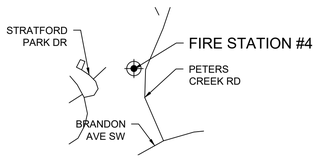
SPECTRUM DESIGN
architects | engineers

Plaza Suite 1
10 Church Avenue, SE
Roanoke, VA 24011
540.342.6001
SPECTRUMPC.COM

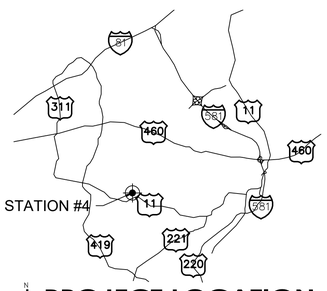
GENERAL PROJECT INFORMATION

PROJECT SITE	TAX MAP NO.	ACREAGE	DEVELOPED ACREAGE	ZONING	FLOOD ZONE	PERMIT AUTHORITY
FIRE STATION #4	5200112	1.22	0.31	IN	X	CITY OF ROANOKE

PROPERTY OWNER IDENTIFICATION	
OWNER/AUTHORIZED AGENT:	JAMES NUCKLES PHONE: (540) 853-2953
OWNER'S ADDRESS:	215 CHURCH AVE SW ROOM 350 ROANOKE, VA 24011
SUBMITTING ENGINEER:	SPECTRUM DESIGN PC PHONE: (540) 342-6001
ENGINEER'S ADDRESS:	10 CHURCH AVE SE ROANOKE, VA 24011



PROJECT VICINITY
SCALE: N.T.S.



PROJECT LOCATION
SCALE: N.T.S.

CITY OF ROANOKE REFUELING CENTERS FIRE STATION #4

ROANOKE CITY PROJECT NO.: **CP25-0016**
RFP #24-10-66 / PLAN #6997

3763 PETERS CREEK RD EXT SW | ROANOKE, VA 24018

PROJECT PHASE:
BID DOCUMENTS

SPECTRUM PROJECT NUMBER:
23181

COMMONWEALTH OF VIRGINIA
TRAVIS ROOKSTOOL
Lic. No. 17288
10.10.2025
ARCHITECT

COMMONWEALTH OF VIRGINIA
MICHAEL A. RAKES
Lic. No. 28199
10.10.2025
PROFESSIONAL ENGINEER

COMMONWEALTH OF VIRGINIA
JACQUELINE MAYROSH
Lic. No. 43345
10.10.2025
PROFESSIONAL ENGINEER

PROJECT DATE:
10.10.2025

CITY OF ROANOKE CONSTRUCTION NOTES:

NOTICE: ALL LANDOWNERS, DEVELOPERS AND CONTRACTORS

FAILURE TO COMPLY WITH THE CONSTRUCTION PROCEDURE REQUIREMENTS LISTED BELOW MAY RESULT IN THE COSTLY REMOVAL OF STRUCTURES, TIME DELAYS OR THE ISSUANCE OF A STOP WORK ORDER.

CONSTRUCTION PROCEDURE REQUIREMENTS:

