BOB'S GUN SHOP

TOWN OF MOYOCK

CURRITUCK COUNTY, NORTH CAROLINA

ZONING SUMMARY

ZONING DISTRICT: GB - GENERAL BUSINESS

ZONING REGULATION	REQUIRED	PROVIDED
FRONT YARD SETBACK	20 FT.	> 20 FT.
SIDE YARD SETBACK	15 FT.	> 15 FT.
REAR YARD SETBACK	0 FT.	> 0 FT.
MAX. BUILDING HEIGHT	35 FT.	29 FT.

PARKING SUMMARY

TYPE	DIMENSIONS REQUIRED	DIMENSIONS PROVIDED	SPACES REQUIRED	SPACES PROVIDED
STANDARD SPACE	10' x 18'	10' x 18'	43	51
STANDARD ACCESSIBLE SPACE *	(8' x 18') + 5'	(8' x 18') + 5'	2	3
VAN ACCESSIBLE SPACE	(8' x 18') + 8'	(8' x 18') +8'	0	1
LOADING SPACE (SHORT AREA)	12' x 30'	20' x 30'	1	1
TOTAL SPACES			46	56 **

* DENOTES ADA/FEDERAL REQUIREMENTS EXCLUSIVE OF REQUIRED VAN SPACES
** 124% OF MINIMUM PARKING REQUIREMENT, AN ALTERNATIVE PARKING PLAN IN ACCORDANCE WITH SECTION 5.1.6.A WILL NOT BE NEEDED

PARKING REQUIREMENT CALCULATIONS:

USE	ORDINANCE REQUIREMENT	VARIABLE	CALCULATION	RESULT
RETAIL SALES ESTABLISHMENT (RETAIL)	1 SPACE PER 300 S.F.	5,900 S.F.	5,900 S.F. / 300 S.F.	19.67 SPACES
RECREATION, INDOOR (SHOOTING RANGE)	1 SPACE PER 300 S.F.	7,475 S.F.	7,475 S.F. / 300 S.F.	24.92 SPACES
			TOTAL REQUIRED:	45 SPACES

LOADING REQUIREMENT CALCULATIONS:

COMMERCIAL/ INDUSTRIAL	BUILDING SIZE: 7,500 S.F. - 30,000 S.F. = 1 SHORT LOADING SPACE REQUIRED: 1 SHORT LOADING SPACE (12'X30')

STORMWATER COMPLIANCE

THIS SITE WAS STORMWATER MASTER PLANNED ALONG WITH THE ADJACENT "MOYOCK COMMONS". SEE ASSOCIATED RECORD PLANS, PROJECT NARRATIVE AND CALCULATIONS FOR REFERENCE.

SURVEYOR'S CERTIFICATION

I, JEFF ADAMS, CERTIFY THAT THIS INFORMATION SHOWN HEREIN WAS FIELD SURVEYED BY KOONTZ BRYANT JOHNSON WILLIAMS, INC. SURVEY COORDINATES ARE TIED TO THE NORTH CAROLINA STATE PLANE COORDINATE SYSTEM, NAD83/ NGVD 29. TOPOGRAPHICAL INFORMATION HEREON FOR AREA OUTSIDE THE LIMITS OF DEVELOPMENT ARE FROM MUNICIPAL GIS.

MISS UTILITY - NC811

CALL NC811 AT 811 3 FULL DAYS (72 HOURS) PRIOR TO ANY DIGGING.

NOTE:
1. IT IS THE CONTRACTOR'S RESPONSIBILITY FOR CONTACTING NC811 PRIOR TO ANY DEMOLITION OR CONSTRUCTION BEGINS.
2. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY ALL UTILITIES, VAULTS, UNDERGROUND STRUCTURES, ETC. BEFORE DEMOLITION OR CONSTRUCTION BEGINS. IT IS ALSO THE RESPONSIBILITY OF THE CONTRACTOR TO REPAIR/ REPLACE ANY DAMAGED UTILITIES, STRUCTURES, DURING DEMOLITION AND CONSTRUCTION.

SURVEY DATUM

NORTH AMERICAN DATUM 83 (NAD-83)
NORTH AMERICAN VERTICAL DATUM 29 (NGVD-29)

FLOODPLAIN

THE PROPERTY SHOWN HEREON IS WITHIN ZONE X. THE SITE IS SHOWN ON THE FOLLOWING FEMA FLOOD INSURANCE RATE MAP:

COMMUNITY: CURRITUCK COUNTY
NUMBER: 370078; PANEL: 8031; SUFFIX: K
MAP NO. 37218031006 (EFFECTIVE 12/21/2018).

WETLANDS

57,744 S.F.; 1.326 AC. EXISTING - DELINEATED BY STOKES ENVIRONMENTAL ASSOCIATES, LTD. (DATE OF DELINEATION: APRIL 27, 2021)

39,379 S.F.; 0.904 AC. PROPOSED

A WETLANDS IMPACT PERMIT IS REQUIRED WITH THIS PROJECT.

WETLAND IMPACTS

TEMPORARY SQ. FT.	PERMANENT SQ. FT.	TEMPORARY AC.	PERMANENT AC.
20,899	18,365	0.480	0.422

ON-SITE TABULATION CHART

BUILDINGS	0.32 AC	8.76% OF SITE
IMPERVIOUS SURFACES (PARKING/WALKS/DRIVES)	0.77 AC	21.10% OF SITE
MANAGED TURF	1.51 AC	41.37% OF SITE
FOREST/OPEN SPACE	1.05 AC	28.77% OF SITE
TOTAL	3.65 AC.	100% OF SITE

WATER & SEWER

CURRITUCK COUNTY
252-232-2769

ELECTRIC

DOMINION ENERGY - NORTH CAROLINA
877-776-2427

GAS

PEIDMONT NATURAL GAS
800-238-7741

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

SITE LOCATION MAP ~ SCALE: 1"=2000'

WATER - PUBLIC		WATER - PRIVATE	
1.5" CORPORATION STOP W/ SADDLE	1 EA.	2" PEX WATER SERVICE LINE	115 L.F.
1.5" CTS WATER SERVICE TUBING 200PSI-SDR-9	11 L.F.	2" INT. DOM. R.P.Z B.F.P.	1 EA.
1.5" DOMESTIC WATER METER	1 EA.		

SANITARY - PRIVATE	
6" PVC SDR-35	209 L.F.
CLEANOUTS	1 EA.
MANHOLE (STANDARD)	1 EA.
45° WYE BEND	1 EA.

SANITARY - PUBLIC	
CONNECT TO EXISTING MAHOLE	1 EA.
6" PVC SDR-35	25 L.F.

EROSION CONTROL	
CONSTRUCTION ENTRANCE	1 EA.
SEDIMENT FENCE	245 L.F.
INLET PROTECTION	1 EA.
TEMPORARY SEEDING	61,899 S.F.
PERMANENT SEEDING	61,899 S.F.
WETLAND PROTECTION TAPE	349 L.F.
TREE PROTECTION	377 L.F.
SEDIMENT FENCE W/ WIRE SUPPORT	981 L.F.
ROCK CHECK DAM	3 EA.

APPROXIMATE QUANTITIES LIST

THESE APPROXIMATE QUANTITIES PROVIDED ARE FOR INFORMATIONAL PURPOSES ONLY. CONTRACTOR SHALL NOT UTILIZE QUANTITIES SHOWN FOR BIDDING PURPOSES. CONTRACTOR SHALL FIELD VERIFY ALL QUANTITIES SHOWN ON THESE PLANS.

CERTIFICATION STATEMENT

I, MARK WILLIAMS, CERTIFY THAT 1.42 ACRES WILL BE DISTURBED WITH THIS PROJECT AND THE LAND DISTURBANCE FEE HAS BEEN PAID BASED ON THIS AMOUNT OF DISTURBANCE. I ALSO CERTIFY THAT 0.95 ACRES OF IMPERVIOUS AREA WILL BE CREATED WITH THIS PROJECT. WATER QUANTITY REQUIREMENTS WILL BE MET THROUGH THE USE OF EXISTING ON-SITE DRAINAGE DITCHES DRAINAGE TO A MASTER STORMWATER POND PREVIOUSLY PERMITTED WITH THE ADJACENT MOYOCK COMMONS DEVELOPMENT. SEE APPLICABLE RECORD PLANS, PROJECT NARRATIVE, AND CALCULATIONS FOR REFERENCE.

MARK E. WILLIAMS, P.E. LICENSE No. 040412

MARCH 28, 2023
DATE

RESPONSIBLE LAND DISTURBER

DURING THE CURRITUCK COUNTY SITE PLAN APPROVAL PROCESS, THE CERTIFIED RESPONSIBLE LAND DISTURBER (R.L.D.) SHALL BE THE SAME AS SHOWN ABOVE. HOWEVER, THE R.L.D. DURING CONSTRUCTION SHALL BE THE OWNER AND/OR OWNER'S AUTHORIZED AGENT AND SHALL BE LISTED WITHIN THE SWPPP FOR THIS PROJECT.

SITE DATA

OWNER:	2A REALTY, LLC. 746 GRANBY STREET NORFOLK, VA 23510 PH (757) 627-8311
DEVELOPER:	CONSTRUCTION SOLUTIONS, INC 1733 SOUTH PARK COURT CHESAPEAKE, VIRGINIA 23320 CONTACT: THERESA MARCHAND PH (757) 366-5070 JOB@CONSTRUCTIONSOLUTION.COM
SURVEYOR:	KOONTZ BRYANT JOHNSON WILLIAMS, INC 816 GREENBRIER CIR, SUITE 101 CHESAPEAKE, VIRGINIA 23320 CONTACT: JEFF ADAMS, LS PH (757) 200-1081 JADAMS@KBJWGROUP.COM
CIVIL ENGINEER:	KOONTZ BRYANT JOHNSON WILLIAMS, INC 1703 NORTH PARHAM ROAD, SUITE 202 HENRICO, VIRGINIA 23229 CONTACT: MARK WILLIAMS, PE PH (804) 200-1937 MWILLIAMS@KBJWGROUP.COM
GOETECHNICAL ENGINEER:	KOONTZ BRYANT JOHNSON WILLIAMS, INC 7511 WHITEPINE ROAD, SUITE 100 CHESTERFIELD, VA 23237 CONTACT: BRENT JOHNSON, PE PH (804) 541-1436 BJOHNSON@KBJWGROUP.COM
SITE ADDRESS:	MOYOCK COMMONS DRIVE, MOYOCK, NC 27958
USE:	EXISTING: VACANT LAND PROPOSED: RETAIL / INDOOR SHOOTING RANGE
MAP REFERENCE:	GPIN: 015B00000140000 RECORDED REFERENCE(S): 2A REALTY, LLC. (D.B. 1634, PG. 264) TRACT 14 (P.C. G., PG. 24) LAT, LONG: 36.5159°, -76.1714°, (APPROX. CENTER OF SITE) HYDROLOGIC UNIT CODE: 030102051105 UNIT NAME: MOYOCK RUN OF NORTHWEST RIVER RECEIVING WATERS: CURRITUCK SOUND
UTILITIES:	ALL UTILITIES SHALL BE LOCATED UNDERGROUND
DRAINAGE:	SHEET FLOW / CURB & GUTTER
PARCEL ZONING:	GB - GENERAL BUSINESS
PREVIOUS APPROVALS:	SEE STORMWATER MASTERPLAN FOR "MOYOCK COMMONS" DEVELOPMENT
BUILDING HEIGHT:	MAX: 35 FT. PROPOSED: 29 FT. (TOP OF PARAPET)
BUILDING SQ. FT.:	PROPOSED: 7,893 S.F. (RECREATION) 5,882 S.F. (RETAIL) 13,775 S.F. (TOTAL)
PUBLIC PARKING:	56 PARKING LOT SPACES PROVIDED
PARCEL AREA:	158,276 S.F. ; 3.634 ACRES
PROJECT SITE AREA:	158,994 S.F. ; 3.650 ACRES
LIMITS OF DISTURBANCE (LOD):	61,912 S.F. ; 1.421 ACRES
PROPOSED LOD IMP. AREA:	47,480 S.F. ; 1.09 ACRES
PROPOSED LOD PERV. AREA:	111,514 S.F. ; 2.56 ACRES

SHEET INDEX

KOONTZ BRYANT JOHNSON WILLIAMS
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Henrico, Va 23229
(804) 740-9200
FAX (804) 740-7338
www.KBJWgroup.com

NORTH CAROLINA PROFESSIONAL SEAL 040412 ENGINEER MARK E. WILLIAMS

REVISIONS

NO.	DATE	DESCRIPTION

POST APPROVAL

DESIGNED | DRAWN | CHECKED

BOB'S GUN SHOP
CURRITUCK COUNTY, NORTH CAROLINA
TOWN OF MOYOCK

COVER SHEET

SCALE: NA
DATE: MARCH 28, 2023
PROJECT: B7011.02

C0.0

LEGEND

ROAD AND DRAINAGE

- CULVERT OR STORM SEWER
- EXISTING STORM SEWER
- DROP INLET (WITH STRUCTURE NO.)
- PROPOSED DRAINAGE MANHOLE
- EXISTING DRAINAGE MANHOLE
- PAVED DITCH
- JUTE MESH OR SODDED DITCH
- EARTHEN, GRASSED LINED DITCH
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- EXISTING SPOT ELEVATION
- PROPOSED SPOT ELEVATION
- PROPOSED TOP OF CURB ELEVATION
- CG-12

SEWER

- EXISTING SANITARY SEWER
- PROPOSED SANITARY SEWER
- SANITARY SEWER LATERAL
- SEWER MANHOLE # WITH STATION & COORDINATE LOCATION
- PROPOSED SEWER MANHOLE
- EXISTING SEWER MANHOLE

WATER

- EXISTING WATERLINE
- PROPOSED WATERLINE
- PROPOSED WATERLINE SERVICE
- PROPOSED GATE VALVE
- FIRE HYDRANT ASSEMBLY
- TEE OR TAPPING SLEEVE
- CROSS
- PLUG
- REDUCER

CURB AND GUTTER

- CURB & GUTTER
- EX. CURB & GUTTER
- STANDARD CG-2
- EX. STANDARD CG-2
- TRANSITION TO DRY CURB
- DRY CURB

ENVIRONMENTAL

- 100 YEAR FLOOD PLAIN ELEVATION
- WATERS OF THE U.S.
- WETLAND
- LIMITS LIMITS OF CLEARING/DISTURBANCE
- EX TREE LINE
- 100 YEAR BACKWATER ELEVATION
- LIMITS OF CONSTRUCTION

MISC:

- POWER POLE
- GUY WIRE
- TRANSFORMER
- UTILITY VAULT
- ELECTRICAL BOX
- ELECTRICAL SWITCH \ PANEL BOX
- ELECTRICAL METER
- HVAC/AC UNIT
- BOLLARD
- CONDUIT
- BUILDING DOWNSPOUT
- POLE LIGHT
- BUILDING LIGHT
- STREET LIGHT
- GAS METER
- GAS VALVE
- TEST PIT MARKER
- TEST PIT TAG
- SATELLITE DISH
- FLAG POLE
- STREET SIGN
- MAIL BOX

- LIMITS OF WETLANDS DISTURBANCE
- GRAVEL PAVEMENT
- HEAVY DUTY PAVEMENT
- LIGHT DUTY PAVEMENT
- WETLANDS
- CONCRETE PADS, SWALK, RAMPS

ABBREVIATIONS

AC.	ACRE
CL OR C/L	CENTERLINE
CONC	CONCRETE
EP	EDGE OF PAVEMENT
ESMT	EASEMENT
F/C	FACE OF CURB
FF	FINISH FLOOR
FH	FIRE HYDRANT
GV	GATE VALVE
MFF	MINIMUM FINISH FLOOR
NBP	NO BUILDING PERMIT
PL	PROPERTY LINE
PRV	PRESSURE REGULATOR VALVE
R/W	RIGHT-OF-WAY
SAN SEW	SANITARY SEWER
TC	TOP OF CURB
TYP	TYPICAL
UTIL	UTILITY
W/L	WATERLINE
SSWL	SOLID SINGLE WHITE LINE
DSWL	DOTTED SINGLE WHITE LINE (MINI-SKIP; 2' LINE_4' SKIP)
BSWL	BROKEN SINGLE WHITE LINE (10' LINE_30' SKIP)
SDYL	SOLID DOUBLE YELLOW LINE
BDYL	BROKEN DOUBLE YELLOW LINE

WATER AND SANITARY NOTES

1. ALL MATERIALS FOR SEWER AND WATER SYSTEMS SHOWN SHALL BE SUPPLIED AND INSTALLED IN ACCORDANCE WITH THE LATEST SPECIFICATIONS OF THE LOCAL UTILITY DEPARTMENT. ALL UTILITY ITEMS USED ON THE PROJECT SHALL CONFORM TO ALL STATE AND FEDERAL LAWS AND REGULATIONS.
2. ALL MATERIALS USED ON THIS PROJECT SHALL MEET THE REQUIREMENTS OF THE REDUCTION OF LEAD IN DRINKING WATER ACT. IN COMPLIANCE WITH PUBLIC LAW 111-380, THE CONTRACTOR SHALL NOT USE, INSTALL OR REPAIR ANY PIPE, FITTINGS, FIXTURE, SOLDER OR FLUX IN THE INSTALLATION OF ANY PUBLIC WATER SYSTEM THAT IS NOT "LEAD FREE". SOLDERS AND FLUX SHALL NOT CONTAIN MORE THAN 0.2% LEAD; AND PIPES, FITTINGS, AND COMPONENTS SHALL NOT CONTAIN MORE THAN 0.25% LEAD BASED ON A WEIGHTED AVERAGE OF THE WETTED SURFACES. PRODUCTS MUST COMPLY WITH NSF/ANSI STANDARD 61 TO INCLUDE ANNEX G AND SHALL BEAR THE NSF 61-G CERTIFICATION MARK.
3. ALL YARD HYDRANTS, FAUCETS AND/OR OTHER SIMILAR WATER FIXTURES FOR OUTDOOR USE SHALL BE FROST PROOF AND SHALL BE SUITABLE FOR POTABLE DRINKING WATER USE.
4. ALL WORK SHALL BE SUBJECT TO INSPECTION BY UTILITY DEPARTMENT OFFICIALS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFICATION OF APPROPRIATE COUNTY OFFICIALS 48 HOURS PRIOR TO START OF WORK.
5. THE CONTRACTOR SHALL CERTIFY THAT THE ROADS, PARKING AREAS AND/OR DITCHES ARE WITHIN 6" OF SUBGRADE BEFORE UTILITY CONSTRUCTION CAN BEGIN.
6. THE CONTRACTOR WILL INSTALL ALL WATER SERVICE CONNECTIONS AND METER BOXES.
7. CONTRACTOR WILL REFER TO THE LOCAL UTILITY DEPARTMENT STANDARDS MANUAL FOR ALL DETAILS AND SPECIFICATIONS.
8. BACKFILL FOR ALL UTILITIES WITHIN PROPOSED SUBDIVISION STREETS SHALL BE PLACED GENERALLY IN ACCORDANCE WITH THE FOLLOWING CRITERIA:
   - A. NO TRENCH SHALL BE BACKFILLED UNTIL AUTHORIZED BY THE LOCAL UTILITY OFFICIAL. MATERIALS USED FOR BACKFILL FROM THE BOTTOM OF THE TRENCH TO TWELVE INCHES (12") ABOVE THE PIPE SHALL BE SELECT GRANULAR MATERIAL FREE FROM FROST, LARGE CLOGS, SHARP STONES AND DEBRIS, AND SHALL BE THOROUGHLY AND CAREFULLY COMPACTED.
   - B. BACKFILL SHALL BE COMPACTED BY MECHANICAL TAMPING THROUGHOUT THE DEPTH OF THE TRENCH TO INSURE A SUITABLE SUBBASE ACCEPTABLE TO THE LOCALITIES UTILITY ENGINEER AND/OR INSPECTOR. IF THE MATERIAL TAKEN FROM THE DITCH IS NOT SUITABLE FOR BACKFILLING, IT SHALL BE REMOVED TO A SUITABLE LOCATION AND AN ACCEPTABLE MATERIAL SHALL USED FOR BACKFILLING THE TRENCH.
10. A BACKWATER VALVE IS TO BE USED WHERE BUILDING WILL HAVE A FINISHED FLOOR ELEVATION THAT IS BELOW THE TOP ELEVATION OF THE NEAREST UP-GRADE MANHOLE FROM THE BUILDING CONNECTION.
11. WATER SERVICES $\geq$ 60 L.F. SHALL BE A MINIMUM OF 1" IN DIAMETER.
12. PARCELS/ LOTS MARKED "PRV" REQUIRE AN INDIVIDUAL PRESSURE REGULATOR TO BE INSTALLED ON THE CUSTOMER SIDE OF THE WATER METER, PER BOCA CODE.
13. NO STRUCTURES SHALL BE PERMITTED IN UTILITY EASEMENTS. PLANTING OF TREES WITHIN UTILITY EASEMENTS SHALL ONLY BE DONE IF PERMITTED BY THE LOCALITY.
14. MINIMUM COVER OVER TOP OF WATER PIPE MUST BE 3.50 FEET.
15. CONTRACTOR MUST FIELD VERIFY THE INVERTS OF ALL EXISTING MANHOLES, GAS LINES, AND OTHER UTILITY LINES PRIOR TO THE START OF CONSTRUCTION.
16. THE CONTRACTORS SHALL VERIFY LOCATION AND ELEVATION OF ALL UNDERGROUND UTILITIES IN AREAS OF CONSTRUCTION PRIOR TO STARTING WORK.
17. ALL DAMAGE INCURRED TO EXISTING UTILITIES DURING CONSTRUCTION SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
18. THE FINAL RIM/ TOP SURFACE OF ALL UTILITIES AT GRADE SHALL BE ADJUSTED TO MATCH ACTUAL FINAL GRADES.

GENERAL NOTES

1. PRIOR TO BIDDING, THE CONTRACTOR SHALL VISIT THE PROPOSED CONSTRUCTION SITE AND BECOME FAMILIAR WITH ALL EXISTING FEATURES AND UTILITIES AND BASE THE BID PRICE ACCORDINGLY.
2. THE CONTRACTOR SHALL CAREFULLY EXAMINE THE SITE AND MAKE ALL INSPECTIONS NECESSARY IN ORDER TO DETERMINE THE FULL EXTENT OF THE WORK REQUIRED TO MAKE THE PROPOSED WORK CONFORM TO THE DRAWINGS AND SPECIFICATIONS THE CONTRACTOR SHALL SATISFY HIMSELF AS TO THE NATURE AND LOCATION OF THE WORK, CONDITIONS, AND CONFIRMATION AND CONDITION OF EXISTING GROUND SURFACE AND THE CHARACTER OF THE EQUIPMENT AND FACILITIES NEEDED PRIOR TO AND DURING EXECUTION OF THE WORK. THE CONTRACTOR SHALL SATISFY HIMSELF AS TO THE CHARACTER, QUANTITY AND QUALITY OF SURFACE AND SUBSURFACE MATERIALS OR OBSTACLES TO BE ENCOUNTERED. ANY INACCURACIES OR DISCREPANCIES BETWEEN THE DRAWINGS AND SPECIFICATIONS MUST BE BROUGHT TO THE OWNER'S ATTENTION IN ORDER TO CLARIFY THE EXACT NATURE OF THE WORK TO BE PERFORMED PRIOR TO THE COMMENCEMENT OF ANY WORK.
3. THE CONTRACTOR SHALL FOLLOW ALL LOCAL, STATE, AND, FEDERAL SAFETY REGULATIONS AND PROCEDURES THAT ARE APPLICABLE IN THE CONSTRUCTION OF THE PROPOSED WORK.
4. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY LOCAL, STATE, AND FEDERAL PERMITS REQUIRED AT THE CONTRACTOR'S EXPENSE FOR CONSTRUCTION OF THE PROPOSED SITE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ABIDING BY ALL CONDITIONS AND REQUIREMENTS OF THE PERMITS.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFICATION OF THE APPROPRIATE COUNTY OFFICIALS 48 HOURS PRIOR TO START OF WORK ON THIS PROJECT.
6. ALL REQUIRED TRAFFIC CONTROL SIGNS SHALL BE FABRICATED AS SHOWN IN "THE NATIONAL MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS" AND VIRGINIA SUPPLEMENT THERETO.
7. THE LOCATION OF EXISTING UTILITIES, CONDUITS, OR OTHER STRUCTURES ACROSS, UNDERNEATH, OR OTHERWISE ALONG THE LINE OF PROPOSED WORK AREA NOT NECESSARILY SHOWN ON THE PLANS, AND IF SHOWN ARE ONLY APPROXIMATELY CORRECT. THE CONTRACTOR SHALL VERIFY LOCATION AND ELEVATION OF ALL STRUCTURES AND UTILITIES (OVERHEAD AND UNDERGROUND) IN AREAS OF CONSTRUCTION PRIOR TO STARTING WORK. CONTACT THE ENGINEER IMMEDIATELY IF THE LOCATION OR ELEVATION DIFFERS FROM THAT SHOWN ON THE PLAN AND APPEARS TO BE IN CONFLICT WITH PROPOSED WORK. THE CONTRACTOR SHALL CONTACT "MISS UTILITY" AT 1-800-552-7001 OR 811 PRIOR TO CONSTRUCTION.
8. DAMAGE TO UTILITIES (ABOVE AND BELOW GROUND) OR PROPERTY OF OTHERS BY CONTRACTOR DURING CONSTRUCTION SHALL BE REPAIRED TO PRE-CONSTRUCTION CONDITIONS BY CONTRACTOR AT NO COST TO THE OWNER.
9. ALL DRAINAGE STRUCTURES MAY BE EITHER PRECAST OR CAST-IN-PLACE. SHOP DRAWINGS OF ALL PRECAST STRUCTURES MUST BE SUBMITTED FOR APPROVAL BY ENGINEER.
10. THE CONTRACTOR SHALL COORDINATE THE ABANDONMENT / REMOVAL OF EXISTING TELEPHONE SERVICE AND LOCATION OF NEW TELEPHONE SERVICE WITH THE TELEPHONE UTILITY AND THE OWNER.
11. IF NECESSARY, THE CONTRACTOR SHALL COORDINATE THE ABANDONMENT / REMOVAL OF EXISTING POWER SERVICE AND LOCATION OF NEW POWER SERVICE WITH THE POWER UTILITY AND THE OWNER.
12. IF NECESSARY, THE CONTRACTOR SHALL HAVE A SET OF APPROVED PLANS AT THE SITE AT ALL TIMES WHEN WORK IS BEING PERFORMED. A DESIGNATED RESPONSIBLE EMPLOYEE SHALL BE AVAILABLE FOR CONTACT BY LOCAL (COUNTY) INSPECTORS.
13. THE CONTRACTOR IS REQUIRED TO MAINTAIN ALL DITCHES, PIPES, AND OTHER DRAINAGE STRUCTURES FREE FROM OBSTRUCTION UNTIL ACCEPTED BY THE OWNER. THE CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGES CAUSED BY FAILURE TO MAINTAIN THE WATERWAYS IN OPERABLE CONDITION.
14. THE LOCAL (COUNTY) ENGINEER MAY REQUIRE ADDITIONAL DRAINAGE AND EROSION CONTROL, IF MEASURES WARRANT.
15. THE APPROVAL OF THIS PLAN SHALL NOT IN ANY WAY GRANT PERMISSION BY THE COUNTY FOR THE CONTRACTOR TO TRESPASS ON OFF-SITE PROPERTIES.
16. CONSTRUCTION STAKING SHALL BE PERFORMED BY A LAND SURVEYOR LICENSED IN THE COMMONWEALTH OF VIRGINIA.
17. THE PLANS SHOULD BE FOLLOWED AS APPROVED. KOONTZ BRYANT JOHNSON WILLIAMS, INC. WILL NOT ACCEPT RESPONSIBILITY FOR CHANGES MADE BY OTHERS.

CONSTRUCTION NOTES

1. FOR RESIDENTIAL PROJECTS, NO BUILDING PERMITS SHALL BE ISSUED FOR LOTS DESIGNATED AS "NBP" WITHOUT THE APPROVAL THE REVIEWING LOCALITY.
2. FOR ALL PROJECTS, ALL DIMENSIONS ARE TO THE FACE OF CURB AND ALL RADII ARE 5', UNLESS OTHERWISE NOTED
3. ALL DITCHES/SWALES SHALL BE ROUGHED IN AT THE TIME OF ROAD AND/OR SITE CONSTRUCTION.
4. WETLANDS NOT DESIGNATED FOR DISTURBANCE SHALL REMAIN UNDISTURBED IN THEIR NATURAL STATE.
5. DEBRIS AND FALLEN TREES WITHIN WETLAND DRAINAGE WAYS TO BE REMOVED USING NON-MECHANIZED EQUIPMENT.
6. BUFFER IS EXCLUSIVE OF EASEMENTS AND SETBACKS. BUFFER MUST REMAIN UNDEVELOPED. BUFFER WILL BE FIELD REVIEWED AT THE TIME OF THE FINAL CHECK TO VERIFY VEGETATIVE REQUIREMENTS HAVE BEEN MET.

KOONTZ BRYANT JOHNSON WILLIAMS
1703 N. Parham Rd.
Suite 202
Henrico, Va 23229
(804) 740-9200
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NORTH CAROLINA PROFESSIONAL SEAL 040412 ENGINEER MARK E. WILLIAMS

REVISIONS

NO.	DATE	DESCRIPTION

POST APPROVAL

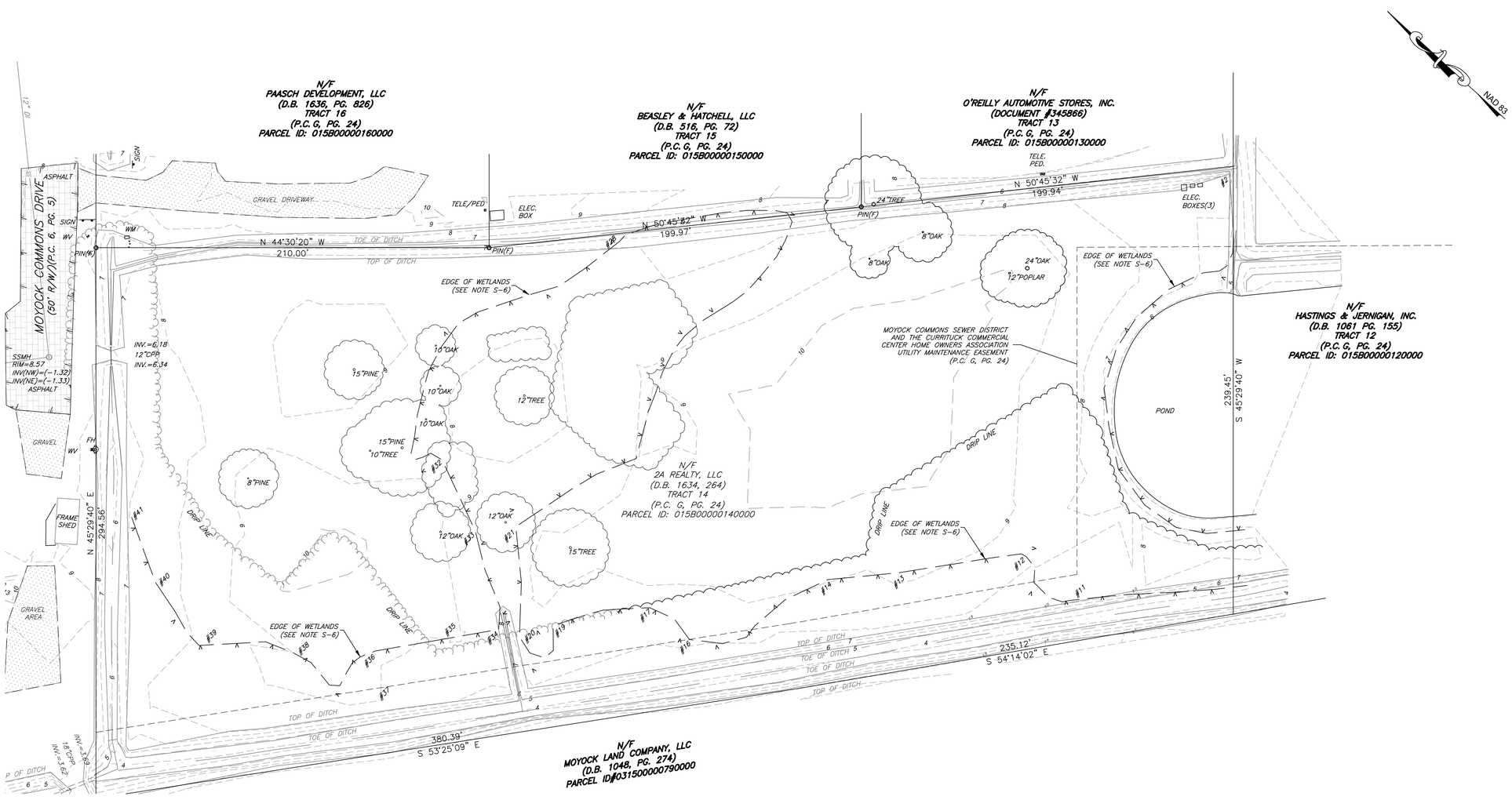
DESIGNED	DRAWN	CHECKED

BOB'S GUN SHOP
CURRITUCK COUNTY, NORTH CAROLINA
TOWN OF MOYOCK

GENERAL NOTES

SCALE: N/A
DATE: MARCH 28, 2023
PROJECT: B7011.02

C1.1



EX. CONDITIONS PLAN AND SURVEY NOTES:

1. A TOPOGRAPHIC GROUND SURVEY OF THE DEVELOPMENT AREA (TO INCLUDE PARCELS DEFINED BY TAX PARCEL NO. 20873/GPIN:2546548002 AND TAX PARCEL NO. 28719/GPIN:254536980), AS WELL AS SUFFICIENT OVERLAP OF ALL PROPERTY LINES WAS COMPLETED BY KOONTZ BRYANT JOHNSON WILLIAMS, INC. (HEREAFTER REFERRED TO AS "SURVEYOR") FOR THE BENEFIT OF THIS PLAN SET (HEREAFTER REFERRED TO AS "THE SURVEY"). THE SURVEY WAS PERFORMED IN AUGUST OF 2022 AND OVERSEEN BY JEFFREY S. ADAMS, L.S.; ADDRESS: 816 GREENBRIER CIRCLE SUITE 101, CHESAPEAKE, VA 23320. PHONE: (OFFICE) 757-226-0081.
2. THE MERIDIAN SOURCE AND COORDINATES (IF SHOWN) FOR THIS SURVEY/PLAT IS/ARE BASED ON THE NGS GEODETIC CONTROL NETWORK WHICH REFERS TO NORTH CAROLINA STATE PLANE COORDINATES, NAD 83 .
3. ELEVATIONS SHOWN ARE EXPRESSED IN FEET AND BASED ON THE NGS GEODETIC CONTROL NETWORK WHICH REFERS TO NAVD 88. CONTROL STATION UTILIZED: D177 ELEV=8.58.
4. THE EDGE OF "WETLANDS", SHOWN HEREON, IS BASED ON EXHIBIT ENTITLED "WETLAND DELINATION MAP" PREPARED BY STOKES ENVIRONMENTAL ASSOCIATES, LTD. DATED: APRIL 27, 2021; MAP EDITED JUNE 2, 2022 AND WETLAND FLAGS LOCATED DURING THE SURVEY.
5. THIS TOPOGRAPHIC SURVEY WAS COMPLETED UNDER THE DIRECT AND RESPONSIBLE CHARGE OF JEFFREY S. ADAMS, LS FROM AN ACTUAL X GROUND OR _ REMOTE SENSING SURVEY MADE UNDER MY SUPERVISION; THAT THE IMAGERY AND/OR ORIGINAL DATA WAS OBTAINED ON 08/16/22; AND THAT THIS PLAT, MAP, OR DIGITAL GEOSPATIAL DATA INCLUDING METADATA MEETS MINIMUM ACCURACY STANDARDS UNLESS OTHERWISE NOTED.
6. NORTH ARROW, BEARINGS, AND COORDINATES ARE BASED UPON NC GRID NAD 83 ESTABLISHED BY OBSERVATION OF NGS MONUMENT "BOWL," HAVING STATE PLANE COORDINATES OF N 563,772.44, E 1,248,270.32.
7. ELEVATIONS ARE BASED UPON NAVD 88 ESTABLISHED BY OBSERVATION OF NGS MONUMENT "BOWL," HAVNG AN ELEVATION OF 873.10' NAVD 88.
8. DESPITE THE UTILITY LOCATION EFFORTS NOTED ABOVE, THE SURVEY DOES NOT GUARANTEE THE EXISTENCE OR NONEXISTENCE OF UNDERGROUND UTILITIES. PRIOR TO ANY CONSTRUCTION OR EXCAVATION, AS REQUIRED BY LAW, NC811 SHALL BE CONTACTED AT 811 TO CONFIRM THE LOCATION OR EXISTENCE OF UNDERGROUND UTILITIES. KOONTZ BRYANT JOHNSON WILLIAMS, INC IS NOT RESPONSIBLE FOR ANY UTILITIES (EITHER SHOWN HEREON OR NOT SHOWN) WHICH MAY NOT HAVE BEEN MARKED AND/OR FOR THOSE UTILITIES THAT MAY HAVE BEEN MARKED INCORRECTLY BY NC811 AND/OR ACCUMARK PRIOR TO THE SURVEY.
9. THIS SURVEY/PLAT WAS PERFORMED/PREPARED WITHOUT THE BENEFIT OF A CURRENT AND COMPLETE TITLE REPORT AND MAY NOT SHOW ANY/ALL PARCEL LINES, EASEMENTS, RESTRICTIONS, ENCUMBRANCES, AND CURRENT RIGHTS-OF-WAY THAT MAY AFFECT THE SURVEYED AREA SHOWN.
10. NO EVIDENCE OF RECENT EARTH MOVING, BUILDING CONSTRUCTION, STREET OR SIDEWALK CONSTRUCTION WAS OBSERVED ON SITE. THE SITE DOES NOT APPEAR TO HAVE BEEN USED AS A SOLID WASTE DUMP, SUMP, OR SANITARY LANDFILL.
11. THE PROPERTY SHOWN APPEARS TO FALL WITHIN FLOOD ZONE, "X" ACCORDING TO F.E.M.A.'S FLOOD INSURANCE RATE MAP (F.I.R.M.) FOR CURRITUCK COUNTY, NORTH CAROLINA. MAP NUMBERS 3721803100K MAPS REVISED: DECEMBER 21, 2018.

NOTES

1. THE HORIZONTAL AND VERTICAL LOCATIONS OF ALL EXISTING UTILITIES, AS SHOWN HEREON, ARE APPROXIMATE ONLY. NO GUARANTEE IS HEREIN MADE OR IMPLIED THAT ALL EXISTING UNDERGROUND UTILITIES ARE SHOWN. IT SHALL BE THE CONTRACTOR'S AND\OR OWNER'S RESPONSIBILITY TO CONTACT ALL UTILITY COMPANIES AND TO VERIFY THE TYPE, SIZE, AND LOCATION OF ALL EXISTING UTILITIES PRIOR TO STARTING THE WORK. ANY DISCREPANCIES IN OR FROM THE INFORMATION SHOWN HEREON SHALL BE REPORTED TO KOONTZ BRYANT JOHNSON WILLIAMS, INC, PRIOR TO COMMENCING CONSTRUCTION.

