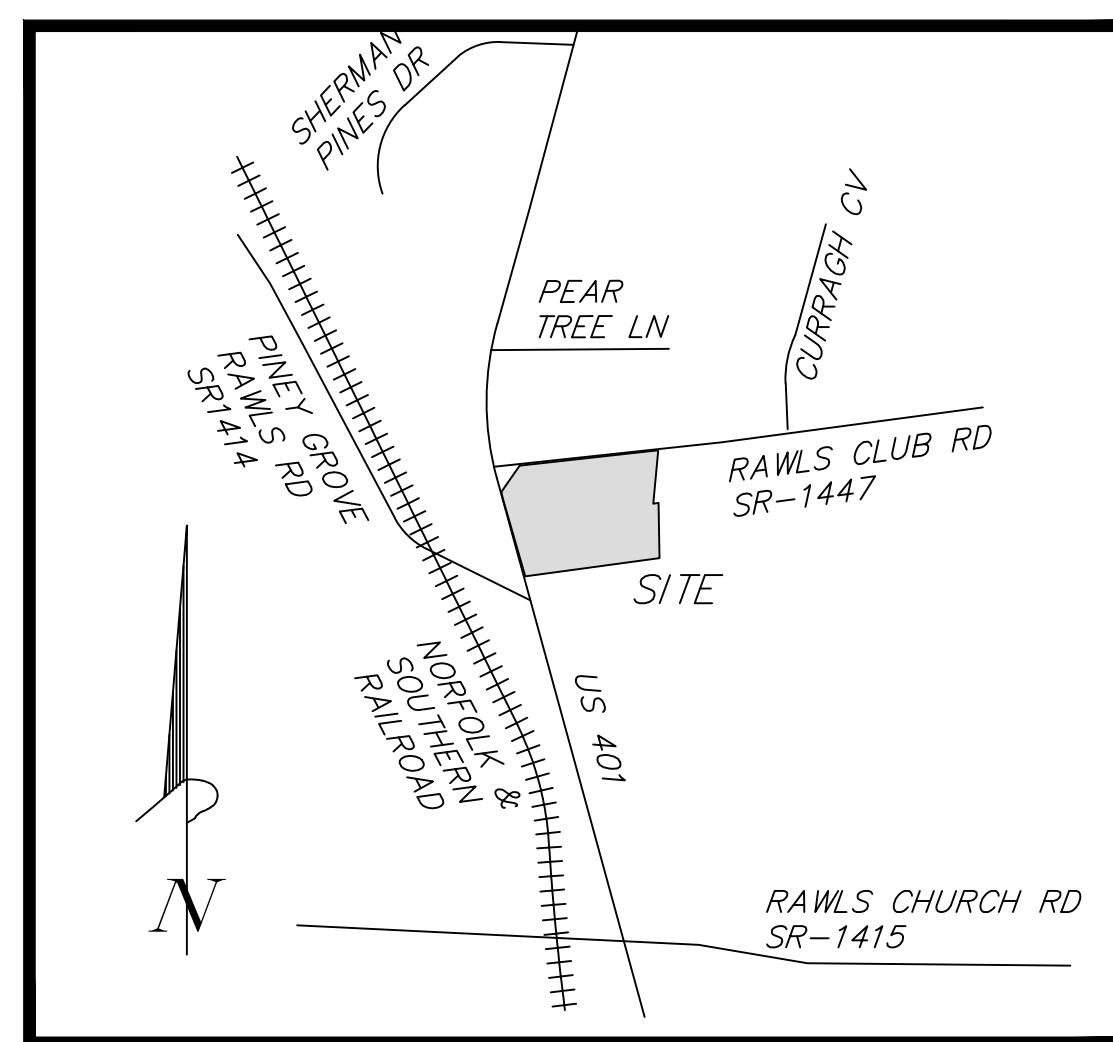


CIVIL CONSTRUCTION DRAWINGS
 FOR
SENTERS ASSISTED LIVING

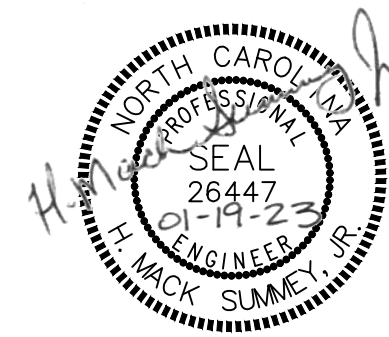
40 RAWLS CLUB RD
 HARNETT COUNTY - FUQUAY VARINA - NC

PROJECT NO.: E-7657
 JANUARY 2023

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VICINITY MAP
 N.T.S.



Summey Engineering Associates, PLLC
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 www.summeyengineering.com

CIVIL SITE DEVELOPMENT PLANS
 FOR

SENTERS ASSISTED LIVING

40 RAWLS CLUB RD
 HARNETT COUNTY - FUQUAY VARINA - NC

PLE-7657 Civil Site Development Plans - Senter Assisted Living Facilities - Harnett County, NC
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GENERAL SITE NOTES:

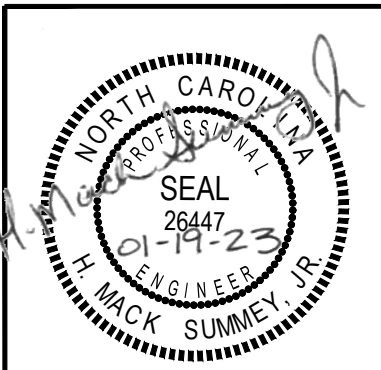
- THE INFORMATION SHOWN HEREIN WAS TAKEN FROM BOUNDARY AND TOPOGRAPHIC SURVEY PROVIDED BY: SUMMEY ENGINEERING ASSOCIATES, PLLC 150 S FAYETTEVILLE STREET, ASHEBORO NC 27203 PHONE: (336)–328–0902 DATED JULY 27TH, 2022.
THE LOCATIONS OF ALL UTILITIES SHOWN ON THESE CIVIL SITE DEVELOPMENT PLANS ARE BASED ON THE AVAILABLE INFORMATION. THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF UTILITIES WITH THE UTILITY OWNERS PRIOR TO COMMENCEMENT OF CONSTRUCTION.
- ALL HANDICAP SITE FEATURES SHALL BE CONSTRUCTED TO MEET ALL FEDERAL, STATE AND LOCAL CODES.
- ANY DISCREPANCY IN THIS PLAN, ARCHITECTURAL CIVIL SITE DEVELOPMENT PLANS , AND/OR ACTUAL FIELD CONDITIONS SHALL BE REPORTED TO THE ENGINEER PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF ALL SETBACKS, EASEMENTS, AND DIMENSIONS SHOWN HEREIN BEFORE BEGINNING CONSTRUCTION.
- THE CONTRACTOR SHALL CONTACT ALL OWNERS OF EASEMENTS, UTILITIES, AND R.O.W.'S. PUBLIC OR PRIVATE, PRIOR TO WORKING IN THESE AREAS.
- ACCESS TO UTILITIES, FIRE HYDRANTS, STREET LIGHTING, ET, SHALL REMAIN UNDISTURBED, UNLESS COORDINATED WITH RESPECTIVE UTILITY.
- DO NOT SCALE THIS DRAWING AS IT IS A REPRODUCTION AND SUBJECT TO DISTORTION.
- THE CONTRACTOR IS RESPONSIBLE FOR DAMAGE TO ANY EXISTING ITEM AND/OR MATERIAL DUE TO CONSTRUCTION OPERATIONS. ALL STREET SURFACES, DRIVEWAYS, CULVERTS, CURBS AND GUTTERS, ROADSIDE DRAINAGE DITCHES, AND OTHER STRUCTURES THAT ARE DISTURBED OR DAMAGED IN ANY MATTER AS A RESULT OF CONSTRUCTION SHALL BE REPLACED OR REPAIRED IN ACCORDANCE WITH THE SPECIFICATIONS
- ALL PERMITS RELATIVE TO PROJECT MUST BE OBTAINED PRIOR TO CONSTRUCTION. ALL CONSTRUCTION TO BE IN ACCORDANCE WITH PERMITS ISSUED AND APPLICABLE TO STATE, COUNTY, AND LOCAL CODES.
- THE CONTRACTOR SHALL VERIFY LOCATION AND ELEVATION OF ALL UNDERGROUND UTILITIES. THE LOCATION OF ALL EXISTING UTILITIES IS NOT NECESSARILY SHOWN ON CIVIL SITE DEVELOPMENT PLANS AND WHERE SHOWN ARE ONLY APPROXIMATE. THE CONTRACTOR ON HIS INITIATIVE AND AT NO EXTRA COST SHALL HAVE LOCATED ALL UNDERGROUND LINES AND STRUCTURES AS NECESSARY. NO CLAIMS FOR DAMAGES OR EXTRA COMPENSATION SHALL ACCRUE TO THE CONTRACTOR FROM THE PRESENCE OF ITEMS SUCH AS PIPE OR OTHER OBSTRUCTIONS OR FROM ANY DELAY DUE TO REMOVAL OR REARRANGEMENT OF THE SAME. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE DUE TO UNDERGROUND STRUCTURES. CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING ALL NONSUBSCRIBING UTILITIES. THE CONTRACTOR(S) SHALL CALL 811 FOR ASSISTANCE IN LOCATING EXISTING UTILITIES. CALL AT LEAST 48 HOURS PRIOR TO ANY DIGGING. SEEDING TO BE INSTALLED TO NCEDEQ REQUIREMENT & STANDARD PRACTICES.
- PRIOR TO STARTING CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY THAT ALL REQUIRED PERMITS AND APPROVALS HAVE BEEN OBTAINED. NO CONSTRUCTION OR FABRICATION OF ANY ITEM SHALL BEGIN UNTIL THE CONTRACTOR HAS RECEIVED ALL CIVIL SITE DEVELOPMENT PLANS AND ANY OTHER DOCUMENTATION FROM ALL OF THE PERMITTING AND ANY OTHER REGULATORY AUTHORITIES. FAILURE OF THE CONTRACTOR TO FOLLOW THIS PROCEDURE SHALL CAUSE THE CONTRACTOR TO ASSUME FULL RESPONSIBILITY FOR ANY SUBSEQUENT MODIFICATION OF THE WORK MANDATED BY ANY REGULATORY AUTHORITY.
- VISIT SITE AND BRING TO THE ENGINEER'S ATTENTION IN WRITING ANY PROBLEMS OR DISCREPANCIES WITH THE SITE OR PROJECT PRIOR TO CONSTRUCTION.
- CHECK ALL "VERIFY" DIMENSIONS NOTED ON CIVIL SITE DEVELOPMENT PLANS . REPORT ANY DISCREPANCIES TO THE ENGINEER IN WRITING PRIOR TO ANY FURTHER CONSTRUCTION.
- USE THE ARCHITECT'S DRAWINGS FOR BUILDING DIMENSIONS.

CONTRACTOR NOTES:

- ALL DIMENSIONS AND RADII ARE OUTSIDE FACE OF BUILDING OR TO FACE OF CURB, OR TO THE CENTER OF STRUCTURES SUCH AS INLETS, SIGN POSTS, ETC., UNLESS OTHERWISE NOTED.
- CONTACT ENGINEER FOR OBSERVATION OF CONSTRUCTION RELATED TO REQUIRED FEDERAL, STATE, OR LOCAL CERTIFICATIONS INCLUDING BUT NOT LIMITED TO PROOF ROLL AND ASPHALT PLACEMENT. PROVIDE 24 HOUR NOTICE TO ENGINEER FOR REQUIRED CONSTRUCTION OBSERVATION RELATED TO CERTIFICATION OF ROADWAY, WATER SYSTEM, PAVEMENT, ETC.
- KEEP ALL PLANTING AND GRASS AREAS FREE OF DEBRIS, STONES, CONSTRUCTION MATERIALS, ETC., RESPONSIBLE FOR NOT DAMAGING EXISTING PLANTING TO REMAIN.
- THE CONTRACTOR IS RESPONSIBLE FOR LOCATING AND AVOIDING ALL UNDERGROUND UTILITIES WHETHER SHOWN ON THE SITE PLAN OR NOT. THOSE SHOWN ARE BASED ON THE SURVEY PROVIDED AND MAY NOT BE ALL INCLUSIVE. CONTACT UTILITY LOCATION SERVICE OR OTHER APPROPRIATE UTILITY LOCATION SERVICE FOR UTILITY IDENTIFICATION PRIOR TO ANY WORK. CONTRACTOR TO PROTECT ALL UTILITIES TO REMAIN – TYPICAL. CONTACT ALL UTILITY COMPANIES TO INSURE THE UTILITIES ARE SHUT DOWN PRIOR TO THE START OF ANY DEMOLITION AND/ OR SITE WORK.
- PATCH / REPAIR STREETS, STRUCTURES, ETC. AS NECESSARY AFTER CONNECTION OF PROPOSED UTILITIES.
- SEE PLAN SET FOR PROPOSED GRADES AND EROSION CONTROL.
- CIVIL/SITE CONTRACTOR SHALL FIELD VERIFY VERTICAL AND HORIZONTAL LOCATIONS OF ALL UTILITIES PRIOR TO CONSTRUCTION. CIVIL/SITE CONTRACTOR SHALL SCHEDULE A PRE–CONSTRUCTION CONFERENCE WITH THE LOCAL MUNICIPALITY AND ARCHITECT PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION ACTIVITY. CONTRACTOR SHALL CALL 811 5 WORKING DAYS HOURS PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION.
- CONTRACTOR SHALL NOTIFY THE LOCAL MUNICIPALITY PUBLIC WORKS PRIOR TO ANY CONSTRUCTION ON STREET RIGHTS–OF–WAY
- ANY CONSTRUCTION WITHIN THE LOCAL MUNICIPALITY RIGHTS–OF WAY ARE TO BE IN ACCORDANCE WITH THE LOCAL MUNICIPALITY STANDARDS AND SPECIFICATIONS REGARDING MATERIALS, INSTALLATION, AND TESTING, UNLESS OTHERWISE IN THE CONTRACT DOCUMENTS. ANY CONSTRUCTION WITHIN THE RIGHT–OF–WAY SHALL BE
- PROTECTED WITH SIGNAGE AND TRAFFIC SAFETY DEVICES IN ACCORDANCE WITH THE NORTH CAROLINA STANDARDS AND GUIDELINES ALSO THE CONTRACTOR SHALL HAVE "UTILITY WORK AHEAD" SIGNS LOCATED AT ALL LOCATIONS WHEN ENTERING THE RIGHTS–OF–WAY.

UTILITY NOTES: (IF APPLICABLE)

- UTILITY INFORMATION SHOWN HEREON WAS OBTAINED FROM THE BEST AVAILABLE SOURCE AND MAY OR MAY NOT BE EITHER ACCURATE OR COMPLETE. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR VERIFYING EXACT LOCATIONS OF EXISTING UTILITIES AND IS RESPONSIBLE FOR ANY DAMAGE TO ANY UTILITIES, EITHER PUBLIC OR PRIVATE, SHOWN HEREON OR NOT SHOWN HEREON. ANY REPAIRS SHALL BE DONE TO THE SATISFACTION OF THE APPROPRIATE UTILITY COMPANY.
- THE GENERAL CONTRACTOR SHALL CONFIRM ALL NEW UTILITY TAP LOCATIONS WITH THE UTILITY OWNERS. ALL FEES SHALL BE THE RESPONSIBILITY OF CONTRACTOR OR GENERAL CONTRACTOR.
- SEE ELECTRICAL ENGINEERING SITE PLAN FOR LOCATION OF ALL SITE LIGHTING AND REQUIREMENTS
- ALL NEW LOT LIGHTS AND THE MAIN IDENTIFICATION SIGN SHALL HAVE A MINIMUM 10 FEET CLEARANCE FROM ALL OVERHEAD UTILITIES.
- GENERAL CONTRACTOR IS RESPONSIBLE FOR PERMITS AND/OR APPROVALS NECESSARY FOR ANY WORK IN ROADWAY OR RIGHT–OF–WAY.
- MINIMUM COVER FOR CONDUITS SHALL BE 36" UNLESS OTHERWISE SHOWN OR NOTED IN THESE CIVIL SITE DEVELOPMENT PLANS .
- ALL MANHOLES, VALVES, AND MONUMENT FRAMES SHALL BE SET TO FINISH GRADE AFTER PAVING.
- THE CONTRACTOR SHALL COMPLY WITH THE RULES AND REGULATIONS OF THE STATE CONSTRUCTION SAFETY ORDERS. TRENCHES SHALL BE SHORED IN ACCORDANCE WITH OSHA.
- THE MINIMUM SLOPE FOR SANITARY SEWER LINES SHALL BE AS FOLLOWS: 1) 1/4"/FT FOR 4" LINES AND 2) 1/8"/FT FOR 6" LINES. 6" CLEANOUTS SHALL BE PLACED AT 75' INTERVALS. 4" CLEANOUTS SHALL BE PLACED AT 50' INTERVALS
- ALL SEWER LINES SHALL HAVE A FINAL COVER DEPTH 4'-0 IN NON–TRAFFIC AREAS AND 5'-0 MINIMUM IN TRAFFIC AREAS UNLESS SPECIFICALLY NOTED OTHERWISE ON THE CIVIL SITE DEVELOPMENT PLANS .
- CABLE TV SERVICE ROUTING IS NOT PART OF THIS PLAN, CONTRACTOR TO COORDINATE WITH CABLE COMPANY.
- EXISTING MANHOLES SHOULD BE FIELD VERIFIED FOR RIMS AND INVERTS.
- THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL INSPECTIONS, CERTIFICATIONS, EQUIPMENT, ETC. THAT MAY BE REQUIRED.
- THE ENGINEER AND/OR OWNER DISCLAIM ANY ROLE IN THIS CONSTRUCTION MEANS/METHODS ASSOCIATED WITH THE PROJECT AS SET FORTH IN THESE CIVIL SITE DEVELOPMENT PLANS .
- OCCUPATIONAL HEALTH AND SAFETY ADMINISTRATION (OSHA) STANDARDS FOR EXCAVATIONS; FINAL RULE 29CFR PART 1926, SUBPART "P" APPLIES TO ALL EXCAVATIONS EXCEEDING 5 FEET IN DEPTH.
- EXCAVATION EXCEEDING TWENTY (20) FEET IN DEPTH REQUIRES THE DESIGN OF A TRENCH SAFETY SYSTEM BY A REGISTERED PROFESSIONAL ENGINEER.
- CONTRACTOR SHALL MAINTAIN AN "AS BUILT" SET OF DRAWINGS TO RECORD THE EXACT LOCATION OF ALL PIPING PRIOR TO CONCEALMENT. DRAWINGS SHALL BE GIVEN TO THE OWNER UPON COMPLETION OF THE PROJECT WITH A COPY OF THE TRANSMITTAL LETTER TO THE ENGINEER.
- WATER PIPING SHALL BE CONNECTED TO BUILDING STUBS, VERIFY LOCATIONS PRIOR TO BEGINNING WATER PIPE INSTALLATION.
- WASTE PIPING SHALL BE CONNECTED TO BUILDING STUBS, VERIFY LOCATIONS AND INVERTS PRIOR TO BEGINNING ANY WASTE PIPE INSTALLATION.
- ALL UTILITY CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LOCAL MUNICIPALITY PUBLIC WORKS AND CROSS CONNECTION CONTROL, REGULATIONS AND STANDARDS.
- SITE UTILITY CONTRACTOR TO PROVIDE WATER AND SANITARY SEWER TO WITHIN 5 FEET OF THE BUILDING, CONTRACTOR SHALL COORDINATE SITE PLAN CONNECTIONS WITH THE ARCHITECTURAL BUILDING CIVIL SITE DEVELOPMENT PLANS .
- SANITARY CLEANOUTS SHALL BE PLACED NO MORE THAN 75 FEET APART. CLEAN OUTS LOCATED IN PAVEMENT AREAS SHALL HAVE A HEAVY DUTY TRAFFIC RATED CONSTRUCTION.
- CONNECTION OF SANITARY SEWER SERVICE TO AN EXISTING MANHOLE SHALL COMPLY WITH THE LOCAL MUNICIPALITY PUBLIC WORKS STANDARDS, INCLUDING: CORE DRILL FOR OPENING INTO MANHOLE AND INSTALL WITH FLEXIBLE BOOT. IF PAVEMENT CUT IS REQUIRED, CONTRACTOR SHALL PATCH PAVEMENT WITH A SECTION TO MATCH EXISTING PAVEMENT
- ALL WORK SHALL BE GOVERNED BY THE LATEST EDITIONS OF THE STATE MECHANICAL, PLUMBING, ELECTRICAL, FIRE PROTECTION, BUILDING CODE, ENERGY CONSERVATION, HANDICAPPED ACCESSIBILITY, NATIONAL ELECTRICAL CODES, AND NATIONAL FIRE PROTECTION ASSOCIATION CODES AS APPLICABLE AND AS ADOPTED BY THE AUTHORITIES HAVING JURISDICTION AND LATEST VERSION OF NC DOT POLICIES & PROCEDURES FOR ACCOMMODATING UTILITIES ON HIGHWAY RIGHTS–OF–WAY.
- LOCATIONS OF EXISTING UTILITIES SHOWN ON THESE CIVIL SITE DEVELOPMENT PLANS ARE APPROXIMATE OR SCHEMATIC. THE LOCATIONS ARE BASED ON ACTUAL FIELD SURVEYS AND AVAILABLE RECORDS, CONTRACTOR SHALL FIELD VERIFY LOCATION OF ALL EXISTING UNDERGROUND UTILITIES AND UNDERGROUND STRUCTURES AND VERIFY REQUIRE COVER AND CLEARANCES PRIOR TO CONSTRUCTION AND REPORT ANY CONFLICTS TO THE ENGINEER.
- CONTRACTOR SHALL CALL 811 AT LEAST 48 HOURS PRIOR TO BEGINNING CONSTRUCTION OR EXCAVATION TO HAVE UTILITIES LOCATED. CONTRACTOR SHALL CONTACT ANY LOCAL UTILITIES THAT PROVIDE THEIR OWN LOCATOR SERVICES INDEPENDENTLY.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATION AND/OR RELOCATION OF ALL EXISTING UTILITIES IN COORDINATION WITH THE APPROPRIATE UTILITY, AGENCY, OR COMPANY.
- IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE ACTUAL LOCATION AND AVAILABILITY OF ALL EXISTING AND PROPOSED UTILITIES IN THE FIELD PRIOR TO GROUND BREAKING.
- ALL UTILITIES MUST BE LOCATED UNDERGROUND AND COORDINATED WITH THE LOCAL MUNICIPALITY OR LOCAL UTILITY COMPANY.



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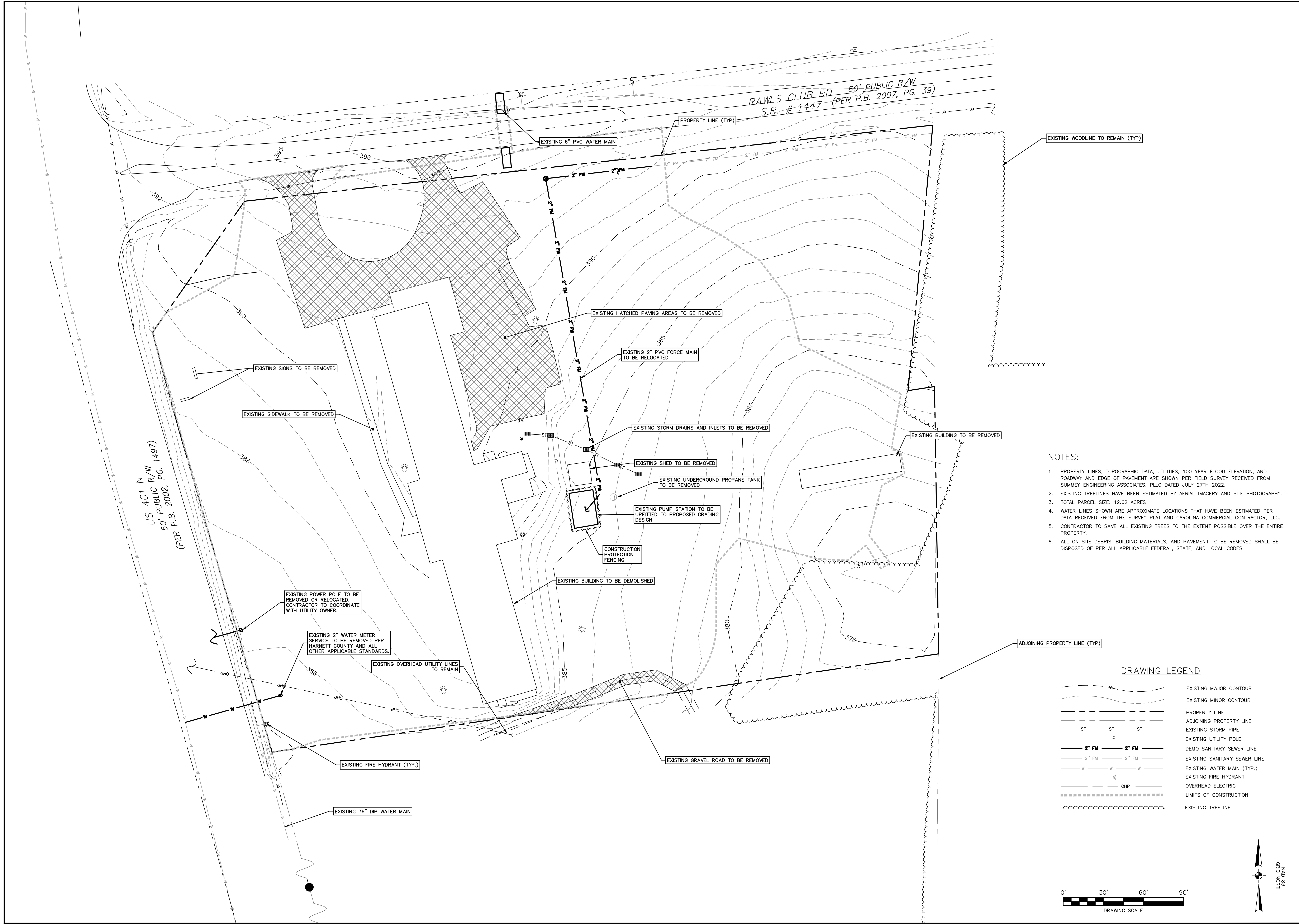
By:	Description:	Date:	No.
DJB	COMMENTS FROM HARNETT COUNTY	10-19-22	1
DJB	COMMENTS FROM HARNETT COUNTY	01-04-23	2
ZHG	COMMENTS FROM HARNETT COUNTY	01-19-23	3

GENERAL NOTES
CIVIL CONSTRUCTION DRAWINGS
SENTERS ASSISTED LIVING
 40 RAWL'S CLUB RD.
 FUQUAY VARINA - HARNETT COUNTY - NC

Scale:	AS NOTED
Date:	JAN. 2022
Drawn By:	DJB
Checked By:	ZHG
Job No.:	E-7657

Sheet No. **01**

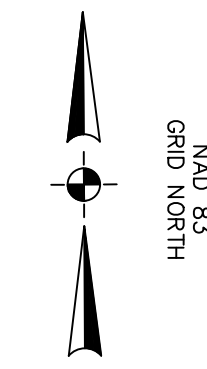
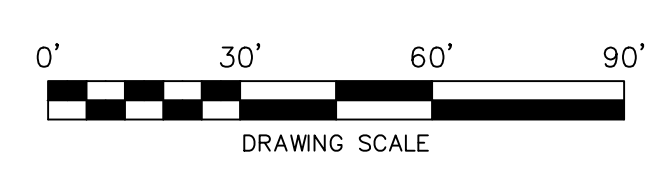
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- NOTES:**
1. PROPERTY LINES, TOPOGRAPHIC DATA, UTILITIES, 100 YEAR FLOOD ELEVATION, AND ROADWAY AND EDGE OF PAVEMENT ARE SHOWN PER FIELD SURVEY RECEIVED FROM SUMMEY ENGINEERING ASSOCIATES, PLLC DATED JULY 27TH 2022.
 2. EXISTING TREELINES HAVE BEEN ESTIMATED BY AERIAL IMAGERY AND SITE PHOTOGRAPHY.
 3. TOTAL PARCEL SIZE: 12.62 ACRES
 4. WATER LINES SHOWN ARE APPROXIMATE LOCATIONS THAT HAVE BEEN ESTIMATED PER DATA RECEIVED FROM THE SURVEY PLAT AND CAROLINA COMMERCIAL CONTRACTOR, LLC.
 5. CONTRACTOR TO SAVE ALL EXISTING TREES TO THE EXTENT POSSIBLE OVER THE ENTIRE PROPERTY.
 6. ALL ON SITE DEBRIS, BUILDING MATERIALS, AND PAVEMENT TO BE REMOVED SHALL BE DISPOSED OF PER ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES.

DRAWING LEGEND

	EXISTING MAJOR CONTOUR
	EXISTING MINOR CONTOUR
	PROPERTY LINE
	ADJOINING PROPERTY LINE
	EXISTING STORM PIPE
	EXISTING UTILITY POLE
	DEMO SANITARY SEWER LINE
	EXISTING SANITARY SEWER LINE
	EXISTING WATER MAIN (TYP.)
	EXISTING FIRE HYDRANT
	OVERHEAD ELECTRIC
	LIMITS OF CONSTRUCTION
	EXISTING TREELINE

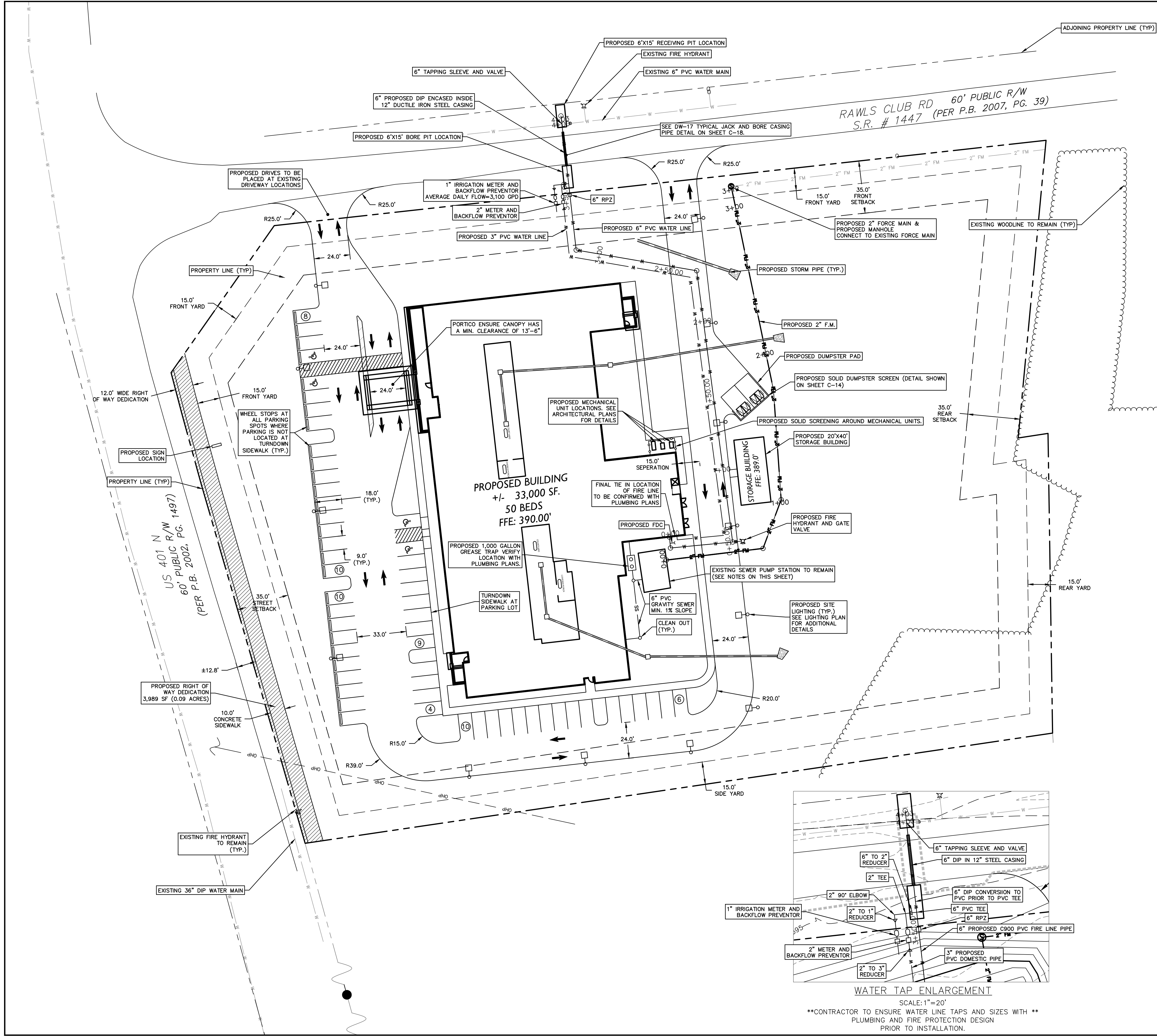


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No.	Date:	Description:	By:
1	10-19-22	COMMENTS FROM HARNETT COUNTY	DJB
2	01-04-23	COMMENTS FROM HARNETT COUNTY	DJB
3	01-19-23	COMMENTS FROM HARNETT COUNTY	ZHG

EXISTING CONDITIONS AND DEMO CIVIL CONSTRUCTION DRAWINGS SENTERS ASSISTED LIVING
 40 RAWLS CLUB RD.
 FUQUAY VARINA - HARNETT COUNTY - NC

Scale:	AS NOTED
Date:	JAN. 2022
Drawn By:	DJB
Checked By:	ZHG
Job No.:	E-1657
Sheet No.:	C-2



- SITE NOTES:**
- PROPERTY INFORMATION
 OWNERS: HP6 FUQUAY VARINA HEALTH INVESTORS LLC.
 PIN NUMBERS: 0655-41-8963
 EXISTING ZONING: RA-30
 SIZE: 5.25 AC.
 EXISTING LAND USE: REST HOME/ADULT CARE FACILITY/ ASSISTED LIVING
 SITE ADDRESS: 40 RAWLS CLUB RD. FUQUAY VARINA, NC. 27526
 OWNER ADDRESSES: 328 1ST AVE NW HICKORY, NC 28601
 - THE PROJECT IS LOCATED OUTSIDE OF THE CITY OF FUQUAY VARINA ETJ.
 - PARCEL BOUNDARIES, TOPOGRAPHIC DATA, EASEMENTS, EXISTING WATER METER AND SANITARY SEWER ARE SHOWN PER FIELD SURVEY PERFORMED BY SUMMEY ENGINEERING ASSOCIATES, PLLC DATED JULY 27TH 2022.
 - PROPOSED USE: ASSISTED LIVING FACILITY
 - PARKING REQUIRED: ONE SPACE PER 5 BEDS
 REQUIRED: 50 BEDS REQ'D * 1/5 = 10 SPACES REQ'D
 PROVIDED: 57 SPACES PROVIDED (4 HC SPACES INCLUDED)
 - SETBACKS:
 FRONT= 35 FT
 SIDE= 35 FT
 REAR= 35 FT
 - DISTURBED AREA: 158,468 SF (3.63 AC.)
 - HANDICAP SPACES SHALL BE INSTALLED PER ADA REQUIREMENTS.
 - MAXIMUM SEPARATION BETWEEN SANITARY SEWER CLEANOUTS SHALL BE 50'.
 - OBTAIN ALL APPLICABLE PERMIT APPROVALS PRIOR TO ANY CONSTRUCTION.
 - CONFIRM UTILITY TIE INS WITH ARCHITECTURAL DESIGN PRIOR TO CONSTRUCTION.
 - WATER AND SEWER UTILITY TIE IN LOCATIONS ARE SHOWN ON THIS PLAN FOR REFERENCE ONLY. CONFIRM ALL TIE IN LOCATIONS WITH PLUMBING PLANS.
 - EXISTING PUMP STATION TO BE UPFITTED AND REUSED FOR PROPOSED PROJECT. FINAL DESIGN TO BE COMPLETED AT A LATER DATE.
 - CONDITIONAL USE PERMIT #BOA2209-0004, APPROVED 10/10/2022.
 - FUTURE LAND USE CLASSIFICATION IS MEDIUM DENSITY AGRICULTURE.
 - US 401 IS ON THE HARNETT COUNTY COMPREHENSIVE TRANSPORTATION PLAN.
 - THIS DEVELOPMENT IS WITHIN ONE MILE OF A VOLUNTARY AGRICULTURAL DISTRICT.
 - THE OWNER SHALL BE RESPONSIBLE FOR MAINTENANCE OF THE PARKING AREAS, DRIVE AISLES, AND ALL LANDSCAPE BUFFERING.
 - THIS PROJECT IS LOCATED WITHIN THE HARNETT COUNTY WATER SUPPLY WATER SHED IV DISTRICT. PROJECTS WITH CURB AND GUTTER SYSTEM SHALL NOT EXCEED 24% BUILT UPON AREA. PROJECTS THAT DO NOT INSTALL CURB AND GUTTER SHALL NOT EXCEED 36% BUA.