1. RIGHT-OF-WAY EXCAVATION PERMIT - PRIOR TO THE COMMENCEMENT OF ANY DIGGING, ALTERATION OR CONSTRUCTION WITHIN THE PUBLIC RIGHT-OF-WAY (STREETS, ALLEYS, PUBLIC EASEMENTS), A RIGHT-OF-WAY EXCAVATION PERMIT SHALL BE APPLIED FOR AND OBTAINED BY THE CONTRACTOR FROM THE CITY OF ROANOKE.
2. LAND DISTURBANCE PERMIT - AN APPROVED EROSION AND SEDIMENT CONTROL PLAN FOR ANY BORROW/FILL SITES ASSOCIATED WITH THE PROJECT MUST BE SUBMITTED PRIOR TO THE ISSUANCE OF A LAND DISTURBANCE PERMIT.
3. PLANS AND PERMITS - A COPY OF THE PLANS AS APPROVED BY THE CITY (SIGNED BY THE PROPERTY CITY OFFICIALS) AND ALL PERMITS ISSUED BY THE CITY SHALL BE AVAILABLE AT THE CONSTRUCTION SITE AT ALL TIMES OF ONGOING CONSTRUCTION.
4. LOCATION OF UTILITIES - THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING UTILITIES PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION.
5. CONSTRUCTION ENTRANCE - THE CONTRACTOR SHALL INSTALL AN ADEQUATE CONSTRUCTION ENTRANCE FOR ALL CONSTRUCTION RELATED EGRESS FROM THE SITE. SIZE AND COMPOSITION OF CONSTRUCTION ENTRANCE SHALL BE AS SHOWN ON THE PLANS.
6. STREETS TO REMAIN CLEAN - IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO INSURE THAT THE PUBLIC STREET ADJACENT TO THE CONSTRUCTION ENTRANCE REMAINS FREE OF MUD, DIRT, DUST, AND/OR ANY TYPE OF CONSTRUCTION MATERIALS OR LITTER AT ALL TIMES.
7. BARRICADES/DITCHES - THE CONTRACTOR SHALL MAINTAIN THE INTEGRITY OF ALL EXCAVATED DITCHES AND SHALL FURNISH AND ENSURE THAT ALL BARRICADES PROPERTY AND NECESSARY FOR THE SAFETY OF THE PUBLIC ARE IN PLACE.
8. SEWER AND PAVEMENT REPLACEMENT - CONSTRUCTION OF SANITARY SEWERS AND THE REPLACEMENT OF PAVEMENT SHALL BE IN ACCORDANCE WITH APPROVED STANDARDS AND SPECIFICATIONS OF THE CITY OF ROANOKE AND THE WESTERN VIRGINIA WATER AUTHORITY.
9. APPROVED PLANS/CONSTRUCTION CHANGES - ANY CHANGE OR VARIATION FROM CONSTRUCTION DESIGN AS SHOWN ON THE OFFICIALLY APPROVED PLANS SHALL BE APPROVED BY THE EROSION AND SEDIMENT CONTROL AGENT PRIOR TO SAID CHANGES OR VARIATION IN CONSTRUCTION BEING MADE.
10. **FINAL ACCEPTANCE/CITY** - THE OWNER OR DEVELOPER SHALL FURNISH THE CITY OF ROANOKE'S PLANNING BUILDING AND DEVELOPMENT DEPARTMENT WITH A FIELD SURVEYED FINAL CORRECT SET OF AS-BUILT PLANS OF THE NEWLY CONSTRUCTED STORM DRAIN AND/OR STORMWATER MANAGEMENT FACILITIES PRIOR TO FINAL ACCEPTANCE AND ISSUANCE OF A CERTIFICATE OF OCCUPANCY BY THE CITY. AS-BUILT PLANS SHALL BE PROVIDED IN THE STATE PLANE VIRGINIA SOUTH COORDINATE SYSTEM, NAD 1983, FIPS 4502 FEET, US SURVEY FEET, DATUM NA 83, IN THE FORM OF 1 PAPER COPY AND 1 DIGITAL AUTOCAD FILE.

INDEX OF DRAWINGS:

G000-FS4 COVER SHEET

CIVIL
C001-FS4 GENERAL NOTES
C002-FS4 EXISTING CONDITIONS & DEMOLITION PLAN
C101-FS4 DIMENSIONAL LAYOUT & UTILITY PLAN
C102-FS4 GRADING PLAN
C103-FS4 LANDSCAPE PLAN
C104-FS4 TANK PROXIMITY MAP FOR PERMITTING
C201-FS4 EROSION & SEDIMENT CONTROL PLAN
C202-FS4 EROSION & SEDIMENT CONTROL DETAILS
C203-FS4 EROSION & SEDIMENT CONTROL DETAILS
C204-FS4 EROSION & SEDIMENT CONTROL NOTES AND DETAILS
C205-FS4 EROSION & SEDIMENT CONTROL NOTES
C301-FS4 STORM SEWER PROFILES
C501-FS4 SITE DETAILS
C502-FS4 SITE DETAILS
C503-FS4 SITE DETAILS

