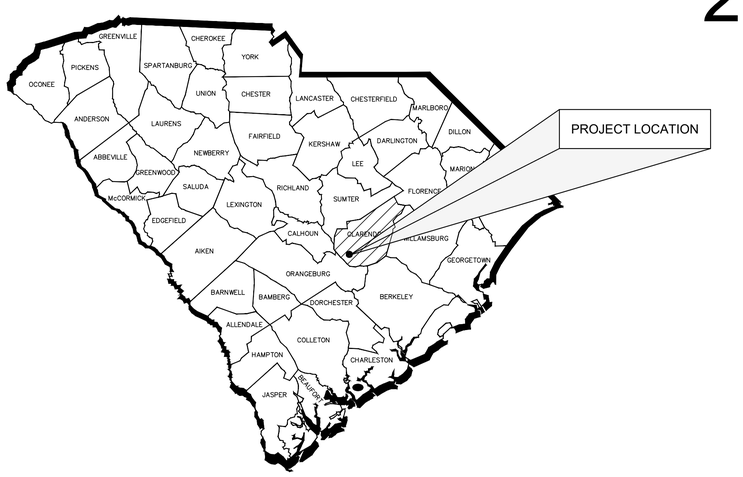
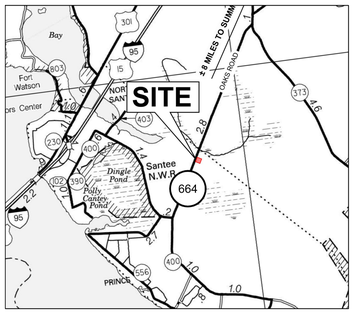
290-GPM OAKS ROAD PUMP STATION

CLARENDON COUNTY, SOUTH CAROLINA



VICINITY MAP
NOT TO SCALE



SITE LOCATION
1" = ½ MILE

CLIENT
CLARENDON COUNTY DEVELOPMENT BOARD
411 SUNSET DRIVE,
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(803) 435-8813
CONTACT: MR. GEORGE KOSINSKI, SCCED, EXECUTIVE DIRECTOR

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CONTACT: MR. HUNTER DENNY, ENGINEERING COORDINATOR

CIVIL ENGINEER
ALLIANCE CONSULTING ENGINEERS, INC.
124 VERDAE BOULEVARD, BONAVENTURE II - SUITE 505
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(864) 284-1740
CONTACT: ADAM R. HOGAN, P.E.

SHEET INDEX

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

THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND, WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. SC LAW REQUIRES THE CONTRACTOR TO CALL THE UTILITY PROTECTION CENTER AT LEAST 72 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE THE RELOCATION OF ALL THE UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.

CERTIFICATION STATEMENTS

I Adam Hogan HAVE PLACED MY SIGNATURE AND SEAL ON THE DESIGN DOCUMENTS SUBMITTED SIGNIFYING THAT I ACCEPT RESPONSIBILITY FOR THE DESIGN OF THE SYSTEM. FURTHER, I CERTIFY TO THE BEST OF MY KNOWLEDGE AND BELIEF THAT THE DESIGN IS CONSISTENT WITH THE REQUIREMENTS OF TITLE 48, CHAPTER 14 OF THE CODE OF LAWS OF SC, 1976 AS AMENDED, PURSUANT TO REGULATION 72-300 ET SEQ. (IF APPLICABLE), AND IN ACCORDANCE WITH THE TERMS AND CONDITIONS OF SCR100000.

LEGEND

EXISTING CONTOUR MAJOR	PROPOSED CONTOUR MAJOR
EXISTING CONTOUR MINOR	PROPOSED CONTOUR MINOR
EXISTING WATER/GAS VALVE	PROPOSED WATER VALVE
EXISTING WATER/GAS METER	PROPOSED WATER METER
EXISTING TREE LINE	PROPOSED FORCE MAIN
EXISTING POWER POLE	PROPOSED ARV
EXISTING LIGHT POLE	PROPOSED GRAVITY WASTEWATER LINE
EXISTING OVERHEAD ELECTRICAL LINE	PROPOSED MANHOLE
EXISTING FIBER-OPTIC CABLE LINE	PROPOSED WATER LINE
EXISTING UNDERGROUND TELECOM LINE	PROPOSED HYDRANT
EXISTING TELECOM/FIBER-OPTIC BOX	PROPOSED STORM DRAIN
EXISTING GAS LINE	PROPOSED STORM DRAIN STRUCTURE
EXISTING FENCE	PROPOSED DEMOLITION
EXISTING FORCEMAIN	PROPOSED EROSION CONTROL MATTING
EXISTING ARV	PROPOSED RIP RAP
EXISTING GRAVITY WASTEWATER LINE	PROPOSED INLET PROTECTION
EXISTING MANHOLE	PROPOSED SILT FENCE
CLEANOUT	PROPOSED FENCE
EXISTING WATER LINE	
EXISTING HYDRANT	RIGHT-OF-WAY
EXISTING STORM DRAIN	PROPERTY LINE
EXISTING STORM DRAIN STRUCTURE	LIMITS OF DISTURBANCE
	EASEMENT
EXISTING BUILDING	WETLANDS AND BUFFER
CONCRETE	WATERWAY
GRAVEL	
ASPHALT	
GUARDRAIL	
BOLLARD	

REVISION DATE		
1	DATE	REVISION DESCRIPTION
	12/18/24	ISSUE FOR PERMITTING
	03/05/25	ISSUE FOR BID

APPROVALS: ENGINEER ARH | DESIGNER HMW | TECHNICIAN MRT | CHECKED BY ARH | APPROVED ARH

SOUTH CAROLINA NOTIFIED BOARD FOR ENGINEERS & LAND SURVEYORS CERTIFICATE OF AUTHORIZATION Alliance Consulting Engineers, Inc. No. C02854

DATE: 12/18/24

SOUTH CAROLINA PROFESSIONAL ENGINEER No. 25472 Adam Hogan REGISTERED

SIGNATURE:

ALLIANCE CONSULTING ENGINEERS
Alliance Consulting Engineers, Inc.
124 Verdae Blvd - Bonaventure II, Suite 505 - Greenville, SC 29607
Phone: (864) 284-1740 • Fax: (864) 284-1741

SHEET: COVER

SCALE: AS SHOWN

DATE: AUGUST 2024

PROJECT: 290-GPM OAKS ROAD PUMP STATION

CLARENDON COUNTY SOUTH CAROLINA

FILE NAME: 24110-Cover and Details.dwg
REFERENCE FILE: 24110-Base.dwg
PROJECT NO. 24110-0014

SHEET COVER OF E102

DWG NO. 01,1695-D29

SCDOT CONSTRUCTION NOTES:

NOTIFICATIONS

1. SCDOT SHALL BE NOTIFIED WHEN WORK DEFINED IN THIS PERMIT STARTS AS WELL AS WHEN THE WORK IS COMPLETED. SCDOT NOTIFICATION SHALL REFERENCE THE SCDOT PERMIT NUMBER.
2. SCDOT SHALL BE GIVEN THE OPPORTUNITY OF ATTENDING ANY PRE -CONSTRUCTION MEETING PRIOR TO THE BEGINNING OF WORK.
3. A COPY OF THE APPROVED PERMIT WILL BE MADE AVAILABLE TO THE SCDOT AT THE WORK SITE AT ALL TIMES.
4. ALL WORK PERFORMED IN CONNECTION WITH THIS PERMIT SHALL CONFORM TO THE SCDOT "A POLICY FOR ACCOMODATING UTILITIES ON HIGHWAY RIGHT RIGHT-OF-WAY" MOST CURRENT EDITION.
5. WORK SHALL COORDINATE WITH SCDOT CONTRACTOR AS TO NOT INTERFERE NOR DELAY WORK BEING PERFORMED FOR SCDOT RESURFACING.
6. ALL CROSSLINE PIPES ARE TO BE LOCATED AND FLAGGED PRIOR TO BEGINNING OPERATION.
7. CONTRACTOR TO MAINTAIN ACCESS TO ALL PROPERTY OWNERS AT ALL TIMES DURING CONSTRUCTION UNTIL FINAL INSPECTION AND APPROVAL IS OBTAINED. IF IN THE COURSE OF CONSTRUCTION DRIVEWAYS ARE TO BE CUT AND ACCESS IMPAIRED THE CONTRACTOR WILL BE RESPONSIBLE TO INFORM EACH RESIDENT OF THE INCONVENIENCE AND THE TIME, DATE AND LENGTH OF THE WORK TO BE DONE. REPLACEMENT OF DRIVEWAY MATERIAL SHALL BE IN KIND.

WORK WITHIN SCDOT R/W

8. ALL CLEARING INSIDE THE SCDOT RIGHT-OF-WAY AND /OR ANY PROPOSED TEMPORARY CONSTRUCTION EASEMENTS WILL BE DONE IN ACCORDANCE WITH ALL SCDOT SPECIFICATIONS. ALL STUMPS AND DEBRIS WILL BE REMOVED FROM THE RIGHT-OF-WAY AND DISPOSED OF OFF-SITE BY THE CONTRACTOR. THEN PROPER DRAINAGE WILL WILL BE RESTORED TO ALL DISTURBED AREAS.
9. ALL EXCAVATED MATERIAL SHALL BE PLACED ON THE SIDE OF THE TRENCH AWAY FROM THE TRAVELED ROADWAY. NO EXCAVATED MATERIAL OR SPOIL IS TO BE PLACED ON THE PAVEMENT WITHOUT THE PERMISSION OF SCDOT, AND IF PERMISSION IS GRANTED, THIS MATERIAL MUST BE REMOVES DAILY, AS SOON AS POSSIBLE. THE ROADWAY IS TO BE CLEARED OF ALL THE MATERIALS IN A MANNER AS TO PROTECT THE EXISTING PAVEMENT. ANY PAVEMENT DESTROYED, OR MARKED BY THIS OPERATION WILL BE REMOVED AND REPLACED AS REQUIRED.
10. ALL VALVES AND MANHOLES SHALL CONFORM TO THE EXISTING ELEVATION OF THE ROADWAY OR SHOULDER AND CONFORM TO THE ACCEPTED STANDARD. WHEN THE VALVES AND MANHOLES WILL BE LOCATED OUT OF THE PAVEMENT, THEY SHALL NOT BE PLACED IN A DITCH FLOW LINE WITHOUT ENGINEER APPROVAL AND 12-INCHES ADDITIONAL COVER, AT CONTRACTORS EXPENSE.
11. THERE SHALL BE NO EXCAVATION OF SOIL NEARER THAN TWO FEET FROM ANY PUBLIC UTILITY POLE OR APPURTENANT FACILITY WITHOUT THE WRITTEN CONSENT OF THE OWNER THEREOF. SPECIAL PERMISSION OF THE SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION AFTER AN OPPORTUNITY TO BE HEARD IS GIVEN THE OWNER OF SUCH POLE OR APPURTENANT FACILITY MAY BE GIVEN.
12. IF THE SIDE OF THE TRENCH, PIT OR ANY EXCAVATION IS WITHIN 3-FT OF THE EXISTING ROADWAY EDGE OF PAVEMENT, THE EXCAVATED AREA WILL BE BACKFILLED ENTIRELY WITH FLOWABLE FILL TO AN ELEVATION OF 6 INCHES FROM THE EXISTING GROUND ELEVATION. THEN BROUGHT TOO GRADE WITH SUITABLE TOPSOIL, COMPACTED TO 95% COMPACTION, GRADED, AND GRASSED AS REQUIRED TO ELIMINATE ANY EROSION.
13. APPLICANT SHALL BE RESPONSIBLE FOR THE PLACEMENT OF SECURED STEEL PLATES ON OPEN CUT OF PAVEMENT IF WORK IS INCOMPLETE OR LEFT OVERNIGHT.
14. ALL OPEN EXCAVATIONS WITHIN SCDOT RIGHT-OF-WAY SHALL BE PROPERLY BARRICADED WHEN WORK IS NOT BEING PERFORMED. BORE PITS SHALL BE SAFELY SECURED WHEN NOT IN USE AND CLOSED IMMEDIATELY AFTER INSTALLATION.
15. ALL PRESSURIZED UTILITY PIPE LINES CROSSING SCDOT ROADWAY EITHER IN AN OPEN CUT OR BY A BORING OPERATION ARE TO BE ENCASED IN A STEEL CASING OR BE DUCTILE IRON PIPE (DIP) AS INDICATED ON PERMIT DRAWINGS.

RESURFACING AND RESTORATION WITHIN SCDOT R/W

16. TRENCH TO BE PROPERLY BACK -FILLED AND THOROUGHLY TAMPED PER NOTE 9 IN ACCORDANCE WITH SCDOT STANDARDS. THE ENTIRE DISTURBED AREA SHALL BE RE-SHAPED AND DRESSED IN A WORKMANSHIP LIKE MANNER AND ENSURING POSITIVE DRAINAGE.
17. WHEN ROADS ARE RESURFACED, SHOULDERS SHALL BE REGRADED TO THE EDGE OF PAVEMENT TO CONFORM TO SCDOT SPECIFICATIONS.
18. THE DITCHES, SHOULDERS, AND/OR DRAIN PIPES DISTURBED, REMOVED, OR OTHERWISE DAMAGED DURING CONSTRUCTION SHALL BE IMMEDIATELY RE-ESTABLISHED TO PROPER GRADE AND ORIGINAL CROSS SECTION TO PROVIDE POSITIVE DRAINAGE, REPLACED OR RESTORED TO ORIGINAL SIZE AND MATERIAL, STABILIZED, AND ALL DRAIN PIPES CLEARED TO ENSURE PROPER AND ADEQUATE DRAINAGE. ANY CHANGE IN PIPE SIZE OR TYPE WILL REQUIRE APPROVAL FROM SCDOT PRIOR TO CHANGE BEING MADE. ANY NEW PIPE WILL REMAIN UNCOVERED UNTIL SCDOT INSPECTION HAS BEEN COMPLETED AT WHICH POINT IT MAY BE COVERED AND COMPACTED AS REQUIRED.
19. APPLICANT SHALL COMPLETE ALL REPAIRS OR REPLACEMENTS OF ASPHALT, SIDEWALKS, CURB AND GUTTER, PAVEMENT MARKINGS INCLUDING RPM'S USING THE APPROPRIATE DETAILS PER SCDOT STANDARD SPECIFICATIONS. ANY DISTURBED ITEMS SHALL BE RETURNED TO THEIR ORIGINAL STATE. ANY EXISTING PAVEMENT MARKINGS OR TRAFFIC SIGNAGE ALTERED DURING THE INSTALLATION OF THIS PERMITTED CONSTRUCTION WILL BE REPLACED BY THE PERMITTEE TO THEIR ORIGINAL CONDITION AS SOON AS POSSIBLE.
20. APPLICANT SHALL BE RESPONSIBLE FOR ALL PAVEMENT REPAIRS IF BORING PROCEDURE CAUSES ANY DAMAGE TO THE PAVEMENT. IF DAMAGE OCCURS, APPLICANT SHALL NOTIFY THE SCDOT MAINTENANCE PERMITS OFFICE IMMEDIATELY.
21. APPLICANT SHALL BE RESPONSIBLE FOR ALL FUTURE MAINTENANCE OF ANY PAVEMENT DISTURBANCE CAUSED BY THE UTILITY INSTALLATION OR REPAIR.
22. RESTORATION WORK IS TO BE PERFORMED AS SOON AS POSSIBLE AFTER CONSTRUCTION SUCH THAT CONSTRUCTION IS NO FURTHER THAN 2000-LF AHEAD OF RESTORATION. ANY AREA BEHIND THE WORK ZONE WILL BE RESTORED TO ITS TYPICAL SECTION AND PREPARED FOR FINAL GRADING, AND GRASSING IMMEDIATELY AS WORK PROGRESSES.
23. CLEANUP AND EROSION CONTROL MEASURES IN AREAS WHERE CONSTRUCTION HAS BEEN COMPLETED WILL BE CONDUCTED DURING THE LIFE OF THE PROJECT.
24. WHEN IN SCDOT RIGHT OF WAY, THE ENTIRE DISTURBED AREA SHALL BE TOP -SOILED USING 3 INCHES OF SELECTED MATERIAL AND RE -GRASSED TO SCDOT SPECIFICATIONS. ALL AREAS DISTURBED SHALL BE RESEEDED AND MONITORED UNTIL VEGETATION IS ESTABLISHED. SEE SCDOT "POLICY FOR SEEDING AND EROSION CONTROL MEASURES INSIDE ROADWAY RIGHTS-OF-WAY".

TRAFFIC CONTROL WITHIN SCDOT R/W

25. CONTRACTOR SHALL SUBMIT 40 HOUR NOTIFICATION FORM TO SCDOT AND SHALL OBTAIN AN APPROVED TRAFFIC CONTROL PLAN BEFORE CONSTRUCTION BEGINS.
26. FLASHING ARROW BOARDS SHALL BE USED FOR ALL LANE CLOSURES ON PRIMARY ROUTES AND/OR ROADS WITH HIGH TRAFFIC VOLUMES.
27. TRAFFIC CONTROL, LIGHTS, SIGNS AND FLAG-MEN WILL BE FURNISHED BY CONTRACTOR AND WILL CONFORM TO PART VI OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
28. THE CONTRACTOR SHALL BE RESPONSIBLE FOR IMMEDIATE REMOVAL OF SUCH TRAFFIC HAZARDS AS MUD, DEBRIS, LOOSE STONE, AND TRASH AS MAY BE WASHED OR SPILLED ON THE TRAVELED ROADWAY AS A RESULT OF THE PROPOSED WORK.
29. TRAFFIC CONTROL SHALL BE PROVIDED AND MAINTAINED BY THE CONTRACTOR PER SCDOT SPECIFICATIONS AND STANDARD DRAWING SERIES 601 AND 610, AS APPLICABLE, AND PER MUTCD SPECIFICATION SECTION 6H.01 (LATEST EDITION).
30. CONTRACTOR SHALL ENSURE ALL TRAFFIC SAFETY IS UPHELD AND PROVIDE ONE (1) LANE OPEN AT ALL TIMES.

GENERAL CONSTRUCTION LAND DISTURBANCE NOTES:
SEE SHEETS C-6.0 - C-6.1 FOR EROSION CONTROL DETAILS AND SCDES STANDARD NOTES

SCDES LAND DISTURBANCE SEQUENCE

1. RECEIVE NPDES APPROVAL FROM SCDES.
2. SCHEDULE PRE-CONSTRUCTION MEETING.
3. NOTIFY CLARENDON COUNTY/SCDES EQC REGIONAL OFFICE 48 HOURS PRIOR TO ANY LAND DISTURBING ACTIVITIES.
4. INSTALL TEMPORARY CONSTRUCTION ENTRANCE(S) AND PERIMETER AND EROSION CONTROLS (I.E. SILT FENCE, SEDIMENT TUBE) AS SHOWN AND AS NECESSARY.
5. BEGIN CONSTRUCTION WORK (I.E. CLEARING AND GRUBBING, UTILITY INSTALLATION, ETC.) CONTRACTOR TO MONITOR AND MAINTAIN PERIMETER AND EROSION CONTROL MEASURES THROUGHOUT CONSTRUCTION UNTIL FINAL STABILIZATION IS ACHIEVED, INCLUDING REPLACEMENT OF MEASURES AS NEEDED.
6. CONTRACTOR TO RE-GRADE AND STABILIZE PROJECT AREA AS CONSTRUCTION IS COMPLETED.
7. CONTRACTOR MAY REMOVE PERIMETER AND EROSION CONTROL DEVICES ONCE FINAL STABILIZATION OF ENTIRE PROJECT AREA IS ACHIEVED.
8. SUBMIT NOTICE OF TERMINATION (NOT) TO SCDES.

ENVIRONMENTAL PROTECTION AND EROSION CONTROL NOTES

1. CONTRACTOR TO INSTALL SILT FENCE ON LOW SIDE OF LIMITS OF DISTURBANCE FOR THE ENTIRE LENGTH OF THE PROJECT.
2. CONTRACTOR TO UTILIZE DOUBLE ROW SILT FENCE ALONG THE LOW SIDE OF THE LIMITS OF DISTURBANCE SUCH THAT AN UNDISTURBED BUFFER IS MAINTAINED BETWEEN THE SILT FENCE AND THE SENSITIVE AREA WHEN CONSTRUCTION IS ADJACENT TO SENSITIVE AREAS SUCH AS WETLANDS OR WATER BODIES. THIS INCLUDES INSTALLING DOUBLE ROW SILT FENCE AT THE START AND END OF BORES FOR TRENCHLESS INSTALLATIONS AND IMPLEMENTATION OF BANK PROTECTION AND STABILIZATION AS NEEDED.
3. CONTRACTOR TO UTILIZE SEDIMENT TUBES AS INLET PROTECTION AT STORM DRAINS AND UTILIZE SEDIMENT TUBES AND/OR EROSION CONTROL MATTING TO ENSURE PROPER STABILIZATION AND EROSION CONTROL WITHIN DRAINAGE DITCHES.
4. ALL WATER COLLECTED AND PUMPED DURING DEWATERING ACTIVITIES SHALL BE DISPOSED OF IN UNDISTURBED UPLAND AREAS INTO DOUBLE STAKED HAY BALES. DISCHARGE LOCATIONS SHALL BE OVER UNDISTURBED SOIL, A MINIMUM OF 75 FEET FROM THE NEAREST WATER BODY, WETLAND AREA, OR INLET TO ALLOW FOR MAXIMUM OVERLAND FILTRATION OF SOIL PARTICLES.
5. CONTRACTOR SHALL NOT REMOVE ANY TREES OTHER THAN THOSE SPECIFICALLY SHOWN TO BE REMOVED. CONTRACTOR SHALL TAKE PRECAUTIONS TO PROTECT ALL TREES NOT SPECIFICALLY SHOWN TO BE REMOVED. NO ACTIVITIES (EQUIPMENT, FILL PLACEMENT, ETC.) SHALL TAKE PLACE WITHIN THE DRIPLINE OF THE TREES TO REMAIN. IF NECESSARY, THE CONTRACTOR SHALL PROTECT TREES WITH SUITABLE BARRICADES.
6. CONTRACTOR SHALL INSTALL CONSTRUCTION ENTRANCES AT ALL LOCATIONS WHERE CONSTRUCTION TRAFFIC ACCESSES A PAVED ROADWAY.

WASTEWATER CONSTRUCTION GENERAL NOTES

STANDARDS AND SPECIFICATIONS

1. ALL WASTEWATER CONSTRUCTION MUST CONFORM TO ALL CLARENDON COUNTY STANDARDS AND SPECIFICATIONS.
2. CONTRACTOR TO USE THE PIPE MATERIAL AS IT IS REFERENCED IN THE SPECIFICATIONS AND SHOWN ON THE CONSTRUCTION DRAWINGS. ALL PROPOSED PVC PIPE SHALL HAVE A MINIMUM OF 36" OF COVER; CONTRACTOR TO NOTIFY THE OWNER AND ENGINEER IF ANY PROJECT CONDITIONS REQUIRE A CHANCE IN PIPE MATERIAL.
3. THE CONTRACTOR SHALL PERFORM ALL CONSTRUCTION IN ACCORDANCE WITH THE LINES AND GRADES SHOWN ON THE PLANS AND TO TOLERANCES STATED HEREIN OR IN THE SPECIFICATIONS.
4. CONSTRUCTION SHALL BE CARRIED OUT "IN THE DRY". THE CONTRACTOR SHALL REVIEW SITE CONDITIONS AND DETERMINE METHODS AND EXTENT OF DEWATERING NECESSARY AND SHALL INCLUDE COSTS OF DEWATERING IN THE BID. NO ADDITIONAL COMPENSATION SHALL BE PROVIDED FOR CONTROL OF GROUND OR SURFACE WATER OR FOR ADDITIONAL MATERIALS OR REWORK REQUIRED AS A RESULT OF INADEQUATE OR INSUFFICIENT DEWATERING.
5. ALL WORK TO BE PERFORMED FOR THE COMPLETION OF THIS PROJECT SHALL BE CONSTRUCTED ACCORDING TO THE BEST PRACTICES OF THE INDUSTRY AND IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE, COUNTY AND/OR CITY CODES, ORDINANCES, STANDARDS AND PERMIT CONDITIONS.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACING AND/OR REPAIRING ANY PAVEMENT, DRIVEWAYS, SIDEWALKS, CURBS, AND ANY OTHER EXISTING STRUCTURE THAT MUST BE CUT, REMOVED, OR IS DAMAGED DURING OR AS A RESULT OF CONSTRUCTION. ALL ROAD REPAIRS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION SPECIFICATIONS.
7. COMPACTION OF THE BACK FILL OF ALL TRENCHES SHALL BE COMPACTED TO 95% STANDARD PROCTOR DENSITY. BACKFILL MATERIAL SHALL BE FREE FROM ROOTS, STUMPS, OR OTHER FOREIGN DEBRIS, AND SHALL BE PLACED AT OR NEAR OPTIMUM MOISTURE. CORRECTION OF ANY TRENCH SETTLEMENT WITHIN A YEAR FROM DATE OF APPROVAL WILL BE THE RESPONSIBILITY OF THE CONTRACTOR.

PERMITS, EASEMENTS, AND ACCESS

8. ALL WASTEWATER EASEMENTS MUST BE DRESSED AND GRASSED TO THE EXISTING GROUND SURFACE ELEVATION AND TO CONTROL EROSION IN ACCORDANCE WITH EASEMENT PLATS PRIOR TO ACCEPTANCE. TREES SHALL NOT BE PLANTED IN THE PERMANENT EASEMENT AREA.
9. IT IS THE RESPONSIBILITY OF THE OWNER TO ACQUIRE ALL EASEMENTS, ACCESS, AND/OR RIGHTS-OF-WAY, AS SHOWN IN THE CONSTRUCTION PLANS. CONTRACTOR SHALL PERFORM AND ACCOMPLISH ALL WORK, AS SHOWN IN THE CONSTRUCTION PLANS, WITHIN THE EASEMENTS, ACCESS, AND/OR RIGHTS-OF-WAY, AS FURNISHED BY OWNER. CONTRACTOR TO ENSURE ALL EASEMENTS, ACCESS, AND/OR RIGHTS-OF-WAY, AS FURNISHED BY OWNER. CONTRACTOR TO ENSURE ALL EASEMENTS, ACCESS, AND/OR RIGHT-OF-WAY HAVE BEEN OBTAINED.
10. ALL PROPERTIES DISTURBED DURING OR AS A RESULT OF CONSTRUCTION SHALL BE RESTORED TO THE PRE-EXISTING CONDITION OR BETTER.
11. THE CONTRACTOR SHALL NOTIFY PROPERTY OWNERS IN WRITING AT LEAST TWO (2) BUSINESS DAYS PRIOR TO ANY INCONVENIENCE OR DISRUPTION OF SERVICES AS A RESULT OF CONSTRUCTION.
12. CONTRACTOR SHALL NOT BLOCK ANY PROPERTY INGRESS/EGRESS AND IF NECESSARY, SHALL PROVIDE TEMPORARY CONSTRUCTION ACCESS TO PROPERTY OWNERS THROUGHOUT THE PROJECT. THE CONTRACTOR MAY STORE MATERIAL, WASTE, BORROW AND CONSTRUCTION EQUIPMENT WITHIN THE EXISTING UTILITY EASEMENTS AND PRE-DETERMINED LAY-DOWN AREAS BUT MAY NOT STORE OUTSIDE THOSE AREAS. CONTRACTOR IS RESPONSIBLE FOR THE REMOVAL OF ALL EXCESS EXCAVATED MATERIAL TO AN APPROVED LOCATION, REGARDLESS OF CONTENT.

EXISTING CONDITIONS

13. LOCATIONS, ELEVATIONS AND DIMENSIONS OF EXISTING UTILITIES, STRUCTURES AND OTHER FEATURES ARE SHOWN ACCORDING TO THE BEST INFORMATION AVAILABLE AT THE TIME OF THE PREPARATION OF THESE DRAWINGS AND DO NOT PURPORT TO BE ABSOLUTELY CORRECT. THE CONTRACTOR SHALL VERIFY THE LOCATIONS, ELEVATIONS AND DIMENSIONS OF ALL EXISTING UTILITIES, STRUCTURES, ETC. AFFECTING THEIR WORK PRIOR TO CONSTRUCTION REFER TO REFERENCES FOR ALL INFORMATION INCORPORATED AS THE EXISTING CONDITIONS. CONTRACTOR TO VERIFY LOCATIONS OF UNDERGROUND UTILITIES AND STORM DRAINAGE PRIOR TO DIGGING AND IS RESPONSIBLE FOR ANY DAMAGES TO EXISTING UTILITIES, STRUCTURES, AND OTHER FEATURES WHICH MAY OCCUR DURING CONSTRUCTION.
14. CONTRACTOR TO FIELD VERIFY LOCATION AND INVERT ELEVATIONS OF WASTEWATER PIPE FOR CONNECTION TO EXISTING WASTEWATER SYSTEMS. CONTRACTOR TO NOTIFY CLARENDON COUNTY PRIOR TO CONNECTING TO ANY EXISTING WASTEWATER FACILITIES AND A CLARENDON COUNTY INSPECTOR MUST BE PRESENT WHILE CONNECTING.

EXISTING UTILITIES AND CONFLICTS

15. IF UTILITY FIELD RELOCATIONS ARE REQUIRED, THE CONTRACTOR SHALL COORDINATE HIS CONSTRUCTION SCHEDULE WITH ALL UTILITY COMPANIES AS WELL AS ANY EFFECTED CITY AND COUNTY DEPARTMENTS BY PROVIDING A MINIMUM OF 48 HOURS NOTICE OF WHEN CONSTRUCTION WILL COMMENCE IN ORDER TO PERMIT FIELD LOCATION OF UTILITY LINES PRIOR TO CONSTRUCTION. A TOLL-FREE NUMBER, 1-888-721-7787 IS AVAILABLE TO ASSIST IN SUCH COORDINATION EFFORTS BUT DOES NOT NECESSARILY REPRESENT ALL UTILITY COMPANIES IN THE AREA REFER TO UTILITY PROVIDER CONTACTS.
16. ALL UTILITIES SHALL BE KEPT IN OPERATION EXCEPT WITH THE EXPRESS WRITTEN CONSENT OF THE UTILITY OWNER. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PRESERVE EXISTING UTILITIES. ANY DAMAGE TO EXISTING UTILITIES AS A RESULT OF THE CONTRACTOR'S ACTIONS SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
17. THE CONTRACTOR SHALL CONTACT THE ENGINEER PRIOR TO PROCEEDING WITH ANY SITE WORK WHICH INVOLVES A CONFLICT THAT HAS ARISEN DURING CONSTRUCTION OF ANY WORK SHOWN ON THESE DRAWINGS.
18. THE CONTRACTOR SHALL CAREFULLY STUDY AND COMPARE THE CONSTRUCTION DOCUMENTS AND SHALL IMMEDIATELY REPORT THE ENGINEER ANY DISCREPANCIES OR OMISSIONS DISCOVERED ON THE PLANS OR AT THE SITE. THE CONTRACTOR SHALL TAKE FIELD MEASUREMENTS TO VERIFY THAT ALL LOCATIONS ARE CORRECT PRIOR TO COMMENCING CONSTRUCTION.
19. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING THE APPROPRIATE UTILITY COMPANY OR OWNER AS APPLICABLE TO STABILIZE UTILITY POLES AND REMOVE AND REPLACE EXISTING GUY WIRES AS NECESSARY FOR CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COST ASSOCIATED WITH THIS WORK.
20. CONTRACTOR SHALL COORDINATE WITH CLARENDON COUNTY PRIOR TO BEGINNING CONSTRUCTION ON THE COUNTY'S FACILITIES TO REVIEW MATERIALS. A CLARENDON COUNTY INSPECTOR MUST BE PRESENT WHEN CONNECTING TO THE COUNTY'S FACILITIES. A MINIMUM OF 48 HOUR NOTICE SHALL BE GIVEN FOR ANY INSPECTIONS.