- PUMP STATION NOTES:**
- THE EXISTING PUMP STATION IS TO BE UPFITTED AND REUSED FOR THIS PROPOSED FACILITY.
 - ADDITIONAL RISERS WILL BE REQUIRED TO RAISE THE FINISHED GRADE OF THE TOP OF THE WET WELL TO THE PROPOSED FINISHED GRADE OF THE PUMP STATION.
 - CONSTRUCTION OPERATIONS AROUND THE EXISTING PUMP STATION SHALL BE PERFORMED IN A MANNER TO NOT DAMAGE ANY OF THE EXISTING EQUIPMENT. IF EXISTING EQUIPMENT IS DAMAGED, CONTRACTOR MUST REPLACE WITH EXISTING OR BETTER MATERIALS.
 - FINAL DESIGN OF THE PUMP STATION SHALL BE INCLUDED WITH THE FINAL CONSTRUCTION DRAWING SET.
 - PUMP STATION INFORMATION SHOWN ON THIS PLAN IS FOR REFERENCE AND PERMITTING ONLY.
 - NO INCREASE OF FLOW IS PROPOSED AS A PART OF THIS PROJECT. THE TOTAL NUMBER OF BEDS ON THIS FACILITY IS TO REMAIN CONSTANT. PLUMBING DESIGNERS AND OWNERS HAVE NOTIFIED SUMMEY ENGINEERING ASSOCIATES, PLLC THERE WILL BE NO INCREASE OF SEWAGE FLOW TO THE EXISTING SEWER PUMP STATION. CONTRACTOR AND SUMMEY ENGINEERING ASSOCIATES, PLLC IS TO CONFIRM THIS WITH FINAL PLUMBING DESIGN PRIOR TO THE ISSUANCE OF THE CONSTRUCTION CIVIL PLAN SET.

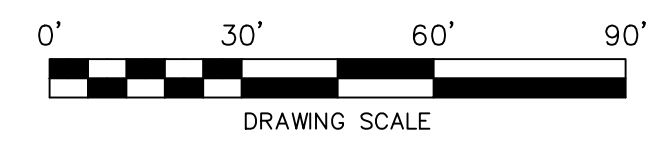
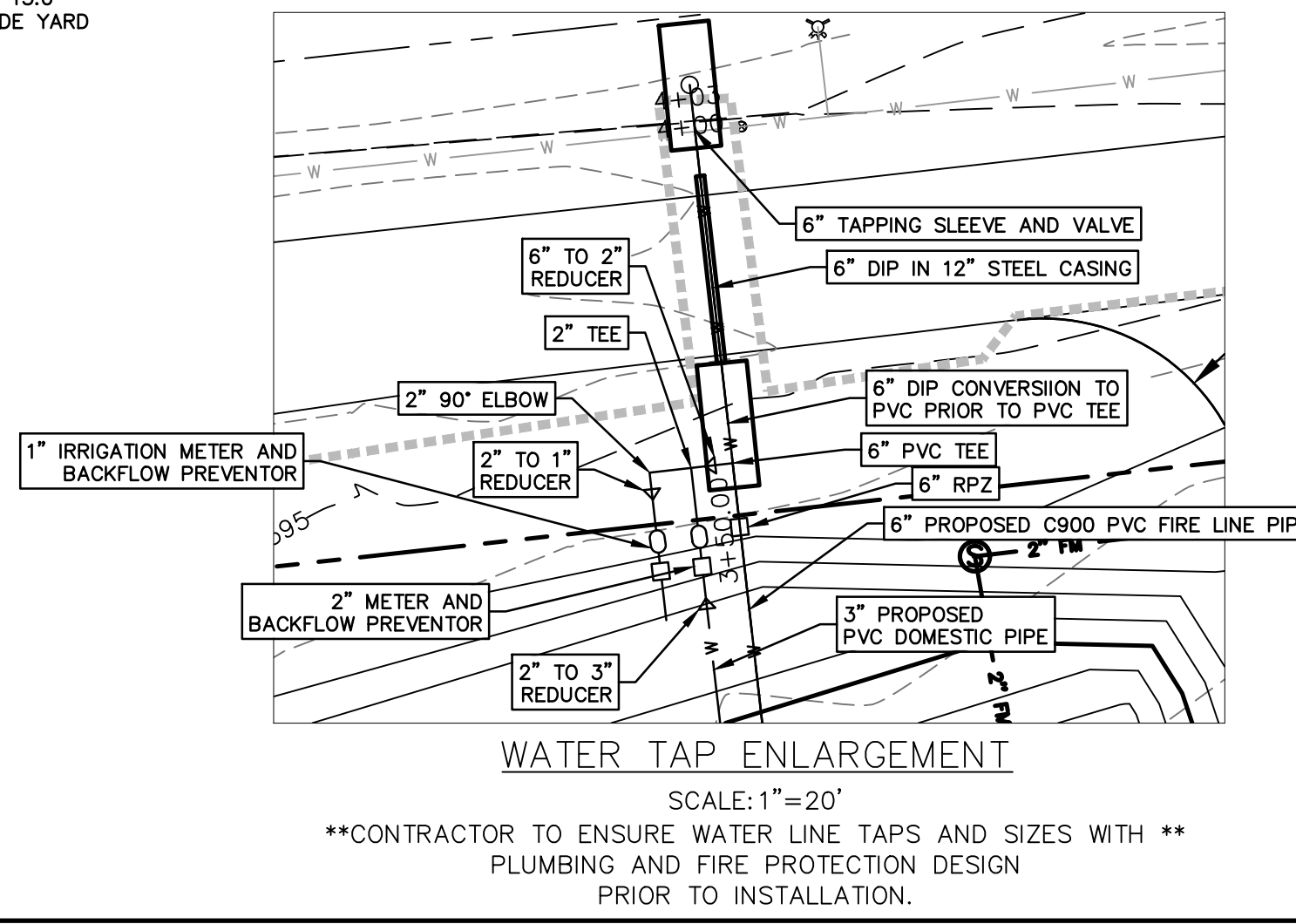
DRAWING LEGEND

	PROPERTY LINE
	ADJOINING PROPERTY LINE
	EXISTING TREELINE
	PROPOSED TREELINE
	SETBACK LINES
	EXISTING SANITARY SEWER LINE
	PROPOSED SANITARY SEWER LINE
	EXISTING WATER MAIN
	PROPOSED WATER MAIN
	EXISTING FIRE HYDRANT
	EXISTING SANITARY SEWER MANHOLE
	RIGHT OF WAY DEDICATION AREA
	PROPOSED GRAVITY SEWER LINE
	PROPOSED STORM PIPE

OWNER CONSENT FORM

AS THE OWNER OF RECORD, I HEREBY FORMALLY CONSENT TO THE PROPOSED DEVELOPMENT SHOWN ON THIS SITE PLAN AND ALL REGULATIONS AND REQUIREMENTS OF THE HARNETT COUNTY ORDINANCES.

DATE _____ OWNER SIGNATURE _____



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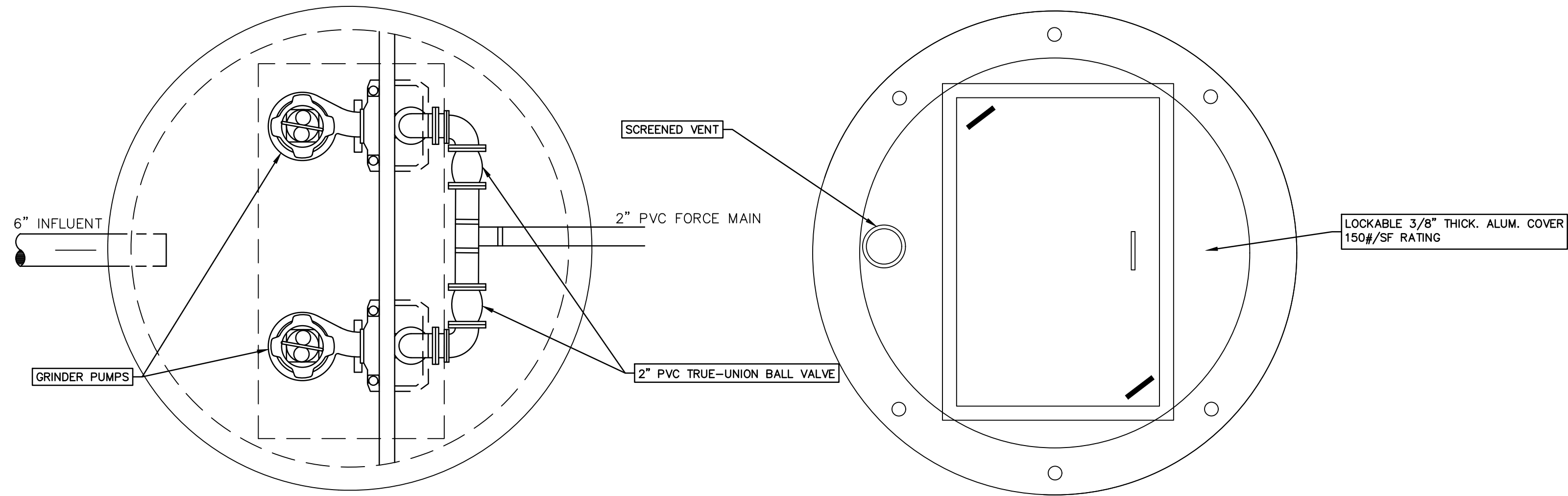
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**SITE AND UTILITY
 CIVIL CONSTRUCTION DRAWINGS
 SENTERS ASSISTED LIVING**

40 RAWLS CLUB RD.
 FUQUAY VARINA - HARNETT COUNTY - NC

Scale:	AS NOTED
Date:	JAN. 2022
Drawn By:	DJB
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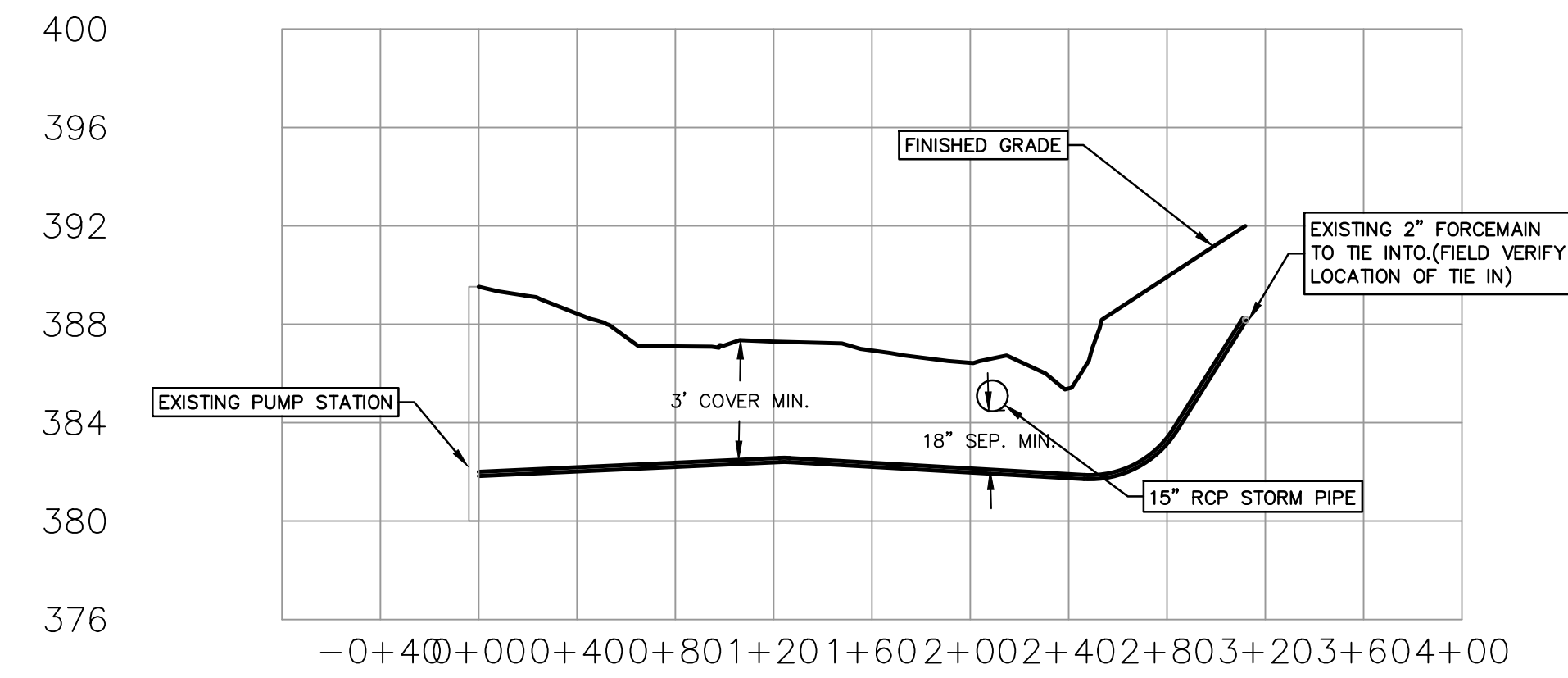
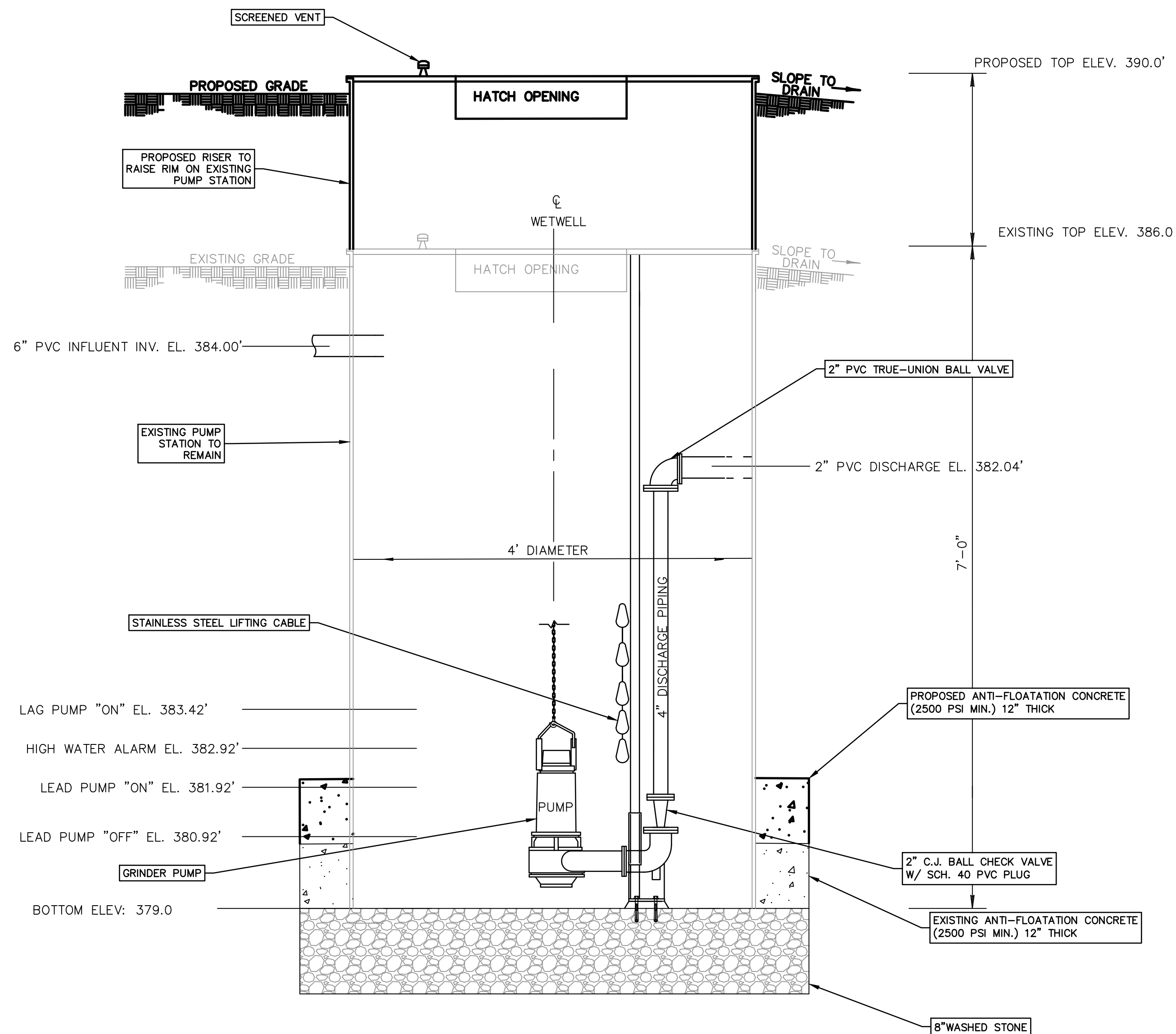
ESTIMATED DAILY FLOWS:
 TOTAL NUMBER OF EXISTING BEDS: 50 BEDS
 TOTAL NUMBER OF PROPOSED BEDS: 50 BEDS
 ESTIMATED DAILY FLOW PER BED: 120 GPD / BED
 50 X 120 GPD= 6,000 GPD



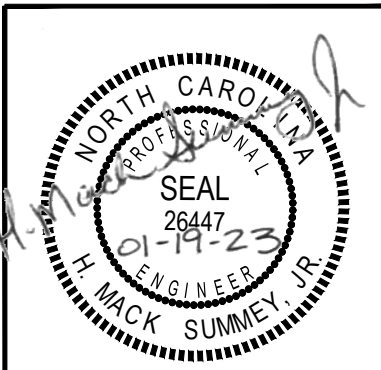
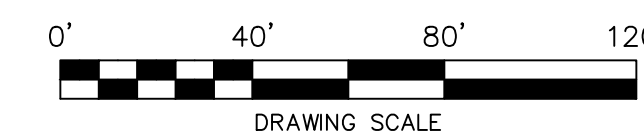
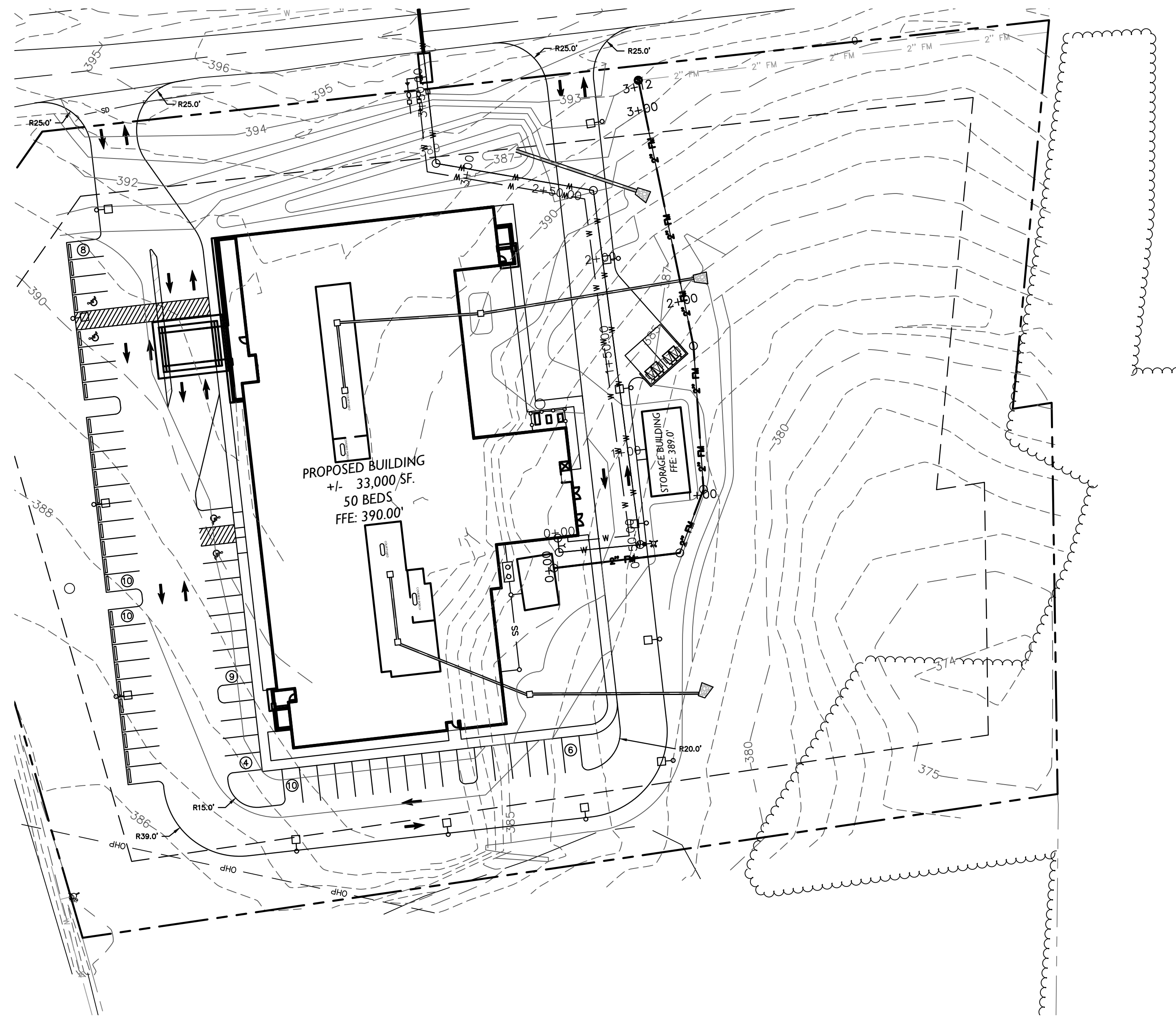
SECTIONAL PLAN
NOT TO SCALE

TOP PLAN
NOT TO SCALE

DUPLEX GRINDER PUMP STATION DETAILS ARE AS SHOWN PER AS-BUILT DRAWINGS PROVIDED FROM DIEHL & PHILLIPS, P.A. DATED 1/28/2011.



FORCE MAIN - PROFILE VIEW
SCALE: 1"=40' H.
1"=4' V.



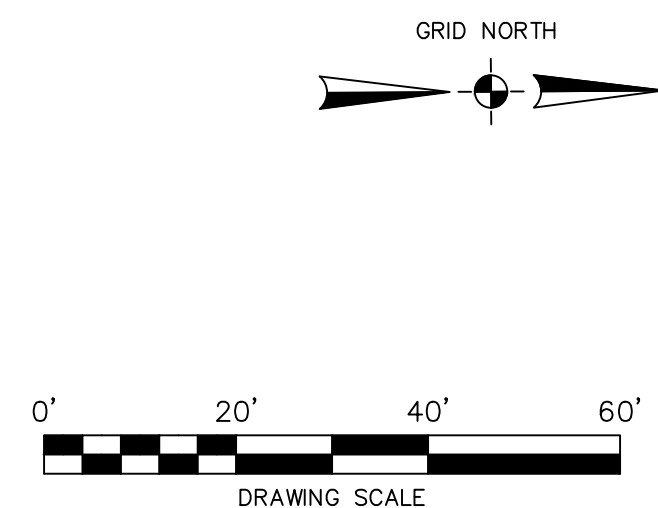
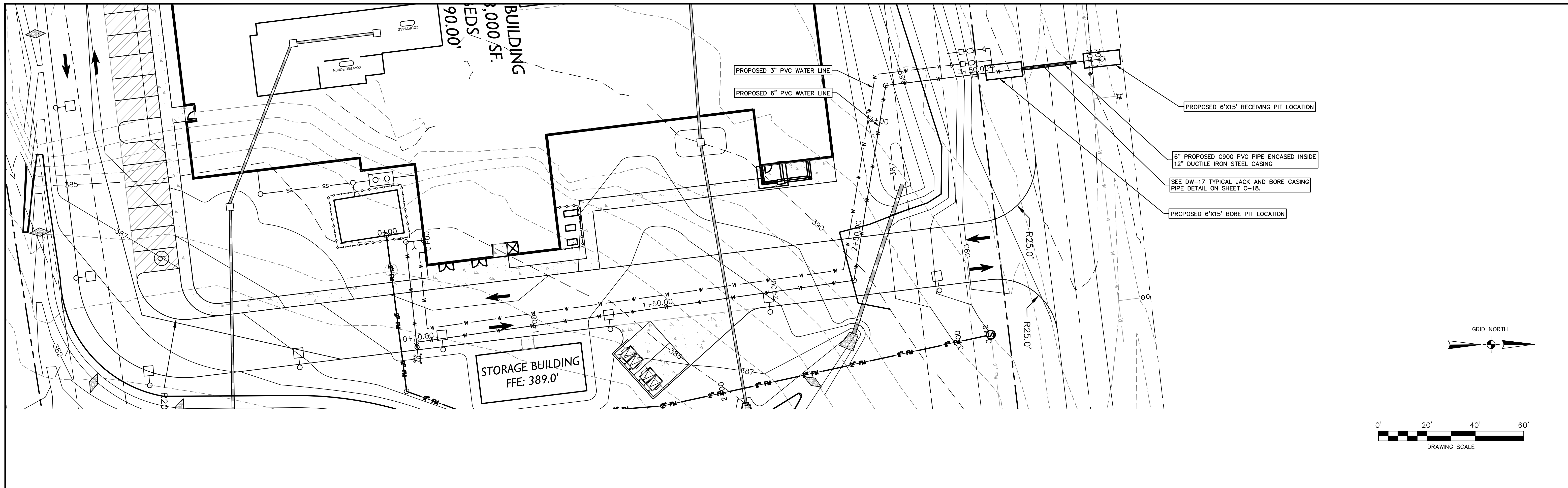
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No.	Date	Description	By
1	10-19-22	COMMENTS FROM HARNETT COUNTY	DJB
2	01-04-23	COMMENTS FROM HARNETT COUNTY	DJB
3	01-19-23	COMMENTS FROM HARNETT COUNTY	ZHG

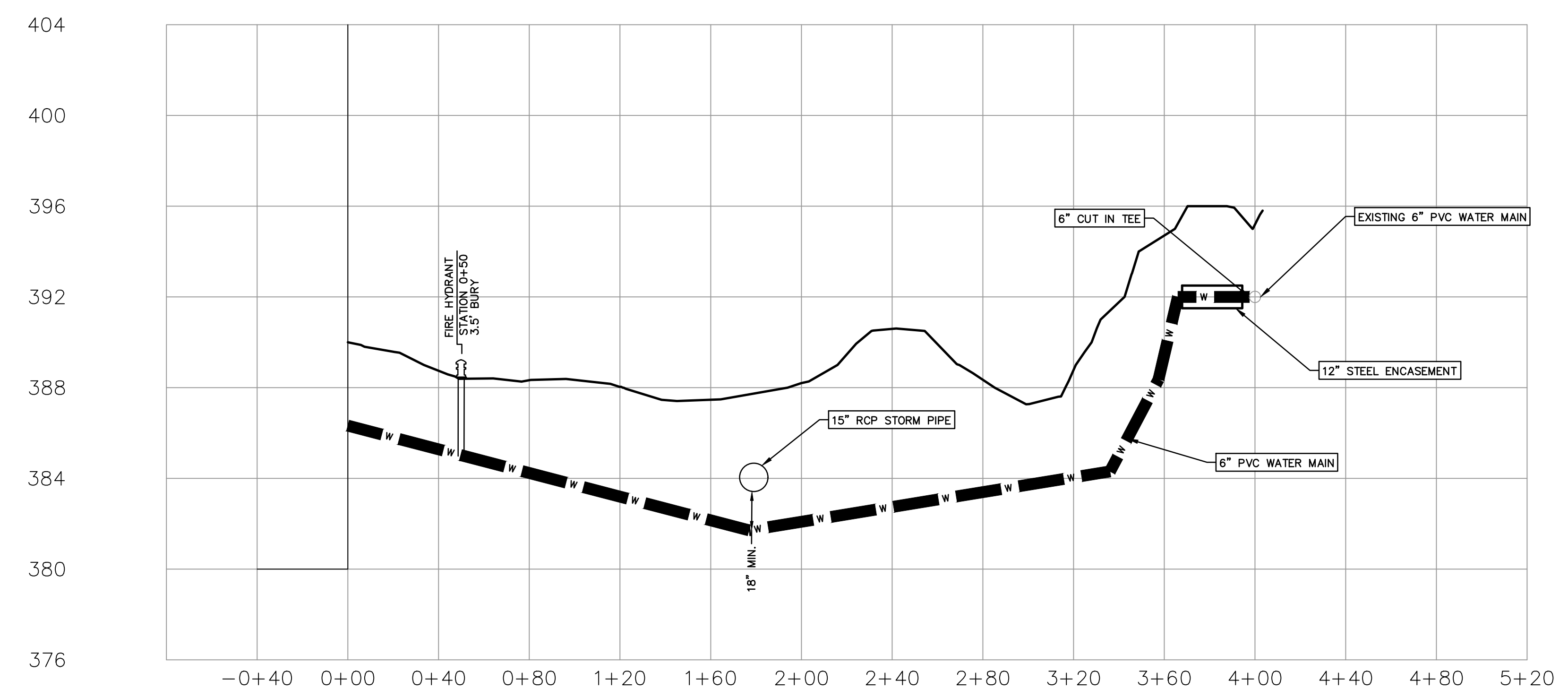
PUMP STATION ADJUSTMENT PLAN
 CIVIL CONSTRUCTION DRAWINGS
 SENTERS ASSISTED LIVING
 40 RAWL'S CLUB RD.
 FLOUQUAY VARINA - HARNETT COUNTY - NC

Scale:	AS NOTED
Date:	JAN. 2022
Drawn By:	DJB
Checked By:	ZHG
Job No.:	E-1657

Sheet No. C-3A



**PROPOSED WATER LINE
PLAN & PROFILE**
SCALE: 1"=40' H.
1"=4' V.



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1	10-19-22	COMMENTS FROM HARNETT COUNTY
2	01-04-23	COMMENTS FROM HARNETT COUNTY
3	01-19-23	COMMENTS FROM HARNETT COUNTY

**PROPOSED WATER MAIN PLAN AND PROFILE
CIVIL CONSTRUCTION DRAWINGS
SENTERS ASSISTED LIVING**
40 RAWLS CLUB RD.
FUQUAY VARINA - HARNETT COUNTY - NC

Scale:	AS NOTED
Date:	JAN. 2022
Drawn By:	DJB
Checked By:	ZHG
Job No.:	E-1657

Sheet No. **C-3B**



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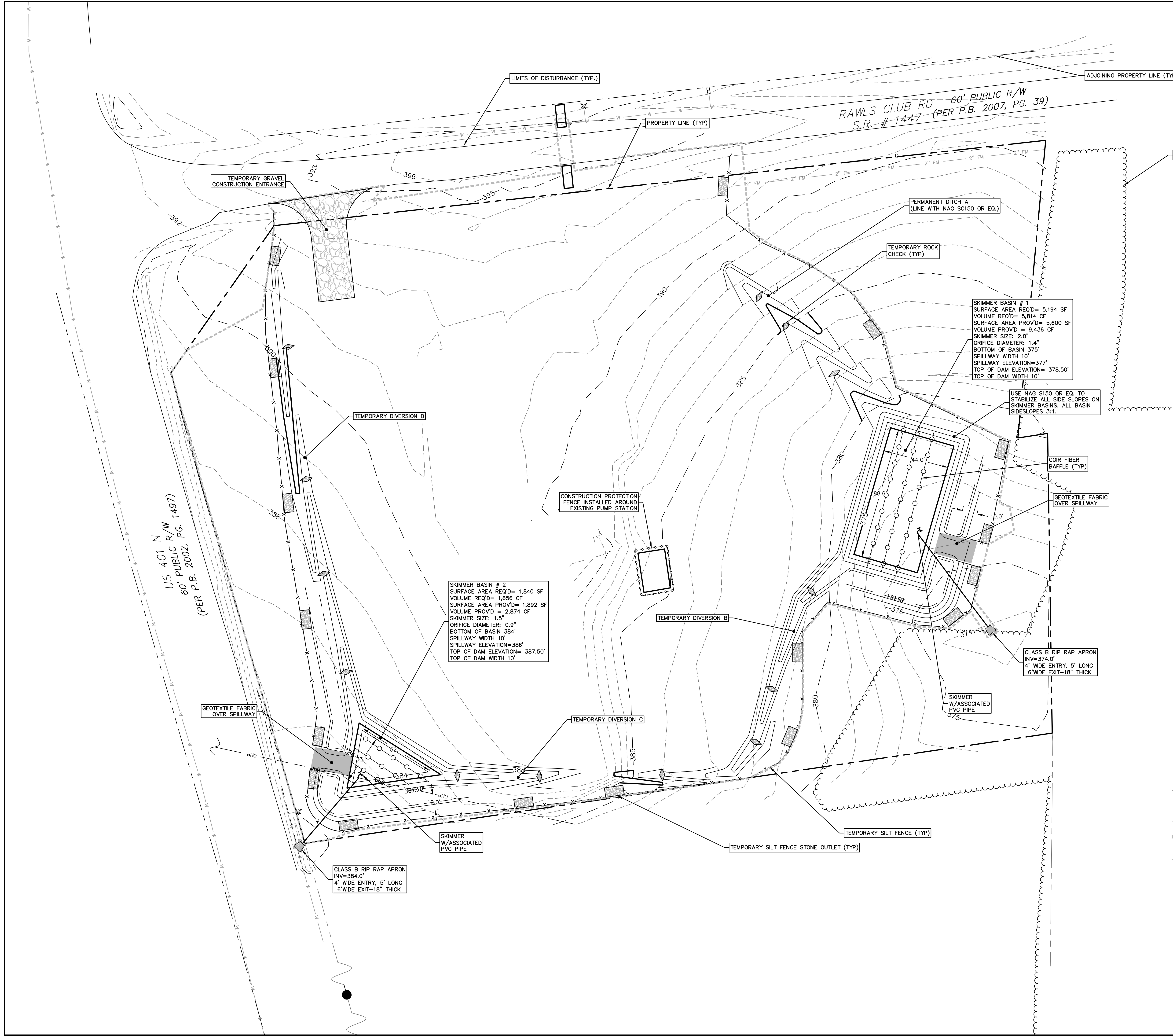
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1	10-19-22	COMMENTS FROM HARNETT COUNTY	DJB
2	01-04-23	COMMENTS FROM HARNETT COUNTY	DJB
3	01-19-23	COMMENTS FROM HARNETT COUNTY	ZHG

**EROSION CONTROL PLAN PH. 1
 CIVIL CONSTRUCTION DRAWINGS
 SENTERS ASSISTED LIVING**

40 RAWLS CLUB RD.
 FUQUAY VARINA - HARNETT COUNTY - NC

Scale:	AS NOTED
Date:	JAN. 2022
Drawn By:	DJB
Checked By:	ZHG
Job No.:	E-1657

Sheet No. **C-4**



EROSION CONTROL NOTES

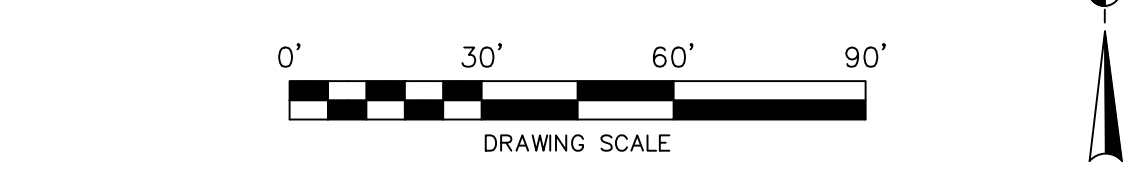
1. AT ALL TIMES DURING CONSTRUCTION, THE NC DEMLR SELF INSPECTION AND MONITORING FORM MUST BE KEPT ON SITE AND UP TO DATE. THE FORM CAN BE OBTAINED AT [HTTP://DEQ.NC.GOV/ABOUT/DIVISIONS/ENERGY-MINERAL-LAND-RESOURCES/EROSION-SEDIMENT-CONTROL/FORMS](http://deq.nc.gov/about/divisions/energy-mineral-land-resources/erosion-sediment-control/forms)
2. ALL EROSION AND SEDIMENT CONTROL MEASURES MUST BE INSPECTED AT LEAST ONCE PER 7 CALENDAR DAYS AND WITHIN 24 HOURS OF A RAINFALL EVENT GREATER THAN 1 INCHES PER 24 HOUR PERIOD.
3. ALL STORMWATER DISCHARGE OUTFALLS (SDO'S) MUST BE INSPECTED AT LEAST ONCE PER 7 CALENDAR DAYS AND WITHIN 24 HOURS OF A RAINFALL EVENT GREATER THAN 1 INCHES PER 24 HOUR PERIOD.
4. GROUND STABILIZATION MUST BE RECORDED AFTER EACH PHASE OF GRADING. REFER TO GROUND STABILIZATION CRITERIA TABLE ON THIS PAGE FOR STABILIZATION TIME FRAMES. FOR TEMPORARY AND PERMANENT SEEDING, FERTILIZATION, AND MULCHING RATES REFER TO THE TABLES PROVIDED ON SHEET C-13.

PHASE 1 CONSTRUCTION SEQUENCE

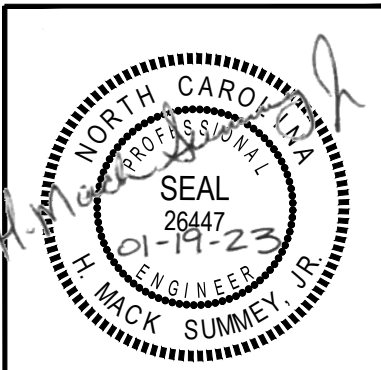
1. OBTAIN PLAN APPROVAL FROM HARNETT COUNTY, NCDEQ, AND ALL OTHER REQUIRED PERMITS.
2. INSTALL TEMPORARY CONSTRUCTION ENTRANCES.
3. STABILIZE ALL RESULTING DISTURBED AREAS.
4. CLEAR AREA NECESSARY AND INSTALL TEMPORARY SILT FENCE AND STONE OUTLETS AS SHOWN PER PLANS.
5. CLEAR AREA NECESSARY AND INSTALL TEMPORARY SEDIMENT BASINS 1 & 2. STABILIZE ALL RESULTING DISTURBED AREAS IMMEDIATELY.
6. CLEAR AREA NECESSARY AND INSTALL STORM PIPE AND PERMANENT DIVERSION DITCH AND ROCK CHECK DAMS AS SHOWN ON PLANS AND STABILIZE IMMEDIATELY. USE NAG SC150 OR EQUAL.
7. DEMO BUILDINGS AND ASPHALT AREA TO BE REMOVED.
8. STABILIZE ALL RESULTING DISTURBED AREAS IMMEDIATELY.