STRUCTURAL
S001-FS4 GENERAL NOTES
S101-FS4 FUEL ISLAND FOUNDATION PLAN

ARCHITECTURAL
A001-FS4 NOTES & SPECIFICATIONS
A101-FS4 PLANS, SECTIONS, ELEVATIONS, DETAILS

ELECTRICAL
E001-FS4 ELECTRICAL - LEGEND AND GENERAL NOTES
E101-FS4 ELECTRICAL - SITE PLAN - SCHEDULES AND DIAGRAMS
E501-FS4 ELECTRICAL - DETAILS

CODE DATA/DESIGN CRITERIA:

APPLICABLE BUILDING CODES:
2021 MOTOR FUEL DISPENSING FACILITIES AND REPAIR GARAGES CODE (NFPA 30A)
2021 VIRGINIA CONSTRUCTION CODE (VCC)
2021 VIRGINIA UNIFORM STATEWIDE BUILDING CODE (VUSBC)
2021 VIRGINIA ENERGY CONSERVATION CODE (VECC), CLIMATE ZONE 4A
2021 VIRGINIA PLUMBING CODE (VPS)
2021 VIRGINIA MECHANICAL CODE (VMC)
2021 VIRGINIA STATEWIDE FIRE PREVENTION CODE (VSFPC)
2021 VIRGINIA EXISTING BUILDING CODE (VEBC)
2020 LIQUEFIED PETROLEUM GAS CODE (NFPA 58)
2020 NATIONAL ELECTRICAL CODE (NFPA 70)
2019 STANDARD FOR INSTALLATION OF SPRINKLER SYSTEMS (NFPA 13)
2019 NATIONAL FIRE ALARM AND SIGNALING CODE (NFPA 72)
2017 STANDARD FOR ACCESSIBLE AND USABLE BUILDINGS AND FACILITIES (ANSI 117.1)

BUILDING DATA:

BUILDING	USE	AREA (SF)	HEIGHT (FT)
MAIN BLDG	B / R-2 / S-1	7513	EXISTING
NEW FUEL CANOPY	U	576	20

SHEET NUMBER:
G000-FS4

City of Roanoke
Planning, Building, & Development
COMPREHENSIVE DEVELOPMENT PLAN
APPROVED
Date
Development Engineer_____
STATE BUILDING OFFICIAL APPROVAL STAMP

J:\23181\2 Civil\dwg\23181 Cover Fs4.dwg, Plotted by gsemington, Plotted: Oct10, 2025 - 2:32pm

ENGINEERS NOTES

SPECTRUM DESIGN, PC ASSUMES NO RESPONSIBILITY FOR INFORMATION ON OR ADEQUACY OF THE PLANS UNTIL THEY HAVE BEEN APPROVED BY REQUIRED PUBLIC AUTHORITIES.

COMMENCEMENT OF ANY WORK ON THE PROJECT IS AT THE SOLE RISK OF THE OWNER/DEVELOPER.

GENERAL NOTES

STANDARDS: ALL MATERIALS AND METHODS SHALL COMPLY WITH THE APPLICABLE STANDARDS OF THE AMERICAN SOCIETY OF TESTING AND MATERIALS (ASTM), AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI), VIRGINIA DEPARTMENT OF TRANSPORTATION (VDOT), VIRGINIA STORMWATER MANAGEMENT HANDBOOK (VSMH), COMMONWEALTH OF VIRGINIA DEPARTMENT OF HEALTH (VDH) AND/OR THE CITY OF ROANOKE, LATEST EDITIONS. RECOMMENDATIONS OF APPLICABLE MATERIALS MANUFACTURERS SHALL ALSO BE FOLLOWED AS PART OF THIS CONTRACT.