PROJECT COMPLETION AND CLOSEOUT

21. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SUPPLYING RECORD DRAWING INFORMATION INCLUDING, BUT NOT LIMITED TO, FINISHED GRADE ELEVATIONS, TIES TO EXISTING LINES OR STRUCTURES, VALVES, BENDS, SERVICE CONNECTIONS, ELEVATIONS OF PIPES WHERE DEPTH OF COVER VARIES FROM DESIGN, WASTEWATER OR STORMWATER MANHOLE RIM/TOP AND INVERT ELEVATIONS, CLEANOUTS AND SERVICE CONNECTIONS, PLUS LOCATIONS, DIMENSIONS AND ELEVATIONS OF ALL OTHER CONSTRUCTION COMPONENTS WHICH VARY FROM THE DESIGN.
22. CONTRACTOR SHALL WARRANTY ALL WORK AND MATERIALS FOR A MINIMUM PERIOD OF ONE (1) YEAR FROM COMPLETION DATE OF THE PROJECT.

NOTES:

CAD FILES WILL BE PROVIDED TO CONTRACTOR FOR USE WITH SITE STAKING.

REFERENCES:

1. REFERENCE IS MADE TO A TOPOGRAPHIC SURVEY PREPARED WILLIAM E. HAYES, DATED JULY 02, 2024.

OWNER INFORMATION

OWNER:	CLARENDON COUNTY DEVELOPMENT BOARD
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TELEPHONE:	(803) 435-8813
EMAIL:	GKOSINSKI@CLARENDONCOUNTYGOV.ORG

UTILITY INFORMATION

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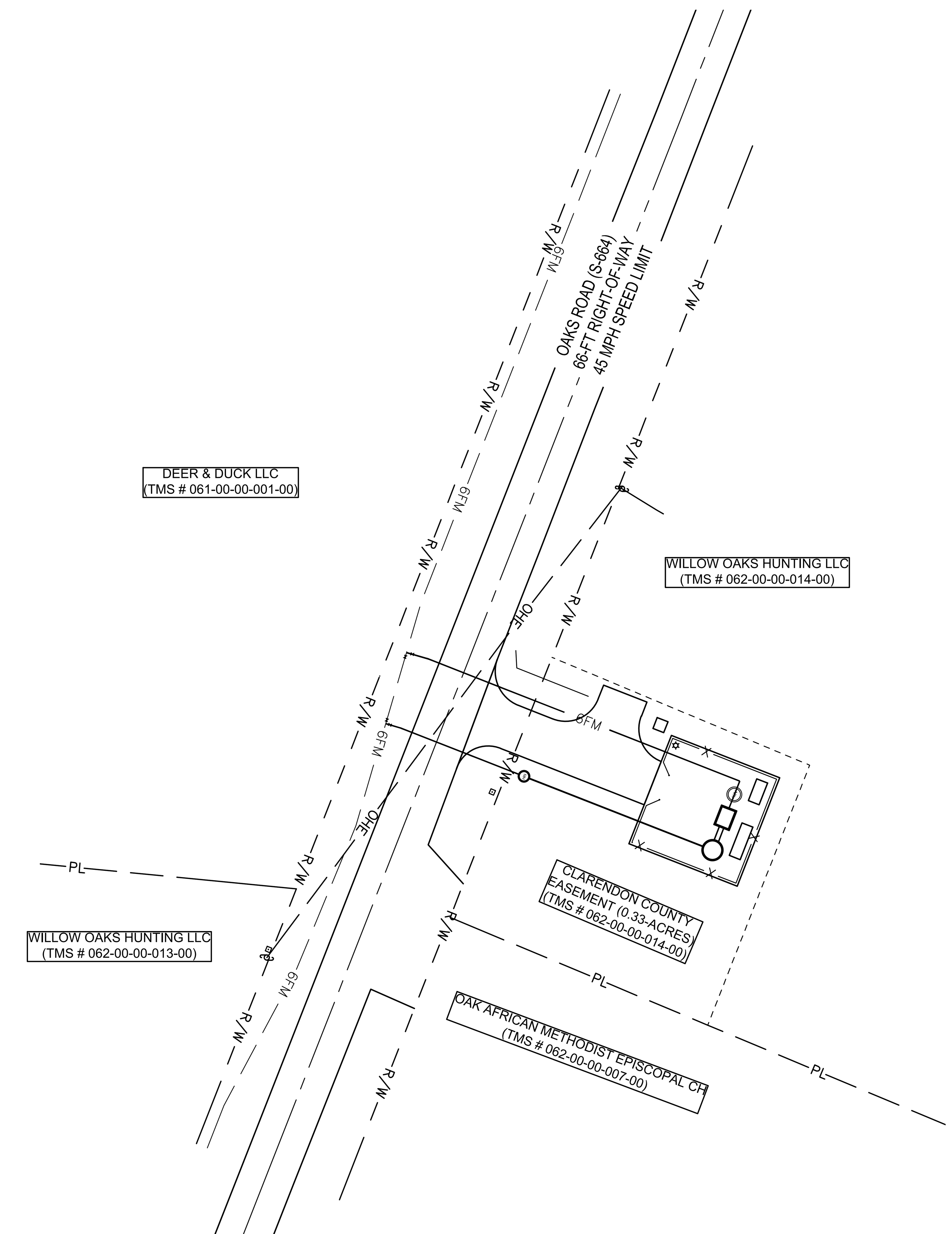


GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

N

Know what's below. Call before you dig.

REVISION DATE	
DATE	REVISION DESCRIPTION
12/18/24	ISSUE FOR PERMITTING
03/05/25	ISSUE FOR BID

APPROVALS: ENGINEER ARH; DESIGNER HMW; TECHNICIAN MRT; CHECKED BY ARH; APPROVED ARH

SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION
Alliance Consulting Engineers, Inc. No. C02854

DATE: 12/18/24

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 25472 ADAM HOGAN

SIGNATURE: [illegible]

ALLIANCE CONSULTING ENGINEERS
Alliance Consulting Engineers, Inc.
124 Verdae Blvd - Bonaventure II, Suite 505 - Greenville, SC 29607
Phone (864) 284-1740 • Fax (864) 284-1741

SHEET: OVERALL SITE PLAN & GENERAL NOTES

DATE: AUGUST 2024 SCALE: AS SHOWN

PROJECT: 290-GPM OAKS ROAD PUMP STATION

CLARENDON COUNTY SOUTH CAROLINA

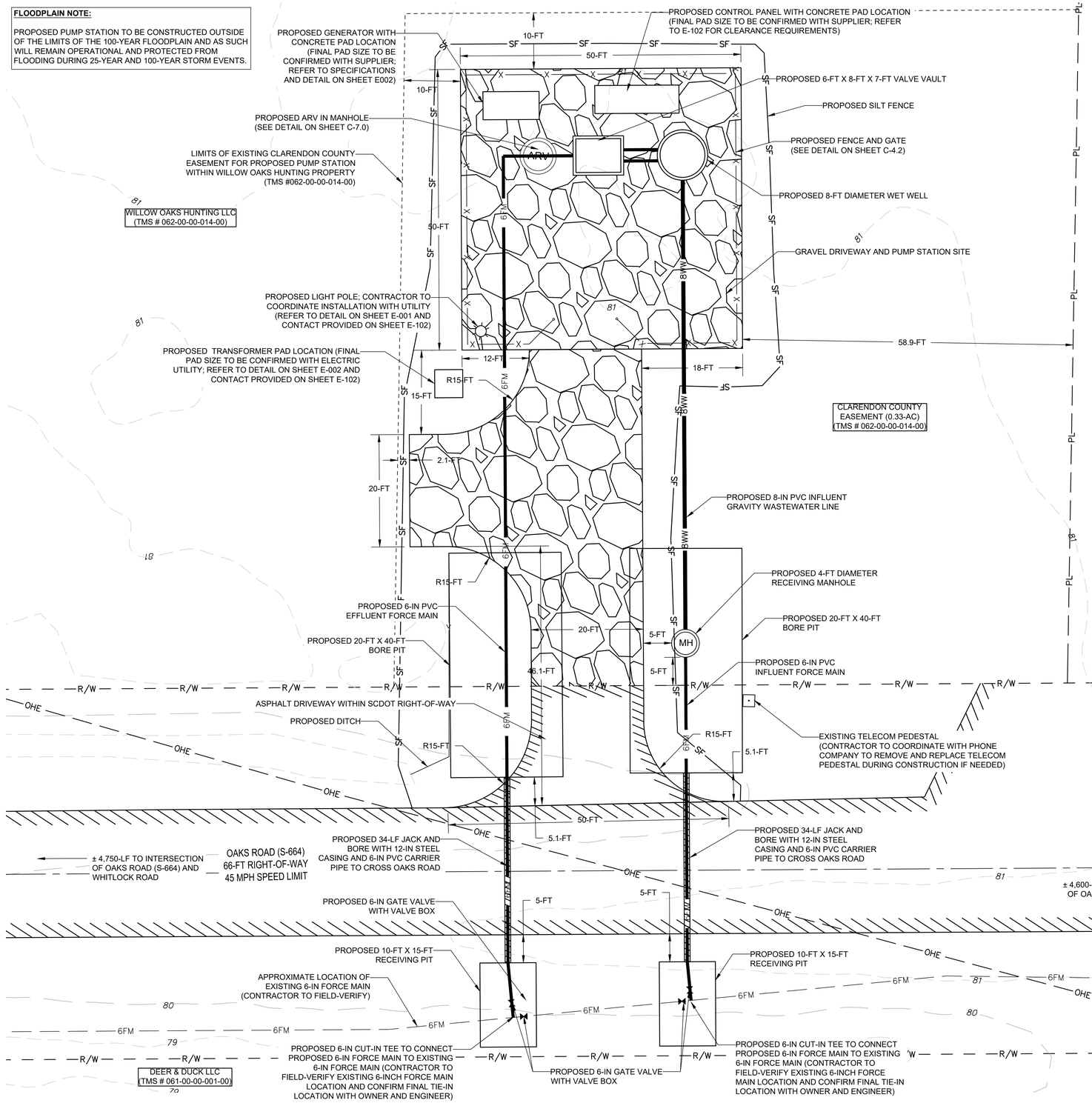
FILE NAME: 24110-Plans.dwg
REFERENCE FILE: 24110-Base.dwg
PROJECT NO. 24110-0014

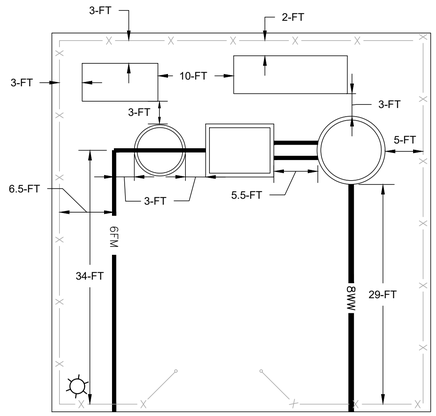
SHEET C-1.0 OF E102

DWG NO. 01,1695-D29

FLOODPLAIN NOTE:

PROPOSED PUMP STATION TO BE CONSTRUCTED OUTSIDE OF THE LIMITS OF THE 100-YEAR FLOODPLAIN AND AS SUCH WILL REMAIN OPERATIONAL AND PROTECTED FROM FLOODING DURING 25-YEAR AND 100-YEAR STORM EVENTS.





LAYOUT INSET

N.T.S.

NOTE: DIMENSIONS PROVIDED REPRESENT MINIMUM CLEARANCE DISTANCES BETWEEN PUMP STATION STRUCTURES. CONTRACTOR TO ADVISE OWNER AND ENGINEER OR ANY PROPOSED VARIANCES.

GRAPHIC SCALE

10 0 5 10 20 40

(IN FEET)
1 inch = 10 ft.

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

CONSTRUCTION NOTES:

1. CONTRACTOR TO INSTALL SILT FENCE ALONG LOW SIDE OF THE PUMP STATION SITE AND UTILIZE EROSION CONTROL MATTING AND SEDIMENT TUBES AS NEEDED. SEE EROSION AND SEDIMENT CONTROL DETAILS ON SHEETS C-6.0 AND C-6.1
2. ALL BENDS AND VALVES ALONG THE PROPOSED FORCE MAIN TO BE RESTRAINED PER THE RESTRAINED JOINT DETAILS ON SHEET C-7.1.
3. CONTRACTOR TO ENSURE NO WORK IS PERFORMED WITHIN WETLANDS/SENSITIVE AREAS WITHOUT USACE PERMIT.
4. PUMP STATION DRIVEWAY TO BE ASPHALT WITHIN SCDOT DRIVEWAY.
5. CONTRACTOR TO VERIFY LOCATIONS OF UNDERGROUND UTILITIES AND STORM DRAINAGE INFRASTRUCTURE PRIOR TO DIGGING AND MAINTAIN THE NECESSARY SEPARATION TO AVOID DAMAGING UTILITIES OR DRAINAGE INFRASTRUCTURE. CONTRACTOR IS RESPONSIBLE FOR REMEDIATION OF ANY DAMAGES WHICH OCCUR DURING CONSTRUCTION.

REVISION	DATE	REVISION DESCRIPTION
1	12/18/24	ISSUE FOR PERMITTING
2	03/05/25	ISSUE FOR BID

APPROVALS:	DESIGNER	TECHNICIAN	CHECKED BY	APPROVED
ENGINEER	HMW	MRT	ARH	ARH
ARH				

NORTH CAROLINA NOTIFY BEFORE YOU DIG ALL UTILITIES CERTIFICATE OF AUTHORIZATION Alliance Consulting Engineers, Inc. No. C02854

DATE: 12/18/24

NORTH CAROLINA PROFESSIONAL ENGINEER No. 25472 Hayden Hyatt Adam Hyatt REGISTERED

SIGNATURE:

ALLIANCE CONSULTING ENGINEERS
Alliance Consulting Engineers, Inc.
124 Verdae Blvd - Beaverette II, Suite 305 - Greenville, SC 29607
Phone: (864) 234-1740 • Fax: (864) 234-1741

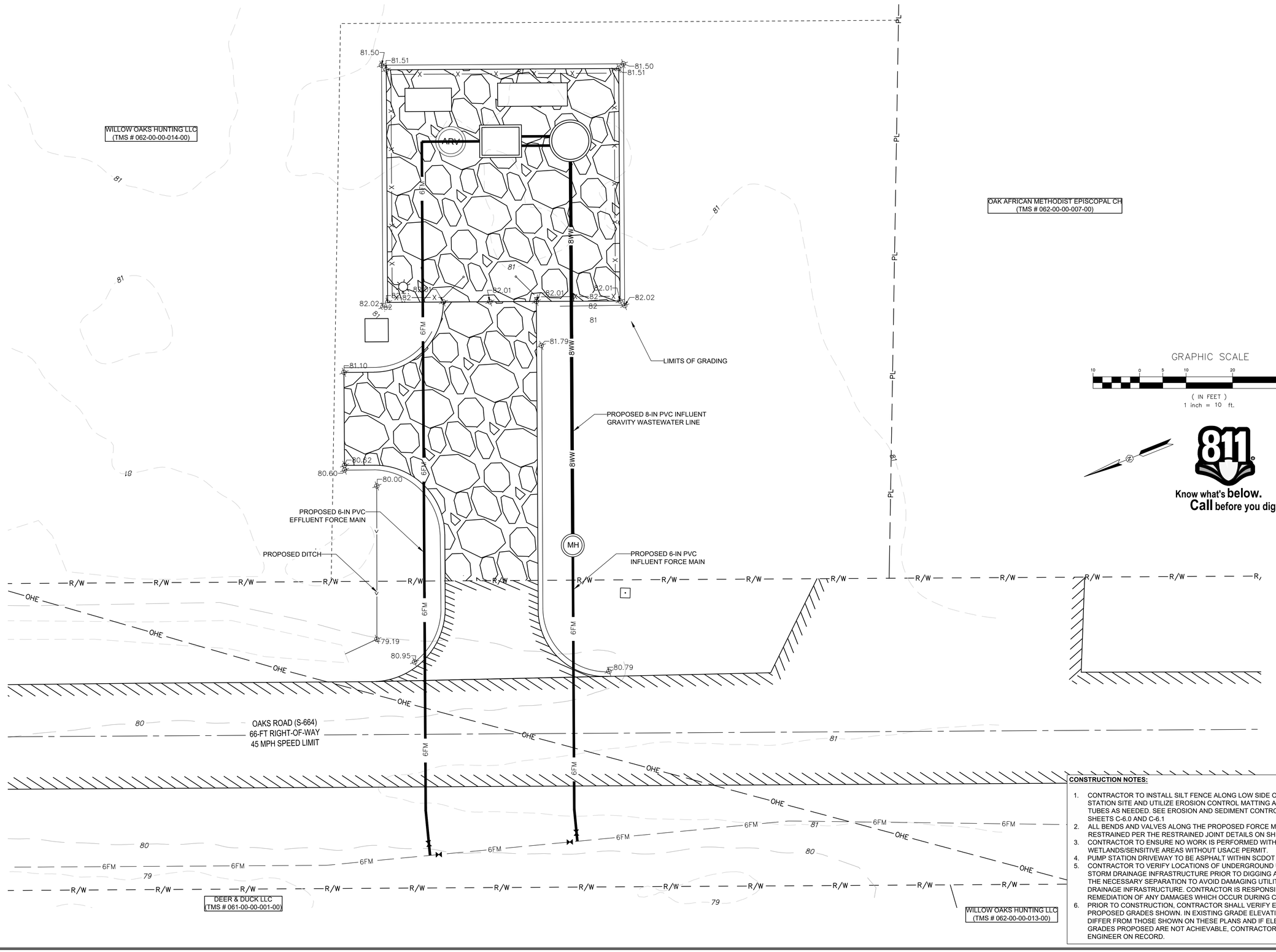
SHEET: PUMP STATION SITE PLAN — SCALE: AS SHOWN — DATE: AUGUST 2024

PROJECT: 290-GPM OAKS ROAD PUMP STATION — CLARENDON COUNTY — SOUTH CAROLINA

FILE NAME: 24110-Plans.dwg
REFERENCE FILE: 24110-Base.dwg
PROJECT NO. 24110-0014

SHEET C-2.0 OF E102

DWG NO. 01.1695-D29



GRAPHIC SCALE

10 0 5 10 20 40

(IN FEET)
1 inch = 10 ft.

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

CONSTRUCTION NOTES:

1. CONTRACTOR TO INSTALL SILT FENCE ALONG LOW SIDE OF THE PUMP STATION SITE AND UTILIZE EROSION CONTROL MATTING AND SEDIMENT TUBES AS NEEDED. SEE EROSION AND SEDIMENT CONTROL DETAILS ON SHEETS C-6.0 AND C-6.1
2. ALL BENDS AND VALVES ALONG THE PROPOSED FORCE MAIN TO BE RESTRAINED PER THE RESTRAINED JOINT DETAILS ON SHEET C-7.1.
3. CONTRACTOR TO ENSURE NO WORK IS PERFORMED WITHIN WETLANDS/SENSITIVE AREAS WITHOUT USACE PERMIT.
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5. CONTRACTOR TO VERIFY LOCATIONS OF UNDERGROUND UTILITIES AND STORM DRAINAGE INFRASTRUCTURE PRIOR TO DIGGING AND MAINTAIN THE NECESSARY SEPARATION TO AVOID DAMAGING UTILITIES OR DRAINAGE INFRASTRUCTURE. CONTRACTOR IS RESPONSIBLE FOR REMEDIATION OF ANY DAMAGES WHICH OCCUR DURING CONSTRUCTION.
6. PRIOR TO CONSTRUCTION, CONTRACTOR SHALL VERIFY EXISTING AND PROPOSED GRADES SHOWN. IN EXISTING GRADE ELEVATIONS ON-SITE DIFFER FROM THOSE SHOWN ON THESE PLANS AND IF ELEVATIONS AND GRADES PROPOSED ARE NOT ACHIEVABLE, CONTRACTOR SHALL NOTIFY ENGINEER ON RECORD.

REVISION	DATE	REVISION DESCRIPTION
1	12/18/24	ISSUE FOR PERMITTING
2	03/05/25	ISSUE FOR BID

APPROVALS:	
ENGINEER	ARH
DESIGNER	HMW
TECHNICIAN	MRT
CHECKED BY	ARH
APPROVED	ARH

NOTICE: CERTIFICATE OF AUTHORIZATION
SOUTH CAROLINA LICENSED BOARD FOR
Alliance Consulting Engineers, Inc.
No. C02854

DATE: 12/18/24

SOUTH CAROLINA PROFESSIONAL ENGINEER
No. 25472
Adam Hayes
REGISTERED
ADAM HAYES

SIGNATURE:

ALLIANCE
CONSULTING ENGINEERS
Alliance Consulting Engineers, Inc.
124 Verdae Blvd - Beaumont II, Suite 305 - Greenville, SC 29607
Phone: (864) 234-1740 • Fax: (864) 234-1741

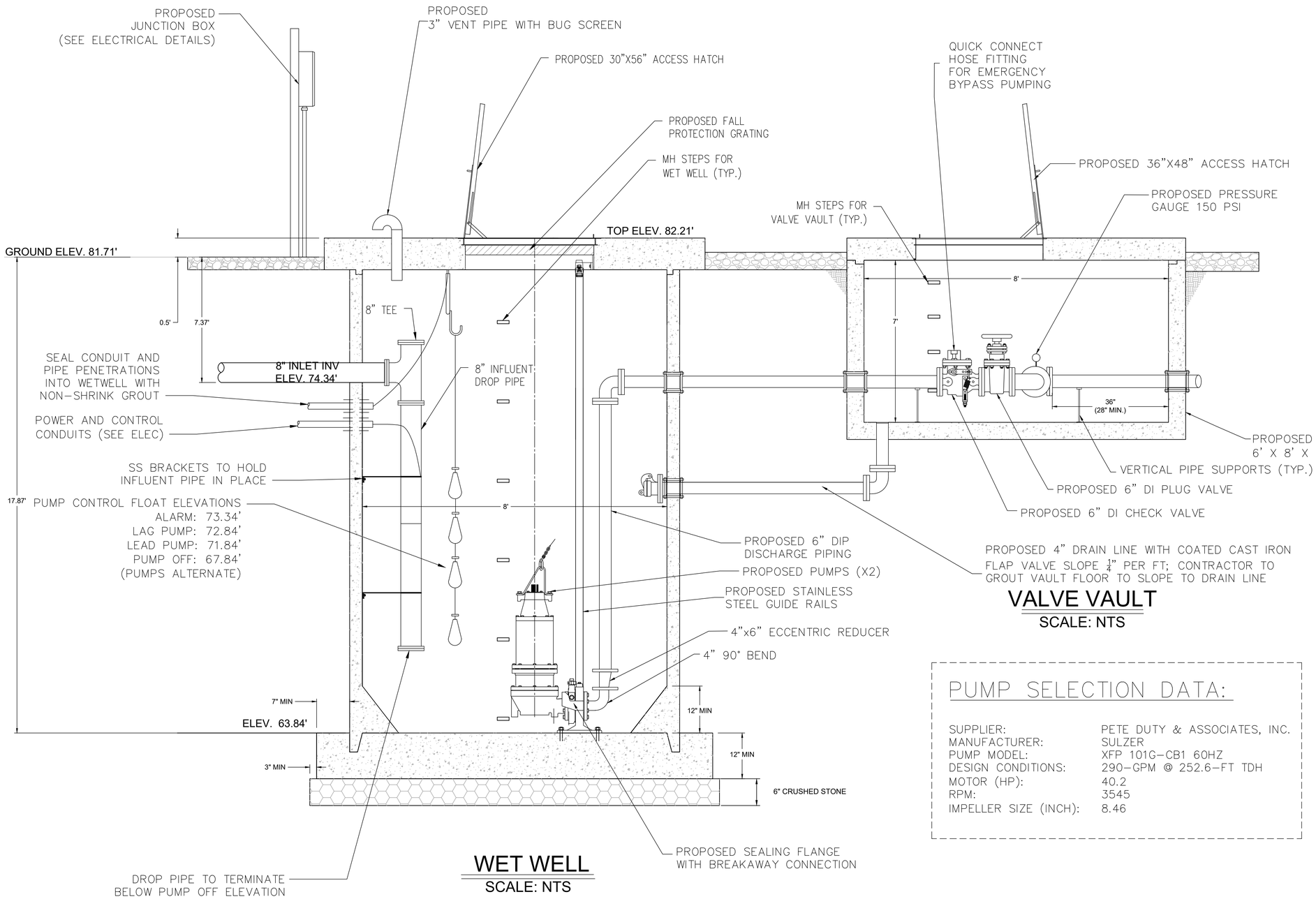
SHEET: PUMP STATION GRADING PLAN
DATE: AUGUST 2024
SCALE: AS SHOWN

PROJECT: 290-GPM OAKS ROAD PUMP STATION
CLARENDON COUNTY SOUTH CAROLINA

FILE NAME: 24110-Plans.dwg
REFERENCE FILE: 24110-Base.dwg
PROJECT NO. 24110-0014

SHEET C-3.0 OF E102

DWG NO. 01.1695-D29



PUMP SELECTION DATA:

SUPPLIER:	PETE DUTY & ASSOCIATES, INC.
MANUFACTURER:	SULZER
PUMP MODEL:	XFP 101G-CB1 60HZ
DESIGN CONDITIONS:	290-GPM @ 252.6-FT TDH
MOTOR (HP):	40.2
RPM:	3545
IMPELLER SIZE (INCH):	8.46

REVISION DATE		
	DATE	REVISION DESCRIPTION
	12/18/24	ISSUE FOR PERMITTING
	03/05/25	ISSUE FOR BID

APPROVALS: ENGINEER ARH | DESIGNER HMW | TECHNICIAN MRT | CHECKED BY ARH | APPROVED ARH

SIGNATURE: ADAM HOLT, No. 25472, Professional Engineer, Alpharetta, Georgia, Registered Professional Engineer, State of South Carolina

DATE: 12/18/24

ALLIANCE CONSULTING ENGINEERS
Alliance Consulting Engineers, Inc.
124 Verdae Blvd - Beaverette II, Suite 305 - Greenville, SC 29607
Phone: (864) 234-1740 • Fax: (864) 234-1741

PROJECT: 290-GPM OAKS ROAD PUMP STATION — CLARENDON COUNTY, SOUTH CAROLINA

SHEET: PUMP STATION DETAILS (1 OF 3)

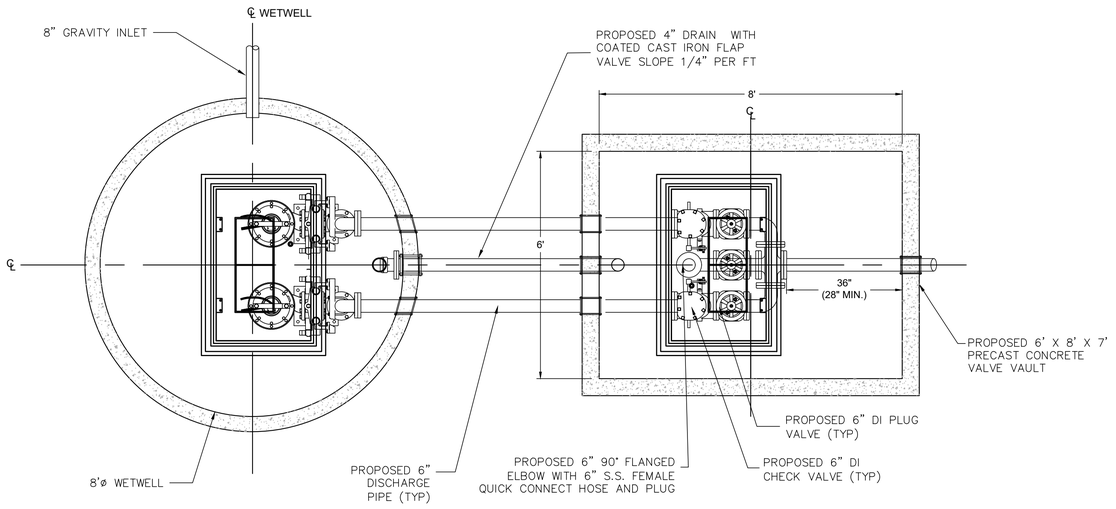
DATE: AUGUST 2024

SCALE: AS SHOWN

FILE NAME: 24110-Plans.dwg
REFERENCE FILE: 24110-Base.dwg
PROJECT NO. 24110-0014

SHEET C-4.0 OF E102

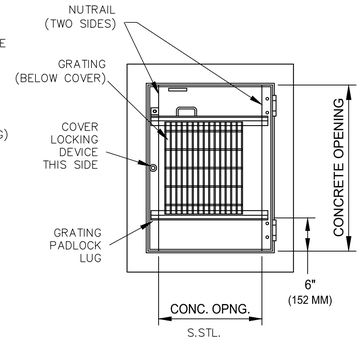
DWG NO. 01,1695-D29

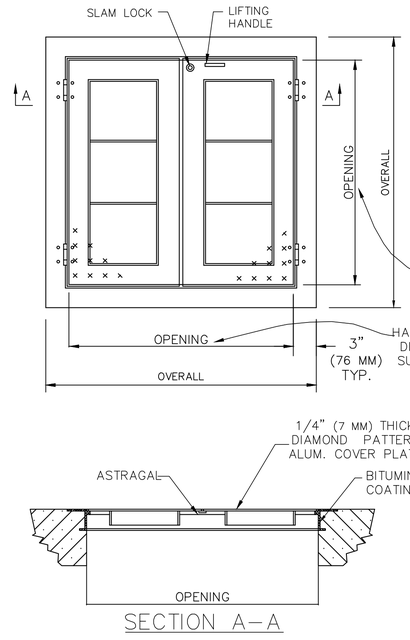


WET WELL PLAN VIEW

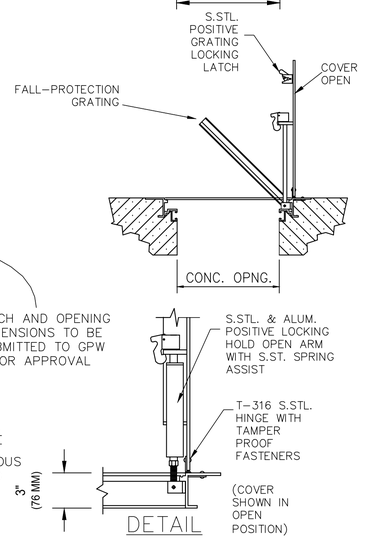
STANDARD FEATURES:

- AUTO-LOCK T-316 STAINLESS STEEL HOLD OPEN ARM WITH RELEASE HANDLE
- T-316 STAINLESS STEEL HINGES AND ATTACHING HARDWARE
- T-316 STAINLESS STEEL SLAM LOCK WITH REMOVABLE KEY
- STAINLESS STEEL COMPRESSION SPRING ASSIST
- BUILT-IN NEOPRENE CUSHION/GASKET
- NON-OZONE DEPLETING BITUMINOUS COATING
- DOUBLE LEAF CONSTRUCTION
- 300 LBS. PER SQ. FT. LOAD RATING (1464 KG. PER SQ. METER LOAD RATING)
- EXTRUDED ALUMINUM FRAME
- RECESSED LIFTING HANDLE
- ALUMINUM FALL-PROTECTION GRATING
- LIFETIME GUARANTEE
- AS MANUFACTURED BY HALLIDAY, BILCO, US FOUNDRY, OR APPROVED EQUAL.