LEGEND

- EXISTING PAVEMENT
- EXISTING CONCRETE SIDEWALK OR CONCRETE PAD
- EXISTING GRAVEL PAVEMENT
- EL:____ BENCHMARK

0 30' 60'
GRAPHIC SCALE

KOONTZ BRYANT JOHNSON WILLIAMS
1703 N. Parham Rd.
Suite 202
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(804) 740-9200
FAX (804) 740-7338
www.KBJWgroup.com

NORTH CAROLINA PROFESSIONAL SEAL 040412 ENGINEER MARK E. WILLIAMS

REVISIONS
NO. DATE DESCRIPTION

POST APPROVAL

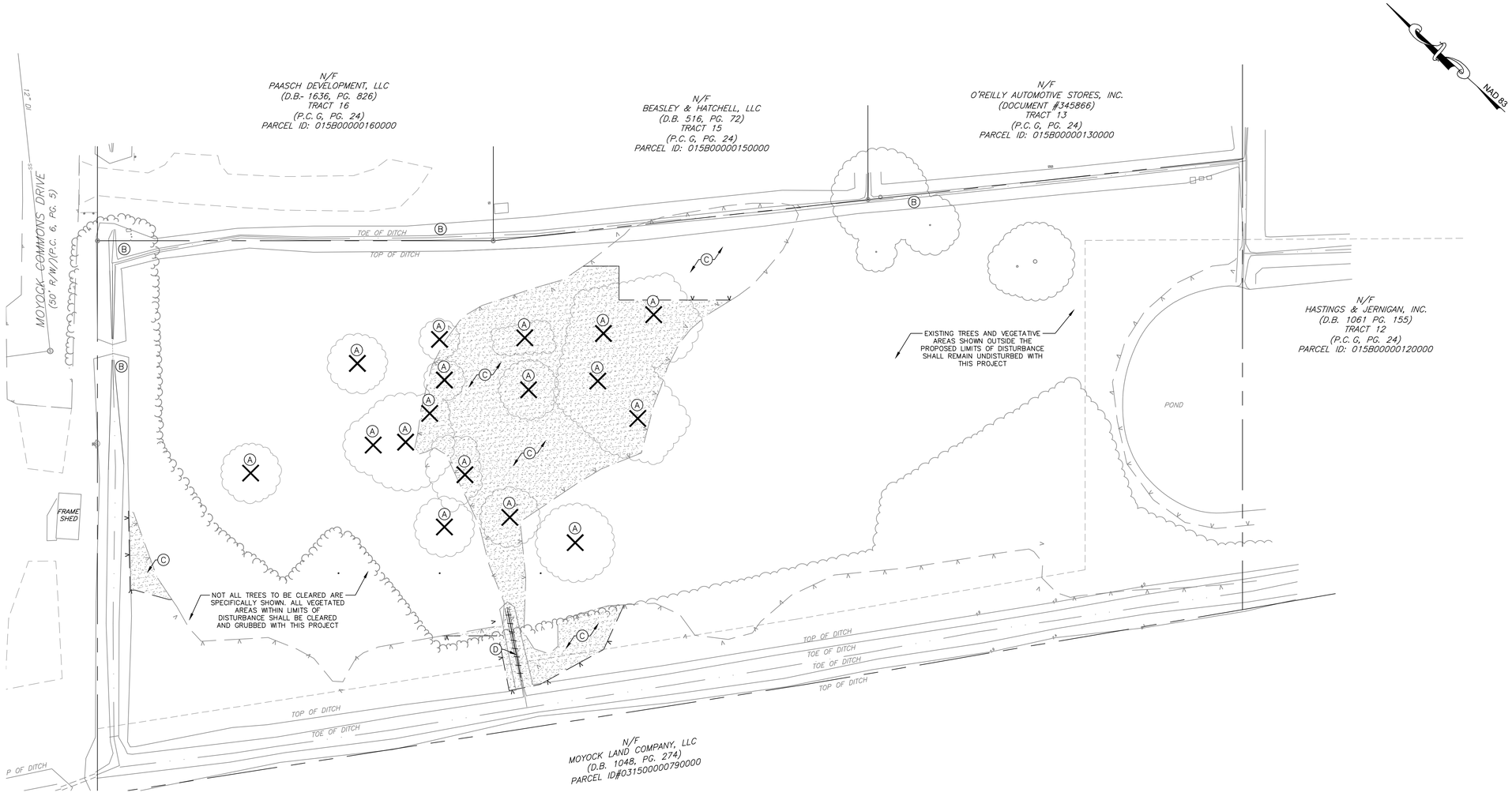
DESIGNED | DRAWN | CHECKED

BOB'S GUN SHOP
CURRITUCK COUNTY, NORTH CAROLINA
TOWN OF MOYOCK

EXISTING CONDITIONS

SCALE: 1" = 30'
DATE: MARCH 28, 2023
PROJECT: B7011.02

C1.2



DEMOLITION NOTES:

1. CONTRACTOR SHALL FIELD ADJUST TOP ELEVATIONS OF EXISTING AND/OR PROPOSED UTILITY STRUCTURES (AS APPLICABLE) TO MATCH PAVEMENT AND/OR CURB SURFACES
2. CONTRACTOR TO COORDINATE THE E&S INSPECTOR TO DETERMINE WHAT E&S CONTROLS NEED TO BE INSTALLED PRIOR TO BEGINNING DEMOLITION WORK.
3. CONTRACTOR SHALL DISPOSE OF DEMOLITION DEBRIS IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS, ORDINANCES AND STATUTES. CONTRACTOR SHALL REMOVE AND DISPOSE OF EXISTING MANMADE SURFACE FEATURES WITHIN THE LIMITS OF WORK INCLUDING BUILDINGS, STRUCTURES, PAVEMENTS, DRIVEWAYS, SLABS, CURBING, FENCES, UTILITY POLES, SIGNS, ETC. UNLESS INDICATED OTHERWISE ON THE DRAWINGS. REMOVE AND DISPOSE OF EXISTING UTILITIES, FOUNDATIONS AND UNSUITABLE MATERIAL BENEATH AND FOR A DISTANCE OF 10 FEET BEYOND THE PROPOSED BUILDING FOOTPRINT.
4. CONTRACTOR SHALL CONFORM TO CHAPTER 33 OF THE UNIFORM BUILDING CODE (UBC) LATEST EDITION, AND LOCAL ORDINANCES FOR ALL DEMOLITION WORK. REFER TO SECTION 13280 "GENERAL HAZARDOUS MATERIALS ABATEMENT" AND SECTION 13281 "GENERAL REQUIREMENTS - HAZARDOUS MATERIALS ABATEMENT" FOR SPECIAL REQUIREMENTS.
5. CONTRACTOR SHALL APPLY FOR AND OBTAIN ALL NECESSARY PERMITS FROM LOCAL AND STATE AUTHORITIES TO COMPLETE THE WORK.
6. LOCATION OF UNDERGROUND UTILITIES AND PIPELINES SHOWN WITHIN PLANS ARE APPROXIMATE AND SOME UNDERGROUND UTILITIES MAY NOT BE SHOWN ON THIS PLAN. THEREFORE, ACCURATE LOCATING IS REQUIRED. IF ANY ADDITIONAL UTILITIES OR UNDERGROUND FEATURES ARE IDENTIFIED DURING DEMOLITION WORK, CONTRACTOR SHALL IMMEDIATELY NOTIFY KOONTZ BRYANT JOHNSON WILLIAMS AT (804) 740-9200.
7. CONTRACTOR SHALL MAINTAIN THE STREETS, SIDEWALKS, PARKING LOTS, AND ALL OTHER PUBLIC RIGHT-OF-WAYS IN A CLEAN, SAFE, AND USABLE CONDITION, AND REMOVE DEBRIS AND LITTER ON A DAILY BASIS WHILE DEMOLITION IS IN PROGRESS. PEDESTRIAN AND VEHICLE SAFETY MUST BE MAINTAINED DURING ALL DEMOLITION ACTIVITIES.
8. THE CONTRACTOR SHALL ENSURE THE SITE IS LEFT IN A CLEAN MANNER UPON COMPLETION OF DEMOLITION ACTIVITIES AND PRIOR TO NEW CONSTRUCTION ACTIVITIES. THERE SHALL NOT BE ANY DEBRIS, LITTER, OR OTHER DEMOLITION RELATED WASTE LEFT ON THE PROPERTY.
9. THIS DEMOLITION PLAN IS INTENDED TO AID THE CONTRACTOR DURING THE BIDDING AND CONSTRUCTION PROCESS AND IS NOT INTENDED TO DEPICT EACH AND EVERY ELEMENT OF DEMOLITION. THE CONTRACTOR IS RESPONSIBLE FOR IDENTIFYING THE DETAILED SCOPE OF DEMOLITION BEFORE SUBMITTING A BID/PROPOSAL TO PERFORM THE WORK AND SHALL MAKE NO CLAIMS AND SEEK NO ADDITIONAL COMPENSATION FOR CHANGED CONDITIONS OR UNFORESEEN OR LATENT SITE CONDITIONS RELATED TO ANY CONDITIONS DISCOVERED DURING EXECUTION OF THE WORK.
10. UNLESS OTHERWISE SPECIFICALLY PROVIDED ON THE PLANS OR IN THE SPECIFICATIONS, THE ENGINEER HAS NOT PREPARED DESIGNS FOR AND SHALL HAVE NO RESPONSIBILITY FOR THE PRESENCE, DISCOVERY, REMOVAL, ABATEMENT OR DISPOSAL OF HAZARDOUS MATERIALS, TOXIC WASTES OR POLLUTANTS AT THE PROJECT SITE. THE ENGINEER SHALL NOT BE RESPONSIBLE FOR ANY CLAIMS OF LOSS, DAMAGE, EXPENSE, DELAY, INJURY OR DEATH ARISING FROM THE PRESENCE OF HAZARDOUS MATERIAL AND CONTRACTOR SHALL INDEMNIFY AND HOLD HARMLESS THE ENGINEER FROM ANY CLAIMS MADE IN CONNECTION THEREWITH. MOREOVER, THE ENGINEER SHALL HAVE NO ADMINISTRATIVE OBLIGATIONS OF ANY TYPE WITH REGARD TO ANY CONTRACTOR AMENDMENT INVOLVING THE ISSUES OF PRESENCE, DISCOVERY, REMOVAL, ABATEMENT OR DISPOSAL OF ASBESTOS OR OTHER HAZARDOUS MATERIALS.
11. ALL EXISTING UTILITIES SHALL BE PROTECTED DURING PROPOSED CLEARING, DEMOLITION AND CONSTRUCTION AND ADEQUATE COVER SHALL BE MAINTAINED OVER ALL SANITARY SEWER MAINS AND WATER MAINS IN ACCORDANCE WITH AUTHORITY HAVING JURISDICTIONS STANDARDS.

LEGEND

- CONCRETE AND/OR SIDEWALK TO BE REMOVED
- ASPHALT PAVEMENT TO BE REMOVED
- LIMITS OF WETLAND DISTURBANCE
- DEMOLITION AND REMOVAL OF CURB AND GUTTER, WALLS, FENCES AND EXISTING UTILITIES
- DEMOLITION AND REMOVAL OF STORM SEWER, UTILITIES, AND EXISTING DITCHES
- DEMOLITION AND REMOVAL OF STRUCTURES, TREES, LIGHTS, ELEC. BOXES, METERS & METER BOXES, WELLS AND OTHER MISC. SITE ITEMS

NOTICE TO CONTRACTOR REGARDING EXISTING UTILITIES

1. THE EXISTING UTILITIES SHOWN HEREON WERE LOCATED BY KOONTZ BRYANT JOHNSON WILLIAMS, AND FIELD SURVEYED IN AUGUST OF 2022. KOONTZ BRYANT JOHNSON WILLIAMS IS NOT RESPONSIBLE FOR UTILITIES THAT MAY EXIST AND ARE NOT SHOWN OR FOR UTILITIES THAT MAY HAVE BEEN INCORRECTLY LOCATED.
2. PRIOR TO CONSTRUCTION OR EXCAVATION, THE CONTRACTOR WILL BE RESPONSIBLE FOR LOCATING ALL UNDERGROUND UTILITIES (PUBLIC OR PRIVATE) THAT MAY EXIST AND CROSS THROUGH THE AREA OF CONSTRUCTION. 811 OF NORTH CAROLINA MUST BE CONTACTED A MINIMUM OF 72 HOURS PRIOR TO EXCAVATING AT "811" OR (1-800-632-4949). THE CONTRACTOR IS RESPONSIBLE FOR REPAIRING ANY EXISTING UTILITIES THAT ARE DAMAGED DURING CONSTRUCTION, AT THEIR OWN EXPENSE.
3. THE RELOCATION OF ANY UTILITIES (PUBLIC OR PRIVATE), WILL BE AT THE DEVELOPER'S AND/ OR CONTRACTOR'S EXPENSE, AND SHALL BE COMPLETED PRIOR TO THE PLACEMENT OF ANY BASE MATERIAL OR PAVEMENT IN CONJUNCTION WITH THE SITE WORK. ALL NEW UTILITY LINE INSTALLATIONS MUST BE UNDERGROUND (SUCH AS TELEPHONE, GAS, POWER, CABLE TELEVISION, ETC.).
4. SEVERAL PRIVATE ("DRY" TYPE) UTILITIES MAY NEED TO BE TERMINATED AND/OR RELOCATED AND/OR REPLACED WITH THIS PROJECT (SUCH AS TELEPHONE, GAS, POWER, CABLE TELEVISION, FIBER-OPTIC, ETC.). THE LOCATION AND DETAILS FOR THESE MODIFICATIONS AND/OR REPLACEMENTS SHALL BE COORDINATED BY THE CONTRACTOR AND SHALL BE PROVIDED BY THE UTILITY PROVIDER. NO PROVISIONS FOR THE MODIFICATION AND/OR REPLACEMENT OF DRY UTILITIES HAS BEEN MADE WITH THIS PLAN SET.
5. CONTRACTOR SHALL BE RESPONSIBLE FOR REVIEWING THE PROPOSED SCOPE OF WORK INDICATED WITHIN THESE PLANS (IN ITS ENTIRETY) PRIOR TO CONSTRUCTION IN AN EFFORT TO BEGIN COORDINATION EFFORTS WITH UTILITY PROVIDERS IMMEDIATELY AFTER BEING AWARDED THE PROJECT.

DEMOLITION SUMMARY

- (A) REMOVE EXISTING SHRUBS\TREES AND CLEAR AND GRUB WOODED AREAS WITHIN THE LIMITS OF PROPOSED CLEARING.
- (B) DEMUCK AND RE-GRADE EXISTING DITCHES WITHIN PROPERTY LINE TO ENSURE POSITIVE DRAINAGE (0.3% SLOPE MINIMUM)
- (C) LIMITS OF WETLANDS DISTURBANCE
- (D) DEMUCK, THEN FILL EXISTING DRAINAGE DITCH UP TO PROPOSED STORMWATER OUTFALL WITH ON-SITE SPOILS, COMPACTED IN 12" LIFTS - APPROXIMATELY 40 LF

0 30' 60'
GRAPHIC SCALE

KOONTZ BRYANT JOHNSON WILLIAMS
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FAX (804) 740-7338
www.KBJWgroup.com

NORTH CAROLINA PROFESSIONAL SEAL 040412 ENGINEER MARK E. WILLIAMS

REVISIONS
NO. | DATE | DESCRIPTION

POST APPROVAL

DESIGNED | DRAWN | CHECKED

BOB'S GUN SHOP
CURRITUCK COUNTY, NORTH CAROLINA
TOWN OF MOYOCK

DEMOLITION PLAN

SCALE: 1" = 30'
DATE: MARCH 28, 2023
PROJECT: B7011.02

C1.3

CURRITUCK COMMERCIAL DRIVE
(50' R/W/)(P.C. 6, PG. 5)

MOYOCK COMMONS DRIVE
(50' R/W)(P.C. 6, PG. 5)

PROPOSED BOB'S GUN SHOP

POND

N/F
TREESIDE ASSOCIATES, LLC
(D.B. 603, PG. 138)
PARCEL 2
(P.C. G, PG. 5)
PARCEL ID: 0150000075E0000

N/F
PAASCH DEVELOPMENT, LLC
(D.B. 1636, PG. 826)
TRACT 16
(P.C. G, PG. 24)
PARCEL ID: 015B00000160000

N/F
BEASLEY & HATCHELL, LLC
(D.B. 516, PG. 72)
TRACT 15
(P.C. G, PG. 24)
PARCEL ID: 015B00000150000

N/F
O'REILLY AUTOMOTIVE STORES, INC.
(DOCUMENT #345866)
TRACT 13
(P.C. G, PG. 24)
PARCEL ID: 015B00000130000

N/F
2A REALTY, LLC
(D.B. 1634, 264)
TRACT 14
(P.C. G, PG. 24)
PARCEL ID: 015B00000140000

N/F
HASTINGS & JERNIGAN, INC.
(D.B. 1061 PG. 155)
TRACT 12
(P.C. G, PG. 24)
PARCEL ID: 015B00000120000

N/F
MOYOCK COMMONS SEWER DISTRICT
(D.B. 614, PG. 203)
UTILITY OPEN SPACE AREA
(P.C. G, PG. 5)
PARCEL ID: 0015000075J0000

N/F
MOYOCK LAND COMPANY, LLC
(D.B. 1048, PG. 274)
PARCEL ID#031500000790000

TOP OF DITCH
TOE OF DITCH

GRAPHIC SCALE 0 30' 60'

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NORTH CAROLINA PROFESSIONAL SEAL 040412 ENGINEER MARK E. WILLIAMS

REVISIONS
NO. | DATE | DESCRIPTION

POST APPROVAL

DESIGNED | DRAWN | CHECKED

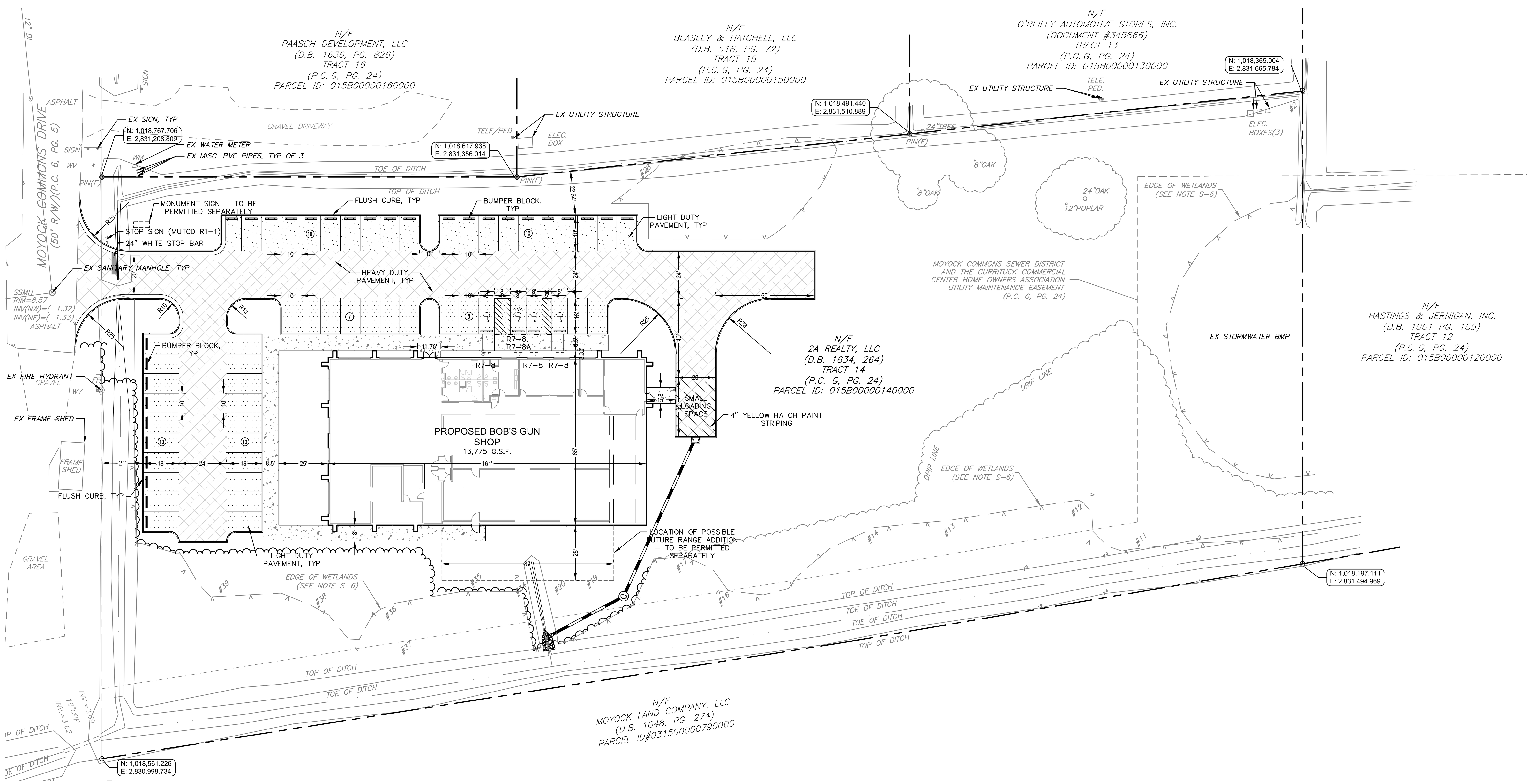
BOB'S GUN SHOP
CURRITUCK COUNTY, NORTH CAROLINA
TOWN OF MOYOCK

OVERALL LAYOUT

SCALE: 1" = 30'
DATE: MARCH 28, 2023
PROJECT: B7011.02

C2.1

T:\Projects\HRVA_Projects_HRVA Legacy Projects_Engineering\B7011.02 Bobs Gun Shop Moyock\CAD\Construction Plan\Sheets\SITE PLAN.dwg | 03/29/2023 8:33pm | mpalkovic



NOTES

1. ALL SIGNS TO BE FURNISHED & INSTALLED BY THE CONTRACTOR.
2. ALL PROPOSED SIGNS & SIGN POSTS ARE TO BE INSTALLED PER NCDOT STANDARDS.
3. PROPOSED ADDRESS SIGN TYPE, MATERIAL & ADDRESS TO BE DETERMINED, (SUBJECT TO TOWN APPROVAL).
4. ALL RADII LISTED HEREON WERE MEASURED AT THE FACE OF CURB AND ARE 5' UNLESS OTHERWISE SPECIFIED.
5. ALL BUFFER AREAS AND/OR EXISTING TREES OR VEGETATED AREAS DESIGNATED TO REMAIN THAT ARE IMPACTED WITH CONSTRUCTION, MUST BE REPLANTED AND A REVISED LANDSCAPING PLAN MUST BE SUBMITTED AND APPROVED.
6. THE CONTRACTOR MUST FIELD VERIFY THE INVERTS OF ALL EXISTING MANHOLES, GAS LINES, AND OTHER UTILITY LINES PRIOR TO THE START OF CONSTRUCTION.
7. THE LOCATION OF EXISTING UTILITIES, CONDUITS OR OTHER STRUCTURES ACROSS, UNDERNEATH, OR OTHERWISE ALONG THE LINE OF PROPOSED WORK AREA MAY NOT NECESSARILY BE SHOWN ON THESE PLANS, AND IF SHOWN ARE ONLY APPROXIMATELY CORRECT. THE CONTRACTOR SHALL VERIFY LOCATION AND ELEVATION OF ALL STRUCTURES AND UTILITIES (OVERHEAD AND UNDERGROUND) IN AREAS OF CONSTRUCTION PRIOR TO STARTING WORK. CONTRACTOR SHALL CALL NC 811 DIG TOLL FREE AT 1-800-632-4949 AT LEAST 48 HOURS PRIOR TO CONSTRUCTION. CONTACT THE ENGINEER IMMEDIATELY IF THE LOCATION OR ELEVATION DIFFERS FROM THAT SHOWN ON THE PLAN AND APPEARS TO BE IN CONFLICT WITH PROPOSED WORK.
14. SEE ARCHITECTURAL DRAWINGS FOR EXACT BUILDING DIMENSIONS & DETAILS CONTIGUOUS TO THE BUILDING, INCLUDING: SIDEWALKS, RAMPS, ENTRANCES, STAIRWAYS, UTILITY PENETRATIONS, CONCRETE PADS, LOADING AREA, BOLLARDS, ETC.
15. CONTRACTOR IS RESPONSIBLE FOR ALL PRIVATE UTILITY CONNECTIONS (ELECTRIC, GAS, CABLE, TELEPHONE, ETC.) AS WELL AS PROVIDING ALL INFRASTRUCTURE REQUIRED BY EACH UTILITY COMPANY
16. CONTRACTOR IS RESPONSIBLE FOR ALL COORDINATION AND COSTS ASSOCIATED WITH RELOCATING OR TERMINATING EXISTING UNDERGROUND AND/OR OVERHEAD UTILITIES DESIGNATED TO BE RELOCATED OR TERMINATED ON THESE PLANS.

SIGN SUMMARY

M.U.T.C.D. LABEL	WIDTH	HEIGHT	TYPE
R1-1	30"	30"	STOP
R7-8	12"	18"	RESERVED PARKING / PENALTY $100-$500 FINE TOW AWAY ZONE
R7-8A	12"	6"	VAN ACCESSIBLE

LEGEND

- LIGHT-DUTY ASPHALT PAVEMENT (SEE DETAILS)
- HEAVY-DUTY ASPHALT PAVEMENT (SEE DETAILS)
- CONCRETE SIDEWALKS/ PAD

CURB AND GUTTER LEGEND

- NCDOT 846.1 6" STD. CURB
- NCDOT 846.1 2'-6" CURB & GUTTER
- 6" FLUSH CURB MODIFIED NCDOT 846.1 6" STD. CURB

0 30' 60'
GRAPHIC SCALE

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NORTH CAROLINA PROFESSIONAL SEAL 040412 ENGINEER MARK E. WILLIAMS

REVISIONS		
NO.	DATE	DESCRIPTION
		POST APPROVAL

DESIGNED | DRAWN | CHECKED

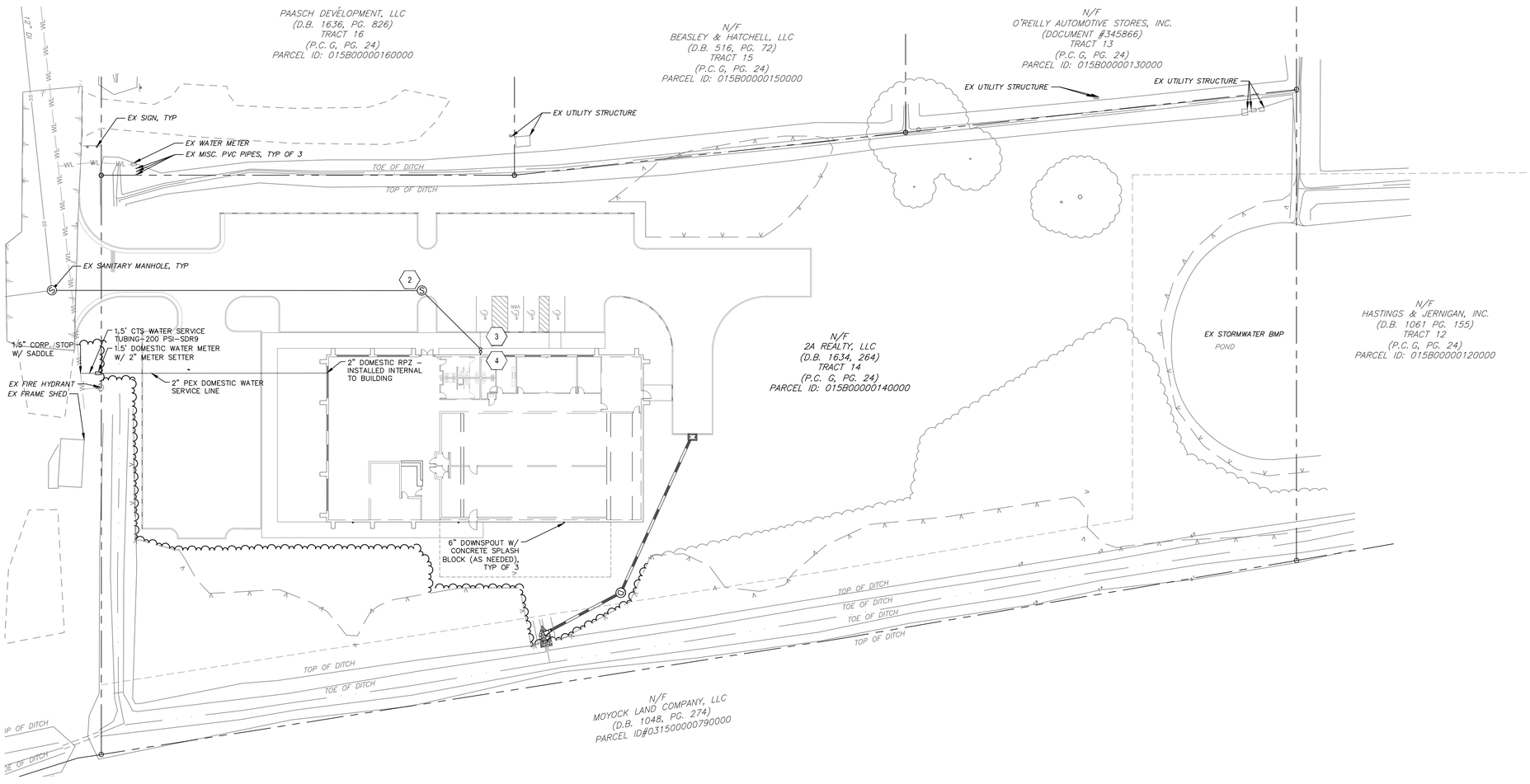
BOB'S GUN SHOP

TOWN OF MOYOCK CURRITUCK COUNTY, NORTH CAROLINA

SITE PLAN

SCALE: 1" = 30'
DATE: MARCH 28, 2023
PROJECT: B7011.02

C2.2



NOTES

1. MANHOLE INSERTS ARE REQUIRED FOR ALL MH'S AND THE APPROVED INSERT IS A PARSONS PMISSE MANHOLE INSERT W/ VALVE, GASKET, AND STRAP.
2. THE CONTRACTOR MUST FIELD VERIFY THE INVERTS OF ALL EXISTING MANHOLES, GAS LINES, AND OTHER UTILITY LINES PRIOR TO THE START OF CONSTRUCTION.
3. THE LOCATION OF EXISTING UTILITIES, CONDUITS OR OTHER STRUCTURES ACROSS, UNDERNEATH, OR OTHERWISE ALONG THE LINE OF PROPOSED WORK AREA NOT NECESSARILY SHOWN ON THE PLANS, AND IF SHOWN ARE ONLY APPROXIMATELY CORRECT. THE CONTRACTOR SHALL VERIFY LOCATION AND ELEVATION OF ALL STRUCTURES AND UTILITIES (OVERHEAD AND UNDERGROUND) IN AREAS OF CONSTRUCTION PRIOR TO STARTING WORK. CONTRACTOR SHALL CALL DIG NC TOLL FREE AT 1-800-632-4949 AT LEAST 48 HOURS PRIOR TO CONSTRUCTION. CONTACT THE ENGINEER IMMEDIATELY IF THE LOCATION OR ELEVATION DIFFERS FROM THAT SHOWN ON THE PLAN AND APPEARS TO BE IN CONFLICT WITH PROPOSED WORK.
4. PRIOR TO CONNECTING THE PROPOSED WATER OR SEWER LINES TO THE EXISTING COUNTY SYSTEM, THE FOLLOWING CRITERIA MUST BE MET:
   - ALL PUBLIC WATER AND/OR SEWER LINES MUST EITHER BE LOCATED WITHIN RECORDED WATER OR SEWER EASEMENTS OR WITHIN DEDICATED RIGHTS-OF-WAY.
   - ALL WATER AND/OR SEWER LINE TESTING HAS BEEN COMPLETED AND HAS SUCCESSFULLY PASSED.
   - ROADS MUST BE READY FOR FINAL PAVING, WITH ALL CURB & GUTTER AND THE SUBBASE INSTALLED.

LEGEND

BENCHMARK

SANITARY SEWER DESCRIPTION

NOTE:
1. ALL STRUCTURES WITH A DEPTH OF 4'-0" OR GREATER WILL REQUIRE STEPS, UNLESS OTHERWISE NOTED ON THE PLANS

2. CONTRACTOR IS TO EXERCISE EXTREME CARE IN THE INSTALLATION OF PIPES WITH SHALLOW SLOPES IN ORDER TO PROVIDE POSITIVE GRADE.

a. ALL PUBLIC WATER AND/OR SEWER LINES MUST EITHER BE LOCATED WITHIN RECORDED WATER OR SEWER EASEMENTS OR WITHIN DEDICATED RIGHTS-OF-WAY.
- ALL WATER AND/OR SEWER LINE TESTING HAS BEEN COMPLETED AND HAS SUCCESSFULLY PASSED.
- ROADS MUST BE READY FOR FINAL PAVING, WITH ALL CURB & GUTTER AND THE SUBBASE INSTALLED

1 to 2
188.1 L.F. ~ 6" PVC @ 0.63%
INV.(LOWER)=5.70 INV.(UPPER)=6.88

2
48" SSMH TOP=9.66
H=2.78'

2 to 3
42.0 L.F. ~ 6" PVC @ 1.00%
INV.(LOWER)=6.98 INV.(UPPER)=7.40

3
45° BEND TOP=7.20
H=???

3 to 4
1.6 L.F. ~ 6" PVC @ 1.26%
INV.(LOWER)=7.40 INV.(UPPER)=7.42

4
6" SSCO TOP=10.63
H=3.21'

0 30' 60'
GRAPHIC SCALE

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REVISIONS
NO. DATE DESCRIPTION

POST APPROVAL

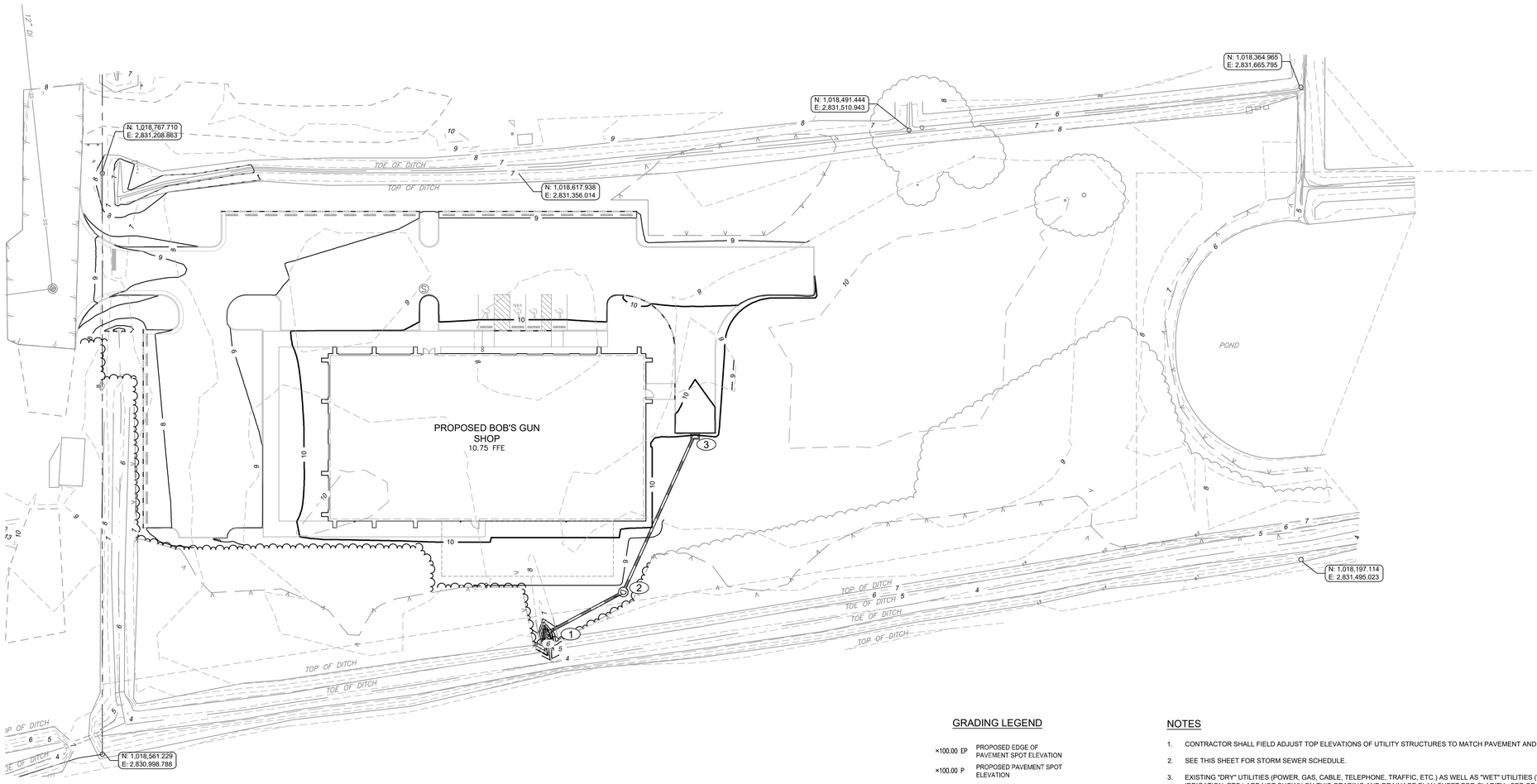
DESIGNED | DRAWN | CHECKED

BOB'S GUN SHOP
TOWN OF MOYOCK CURRITUCK COUNTY, NORTH CAROLINA

UTILITY PLAN

SCALE: 1" = 30'
DATE: MARCH 28, 2023
PROJECT: B7011.02

C3.1



DRAINAGE STRUCTURE SUMMARY

VERTICAL DATUM: NORTH CAROLINA STATE PLAN, NAD 83/NAVD 88 - CONTROL STATION D177 ELEV: 8.58
(SEE ADDITIONAL BENCHMARKS ON UTILITY PLAN SHEET)

1. NCDOT STD. 840.66 DRAINAGE STRUCTURE STEPS ARE REQ'D. FOR ALL STRUCTURES GREATER THAN 4'-0" IN DEPTH.
2. THE TERM "TOP" WITHIN THIS STRUCTURE SCHEDULE IS USED TO DESCRIBE THE TOP SURFACE OF THE STRUCTURE (TYPICALLY, A POINT ALONG THE TOP OF CURB ELEVATION). FOR COMBINATION INLETS, THE TOP ELEVATION LISTED IS AT THE TOP OF CURB (WHEREAS THE GRATE ELEVATION MATCHES THE PROPOSED GUTTER SURFACE AND IS BELOW THE TOP ELEVATION LISTED HERON)
3. ALL DISTANCES, INVERTS, AND SLOPES ARE LISTED AND/OR CALCULATED TO EITHER THE CENTER OF THE MANHOLE OR THE CENTER OF THE INLET CHAMBER (WHICHEVER IS APPLICABLE) UNLESS NOTED OTHERWISE.
4. FOR CURB DROP INLETS ON GRADE THE TOP ELEVATION LISTED BELOW IS FOR THE DOWNSTREAM SIDE OF THE STRUCTURE. CONTRACTOR SHALL SLOPE THE TOP AND UPSTREAM WING OF THE STRUCTURE TO MATCH THE PROPOSED TOP OF CURB GRADES.

(1)	NCDOT STD. 15" END SECTION H=0.45'	TOP=5.96
1 to 2	40.47 L.F. ~ 15" HP STORM PP @ 0.30% INV.(LOWER)=4.48 INV.(UPPER)=4.60	
(2)	STD. 4-FT MANHOLE H=4.29'	TOP=10.59
2 to 3	88.31 L.F. ~ 15" HP STORM PP @ 0.31% INV.(LOWER)=6.40 INV.(UPPER)=6.67	
(3)	NCDOT STD. OPEN THROAT CB (12-15") H=3.03'	TOP=9.70

GRADING LEGEND

×100.00 EP	PROPOSED EDGE OF PAVEMENT SPOT ELEVATION
×100.00 P	PROPOSED PAVEMENT SPOT ELEVATION
×100.00 C	PROPOSED CONCRETE SPOT ELEVATION
×100.00 EC	PROPOSED EDGE OF CONCRETE SPOT ELEVATION
×100.00 LND	PROPOSED LANDING/ STOOP ELEVATION
×100.00 TC	PROPOSED TOP OF CURB SPOT ELEVATION
×100.00 BC	PROPOSED BOTTOM OF CURB SPOT ELEVATION
×100.00 BDC	PROPOSED BOTTOM OF DRY CURB SPOT ELEVATION
×100.00 TDC	PROPOSED TOP OF DRY CURB SPOT ELEVATION
×100.00 SW	PROPOSED EDGE OF SIDEWALK SPOT ELEVATION
×100.00 PT	PROPOSED PATIO SPOT ELEVATION
×100.00 FL	PROPOSED SPOT ELEVATION OF FLOW LINE
×100.00 FF	PROPOSED BUILDING FINISHED FLOOR ELEVATION
×100.00 GND	PROPOSED GROUND/ EARTH SPOT ELEVATION
×100.00 RIM	PROPOSED RIM ELEVATION OF STRUCTURE
×100.00 TW	PROPOSED TOP OF WALL SPOT ELEVATION
×100.00 BW	PROPOSED BOTTOM OF WALL SPOT ELEVATION
	DRAINAGE FLOW ARROW

NOTES

1. CONTRACTOR SHALL FIELD ADJUST TOP ELEVATIONS OF UTILITY STRUCTURES TO MATCH PAVEMENT AND CURB SURFACES
2. SEE THIS SHEET FOR STORM SEWER SCHEDULE.
3. EXISTING "DRY" UTILITIES (POWER, GAS, CABLE, TELEPHONE, TRAFFIC, ETC.) AS WELL AS "WET" UTILITIES (WATER, SANITARY SEWER, IRRIGATION, ETC.) ARE NOT SHOWN ON THIS GRADING AND DRAINAGE PLAN SHEET FOR CLARITY. SEE GRADING DETAIL SHEETS AND/OR UTILITY PLAN SHEET FOR THE LOCATION OF THESE UTILITIES.
4. SEE GRADING DETAIL SHEETS FOR SPOT GRADE ELEVATIONS.
5. FLATTEN SWALES TO SURROUNDING GRADE PRIOR TO ENTERING R/W.
6. ALL PROPOSED DITCHES AND SWALES ARE TO BE ROUGHED IN AT TIME OF ROAD CONSTRUCTION.
7. SEE THIS SHEET FOR STORM SEWER SCHEDULE.
8. ALL EXISTING DITCHES AND SWALES WITHIN THE PROPERTY LIMITS ARE TO BE CLEANED, DEMUCKED, AND REGRADED TO ENSURE POSITIVE DRAINAGE.