DEBRIS: CONSTRUCTION DEBRIS SHALL BE CONTAINERIZED IN ACCORDANCE WITH THE VIRGINIA LITTER CONTROL ACT. NO LESS THAN ONE LITTER RECEPTACLE SHALL BE PROVIDED ON SITE. ALL DAMAGED MATERIAL OR SURPLUS EXCAVATED MATERIAL NOT SUITABLE FOR USE AS FILL, BACKFILL OR TOPSOIL SHALL BECOME THE PROPERTY OF THE CONTRACTOR TO DISPOSE OF OFFSITE AS HE WISHES, WITHOUT INJURY TO THE OWNER OR ANY INDIVIDUAL.

ALL WORK WITHIN PUBLIC R/W SHALL ADHERE TO THE CITY OF ROANOKE EXCAVATION AND RESTORATION STANDARDS. COPIES OF THESE STANDARDS ARE AVAILABLE AT THE CITY OR ONLINE IN *.PDF FORMAT AT WWW.ROANOKEVA.GOV.
SPECIFIC AREAS TO ADDRESS INCLUDE:
A. WIDTHS AND DEPTHS OF PAVEMENT RESTORATION INCLUDING EITHER REPLACEMENT OR MILL AND OVERLAY.
B. PAVEMENT MARKING REPLACEMENT OR ADDITIONS WHERE DISTURBED OR RELOCATED.
C. SIGNALIZED INTERSECTIONS: AFTER LOOP DETECTOR LOCATION BY MISS UTILITY, ALL LOOPS DISTURBED SHALL BE REPLACED OR REPAIRED WITHIN THREE BUSINESS DAYS.
D. SIGNS: SALVAGE SIGN PANELS AND HARDWARE RELOCATED DURING WORK. POSTS SHALL BE STEEL U-CHANNEL. COORDINATE WITH CITY TRANSPORTATION.
E. FORMS: PERMIT APPLICATION, PERMIT BOND, AND WORK LOCATION SHEET.

OBTAIN AND PAY FOR ALL REQUIRED PERMITS AND FEES TO PERFORM WORK WITHIN ALLEY AND PUBLIC RIGHT-OF-WAY.

OBTAIN AND PAY FOR ALL STREET OPENING PERMITS REQUIRED BY THE CITY FOR UTILITY OR RETAINING WALL INSTALLATIONS.

REFER TO ARCHITECTURAL DRAWINGS FOR CONCRETE SCORING PATTERNS.

UTILITIES SHOWN WERE OBTAINED FROM BEST AVAILABLE SOURCES. CONTRACTOR SHALL ASSUME MINOR DISCREPANCIES AND ASSUME COSTS ASSOCIATED TO CONNECT OR PROVIDE MINOR ADJUSTMENTS.

ALL NEW AND/OR RELOCATED UTILITIES, INCLUDING UTILITY LATERALS AND SERVICE LINES, AND ELECTRICAL FEEDS SHALL BE UNDERGROUND. CONTRACTOR SHALL PROVIDE 2 WEEKS NOTICE TO CITY PROJECT MANAGER PRIOR TO ANY UTILITY DISRUPTION.

CONTRACTOR SHALL UTILIZE A/E CAD BASE DRAWING FOR STAKEOUT BY A VIRGINIA LICENSED SURVEYOR IN THE COMMONWEALTH OF VIRGINIA.

CONTRACTOR SHALL COORDINATE WITH OWNER FOR PROJECT PHASING.

