



## PLAN REVIEW COMMENTS FOR DP-10-22-017324

Town of Bluffton

Department of Growth Management

20 Bridge Street P.O. Box 386 Bluffton, South Carolina 29910

Telephone 843-706-4522

<b>Plan Type:</b>	Development Plan	<b>Apply Date:</b>	10/17/2022
<b>Plan Status:</b>	Active	<b>Plan Address:</b>	
<b>Case Manager:</b>	Dan Frazier	<b>Plan PIN #:</b>	R610 029 000 0613 0000
<b>Plan Description:</b>	<p>A request by Jake Reed on behalf of the property owner, University Investments, LLC for approval of a preliminary development plan. The project consists of the construction of a +/-10,000 sq. ft. commercial building and associated access, parking, and utilities. The property is zoned Buckwalter PUD and consists of approximately 1.6 acres, identified by tax map number R610-029-000-0613-0000 and located within the Parcel 10-D / Raider Drive Master Plan.</p> <p><b>STATUS:</b> Staff comments will be reviewed at the November 23, 2022, meeting of the DRC.</p>		

### Technical Review

**Submission #: 1**      Received: 10/17/2022      Completed: 11/18/2022

<i>Reviewing Dept.</i>	<i>Complete Date</i>	<i>Reviewer</i>	<i>Status</i>
Watershed Management Review DRC	11/16/2022	Lidia Delhomme	Revisions Required

#### Comments:

1. Pending submittal of the feasibility of proposed BMPs meeting overall performance requirements using the Compliance Calculator. The Compliance Calculator can be located:  
<https://www.townofbluffton.sc.gov/704/Southern-Lowcountry-Stormwater-Ordinance>. If you have any questions regarding SoLoCo Stormwater Design Manual or the Compliance Calculator, feel free to email [ldelhomme@townofbluffton.com](mailto:ldelhomme@townofbluffton.com). Overall performance standards can be found in Section 3.5.5 of the SWDM.

Beaufort Jasper Water and Sewer Review	11/16/2022	James Clardy	Approved with Conditions
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#### Comments:

Pending formal submittal/ approval of water and sewer design.

Fire Department Review	11/17/2022	Dan Wiltse	Approved with Conditions
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#### Comments:

1. For final development plan, provide construction type and square footage, and indicate if fire suppression will be installed to determine the fire flow for the building.

Planning Commission Review	11/18/2022	Dan Frazier	Approved with Conditions
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#### Comments:

1. An encroachment permit from the Beaufort County School District (owner of Raider Drive) will be required.
2. Existing easements will make required landscaping challenging. Demonstrate how you are meeting the tree conservation, planting and landscaping requirements of UDO Section 5.3.
3. Demonstrate how vehicle access for the two Palmetto Electric Cooperative ingress/egress easements will be maintained.
4. Describe the proposed uses for the two large gravel areas (behind proposed building and adjacent to substation).
5. The 90/3 DSO in the Buckwalter PUD requires 8' building foundation plantings. Please delineate this area to show the landscaping can be provided.
6. Per the applications manual, the signature over seal needs to be provided by the landscape architect and the engineer.
7. Show location of dumpster enclosure, if applicable. Dumpster enclosure details are not required until Final Development Plan.

Planning Review - SR	11/18/2022	Jordan Holloway	Approved with Conditions
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#### Comments:

See Planning Commission Review comments

Planning Review - Address	11/18/2022	Dan Frazier	Approved
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**Comments:**

1. As designed, the structure will be addressed off of Raider Drive.

Police Department Review	11/16/2022	Adam Barberio	Approved
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Building Safety Review	10/18/2022	Richard Spruce	Approved
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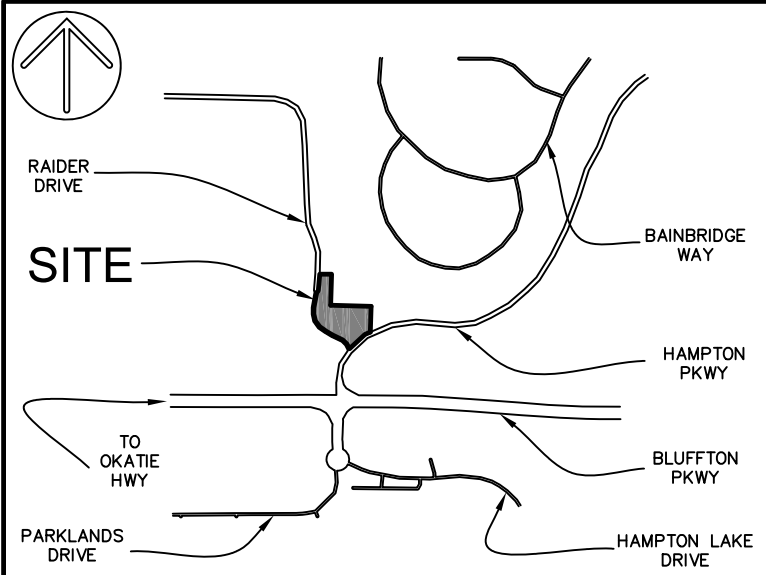
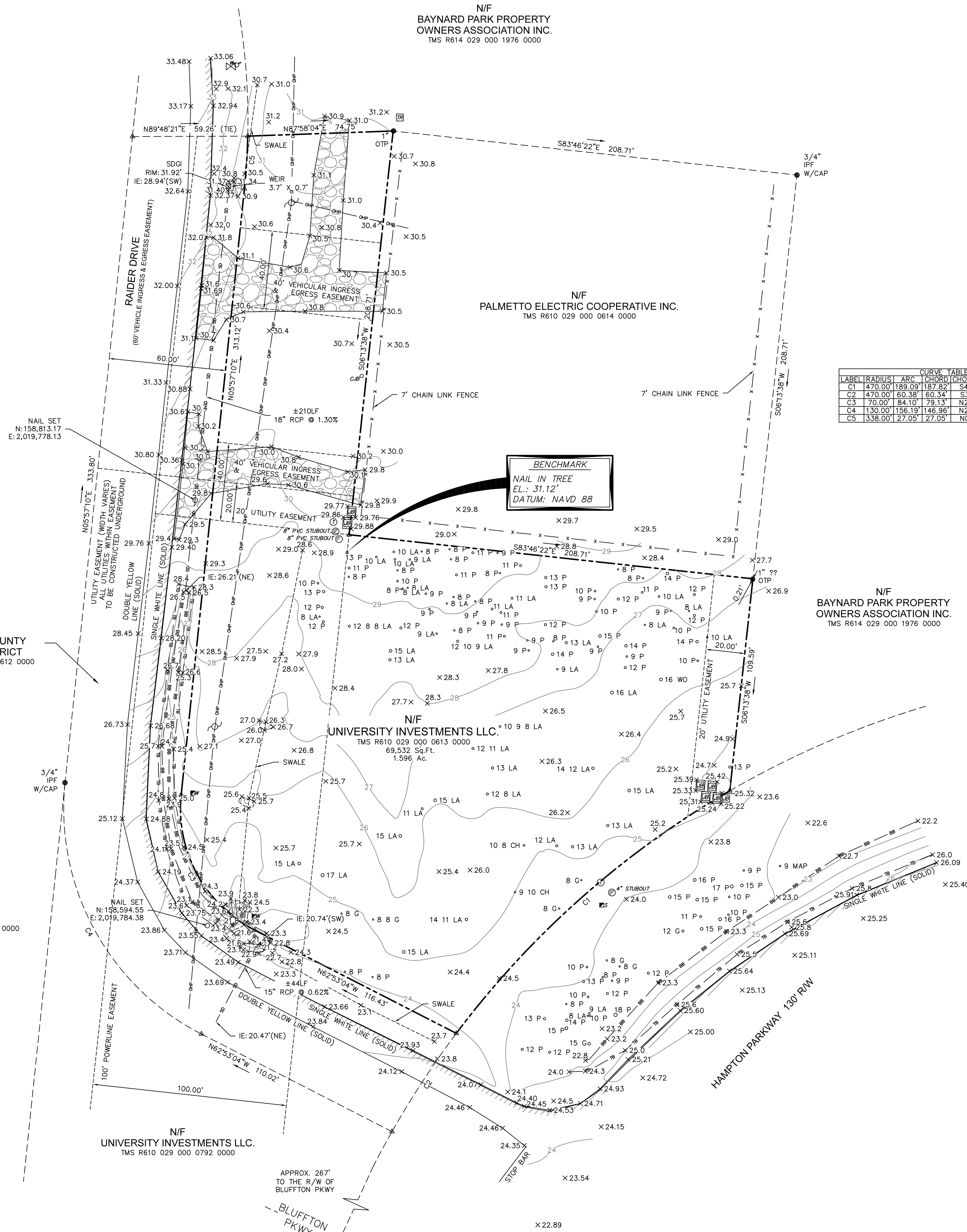
Transportation Department Review	10/18/2022	Megan James	Approved
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**Comments:**

No comment

**Plan Review Case Notes:**

NORTH  
SC GRID (NAD 83)



VICINITY MAP NOT TO SCALE

- LEGEND
- ▲ CALC POINT - CORNER NOT SET
  - IPF ● IRON PIPE FOUND
  - OTP ● OPEN TOP PIPE
  - OCJB ○ CABLE JUNCTION BOX
  - FIRE HYDRANT
  - ⊠ GRATE INLET
  - ⊠ JUNCTION BOX
  - POWER POLE
  - ×12.9 SPOT ELEVATION
  - SANITARY SEWER VALVE MARKER
  - TELEPHONE MANHOLE
  - ⊠ TRANSFORMER-ELECTRIC
  - WATER VALVE
  - WATER VALVE MARKER
  - CHERRY
  - SWEET GUM
  - LAUREL OAK
  - RED MAPLE
  - PINE
  - WATER OAK
  - INVERT ELEVATION
  - POLYVINYL CHLORIDE PIPE
  - REINFORCED CONCRETE PIPE
  - CONTOUR LINE
  - BB - BOTTOM OF BANK
  - OHP - OVERHEAD POWER LINE
  - TB - TOP OF BANK
  - SD - UNDERGROUND DRAINAGE LINE
  - CONCRETE
  - EDGE OF PAVEMENT
  - GRAVEL
  - RIP-RAP

- NOTES
- THIS PARCEL APPEARS TO LIE IN FLOOD ZONE C, FIRM PANEL 0085-D COMMUNITY 450025.
  - CONTOURS ARE IN ONE FOOT INTERVALS. TREE SIZES SHOWN ARE IN INCHES OF DIAMETER.
  - VERTICAL DATUM IS NAVD 88.
  - UNABLE TO ACQUIRE BUILDING SETBACK INFORMATION, MUST BE VERIFIED PRIOR TO CONSTRUCTION.
  - EASEMENTS ARE PER REFERENCE #1.
  - HORIZONTAL DATUM IS SOUTH CAROLINA STATE PLANE GRID (NAD 83).

- REFERENCES
- PB:115 PG:160
  - DB:2278 PG:1258
  - PB:143 PG:69

PREPARED FOR:  
REED COMMERCIAL VENTURES  
AN AS-BUILT TREE AND TOPOGRAPHIC SURVEY OF  
TAX PARCEL No:  
R610 029 000 0613 000

THE TOWN OF BLUFFTON  
BEAUFORT COUNTY, SOUTH CAROLINA

FIELD WORK: PV  
FIELD CHECK: JWR  
DRAWN BY: JAU  
DATE: 03-23-2021  
SCALE: 1"=30'  
PROJECT No.: BFT-21138  
FILE: BFT-21138 AT1.DWG

**ATLAS**  
SURVEYING, INC.

49 BROWN'S COVE ROAD, SUITE #5  
RIDGELAND, SC 29936  
PHONE: (843) 645-9277  
WEBSITE: WWW.ATLASSURVEYING.COM

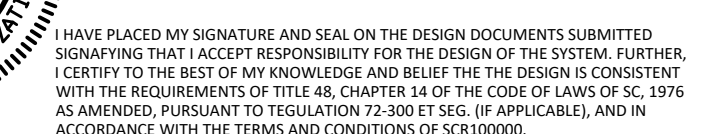


I HEREBY STATE THAT TO THE BEST OF MY KNOWLEDGE, INFORMATION, AND BELIEF, THE SURVEY SHOWN HEREIN WAS MADE IN ACCORDANCE WITH THE REQUIREMENTS OF THE MINIMUM STANDARDS MANUAL FOR THE PRACTICE OF LAND SURVEYING IN SOUTH CAROLINA, AND MEETS OR EXCEEDS THE REQUIREMENTS FOR A CLASS "A" SURVEY AS SPECIFIED THEREIN.

JEREMY W. REEDER  
S.C.P.L.S. No. 28139  
NOT VALID UNLESS CRIMPED WITH SEAL



GRAPHIC SCALE



CONTRACTOR TO IDENTIFY & LOCATE ALL UNDERGROUND UTILITIES PRIOR TO STARTING CONSTRUCTION.

CONTRACTOR RESPONSIBLE FOR TRAFFIC CONTROL & SAFETY DURING CONSTRUCTION.