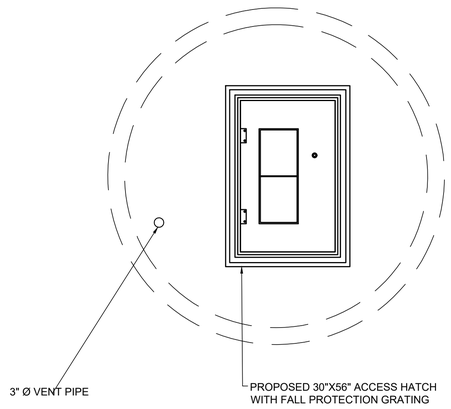


SECTION A-A

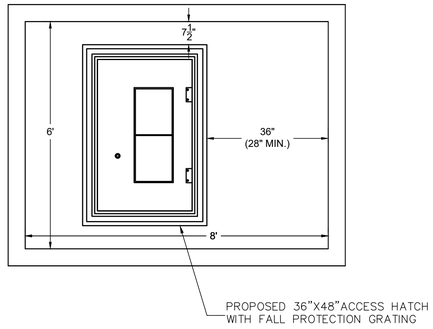


DETAIL

HATCH WITH FALL-PROTECTION GRATING



WET WELL COVER PLAN VIEW



VALVE VAULT COVER PLAN VIEW

1	DATE	REVISION DESCRIPTION
1	12/18/24	ISSUE FOR PERMITTING
2	03/05/25	ISSUE FOR BID

REVISION DATE

APPROVALS:	DESIGNER	TECHNICIAN	CHECKED BY	APPROVED
ENGINEER	HMW	MRT	ARH	ARH
ARH				

CAROLINA NOLTE BOYD HALL — Alliance Consulting Engineers, Inc. — No. C02854 — CERTIFICATE OF AUTHORIZATION

DATE: 12/18/24

CAROLINA — REGISTERED PROFESSIONAL ENGINEER — No. 25472 — Hayden Hogan HALL — DIVISION

SIGNATURE:

ALLIANCE CONSULTING ENGINEERS
Alliance Consulting Engineers, Inc.
124 Verdae Blvd - Bonaventure II, Suite 305 - Greenville, SC 29607
Phone: (864) 234-1740 • Fax: (864) 234-1741

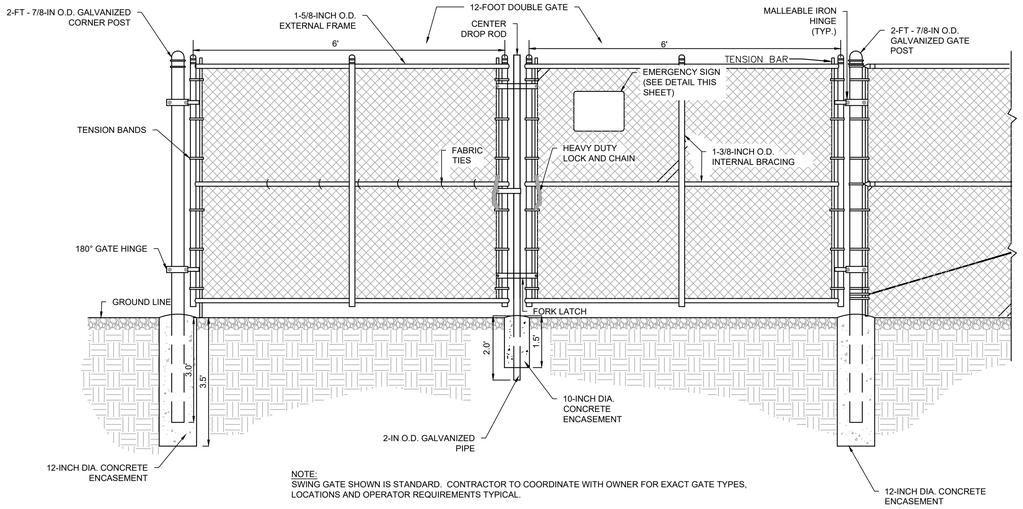
SHEET: PUMP STATION DETAILS (2 OF 3) — SCALE: AS SHOWN — DATE: AUGUST 2024

PROJECT: 290-GPM OAKS ROAD PUMP STATION — CLARENDON COUNTY — SOUTH CAROLINA

FILE NAME: 24110-Plans.dwg
REFERENCE FILE: 24110-Base.dwg
PROJECT NO. 24110-0014

SHEET C-4.1 OF E102

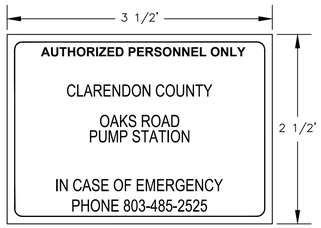
DWG NO. 01.1695-D29



NOTE:
SWING GATE SHOWN IS STANDARD. CONTRACTOR TO COORDINATE WITH OWNER FOR EXACT GATE TYPES, LOCATIONS AND OPERATOR REQUIREMENTS TYPICAL.

CHAIN LINK SECURITY FENCE DETAIL

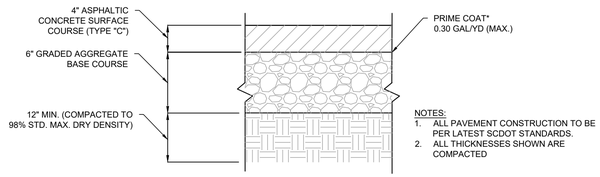
N.T.S.



NOTES:
1. CONSTRUCT FROM 16 GA. ALUMINUM
2. PROVIDE WHITE BACKGROUND WITH THREE COATS OF PAINT.
3. PROVIDE 1-½" LETTERS (MIN).
4. ALL LETTERING SHALL CONSIST OF TWO COATS OF THE APPROPRIATE ENAMEL.
5. DIMENSIONS SHOWN APPROXIMATE.
6. ALL SIGNS MUST BE APPROVED PRIOR TO INSTALLATION.

EMERGENCY SIGN DETAIL

N.T.S.

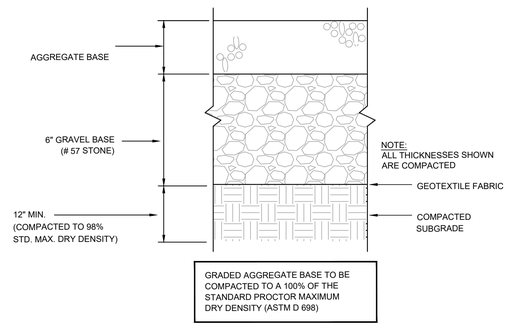


NOTES:
1. ALL PAVEMENT CONSTRUCTION TO BE PER LATEST SCDOT STANDARDS.
2. ALL THICKNESSES SHOWN ARE COMPACTED

GRADED AGGREGATE BASE TO BE COMPACTED TO A 100% STANDARD PROCTOR MAXIMUM DRY DENSITY (ASTM D 698), UNLESS SPECIFIED ELSEWHERE.

ASPHALT PAVEMENT SECTION - LIGHT DUTY DETAIL

N.T.S.



GRADED AGGREGATE BASE TO BE COMPACTED TO A 100% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY (ASTM D 698)

TYPICAL GRAVEL SECTION DETAIL

N.T.S.

	REVISION DATE
1	DATE: REVISION DESCRIPTION
1	12/18/24: ISSUE FOR PERMITTING
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APPROVALS:	DESIGNER	TECHNICIAN	CHECKED BY	APPROVED
ENGINEER	HMW	MRT	ARH	ARH
ARH				

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEERS — Alliance Consulting Engineers, Inc. — Certificate No. C02854 — CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEERS — No. 25472 — Adam Hyatt — ADAM HYATT

DATE: 12/18/24

SIGNATURE:

ALLIANCE CONSULTING ENGINEERS
Alliance Consulting Engineers, Inc.
124 Verdae Blvd - Beaverette II, Suite 305 - Greenville, SC 29607
Phone (864) 234-1740 • Fax (864) 234-1741

SHEET: PUMP STATION DETAILS (3 OF 3)

SCALE: AS SHOWN

DATE: AUGUST 2024

PROJECT: 290-GPM OAKS ROAD PUMP STATION

CLARENDON COUNTY SOUTH CAROLINA

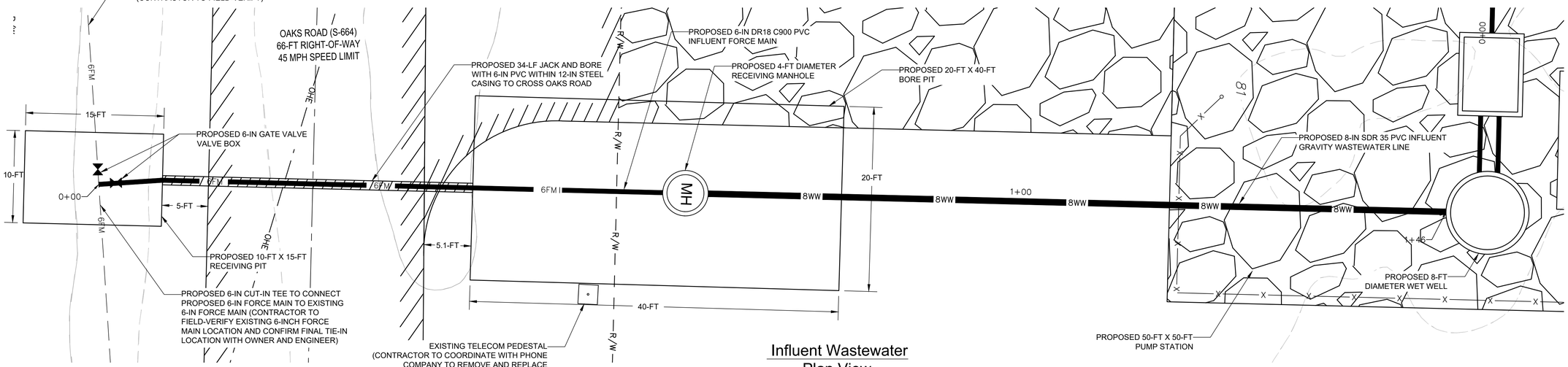
FILE NAME: 24110-Plans.dwg

REFERENCE FILE: 24110-Base.dwg

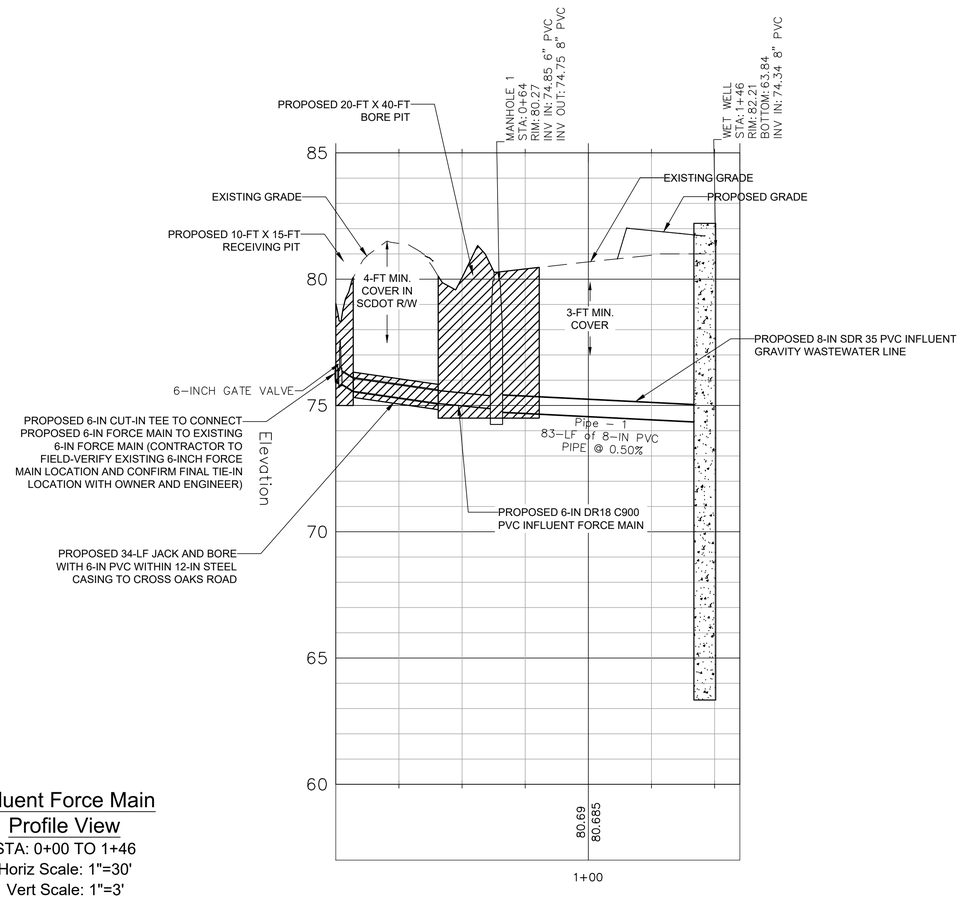
PROJECT NO. 24110-0014

SHEET C-4.2 OF E102

DWG NO. 01,1695-D29



Influent Wastewater
Plan View
STA: 0+00 TO 1+46



Influent Force Main
Profile View
STA: 0+00 TO 1+46
Horiz Scale: 1"=30'
Vert Scale: 1"=3'

GRAPHIC SCALE
6 0 3 6 12 24
(IN FEET)
1 inch = 6 ft.

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

CONSTRUCTION NOTES:

1. CONTRACTOR TO INSTALL SILT FENCE ALONG LOW SIDE OF THE PUMP STATION SITE AND UTILIZE EROSION CONTROL MATTING AND SEDIMENT TUBES AS NEEDED. SEE EROSION AND SEDIMENT CONTROL DETAILS ON SHEETS C-6.0 AND C-6.1
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REVISION	DATE	REVISION DESCRIPTION
1	12/18/24	ISSUE FOR PERMITTING
2	03/05/25	ISSUE FOR BID

APPROVALS: ENGINEER ARH | DESIGNER HMW | TECHNICIAN MRT | CHECKED BY ARH | APPROVED ARH

NORTH CAROLINA REGISTERED LANDSCAPE ARCHITECT — Alliance Consulting Engineers, Inc. No. C02854 — CERTIFICATE OF AUTHORIZATION

NORTH CAROLINA PROFESSIONAL ENGINEER — No. 25472 — Hayden Hayes — REGISTERED — ARTHUR R. HAYES, JR.

DATE: 12/18/24

SIGNATURE:

ALLIANCE CONSULTING ENGINEERS
Alliance Consulting Engineers, Inc.
124 Verdae Blvd - Beaverette II, Suite 305 - Greenville, SC 29607
Phone: (864) 234-1740 • Fax: (864) 234-1741

WASTEWATER PLAN AND PROFILE (1 OF 2)

SCALE: AS SHOWN

SHEET

DATE: AUGUST 2024

290-GPM OAKS ROAD PUMP STATION

SOUTH CAROLINA

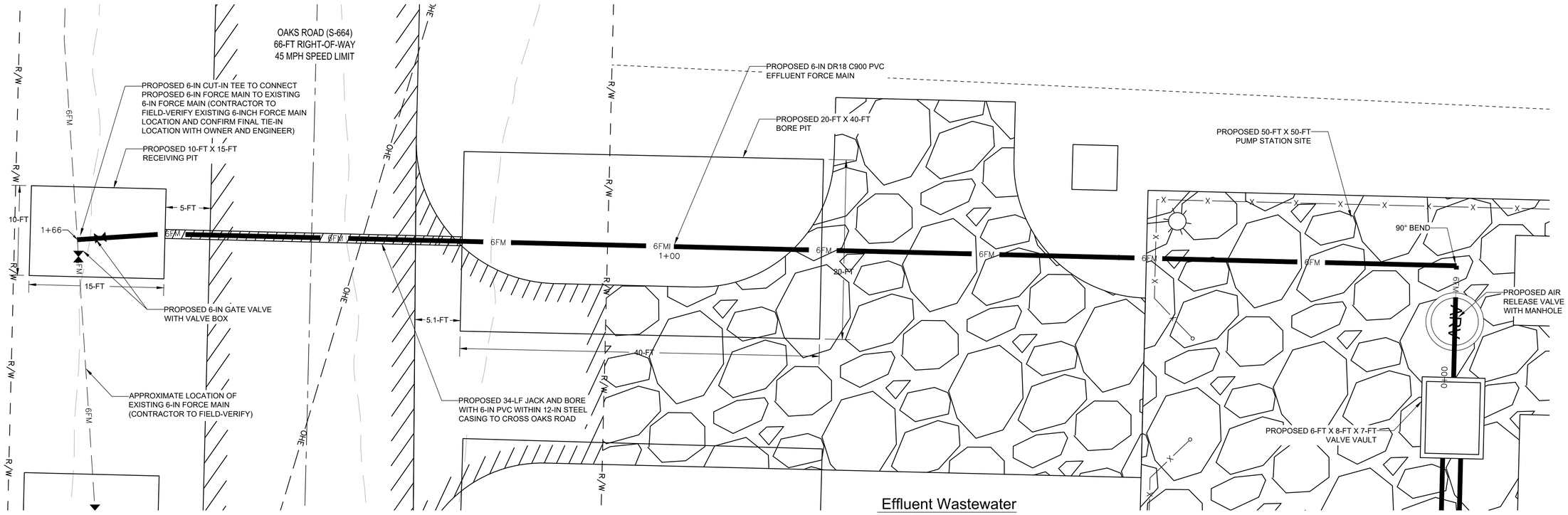
CLARENDON COUNTY

PROJECT

FILE NAME: 24110-Plans.dwg
REFERENCE FILE: 24110-Base.dwg
PROJECT NO. 24110-0014

SHEET C-5.0 OF E102

DWG NO. 01.1695-D29

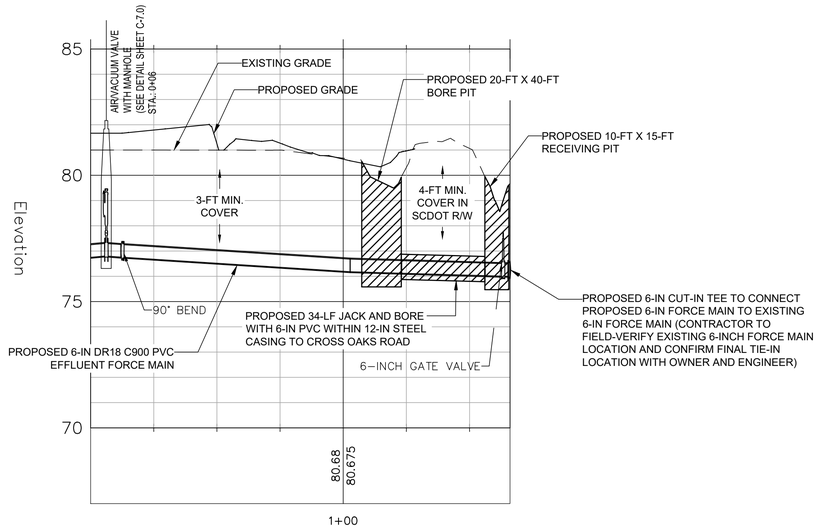


Effluent Wastewater
Plan View
STA: 0+00 TO 1+66

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.



Effluent Force Main
Profile View
STA: 0+00 TO 1+66
Horiz Scale: 1"=30'
Vert Scale: 1"=3'

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

CONSTRUCTION NOTES:

1. CONTRACTOR TO INSTALL SILT FENCE ALONG LOW SIDE OF THE PUMP STATION SITE AND UTILIZE EROSION CONTROL MATTING AND SEDIMENT TUBES AS NEEDED. SEE EROSION AND SEDIMENT CONTROL DETAILS ON SHEETS C-6.0 AND C-6.1
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2	03/05/25	ISSUE FOR BID

APPROVALS	DESIGNER	TECHNICIAN	CHECKED BY	APPROVED
ENGINEER	HMW	MRT	ARH	ARH
ARH				

NORTH CAROLINA NOTIFY BEFORE YOU DIG CERTIFICATE OF AUTHORIZATION
Alliance Consulting Engineers, Inc.
No. C02854

DATE: 12/18/24

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 25472 Adam Hayes
SIGNATURE:

ALLIANCE CONSULTING ENGINEERS
Alliance Consulting Engineers, Inc.
124 Verdae Blvd - Beaverette II, Suite 305 - Greenville, SC 29607
Phone: (864) 234-1740 • Fax: (864) 234-1741

WASTEWATER
PLAN AND PROFILE
(2 OF 2)

SCALE: AS SHOWN
DATE: AUGUST 2024
SHEET

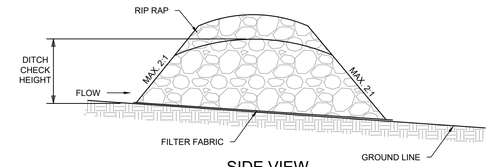
290-GPM OAKS ROAD
PUMP STATION

SOUTH CAROLINA
CLARENDON COUNTY
PROJECT

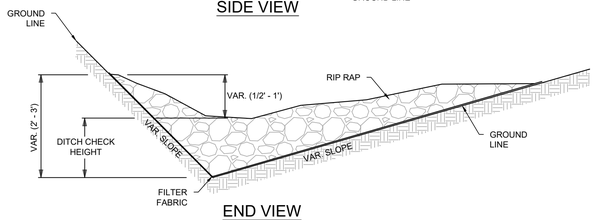
FILE NAME: 24110-Plans.dwg
REFERENCE FILE: 24110-Base.dwg
PROJECT NO. 24110-0014

SHEET C-5.1 OF E102

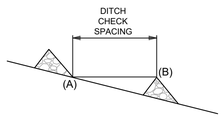
DWG NO. 01,1695-D29



SIDE VIEW



END VIEW



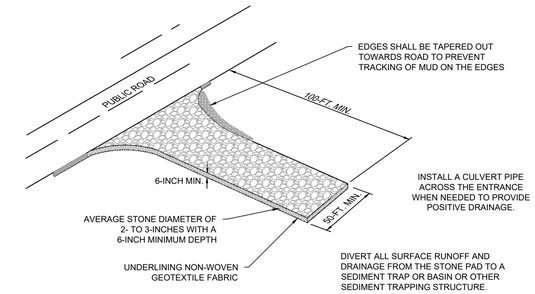
ELEVATION OF THE TOE OF DITCH CHECK (A) IS EQUAL TO THE ELEVATION OF THE TOP OF THE NEXT DITCH CHECK (B)

NOTES:
1. DITCH CHECK SHOULD NEVER BE USED IN LIVE STREAM.
2. DITCH CHECK IS NOT ADEQUATE FOR MORE THAN 2 ACRES OF DRAINAGE.
3. RIP RAP SHALL BE CLASS A.
4. RIP RAP MAP BE HAND PLACED OR MECHANICALLY PLACED AND SHAPED.
5. REMOVAL AND DISPOSAL OF DITCH CHECK IS INCLUDED IN THE BID PRICE OF "DITCH CHECK".
6. SLOPES OF DITCH CHECK SHALL BE NO STEEPER THAN 2:1, BUT MAY BE FLATTENED DUE TO TRAFFIC SAFETY, AS DIRECTED BY THE ENGINEER.
7. HEIGHT OF DITCH CHECK SHALL BE NO MORE THAN 2.0 FEET.
8. REMOVE COLLECTED SEDIMENT IN FRONT OF DITCH CHECK AS DETERMINED BY THE ENGINEER AT NO ADDITIONAL EXPENSE.

SCDOT
South Carolina Department of Transportation
DRAWING NO. 815-3

CHECK DAMS DETAIL

N.T.S.



WHEN STABILIZED AND WHERE TO USE IT:
STABILIZED CONSTRUCTION ENTRANCES SHOULD BE USED AT ALL POINTS WHERE TRAFFIC WILL BE LEAVING A CONSTRUCTION SITE AND MOVING DIRECTLY ONTO A PUBLIC ROAD.

IMPORTANT CONSIDERATIONS:
IF WASHING IS USED, PROVISIONS MUST BE MADE TO INTERCEPT THE WASH WATER AND TRAP THE SEDIMENT BEFORE IT IS CARRIED OFFSITE. WASHDOWN FACILITIES SHALL BE REQUIRED AS DIRECTED BY SCDHEC AS NEEDED. WASHDOWN AREAS IN GENERAL MUST BE ESTABLISHED WITH CRUSHED GRAVEL AND DRAIN INTO A SEDIMENT TRAP OR SEDIMENT BASIN.
CONSTRUCTION ENTRANCES SHOULD BE USED IN CONJUNCTION WITH THE STABILIZATION OF CONSTRUCTION ROADS TO REDUCE THE AMOUNT OF MUD PICKED UP BY VEHICLES.

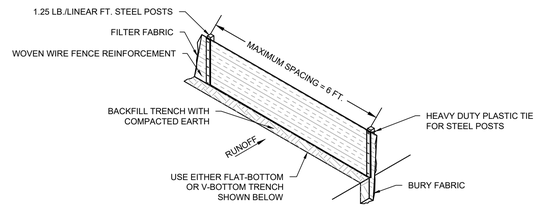
INSTALLATION:
1. REMOVE ALL VEGETATION AND ANY OBJECTIONABLE MATERIAL FROM THE FOUNDATION AREA.
2. DIVERT ALL SURFACE RUNOFF AND DRAINAGE FROM STONES TO A SEDIMENT TRAP OR BASIN.
3. INSTALL A NON-WOVEN GEOTEXTILE FABRIC PRIOR TO PLACING ANY STONE.
4. INSTALL A CULVERT PIPE ACROSS THE ENTRANCE WHEN NEEDED TO PROVIDE POSITIVE DRAINAGE.
5. THE ENTRANCE SHALL CONSIST OF 1-INCH TO 3-INCH D50 STONE PLACED AT A MINIMUM DEPTH OF 6-INCHES.
6. MINIMUM DIMENSIONS OF THE ENTRANCE SHALL BE 24-FEET WIDE BY 100-FEET LONG, AND MAY BE MODIFIED AS NECESSARY TO ACCOMMODATE SITE CONSTRAINTS.
7. THE EDGES OF THE ENTRANCE SHALL BE TAPERED OUT TOWARDS THE ROAD TO PREVENT TRACKING OF MUD AT THE EDGE OF THE ENTRANCE.

INSPECTION AND MAINTENANCE:
INSPECT CONSTRUCTION ENTRANCES EVERY SEVEN (7) CALENDAR DAYS AND WITHIN 24-HOURS AFTER EACH RAINFALL EVENT THAT PRODUCES ½-INCHES OR MORE OF PRECIPITATION, OR AFTER HEAVY USE. CHECK FOR MUD AND SEDIMENT BUILDUP AND PAD INTEGRITY. MAKE DAILY INSPECTIONS DURING PERIODS OF WET WEATHER. MAINTENANCE IS REQUIRED MORE FREQUENTLY IN WET WEATHER CONDITIONS. RESHAPE THE STONE PAD AS NEEDED FOR DRAINAGE AND RUNOFF CONTROL.
WASH OR REPLACE STONES AS NEEDED AND AS DIRECTED BY THE INSPECTOR. THE STONE IN THE ENTRANCE SHOULD BE WASHED OR REPLACED WHENEVER THE ENTRANCE FAILS TO REDUCE MUD BEING CARRIED OFF-SITE BY VEHICLES. FREQUENT WASHING WILL EXTEND THE USEFUL LIFE OF STONE.
IMMEDIATELY REMOVE MUD AND SEDIMENT TRACKED OR WASHED ONTO PUBLIC ROADS BY BRUSHING OR SWEEPING. FLUSHING SHOULD ONLY BE USED WHEN THE WATER CAN BE DISCHARGED TO A SEDIMENT TRAP OR BASIN.
REPAIR ANY BROKEN PAVEMENT IMMEDIATELY.

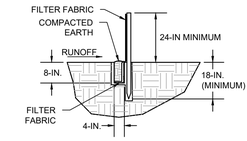
STABILIZED CONSTRUCTION ENTRANCE DETAIL

(SCDHEC DETAIL SC-06)

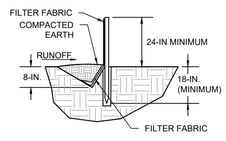
N.T.S.



SILT FENCE INSTALLATION



FLAT-BOTTOM TRENCH DETAIL



V-SHAPED TRENCH DETAIL

WHEN AND WHERE TO USE IT
SILT FENCE IS APPLICABLE IN AREAS:
- WHERE THE MAXIMUM SHEET OR OVERLAND FLOW PATH LENGTH TO THE FENCE IS 100-FEET
- WHERE THE MAXIMUM SLOPE STEEPNESS (NORMAL [PERPENDICULAR] TO FENCE LINE) IS 2H:1V
- THAT DO NOT RECEIVE CONCENTRATED FLOWS GREATER THAN 0.5 CFS

DO NOT PLACE SILT FENCE ACROSS CHANNELS OR USE IT AS A VELOCITY CONTROL BMP.

MATERIALS
STEEL POSTS
USE 48-INCH LONG STEEL POSTS THAT MEET THE FOLLOWING MINIMUM PHYSICAL REQUIREMENTS:
- COMPOSED OF HIGH STRENGTH STEEL WITH MINIMUM YIELD STRENGTH OF 50,000 PSI.
- HAVE A STANDARD "T" SECTION WITH A NOMINAL FACE WIDTH OF 1.38-INCHES AND NOMINAL "T" LENGTH OF 1.48-INCHES.
- WEIGH 1.25 POUNDS PER FOOT (± 8%).
- HAVE A SOIL STABILIZATION PLATE WITH A MINIMUM CROSS SECTION AREA OF 17-SQUARE INCHES ATTACHED TO THE STEEL POSTS.
- PAINTED WITH A WATER BASED BAKED ENAMEL PAINT.

