICE (W 17)
NO SCALE

2012 HCDPU REQUIRED UTILITY NOTES
(Revision 5 – March 2012)

WATER

A. The Fire Marshal's Office shall approve all hydrant types and locations in new subdivisions. However, Harnett County Department of Public Utilities (HCDPU) prefers the contractors to install one of the following fire hydrants:
   1. Mueller – Super Centurion 250 A–423 model with a 5¼" main valve opening three way (two hose nozzles and one pumper nozzle);
   2. American Darling – Mark B–84–B model with a 5¼" main valve opening three way (two hose nozzles and one pumper nozzle);
   3. Waterous – Pacer B–67–250 model with a 5¼" main valve opening three way (two hose nozzles and one pumper nozzle) or approved equal for standardization.

B. Fire hydrants are installed at certain elevations. Any grade change in the vicinity of any fire hydrant which impedes its operation shall become the responsibility of the Utility Contractor for correction. Corrections will be monitored by the HCDPU Utility Construction Inspector and the Harnett County Fire Marshal.

C. The Professional Engineer (PE) shall obtain and provide the NCDENR "Authorization to Construct" permit to the Utility Contractor before the construction of the water line shall begin. The Utility Contractor must post a copy of the NCDENR "Authorization to Construct" permit issued by the North Carolina Department of Environment and Natural Resources – Division of Environmental Health, Public Water Supply Section (NCDENR–DEH,PWSS) on site prior to the start of construction. The permit must be maintained on site throughout the entire construction process of the proposed water lines that will serve this project.

D. The Utility Contractor shall notify Harnett County Department of Public Utilities (HCDPU) and the Professional Engineer (PE) at least two days prior to construction commencing. The Utility Contractor must schedule a pre–construction conference with Mr. Alan Moss, HCDPU Utility Construction Inspector at least two (2) days before construction will begin and the Utility Contractor must coordinate with HCDPU for regular inspection visitations and acceptance of the water system(s). Construction work shall be performed only during the normal working hours of HCDPU which is 8:00 am – 5:00 pm Monday through Friday. Holiday and weekend work is not permitted by HCDPU.

E. The Professional Engineer (PE) shall provide HCDPU and the Utility Contractor with a set of NCDENR approved plans marked "Released For Construction" at least two days prior to construction commencing. The Registered Land Surveyor (RLS) should stake out all lot corners and the grade stakes for the proposed finish grade for each street before the Utility Contractor begins construction of the water line(s). The grade stakes should be set with a consistent offset from the street centerline so as not to interfere with the street grading and utility construction.

F. The Utility Contractor shall provide the HCDPU Utility Construction Inspector with material submittals and shop drawings for all project materials prior to the construction of any water line extension(s), and associated water services in Harnett County. The materials to be used on the project must meet the established specifications of HCDPU and be approved by the Engineer of Record prior to construction. All substandard materials or materials not approved for use in Harnett County found on the project site must be removed immediately when notified by the HCDPU Utility Construction Inspector.

G. The water main(s), fire hydrants, service lines, meter setters and all associated appurtenances shall be constructed in strict in accordance with the standard specifications of the Harnett County Department of Public Utilities (HCDPU). The Utility Contractor shall be responsible to locate the newly installed water main(s), water service lines and all associated meter setters and meter boxes for other utility companies and their contractors until the new water main(s) have been approved by the North Carolina Department of Environment and Natural Resources – Division of Environmental Health, Public Water Supply Section (NCDENR–DEH, PWSS)and accepted by HCDPU.

H. Prior to acceptance, all services will be inspected to insure that they are installed at the proper depth. All meter boxes must be flush with the ground level at finish grade and the meter setters must be a minimum of 8" below the meter box lid. Meter setters shall be centered in the meter box and supported by brick, block or stone.

I. The Utility Contractor shall provide the Professional Engineer (PE) and HCDPU Utility Construction Inspector with a set of red line drawings identifying the complete water system installed for each project. The red line drawings should identify the materials, pipe sizes and approximate depths of the water lines as well as the gate valves, fire hydrants, meter setters, blow off assemblies and all associated appurtenances for all water line(s) constructed in Harnett County. The red line drawings should clearly identify any deviations from the NCDENR approved plans. All change orders must be approved by HCDPU and the Professional Engineer (PE) in writing and properly documented in the red line field drawings.