LEGEND

EL:___ BENCHMARK

RIP RAP

CURB AND GUTTER LEGEND

NCDOT 846.1
6" STD. CURB

NCDOT 846.1
2'-6" CURB & GUTTER

6" FLUSH CURB
MODIFIED NCDOT 846.1
6" STD. CURB

0 30' 60'
GRAPHIC SCALE

KOONTZ BRYANT JOHNSON WILLIAMS
1703 N. Parham Rd.
Suite 202
Henrico, Va 23229
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FAX (804) 740-7338
www.KBJWgroup.com

NORTH CAROLINA PROFESSIONAL SEAL 040412 ENGINEER MARK E. WILLIAMS

REVISIONS

NO.	DATE	DESCRIPTION

POST APPROVAL

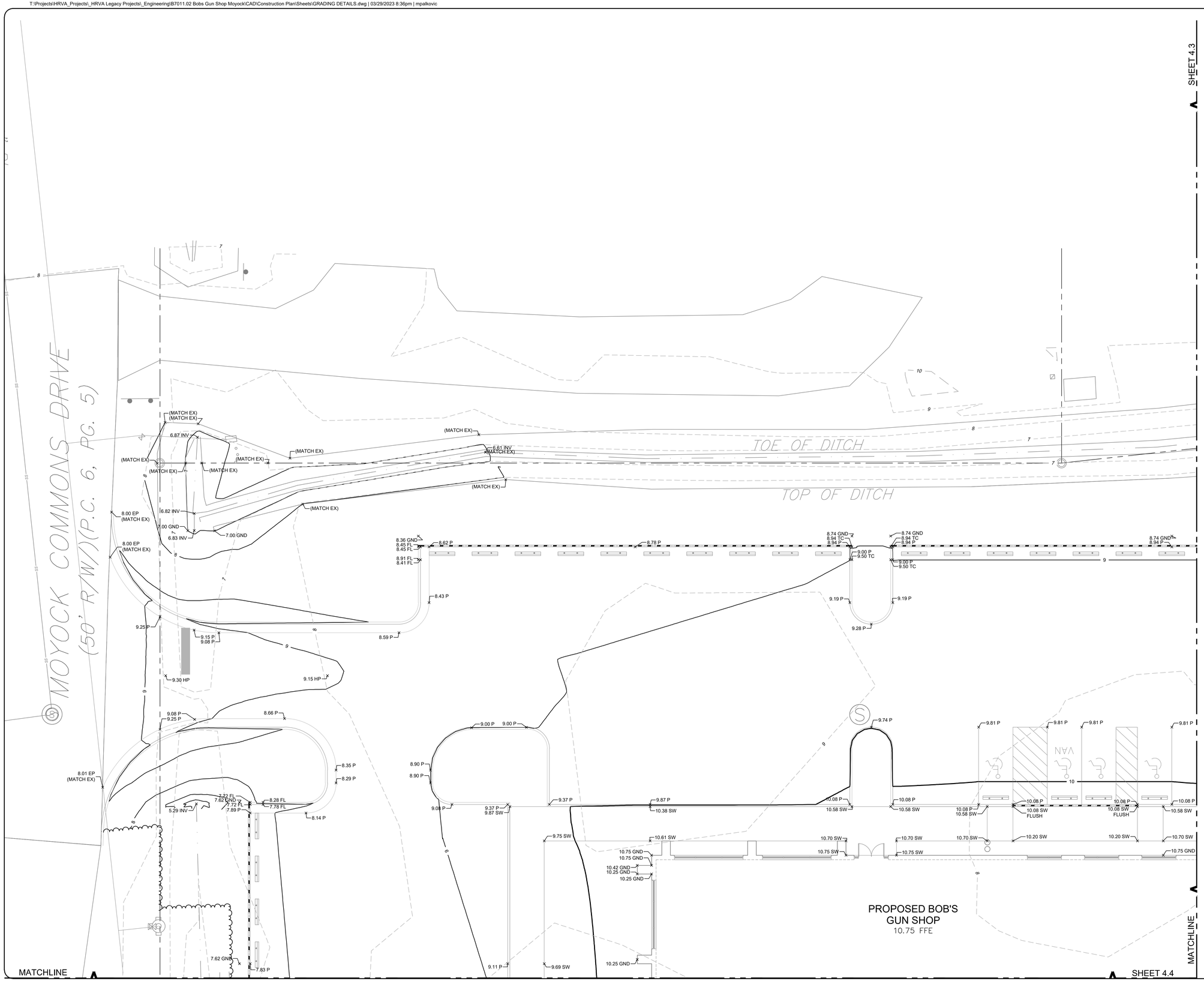
DESIGNED | DRAWN | CHECKED

BOB'S GUN SHOP
CURRITUCK COUNTY, NORTH CAROLINA
TOWN OF MOYOCK

GRADING & DRAINAGE

SCALE: 1" = 30'
DATE: MARCH 28, 2023
PROJECT: B7011.02

C4.1



LEGEND

BENCHMARK

CURB AND GUTTER LEGEND

NCDOT 846.1
6" STD. CURB

NCDOT 846.1
2'-6" CURB & GUTTER

6" FLUSH CURB
MODIFIED NCDOT 846.1
6" STD. CURB

GRADING LEGEND

×100.00 EP	PROPOSED EDGE OF PAVEMENT SPOT ELEVATION
×100.00 C	PROPOSED CONCRETE SPOT ELEVATION
×100.00 TC	PROPOSED TOP OF CURB SPOT ELEVATION
×100.00 BDC	PROPOSED BOTTOM OF DRY CURB SPOT ELEVATION
×100.00 TDC	PROPOSED TOP OF DRY CURB SPOT ELEVATION
×100.00 SW	PROPOSED EDGE OF SIDEWALK SPOT ELEVATION
×100.00 FL	PROPOSED SPOT ELEVATION OF FLOW LINE
×100.00 FF	PROPOSED BUILDING FINISHED FLOOR ELEVATION
×100.00 GND	PROPOSED GROUND/ EARTH SPOT ELEVATION
×100.00 P	PROPOSED PAVEMENT SPOT ELEVATION
×100.00 EC	PROPOSED EDGE OF CONCRETE SPOT ELEVATION
×100.00 LND	PROPOSED LANDING/ STOOP ELEVATION
×100.00 BC	PROPOSED BOTTOM OF CURB SPOT ELEVATION
×100.00 PT	PROPOSED PATIO SPOT ELEVATION
×100.00 RIM	PROPOSED RIM ELEVATION OF STRUCTURE
×100.00 TW	PROPOSED TOP OF WALL SPOT ELEVATION
×100.00 BW	PROPOSED BOTTOM OF WALL SPOT ELEVATION
	DRAINAGE FLOW ARROW

0 10' 20'
GRAPHIC SCALE

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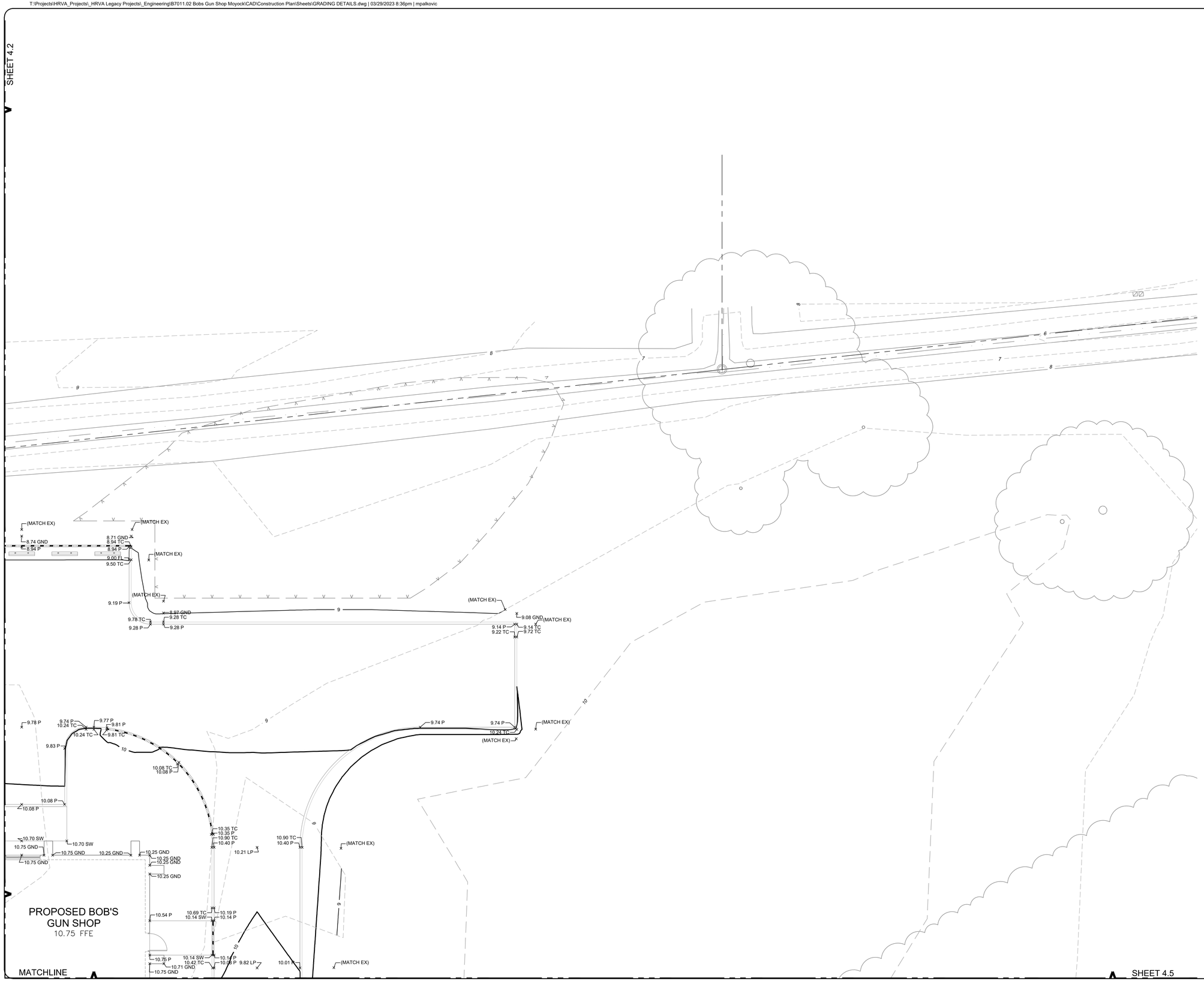
BOB'S GUN SHOP
CURRITUCK COUNTY, NORTH CAROLINA
TOWN OF MOYOCK

GRADING DETAILS

SCALE: 1" = 10'
DATE: MARCH 28, 2023
PROJECT: B7011.02

C4.2

SHEET 4.2



LEGEND

EL:___ BENCHMARK

CURB AND GUTTER LEGEND

NCDOT 846.1
6" STD. CURB

NCDOT 846.1
2'-6" CURB & GUTTER

6" FLUSH CURB
MODIFIED NCDOT 846.1
6" STD. CURB

GRADING LEGEND

×100.00 EP	PROPOSED EDGE OF PAVEMENT SPOT ELEVATION
×100.00 C	PROPOSED CONCRETE SPOT ELEVATION
×100.00 TC	PROPOSED TOP OF CURB SPOT ELEVATION
×100.00 BDC	PROPOSED BOTTOM OF DRY CURB SPOT ELEVATION
×100.00 TDC	PROPOSED TOP OF DRY CURB SPOT ELEVATION
×100.00 SW	PROPOSED EDGE OF SIDEWALK SPOT ELEVATION
×100.00 FL	PROPOSED SPOT ELEVATION OF FLOW LINE
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×100.00 GND	PROPOSED GROUND/ EARTH SPOT ELEVATION
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×100.00 TW	PROPOSED TOP OF WALL SPOT ELEVATION
×100.00 BW	PROPOSED BOTTOM OF WALL SPOT ELEVATION
	DRAINAGE FLOW ARROW

0 10' 20'
GRAPHIC SCALE

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REVISIONS

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POST APPROVAL

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BOB'S GUN SHOP
CURRITUCK COUNTY, NORTH CAROLINA
TOWN OF MOYOCK

GRADING DETAILS

SCALE: 1" = 10'
DATE: MARCH 28, 2023
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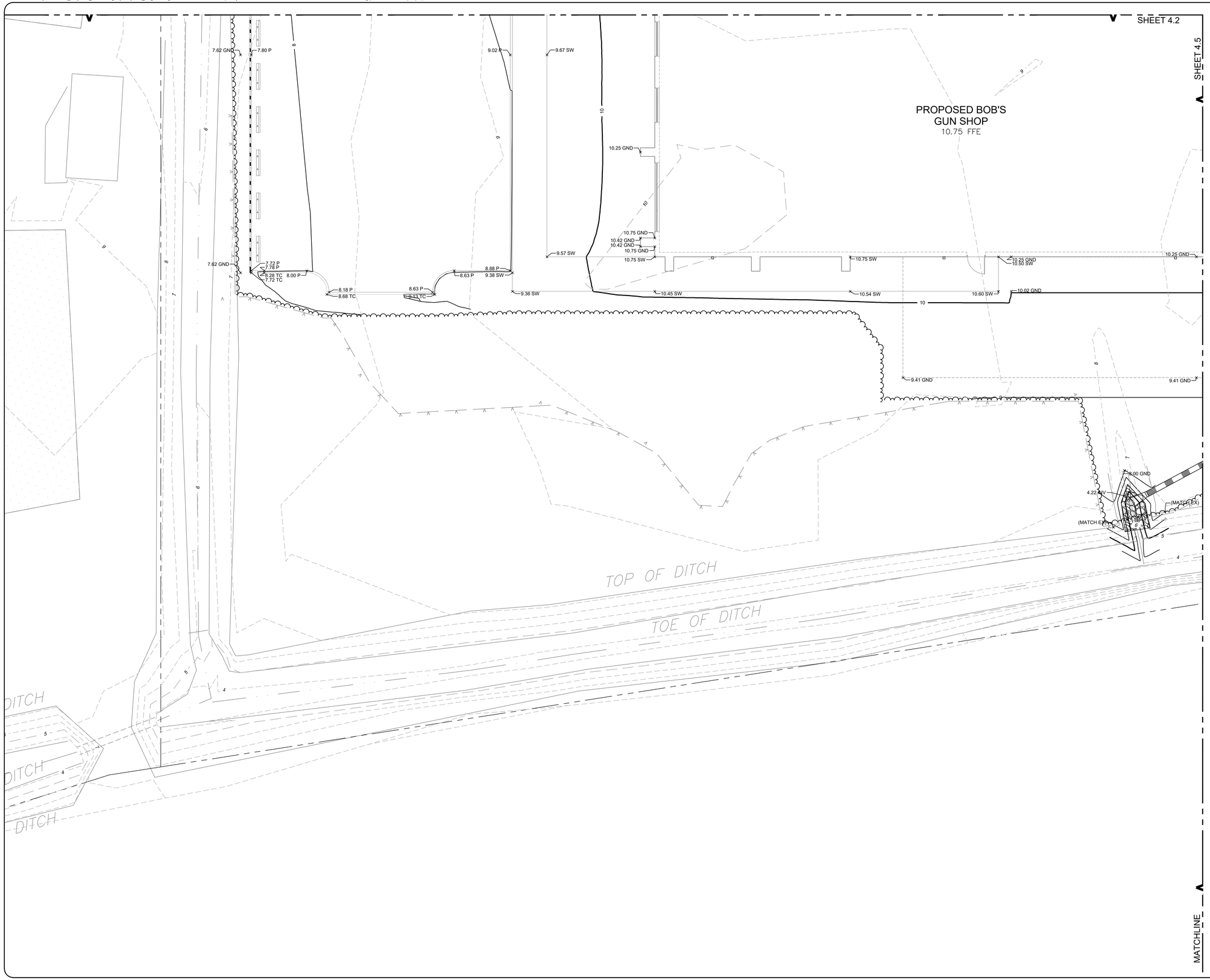
C4.3



LEGEND

EL: BENCHMARK

CURB AND GUTTER LEGEND

- NCDOT 846.1 6" STD. CURB
- NCDOT 846.1 2'-6" CURB & GUTTER
- 6" FLUSH CURB MODIFIED NCDOT 846.1 6" STD. CURB

GRADING LEGEND

×100.00 EP	PROPOSED EDGE OF PAVEMENT SPOT ELEVATION
×100.00 C	PROPOSED CONCRETE SPOT ELEVATION
×100.00 TC	PROPOSED TOP OF CURB SPOT ELEVATION
×100.00 BDC	PROPOSED BOTTOM OF DRY CURB SPOT ELEVATION
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	DRAINAGE FLOW ARROW

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BOB'S GUN SHOP
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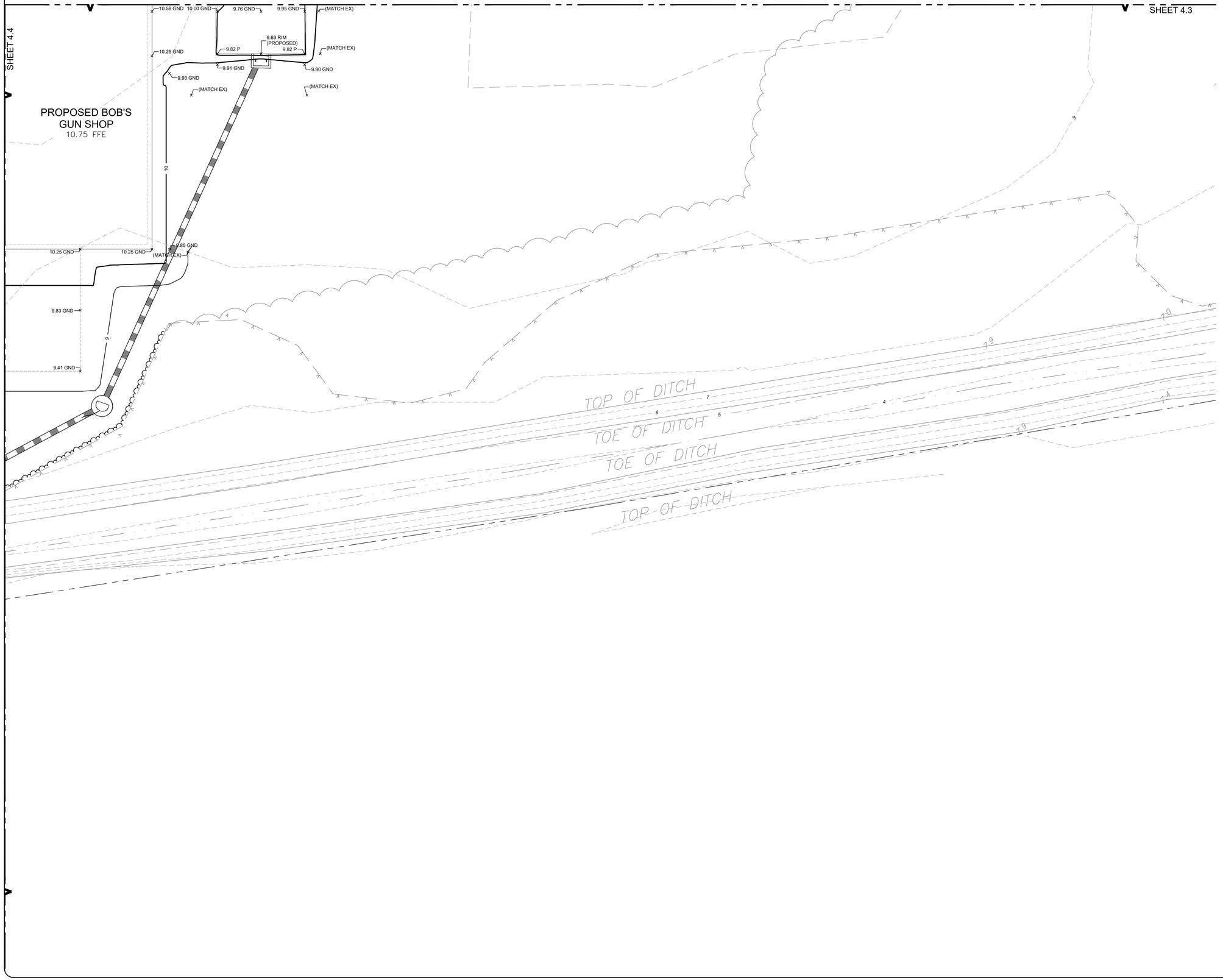
GRADING DETAILS

SCALE: 1" = 10'
DATE: MARCH 28, 2023
PROJECT: B7011.02

C4.4



LEGEND

EL:___ BENCHMARK

CURB AND GUTTER LEGEND

NCDOT 846.1
6" STD. CURB

NCDOT 846.1
2'-6" CURB & GUTTER

6" FLUSH CURB
MODIFIED NCDOT 846.1
6" STD. CURB

GRADING LEGEND

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	DRAINAGE FLOW ARROW

0 10' 20'
GRAPHIC SCALE

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BOB'S GUN SHOP
CURRITUCK COUNTY, NORTH CAROLINA
TOWN OF MOYOCK

GRADING DETAILS

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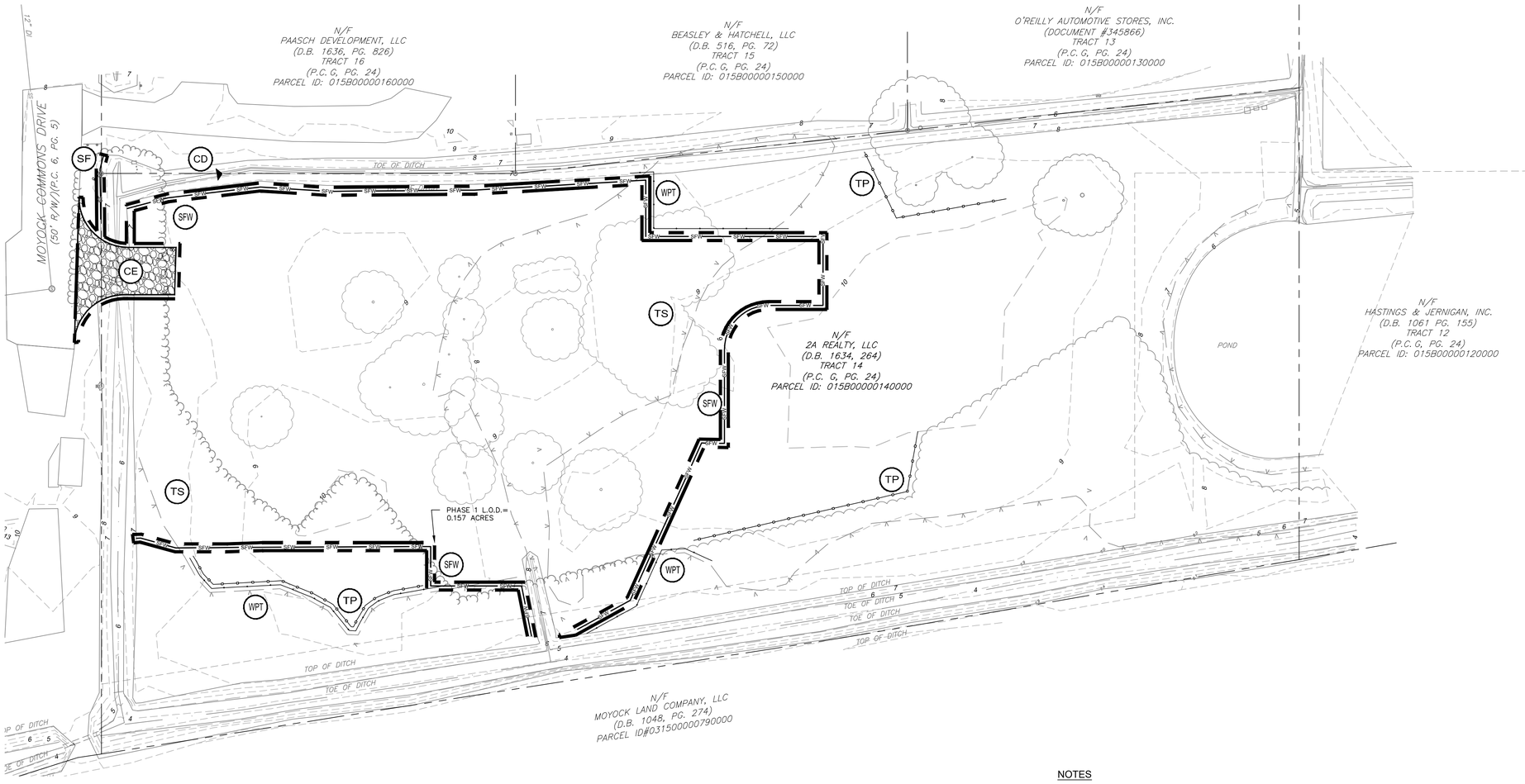
C4.5



PHASE I SEQUENCE OF CONSTRUCTION

1. NO TIMBERING OR CONSTRUCTION ACTIVITY SHALL COMMENCE UNTIL THE ISSUANCE OF A LAND DISTURBANCE PERMIT FROM THE AUTHORITY HAVING JURISDICTION.
2. NO GRADING OR OTHER ACTIONS DEEMED TO BE LAND DISTURBANCE SHALL COMMENCE UNTIL THE ISSUANCE OF A V.S.M.P. PERMIT FROM THE DEQ.
3. 48 HOURS PRIOR TO THE START OF CONSTRUCTION THE LAND DISTURBER SHALL INFORM THE AUTHORITY HAVING JURISDICTION'S ENVIRONMENTAL INSPECTOR.
4. INSTALL GRAVEL CONSTRUCTION ENTRANCE. ALL CONSTRUCTION TRAFFIC SHALL ENTER AND EXIT THE SITE VIA THE CONSTRUCTION ENTRANCE. DURING WET WEATHER CONDITIONS, DRIVERS OF CONSTRUCTION VEHICLES SHALL BE REQUIRED TO WASH THEIR WHEELS BEFORE ENTERING THE EXISTING ROADWAY
5. CLEAR ONLY TO THE EXTENT NECESSARY TO INSTALL THE SPECIFIED EROSION CONTROL ITEMS. INSTALL ALL SILT FENCE AND TREE PROTECTION AS SHOWN ON THE PLANS.
6. UPON COMPLETION OF THE PHASE I EROSION CONTROL PLAN, THE CERTIFIED RESPONSIBLE LAND DISTURBER SHALL NOTIFY AND ACCOMPANY THE INSPECTOR ON A SITE WALK-THRU PRIOR TO PROCEEDING WITH PHASE II OF THE EROSION CONTROL PLAN.

EROSION CONTROL LEGEND

EROSION CONTROL DEVICES AS PER NORTH CAROLINA EROSION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL, SECTION 6

CD		CHECK DAM
CE		TEMPORARY GRAVEL CONSTRUCTION ENTRANCE/EXIT
SF	CF CF	SEDIMENT FENCE
SFW	SFW	WIRE MESH SUPPORTED SEDIMENT FENCE
TP		TREE PROTECTION
TS		TEMPORARY SEEDING
WPT		WETLANDS PROTECTION TAPE

LINETYPE LEGEND

LIMITS OF DISTURBANCE

NOTES

1. NO EROSION CONTROL DEVICES SHALL BE REMOVED UNTIL APPROVED BY THE AUTHORITY HAVING JURISDICTION'S ENVIRONMENTAL ENGINEER/ ESC INSPECTOR.
2. THE LOCATION OF EXISTING UTILITIES, CONDUITS OR OTHER STRUCTURES ACROSS, UNDERNEATH, OR OTHERWISE ALONG THE LINE OF PROPOSED WORK ARE NOT NECESSARILY SHOWN ON THE PLANS, AND IF SHOWN ARE ONLY APPROXIMATELY CORRECT. THE CONTRACTOR SHALL CALL DIG NC AT 811 OR 800-632-4949 PRIOR TO STARTING WORK. CONTACT THE ENGINEER IMMEDIATELY IF THE LOCATION OR ELEVATION DIFFERS FROM THAT SHOWN ON THE PLAN AND APPEARS TO BE IN CONFLICT WITH PROPOSED WORK. CONTRACTOR TO COORDINATE WITH OWNER ABOUT EXISTING UTILITIES TO BE MAINTAINED DURING CONSTRUCTION.
3. ALL EXISTING UTILITIES SHALL BE PROTECTED DURING PROPOSED CLEARING, DEMOLITION AND/OR CONSTRUCTION AND ADEQUATE COVER SHALL BE MAINTAINED OVER ALL SANITARY SEWER MAINS AND WATER MAINS IN ACCORDANCE WITH DPU STANDARDS. NO UTILITIES SHALL BE INSTALLED, DEMOLISHED AND/OR ABANDONED WITH THIS PHASE OF THE ESC PLAN.
4. ALL CONSTRUCTION TRAFFIC SHALL ENTER AND EXIT THE SITE VIA THE CONSTRUCTION ENTRANCE SHOWN HEREON ONLY.
5. REFER TO SHEET C5.3 FOR THE EROSION CONTROL NARRATIVE.
6. TREE PROTECTION IS TO BE INSTALLED TO PROTECT REQUIRED BUFFERS AND TREES THAT ARE TO REMAIN. REMOVAL OF EXISTING TREES NOT SHOWN TO BE DEMOLISHED WILL RESULT IN REPLACEMENT OF VEGETATION AND SUBMITTAL OF A REVISED LANDSCAPE PLAN AND BOND.
7. ALL TOPSOIL, EXCEPT THAT WHICH IS TO BE RE-USED ON-SITE, SHALL BE HAULED OFF-SITE TO A LOCATION WITH AN APPROVED E&S PLAN.
8. ALL IMPORTED/EXPORTED MATERIAL SHALL COME FROM AND/OR BE HAULED TO A LOCATION WITH AN APPROVED ESC PLAN (OR AN ESC PLAN SHALL BE PROVIDED FOR THE OFF-SITE AREA).
9. A THIRD PARTY INSPECTION AND TESTING FIRM SHALL BE ON-SITE THROUGHOUT CONSTRUCTION TO ADEQUATELY MONITOR AND TEST ALL APPROPRIATE SITE RELATED WORK ON THIS PROJECT. ITEMS TO BE MONITORED SHALL INCLUDE, HOWEVER ARE NOT LIMITED TO AREAS TO BE UNDER-CUT, PLACEMENT OF FILL, PROOF-ROLLING, TRENCHING ACTIVITIES AND THE PLACEMENT OF CONCRETE AND ASPHALT. ITEMS TO BE TESTED SHALL INCLUDE, HOWEVER ARE NOT LIMITED TO, CONCRETE SLUMP TESTS, CONCRETE STRENGTH TESTING, AND SOIL AND ASPHALT COMPACTION TESTING.
10. ALL ESC MEASURES SHOWN ON THIS PHASE OF THE ECS PLAN MUST BE IN PLACE AND FUNCTIONING IN A MANNER ACCEPTABLE TO THE ENVIRONMENTAL INSPECTOR PRIOR TO INSTALLATION OF ADDITIONAL ESC MEASURES.
11. PHASE 1 LIMITS OF DISTURBANCE = 0.157 ACRES

0 30' 60'
GRAPHIC SCALE

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NORTH CAROLINA PROFESSIONAL SEAL 040412 ENGINEER MARK E. WILLIAMS

REVISIONS

NO.	DATE	DESCRIPTION

POST APPROVAL

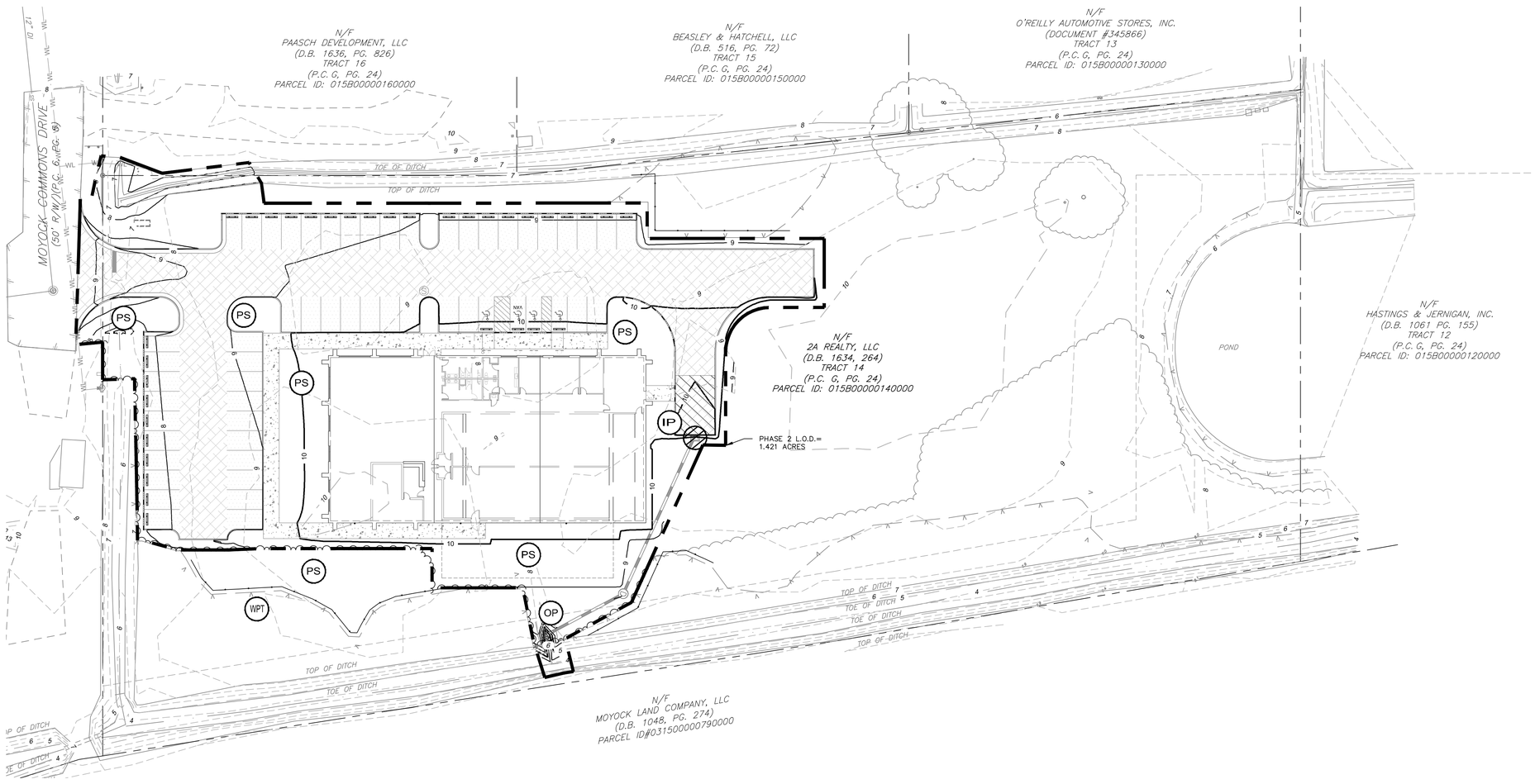
DESIGNED	DRAWN	CHECKED

BOB'S GUN SHOP
CURRITUCK COUNTY, NORTH CAROLINA
TOWN OF MOYOCK

E&S PHASE-1

SCALE: 1" = 30'
DATE: MARCH 28, 2023
PROJECT: B7011.02

C5.1



EROSION CONTROL LEGEND

EROSION CONTROL DEVICES AS PER NORTH CAROLINA EROSION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL, SECTION 6

IP		BLOCK AND GRAVEL INLET PROTECTION
OP		OUTLET STABILIZATION STRUCTURE
PS		PERMANENT SEEDING
WPT		WETLANDS PROTECTION TAPE

LINETYPE LEGEND

LIMITS OF DISTURBANCE

PHASE II SEQUENCE OF CONSTRUCTION

1. AUTHORIZATION MUST BE GRANTED BY THE AUTHORITY HAVING JURISDICTION'S ESC INSPECTOR PRIOR TO PROCEEDING TO PHASE II EROSION CONTROL CONSTRUCTION.
2. ALL EROSION CONTROL DEVICES SHALL BE INSPECTED AFTER ALL RAIN EVENTS.
3. IN NO CASE, AT ANY TIME DURING THIS PROJECT, SHALL E&S MEASURES BE REMOVED WITHOUT APPROVAL OF E&S INSPECTOR. REPAIRS SHALL BE MADE TO ALL DISTURBED AREAS DUE TO THE REMOVAL OF THE EROSION PRACTICES TOPSOIL, SEED, MULCH ETC.
4. UPON COMPLETION OF PHASE-1 ESC MEASURES, CONTRACTOR SHALL PROCEED WITH THE REMAINING SITE-WORK ITEMS (FINAL GRADING, PERIMETER CURB AND GUTTER, PARKING LOT BASE, CONCRETE PAVEMENT INSTALLATION, ETC.).
5. INSTALL STORM SEWER AS SHOWN ON PLANS. PLACE INLET PROTECTION AS STORM SEWER IS INSTALLED. NO INLET SHALL BE LEFT UNPROTECTED AT ANY TIME.
6. CONSTRUCT ROADS/PARKING TO SUBGRADE ELEVATIONS AS SHOWN ON PLANS.
7. INSTALL WATERLINE AND SANITARY SEWER.
8. FINE GRADE ALL SITE AREAS AND PLACE STONE BASE.
9. AFTER COMPLETION OF GRADING OPERATIONS, ALL AREAS NOT TO BE PAVED SHOULD BE COMPLETELY STABILIZED WITH PERMANENT SEEDING & STRAW.
10. ADDITIONAL EROSION CONTROL MEASURES CAN BE REQUIRED AT ANY TIME AT THE REQUEST OF THE AUTHORITY HAVING JURISDICTION.
11. NO EROSION CONTROL DEVICES SHALL BE REMOVED WITHOUT CONSENT FROM THE AUTHORITY HAVING JURISDICTION.

NOTES

1. NO EROSION CONTROL DEVICES SHALL BE REMOVED UNTIL APPROVED BY THE AUTHORITY HAVING JURISDICTION'S ENVIRONMENTAL ENGINEER/ ESC INSPECTOR.
2. THE LOCATION OF EXISTING UTILITIES, CONDUITS OR OTHER STRUCTURES ACROSS, UNDERNEATH, OR OTHERWISE ALONG THE LINE OF PROPOSED WORK ARE NOT NECESSARILY SHOWN ON THE PLANS, AND IF SHOWN ARE ONLY APPROXIMATELY CORRECT. THE CONTRACTOR SHALL CALL DIG NC AT 811 OR 800-632-4949 PRIOR TO STARTING WORK. CONTACT THE ENGINEER IMMEDIATELY IF THE LOCATION OR ELEVATION DIFFERS FROM THAT SHOWN ON THE PLAN AND APPEARS TO BE IN CONFLICT WITH PROPOSED WORK. CONTRACTOR TO COORDINATE WITH OWNER ABOUT EXISTING UTILITIES TO BE MAINTAINED DURING CONSTRUCTION.
3. ALL EXISTING UTILITIES SHALL BE PROTECTED DURING PROPOSED CLEARING, DEMOLITION AND/OR CONSTRUCTION AND ADEQUATE COVER SHALL BE MAINTAINED OVER ALL SANITARY SEWER MAINS AND WATER MAINS IN ACCORDANCE WITH DPU STANDARDS. NO UTILITIES SHALL BE INSTALLED, DEMOLISHED AND/OR ABANDONED WITH THIS PHASE OF THE ESC PLAN.
4. ALL CONSTRUCTION TRAFFIC SHALL ENTER AND EXIT THE SITE VIA THE CONSTRUCTION ENTRANCE SHOWN HEREON ONLY.
5. REFER TO SHEET C5.3 FOR THE EROSION CONTROL NARRATIVE.
6. TREE PROTECTION IS TO BE INSTALLED TO PROTECT REQUIRED BUFFERS. ANY CLEARING OR DISTURBANCE OF BUFFERS WILL RESULT IN REPLACEMENT OF VEGETATION AND SUBMITTAL OF A LANDSCAPE PLAN AND BOND.
7. ALL ESC MEASURES SHOWN ON PHASE II MUST BE IN PLACE AND FUNCTIONING IN A MANNER ACCEPTABLE TO THE ENVIRONMENTAL INSPECTOR PRIOR TO INSTALLATION OF ADDITIONAL ESC MEASURES.
8. BLANKET MATTING SHALL BE PROVIDED ON ALL SLOPES 3:1 OR GREATER
9. ALL DISTURBED, PERVIOUS, AREAS ARE TO RECEIVE PERMANENT SEEDING
10. PHASE 2 LIMITS OF DISTURBANCE= 1.421 ACRES

0 30' 60'
GRAPHIC SCALE

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NORTH CAROLINA PROFESSIONAL SEAL 040412 ENGINEER MARK E. WILLIAMS

REVISIONS

NO.	DATE	DESCRIPTION

POST APPROVAL

DESIGNED | DRAWN | CHECKED

BOB'S GUN SHOP
CURRITUCK COUNTY, NORTH CAROLINA
TOWN OF MOYOCK

E&S PHASE-2

SCALE: 1" = 30'
DATE: MARCH 28, 2023
PROJECT: B7011.02

C5.2

EROSION CONTROL NARRATIVE

1. PROJECT DESCRIPTION
THE PROJECT SITE IS LOCATED AT THE END OF MOYOCK COMMONS DRIVE (GPIN:015B00000140000) IN MOYOCK, NC. THE PURPOSE OF THIS PROJECT IS TO DEVELOP AN EXISTING VACANT SITE INTO A PROPOSED BOB'S GUN SHOP. THE SITE WORK ASSOCIATED WITH THIS PROJECT WILL INCLUDE CLEARING AND GRUBBING, CONSTRUCTION OF THE SHOOTING RANGE AND RETAIL BUILDING, GRADING, INSTALLATION OF CURB AND GUTTER, INSTALLATION OF STORM SEWER, SANITARY LATERAL, AND A WATER LATERAL. APPROXIMATELY 1.421 ACRES WILL BE DISTURBED WITH THIS PROJECT.

2. EXISTING SITE CONDITIONS
UNDER EXISTING CONDITIONS THE SITE IS A VACANT AND UNIMPROVED LOT WITH EXISTING DRAINAGE DITCHES BOUNDING THE PROPERTY. THE SITE IS PARTIALLY FORESTED WITH WETLANDS PRESENT ON SITE. NO EXISTING EROSIVE PROBLEM AREAS HAVE BEEN NOTED ON SITE.

3. ADJACENT AREAS
THIS PROJECT SITE IS LOCATED AT THE SOUTHEAST PORTION OF MOYOCK COMMONS DRIVE (GPIN:015B00000140000).

4. OFF-SITE AREAS
NO OFF-SITE LAND-DISTURBING ACTIVITIES OTHER THAN PROPOSED UTILITY CONNECTIONS AND SITE ENTRANCE IN THE RIGHT-OF-WAY ARE ANTICIPATED WITH THIS PROJECT. HOWEVER, IF DUE TO UNFORESEEN CIRCUMSTANCES THIS CHANGES, PRIOR TO COMMENCING LAND DISTURBING ACTIVITIES IN AREAS OTHER THAN INDICATED ON THESE PLANS (INCLUDING, BUT NOT LIMITED TO, OFF-SITE BORROW OR WASTE AREAS), THESE ESC PLANS WILL BE UPDATED. IF SOIL IS HAULED OFF SITE, THE CONTRACTOR SHALL SUPPLY THE OWNER WITH A SUPPLEMENTARY EROSION CONTROL PLAN FOR SUBMITTAL TO THE RECEIVING LOCALITY FOR REVIEW AND APPROVAL AND SHALL BE RESPONSIBLE FOR GAINING SAID APPROVAL AND SUPPLYING ALL APPROVAL DOCUMENTS TO ENGINEER AND OWNER PRIOR TO HAULING MATERIAL OFF THE PROPERTY OR ONTO THE PROPERTY FROM AN OFF-SITE LOCATION.

5. SOILS
REFER TO THE STORMWATER MANAGEMENT DRAINAGE AREA MAPS FOR SOIL DIVIDE LINES AND SOIL MAPPING. PER WEB SOIL SURVEY, THE SITES SOILS ARE AS FOLLOWS:
-UNIT NAME:Ro, ROANOKE FINE SANDY LOAM, TYPE D HYDROLOGICAL SOILS

GROUP D—SOILS IN THIS GROUP HAVE HIGH RUNOFF POTENTIAL WHEN THOROUGHLY WET. WATER MOVEMENT THROUGH THE SOIL IS RESTRICTED OR VERY RESTRICTED. GROUP D SOILS TYPICALLY HAVE GREATER THAN 40 PERCENT CLAY, LESS THAN 50 PERCENT SAND, AND HAVE CLAYEY TEXTURES.

6. CRITICAL AREAS
WETLANDS HAVE BEEN IDENTIFIED AS CRITICAL AREAS ON SITE. SILT FENCE, TREE PROTECTION, WETLAND PROTECTION TAPE, AND STONE CHECK DAMS SHALL FUNCTION AS PERIMETER CONTROL FOR THE LAND DISTURBING ACTIVITIES. AS INDICATED ABOVE, THE EXISTING SITE IS PREDOMINANTLY UNDEVELOPED. AS SHOWN ON SHEETS C4.1 THROUGH C4.5, THE PROPOSED GRADES WILL BE MODIFIED MOST WITHIN THE FOOTPRINT OF THE PROPOSED BUILDING AND ASSOCIATED PARKING AREA, HOWEVER, THE OVERALL CHANGE IN GRADE FOR THIS SITE WILL BE RELATIVELY MINIMAL. DRAINAGE WILL CONTINUE TO FLOW GENERALLY AWAY FROM THE CENTER OF THE SITE TO EXISTING PERIMETER DITCHES SURROUNDING THE PROPERTY AND ULTIMATELY INTO THE EXISTING STORMWATER BMP.

7. EROSION AND SEDIMENT CONTROL MEASURES
ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE CONSTRUCTED AND MAINTAINED ACCORDING TO MINIMUM STANDARDS AND SPECIFICATIONS OF THE NORTH CAROLINA EROSION AND SEDIMENT CONTROL MANUAL

A. STRUCTURAL PRACTICES

- TREE PROTECTION - STD. 6.05
  TO BE INSTALLED IN LOCATIONS AS SHOWN ON SHEETS C5.1 - C5.2 TO PRESERVE AND PROTECT DESIRABLE TREES FROM DAMAGE DURING PROJECT DEVELOPMENT.

  TEMPORARY GRAVEL CONSTRUCTION ENTRANCE/EXIT - STD. 6.06
  DURING WET WEATHER CONDITIONS, DRIVERS OF CONSTRUCTION VEHICLES WILL BE REQUIRED TO WASH THEIR WHEELS PRIOR TO ENTERING THE EXISTING ROADWAY.

  OUTLET STABILIZATION STRUCTURE - STD. 6.41
  TO BE INSTALLED IN LOCATION AS SHOWN ON SHEETS C5.1-C5.2 TO CONTROL EROSION AT THE OUTLET OF A CHANNEL OR CONDUIT.

  BLOCK AND GRAVEL INLET PROTECTION - STD. 6.52
  TO BE INSTALLED ON THE PROPOSED DRAINAGE INLET TO REMOVE SEDIMENT UNTIL CONSTRUCTION IS COMPLETE AND THE SITE HAS BEEN STABILIZED.

  SEDIMENT FENCE - STD 6.62
  TO BE INSTALLED IN LOCATIONS AS SHOWN ON SHEETS C5.1 - C5.2 TO FILTER RUNOFF FROM LAND-DISTURBING ACTIVITIES.

  CHECK DAM - STD. 6.83
  TO BE INSTALLED IN LOCATIONS AS SHOWN ON SHEETS C5.1 - C5.2 TO FILTER RUNOFF FROM LAND-DISTURBING ACTIVITIES.

B. VEGETATIVE PRACTICES
- TEMPORARY SEEDING - STD. 6.10
  TO BE USED TO TEMPORARILY STABILIZE DENUDED AREAS THAT WILL NOT BE BROUGHT TO FINAL GRADE FOR A PERIOD OF MORE THAN 21 CALENDAR DAYS. TEMPORARY SEEDING SHALL BE AS SPECIFIED ON TABLES PROVIDED WITHIN THE NC ESC MANUAL.

  PERMANENT SEEDING - STD. 6.11
  ALL AREAS DISTURBED BY CONSTRUCTION SHALL BE STABILIZED WITH PERMANENT SEEDING/MULCHING IMMEDIATELY FOLLOWING FINISHED GRADING. PERMANENT SEEDING SHALL BE AS SPECIFIED ON TABLES PROVIDED WITHIN THE NC ESC MANUAL.

8. PERMANENT STABILIZATION
THE PARKING LOT AREAS AND DRIVE LANES ARE TO BE STABILIZED WITH CONCRETE PAVING AS SHOWN ON SHEET C2.2. ALL OTHER DISTURBED AREAS, OUTSIDE OF PROPOSED BUILDINGS AND OTHER IMPERVIOUS SURFACES, ARE TO BE SEEDED OR SODDED IN ACCORDANCE WITH THE NORTH CAROLINA EROSION AND SEDIMENT CONTROL MANUAL.

9. STORMWATER MANAGEMENT
SITE STORMWATER QUALITY AND QUANTITY STANDARDS HAVE BEEN MET THROUGH THE MASTERPLAN FOR THE MOYOCK COMMONS DEVELOPMENT. EXISTING SITE DRAINAGE PATTERNS WILL BE MAINTAINED TO THE GREATEST EXTENT POSSIBLE IN THE PROPOSED CONDITIONS. THE SITE WILL CONTINUE TO SHEET FLOW FROM AWAY FROM THE PROPOSED BUILDING PAD NEAR THE CENTER OF THE SITE TO EXISTING SURROUNDING DITCHES. ONE INLET IS PROPOSED AT THE LOADING AREA IN THE REAR TO CONVEY RUNOFF TO AN EXISTING DITCH TO THE SOUTHWEST.

10. CALCULATIONS
CALCULATIONS WILL BE IN ACCORDANCE WITH THE NORTH CAROLINA EROSION AND SEDIMENT CONTROL MANUAL FOR THE PROPOSED EROSION CONTROL MEASURES. SEDIMENT FENCE, CHECK DAMS, AND INLET PROTECTION ARE PROPOSED WITH THIS PROJECT, EACH MEETING THE REQUIREMENTS OUTLINED IN SECTION 6.60.

11. MAINTENANCE
- TREE PROTECTION - STD. 6.05
  PROHIBIT OR MINIMIZE TRENCHING AND OTHER INTENSIVE CONSTRUCTION ACTIVITIES NEAR TREE PROTECTION FENCING. ENSURE FENCING MATERIAL IS IN GOOD CONDITION WITH NO OR MINOR GAPS. MONITOR HEALTH OF TREE DURING CONSTRUCTION ACTIVITIES AND REMOVE PROTECTION FENCING ONLY AFTER THE SITE HAVE BEEN FULLY STABILIZED.