USE STEEL POSTS WITH A MINIMUM LENGTH OF 4-FEET, WEIGHING 1.25 POUNDS PER LINEAR FOOT (± 8%) WITH PROJECTIONS TO AID IN FASTENING THE FABRIC. EXCEPT WHEN HEAVY CLAY SOILS ARE PRESENT ON SITE, STEEL POSTS WILL HAVE A METAL SOIL STABILIZATION PLATE WELDED NEAR THE BOTTOM SUCH THAT WHEN THE POST IS DRIVEN TO THE PROPER DEPTH, THE PLATE WILL BE BELOW GROUND LEVEL FOR ADDED STABILITY.
THE SOIL PLATES SHOULD HAVE THE FOLLOWING CHARACTERISTICS:
- BE COMPOSED OF MINIMUM 15 GAUGE STEEL.
- HAVE A MINIMUM CROSS SECTION AREA OF 17-SQUARE INCHES.

GEOTEXTILE FILTER FABRIC
FILTER FABRIC IS:
- COMPOSED OF FIBERS CONSISTING OF LONG CHAIN SYNTHETIC POLYMERS COMPOSED OF AT LEAST 85% BY WEIGHT OF POLYOLEFINS, POLYESTERS, OR POLYAMIDES.
- FORMED INTO A NETWORK SUCH THAT THE FILAMENTS OR YARNS RETAIN DIMENSIONAL STABILITY RELATIVE TO EACH OTHER.
- FREE OF ANY TREATMENT OR COATING WHICH MIGHT ADVERSELY ALTER ITS PHYSICAL PROPERTIES AFTER INSTALLATION.
- FREE OF DEFECTS OR FLAWS THAT SIGNIFICANTLY AFFECT ITS PHYSICAL AND/OR FILTERING PROPERTIES.
- CUT TO A MINIMUM WIDTH OF 36 INCHES.

USE ONLY FABRIC APPEARING ON SCDOT APPROVAL SHEET #34 MEETING THE REQUIREMENTS OF THE MOST CURRENT EDITION OF THE SCDOT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.

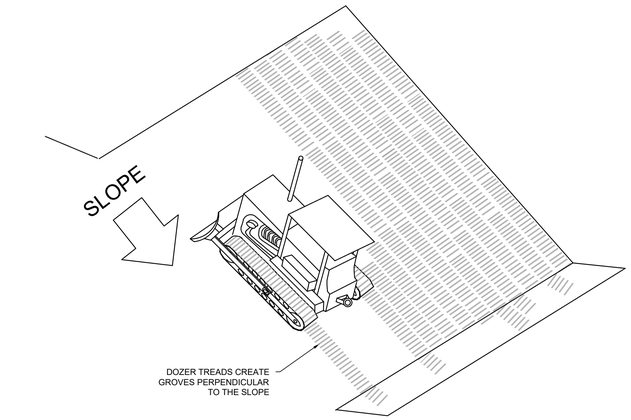
INSTALLATION
EXCAVATE A TRENCH APPROXIMATELY 6-INCHES WIDE AND 6-INCHES DEEP WHEN PLACING FABRIC BY HAND. PLACE 12-INCHES OF GEOTEXTILE FABRIC INTO THE 6-INCH DEEP TRENCH, EXTENDING THE REMAINING 6-INCHES TOWARDS THE UPSLOPE SIDE OF THE TRENCH. BACKFILL THE TRENCH WITH SOIL OR GRAVEL AND COMPACT. BURY 12-INCHES OF FABRIC INTO THE GROUND WHEN PNEUMATICALLY INSTALLING SILT FENCE WITH A SLICING METHOD. PURCHASE FABRIC IN CONTINUOUS ROLLS AND CUT TO THE LENGTH OF THE BARRIER TO AVOID JOINTS. WHEN JOINTS ARE NECESSARY, WRAP THE FABRIC TOGETHER AT A SUPPORT POST WITH BOTH ENDS FASTENED TO THE POST, WITH A 6-INCH MINIMUM OVERLAP, INSTALL POSTS TO A MINIMUM DEPTH OF 24-INCHES. INSTALL POSTS A MINIMUM OF 1- TO 2-INCHES ABOVE THE FABRIC, WITH NO MORE THAN 3-FEET OF THE POST ABOVE THE GROUND. SPACE POSTS TO MAXIMUM 6-FEET CENTERS. ATTACH FABRIC TO WOOD POSTS USING STAPLES MADE OF HEAVY-DUTY WIRE AT LEAST 1½-INCH LONG, SPACED A MAXIMUM OF 6-INCHES APART. STAPLE A 2-INCH WIDE LATHE OVER THE FILTER FABRIC TO SECURELY FASTEN IT TO THE UPSLOPE SIDE OF WOODEN POSTS. ATTACH FABRIC TO THE STEEL POSTS USING HEAVY-DUTY PLASTIC TIES THAT ARE EVENLY SPACED AND PLACED IN A MANNER TO PREVENT SAGGING OR TEARING OF THE FABRIC. IN ALL CASES, TIES SHOULD BE AFFIXED IN NO LESS THAN 4 PLACES. INSTALL THE FABRIC A MINIMUM OF 24-INCHES ABOVE THE GROUND. WHEN NECESSARY, THE HEIGHT OF THE FENCE ABOVE GROUND MAY BE GREATER THAN 24-INCHES. IN TIDAL AREAS, EXTRA SILT FENCE HEIGHT MAY BE REQUIRED. THE POST HEIGHT WILL BE TWICE THE EXPOSED POST HEIGHT. POST SPACING WILL REMAIN THE SAME AND EXTRA HEIGHT FABRIC WILL BE 4-, 5-, OR 6-FEET TALL. LOCATE SILT FENCE CHECKS EVERY 100 FEET MAXIMUM AND AT LOW POINTS. INSTALL THE FENCE PERPENDICULAR TO THE DIRECTION OF FLOW AND PLACE THE FENCE AT THE PROPER DISTANCE FROM THE TOE OF STEEP SLOPES TO PROVIDE SEDIMENT STORAGE AND ACCESS FOR MAINTENANCE AND CLEANOUT.

INSPECTION AND MAINTENANCE
INSPECT EVERY SEVEN CALENDAR DAYS AND WITHIN 24-HOURS AFTER EACH RAINFALL EVENT THAT PRODUCES ½-INCHES OR MORE OF PRECIPITATION. CHECK FOR SEDIMENT BUILDUP AND FENCE INTEGRITY. CHECK WHERE RUNOFF HAS ERODED A CHANNEL BENEATH THE FENCE, OR WHERE THE FENCE HAS SAGGED OR COLLAPSED BY FENCE OVERTOPPING. IF THE FENCE FABRIC TEARS, BEGINS TO DECOMPOSE, OR IN ANY WAY BECOMES INEFFECTIVE, REPLACE THE SECTION OF FENCE IMMEDIATELY.
REMOVE SEDIMENT ACCUMULATED ALONG THE FENCE WHEN IT REACHES 1/3 THE HEIGHT OF THE FENCE, ESPECIALLY IF HEAVY RAINS ARE EXPECTED.
REMOVE TRAPPED SEDIMENT FROM THE SITE OR STABILIZE IT ON SITE.
REMOVE SILT FENCE WITHIN 30 DAYS AFTER FINAL STABILIZATION IS ACHIEVED OR AFTER TEMPORARY BEST MANAGEMENT PRACTICES (BMPS) ARE NO LONGER NEEDED.
PERMANENTLY STABILIZE DISTURBED AREAS RESULTING FROM FENCE REMOVAL.

SILT FENCE DETAIL

(SCDHEC DETAIL SC-03)

N.T.S.



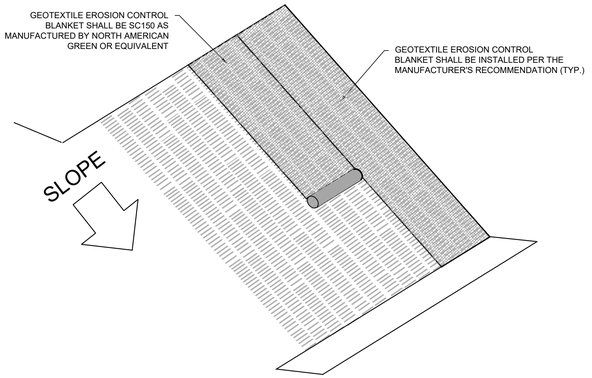
DEFINITION:
PROVIDING AND ROUGH SOIL SURFACE WITH HORIZONTAL DEPRESSIONS CREATED BY OPERATION A TILLAGE OR OTHER SUITABLE IMPLEMENT ON THE CONTOUR, OR BY LEAVING SLOPES IN A ROUGHENED CONDITION BY NOT FINE-GRADING THEM.

PURPOSE:
THE PURPOSES OF SURFACE ROUGHENING ARE TO AID IN THE ESTABLISHMENT OF VEGETATIVE COVER WITH SEED, TO REDUCE RUN-OFF VELOCITY AND INCREASE INFILTRATION AND TO REDUCE EROSION AND PROVIDE FOR SEDIMENT TRAPPING.

CONDITIONS:
ALL SLOPES STEEPER THAN 3:1 REQUIRE SURFACE ROUGHENING, EITHER STAIR-STEP GRADING, GROOVING, FURROWING, OR TRACKING IF THEY ARE TO BE STABILIZED WITH VEGETATION. HOWEVER, IF THE SLOPE IS TO BE STABILIZED WITH EROSION CONTROL BLANKETS OR SOIL REINFORCING MATTING, THE SOIL SURFACE SHOULD NOT BE ROUGHENED.
AREAS WITH GRADES LESS STEEP THAN 3:1 SHOULD HAVE THE SOIL SURFACE LIGHTLY ROUGHENED AND LOOSENED TO A DEPTH OF 2 TO 4 INCHES PRIOR TO SEEDING. AREAS WHICH HAVE BEEN GRADED AND WILL NOT BE STABILIZED IMMEDIATELY MAY BE ROUGHENED TO REDUCE RUNOFF VELOCITY UNTIL SEEDING TAKES PLACE. SLOPES WITH A STABLE ROCK FACE DO NOT REQUIRE ROUGHENING OR STABILIZATION.

SURFACE ROUGHENING DETAIL

N.T.S.



DEFINITION:
A PROTECTIVE COVERING (BLANKET) OR SOIL STABILIZATION MAT USED TO ESTABLISH EXIT VEGETATION ON STEEP SLOPES, CHANNELS, OR SHORELINES.

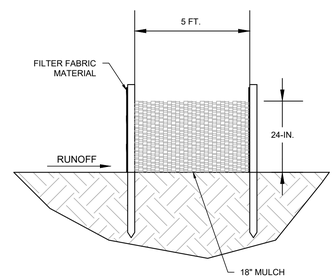
PURPOSE:
TO PROVIDE A MICROCLIMATE WHICH PROTECTS YOUNG VEGETATION AND PROMOTES ITS ESTABLISHMENT. TO REINFORCE THE TURF TO RESIST FORCES OF EROSION DURING STORM EVENTS.

CONDITIONS:
MATTING AND BLANKETS CAN BE APPLIED ON STEEP SLOPES WHERE EROSION HAZARD IS HIGH AND PLANTING IS LIKELY TO BE SLOW IN PROVIDING ADEQUATE PROTECTIVE COVER. CONCENTRATED FLOW AREAS, ALL SLOPES STEEPER THAN 2.5:1 AND WITH A HEIGHT OF TEN FEET OR GREATER, AND CUTS AND FILLS WITHIN STREAM BUFFERS, SHALL BE STABILIZED WITH THE APPROPRIATE EROSION CONTROL MATTING OR BLANKETS. ON STREAMBANKS OR TIDAL SHORELINES WHERE MOVING WATER IS PRESENT, MATTING CAN PREVENT NEW PLANTINGS FROM BEING WASHED AWAY.

MATERIALS:
GEOTEXTILE EROSION CONTROL BLANKET SHALL BE SC150 AS MANUFACTURED BY NORTH AMERICAN GREEN OR EQUIVALENT.

EROSION CONTROL MATTING DETAIL

N.T.S.



DOUBLE ROW SILT FENCE DETAIL

N.T.S.

	DATE	REVISION DESCRIPTION
1	12/18/24	ISSUE FOR PERMITTING
2	03/05/25	ISSUE FOR BID

REVISION DATE

APPROVALS: ENGINEER ARH | DESIGNER HMW | TECHNICIAN MRT | CHECKED BY ARH | APPROVED ARH

CAROLINA NOLTE BOARD OF ENGINEERS CERTIFICATE OF AUTHORIZATION Alliance Consulting Engineers, Inc. No. C02854

DATE: 12/18/24

CAROLINA PROFESSIONAL ENGINEER No. 25472 William Hayden Hutto 03/05/2025

SIGNATURE:

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SHEET: EROSION & SEDIMENT CONTROL DETAILS (1 OF 2)
SCALE: AS SHOWN
DATE: AUGUST 2024

PROJECT: 290-GPM OAKS ROAD PUMP STATION
SOUTH CAROLINA
CLARENDON COUNTY

FILE NAME: 24110-Cover and Details.dwg
REFERENCE FILE: 24110-Base.dwg
PROJECT NO. 24110-0014

SHEET C-6.0 OF E102

DWG NO. 01,1695-D29

TEMPORARY GRASSING SCHEDULE: (TG)

DESCRIPTION:
THE PURPOSE OF TEMPORARY SEEDING IS TO REDUCE EROSION AND SEDIMENTATION BY STABILIZING DISTURBED AREAS THAT WOULD OTHERWISE LAY BARE FOR LONG PERIODS OF TIME BEFORE THEY ARE WORKED OR STABILIZED. TEMPORARY SEEDING IS ALSO USED WHERE PERMANENT VEGETATION GROWTH IS NOT NECESSARY OR APPROPRIATE.

WHEN AND WHERE TO USE IT:
TEMPORARY SEEDING IS USED ON EXPOSED SOIL SURFACES SUCH AS DENUDED AREAS, SOIL STOCKPILES, DIKES, DAMS, BANKS OF SEDIMENT BASINS, BANKS OF SEDIMENT TRAPS, AND TEMPORARY ROAD BANKS. TEMPORARY SEEDING PREVENTS AND LIMITS COSTLY MAINTENANCE OPERATIONS ON OTHER SEDIMENT CONTROL STRUCTURES. SEDIMENT CLEANOUT REQUIREMENTS FOR SEDIMENT BASINS, SEDIMENT, TRAPS, AND SILT FENCE IS REDUCED IF THE DRAINAGE AREA IS SEEDED WHEN GRADING AND CONSTRUCTION OPERATION ARE NOT TAKING PLACE.
TEMPORARY STABILIZATION IS REQUIRED WITHIN 14 DAYS AFTER CONSTRUCTION ACTIVITY IS COMPLETE UNLESS CONSTRUCTION ACTIVITY IS GOING TO RESUME WITHIN 21 DAYS. COVER SEEDED AREAS WITH AN APPROPRIATE MULCH TO PROVIDE PROTECTION FROM THE WEATHER. WHEN THE TEMPORARY VEGETATION DOES NOT GROW QUICKLY OR THICK ENOUGH TO PREVENT EROSION, RE-SEED AS SOON AS POSSIBLE. KEEP SEEDED AREAS ADEQUATELY MOIST. IRRIGATE THE SEEDED AREA IF NORMAL RAINFALL IS NOT ADEQUATE FOR THE GERMINATION AND GROWTH OF SEEDLINGS. WATER SEEDED AREAS AT CONTROLLED RATES THAT ARE LESS THAN THE RATE AT WHICH THE SOIL CAN ABSORB WATER TO PREVENT RUNOFF. RUNOFF OF IRRIGATION WATER WASTES WATER AND CAN CAUSE EROSION.

SEED SELECTION (SEE SCDOT SEEDING SPECIFICATION TABLE 2: ANNUALS FOR TEMPORARY SEED SELECTION AND RATES):
SEED SELECTION IS BASED ON GEOGRAPHICAL LOCATION, SOIL TYPE AND THE SEASON OF THE YEAR IN WHICH THE PLANTING IS TO BE DONE. USE THE TABLES IN APPENDIX C AS A GUIDE FOR CONVENTIONAL TILLAGE METHODS (PLOWING, SEED BED PREPARATION, HYDROSEEDING, ETC). IF A FAST GROWING CROP TO NURSE THE PERMANENT SPECIE OR SPECIES IS REQUIRED, THEN USE THE MIX RATE. FAILURE TO CAREFULLY FOLLOW AGRONOMIC RECOMMENDATIONS RESULTS IN AN INADEQUATE STAND OF TEMPORARY VEGETATION THAT PROVIDES LITTLE OR NO EROSION CONTROL.

TILLAGE:
IF THE AREA HAS BEEN RECENTLY PLOWED, NO TILLAGE IS REQUIRED OTHER THAN RAKING OR SURFACE ROUGHENING TO BREAK ANY CRUST THAT HAS FORMED LEAVING A TEXTURED SURFACE. DISK THE SOIL FOR OPTIMAL GERMINATION WHEN THE SOIL IS COMPACTED LESS THAN 6 INCHES.

FERTILIZER:
APPLY A MINIMUM OF 500 POUNDS PER ACRE OF 10-10-10 FERTILIZER (11.5 POUNDS PER 1000 SQUARE FEET) OR EQUIVALENT DURING TEMPORARY SEEDING UNLESS A SOIL TEST INDICATES A DIFFERENT REQUIREMENT. INCORPORATE FERTILIZER AND LIME (IF USED) INTO THE TOP 4-6 INCHES OF THE SOIL BY DISKING OR OTHER MEANS WHERE CONDITIONS ALLOW.

SEEDING:
LOOSEN THE SOIL SURFACE BEFORE BROADCASTING THE SEED. APPLY SEED EVENLY BY THE MOST CONVENIENT METHOD AVAILABLE FOR THE TYPE OF SEED USED AND THE LOCATION OF THE TEMPORARY SEEDING. TYPICAL APPLICATION METHODS INCLUDE BUT ARE NOT LIMITED TO CYCLONE SEEDERS, ROTARY SPREADERS, DROP SPREADERS, BROADCAST SPREADERS, HAND SPREADERS, CULTIPACKER SEEDER, AND HYDRO-SEEDERS. COVER APPLIED SEED BY RAKING OR DRAGGING A CHAIN, AND THEN LIGHTLY FIRM THE AREA WITH A ROLLER OR CULTIPACKER.

MULCHING:
USE MULCH WITH TEMPORARY SEED APPLICATIONS TO RETAIN SOIL MOISTURE AND REDUCE EROSION DURING THE ESTABLISHMENT OF VEGETATION. TYPICAL MULCH APPLICATIONS INCLUDE STRAW, WOOD FIBER, HYDROMULCHES, BFM AND FGM. USE HYDROMULCHES WITH A MINIMUM BLEND OF 70% WOOD FIBERS.
THE MOST COMMONLY ACCEPTED MULCH USED IN CONJUNCTION WITH TEMPORARY SEEDING IS SMALL GRAIN STRAW. THIS STRAW SHOULD BE DRY AND FREE FROM MOLD DAMAGE AND NOXIOUS WEEDS. THE STRAW MAY NEED TO BE ANCHORED WITH NETTING OR EMULSIONS TO PREVENT IT FROM BEING BLOWN OR WASHED AWAY. APPLY THE STRAW MULCH BY HAND OR MACHINE AT THE RATE 1.5-2 TONS PER ACRE (90 POUNDS PER 1000 SQUARE FEET). FREQUENT INSPECTIONS ARE NECESSARY TO CHECK THAT CONDITIONS FOR GROWTH ARE GOOD.

IRRIGATION:
SEEDED AREAS SHOULD BE KEPT ADEQUATELY MOIST. IRRIGATE THE SEEDED AREA IF NORMAL RAINFALL IS NOT ADEQUATE FOR THE GERMINATION AND GROWTH OF SEEDLINGS. WATER SEEDED AREAS AT CONTROLLED RATES THAT ARE LESS THAN THE RATE AT WHICH THE SOIL CAN ABSORB WATER TO PREVENT RUNOFF. RUNOFF OF IRRIGATION WATER WASTES WATER AND CAN CAUSE EROSION.

RE-SEEDING:
RE-SEED AREAS WHERE SEEDING DOES NOT GROW QUICKLY, THICK ENOUGH, OR ADEQUATELY TO PREVENT EROSION. BASE SEED SELECTION SHOULD ON THE REQUIREMENTS OF LOCAL SPECIFICATIONS.

INSPECTION AND MAINTENANCE:
- INSPECT EVERY 7 CALENDAR DAYS AND WITHIN 24-HOURS AFTER EACH RAINFALL EVENT THAT PRODUCES ½-INCHES OR MORE OF PRECIPITATION.
- COVER SEEDED WITH MULCH TO PROVIDE PROTECTION. FREQUENT INSPECTIONS ARE NECESSARY TO CHECK THAT CONDITIONS FOR GROWTH ARE GOOD.
- SUPPLY TEMPORARY SEEDING WITH ADEQUATE MOISTURE. SUPPLY WATER AS NEEDED, ESPECIALLY IN ABNORMALLY HOT OR DRY WEATHER OR ON ADVERSE SITES. CONTROL WATER APPLICATION RATES TO PREVENT RUNOFF.
- BASE SEED SELECTION ON LOCAL SPECIFICATIONS.
- RE-SEED AREAS WHERE THE PLANTS DO NOT GROW QUICK ENOUGH, THICK ENOUGH, OR ADEQUATELY ENOUGH TO PREVENT EROSION SHOULD BE RE-SEEDED.

EROSION CONTROL NOTES:

1. EROSION CONTROL MEASURES ARE TO BE ACCOMPLISHED PRIOR TO ANY OTHER CONSTRUCTION ON SITE AND BE MAINTAINED UNTIL THE PERMANENT GROUND COVER IS ESTABLISHED.
2. ALL EROSION CONTROL DEVICES MUST MEET OR EXCEED THE STANDARDS AND SPECIFICATIONS OF CLARENDON COUNTY AND THE STATE OF SOUTH CAROLINA.
3. ALL SEDIMENT AND EROSION CONTROL DEVICES SHALL BE INSPECTED DAILY, AND ANY DAMAGE OBSERVED SHALL BE REPAIRED IMMEDIATELY.
4. ALL UNSURFACED AREAS, WHICH ARE DISTURBED, TO RECEIVE 4 INCHES OF TOPSOIL, SEED, AND MULCH UNTIL A HEALTHY STAND OF GRASS IS OBTAINED.
5. TEMPORARY STABILIZATION MULCH REQUIREMENTS:
   5.1. MULCH SHALL BE UNCHOPPED, UNROTTED, SMALL GRAIN STRAW APPLIED AT A RATE OF 70 TO 90 LBS. PER 1,000 SQUARE FEET. MULCH MATERIALS SHALL BE RELATIVELY FREE OF ALL KINDS OF WEEDS AND SHALL BE FREE OF NOXIOUS WEEDS. SPREAD MULCH MECHANICALLY OR UNIFORMLY BY HAND; MULCH ANCHORING SHALL BE ACCOMPLISHED IMMEDIATELY AFTER MULCH PLACEMENT TO MINIMIZE LOSS BY WIND OR WATER. THIS MAY BE DONE BY PEG AND TWINE METHOD, MULCH ANCHORING TOOL, NETTING OR LIQUID MULCH BINDERS.
6. SILT FENCE MUST MEET THE REQUIREMENTS FOR TEMPORARY SILT FENCE OF THE SC DEPARTMENT OF TRANSPORTATION, USE ONLY FABRIC THAT APPEARS ON SCDOT APPROVAL SHEET 34.
7. ADDITIONAL EROSION CONTROL MEASURES WILL BE EMPLOYED WHERE DETERMINED NECESSARY BY ACTUAL SITE CONDITIONS.
8. PRIOR TO ANY OTHER CONSTRUCTION, A STABILIZED CONSTRUCTION ENTRANCE SHALL BE CONSTRUCTED AT EACH POINT OF ENTRY TO OR EXIT FROM THE SITE, UNLESS ENTRANCE IS BARRICADED FROM USE
9. THE CONSTRUCTION EXITS SHALL BE MAINTAINED IN A CONDITION TO PREVENT TRACKING OR FLOW OF MUD ONTO PUBLIC RIGHT-OF-WAY AND ADJACENT PROPERTY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH STONE, AS CONDITIONS DEMANDS, AND REPAIR AND/OR CLEAN-OUT OF ANY STRUCTURES USED TO TRAP SEDIMENT. ALL MATERIALS SPILLED, DROPPED, WASHED, OR TRACKED FROM VEHICLE OFF SITE ONTO PUBLIC ROADWAY OR INTO STORM DRAIN MUST BE REMOVED IMMEDIATELY.
10. PRIOR TO COMMENCING LAND DISTURBANCE ACTIVITY, THE LIMITS OF LAND DISTURBANCE SHALL BE CLEARLY AND ACCURATELY DEMARCATED WITH STAKES, RIBBONS, OR OTHER APPROPRIATE MEANS. THE LOCATION AND EXTENT OF ALL AUTHORIZED LAND DISTURBANCE SHALL OCCUR INSIDE THE APPROVED LIMITS INDICATED ON THE APPROVED PLANS.
11. IMMEDIATELY AFTER THE ESTABLISHMENT OF CONSTRUCTION ENTRANCES/EXITS, ALL PERIMETER EROSION CONTROL DEVICES AND STORMWATER MANAGEMENT DEVICES SHALL BE INSTALLED PRIOR TO ANY OTHER CONSTRUCTION.
12. OWNER/DEVELOPER AGREES TO PROVIDE AND MAINTAIN OFF-STREET PARKING ON THE SUBJECT PROPERTY DURING THE ENTIRE CONSTRUCTION PERIOD.
13. THE CONTRACTOR SHALL FURNISH AND MAINTAIN ALL NECESSARY BARRICADES WHILE ROADWAY FRONTAGE IMPROVEMENTS ARE BEING MADE.
14. THE CONSTRUCTION OF THE SITE WILL INITIATE WITH THE INSTALLATION OF EROSION CONTROL MEASURES SUFFICIENT TO CONTROL SEDIMENT DEPOSITS AND EROSION. ALL SEDIMENT CONTROL WILL BE MAINTAINED UNTIL ALL UPSTREAM GROUND WITHIN THE CONSTRUCTION AREA HAS BEEN COMPLETELY STABILIZED WITH PERMANENT VEGETATION AND ALL ROADS/DRIVEWAYS HAVE BEEN PAVED.
15. EROSION CONTROL DEVICES SHALL BE INSTALLED IMMEDIATELY AFTER GROUND DISTURBANCE OCCURS. THE LOCATION OF SOME OF THE EROSION CONTROL DEVICES MAY HAVE TO BE ALTERED FROM THAT SHOWN ON THE APPROVED PLANS IF DRAINAGE PATTERNS DURING CONSTRUCTION ARE DIFFERENT FROM THE FINAL PROPOSED DRAINAGE PATTERNS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ACCOMPLISH EROSION CONTROL FOR ALL DRAINAGE PATTERNS CREATED AT VARIOUS STAGES DURING CONSTRUCTION. ANY DIFFICULTY IN CONTROLLING EROSION DURING ANY PHASE OF CONSTRUCTION SHALL BE REPORTED TO THE ENGINEER IMMEDIATELY.
16. ALL SILT BARRIERS MUST BE PLACED AS ACCESS IS OBTAINED. NO GRADING SHALL BE DONE UNTIL SILT BARRIER INSTALLATION AND DETENTION FACILITIES ARE CONSTRUCTED.
17. CONTRACTOR SHALL MAINTAIN ALL EROSION CONTROL MEASURES UNTIL PERMANENT VEGETATION HAS BEEN ESTABLISHED. CONTRACTOR SHALL CLEAN OUT ALL SEDIMENT TRAPS WHEN REQUIRED BY ENGINEER OR THE CLARENDON COUNTY INSPECTOR. CONTRACTOR SHALL INSPECT EROSION CONTROL MEASURES AT THE END OF EACH WORKING DAY TO ENSURE MEASURES ARE FUNCTIONING PROPERLY.
18. THE CONTRACTOR SHALL REMOVE ACCUMULATED SILT WHEN THE SILT IS WITHIN 12" OF THE TOP OF THE SILT FENCE UTILIZED FOR EROSION CONTROL.
19. FAILURE TO INSTALL, OPERATE OR MAINTAIN ALL EROSION CONTROL MEASURES WILL RESULT IN ALL CONSTRUCTION BEING STOPPED ON THE JOB SITE UNTIL SUCH MEASURES ARE CORRECTED BACK TO STATE OF SOUTH CAROLINA STANDARDS.
20. ALL CONSTRUCTION SHALL CONFORM TO CLARENDON COUNTY STANDARDS AND SPECIFICATIONS WHERE APPLICABLE.
21. ALL SEWER EASEMENTS DISTURBED MUST BE DRESSED AND GRASSED TO CONTROL EROSION.
22. ALL OPEN SWALES MUST BE GRASSED, AND RIP-RAP MUST BE PLACED AS REQUIRED TO CONTROL EROSION. MINIMUM APRON SIZE SHALL BE AS NOTED . STONES SHALL BE PLACED AT ALL DOWNSTREAM HEADWALLS. HAND-PLACE IMMEDIATELY AFTER THE INSTALLATION OF PIPES AND DRAINAGE DITCHES.
23. SILT BARRIERS TO BE PLACED AT DOWNSTREAM TOE OF ALL CUT AND FILL SLOPES.
24. TOTAL DISTURBED AREA = 0.35 ACRES (±).
25. ALL DITCHES & SWALES MUST BE DOUBLE SEEDED.
26. A CONSTRUCTION ENTRANCE SHALL BE PROVIDED AT ALL LOCATIONS WHERE CONSTRUCTION TRAFFIC ACCESSES A PAVED ROADWAY.

PERMANENT GRASSING SPECIFICATIONS: (PG)

1. ALL SEED MIXTURES FOR THE VARIOUS SEEDING SCHEDULES SHALL BE WEIGHED AND MIXED TO THE PROPER PROPORTIONS IN THE PRESENCE OF THE OWNER OR THE OWNER'S REPRESENTATIVE.
2. MAT ALL GRASSED SWALES , WATER WAYS, AND EMBANKMENTS FROM TOP OF BANK TO BOTTOM OF BANK ON ALL BANK SLOPES LESS THAN 3:1.

PERMANENT SEEDING	
Maintained Turf (High Profile Lawn/Landscaped Areas)	
Planting Dates	**Variety** / **Application Rate**
April 1 - September 15	Bermuda Triangle Blend by Pennington Seed, Inc. — 125 LBS/ACRE
Slopes 4H:1V or Greater	
Planting Dates	**Variety** / **Application Rate**
April 1 - September 15	Slopemaster Spring/Summer Mix by Pennington Seeding, Inc. — 75 LBS/ACRE
	Slopemaster Spring/Summer Mix Composition: 25% Hulled Sahara Bermudagrass, 25% Unhulled Sahara Bermudagrass, 25% Pensacola Bahiagrass, 10% Durana White Clover, 10% Brown Top Millet, 5% Weeping Lovegrass
September 15 - March 31	Slopemaster Fall/Winter Mix by Pennington Seed, Inc. — 100 LBS/ACRE
	Slopemaster Fall/Winter Mix Composition: 25% Unhulled Sericea Lespedeza, 20% Unhulled Sahara Bermudagrass, 20% Greystone Tall Fescue, 10% Durana White Clover, 10% Rye Grain, 5% Weeping Lovegrass
Slope 4H:1V or Less	
Planting Dates	**Variety** / **Application Rate**
April 1 - September 15	Hulled Sahara Bermudagrass — 75 LBS/ACRE
September 15 - March 31	Unhulled Sahara Bermudagrass — 100 LBS/ACRE

**Contact - Pennington Seed, Inc. - 1236 Eden Street, Columbia, SC 29201

DUST CONTROL: (DC)

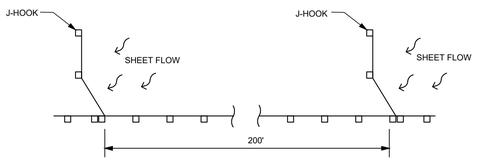
DUST CONTROL ON DISTURBED AREAS DEFINITION:
CONTROLLING SURFACE AND AIR MOVEMENT OF DUST ON CONSTRUCTION SITES, ROADS, AND DEMOLITION SITES.