J. Potable water mains crossing other utilities and non–potable water lines (sanitary sewer, storm sewer, RCP, etc.) shall be laid to provide a minimum vertical distance of twenty–four (24") inches between the potable water main and all other utilities. NCDOT requires the new water mains to be installed under the storm water lines. The potable water main shall be installed with twenty–four (24") inches of vertical separation and with ductile iron pipe when designed to be placed under a non–potable water line such as sanitary sewer or storm sewer lines. If these separations cannot be maintained then the water main shall be installed with ductile iron pipe. Both the potable water main and the non–potable water line must be cast iron or ductile iron pipe (DIP) if the state minimum separations cannot be maintained. The ductile iron pipe must be laid so the mechanical joints are at least (10') feet from the point where the potable water main crosses the non–potable water line.

K. Potable water mains installed parallel to non–potable water lines (sanitary sewer, storm sewer, RCP, etc.) shall be laid to provide a minimum horizontal distance of ten (10') feet between the potable water main and sanitary sewer mains, sewer laterals and services. The horizontal separation between the potable water main and any other utility or storm sewer shall not be less than five (5') feet. The potable water main must be ductile iron pipe if this horizontal separation of ten (10') feet cannot be maintained. The ductile iron pipe shall extend at least ten (10') feet beyond the point where the minimum required horizontal separation of ten (10') feet can be re–established.

L. Meter setters shall be installed in pairs on every other lot line where possible to leave adequate space for other utilities to be installed at a later time. The meter setters shall be installed at least one (1') foot inside the right–of–way and at least three (3') to five (5') feet from the property line between the lots.

M. HCDPU requires that meter boxes for ¾" services shall be 12" wide x 17" long ABS plastic boxes at least 18" in height with cast iron lids/covers. Meter boxes for 1" services shall be 17" wide x 21" long ABS plastic boxes at least 18" in height with plastic lids and cast iron flip covers in the center of the lids. Meter boxes for 2" services shall be 20" wide x 32" long ABS plastic boxes at least 20" in height with plastic lids and cast iron flip covers in the center of the lids.

N. Master meters must be installed in concrete vaults sized for the meter assembly and associated appurtenances so as to provide at least eighteen (18") inches of clearance between the bottom of the concrete vault and the bottom of the meter setter. The master meter must be provided test ports if the meter is not equipped with test ports from the manufacturer in accordance with the HCDPU established standard specifications and details. Ductile iron pipe must be used for the master meter vault piping and valve vault piping. The Utility Contractor must provide shop drawings for the meter vaults to HCDPU prior to ordering the concrete vaults.

O. The Utility Contractor will install polyethylene SDR–9 water service lines that cross under the pavement inside a schedule 40 PVC conduit to allow for removal and replacement in the future. Two (2) independent ¾" water service lines may be installed inside one (1) – two (2") inch schedule 40 PVC conduit or two (2) independent 1" water service lines may be installed inside one (1) – three (3") inch schedule 40 PVC conduit, but each water service shall be tapped directly to the water main. Split services are not allowed by HCDPU.

P. The water main(s), fire hydrants, gate valves, service lines, meter setters and associated appurtenances must be rated for 200 psi and hydrostatically pressure tested to 200 psi. The hydrostatic pressure test(s) must be witnessed by the HCDPU Utility Construction Inspector. The Utility Contractor must notify HCDPU when they are ready to begin filling in lines and coordinate with Harnett County to witness all pressure testing.

Q. The Utility Contractor shall conduct a pneumatic pressure test using compressed air or other inert gas on the stainless steel tapping sleeve(s) prior to making the tap on the existing water main. This pneumatic pressure test must be witnessed by the HCDPU Utility Construction Inspector. The Utility Contractor shall use Romac brand stainless steel tapping sleeve(s) or approved equal for all taps made in Harnett County. All new water line extensions must begin with a resilient wedge type gate valve sized equal to the diameter of the new water line extension in order to provide a means of isolation between Harnett County's existing water mains and the new water line extensions under construction.

R. All water mains will be constructed with SDR–21 PVC Pipe or Class 50 Ductile Iron Pipe rated for at least 200 psi or greater. All pipes must be protected during loading, transport, unloading, staging, and installation. PVC pipe must be protected from extended exposure to sunlight prior to installation.