- CONSTRUCTION ENTRANCE - STD. 6.06
  THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOW OF MUD ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE OR THE WASHING AND REWORKING OF EXISTING STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY STRUCTURES USED TO TRAP SEDIMENT. ALL MATERIALS SPILLED, DROPPED, WASHED, OR TRACKED FROM VEHICLES ONTO ROADWAYS OR INTO STORM DRAINS MUST BE REMOVED IMMEDIATELY. THE USE OF WATER TRUCKS TO REMOVE MATERIALS DROPPED, WASHED, OR TRACKED ONTO ROADWAYS WILL NOT BE PERMITTED UNDER ANY CIRCUMSTANCES.

- SILT FENCE - STD 6.62
  1. SILT FENCES SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY REQUIRED REPAIRS SHALL BE MADE IMMEDIATELY.

  2. CLOSE ATTENTION SHALL BE PAID TO THE REPAIR OF DAMAGED SILT FENCE RESULTING FROM END RUNS AND UNDERCUTTING.

  3. SHOULD THE FABRIC ON A SILT FENCE DECOMPOSE OR BECOME INEFFECTIVE PRIOR TO THE END OF THE EXPECTED USABLE LIFE AND THE BARRIER STILL BE NECESSARY, THE FABRIC SHALL BE REPLACED PROMPTLY.

  4. SEDIMENT DEPOSITS SHOULD BE REMOVED AFTER EACH STORM EVENT. SEDIMENT MUST BE REMOVED WHEN DEPOSITS REACH APPROXIMATELY ONE-HALF THE HEIGHT OF THE BARRIER. 5. ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE SILT FENCE IS NO LONGER REQUIRED SHALL BE DRESSED TO CONFORM WITH THE EXISTING GRADE, PREPARED AND SEEDED.

- OUTLET STABILIZATION STRUCTURE - STD. 6.41
  INSPECT RIPRAP OUTLET STRUCTURES WEEKLY AND AFTER SIGNIFICANT (1/2 INCH OR GREATER) RAINFALL EVENTS TO SEE IF ANY EROSION AROUND OR BELOW THE RIPRAP HAS TAKEN PLACE, OR IF STONES HAVE BEEN DISLODGED. IMMEDIATELY MAKE ALL NEEDED REPAIRS TO PREVENT FURTHER DAMAGE.

- BLOCK AND GRAVEL INLET PROTECTION - STD. 6.52
  1. THE STRUCTURE SHALL BE INSPECTED AFTER EACH RAIN AND REPAIRS MADE AS NEEDED.

  2. SEDIMENT SHALL BE REMOVED AND THE TRAP RESTORED TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO ONE HALF THE DESIGN DEPTH OF THE TRAP. REMOVED SEDIMENT SHALL BE DEPOSITED IN A SUITABLE AREA AND IN SUCH A MANNER THAT IT WILL NOT ERODE.

  3. STRUCTURES SHALL BE REMOVED AND THE AREA STABILIZED WHEN THE REMAINING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.

- CHECK DAM - STD. 6.83
  1. INSPECT CHECK DAMS AND CHANNELS AT LEAST WEEKLY AND AFTER EACH SIGNIFICANT (1/2 INCH OR GREATER) RAINFALL EVENT AND REPAIR IMMEDIATELY.

  2. CLEAN OUT SEDIMENT, STRAW, LIMBS, OR OTHER DEBRIS THAT COULD CLOG THE CHANNEL WHEN NEEDED.

  3. REMOVE SEDIMENT ACCUMULATED BEHIND THE DAMS AS NEEDED TO PREVENT DAMAGE TO CHANNEL VEGETATION.

  4. ADD STONES TO DAMS AS NEEDED TO MAINTAIN DESIGN HEIGHT AND CROSS SECTION.

GENERAL EROSION AND SEDIMENT CONTROL NOTES

ES-1 UNLESS OTHERWISE INDICATED, ALL VEGETATION AND STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES WILL BE CONSTRUCTED AND MAINTAINED ACCORDING TO MINIMUM STANDARDS AND SPECIFICATIONS OF THE NORTH CAROLINA EROSION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL AND THE NORTH CAROLINA EROSION AND SEDIMENT CONTROL REGULATIONS.

ES-2 THE PLAN APPROVING AUTHORITY MUST BE NOTIFIED ONE WEEK PRIOR TO THE PRE-CONSTRUCTION CONFERENCE, ONE WEEK PRIOR TO THE COMMENCEMENT OF LAND DISTURBING ACTIVITY, AND ONE WEEK PRIOR TO THE FINAL INSPECTION.

ES-3 ALL EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE PLACED PRIOR TO OR AS THE FIRST STEP IN CLEARING.

ES-4 A COPY OF THE APPROVED EROSION AND SEDIMENT CONTROL PLAN SHALL BE MAINTAINED ON THE SITE AT ALL TIMES.

ES-5 PRIOR TO COMMENCING LAND DISTURBING ACTIVITIES IN AREAS OTHER THAN INDICATED ON THESE PLANS (INCLUDING, BUT NOT LIMITED TO, OFF-SITE BORROW OR WASTE AREAS), THE CONTRACTOR SHALL SUBMIT A SUPPLEMENTARY EROSION CONTROL PLAN TO THE OWNER FOR REVIEW AND APPROVAL BY THE PLAN APPROVING AUTHORITY.

ES-6 THE CONTRACTOR IS RESPONSIBLE FOR INSTALLATION OF ANY ADDITIONAL EROSION CONTROL MEASURES NECESSARY TO PREVENT EROSION AND SEDIMENTATION AS DETERMINED BY THE PLAN APPROVING AUTHORITY.

ES-7 ALL DISTURBED AREAS ARE TO DRAIN TO APPROVED SEDIMENT CONTROL MEASURES AT ALL TIMES DURING LAND DISTURBING ACTIVITIES AND DURING SITE DEVELOPMENT UNTIL FINAL STABILIZATION IS ACHIEVED.

ES-8 DURING DEWATERING OPERATIONS, WATER WILL BE PUMPED INTO AN APPROVED FILTERING DEVICE.

ES-9 THE CONTRACTOR SHALL INSPECT ALL EROSION MEASURES PERIODICALLY AND AFTER EACH RUNOFF-PRODUCING RAINFALL EVENT. ANY NECESSARY REPAIRS OR CLEANUP TO MAINTAIN THE EFFECTIVENESS OF THE EROSION CONTROL DEVICES SHALL BE MADE IMMEDIATELY.

Practice Standards and Specifications

6.05 TREE PROTECTION

Definition Practices to preserve and protect desirable trees from damage during project development.

Purpose To preserve and protect trees that have present or future value for their use in protection from erosion, for their landscape and aesthetic value, or for other environmental benefits.

Figure 6.05a Tree protection zone. A protected zone preserves roots and soil and keeps branches clear of contact with construction equipment and materials.

Conditions Where Practice Applies On development sites containing trees or stands of trees.

Planning Considerations Conserving the right trees can reap rewards for developers, homeowners, and communities. Healthy trees enhance property values and community development by providing shade, wildlife habitat, and beauty. Sickly, stressed trees reduce property values, discourage potential buyers and detract from a community. Post-construction maintenance and removal of trees is difficult and expensive. Replacing trees after construction can also be costly and time consuming.

Rev. 5/08 6.05.1

6

Preserving and protecting trees and other natural plant groups often results in a more stable and aesthetically pleasing development. During site evaluation, note where valuable trees and other natural landscape features should be preserved, then consider these trees and plants when determining the location of roads, buildings, or other structures.

Trees that are near construction zones should be either protected or removed because damage during construction activities may cause the death of the tree at a later time.

Trees should be considered for preservation for the following benefits:

- They stabilize the soil and prevent erosion.
- They reduce stormwater runoff by intercepting rainfall, promote infiltration, and lower the water table through transpiration.
- They moderate temperature changes, promote shade, and reduce the force of wind.
- They provide buffers and screens against noise and visual disturbance, providing a degree of privacy.
- They filter pollutants from the air, remove carbon dioxide from the air, and produce oxygen.
- They provide a habitat for animals and birds.
- **They increase property values and improve site aesthetics.**

Consider the following characteristics when selecting trees to be protected and saved:

Tree vigor—Preserve healthy trees. A tree of low vigor is susceptible to damage by environmental changes that occur during site development. Healthy trees are less susceptible to insects and disease. Indications of poor vigor include dead tips of branches, small annual twig growth, stunted leaf size, sparse foliage, and pale foliage color. Hollow or rotten trees, cracked, split, or leaning trees, or trees with broken tips also have less chance for survival.

Tree age—Old, picturesque trees may be more aesthetically valuable than smaller, younger trees, but they may require more extensive protection.

Tree species—Preserve those species that are most suitable for site conditions and landscape design. Trees that are short-lived or brittle or are susceptible to attack by insects and disease may be poor choices for preservation.

Tree aesthetics—Choose trees that are aesthetically pleasing, shapely, large, or colorful. Avoid trees that are leaning or in danger of falling. Occasionally, an odd-shaped tree or one of unusual form may add interest to the landscape if strategically located. However, be sure the tree is healthy.

Wildlife benefits—Choose trees that are preferred by wildlife for food, cover, or nesting. A mixture of evergreens and hardwoods may be beneficial. Evergreen trees are important for cover during the winter months, whereas hardwoods are more valuable for food.

Construction activities can significantly injure or kill trees unless protective measures are taken. Although direct contact by equipment is an obvious means of damaging trees, most serious damage is caused by root zone stress from compacting, filling, or excavating too close to the tree. Clearly mark boundaries to maintain sufficient undisturbed area around the trees.

6.05.2 Rev. 5/08

Practice Standards and Specifications

Design Criteria **1. Take stock of trees on the site.** Hire a professional arborist or urban forester to inventory existing trees. An inventory records the variety, location, size, and health of each tree. A proper tree inventory creates the foundation for a successful tree protection plan. A professional can identify valuable trees and those that need attention or removal. Identify any stressed trees that need removal. Stressed, unhealthy trees have wilting leaves, dying limbs, thinning crowns or other signs of declining health. Always remove insect-, disease-, or storm-damaged trees prior to construction. This is fast, efficient, and saves resources.

2. Draw a base map. Include all the important site features such as existing vegetation, property lines, utility connections, slopes, and required setback distances before drawing in the proposed building(s):

- Map grading and drainage.
- Identify priority trees for protection. Mark their locations on the base map and sketch in approximate tree protection zones where temporary fences should be located around priority trees.
- Locate the building footprints: the areas where structures and their amenities will affect the landscape. Draw in the driveways, parking areas, and decks.
- Mark trees that need to be removed or pruned to make room for future structures and construction equipment.

3. Prepare a tree protection plan. A tree protection plan designates the valuable trees that must be protected during the construction process. Assemble a team to write a tree protection plan before ground is broken. The team should include the site managers as well as professionals who can provide tree protection advice (Table 1). Do not leave anyone out who should be involved. By working together, the team can identify potential conflicts between construction needs and tree protection, and identify compromise solutions.

Planning takes time, but it pays off during and after construction. Using the base map, the team can plan for tree protection, foresee problems, and solve them. Early planning helps to keep construction on schedule, reduce costs, and avoid conflicts:

- Locate construction activities after considering the priority trees and the development requirements.
- Look for potential conflicts, and explore alternate solutions.
- Consider grading and stormwater drainage. Remember that cutting or filling around roots will weaken and eventually kill valuable trees. Weigh alternatives such as retaining walls to protect priority trees.
- Designate **tree protection zones (TPZs).** The protection plan should specify the location of temporary tree protection fences to protect trees and their root zones during construction. TPZ fences identify "exclusion zones" where construction and equipment use is prohibited. Effective TPZs maintain a radius of at least 1.25 feet of protected area for each inch of trunk diameter (Table 6.05a).

Rev. 5/08 6.05.3

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Table 6.05a Mature Tree Protection Zone Guidelines

Trunk Diameter	Good Protection	Better Protection	Best Protection
8 inches	10 feet	12 feet	20 feet
12 inches	15 feet	18 feet	30 feet
16 inches	20 feet	24 feet	40 feet
20 inches	25 feet	30 feet	50 feet

(Mature Tree Protection Zone Radius)

- Identify techniques that will protect valuable trees. A tree professional can develop a schedule of tree maintenance activities, including watering, mulching, and fertilization. Stay committed to this plan throughout the project.

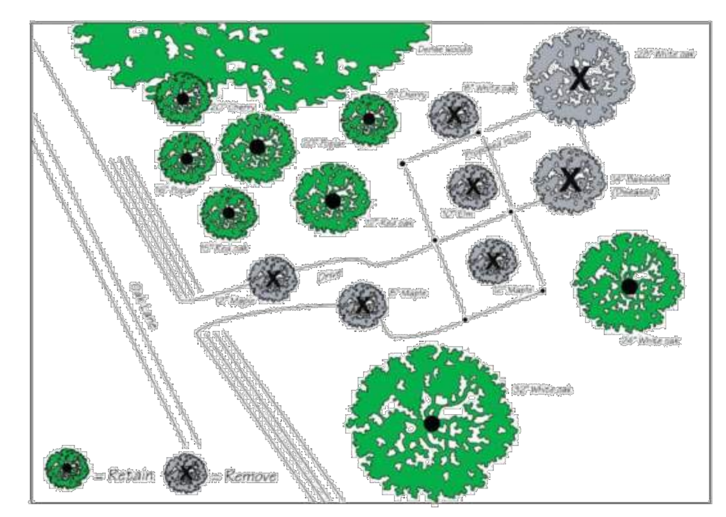

Figure 6.05b Simple tree protection plan. A plan identifies the size and species of existing trees, designates trees that must be protected, and marks trees to be removed. It also indicates planned structures, vehicle access, and excavation areas.

6.05.4 Rev. 5/08

Practice Standards and Specifications

Design Criteria The following general criteria should be considered when developing sites in wooded areas:

- Leave critical areas (such as flood plains, steep slopes and wetlands) with desirable trees in their natural condition or only partially cleared.
- Locate roadways, storage areas, and parking pads away from valuable tree stands. Follow natural contours, where feasible, to minimize cutting and filling in the vicinity of trees.
- Select trees to be preserved before siting roads, buildings, or other structures.
- Minimize trenching in areas with trees. Place several utilities in the same trench.
- Designate groups of trees and individual trees to be saved on the erosion and sedimentation control plan.
- **Do not excavate, traverse, or fill closer than the drip line, or perimeter of the canopy, of trees to be saved.**

Construction Specifications **1. Erect TPZ fences.** Restrict access to TPZs, with tall, bright, protective fencing. Most fencing is inexpensive and durable enough to last throughout most construction projects. Temporary tree protection fencing should be erected before clearing, deliveries and other construction activities begin on the site.

2. Prohibit or restrict access to TPZs. All on-site workers should be aware of the TPZs and the restrictions on activities within the zones. Use these TPZ guidelines for the best effect:

- Post "keep out" signs on all sides of fencing. Do not store construction equipment or materials in TPZs.
- Prohibit construction activities near the most valuable trees, and restrict activities around others.
- Assess crew and contractor penalties, if necessary, to keep the TPZs intact.

3. Monitor trees. Vigilance is required to protect trees on construction sites. Use a tree professional or train your staff to monitor tree health during and after construction on a regular, frequent basis. Watch for signs of tree stress, such as dieback, leaf loss, or general decline in tree health or appearance.

4. Monitor TPZ fences. Assign a crewmember the weekly responsibility of checking the integrity of TPZ fences. Repair and replace TPZ fencing as needed.

5. Optimize tree health. Assign a trained crewmember or hire a professional to complete regular tree maintenance tasks, including watering, fertilization, and mulching to protect tree roots. Consult a tree professional for advice on these practices if needed. Survival of protected trees will increase if these practices continue during construction. Healthy trees require undisturbed healthy soils. Do not cause injuries to trees and roots. Do not change the soil, grade, drainage, or aeration without protecting priority trees

Rev. 5/08 6.05.5

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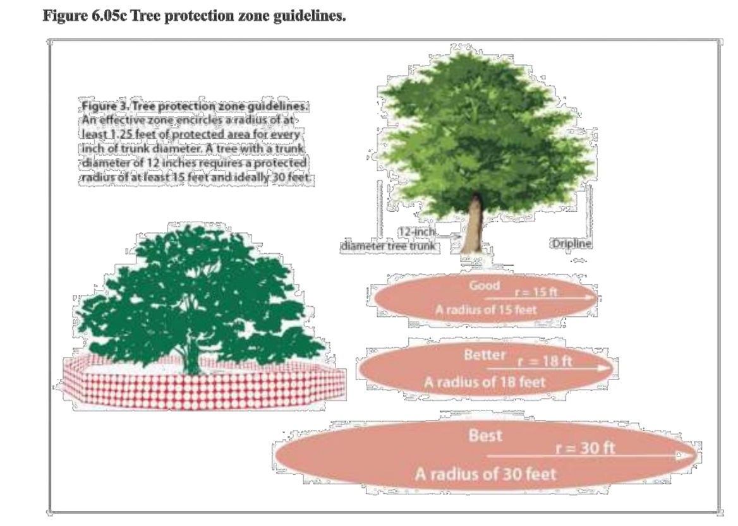
Figure 6.05c Tree protection zone guidelines.



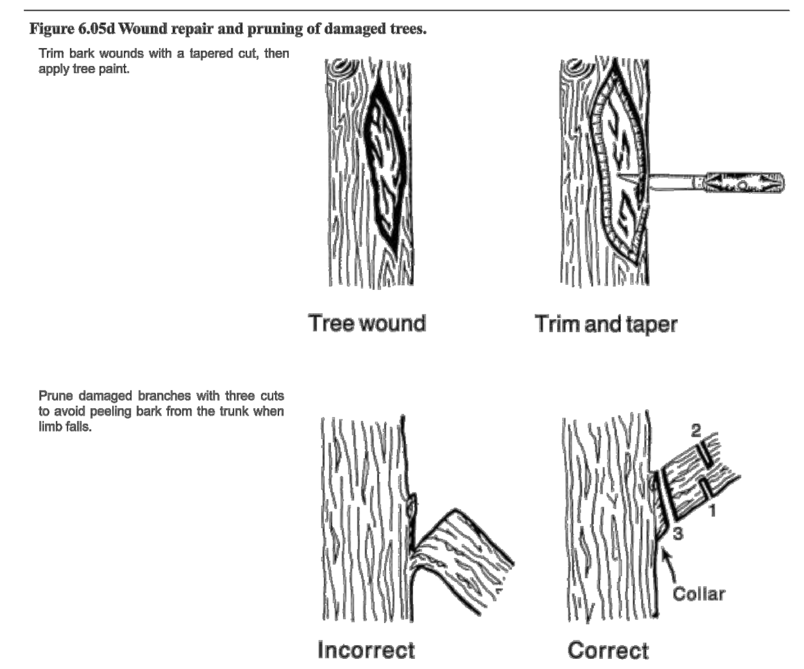
Maintenance **Continue to care for the site until the new owner takes possession.** Take these steps after all materials and equipment have been removed from the site:

- Remove tree protection zone fences.
- Prune any damaged trees. In spite of precautions, some damage to protected trees may occur. In such cases, repair any damage to the crown, trunk, or root system immediately.
  - Repair roots by cutting off the damaged areas and painting them with tree paint. Spread peat moss or moist topsoil over exposed roots.
  - Repair damage to bark by trimming around the damaged area as shown in Figure 6.05d, taper the cut to provide drainage, and paint with tree paint.
  - Cut off all damaged tree limbs above the tree collar at the trunk or main branch. Use three separate cuts as shown in Figure 6.05d to avoid peeling bark from healthy areas of the tree.
- Continue maintenance care. Pay special attention to any stressed, diseased, or insect-infested trees. Reduce tree stress caused by unintended construction damage by optimizing plant care with water, mulch, and fertilizer where appropriate. Consult your tree expert if needed.
- Inform the property owner about the measures employed during construction, why those measures were taken, and how the effort can be continued.

6.05.6 Rev. 5/08

Practice Standards and Specifications

Figure 6.05d Wound repair and pruning of damaged trees.



References
Construction and Tree Protection, AG-685 (Revised) North Carolina Cooperative Extension Service

Rev. 5/08 6.05.7

Practice Standards and Specifications

6.06 TEMPORARY GRAVEL CONSTRUCTION ENTRANCE/EXIT

Definition A graveled area or pad located at points where vehicles enter and leave a construction site.

Purpose To provide a buffer area where vehicles can drop their mud and sediment to avoid transporting it onto public roads, to control erosion from surface runoff, and to help control dust.

Conditions Where Practice Applies Wherever traffic will be leaving a construction site and moving directly onto a public road or other paved off-site area. Construction plans should limit traffic to properly constructed entrances.

Design Criteria **Aggregate Size**—Use 2-3 inch washed stone.

Dimensions of gravel pad—
Thickness: 6 inches minimum
Width: 12-feet minimum or full width at all points of the vehicular entrance and exit area, whichever is greater
Length: 50-feet minimum

Location—Locate construction entrances and exits to limit sediment from leaving the site and to provide for maximum utility by all construction vehicles (Figure 6.06a). Avoid steep grades, and entrances at curves in public roads.

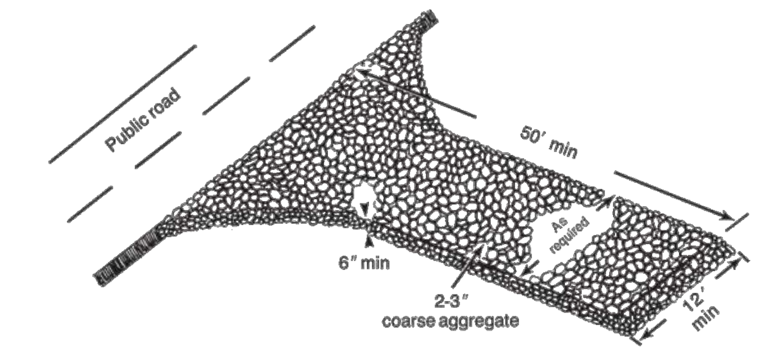


Figure 6.06a Gravel entrance/exit keeps sediment from leaving the construction site (modified from Va SWCC).

6.06.1

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Washing—If conditions at the site are such that most of the mud and sediment are not removed by vehicles traveling over the gravel, the tires should be washed. Washing should be done on an area stabilized with crushed stone that drains into a sediment trap or other suitable disposal area. A wash rack may also be used to make washing more convenient and effective.

Construction Specifications
1. Clear the entrance and exit area of all vegetation, roots, and other objectionable material and properly grade it.
2. Place the gravel to the specific grade and dimensions shown on the plans, and smooth it.
3. Provide drainage to carry water to a sediment trap or other suitable outlet.
4. Use geotextile fabrics because they improve stability of the foundation in locations subject to seepage or high water table.

Maintenance Maintain the gravel pad in a condition to prevent mud or sediment from leaving the construction site. This may require periodic topdressing with 2-inch stone. After each rainfall, inspect any structure used to trap sediment and clean it out as necessary. Immediately remove all objectionable materials spilled, washed, or tracked onto public roadways.

References *Runoff Conveyance Measures*
6.30, Grass-lined Channels

Sediment Traps and Barriers
6.60, Temporary Sediment Trap

6.06.2

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NORTH CAROLINA PROFESSIONAL SEAL 040412 ENGINEER MARK E. WILLIAMS

REVISIONS		
NO.	DATE	DESCRIPTION
		POST APPROVAL

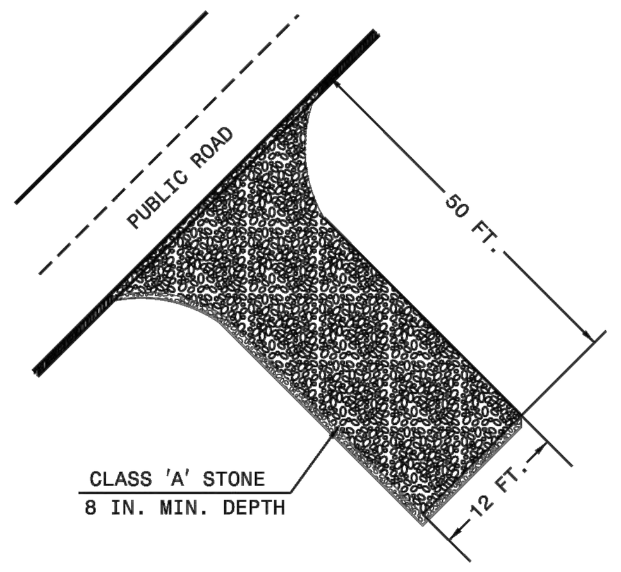
DESIGNED | DRAWN | CHECKED

BOB'S GUN SHOP
TOWN OF MOYOCK CURRITUCK COUNTY, NORTH CAROLINA

E&S NOTES & DETAILS

SCALE: SCALE
DATE: MARCH 28, 2023
PROJECT: B7011.02

C5.3



NOTES

1. PROVIDE TURNING RADIUS SUFFICIENT TO ACCOMMODATE LARGE TRUCKS.
2. LOCATE ENTRANCES TO PROVIDE FOR UTILIZATION BY ALL CONSTRUCTION VEHICLES.
3. MUST BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR DIRECT FLOW OF MUD ONTO STREETS. PERIODIC TOPDRESSING WITH STONE WILL BE NECESSARY.
4. ANY MATERIAL TRACKED ONTO THE ROADWAY MUST BE CLEANED UP IMMEDIATELY.
5. LOCATE GRAVEL CONSTRUCTION ENTRANCE AT ALL POINTS OF INGRESS AND EGRESS UNTIL SITE IS STABILIZED. PROVIDE FREQUENT CHECKS OF THE DEVICE AND TIMELY MAINTENANCE.
6. NUMBER AND LOCATION OF CONSTRUCTION ENTRANCES TO BE DETERMINED BY THE ENGINEER.
7. USE CLASS 'A' STONE OR OTHER COARSE AGGREGATE APPROVED BY THE ENGINEER.
8. INSTALL CONSTRUCTION ENTRANCES IN A WAY TO PREVENT VEHICLES FROM BYPASSING CONSTRUCTION ENTRANCE LEAVING PROJECT SITE.

NOTE: PLACE GEOTEXTILE FOR DRAINAGE BENEATH STONE

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

1-18

ROADWAY STANDARD DRAWING FOR
GRAVEL CONSTRUCTION ENTRANCE

SHEET 1 OF 1
1607.01

Practice Standards and Specifications

6.41

OUTLET STABILIZATION STRUCTURE

Definition A structure designed to control erosion at the outlet of a channel or conduit.

Purpose To prevent erosion at the outlet of a channel or conduit by reducing the velocity of flow and dissipating energy.

Conditions Where Practice Applies This practice applies where the discharge velocity of a pipe, box culvert, diversion, open channel, or other water conveyance structure exceeds the permissible velocity of the receiving channel or disposal area.

Planning Considerations The outlets of channels, conduits, and other structures are points of high erosion potential because they frequently carry flows at velocities that exceed the allowable limit for the area downstream. To prevent scour and undermining, an outlet stabilization structure is needed to absorb the impact of the flow and reduce the velocity to non-erosive levels. A riprap-lined apron is the most commonly used practice for this purpose because of its relatively low cost and ease of installation. The riprap apron should be extended downstream until stable conditions are reached even though this may exceed the length calculated for design velocity control.

Riprap-stilling basins or plunge pools reduce flow velocity rapidly. They should be considered in lieu of aprons where pipe outlets are cantilevered or where high flows would require excessive apron length (Figure 6.41a). Consider other energy dissipaters such as concrete impact basins or paved outlet structures where site conditions warrant.

Alternative methods of energy dissipation can be found in Hydraulic Design of Energy Dissipaters for Culverts and Channels, Hydraulic Engineering Circular No. 14, U.S. Department of Transportation, Federal Highway Administration.

The installation of a culvert in a stream is subject to the conditions of a U.S. Army Corps of Engineers 404 Permit and a N.C. Division of Water Quality 401 Certification. These permit conditions may not allow the use of a riprap apron, and may require that the bottom of the culvert be buried below the natural stream bed elevation. A pre-formed scour pool or plunge pool should be considered in these situations. Plunge pool designs in streams should not use a cantilevered outlet because it would pose a barrier to migration of aquatic life through the culvert. Reducing the outlet velocity may require a combination of techniques, including a culvert with a flat bottom, a downstream cross vane to create tail-water at the pipe outlet, and/or a preformed scour pool.

Design Criteria **Capacity**—10-year, peak runoff or the design discharge of the water conveyance structure, whichever is greater.

Rev. 6/06 6.41.1

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Tail-water depth—Determine the tail-water depth immediately below the culvert or pipe outlet based on the design discharge. The ratio of tail-water depth to pipe diameter must be determined in order to select the appropriate riprap apron or plunge pool design method.

Plunge Pools—Two plunge pool methods are presented in Appendix 8.06, the USDA Plunge Pool Design at Submerged Pipe Spillway Outlets, and the USDA Riprap Lined Plunge Pool for Cantilevered Outlet. Software from the Federal Highway Administration can be downloaded at http://www.fhwa.dot.gov/engineering/hydraulics/software.cfm. Excel spreadsheets for the USDA methods are available through the Land Quality web-site at http://www.dlr.enr.state.nc.us/pages/links.htm.

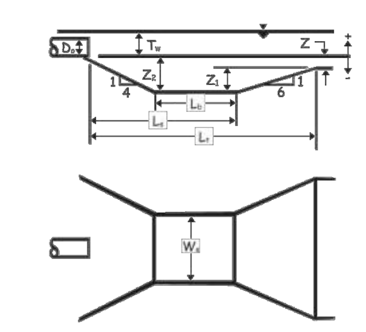


Figure 6.41a Typical plunge pool design showing variable dimensions.

Riprap Aprons size—The apron length and width can be determined according to the tail-water condition. If the water conveyance structure discharges directly into a well-defined channel, extend the apron across the channel bottom and up the channel banks to an elevation of 0.5 foot above the maximum tail-water depth or to the top of the bank, whichever is less (Figure 6.41c).

Determine the maximum allowable velocity for the receiving stream, and design the riprap apron to reduce flow to this velocity before flow leaves the apron. Calculate the apron length for velocity control or use the length required to meet stable conditions downstream, whichever is greater.

Grade—Ensure that the apron has zero grade. There should be no overfall at the end of the apron; that is, the elevation of the top of the riprap at the downstream end should be the same as the elevation of the bottom of the receiving channel or the adjacent ground if there is no channel.

Alignment—The apron should be straight throughout its entire length, but if a curve is necessary to align the apron with the receiving stream, locate the curve in the upstream section of riprap.

6.41.2 Rev. 6/07

Practice Standards and Specifications

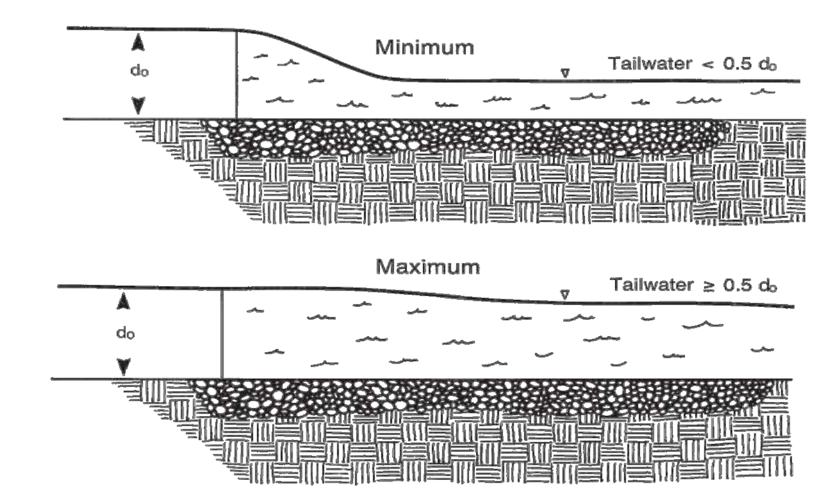


Figure 6.41b Stage showing maximum and minimum tailwater condition.

Materials—Ensure that riprap consists of a well-graded mixture of stone. Larger stone should predominate, with sufficient smaller sizes to fill the voids between the stones. The diameter of the largest stone size should be no greater than 1.5 times the d_{50} size.

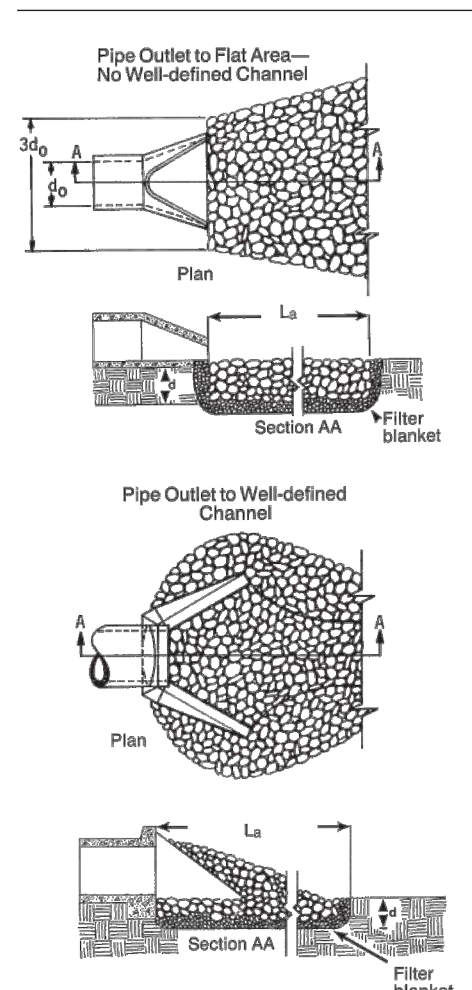
Thickness—Make the minimum thickness of riprap 1.5 times the maximum stone diameter.

Stone quality—Select stone for riprap from field stone or quarry stone. The stone should be hard, angular, and highly weather-resistant. The specific gravity of the individual stones should be at least 2.5.

Filter—Install a filter to prevent soil movement through the openings in the riprap. The filter should consist of a graded gravel layer or a synthetic filter cloth. Design filter blankets by the method described in Practice 6.15, *Riprap*.

Rev. 6/06 6.41.3

6



Notes

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

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

6.41.4 Rev. 6/06

Practice Standards and Specifications

Construction Specifications

1. Ensure that the subgrade for the filter and riprap follows the required lines and grades shown in the plan. Compact any fill required in the subgrade to the density of the surrounding undisturbed material. Low areas in the subgrade on undisturbed soil may also be filled by increasing the riprap thickness.

2. The riprap and gravel filter must conform to the specified grading limits shown on the plans.

3. Filter cloth, when used, must meet design requirements and be properly protected from punching or tearing during installation. Repair any damage by removing the riprap and placing another piece of filter cloth over the damaged area. All connecting joints should overlap so the top layer is above the downstream layer a minimum of 1 foot. If the damage is extensive, replace the entire filter cloth.

4. Riprap may be placed by equipment, but take care to avoid damaging the filter.

5. The minimum thickness of the riprap should be 1.5 times the maximum stone diameter.

6. Riprap may be field stone or rough quarry stone. It should be hard, angular, highly weather-resistant and well graded.

7. Construct the apron on zero grade with no overfill at the end. Make the top of the riprap at the downstream end level with the receiving area or slightly below it.

8. Ensure that the apron is properly aligned with the receiving stream and preferably straight throughout its length. If a curve is needed to fit site conditions, place it in the upper section of the apron.

9. Immediately after construction, stabilize all disturbed areas with vegetation (Practices 6.10, *Temporary Seeding*, and 6.11, *Permanent Seeding*).

Maintenance Inspect riprap outlet structures weekly and after significant (1/2 inch or greater) rainfall events to see if any erosion around or below the riprap has taken place, or if stones have been dislodged. Immediately make all needed repairs to prevent further damage.

References

Surface Stabilization
6.10, Temporary Seeding
6.11, Permanent Seeding
6.15, Riprap

Appendix
8.06, Design of Riprap Outlet Protection

Rice, C.E., Kadavy, K.C "Riprap Design for Pipe Spillways at -1 ≤ TW/D ≤ 0.7" Presented at the December 13, 1994 International Winter Meeting, American Society of Agricultural Engineers, Paper Number 942541.

Rice, C.E. and K.C. Kadavy. 1994, Plunge Pool Design at Submerged Pipe Spillway Outlets. Transactions of the ASAE 37(4):1167-1173.

FHWA. 1983. Hydralic Design of Energy Dissipaters for Culverts and Channels. Hydraulic Engineering Circular Number 14.

Rev. 6/06 6.41.5

Practice Standards and Specifications

6.52

BLOCK AND GRAVEL INLET PROTECTION (Temporary)

Definition A sediment control barrier formed around a storm drain inlet by the use of standard concrete block and gravel.

Purpose To help prevent sediment from entering storm drains before stabilizing the contributing watershed. This practice allows early use of the storm drain system.

Conditions Where Practice Applies Where storm drain inlets are to be made operational before permanent stabilization of the disturbed drainage area. This method of inlet protection applies to both drop inlets and curb inlets where heavy flows are expected, and an overflow capacity is necessary to prevent excessive ponding around the structure. Shallow temporary flooding after rainfall should be expected, however.

This practice must not be used near the edge of fill material, and must not divert water away from the storm drain.

Design Criteria Keep the drainage area no greater than 1 acre unless site conditions allow for frequent removal and adequate disposal of accumulated sediment.

Keep the height of the barrier at least 12 inches and no greater than 24 inches. Do not use mortar. Limit the height to prevent excess ponding and bypass flow.

Recess the first course of blocks at least 2 inches below the crest opening of the storm drain for lateral support. Support subsequent courses laterally if needed by placing a 2 x 4-inch wood stud through the block openings that are perpendicular to the block course needing support. Lay some blocks on their side in the bottom row for dewatering the pool (Figure 6.52a).

Place gravel just below the top of the blocks on slopes of 2:1 or flatter. Place hardware cloth or comparable wire mesh with 1/2-inch openings over all block openings to hold gravel in place.

The top elevation of the structure must be at least 6 inches lower than the ground elevation downslope from the inlet. It is important that all storm flows pass over the structure and into the storm drain and not past the structure. Temporary diking below the structure may be necessary to prevent bypass flow. Material may be excavated from inside the sediment pool for this purpose.

6.52.1

6

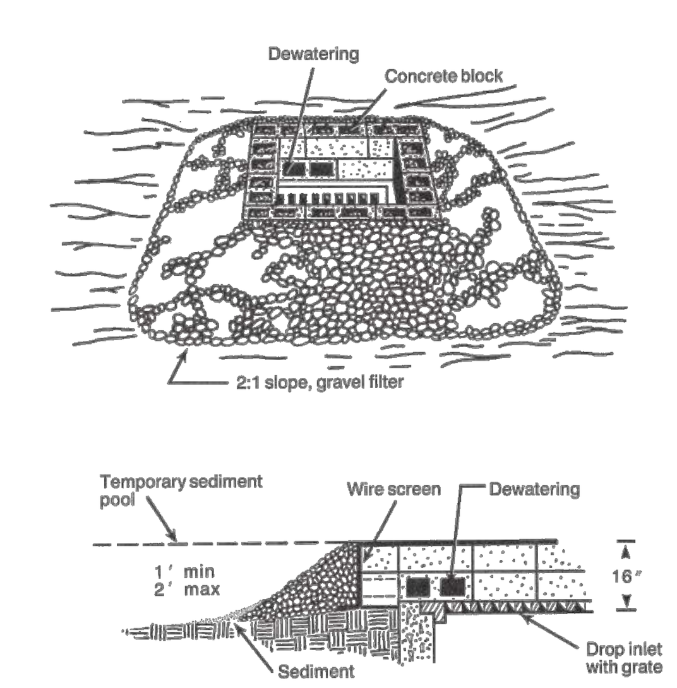


Figure 6.52a Block and gravel drop inlet protection.

Construction Specifications

1. Lay one block on each side of the structure on its side in the bottom row to allow pool drainage. The foundation should be excavated at least 2 inches below the crest of the storm drain. Place the bottom row of blocks against the edge of the storm drain for lateral support and to avoid washouts when overflow occurs. If needed, give lateral support to subsequent rows by placing 2 x 4 wood studs through block openings.

2. Carefully fit hardware cloth or comparable wire mesh with ½-inch openings over all block openings to hold gravel in place.

3. Use clean gravel, ¾- to ½-inch in diameter, placed 2 inches below the top of the block on a 2:1 slope or flatter and smooth it to an even grade. DOT #57 washed stone is recommended.

6.52.2

Practice Standards and Specifications

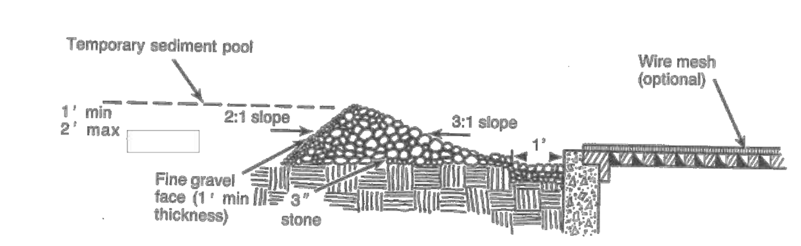


Figure 6.52b Gravel drop inlet protection (gravel donut).

4. If only stone and gravel are used, keep the slope toward the inlet no steeper than 3:1. Leave a minimum 1-foot wide level stone area between the structure and around the inlet to prevent gravel from entering inlet. On the slope toward the inlet, use stone 3 inches in diameter or larger. On the slope away from the inlet use ½ - ¾-inch gravel (NCDOT #57 washed stone) at a minimum thickness of 1 foot.

Maintenance Inspect the barrier at least weekly and after each significant (½ inch or greater) rainfall and make repairs as needed.

Remove sediment as necessary to provide adequate storage volume for subsequent rains.

When the contributing drainage area has been adequately stabilized, remove all materials and any unstable soil, and either salvage or dispose of it properly. Bring the disturbed area to proper grade, then smooth and compact it. Appropriately stabilize all bare areas around the inlet.

References

Inlet Protection
6.50, Excavated Drop Inlet Protection (Temporary)
6.51, Hardware Cloth, and Gravel Inlet Protection (Temporary)

North Carolina Department of Transportation
Standard Specifications for Roads and Structures

Rev. 6/06 6.52.3

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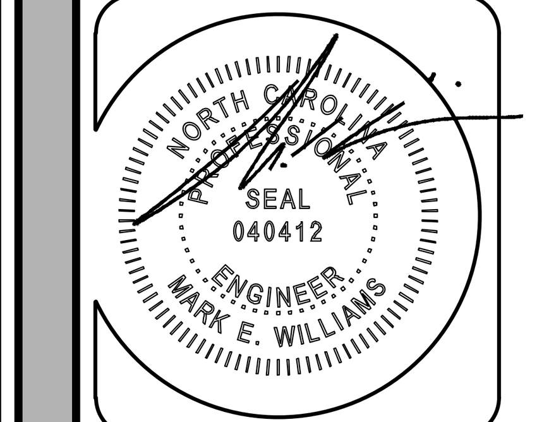


REVISIONS

NO.	DATE	DESCRIPTION
		POST APPROVAL

DESIGNED | DRAWN | CHECKED

BOB'S GUN SHOP

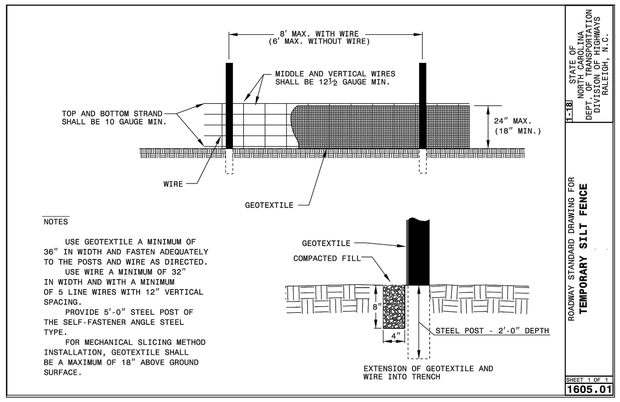
CURRITUCK COUNTY, NORTH CAROLINA

TOWN OF MOYOCK

E&S NOTES & DETAILS

SCALE: SCALE
DATE: MARCH 28, 2023
PROJECT: B7011.02

C5.4



NOTES

USE GEOTEXTILE A MINIMUM OF 36" IN WIDTH AND FASTEN ADEQUATELY TO THE POSTS AND WIRE AS DIRECTED.

USE WIRE A MINIMUM OF 32" IN WIDTH AND WITH A MINIMUM OF 5 LINE WIRES WITH 12" VERTICAL SPACING.

PROVIDE 5'-0" STEEL POST OF THE SELF-FASTENER ANGLE STEEL TYPE.