CONTRACTOR RESPONSIBLE FOR SECURING SITE DURING NON-WORKING HOURS TO ENSURE TRAFFIC & PEDESTRIAN SAFETY.

REFERENCE DATUM: NAVD 88

PREPARED BY:

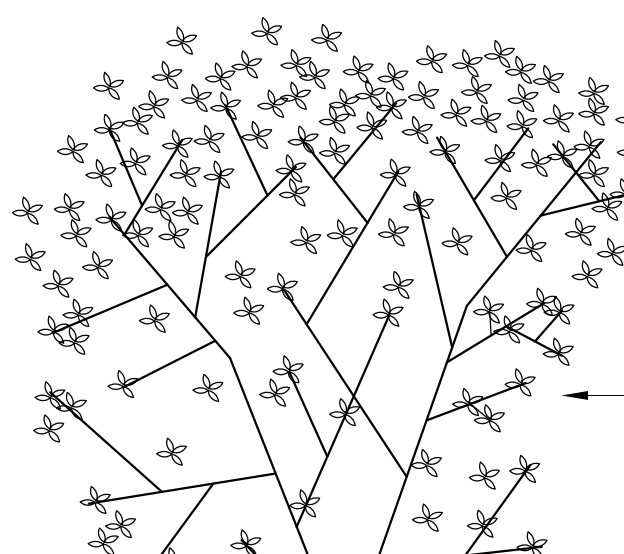
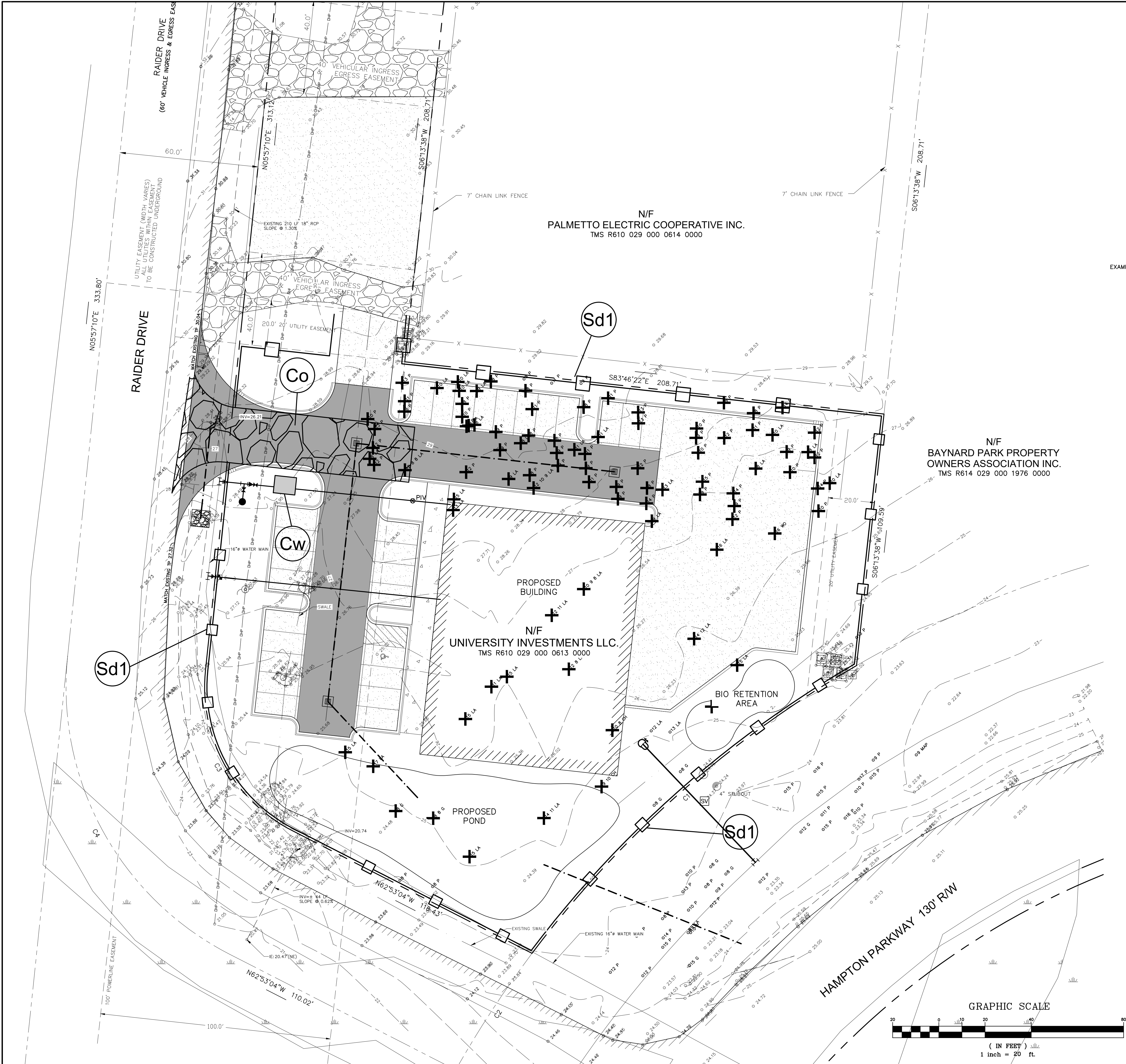
# CAROLINA ENGINEERING CONSULTANTS, INC.

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(843)322-0556 (FAX)

3 DAYS BEFORE DIGGING IN SOUTH CAROLINA  
CALL 1-888-721-7877  
PALMETTO UTILITY PROTECTION SERVICE

[illegible]





R=1/2 FOOT PER INCH  
DBH OR 5' (MINIMUM)  
EXAMPLE: 24" DBH - R=12'

NOT TO SCALE

TREE LEGEND	
REMAIN	REMOVE

TREE IDENTIFICATION	
ABBREVIATION	DESCRIPTION
BIR	BIRCH
CYP	CYPRESS
MAG	MAGNOLIA
PA	PALM

TREE PROTECTION & REMOVAL NOTES:  
INSTALL ALL TREE PROTECTION FENCE PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.

SEDIMENT & EROSION CONTROL NOTES:

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

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

WHERE STABILIZATION BY THE 14TH DAY IS PRECLUDED BY SNOW COVER OR FROZEN GROUND CONDITIONS STABILIZATION MEASURES MUST BE INITIATED AS SOON AS PRACTICABLE.

WHERE CONSTRUCTION ACTIVITY ON A PORTION OF THE SITE IS TEMPORARILY CEASED, AND EARTH-DISTURBING ACTIVITIES WILL BE RESUMED WITHIN 14 DAYS, TEMPORARY STABILIZATION MEASURES DO NOT HAVE TO BE INITIATED ON THAT PORTION OF THE SITE.

ALL SEDIMENT AND EROSION CONTROL DEVICES SHALL BE INSPECTED ONCE A CALENDAR EVERY WEEK. IF PERIODIC INSPECTION OR OTHER INFORMATION INDICATES THAT A BMP HAS BEEN INAPPROPRIATELY, OR INCORRECTLY, THE PERMITTEE MUST ADDRESS THE NECESSARY REPLACEMENT OR MODIFICATION REQUIRED TO CORRECT THE BMP WITHIN 48 HOURS OF IDENTIFICATION.

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

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

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

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

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

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

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

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

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

MINIMIZE SOIL COMPACTION AND, UNLESS INFEASIBLE, PRESERVE TOPSOIL.

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

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

THE FOLLOWING DISCHARGES FROM SITES ARE PROHIBITED:

- WASTE WATER FROM WASHOUT OF CONCRETE, UNLESS MANAGED BY AN APPROPRIATE CONTROL.

- WASTE WATER FROM WASHOUT AND CLEANOUT OF STUCK, PAINT, FROM RELEASE OILS, CURING COMPOUNDS AND OTHER CONSTRUCTION MATERIALS.

- FUELS, OILS, OR OTHER POLLUTANTS USED IN VEHICLE AND EQUIPMENT OPERATION AND MAINTENANCE, AND

- SOAPS OR SOLVENTS USED IN VEHICLE AND EQUIPMENT WASHING.

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

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

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

PLAN REVISIONS

NO.	DESCRIPTION	DATE
1	-	-
2	-	-
3	-	-
4	-	-
5	-	-
6	-	-
7	-	-
8	-	-

RAIDER DRIVE  
BLUFFTON  
BEAUFORT COUNTY, SC

CAROLINA ENGINEERING CONSULTANTS, INC.  
843/322-0553  
843/322-0556 (FAX)  
WWW.CAROLINAENGINEERING.COM  
PO BOX 294  
BEAUFORT, SC 29901

PROJECT: 2478  
DATE: 10/11/22  
REVISED: 10/11/22  
DRAWN BY: RGG  
ENGINEER: JPA  
SCALE: 1"=20'