PURPOSE:
1. TO PREVENT SURFACE AND AIR MOVEMENT OF DUST FROM EXPOSED SOIL SURFACES.
2. TO REDUCE THE PRESENCE OF AIRBORN SUBSTANCES WHICH MAY BE HARMFUL OR INJURIOUS TO HUMAN HEALTH, WELFARE, OR SAFETY, OR TO ANIMALS OR PLAT LIFE.

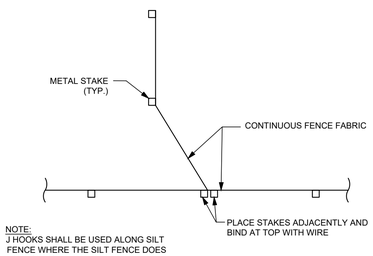
CONDITIONS:
THIS PRACTICE IS APPLICABLE TO AREAS SUBJECT TO SURFACE AND AIR MOVEMENT OF DUST WHERE ON- AND OFF-SITE DAMAGE MAY OCCUR WITHOUT TREATMENT.

TEMPORARY MEASURES:
A. MULCH
B. VEGETATIVE COVER
C. SPRAY-ON ADHESIVES
D. TILLAGE
E. IRRIGATION
F. BARRIERS
G. CALCIUM CHLORIDE

PERMANENT METHODS:
A. PERMANENT VEGETATION
B. TOPSOILING
C. STONE (CONSTRUCTION ROAD STABILIZATION)



SILT FENCE J-HOOK PLACEMENT



NOTE:
J HOOKS SHALL BE USED ALONG SILT FENCE WHERE THE SILT FENCE DOES NOT FOLLOW A 0.0% GRADE.

J-HOOK DETAIL
N.T.S.

SCDHEC STANDARD CONSTRUCTION LAND DISTURBANCE NOTES

PERMITS / LICENSES

1. PRIOR TO THE COMMENCEMENT OF ANY WORK WITHIN THE PROJECT SITE, THE GENERAL CONTRACTOR AND ALL SUB-CONTRACTORS SHALL POSSESS ALL APPLICABLE PERMITS AND THE OWNER AND ENGINEER WILL BE GIVEN AT LEAST TWENTY-FOUR (24) HOURS NOTICE BEFORE BEGINNING WORK.

PROCEDURES / RESPONSIBILITIES

1. ALL WETLANDS SIGNAGE TO BE INSTALLED PER THE APPROVED CONSTRUCTION DRAWINGS PRIOR TO ANY LAND DISTURBING ACTIVITIES.
2. SLOPES, WHICH EXCEED EIGHT (8) VERTICAL FEET MUST BE STABILIZED WITH SYNTHETIC OR VEGETATIVE MATS, IN ADDITION TO HYDROSEEING. IT MAY BE NECESSARY TO INSTALL TEMPORARY SLOPE DRAINS DURING CONSTRUCTION. TEMPORARY BERMS MAY BE NEEDED UNTIL THE SLOPE IS BROUGHT TO GRADE.
3. STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS PRACTICABLE IN PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED, BUT IN NO CASE MORE THAN FOURTEEN (14) DAYS AFTER WORK HAS CEASED, EXCEPT AS STATED BELOW.
   - WHERE STABILIZATION BY THE 14TH DAY IS PRECLUDED BY SNOW COVER OR FROZEN GROUND CONDITIONS STABILIZATION MEASURES MUST BE INITIATED AS SOON AS PRACTICABLE.
   - WHERE CONSTRUCTION ACTIVITY ON A PORTION OF THE SITE IS TEMPORARILY CEASED, AND EARTH-DISTURBING ACTIVITIES WILL BE RESUMED WITHIN 14 DAYS, TEMPORARY STABILIZATION MEASURES DO NOT HAVE TO BE INITIATED ON THE PORTION OF THE SITE.
4. ALL SEDIMENT AND EROSION CONTROL DEVICES SHALL BE INSPECTED ONCE EVERY CALENDAR WEEK. IF PERIODIC INSPECTION OR OTHER INFORMATION INDICATES THAT A BMP HAS BEEN INAPPROPRIATELY OR INCORRECTLY INSTALLED, THE PERMITTEE MUST ADDRESS THE NECESSARY REPLACEMENT OR MODIFICATION REQUIRED TO CORRECT THE BMP WITHIN 48 HOURS OF IDENTIFICATION.
5. PROVIDE SILT FENCE AND/OR OTHER CONTROL DEVICES, AS MAY BE REQUIRED, TO CONTROL SOIL EROSION DURING UTILITY CONSTRUCTION. ALL DISTURBED AREAS SHALL BE CLEANED, GRADED, AND STABILIZED WITH GRASSING IMMEDIATELY AFTER THE UTILITY INSTALLATION. FILL, COVER, AND TEMPORARY SEEDING AT THE END OF EACH DAY ARE RECOMMENDED. IF WATER IS ENCOUNTERED WHILE TRENCHING, THE WATER SHOULD BE FILTERED TO REMOVE SEDIMENT BEFORE BEING PUMPED BACK INTO ANY WATERS OF THE STATE.
6. ALL EROSION CONTROL DEVICES SHALL BE PROPERLY MAINTAINED DURING ALL PHASES OF CONSTRUCTION UNTIL THE COMPLETION OF ALL CONSTRUCTION ACTIVITIES AND ALL DISTURBED AREAS HAVE BEEN STABILIZED. ADDITIONAL CONTROL DEVICES MAY BE REQUIRED DURING CONSTRUCTION IN ORDER TO CONTROL EROSION AND/OR OFFSITE SEDIMENTATION. ALL TEMPORARY CONTROL DEVICES SHALL BE REMOVED ONCE CONSTRUCTION IS COMPLETE AND THE SITE IS STABILIZED.
7. THE CONTRACTOR MUST TAKE NECESSARY ACTION TO MINIMIZE THE TRACKING OF MUD ONTO PAVED ROADWAY(S) FROM CONSTRUCTION AREAS AND THE GENERATION OF DUST. THE CONTRACTOR SHALL REMOVE MUD/SOIL FROM PAVEMENT DAILY, OR AS MAY BE REQUIRED.
8. RESIDENTIAL SUBDIVISIONS REQUIRE EROSION CONTROL FEATURES FOR INFRASTRUCTURES AS WELL AS FOR INDIVIDUAL LOT CONSTRUCTION. INDIVIDUAL PROPERTY OWNERS SHALL FOLLOW THESE PLANS DURING CONSTRUCTION OR OBTAIN APPROVAL OF AN INDIVIDUAL PLAN IN ACCORDANCE WITH S.C REG. 72-300 ET SEQ. AND SCR100000.
9. TEMPORARY DIVERSION BERMS AND/OR DITCHES SHALL BE PROVIDED AS NEEDED DURING CONSTRUCTION TO PROTECT WORK AREAS FROM UPSLOPE RUNOFF AND/OR TO DIVERT SEDIMENT-LADEN WATER TO APPROPRIATE TRAPS OR STABLE OUTLETS.
10. ALL WATERS OF THE STATE (WOS), INCLUDING WETLANDS, ARE TO BE FLAGGED OR OTHERWISE CLEARLY MARKED IN THE FIELD. A DOUBLE ROW OF SILT FENCE IS TO BE INSTALLED IN ALL AREAS WHERE A 50-FOOT BUFFER CAN NOT BE MAINTAINED BETWEEN THE DISTURBED AREAS AND ALL WOS. A 30-FOOT BUFFER SHOULD BE MAINTAINED BETWEEN THE LAST ROW OF SILT FENCE AND ALL WOS.
11. LITTER, CONSTRUCTION DEBRIS, OILS, FUELS, AND BUILDING PRODUCTS WITH SIGNIFICANT POTENTIAL FOR IMPACT (SUCH AS STOCKPILES OF FRESHLY TREATED LUMBER) AND CONSTRUCTION CHEMICALS THAT COULD BE EXPOSED TO STORM WATER MUST BE PREVENTED FROM BECOMING A POLLUTANT SOURCE IN STORM WATER DISCHARGES.
12. A COPY OF THE OS-SWPPP, INSPECTION RECORDS, AND RAINFALL DATA MUST BE RETAINED AT THE CONSTRUCTION SITE OR A NEARBY LOCATION EASILY ACCESSIBLE DURING NORMAL BUSINESS HOURS, FROM THE DATE OF COMMENCEMENT OF CONSTRUCTION ACTIVITIES TO THE DATE THE FINAL STABILIZATION IS REACHED.
13. INITIATE STABILIZATION MEASURES ON ANY EXPOSED STEEP SLOPE (3H:1V OR GREATER) WHERE LAND-DISTURBING ACTIVITIES HAVE BEEN PERMANENTLY OR TEMPORARILY CEASED, AND WILL NOT RESUME FOR A PERIOD OF SEVEN CALENDAR DAYS.
14. MINIMIZE SOIL COMPACTION AND, UNLESS INFEASIBLE, PRESERVE TOPSOIL AND REPLACE WITHIN ALL GRASSED AND LANDSCAPED AREAS TO A MINIMUM DEPTH OF 6 INCHES. IF ADDITIONAL TOPSOIL IS REQUIRED TO MEET THE SPECIFICATIONS, THE CONTRACTOR MUST PROVIDE FROM AN OFF-SITE SOURCE.
15. MINIMIZE THE DISCHARGE OF POLLUTANTS FROM EQUIPMENT AND VEHICLE WASHING, WHEEL WASH WATER, AND OTHER WASH WATERS. WASH WATERS MUST BE TREATED IN A SEDIMENT BASIN OR ALTERNATIVE CONTROL TO PROVIDE EQUIVALENT OR BETTER TREATMENT PRIOR TO DISCHARGE.
16. MINIMIZE THE DISCHARGE OF POLLUTANTS FROM DEWATERING OF TRENCHES AND EXCAVATED AREAS. THESE DISCHARGES ARE TO BE ROUTED THROUGH APPROPRIATE BMPS (SEDIMENT BASIN, FILTER BAG, ETC.)
17. THE FOLLOWING DISCHARGES FROM SITES ARE PROHIBITED:
   - WASTEWATER FROM WASHOUT OF CONCRETE, UNLESS MANAGED BY AN APPROPRIATE CONTROL;
   - WASTEWATER FROM WASHOUT AND CLEANOUT OF STUCCO, PAINT, FORM RELEASE OILS, CURING COMPOUNDS AND OTHER CONSTRUCTION MATERIALS;
   - FUELS, OILS, OR OTHER POLLUTANTS USED IN VEHICLE AND EQUIPMENT OPERATION AND MAINTENANCE; AND
   - SOAPS OR SOLVENTS USED IN VEHICLE AND EQUIPMENT WASHING.
18. AFTER CONSTRUCTION ACTIVITIES BEGIN, INSPECTIONS MUST BE CONDUCTED AT A MINIMUM OF AT LEAST ONCE EVERY CALENDAR WEEK AND MUST BE CONDUCTED UNTIL FINAL STABILIZATION IS REACHED ON ALL AREAS OF THE CONSTRUCTION SITE.
19. IF EXISTING BMPS NEED TO BE MODIFIED OR IF ADDITIONAL BMPS ARE NECESSARY TO COMPLY WITH THE REQUIREMENTS OF THIS PERMIT AND/OR SC'S WATER QUALITY STANDARDS, IMPLEMENTATION MUST BE COMPLETED BEFORE THE NEXT STORM EVENT WHENEVER PRACTICABLE. IF IMPLEMENTATION BEFORE THE NEXT STORM EVENT IS IMPRACTICABLE, THE SITUATION MUST BE DOCUMENTED IN THE SWPPP AND ALTERNATIVE BMPS MUST BE IMPLEMENTED AS SOON AS REASONABLY POSSIBLE.
20. A PRE-CONSTRUCTION CONFERENCE MUST BE HELD FOR EACH CONSTRUCTION SITE WITH AN APPROVED ON-SITE SWPPP PRIOR TO THE IMPLEMENTATION OF CONSTRUCTION ACTIVITIES. FOR NON-LINEAR PROJECTS THAT DISTURB 29.5 ACRES OR MORE THIS CONFERENCE MUST BE HELD ON-SITE UNLESS THE DEPARTMENT HAS APPROVED OTHERWISE.
21. CONTRACTOR WILL PROVIDE AN AS-BUILT SURVEY(S), SIGNED AND SEALED BY A S.C. LICENSED LAND SURVEYOR OR PROFESSIONAL ENGINEER, TO BE SUBMITTED TO CLARENDON COUNTY FOR DETENTION STRUCTURE(S) ON THIS SITE. THE SURVEY(S) SHOULD SHOW GRADES, CONTOURS, AND DEPTHS FOR ALL STRUCTURE(S) AND SHOULD INCLUDE THE ELEVATIONS AND DIMENSIONS OF ALL OUTLET STRUCTURES, INCLUDING BUT NOT LIMITED TO PIPES, ORIFICES, RISERS, WEIRS, AND EMERGENCY SPILLWAYS.
22. THE CONTRACT DOCUMENTS ARE COMPLEMENTARY AND WHAT IS REQUIRED BY ONE SHALL BE AS BINDING AS IF REQUIRED BY ALL. IN THE CASE OF A CONFLICT, DISAGREEMENT, OR AMBIGUITY, PROVIDE THE BETTER QUALITY. IN THE CASE OF A CONFLICT, DISAGREEMENT, OR AMBIGUITY, PROVIDE THE GREATER QUANTITY OF WORK.

REVISION	DATE	REVISION DESCRIPTION
1	12/18/24	ISSUE FOR PERMITTING
2	03/05/25	ISSUE FOR BID
3		
4		
5		

APPROVALS: ENGINEER ARH | DESIGNER HMW | TECHNICIAN MRT | CHECKED BY ARH | APPROVED ARH

NORTH CAROLINA NOTARY PUBLIC BOARD — Alliance Consulting Engineers, Inc. — CERTIFICATE OF AUTHORIZATION No. C02854

NORTH CAROLINA PROFESSIONAL ENGINEER — No. 25472 — Adam Hogan — SEAL 025472

DATE: 12/18/24

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Phone (864) 294-1740 • fax (864) 294-1741

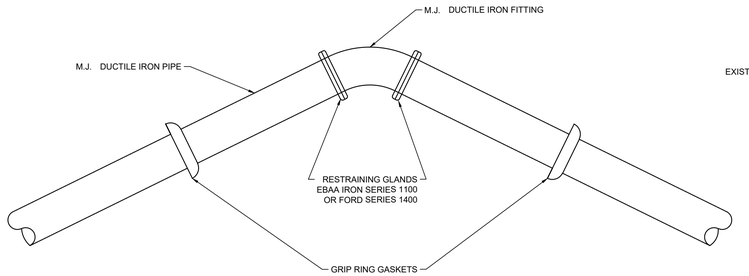
SHEET: EROSION & SEDIMENT CONTROL DETAILS (2 OF 2)
SCALE: AS SHOWN
DATE: AUGUST 2024

PROJECT: 290-GPM OAKS ROAD PUMP STATION
CLARENDON COUNTY SOUTH CAROLINA

FILE NAME: 24110-Cover and Details.dwg
REFERENCE FILE: 24110-Base.dwg
PROJECT NO. 24110-0014

SHEET C-6.1 OF E102

DWG NO. 01,1695-D29



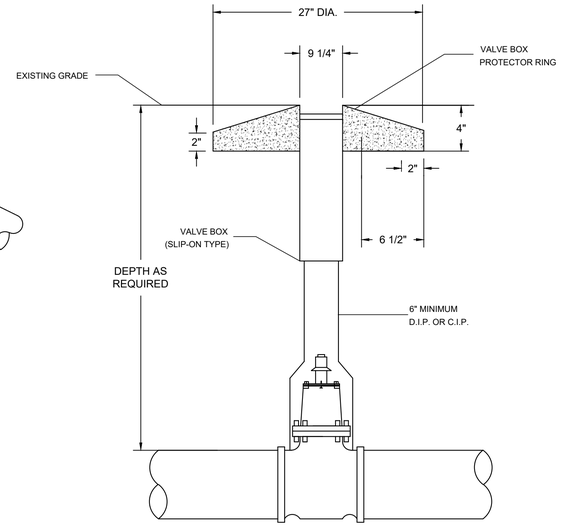
RESTRAINT JOINT TABLE LENGTH OF RESTRAINED JOINT REQUIRED (IN L.F. EACH SIDE OF THE BEND)							
SIZE	11 1/4°	22 1/2°	45°	90°	TEE BRANCH	DEAD END	REDUCER
6"	3	7	14	33	64	85	46
8"	4	9	18	43	90	110	44
10"	5	10	21	51	113	133	45

NOTES:

THE FOLLOWING CONDITIONS WERE USED TO CALCULATE THE RESTRAINED LENGTHS:
LAYING CONDITION IS TYPE 3;
SOIL DESIGNED AS SAND-SILT;
DEPTH IS 3 FEET;
DESIGN PRESSURE (TEST) IS 150 PSI;
SAFETY FACTOR IS 1.5.
FOR THE TEE BRANCH AND REDUCER, LENGTHS ARE BASED ON BRANCHING AND REDUCING FROM THE NEXT LARGER SIZE IN THE TABLE. DEVIATIONS FROM THESE CONDITIONS MUST BE BASED ON THE ABOVE PARAMETERS.

RESTRAINED JOINT FITTING DETAIL

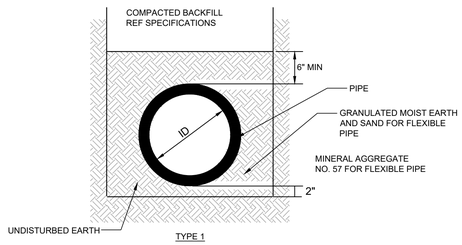
N.T.S.



NOTES:
1-GATE VALVE SHALL BE MUELLER MODEL A2360
2-GATE VALVES SHALL OPEN LEFT.
3-SCREW TYPE VALVE BOX MAY BE USED AS ALTERNATE.
4-GATE VALVES 24" AND LARGER MUST BE MECHANICAL JOINT AND EQUIPPED WITH BY-PASS VALVES.

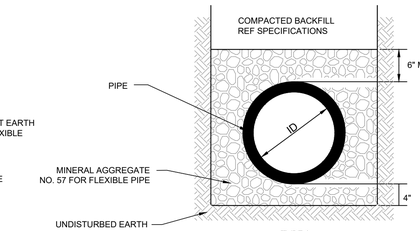
GATE VALVE IN BOX DETAIL

N.T.S.



TYPE 1

NOTE:
TYPE 1 BEDDING USED IN WITH SUITABLE SOILS AND GREENBELT AREAS NOT EXPERIENCE DIRECT TRAFFIC LOADING



TYPE 2

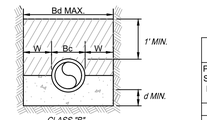
NOTE:
1. HAND SHAPED BOTTOM - SHAPE BELL HOLES FOR USE IN DRY EARTH TRENCHES ONLY. APPLICABLE TO BOTH EARTH AND ROCK TRENCHES.
2. B.C. = OUTSIDE BELL CIRCUMFERENCE
3. GRAVEL OR CRUSHED STONE TO BE USED FOR BEDDING MATERIAL IF WATER IS ENCOUNTERED IN TRENCH BOTTOM.

NOTE:
TYPE 2 BEDDING USED IN MOIST AREAS (INDICATING GROUNDWATER) AND HIGH TRAFFIC AREAS.

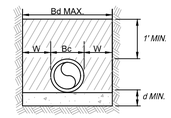
FORCE MAIN PIPE BEDDING DETAIL

N.T.S.

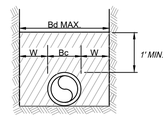
NOTES:
1. DITCH WIDTH NOT TO EXCEED Bd 2' OVER TOP OF THE PIPE.
2. PIPE SIZE 8" TO 30" DESIGN BASED ON (Bd MAX. DITCH WIDTH) NOT USING TRENCH BOX.
3. ALL PVC PIPE TO BE INSTALLED IN CLASS "B" DITCH BEDDING, UNLESS OTHERWISE NOTED.



CLASS "B"



CLASS "C"



CLASS "D"

IMPROVED DITCH BEDDING DIMENSIONS FOR CLASS "B", "C" & "D"					
PIPE SIZE I.D.	Bc OUT DIA.	W MAX WORK SPACE	Bd MAX DITCH WIDTH	d DEPTH OF BEDDING UNDER PIPE	
8"	10"	8"	2'3"	4"	
10"	12"	9"	2'6"	4"	
12"	14"	9"	2'9"	4"	
15"	18"	10"	3'0"	4"	
18"	22"	10"	3'6"	6"	
21"	24"	9"	3'6"	6"	
24"	27"	10"	4'0"	9"	
27"	32"	10"	4'6"	9"	
30"	36"	9"	4'6"	9"	

IMPROVED GRAVITY SEWER DITCH BEDDING DETAIL

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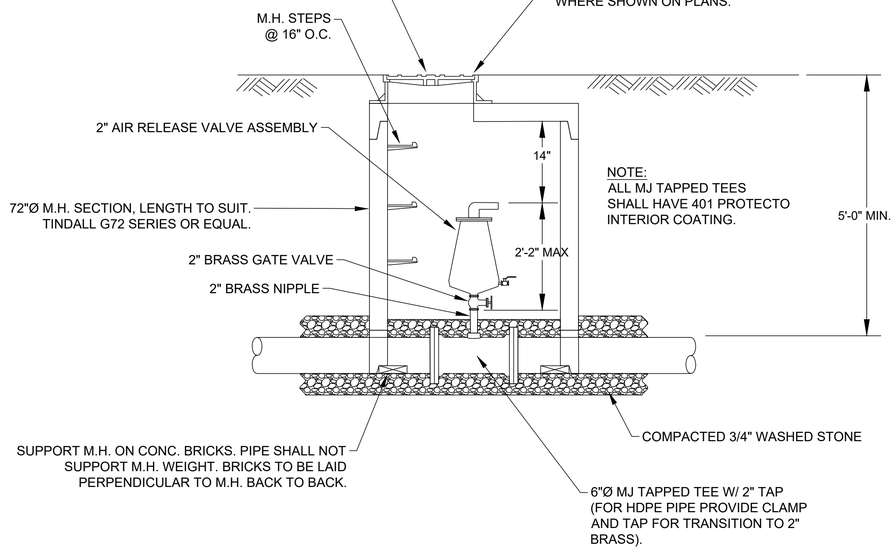


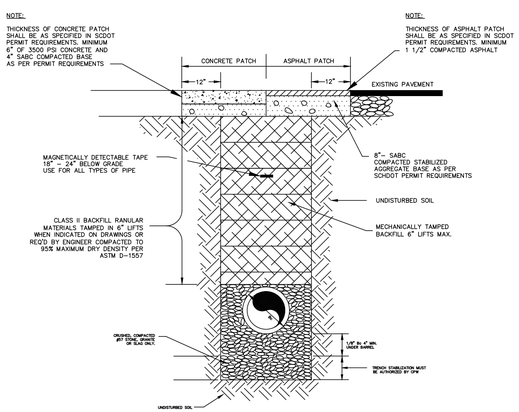
AIR RELEASE VALVE DETAIL

N.T.S.

NOTE: DUE TO PROPOSED FINAL GRADE AND DEPTH OF PIPE EXITING VALVE VAULT, CONTRACTOR TO ENSURE ARV IS INSTALLED AT HIGH POINT OF NEW LINE AND FINAL DEPTH OF COVER IS SUFFICIENT FOR ARV ACCESS WITHIN MANHOLE STRUCTURE IF 5-FT OF COVER IS NOT ACHIEVABLE BASED ON FINAL INSTALLATION. RIM ELEVATION SHOULD NOT EXTEND MORE THAN 1-FT ABOVE FINAL GRADE OF PUMP STATION SITE.

NOTE:
THICKNESS OF CONCRETE PATCH SHALL BE AS SPECIFIED IN SCDOT PERMIT REQUIREMENTS. MINIMUM 6" OF 3500 PSI CONCRETE AND 4" SABC COMPACTED BASE AS PER PERMIT REQUIREMENTS

NOTE:
THICKNESS OF ASPHALT PATCH SHALL BE AS SPECIFIED IN SCDOT PERMIT REQUIREMENTS. MINIMUM 1 1/2" COMPACTED ASPHALT



SEWER MAIN UNDER DRIVEWAY DETAIL

N.T.S.

REVISION DATE		
DATE	REVISION DESCRIPTION	
12/18/24	ISSUE FOR PERMITTING	
03/05/25	ISSUE FOR BID	

APPROVALS	DESIGNER	TECHNICIAN	CHECKED BY	APPROVED
ENGINEER	HMW	MRT	ARH	ARH
ARH				

NORTH CAROLINA NOLLIE BOYD ADAM Alliance Consulting Engineers, Inc. No. C02854 REGISTERED PROFESSIONAL ENGINEER

NORTH CAROLINA HOLDEN ADAM No. 25472 REGISTERED PROFESSIONAL ENGINEER

DATE: 12/18/24

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SHEET: WASTEWATER CONSTRUCTION DETAILS (1 OF 2)

SCALE: AS SHOWN

DATE: AUGUST 2024

PROJECT: 290-GPM OAKS ROAD PUMP STATION

CLARENDON COUNTY SOUTH CAROLINA

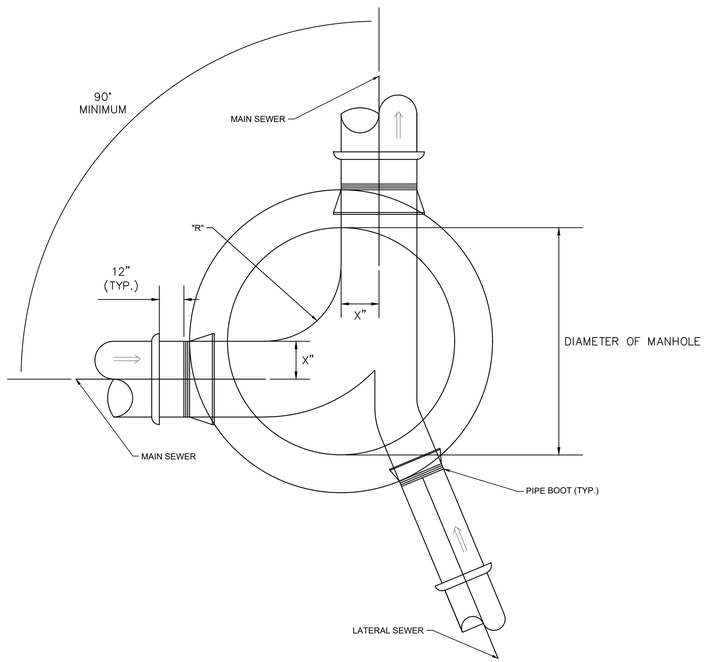
FILE NAME: 24110-Cover and Details.dwg

REFERENCE FILE: 24110-Base.dwg

PROJECT NO. 24110-0014

SHEET C-7.0 OF E102

DWG NO. 01.1695-D29



TYPICAL PLAN STANDARD MANHOLE DETAIL

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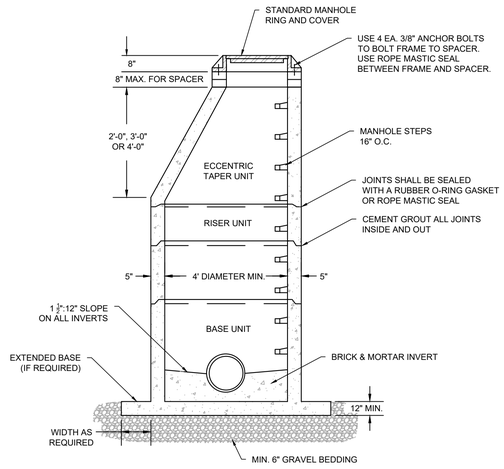
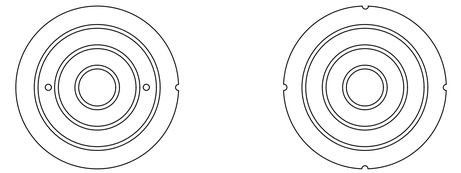


MANHOLE - STANDARD PRECAST CONCRETE DETAIL

N.T.S.

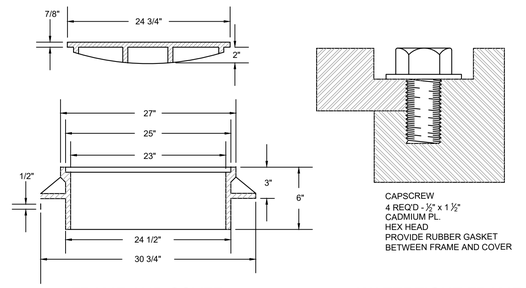


NOTE:
LID CENTER MARKING SHALL BE "SANITARY SEWER"

STANDARD COVER

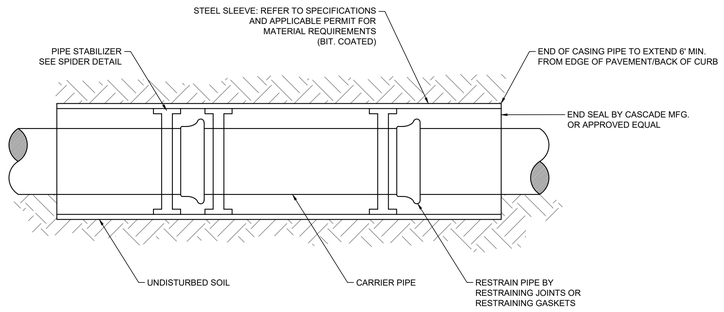
WATERTIGHT COVER

PLAN VIEW

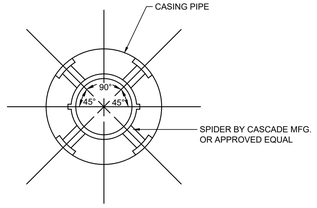


FRAME AND COVER SECTION

WATERTIGHT FRAME AND COVER DETAIL



PROFILE VIEW



SPIDER DETAIL

NOTES:
1. REFER TO APPLICABLE PERMIT FOR MINIMUM REQUIREMENTS GOVERNING HIGHWAY OR RAILROAD UNDER CROSSINGS.
2. 2" MINIMUM BELL CLEARANCE FOR SLEEVES LESS THAN 60' LONG.
3. 4" MINIMUM BELL CLEARANCE FOR 60' AND LONGER SLEEVES.
4. THE INSIDE DIAMETER OF THE CASING PIPE SHALL BE A MINIMUM OF 2" LARGER THAN THE LARGEST OUTSIDE DIAMETER OF THE CARRIER PIPE (JOINTS OR COUPLINGS) IF THE CARRIER PIPE IS LESS THAN 6" IN DIAMETER. IF THE DIAMETER OF THE CARRIER PIPE IS 6" OR LARGER, THE DIAMETER OF THE CASING PIPE SHALL BE A MINIMUM OF 4" LARGER THAN THE LARGEST OUTSIDE DIAMETER OF CARRIER PIPE.
5. THE END OF THE CASING PIPE SHALL EXTEND A MINIMUM OF 25' FROM THE CENTERLINE OF RAIL.
6. THE TOP OF THE CASING PIPE SHALL BE A MINIMUM OF 5.6' BELOW THE BASE OF RAIL.
7. THE TOP OF THE CASING PIPE SHALL BE A MINIMUM OF 3' BELOW THE INVERT OF ROADSIDE DRAINAGE DITCHES.
8. USE SPIDER SUPPORTS (SEE DETAIL) TO MOVE CARRIER PIPE INTO CASING PIPE. SPACING OF SPIDERS WILL BE DICTATED BY THE LENGTH OF CASING PIPE AND NUMBER OF JOINTS OF CARRIER PIPE.
9. MINIMUM OF 2 SPACERS PER JOINT OF PIPE.
10. THERE SHALL BE NO WELDING OF CASING UNDER PAVEMENT.