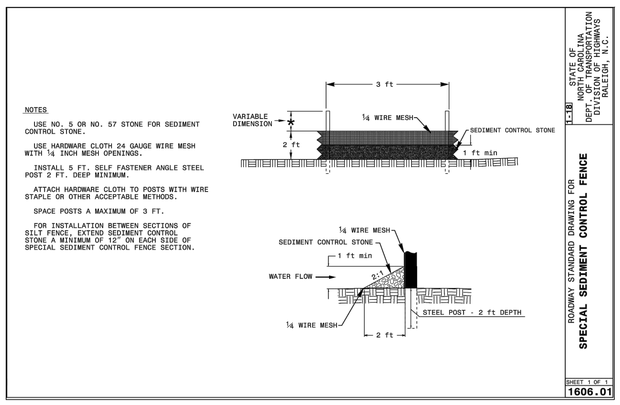
FOR MECHANICAL SLICING METHOD INSTALLATION, GEOTEXTILE SHALL BE A MAXIMUM OF 18" ABOVE GROUND SURFACE.

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

1:30

ROADWAY STANDARD DRAWING FOR
TEMPORARY SILT FENCE

SHEET 1 OF 1
1605.01



NOTES

USE NO. 5 OR NO. 57 STONE FOR SEDIMENT CONTROL STONE.

USE HARDWARE CLOTH 24 GAUGE WIRE MESH WITH ¼ INCH MESH OPENINGS.

INSTALL 5 FT. SELF FASTENER ANGLE STEEL POST 2 FT. DEEP MINIMUM.

ATTACH HARDWARE CLOTH TO POSTS WITH WIRE STAPLE OR OTHER ACCEPTABLE METHODS.

SPACE POSTS A MAXIMUM OF 3 FT.

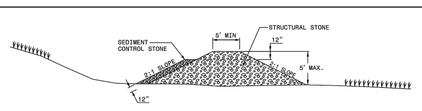
FOR INSTALLATION BETWEEN SECTIONS OF SILT FENCE, EXTEND SEDIMENT CONTROL STONE A MINIMUM OF 12" ON EACH SIDE OF SPECIAL SEDIMENT CONTROL FENCE SECTION.

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

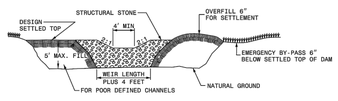
1:30

ROADWAY STANDARD DRAWING FOR
SPECIAL SEDIMENT CONTROL FENCE

SHEET 1 OF 1
1606.01



PROFILE SECTION



CROSS SECTION

NOTES

USE CLASS B EROSION CONTROL STONE FOR STRUCTURAL STONE.
USE NO. 5 OR NO. 57 STONE FOR SEDIMENT CONTROL STONE.
DIKE MAY EXTEND ALONG MORE THAN ONE SIDE OF THE TRAP AREA. PROVIDE A TOTAL SEDIMENT STORAGE VOLUME OF 3600± CUBIC FEET PER ACRE OF DISTURBED AREA. SOME OF THE REQUIRED VOLUME MAY BE PROVIDED BY OTHER UP OR DOWNSTREAM CONTROLS.
AN UNDERLAY OF STRUCTURAL STONE WITH FILTRATION GEOTEXTILE MAY BE REQUIRED AS DIRECTED.
INSTALL COIR FIBER BAFFLES ON THE UPSTREAM SIDE OF THE DAM IN ACCORDANCE WITH STANDARD DRAWING NO. 1640.01.
SEED AND PLACE MATTING FOR EROSION CONTROL ON ALL INTERIOR AND EXTERIOR SLOPES OF SEDIMENT BASIN AS DIRECTED.

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

1:30

ROADWAY STANDARD DRAWING FOR
TEMPORARY ROCK SEDIMENT DAM TYPE B

SHEET 1 OF 1
1634.02

Practice Standards and Specifications

6.62

SEDIMENT FENCE

Definition A temporary sediment control measure consisting of fabric buried at the bottom, stretched, and supported by posts.

Purpose To retain sediment from small disturbed areas by reducing the velocity of sheet flows to allow sediment deposition.

Conditions Where Practice Applies Below small-disturbed areas that are less than ¼ acre per 100 feet of fence.

Where runoff can be stored behind the sediment fence without damaging the fence or the submerged area behind the fence.

Do not install sediment fences across streams, ditches, or waterways, or other areas of concentrated flow.

Sediment fence should be placed along topographic elevation contours, where it can intercept stormwater runoff that is in dispersed sheet flow. Sediment fence should not be used alone below graded slopes greater than 10 feet in height.

Planning Considerations A sediment fence is a system to retain sediment on the construction site. The fence retains sediment primarily by retarding flow and promoting deposition. In operation, generally the fence becomes clogged with fine particles, which reduce the flow rate. This causes a pond to develop behind the fence. The designer should anticipate ponding and provide sufficient storage areas and overflow outlets to prevent flows from overtopping the fence. Since sediment fences are not designed to withstand high water levels, locate them so that only shallow pools can form. Tie the ends of a sediment fence into higher ground to prevent flow around the end of the fence before the pool reaches design level. Curling each end of the fence uphill in a "J" pattern may be appropriate to prevent end flow. Provide stabilized outlets to protect the fence system and release storm flows that exceed the design storm.

Deposition occurs as the storage pool forms behind the fence. The designer can direct flows to specified deposition areas through appropriate positioning of the fence or by providing an excavated area behind the fence. Plan deposition areas at accessible points to promote routine cleanout and maintenance. Show deposition areas in the erosion and sedimentation control plan. A sediment fence acts as a diversion if placed slightly off the contour. A maximum slope of 2 percent is recommended. This technique may be used to control shallow, uniform flows from small disturbed areas and to deliver sediment-laden water to deposition areas. The anchoring of the toe of the fence should be reinforced with 12 inches of NC DOT #5 or #57 washed stone when flow will run parallel to the toe of the fence.

Sediment fences serve no function along ridges or near drainage divides where there is little movement of water. Confining or diverting runoff unsuccessfully with a sediment fence may create erosion and sedimentation problems that would not otherwise occur.

Straw barriers have only a 0-20% trapping efficiency and are inadequate. Straw bales may not be used in place of sediment fence. Prefabricated sediment fence with the fabric already stapled to thin wooden posts does not meet minimum standards specified later in this section.

Anchoring of sediment fence is critical. The toe of the fabric must be anchored in a trench backfilled with compacted earth. Mechanical compaction must be provided in order for the fence to effectively pond runoff.

Design Criteria Ensure that drainage area is no greater than ¼ acre per 100 feet of fence. This is the maximum drainage area when the slope is less than 2 percent. Where all runoff is to be stored behind the fence, ensure that the maximum slope length behind a sediment fence does not exceed the specifications shown in Table 6.62a. The shorter slope length allowed for steeper slopes will greatly reduce the maximum drainage area. For example, a 10–20 % slope may have a maximum slope length of 25 feet. For a 100-foot length of sediment fence, the drainage area would be 25ft X 100ft = 2500sq.ft., or 0.06 acres.

Table 6.62a Maximum Slope Length and Slope for which Sediment Fence is Applicable

Slope	Slope Length (ft)	Maximum Area (ft²)
<2%	100	10,000
2 to 5%	75	7,500
5 to 10%	50	5,000
10 to 20%	25	2,500
>20%	15	1,500

Make the fence stable for the 10-year peak storm runoff.

Ensure that the depth of impounded water does not exceed 1.5 feet at any point along the fence.

If non-erosive outlets are provided, slope length may be increased beyond that shown in Table 6.62a, but runoff from the area should be determined and bypass capacity and erosion potential along the fence must be checked. The velocity of the flow at the outlet or along the fence should be in keeping with Table 8.05d, Appendix 8.05.

Provide a riprap splash pad or other outlet protection device for any point where flow may overtop the sediment fence, such as natural depressions or swales. Ensure that the maximum height of the fence at a protected, reinforced outlet does not exceed 2 feet and that support post spacing does not exceed 4 feet.

The design life of a synthetic sediment fence should be 6 months.

Construction Specifications

MATERIALS

1. Use a synthetic filter fabric of at least 95% by weight of polyolefins or polyester, which is certified by the manufacturer or supplier as conforming to the requirements in ASTM D 6461, which is shown in part in Table 6.62b.

Synthetic filter fabric should contain ultraviolet ray inhibitors and stabilizers to provide a minimum of 6 months of expected usable construction life at a temperature range of 0 to 120° F.

Practice Standards and Specifications

2. Ensure that posts for sediment fences are 1.25 lb/linear ft minimum steel with a minimum length of 5 feet. Make sure that steel posts have projections to facilitate fastening the fabric.

3. For reinforcement of standard strength filter fabric, use wire fence with a minimum 14 gauge and a maximum mesh spacing of 6 inches.

Table 6.62b Specifications For Sediment Fence Fabric

Temporary Silt Fence Material Property Requirements					
	Test Material	Units	Supported[1] Silt Fence	Un-Supported[1] Silt Fence	Type of Value
Grab Strength	ASTM D 4632	N (lbs)	400	550	MARV
Machine Direction			(90)	(90)	
X-Machine Direction			400	450	MARV
			(90)	(90)	
Permittivity[2]	ASTM D 4491	sec-1	0.05	0.05	MARV
Apparent Opening Size[2]	ASTM D 4751	mm	0.60	0.60	Max. ARV[3]
		(US Sieve #)	(30)	(30)	
Ultraviolet Stability	ASTM D 4355	% Retained Strength	70% after 500h of exposure	70% after 500h of exposure	Typical

[1] Silt Fence support shall consist of 14 gage steel wire with a mesh spacing of 150 mm (6 inches), or prefabricated polymer mesh of equivalent strength.
[2] These default values are based on empirical evidence with a variety of sediment. For environmentally sensitive areas, a review of previous experience and/or site or regionally specific geotextile tests in accordance with Test Method D 5141 should be performed by the agency to confirm suitability of these requirements.
[3] As measured in accordance with Test Method D 4632.

CONSTRUCTION

1. Construct the sediment barrier of standard strength or extra strength synthetic filter fabrics.

2. Ensure that the height of the sediment fence does not exceed 24 inches above the ground surface. (Higher fences may impound volumes of water sufficient to cause failure of the structure.)

3. Construct the filter fabric from a continuous roll cut to the length of the barrier to avoid joints. When joints are necessary, securely fasten the filter cloth only at a support post with 4 feet minimum overlap to the next post.

4. Support standard strength filter fabric by wire mesh fastened securely to the **upslope** side of the posts. Extend the wire mesh support to the bottom of the trench. Fasten the wire reinforcement, then fabric on the upslope side of the fence post. Wire or plastic zip ties should have minimum 50 pound tensile strength.

5. When a wire mesh support fence is used, space posts a maximum of 8 feet apart. Support posts should be driven securely into the ground a minimum of 24 inches.

6. Extra strength filter fabric with 6 feet post spacing does not require wire mesh support fence. Securely fasten the filter fabric directly to posts. Wire or plastic zip ties should have minimum 50 pound tensile strength.

Installation Specifications

7. Excavate a trench approximately 4 inches wide and 8 inches deep along the proposed line of posts and upslope from the barrier (Figure 6.62a).

8. Place 12 inches of the fabric along the bottom and side of the trench.

9. Backfill the trench with soil placed over the filter fabric and compact. Thorough compaction of the backfill is critical to silt fence performance.

10. Do not attach filter fabric to existing trees.

SEDIMENT FENCE INSTALLATION USING THE SLICING METHOD

Instead of excavating a trench, placing fabric and then backfilling trench, sediment fence may be installed using specially designed equipment that inserts the fabric into a cut sliced in the ground with a disc (Figure 6.62b).

1. The base of both end posts should be at least one foot higher than the middle of the fence. Check with a level if necessary.

2. Install posts 4 feet apart in critical areas and 6 feet apart on standard applications.

3. Install posts 2 feet deep on the downstream side of the silt fence, and as close as possible to the fabric, enabling posts to support the fabric from upstream water pressure.

4. Install posts with the nipples facing away from the silt fabric.

5. Attach the fabric to each post with three ties, all spaced within the top 8 inches of the fabric. Attach each tie diagonally 45 degrees through the fabric, with each puncture at least 1 inch vertically apart. Also, each tie should be positioned to hang on a post nipple when tightened to prevent sagging.

6. Wrap approximately 6 inches of fabric around the end posts and secure with 3 ties.

7. No more than 24 inches of a 36 inch fabric is allowed above ground level.

8. The installation should be checked and corrected for any deviations before compaction.

9. Compaction is vitally important for effective results. Compact the soil immediately next to the silt fence fabric with the front wheel of the tractor, skid steer, or roller exerting at least 60 pounds per square inch. Compact the upstream side first, and then each side twice for a total of 4 trips.

Practice Standards and Specifications

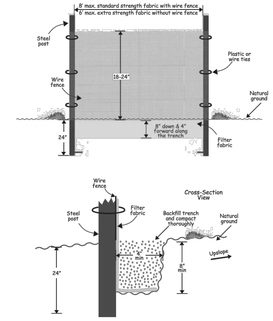
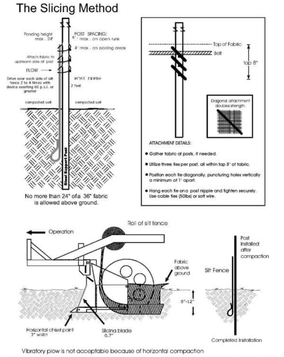
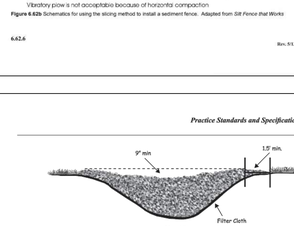


Figure 6.62a Installation detail of a sediment fence.

The Slicing Method





Vibratory plow is not acceptable because of horizontal compaction.

Figure 6.62b Schematics for using the slicing method to install a sediment fence. *Adapted from Silt Fence that Works*

Practice Standards and Specifications

Maintenance Inspect sediment fences at least once a week and after each rainfall. Make any required repairs immediately.

Should the fabric of a sediment fence collapse, tear, decompose or become ineffective, replace it promptly.

Remove sediment deposits as necessary to provide adequate storage volume for the next rain and to reduce pressure on the fence. Take care to avoid undermining the fence during cleanout.

Remove all fencing materials and unstable sediment deposits and bring the area to grade and stabilize it after the contributing drainage area has been properly stabilized.

References ASTM D 6461 –99. "Standard Specification for Silt Fence Materials" ASTM International. For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For Annual Book of ASTM Standards volume information, refer to the standard's Document Summary page on the ASTM website.

ASTM D 6462 – 03. "Standard Practice for Silt Fence Installation" ASTM International. For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For Annual Book of ASTM Standards volume information, refer to the standard's Document Summary page on the ASTM website.

C. Joel Sprague, PE, Silt Fence Performance Limits and Installation Requirements, Sprague and Sprague Consulting Engineers and TRI/ Environmental, Inc.

Carpenter Erosion Control. http://www.tommy-sfm.com/

Kentucky Erosion Prevention and Sediment Control Field Manual, 2004.

Runoff Control Measures
6.20, Temporary Diversions

Outlet Protection
6.41, Outlet Stabilization Structure

Appendix
8.03, Estimating Runoff

Practice Standards and Specifications

6.83

CHECK DAM

Definition A small temporary stone dam constructed across a drainage way.

Purpose To reduce erosion in a drainage channel by reducing the velocity of flow.

Conditions Where Practice Applies This practice may be used as a temporary measure to limit erosion by reducing velocity in small open channels. When needed, they can be used in channels, roadside ditches, and temporary diversions.

Check dams may be used to:

- reduce velocity in small temporary channels that are degrading, but where permanent stabilization is impractical due to their short period of usefulness;
- reduce velocity in small eroding channels where construction delays or weather conditions prevent timely installation of nonerosive liners.

Do not use check dams in intermittent or perennial streams.

Planning Considerations Check dams are an expedient way to reduce gullying in the bottom of channels that will be filled or stabilized at a later date. The dams should only be used while permanent stabilization measures are being put into place.

Check dams installed in grass-lined channels may kill the vegetative lining if submergence after it rains is too long and/or silting is excessive. All stone and riprap must be removed if mowing is planned as part of vegetative maintenance.

Design Criteria The following criteria should be used when designing a chock dam:

- The drainage area is limited to one half acre.
- Keep a maximum height of 2 feet at the center of the dam.
- Keep the center of the check dam at least 9 inches lower than the outer edges at natural ground elevation.
- Keep the side slopes of the dam at 2:1 or flatter.
- Ensure that the maximum spacing between dams places the toe of the upstream dam at the same elevation as the top of the downstream dam (Figure 6.83a).
- Stabilize outflow areas along the channel to resist erosion.
- Use NC DOT Class B stone and line the upstream side of the dam with NC DOT #5 or #57 stone.
- Key the stone into the ditch banks and extend it beyond the abutments a minimum of 1.5 feet to avoid washouts from overflow around the dam.

Construction Specifications

1. Place stone to the lines and dimensions shown in the plan on a filter fabric foundation.

2. Keep the center stone section at least 9 inches below natural ground level where the dam abuts the channel banks.

3. Extend stone at least 1.5 feet beyond the ditch bank (Figure 6.83b) to keep water from cutting around the ends of the check dam.

4. Set spacing between dams to assure that the elevation at the top of the lower dam is the same as the toe elevation of the upper dam.

5. Protect the channel after the lowest check dam from heavy flow that could cause erosion.

6. Make sure that the channel reach above the most upstream dam is stable.

7. Ensure that other areas of the channel, such as culvert entrances below the check dams, are not subject to damage or blockage from displaced stones.

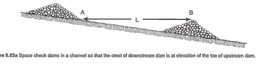


Figure 6.83a Space check dams in a channel so that the crest of downstream dam is at elevation of the toe of upstream dam.

Practice Standards and Specifications

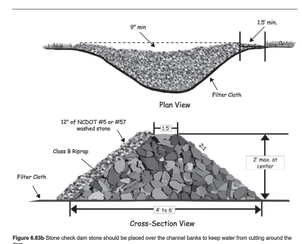


Figure 6.83b Stone check dam stone should be placed over the channel banks to keep water from cutting around the dam.

Maintenance Inspect check dams and channels at least weekly and after each significant (1/2 inch or greater) rainfall event and repair immediately. Clean out sediment, stone, limbs, or other debris that could clog the channel when needed.

Anticipate subsergence and deposition above the check dam and erosion from high flows around the edges of the dam. Correct all damage immediately. If significant erosion occurs between dams, additional measures can be taken such as, installing a protective riprap liner in that portion of the channel (Practice 6.31, *Riprap-line and Paved Channels*).

Remove sediment accumulated behind the dams as needed to prevent damage to channel vegetation, allow the channel to drain through the stone check dam, and prevent large flows from carrying sediment over the dam. Add stones to dams as needed to maintain design height and cross section.

References *Runoff Conveyance Measures*
6.30, Grass-lined Channels
6.31, Riprap-lined and Paved Channels

North Carolina Department of Transportation
Standard Specifications for Roads and Structures

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NORTH CAROLINA PROFESSIONAL SEAL 040412 ENGINEER MARK E. WILLIAMS

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NO.	DESCRIPTION	DATE

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BOB'S GUN SHOP
TOWN OF MOYOCK
CURRITUCK COUNTY, NORTH CAROLINA

E&S NOTES & DETAILS

SCALE: SCALE
DATE: MARCH 28, 2023
PROJECT: B7011.02

C5.5

PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION A: SELF-INSPECTION

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

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

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

PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION B: RECORDKEEPING

1. E&SC Plan Documentation

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

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

2. Additional Documentation to be Kept on Site

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

(a) This General Permit as well as the Certificate of Coverage, after it is received.

(b) Records of inspections made during the previous twelve months. The permittee shall record the required observations on the Inspection Record Form provided by the Division or a similar inspection form that includes all the required elements. Use of electronically-available records in lieu of the required paper copies will be allowed if shown to provide equal access and utility as the hard-copy records.

3. Documentation to be Retained for Three Years

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

PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION C: REPORTING

1. Occurrences that Must be Reported

Permittees shall report the following occurrences:

(a) Visible sediment deposition in a stream or wetland.

(b) Oil spills if:
- They are 25 gallons or more,
- They are less than 25 gallons but cannot be cleaned up within 24 hours,
- They cause sheen on surface waters (regardless of volume), or
- They are within 100 feet of surface waters (regardless of volume).

(c) Releases of hazardous substances in excess of reportable quantities under Section 311 of the Clean Water Act (Ref: 40 CFR 110.3 and 40 CFR 117.3) or Section 102 of CERCLA (Ref: 40 CFR 302.4) or G.S. 143-215.85.

(d) Anticipated bypasses and unanticipated bypasses.

(e) Noncompliance with the conditions of this permit that may endanger health or the environment.

2. Reporting Timeframes and Other Requirements

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

Occurrence	Reporting Timeframes (After Discovery) and Other Requirements
(a) Visible sediment deposition in a stream or wetland	• ***Within 24 hours***, an oral or electronic notification. • ***Within 7 calendar days***, a report that contains a description of the sediment and actions taken to address the cause of the deposition. Division staff may waive the requirement for a written report on a case-by-case basis. • If the stream is named on the NC 303(d) list as impaired for sediment-related causes, the permittee may be required to perform additional monitoring, inspections or apply more stringent practices if staff determine that additional requirements are needed to assure compliance with the federal or state impaired-waters conditions.
(b) Oil spills and release of hazardous substances per Item 1(b)-(c) above	• ***Within 24 hours***, an oral or electronic notification. The notification shall include information about the date, time, nature, volume and location of the spill or release.
(c) Anticipated bypasses [40 CFR 122.41(m)(3)]	• ***A report at least ten days before the date of the bypass, if possible***. The report shall include an evaluation of the anticipated quality and effect of the bypass.
(d) Unanticipated bypasses [40 CFR 122.41(m)(3)]	• ***Within 24 hours***, an oral or electronic notification. • ***Within 7 calendar days,*** a report that includes an evaluation of the quality and effect of the bypass.
(e) Noncompliance with the conditions of this permit that may endanger health or the environment[40 CFR 122.41(l)(7)]	• ***Within 24 hours***, an oral or electronic notification. • ***Within 7 calendar days***, a report that contains a description of the noncompliance, and its causes; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time noncompliance is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance. [40 CFR 122.41(l)(6). • Division staff may waive the requirement for a written report on a case-by-case basis.

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

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

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

NORTH CAROLINA *Environmental Quality*

NCG01 SELF-INSPECTION, RECORDKEEPING AND REPORTING

EFFECTIVE: 04/01/19

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CURRITUCK COUNTY, NORTH CAROLINA
TOWN OF MOYOCK

NCG01

SCALE: SCALE
DATE: MARCH 28, 2023
PROJECT: B7011.02

C5.6

GROUND STABILIZATION AND MATERIALS HANDLING PRACTICES FOR COMPLIANCE WITH THE NCG01 CONSTRUCTION GENERAL PERMIT

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

SECTION E: GROUND STABILIZATION

Required Ground Stabilization Timeframes

Site Area Description	Stabilize within this many calendar days after ceasing land disturbance	Timeframe variations
(a) Perimeter dikes, swales, ditches, and perimeter slopes	7	None
(b) High Quality Water (HQW) Zones	7	None
(c) Slopes steeper than 3:1	7	If slopes are 10' or less in length and are not steeper than 2:1, 14 days are allowed
(d) Slopes 3:1 to 4:1	14	-7 days for slopes greater than 50' in length and with slopes steeper than 4:1 -7 days for perimeter dikes, swales, ditches, perimeter slopes and HQW Zones -10 days for Falls Lake Watershed
(e) Areas with slopes flatter than 4:1	14	-7 days for perimeter dikes, swales, ditches, perimeter slopes and HQW Zones -10 days for Falls Lake Watershed unless there is zero slope

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

GROUND STABILIZATION SPECIFICATION

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

Temporary Stabilization	Permanent Stabilization
• Temporary grass seed covered with straw or other mulches and tackifiers • Hydroseeding • Rolled erosion control products with or without temporary grass seed • Appropriately applied straw or other mulch • Plastic sheeting	• Permanent grass seed covered with straw or other mulches and tackifiers • Geotextile fabrics such as permanent soil reinforcement matting • Hydroseeding • Shrubs or other permanent plantings covered with mulch • Uniform and evenly distributed ground cover sufficient to restrain erosion • Structural methods such as concrete, asphalt or retaining walls • Rolled erosion control products with grass seed

POLYACRYLAMIDES (PAMS) AND FLOCCULANTS

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

EQUIPMENT AND VEHICLE MAINTENANCE

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

LITTER, BUILDING MATERIAL AND LAND CLEARING WASTE

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

PAINT AND OTHER LIQUID WASTE

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

PORTABLE TOILETS

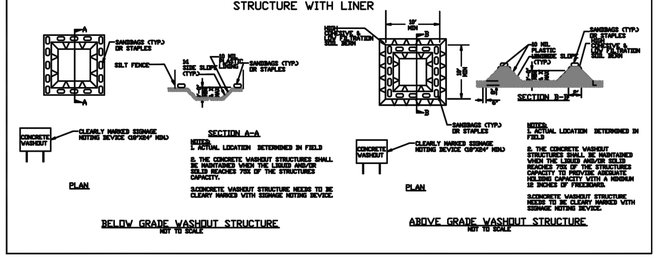
1. Install portable toilets on level ground, at least 50 feet away from storm drains, streams or wetlands unless there is no alternative reasonably available. If 50 foot offset is not attainable, provide relocation of portable toilet behind silt fence or place on a gravel pad and surround with sand bags.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

EARTHEN STOCKPILE MANAGEMENT

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

NORTH CAROLINA *Environmental Quality*

ONSITE CONCRETE WASHOUT STRUCTURE WITH LINER



CONCRETE WASHOUTS

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

HERBICIDES, PESTICIDES AND RODENTICIDES

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

HAZARDOUS AND TOXIC WASTE

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

NCG01 GROUND STABILIZATION AND MATERIALS HANDLING

EFFECTIVE: 04/01/19

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REVISIONS

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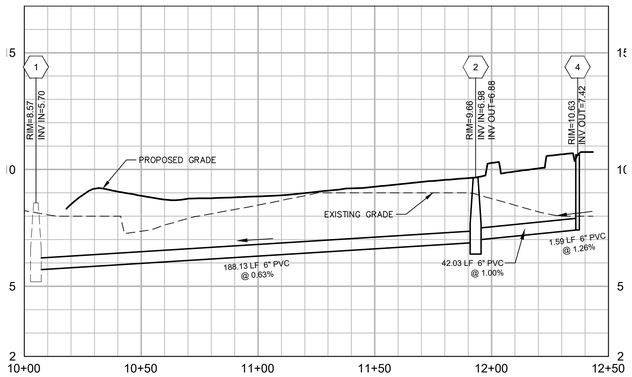
BOB'S GUN SHOP
CURRITUCK COUNTY, NORTH CAROLINA
TOWN OF MOYOCK

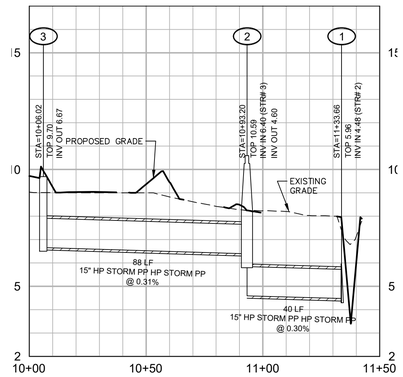
NCG01

SCALE: SCALE
DATE: MARCH 28, 2023
PROJECT: B7011.02

C5.7



SANITARY



STORM

NOTES:

1. THE CONTRACTOR MUST FIELD VERIFY THE INVERTS OF ALL EXISTING MANHOLES, GAS LINES AND OTHER UTILITY LINES PRIOR TO THE START OF CONSTRUCTION.
2. ALL FITTINGS ARE TO BE RESTRAINED.
3. THE SANITARY SEWER MANHOLES WITHIN THE ROW SHALL BE WATERTIGHT CONSTRUCTION AND BE TESTED IN PLACE BY VACUUM TESTING.
4. ALL DUCTILE IRON WATERLINE CROSSINGS SHALL BE CENTERED UNDER STORM SEWER PIPE.
5. ALL WATER SERVICE AND SANITARY SEWER CROSSINGS STORM SEWER SHALL MAINTAIN A MINIMUM VERTICAL SEPARATION DISTANCE OF 1.5 FEET.

LEGEND

- EXISTING ℄ GRADE
- PROPOSED GRADE
- EXISTING 25' LEFT
- EXISTING 25' RIGHT
- DUCTILE IRON

VERTICAL

3 0 1.5 3 6

1 inch = 3 feet

HORIZONTAL

30 0 15 30 60

1 inch = 30 feet

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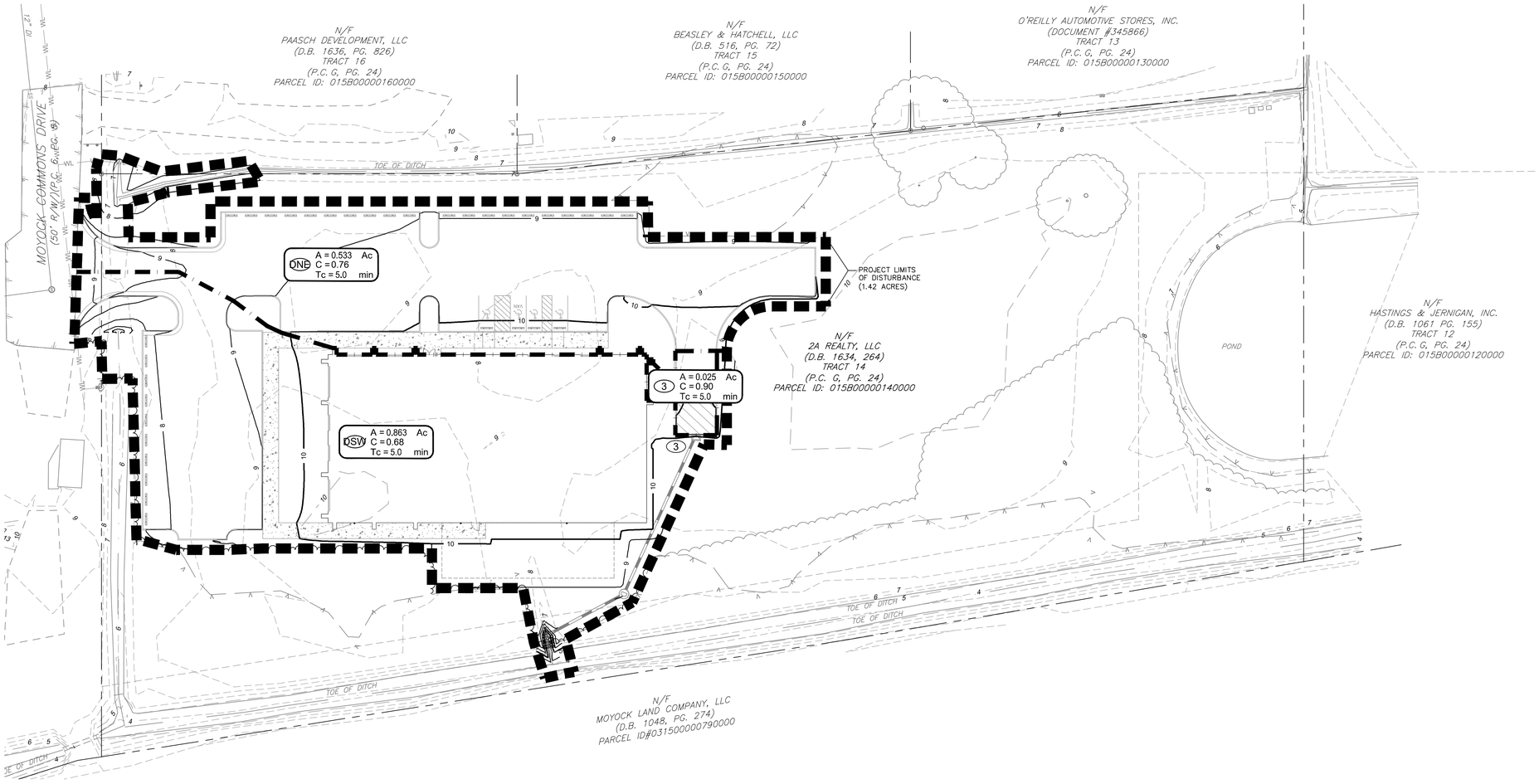
BOB'S GUN SHOP
CURRITUCK COUNTY, NORTH CAROLINA
TOWN OF MOYOCK

PROFILES ~ UTILITY

SCALE: AS SHOWN
DATE: MARCH 28, 2023
PROJECT: B7011.02

C6.1

T:\Projects\HRVA_Projects_HRVA Legacy Projects_Engineering\B7011.02 Bobs Gun Shop Moyock\CAD\Construction Plan\Sheets\DMAP STORM.dwg | 03/29/2023 8:39pm | mpalkovic



WEIGHTED C VALUE COMPUTATIONS

DRAINAGE AREAS	PERVIOUS (ACRES) 0.30	IMPERVIOUS (ACRES) 0.90	TOTAL AREA (ACRES)	WEIGHTED C VALUE	TIME OF CONCENTRATION (MINUTES)
DNE (DITCH NORTHEAST)	0.125	0.408	0.533	0.44	5
DSW (DITCH SOUTHWEST)	0.329	0.534	0.863	0.53	5
3 (PARKING LOT AREA TO INLET)	0.025	0.000	0.025	0.90	5

0 30' 60'
GRAPHIC SCALE

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CURRITUCK COUNTY, NORTH CAROLINA

DRAINAGE AREA MAP ~ STORMWATER

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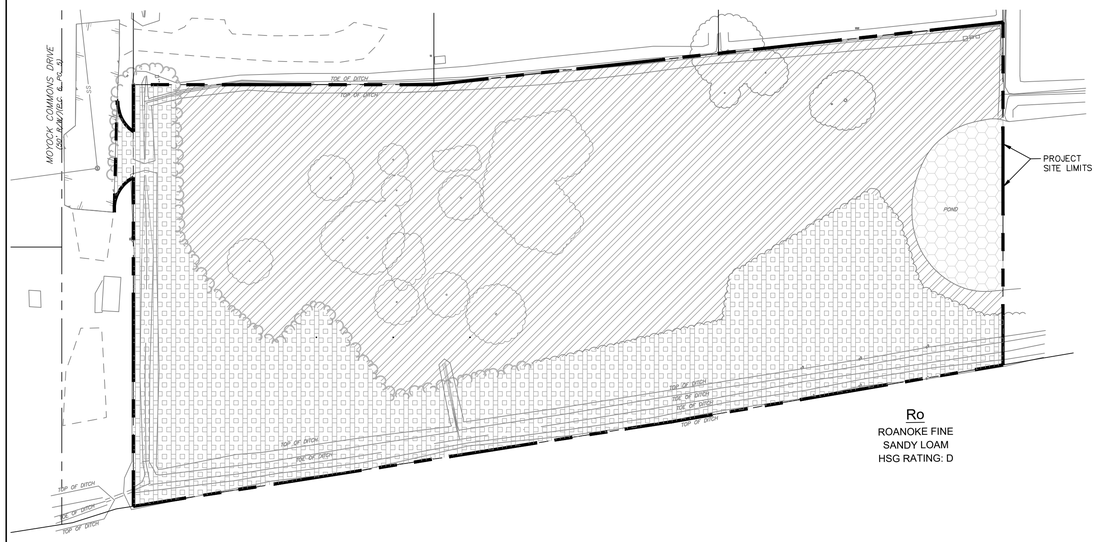
DATE: MARCH 28, 2023
PROJECT: B7011.02

C7.1

PRE-DEVELOPMENT



EXISTING PROJECT AREA DATA

SOILS TYPE	"D"
FOREST/OPEN SPACE	1.34 AC
MANAGED TURF	2.17 AC
IMPERVIOUS COVER	0.14 AC
TOTAL PROJECT AREA	3.65 AC

PRE-DEVELOPED LAND COVERAGE

SITE AREA = 3.65 AC
PRE-DEVELOPED % IMPERVIOUS = (0.14/3.65) * 100 = 0.38%

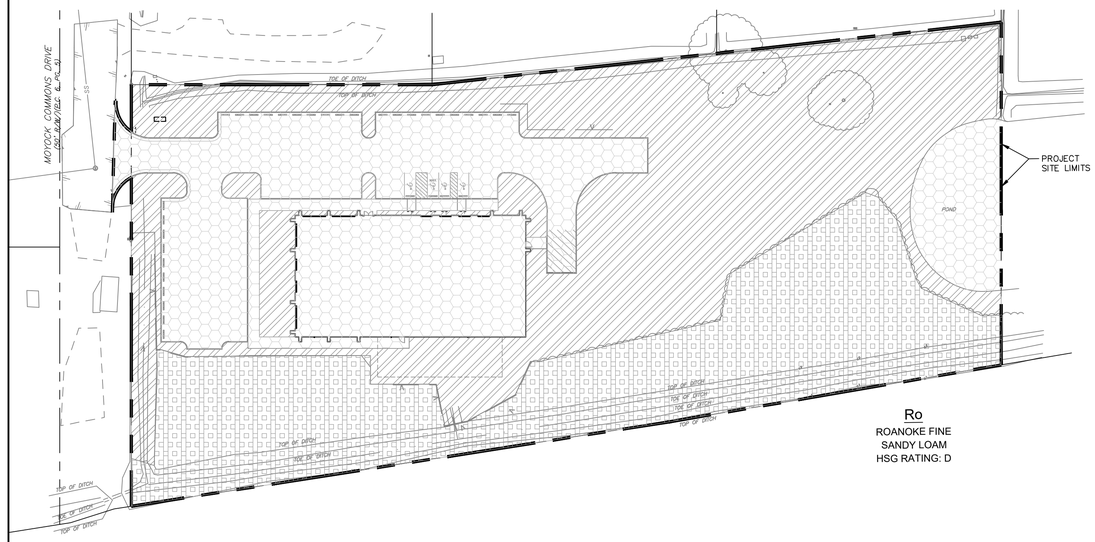
LEGEND ~ PRE

FOREST

MANAGED TURF

IMPERVIOUS

POST-DEVELOPMENT



15A NCAC 02H .1003 (1b) CALCULATION OF PROJECT DENSITY

PROJECT DENSITY = TOTAL PROPOSED BUA - EXISTING BUA / TOTAL PROJECT AREA - EXISTING BUA

PROJECT DENSITY = 1.09 AC. - 0.14 AC. * 100 = 27.06% / 3.65 AC. - 0.14 AC.

PROPOSED PROJECT AREA DATA

SOILS TYPE	"D"
FOREST/OPEN SPACE	1.05 AC
MANAGED TURF	1.51 AC
IMPERVIOUS COVER	1.09 AC
TOTAL PROJECT AREA	3.65 AC

POST-DEVELOPED LAND COVERAGE

SITE AREA = 3.65 AC
POST-DEVELOPED % IMPERVIOUS = (1.09/3.65) * 100 =29.86%

LEGEND ~ POST

FOREST

MANAGED TURF

IMPERVIOUS

NAD 83

GRAPHIC SCALE

50 0 25 50 100

1 inch = 50 feet

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NORTH CAROLINA PROFESSIONAL SEAL 040412 ENGINEER MARK E. WILLIAMS

REVISIONS

NO.	DATE	DESCRIPTION

POST APPROVAL

DESIGNED | DRAWN | CHECKED

BOB'S GUN SHOP
CURRITUCK COUNTY, NORTH CAROLINA
TOWN OF MOYOCK

DRAINAGE AREA MAP ~ WATER QUALITY

SCALE: 1" = 50'
DATE: MARCH 28, 2023
PROJECT: B7011.02

C7.2

DESIGN OF STABLE CHANNELS AND DIVERSIONS

Permissible Velocity Procedure: Vegetated Channel
Recommended for design of vegetative channels

User Input Data
Calculated Value
Reference Data

Designed By:	KBJW	**Date:**	3/27/2023
Checked By:		**Date:**	
Company:	KBJW		
Project Name:	BOB'S GUN SHOP - MOYOCK		
Project No.:	B7011.02		

Site Location (City/Town)	Moyock
Channel/Waterway Id.	DNE (EXISTING DITCH NORTHEAST)

Design storm	10-yr	
Required Flow, Q (cfs)	20.898	
Slope (ft/ft)	0.01	
Channel geometry: V, Parabolic, or Trapezoidal	Trapezoidal	
Channel lining	Tall Fescue	
Permissible velocity (ft/s)	4.5	Table 8.05a
Channel flow area (ft^2) "first try"	4.64	

Trapezoidal (Figure 8.05b)

Sideslope, Z	Bottom Width, b (ft)	Max. Depth, d (ft)	Top Width, T (ft)	Cross-sectional area, A (ft^2)	Wetted Perimeter, P (ft)	Hydraulic Radius, R (ft)	Vegetal Retardance, VR	Retardance Class	Manning's Coefficient, n	Velocity, V (ft/s)	Velocity Check	Channel Capacity, Q (cfs)	Capacity Check
Fig. 8.05b	Fig. 8.05b	Fig. 8.05b	Fig. 8.05b	Fig. 8.05b	Fig. 8.05b	Fig. 8.05b	Fig. 8.05c	Vegetated Table 8.05c	Structural Table 8.05b / Vegetated Fig. 8.05c	Fig. 8.05a		Fig. 8.05a	
3	2.0	1.8	12.8	13.32	13.38	1.00	4.48	D	0.043	3.45	PROCEED	46.0	PROCEED

Trapezoidal--Grass Lined (Figure 8.05b)

Sideslope, Z (ft/ft)	Bottom Width, b (ft)	Max. Depth, d (ft)	Top Width, T (ft)	Cross-sectional area, A (ft^2)	Wetted Perimeter, P (ft)	Hydraulic Radius, R (ft)	Trial Velocity, V_t (ft/s)	Vegetal Retardance, VR	Retardance Class	Manning's Coefficient, n	Velocity, V (ft/s)	Velocity Check	Channel Capacity, Q (cfs)	Channel Capacity Check
Fig. 8.05b	Fig. 8.05b	Fig. 8.05b	Fig. 8.05b	Fig. 8.05b	Fig. 8.05b	Fig. 8.05b		Fig. 8.05c	Vegetated Table 8.05c	Vegetated Fig. 8.05c	Fig. 8.05a		Fig. 8.05a	
3	2.0	1.8	12.8	13.32	13.38	1.00	3.50	3.48	B	0.043	3.50	PROCEED	47	PROCEED

Table 8.05d

DESIGN OF STABLE CHANNELS AND DIVERSIONS

Permissible Velocity Procedure: Vegetated Channel
Recommended for design of vegetative channels

User Input Data
Calculated Value
Reference Data

Designed By:	KBJW	**Date:**	3/27/2023
Checked By:		**Date:**	
Company:	KBJW		
Project Name:	BOB'S GUN SHOP - MOYOCK		
Project No.:	B7011.02		

Site Location (City/Town)	Moyock
Channel/Waterway Id.	DSW (EXISTING DITCH SOUTHWEST)

Design storm	10-yr	
Required Flow, Q (cfs)	26.569	
Slope (ft/ft)	0.01	
Channel geometry: V, Parabolic, or Trapezoidal	Trapezoidal	
Channel lining	Tall Fescue	
Permissible velocity (ft/s)	4.5	Table 8.05a
Channel flow area (ft^2) "first try"	5.90	

Trapezoidal (Figure 8.05b)

Sideslope, Z	Bottom Width, b (ft)	Max. Depth, d (ft)	Top Width, T (ft)	Cross-sectional area, A (ft^2)	Wetted Perimeter, P (ft)	Hydraulic Radius, R (ft)	Vegetal Retardance, VR	Retardance Class	Manning's Coefficient, n	Velocity, V (ft/s)	Velocity Check	Channel Capacity, Q (cfs)	Capacity Check
Fig. 8.05b	Fig. 8.05b	Fig. 8.05b	Fig. 8.05b	Fig. 8.05b	Fig. 8.05b	Fig. 8.05b	Fig. 8.05c	Vegetated Table 8.05c	Structural Table 8.05b / Vegetated Fig. 8.05c	Fig. 8.05a		Fig. 8.05a	
3	8.0	2	20	28	20.65	1.36	6.10	D	0.043	4.25	PROCEED	118.9	PROCEED

Trapezoidal--Grass Lined (Figure 8.05b)

Sideslope, Z (ft/ft)	Bottom Width, b (ft)	Max. Depth, d (ft)	Top Width, T (ft)	Cross-sectional area, A (ft^2)	Wetted Perimeter, P (ft)	Hydraulic Radius, R (ft)	Trial Velocity, V_t (ft/s)	Vegetal Retardance, VR	Retardance Class	Manning's Coefficient, n	Velocity, V (ft/s)	Velocity Check	Channel Capacity, Q (cfs)	Channel Capacity Check
Fig. 8.05b	Fig. 8.05b	Fig. 8.05b	Fig. 8.05b	Fig. 8.05b	Fig. 8.05b	Fig. 8.05b		Fig. 8.05c	Vegetated Table 8.05c	Vegetated Fig. 8.05c	Fig. 8.05a		Fig. 8.05a	
3	8.0	2	20	28	20.65	1.36	4.20	5.70	B	0.043	4.20	PROCEED	118	PROCEED

Table 8.05d

DESIGN OF RIPRAP OUTLET PROTECTION

OP CALCULATIONS

User Input Data
Calculated Value
Reference Data

Designed By:	KBJW	**Date:**	3/27/2023
Checked By:		**Date:**	
Company:	KBJW		
Project Name:	BOB'S GUN SHOP - MOYOCK		
Project No.:	B7011.02		

Site Location (City/Town)	MOYOCK
Culvert Id.	3
Total Drainage Area (acres)	

Step 1. Determine the tailwater depth from channel characteristics below the pipe outlet for the design capacity of the pipe. If the tailwater depth is less than half the outlet pipe diameter, it is classified minimum tailwater condition. If it is greater than half the pipe diameter, it is classified maximum condition. Pipes that outlet onto wide flat areas with no defined channel are assumed to have a minimum tailwater condition unless reliable flood stage elevations show otherwise.