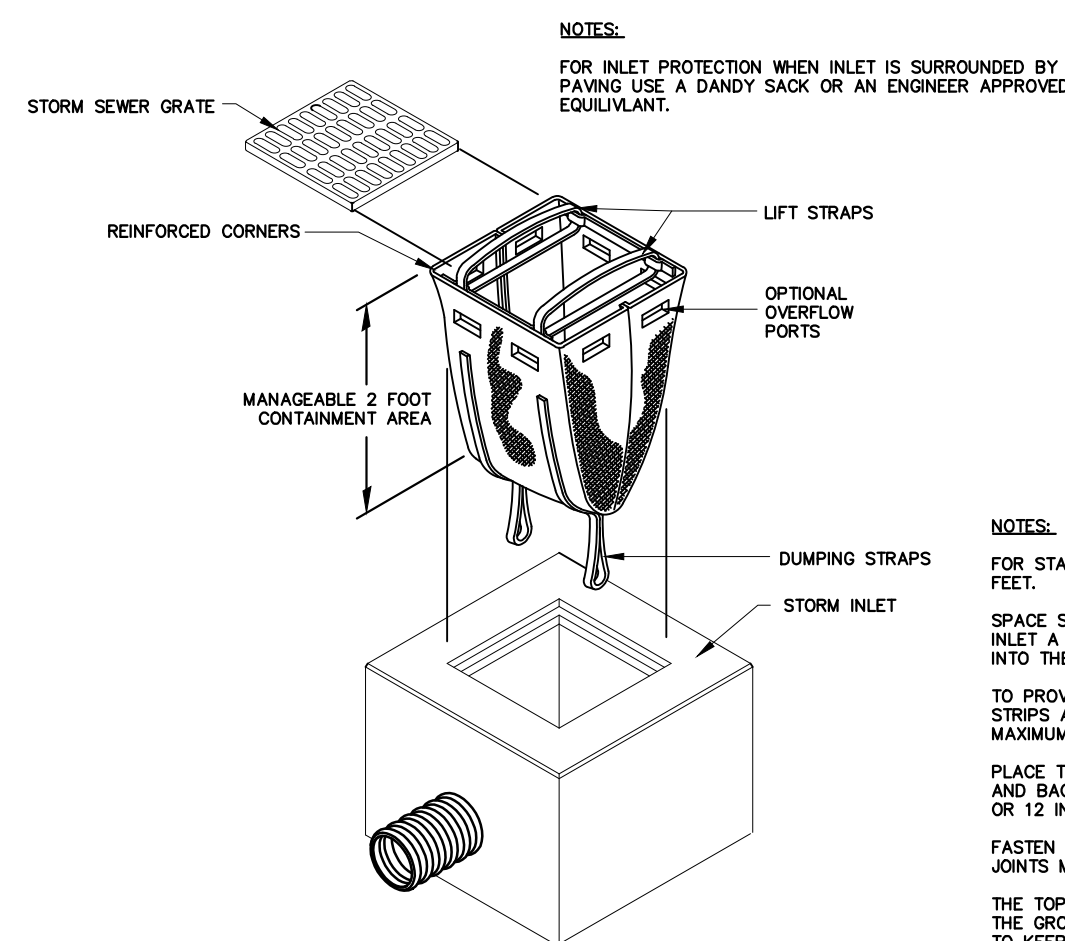
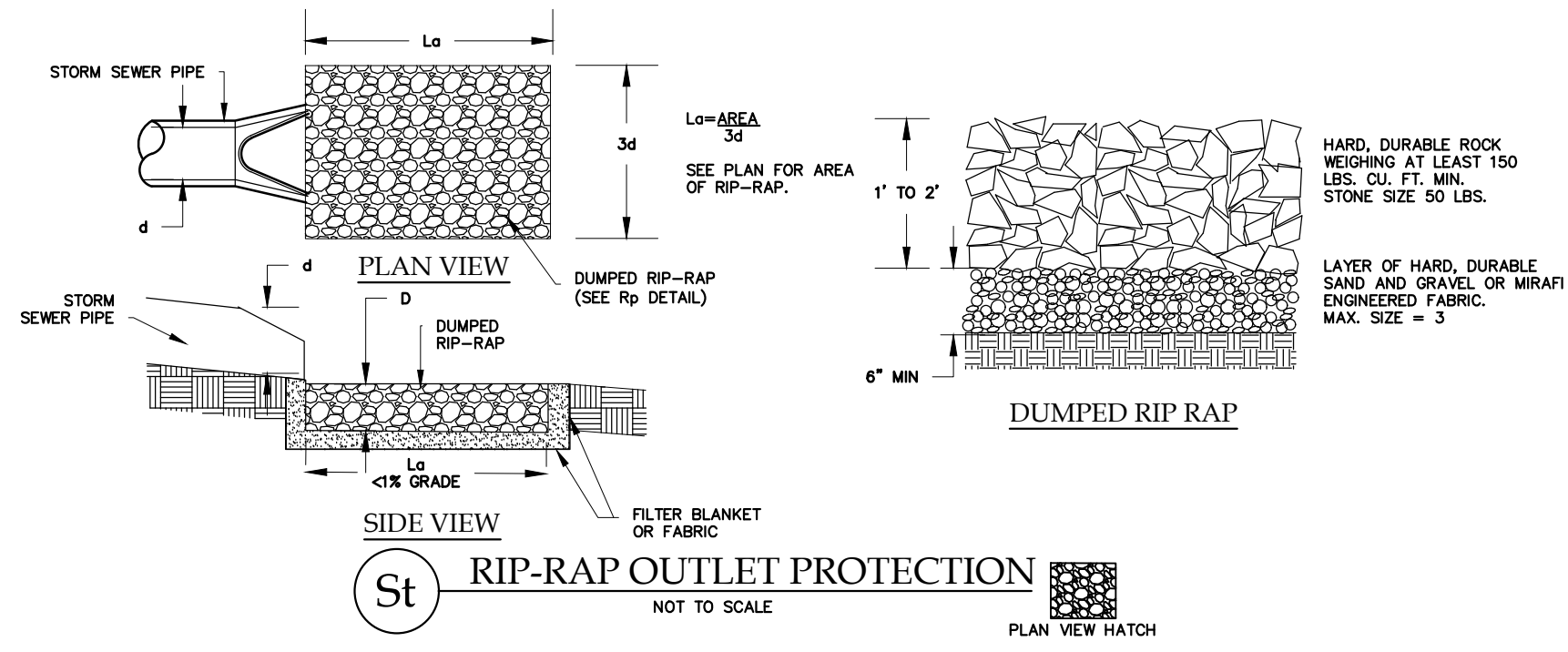
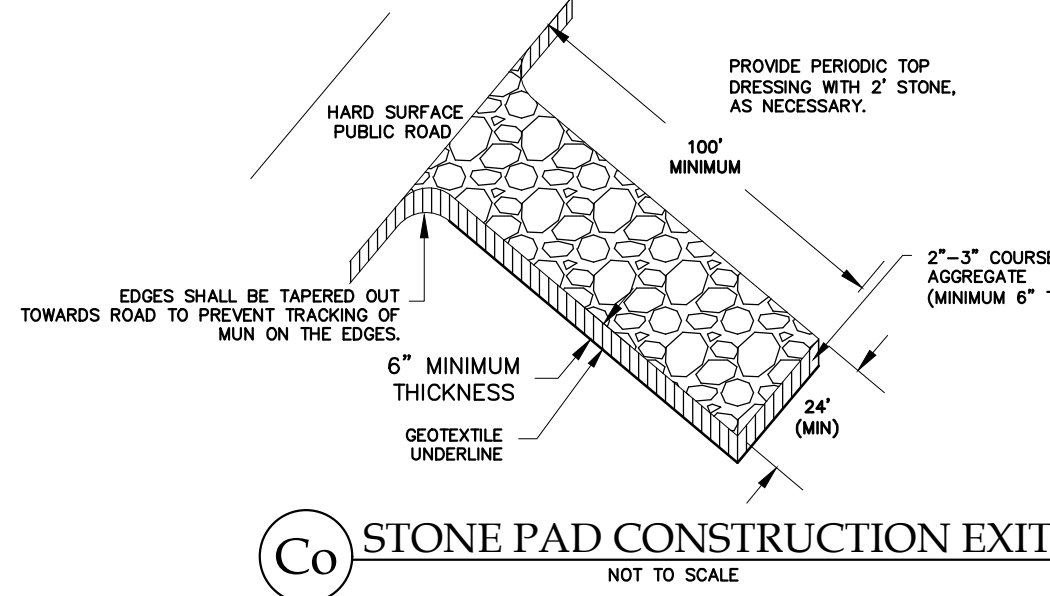
TREE PROTECTION & REMOVAL AND SEDIMENT & EROSION CONTROL PLAN  
2 OF 7



THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.

WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAY.

WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.



NOTES:

FOR STAKES, USE 2x4 INCH WOOD WITH MIN. LENGTH OF 3 FEET.

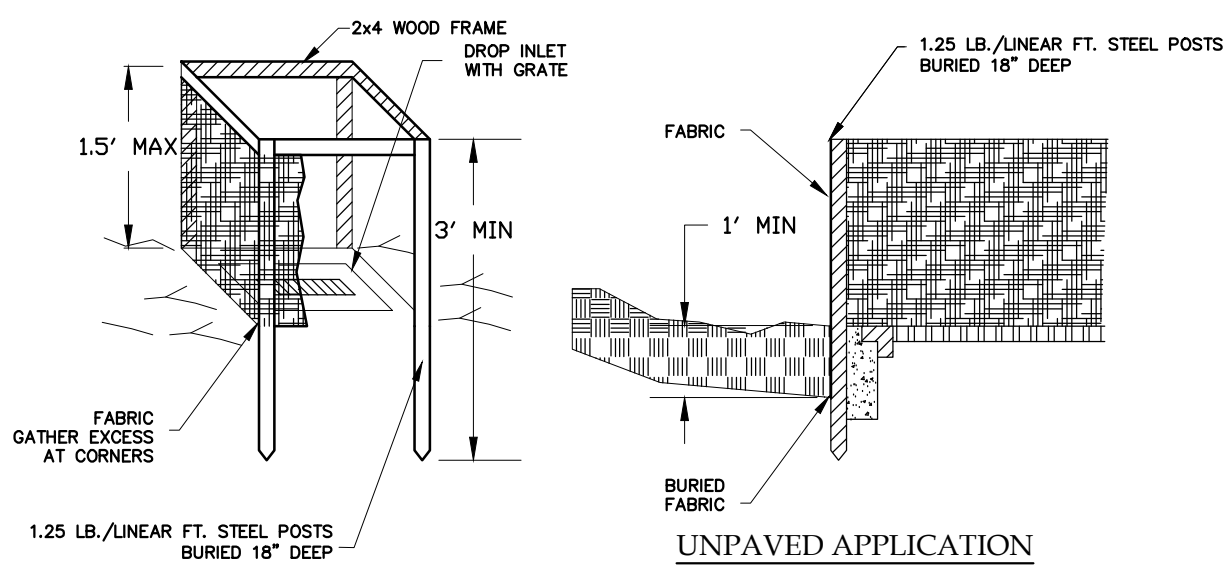
SPACE STAKES EVENLY AROUND THE PERIMETER OF THE INLET A MAXIMUM OF 3 FEET APART, AND DRIVE SECURELY INTO THE GROUND, APPROXIMATELY 18 INCHES DEEP.

TO PROVIDE LATERAL STABILITY, FRAME 2x4 INCH WOOD STRIPS AROUND THE CREST OF THE OVERFLOW AREA AT A MAXIMUM OF 1.5 FEET ABOVE DROP INLET CREST.

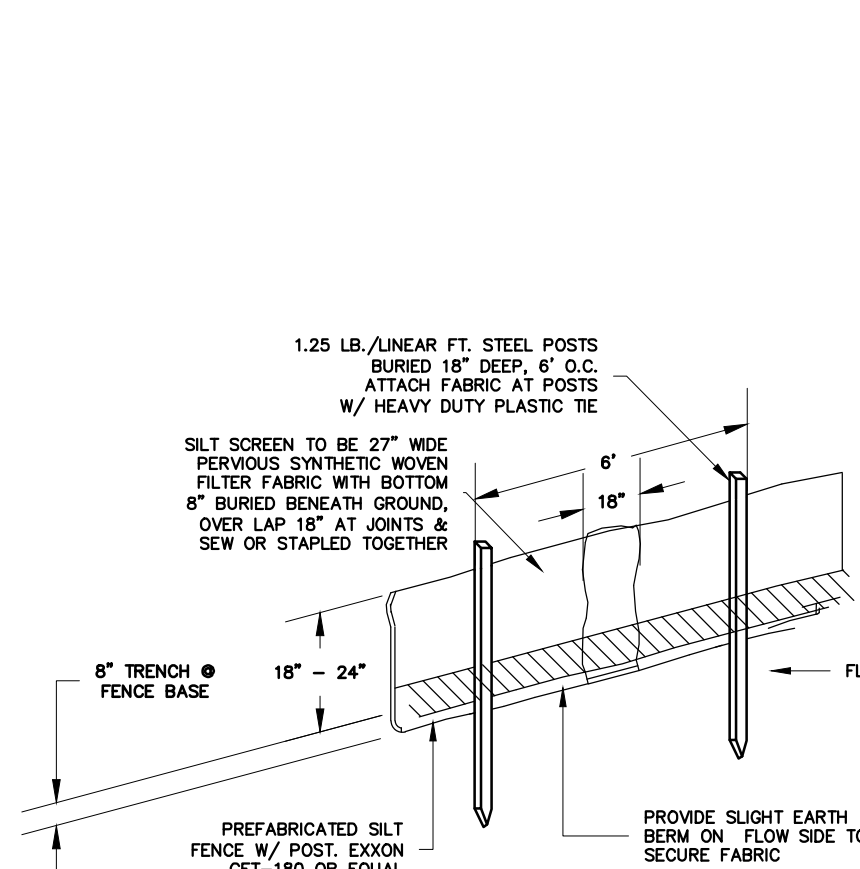
PLACE THE BOTTOM 12 INCHES OF THE FABRIC IN A TRENCH AND BACKFILL WITH AT LEAST 4 INCHES OF CRUSHED STONE OR 12 INCHES COMPACTED SOIL.

FASTEN FABRIC SECURELY TO THE STAKES AND FRAME. JOINTS MUST BE OVERLAPPED TO THE NEXT STAKE.

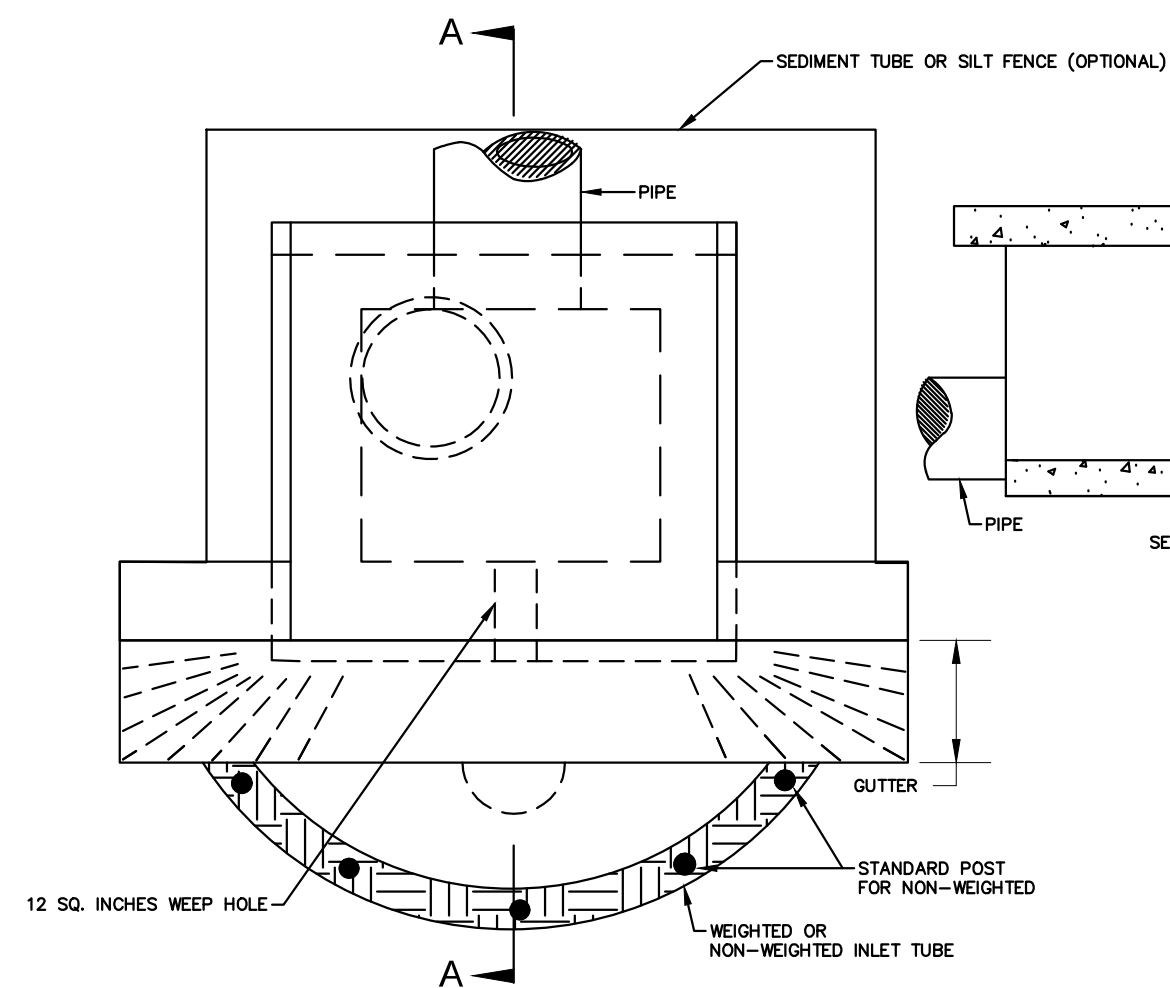
THE TOP OF THE FRAME AND FABRIC MUST BE WELL BELOW THE GROUND ELEVATION DOWNSLOPE FROM THE DROP INLET TO KEEP RUNOFF FROM BYPASSING THE INLET. IT MAY BE NECESSARY TO BUILD A TEMPORARY DIRT ON THE DOWNSLOPE SIDE OF THE STRUCTURE TO PREVENT BYPASS FLOW.