S. All water mains will be flushed and disinfected in strict accordance with the standard specifications of the Harnett County Department of Public Utilities. All water samples collected for bacteria testing will be collected by the HCDPU Utility Construction Inspector and tested in the HCDPU Laboratory.

T. All fittings larger than two (2") inches diameter shall be ductile iron. HCDPU requires that mechanical joints be assembled with grip rings as "Megalug" fittings are not approved by Harnett County for pipe sizes smaller than twelve inches (12") diameter. PVC pipe used for water mains shall be connected by slip joint or mechanical joint with grip rings. Glued pipe joints are not allowed on PVC pipe used for water mains in Harnett County.

U. HCDPU requires that the Utility Contractor install tracer wire in the trench with all water lines. The tracer wire shall be 12 ga. insulated, solid copper conductor and it shall be terminated at the top of the valve boxes or manholes. No spliced wire connections shall be made underground on tracer wire installed in Harnett County. The tracer wire may be secured with duct tape to the top of the pipe before backfilling.

V. The Utility Contractor will provide Professional Engineer (PE) and the HCDPU Utility Construction Inspector with a set of red line field drawings to identify the installed locations of the water line(s) and all associated services. All change orders must be pre–approved by HCDPU and the Professional Engineer (PE) in writing and properly documented in the red line field drawings.

W. The Utility Contractor shall spot dig to expose each utility pipe or line which may conflict with construction of proposed water line extensions well in advance to verify locations of the existing utilities. The Utility Contractor shall provide both horizontal and vertical clearances to the Professional Engineer (PE) to allow the PE to adjust the water line design in order to avoid conflicts with existing underground utilities. The Utility Contractor shall coordinate with the utility owner and be responsible for temporary relocation and/or securing existing utility poles, pipes, wires, cables, signs and/or utilities including services in accordance with the utility owner requirements during water line installation, grading and street construction.

X. Prior to the commencement of any work within established utility easements or NCDOT right–of–ways the Utility Contractor is required to have a signed NCDOT encroachment agreement posted on site and notify all concerned utility companies in accordance with G.S. 87–102. The Utility Contractor must call the NC One Call Center at 811 or (800) 632–4949 to verify the location of existing utilities prior to the beginning of construction. Existing utilities shown in these plans are taken from maps furnished by various utility companies and have not been physically located or verified by the P.E. (i.e. TELEPHONE, CABLE, WATER, SEWER, ELECTRICAL POWER, FIBER OPTIC, NATURAL GAS, ETC.). The Utility Contractor will be responsible to repair any and all damages to the satisfaction of the related utility company.

Y. The Utility Contractor shall provide HCDPU with at least one (1) fire hydrant wrench and one (1) break–away flange kit for every subdivision with fire hydrants developed in Harnett County. These items must be provided to HCDPU before the final inspection will be scheduled by the HCDPU Utility Construction Inspector. In addition, the Utility Contractor shall install a 4" x 4" concrete valve marker at the edge of the right–of–way to identify the location of each gate valve installed in the new water system with the exception of the fire hydrant isolation valves. The contractor shall measure the distance from the center of the concrete marker to the center of the valve box. This distance (in linear feet) shall be stamped on the brass plate located on the top of the concrete valve marker. In lieu of installing the concrete valve markers, the Utility Contractor may provide at least two measurements from two independent permanent above ground structures to the Professional Engineer (PE) in the red line drawings to identify the valve locations. The Professional Engineer (PE) must include these measurements in the As–Built Record Drawings submitted to HCDPU.

Z. The Utility Contractor will be responsible for any and all repairs due to leakage damage from poor workmanship during the one (1) year warranty period once the water system improvements have been accepted by Harnett County. Harnett County will provide maintenance and repairs when requested and bill the Developer and/or Utility Contractor if necessary due to lack of response within 48 hours of notification of warranty work. The Utility Contractor will be responsible for any and all repairs due to damages resulting from failure to locate the new water lines and associated appurtenances for other utilities and their contractors until the water lines have been approved by NCDENR and accepted by HCDPU. The final inspection of water system improvements cannot be scheduled with HCDPU until the streets have been paved, the rights–of–way and utility easements have been seeded and stabilized with an adequate stand of grass in place to prevent erosion issues on site.