		TC	5 Min
Outlet pipe diameter, D_o (in.)	15	C	0.9
Tailwater depth (in.) **(USED 0.8D)**	12	i	7.93
Minimum/Maximum tailwater?	Max TW (Fig. 8.06b)	A	0.025
Discharge (cfs)	0.181210331		
Velocity (ft./s)	7.137		

Step 2. Based on the tailwater conditions determined in step 1, enter Figure 8.06a or Figure 8.06b, and determine d_{50} riprap size and minimum apron length (L_a). The d_{50} size is the median stone size in a well-graded riprap apron.

Step 3. Determine apron width at the pipe outlet, the apron shape, and the apron width at the outlet end from the same figure used in Step 2.

	Minimum TW	Maximum TW
	Figure 8.06a	Figure 8.06b
Riprap d_{50}, (ft.)	1	1
Minimum apron length, L_a (ft.)	4.5	1
Apron width at pipe outlet (ft.)	3.75	3.75
Apron shape		
Apron width at outlet end (ft.)	5.75	1.65

Step 4. Determine the maximum stone diameter:

$$d_{max} = 1.5 \times d_{50}$$

	Minimum TW	Maximum TW
Max Stone Diameter, dmax (ft.)	1.5	1.5

Step 5. Determine the apron thickness:

$$\text{Apron thickness} = 1.5 \times d_{max}$$

	Minimum TW	Maximum TW
Apron Thickness(ft.)	2.25	2.25

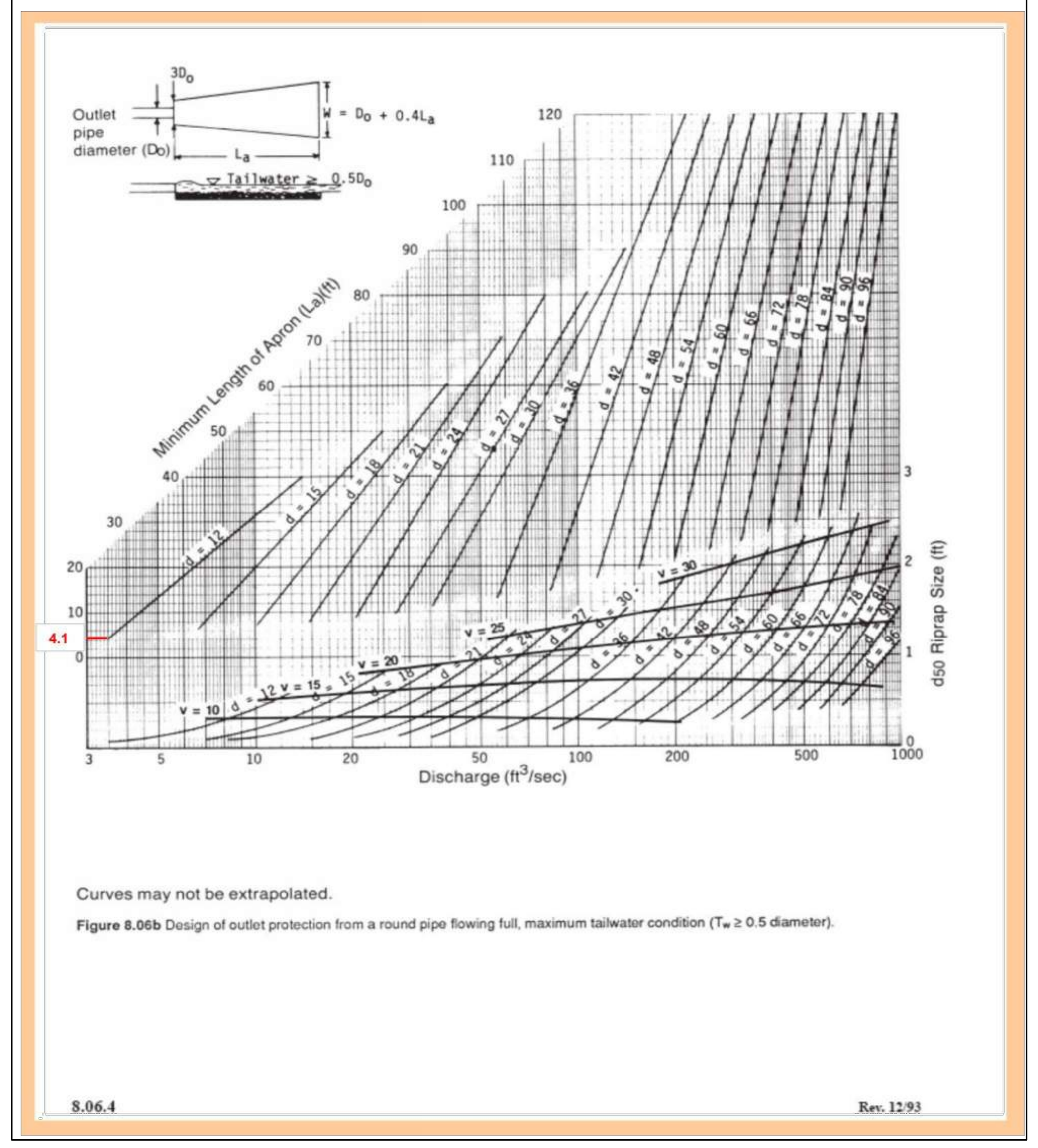
Step 6. Fit the riprap apron to the site by making it level for the minimum length, L_a, from Figure 8.06a or Figure 8.06b. Extend the apron farther downstream and along channel banks until stability is assured. Keep the apron as straight as possible and align it with the flow of the receiving stream. Make any necessary alignment bends near the pipe outlet so that the entrance into the receiving stream is straight.

Some locations may require lining of the entire channel cross section to assure stability.

It may be necessary to increase the size of riprap where protection of the channel side slopes is necessary (*Appendix 8.05*). Where overfalls exist at pipe outlets or flows are excessive, a plunge pool should be considered, see page 8.06.8.

Figure 8.06b: Design of outlet protection from a round pipe flowing full, maximum tailwater condition (Tw>=0.5 diameter)

OP CALCULATIONS



EXISTING DITCH SW CALCULATIONS

HGL CALCULATIONS

AASHTO Junction Loss Calculations*

Stormwater Studio 2023 v 3.0.0.31

Project Name: STORM
03-27-2023

Line No	Inlet Id	Outlet WS Elev (ft)	Do (in)	Qo (cfs)	Lo (ft)	Sf (%)	Hf (ft)	JUNCTION LOSS: Vo (ft/s)	Ho (ft)	Qi (cfs)	Vi (ft/s)	QiVi	$Vi^2/2g$ (ft)	Hi (ft)	Angle (deg)	Hb (ft)	Ht (ft)	1.3 Ht (ft)	0.5 Ht (ft)	Final H (ft)	Inlet WS Elev (ft)	Rim Elev (ft)
1	2	0.00	15	0.00	40.47	0.000	0.00	0.00	0.00	-	-	-	-	-	-	-	0.00	-	-	0.00	0.00	10.59
2	3	0.00	15	0.00	88.31	0.000	0.00	0.00	0.00	-	-	-	-	-	-	-	0.00	-	-	0.00	0.00	9.70

Results ARE NOT current with inputs. *Project File: Bobs Gun Shop.sws*

INLET CALCULATIONS

LD-204 Report

Stormwater Studio 2023 v 3.0.0.31

Project Name: STORM
03-27-2023

Line No.	Inlet ID	Junct Type	Curb Length (ft)	Grate Len (ft)	Grate Width (ft)	Drain Area (ac)	Runoff Coeff (C)	Incr CxA	Total C x A	i Inlet (in/hr)	i Syst (in/hr)	Incr Q (cfs)	Q Carry (cfs)	Gutter Slope (ft/ft)	Cross Sl, Sx (ft/ft)	Gutter Width (ft)	Cross Sl, Sw (ft/ft)	Local Depr (in)
1	2	MH	....	....	....	0.000	0.00	0.00	0.02	0.00	7.63	0.00	....	....	....	....	....	....
2	3	Curb	3.50	....	....	0.025	0.90	0.02	0.02	7.95	7.95	0.18	0.00	0.019	0.0190	2.00	0.0190	0.0

Notes: IDF File = bOB'S gUN sHOP.idf, Return Period = 10-yrs. *Project File: Bobs Gun Shop.sws*

PIPE CALCULATIONS

LD-229 Report

Stormwater Studio 2023 v 3.0.0.31

Project Name: STORM
03-27-2023

Line No.	Inlet ID	Inlet ID DownStr	Drain Area (ac)	Runoff Coeff (C)	Incr CxA	Total C x A	Inlet Time (min)	Tc System (min)	i Syst (in/hr)	Total Runoff (cfs)	Known Q (cfs)	Flow Rate (cfs)	Invert Up (ft)	Invert Dn (ft)	Line Length (ft)	Line Slope (%)	Line Size (in)	Capac. Full (cfs)
1	2	....	0.000	0.00	0.00	0.02	0.0	5.9	7.63	0.17	0.00	0.17	4.60	4.48	40.47	0.30	15	3.81
2	3	2	0.025	0.90	0.02	0.02	5.0	5.0	7.95	0.18	0.00	0.18	6.67	6.40	88.31	0.31	15	3.86

Notes: IDF File = bOB'S gUN sHOP.idf, Return Period = 10-yrs. *Project File: Bobs Gun Shop.sws*

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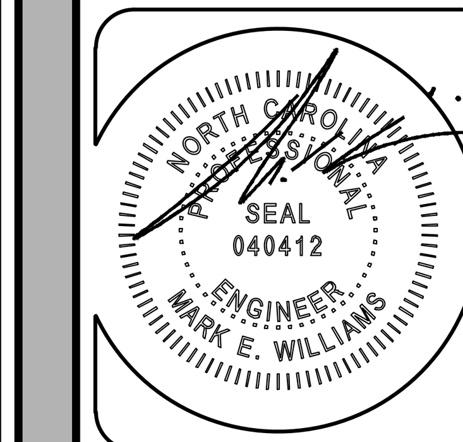


REVISIONS
NO. | DATE | DESCRIPTION
POST APPROVAL

DESIGNED | DRAWN | CHECKED

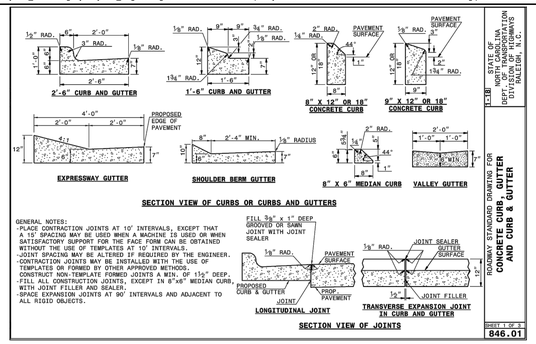
BOB'S GUN SHOP

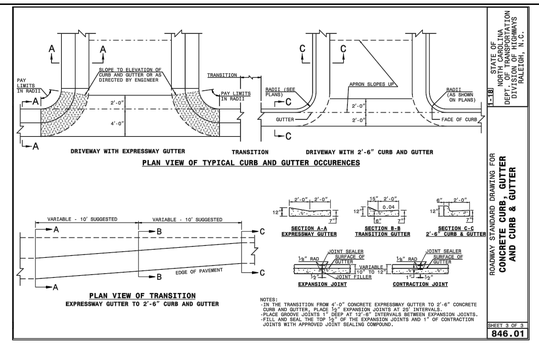
TOWN OF MOYOCK
CURRITUCK COUNTY, NORTH CAROLINA

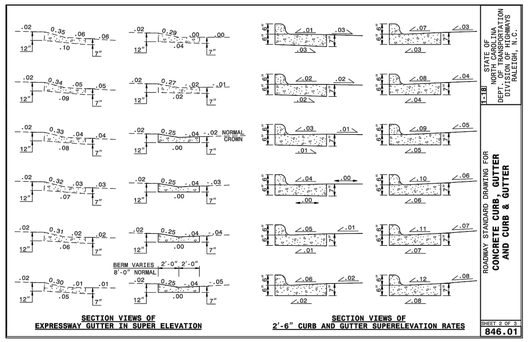
CALCULATIONS ~ STORMWATER

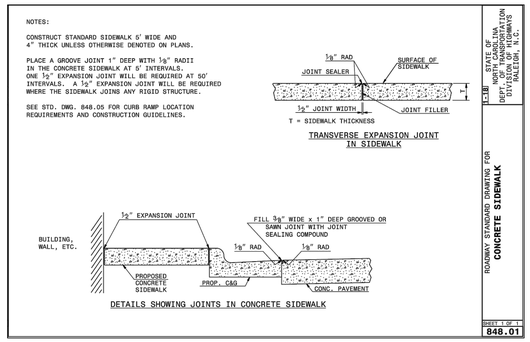
SCALE: NA
DATE: MARCH 28, 2023
PROJECT: B7011.02

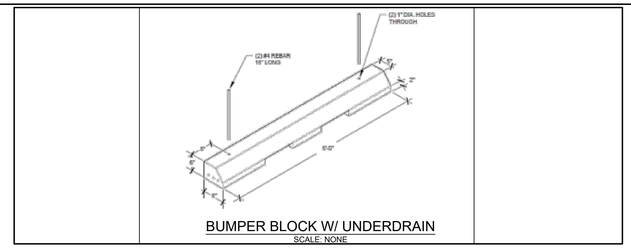
C8.1

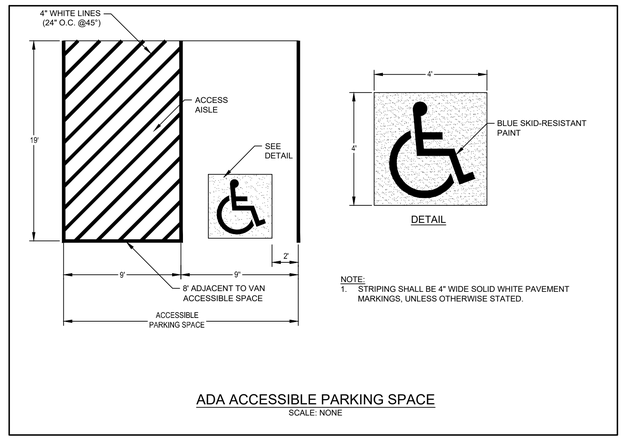


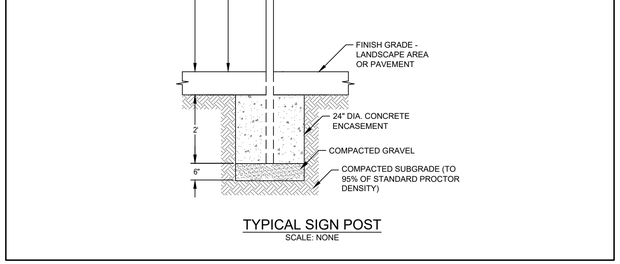


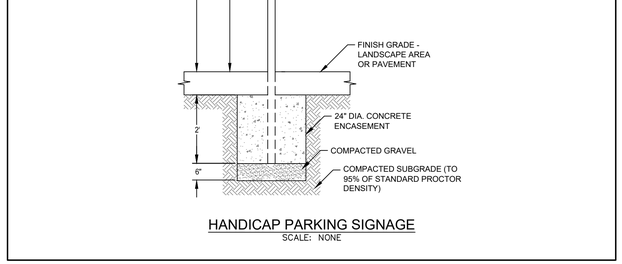


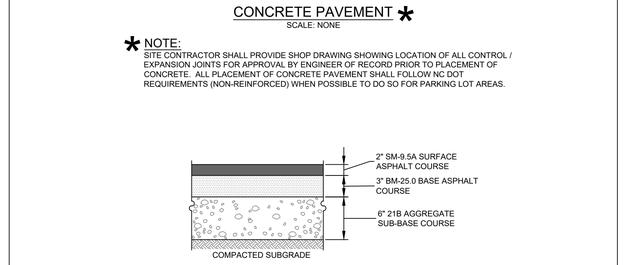


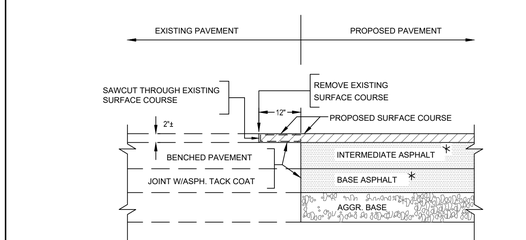


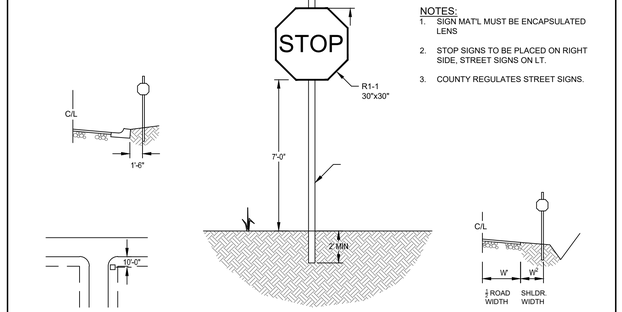












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NORTH CAROLINA PROFESSIONAL SEAL 040412 ENGINEER MARK E. WILLIAMS

REVISIONS
NO. | DATE | DESCRIPTION

POST APPROVAL

DESIGNED | DRAWN | CHECKED

BOB'S GUN SHOP
CURRITUCK COUNTY, NORTH CAROLINA
TOWN OF MOYOCK

DETAILS ~ SITE

SCALE: NA
DATE: MARCH 28, 2023
PROJECT: B7011.02

C9.1

Bob's Gun Shop **Currituck County - NC** **Proposed Fixture Count**

AWWA M22 METER SIZING CALCULATIONS

Fixtures	Fixture Value 60 psi		No. of Fixtures		Fixture Value (gpm)
Bathtub	8	X		=	0
Bedpan Washers	10	X		=	0
Bidet	2	X		=	0
Dental Unit	2	X		=	0
Drinking Fountain - Public	2	X	1	=	2
Kitchen Sink	2	X	1	=	2.2
Lavatory	1.5	X	6	=	9
Showerhead (Shower Only)	2.5	X		=	0
Service Sink	4	X	1	=	4
Toilet - Flush Valve	35	X	7	=	245
Toilet - Low Flow Flush Valve	26	X		=	0
Toilet - Tank Valve	4	X		=	0
Urinal - Pedestal Flush Valve	35	X		=	0
Urinal - Wall Flush Valve	16	X	1	=	16
Wash Sink (Each set of Faucets)	4	X		=	0
Dishwasher	2	X		=	0
Washing Machine	6	X		=	0
Hose (50 ft Wash Down) - 1/2 in	5	X		=	0
Hose (50 ft Wash Down) - 5/8 in	9	X	2	=	18
Hose (50 ft Wash Down) - 3/4 in	12	X		=	0

Combined Fixture Value Total				296.2 Fixture Units
Combined Fixture Value Total*Pressure Factor				70 Gal/Min
Pressure Factor				1 Pressure Factor
Add Irrigation	Sections*	X	1.16 for spray systems	0 Gal/Min
Add Irrigation	0 Sections*	X	0.40 for rotary systems	0 Gal/Min
* 1005F area = 1 section			Seprate irrigation meter	
Added Fixed Load				0 Gal/Min
Total Fixed Demand				70 Gal/Min

Note: Highlighted cell indicates assumed value for fixture type not identified in AWWA M22. For a LEED project utilizing low flow fixtures throughout the building, the low flow flush valve typcially has a water use of 50% less than a standard flush valve. The fixture value in this table has been conservatively reduced by only 25% from the standard flush valve fixture value.

AWWA M22 METER SIZING CALCULATIONS

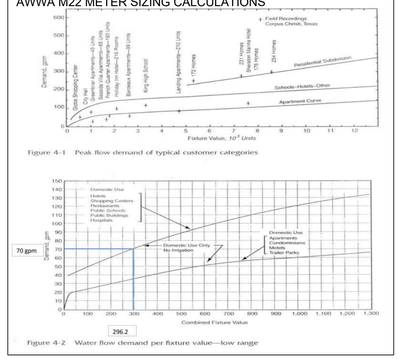


Figure 4-1 Peak flow demand of typical customer categories

Figure 4-2 Water flow demand per fixture value—low range

AWWA M22 METER SIZING CALCULATIONS

70 < 100 OKAY!

Table 6-1 AWWA meter standards

Meter	Minimum Flow Rate (gpm)	Low Normal Flow Rate (gpm)	Change-over Range (Compound Meters)	High Normal Flow Rate (gpm)	Maximum Flow Rate (gpm)	Head Loss at Maximum Flow (psi)
Positive Displacement						
½ in.	0.25	1	N/A	7.5	15	15
⅝ in.	0.25	1		10	20	15
¾ in.	0.5	2		15	30	15
1 in.	0.75	3		25	50	15
1½ in.	1.5	5	N/A	50	100	15
2 in.	2	8		80	160	15
Multijet						
⅝ in.	0.25	1	N/A	10	20	15
¾ in.	0.5	2		15	30	15
1 in.	0.75	3		25	50	15
1½ in.	1.5	5		50	100	15
2 in.	2.0	8		80	160	15
Turbine class 1						
¾ in.	1.5	N/A	N/A	20	30	15
1 in.	2			35	50	15
1½ in.	3			65	100	15
2 in.	4			100	160	15
3 in.	6			220	350	15
4 in.	8			420	630	15
6 in.	15			865	1,300	15
Turbine class 2						
1½ in.	4	N/A	N/A	80	120	7
2 in.	4			100	160	7
3 in.	8			240	350	7
4 in.	15			420	630	7
6 in.	30			920	1,400	7
8 in.	50			1,600	2,400	7
10 in.	75			2,500	3,800	7
12 in.	120			3,300	5,000	7
14 in.	150			5,200	7,500	7
16 in.	200			6,500	10,000	7
18 in.	250			8,500	12,500	7
20 in.	300			10,000	15,000	7
Compound						
2 in.	0.25	2	20	80	160	20
3 in.	0.5	4	23	160	320	20
4 in.	0.75	6	28	250	500	20
6 in.	1.5	10	32	500	1,000	20
8 in.	2	16	50	800	1,600	20
Singlejet						
1½ in.	0.5	1.5	N/A	50	100	15
2 in.	0.5	2.0		80	160	15
3 in.	0.5	2.5		160	320	15
4 in.	0.75	3.0		250	500	15
6 in.	1.5	4.0		500	1000	15

Source: Data are drawn from AWWA Standards C700, C701, C702, C708, C710, and C712, of latest revision as of December 2002.
N/A = not applicable

SANITARY SEWER FLOW CALCULATIONS

Project Name: BOBS'S GUN SHOP - MOYOCK

Note: Sewer flow calculations are based off the ***"LAWS AND RULES FOR SANITARY SEWAGE COLLECTION, TREATMENT, AND DISPOSAL 15 NCAC 18A.190". TABLE 1.0***

Proposed Sewer Flow

Stores, Shopping Centers, and Malls (RETAIL) 120 gal/1000 ft² of retail sales area

Proposed Buildings

Square Footage= 13,755
Flow Per Retail Sales Area SF (gpd)= 0.12
Flow Duration (hr)= 12
Peak Factor= 3
Flow (gpd)= square footage(SF) x flow rate (gpd)
= 1650 gpd

Flow (gpm)= square footage(SF) x flow rate (gpd) ÷ flow duration(min) x peak factor
= 6.88 gpm

Total Proposed Warehouse Sewer Flow = 1650 gpd
Total Proposed Warehouse Peak Sewer Flow = 6.88 gpm

The proposed peak sewer flow is 6.88 gpm.

Sanitary Sewer Pipe Capacity Calculations Designed by: KBJW
Project: Bob's Gun Shop - Moyock Checked by: KBJW
Date: 3/27/2023

Size (Dia) (in)	Manning's n	Area (in²)	Hyd. Rad. (Full) (in)	Slope (%)	Velocity (ft/s)	Flow Cap. (ft³/s)	Flow Cap. (GPM)	Projected flow (GPM)	Projected flow (GPD)	Capacity?
6	0.01	28.27	1.50	0.63%	2.95	0.579	260	6.88	1,650	YES

Hydrant Flow Test Request

ISO FIRE FLOW CALCULATIONS - FLOW TEST

INPUT FROM PROJECT MANAGER

Flow Test #	mmco2
Prepared By	Dave Spence
PM Phone No.	252-232-2769 (4152)
Date Request	9/12/2022
Property Contact Name	Logan Godwin
Property Contact Phone No.	757-226-0081 (321)
email	lgodwin@kbjwgroup.com
Address	816 Greenbrier Cir. Chesapeake, VA 23320
Site Plan Number	B7011.02
Map (link)	Attach image on MAP Tab
Test Purpose	
*Flow Hydrant 1 - #	mmco2
*Flow Hydrant 2 - # (if needed)	N/A
*Residual Hydrant - #	mmc01

INPUT FOR WORK ORDER MANAGEMENT

Work Order #	

INPUT FROM HYDRANT INSPECTOR

Inspector	
Test Date	
Test Time Static	
Flow Start Time	
Flow Stop Time	

*Flow Hydrant 1 - #	mmco2	(Hydrant which Pitot reading is taken and is Flowed)
Flow Hydrant 1 - Pre-flow Static Pressure (psi)		
Pitot Reading (PSI)		
Size of opening	*2.5*	assumed
Discharge Coefficent	*0.9*	assumed
Flow Rate (GPM) - Hydrant 1		GPM (From Chart) - GPM (Determined from calculation)

*Flow Hydrant 2 - # (if needed)	N/A	
Flow Hydrant 2 - Pre-flow Static Pressure (psi)	N/A	
Pitot Reading (PSI)	N/A	
Size of opening	*2.5*	assumed
Discharge Coefficent	*0.9*	assumed
Flow Rate (GPM) - Hydrant 2	N/A	GPM (From Chart) ***N/A*** GPM (Determined from calculation)

*Residual Hydrant - #	mmc01	(Hydrant which is **NOT** being flowed)
Residual Hydrant - Pre-flow Static Pressure (psi)		
Residual Hydrant - Pressure (psi) - During flow test	0	
Residual Hydrant - Pressure (psi) - After flow test	51 psi	

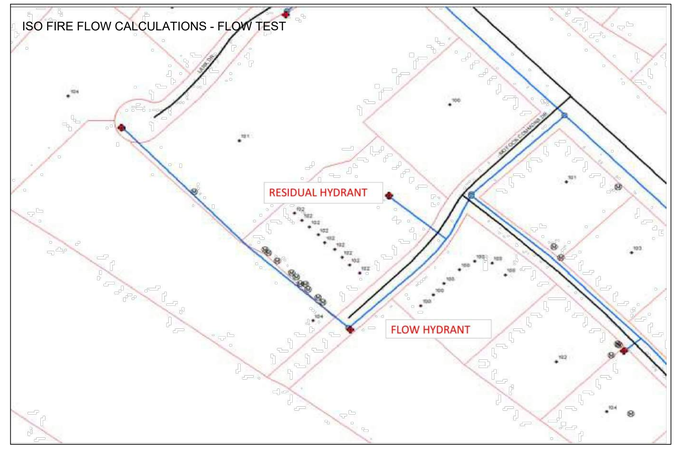
Additional Comments	Comment 1:
	Comment 2:
	Comment 3
	Comment 4

Hydrant Flow Test Report

ISO FIRE FLOW CALCULATIONS - FLOW TEST

Inspector:	Dave Spence	Test Date:	9/16/2022
Project Manager:	Dave Spence 252-232-2769 (4152)	Hydrant Test #:	mmco2
Property Address:	816 Greenbrier Cir. Chesapeake, VA 23320	Site Plan #:	B7011.02
Contact:	Logan Godwin 757-226-0081 (321)	Work Order #:	
Test Purpose:		Date Requested:	

Hydrants	Flow Hydrant 1	*Second flow hydrant (Only If Requested)* Flow Hydrant 2	Residual Hydrant	
Hydrant ID	mmco2	N/A	mmc01	
Location	lat: 36.51626 Long: 76.1717		lat: 36.5171 Long: 76.17146	
Pre-flow Static Pressure (PSI) (Record static PSI readings for flow AND the residual hydrants before Flow	51 psi	N/A	51 psi	Test Time Static 1:08 PM
Pitot reading (PSI)	psi	N/A	39 psi	Flow Start Time 1:12 PM
Flow rate (GPM) (from Chart)	1300 gpm	N/A		take the resi pressure rea while the otl hydrant is flowing.
Flow rate (GPM) (Calculated)		N/A		
Residual Pressure (PSI) (during flow)	psi			
Post-Flow Pressure (PSI) (after closing flow hydrant)			51 psi	time 1:30 PM



ISO NEEDED FIRE FLOW DEMAND CALCULATIONS

ISO FIRE FLOW CALCULATIONS

NFF = (C_i) x (O_i) x [(1.0 + (X + P)_i)]

= 1,325 X 1.0 X [(1.0 + (0.22 + 0)] = 1,616 ~ 1,500 GPM*

*Round to the nearest 250 GPM per ISO standards

C_i = 18 x F x (A_i)^(0.5)

= 18 X 0.80 X 13,775^0.5 = 1,325

F = 0.80 (CONSTRUCTION CLASS 4 – Masonry-Non-Combustible – ASSUMED)

A_i = EFFECTIVE AREA = 8,460 SF – (EXEMPT AREAS)

A_i = 8,460 SF (TOTAL SF) – 0,000 SF (PROTECED SF) = 8,460 EFFECTIVE AREA

O_i = 1.00 (COMBUSTIBLE)

X_i = 0.22 (0' DIST. TO EXPOSURE BLDG.)

P_i = 0

FIRE FLOW AVAILABLE AT HYDRANT

SP: STATIC PRESSURE; RP: RESIDUAL PRESSURE

PF: PREDICTED FLOW (20); RP: RESIDUAL PRESSURE

FLOW: 1,300 GPM

SP – PF = 51 -20 = 31

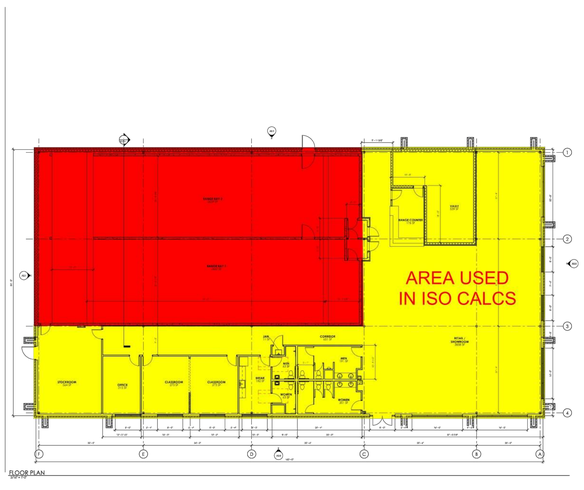
SP – RP = 51 – 39 = 12

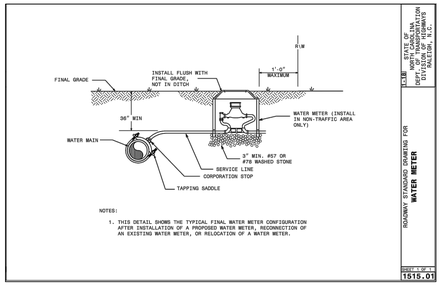
31 / 12 = 2.58

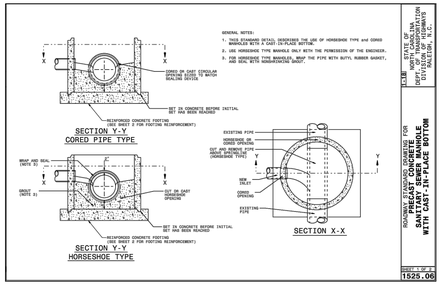
2.58 ^ 0.54 = 1.67

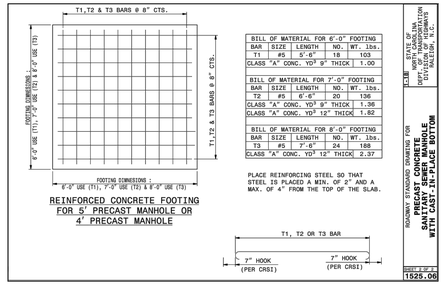
1, 300 GPM X 1.67 = 2,171 GPM (THEORETICALLY AVAILABLE AT ONE HYDRANT)

ISO FIRE FLOW CALCULATIONS - EFFECTIVE AREA EXHIBIT









KOONTZ BRYANT JOHNSON WILLIAMS
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Suite 202
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NORTH CAROLINA PROFESSIONAL SEAL 040412 ENGINEER MARK E. WILLIAMS

REVISIONS
NO. DATE DESCRIPTION

POST APPROVAL

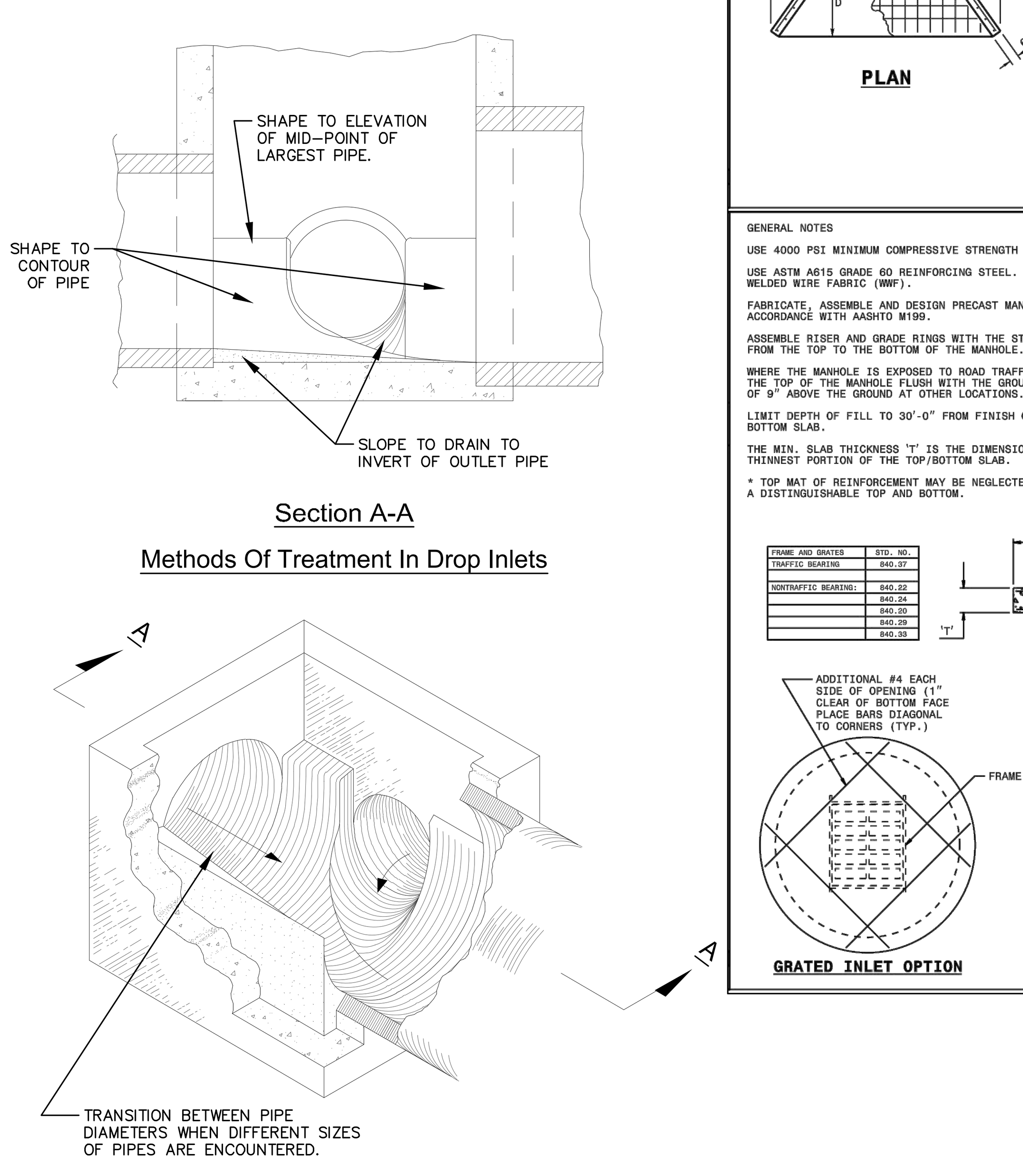
DESIGNED | DRAWN | CHECKED

BOB'S GUN SHOP
CURRITUCK COUNTY, NORTH CAROLINA
TOWN OF MOYOCK

DETAILS ~ UTILITIES

SCALE: NA
DATE: MARCH 28, 2023
PROJECT: B7011.02

C9.2

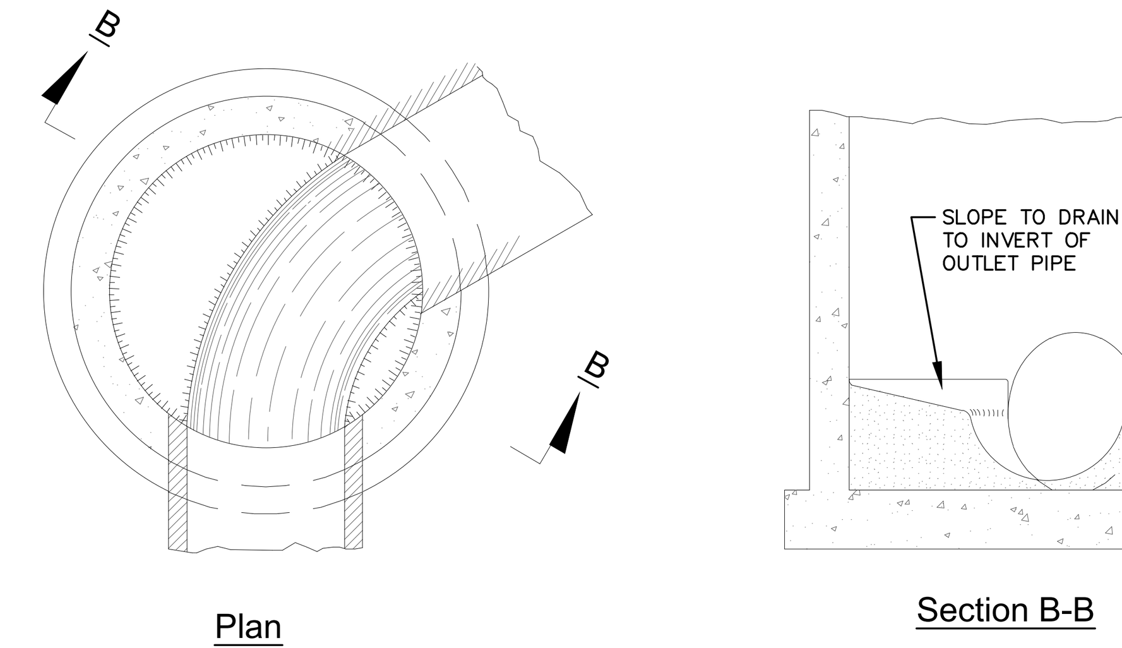


Section A-A

Methods Of Treatment In Drop Inlets

NOTES

1. SHAPING OF MANHOLE AND INLET INVERTS IN ACCORDANCE WITH THIS DRAWING IS TO APPLY TO THOSE STRUCTURES SPECIFIED ON PLANS OR WHERE INVERT OF PIPE IS ABOVE INVERT OF STRUCTURE.
2. MANHOLE OR DROP INLET IS TO BE FORMED AND CONSTRUCTED IN ACCORDANCE WITH APPLICABLE STANDARD OR SPECIAL DRAWING. THE INVERT SHAPING AS DETAILED HEREON IS TO CONSIST OF A PORTLAND CEMENT CONCRETE MIX CONFORMING TO CLASS A3 OR CLASS C1, EXCEPT THAT 25% OF COARSE AGGREGATE MAY BE UP TO 4" IN DIAMETER AND CONSIST OF STONE, BROKEN BRICK, BROKEN CONCRETE OR BROKEN CONCRETE BLOCK. THE SURFACE SHALL BE LEFT SMOOTH BY MEANS OF HAND TROWELLING. NONE OF THE COARSE AGGREGATE SHALL REMAIN EXPOSED.
3. DETAILS OF INVERT SHAPING AS SHOWN HEREON ARE FOR EXAMPLE PURPOSES ONLY. EACH MANHOLE OR DROP INLET IS TO BE SHAPED INDIVIDUALLY TO BEST FIT THE PARTICULAR INLET AND OUTLET CONFIGURATION AND FLOW LINES.