SEQUENCE OF CONSTRUCTION NOTES

1. FIRE DEPARTMENTS SHALL FUNCTION AND OPERATE DURING CONSTRUCTION. CONTRACTOR SHALL COORDINATE ALL ONSITE TRAFFIC NEEDS WITH FIRE DEPARTMENT PRIOR TO CONSTRUCTION.
2. HALF OF EACH ENTRANCE AND EXIT TO AND FROM THE MAIN ROAD SHALL BE LEFT OPEN AT ALL TIMES. SURFACES MAY BE COMPACTED GRAVEL FOR TEMPORARY CONDITIONS.
3. NEW PAVEMENT SHALL BE COORDINATED SO THAT AT LEAST ONE APPARATUS BAY IS OPEN AT ALL TIMES.
4. MATERIALS AND EQUIPMENT DELIVERY SHALL BE SCHEDULED TWO WEEKS IN ADVANCE IF CRANES OR LARGE TRUCKS ARE TO BE USED THAT COULD POTENTIALLY BLOCK THE APPARATUS BAYS OR ENTRANCES.

DEMOLITION NOTES

1. THE FOLLOWING GENERAL NOTES APPLY FOR DEMOLITION SHEET C002-FS4. REFER TO PROPOSED CONDITION SHEETS FOR MORE INFORMATION.
2. WHERE INDICATED OR WHERE IN CONFLICT WITH NEW CONSTRUCTION, EXISTING TOPOGRAPHICAL AND PLANIMETRIC FEATURES (BUILDING STRUCTURE AND FOUNDATION, SIGN AND FOUNDATION, ASPHALT PAVEMENT, CURB, UTILITY POLES, OVERHEAD UTILITIES, UNDERGROUND INFRASTRUCTURE, ROCKS, AND LANDSCAPING FEATURES) WITHIN LIMITS OF CLEARING AND GRADING (LIMITS OF DISTURBANCE) ARE TO BE REMOVED. ALL SIGNAGE WITHIN LIMITS OF DISTURBANCE SHALL BE SALVAGED AND TURNED OVER TO OWNER.
   2.1. EXCAVATION REQUIREMENTS: EXISTING ASPHALT GRADES ARE INTENDED TO BE USED AS THE TEMPORARY SURFACE INSOFAR AS OBSTRUCTIONS ARE REMOVED AND PROPOSED GRADES AS SHOWN HAVE BEEN ADJUSTED.
3. THE LOCATION OF EXISTING UTILITIES, INCLUDING UNDERGROUND UTILITIES, IS INDICATED ON THE DRAWINGS INSOFAR AS THEIR EXISTENCE AND LOCATION WERE KNOWN AT THE TIME OF THE PREPARATION OF THE DRAWINGS. HOWEVER, NOTHING IN THESE CONTRACT DOCUMENTS SHALL BE CONSTRUED AS A GUARANTEE THAT SUCH UTILITIES ARE IN THE LOCATION INDICATED OR THAT THEY ACTUALLY EXIST, OR THAT OTHER UTILITIES ARE NOT WITHIN THE AREA OF OPERATIONS. THE CONTRACTOR SHALL MAKE ALL NECESSARY INVESTIGATIONS TO DETERMINE THE EXISTENCE, LOCATIONS, AND DIMENSIONS OF SUCH UTILITIES. THE CONTRACTOR SHALL PAY FOR ANY DAMAGE TO AND FOR ANY MAINTENANCE AND PROTECTION OF EXISTING UTILITIES AND STRUCTURES.
4. ALL EXISTING UTILITIES TO REMAIN IN PLACE UNLESS OTHERWISE NOTED. COORDINATE WITH UTILITY SERVICE COMPANY PRIOR TO PERFORMING DEMOLITION WORK.
5. ALL DEMOLISHED UTILITIES SHALL BE REMOVED AND TRENCHES BACKFILLED PER SPECIFICATIONS.
6. THE CONTRACTOR SHALL CONTACT "MISS UTILITY" (1-800-552-7001) 48 HOURS PRIOR TO WORKING IN THE VICINITY OF THE EXISTING UTILITIES.
7. FLOODNOTE: CAPTION PROPERTY DOES NOT LIE WITHIN THE LIMITS OF A FLOOD BOUNDARY AND IS DESIGNATED BY FEMA BOUNDARY "X" (UNSHADED) AS DETERMINED BY LUMSDEN ASSOCIATES PC, SURVEYOR.
8. CONTRACTOR IS RESPONSIBLE FOR PROPER DISPOSAL OF ALL DEMO MATERIALS.
9. OWNER TO COORDINATE REMOVAL OF CONTENTS OF ANY STRUCTURE TO BE DEMOLISHED OR RELOCATED PRIOR TO WORK.
10. TREE DEMOLITION SHALL INCLUDE COMPLETE STUMP AND ROOT SYSTEM DEMOLITION, AS WELL AS ANY GRADING, BACKFILL, AND SEEDING NECESSARY.
11. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TRAFFIC CONTROL MEASURES NECESSARY TO DIRECT VEHICLE AND PEDESTRIAN TRAFFIC SAFELY AND EFFICIENTLY AROUND THE CONSTRUCTION AREA. CONTRACTOR IS RESPONSIBLE FOR PROVIDING ANY ROAD/LANE CLOSURES OR SAFETY PLANS REQUIRED. TYPICAL WORK HOURS AFFECTING TRAFFIC ARE 8 AM TO 4 PM. SEE DETAILS ON SHEET C503-FS4.