DRAWING LEGEND

	EXISTING MAJOR CONTOUR
	EXISTING MINOR CONTOUR
	PROPOSED MAJOR CONTOUR
	PROPOSED MINOR CONTOUR
	PROPERTY LINE
	CONSTRUCTION LIMITS
	PROPOSED STORM DRAINAGE PIPE
	TEMPORARY SILT FENCE
	TEMPORARY SILT FENCE STONE OUTLET
	COIR FIBER BAFFLE
	TEMPORARY CHECK DAM
	TEMPORARY HORSESHOE INLET PROTECTION



PL-1657 Carolina Commercial Contractors - Assisted Living Facilities - Senters, Fuquay Varina, NC DWM/Civil/Scale: 1657 Base C Senters Assisted 2022-01-19.dwg
 1/19/2023 3:41:08 PM, ZHG

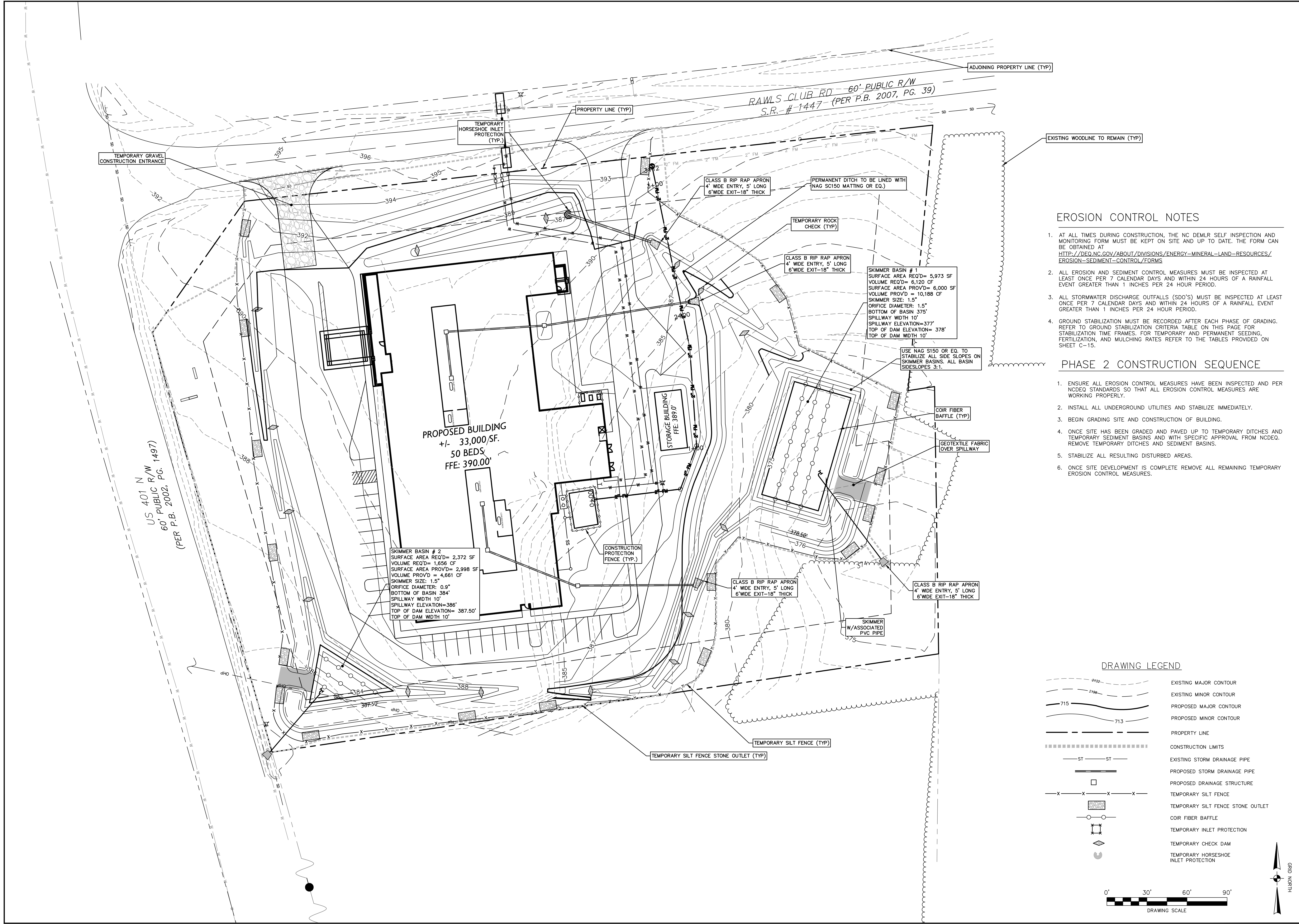


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No.	Date	Description	By
1	10-19-22	COMMENTS FROM HARNETT COUNTY	DJB
2	01-04-23	COMMENTS FROM HARNETT COUNTY	DJB
3	01-19-23	COMMENTS FROM HARNETT COUNTY	ZHG

**EROSION CONTROL PLAN PH 2
 CIVIL CONSTRUCTION DRAWINGS
 SENTERS ASSISTED LIVING**
 40 RAWLS CLUB RD.
 FLOUQUAY VARINA - HARNETT COUNTY - NC

Scale:	AS NOTED
Date:	JAN. 2022
Drawn By:	DJB
Checked By:	ZHG
Job No.:	E-1657
Sheet No.:	C-5



EROSION CONTROL NOTES

1. AT ALL TIMES DURING CONSTRUCTION, THE NC DEMLR SELF INSPECTION AND MONITORING FORM MUST BE KEPT ON SITE AND UP TO DATE. THE FORM CAN BE OBTAINED AT [HTTP://DEQ.NC.GOV/ABOUT/DIVISIONS/ENERGY-MINERAL-LAND-RESOURCES/EROSION-SEDIMENT-CONTROL/FORMS](http://DEQ.NC.GOV/ABOUT/DIVISIONS/ENERGY-MINERAL-LAND-RESOURCES/EROSION-SEDIMENT-CONTROL/FORMS)
2. ALL EROSION AND SEDIMENT CONTROL MEASURES MUST BE INSPECTED AT LEAST ONCE PER 7 CALENDAR DAYS AND WITHIN 24 HOURS OF A RAINFALL EVENT GREATER THAN 1 INCHES PER 24 HOUR PERIOD.
3. ALL STORMWATER DISCHARGE OUTFALLS (SDO'S) MUST BE INSPECTED AT LEAST ONCE PER 7 CALENDAR DAYS AND WITHIN 24 HOURS OF A RAINFALL EVENT GREATER THAN 1 INCHES PER 24 HOUR PERIOD.
4. GROUND STABILIZATION MUST BE RECORDED AFTER EACH PHASE OF GRADING. REFER TO GROUND STABILIZATION CRITERIA TABLE ON THIS PAGE FOR STABILIZATION TIME FRAMES. FOR TEMPORARY AND PERMANENT SEEDING, FERTILIZATION, AND MULCHING RATES REFER TO THE TABLES PROVIDED ON SHEET C-15.

PHASE 2 CONSTRUCTION SEQUENCE

1. ENSURE ALL EROSION CONTROL MEASURES HAVE BEEN INSPECTED AND PER NCEQ STANDARDS SO THAT ALL EROSION CONTROL MEASURES ARE WORKING PROPERLY.
2. INSTALL ALL UNDERGROUND UTILITIES AND STABILIZE IMMEDIATELY.
3. BEGIN GRADING SITE AND CONSTRUCTION OF BUILDING.
4. ONCE SITE HAS BEEN GRADED AND PAVED UP TO TEMPORARY DITCHES AND TEMPORARY SEDIMENT BASINS AND WITH SPECIFIC APPROVAL FROM NCEQ, REMOVE TEMPORARY DITCHES AND SEDIMENT BASINS.
5. STABILIZE ALL RESULTING DISTURBED AREAS.
6. ONCE SITE DEVELOPMENT IS COMPLETE REMOVE ALL REMAINING TEMPORARY EROSION CONTROL MEASURES.

DRAWING LEGEND

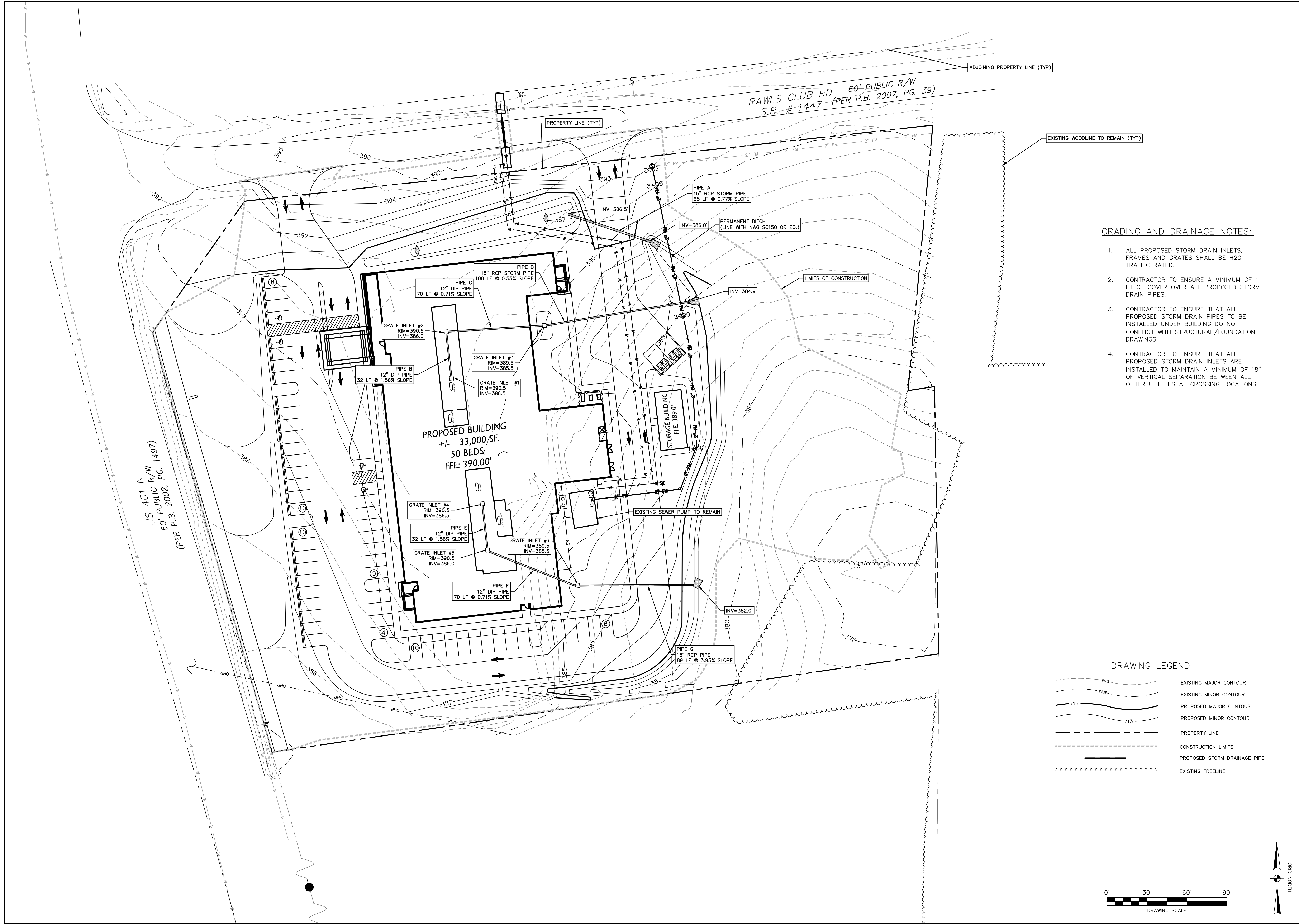
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	EXISTING MINOR CONTOUR
	PROPOSED MAJOR CONTOUR
	PROPOSED MINOR CONTOUR
	PROPERTY LINE
	CONSTRUCTION LIMITS
	EXISTING STORM DRAINAGE PIPE
	PROPOSED STORM DRAINAGE PIPE
	PROPOSED DRAINAGE STRUCTURE
	TEMPORARY SILT FENCE
	TEMPORARY SILT FENCE STONE OUTLET
	COIR FIBER BAFFLE
	TEMPORARY INLET PROTECTION
	TEMPORARY CHECK DAM
	TEMPORARY HORSESHOE INLET PROTECTION

0' 30' 60' 90'
 DRAWING SCALE

GRID NORTH

PL-1657 Carolina Commercial Contractors - Assisted Living Facilities - Senters, Floquay Varina, NC DWM/Civil Scale: 1/657 Base C Senters Assisted 2022-01-19.dwg
 1/19/2023 3:41:10 PM, ZHG

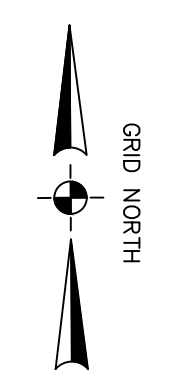
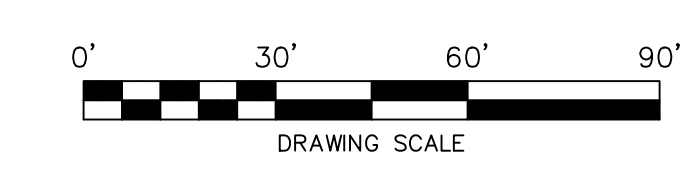
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 1/19/2023 3:41:15 PM, 2d6h



- GRADING AND DRAINAGE NOTES:**
- ALL PROPOSED STORM DRAIN INLETS, FRAMES AND GRATES SHALL BE H20 TRAFFIC RATED.
 - CONTRACTOR TO ENSURE A MINIMUM OF 1 FT OF COVER OVER ALL PROPOSED STORM DRAIN PIPES.
 - CONTRACTOR TO ENSURE THAT ALL PROPOSED STORM DRAIN PIPES TO BE INSTALLED UNDER BUILDING DO NOT CONFLICT WITH STRUCTURAL/FOUNDATION DRAWINGS.
 - CONTRACTOR TO ENSURE THAT ALL PROPOSED STORM DRAIN INLETS ARE INSTALLED TO MAINTAIN A MINIMUM OF 18" OF VERTICAL SEPARATION BETWEEN ALL OTHER UTILITIES AT CROSSING LOCATIONS.

DRAWING LEGEND

	EXISTING MAJOR CONTOUR
	EXISTING MINOR CONTOUR
	PROPOSED MAJOR CONTOUR
	PROPOSED MINOR CONTOUR
	PROPERTY LINE
	CONSTRUCTION LIMITS
	PROPOSED STORM DRAINAGE PIPE
	EXISTING TREELINE



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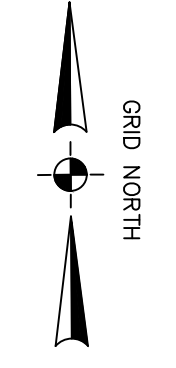
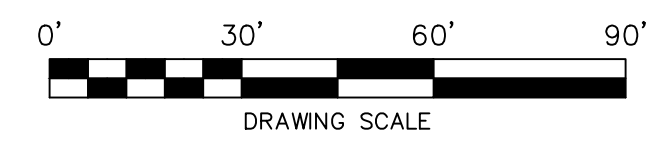
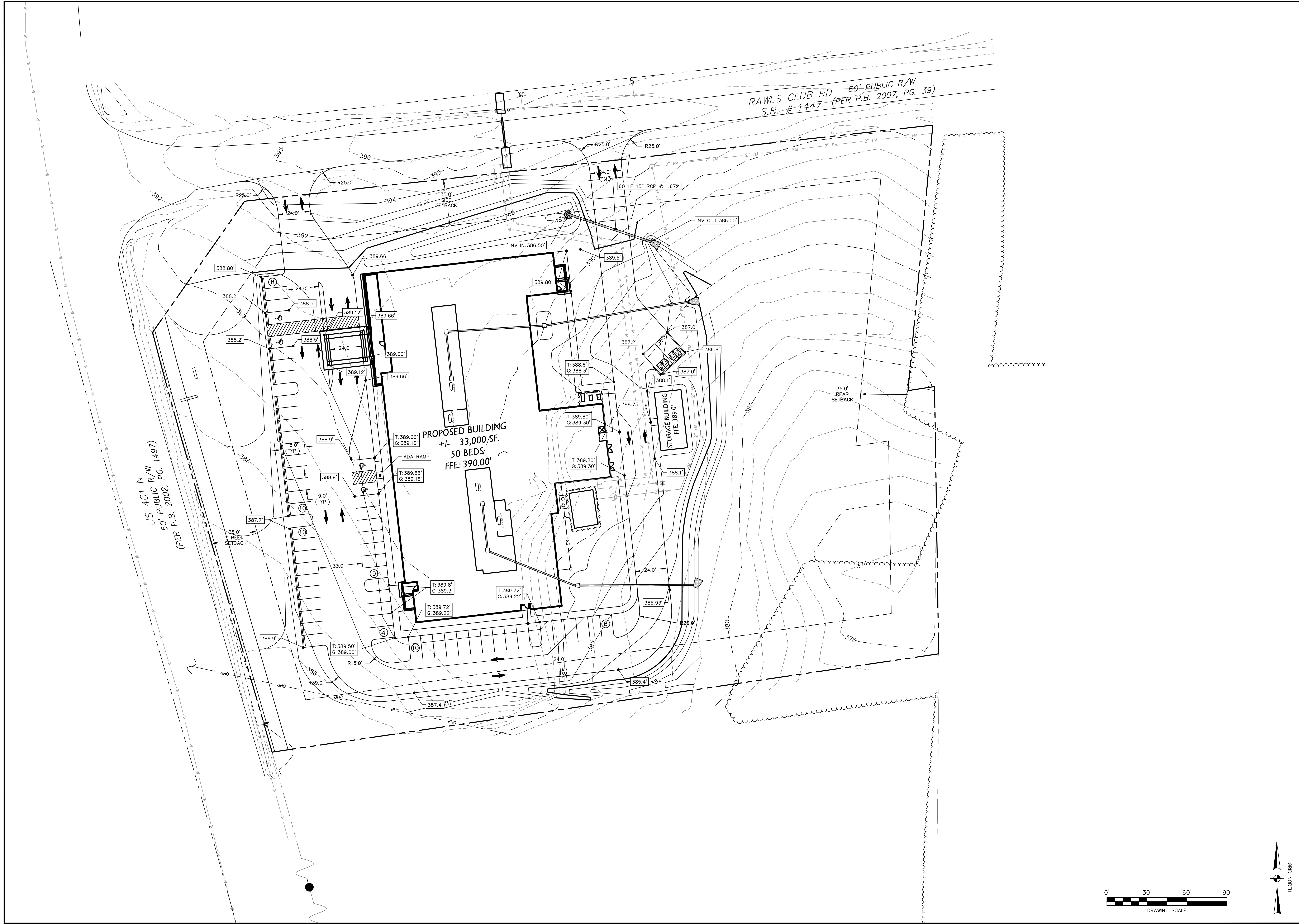
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2	01-04-23	COMMENTS FROM HARNETT COUNTY	DJB
3	01-19-23	COMMENTS FROM HARNETT COUNTY	ZHG

GRADING PLAN
CIVIL CONSTRUCTION DRAWINGS
SENTERS ASSISTED LIVING
 40 RAWLS CLUB RD.
 FUQUAY VARINA - HARNETT COUNTY - NC

Scale:	AS NOTED
Date:	JAN. 2022
Drawn By:	DJB
Checked By:	ZHG
Job No.:	E-1657

C-6

PL-1657 Carolina Commercial Contractors - Assisted Living Facilities - Senters, Fuquay Varina, NC DWG/Civil/Scale-1657 Base G Senters Assisted 2023-01-19.dwg
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No.	Date	Description	By:
1	10-19-22	COMMENTS FROM HARNETT COUNTY	DJB
2	01-04-23	COMMENTS FROM HARNETT COUNTY	DJB
3	01-19-23	COMMENTS FROM HARNETT COUNTY	ZHG

**SPOT ELEVATION PLAN
 CIVIL CONSTRUCTION DRAWINGS
 SENTERS ASSISTED LIVING**
 40 RAWLS CLUB RD.
 FUQUAY VARINA - HARNETT COUNTY - NC

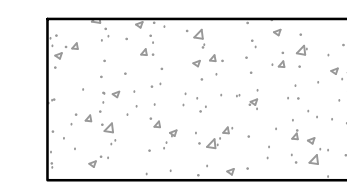
Scale:	AS NOTED
Date:	JAN. 2022
Drawn By:	DJB
Checked By:	ZHG
Job No.:	E-1657
Sheet No.:	C-7

US 401 N
60' PUBLIC R/W
(PER P.B. 2002, PG. 1497)

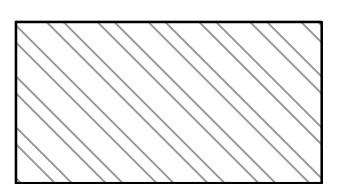
RAWLS CLU
S.R. # 1

PROPOSED BUILDING
+/- 33,000 SF.
50 BEDS
FFE: 390.00'

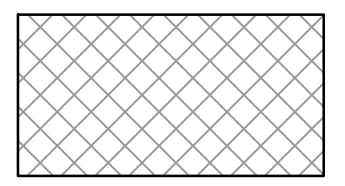
STORAGE BUILDING
FFE: 389.0'



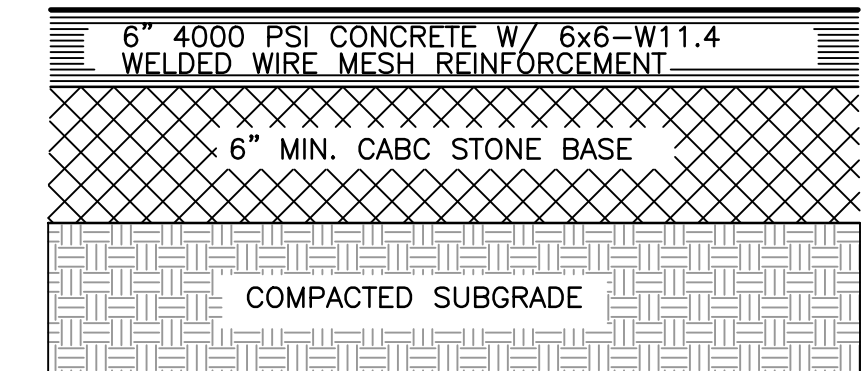
CONCRETE



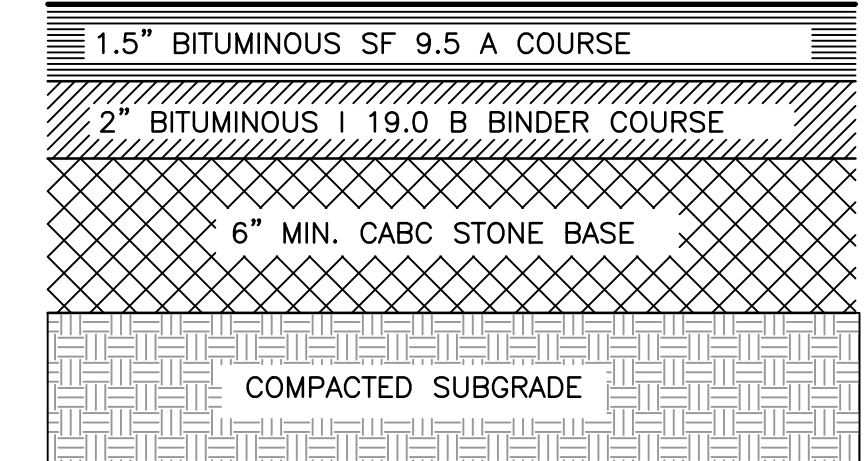
LIGHT DUTY PAVEMENT



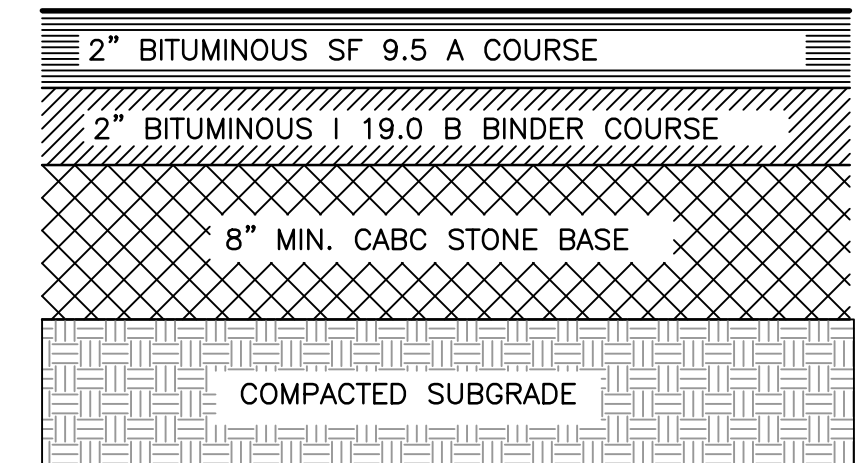
HEAVY DUTY PAVEMENT



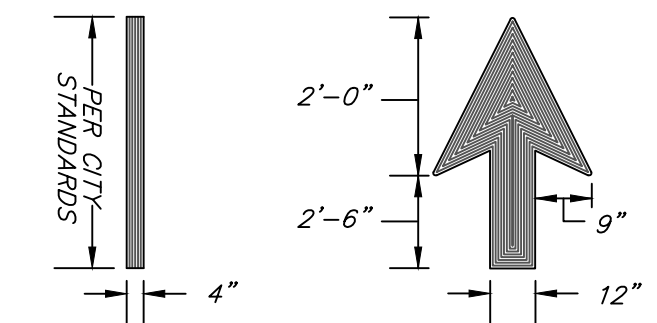
CONCRETE PAVEMENT
NOT TO SCALE



LIGHT DUTY ASPHALT PAVEMENT SECTION
NOT TO SCALE

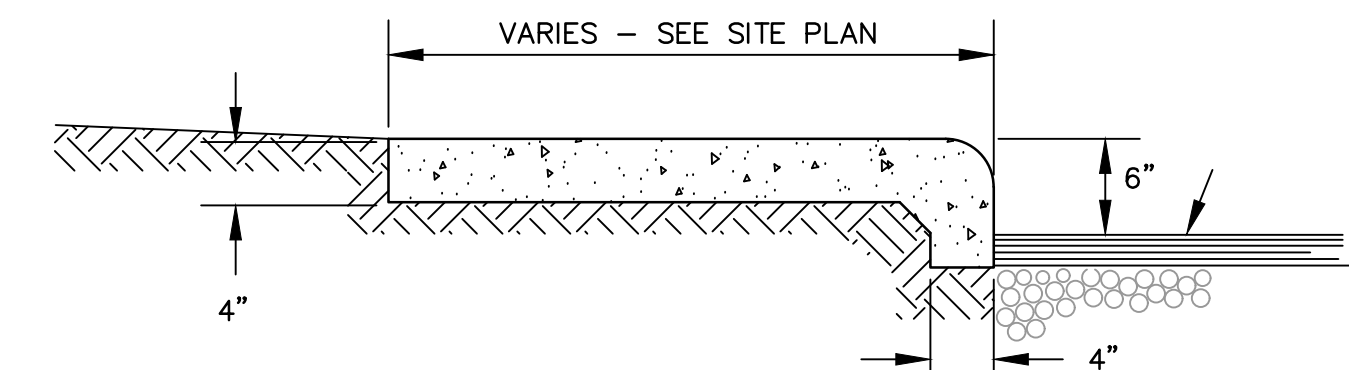


HEAVY DUTY ASPHALT PAVEMENT SECTION
NOT TO SCALE

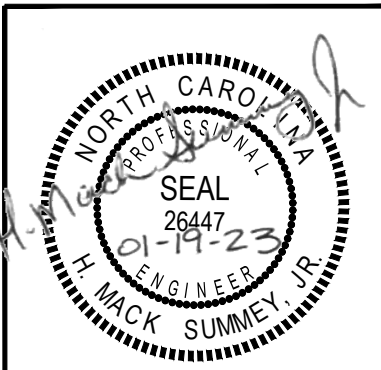
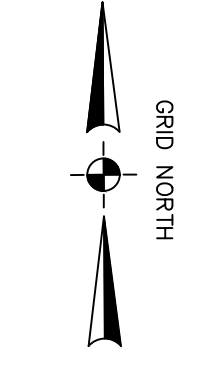
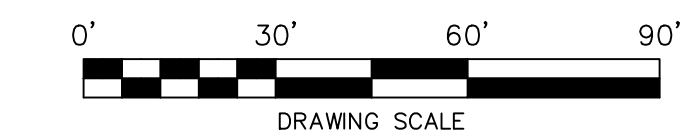


PAVEMENT MARKINGS

1. PAINT SHALL BE PPG TRAFFIC AND ZONE MARKING PAINT, 11 LINE (ALKYD TYPE) AS MANUFACTURED BY PPG INDUSTRIES, OR APPROVED EQUAL.
2. SURFACES SHALL BE FREE OF FATS, OILS, GREASES OR OTHER SUBSTANCES WHICH WOULD PREVENT PROPER BONDING OF PAINT OR WHICH WOULD DAMAGE PAINT. SURFACES SHALL BE FREE OF LOOSE OR LOOSELY ADHERING SUBSTANCES.
3. APPLY IN ACCORDANCE WITH MANUFACTURERS PRINTED INSTRUCTIONS.
4. REMOVE ALL SPLATTER AND PAINT OUTSIDE OF REQUIRED AREAS.
5. INSTALL PARKING STRIPES, TRAFFIC ROUTING LINES AND HANDICAP AS SHOWN ON DRAWINGS.



SIDEWALK @ PAVEMENT DETAIL



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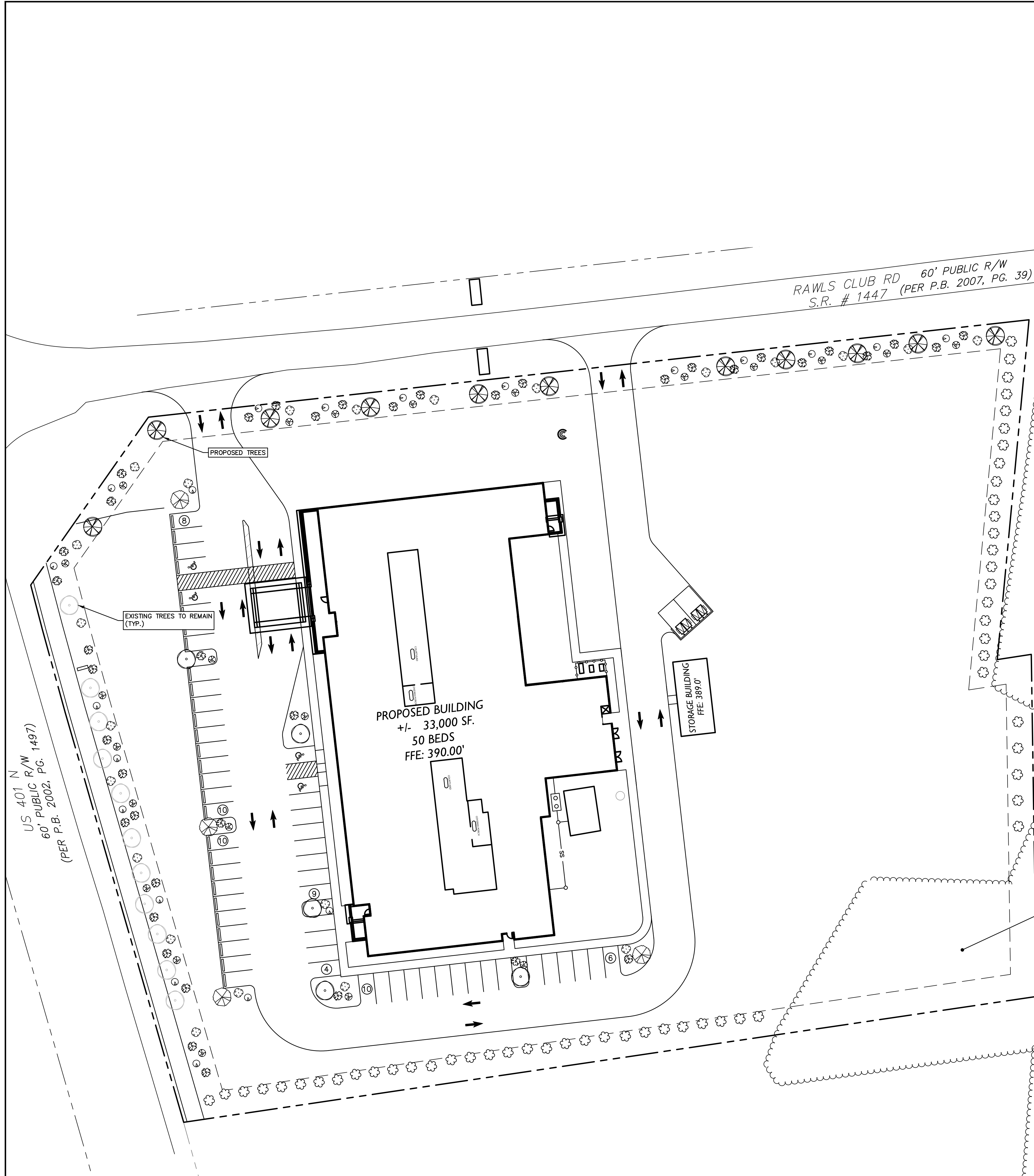
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1	10-19-22	COMMENTS FROM HARNETT COUNTY	DJB
2	01-04-23	COMMENTS FROM HARNETT COUNTY	DJB
3	01-19-23	COMMENTS FROM HARNETT COUNTY	ZHG

PAVING PLAN
CIVIL CONSTRUCTION DRAWINGS
SENTERS ASSISTED LIVING
40 RAWLS CLUB RD.
FUQUAY VARINA - HARNETT COUNTY - NC

Scale:	AS NOTED
Date:	JAN. 2022
Drawn By:	DJB
Checked By:	ZHG
Job No.:	E-1657

Sheet No. C-00

PL-1657 Carolina Commercial Contractors - Assisted Living Facilities - Senters, Fuquay Varina, NC (DWG) Civil Scale: 1/8"=1'-0" 1/19/2023 3:41:30 PM, 24th



SYMBOL	COMMON NAME	BOTANICAL NAME	SIZE CLASSIFICATION	QUANTITY
	WHITE OAK	QUERCUS ALBA	CANOPY 2" CAL.	5
	EXISTING CREPE MYRTLE	LAGERSTROEMIA INDICA 'CATAWBA'	UNDERSTORY 2" CAL.	11
	PROPOSED CREPE MYRTLE	LAGERSTROEMIA INDICA 'CATAWBA'	UNDERSTORY 2" CAL.	11
	EASTERN REDBUD	CERCIS CANADENSIS	2" CAL.	4
	COMMON BOXWOOD	BUXUS SEMPERVIRENS	SHRUB 3 gal	55
	PIEDMONT AZALEA	RHODODENDRON CANESCENS	SHRUB 3 gal	20
	GLOSSY ABELIA	ABELIA GRANDIFLORA	SHRUB 3 gal	22
	LANDSCAPE ROSES	ROSA SPP.	SHRUB 3 gal	40
	JAPANESE HOLLY	ILEX CRENATA	SHRUB 1 gal	22

MULCHED AREAS TO BE PINE BARK MULCH

STEETYARD/LANDSCAPE BUFFER DATA

15' WIDE STEETYARD TO HAVE: 5 SHRUBS PER MATURE TREE REQUIRED

WEST BOUNDARY (STREET YARD)
420 LF/50=8 MATURE TREES
8X5 = 40 SHRUBS

NORTH BOUNDARY (STREET YARD)
496 LF/ 50 = 10 MATURE TREES
10X5= 50 SHRUBS

EAST BOUNDARY (TYPE A BUFFER YARD)
200 LF DEVELOPED LENGTH
A ROW OF EVERGREEN SHRUBS PLACED NOT MORE THAN 4 TO 6 FEET APART WHICH WILL GROW TO FORM A CONTINUOUS HEDGE AT LEAST 6 FEET IN HEIGHT WITHIN 2 YEARS OF PLANTING.

EXISTING VEGETATION TO REMAIN, PLANT REQUIRED TREES IN THE GAP WHERE THERE ARE NO TREES.

SOUTH BOUNDARY (TYPE A BUFFER YARD)
345 LF DEVELOPED LENGTH
A ROW OF EVERGREEN SHRUBS PLACED NOT MORE THAN 4 TO 6 FEET APART WHICH WILL GROW TO FORM A CONTINUOUS HEDGE AT LEAST 6 FEET IN HEIGHT WITHIN 2 YEARS OF PLANTING.

EXISTING VEGETATION TO REMAIN, PLANT REQUIRED TREES IN THE GAP WHERE THERE ARE NO TREES.