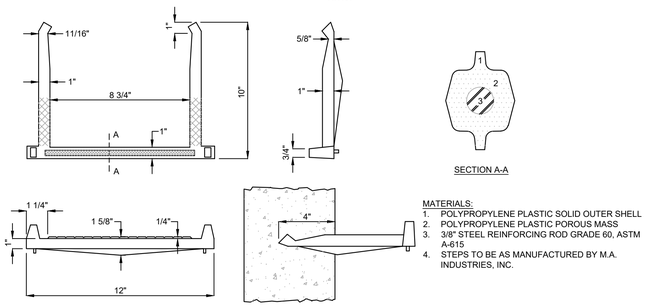
MIN. STEEL CASING SCHEDULE		
DIP WL SIZE	STEEL CASING SIZE	MINIMUM WALL THICKNESS
4"	10"	0.250"
6"	12"	0.250"
8"	16"	0.250"
10"	18"	0.250"
12"	22"	0.250"
14"	24"	0.312"
15"	26"	0.312"
16"	30"	0.375"
18"	32"	0.375"
20"	36"	0.375"
24"	42"	0.500"
30"	48"	0.500"
36"	54"	0.500"

JACK AND BORE DETAIL

N.T.S.

MANHOLE FRAME AND COVER DETAIL

N.T.S.



MATERIALS:
1. POLYPROPYLENE PLASTIC SOLID OUTER SHELL
2. POLYPROPYLENE PLASTIC POROUS MASS
3. 3/8" STEEL REINFORCING ROD GRADE 60, ASTM A-615
4. STEPS TO BE AS MANUFACTURED BY M.A. INDUSTRIES, INC.

MANHOLE STEP - REINFORCED PLASTIC DETAIL

N.T.S.

REVISION DATE		
DATE	REVISION DESCRIPTION	
12/18/24	ISSUE FOR PERMITTING	
03/05/25	ISSUE FOR BID	

APPROVALS	
ENGINEER	ARH
DESIGNER	HMW
TECHNICIAN	MRT
CHECKED BY	ARH
APPROVED	ARH

NORTH CAROLINA NOTIFY BEFORE YOU DIG CERTIFICATE OF AUTHORIZATION Alliance Consulting Engineers, Inc. No. C02854

DATE: 12/18/24

NORTH CAROLINA PROFESSIONAL ENGINEER No. 25472 Adam Hayes REGISTERED

SIGNATURE:

ALLIANCE CONSULTING ENGINEERS
Alliance Consulting Engineers, Inc.
124 Verdae Blvd - Beaverette II, Suite 305 - Greenville, SC 29607
Phone: (864) 234-1740 • Fax: (864) 234-1741

SHEET: WASTEWATER CONSTRUCTION DETAILS (2 OF 2)

SCALE: AS SHOWN

DATE: AUGUST 2024

PROJECT: 290-GPM OAKS ROAD PUMP STATION

CLARENDON COUNTY SOUTH CAROLINA

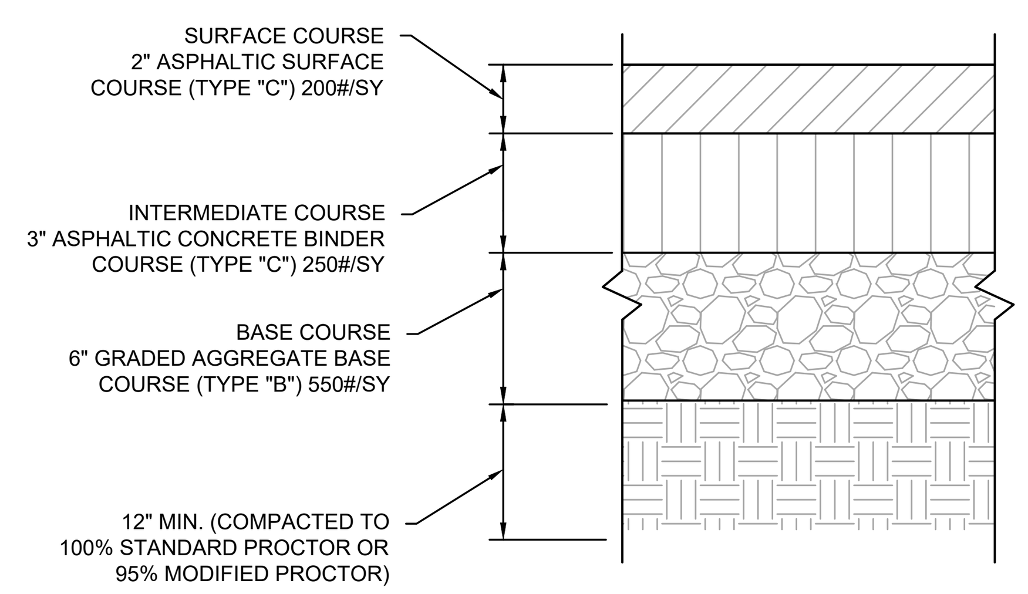
FILE NAME: 24110-Cover and Details.dwg

REFERENCE FILE: 24110-Base.dwg

PROJECT NO. 24110-0014

SHEET C-7.1 OF E102

DWG NO. 01,1695-D29



NOTES:
1. ALL PAVEMENT CONSTRUCTION TO BE PER LATEST SCDOT STANDARDS.
2. PAVEMENT SECTION AS RECOMMENDED BY SCDOT TO BE USED WITHIN THEIR RIGHT-OF-WAY.
3. ALL THICKNESSES SHOWN ARE COMPACTED

ASPHALT PAVING SECTION - SCDOT RIGHT-OF-WAY DETAIL

N.T.S.

REFERENCES

FLAGGING OPERATIONS GENERAL NOTES

(ALL NOTES, SPECIFICATIONS AND REQUIREMENTS ON THIS STANDARD DRAWING APPLY TO ALL SUBSEQUENT STANDARD DRAWINGS REGARDING FLAGGING OPERATIONS UNLESS OTHERWISE NOTED)

FLAGGING OPERATIONS -

1. KEY FEATURES RELEVANT TO FLAGGING OPERATIONS:

APPROACH TAPER - THIS IS A ONE-LANE TWO-WAY TAPER PLACED IN THE TRAVEL LANE WHERE THE WORK ACTIVITY TAKES PLACE. THIS TAPER PRECEDES THE BUFFER SPACE AND THE WORK ACTIVITY AREA. THE LENGTH OF THIS TAPER MAY VARY FROM 50 FEET TO 100 FEET. INSTALL AND MAINTAIN NO LESS THAN FIVE (5) TRAFFIC CONTROL DEVICES EQUALLY SPACED AT 10' TO 25' INTERVALS AS NECESSARY TO CORRESPOND WITH THE LENGTH OF THE TAPER.

DOWNSTREAM TAPER - THIS TAPER, PLACED IN THE TRAVEL LANE WHERE THE WORK ACTIVITY TAKES PLACE, FOLLOWS THE WORK ACTIVITY AREA AND SERVES AS THE TERMINATION AREA FOR THE CLOSURE OF THE TRAVEL LANE. THE LENGTH OF THIS TAPER MAY VARY FROM 50 FEET TO 100 FEET. INSTALL AND MAINTAIN NO LESS THAN FIVE (5) TRAFFIC CONTROL DEVICES IN THIS TAPER.

FLAGGER STATION - THIS IS THE SPECIFIC LOCATION OF THE FLAGGER.

CLOSED LANE FLAGGER - THIS FLAGGER IS STATIONED ADJACENT TO THE FIRST TRAFFIC CONTROL DEVICE IN THE APPROACH TAPER WHO CONTROLS THE TRAFFIC THAT REQUIRES RELOCATION FROM THE TRAVEL LANE BEING CLOSED TO TRAFFIC.

OPEN LANE FLAGGER - THIS FLAGGER IS STATIONED 100 FEET BEYOND THE LAST TRAFFIC CONTROL DEVICE IN THE DOWNSTREAM TAPER WHO CONTROLS THE TRAFFIC OPERATING IN THE TRAVEL LANE REMAINING OPEN TO TRAFFIC.

SIDE ROAD FLAGGER - THIS FLAGGER IS STATIONED ON AN INTERSECTING SIDE ROAD AND CONTROLS THE SIDE ROAD TRAFFIC ENTERING INTO THE ROADWAY WHERE THE WORK ACTIVITY AREA IS LOCATED.

BUFFER SPACE - THIS AREA IS LOCATED BETWEEN THE DOWNSTREAM END OF THE APPROACH TAPER AND THE NEAREST LIMITS OF THE WORK ACTIVITY AREA AND MAY PROVIDE SOME RECOVERY SPACE FOR AN ERRANT VEHICLE. THE PRESENCE OF PERSONNEL, TOOLS, MATERIALS, EQUIPMENT, WORK VEHICLES, ETC. WITHIN THE LIMITS OF THE BUFFER SPACE IS PROHIBITED. HOWEVER, WHEN THE MINIMUM DISTANCE REQUIREMENTS FOR THE BUFFER SPACE ARE UNAVAILABLE, A TRUCK MOUNTED ATTENUATOR MAY TEMPORARILY ENCROACH UPON THE BUFFER SPACE IN ACCORDANCE WITH THE REQUIREMENTS SPECIFIED IN THE SECTION BELOW ENTITLED, "BUFFER SPACE", WHEN APPROVED BY THE ENGINEER.

WORK ACTIVITY AREA - PERSONNEL, MATERIALS, EQUIPMENT, WORK VEHICLES, ETC. ARE PRESENT WITHIN THIS AREA TO CONDUCT THE WORK.

LIMITS of the WORK ACTIVITY AREA - THIS IS THE BOUNDARY OF THE WORK ACTIVITY AREA FIRST ENCOUNTERED, FROM EITHER DIRECTION, BY MOTORISTS PASSING BY THE WORK ACTIVITY AREA IN THE ADJACENT TRAVEL LANE OPEN TO TRAFFIC AND CONTROLLED BY THE FLAGGERS.

APPROACH LANE - TRAFFIC APPROACHES AN INTERSECTION OR A SPECIFIC LOCATION IN THIS TRAVEL LANE.

DEPARTURE LANE - TRAFFIC DEPARTS FROM AN INTERSECTION OR A SPECIFIC LOCATION IN THIS TRAVEL LANE.

MAINLINE APPROACH - THIS IS AN APPROACH TO THE WORK ACTIVITY AREA ON THE ROADWAY WHERE THE WORK ACTIVITY AREA IS LOCATED.

SIDE ROADS - THESE ROADS INTERSECT THE ROADWAY ON WHICH THE WORK ACTIVITY AREA IS LOCATED.

LIMITS of the INTERSECTION - THE LIMITS OF OR THE PHYSICAL AREA WITHIN AN INTERSECTION IS DEFINED BY THE LOCATION OF STOP BARS WHEN PRESENT. WHEN STOP BARS ARE ABSENT, THE LIMITS OF OR THE PHYSICAL AREA WITHIN AN INTERSECTION IS DEFINED BY THE LOCATION POINTS WHERE THE CORNER RADII BETWEEN ADJACENT ROADWAY APPROACHES TIE TO THE EDGE OF PAVEMENT OR THE EDGE OF TRAVEL LANE ADJACENT TO THE EDGE OF PAVEMENT OF EACH ROADWAY.

2. INSTALL, CONDUCT AND MAINTAIN FLAGGING OPERATIONS IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS, THE STANDARD DRAWINGS, THE MUTCD AND THE "SOUTH CAROLINA FLAGGER'S HANDBOOK" UNLESS OTHERWISE DIRECTED BY THE DEPARTMENT. INSTALL ALL SIGNS RELATIVE TO A FLAGGING OPERATION PRIOR TO INITIATION OF THE OPERATION AND REMOVE OR COVER ALL SIGNS IMMEDIATELY UPON TERMINATION OF THE OPERATION. EQUIP EACH FLAGGER WITH A 24" x 24" STOP/SLOW PADDLE MOUNTED ON A RIGID HANDLE WITH A MINIMUM LENGTH OF 7 FEET. THE DEPARTMENT PROHIBITS THE USE OF FLAGS EXCEPT DURING EMERGENCY SITUATIONS.
3. LANE CLOSURES FOR FLAGGING OPERATIONS ARE RESTRICTED TO A MAXIMUM DISTANCE OF 2 MILES UNLESS OTHERWISE APPROVED BY THE ENGINEER. THE WORK LIMITS WILL COMPLY WITH THE CONTRACT AND SHALL REQUIRE THE ENGINEER'S APPROVAL PRIOR TO BEGINNING THE WORK.
4. INSTALL AND MAINTAIN THE PROPER ARRAY OF ADVANCE WARNING SIGNS FOR EACH "MAINLINE APPROACH" WHEN A FLAGGING OPERATION IS IN PLACE AND ACTIVE. WHEN NECESSARY TO RELOCATE THE "FLAGGER STATION" WHILE ACTIVELY MAINTAINING THE FLAGGING OPERATION, INSTALL AN ADDITIONAL ARRAY OF ADVANCE WARNING SIGNS AT THE LOCATION RELATIVE TO THE NEW "FLAGGER STATION" AND REMOVE THE ORIGINAL ARRAY OF ADVANCE WARNING SIGNS IMMEDIATELY UPON COMPLETION OF THE RELOCATION OF THE FLAGGER TO THE NEW "FLAGGER STATION".
5. INSTALL ALL ADVANCE WARNING SIGNS IMMEDIATELY PRIOR TO INITIATING A FLAGGING OPERATION AND REMOVE OR COVER ALL SIGNS IMMEDIATELY UPON TERMINATION OF THE OPERATION.
6. MAINTAIN TWO-WAY RADIO COMMUNICATIONS BETWEEN ALL FLAGGERS.

NIGHTTIME FLAGGING OPERATIONS -

1. EACH FLAGGER SHALL WEAR SAFETY APPAREL IN COMPLIANCE WITH THE REQUIREMENTS OF ANSI/ ISEA 107 STANDARD PERFORMANCE FOR CLASS 3 RISK EXPOSURE, LATEST REVISION, WHEN CONDUCTING NIGHTTIME FLAGGING OPERATIONS.
2. ILLUMINATE EACH "FLAGGER STATION" WITH ANY COMBINATION OF PORTABLE LIGHTS, STANDARD ELECTRIC LIGHTS, EXISTING STREET LIGHTS, ETC. THAT WILL PROVIDE A MINIMUM ILLUMINATION LEVEL OF 108 Lx OR 10 fc WHEN CONDUCTING NIGHTTIME FLAGGING OPERATIONS.
3. SUPPLEMENT EACH ARRAY OF ADVANCE WARNING SIGNS ON EACH "MAINLINE APPROACH" WITH A TRAILER MOUNTED CHANGEABLE MESSAGE SIGN. THESE CHANGEABLE MESSAGE SIGNS ARE NOT REQUIRED ON THE "SIDE ROADS" INTERSECTING THE ROADWAY WHERE THE "WORK ACTIVITY AREA" IS LOCATED. ALSO, THESE CHANGEABLE MESSAGE SIGNS ARE NOT REQUIRED DURING DAYTIME FLAGGING OPERATIONS UNLESS OTHERWISE DIRECTED BY THE STANDARD DRAWINGS. INSTALL THE CHANGEABLE MESSAGE SIGNS IN ADVANCE OF THE ADVANCE WARNING SIGN ARRAYS. THE MESSAGES SHOULD BE "PREPARE TO STOP", "FLAGGER AHEAD". A TRUCK MOUNTED CHANGEABLE MESSAGE SIGN IS NOT AN ACCEPTABLE ALTERNATIVE TO A TRAILER MOUNTED CHANGEABLE MESSAGE SIGN DURING NIGHTTIME FLAGGING OPERATIONS.
4. UTILIZE PORTABLE PLASTIC DRUMS OR 42" OVERSIZED TRAFFIC CONES IN PLACE OF 36" STANDARD TRAFFIC CONES DURING NIGHTTIME FLAGGING OPERATIONS.

BUFFER SPACE -

1. THE MINIMUM DISTANCE REQUIREMENTS FOR THE "BUFFER SPACE" ARE BASED UPON THE LEGAL POSTED REGULATORY SPEED LIMIT OF THE ROADWAY PRIOR TO BEGINNING THE WORK.

SPEED LIMIT	DISTANCES
LOW SPEED ≤ 35 MPH	200 FEET
INTERMEDIATE SPEED 40 - 50 MPH	300 FEET
HIGH SPEED 55 MPH	400 FEET

2. THE PRESENCE OF PERSONNEL, TOOLS, MATERIALS, EQUIPMENT, WORK VEHICLES, ETC. WITHIN THE LIMITS OF THE "BUFFER SPACE" IS PROHIBITED. A TRUCK MOUNTED ATTENUATOR IS THE ONLY WORK VEHICLE THAT MAY TEMPORARILY ENCROACH UPON THE "BUFFER SPACE" IN ACCORDANCE WITH THE CONDITIONS SPECIFIED IN THE FOLLOWING NOTE WHEN APPROVED BY THE ENGINEER. SEE NOTE NO. 3.
3. WHEN THE MINIMUM DISTANCE REQUIREMENTS FOR THE "BUFFER SPACE" ARE UNAVAILABLE DUE TO FIELD CONDITIONS, IT MAY BE NECESSARY FOR A TRUCK MOUNTED ATTENUATOR TO TEMPORARILY ENCROACH UPON THE "BUFFER SPACE" WHEN APPROVED BY THE ENGINEER. A TRUCK MOUNTED ATTENUATOR IS THE ONLY VEHICLE PERMITTED TO TEMPORARILY ENCROACH UPON THE "BUFFER SPACE" AND THIS ENCROACHMENT IS ONLY PERMITTED WHEN ALL REASONABLE OPTIONS TO AVOID DOING SO HAVE BEEN EXHAUSTED. WHEN ENCROACHMENT UPON THE "BUFFER SPACE" IS APPROVED BY THE ENGINEER, MINIMIZE THE TIME DURATION OF THE ENCROACHMENT BY REMOVAL OF THE TRUCK MOUNTED ATTENUATOR FROM THE "BUFFER SPACE" AT THE FIRST OPPORTUNITY THE MINIMUM DISTANCE REQUIREMENTS FOR THE "BUFFER SPACE" BECOME AVAILABLE.

SIGNS AND TRAFFIC CONTROL DEVICES -

1. MEASURE THE ADVANCE WARNING SIGN LOCATIONS FOR EACH APPROACH FROM THE "FLAGGER STATION" LOCATED ON THAT APPROACH.
2. INSTALL THE ADVANCE WARNING SIGNS AS SPACING INTERVALS BASED UPON THE POSTED REGULATORY SPEED LIMIT OF THE ROADWAY PRIOR TO BEGINNING ANY WORK. THE ADVANCE WARNING SIGN SPACING INTERVALS INDICATED ARE FOR NORMAL CONDITIONS. ADJUSTMENTS TO THESE DISTANCES MAY BE NECESSARY DUE TO EXISTING SIGNS, INTERSECTING ROADWAYS, HORIZONTAL AND/OR VERTICAL ALIGNMENTS OR OTHER SIGHT DISTANCE RESTRICTIONS. SEE TABLE A.
3. INSTALL ADVANCE WARNING SIGNS MOUNTED ON PORTABLE SIGN SUPPORTS NO LESS THAN 4 FEET FROM THE NEAR EDGE OF THE SIGN TO THE NEAR EDGE OF AN ADJACENT TRAVEL LANE ON ROADWAYS WITH EARTH SHOULDERS AND NO LESS THAN 6 FEET FROM THE NEAR EDGE OF THE SIGN TO THE NEAR EDGE OF AN ADJACENT TRAVEL LANE ON ROADWAYS WITH PAVED SHOULDERS. WHEN CURB & GUTTER IS PRESENT, INSTALL THE SIGN NO LESS THAN 2 FEET FROM THE NEAR EDGE OF THE SIGN TO THE FACE OF THE CURB.
4. ALL SIGNS MOUNTED ON PORTABLE SIGN SUPPORTS SHALL HAVE A MINIMUM MOUNTING HEIGHT OF 5 FEET FROM THE GROUND TO THE BOTTOM OF THE SIGN. ALL SIGNS MOUNTED ON GROUND MOUNTED U-CHANNEL OR SQUARE STEEL TUBE POSTS SHALL HAVE A MINIMUM MOUNTING HEIGHT OF 7 FEET FROM THE GRADE ELEVATION OF THE NEAR EDGE OF THE ADJACENT TRAVEL LANE TO THE BOTTOM OF THE SIGN UNLESS OTHERWISE DIRECTED BY THE DEPARTMENT. MOUNT ALL SIGNS STRAIGHT AND LEVEL AND WITH THE FACE OF THE SIGNS PERPENDICULAR TO THE SURFACE OF THE ROADWAY.
5. REFLECTORIZE ORANGE ADVANCE WARNING SIGNS AND ANY ORANGE AREAS OF A MULTI-COLORED ADVANCE WARNING SIGN WITH A FLUORESCENT ORANGE COLORED PRISMATIC RETROREFLECTIVE SHEETING. REFLECTORIZE WHITE REGULATORY SIGNS AND ANY WHITE AREAS OF A MULTI-COLORED ADVANCE WARNING SIGN WITH A WHITE COLORED PRISMATIC RETROREFLECTIVE SHEETING.
6. ALL TRAFFIC CONTROL DEVICES SHALL COMPLY WITH THE REQUIREMENTS OF NCHRP REPORT 350 OR THE AASHTO MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) AND SHALL REQUIRE APPROVAL BY THE DEPARTMENT. ONLY THOSE TRAFFIC CONTROL DEVICES INCLUDED ON THE "APPROVED PRODUCTS LIST FOR TRAFFIC CONTROL DEVICES IN WORK ZONES" ARE CONSIDERED ACCEPTABLE FOR USE. THIS LIST MAY BE ACCESSED ON THE DEPARTMENT'S WEB SITE AT: www.scdot.org .
7. REFLECTORIZATION OF 36" TRAFFIC CONES USED DURING DAYLIGHT HOURS IS NOT REQUIRED IN THE EVENT A DAYTIME FLAGGING OPERATION EXTENDS INTO THE NIGHTTIME HOURS, REPLACE ALL 36" TRAFFIC CONES WITH EITHER PORTABLE PLASTIC DRUMS OR 42" OVERSIZED TRAFFIC CONES. REFLECTORIZE ALL PORTABLE PLASTIC DRUMS AND 42" OVERSIZED TRAFFIC CONES WITH TYPE III OR GREATER FLEXIBLE MICROPRISMATIC RETROREFLECTIVE SHEETING UNLESS OTHERWISE DIRECTED BY THE DEPARTMENT.
8. DELINEATE THE TANGENT AREA OF THE LANE CLOSURE WITH THE NECESSARY TRAFFIC CONTROL DEVICES TO MINIMIZE ENCROACHMENT BY MOTORISTS INTO THE CLOSED TRAVEL LANE UNLESS OTHERWISE DIRECTED BY THE ENGINEER. ON ROADWAYS WITH POSTED REGULATORY SPEED LIMITS OF 35 MPH OR LESS, INSTALL THE TRAFFIC CONTROL DEVICES AT SPACING INTERVALS OF 25 FEET. ON ROADWAYS WITH POSTED REGULATORY SPEED LIMITS OF 40 MPH OR GREATER, INSTALL THE TRAFFIC CONTROL DEVICES AT SPACING INTERVALS OF 50 FEET. SEE TABLE B.

ADVANCE WARNING ARROW PANEL -

1. DURING FLAGGING OPERATIONS, AN ADVANCE WARNING ARROW PANEL SHALL OPERATE IN THE "FOUR CORNERS" CAUTION MODE WHEN LOCATED WITHIN OR IN BETWEEN THE LIMITS OF THE ADVANCE WARNING SIGN ARRAYS SPECIFIC TO A FLAGGING OPERATION. OPERATION OF AN ADVANCE WARNING ARROW PANEL IN AN ARROW, CHEVRON OR ANY OTHER TYPE OF CAUTION MODE OTHER THAN THE "FOUR CORNERS" CAUTION MODE WHEN LOCATED WITHIN OR IN BETWEEN THE LIMITS OF THE ADVANCE WARNING SIGN ARRAYS AS SPECIFIED HEREINBEFORE IS PROHIBITED.
2. ALL ADVANCE WARNING ARROW PANELS SHALL COMPLY WITH THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, LATEST EDITION. THE SPECIFIC LOCATION OF AN ADVANCE WARNING ARROW PANEL MAY REQUIRE ADJUSTMENTS DUE TO HORIZONTAL AND/OR VERTICAL ALIGNMENT OR OTHER SIGHT DISTANCE RESTRICTIONS.

TRUCK MOUNTED ATTENUATOR -

1. A TRUCK MOUNTED ATTENUATOR IS OPTIONAL. UTILIZATION OF A TRUCK MOUNTED ATTENUATOR SHOULD BE CONSIDERED WHEN THE MINIMUM DISTANCE REQUIREMENTS FOR THE "BUFFER SPACE" ARE UNAVAILABLE DUE TO FIELD CONDITIONS. HOWEVER, A TRAILER MOUNTED ADVANCE WARNING ARROW PANEL MAY BE UTILIZED IN PLACE OF A TRUCK MOUNTED ATTENUATOR DURING TRAFFIC CONTROL SETUPS FOR WORK ACTIVITIES SUCH AS ASPHALT CONCRETE PLACEMENT OPERATIONS WHEN APPROVED BY THE ENGINEER.
2. WHEN UTILIZING A TRUCK MOUNTED ATTENUATOR, ENSURE THE TRUCK HAS THE CORRECT GROSS VEHICULAR WEIGHT (GVM) REQUIRED FOR THE TYPE OF TRUCK MOUNTED ATTENUATOR BEING UTILIZED. A DIRECT TRUCK MOUNTED TRUCK MOUNTED ATTENUATOR, A UNIT MOUNTED AND ATTACHED TO BRACKETS OR SIMILAR DEVICES CONNECTED TO THE FRAME OF THE TRUCK, REQUIRES A TRUCK WITH A MINIMUM GVM OF 15,000 POUNDS (ACTUAL WEIGHT) UNLESS OTHERWISE DIRECTED BY THE DEPARTMENT. A TRAILER TOWED TRUCK MOUNTED ATTENUATOR, A TRAILER TYPE UNIT TOWED FROM BEHIND AND ATTACHED TO THE FRAME OF THE TRUCK VIA A PINTLE HOOK / HITCH, REQUIRES A TRUCK WITH A MINIMUM GVM OF 10,000 POUNDS (ACTUAL WEIGHT) UNLESS OTHERWISE DIRECTED BY THE DEPARTMENT. IF THE ADDITION OF SUPPLEMENTAL WEIGHT TO THE VEHICLE AS BALLAST IS NECESSARY, CONTAIN THE MATERIAL WITHIN A STRUCTURE CONSTRUCTED OF STEEL. CONSTRUCT THIS STEEL STRUCTURE TO HAVE A MINIMUM OF FOUR (4) SIDES AND A BOTTOM. A TOP IS OPTIONAL. BOLT THIS STRUCTURE TO THE FRAME OF THE TRUCK. UTILIZE A SUFFICIENT NUMBER OF FASTENERS FOR ATTACHMENT OF THE STEEL STRUCTURE TO THE FRAME OF THE TRUCK TO ENSURE THE STRUCTURE WILL NOT SEPARATE FROM THE FRAME OF THE TRUCK DURING AN IMPACT UPON THE TRUCK MOUNTED ATTENUATOR. UTILIZE EITHER DRY LOOSE SAND OR STEEL REINFORCED CONCRETE FOR BALLAST MATERIAL WITHIN THE STEEL STRUCTURE TO ACHIEVE THE NECESSARY WEIGHT. THE BALLAST MATERIAL SHALL REMAIN CONTAINED WITHIN THE CONFINES OF THE STEEL STRUCTURE IN ITS ENTIRETY AND SHALL NOT PROTRUDE FROM THE STEEL STRUCTURE IN ANY MANNER.
3. LOCATE THE TRUCK MOUNTED ATTENUATOR APPROXIMATELY 100 FEET IN ADVANCE OF THE "WORK ACTIVITY AREA" UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
4. PROVIDE, INSTALL AND MAINTAIN THE TRUCK MOUNTED ATTENUATOR AS SPECIFIED BY THE STANDARD SPECIFICATIONS AND AS DIRECTED BY THE ENGINEER.

GENERAL -

1. CONDUCT THE WORK IN SUCH A MANNER SO AS NOT TO ENCROACH ONTO THE ADJACENT TRAVEL LANE OPEN TO TRAFFIC. INSTALL, MAINTAIN AND ADJUST THE TRAFFIC CONTROL DEVICES AS NECESSARY TO ENSURE PROPER DELINEATION OF THE WORK AREA.
2. IF WORK IS BEING CONDUCTED AT TWO DIFFERENT LOCATIONS AT THE SAME TIME, SEPARATE THE TWO LOCATIONS BY NO LESS THAN 2 MILES FROM THE LAST TRAFFIC CONTROL DEVICE IN THE "DOWNSTREAM TAPER" OF THE FIRST LANE CLOSURE TO THE FIRST TRAFFIC CONTROL DEVICE IN THE "APPROACH TAPER" OF THE SECOND LANE CLOSURE ENCOUNTERED BY A MOTORIST UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
3. THE DEPARTMENT RESERVES THE RIGHT TO RESTRICT WORK OPERATIONS AND/OR WITHHOLD THE MONTHLY ESTIMATE IF THE TRAFFIC CONTROL IS NOT PROPERLY INSTALLED AND MAINTAINED AS DIRECTED BY THE STANDARD SPECIFICATIONS, THE SPECIAL PROVISIONS, THE STANDARD DRAWINGS, THE PLANS AND/OR THE ENGINEER.