GRADING & TRENCHING NOTES

CLEAR, GRUB & STRIP: ALL VEGETATION AND OVERBURDEN INCLUDING TOPSOIL, ORGANIC MATERIAL AND ANY UNSATISFACTORY SOIL MATERIALS, SHALL BE REMOVED TO THE EXTENT OF GRADING INDICATED ON THE GRADING PLAN.

BACKFILL: ON SITE BACKFILL BENEATH PAVEMENT SHALL BE COMPACTED 21-A STONE. BACKFILL WITHIN LAWN SPACES SHALL BE SOIL AND SHALL NOT REQUIRE A PROCTOR.

COMPACTION: FILL MATERIAL SHALL BE PLACED IN LIFTS NOT EXCEEDING SIX (6) INCHES AND COMPACTED TO NINETY-FIVE (95) PERCENT OF ITS MAXIMUM DENSITY AS DETERMINED IN ACCORDANCE WITH ASTM D698 (STANDARD PROCTOR). SEPARATE PROCTORS SHALL BE RUN FOR EACH SOIL TYPE BEING USED. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO INFORM THE TESTING AGENCY OF SOURCES OF FILL OR BACKFILL MATERIAL OTHER THAN THAT OBTAINED ON-SITE.

RIGHT-OF-WAY: ALL TRENCHING, BACKFILLING AND PATCHING WITHIN PUBLIC RIGHT-OF-WAY SHALL CONFORM TO THE CITY OF ROANOKE AND WVWA STANDARDS AND REQUIREMENTS INCLUDING TESTING AND INSPECTION PROCEDURES.

PAVEMENT NOTES

STANDARDS: ALL CONSTRUCTION METHODS AND MATERIALS SHALL BE IN ACCORDANCE WITH THE VDOT "ROAD & BRIDGE STANDARDS & SPECIFICATIONS," LATEST EDITION AND THE LATEST REQUIREMENTS OF THE CITY OF ROANOKE.

UTILITIES: ALL UTILITIES SHALL BE IN PLACE PRIOR TO LAYING THE BASE MATERIAL.

PAVEMENT MARKING: RIGHT OF WAY PAVEMENT MARKING SHALL BE IN ACCORDANCE WITH VDOT STANDARDS, LATEST EDITION.

DRAINAGE NOTES

NATURAL DRAINAGE: THE CONTRACTOR SHALL MAKE PROVISIONS AT ALL TIMES TO ALLOW NATURAL DRAINAGE TO FLOW THROUGH THE WORK AREA WITH MINIMUM DAMAGE TO THE NEW CONSTRUCTION AND NO DAMAGE TO ADJACENT PROPERTY OR THE EXISTING DOWNSTREAM STORM DRAINAGE SYSTEM, WHETHER NATURAL OR MAN-MADE.