PARKING LOT LANDSCAPING REQUIRED
PARKING LOT AREAS SHALL BE PLANTED WITH 1 TREE AND 2 SHRUBS FOR EVERY 10 PARKING SPACES



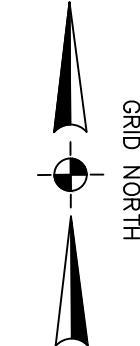
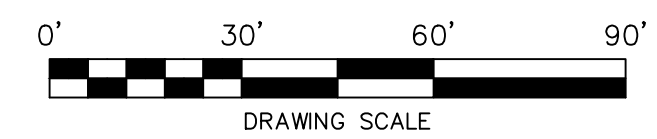
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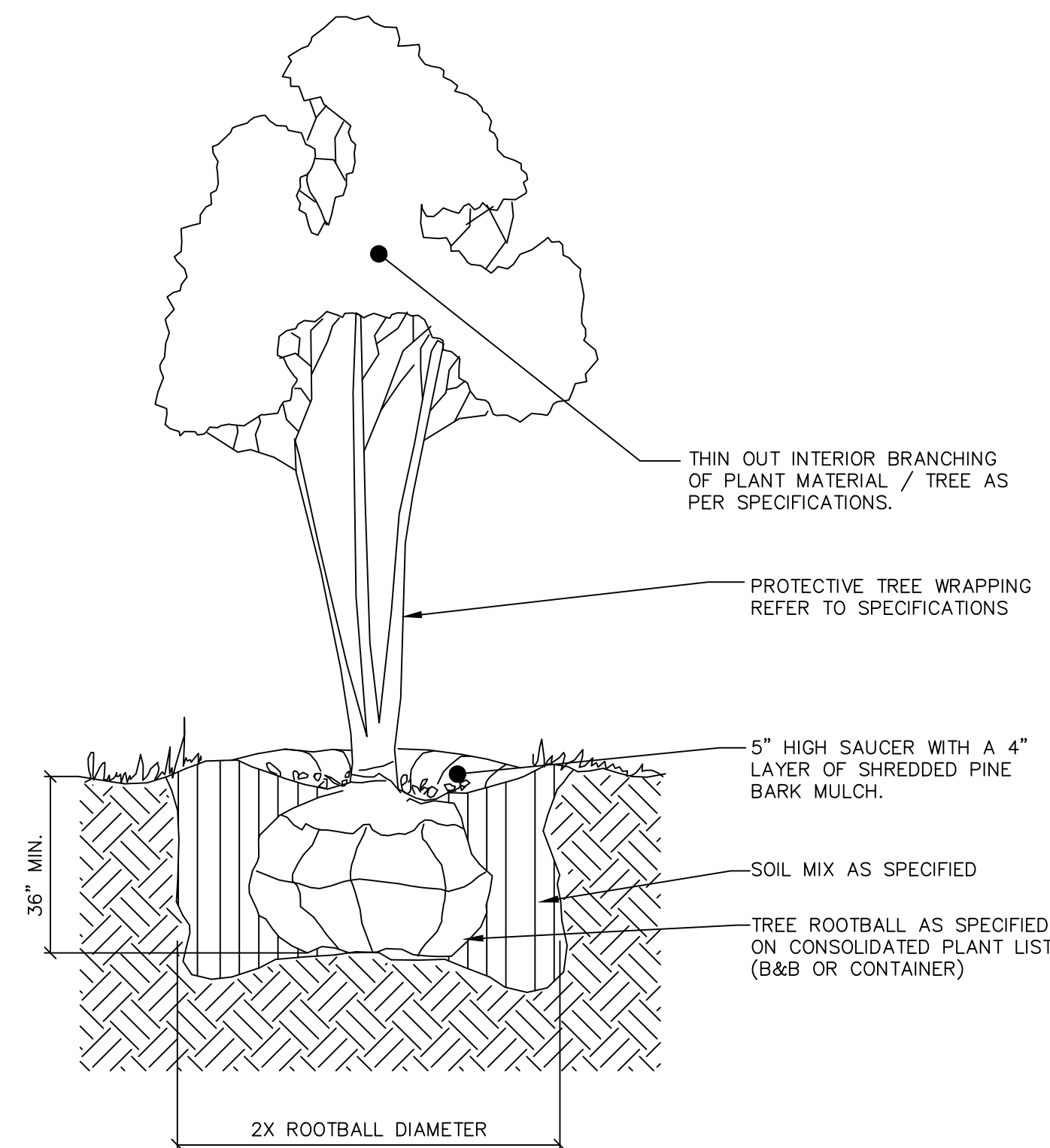
No.	Date	Description	By:
1	10-19-22	COMMENTS FROM HARNETT COUNTY	DJB
2	01-04-23	COMMENTS FROM HARNETT COUNTY	DJB
3	01-19-23	COMMENTS FROM HARNETT COUNTY	ZHG

LANDSCAPE PLAN
CIVIL CONSTRUCTION DRAWINGS
SENTERS ASSISTED LIVING
40 RAWLS CLUB RD.
FUQUAY VARINA - HARNETT COUNTY - NC

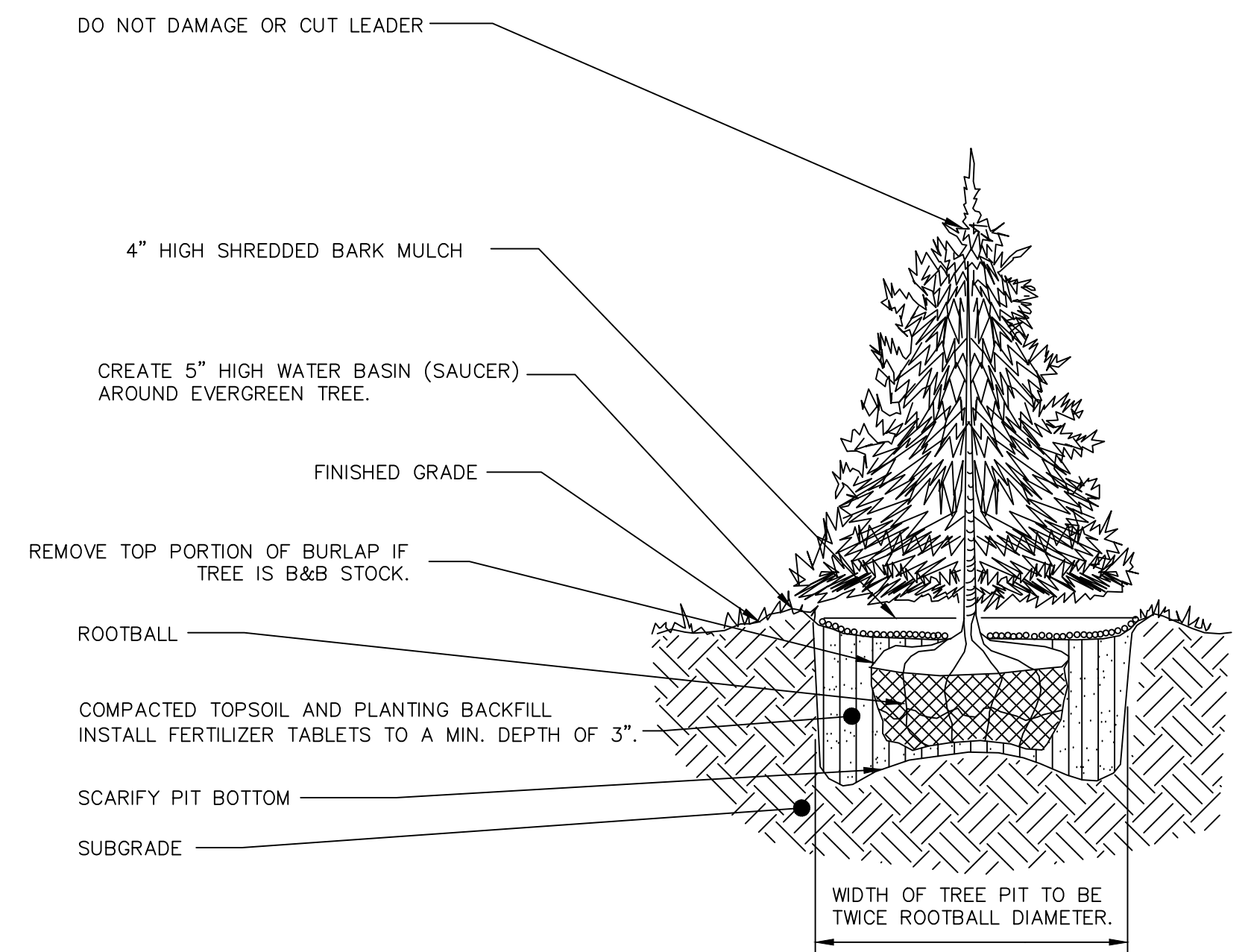
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Checked By:	ZHG
Job No.:	E-7657

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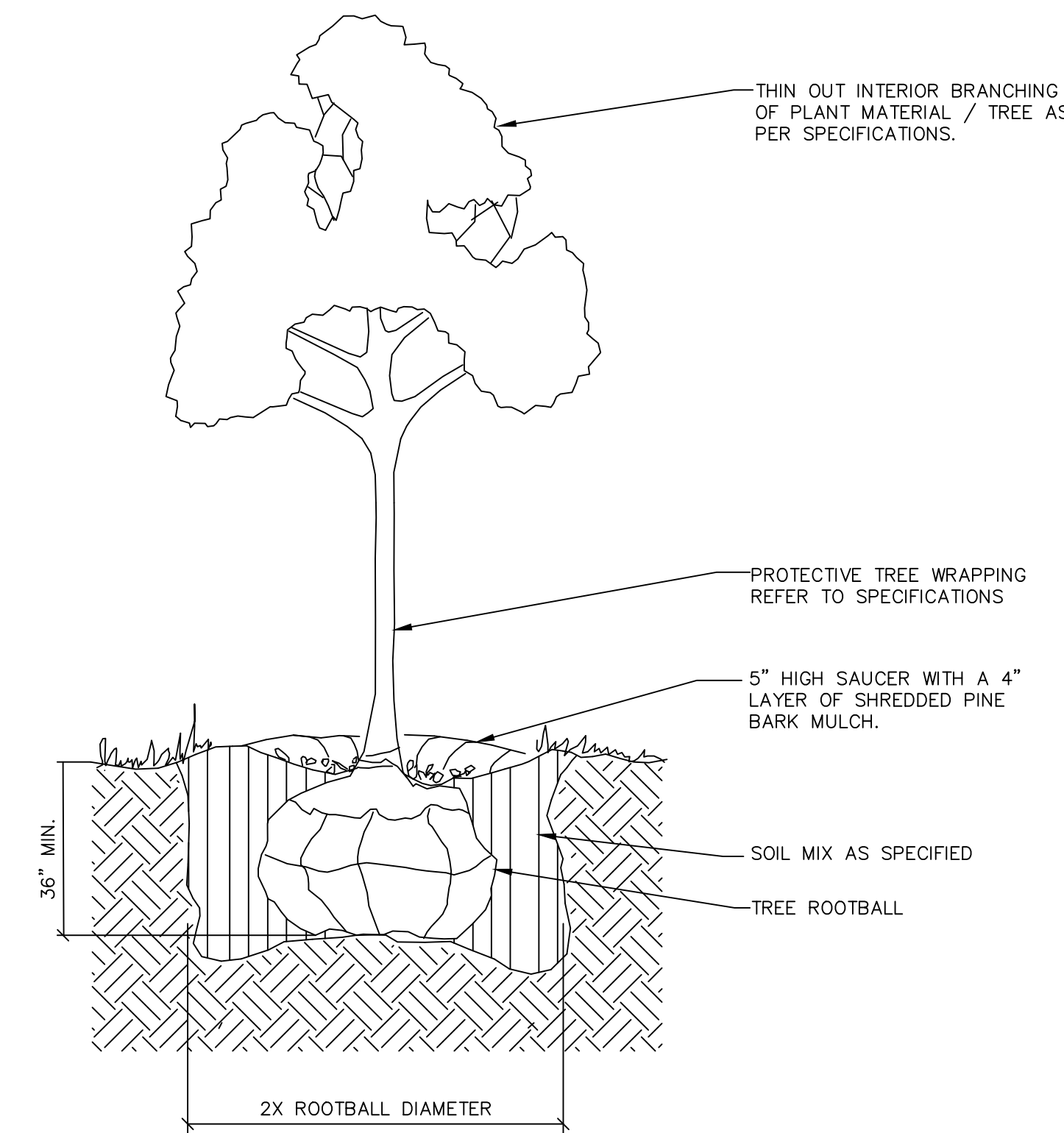


MULTI-TRUNK TREE PLANTING
N.T.S.



NOTE: 1. DO NOT ALLOW AIR POCKETS TO FORM WHEN BACKFILLING.
2. POSITION CROWN OF ROOT BALL A MINIMUM OF 8" ABOVE FINISHED GRADE TO ALLOW FOR SETTLING.

EVERGREEN TREE PLANTING
N.T.S.



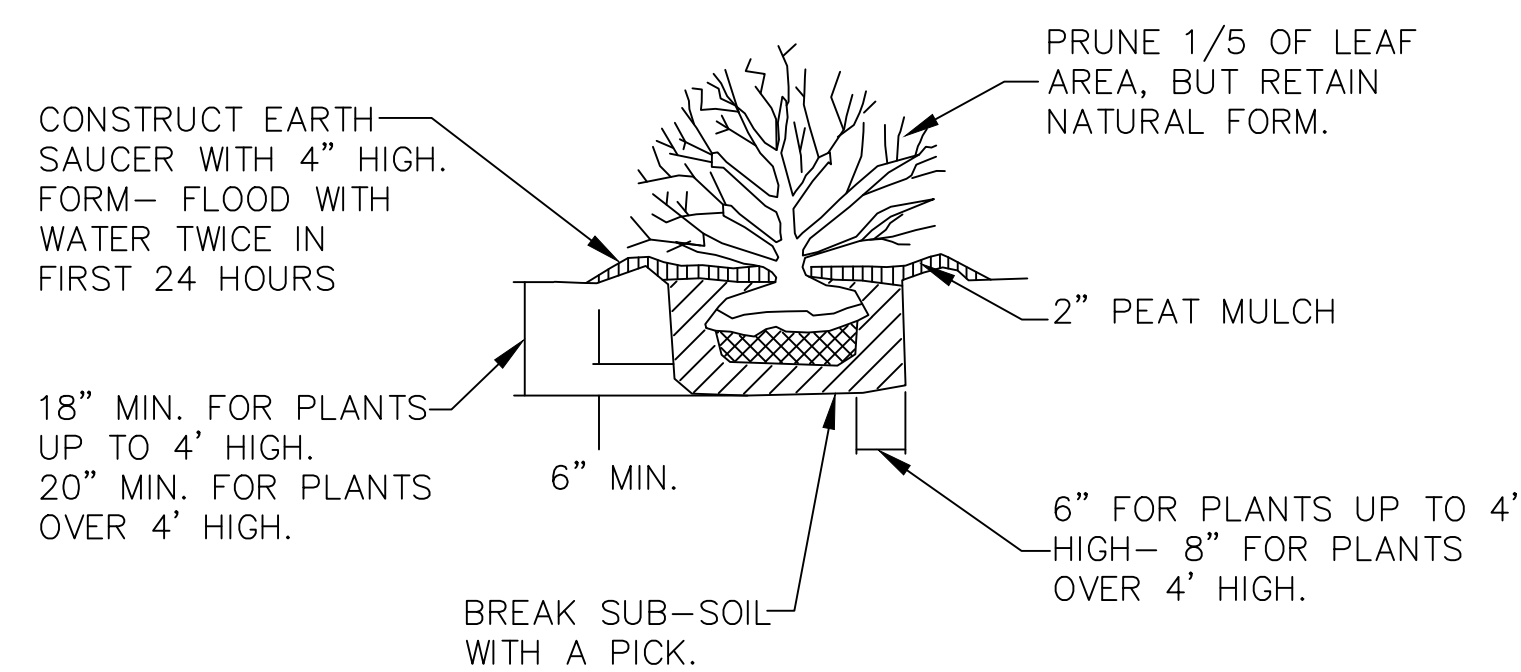
TYPICAL TREE PLANTING
N.T.S.

WATER WISE PLANTING TECHNIQUES:

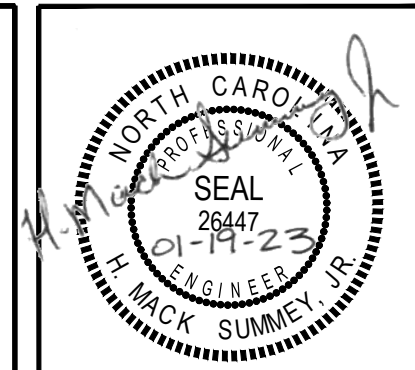
1. SOIL PREPARATION FOR THE ENTIRE LANDSCAPE YARD INCLUDES THE ADDITION OF ORGANIC AMENDMENTS TILLED TO A DEPTH OF EIGHT (8) TO TWELVE (12) INCHES.
2. ALL PLANTINGS IN THE LANDSCAPE YARDS SHALL BE MULCHED, INCLUDING INTERIOR PARKING LOT ISLANDS LESS THAN FIVE HUNDRED (500) SQUARE FEET TO A DEPTH OF THREE (3) TO FOUR (4) INCHES. THE MULCH SHALL BE FREE OF TRASH AND MAINTAINED WEED FREE THEREAFTER.
3. EARTHEN BASINS SHALL BE CONSTRUCTED AROUND THE INSTALLED PLANTS.
4. PLANTS, AS PERMITTED BY THIS ORDINANCE, ARE GROUPED TOGETHER WHERE POSSIBLE.
5. FOR ESTABLISHMENT AND SURVIVAL, PLANTS SHALL BE WATERED IN THE FIRST YEAR OF PLANTING.
6. IRRIGATION: IT IS SUGGESTED THAT DRIP IRRIGATION, WHICH INCLUDES DRIP MASTERS, BE USED FOR REQUIRED LANDSCAPING PLANTING BEDS DURING THE REQUIRED ESTABLISHMENT PERIOD. AFTER ESTABLISHMENT, SUPPLEMENTAL WATERING CAN BE REDUCED AND USED ON AN AS NEEDED BASIS. TRADITIONAL SPRAY IRRIGATION IS PROHIBITED EXCEPT ON TURF AREAS.

LANDSCAPE NOTES

1. THE LANDSCAPE CONTRACTOR SHALL MAKE HIMSELF AWARE OF EXISTING UTILITIES. HE SHALL NOTIFY THE RESPECTIVE PUBLIC UTILITIES PRIOR TO BEGINNING CONSTRUCTION.
2. PLANTING BEDS AND PLANT LOCATIONS SHALL BE STAKED BY THE CONTRACTOR AND APPROVED BY THE OWNER OR OWNER'S REPRESENTATIVE PRIOR TO INSTALLATION.
3. PLANTING BEDS SHALL BE CLEARED OF ALL GRASS AND WEEDS PRIOR TO INSTALLATION OF PLANTS, AND SHALL BE CULTIVATED AS SHOWN ON THE PLANTING DETAILS.
4. ALL DISTURBED AREAS TO BE SEEDED UNLESS OTHERWISE NOTED.
5. PLANTING BEDS SHALL HAVE 4" SHREDDED HARDWOOD BARK MULCH IN ENTIRE BED UNLESS OTHERWISE NOTED ON DRAWINGS.
6. ALL PLANTED AREAS SHALL BE TREATED WITH A WATER-SOLUBLE HERBICIDE FOR THE NON-SELECTIVE CONTROL OF ANNUAL AND PERENNIAL WEEDS PRIOR TO PLANTING.
7. ALL TREE AND SHRUB PITS SHALL BE BACKFILLED WITH A PLANTING SOIL MIXTURE OF 1 PART PEAT MOSS, 3 PARTS TOP SOIL AND 1 PART SAND, THOROUGHLY MIXED.
8. ALL PLANTED AREAS TO BE FERTILIZED WITH GRANULAR FERTILIZER. CONTRACTOR TO PROVIDE SOIL TEST AND FERTILIZER APPLICATION RATES IF REQUIRED FOR APPROVAL.
9. SPRAY TREES AND SHRUBS WITH AN ANTI-DESICCANT IF FOLIAGE IS PRESENT.
10. EVERGREEN TREES AND SHRUBS SHALL BE PLANTED THE SAME AS DECIDUOUS MATERIAL.
11. DO NOT PRUNE ANY MATERIAL UNTIL IT HAS BEEN VIEWED AND ACCEPTED BY THE OWNER OR OWNER'S REPRESENTATIVE.
12. ALL PLANT MATERIAL TO BE NURSERY GROWN AND TO COMPLY WITH AMERICAN STANDARD FOR NURSERY STOCK ANSI-Z60-1-1986.
13. ALL MATERIALS INSPECTED AT THE SITE AND FOUND NOT TO BE ACCEPTABLE SHALL BE REMOVED FROM THE SITE ON THE DAY OF REJECTION.
14. IMMEDIATELY AFTER A TREE IS PLANTED, IT SHOULD BE SUPPORTED WITH STAKES AND GUY WIRES TO FIRMLY HOLD IT IN PLACE. (SEE DETAIL-THIS SHEET) REMOVE STAKES AND TIES AFTER ONE YEAR.
15. THE LOWER TRUNKS OF NEW TREES SHOULD BE WRAPPED WITH BURLAP OR PAPER TO PREVENT EVAPORATION AND SUN SCALD. THE WRAPPING SHALL REMAIN ON THE TREE AT LEAST ONE YEAR.
16. PLANT ALL TREES AT LEAST 3 1/2 FEET FROM THE END OF HEAD-ON PARKING SPACES TO PREVENT DAMAGE FROM CAR OVERHANG.



SHRUB PLANTING DETAIL
N.T.S.



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No.	Date	Description	By:
1	10-19-22	COMMENTS FROM HARNETT COUNTY	DJB
2	01-04-23	COMMENTS FROM HARNETT COUNTY	DJB
3	01-19-23	COMMENTS FROM HARNETT COUNTY	ZHG

LANDSCAPE DETAILS
CIVIL CONSTRUCTION DRAWINGS
SENTERS ASSISTED LIVING
40 RAWLS CLUB RD.
FUQUAY VARINA - HARNETT COUNTY - NC

Scale:	AS NOTED
Date:	JAN. 2022
Drawn By:	DJB
Checked By:	ZHG
Job No.:	E-1657

Sheet No. C-10

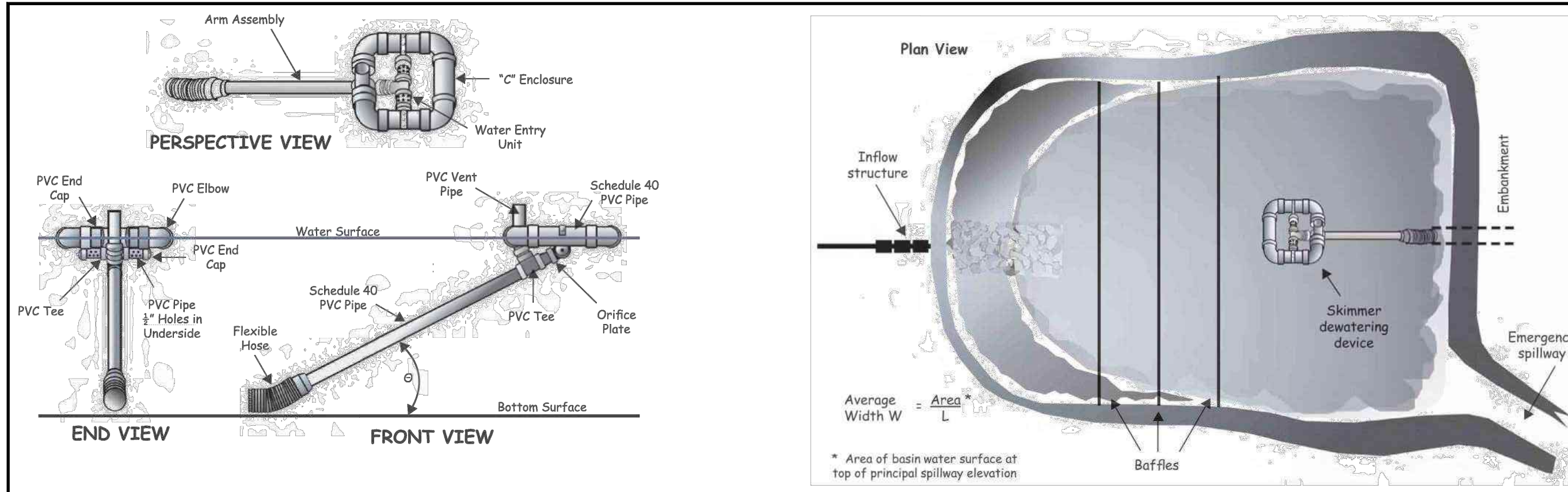
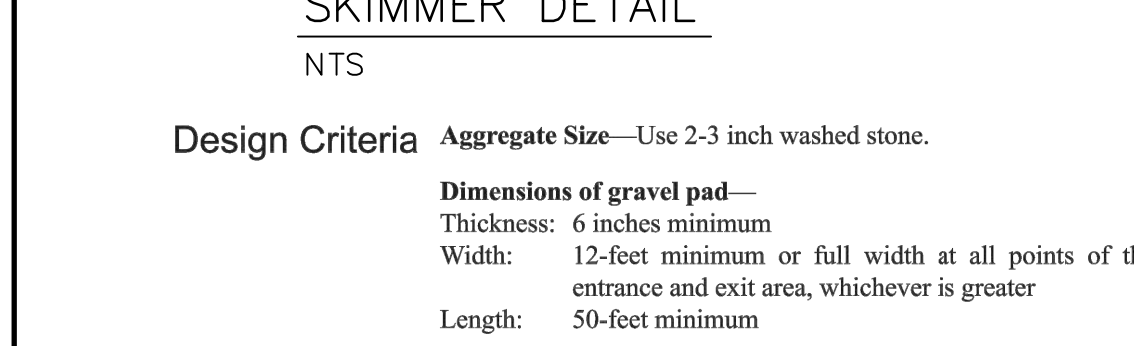
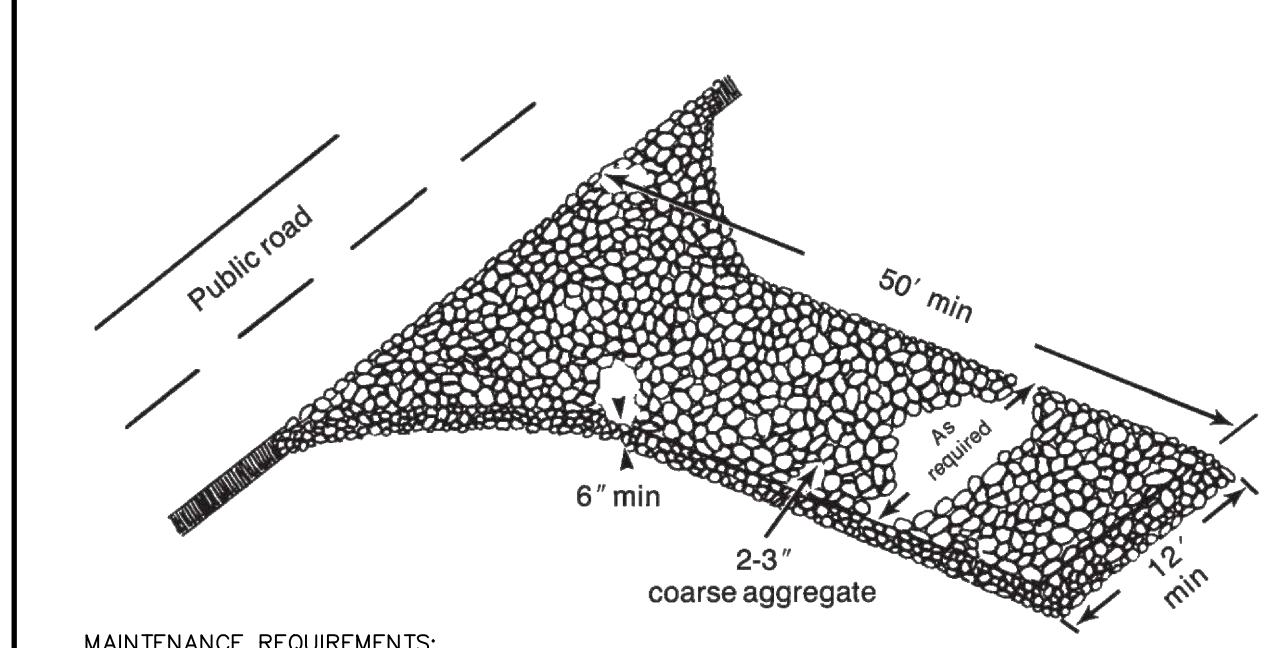


Figure 6.64a Schematic of a skimmer, from Pennsylvania Erosion and Sediment Pollution Control Manual, March, 2000.

SEE CALCULATIONS FOR SKIMMER SIZE
SKIMMERS TO BE FAIRCLOTH SKIMMERS OR APPROVED EQUAL.
** A ROPE ACCESSIBLE FROM THE TOP OF DAM IS REQUIRED TO BE ATTACHED TO THE SKIMMER FOR MAINTENANCE

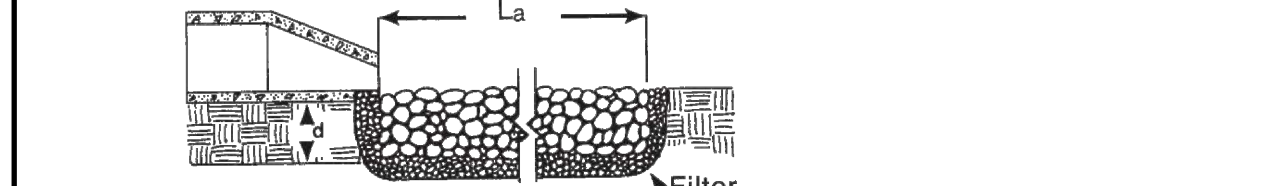
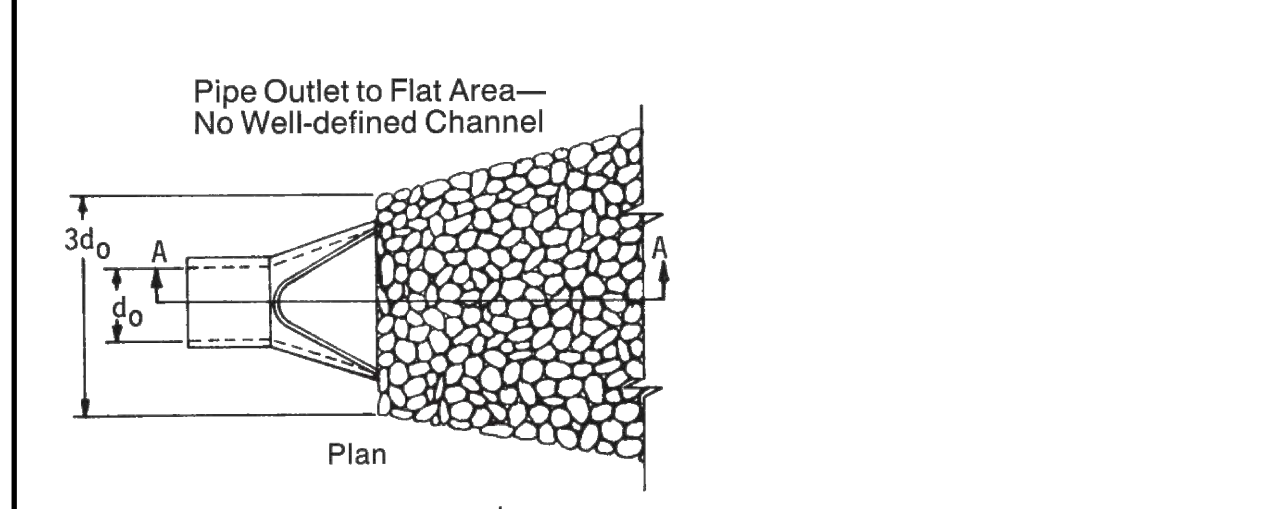


DESIGN CRITERIA
Aggregate Size—Use 2-3 inch washed stone.
Dimensions of gravel pad—Thickness: 6 inches minimum
Width: 12-foot minimum or full width at all points of the vehicular entrance and exit area, whichever is greater
Length: 50-foot minimum
Location—Locate construction entrances and exits to limit sediment from leaving the site and to provide for maximum utility by all construction vehicles (Figure 6.06a). Avoid steep grades, and entrances at curves in public roads.



MAINTENANCE REQUIREMENTS:
1. 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 STRUCTURE USED TO TRAP SEDIMENT AND CLEAN IT OUT AS NECESSARY. IMMEDIATELY REMOVE ALL OBJECTIONABLE MATERIALS SPILLED, WASHED, OR TRACKED ONTO PUBLIC ROADWAYS.
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 A 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.

TEMPORARY CONSTRUCTION ENTRANCE
NTS



Notes
1. La is the length of the riprap apron.
2. d = 1.5 times the maximum stone diameter but not less than 6".
3. In a well-defined channel extend the apron up the channel banks to an elevation of 6" above the maximum tailwater depth or to the top of the bank, whichever is less.
4. A filter blanket or filter fabric should be installed between the riprap and soil foundation.

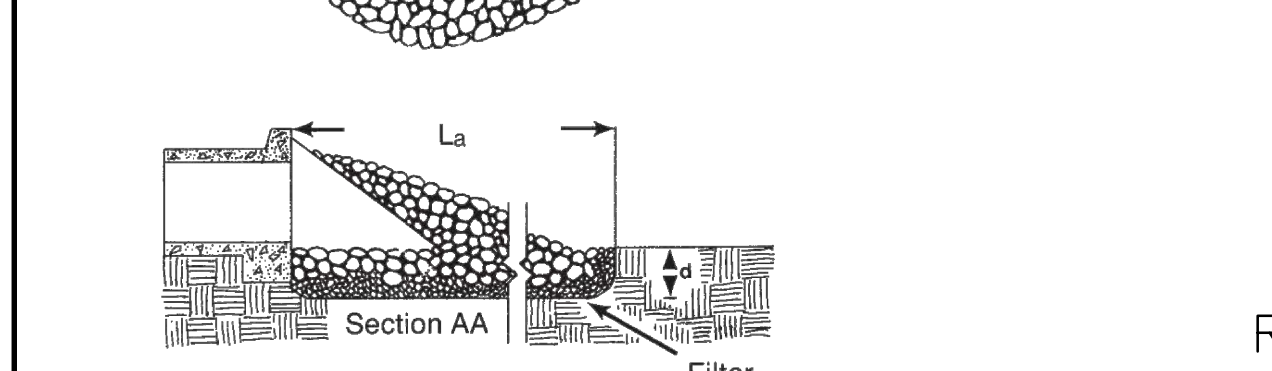


Figure 6.41c Riprap outlet protection (modified from Va SWCC).

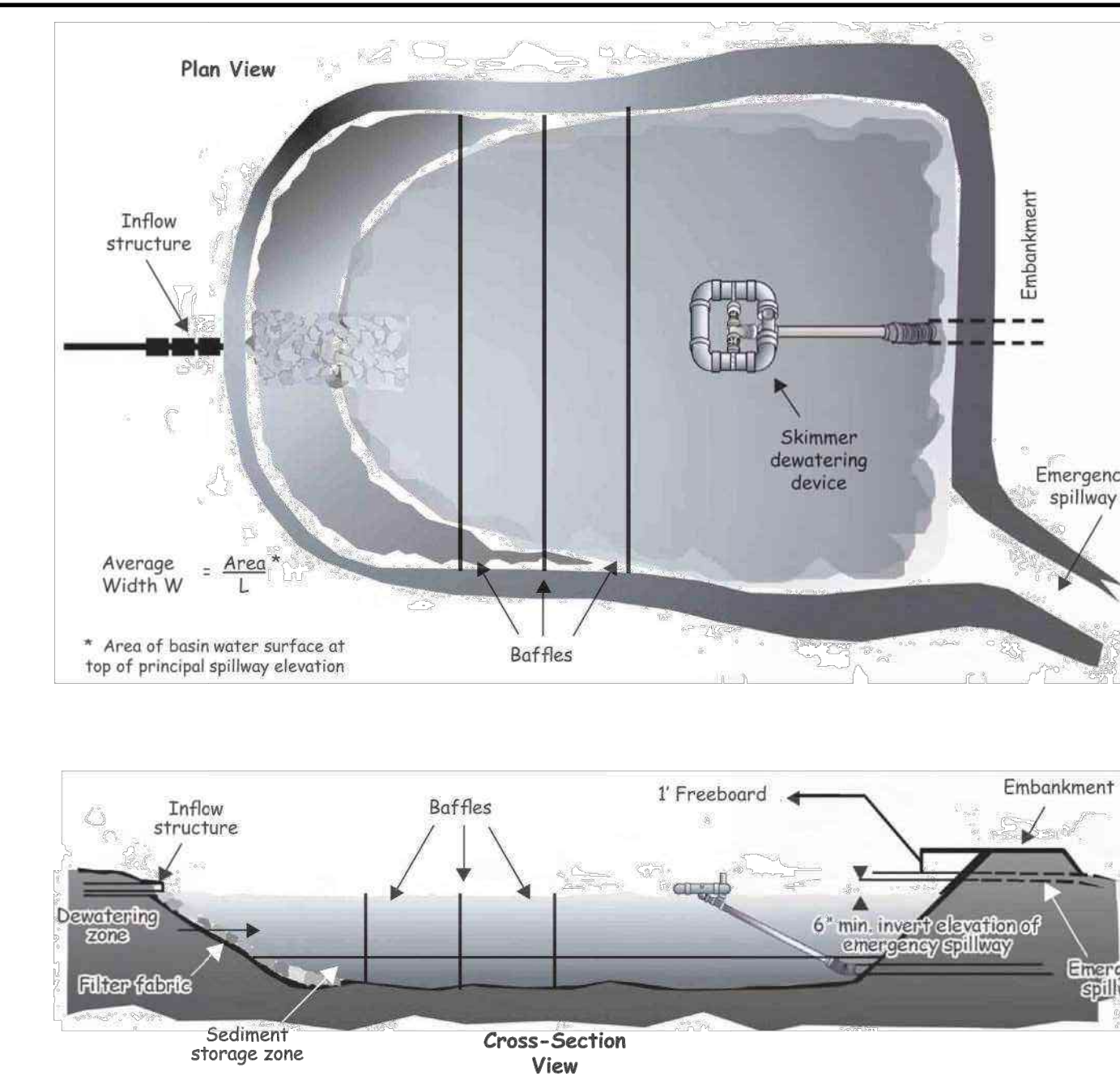


Figure 6.64c Example of a sediment basin with a skimmer outlet and emergency spillway. From Pennsylvania Erosion and Sediment Pollution Control Manual, March, 2000.