**Sd2** CATCH BASIN SEDIMENT BARRIER  
NOT TO SCALE

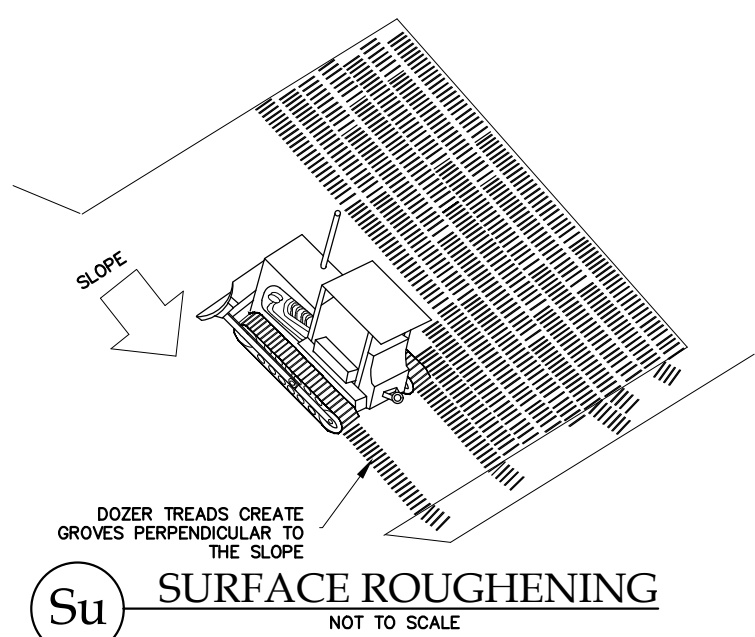


**Sd1** SEDIMENT BARRIERS  
NOT TO SCALE

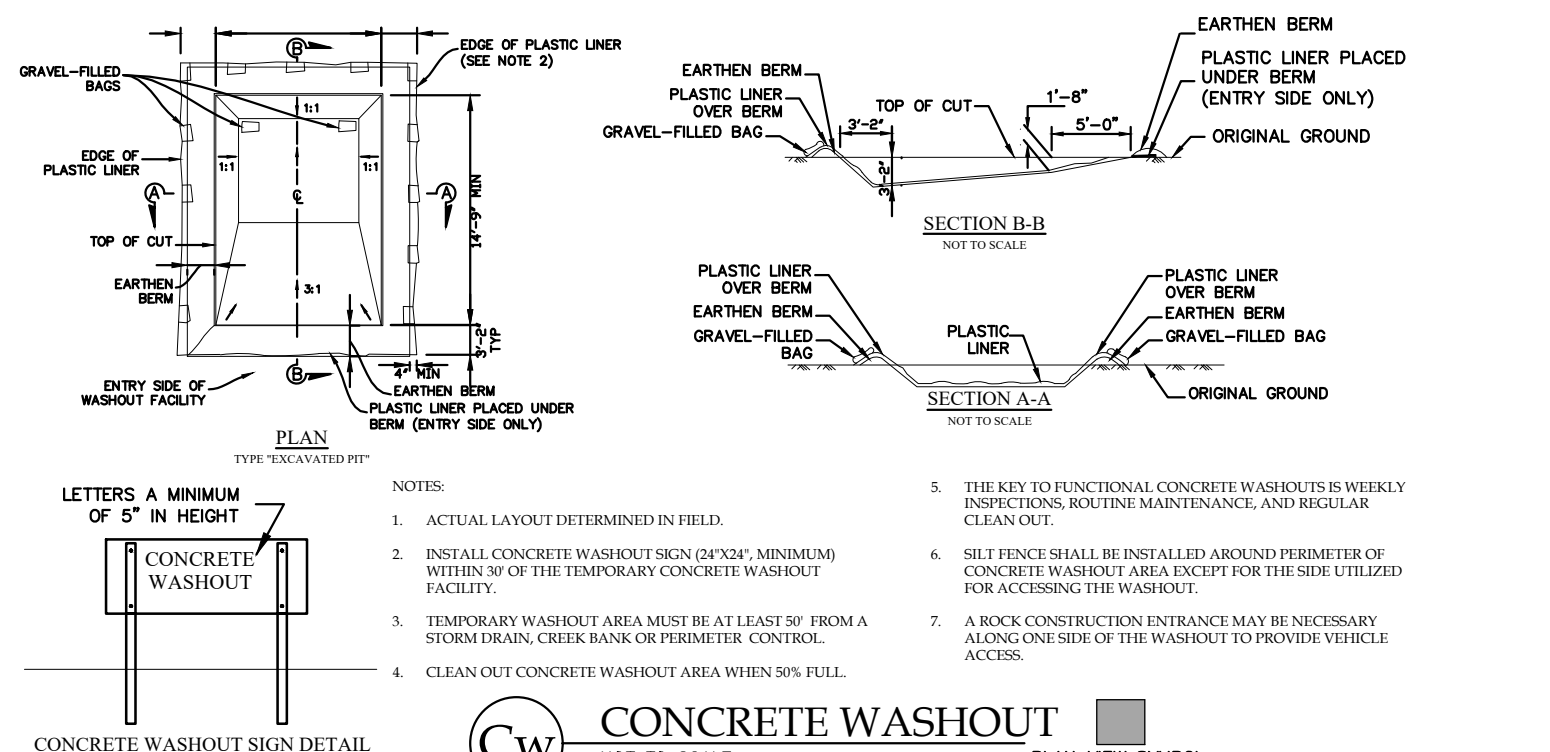


CURB INLET SEDIMENT BARRIER GRADING PHASE

**Sd2a** CURB INLET SEDIMENT BARRIER  
NOT TO SCALE



**Su** SURFACE ROUGHENING  
NOT TO SCALE



**Cw** CONCRETE WASHOUT  
NOT TO SCALE

## VEGETATIVE MEASURES

CODE	PRACTICE	DETAIL	MAP SYMBOL	DESCRIPTION
Bf	BUFFER ZONE			An undisturbed natural "green belt" separating the land-disturbed site from surrounding property and bordering streams. It serves to reduce water velocity and remove some sediment. It is also of times a noise or vibration pollution barrier.
Cs	COASTAL DUNE STABILIZATION W/VEGETATION			Planting vegetation on dunes that are denuded, artificially constructed, or re-nourished.
Ds1	DISTURBED AREA STABILIZATION W/MULCHING ONLY			Establishing temporary protection for disturbed areas where seeding may not have a suitable growing season to produce an erosion retarding cover. See Carolina Engineering Consultants, Inc. Written Technical Specifications Section 02485 for further details.
Ds2	DISTURBED AREA STABILIZATION W/TEMPORARY SEEDING			Establishing temporary vegetative cover with fast growing seedlings on disturbed areas. See Carolina Engineering Consultants, Inc. Written Technical Specifications Section 02485 for further details.
Ds3	DISTURBED AREA STABILIZATION W/PERMANENT VEGETATION			Establishing permanent vegetative cover such as trees, shrubs, vines, grasses, soil, or legumes on disturbed areas. See Carolina Engineering Consultants, Inc. Written Technical Specifications Section 02485 for further details.
Du	DUST CONTROL ON DISTURBED AREAS			Controlling surface and air movement of dust on construction sites, roadways and similar sites.

## Ds1 MULCHING NOTES

### MULCHING:

USE MULCH ON ALL SLOPES STEEPER THAN 3% WHEN SEEDINGS ARE MADE SO LATE IN THE FALL AND WINTER THAT GERMINATION CANNOT BE EXPECTED UNTIL SPRING IN THE BOTTOM OF SPILLWAYS AND ON ROADBANKS. TEMPORARY VEGETATION SEEDING ALONE MAY BE ESTABLISHED ON GOOD SITES WITHOUT THE USE OF MULCH. MULCHING MATERIAL WILL CONSIST OF:

A. USE DRY STRAW OR DRY HAY OF GOOD QUALITY AND FREE OF WEED SEEDS. DRY STRAW WILL BE APPLIED AT THE RATE OF 2 TONS PER ACRE. DRY HAY WILL BE USED AT A RATE OF 2.5 TONS PER ACRE; OR,

B. FOR HYDRAULIC SEEDING, USE WOOD CELLULOSE MULCH OR WOOD PULP FIBER AT THE RATE OF 500 POUNDS PER ACRE AND DRY STRAW OR DRY HAY AT THE RATE LISTED IN "A" ABOVE; OR,

C. FOR HYDRAULIC SEEDING ON SLOPES 3/4:1 OR STEEPER, 1,000 POUNDS OF WOOD CELLULOSE OR WOOD PULP FIBER WHICH INCLUDES A TACKIFIER MAY BE SUBSTITUTED FOR THE TREATMENT IN "B" ABOVE; OR,

D. USE THREE TONS PER ACRE OF SERICEA LESPEDEZZA HAY CONTAINING MATURE SEED; OR,

E. APPLY PINE STRAW OR PINE BARK AT A THICKNESS OF 3 INCHES. OTHER SUITABLE MATERIALS IN SUFFICIENT QUANTITY MAY BE USED WHERE ORNAMENTALS OR OTHER GROUND COVERS ARE PLANTED; OR,

F. SOIL RETENTION BLANKETS, EROSION CONTROL NETTING, OTHER MANUFACTURED MATERIALS, OR BLOCK SOO MAY BE REQUIRED ON UNSTABLE SOILS AND CONCENTRATED FLOW AREAS. WOOD CELLULOSE AND WOOD PULP FIBERS SHALL NOT CONTAIN GERMINATION OR GROWTH INHIBITING FACTORS. THEY WILL HAVE THE PROPERTY TO BE EVENLY DISPERSED WHEN AGITATED IN WATER. THE FIBERS SHALL HAVE A CONTRASTING COLOR TO THE SOIL TO ALLOW VISUAL METERING AND AID IN UNIFORM APPLICATION DURING SEEDING.

### APPLYING MULCH:

A. STRAW OR HAY MULCH WILL BE SPREAD UNIFORMLY WITHIN 24 HOURS AFTER SEEDING AND OR PLANTING. THE MULCH MAY BE SPREAD BY BLOWER TYPE SPREADING EQUIPMENT, OTHER SPREADING EQUIPMENT, OR BY HAND. ABOUT 75% OF THE SOIL SURFACE WILL BE COVERED.

B. WOOD CELLULOSE OR WOOD FIBER MULCH WILL BE APPLIED WITH HYDRAULIC SEEDING EQUIPMENT.

### ANCHORING MULCH:

A. ANCHOR STRAW OR HAY MULCH IMMEDIATELY AFTER APPLICATION BY ONE OF THE FOLLOWING METHODS:

1. BY EMULSIFIED ASPHALT, (A) SPRAYED UNIFORMLY ONTO THE MULCH AS IT IS EJECTED FROM THE BLOWER MACHINE, OR (B) SPRAYED ON THE MULCH IMMEDIATELY FOLLOWING MULCH APPLICATION WHEN STRAW OR HAY IS SPREAD BY METHODS OTHER THAN SPECIAL BLOWER EQUIPMENT. THE COMBINATION OF ASPHALT EMULSION AND WATER SHALL CONSIST OF A HOMOGENEOUS MIXTURE SATISFACTORY FOR SPRAYING. THE MIXTURE SHALL CONSIST OF 100 GALLONS OF GRADE SS-10 OR CSS-10 EMULSIFIED ASPHALT AND 100 GALLONS OF WATER PER TON OF MULCH. CARE SHALL BE TAKEN AT ALL TIMES TO PROTECT THE PUBLIC, ADJACENT PROPERTY, PAYMENTS, CURBS, SIDEWALKS, AND ALL OTHER STRUCTURES FROM ASPHALT DISCOLORATION.