AA The Engineer of Record is responsible to insure that construction is, at all times, in compliance with accepted sanitary engineering practices and approved plans and specifications. No field changes to the approved plans are allowed without prior written approval by HCDPU. A copy of each engineer's field report is to be submitted to HCDPU as each such inspection is made on system improvements or testing is performed by the contractor. Water and sewer infrastructure must pass all tests required by HCDPU specifications and those of all applicable regulatory agencies. These tests include, but are not limited to: air test, vacuum test, mandrel test, visual test, pressure test, bacteriological test, etc. A HCDPU Inspector must be present during testing and all test results shall be submitted to HCDPU. All tests must be satisfied before the final inspection will be scheduled with the HCDPU Inspector. The Engineer of Record must request in writing to schedule the final inspection once all construction is complete. The Developer's Engineer of Record and the HCDPU Utility Construction Inspector shall prepare a written punch list of any defects or deficiencies noted during the final inspection, should any exist. Upon completion of the punch list, the Developer's Engineer of Record will schedule another inspection. In the event the number of inspections performed by the HCDPU exceeds two, additional fees may be accessed to the Developer.

SANITARY SEWER

A. The Professional Engineer (PE) shall obtain and supply a copy of the sewer permit for the construction and operation of the wastewater collection system to the Utility Contractor before the construction of the sanitary sewer line, sewer lift station and associated force main shall begin. The Utility Contractor must post a copy of the sewer permit issued by the North Carolina Department of Environment and Natural Resources – Division of Water Quality (NCDENR–DWQ) on site prior to the start of construction. The permit must be maintained on site during the construction of the sewer system improvements.

B. The Utility Contractor shall notify Harnett County Department of Public Utilities (HCDPU) and the Professional Engineer (PE) at least two days prior to construction commencing. The Utility Contractor must schedule a pre–construction conference with Mr. Alan Moss, HCDPU Utility Construction Inspector at least two (2) days before construction will begin and the Utility Contractor must coordinate with HCDPU for regular inspection visitations and acceptance of the wastewater system(s). Construction work shall be performed only during the normal working hours of HCDPU which is 8:00 am – 5:00 pm Monday through Friday. Holiday and weekend work is not permitted by HCDPU.

C. The Professional Engineer (PE) shall provide HCDPU with a set of NCDENR approved plans marked "Released For Construction" at least two days prior to construction commencing. HCDPU will stamp the approved plans as "Released for Construction" and provide copies to the utility contractor. The Registered Land Surveyor (RLS) shall stake out all lot corners and establish grade stakes for the proposed finish grade for each street and sewer line before the Utility Contractor begins construction or installation of the manholes, sanitary sewer gravity line(s), sewer lift stations and/or sanitary sewer force main(s). The grade stakes should be set with a consistent offset from the street centerline so as not to interfere with the street grading or utility construction.

D. The Utility Contractor shall provide the HCDPU Utility Construction Inspector with material submittals and shop drawings for all project materials prior to the construction of any gravity sewer line(s), manhole(s), sewer lift station(s) and associated force main(s) in Harnett County. The materials to be used on the project must meet the established specifications of HCDPU and be approved by the Engineer of Record prior to construction. All substandard materials or materials not approved for use in Harnett County found on the project site must be removed immediately when notified by the HCDPU Utility Construction Inspector.

E. The sanitary sewer lateral connections should be installed 90° (perpendicular) to the sanitary sewer gravity lines with schedule 40 PVC pipe. HCDPU requires the Utility Contractor to provide the Professional Engineer (PE) with accurate measurements for locating sanitary sewer service lateral and associated each sanitary sewer clean–out. These measurements should be taken from the nearest downstream manhole up along the sanitary sewer main to the in–line wye fitting (or tapping saddle) and then another measurement from the in–line wye fitting (or tapping saddle) to the 4" x 4" long sweep combination wye fitting at the bottom of the sewer clean–out stack. These field measurements must be provided to the Professional Engineer (PE) in the red line drawings from the Utility Contractor for proper documentation in the As–Built Record Drawings submitted to HCDPU.

F. The Utility Contractor shall be responsible to locate the newly installed sanitary sewer gravity line(s), sanitary sewer force main(s), sanitary sewer service lateral(s) and all associated sewer clean–out(s) in the proposed sanitary sewer system for other utility companies and their contractors until the new sanitary sewer line(s) and associated appurtenances have been approved by the North Carolina Department of Environment and Natural Resources – Division of Water Quality (NCDENR–DWQ) and accepted by HCDPU. All new sanitary sewer lines must have at least three (3 ft.) feet of cover and extend under all existing water main and storm water lines with a least 24" of vertical clearance below the bottom of the existing water main and storm water lines.