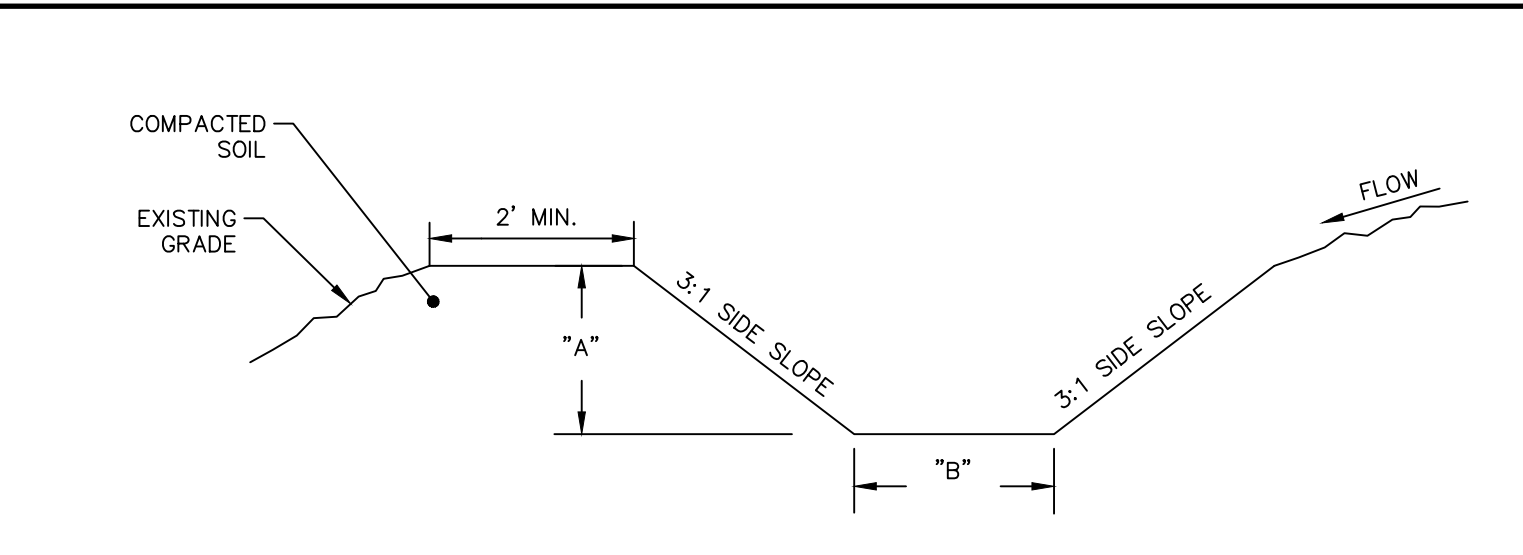
CONSTRUCTION SPECIFICATIONS
1. CLEAR, GRUB, AND STRIP THE AREA UNDER THE EMBANKMENT OF ALL VEGETATION AND ROOT MAT. REMOVE ALL SURFACE SOIL CONTAINING HIGH AMOUNTS OF ORGANIC MATTER AND STOCKPILE OR DISPOSE OF IT PROPERLY. HAUL ALL OBJECTIONABLE MATERIAL TO THE DESIGNATED DISPOSAL AREA. PLACE TEMPORARY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

MAINTENANCE
INSPECT SKIMMER SEDIMENT BASINS AT LEAST WEEKLY AND AFTER EACH SIGNIFICANT RAINFALL (ONE-HALF INCH OR GREATER) EVENT AND REPAIR IMMEDIATELY. REMOVE SEDIMENT AND RESTORE THE BASIN TO ITS ORIGINAL DIMENSIONS WHEN SEDIMENT ACCUMULATES TO ONE-HALF THE HEIGHT OF THE FIRST BAFFLE. PULL THE SKIMMER TO ONE SIDE SO THAT THE SEDIMENT UNDERNEATH IT CAN BE EXCAVATED. EXCAVATE THE SEDIMENT FROM THE ENTIRE BASIN, NOT JUST AROUND THE SKIMMER OR THE FIRST CELL. MAKE SURE VEGETATION GROWING IN THE BOTTOM OF THE BASIN DOES NOT HOLD DOWN THE SKIMMER.
REPAIR THE BAFFLES IF THEY ARE DAMAGED. RE-ANCHOR THE BAFFLES IF WATER IS FLOWING UNDERNEATH OR AROUND THEM.
IF THE SKIMMER IS CLOGGED WITH TRASH AND THERE IS WATER IN THE BASIN, USUALLY JERKING ON THE ROPE WILL MAKE THE SKIMMER BOB UP AND DOWN AND DISLodge THE DEBRIS AND RESTORE THE SKIMMER TO ONE SIDE SO THAT THE SKIMMER OVER TO THE SIDE OF THE BASIN AND REMOVE THE DEBRIS. ALSO CHECK THE ORIFICE INSIDE THE SKIMMER TO SEE IF IT IS CLOGGED; IF SO REMOVE THE DEBRIS.
IF THE SKIMMER ARM OR BARREL PIPE IS CLOGGED, THE ORIFICE CAN BE REMOVED AN THE OBSTRUCTION CLEARED WITH A PLUMBERS SNAKE OR BY FLUSHING WITH WATER. BE SURE AND REPLACE THE ORIFICE BEFORE REPOSITIONING THE SKIMMER.
CHECK THE FABRIC LINED SPILLWAY FOR DAMAGE AND MAKE ANY REQUIRED REPAIRS WITH FABRIC THAT SPANS THE FULL WIDTH OF THE SPILLWAY. CHECK THE EMBANKMENT, SPILLWAYS, AND OUTLET FOR EROSION DAMAGE. AND INSPECT THE EMBANKMENT FOR PIPING AND SETTLEMENT. MAKE ALL NECESSARY REPAIRS IMMEDIATELY. REMOVE ALL TRASH AND OTHER DEBRIS FROM THE SKIMMER AND POOL AREAS.
FREEZING WEATHER CAN RESULT IN ICE FORMING IN THE BASIN. SOME SPECIAL PRECAUTIONS SHOULD BE TAKEN IN THE WINTER TO PREVENT THE SKIMMER FROM PLUGGING WITH ICE.

SEDIMENT BASIN DETAIL
NTS

MAINTENANCE REQUIREMENTS:
INSPECT RIPRAP OUTLET STRUCTURES WEEKLY AND AFTER SIGNIFICANT (1/2 INCH OR GREATER) RAINFALL EVENTS TO SEE IF ANY EROSION AROUND OR BELOW THE RIPRAP HAS TAKEN PLACE, OR IF STONES HAVE BEEN DISLODGED. IMMEDIATELY MAKE ALL NEEDED REPAIRS TO PREVENT FURTHER DAMAGE.
CONSTRUCTION SPECIFICATIONS:
1. ENSURE THAT THE SUBGRADE FOR THE FILTER AND RIPRAP FOLLOWS THE REQUIRED LINES AND GRADES SHOWN IN THE PLANS. THE FILL REQUIRED TO BE PLACED TO THE DENSITY OF THE SURROUNDING UNDISTURBED MATERIAL. AREAS IN THE SUBGRADE ON UNDISTURBED SOIL MAY ALSO BE FILLED BY INCREASING THE RIPRAP THICKNESS.
2. THE RIPRAP AND GRAVEL FILTER MUST CONFORM TO THE SPECIFIED GRADING LIMITS SHOWN ON THE PLANS.
3. THE FILTER CLOTH, WHEN USED, MUST MEET DESIGN REQUIREMENTS AND BE PROPERLY PROTECTED FROM PUNCHING OR TEARING DURING INSTALLATION. REPAIR ANY DAMAGE BY REMOVING THE RIPRAP AND PLACING ANOTHER PIECE OF FILTER CLOTH OVER THE DAMAGED AREA. ALL CONNECTING JOINTS SHOULD OVERLAP SO THE TOP LAYER IS ABOVE THE DOWNSTREAM LAYER A MINIMUM OF 1 FOOT. IF THE DAMAGE IS EXTENSIVE, REPLACE THE ENTIRE FILTER CLOTH.
4. RIPRAP MAY BE PLACED BY EQUIPMENT, BUT TAKE CARE TO AVOID DAMAGING THE FILTER.
5. THE MINIMUM THICKNESS OF THE RIPRAP SHOULD BE 1.5 TIMES THE MAXIMUM STONE DIAMETER.
6. RIPRAP MAY BE FIELD STONE OR ROUGH QUARRY STONE. IT SHOULD BE HARD, ANGULAR, HIGHLY WEATHER-RESISTANT AND WELL GRADED.
7. CONSTRUCT THE APRON ON ZERO GRADE WITH NO OVERFALL AT THE END. MAKE THE TOP OF THE RIPRAP AT THE DOWNSTREAM END LEVEL WITH THE RECEIVING AREA OR SLIGHTLY BELOW IT.
8. ENSURE THAT THE APRON IS PROPERLY ALIGNED WITH THE RECEIVING STREAM AND PREFERABLY STRAIGHT THROUGHOUT ITS LENGTH. IF A CURVE IS NEEDED TO FIT SITE CONDITIONS, PLACE IT IN THE UPPER SECTION OF THE APRON. IF A CURVE IS NEEDED TO FIT SITE CONDITIONS, IMMEDIATELY AFTER CONSTRUCTION, STABILIZE ALL DISTURBED AREAS WITH VEGETATION (PRACTICES 6.10, TEMPORARY SEEDING, AND 6.11, PERMANENT SEEDING).

RIP-RAP OUTLET PROTECTION
NTS



CONSTRUCTION SPECIFICATIONS
1. REMOVE AND PROPERLY DISPOSE OF ALL TREES, BRUSH, STUMPS, AND OTHER OBJECTIONABLE MATERIAL. IMMEDIATELY REMOVE SEDIMENT FROM THE FLOW AREA AND REPAIR THE DIVERSION RIDGE. CAREFULLY CHECK OUTLETS AND MAKE TIMELY REPAIRS AS NEEDED. WHEN THE AREA PROTECTED IS PERMANENTLY STABILIZED, REMOVE THE RIDGE AND THE CHANNEL TO BLEND WITH THE NATURAL GROUND LEVEL AND APPROPRIATELY STABILIZE IT.
MAINTENANCE
INSPECT TEMPORARY DIVERSIONS ONCE A WEEK AND AFTER EVERY RAINFALL. IMMEDIATELY REMOVE SEDIMENT FROM THE FLOW AREA AND REPAIR THE DIVERSION RIDGE. CAREFULLY CHECK OUTLETS AND MAKE TIMELY REPAIRS AS NEEDED. WHEN THE AREA PROTECTED IS PERMANENTLY STABILIZED, REMOVE THE RIDGE AND THE CHANNEL TO BLEND WITH THE NATURAL GROUND LEVEL AND APPROPRIATELY STABILIZE IT.

DESCRIPTION	"A" FT	"B" FT	LINER
PERM. DIVERSION A	2	2	STRAW MATTING—N.A.G. S150 OR EQ.
TEMP. DIVERSION B	2	2	STRAW MATTING—N.A.G. S150 OR EQ.
TEMP. DIVERSION C	2	2	STRAW MATTING—N.A.G. S150 OR EQ.
TEMP. DIVERSION D	2	2	STRAW MATTING—N.A.G. S150 OR EQ.

DIVERSION DITCH DETAIL
NTS

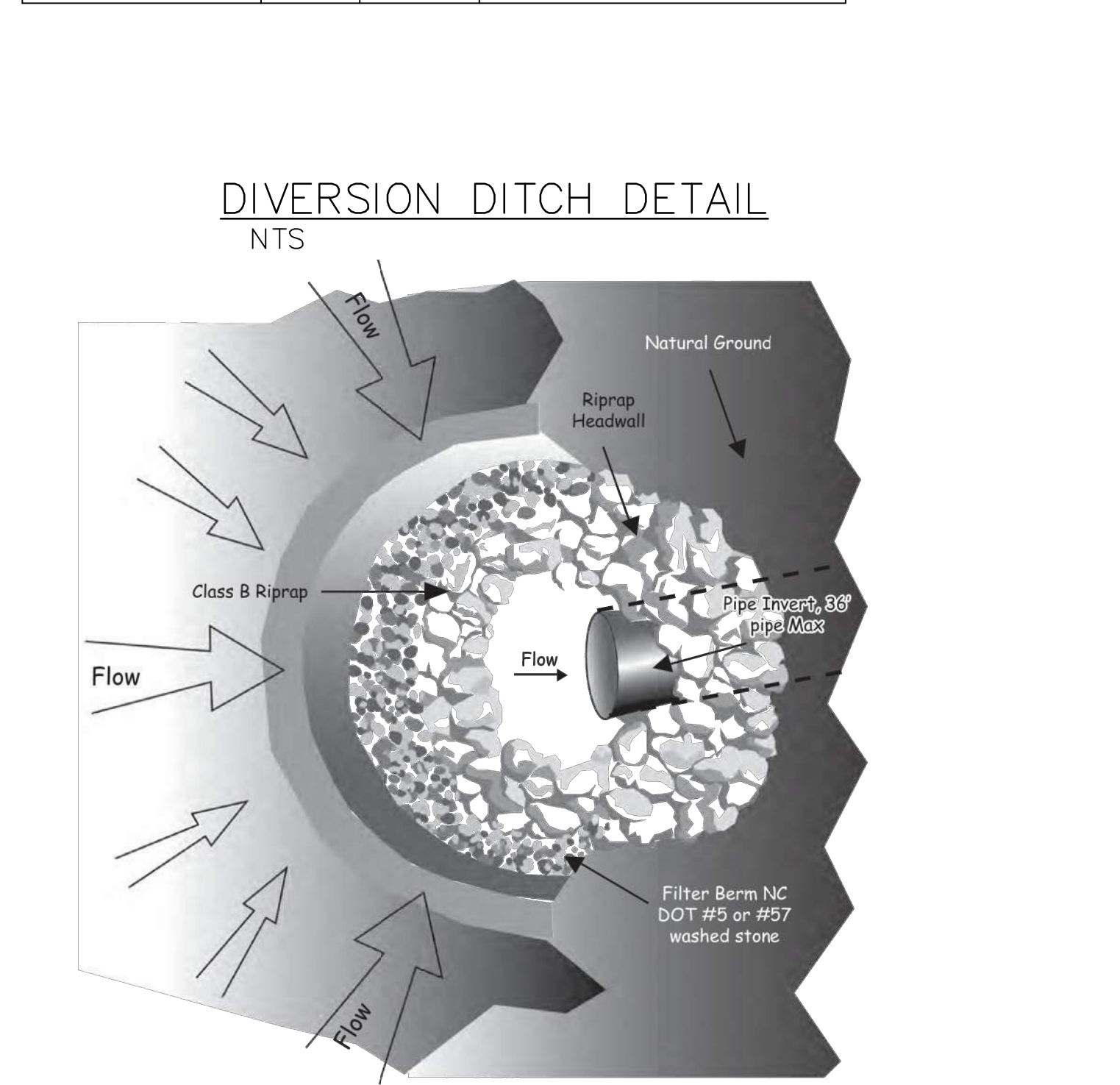


Figure 6.55a Rock pipe inlet protection plan view and cross-section view

MAINTENANCE REQUIREMENTS:
INSPECT ROCK PIPE INLET PROTECTION AT LEAST WEEKLY AND AFTER EACH SIGNIFICANT (1/2 INCH OR GREATER) RAINFALL EVENT AND REPAIR IMMEDIATELY. REMOVE SEDIMENT AND RESTORE THE SEDIMENT STORAGE AREA TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO ONE-HALF THE DESIGN DEPTH OF THE TRAP. PLACE THE SEDIMENT PART OF THE GRAVEL FACING.
CHECK THE STRUCTURE FOR DAMAGE. ANY RIPRAP DISPLACED FROM THE STONE HORSESHOE MUST BE REPLACED IMMEDIATELY.
AFTER ALL THE SEDIMENT-PRODUCING AREAS HAVE BEEN PERMANENTLY STABILIZED, REMOVE THE STRUCTURE AND ALL THE UNSTABLE SEDIMENT. SMOOTH THE AREA TO BLEND WITH THE ADJOINING AREAS AND PROVIDE PERMANENT GROUND COVER (SURFACE STABILIZATION).
CONSTRUCTION SPECIFICATIONS:
1. CLEAR THE AREA OF ALL DEBRIS THAT MIGHT HINDER EXCAVATION AND DISPOSAL OF SOIL.
2. INSTALL THE CLASS B OR CLASS 1 RIPRAP IN A SEMI-CIRCLE AROUND THE PIPE INLET. THE STONE SHOULD BE BUILT UP HIGHER ON EACH END WHERE IT TIES INTO THE EMBANKMENT. THE MINIMUM CREST WIDTH OF THE RIPRAP SHOULD BE 3 FEET, WITH A MINIMUM BOTTOM WIDTH OF 11 FEET. THE MINIMUM HEIGHT SHOULD BE 2 FEET, BUT ALSO 1 FOOT LOWER THAN THE SHOULDER OF THE EMBANKMENT OR DIVERSIONS.
3. A 1 FOOT THICK LAYER OF NC DOT #5 OR #57 STONE SHOULD BE PLACED ON THE OUTSIDE SLOPE OF THE RIPRAP.
4. THE SEDIMENT STORAGE AREA SHOULD BE EXCAVATED AROUND THE OUTSIDE OF THE STONE HORSESHOE 18 INCHES BELOW NATURAL GRADE.
5. WHEN THE CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED, FILL DEPRESSION AND ESTABLISH FINAL GRADING ELEVATIONS. COMPACT AREA PROPERLY, AND STABILIZE WITH GROUND COVER.

HORSESHOE INLET PROTECTION
NTS

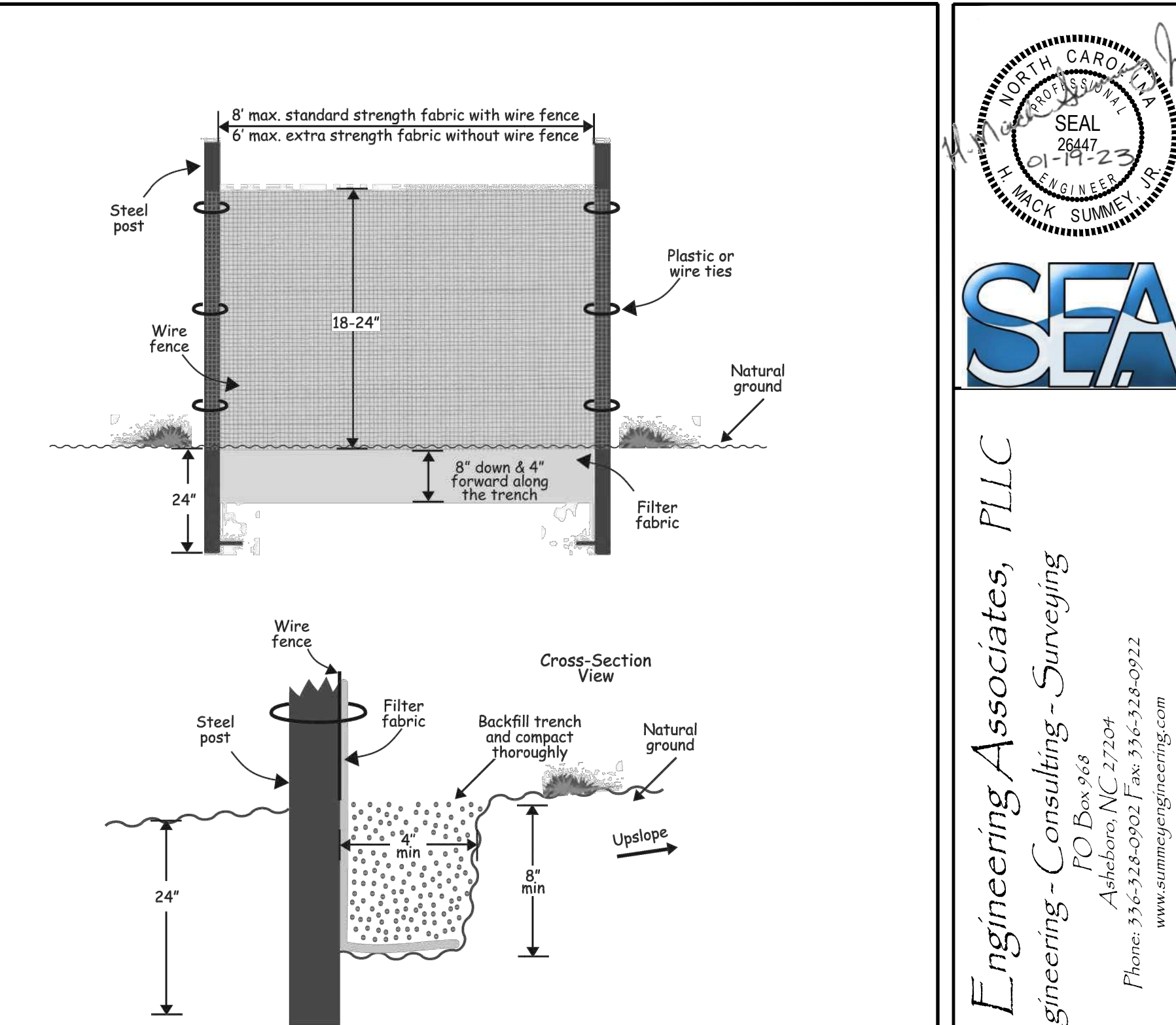


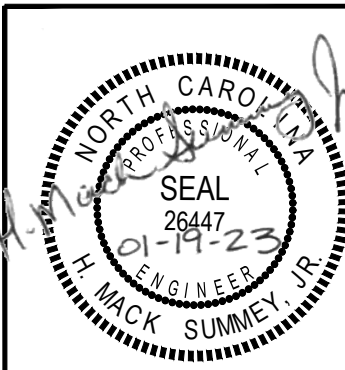
Figure 6.62a Installation detail of a sediment fence.

MAINTENANCE REQUIREMENTS:
— 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 MATERIAL AND UNSTABLE SEDIMENT DEPOSITS AND BRING THE AREA TO GRADE AND STABILIZE IT AFTER THE CONTRIBUTING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.

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 ACCUMULATE 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 THE 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 DOES 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.
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 THE 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 COMPACTING.
9. COMPACTING 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 LEAST 60 POUNDS PER SQUARE INCH. COMPACT THE UPSLOPE SIDE FIRST, AND THE EACH SIDE TWICE FOR TOTAL OF 4 TRIPS.

TEMPORARY SILT FENCE
NTS



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By:	DJB	ZHG
Description:	COMMENTS FROM HARNETT COUNTY	COMMENTS FROM HARNETT COUNTY
Date:	10-19-22	01-04-23
No:	1	2

Scale:	Date:	Drawn By:	Checked By:	Job No.:
AS NOTED	JAN. 2022	DJB	ZHG	E-1657

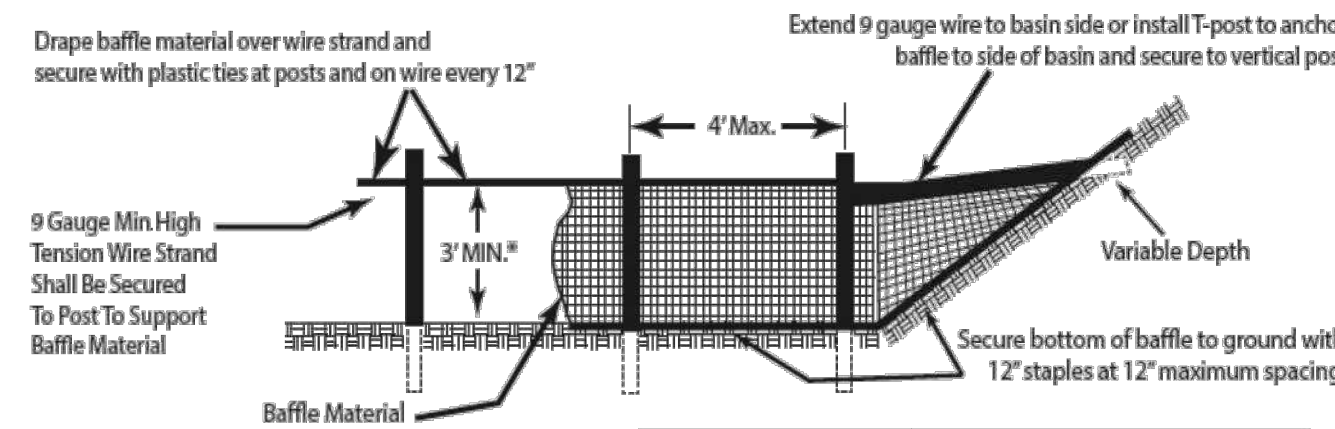
EROSION CONTROL DETAILS
CIVIL CONSTRUCTION DRAWINGS
SENTERS ASSISTED LIVING
40 RAWLS CLUB RD.
FUQUAY VARINA - HARNETT COUNTY - NC

Sheet No. C-11

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Baffles need to be installed correctly in order to fully provide their benefits. Refer to Figure 6.65b and the following key points:

- The baffle material needs to be secured at the bottom and sides using staples.
- Most of the sediment will accumulate in the first bay, so this should be readily accessible for maintenance.



* If the temporary sediment basin will be converted to a permanent stormwater basin of greater depth, the baffle height should be based on the pool depth during use as a temporary sediment basin.

Note: Install three (3) coir fiber baffles in basins at drainage outlets with a spacing of 1/4 the basin length. Two (2) coir fiber baffles can be installed in the basins less than 20 ft. in length with a spacing of 1/3 the basin length.

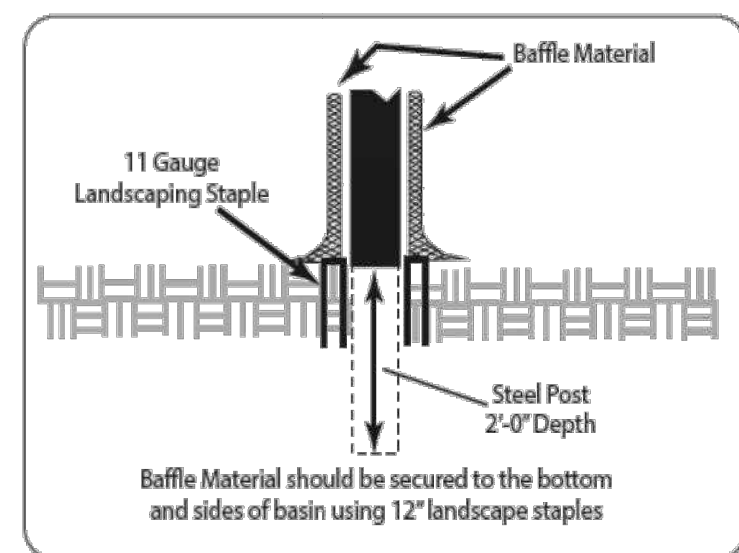


Figure 6.65b Coir Fiber Baffle Detail
Cross section of a porous baffle in a sediment basin.

- MAINTENANCE REQUIREMENTS:**
- INSPECT BAFFLES AT LEAST ONCE A WEEK AND AFTER EACH RAINFALL. MAKE ANY REQUIRED REPAIRS IMMEDIATELY. BE SURE TO MAINTAIN ACCESS TO THE BAFFLES. SHOULD THE FABRIC OF A BAFFLE COLLAPSE, TEAR, DECOMPOSE, OR BECOME INEFFECTIVE, REPLACE IT PROMPTLY.
 - REMOVE SEDIMENT DEPOSITS WHEN IT REACHES HALF FULL, TO PROVIDE ADEQUATE STORAGE VOLUME FOR THE NEXT RAIN AND TO REDUCE PRESSURE ON THE BAFFLES.
 - TAKE CARE TO AVOID DAMAGING THE BAFFLES DURING CLEANOUT, AND REPLACE IF DAMAGED DURING CLEANOUT OPERATIONS. SEDIMENT DEPTH SHOULD NEVER EXCEED HALF THE DESIGNED STORAGE DEPTH.
 - AFTER THE CONTRIBUTING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED, REMOVE ALL BAFFLE MATERIALS AND UNSTABLE SEDIMENT DEPOSITS, BRING THE AREA TO GRADE, AND STABILIZE IT.
- CONSTRUCTION SPECIFICATIONS:**
- GRADE THE BASIN SO THAT THE BOTTOM IS LEVEL FRONT TO BACK AND SIDE TO SIDE.
 - INSTALL THE COIR FIBER BAFFLES IMMEDIATELY UPON EXCAVATION OF THE BASIN.
 - INSTALL POSTS ACROSS THE WIDTH OF THE SEDIMENT TRAP (PRACTICE 6.62, SEDIMENT FENCE).
 - STEEL POSTS SHOULD BE DRIVEN TO A DEPTH OF 24 INCHES AND SPACED A MAXIMUM OF 4 FEET APART. THE TOP OF THE FABRIC SHOULD BE A MINIMUM OF 6 INCHES HIGHER THAN THE INVERT OF THE SPILLWAY. TOPS OF BAFFLES SHOULD BE A MINIMUM OF 2 INCHES LOWER THAN THE TOP OF THE EARTHEN EMBANKMENT.
 - INSTALL AT LEAST THREE ROWS OF BAFFLES BETWEEN THE INLET AND OUTLET DISCHARGE POINT BASINS LESS THAN 20 FEET IN LENGTH MAY USE 2 BAFFLES.
 - ATTACH A 9 GAUGE HIGH TENSION WIRE STRAND TO THE STEEL POSTS AT A HEIGHT OF 6 INCHES ABOVE THE SPILLWAY ELEVATION WITH PLASTIC TIES OR WIRE FASTENERS TO PREVENT SAGGING. IF THE TEMPORARY SEDIMENT BASIN WILL BE CONVERTED TO A PERMANENT STORMWATER BASIN OF A GREATER DEPTH, THE BAFFLE HEIGHT SHOULD BE BASED ON THE POOL DEPTH DURING USE AS A TEMPORARY SEDIMENT BASIN. COIR FIBER BAFFLE MATERIAL PROPERTY REQUIREMENTS: THICKNESS 0.30 IN. MINIMUM TENSILE STRENGTH (WET) 900 X 680 LB/FT MINIMUM ELONGATION (WET) 69% X 34% MAXIMUM FLOW VELOCITY 10-12 FT/SEC WEIGHT 20 OZ/SY (680 G/M²) MINIMUM WIDTH 6.5 FEET OPEN AREA 50% MAXIMUM
 - EXTEND 9 GAUGE MINIMUM HIGH TENSION WIRE STRAND TO SIDE OF BASIN OR INSTALL STEEL T-POSTS TO ANCHOR BAFFLE TO SIDE OF BASIN AND SECURE TO VERTICAL END POSTS AS SHOWN IN FIGURE 6.65B.
 - DRAPE THE COIR FIBER MAT OVER THE WIRE STRAND MOUNTED AT A HEIGHT OF 6 INCHES ABOVE THE SPILLWAY ELEVATION. SECURE THE COIR FIBER MAT TO THE WIRE STRAND WITH PLASTIC TIES OR WIRE FASTENERS. ANCHOR THE MATTING TO THE SIDES AND FLOOR OF THE BASIN WITH 12 INCH WIRE STAPLES, APPROXIMATELY 1 FT APART, ALONG THE BOTTOM AND SIDE SLOPES OF THE BASIN.
 - DO NOT SPLICE THE FABRIC, BUT USE A CONTINUOUS PIECE ACROSS THE BASIN.
 - ADJUSTMENTS MAY BE REQUIRED IN THE STAPLING REQUIREMENTS TO FIT INDIVIDUAL SITE CONDITIONS.

BAFFLE DETAIL
N.T.S.

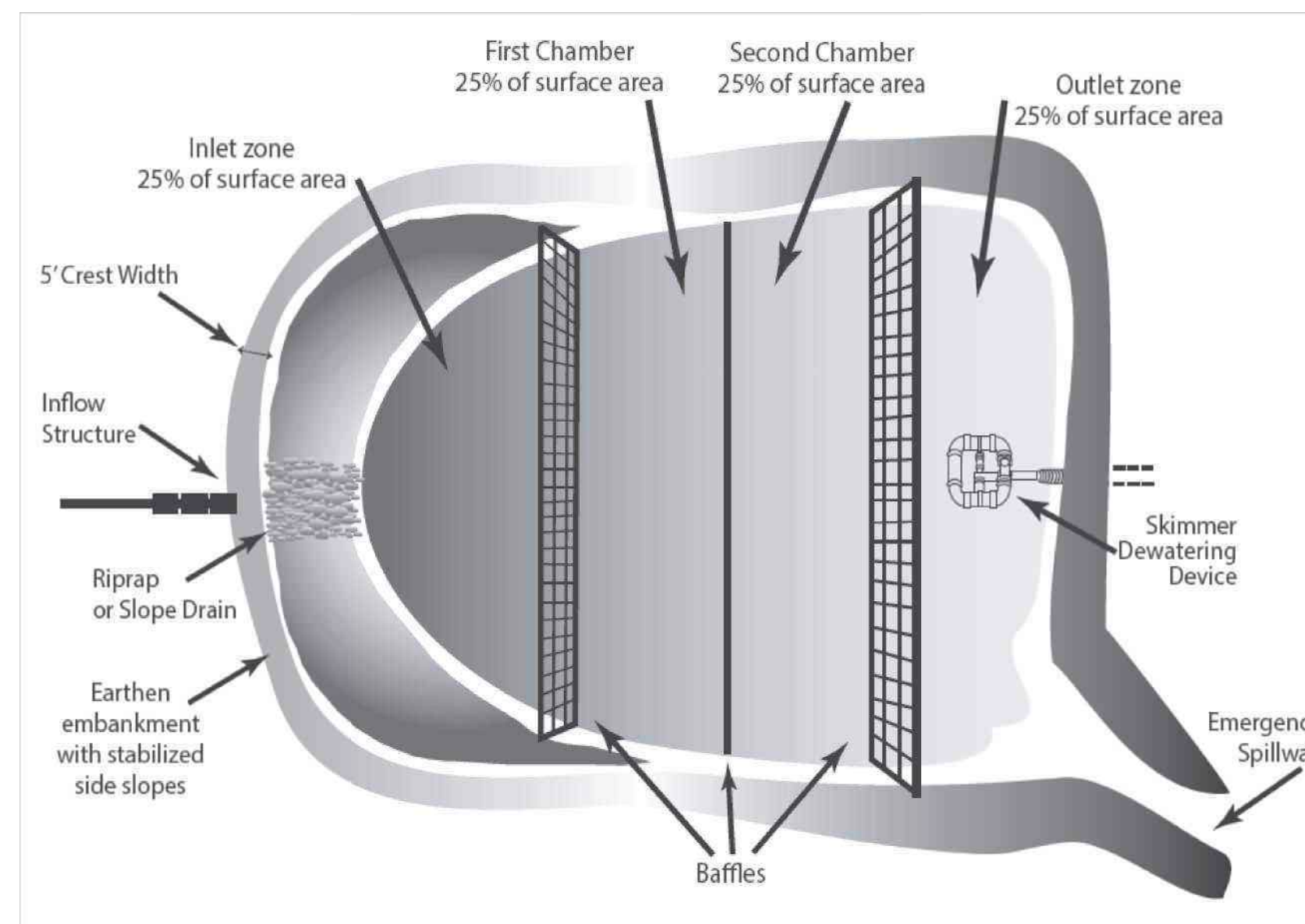
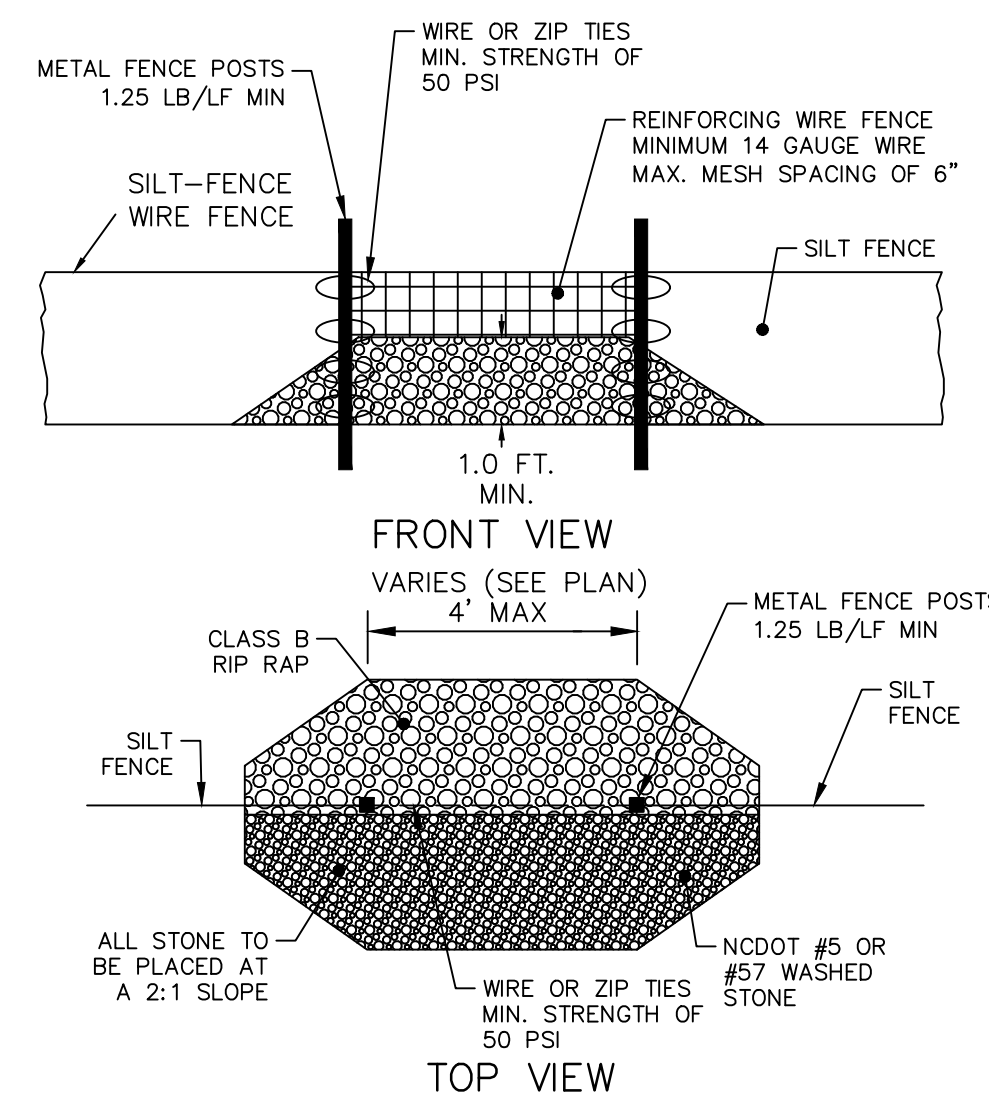


Figure 6.65a Porous baffles in a sediment basin. The flow is distributed evenly across the basin to reduce flow rates and turbulence, resulting in greater sediment retention.