2. PRESS THE MULCH INTO THE SOIL IMMEDIATELY AFTER THE MULCH IS SPREAD. A SPECIAL "PACKER DISK" OR DISK HARROW WITH THE DISKS SET STRAIGHT MAY BE USED. THE DISKS MAY BE SMOOTH OR SERRATED AND SHOULD BE 20 INCHES OR MORE IN DIAMETER AND 6 TO 12 INCHES APART. THE EDGES OF THE DISKS SHALL BE DULL ENOUGH TO PRESS THE MULCH INTO THE GROUND WITHOUT CUTTING IT, LEAVING MUCH OF IT IN AN ERECT POSITION.

3. APPLY SYNTHETIC TACKIFIERS OR BINDERS APPLIED IMMEDIATELY AFTER THE MULCH IS SPREAD. SYNTHETIC TACKIFIERS WILL BE MIXED AND APPLIED TO MANUFACTURER'S SPECIFICATIONS.

4. FALL AND WINTER PLANTINGS MAY INCLUDE 1/2 BUSHEL OF RYE OR WHEAT TO STABILIZE THE MULCH.

5. PLASTIC MESH OR NETTING WITH NO LARGER THAN ONE INCH BY ONE INCH MESH MAY BE NEEDED TO ANCHOR STRAW OR HAY MULCH ON UNSTABLE SOILS AND CONCENTRATED FLOW AREAS.

B. WHERE WOOD CELLULOSE OR WOOD PULP FIBER MULCH IS APPLIED ALONE, A TACKIFIER WILL BE USED.

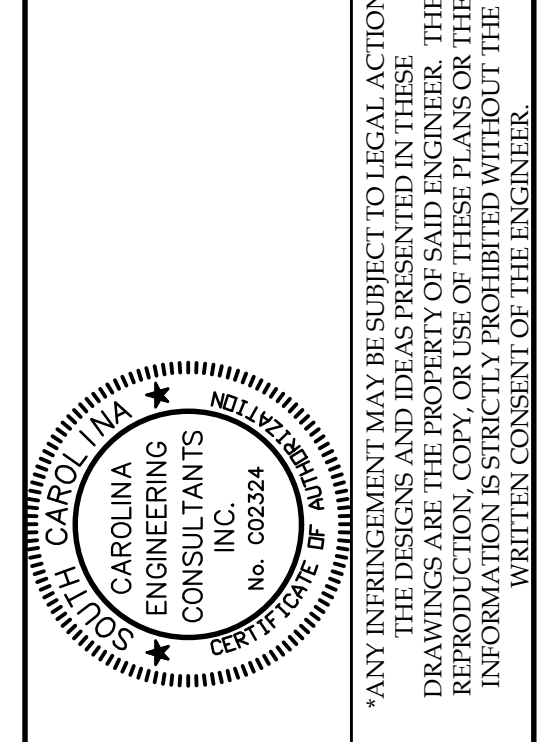
### LIME AND MAINTENANCE APPLICATION:

APPLY ONE TON OF AGRICULTURAL LIME EVERY 4 TO 6 YEARS.

SPECIES	LBS/AC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
TEMPORARY SEEDING (COASTAL) WELL DRAINED, CLAYEY/LOAMEY SITES													
BROWNTOP MILLET	40LBS/AC												
RYE, GRASS	50LBS/AC												
RYEGRASS	50LBS/AC												
TEMPORARY SEEDING (COASTAL) WELL DRAINED, CLAYEY/LOAMEY SITES													
BROWNTOP MILLET OR JAPANESE MILLET	40LBS/AC												
RYE, GRASS OR OATS	50LBS/AC												
RYEGRASS	50LBS/AC												
PERMANENT SEEDING (COASTAL) SANDY, DOUGHTY SITES													
BROWNTOP MILLET	10LBS/AC												
BAHAGRASS	40LBS/AC												
BROWNTOP MILLET	10LBS/AC												
BAHAGRASS	30LBS/AC												
SERICEA LESPEDEZZA	40LBS/AC												
BROWNTOP MILLET	10LBS/AC												
ATLANTIC COASTAL PLS	15LBS/AC												
BROWNTOP MILLET	10LBS/AC												
SWITCHGRASS (ALAMO) LITTLE BLUESTEM SERICEA LESPEDEZZA	8LBS/AC												
PLS	4LBS/AC												
BROWNTOP MILLET	10LBS/AC												
WEEDING LOVEGRASS	8LBS/AC												
PERMANENT SEEDING (COASTAL) WELL DRAINED, CLAYEY/LOAMEY SITES													
BROWNTOP MILLET	10LBS/AC												
BAHAGRASS	40LBS/AC												
RYE, GRASS	10LBS/AC												
BAHAGRASS	40LBS/AC												
CLOVER, CRIMSON (ANNUAL)	5LBS/AC												
BROWNTOP MILLET	10LBS/AC												
BAHAGRASS	10LBS/AC												
SERICEA LESPEDEZZA	40LBS/AC												
BROWNTOP MILLET	10LBS/AC												
BERMUDA, COMMON	12LBS/AC												
KOBE LESPEDEZZA (ANNUAL)	10LBS/AC												
BROWNTOP MILLET	10LBS/AC												
BAHAGRASS	20LBS/AC												
BERMUDA, COMMON	8LBS/AC												
SERICEA LESPEDEZZA	40LBS/AC												
BROWNTOP MILLET	10LBS/AC												
SWITCHGRASS	8LBS/AC												
LITTLE BLUESTEM	3LBS/AC												
INDIANGRASS	3LBS/AC												
PLS	3LBS/AC												
PLS	3LBS/AC												

## ACTIVITY SCHEDULE

ACTIVITY	SCHEDULE	
EROSION CONTROL IMPLEMENTATION		EROSION CONTROL PHASE 1
MINIMAL CLEARING AND GRUBBING		EROSION CONTROL PHASE 1
CLEARING AND GRUBBING		EROSION CONTROL PHASE 1
POND INSTALLATION		CONSTRUCTION PHASE 2
CUT AND FILL		CONSTRUCTION PHASE 2
GRASSING (LIMIT EXPOSURE TO 7 DAYS)		CONSTRUCTION PHASE 2
UTILITY INSTALLATION		CONSTRUCTION PHASE 2
ROADWAY CONSTRUCTION		CONSTRUCTION PHASE 2
FINISH GRADING		CONSTRUCTION PHASE 2
REMOVE SEDIMENT FROM POND AND LINE		STABILIZATION PHASE 3
FINAL STABILIZATION		STABILIZATION PHASE 3
MAINT. EROSION CONTROL MEASURES	THROUGHOUT LIFE OF PROJECT	ALL PHASES
SUBMIT NOT AND AS BUILTS TO SDC/EC	UPON COMPLETION OF PROJECT	COMPLETION



PLAN REVISIONS	DATE	DESCRIPTION
NO.	1	
	2	
	3	
	4	
	5	
	6	
	7	
	8	

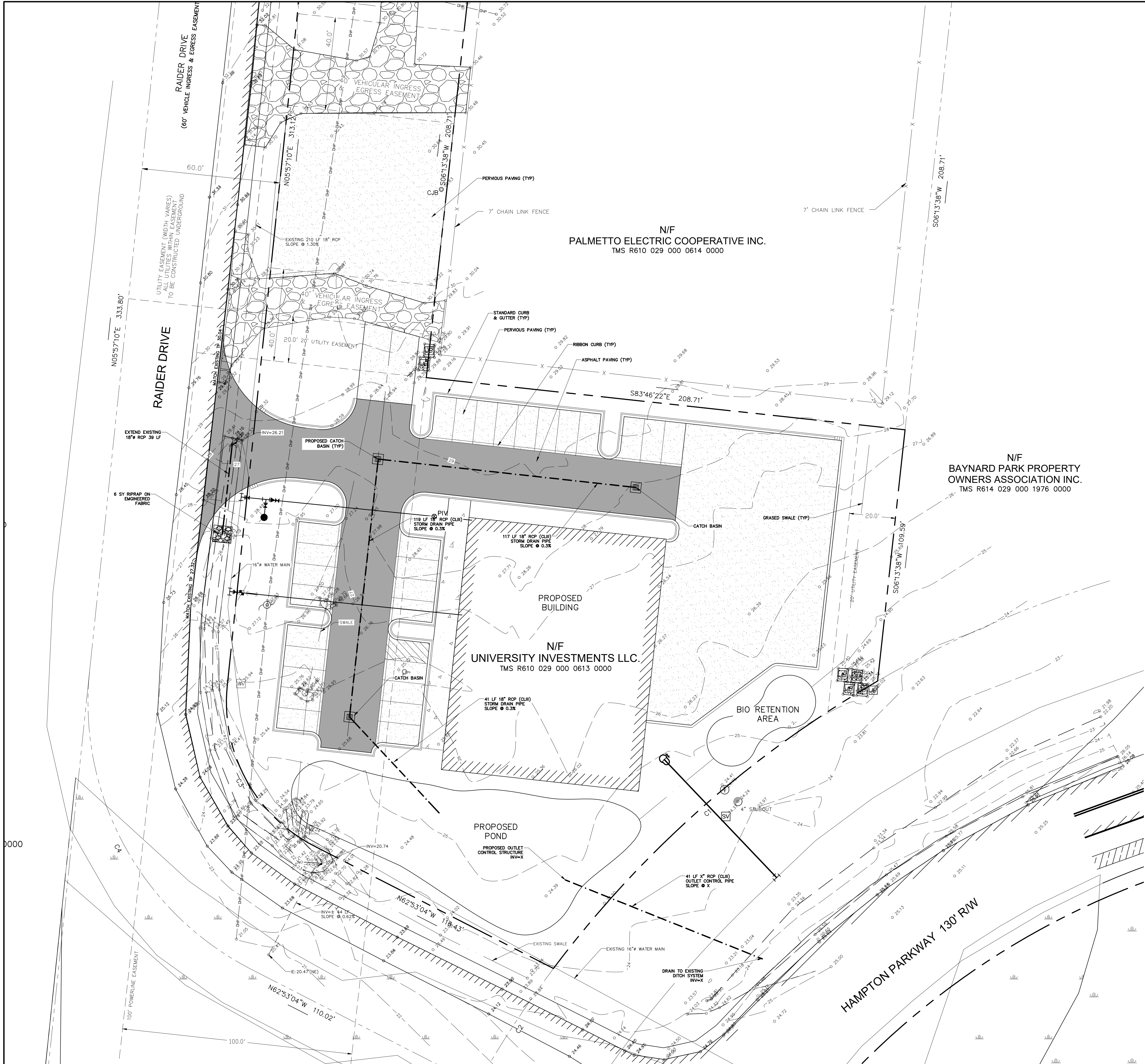
**RAIDER DRIVE  
BLUFFTON  
BEAUFORT COUNTY, SC**

**CAROLINA ENGINEERING CONSULTANTS, INC.**  
(843) 322-0553  
(843) 322-0556 (FAX)  
www.carolinaengineering.com  
PO BOX 294  
BEAUFORT, SC 29901

PROJECT: 2478  
DATE: 10/11/22  
REVISED: 10/11/22  
DRAWN BY: RGG  
ENGINEER: JPA  
SCALE: NTS

## SEDIMENT & EROSION CONTROL DETAILS





GENERAL NOTES,  
PAVING, GRADING & DRAINAGE NOTES:

CAROLINA ENGINEERING CONSULTANTS, INC.'S WRITTEN CONSTRUCTION SPECIFICATIONS WILL BE FOLLOWED ON THIS JOB. IF CONTRACTOR NEEDS COPY OF THESE SPECIFICATIONS, PLEASE CONTACT CAROLINA ENGINEERING.

TOPOGRAPHY, BOUNDARY, WETLAND AND BASE INFORMATION PROVIDED BY ATLAS LAND SURVEYING.

BENCHMARKS ARE TO BE VERIFIED BY CONTRACTOR.

CONTRACTOR SHALL VERIFY ALL MANHOLE AND INVERT ELEVATIONS BEFORE STARTING WORK.

CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL EXISTING UTILITIES.

SILT FENCE AND TREE FENCES TO BE IN PLACE PRIOR TO COMMENCING WORK.

MAINTAIN A 10' HORIZONTAL SEPARATION BETWEEN SANITARY SEWER AND WATER MAINS. WHERE THIS SEPARATION CANNOT BE MAINTAINED OR THE LINES CROSS, THE BOTTOM OF THE WATER MAIN SHALL BE 18" ABOVE THE TOP OF THE SEWER MAIN LAID IN SEPARATE TRENCHES.

WHERE NEW CONSTRUCTION IS NEAR THE EDGE OF AN EXISTING PAVED ROADWAY, A TRAFFIC LANE WILL BE TEMPORARILY CLOSED TO PROVIDE SAFETY TO THE PUBLIC AND TO THE WORKMEN. NO LANE CLOSURES DURING 7:00 AM TO 9:00 AM OR FROM 3:30 PM TO 6:00 PM ARE ALLOWED.