TABLE A

SIGN PLACEMENT INTERVALS	
SPEED LIMIT	*
# ≤ 35 MPH LOW SPEED	200
# 40 - 50 MPH INTERMEDIATE SPEED	350
# 55 MPH HIGH SPEED	500

\# REGULATORY POSTED SPEED LIMIT PRIOR TO BEGINNING WORK

TABLE B

TRAFFIC CONTROL DEVICE SPACING INTERVALS WORK ACTIVITY / BUFFER SPACE AREAS	
SPEED LIMIT	SPACING INTERVALS
≤ 35 MPH	25 FEET
40 - 55 MPH	50 FEET

THIS DRAWING IS NOT TO SCALE

WORK ZONE TRAFFIC CONTROL ENGINEER

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER NO. 24242 WILLIE E. McCONNELL, JR

SIGNATURE

6/1/2018

DATE

#	DATE	CHK	DESCRIPTION
5			
4			
3			
2			
1	4-27-18	WEM	REVISED FLAGGING OPERATIONS NOTE 1
0	1-14-15	JCS	NEW DRAWING

SCDOT
SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION
DESIGN STANDARDS OFFICE
955 PARK STREET
ROOM 405
COLUMBIA, SC 29201

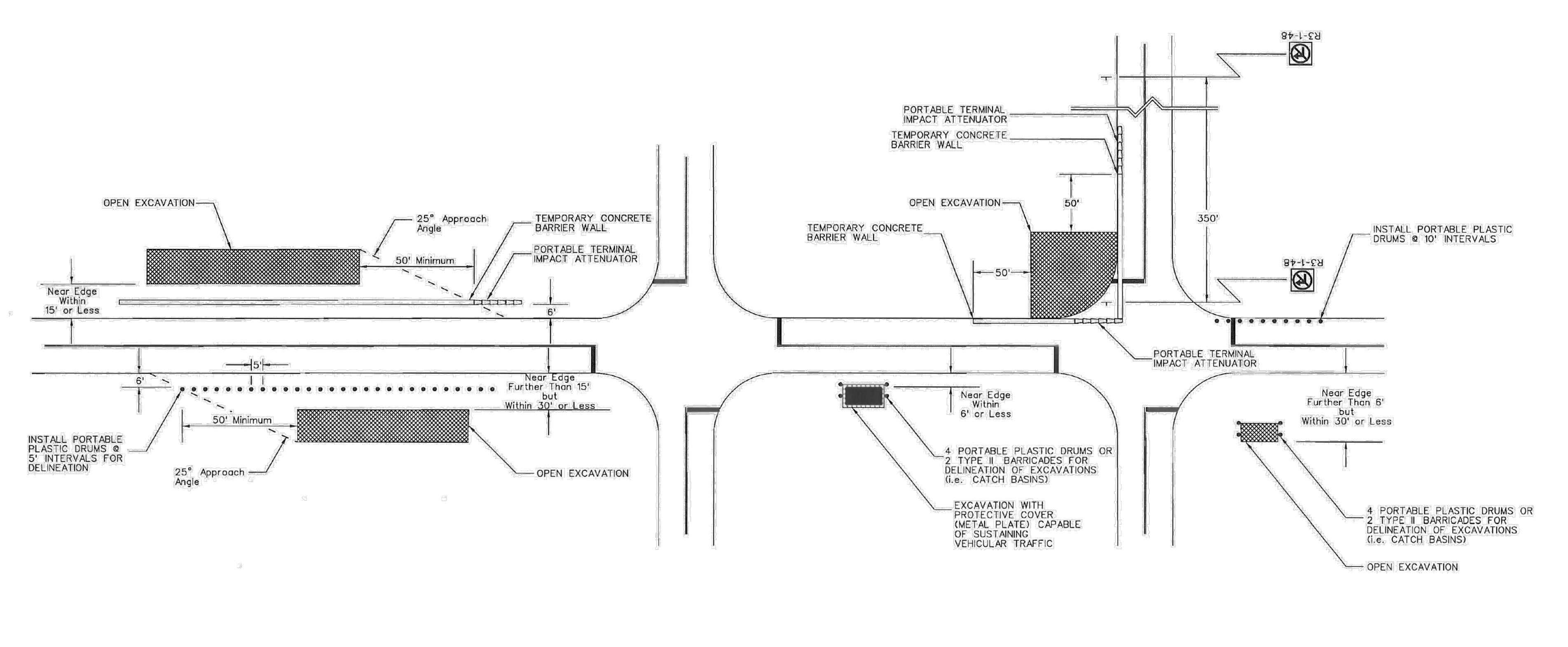
STANDARD DRAWING

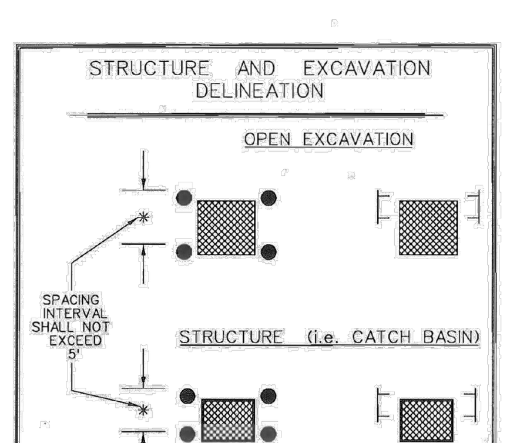
FLAGGING OPERATIONS TWO-LANE TWO-WAY PRIMARY & SECONDARY ROUTES

610-005-00

EFFECTIVE LETTING DATE JAN 2019

REFERENCES





NOTE:
DO NOT BLEND PORTABLE PLASTIC DRUMS AND TYPE II BARRICADES FOR DELINEATION OF EXCAVATIONS AND STRUCTURES. UTILIZE EITHER PORTABLE PLASTIC DRUMS OR TYPE II BARRICADES THROUGHOUT THE PROJECT.

GENERAL NOTES

1.) CONSIDER AN EXCAVATION TO BE AN AREA CREATED BY THE REMOVAL OF MATERIAL FOR CONSTRUCTION OF A STRUCTURE (i.e. CATCH BASIN) THAT IS MORE THAN 2 INCHES BELOW THE GRADE ELEVATION OF THE SURROUNDING AREA.

2.) THE DEPARTMENT PROHIBITS DROP-OFFS GREATER THAN 2 INCHES ADJACENT TO TRAFFIC WHEN THE CONTRACTOR IS NOT ACTIVELY WORKING IN THE IMMEDIATE VICINITY OF THE DROP-OFF. THE CONTRACTOR SHALL PLACE AND MAINTAIN A SLOPE NO STEEPER THAN 6:1 AWAY FROM THE EDGE OF PAVEMENT ADJACENT TO A TRAVEL LANE OPEN TO TRAFFIC AT THE END OF EACH DAY'S WORK.

3.) DELINEATE ALL EXCAVATIONS AND STRUCTURES (i.e. CATCH BASINS OR ANY STRUCTURE THAT MAY BE AN OBSTRUCTION TO AN ERRANT VEHICLE) LOCATED WITHIN 30 FEET OF AN ADJACENT TRAVEL LANE WITH TWO OR MORE 3 FOOT WIDE TYPE II BARRICADES OR FOUR OR MORE PORTABLE PLASTIC DRUMS. MAINTAIN THESE TRAFFIC CONTROL DEVICES IN PLACE UNTIL THE EXCAVATION OR STRUCTURE IS NO LONGER CONSIDERED AN OBSTRUCTION AS DETERMINED BY THE ENGINEER. DISREGARD THIS REQUIREMENT FOR DELINEATION IF THE EXCAVATION OR STRUCTURE IS PROTECTED BY GUARDRAIL OR A TEMPORARY LONGITUDINAL BARRIER WALL SUCH AS CONCRETE OR WATER-FILLED POLYETHYLENE.

4.) PROVIDE PROTECTIVE COVERS (METAL PLATES CAPABLE OF SUSTAINING VEHICULAR TRAFFIC) FOR EXCAVATIONS (i.e. CATCH BASINS) LOCATED WITHIN 6 FEET OF A TRAVEL LANE. HOWEVER, IF THE EXCAVATION CANNOT BE COVERED IN ITS ENTIRETY, INSTALL A TEMPORARY LONGITUDINAL BARRIER WALL OR CLOSE THE ADJACENT TRAVEL LANE TO TRAFFIC. MAINTAIN THE TEMPORARY LONGITUDINAL BARRIER WALL OR THE LANE CLOSURE IN PLACE UNTIL THE EXCAVATION IS CLOSED AND NO LONGER CONSIDERED A POSSIBLE HAZARD AS DETERMINED BY THE ENGINEER. DISREGARD THE REQUIREMENT FOR PROTECTIVE COVERS IF THE EXCAVATION IS PROTECTED BY GUARDRAIL OR A TEMPORARY LONGITUDINAL BARRIER WALL SUCH AS CONCRETE OR WATER-FILLED POLYETHYLENE.

5.) DURING EXCAVATION WORK ON ROADWAYS WITH POSTED SPEED LIMITS OF 45 MPH OR LESS, EXCLUDING THE CONSTRUCTION OF CATCH BASINS AS NOTED ABOVE, MAINTAINING AN OPEN EXCAVATION WITHIN 15 FEET OF AN ADJACENT TRAVEL LANE DURING ANYTIME THE CONTRACTOR IS NOT ACTIVELY ENGAGED IN CONSTRUCTION ACTIVITIES DIRECTLY RELATED TO THE EXCAVATION IS PROHIBITED. THE CONTRACTOR SHALL EITHER CLOSE THE ADJACENT TRAVEL LANE OR INSTALL AND MAINTAIN TEMPORARY LONGITUDINAL BARRIER WALL TO PROTECT THE EXCAVATION DURING THOSE TIMES THE CONTRACTOR IS NOT ACTIVELY ENGAGED IN CONSTRUCTION ACTIVITIES DIRECTLY RELATED TO THE EXCAVATION.

6.) DURING EXCAVATION WORK ON ROADWAYS WITH POSTED SPEED LIMITS OF 50 MPH OR GREATER, EXCLUDING THE CONSTRUCTION OF CATCH BASINS AS NOTED ABOVE, MAINTAINING AN OPEN EXCAVATION WITHIN 30 FEET OF AN ADJACENT TRAVEL LANE DURING ANYTIME THE CONTRACTOR IS NOT ACTIVELY ENGAGED IN CONSTRUCTION ACTIVITIES DIRECTLY RELATED TO THE EXCAVATION IS PROHIBITED. THE CONTRACTOR SHALL EITHER CLOSE THE ADJACENT TRAVEL LANE OR INSTALL AND MAINTAIN TEMPORARY LONGITUDINAL BARRIER WALL TO PROTECT THE EXCAVATION DURING THOSE TIMES THE CONTRACTOR IS NOT ACTIVELY ENGAGED IN CONSTRUCTION ACTIVITIES DIRECTLY RELATED TO THE EXCAVATION.

LEGEND
- PORTABLE PLASTIC DRUMS
- PORTABLE TERMINAL IMPACT ATTENUATOR
- TYPE II BARRICADES
- TYPE III BARRICADES
- TEMPORARY CONCRETE BARRIER WALL
- OPEN EXCAVATION
- EXCAVATION WITH PROTECTIVE COVER (METAL PLATE)

THIS DRAWING IS NOT TO SCALE

WORK ZONE TRAFFIC CONTROL ENGINEER

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER NO. 24242 WILLIE E. McCONNELL, JR

SIGNATURE

1-30-2008

DATE

#	DATE	CHK	DESCRIPTION
6			
5			
4			
3			
2			
1			
0	8-13-07	JCS	DRAWING NO. UPDATE

SCDOT
SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION
DESIGN STANDARDS OFFICE
955 PARK STREET
ROOM 405
COLUMBIA, SC 29201

STANDARD DRAWING

PROTECTION OF EXCAVATIONS ADJACENT TO ROADWAY

601-205-01

EFFECTIVE LETTING DATE MAY 2008

REFERENCES

DRAWING 610-005-10 NOTES

1. SEE STANDARD DRAWING NO. 610-005-00 FOR ALL GENERAL NOTES AND REQUIREMENTS.

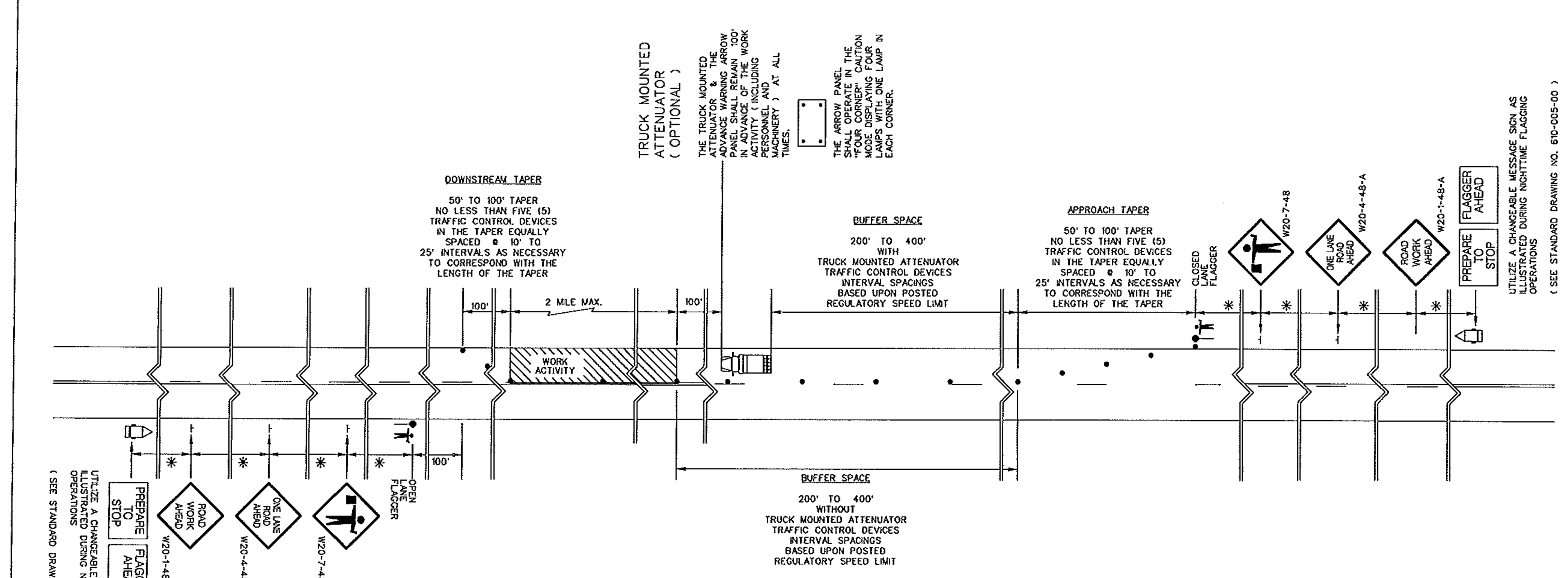


TABLE A

SIGN PLACEMENT INTERVALS	
SPEED LIMIT	*
# ≤ 35 MPH LOW SPEED	200
# 40 - 50 MPH INTERMEDIATE SPEED	350
# 55 MPH HIGH SPEED	500

\# REGULATORY POSTED SPEED LIMIT PRIOR TO BEGINNING WORK

TABLE B

TRAFFIC CONTROL DEVICE SPACING INTERVALS WORK ACTIVITY / BUFFER SPACE AREAS	
SPEED LIMIT	SPACING INTERVALS
≤ 35 MPH	25 FEET
40 - 55 MPH	50 FEET

THIS DRAWING IS NOT TO SCALE

WORK ZONE TRAFFIC CONTROL ENGINEER

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER NO. 24242 WILLIE E. McCONNELL, JR

SIGNATURE

7/27/15

DATE

#	DATE	CHK	DESCRIPTION
6			
5			
4			
3			
2			
1			
0	1-15-15	JCS	NEW DRAWING

SCDOT
SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION
DESIGN STANDARDS OFFICE
955 PARK STREET
ROOM 405
COLUMBIA, SC 29201

STANDARD DRAWING

FLAGGING OPERATIONS TWO-LANE TWO-WAY ROADWAYS WITHOUT INTERSECTIONS

610-005-10

EFFECTIVE LETTING DATE JAN 2016

#	DATE	REVISION DESCRIPTION
0	DATE	REVISION DESCRIPTION
1	12/18/24	ISSUE FOR PERMITTING
2	03/05/25	ISSUE FOR BID

REVISION DATE

APPROVALS	ENGINEER	DESIGNER	TECHNICIAN	CHECKED BY	APPROVED
	ARH	HMW	MRT	ARH	ARH

SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION Alliance Consulting Engineers, Inc. No. C02854

DATE: 12/18/24

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 25472 ADAM HOGAN

SIGNATURE:

ALLIANCE CONSULTING ENGINEERS
Alliance Consulting Engineers, Inc.
124 Verdae Blvd - Bonaventure II, Suite 505 - Greenville, SC 29607
Phone (864) 284-1740 • Fax (864) 284-1741

SHEET: SCDOT TRAFFIC CONTROL DETAILS

DATE: AUGUST 2024 SCALE: AS SHOWN

PROJECT: 290-GPM OAKS ROAD PUMP STATION

CLARENDON COUNTY SOUTH CAROLINA

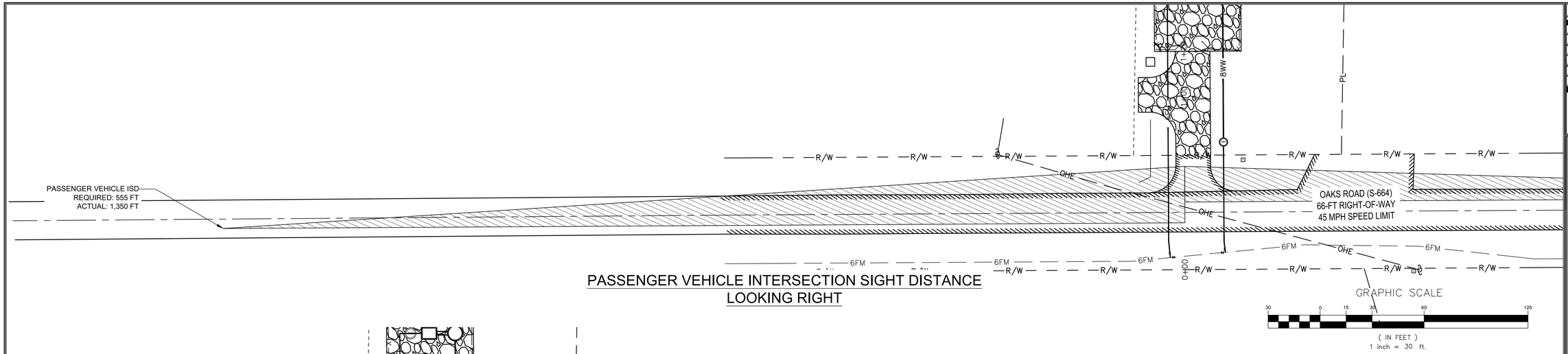
FILE NAME: 24110-Cover and Details.dwg

REFERENCE FILE: 24110-Base.dwg

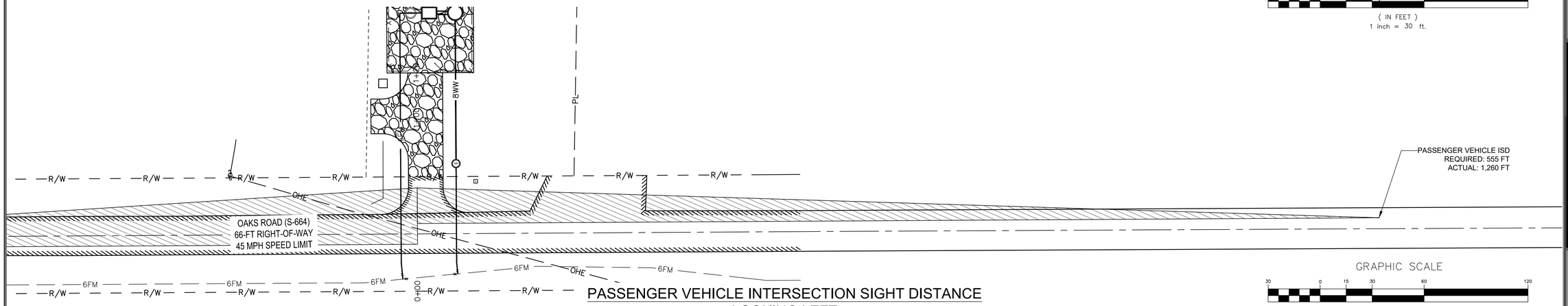
PROJECT NO. 24110-0014

SHEET C-8.0 OF E102

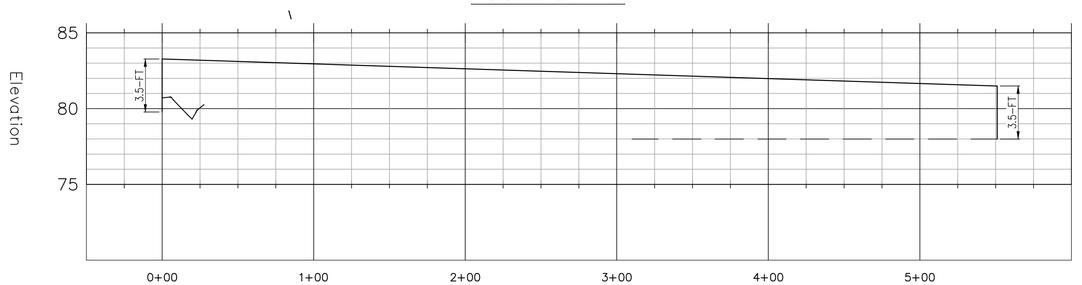
DWG NO. 01,1695-D29



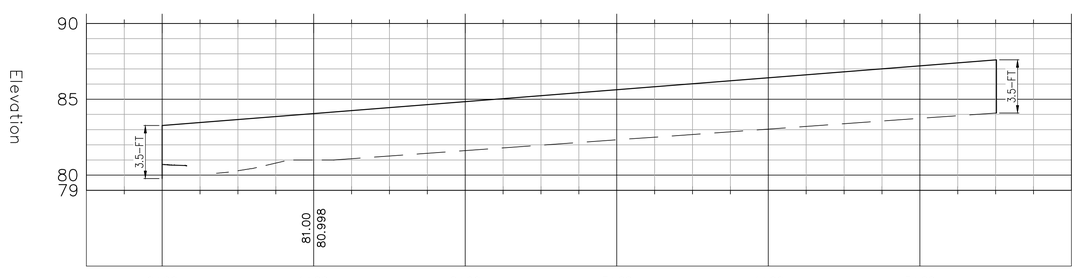
PASSENGER VEHICLE INTERSECTION SIGHT DISTANCE LOOKING RIGHT



PASSENGER VEHICLE INTERSECTION SIGHT DISTANCE LOOKING LEFT



ISD LOOKING RIGHT



ISD LOOKING LEFT

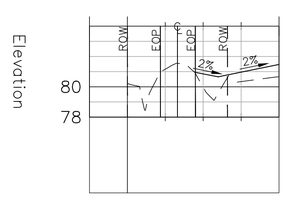
ROADWAY INFORMATION:

OAKS ROAD (S-664) TWO-LANE TWO-WAY HIGHWAY
RIGHT OF WAY: 66 FEET
SPEED LIMIT: 45 MPH

DESIGN VEHICLE: PASSENGER CAR

GRAPHIC SCALE
50 0 25 50 100 200
HORIZONTAL SCALE:
(IN FEET)
1 inch = 50 ft.

GRAPHIC SCALE
5 0 2.5 5 10 20
VERTICAL SCALE:
(IN FEET)
1 inch = 5 ft.



DRIVEWAY PROFILE

NO.	DATE	REVISION DESCRIPTION
1	12/18/24	ISSUE FOR PERMITTING
2	03/05/25	ISSUE FOR BID

APPROVALS:	DESIGNER	TECHNICIAN	CHECKED BY	APPROVED
ENGINEER	HMW	MRT	ARH	ARH
ARH				

CAROLINA SOUTH — ALLIANCE CONSULTING ENGINEERS — CERTIFICATE OF AUTHORIZATION — Alliance Consulting Engineers, Inc. No. C02854

CAROLINA SOUTH — REGISTERED PROFESSIONAL ENGINEER — No. 25472 — ADAM HOLT

DATE: 12/18/24

SIGNATURE:

ALLIANCE CONSULTING ENGINEERS
Alliance Consulting Engineers, Inc.
124 Verdae Blvd - Beaverette II, Suite 305 - Greenville, SC 29607
Phone: (864) 234-1740 • Fax: (864) 234-1741

SCDOT DRIVEWAY DETAIL

SCALE: AS SHOWN

SHEET

DATE: AUGUST 2024

290-GPM OAKS ROAD PUMP STATION

PROJECT

SOUTH CAROLINA

CLARENDON COUNTY

FILE NAME: 24110-Plans.dwg
REFERENCE FILE: 24110-Base.dwg
PROJECT NO. 24110-0014

SHEET C-8.1 OF E102

DWG NO. 01.1695-D29

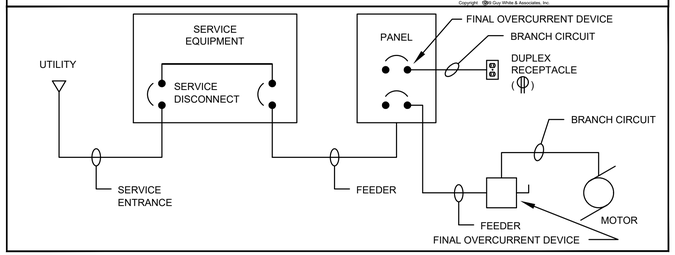
RACEWAY MATERIAL USE TABLE

APPLICATION	RACEWAY MATERIAL							
CONTRACTOR MAY USE ANY MATERIAL MARKED (●) FOR APPLICATION LISTED. IF MATERIAL IS NOT MARKED FOR AN APPLICATION, IT SHALL NOT BE USED FOR THAT APPLICATION.	EMT	IMC	GRS	RAC	SCH. 40 PVC	HDPE	AC/MC CABLE(4)	MFD. WIRING
BRANCH CIRCUITS – CONCEALED ABOVE CEILING		●	●	●				
BRANCH CIRCUITS – CONCEALED IN WALLS		●	●	●				
BRANCH CIRCUITS – EXPOSED FROM FLOOR TO 7'-0" A.F.F. (INTERIOR)	NOT PERMITTED	●	●	●			NOT PERMITTED	NOT PERMITTED
BRANCH CIRCUITS – EXPOSED FROM 7'-0" A.F.F. AND ABOVE (INTERIOR)		●	●	●				
BRANCH CIRCUITS – IN OR UNDER CONCRETE FLOORS		(1) ●	(1) ●		●	●		
BRANCH CIRCUITS – OUTDOORS - BELOW GRADE		(1) ●	(1) ●		●	●		
BRANCH CIRCUITS – OUTDOORS - EXPOSED		●	●	●				
BRANCH CIRCUITS – STUB-UPS BELOW PANELS & ENCLOSURES		●	●	●				
FEEDER CONDUITS		●	●	●	(2) ●			
SERVICE ENTRANCE		●	●		(2) ●			

(1) WITH BITUMINOUS COATING. SEE SPEC.

(2) OUTDOORS - BELOW GRADE.

(3) WITH PANEL "SKIRT" ONLY.



ABBREVIATIONS

THE FOLLOWING STANDARD ABBREVIATIONS ARE USED IN THESE PLANS AND SPECIFICATIONS. CONTRACTOR IS CAUTIONED THAT ALL ABBREVIATIONS LISTED MAY NOT BE USED; CONSULT PLANS AND SPECIFICATIONS FOR ABBREVIATIONS APPLICABLE TO THIS PROJECT.

A.F.F.	ABOVE FINISHED FLOOR
B.F.F.	BELOW FINISHED FLOOR
A.F.G.	ABOVE FINISHED GRADE
B.F.G.	BELOW FINISHED GRADE
U.N.O.	UNLESS NOTED OTHERWISE
CKT.	CIRCUIT
C.	CONDUIT
E.C.	EMPTY CONDUIT
FLX.	FLEXIBLE CONDUIT
WFLX	WEATHERPROOF FLEXIBLE CONDUIT
P	PUMP
W.P.	WEATHER PROOF
A.T.S.	AUTOMATIC TRANSFER SWITCH
S.P.D.	SURGE PROTECTION DEVICE
GRS	GALVANIZED RIGID STEEL

GENERAL NOTES

1. DO NOT SCALE DRAWINGS UNLESS DIMENSIONS ARE SHOWN. LOCATE OUTLETS AND EQUIPMENT AS OBVIOUSLY INDICATED AND COORDINATE WITH OTHER TRADES TO AVOID CONFLICTS.
2. MINIMUM SIZE CONDUCTOR FOR POWER SHALL BE NO. 12 AWG.
3. ALL FUSES SHALL BE DUAL-ELEMENT TYPE, "FUSETRON" BY BUSSMAN, OR "ECON" BY ECONOMY.
4. BRANCH CIRCUIT SIZES ARE AWG 12-3/4"C. UNLESS OTHERWISE NOTED IN PANELBOARD SCHEDULES.
5. ALL BRANCH CIRCUIT LOADS SHALL BE BALANCED ACROSS PANELBOARD BUSSES TO OBTAIN MINIMUM NEUTRAL CURRENT.
6. ALL FLEXIBLE CONDUIT SHALL CONTAIN A GREEN WIRE BONDED TO RIGID RACEWAY, BOX OR FIXTURE AT EACH END OF FLEX. SIZE GROUND WIRE PER N.E.C. TABLE 250-122.

ELECTRICAL SYMBOLS

T	TRANSFORMER		BRANCH CIRCUIT RACEWAY - CONCEALED IN WALL OR CEILING
▬	PANELBOARD		BRANCH CIRCUIT RACEWAY - CONCEALED IN FLOOR OR UNDERGROUND
	SAFETY SWITCH		BRANCH CIRCUIT RACEWAY - EXPOSED
	ELECTRIC MOTOR		
○	CONDUIT STUB		
	DUPLEX RECEPTACLE (HIGH MOUNT)		
WP	WEATHERPROOF DUPLEX RECEPTACLE. 16" UP		

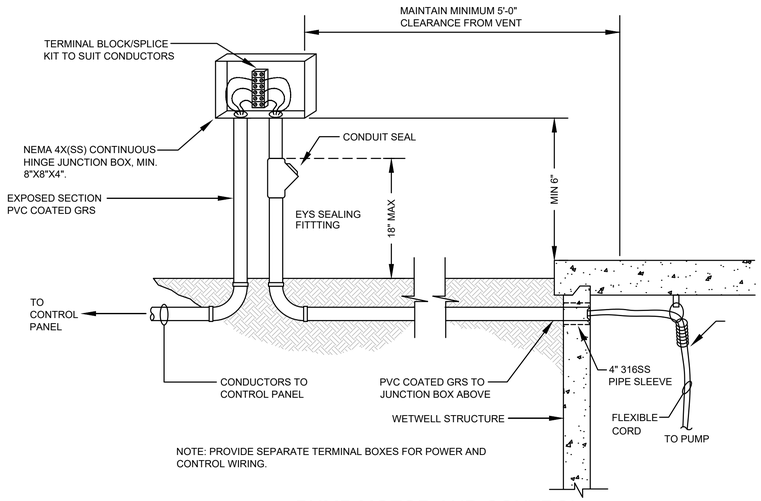
NOTE: ALL DEVICES SHOWN ON THIS SCHEDULE ARE SYMBOLIC ONLY. SEE ELECTRICAL SPECIFICATIONS FOR EXACT DEVICE REQUIREMENTS AND PERFORMACE CHARACTERISTICS.