Coir Fiber Baffle Material Property Requirements	
Thickness	0.30 in. minimum
Tensile Strength (Wet)	900 x 680 lb/ft minimum
Elongation (Wet)	69% x 34% maximum
Flow Velocity	10-12 ft/sec
Weight	20 oz/SY (680 g/m ²) minimum
Minimum Width	6.5 feet
Open Area	50% maximum

TEMPORARY SEEDING SPECIFICATIONS PIEDMONT REGION					
Recommended Seeding Dates	Species	Application Rates (lb/ac)			
		Seed	10-10-10 Fertilizer	Agricultural Limestone	Straw
Jan. 1 - May 1	Winter Wheat Annual Lespedeza (Kobe)	120 50	750	2,000	4,000
May 1 - Aug 15	German Millet	40	750	2,000	4,000
Aug 15 - Dec 30	Ryegrain	120	1,000	2,000	4,000



MAINTENANCE REQUIREMENTS:

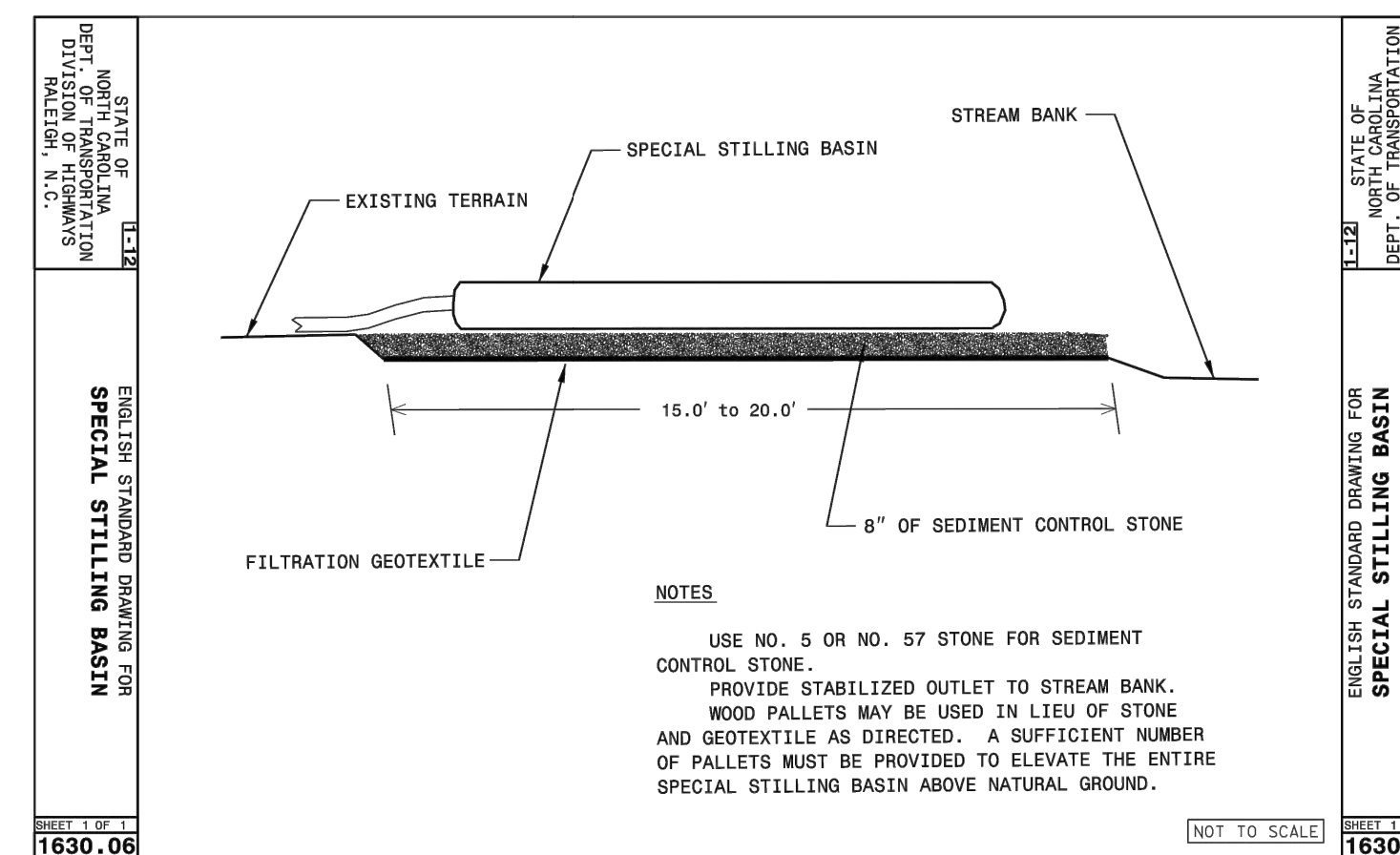
- INSPECT SEDIMENT FENCES AT LEAST ONCE A WEEK AND AFTER EACH RAINFALL. MAKE ANY REQUIRED REPAIRS IMMEDIATELY.
- SHOULD THE FABRIC OF A SEDIMENT FENCE COLLAPSE, TEAR, DECOMPOSE, OR BECOME INEFFECTIVE, REPLACE IT PROMPTLY.
- REMOVE SEDIMENT DEPOSITS AS NECESSARY TO PROVIDE ADEQUATE STORAGE VOLUME FOR THE NEXT RAIN AND TO REDUCE PRESSURE ON THE FENCE. TAKE CARE TO AVOID UNDERMINING THE FENCE DURING CLEANOUT.
- REMOVE ALL FENCING MATERIAL AND UNSTABLE SEDIMENT DEPOSITS AND BRING THE AREA TO GRADE AND STABILIZE IT AFTER THE CONTRIBUTING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.

NOTE:

- REFER TO SILT FENCE DETAIL FOR MORE INFORMATION.

SILT FENCE STONE OUTLET

N.T.S.



MAINTENANCE REQUIREMENTS:
THE SPECIAL STILLING BASIN SHALL BE DISPOSED OF AND REPLACED WHEN IT IS 1/4 FULL OF SEDIMENT OR WHEN IT IS IMPRACTICAL FOR THE BAG TO FILTER THE SEDIMENT OUT AT A REASONABLE FLOW RATE.
THE INLET OF THE BAG SHOULD BE INSPECTED PERIODICALLY FOR DAMAGE AND/OR BLOCKAGE. SEDIMENT CONTROL STONE SHALL BE REPLACED IF DAMAGED BY HIGH FLOWS OR BAG FAILURE.

SPECIAL STILLING BASIN DETAIL
NTS

PERMANENT SEEDING

DEFINITION

Seeding disturbed areas with perennial grasses and (or) legumes to provide a permanent vegetative cover to lessen runoff and soil erosion.

PURPOSE

To lessen soil erosion and permanently stabilize disturbed areas created by grading of construction sites.

CONDITIONS WHERE PRACTICE APPLIES

All bare soil areas on construction sites which are not covered by structures or other erosion control devices.

PREPARATION

Prepare seedbed by ripping, chiseling, harrowing or plowing to depth of six inches so as to produce a loose, friable surface. Remove all stones, boulders, stumps or debris from the surface which would prohibit germination or plant growth. Spread topsoil in a layer 3" - 6" depth.

Incorporate into the soil 800 to 1,000 pounds of 10-10-10 fertilizer plus 500 pounds of twenty percent (20%) superphosphate per acre and two tons of dolomitic lime per acre unless soil tests indicate that a lower rate of lime can be used.

Mulch after seeding with 1.5 tons of grain straw per acre and either crimp straw into soil or tack with liquid asphalt at 400 gallons per acre or emulsified asphalt at 300 gallons per acre.

PLANTS & MIXTURE

PLANTING RATE/ACRE

PLANTING DATES

Tall Fescue (Low Maintenance)	100-150 lbs.	Aug. 15 - Oct. 15 Feb. 15 - May 1
Tall fescue Waterways and Lawns (High Maint.)	200-250 lbs.	Aug. 15 - Oct. 15 Feb. 15 - May 1
Blend of two turf- type tall Fescues (90%) and two or more improved Kentucky bluegrass varieties (10%) (high maintenance)	200-250 lbs.	Aug. 15 - Oct. 15 Feb. 15 - May 1
Tall Fescue and Kobe or Korean Lespedeza	100 lbs. and 20-25 lbs.	Feb. 15 - May 1 Aug. 15 - Oct. 15
Tall Fescue	50 lbs./acre	Nov. 1 - Feb. 1 (Unscarified)
Tall Fescue and German Millet or Sudangrass 2	60 lbs. and 30 lbs.	July and August
Tall Fescue and Ryegrain 2	70 lbs. and 25 lbs.	Nov. 1 - Jan. 30

1 For spring seedings, use Scarified Lespedeza seed. For late fall and winter seedings, use unscarified seed.

2 Annuals such as Millet, Sudangrass and Ryegrain must be kept at 10-12" maximum height.

PERMANENT GROUND COVER

Permanent groundcover is to be provided for all disturbed areas within 15 working days or 30 calendar days (whichever is shorter) following completion of construction or development.



Figure 6.65c Example of porous baffles made of 700 g/m² coir erosion blanket as viewed from the outlet.



Figure 6.65d Close-up of a porous baffle.

Design Criteria

The temporary sediment trap or temporary sediment basin should be sized using the appropriate design criteria.

The percent of surface area for each section of the baffle is as follows:

- inlet zone: 25%
- first cell: 25%
- second cell: 25%
- outlet zone: 25%

Baffle spacing in future permanent stormwater basins is beyond forebay.

Be sure to construct baffles up the sides of the trap or basin banks so water does not flow around the structures. Most of the sediment will be captured in the inlet zone. Smaller particle size sediments are captured in the latter cells. Be sure to maintain access to the trap for maintenance and sediment removal.

The design life of the fabric is 6-12 months, but may need to be replaced more often if damaged or clogged.



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No.	Date	Description	By
1	10-19-22	COMMENTS FROM HARNETT COUNTY	DJB
2	01-04-23	COMMENTS FROM HARNETT COUNTY	DJB
3	01-19-23	COMMENTS FROM HARNETT COUNTY	ZHG

**EROSION CONTROL DETAILS
CIVIL CONSTRUCTION DRAWINGS
SENTERS ASSISTED LIVING**

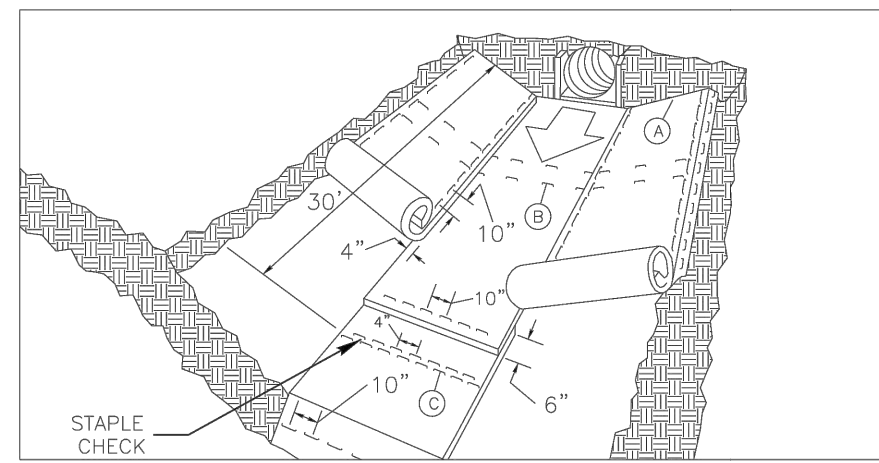
40 RAWL'S CLUB RD.
FUQUAY VARINA - HARNETT COUNTY - NC

Scale:	AS NOTED
Date:	JAN. 2022
Drawn By:	DJB
Checked By:	ZHG
Job No.:	E-1657

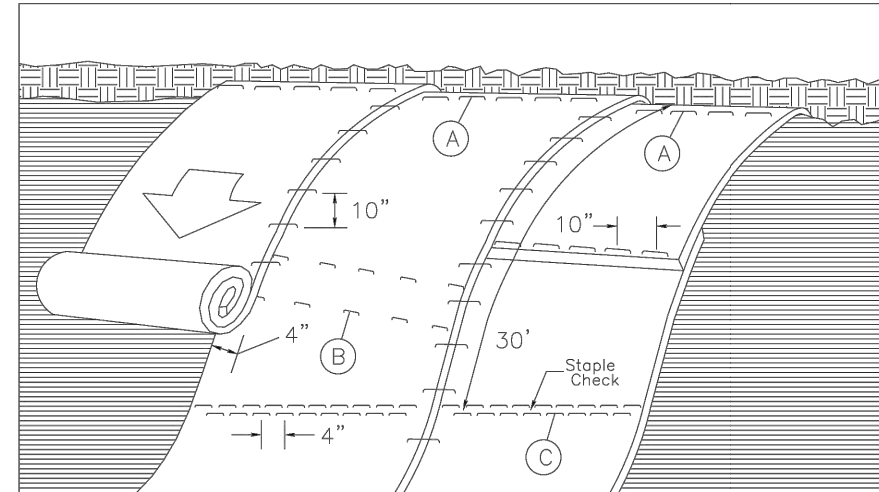
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C-12





MATting IN DITCHES



MATting ON SLOPES

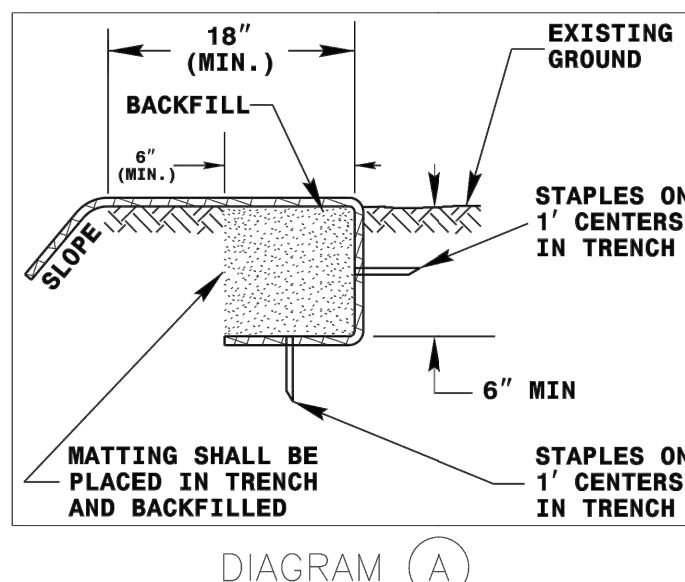


DIAGRAM A

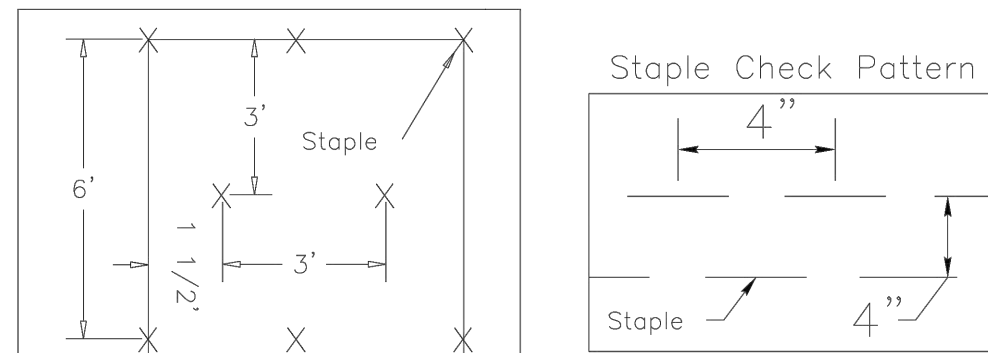


DIAGRAM B

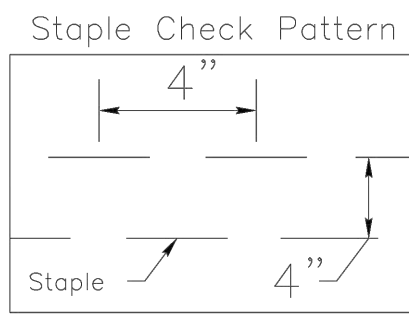


DIAGRAM C

NOTES
THIS DETAIL APPLIES TO STRAW, EXCELSTOR, COIR FIBER MAT AND PERMANENT SOIL REINFORCEMENT MAT (PSRM) INSTALLATION AND AS DIRECTED.
STAPLES SHALL BE NO. 11 GAUGE STEEL WIRE FORMED INTO A "U" SHAPE WITH A MINIMUM THROAT WIDTH OF 1 INCH AND NOT LESS THAN 6 INCHES IN LENGTH.

NOT TO SCALE SHEET 1 OF 1 1631.01

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.
ROADWAY STANDARD DRAWING FOR MATting INSTALLATION

GROUND STABILIZATION AND MATERIALS HANDLING PRACTICES FOR COMPLIANCE WITH THE NCG01 CONSTRUCTION GENERAL PERMIT
Implementing the details and specifications on this plan sheet will result in the construction activity being considered compliant with the Ground Stabilization and Materials Handling sections of the NCG01 Construction General Permit (Sections E and F, respectively). The permittee shall comply with the Erosion and Sediment Control plan approved by the delegated authority having jurisdiction. All details and specifications shown on this sheet may not apply depending on site conditions and the delegated authority having jurisdiction.

SECTION E: GROUND STABILIZATION

Site Area Description	Stabilize within this many calendar days after ceasing land disturbance	Timeframe variations
(a) Perimeter dikes, swales, ditches, and perimeter slopes	7	None
(b) High Quality Water (HQW) Zones	7	None
(c) Slopes steeper than 3:1	7	If slopes are 10' or less in length and are not steeper than 2:1, 14 days are allowed
(d) Slopes 3:1 to 4:1	14	-7 days for slopes greater than 30' in length and with slopes steeper than 4:1 -7 days for perimeter dikes, swales, ditches, perimeter slopes and HQW Zones
(e) Areas with slopes flatter than 4:1	14	-7 days for perimeter dikes, swales, ditches, perimeter slopes and HQW Zones -10 days for Falls Lake Watershed

Note: After the permanent cessation of construction activities, any areas with temporary ground stabilization shall be converted to permanent ground stabilization as soon as practicable but in no case longer than 90 calendar days after the last land disturbing activity. Temporary ground stabilization shall be maintained in a manner to render the surface stable against accelerated erosion until permanent ground stabilization is achieved.

GROUND STABILIZATION SPECIFICATION
Stabilize the ground sufficiently so that rain will not dislodge the soil. Use one of the techniques in the table below:

Temporary Stabilization	Permanent Stabilization
<ul style="list-style-type: none"> Temporary grass seed covered with straw or other mulches and tackifiers Hydroseeding Roller erosion control products with or without temporary grass seed Appropriately applied straw or other mulch Plastic sheeting 	<ul style="list-style-type: none"> Permanent grass seed covered with straw or other mulches and tackifiers Geotextile fabrics such as permanent soil reinforcement matting Hydroseeding Shrubs or other permanent plantings covered with mulch Uniform and evenly distributed ground cover sufficient to restrain erosion Structural methods such as concrete, asphalt or retaining walls Roller erosion control products with grass seed

POLYACRYLAMIDES (PAMS) AND FLOCCULANTS

- Select flocculants that are appropriate for the soils being exposed during construction, selecting from the NC DWR List of Approved PAMS/Flocculants.
- Apply flocculants at or before the inlets to Erosion and Sediment Control Measures.
- Apply flocculants at the concentrations specified in the NC DWR List of Approved PAMS/Flocculants and in accordance with the manufacturer's instructions.
- Provide ponding area for containment of treated stormwater before discharging offsite.
- Store flocculants in leak-proof containers that are kept under storm-resistant cover or surrounded by secondary containment structures.

EQUIPMENT AND VEHICLE MAINTENANCE

- Maintain vehicles and equipment to prevent discharge of fluids.
- Provide drip pans under any stored equipment.
- Identify leaks and repair as soon as feasible, or remove leaking equipment from the project.
- Collect all spent fluids, store in separate containers and properly dispose as hazardous waste (recycle when possible).
- Remove leaking vehicles and construction equipment from service until the problem has been corrected.
- Bring used fuels, lubricants, coolants, hydraulic fluids and other petroleum products to a recycling or disposal center that handles these materials.

LITTER, BUILDING MATERIAL AND LAND CLEARING WASTE

- Never bury or burn waste. Place litter and debris in approved waste containers.
- Provide a sufficient number and size of waste containers (e.g. dumpster, trash receptacle) on site to contain construction and domestic wastes.
- Locate waste containers at least 50 feet away from storm drain inlets and surface waters unless no other alternatives are reasonably available.
- Locate waste containers on areas that do not receive substantial amounts of runoff from upland areas and does not drain directly to a storm drain, stream or wetland.
- Cover waste containers at the end of each workday and before storm events or provide secondary containment. Repair or replace damaged waste containers.
- Anchor all lightweight items in waste containers during times of high winds.
- Empty waste containers as needed to prevent overflow. Clean up immediately if containers overflow.
- Dispose waste off-site at an approved disposal facility.
- On business days, clean up and dispose of waste in designated waste containers.

PAINT AND OTHER LIQUID WASTE

- Do not dump paint and other liquid waste into storm drains, streams or wetlands.
- Locate paint washouts at least 50 feet away from storm drain inlets and surface waters unless no other alternatives are reasonably available.
- Contain liquid wastes in a controlled area.
- Containment must be labeled, sized and placed appropriately for the needs of site.
- Prevent the discharge of soaps, solvents, detergents and other liquid wastes from construction sites.

PORABLE TOILETS

- Install portable toilets on level ground, at least 50 feet away from storm drains, streams or wetlands unless there is no alternative reasonably available. If 50 foot offset is not attainable, provide relocation of portable toilet behind silt fence or place on a gravel pad and surround with sand bags.
- Provide staking or anchoring of portable toilets during periods of high winds or in high foot traffic areas.
- Monitor portable toilets for leaking and properly dispose of any leaked material. Utilize a licensed sanitary waste hauler to remove leaking portable toilets and replace with properly operating unit.

EARTHEN STOCKPILE MANAGEMENT

- Show stockpile locations on plans. Locate earthen-material stockpile areas at least 50 feet away from storm drain inlets, sediment basins, perimeter sediment controls and surface waters unless it can be shown no other alternatives are reasonably available.
- Protect stockpile with silt fence installed along toe of slope with a minimum offset of five feet from the toe of stockpile.
- Provide stable stone access point when feasible.
- Stabilize stockpile within the timeframes provided on this sheet and in accordance with the approved plan and any additional requirements. Soil stabilization is defined as vegetative, physical or chemical coverage techniques that will restrain accelerated erosion on disturbed soils for temporary or permanent control needs.

CONCRETE WASHOUTS

- Do not discharge concrete or cement slurry from the site.
- Dispose of, or recycle settled, hardened concrete residue in accordance with local and state solid waste regulations and at an approved facility.
- Manage washout from mortar mixers in accordance with the above item and in addition place the mixer and associated materials on impervious barrier and within lot perimeter silt fence.
- Install temporary concrete washouts per local requirements, where applicable. If an alternate method or product is to be used, contact your approval authority for review and approval. If local standard details are not available, use one of the two types of temporary concrete washouts provided on this detail.
- Do not use concrete washouts for dewatering or storing defective curb or sidewalk sections. Stormwater accumulated within the washout may not be pumped into or discharged to the storm drain system or receiving surface waters. Liquid waste must be pumped out and removed from project.
- Locate washouts at least 50 feet from storm drain inlets and surface waters unless it can be shown that no other alternatives are reasonably available. At a minimum, install protection of storm drain inlet(s) closest to the washout which could receive spills or overflow.
- Locate washouts in an easily accessible area, on level ground and install a stone entrance pad in front of the washout. Additional controls may be required by the approving authority.
- Install at least one sign directing concrete trucks to the washout within the project limits. Post signage on the washout itself to identify this location.
- Remove leavings from the washout when at approximately 75% capacity to limit overflow events. Replace the tarp, sand bags or other temporary structural components when no longer functional. When utilizing alternative or proprietary products, follow manufacturer's instructions.
- At the completion of the concrete work, remove remaining leavings and dispose of in an approved disposal facility. Fill pit, if applicable, and stabilize any disturbance caused by removal of washout.

HERBICIDES, PESTICIDES AND RODENTICIDES

- Store and apply herbicides, pesticides and rodenticides in accordance with label restrictions.
- Store herbicides, pesticides and rodenticides in their original containers with the label, which lists directions for use, ingredients and first aid steps in case of accidental poisoning.
- Do not store herbicides, pesticides and rodenticides in areas where flooding is possible or where they may spill or leak into wells, stormwater drains, ground water or surface water. If a spill occurs, clean area immediately.
- Do not stockpile these materials onsite.

HAZARDOUS AND TOXIC WASTE

- Create designated hazardous waste collection areas on-site.
- Place hazardous waste containers under cover or in secondary containment.
- Do not store hazardous chemicals, drums or bagged materials directly on the ground.



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NCG01 GROUND STABILIZATION AND MATERIALS HANDLING

EFFECTIVE: 04/01/19

PART III SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION A: SELF-INSPECTION
Self-inspections are required during normal business hours in accordance with the table below. When adverse weather or site conditions would cause the safety of the inspection personnel to be in jeopardy, the inspection may be delayed until the next business day on which it is safe to perform the inspection. In addition, when a storm event of equal to or greater than 1.0 inch occurs outside of normal business hours, the self-inspection shall be performed upon the commencement of the next business day. Any time when inspections were delayed shall be noted in the inspection Record.

Inspect	Frequency (during normal business hours)	Inspection records must include:
(1) Rain gauge maintained in good working order	Daily	Daily rainfall amounts. If no daily rain gauge observations are made during weekend or holiday periods, and no individual-day rainfall information is available, record the cumulative rain measurement for those unattended days (and this will determine if a site inspection is needed). Days on which no rainfall occurred shall be recorded as "zero." The permittee may use another rain-monitoring device approved by the Division.
(2) E&S Measures	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	1. Identification of the measures inspected, 2. Date and time of the inspection, 3. Name of the person performing the inspection, 4. Indication of whether the measures were operating properly, 5. Description of maintenance needs for the measure, 6. Description, evidence, and date of corrective actions taken.
(3) Stormwater discharge outfalls (SDCs)	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	1. Identification of the discharge outfalls inspected, 2. Date and time of the inspection, 3. Name of the person performing the inspection, 4. Evidence of indicators of stormwater pollution such as oil sheen, floating or suspended solids or discoloration, 5. Indication of visible sediment leaving the site, 6. Description, evidence, and date of corrective actions taken.
(4) Perimeter of site	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	If visible sedimentation is found outside site limits, then a record of the following shall be made: 1. Actions taken to clean up or stabilize the sediment that has left the site limits, 2. Description, evidence, and date of corrective actions taken, 3. An explanation as to the actions taken to control future releases.
(5) Streams or wetlands on-site or off-site (where accessible)	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	If the stream or wetland has increased visible sedimentation or a stream has visible increased turbidity from the construction activity, then a record of the following shall be made: 1. Description, evidence and date of corrective actions taken, and 2. Records of the required reports to the appropriate Division Regional Office per Part III, Section C, Item 2(a) of this permit.
(6) Ground stabilization measures	After each phase of grading	1. The phase of grading (installation of perimeter E&S measures, clearing and grubbing, installation of storm drainage facilities, completion of all land-disturbing activity, construction or redevelopment, permanent ground cover). 2. Documentation that the required ground stabilization measures have been provided within the required timeframe or an assurance that they will be provided as soon as possible.

NOTE: The rain inspection resets the required 7 calendar day inspection requirement.

PART III SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION B: RECORDKEEPING
1. E&S Plan Documentation
The approved E&S plan as well as any approved deviation shall be kept on the site. The approved E&S plan must be kept up-to-date throughout the coverage under this permit. The following items pertaining to the E&S plan shall be kept on site and available for inspection at all times during normal business hours.

Item to Document	Documentation Requirements
(a) Each E&S measure has been installed and does not significantly deviate from the locations, dimensions and relative elevations shown on the approved E&S plan.	Initial and date each E&S measure on a copy of the approved E&S plan or complete, date and sign an inspection report that lists each E&S measure shown on the approved E&S plan. This documentation is required upon the initial installation of the E&S measures or if the E&S measures are modified after initial installation.
(b) A phase of grading has been completed.	Initial and date a copy of the approved E&S plan or complete, date and sign an inspection report to indicate completion of the construction phase.
(c) Ground cover is located and installed in accordance with the approved E&S plan.	Initial and date a copy of the approved E&S plan or complete, date and sign an inspection report to indicate compliance with approved ground cover specifications.
(d) The maintenance and repair requirements for all E&S measures have been performed.	Complete, date and sign an inspection report.
(e) Corrective actions have been taken to E&S measures.	Initial and date a copy of the approved E&S plan or complete, date and sign an inspection report to indicate the completion of the corrective action.

2. Additional Documentation to be Kept on Site
In addition to the E&S plan documents above, the following items shall be kept on the site and available for inspectors at all times during normal business hours, unless the Division provides a site-specific exemption based on unique site conditions that make this requirement not practical:

- This General Permit as well as the Certificate of Coverage, after it is received.
- Records of inspections made during the previous twelve months. The permittee shall record the required observations on the Inspection Record Form provided by the Division or a similar inspection form that includes all the required elements. Use of electronically-available records in lieu of the required paper copies will be allowed if shown to provide equal access and utility as the hard-copy records.

3. Documentation to be Retained for Three Years
All data used to complete the e-NOI and all inspection records shall be maintained for a period of three years after project completion and made available upon request. [40 CFR 122.41]

PART III SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION C: REPORTING

1. Occurrences that Must be Reported
Permittees shall report the following occurrences:
(a) Visible sediment deposition in a stream or wetland.
(b) Oil spills if:
• They are 25 gallons or more,
• They are less than 25 gallons but cannot be cleaned up within 24 hours,
• They cause sheen on surface waters (regardless of volume), or
• They are within 100 feet of surface waters (regardless of volume).
(c) Releases of hazardous substances in excess of reportable quantities under Section 311 of the Clean Water Act (Ref: 40 CFR 110.3 and 40 CFR 117.3) or Section 102 of CERCLA (Ref: 40 CFR 302.4) or G.S. 143-215.85.
(d) Anticipated bypasses and unanticipated bypasses.
(e) Noncompliance with the conditions of this permit that may endanger health or the environment.

2. Reporting Timeframes and Other Requirements
After a permittee becomes aware of an occurrence that must be reported, he shall contact the appropriate Division regional office within the timeframes and in accordance with the other requirements listed below. Occurrences outside normal business hours may also be reported to the Department's Environmental Emergency Center personnel at (800) 858-0368.

Occurrence	Reporting Timeframes (After Discovery) and Other Requirements
(a) Visible sediment deposition in a stream or wetland	<ul style="list-style-type: none"> Within 24 hours, an oral or electronic notification. Within 7 calendar days, a report that contains a description of the sediment and actions taken to address the cause of the deposition. Division staff may name the address for a written report on a case-by-case basis. If the stream is named on the NC 303(d) list as impaired for sediment-related causes, the permittee may be required to perform additional monitoring, inspections or apply more stringent practices if staff determine that additional requirements are needed to assure compliance with the federal or state impaired-waters conditions.
(b) Oil spills and release of hazardous substances per Item 1(b)-(c) above	<ul style="list-style-type: none"> A report at least ten days before the date of the bypass, if possible. The report shall include an evaluation of the anticipated quality and effect of the bypass.
(c) Unanticipated bypasses [40 CFR 122.41(m)(3)]	<ul style="list-style-type: none"> Within 24 hours, an oral or electronic notification. Within 7 calendar days, a report that includes an evaluation of the quality and effect of the bypass.
(d) Noncompliance with the conditions of this permit that may endanger health or the environment [40 CFR 122.41(l)(7)]	<ul style="list-style-type: none"> Within 24 hours, an oral or electronic notification. Within 7 calendar days, a report that contains a description of the noncompliance, and its causes; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time noncompliance is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance. [40 CFR 122.41(l)(8)]. Division staff may waive the requirement for a written report on a case-by-case basis.

PART II, SECTION G, ITEM (4) DRAIN DOWN OF SEDIMENT BASINS FOR MAINTENANCE OR CLOSE OUT

Sediment basins and traps that receive runoff from drainage areas of one acre or more shall use outlet structures that withdraw water from the surface when these devices need to be drawn down for maintenance or close out unless this is infeasible. The circumstances in which it is not feasible to withdraw water from the surface shall be rare (for example, times with extended cold weather). Non-surface withdrawals from sediment basins shall be allowed only when all of the following criteria have been met:

- The E&S plan authority has been provided with documentation of the non-surface withdrawal and the specific time periods or conditions in which it will occur. The non-surface withdrawal shall not commence until the E&S plan authority has approved these items,
- The non-surface withdrawal has been reported as an anticipated bypass in accordance with Part III, Section C, Item 2(c) and (d) of this permit,
- Dewatering discharges are treated with controls to minimize discharges of pollutants from stormwater that is removed from the sediment basin. Examples of appropriate controls include properly sited, designed and maintained dewatering tanks, weir tanks, and filtration systems,
- Vegetated, upland areas of the sites or a properly designed stone pad is used to the extent feasible at the outlet of the dewatering treatment devices described in Item (c) above,
- Velocity dissipation devices such as check dams, sediment traps, and riprap are provided at the discharge points of all dewatering devices, and
- Sediment removed from the dewatering treatment devices described in Item (c) above is disposed of in a manner that does not cause deposition of sediment into waters of the United States.

NCG01 SELF-INSPECTION, RECORDKEEPING AND REPORTING

EFFECTIVE: 04/01/19

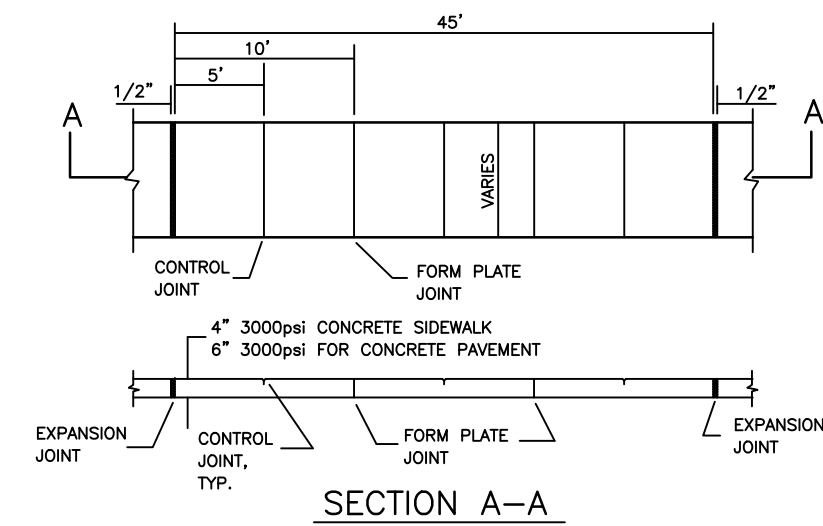
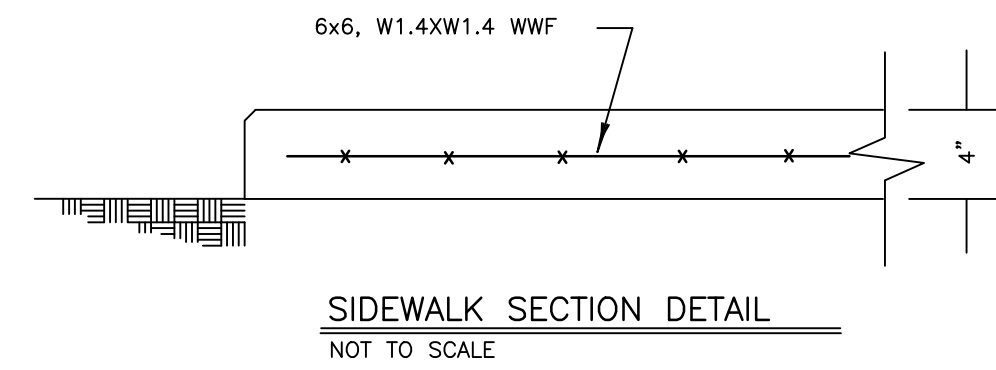


No.	Date	Description
1	10-19-22	COMMENTS FROM HARNETT COUNTY
2	01-04-23	COMMENTS FROM HARNETT COUNTY
3	01-19-23	COMMENTS FROM HARNETT COUNTY

Scale: AS NOTED
Date: JAN. 2022
Drawn By: DLP
Checked By: ZHG
Job No.: E-1657

EROSION CONTROL DETAILS
CIVIL CONSTRUCTION DRAWINGS
SENTERS ASSISTED LIVING
40 RAWL'S CLUB RD.
FUQUAY VARIANA - HARNETT COUNTY - NC

Sheet No. C-13

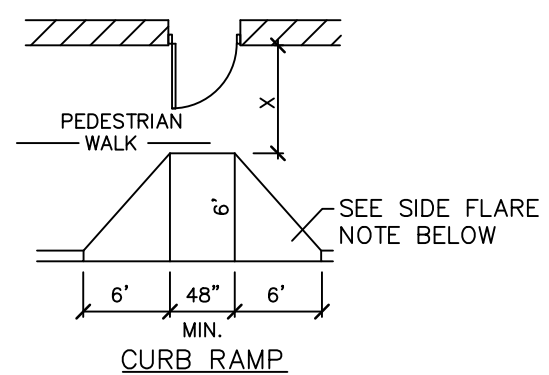


- GENERAL NOTES:**
1. A GROOVE JOINT 1" DEEP WITH 1/8" RADIUS SHALL BE REQUIRED IN THE CONCRETE SIDEWALK AT 5' INTERVALS. A 1/2" EXPANSION JOINT WILL BE REQUIRED AT 40' INTERVALS. A 1/2" EXPANSION JOINT WILL BE REQUIRED WHERE THE SIDEWALK JOINS ANY RIGID STRUCTURE.
 2. SIDEWALK AT DRIVEWAY ENTRANCES TO BE 6" THICK FOR FULL DRIVEWAY LENGTH.