G. The sanitary sewer gravity line(s), manhole(s), sanitary sewer service lateral(s) and associated clean–out(s) shall be constructed in strict accordance with the standard specifications of the Harnett County Department of Public Utilities. The sanitary sewer gravity line(s) must pneumatically pressure tested with compressed air at 5 psi and the sanitary sewer force main(s) must hydrostatically pressure tested with water or air at 200 psi and witnessed by the HCDPU Utility Construction Inspector.

H. Prior to acceptance, all sewer service laterals will be inspected to insure that they are installed at the proper depth. All sewer clean–outs must be installed so the 4" x 4" long sweep combination wye is at least three (3') feet but no more than four (4') feet below the finish grade unless otherwise approved in writing by HCDPU. The sewer cleanouts shall have a four (4") schedule 40 PVC pipe stubbed up from both ends of the 4" x 4" long sweep combination wye to be at least two (2') feet above the finish grade and cover each end with a four (4") inch temporary cap to keep out dirt, sand, rocks, water and construction debris. The vertical stack on each clean–out must be provided with a concrete donut for protection.

I. Once the sanitary sewer gravity line(s) have been installed, pneumatically pressure tested and in place for at least 30 days, the Utility Contractor must contact the HCDPU Utility Construction Inspector to witness the mandrel test on each PVC sanitary sewer gravity line. The Utility Contractor will notify HCDPU to schedule the mandrel testing. The mandrel and proving ring must be supplied by the Utility Contractor. Closed circuit video camera inspections (at the Utility Contractor's expense) may be required by the HCDPU Utility Construction Inspector if the mandrel testing cannot be completed with satisfactory results. The sanitary sewer lines should be flushed clean using a sewer ball of the proper diameter before any mandrel testing can be performed. The Utility Contractor is responsible to remove all dirt, sand, silt, gravel, mud and debris from the newly constructed sewer lines exercising care to keep the Harnett County's existing sanitary sewer systems clean. Sanitary sewer force main(s) shall be pressure tested to 200 psi for at least 2 hours like water lines.

J. The Utility Contractor shall be responsible to locate the newly installed sanitary sewer system(s) for other utility companies and their contractors until the new sanitary sewer system(s) have been approved by the North Carolina Department of Environment and Natural Resources – Division of Water Quality (NCDENR–DWQ)and accepted by HCDPU.

K. HCDPU requires that the Utility Contractor install tracer wire in the trench with all sanitary sewer force mains. The tracer wire shall be 12 ga. insulated, solid copper conductor and it shall be terminated at the top of the valve boxes or manholes. No spliced wire connections shall be made underground on tracer wire installed in Harnett County. The tracer wire may be secured with duct tape to the top of the pipe before backfilling. The tracer wire is not required for the gravity sewer line(s) between manholes.

L. The Utility Contractor shall provide the Professional Engineer (PE) and HCDPU Utility Construction Inspector with a set of red line drawings identifying the complete sewer system installed for each project. The red line drawings should identify the materials, pipe sizes and approximate depths of the sewer lines as well as the installed locations of the manhole(s), sanitary sewer gravity line(s), sanitary sewer service laterals, clean–outs, sewer lift station(s) and associated force main(s). The red line drawings should clearly identify any deviations from the NCDENR approved plans. All change orders must be approved by HCDPU and the Professional Engineer (PE) in writing and properly documented in the red line field drawings.

M. Prior to the commencement of any work within established utility easements or NCDOT right–of–ways the Utility Contractor is required to notify all concerned utility companies in accordance with G.S. 87–102. The Utility Contractor must call the NC One Call Center at 811 or (800) 632–4949 to verify the location of existing utilities prior to the beginning of construction. Existing utilities shown in these plans are taken from maps furnished by various utility companies and have not been physically located by the P.E. (i.e. TELEPHONE, CABLE, WATER, SEWER, ELECTRICAL POWER, FIBER OPTIC, NATURAL GAS, ETC.).