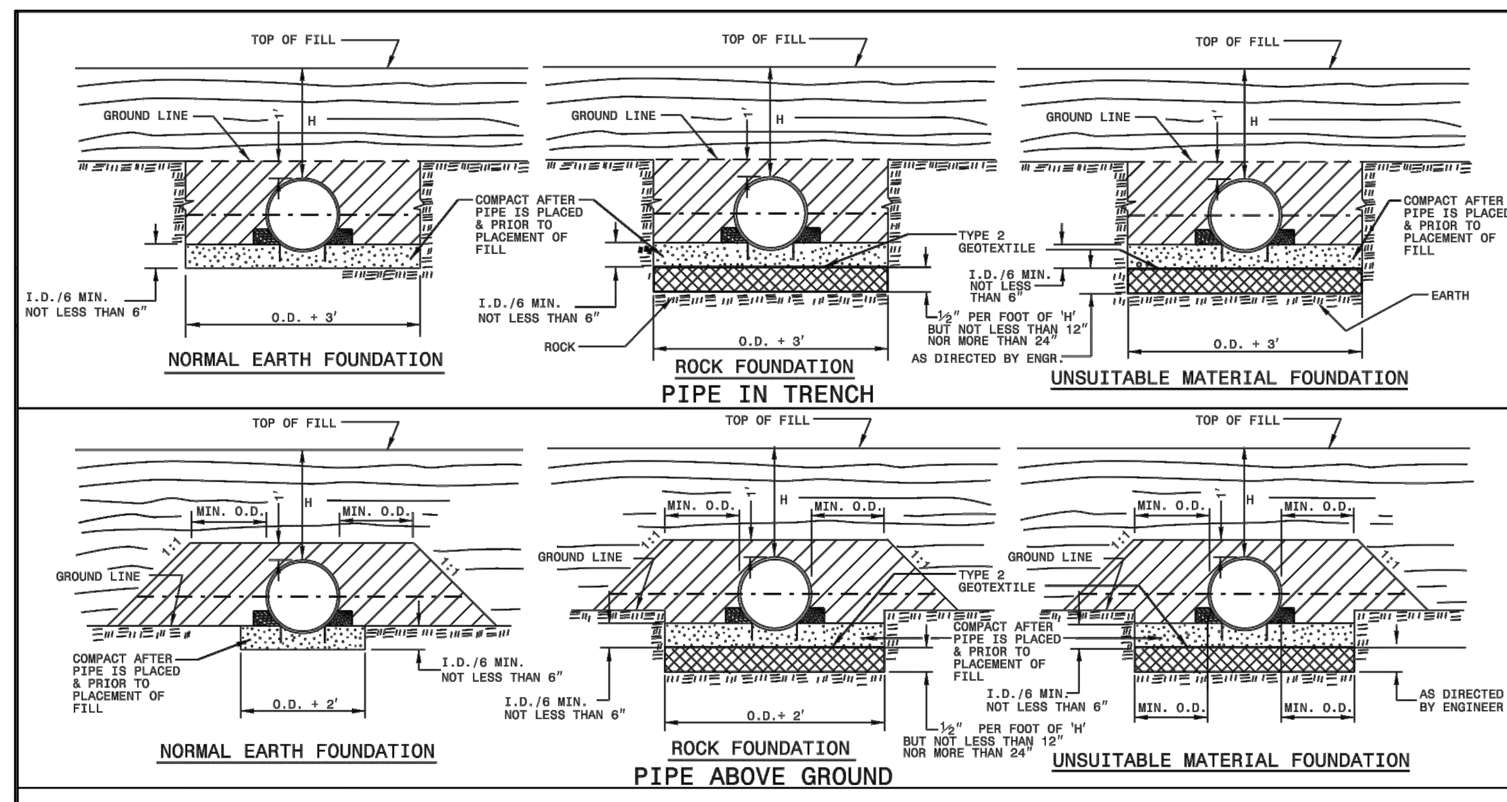
Plan

Section B-B

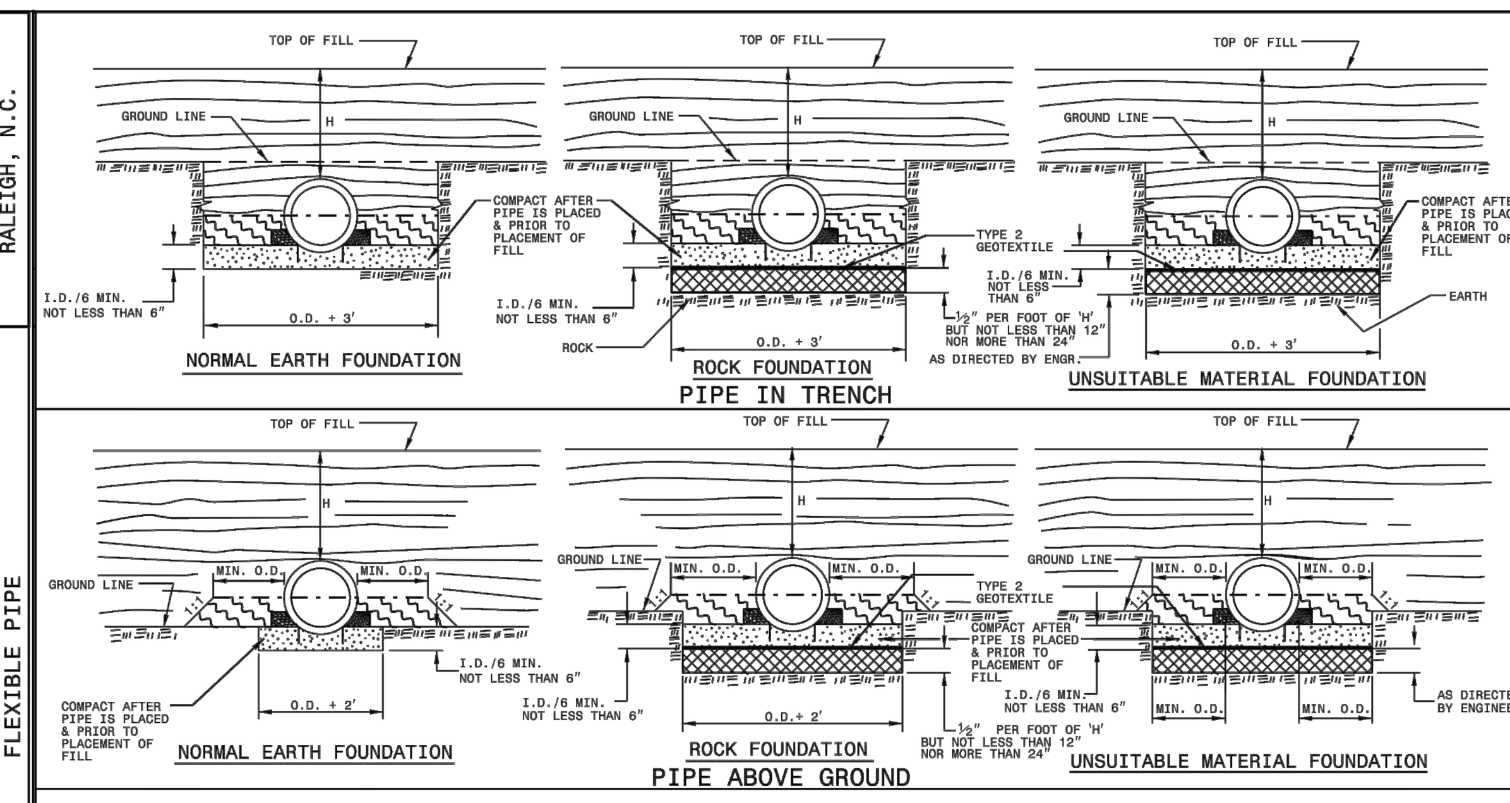
Methods Of Treatment In Manholes

Standard Method Of Shaping Manhole & Inlet Inverts

NOT TO SCALE



ROADWAY STANDARD DRAWING FOR METHOD OF PIPE INSTALLATION — FLEXIBLE PIPE
STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.
SHEET 1 OF 3 — 300.01



ROADWAY STANDARD DRAWING FOR METHOD OF PIPE INSTALLATION — RIGID PIPE
STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.
SHEET 2 OF 3 — 300.01

FLEXIBLE PIPE

Round Corrugated Steel Pipe
2 2/3 x ½ corrugation **

Diameter (inches)	Minimum cover (inches)	Max. Height of Cover (feet) (Ga) 16	14	12	10	8
12	12	204	256			
15	12	162	204			
18	12	135	169	239		
21	12	115	145	204		
24	12	100	126	178		
30	12	79	100	142		
36	12	65	83	117	152	
42	12	55	70	100	130	160
48	12	48	61	87	113	139
54	12		54	77	100	123
60	12			69	90	111
66	12				81	100
72	12				74	91
78	12					81
84	12					69

Round Corrugated Aluminum Pipe
2 2/3 x ½ corrugation **

Diameter (inches)	Minimum cover (inches)	Max. Height of Cover (feet) (Ga) 16	14	12	10	8
12	12	123	155	218	281	344
15	12	98	123	174	224	275
18	12	81	102	144	187	228
21	12	69	87	123	160	195
24	12	60	76	108	139	171
27	12		67	95	123	151
30	12		60	85	111	136
36	12		50	71	92	113
42	12			60	78	96
48	12			52	68	84
54	12			46	50	74
60	12				50	62
66	12					51
72	12					41

** FOR DIFFERENT CORRUGATIONS AND ARCH PIPES REFER TO ROADWAY DESIGN MANUAL OR MANUFACTURERS SPECIFICATION.

REFER TO THE FOLLOWING FOR PIPE SPECIFICATIONS
CSP - AASHTO M36
CAAP - AASHTO M196
HDPE - AASHTO M294
PVC - ASTM F949 or AASHTO M304

HDPE - * (Minimum fill) 2' for pipe diameters ≥ 12" and ≤ 60"
* (Maximum fill) 20' for pipe diameters ≤ 24"
17' for pipe diameters ≥ 30" and ≤ 60"

PVC - * (Minimum fill) 2' for pipe diameters ≥ 12" and ≤ 36"
* (Maximum fill) 30' for pipe diameters ≥ 12" and ≤ 36"

* FILL HEIGHT IS MEASURED FROM THE TOP OF THE PIPE TO THE BOTTOM OF THE PAVEMENT STRUCTURE

NOTES: FILL HEIGHTS SHOWN WERE CALCULATED USING AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

1' MINIMUM COVER FOR ALL SIDE DRAIN PIPE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS

RIGID PIPE

RCP - * (Minimum fill) 1' for Class IV & CLASS V
2' for Class III & Class II

* (Maximum fill) 10' - Class II pipe
20' - Class III pipe
30' - Class IV pipe
40' - Class V pipe

(For fills > 40' & < 80' use LRFD Direct Design Method)

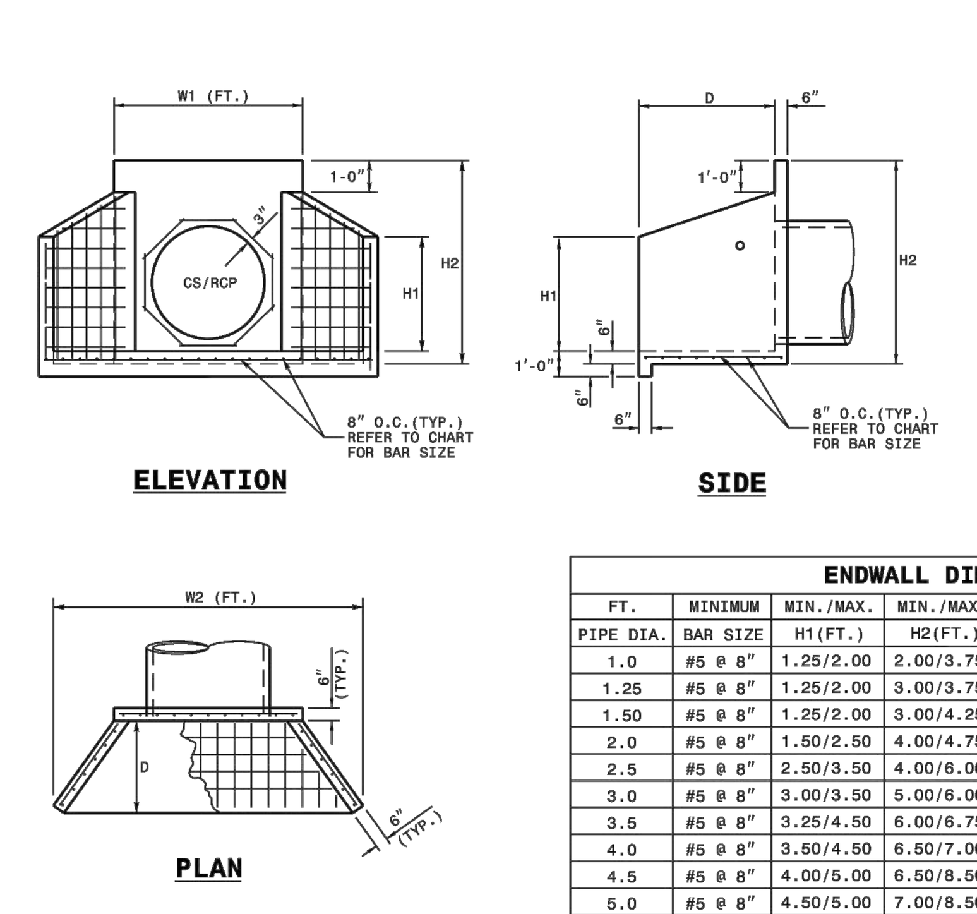
* FILL HEIGHT IS MEASURED FROM THE TOP OF THE PIPE TO THE BOTTOM OF THE PAVEMENT STRUCTURE

REFER TO THE FOLLOWING FOR PIPE SPECIFICATIONS
RCP - AASHTO M170

NOTES: FILL HEIGHTS SHOWN WERE CALCULATED USING AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

1' MINIMUM COVER FOR ALL SIDE DRAIN PIPE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS

ROADWAY STANDARD DRAWING FOR METHOD OF PIPE INSTALLATION — FILL HEIGHT TABLES
STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.
SHEET 3 OF 3 — 300.01



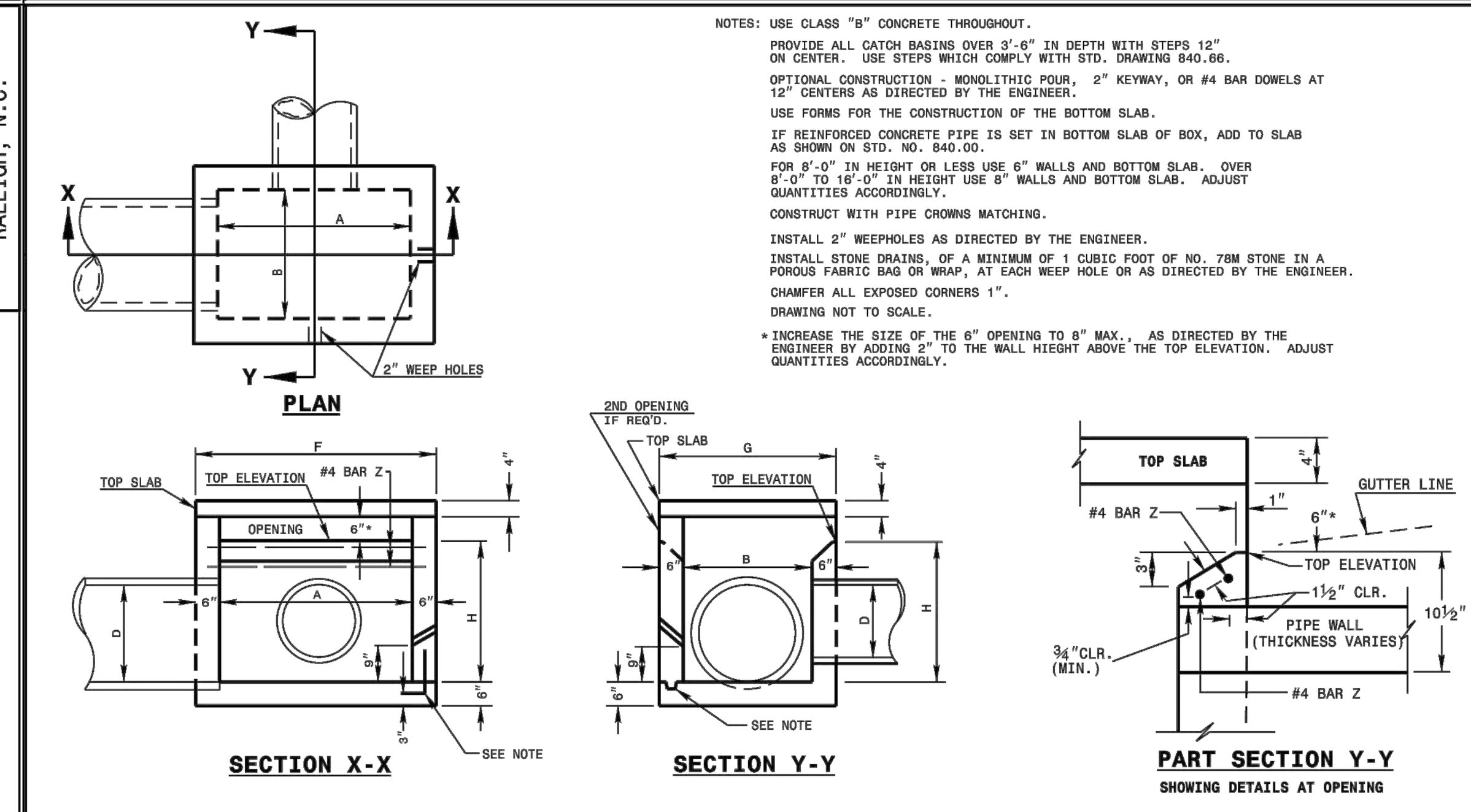
NOTES:
* ALL ELEMENTS PRECAST TO MEET ASTM C913.
* WELDED WIRE FABRIC MAY BE SUBSTITUTED FOR REBAR AS LONG AS THE SAME AREA OF STEEL IS PROVIDED.
* CHAMFER ALL CORNERS 1" OR HAVE A RADIUS OF 1".

NOTE: THE MINIMUM BAR SIZE SHALL BE #5 BARS AT 8" CTS.THE CONTRACTOR WILL HAVE THE OPTION TO INCREASE THIS BAR SIZE AS NEEDED.

ENDWALL DIMENSIONS

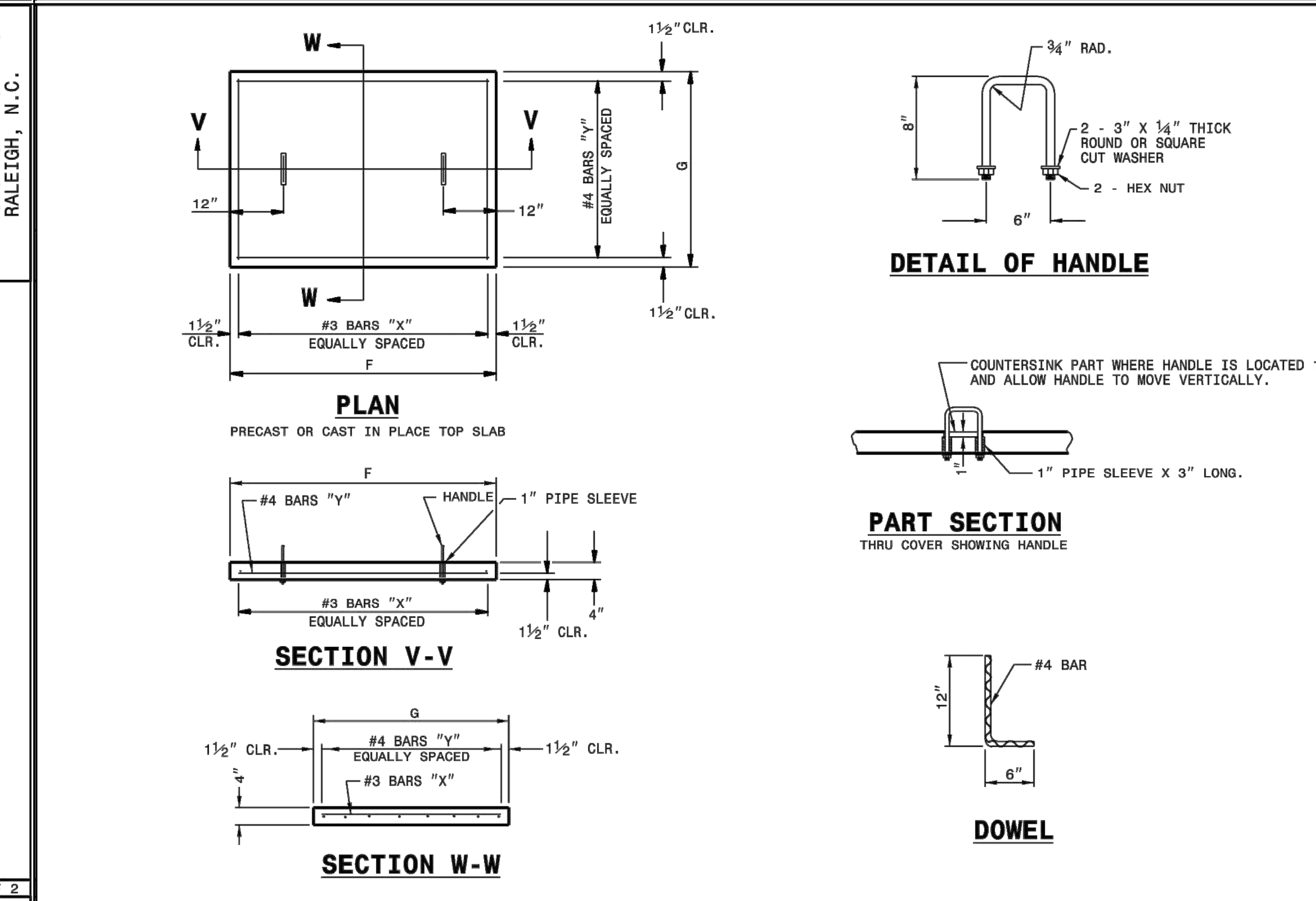
FT. PIPE DIA.	MINIMUM BAR SIZE	MIN./MAX. H1(FT.)	MIN./MAX. H2(FT.)	MIN./MAX. D (FT.)	MIN./MAX. W1	MIN./MAX. W2
1.0	#5 @ 8"	1.25/2.00	2.00/3.75	1.25/1.75	3.00/3.75	5.50/6.00
1.25	#5 @ 8"	1.25/2.00	3.00/3.75	1.25/2.00	3.50/3.75	6.50/6.75
1.50	#5 @ 8"	1.25/2.00	3.00/4.25	1.50/2.50	3.50/3.75	6.50/6.75
2.0	#5 @ 8"	1.50/2.50	4.00/4.75	1.75/2.50	4.00/4.25	7.50/8.25
2.5	#5 @ 8"	2.50/3.50	4.00/6.00	2.00/3.00	4.50/5.50	10.00/11.50
3.0	#5 @ 8"	3.00/3.50	5.00/6.00	2.75/3.50	5.25/5.75	11.50/11.75
3.5	#5 @ 8"	3.25/4.50	6.00/6.75	3.25/3.50	6.00/6.75	12.00/13.25
4.0	#5 @ 8"	3.50/4.50	6.50/7.00	3.25/3.50	6.50/6.75	13.00/13.25
4.5	#5 @ 8"	4.00/5.00	6.50/8.50	3.25/4.00	7.00/9.25	13.50/15.75
5.0	#5 @ 8"	4.50/5.00	7.00/8.50	3.25/4.00	7.25/9.25	13.75/15.75
5.5	#5 @ 8"	4.50/5.00	7.50/8.50	3.25/4.00	7.25/9.25	14.00/15.75
6.0	#5 @ 8"	4.50/5.00	7.50/8.50	3.25/4.00	7.75/9.25	14.75/16.75

ROADWAY STANDARD DRAWING FOR PRECAST CONCRETE ENDWALL FOR SINGLE 12" THRU 72" PIPE - 90° SKEW
STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.
SHEET 1 OF 1 — 838.80

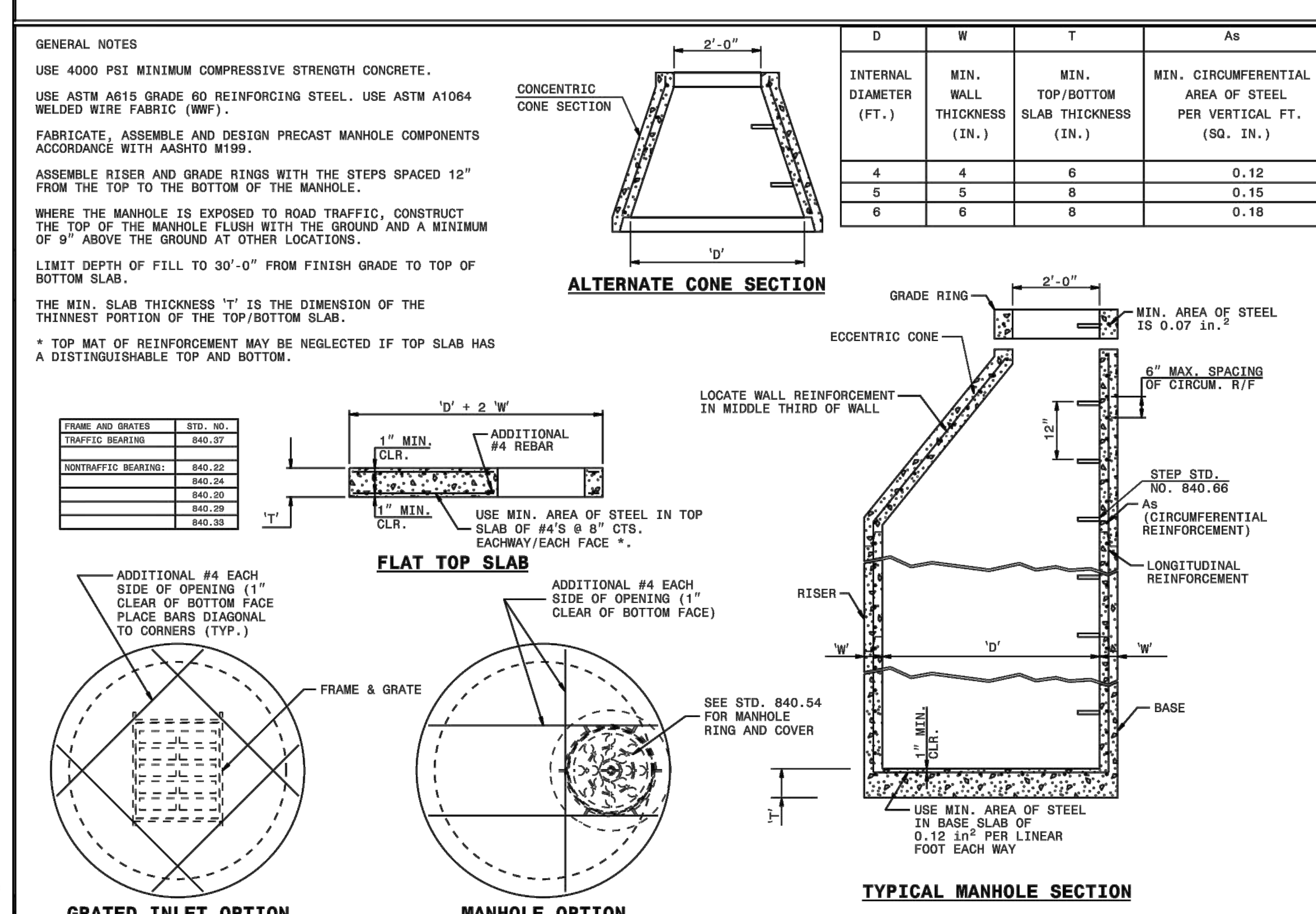


MIN. DIMENSIONS AND QUANTITIES FOR CONCRETE CATCH BASIN (BASED ON MIN. HEIGHT, H)																		
DIM'S OF BOX & PIPE				REINFORCING						TOP & BOT. SLAB DIMENSIONS		CU. YDS. CONC. IN BOX			TOTAL QUANTITIES BOX & SLABS		DEDUCTION ONE PIPE		DED. ONE 6" THROAT OPENING
PIPE	SPAN	WIDTH	HEIGHT	BARS - X		BARS - Y		BARS - Z											
D	A	B	H	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	F	G	TOP SLAB	BOT. SLAB	WALL/FT. HT.	LBS. REINF.	YD^3 (MIN H)	C.S.	R.C.	YD^3
12"	3'-6"	2'-3"	1'-10"	4	3'-0"	6	4'-3"	2	4'-3"	4'-6"	3'-3"	0.181	0.271	0.250	27	1.046	0.015	0.032	0.046
15"	3'-6"	2'-3"	2'-1"	4	3'-0"	6	4'-3"	2	4'-3"	4'-6"	3'-3"	0.181	0.271	0.250	27	1.108	0.023	0.036	0.046
18"	4'-0"	2'-8"	2'-4"	5	3'-5"	7	4'-9"	2	4'-9"	5'-0"	3'-8"	0.226	0.340	0.284	35	1.379	0.033	0.049	0.053
24"	4'-0"	2'-8"	2'-10"	5	3'-5"	7	4'-9"	2	4'-9"	5'-0"	3'-8"	0.226	0.340	0.284	35	1.521	0.059	0.085	0.053
30"	4'-0"	3'-6"	3'-4"	5	4'-3"	9	4'-9"	2	4'-9"	5'-0"	4'-6"	0.278	0.417	0.315	43	1.916	0.092	0.127	0.053
36"	4'-6"	4'-0"	3'-10"	5	4'-9"	10	5'-3"	2	5'-3"	5'-6"	5'-0"	0.340	0.510	0.352	51	2.390	0.132	0.178	0.059
42"	5'-0"	4'-6"	4'-4"	5	5'-3"	12	5'-9"	2	5'-9"	6'-0"	5'-6"	0.407	0.611	0.389	64	2.914	0.180	0.243	0.066
48"	5'-0"	5'-0"	4'-10"	5	5'-9"	13	5'-9"	2	5'-9"	6'-0"	6'-0"	0.444	0.666	0.407	68	3.298	0.235	0.317	0.066

ROADWAY STANDARD DRAWING FOR CONCRETE OPEN THROAT CATCH BASIN 12" THRU 48" PIPE
STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.
SHEET 1 OF 2 — 840.04



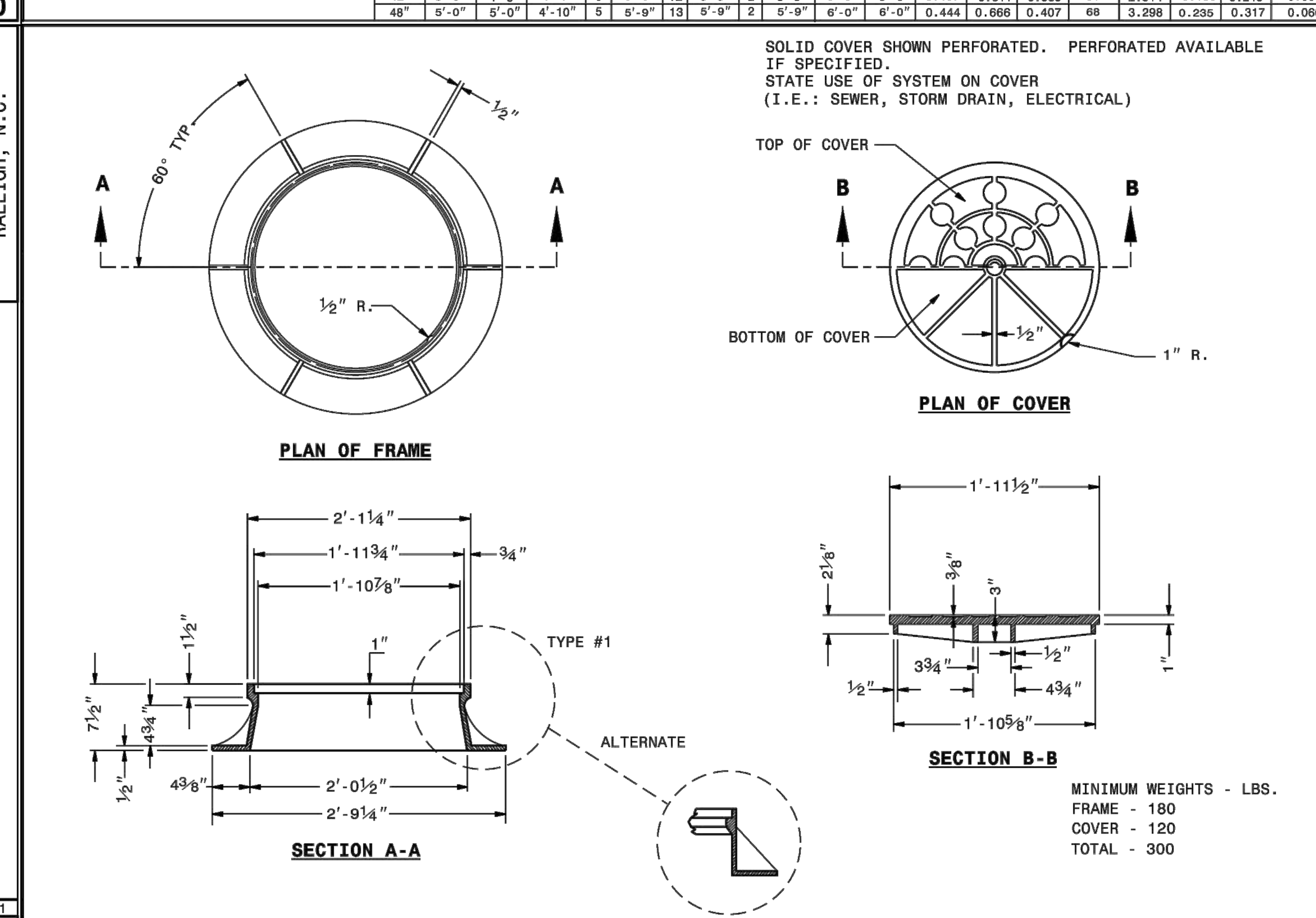
ROADWAY STANDARD DRAWING FOR CONCRETE OPEN THROAT CATCH BASIN 12" THRU 48" PIPE
STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.
SHEET 2 OF 2 — 840.04



D	W	T	As
INTERNAL DIAMETER (FT.)	MIN. WALL THICKNESS (IN.)	MIN. TOP/BOTTOM SLAB THICKNESS (IN.)	MIN. CIRCUMFERENTIAL AREA OF STEEL PER VERTICAL FT. (SQ. IN.)
4	4	6	0.12
5	5	6	0.15
6	6	8	0.18

ROADWAY STANDARD DRAWING FOR PRECAST MANHOLE 4, 5 AND 6' DIAMETER 12" THRU 48" PIPE
STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.
SHEET 1 OF 1 — 840.52

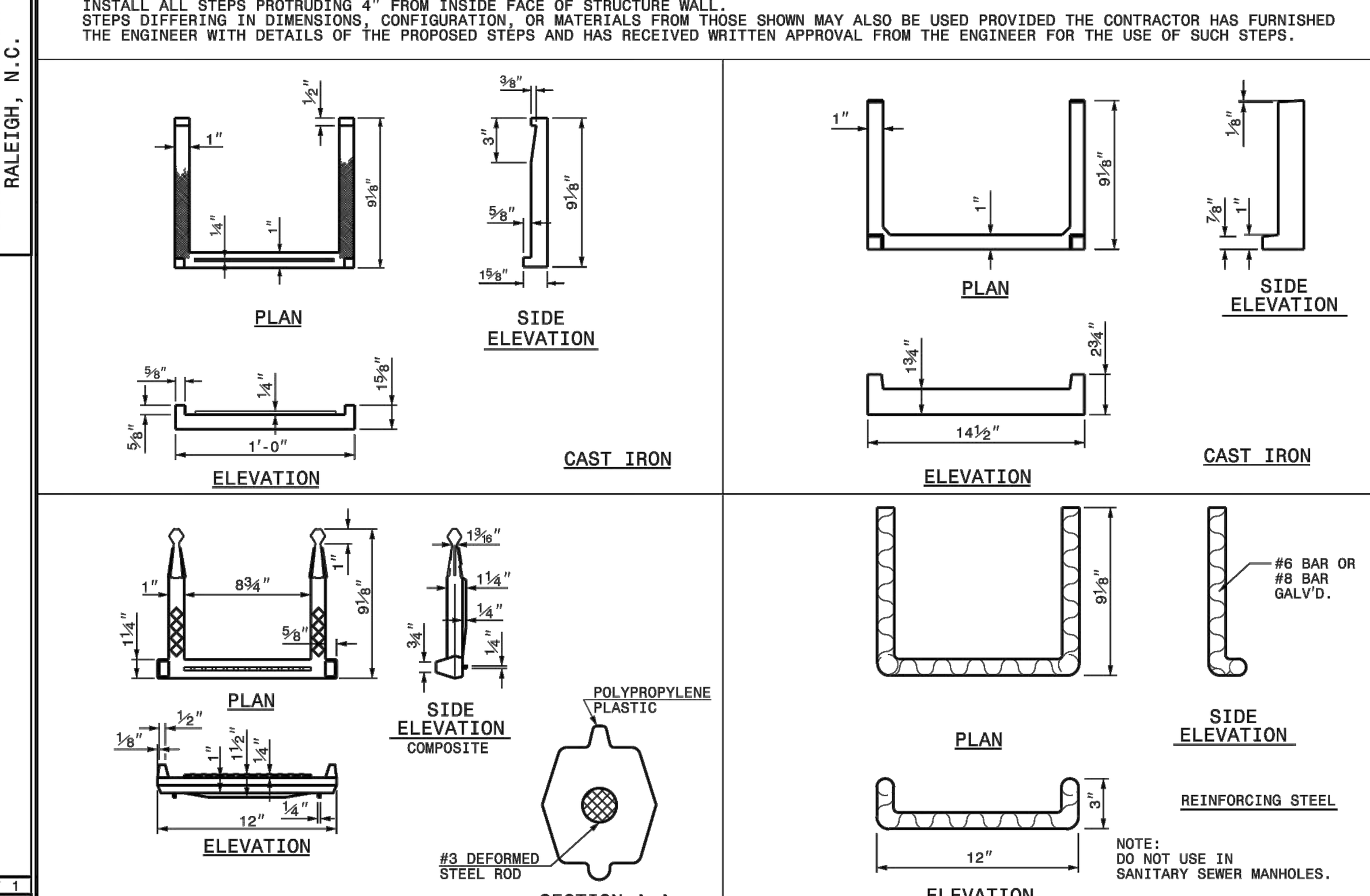
SOLID COVER SHOWN PERFORATED. PERFORATED AVAILABLE IF SPECIFIED.
STATE USE OF SYSTEM ON COVER
(I.E.: SEWER, STORM DRAIN, ELECTRICAL)



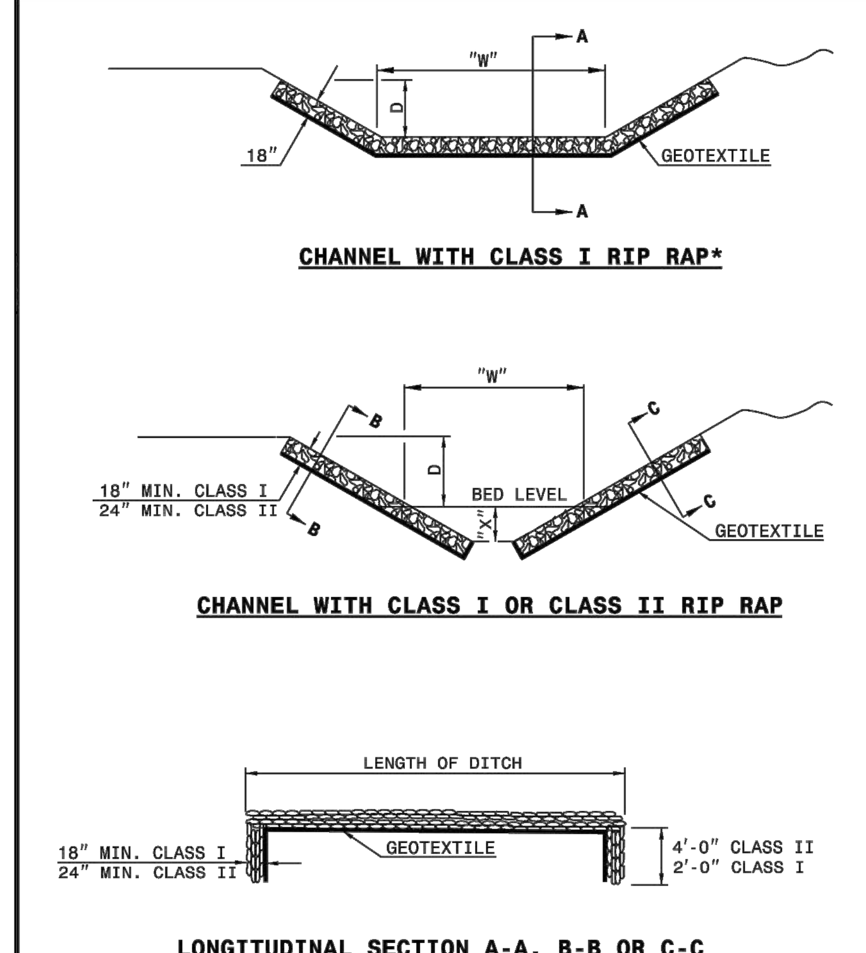
MINIMUM WEIGHTS - LBS.
FRAME - 180
COVER - 120
TOTAL - 300

ROADWAY STANDARD DRAWING FOR MANHOLE FRAME AND COVER
STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.
SHEET 1 OF 1 — 840.54

NOTES:
INSTALL ALL STEPS PROTRUDING 4" FROM INSIDE FACE OF STRUCTURE WALL.
STEPS DIFFERING IN DIMENSIONS, CONFIGURATION, OR MATERIALS FROM THOSE SHOWN MAY ALSO BE USED PROVIDED THE CONTRACTOR HAS FURNISHED THE ENGINEER WITH DETAILS OF THE PROPOSED STEPS AND HAS RECEIVED WRITTEN APPROVAL FROM THE ENGINEER FOR THE USE OF SUCH STEPS.



ROADWAY STANDARD DRAWING FOR DRAINAGE STRUCTURE STEPS
STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.
SHEET 1 OF 1 — 840.66



GENERAL NOTES:
1. USE RIP-RAP IN CHANNEL BED WHERE SHOWN ON PLANS.
2. IF BEDROCK IS ENCOUNTERED WITHIN THE LIMITS OF THE TOEWALL, BEGIN TOEWALL ON THE BEDROCK OR AS DIRECTED BY THE ENGINEER.
3. WHERE ONLY ONE SIDE REQUIRES RIP-RAP I OR 'II' LIST STATION AND SIDE OF SAME.