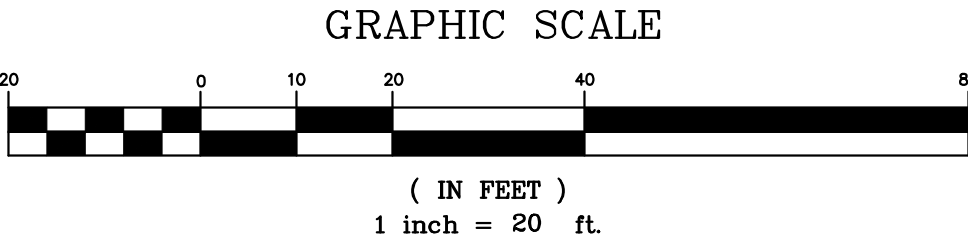
APPLICANT WILL REPAIR ALL DAMAGE DONE TO ROADSIDE AND RESEED WITH PERMANENT GRASS.

TRAFFIC CONTROLS FOR THIS INSTALLATION SHALL BE IN ACCORDANCE WITH S.C.M.U.T.C.D.

PAVEMENT MARKING LINES TO BE THERMOPLASTIC.

RAISED REFLECTIVE PAVEMENT MARKER RRPW'S TO BE INSTALLED IN ACCORDANCE WITH SCDOT'S STANDARD DRAWINGS NO. 603-1 THRU 603-8 JULY, 1997.

ALL PROPOSED SIGNAGE AND PAVEMENT MARKINGS SHOULD BE IN ACCORDANCE WITH THE 2003 EDITION OF THE MUTCD.



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PO BOX 294  
BEAUFORT, SC 29901

PROJECT:	2478
DATE:	10/11/22
REVISED:	10/11/22
DRAWN BY:	RGG
ENGINEER:	JPA
SCALE:	1"=20'

PAVING, GRADING  
& DRAINAGE PLAN

PLAN REVISIONS	
NO.	DESCRIPTION
1	-
2	-
3	-
4	-
5	-
6	-
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8	-

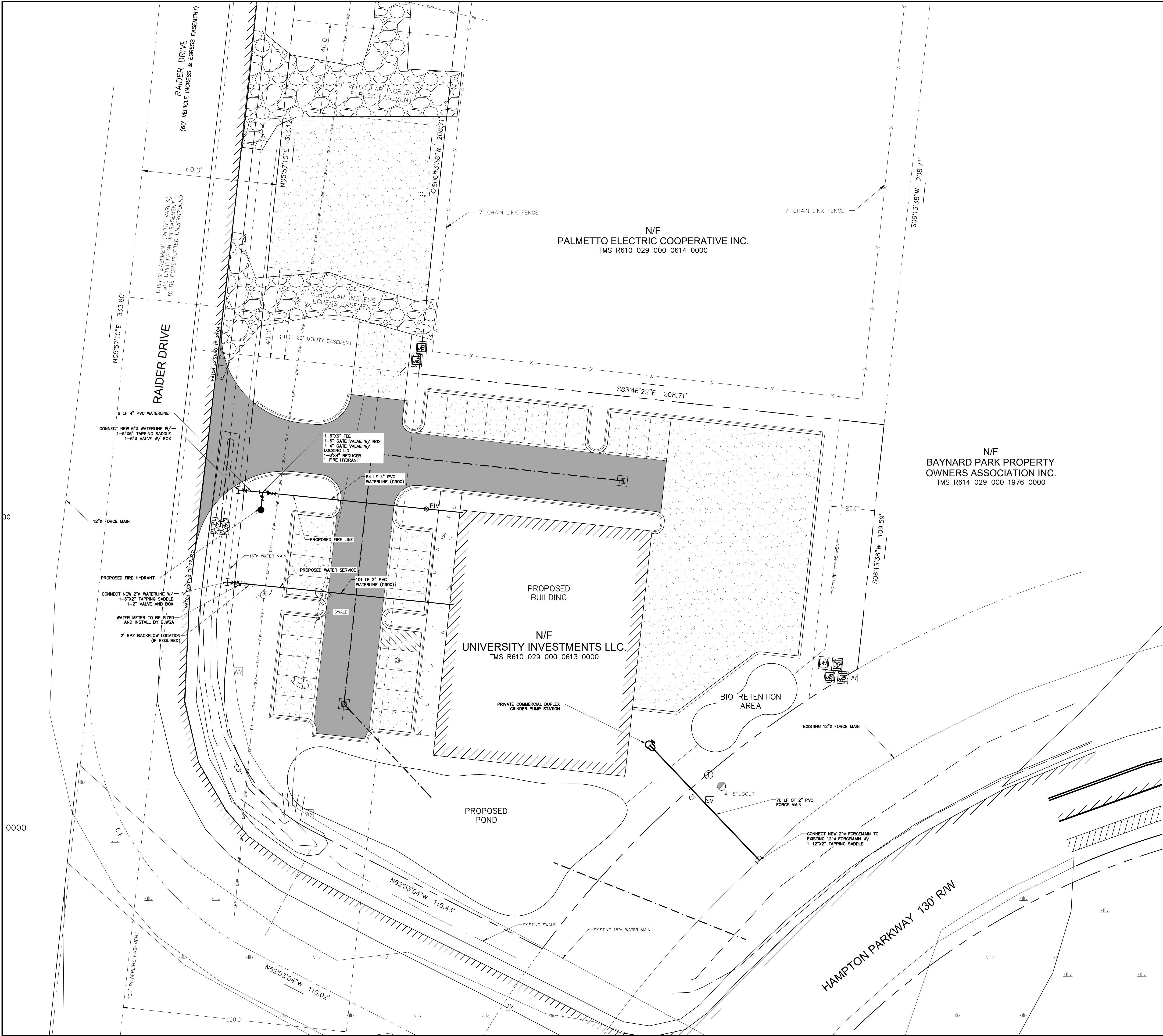
CAROLINA  
ENGINEERING  
CONSULTANTS  
INC.  
No. 002324  
CERTIFICATE OF  
QUALIFICATION

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**GENERAL NOTES,  
WATER & SANITARY SEWER NOTES:**

BUWSA CONSTRUCTION SPECIFICATIONS WILL BE FOLLOWED ON THIS JOB. IF CONTRACTOR NEEDS COPY OF THESE SPECIFICATIONS, PLEASE CONTACT CAROLINA ENGINEERING.

BENCHMARKS ARE TO BE VERIFIED BY CONTRACTOR.

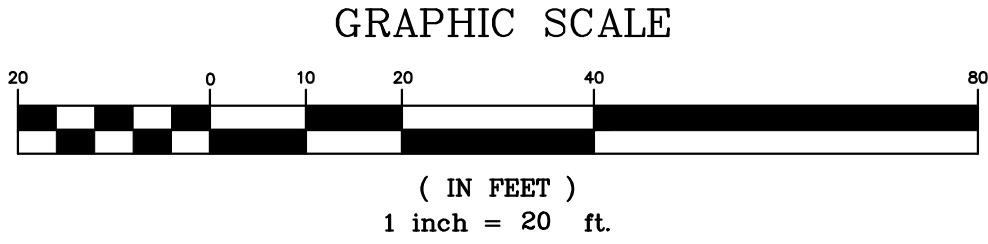
MAINTAIN A 10' HORIZONTAL SEPARATION BETWEEN SANITARY SEWER AND WATER MAINS.

WHERE THIS SEPARATION CANNOT BE MAINTAINED OR THE LINES CROSS THE BOTTOM OF THE WATER MAIN, THERE SHALL BE 18" ABOVE THE TOP OF THE SEWER MAIN LAID IN SEPARATE TRENCHES.

SEWER LATERALS SHALL BE LAID WITH A MINIMUM SLOPE OF 1.0% AS SHOWN ON PLANS.

METERS TO BE PROVIDED AND SET BY BUWSA.

MAINTAIN A 5' HORIZONTAL SEPARATION BETWEEN SANITARY SEWER LINES AND STORM DRAINAGE LINES.



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ENGINEER: JPA  
SCALE: 1"=20'

**WATERLINE &  
SANITARY SEWER  
PLAN**

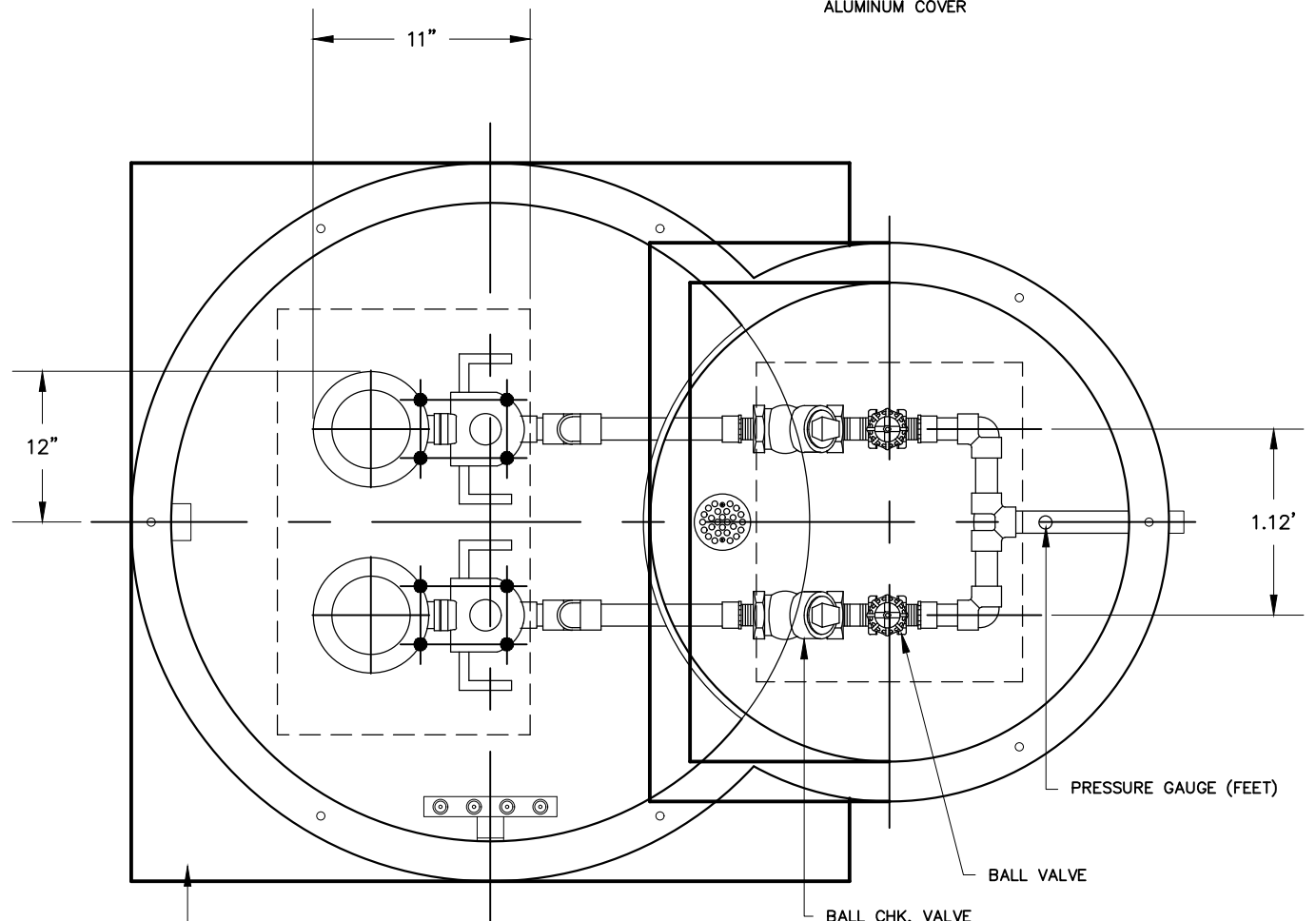
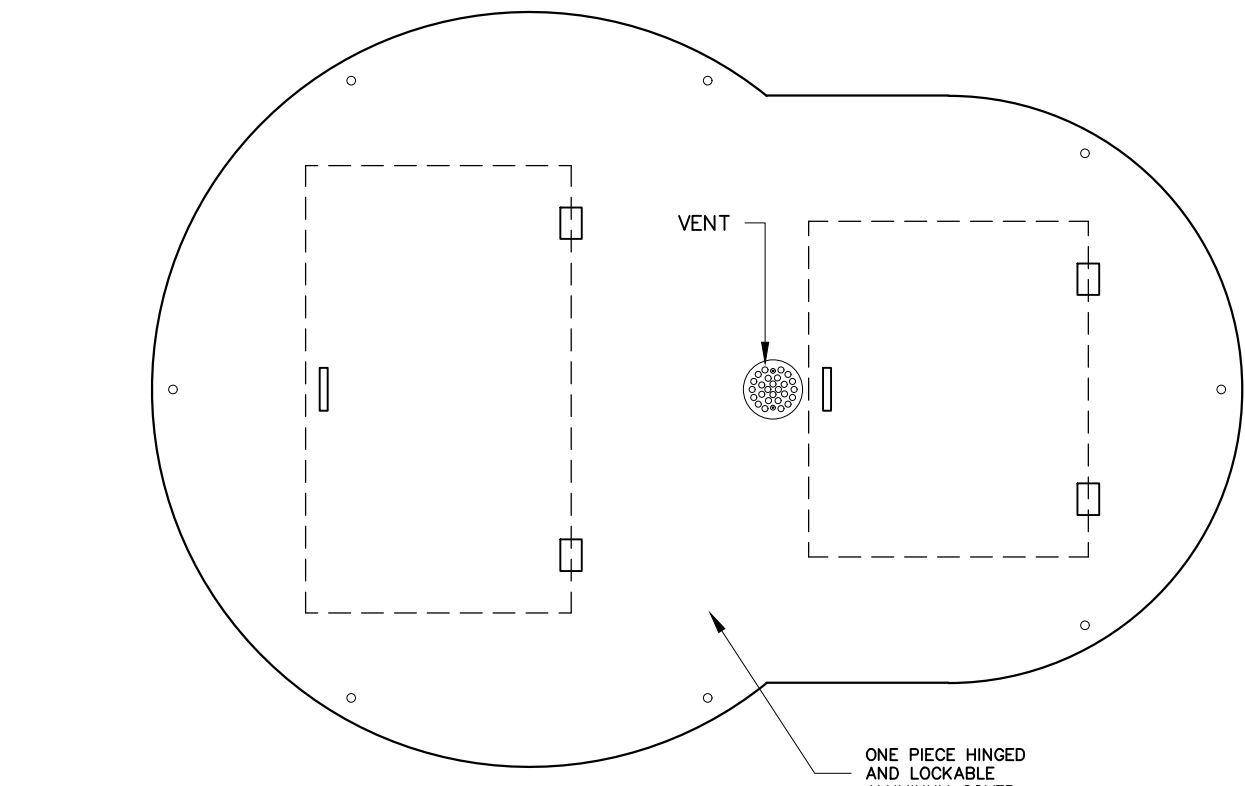
**6  
OF 7**