EXPANSION AND CONTROL JOINT LOCATION DETAIL FOR CONCRETE SIDEWALKS AND PAVEMENTS
NOT TO SCALE

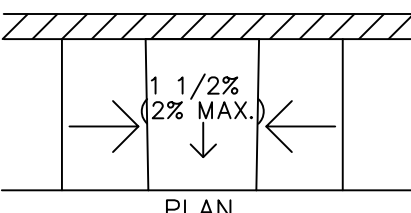
ADJOINING SLOPE SHALL NOT EXCEED 1:20
SLOPE = Y:X WHERE X IS A LEVEL PLANE
WALK STREET

MEASUREMENT OF CURB RAMP SLOPE



"X" IS 60" MIN. AT AN OUT SWING DOOR WITH A SLOPE OF 1:50 (2%) MAXIMUM. LEVEL SURFACE IS PREFERRED.

SIDE FLARE NOTE: (SEE REFERENCE DIAGRAM ABOVE). SIDE FLARES SHALL HAVE A MAXIMUM SLOPE OF 1:10 (10%), WHERE "X" IS LESS THAN 48", SIDE FLARE SLOPE SHALL BE 1:12 (8.33%) MAXIMUM. WHERE "X" IS LESS THAN 36".



"IN-LINE" RAMP

NOTES:

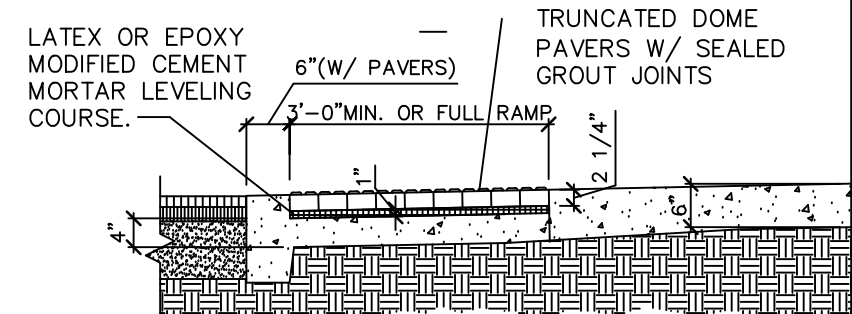
A CURB RAMP(S) MUST ALSO BE PROVIDED IN THE PARKING LOT AT ALL INTERMEDIATE AND PERIMETER CURBS ALONG THE ACCESSIBLE ROUTE CONNECTING TO PUBLIC SIDEWALKS.

A RAMP IS ANY SLOPE GREATER THAN 1:20 (5%) AND SHALL HAVE A MAXIMUM SLOPE OF 1:12 (8.33%). THE MAXIMUM SLOPE IS 1" OF RISE PER FOOT OF DISTANCE TRAVELED. ALL DETECTABLE WARNING AREAS OF THE RAMP ARE TO HAVE AN INTEGRAL RED COLOR.

THE CLEAR WIDTH OF ANY RAMP IS A MINIMUM OF 48".

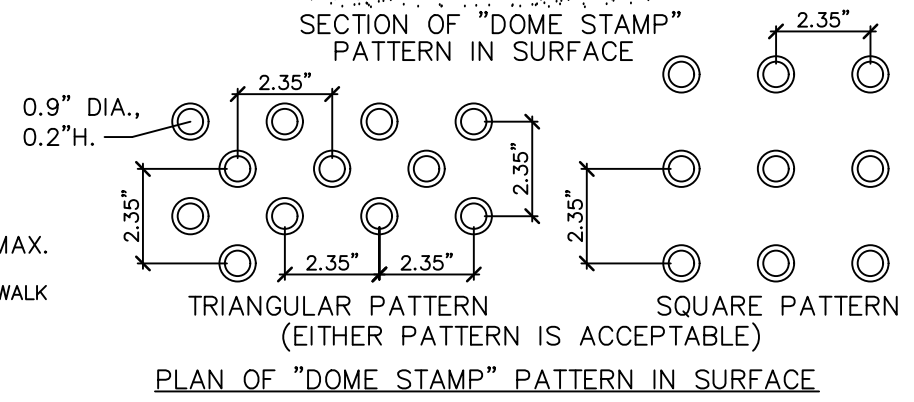
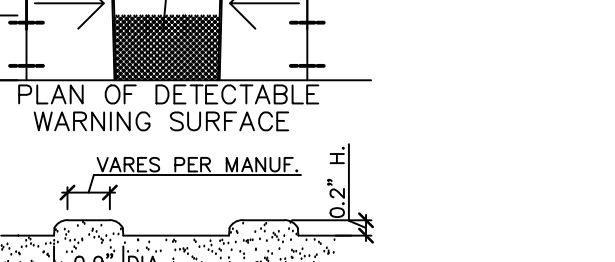
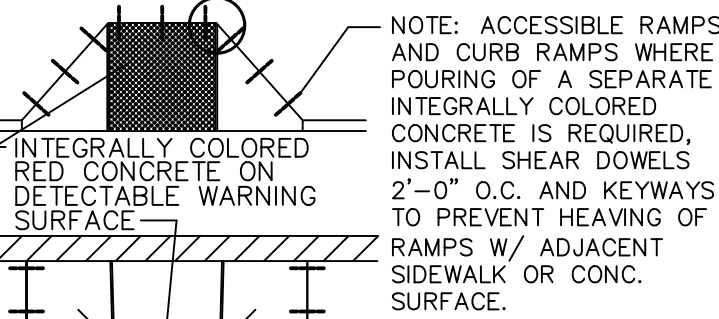
CURB RAMP(S) HAVE A MAXIMUM RISE OF 6" AND DO NOT REQUIRE HANDRAILS.

ANY RAMP WITH GREATER THAN A 6" RISE SHALL HAVE HANDRAILS ON BOTH SIDES AND CURBED EDGE PROTECTION ON BOTH SIDES. EDGE PROTECTION CONSISTS OF CURBS, WALLS, RAILINGS, OR PROJECTING SURFACES THAT PREVENT PEOPLE FROM SLIPPING OFF THE RAMP. HANDRAIL DETAILS SHALL FOLLOW ACCESSIBLE GUIDELINES.



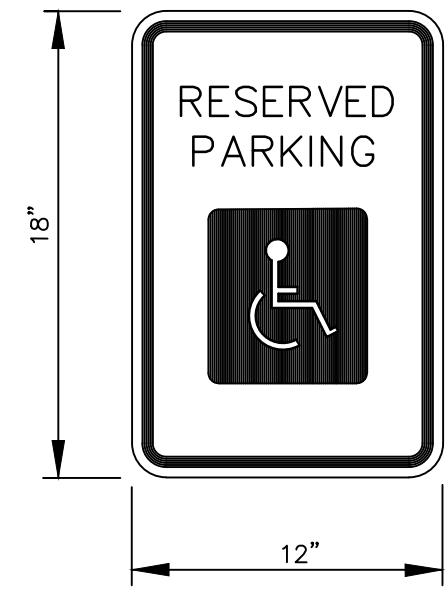
SECTION AT CURB RAMP WITH ALTERNATE TRUNCATED PAVERS W/DOMES HANDICAP RAMP DETAIL
SCALE

*WHERE SLOPE CAN BE REDUCED TO BELOW 5% BY EXTENDING LENGTH (RUN) OF SLOPE, INTEGRAL COLOR CONCRETE AND DETECTABLE WARNINGS CAN BE MINIMIZED. THIS TYPICALLY OCCURS AT THE ENDS OF WALKS AWAY FROM OUR ENTRY.

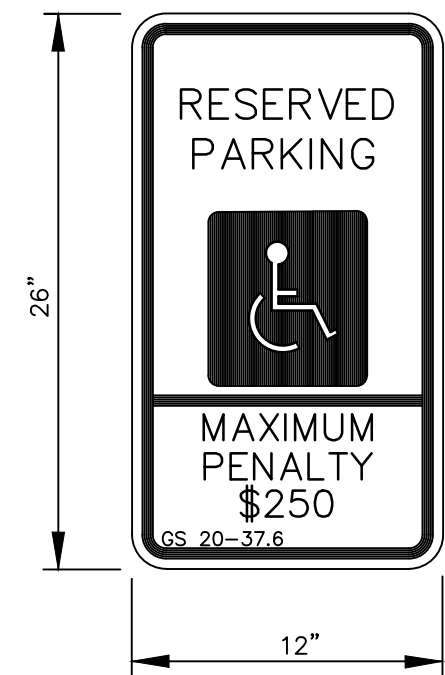


CURB RAMP(S) MUST HAVE A DETECTABLE WARNING FEATURE EXTENDING THE FULL WIDTH AND DEPTH OF THE RAMP (MID-WALK "IN-LINE" RAMP(S) ONLY NEED DETECTABLE WARNINGS AT WALK/PARKING TRANSITION). THE DETECTABLE SURFACE MUST CONSIST OF RAISED TRUNCATED DOMES WITH A DIAMETER OF NOMINAL 0.9 INCHES, A HEIGHT OF NOMINAL 0.2 INCHES AND A CENTER-TO-CENTER SPACING OF NOMINAL 2.35 INCHES. THE TEXTURE OF THE DETECTABLE WARNING FEATURE MUST CONTRAST WITH THE SURROUNDING SURFACES (EITHER LIGHT-ON-DARK OR DARK-ON-LIGHT). SEE ABOVE.

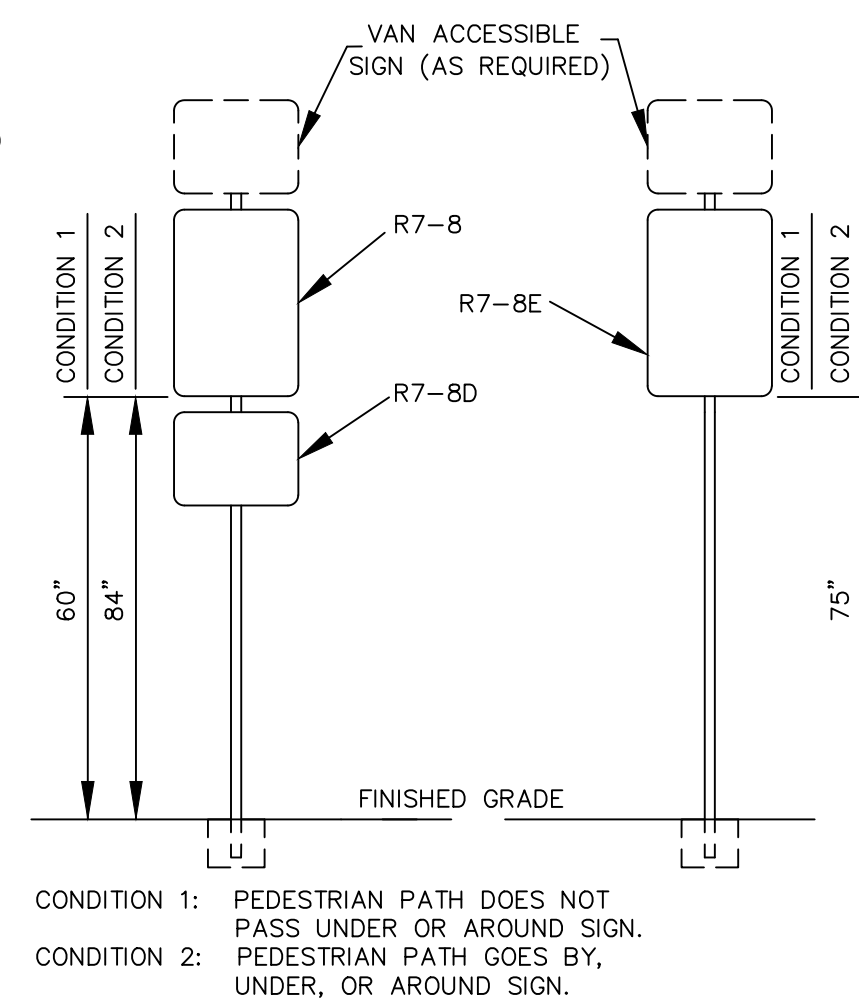
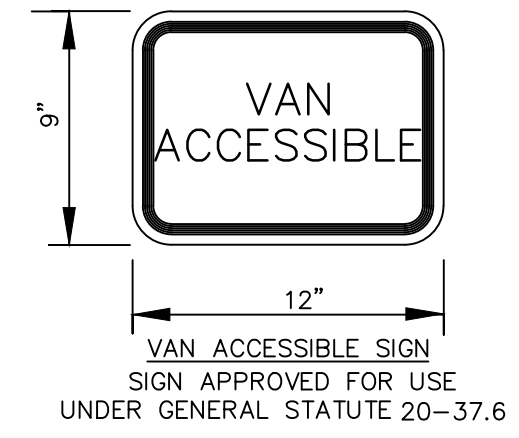
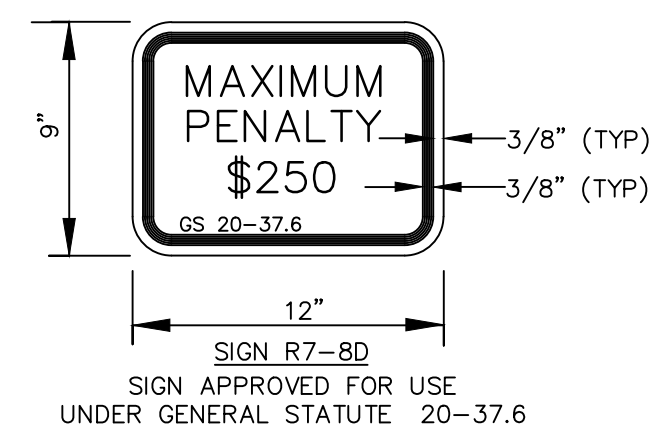
LOCAL JURISDICTION
THERE ARE LOCAL JURISDICTIONS THAT SPECIFICALLY REQUIRE DETECTABLE WARNINGS ON THE SIDE FLARES. THERE ARE LOCAL JURISDICTIONS THAT HAVE REDEFINED DETECTABLE WARNINGS (E.G. EXPOSED CONTRASTING COLOR AGGREGATE, GROOVES IN A PARALLEL OR DIAMOND PATTERN ETC.). ACCESSIBILITY GUIDELINES DEFINED BY LOCAL ORDINANCE SHOULD SUPERSEDE WHEN MORE STRINGENT THAN ADAAG. IN THE ABSENCE OF A DEFINITION, FOLLOW ADAAG.



SIGN R7-8
SIGN APPROVED FOR USE UNDER GENERAL STATUTE 20-37.6
STANDARD COLORS (ALL SIGNS):
BACKGROUND - WHITE
LETTERING/BORDER - GREEN
ARROW - GREEN
FIGURE - WHITE ON BLUE FIELD
CORNER RADIUS - 1 1/2" (TYPICAL)



SIGN R7-8E
THIS SIGN MAY BE USED IN PLACE OF SIGNS R7-8/R7-8D

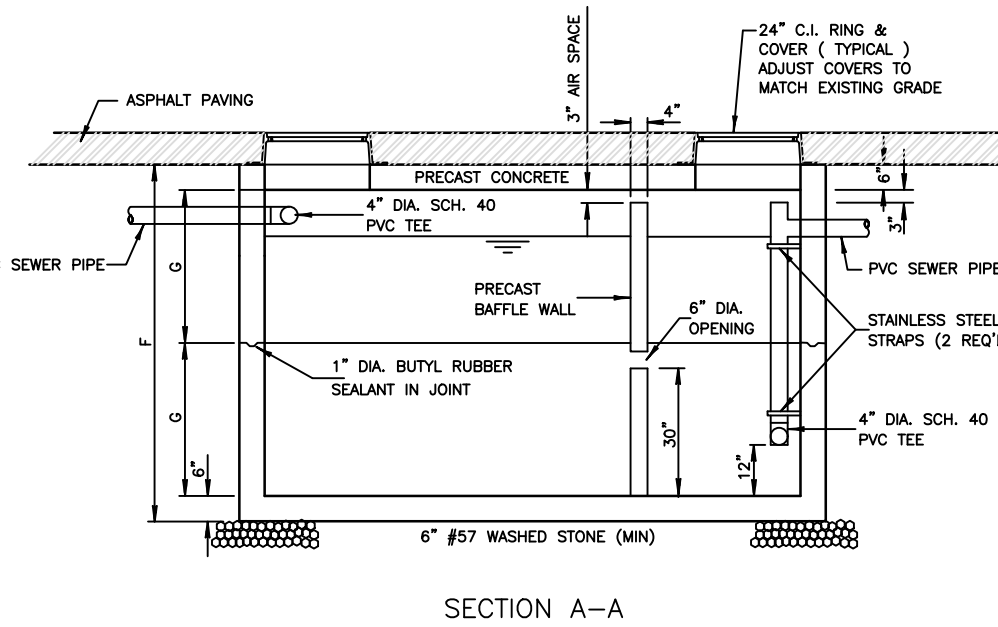
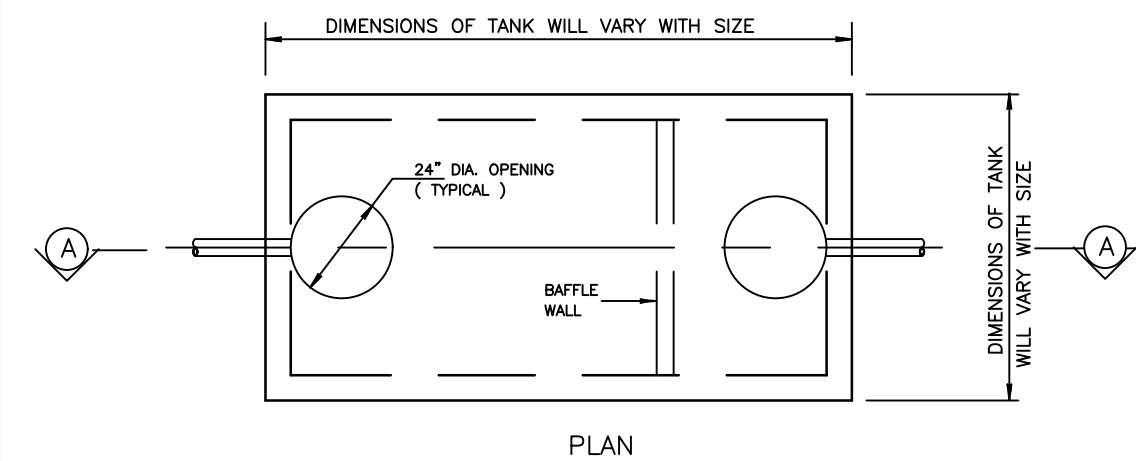


GENERAL NOTES:

1. REGARDLESS OF AGE, ALL ACCESSIBLE SPACES SHALL BE IDENTIFIED BY ABOVE-GROUND SIGNS ONLY. (SEE N.C.G.S.)
2. NEW SPACES SHALL NOT USE GROUND-PAINTED SYMBOLS.
3. ACCESSIBLE SPACES ARE REQUIRED TO BE STRIPED OFF ONLY; BLUE COLORING IS NOT NECESSARY NOR REQUIRED.
4. STRIPING IS WHITE ON DARK PAVEMENT; BLACK ON LIGHT PAVEMENT. (N.C.D.O.T.)

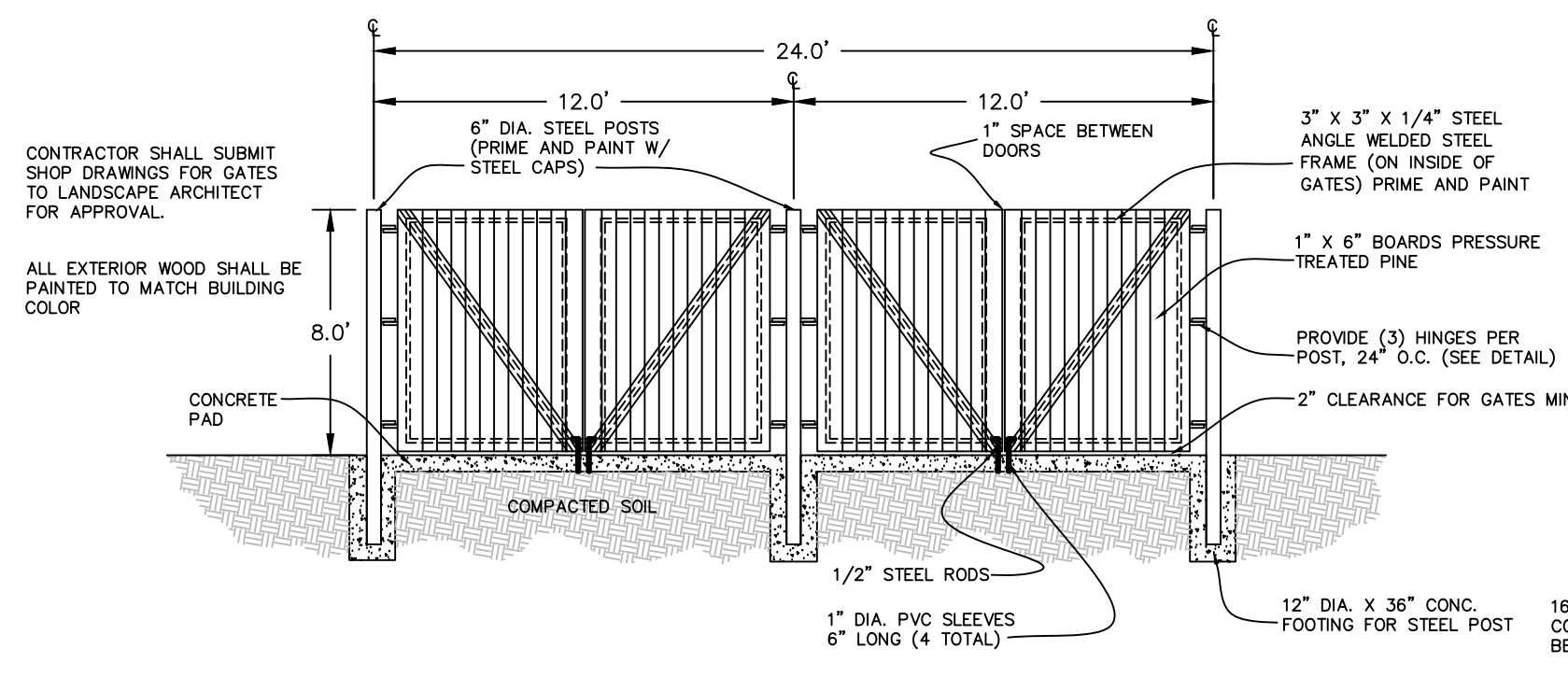
HANDICAP SIGN DETAILS

N.T.S.

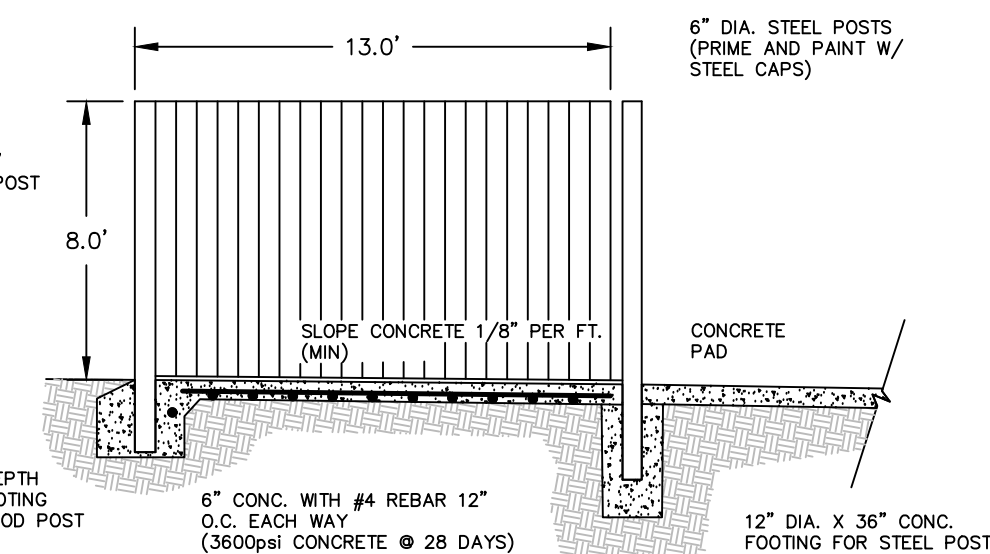


GREASE TRAP DETAIL

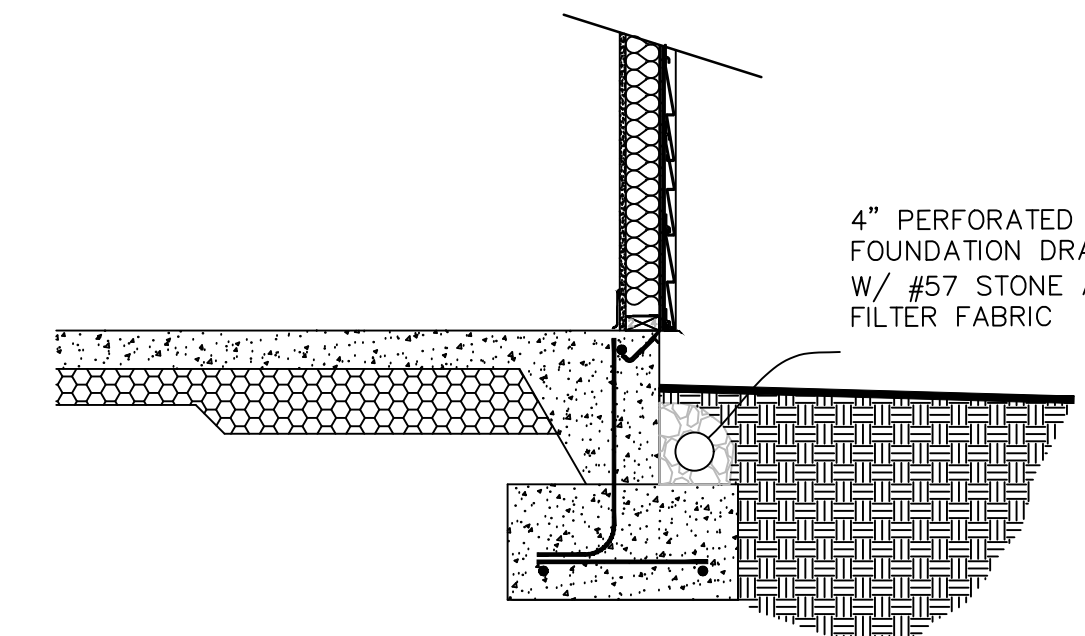
N.T.S.



DUMPSTER DETAILS FRONT ELEVATION
N.T.S.



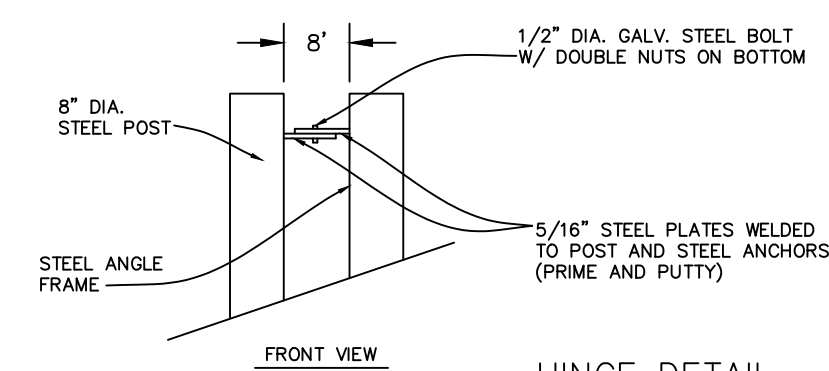
SIDE ELEVATION
N.T.S.



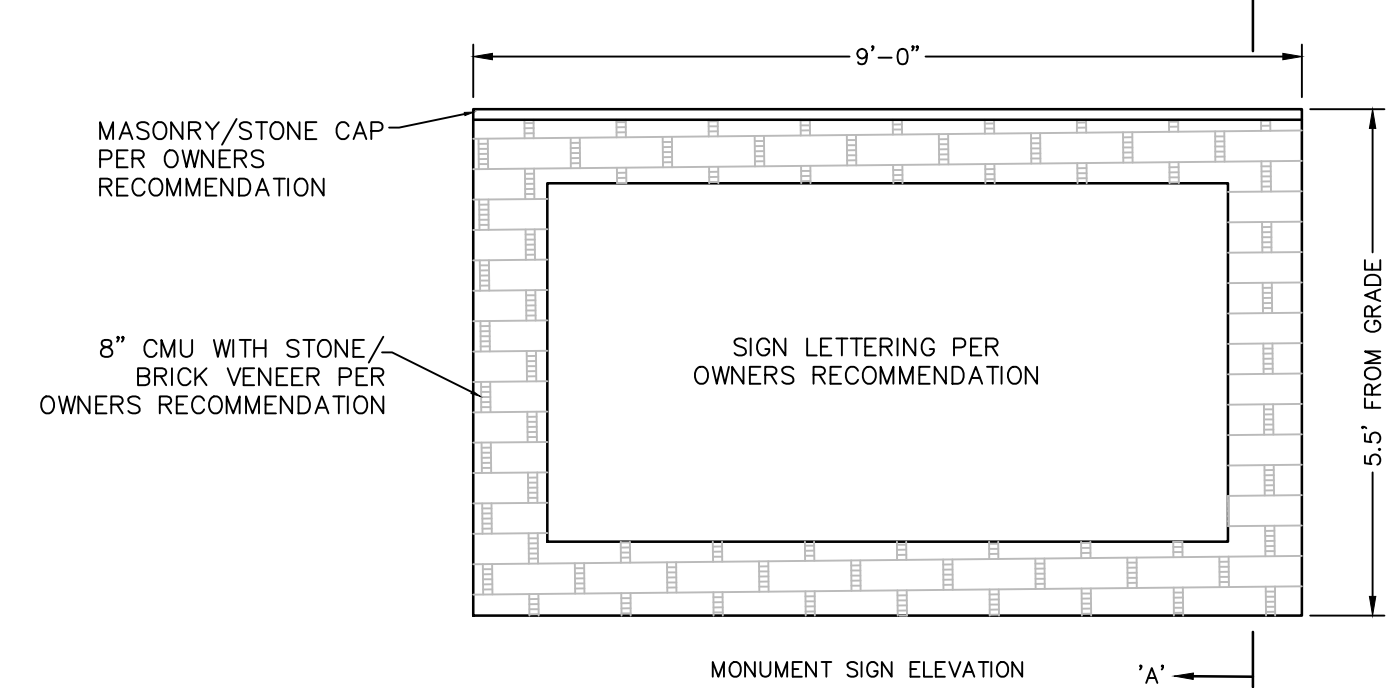
FOUNDATION DRAIN
N.T.S.

NOTES:

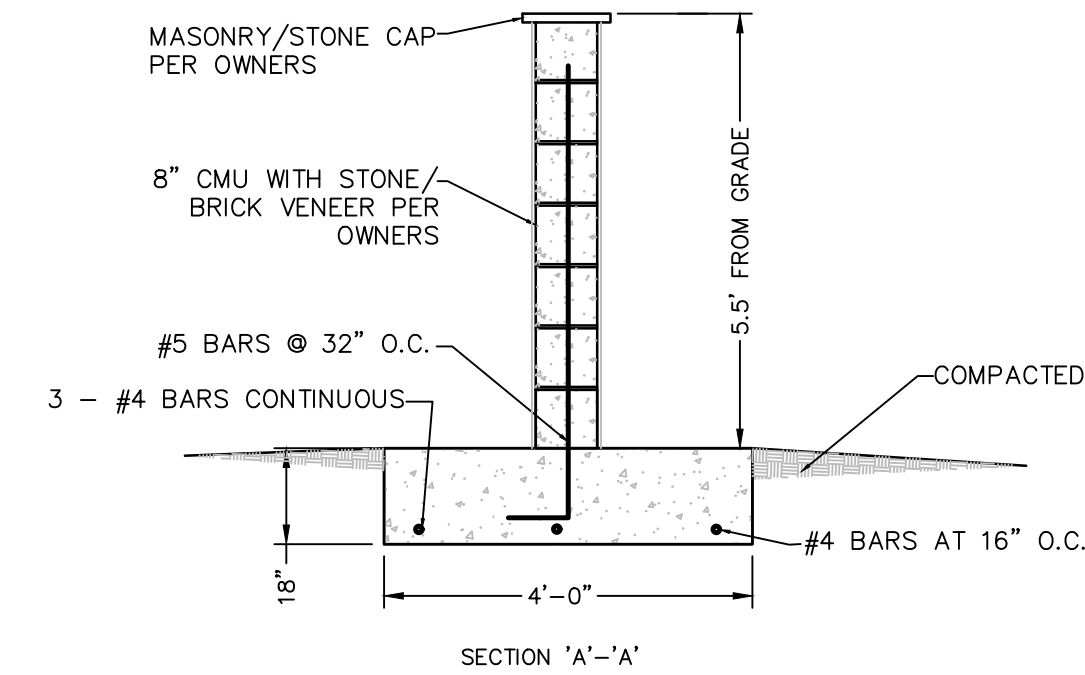
1. ALL JOINTS IN THE PRECAST CONCRETE STRUCTURE MUST BE SEALED WITH A 1:1 CAULKED JOINT OF A PREMIUM GRADE, MOISTURE CURED, ONE COMPONENT, POLYURETHANE BASED, NON-SAG ELASTOMERIC SEALANT, SIKAFLEX 1-A, OR EQUAL, IN ADDITION TO THE PRECAST CONCRETE STRUCTURE MANUFACTURER'S STANDARD SEALANT.
2. ALL PRE-FABRICATED TANKS MUST BE CONSTRUCTED OF 4000 PSI REINFORCED CONCRETE WITH MINIMUM SUPPORT VALUES FOR H-20 BRIDGE LOADING.
3. CONTRACTOR TO CONFIRM INVERT ELEVATIONS OF EXISTING SEWER PIPES BEFORE ORDERING GREASE TRAPS. IF NECESSARY CONTRACTOR TO INSTALL CONCRETE OR MASONRY RISERS TO INSURE RING AND COVERS ARE AT GRADE.
4. ALL TANKS SHALL BE APPROVED BY THE CITY OF HENDERSONVILLE
5. VERIFY TANK SIZE AND DIMENSIONS WITH PLUMBING PLANS



HINGE DETAIL
N.T.S.



SIGN LETTERING PER OWNERS RECOMMENDATION



SIGN DETAILS
N.T.S.



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NC Professional Engineering Firm License No. F-0936

By:	DJB DJB ZHG
Description:	COMMENTS FROM HARNETT COUNTY 01-04-23 COMMENTS FROM HARNETT COUNTY 01-19-23
Date:	10-19-22 01-04-23 01-19-23
No.	1 2 3

STANDARD DETAILS
CIVIL CONSTRUCTION DRAWINGS
SENTERS ASSISTED LIVING

40 RAWLS CLUB RD.
FLOUQUAY VARIANA - HARNETT COUNTY - NC

Scale:	AS NOTED
Date:	JAN. 2022
Drawn By:	DJB
Checked By:	ZHG
Job No.:	E-1657

Sheet No. C-14



LAYING CONDITIONS	DESCRIPTION	PROJECT USE
	Excavation Underneath	NOT USED
	Bottomed Underneath	NOT USED
	PIPE BORED IN 4" MINIMUM JOB EXCAVATED MATERIAL. BRACKET LOUVELY CONFINED TO TOP OF PIPE.	ALL PVC WATER USE AND PVC FORCE MAIN.
	PIPE BORED TO ITS CENTERLINE. ALL COMPACTED CONULAR MEDIUM. CONCRETE SHALL BE 2800 PSI (MIN) (ASTM C 39).	ALL PVC WATER USE AND PVC FORCE MAIN.