N. The Utility Contractor shall spot dig to expose each existing utility pipe or line which may conflict with construction of proposed sanitary sewer line extensions well in advance to verify locations of the existing utilities. The Utility Contractor shall provide both horizontal and vertical clearances to the Professional Engineer (PE) to allow the PE to adjust the sanitary sewer line design in order to avoid conflicts with existing underground utilities. The Utility Contractor shall coordinate with the utility owner and be responsible for temporary relocation of existing utilities and/or securing existing utility poles, pipes, wires, cables, signs and/or utilities including services in accordance with the utility owner's requirements during sanitary sewer line installation, grading and street construction.

O. When making a tap on an existing sewer force main, the Utility Contractor must have a permit from the North Carolina Department of Environment and Natural Resources – Division of Water Quality (NCDENR–DWQ) prior to begin the tap work. The Utility Contractor shall conduct a pneumatic pressure test using compressed air or other inert gas on the stainless steel tapping sleeve and gate valve prior to making the tap on an existing sanitary sewer force main. This pneumatic pressure test must be witnessed by the HCDPU Utility Construction Inspector. The Utility Contractor shall use Romac brand stainless steel tapping sleeve(s) or approved equal for all taps made on sanitary sewer force mains in Harnett County. The Utility Contractor shall use Romac brand Style "CB" sewer saddles with stainless steel bands or approved equal for all taps made on existing sanitary sewer gravity lines in Harnett County.

P. The Utility Contractor shall provide a grease trap for each sanitary sewer service lateral that will be connected to a restaurant, food processing facility and any other commercial or industrial facility as required by the Harnett County Fat, Oil & Grease Ordinance. The grease trap must be rated for a minimum capacity of at least 1,000 gallons unless otherwise approved in writing by the HCDPU Pre–Treatment Coordinator. Garbage disposals should not be installed in homes and businesses that discharge wastewater to the Harnett County Sanitary Sewer System as they are not approved by HCDPU.

Q. Each sewer lift station must be provided with three phase power (at least 480 volts) and constructed to meet the minimum requirements of the latest version of the National Electrical Code (NEC) and Harnett County standard specifications and details. If three phase power is not available from the power company other arrangements must be approved by HCDPU Engineering prior to the start of construction.

R. Where a new sanitary sewer force main is connected to an existing manhole in the Harnett County sewer collections system, the Utility Contractor must provide a protective coating (coal tar epoxy) for the interior surfaces of the manhole to protect it against corrosion, erosion and deterioration from the release of sewer gases such as methane and hydrogen sulfide.

S. The sewer lift station design and associated equipment must meet or exceed the MINIMUM REQUIREMENTS FOR HARNETT COUNTY SEWER LIFT STATIONS 2009 edition. Each sanitary sewer lift station must be constructed with an all–weather access road that is at least 20 feet wide. The lift station site must be covered with weed blocking material and at least six (6") inches of # 57 stone (crush and run).

T. Once a sewer lift station has been installed, the Utility Contractor is responsible to schedule a draw down test with HCDPU Engineering and Collections staff, the Professional Engineer (PE), the Electrician, the original equipment manufacturer's (OEM) representatives [For both the Pumps and the Generator]. This draw down test must be completed with power supplied from the electrical utility company and with power supplied by the emergency generator with satisfactory results before final inspections are conducted by the HCDPU Utility Construction Inspector.

U. Once the Utility Contractor completes the installation of a sewer lift station, the Professional Engineer (PE) must submit the sewer permit certification and As–Built Record Drawings to the North Carolina Department of Environment and Natural Resources – Division of Water Quality (NCDENR–DWQ) and HCDPU for final approval. The Utility Contractor must supply HCDPU Engineering staff with three original Operation & Maintenance (O&M) Manuals along with the associated pump curves and electrical schematics for the associated sewer lift station equipment including all warranty information and documentation.

V. Once the Utility Contractor completes the installation of a sewer lift station, the Developer must pay HCDPU the established System Control and Data Acquisition (SCADA) fees before the SCADA system will be installed at the new sewer lift station. The SCADA system must be installed and operational before the utilities may be accepted by HCDPU and placed into operation.

W. HCDPU requires the Utility Contractor to provide all necessary equipment and devices for the testing and inspection of the sanitary sewer system. The equipment and devices may include but not limited to mirrors, mandrels, sewer balls, plugs, air compressors and associated compressed air lines. If the HCDPU Utility Construction Inspector deems that a closed circuit video camera inspection of the newly constructed sewer system is necessary, then all costs for the closed circuit camera inspection will be the responsibility of the Utility Contractor. All closed circuit video camera inspections must be recorded on VHS tapes that will released to HCDPU for record keeping, review and approval of the sewer system.