CLASS I	
"W"	"X"
0'-5'	BED LEVEL
6'-10'	12"
11'-20'	18"

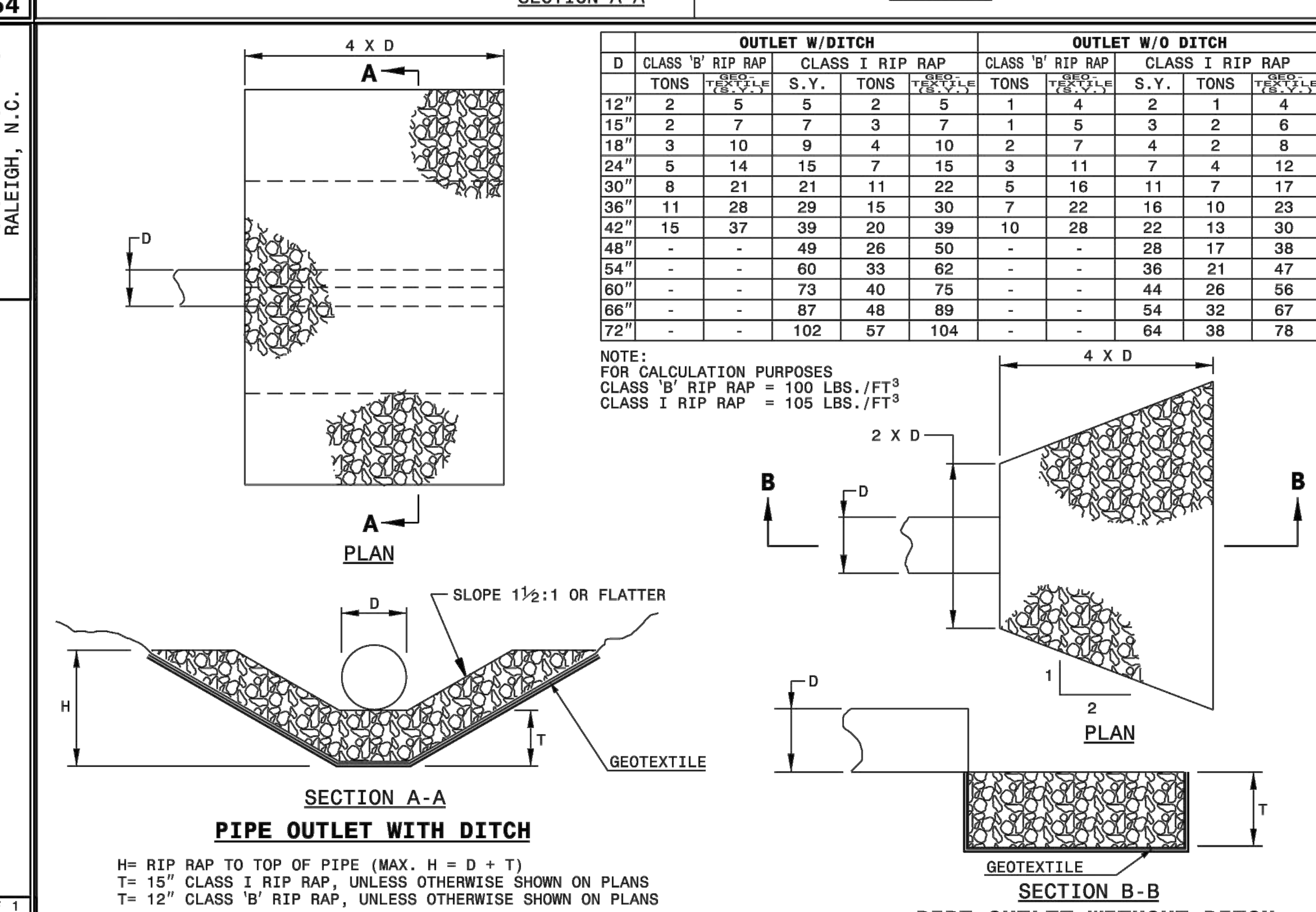
CLASS II	
"W"	"X"
ALL	36"

*FOR "V" DITCH "W" IS 0'

ROADWAY STANDARD DRAWING FOR RIP RAP IN CHANNELS
STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.
SHEET 1 OF 1 — 876.01

	OUTLET W/DITCH					OUTLET W/O DITCH				
D	CLASS 'B' RIP RAP		CLASS I RIP RAP			CLASS 'B' RIP RAP		CLASS I RIP RAP		
	TONS	GEO-TEXTILE (S.Y.)	S.Y.	TONS	GEO-TEXTILE (S.Y.)	TONS	GEO-TEXTILE (S.Y.)	S.Y.	TONS	GEO-TEXTILE (S.Y.)
12"	2	5	5	2	5	1	4	2	1	4
15"	2	7	7	3	7	1	5	3	2	6
18"	3	10	9	4	10	2	7	4	2	8
24"	5	14	15	7	15	3	11	7	4	12
30"	8	21	21	11	22	5	16	11	7	17
36"	11	28	29	15	30	7	22	16	10	23
42"	15	37	39	20	39	10	28	22	13	30
48"	-	-	49	26	50	-	-	28	17	38
54"	-	-	60	33	62	-	-	36	21	47
60"	-	-	73	40	75	-	-	44	26	56
66"	-	-	87	48	89	-	-	54	32	67
72"	-	-	102	57	104	-	-	64	38	78

NOTE:
FOR CALCULATION PURPOSES
CLASS 'B' RIP RAP = 100 LBS./FT³
CLASS I RIP RAP = 105 LBS./FT³



H= RIP RAP TO TOP OF PIPE (MAX. H = D + T)
T= 15" CLASS I RIP RAP, UNLESS OTHERWISE SHOWN ON PLANS
T= 12" CLASS 'B' RIP RAP, UNLESS OTHERWISE SHOWN ON PLANS

ROADWAY STANDARD DRAWING FOR GUIDE FOR RIP RAP AT PIPE OUTLETS
STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.
SHEET 1 OF 1 — 876.02

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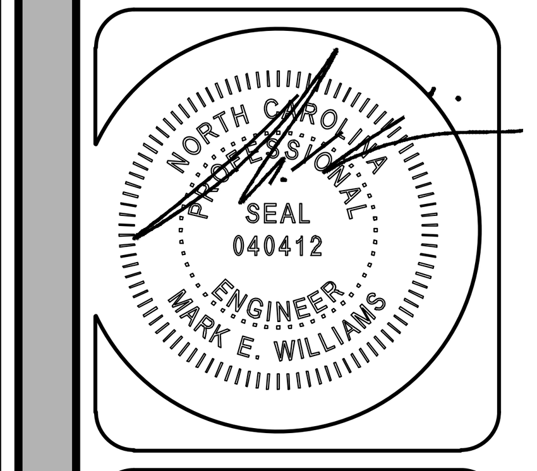


NO.	DATE	REVISIONS DESCRIPTION
		POST APPROVAL

DESIGNED | DRAWN | CHECKED

BOB'S GUN SHOP

TOWN OF MOYOCK — CURRITUCK COUNTY, NORTH CAROLINA

DETAILS ~ DRAINAGE

SCALE: NA
DATE: MARCH 28, 2023
PROJECT: B7011.02

C9.3

LANDSCAPE PLANTING NOTES

PLANTING

GENERAL CONDITIONS:
1. THE LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR FURNISHING AND INSTALLING ALL PLANT MATERIALS SHOWN ON PROJECT PLANS AND ON THE PLANT LIST. PLANT LIST QUANTITIES ARE FOR REFERENCE AND CONVENIENCE ONLY. QUANTITIES REPRESENTED BY ACTUAL PLAN PLANT COUNT SHALL PREVAIL AND SHALL BE QUANTITIES REQUIRED TO BE PLANTED BY THE CONTRACTOR. LANDSCAPE CONTRACTOR SHALL INVESTIGATE SOURCES OF SUPPLY FOR AVAILABILITY OF SPECIFIED PLANTS AND BY SUBMITTING A BID, AGREES THAT SUCH PLANTS WILL BE AVAILABLE FOR INSTALLATION ON THIS PROJECT PER THE CURRENT SCHEDULE. IF PLANT MATERIAL SPECIFIED IS UNAVAILABLE, LANDSCAPE CONTRACTOR SHALL NOTIFY LANDSCAPE ARCHITECT IN WRITING PRIOR TO BID DATE AND A SUBSTITUTE OR OTHER ACTION WILL BE TAKEN.
2. ALL PLANT MATERIAL SHALL BE GUARANTEED BY THE LANDSCAPE CONTRACTOR FOR A PERIOD OF ONE (1) YEAR, COMMENCING ON THE DATE OF INITIAL ACCEPTANCE. ALL PLANTS SHALL BE ALIVE, HEALTHY AND IN SATISFACTORY GROWTH AT THE END OF THE GUARANTEE PERIOD. ANY PLANT THAT IS 25% OR MORE DEAD SHALL BE CONSIDERED DEAD AND SHALL BE REPLACED AT NO CHARGE TO THE OWNER.
3. AN INSPECTION WILL BE CONDUCTED BY THE LANDSCAPE ARCHITECT AND/OR THE OWNER'S REPRESENTATIVE WITHIN TWO (2) WEEKS UPON RECEIVING WRITTEN NOTICE BY THE LANDSCAPE CONTRACTOR THAT THE WORK UNDER THIS CONTRACT IS COMPLETE. THIS INSPECTION WILL BE DONE TO DETERMINE INITIAL ACCEPTANCE OF THE WORK. IF WORK IS FOUND TO BE INCOMPLETE AND/OR THAT OTHER DEFICIENCIES IN THE WORK EXIST, THE LANDSCAPE CONTRACTOR WILL BE ISSUED A PUNCH LIST FOR ITEMS IN NEED OF CORRECTION. UPON COMPLETION OF ANY PUNCH LIST ITEMS, LANDSCAPE ARCHITECT AND/OR OWNER'S REPRESENTATIVE WILL RE-INSPECT WORK, AND IF ACCEPTABLE, WILL ISSUE TO THE LANDSCAPE CONTRACTOR INITIAL ACCEPTANCE.
4. PRIOR TO INITIAL ACCEPTANCE, LANDSCAPE CONTRACTOR SHALL PROVIDE TO THE LANDSCAPE ARCHITECT AND/OR THE OWNER'S REPRESENTATIVE A TYPEWRITTEN SET OF DETAILED AND COMPREHENSIVE PLANT AND TURF MAINTENANCE INSTRUCTIONS.
5. AT THE CONCLUSION OF THE GUARANTEE PERIOD, AN INSPECTION WILL BE CONDUCTED BY THE LANDSCAPE ARCHITECT AND/OR THE OWNER'S REPRESENTATIVE TO DETERMINE FINAL ACCEPTANCE FOR THIS PROJECT. ANY PLANTS THAT ARE IN AN UNHEALTHY, UNSIGHTLY, AND/OR BADLY IMPAIRED CONDITION AT THIS TIME AS DETERMINED BY THE LANDSCAPE ARCHITECT AND/OR THE OWNER'S REPRESENTATIVE WILL BE REPLACED AT NO CHARGE. WHEN ALL REQUIRED REPLACEMENTS HAVE BEEN COMPLETED, LANDSCAPE CONTRACTOR WILL BE ISSUED FINAL ACCEPTANCE.
6. A SOIL TEST OF EXISTING SOILS (REPRESENTATIVE SAMPLE FOR ENTIRE SITE) SHALL BE MADE BY THE LANDSCAPE CONTRACTOR TO DETERMINE MECHANICAL ANALYSIS; pH; ORGANIC CONTENT; MAGNESIUM, POTASSIUM, PHOSPHORUS & NITROGEN LEVELS; SOLUBLE SALTS/CONDUCTIVITY. SOIL TEST SHALL BE CONDUCTED BY A STATE LABORATORY OR RECOGNIZED COMMERCIAL LABORATORY. RESULTS OF SOILS TEST SHALL BE SUBMITTED TO LANDSCAPE ARCHITECT FOR EVALUATION AND RECOMMENDATIONS FOR SOIL ADJUSTMENTS, IF REQUIRED.
7. ALL PLANTINGS HAVE BEEN LOCATED WITH RESPECT TO EXISTING AND PLANNED UTILITIES AND/OR STRUCTURES. IF CONFLICTS OCCUR IN FIELD, PLANT MATERIAL LOCATIONS WILL BE FIELD ADJUSTED AND APPROVED BY LANDSCAPE ARCHITECT PRIOR TO PLANTING. LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING EXISTING UTILITIES. CONTRACTOR SHALL CONTACT MISS UTILITY AT LEAST 48 HOURS PRIOR TO COMMENCEMENT OF WORK.
8. ANY AREAS DAMAGED BY THE LANDSCAPE CONTRACTOR WILL BE RESTORED TO THEIR ORIGINAL CONDITION AT NO ADDITIONAL CHARGE TO THE OWNER.

MATERIALS:
1. ALL PLANT MATERIALS WILL CONFORM TO THE CURRENT STANDARDS FOR QUALITY AND SIZE PER THE AMERICAN STANDARD FOR NURSERY STOCK AS PUBLISHED BY THE AMERICAN NURSERYMEN AND LANDSCAPE ASSOCIATION (ANLA).
2. ALL PLANT MATERIAL IS SUBJECT TO INSPECTION AND/OR APPROVAL BY THE LANDSCAPE ARCHITECT AT THEIR PLACE OF GROWTH FOR CONFORMITY TO THE SPECIFICATION REQUIREMENTS AS TO SIZE, QUALITY AND VARIETY. THE LANDSCAPE CONTRACTOR SHALL SELECT PLANTS IN ADVANCE OF INSPECTION VISITS TO PREVENT REJECTION OF MATERIAL DELIVERED TO THE SITE. PLANT MATERIALS DAMAGED IN HANDLING AND/OR TRANSPORTATION MAY BE REJECTED BY THE LANDSCAPE ARCHITECT AND/OR THE OWNER'S REPRESENTATIVE UPON ARRIVAL AT THE SITE.
3. BACKFILL MIX FOR TREES & SHRUBS SHALL BE A THOROUGHLY BLENDED MIXTURE OF 50% EXISTING SOIL, 25% TOPSOIL & 25% ORGANIC MATTER (LEAF COMPOST, COMPOSTED PINE BARK FINES, COMPOSTED COW MANURE AND/OR OTHER ORGANIC MATERIAL APPROVED BY LANDSCAPE ARCHITECT.
4. MULCH FOR TREES, SHRUBS, GROUNDCOVER AND ANNUAL PLANTING BEDS SHALL BE DOUBLE SHREDDED HARDWOOD BARK MULCH AND SHALL BE INSTALLED AT 2"–3" DEPTH.
5. STAKES FOR STAKING & GUYING OF TREES SHALL BE 2"X2" HARDWOOD, REASONABLY FREE OF KNOTS AND/OR OTHER DEFECTS. STAKES FOR GUYING SHALL BE 3' IN LENGTH AND FOR VERTICAL STAKING SHALL BE 8' IN LENGTH.
6. WIRE FOR STAKING & GUYING SHALL BE A MINIMUM OF 12 GAUGE GALVANIZED STEEL OR APPROVED EQUAL. HOSE FOR WIRE CHAFFING GUARDS SHALL BE CORDED RUBBER, 1/2" DIAMETER AND BLACK IN COLOR. TURNBUCKLES (FOR TREES 4" CALIPER AND LARGER) SHALL BE ZINC PLATED OR ALUMINUM WITH A MINIMUM DIAMETER OF 5/16" AND A MINIMUM TAKE-UP DIMENSION OF 4".
7. FERTILIZER FOR ALL PLANTINGS SHALL BE GRANULAR OR PELLET FORM WITH AN ANALYSIS OF 10-6-4, 50% ORGANIC FORM AND SHALL BE APPLIED PER SOIL TEST RECOMMENDATION.

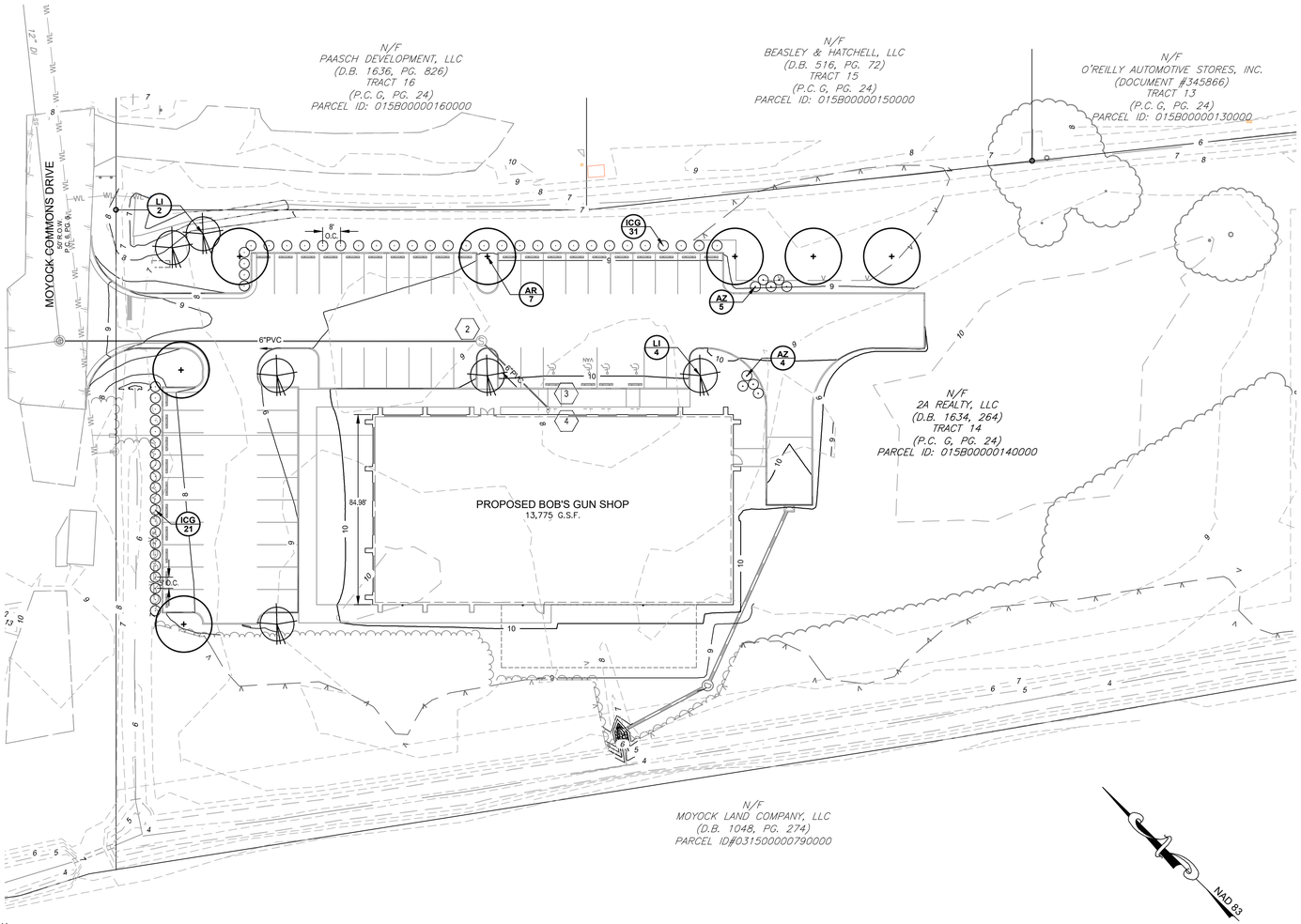
EXECUTION:
1. ALL PLANTINGS TO BE INSTALLED PER DETAILS ON THIS SHEET. IF PLANTINGS CAN NOT BE INSTALLED PER DETAIL, THE LANDSCAPE ARCHITECT SHALL BE NOTIFIED IN WRITING OF SUCH AN INSTANCE AND A CORRECTIVE PLANTING MEASURE WILL BE ISSUED.
2. LANDSCAPE CONTRACTOR SHALL NOTIFY LANDSCAPE ARCHITECT AND/OR OWNER'S REPRESENTATIVE IN WRITING IF POOR DRAINAGE AREAS ARE ENCOUNTERED DURING PLANTING OPERATIONS. IF REQUIRED DUE TO THIS POOR DRAINAGE, PLANT MATERIAL LOCATION MAY BE ADJUSTED BY THE LANDSCAPE ARCHITECT, PLANT SELECTION MAY BE MODIFIED AND/OR A MEASURE FOR CORRECTING SAID DRAINAGE PROBLEM WILL BE NEGOTIATED WITH LANDSCAPE CONTRACTOR.
3. ALL BURLAP AND/OR TIES AROUND TOP 1/3 OF TREE ROOT BALLS SHALL BE REMOVED DURING PLANTING OPERATION. ALL PLASTIC POTS AND/OR CONTAINERS AS WELL AS OTHER MISCELLANEOUS DEBRIS FROM PLANTING OPERATIONS, SHALL BE REMOVED FROM PROJECT SITE ON A DAILY BASIS.
4. ALL DECIDUOUS TREES 2" CALIPER OR LARGER AND EVERGREENS 6' HEIGHT AND LARGER SHALL BE GUYED PER DETAIL 1 ON THIS SHEET, (EXCEPT FOR THOSE TREES LOCATED IN PEDESTRIAN AREAS WHICH SHALL BE VERTICALLY STAKED PER DETAIL 2). VERTICAL STAKES SHALL BE LOCATED PARALLEL TO WALKS, STREETS, ETC.
5. ALL PLANTINGS SHALL BE THOROUGHLY WATERED IMMEDIATELY AFTER PLANTING, EVEN IF IT IS RAINING. LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR WATERING OF ALL PLANTINGS UNTIL INITIAL ACCEPTANCE.
6. REMOVE ALL STAKES & GUYS ON TREES PLANTED AS PART OF THIS PROJECT AT THE END OF THE 1 YEAR PLANT MATERIAL WARRANTY PERIOD. DISPOSE OF DEBRIS & OLD STAKING MATERIALS LEGALLY OFF-SITE.

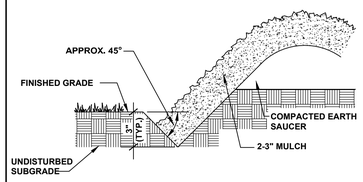
TURF

GENERAL CONDITIONS:
1. LANDSCAPE CONTRACTOR SHALL FURNISH AND INSTALL ALL LABOR, MATERIAL AND EQUIPMENT NECESSARY TO COMPLETE THE TURF ESTABLISHMENT.
2. ALL TURF SEED AREAS SHALL BE GUARANTEED TO ACHIEVE A 85% OR GREATER GERMINATION RATE. ANY AREAS NOT RECEIVING THIS RATE SHALL BE RE-SEEDED AT NO ADDITIONAL CHARGE TO THE OWNER.
3. THREE COPIES OF THE CERTIFIED SEED LABEL FOR THE SPECIFIED TURF SEED MIXTURE SHALL BE SUBMITTED TO LANDSCAPE ARCHITECT PRIOR TO SEEDING OPERATIONS.

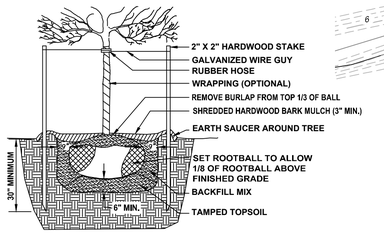
MATERIALS:
1. TURF (SEED AND SOD) SHALL BE A BLEND OF THREE (3) IMPROVED VARIETIES OF TURF TYPE FALL FESCUE PER THE CURRENT LIST FROM VPI & SU. SEED AND SOD SHALL BE STATE CERTIFIED. SEED FOR SHADE AREAS TO BE CREEPING RED FESCUE AND CHEWINGS FESCUE.
2. STRAW MULCH TO BE CLEAN WHEAT STRAW, FREE OF NOXIOUS WEED SEEDS (I.E. QUACKGRASS, JOHNSON GRASS, THISTLE, ETC.). HAY FOR USE AS MULCH IS UNACCEPTABLE.
3. HYDROMULCH FOR SEEDING OPERATION SHALL BE CELLULOSE FIBER SUCH AS CONWEB OR APPROVED EQUAL.
4. FERTILIZER FOR TURF AREAS SHALL BE GRANULAR OR PELLET FORM, WITH A GUARANTEED ANALYSIS OF 10-10-10.
5. LIME MATERIAL SHALL BE PELLETIZED LIME.

EXECUTION:
1. PRIOR TO SEED AND/OR SOD INSTALLATION, AREAS SHALL BE FINE GRADED AND CLEANED OF TRASH, ROOTS, DEBRIS AND/OR STONES 1 1/2" IN LENGTH OR DIAMETER.
2. FERTILIZER SHALL BE INSTALLED IN TURF AREAS AT A RATE OF 20 LBS./1000 SQUARE FEET.
3. LIME SHALL BE APPLIED AT A RATE AS DETERMINED BY SOIL TESTS.
4. SOD SHALL BE LAID WITH STAGGERED JOINTS AND PERPENDICULAR TO SLOPE, IF ANY. SOD SHALL BE WATERED THOROUGHLY AFTER BEING LAID AND THEN SHALL BE ROLLED TO PROVIDE GOOD SOD-TO-SOIL CONTACT.
5. TURF SEED SHALL BE INSTALLED BY HYDROSEED METHOD. SEED, FERTILIZER AND/OR LIME SHALL BE ONE SLURRY MIX; HYDROMULCH SHALL BE SECOND SLURRY APPLICATION (TACK COAT) AFTER STRAW MULCH INSTALLATION. SEED SHALL BE SOWED AT A RATE OF 6-8 LBS./1000 SQUARE FEET.
6. WATER AREA THOROUGHLY AFTER MULCHING OPERATION.
7. TURF SHALL BE KEPT MOIST ON A DAILY BASIS UNTIL 2 WEEKS AFTER GERMINATION TO ENSURE PROPER ESTABLISHMENT.
8. CLEAN UP MISCELLANEOUS DEBRIS AND EXCESS STRAW FROM THE TURF AREAS AND *FROM JOB SITE.*

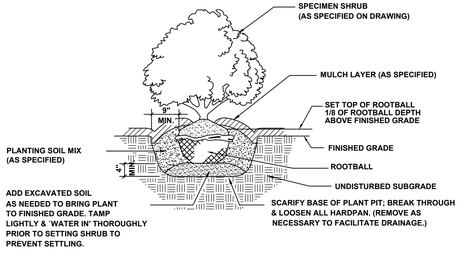




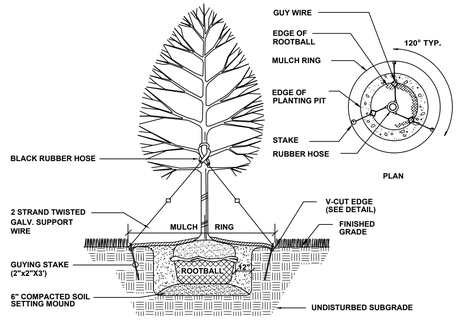
V-CUT BED EDGE
SCALE: N.T.S. SECTION



TREE PLANTING DETAIL - UP TO 4" CALIPER
SCALE: N.T.S. SECTION



SHRUB PLANTING
SCALE: N.T.S. SECTION



LARGE TREE PLANTING & GUYING
SCALE: N.T.S. SECTION

GENERAL NOTES

1. ALL PROPOSED UTILITIES ARE TO BE INSTALLED UNDERGROUND, INCLUDING ELECTRIC, TELEPHONE, AND CATV (SEE SITE UTILITY PLAN).
2. NO LANDSCAPING OF ANY TYPE SHALL BE PLACED WITHIN A THREE FOOT RADIUS OF ANY FIRE HYDRANT, FIRE PUMP TEST HEADER, FIRE DEPARTMENT SPRINKLER SYSTEM CONNECTION, FIRE DEPARTMENT STANDPIPE CONNECTION OR FIRE SUPPRESSION CONTROL VALVE. LANDSCAPING IN THE AREA OF FIRE HYDRANTS, FIRE PUMP TEST HEADERS, FIRE DEPARTMENT SPRINKLER SYSTEM CONNECTIONS OR FIRE DEPARTMENT STANDPIPE CONNECTIONS SHALL BE OF THE TYPE THAT WILL NOT ENCROACH ON THE REQUIRED THREE FOOT CLEAR RADIUS ON MATURITY OF THE LANDSCAPING
3. NO LANDSCAPING SHALL BE PLACED ANY CLOSER THAN TEN FEET (10') TO ANY SANITARY SEWER AND OR WATER SERVICE.

LANDSCAPE NOTES:

1. ANY TREE WITHIN FIVE FEET (5') OF SIGHT DISTANCE LINE SHALL BE LIMBED UP EIGHT FEET (8') TO MAINTAIN LINE OF SIGHT.
2. NO PLANTING WHICH OBSTRUCTS VISION BETWEEN 30" AND 8' ABOVE THE GROUND LEVEL SHALL BE PERMITTED WITHIN THE SIGHT DISTANCE LINE.

NOTE:
THIS PLAN IS FOR LANDSCAPE PURPOSES ONLY. REFER TO CIVIL ENGINEERING PLANS FOR DETAILED SITE INFORMATION.

GRAPHIC SCALE
30 0 15 30 60
1 inch = 30 feet

PLANT MATERIAL SCHEDULE - BOB'S GUN SHOP

KEY	BOTANICAL NAME	COMMON NAME	QTY.	SIZE		ROOT	REMARKS
				CALIPER	HEIGHT/SPREAD		
	LARGE DECIDUOUS TREES						
AR	*Acer rubrum* `Franksred'	Red Sunset Maple	7	2.5"- 3"		B&B	Full, Dense, Well Branched
	MEDIUM DECIDUOUS TREES						
LI	*Lagerstroemia x fauriei* `Sarah's Favorite'	Sarah's Favorite Crape Myrtle	6		10'-12' Ht.	B&B	Multi-Stem, 3 Stem Min. Well Branched
	SHRUBS						
AZ	*Rhodendendron x* `Roblez' PP#28279	Autumn Fire® Encore Azalea	9		18"-24" Ht./Spd.	3 Gal. Cont.	Full, Dense, Well Branched
ICG	*Ilex crenata* `Green Lustre'	Green Lustre Japanese Holly	52		18"-24" Ht./Spd.	3 Gal. Cont.	Full, Dense, Well Branched

Date Inserted: 3/27/2023 15:46

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NORTH CAROLINA PROFESSIONAL SEAL 040412 ENGINEER MARK E. WILLIAMS

REVISIONS
NO. DESCRIPTION DATE
POST APPROVAL

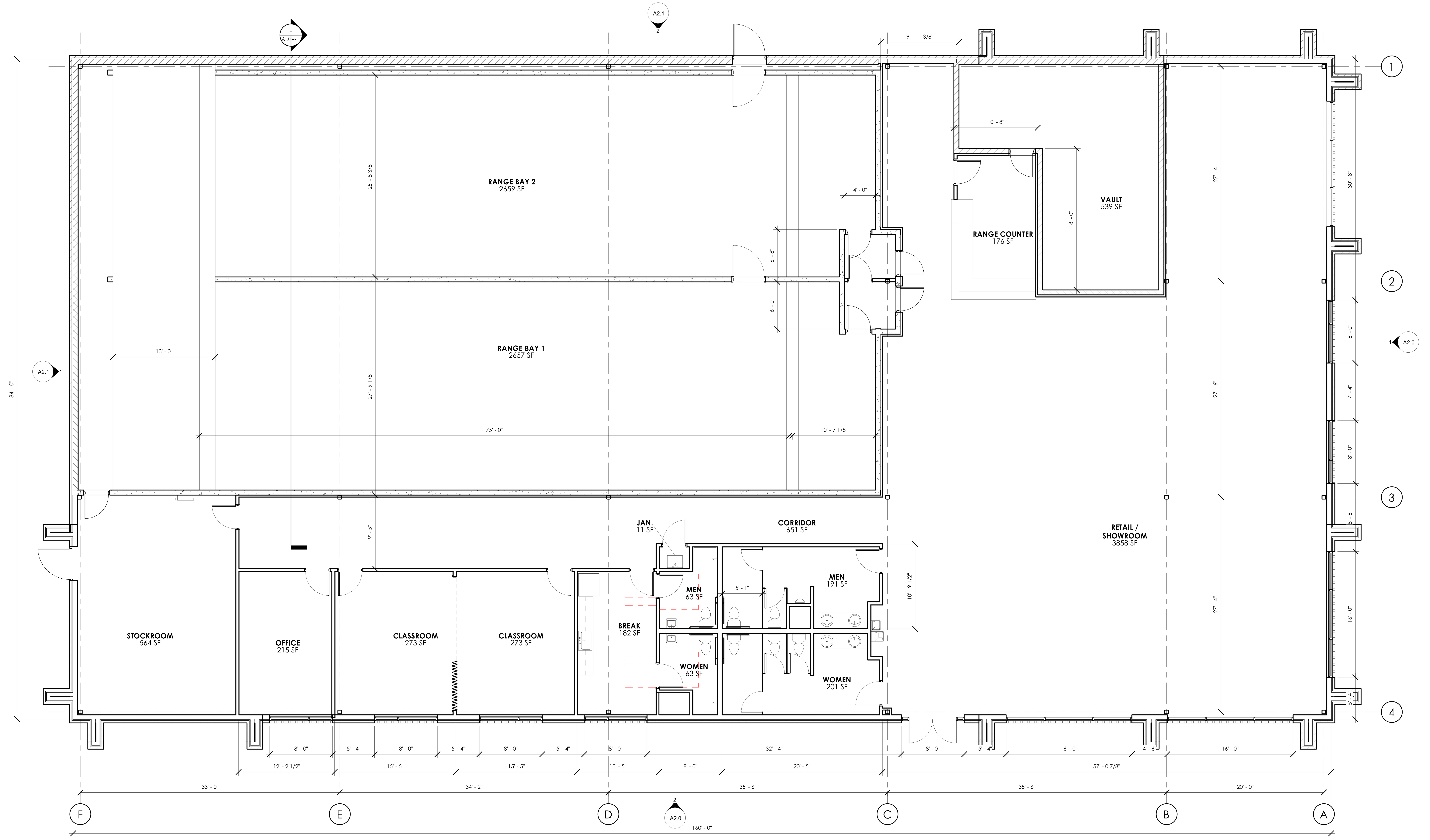
DESIGNED | DRAWN | CHECKED

BOB'S GUN SHOP
CURRITUCK COUNTY, NORTH CAROLINA
TOWN OF MOYOCK

LANDSCAPE PLAN

SCALE: 1" = 30'
DATE: MARCH 28, 2023
PROJECT: B7011.02

L1.1



FLOOR PLAN
3/16" = 1'-0"

NEW FACILITY FOR
BOB'S GUN SHOP
MOYOCK, NC

COVINGTON HENDRIX ANDERSON ARCHITECTS
360 Southport Circle Suite 104
Virginia Beach, VA 23452
www.covingtonhendrix.com

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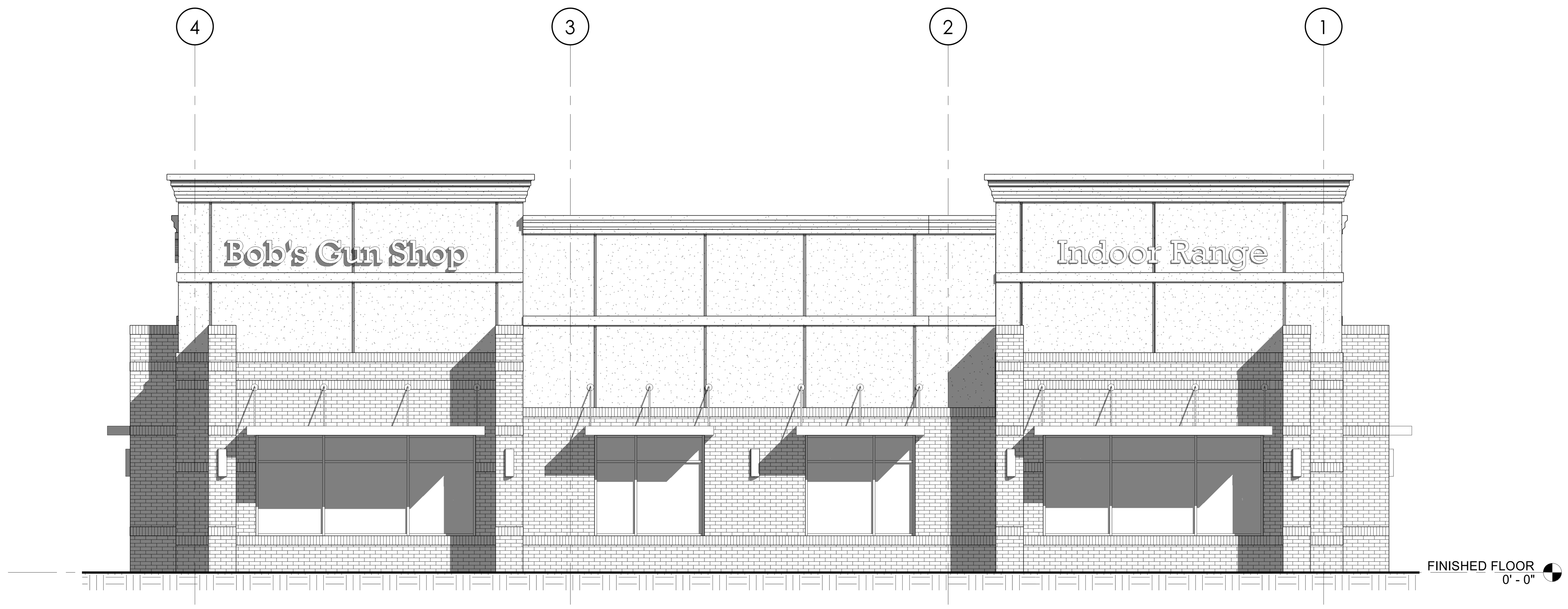
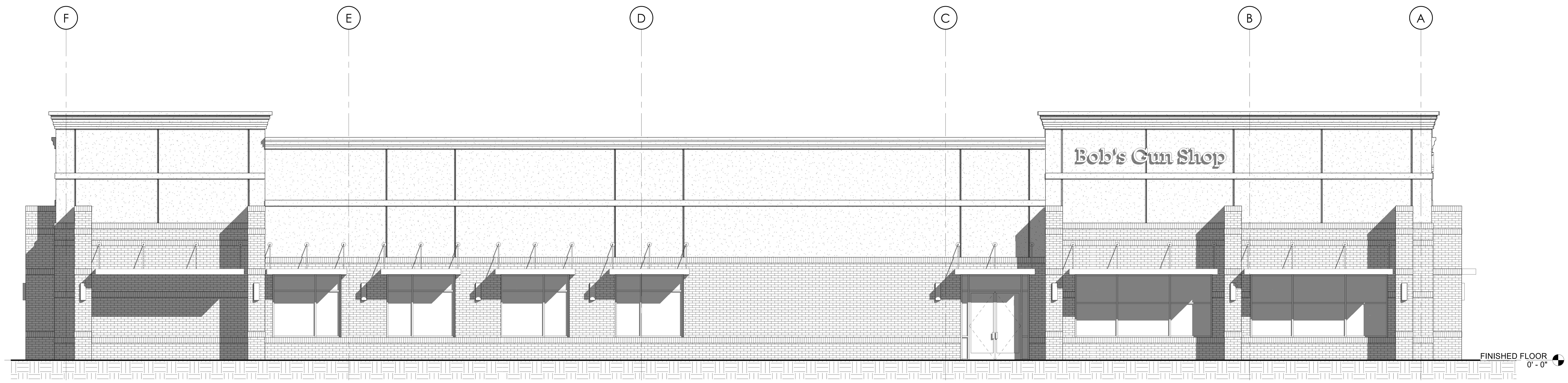
FLOOR PLAN

A1.0



1 A1.0/A2.0 FRONT ELEVATION
3/16" = 1'-0"



2 A1.0/A2.0 LEFT SIDE ELEVATION
3/16" = 1'-0"

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Digital Sky Studios, Inc.
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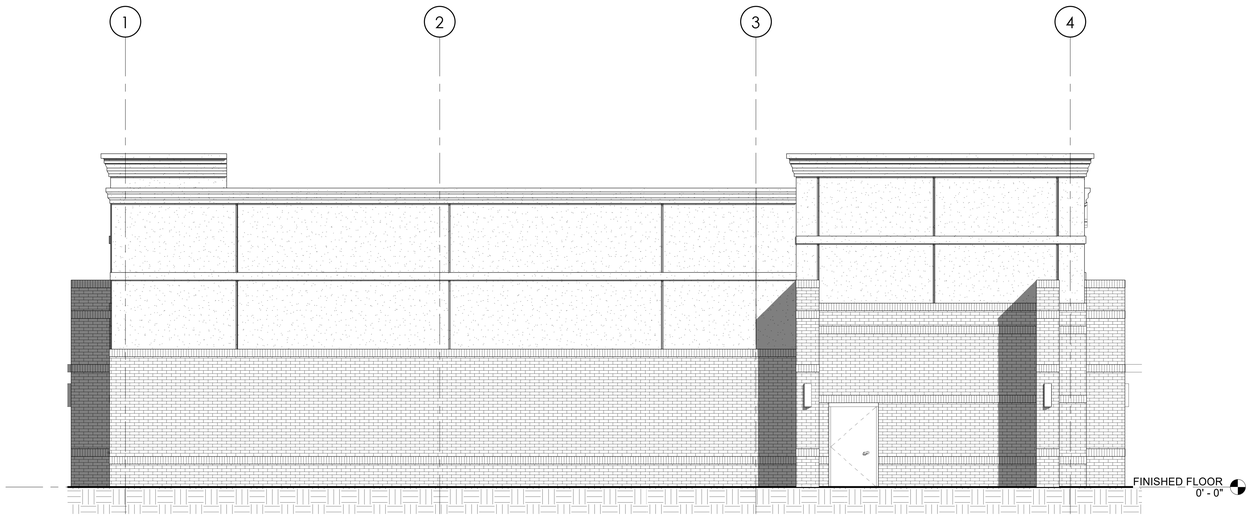
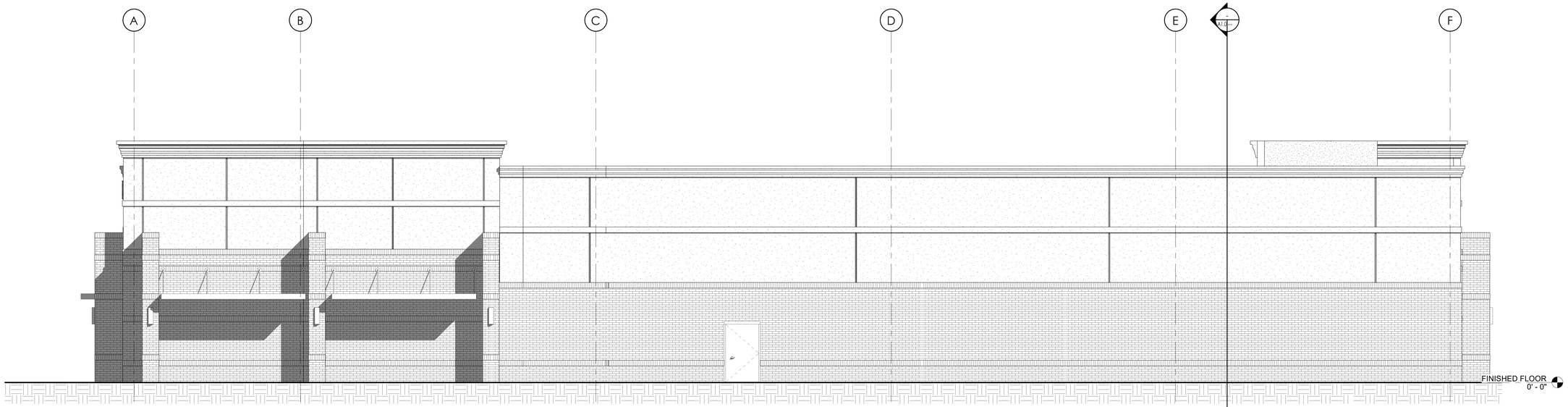
EXTERIOR ELEVATIONS

A2.0



1 A1.02 REAR ELEVATION
3/16" = 1'-0"



2 A1.02 RIGHT SIDE ELEVATION
3/16" = 1'-0"

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EXTERIOR ELEVATIONS

A2.1

3D View 1

3D View 2

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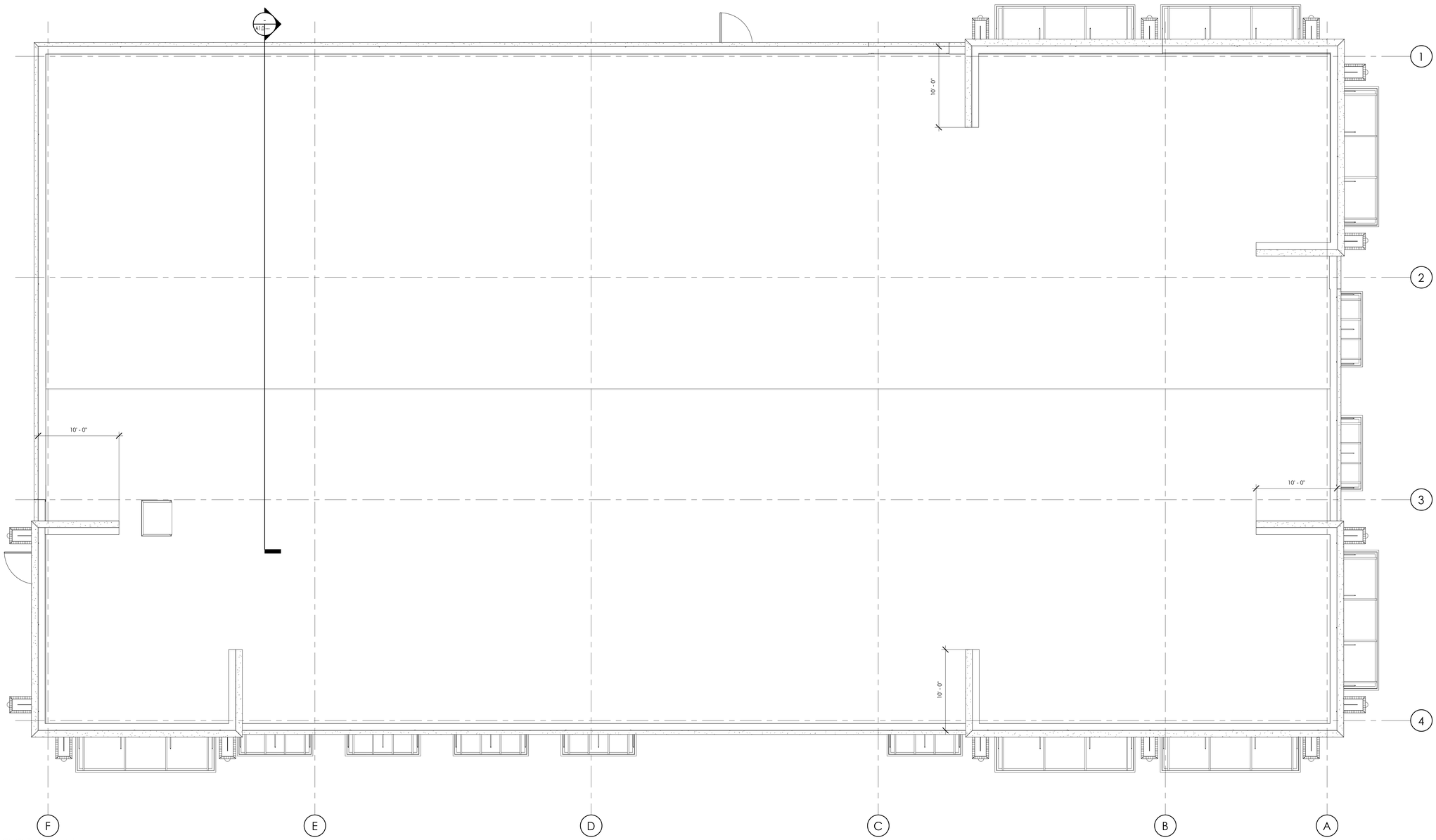
SCHEMATIC 3D VIEWS

A2.2



ROOF PLAN
3/16" = 1'-0"

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ROOF PLAN

A6.0