NOTES TO PUMP STATION WORK

1. THIS PROJECT SHALL BE CONSTRUCTED IN ACCORDANCE WITH ALL COUNTY WATER AND SANITATION GUIDELINES AND STANDARDS.
2. ALL WORK SHALL COMPLY WITH NFPA 820, NEC AND ALL OTHER APPLICABLE CODES AND ORDINANCES.
3. CONTRACTOR SHALL COORDINATE WITH UTILITY FOR ELECTRICAL SERVICE WITH CHARACTERISTICS AS INDICATED. PROVIDE METERING PROVISIONS AS DIRECTED BY UTILITY. CONTRACTOR SHALL PAY ALL SERVICE AND PERMIT FEES AS REQUIRED BY UTILITY.
4. REFER TO CIVIL PLANS FOR UNDERGROUND UTILITY LOCATIONS. PLAN AND ROUTE RACEWAYS IN LOGICAL, EFFICIENT MANNER AND AS REQUIRED TO AVOID CONFLICT WITH OTHER UTILITIES. DOCUMENT ALL RACEWAY ROUTINGS, STUB OUTS AND LOCATIONS IN RESPECT TO MAJOR SITE COMPONENTS ON RECORD DRAWINGS.
5. SEE CIVIL DOCUMENTS FOR ADDITIONAL ELECTRICAL WORK REQUIRED. PROVIDE ALL FINAL EQUIPMENT CONNECTIONS, CONTROL WIRING AND ASSOCIATED WORK FOR A COMPLETE AND OPERABLE PUMP STATION.
6. CONTRACTOR IS CAUTIONED THAT THESE DRAWINGS ARE SCHEMATIC IN NATURE AND DO NOT REPRESENT PRECISE LOCATIONS FOR EQUIPMENT. CONTRACTOR SHALL COORDINATE WITH CIVIL AND VENDOR PROVIDED DRAWINGS AND INFORMATION FOR EXACT LOCATIONS AND ORIENTATIONS OF EQUIPMENT, WIRING DIAGRAMS, TERMINATION POINTS AND OTHER REQUIREMENTS. CONTRACTOR SHALL PROVIDE ALL SUPPORTING ELECTRICAL WORK IN ASSOCIATION WITH EQUIPMENT VENDORS FOR A COMPLETE AND OPERABLE SYSTEM.
7. ALL GROUNDING CONNECTIONS SHALL BE BY EXOTHERMIC WELD WITH THE EXCEPTION OF LUGS INSTALLED IN EQUIPMENT/ENCLOSURES.
8. ALL ELECTRICAL EQUIPMENT SHALL BE INSTALLED ABOVE THE 100 YEAR FLOOD LEVEL.
9. SEAL ALL PENETRATIONS INTO WET WELL WITH WATER-TIGHT PUTTY.
10. PROVIDE STRAIN RELIEF FOR ALL CORDS INSTALLED IN WET WELL - ALL REQUIRED HARDWARE AND MATERIALS SHALL BE STAINLESS STEEL. SUPPORT GRIPS SHALL BE AMTEC 2202 SERIES (SS) OR EQUAL.
11. PROVIDE HANDHOLES AS REQUIRED FOR LONG RUNS OR EXCESSIVE BENDS. HANDHOLES SHALL BE FIBERGLASS REINFORCED POLYMER CONCRETE INSTALLED ON GRAVEL BASE. FRAMES AND COVERS SHALL BE RATED FOR VEHICULAR TRAFFIC.
12. THE ELECTRICAL DESIGN IS BASED ON A PUMPING STATION UTILIZING EQUIPMENT WITH THE FOLLOWING CHARACTERISTICS. CONTRACTOR SHALL VERIFY THAT EQUIPMENT FURNISHED MATCHES THE DESIGNED CHARACTERISTICS AND NOTIFY THE ENGINEER IMMEDIATELY OF ANY DEVIATIONS.

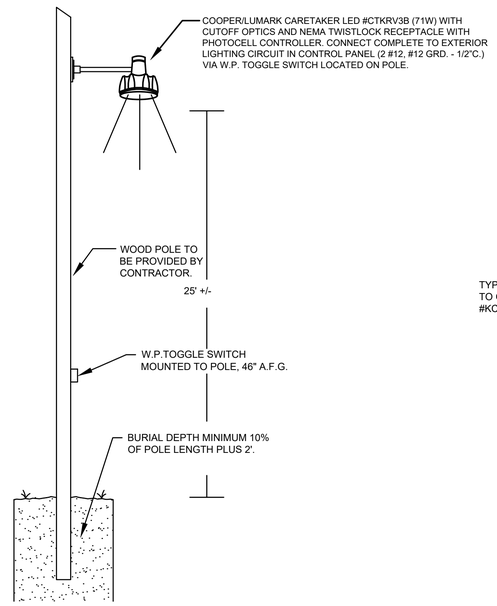
   STARTERS: DIRECT-ON-LINE (DOL)

   PUMPS: 2 X 40.2HP, 480V, 3PH



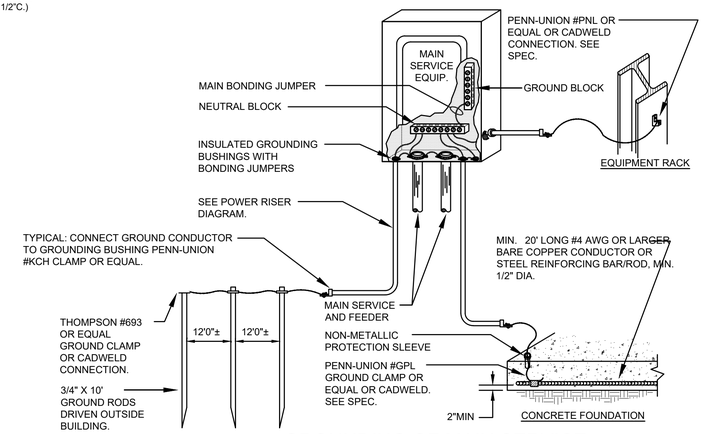
PUMP MOTOR AND CONTROL (FLOAT SWITCH) JUNCTION BOX

NO SCALE



WOOD POLE DETAIL

NO SCALE



GROUNDING OF MAIN SERVICE

REVISION	DATE

APPROVALS	ENGINEER	DESIGNER	TECHNICIAN	CHECKED BY	APPROVED
	SJO	MRD	ARC	CAW	SJO

No. 19845 PROFESSIONAL ENGINEER

01.30.2025

DATE:

GWA, INC. ELECTRICAL ENGINEERS No. C00825 REGISTERED

SIGNATURE:

ALLIANCE CONSULTING - NGINEERS

ELECTRICAL SYMBOLS, SCHEDULES AND DETAILS

SHEET | DATE: 01.30.2025 | SCALE: AS SHOWN

290-GPM OAKS ROAD PUMP STATION

PROJECT | CLARENDON COUNTY | SOUTH CAROLINA

GWA: 24130

GWA inc. Electrical Engineers

168 Laurelhurst Avenue
Columbia, SC 29210
(803)252-6919
Fax (803)799-5494

gwa@gwainc.net
http://www.gwainc.net

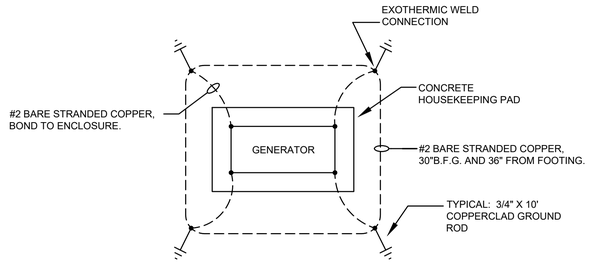
FILE NAME:

REFERENCE FILE: .

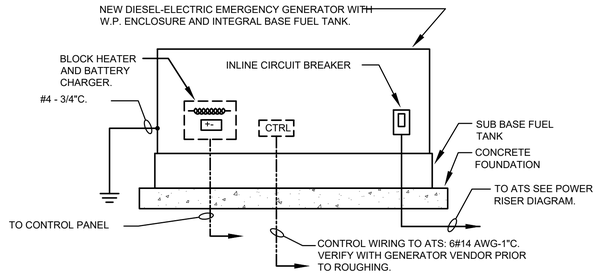
PROJECT NO. 24110-0014

SHEET E001

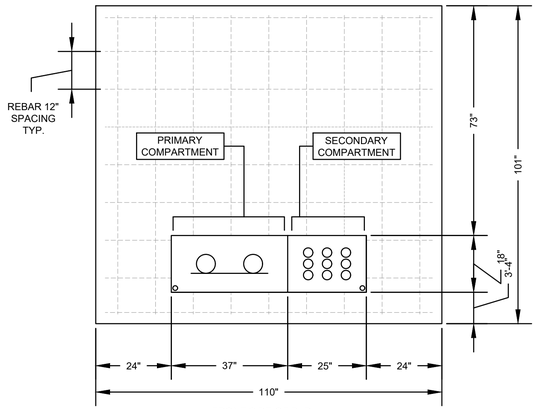
DWG NO. 01.1695-D29



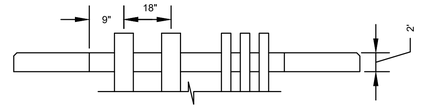
GENERATOR GROUNDING
NO SCALE



GENERATOR CONNECTION DETAIL
SCALE: NONE



FRONT SIDE OF PAD



LOOP FEED 3Ø TRANSFORMER CONCRETE PAD DETAIL

NO SCALE

NOTE TO TRANSFORMER PAD DETAIL

A. PAD CONSTRUCTION SHALL BE IN ACCORDANCE WITH ALL UTILITY REQUIREMENTS AND STANDARDS. COORDINATE WITH UTILITY PRIOR TO INSTALLATION.

B. PAD DETAIL SHOW IS BASED A LOOP FED TRANSFORMER. VERIFY THE DETAIL IS MOST CURRENT WITH UTILITY AND PROVIDE ALL CHANGES AS REQUIRED TO MEET CURRENT DESIGN STANDARD.

C. PAD SHALL BE SPOTTED BY UTILITY REPRESENTATIVE PRIOR TO FORMING OR POURING CONCRETE. LOCATION SHALL BE IN ACCORDANCE WITH UTILITY CLEARANCE AND ACCESS REQUIREMENTS.

D. PAD FOUNDATION SHALL SUPPORT THE WEIGHT OF THE TRANSFORMER FURNISHED. COORDINATE WITH UTILITY FOR WEIGHTS AND PROVIDE ADDITIONAL STRUCTURAL SUPPORT AS REQUIRED DUE TO WEIGHT AND SOIL CONDITIONS.

E. STEEL REINFORCING BAR SHALL BE INTERMEDIATE GRADE BILLET STEEL WITH 40,000 PSI MINIMUM YIELD STRENGTH IN CONFORMANCE WITH ASTM A615 GRADE 40.

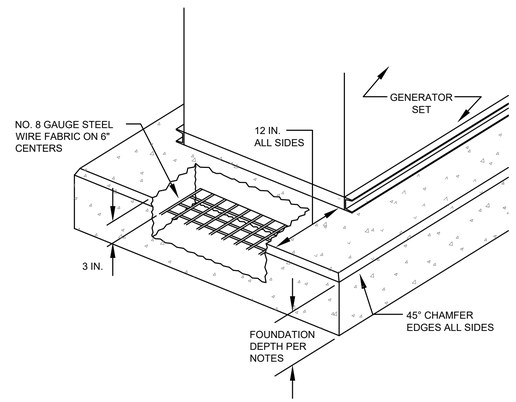
F. CONCRETE SHALL CONFORM WITH CLASS A STRUCTURAL CONCRETE REQUIREMENTS, 28 DAY STRENGTH OF 4000 PSI WITH NO MORE THAN 6% ENTRAINED AIR AND NO LARGER THAN 1" AGGREGATE MIX. NO LIMESTONE AGGREGATE IS PERMITTED. CONCRETE MATERIALS SHALL BE IN ACCORDANCE WITH PORTLAND CEMENT STANDARD ASTM C150.

G. IN FLOOD PRONE AREAS, PAD MUST BE ELEVATED SO THAT 2' ABOVE FLOOD LEVEL UNLESS PERMITTED OTHERWISE BY UTILITY.

H. SECONDARY CONDUITS SHALL NO BE INSTALLED MORE THAN 20" FROM RIGHT EDGE OF WINDOW. CONDUIT EDGE SHALL BE MINIMUM OF 2" FROM EDGE OF WINDOW OPENING.

I. PROVIDE TWO 10' X 3/4" STEEL, COPPERCLAD GROUND RODS, ONE EACH IN PRIMARY AND SECONDARY WINDOWS. VERIFY LOCATION WITH UTILITY PRIOR TO DRIVING.

J. CONDUIT WINDOWS SHALL BE OPEN AND CLEAN. NO REBAR, CONCRETE, FORMS OR DEBRIS ALLOWED.



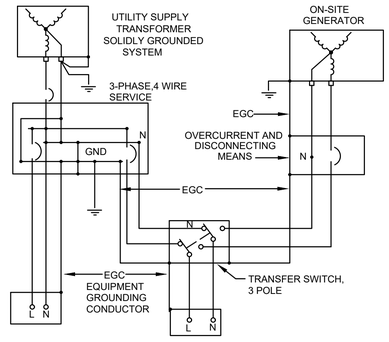
NOTES TO GENERATOR FOUNDATION

1. PROVIDE COMPLETE FOUNDATION IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND THE FOLLOWING REQUIREMENTS. FOUNDATION SHALL MEET THE MORE STRINGENT REQUIREMENTS.
2. COORDINATE STUB UP LOCATIONS FOR ATS CONTROLS, AUXILIARY CIRCUITS (BLOCK HEATER, BATTERY CHARGER, ETC.), FEEDERS, GROUND CONDUCTOR AND ALL OTHER REQUIRED RACEWAYS PRIOR TO FORMING FOUNDATION.
3. SECURE GENERATOR SET TO FOUNDATION WITH APPROPRIATE SEISMIC HARDWARE. COORDINATE WITH MANUFACTURER FOR ANCHOR BOLT REQUIREMENTS.
4. FOUNDATION SHALL BE CONSTRUCTED OF REINFORCED CONCRETE. REINFORCEMENT SHALL BE MINIMUM NO. 8 GAUGE STEEL WIRE MESH OR EQUIVALENT, HORIZONTALLY PLACED ON 6" CENTERS. IN LIEU OF WIRE MESH, CONTRACTOR MAY UTILIZE NO. 6 REBAR ON 12" HORIZONTAL CENTERS. ALL REINFORCING SHALL CLEAR FOUNDATION SURFACES A MINIMUM OF 3".
5. FOUNDATION SHALL EXTEND MINIMUM 12" ON ALL SIDES OF GENERATOR SET.
6. MINIMUM FOUNDATION DEPTH SHALL BE CALCULATED BY: FD = W/(DxBxL), WHERE:

   FD = FOUNDATION DEPTH IN FT
   W = TOTAL WEIGHT OF GENERATOR SET (INCLUDING FUEL) IN LB
   D = DENSITY OF CONCRETE (150 LB/FT^3)
   B = FOUNDATION WIDTH IN FT
   L = FOUNDATION LENGTH IN FT

7. RECOMMENDED CONCRETE MIXTURE BY VOLUME IS 1:2:3 CEMENT:SAND:AGGREGATE WITH MAXIMUM 4-INCH SLUMP AND 28-DAY COMPRESSIVE STRENGTH OF 3000 PSI.
8. CHAMFER TOP EDGES OF FOUNDATION 1" AT 45 DEGREES.

GENERATOR FOUNDATION DETAIL
NO SCALE



NEUTRAL CONDUCTOR GROUNDED AT SERVICE EQUIPMENT

GENERATOR-ATS GROUNDING DETAIL

NO SCALE

REVISION DATE

APPROVALS	ENGINEER	DESIGNER	TECHNICIAN	CHECKED BY	APPROVED
	SJO	MRD	ARC	CAW	SJO

DATE: 01.30.2025

SIGNATURE:

ALLIANCE CONSULTING - NGINEERS

ELECTRICAL SYMBOLS, SCHEDULES AND DETAILS

SHEET | DATE: 01.30.2025 | SCALE: AS SHOWN

290-GPM OAKS ROAD PUMP STATION

PROJECT | CLARENDON COUNTY | SOUTH CAROLINA

GWA: 24130
GWA inc. Electrical Engineers
168 Laurelhurst Avenue
Columbia, SC 29210
(803)252-6919
Fax (803)799-5494
gwa@gwainc.net
http://www.gwainc.net

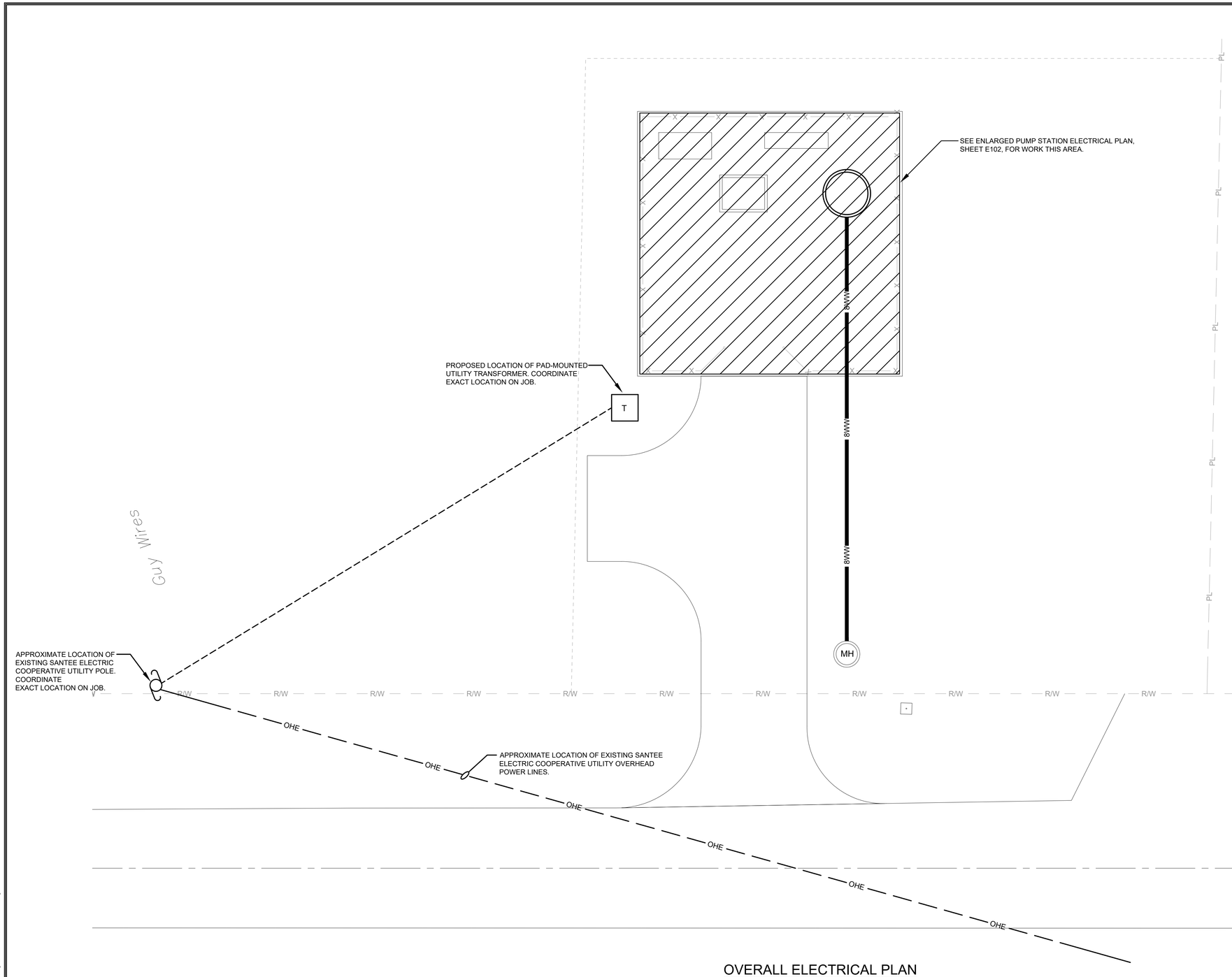
FILE NAME:

REFERENCE FILE: .

PROJECT NO. 24110-0014

SHEET E002

DWG NO. 01.1695-D29



OVERALL ELECTRICAL PLAN

SCALE: 1" = 10'-0"

REVISION	DATE

APPROVALS		TECHNICIAN		CHECKED BY	
ENGINEER	SDO	ARC		CAW	
DESIGNER	MRD			APPROVED	SDO

SEAL: No. 19845 — REGISTERED PROFESSIONAL ENGINEER — SOUTH CAROLINA

DATE: 01.30.2025

SIGNATURE: GWA, INC. ELECTRICAL ENGINEERS No. C00825 — CERTIFICATE OF AUTHORIZATION — SOUTH CAROLINA

ALLIANCE CONSULTING - NGINEERS

SHEET: OVERALL ELECTRICAL PLAN

SCALE: AS SHOWN

DATE: 01.30.2025

PROJECT: 290-GPM OAKS ROAD PUMP STATION

CLARENDON COUNTY SOUTH CAROLINA

GWA: 24130

GWA inc. Electrical Engineers

168 Laurelhurst Avenue
Columbia, SC 29210
(803)252-6919
Fax (803)799-5494

gwa@gwainc.net
http://www.gwainc.net

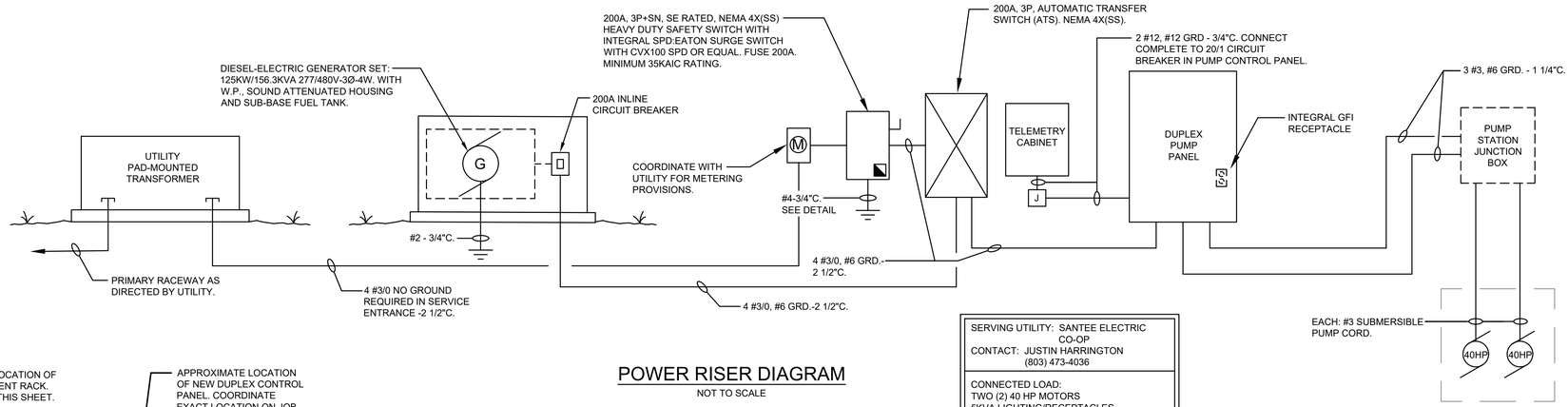
FILE NAME:

REFERENCE FILE: .

PROJECT NO. 24110-0014

SHEET E101

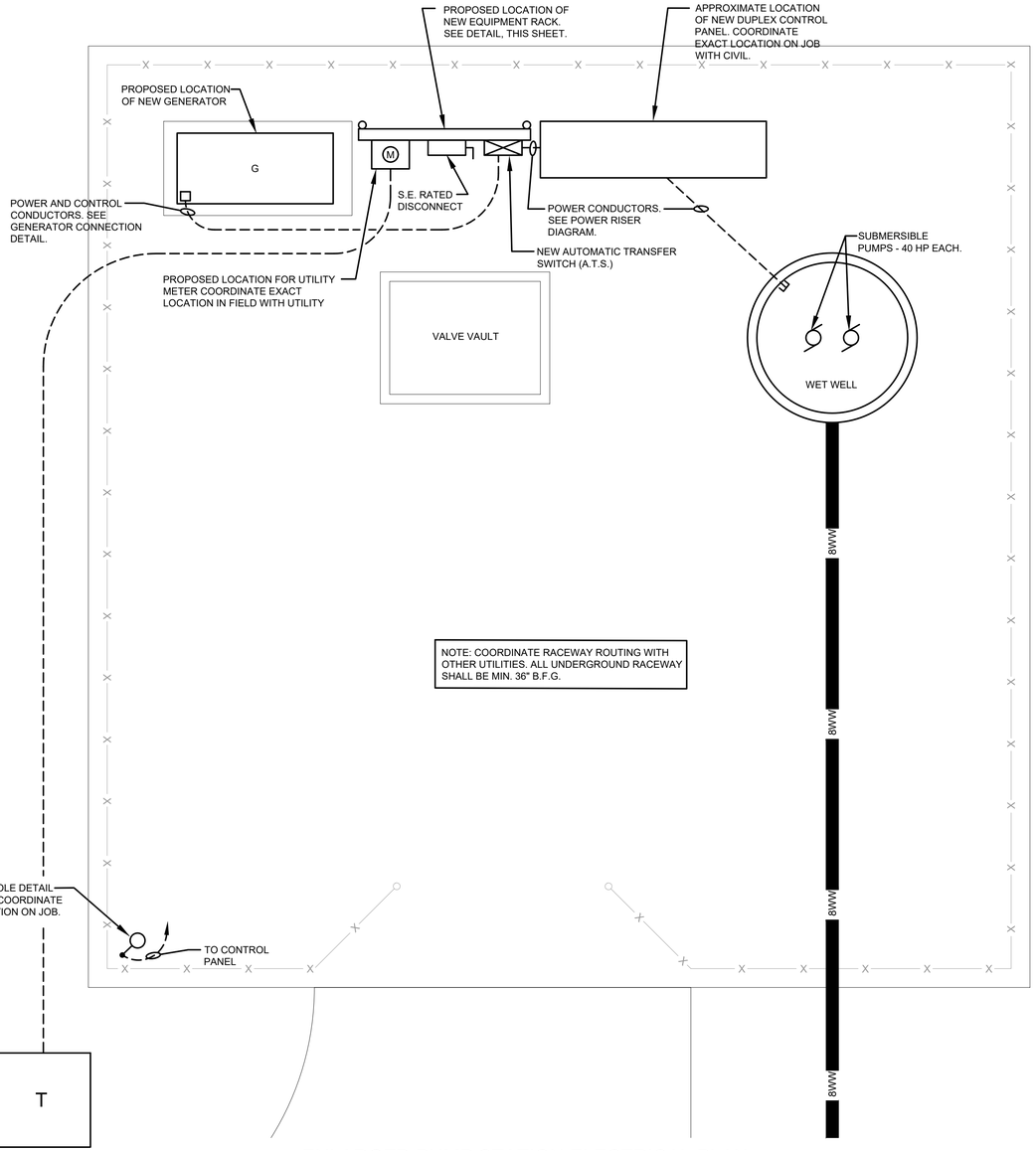
DWG NO. 01.1695-D29



POWER RISER DIAGRAM

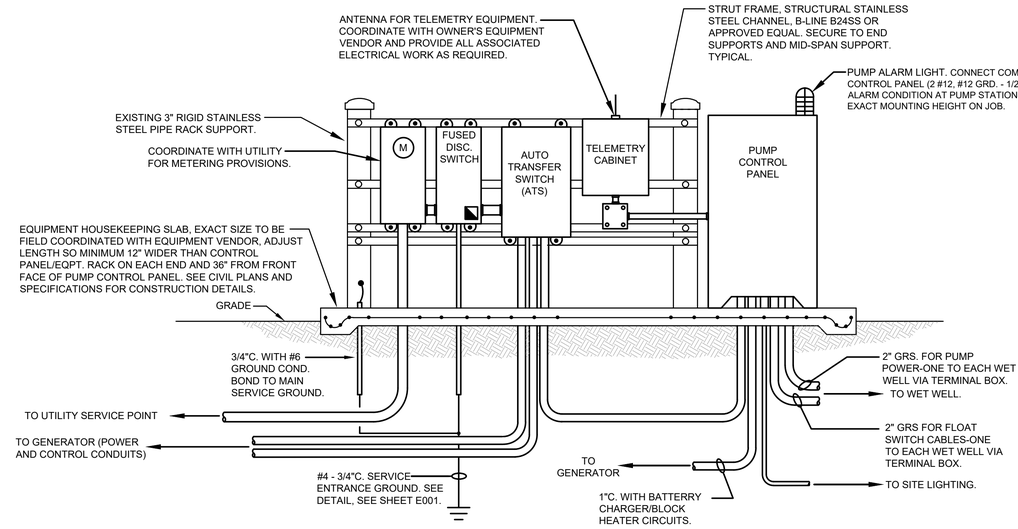
NOT TO SCALE

SERVING UTILITY: SANTEE ELECTRIC CO-OP CONTACT: JUSTIN HARRINGTON (803) 473-4036
CONNECTED LOAD: TWO (2) 40 HP MOTORS 5KVA LIGHTING/RECEPTACLES
SERVICE VOLTAGE: 277/480V-3Ø-4W



ENLARGED PUMP STATION ELECTRICAL PLAN

SCALE: 1/4" = 1'-0"



EQUIPMENT MOUNTING SCHEMATIC

NOT TO SCALE

GWA: 24130
GWA inc. Electrical Engineers
168 Laurelhurst Avenue
Columbia, SC 29210
(803)252-6919
Fax (803)799-5494
gwa@gwainc.net
http://www.gwainc.net

REVISION	DATE

APPROVALS					
ENGINEER	SJO	DESIGNER	ARD	TECHNICIAN	ARC	CHECKED BY	CAW	APPROVED	SJO

01.30.2025

DATE:

SIGNATURE:

ALLIANCE CONSULTING - NGINEERS

PUMP STATION ELECTRICAL PLAN, DETAILS, & POWER RISER DIAGRAM

SCALE: AS SHOWN

SHEET

DATE: 01.30.2025

290-GPM OAKS ROAD PUMP STATION

PROJECT

SOUTH CAROLINA

CLARENDON COUNTY

FILE NAME:

REFERENCE FILE:

.

PROJECT NO.
24110-0014

SHEET
E102

DWG NO. 01.1695-D29