PLAN REVISIONS	
NO.	DESCRIPTION
1	-
2	-
3	-
4	-
5	-
6	-
7	-
8	-

CAROLINA  
ENGINEERING  
CONSULTANTS  
INC.  
No. 003234  
STATE OF SOUTH CAROLINA  
REGISTERED PROFESSIONAL ENGINEER

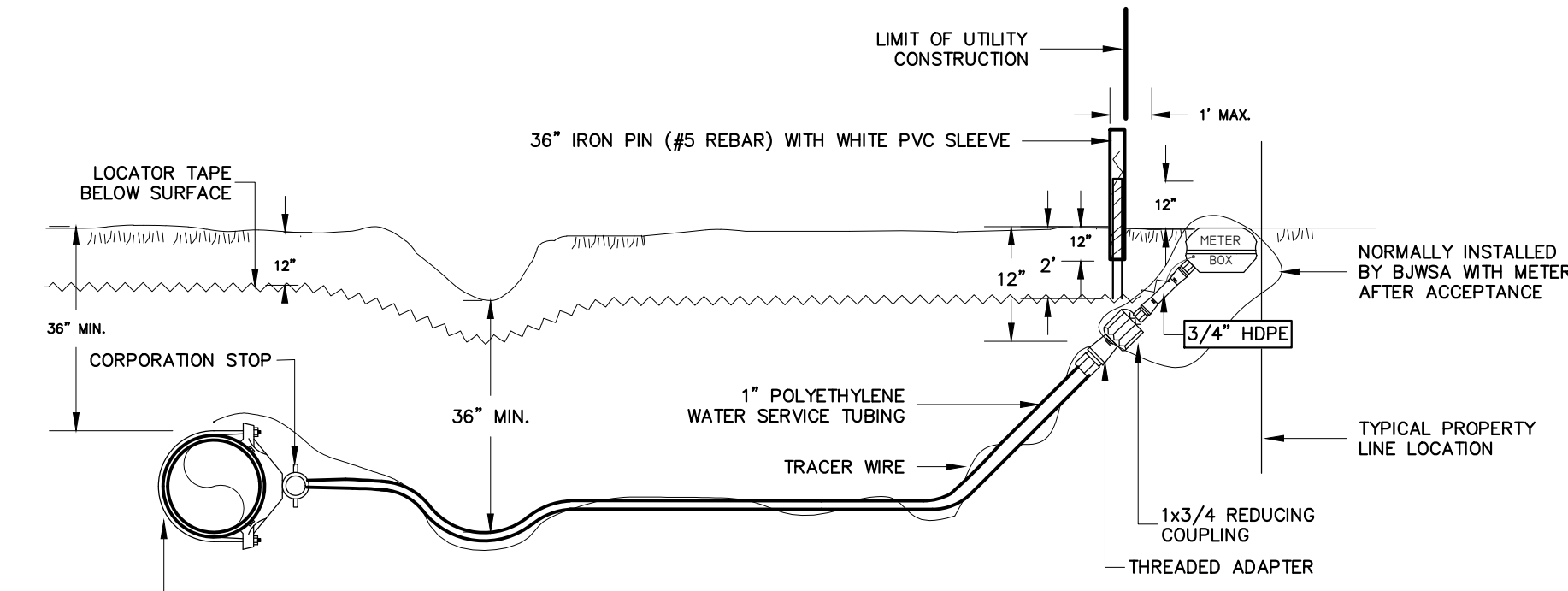
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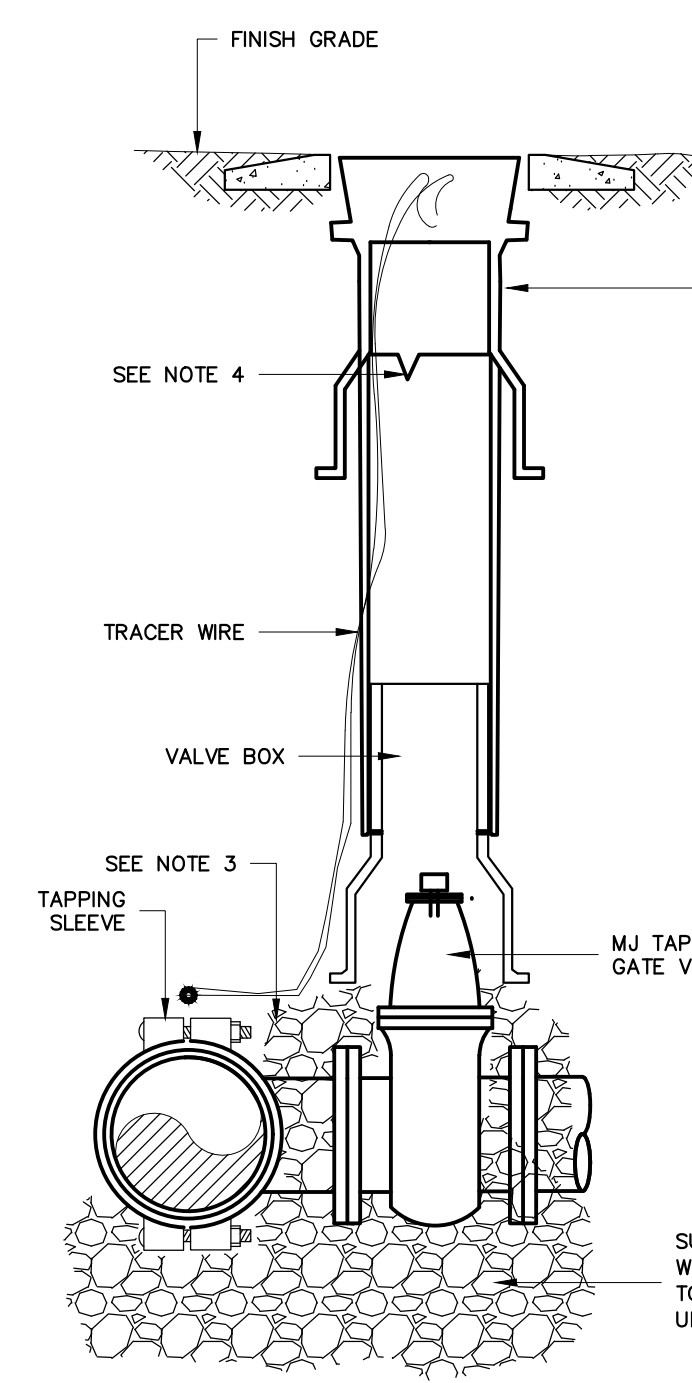
STANDARD FIRE HYDRANT DETAIL  
NOT TO SCALE

- NOTES:
1. BURY LINE INDICATED ON HYDRANT SHALL BE AT FINAL GRADE.
  2. ALL FITTINGS SHALL BE RESTRAINED.



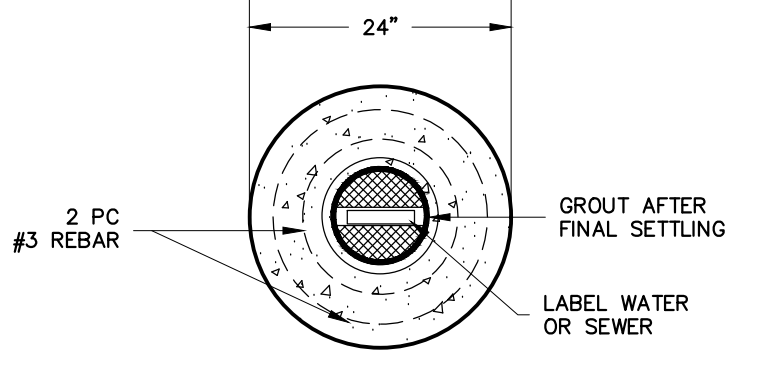
TYPICAL WATER SERVICE DETAIL  
WATER SERVICE PROFILE  
NOT TO SCALE

- NOTES:
1. ALL TAPPING SLEEVES GREATER THAN 2" SHALL BE HYDROSTATICALLY PRESSURE TESTED TO 150 PSI FOR 20 MINUTES.
  2. ALL WET TAPS 12" AND UNDER SHALL BE PERFORMED BY BJWSA.
  3. TAP DIAMETER SHALL BE WITHIN 1/8" OF LINE DIAMETER.
  4. NOTCH TOP OF PVC PIPE TO AVOID PINCHING TRACER WIRE.

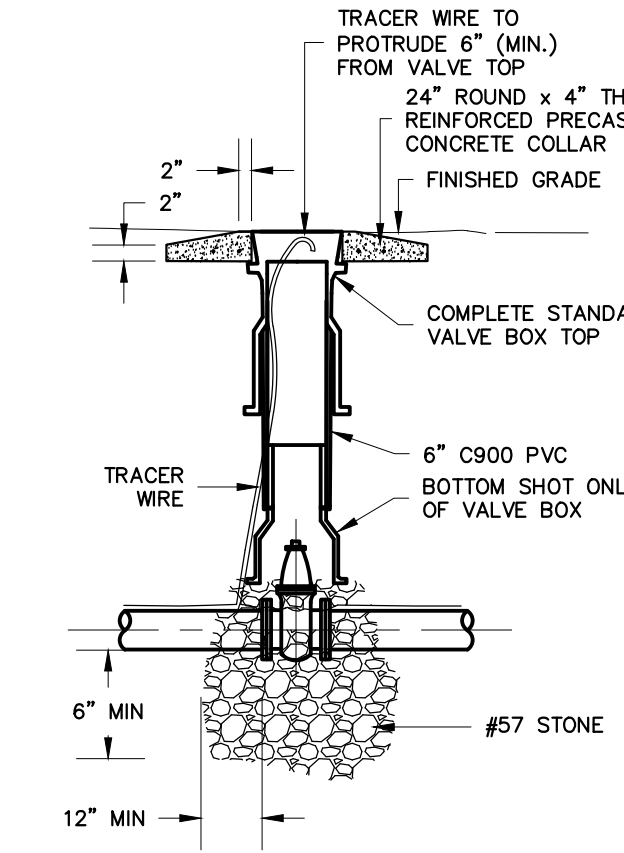


TAPPING SLEEVE & VALVE DETAIL  
NOT TO SCALE

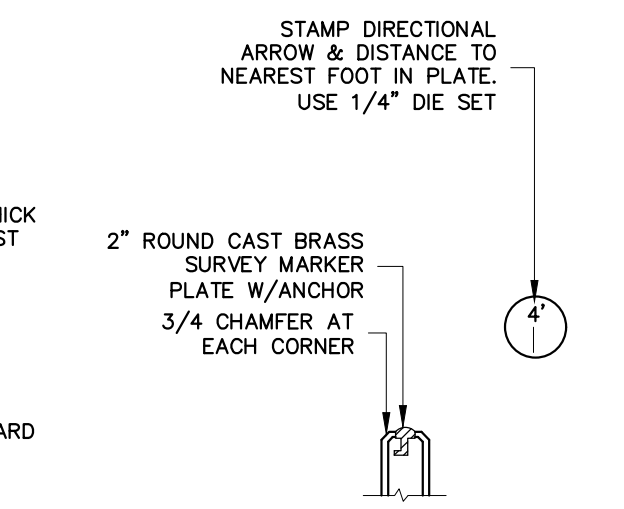
- NOTES:
1. MARKERS:
    - A. VALVE MARKERS ARE REQUIRED FOR EACH VALVE (EXCEPT HYDRANT VALVES). PIPELINE MARKERS ARE REQUIRED AT FITTINGS AND EACH 700' WHERE LINES RUN THROUGH AN UNDEVELOPED AREA. AR MANHOLE REQUIRES A MARKER.
    - B. MARKER PAINTING:
      - WATER - PAINTING NOT REQUIRED
      - SEWER INFLUENT - TOP 4" GREEN
      - SEWER EFFLUENT - TOP 4" PURPLE
    - C. MARK MARKERS AS FOLLOWS:
      - MV - MAIN VALVE
      - AV - AIR RELEASE VALVE
      - PIPELINE - PIPELINE MARKER
    - D. VALVE AND PIPELINE MARKERS IN MOWED AREAS TO BE SET TO AN EXPOSURE OF NOT MORE THAN 18" OR LESS THAN 6" ABOVE FINAL GRADE.
    - E. IF SOILS ARE NOT STABLE ENOUGH TO MAINTAIN THE STANDARD MARKERS VERTICAL, CONCRETE FOOTING IS TO BE INSTALLED.
  2. VALVE BOX LID SHALL BE WITHIN 1/2" OF COLLAR TOP. COLLAR TOP IS TO BE NO MORE THAN 1" ABOVE FINAL GRADE AND NO LOWER THAN 1" BELOW FINAL GRADE.
  3. CONCRETE COLLAR NOT REQUIRED IN PAVEMENT. VALVE BOX TOP IS TO BE TRAFFIC RATED.