X. Any use of sewer plugs to temporarily block Harnett County's existing sanitary sewer lines must be coordinated with the HCDPU Collections Supervisor at least two (2) days in advance of installing the plugs. The sewer plugs must be removed as soon as possible once the new sanitary sewer lines have been inspected, pressure tested, mandrel tested, approved by the North Carolina Department of Environment and Natural Resources – Division of Water Quality (NCDENR–DWQ) and accepted by HCDPU to allow the sewer to flow as designed in Harnett County's existing sanitary sewer lines or when so ordered by the HCDPU Collections Supervisor to limit interruptions to the normal flow of the sanitary sewer collection system(s). The Utility Contractor must provide the pumps hoses and necessary connectors for a temporary pump around setup if required by the HCDPU Collections Supervisor. Mr. Curtis Spears, HCDPU Collections Supervisor may be contacted between 8:00 am and 5:00 pm Monday through Friday at (910) 893–7575 extension 3243.

Y. The Utility Contractor will be responsible for any and all repairs due to leakage or damage resulting from poor workmanship during the one (1) year warranty period once the sewer system improvements have been approved by the North Carolina Department of Environment and Natural Resources – Division of Water Quality (NCDENR–DWQ) and accepted by HCDPU. The Utility Contractor will be responsible for any and all repairs due to damages resulting from failure to locate the new sanitary sewer lines and associated appurtenances for other utilities and their contractors until the sanitary sewer lines have been approved by NCDENR and accepted by HCDPU. HCDPU will provide maintenance and warranty repairs if necessary due to lack of response within 48 hours of notification of warranty work. HCDPU will invoice the Developer and/or Utility Contractor for materials and labor in such cases.

Z. In developments and projects that require utility easements to be established for future HCDPU right–of–way, the Registered Land Surveyor (RLS) must provide the HCDPU Right–of–Way Agent with an official copy of the recorded plat and legal description of the said easement as recorded with the Harnett County Register of Deeds. The recorded documents must be provided to the HCDPU Right–of–Way Agent before the utility improvements within the said easement can be placed into operation. Any and all easements that must be obtained from adjoining property owners must be provided to HCDPU by the Developer at no cost to Harnett County. The final inspection of all sanitary sewer system improvements cannot be scheduled with HCDPU until the streets have been paved, the rights–of–way and utility easements have been seeded and stabilized with an adequate stand of grass in place to prevent erosion issues on site.

AA. The Engineer of Record is responsible to insure that construction is, at all times, in compliance with accepted sanitary engineering practices and approved plans and specifications. No field changes to the approved plans are allowed without prior written approval by HCDPU. A copy of each engineer's field report is to be submitted to HCDPU as each such inspection is made on system improvements or testing is performed by the contractor. Water and sewer infrastructure must pass all tests required by HCDPU specifications and those of all applicable regulatory agencies. These tests include, but are not limited to: air test, vacuum test, mandrel test, visual test, pressure test, bacteriological test, etc. A HCDPU Inspector must be present during testing and all test results shall be submitted to HCDPU. All tests must be satisfied before the final inspection will be scheduled with the HCDPU Inspector. The Engineer of Record must request in writing to schedule the final inspection once all construction is complete. The Developer's Engineer of Record and the HCDPU Utility Construction Inspector shall prepare a written punch list of any defects or deficiencies noted during the final inspection, should any exist. Upon completion of the punch list, the Developer's Engineer of Record will schedule another inspection. In the event the number of inspections performed by the HCDPU exceeds two, additional fees may be accessed to the Developer.

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PLAN INFORMATION:
DESIGNED BY: E.E., PA
DRAWN BY: E.E., PA
CHECKED BY: F.T.
SURVEY INFORMATION:
HORIZONTAL SCALE: ~
VERTICAL SCALE: ~
DATE CREATED: 02/10/2015

Revisions
05-20-2015: HCDPU COMMENTS

LOCATION:
NC 24-87
NEAR SPOUT SPRINGS, NC
ANDERSON CREEK TOWNSHIP
HARNETT COUNTY

PROPERTY OWNER(S):
VOLA, LLC
PO BOX 1328
CARY, NC 27512

DETAILS
RECREATION AREA #2 at LEXINGTON PLANTATION

EE PROJECT: 3059

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