HARNETT COUNTY
 PUBLIC UTILITIES
 WELLSVILLE, NORTH CAROLINA

TYPICAL WATER DETAILS
 WATER DISTRIBUTION SYSTEM
HARNETT COUNTY SPECIFICATIONS
 HARNETT COUNTY - NORTH CAROLINA

Scale: NOTED
 Date: 0208
 Drawn By: HCFPU
 Checked By: W.W.R.
 Page No.:
 Job No.:

Sheet No. 1 of 3

HARNETT COUNTY
 PUBLIC UTILITIES
 WELLSVILLE, NORTH CAROLINA

TYPICAL WATER DETAILS
 WATER DISTRIBUTION SYSTEM
HARNETT COUNTY SPECIFICATIONS
 HARNETT COUNTY - NORTH CAROLINA

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HARNETT COUNTY
 PUBLIC UTILITIES
 WELLSVILLE, NORTH CAROLINA

TYPICAL WATER DETAILS
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HARNETT COUNTY SPECIFICATIONS
 HARNETT COUNTY - NORTH CAROLINA

Scale: NOTED
 Date: 0208
 Drawn By: HCFPU
 Checked By: W.W.R.
 Page No.:
 Job No.:

Sheet No. 2 of 3

Scale: AS NOTED
 Date: JAN. 2022
 Drawn By: D.B.
 Checked By: ZHG
 Job No.: E-1657

Sheet No. **C-15**

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 11-23
 MCK SUMMEY, P.E.

HARNETT COUNTY
 PUBLIC UTILITIES
 WELLSVILLE, NORTH CAROLINA

TYPICAL WATER DETAILS
 WATER DISTRIBUTION SYSTEM
HARNETT COUNTY SPECIFICATIONS
 HARNETT COUNTY - NORTH CAROLINA

Scale: NOTED
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 Job No.:

WATER DETAILS
CIVIL CONSTRUCTION DRAWINGS
SENTERS ASSISTED LIVING
 40 RAWLS CLUB RD.
 FUQUAY VARINA - HARNETT COUNTY - NC

No.	Date	Description
1	10-19-22	COMMENTS FROM HARNETT COUNTY
2	01-04-23	COMMENTS FROM HARNETT COUNTY
3	01-19-23	COMMENTS FROM HARNETT COUNTY

By: D.B.
 D.B.
 ZHG

TYPICAL SUBMERSIBLE PUMP STATION LAYOUT DETAIL

NOTES:

- PUMP STATION MUST MEET ALL ZONING SET-BACK REQUIREMENTS
- PUMP STATION MUST MEET ALL LANDSCAPING REQUIREMENTS
- WATER SERVICE FOR YARD HYDRANT MUST HAVE RPZ PROTECTION
- PUMP STATION FENCE TO BE 50X50" MINIMUM
- 5' BUFFER SHALL BE REQUIRED BETWEEN FENCE AND EASEMENT LINE
- FOR ELECTRICAL PANELS REFER TO DETAILS S-9, S-10, S-11, S-12, AND S-13
- REFER TO MINIMUM REQUIREMENTS FOR SEWER LIFT STATION 2007 Edition
- GATE VALVES AND CHECK VALVES TO BE SIZED WITH FORCE MAIN
- CONCRETE FLOW METER VALVE SHOULD BE 4" MIN. 3" DEEP AND 4" LONG AND IT MUST BE PROVIDED 4"X4" ALUMINUM SLOTTED HATCH
- CONCRETE VALVE VAULT SHOULD BE 4"X4" DEEP AND 4" LONG AND IT MUST BE PROVIDED 4"X4" ALUMINUM SLOTTED HATCH
- NOTES S-9 AND S-10 DEPENDENT ON FORCE MAIN AND VALVE SIZE

TYPICAL BELOW GROUND PUMPS

TYPICAL PLAN VIEW OF SEWER LIFT STATION WITH ABOVE GROUND PUMPS DETAIL

TYPICAL GSEWER MET STATION PROFILE FOR ABOVE GROUND PUMPS

TYPICAL PUMP ELEVATION FOR SEWER LIFT STATION WITH ABOVE GROUND PUMPS DETAIL

TYPICAL YARD HYDRANT INSTALLATION DETAIL

HARNETT COUNTY PUBLIC UTILITIES
WASTE WATER SYSTEM
HARNETT COUNTY - NORTH CAROLINA

Scale: NOTED
Date: 2009
Drawn By: H.C.D.P.U.
Checked By: W.W.K.
Book No:
Page No:
Job No:
Sheet No: WW-1

TYPICAL JUNCTION BOX DETAIL

TYPICAL EMERGENCY PUMP EXCHANGE - PLUGGED DETAIL

TYPICAL CONTROL PANEL WITH HOOD DETAIL

TYPICAL ONE-LINE DIAGRAM DETAIL

TYPICAL GREASE TRAP INTERCEPTOR DETAIL

TYPICAL AREA LIGHT DETAIL

TYPICAL CONTROL PANEL & CONC. PAD SIDE VIEW DETAIL

GENERAL NOTES:

- ALL FIELD WIRING CONNECTIONS BETWEEN PUMPS, FLOW SWITCHES AND CONTROL PANEL SHALL BE MADE BY LISTED ELECTRICAL LEADS.
- P.V.C. AND COP GLEYS TO ELIMINATE AND RESISTANCE WITH 1/8" DIA. 1/2" DIA. EEL TUBES MAY BE USED TO LIFT EEL TUBES THROUGH WALLS.
- ALL FIELD SWITCH WIRING TO REMAIN STOP AT JUNCTION BOX FROM METELL AND FROM JUNCTION BOX TO CONTROL PANEL.
- CONCRETE SHALL BE IN CONTACT WITH STEEL SHALL BE MINIMUM OF 1" BELOW FINISHED GRADE.
- CONCRETE OPERATOR RECEIVABLE WITH COVER.

HARNETT COUNTY PUBLIC UTILITIES
WASTE WATER SYSTEM
HARNETT COUNTY - NORTH CAROLINA

Scale: NOTED
Date: 2009
Drawn By: H.C.D.P.U.
Checked By: W.W.K.
Book No:
Page No:
Job No:
Sheet No: WW-2

TYPICAL GREASE TRAP INTERCEPTOR DETAIL

HARNETT COUNTY PUBLIC UTILITIES
WASTE WATER SYSTEM
HARNETT COUNTY - NORTH CAROLINA

Scale: NOTED
Date: 2009
Drawn By: H.C.D.P.U.
Checked By: W.W.K.
Book No:
Page No:
Job No:
Sheet No: WW-3

TYPICAL PIPE LAYING CONDITION DETAIL

TYPICAL PIPE LAYER POSITION DETAIL

TYPICAL PRESSURE RELEASE MANHOLE FRAME & COVER DETAIL

TYPICAL LOCKABLE MANHOLE FRAME & COVER DETAIL

TYPICAL STANDARD MANHOLE FRAME & COVER DETAIL

TYPICAL VENTED MANHOLE DETAIL

TYPICAL AIR VACUUM/RELEASE MANHOLE FOR FORCE MAIN DETAIL

TYPICAL STANDARD MANHOLE FRAME & COVER DETAIL

HARNETT COUNTY PUBLIC UTILITIES
WASTE WATER SYSTEM
HARNETT COUNTY - NORTH CAROLINA

Scale: NOTED
Date: 2009
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Page No:
Job No:
Sheet No: WW-3

TYPICAL STANDARD BREECH CONCRETE MANHOLE DETAIL

TYPICAL INSIDE DROP MANHOLE DETAIL

TYPICAL OUTSIDE DROP MANHOLE DETAIL

TYPICAL BREECH CONCRETE MANHOLE DETAIL

TYPICAL INSIDE DROP MANHOLE DETAIL

TYPICAL OUTSIDE DROP MANHOLE DETAIL

HARNETT COUNTY PUBLIC UTILITIES
WASTE WATER SYSTEM
HARNETT COUNTY - NORTH CAROLINA

Scale: NOTED
Date: 2009
Drawn By: H.C.D.P.U.
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Sheet No: WW-4

TYPICAL SEWER SERVICE CONNECTION DETAIL

HARNETT COUNTY PUBLIC UTILITIES
WASTE WATER SYSTEM
HARNETT COUNTY - NORTH CAROLINA

Scale: NOTED
Date: 2009
Drawn By: H.C.D.P.U.
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TYPICAL PRESSURE RELEASE MANHOLE FRAME & COVER DETAIL

TYPICAL LOCKABLE MANHOLE FRAME & COVER DETAIL

TYPICAL STANDARD MANHOLE FRAME & COVER DETAIL

TYPICAL VENTED MANHOLE DETAIL

TYPICAL AIR VACUUM/RELEASE MANHOLE FOR FORCE MAIN DETAIL

TYPICAL STANDARD MANHOLE FRAME & COVER DETAIL

HARNETT COUNTY PUBLIC UTILITIES
WASTE WATER SYSTEM
HARNETT COUNTY - NORTH CAROLINA

Scale: NOTED
Date: 2009
Drawn By: H.C.D.P.U.
Checked By: W.W.K.
Book No:
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Job No:
Sheet No: WW-5

TYPICAL STORM SEWER CROSSING FOR SANITARY SEWER DETAIL

TYPICAL WATER LINE CROSSING FOR SANITARY SEWER DETAIL

HARNETT COUNTY PUBLIC UTILITIES
WASTE WATER SYSTEM
HARNETT COUNTY - NORTH CAROLINA

Scale: NOTED
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TYPICAL WATER LINE CROSSING FOR SANITARY SEWER DETAIL

HARNETT COUNTY PUBLIC UTILITIES
WASTE WATER SYSTEM
HARNETT COUNTY - NORTH CAROLINA

Scale: NOTED
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Job No:
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TYPICAL SANITARY SEWER DETAILS

HARNETT COUNTY PUBLIC UTILITIES
WASTE WATER SYSTEM
HARNETT COUNTY - NORTH CAROLINA

Scale: NOTED
Date: 2009
Drawn By: H.C.D.P.U.
Checked By: W.W.K.
Book No:
Page No:
Job No:
Sheet No: WW-3

TYPICAL SANITARY SEWER DETAILS

HARNETT COUNTY PUBLIC UTILITIES
WASTE WATER SYSTEM
HARNETT COUNTY - NORTH CAROLINA

Scale: NOTED
Date: 2009
Drawn By: H.C.D.P.U.
Checked By: W.W.K.
Book No:
Page No:
Job No:
Sheet No: WW-4

TYPICAL SANITARY SEWER DETAILS

HARNETT COUNTY PUBLIC UTILITIES
WASTE WATER SYSTEM
HARNETT COUNTY - NORTH CAROLINA

Scale: NOTED
Date: 2009
Drawn By: H.C.D.P.U.
Checked By: W.W.K.
Book No:
Page No:
Job No:
Sheet No: WW-4

SEA

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HARNETT COUNTY PUBLIC UTILITIES
WASTE WATER SYSTEM
HARNETT COUNTY - NORTH CAROLINA

SANITARY SEWER DETAILS
CIVIL CONSTRUCTION DRAWINGS
SENTERS ASSISTED LIVING

Scale: AS NOTED
Date: JAN. 2022
Drawn By: D.B.
Checked By: ZHG
Job No.: E-1657

Sheet No: C-16

811
Know what's below.
Call before you dig.

2022 HRW REQUIRED UTILITY NOTES

(Revision 10- April 19, 2022)

The following utility notes should be added to the coversheet of utility plans for projects located in Harnett County:

WATER

A. The Fire Marshal's Office shall approve all hydrant types and locations in new subdivisions. However, Harnett Regional Water (HRW) prefers the contractors to install one of the following fire hydrants:

- Mueller - Super Centurion 250 A-423 model with a 5/4" main valve opening three way (two hose nozzles and one pumper nozzle).
- American Darling - Mark B-84-B model with a 5/4" main valve opening three way (two hose nozzles and one pumper nozzle).
- Waterous - Pacer B-67-250 model with a 5/4" main valve opening three way (two hose nozzles and one pumper nozzle) or approved equal for standardization.

*All fire hydrants listed above must have "American National Fire Hose Connection Screw Threads" NST/NH hose threads.

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

C. The Professional Engineer (PE) shall obtain and provide the NCDEQ "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 NCDEQ "Authorization to Construct" permit issued by the North Carolina Department of Environmental Quality (NCDEQ) 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 Regional Water (HRW) and the Professional Engineer (PE) at least two days prior to construction commencing. The Utility Contractor must schedule a pre-construction conference with Mr. Chad Everette, HRW Utility Construction Inspector at least two (2) days before construction will begin and the Utility Contractor must coordinate with HRW for regular inspection visitations and acceptance of the water system(s). Construction work shall be performed only during the normal working hours of HRW which is 8:00 am - 5:00 pm Monday through Friday. Holiday and weekend work is not permitted by HRW.

E. The Professional Engineer (PE) shall provide HRW and the Utility Contractor with a set of NCDEQ 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 HRW 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 HRW and be approved by the Engineer of Record prior to construction. All nonstandard materials or materials not approved for use in Harnett County found on the project site must be removed immediately when notified by the HRW Utility Construction Inspector.

G. The water main(s), fire hydrants, service lines, meter setters and all associated appurtenances shall be constructed in strict accordance with the standard specifications of the Harnett Regional Water (HRW). 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 Environmental Quality, Division of Environmental Health, Public Water Supply Section (NCDEQ, DEH, PWS) and accepted by HRW.

H. Prior to acceptance, all services will be inspected to ensure 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 HRW 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 NCDEQ approved plans. All change orders must be approved by HRW 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.

K. 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.

L. 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.

M. 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.

N. HRW requires that meter boxes for 3/4" 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.

O. 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 HRW 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 HRW prior to ordering the concrete vaults.

P. 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 3/4" 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 HRW. If sidewalks are proposed, the conduit must extend past the sidewalk.

Q. 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 HRW Utility Construction Inspector. The Utility Contractor must notify HRW when they are ready to begin filling in lines and coordinate with Harnett Regional Water to witness all pressure testing.

R. 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 HRW 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 Regional Water's existing water mains and the new water line extensions under construction.

S. 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.

AA. All water mains will be flushed and disinfected in strict accordance with the standard specifications of the Harnett Regional Water. All water samples collected for bacteria testing

will be collected by the HRW Utility Construction Inspector and tested in the HRW Laboratory.

T. All fittings larger than two (2") inches diameter shall be ductile iron. HRW requires that mechanical joints be assembled with grip rings as "Megalog" fittings are not approved by Harnett Regional Water 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. HRW 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 HRW 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 HRW 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 HRW 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 HRW before the final inspection will be scheduled by the HRW 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 HRW.

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 Regional Water. Harnett Regional Water 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 NCDEQ and accepted by HRW. The final inspection of water system improvements cannot be scheduled with HRW 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 ensure 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 HRW. A copy of each engineer's field report is to be submitted to HRW 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 HRW 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 HRW Inspector must be present during testing and all test results shall be submitted to HRW. All tests must be satisfied before the final inspection will be scheduled with the HRW 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 HRW 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 HRW exceeds two, additional fees may be assessed 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 Environmental Quality (NCDEQ) 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 Regional Water (HRW) and the Professional Engineer (PE) at least two days prior to construction commencing. The Utility Contractor must schedule a pre-construction conference with Mr. Chad Everette, HRW Utility Construction Inspector at least two (2) days before construction will begin and the Utility Contractor must coordinate with HRW for regular inspection visitations and acceptance of the wastewater system(s). Construction work shall be performed only during the normal working hours of HRW which is 8:00 am - 5:00 pm Monday through Friday. Holiday and weekend work is not permitted by HRW.

C. The Professional Engineer (PE) shall provide HRW with a set of NCDEQ approved plans marked "Released for Construction" at least two days prior to construction commencing. HRW 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 HRW 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 HRW and be approved by the Engineer of Record prior to construction. All nonstandard materials or materials not approved for use in Harnett County found on the project site must be removed immediately when notified by the HRW 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. HRW 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 HRW.

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 Environmental Quality (NCDEQ) and accepted by HRW. 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. ALL ductile iron sewer piping must be 401 epoxy coated or approved equal.

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 Regional Water. 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. Sanitary sewer manholes must be vacuum tested to 10 inches of mercury and cannot drop below 9 inches in 60 seconds for 4 ft. diameter manholes, 75 seconds for 5 ft. diameter manholes. The test must be in accordance with the following standards: For ductile iron pipelines test in accordance with the applicable requirements of ASTM C924. For PVC pipelines test in accordance with ASTM F1417-98 and UBPPA UNI-B-6. Vacuum testing shall be performed in accordance with ASTM C1244. **The HRW Utility Construction Inspector and Engineer must witness all tests mentioned above.**

H. Prior to acceptance, all sewer service laterals will be inspected to ensure 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 HRW. 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 HRW Utility Construction Inspector to witness the mandrel test on each PVC sanitary sewer gravity line. The Utility Contractor will notify HRW 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 HRW Utility Construction Inspector if the mandrel and mirror tamping 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 Regional Water'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 Environmental Quality (NCDEQ) and accepted by HRW.

K. HRW 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 HRW 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 NCDEQ approved plans. All change orders must be approved by HRW 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



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No.	Date:	Description:	By:
1	10-19-22	COMMENTS FROM HARNETT COUNTY	DJB
2	01-04-23	COMMENTS FROM HARNETT COUNTY	DJB
3	01-19-23	COMMENTS FROM HARNETT COUNTY	ZHG

SANITARY SEWER DETAILS
 CIVIL CONSTRUCTION DRAWINGS
 SENTERS ASSISTED LIVING
 40 RAWLS CLUB RD.
 FUQUAY VARINA - HARNETT COUNTY - NC

Scale:	AS NOTED
Date:	JAN. 2022
Drawn By:	DJB
Checked By:	ZHG
Job No.:	E-7657
Sheet No.:	C-17



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.

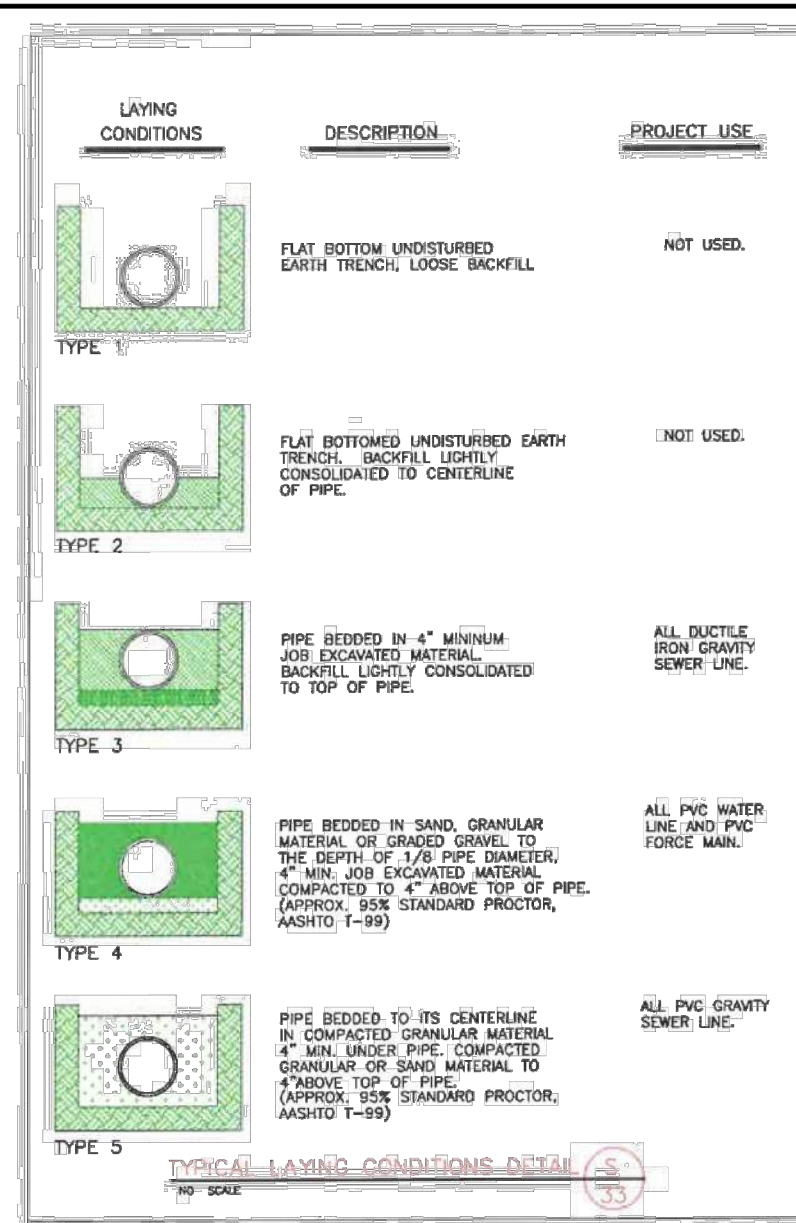
- O. When making a tap on an existing sewer force main, the Utility Contractor must have a permit from the North Carolina Department of Environmental Quality (NCDEQ) prior to begin the tap work. The Utility Contractor shall conduct a pneumatic pressure test using compressed air or other inert gas on 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 HRW 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 HRW Pre-Treatment Coordinator. Garbage disposals should not be installed in homes and businesses that discharge wastewater to the Harnett Regional Water's Sanitary Sewer System as they are not approved by HRW.
- 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 Regional Water standard specifications and details. If three phase power is not available from the power company other arrangements must be approved by HRW Engineering prior to the start of construction.
- R. Where a new sanitary sewer force main is connected to an existing manhole in the Harnett Regional Water sewer collections system, the Utility Contractor must provide a protective coating (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. Each sanitary sewer lift station

as possible once the new sanitary sewer lines have been inspected, pressure tested, mandrel tested, approved by the North Carolina Department of Environmental Quality (NCDEQ) and accepted by HRW to allow the sewer to flow as designed in Harnett Regional Water's existing sanitary sewer lines or when so ordered by the HRW 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 HRW Collections Supervisor. Mr. Randolph Clegg, HRW Collections Supervisor may be contacted between 8:00 am and 5:00 pm Monday through Friday at (910) 893-7575 extension 3241.

- 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 Environmental Quality (NCDEQ) and accepted by HRW. 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 NCDEQ and accepted by HRW. HRW will provide maintenance and warranty repairs if necessary due to lack of response within 48 hours of notification of warranty work. HRW 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 HRW right-of-way, the Registered Land Surveyor (RLS) must provide the HRW 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 HRW 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 HRW by the Developer at no cost to Harnett County. The final inspection of all sanitary sewer system improvements cannot be scheduled with HRW 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 ensure 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

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 ABC 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 HRW Engineering and Collections staff, the Professional Engineer (PE), the Electrician, the original equipment manufacturers (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 HRW 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 Environmental Quality (NCDEQ) and HRW for final approval. The Utility Contractor must supply HRW 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 HRW 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 HRW and placed into operation.
- W. HRW 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 lamping with mirrors, mandrels, sewer balls, plugs, air compressors and associated compressed air lines. If the HRW 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 be released to HRW for record keeping, review and approval of the sewer system.
- X. Any use of sewer plugs to temporarily block Harnett Regional Water's existing sanitary sewer lines must be coordinated with the HRW Collections Supervisor at least two (2) days in advance of installing the plugs. The sewer plugs must be removed as soon

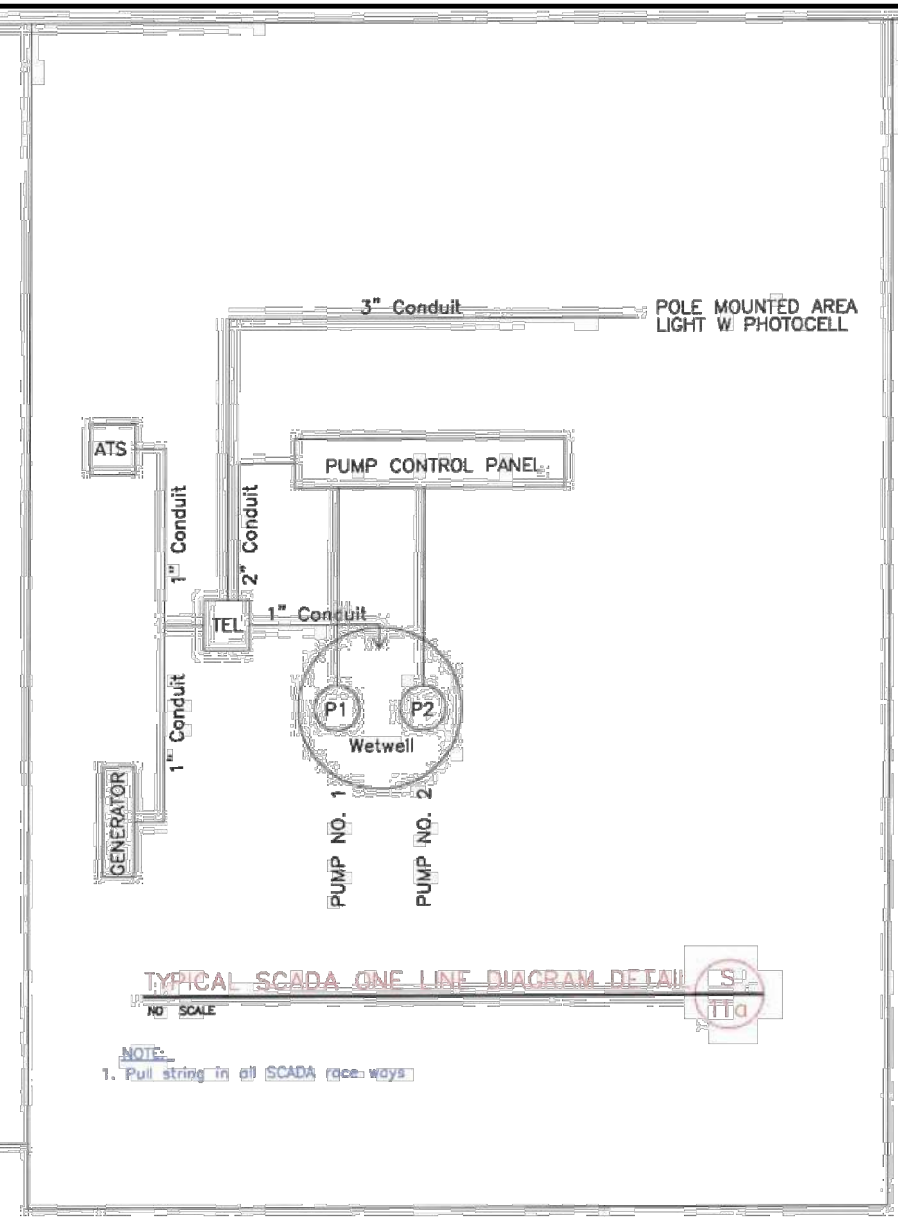


MINIMUM SPECIFIED TIME REQUIRED FOR A PSI PRESSURE DROP AT 5 PSI FOR SIZE AND LENGTH OF PIPE INDICATED FOR Q = 0.0015

Specification Time for Length (L) Shown (min:sec)

Pipe Diameter (in)	2 Minimum Time (min:sec)	3 Length for Minimum Time (ft)	4 Length for Longer Length (sec)	Specification Time for Length (L) Shown (min:sec)							
				100 ft	150 ft	200 ft	250 ft	300 ft	350 ft	400 ft	450 ft
4	1:53	597	1:00 L	1:53	1:53	1:53	1:53	1:53	1:53	1:53	1:53
6	2:50	398	4:27 L	2:50	2:50	2:50	2:50	2:50	2:50	2:51	3:12
8	3:47	298	7:00 L	4:00	4:00	4:00	4:00	4:00	4:00	4:26	5:04
10	4:43	239	1:187 L	4:43	4:43	4:43	4:57	5:56	6:55	7:54	8:54
12	5:40	199	1:709 L	5:40	5:40	5:42	7:08	8:33	9:58	11:24	12:50
15	7:05	159	2:671 L	7:05	7:05	8:54	11:08	13:21	15:35	17:48	20:02
18	8:30	119	3:846 L	8:30	8:37	12:49	16:01	19:14	22:26	25:38	28:51
21	9:55	114	5:293 L	9:58	13:05	17:27	21:49	26:11	30:32	34:54	39:16
24	11:20	99	6:837 L	11:24	17:57	22:48	28:30	34:11	39:53	45:35	51:17
27	12:45	88	8:653 L	14:25	21:38	28:51	36:04	43:16	50:30	57:42	64:54
30	14:10	80	10:689 L	17:48	26:43	35:37	44:31	53:25	62:19	71:13	80:07
33	15:35	72	12:958 L	21:39	32:19	43:56	53:52	64:38	75:24	86:10	96:57
36	17:00	66	15:384 L	25:39	38:28	51:17	64:06	76:55	89:44	102:34	115:23
42	19:54	57	20:942 L	34:54	52:21	69:49	87:15	104:42	122:10	139:37	157:04
48	22:47	50	27:321 L	45:35	68:23	91:11	113:98	136:46	159:33	182:21	205:09
54	25:31	44	34:618 L	57:42	86:33	115:24	144:15	173:05	201:56	230:47	259:38
60	28:20	40	42:738 L	71:14	106:51	142:28	178:05	213:41	249:18	284:55	320:32

Note: If there has been no leakage (zero pig drop) after one hour of testing, the test section shall be accepted and the test complete.

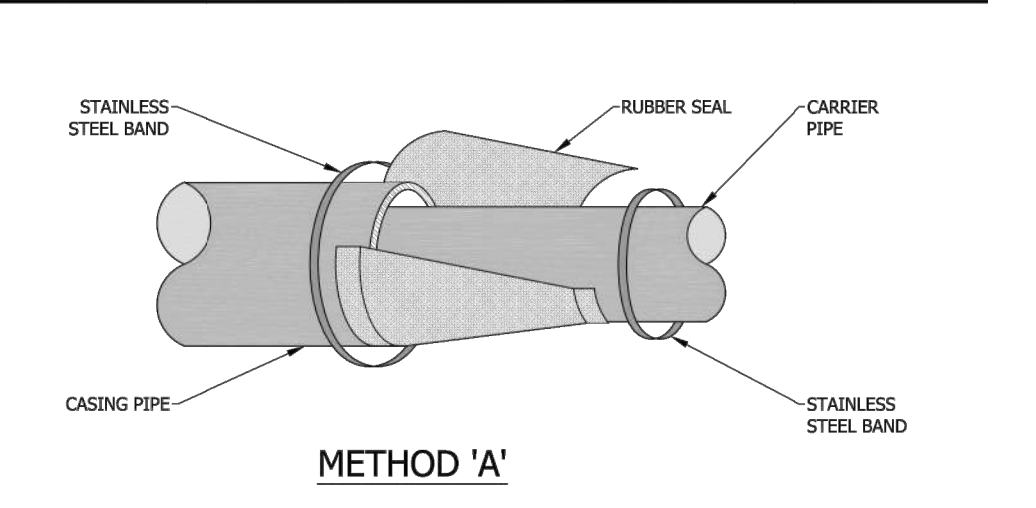
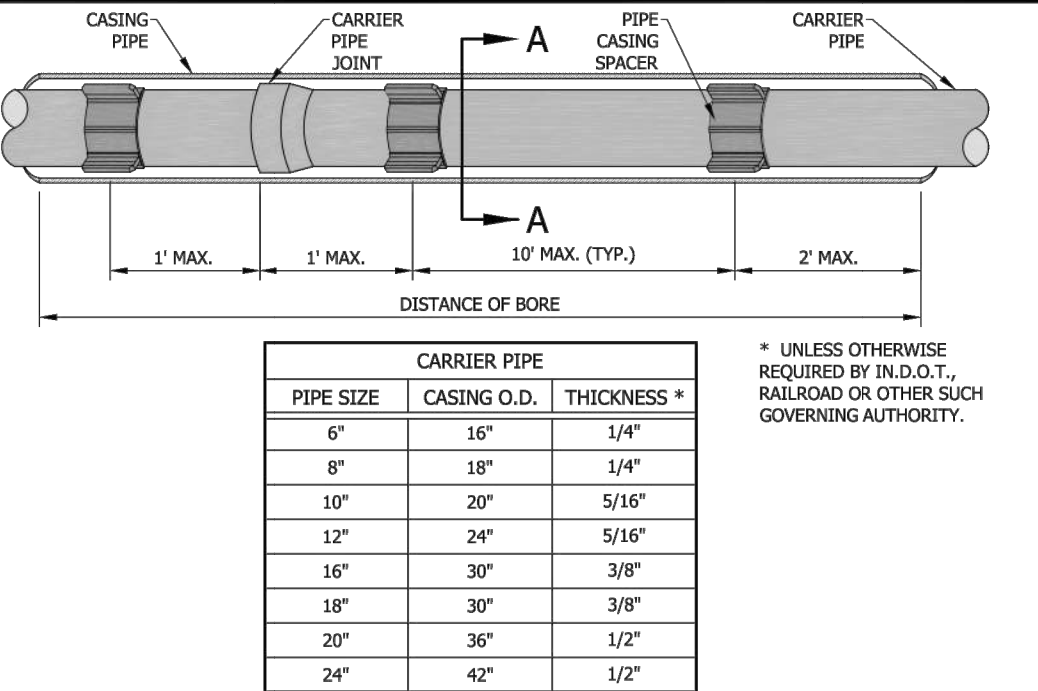
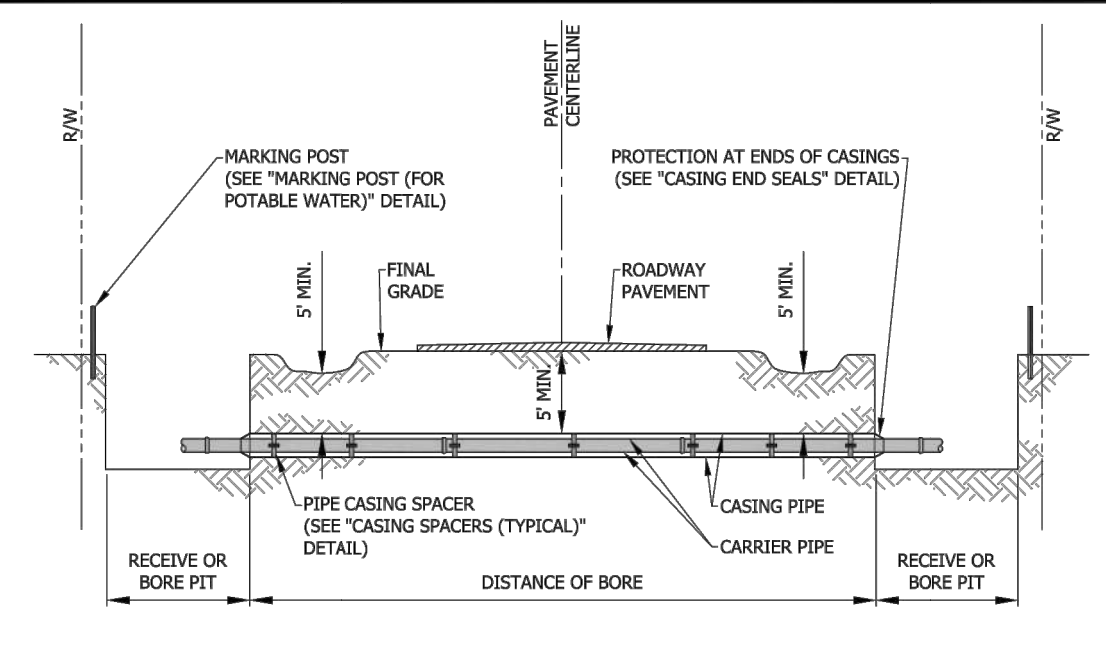


HARNETT COUNTY
WASTE WATER SYSTEM
HARNETT COUNTY SPECIFICATIONS
HARNETT COUNTY - NORTH CAROLINA

Scale: NOTED
Date: 2009
Drawn By: H.C.D.P.U.
Checked By: W.W.R.

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NC Professional Engineering Firm License No. F-0336

By: DJB, ZHG
Description: COMMENTS FROM HARNETT COUNTY
01-04-23 COMMENTS FROM HARNETT COUNTY
01-19-23 COMMENTS FROM HARNETT COUNTY



WELDING:
STEEL CASING SECTIONS SHALL BE CONNECTED BY WELDING. WELD SHALL CONFORM TO AWWA C206.

NOTE:
1. ALL PIPE JOINTS WITHIN THE CASING ARE TO BE RESTRAINED.
2. TRACING WIRE TO BE INSTALLED THROUGH ALL CASED BORINGS AND CONNECTED TO MARKING POSTS.

3. STEEL PIPE CASING SHALL CONFORM TO THE REQUIREMENTS OF ASTM A363, GRADE B, C, OR D. ALL JOINTS SHALL BE WELDED. ALL WELDING SHALL BE PERFORMED IN ACCORDANCE WITH AWWA C206, "AWWA STANDARD FOR FIELD WELDING OF STEEL WATER PIPE". COATING FOR STEEL CASING IS NOT REQUIRED.

4. STEEL PIPE CASING SHALL BE INSTALLED SYMMETRICAL ABOUT WATER MAIN CENTERLINE (TYP). PIPE CASING SHALL BE LAID TRUE TO LINE AND GRADE WITH NO BENDS OR CHANGES IN GRADE FOR THE FULL LENGTH OF THE CASING.

NOTE:
1. CASING SPACERS SHALL BE CCS SERIES BY CASCADE WATERWORKS MFG. ALTERNATE CASING SPACERS MAY BE USED WITH PRIOR APPROVAL FROM CITY UTILITIES PROJECT ENGINEER.
2. CITY UTILITIES APPROVED CASING SPACERS AND END SEALS SHALL BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS. USE A "CENTERED" CONFIGURATION AND PROVIDE THE MANUFACTURER WITH THE FOLLOWING INFORMATION: CARRIER PIPE O.D., CASING PIPE I.D., AND CASING LENGTH.

NOTE:
1. THIS STANDARD IS APPLICABLE FOR 4" DIAMETER AND LARGER CARRIER PIPE.
2. CITY UTILITIES APPROVED CASING SPACERS AND END SEALS SHALL BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS. USE A "CENTERED" CONFIGURATION AND PROVIDE THE MANUFACTURER WITH THE FOLLOWING INFORMATION: CARRIER PIPE O.D., CASING PIPE I.D., AND CASING LENGTH.

Scale: AS NOTED
Date: JAN. 2022
Drawn By: DJB
Checked By: ZHG
Job No.: E-1657

Sheet No. C-18

811
Know what's below.
Call before you dig.