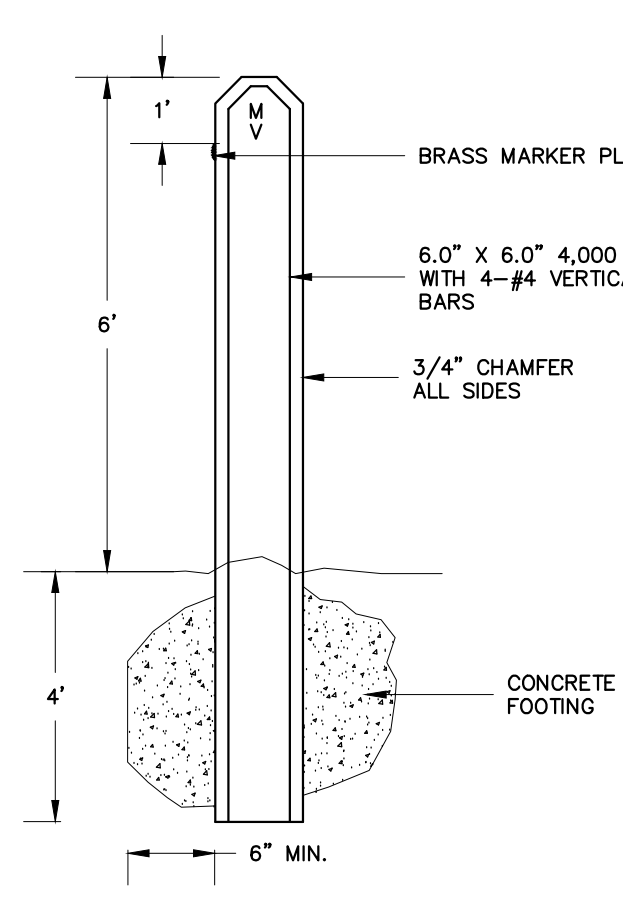
CONCRETE COLLAR



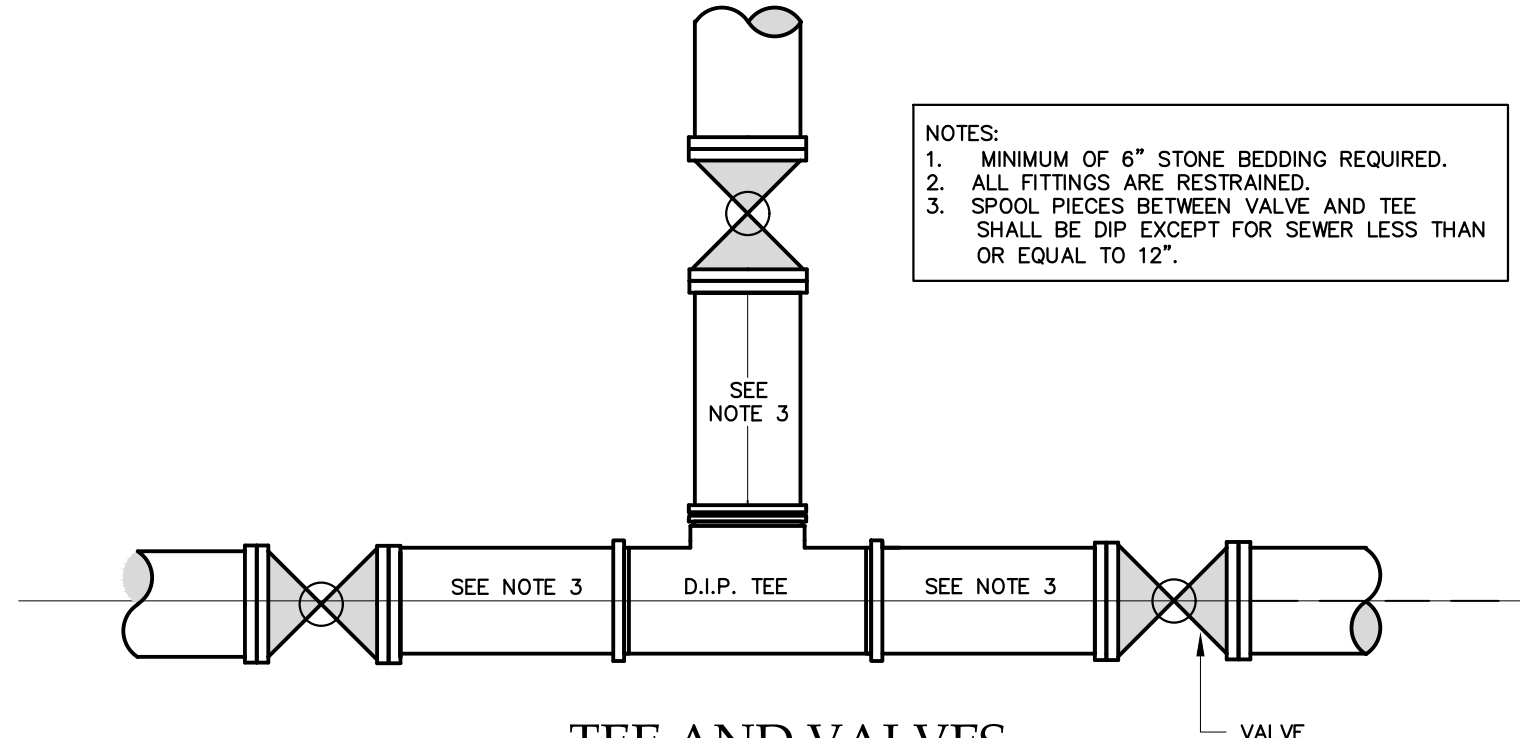
STANDARD VALVE DETAIL  
NOT TO SCALE



URBAN CONCRETE MARKER

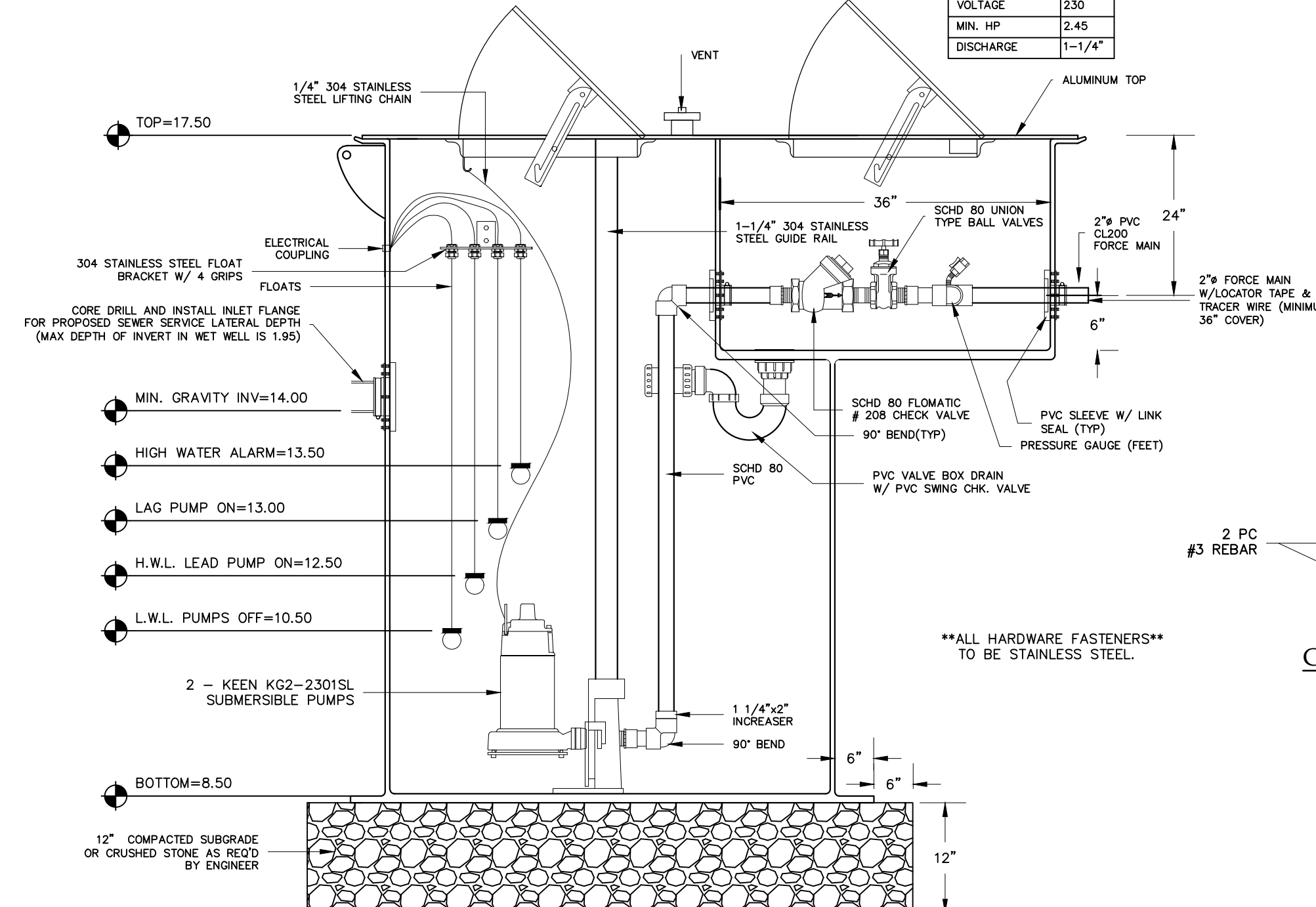


RURAL MARKER



TEE AND VALVES  
NOT TO SCALE

- NOTES:
1. MINIMUM OF 6" STONE BEDDING REQUIRED.
  2. ALL FITTINGS ARE RESTRAINED.
  3. SPOOL PIECES BETWEEN VALVE AND TEE SHALL BE DIP EXCEPT FOR SEWER LESS THAN OR EQUAL TO 12".



DUPLEX PUMP STATION DETAILS  
NOT TO SCALE

PUMP DESIGN SCHEDULE

T-D-H	5.42
PUMP CAP (GPM)	20
RPM	3400
PHASE	SINGLE
VOLTAGE	230
MIN. HP	2.45
DISCHARGE	1-1/4"

TOPP INDUSTRIES PREFABRICATED  
FIBERGLASS LIFT STATION  
4" Ø WETWELL  
3" Ø VALVE BOX

ANTI-FLOATATION FLANGE  
FIBERGLASS ENCAPSULATED  
ASTM-A-36 SQUARE STEEL

BALL VALVE

BALL CHK. VALVE

PRESSURE GAUGE (FEET)

11"

12"

1.12'

ONE PIECE HINGED  
AND LOCKABLE  
ALUMINUM COVER

VENT

MECHANICAL  
RESTRAINT (TYP.)

TRACER WIRE

BURY LINE

FINISH GRADE

PUMPER NOZZLE TO FACE  
STREET

BLUE REFLECTOR

PAVEMENT

VALVE BOX AND COLLAR

GATE VALVE

WATER MAIN

HYDRANT TEE

#57 STONE

MINIMUM 6"

12" MIN.

GRAVEL (6" UNDER  
INVERT & ABOVE  
WEEP, MIN.)

6" D.I.P.

TRACER WIRE TO  
PROTRUDE 6" (MIN)  
FROM TOP

TRACER WIRE

FINISH GRADE

PAVEMENT

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