MATERIALS: REFER TO SHEET C301-FS4 FOR PIPING MATERIALS.

UNDERGROUND CONVEYANCE CONNECTIONS TO EXISTING STORM DRAIN PIPES AND STRUCTURES SHALL BE VIA INSERTA TEE MANIFOLD ADAPTOR, UNLESS NOTED OTHER WISE. COORDINATE PRIVATE DRAINAGE NETWORK CONNECTIONS TO CITY OF ROANOKE STORMWATER NETWORK WITH CITY OF ROANOKE, STORMWATER DIVISION.

FLOOD: THE SUBJECT PROPERTY IS NOT WITHIN THE LIMITS OF THE FEMA 100 YEAR FLOOD BOUNDARY.

RECONDITIONING EXISTING SURFACES TO REMAIN: RECONDITION EXISTING SURFACES DAMAGED BY CONTRACTOR'S OPERATIONS, INCLUDING STORAGE OF MATERIALS AND EQUIPMENT, AND MOVEMENT OF VEHICLES. ALSO RECONDITION EXISTING LANDSCAPED AREAS WHERE MINOR REGRADING IS REQUIRED.

WATER NOTES

STANDARDS: CONSTRUCTION OF ALL WATER LINES, STRUCTURES, AND PAVEMENT REPLACEMENT SHALL CONFORM TO THE REQUIREMENTS OF THE VIRGINIA DEPARTMENT OF TRANSPORTATION (VDOT) "ROAD AND BRIDGE STANDARDS AND SPECIFICATIONS" AND THE COMMONWEALTH OF VIRGINIA/STATE BOARD OF HEALTH (VDH) "WATER WORKS REGULATIONS" LATEST EDITIONS, AS MINIMUM STANDARDS, AS WELL AS THOSE OF THE WESTERN VIRGINIA WATER AUTHORITY (WVWA). SEE DETAILS.

SURFACE & COVER: IN AREAS OF WATER LINE CONSTRUCTION, GRADES SHALL BE WITHIN SIX (6) INCHES OF FINISHED SUBGRADE PRIOR TO THE COMMENCEMENT OF THIS WORK. MINIMUM CLEAR COVER OVER ALL WATER PIPE SHALL BE THREE (3) FEET, UNLESS NOTED OTHERWISE – COORDINATE WITH WVWA AND OTHER UTILITY OWNERS RIGHT OF WAY.

TAPS/CONNECTIONS: ALL CONNECTIONS TO EXISTING WATER MAINS AND METER BOXES SHALL BE PERFORMED BY THE CONTRACTOR AND COORDINATED WITH WVWA.

SEPARATION: THE CONTRACTOR SHALL COMPLY WITH THE STATE WATER WORKS REGULATIONS PERTAINING TO SEPARATION OF WATER AND SANITARY SEWER.

MATERIALS AND BEDDING: SEE PROJECT MANUAL.

SERVICE: SEE PROJECT MANUAL.

FINISH GRADE: THE CONTRACTOR SHALL LOCATE AND UNCOVER ALL VALVE BOXES BEFORE PAVEMENT/SURFACE TREATMENT OF PAVED AREAS AND ADJUST THE TOPS TO ROAD GRADES, IF NECESSARY.

SEWER NOTES

STANDARDS: CONSTRUCTION OF ALL SANITARY SEWER LINES, STRUCTURES, AND PAVEMENT REPLACEMENT SHALL CONFORM TO THE REQUIREMENTS OF THE VIRGINIA DEPARTMENT OF TRANSPORTATION (VDOT) "ROAD AND BRIDGE STANDARDS AND SPECIFICATIONS" AND THE COMMONWEALTH OF VIRGINIA/STATE BOARD OF HEALTH (VDH) "SEWAGE HANDLING AND DISPOSAL REGULATIONS" LATEST EDITIONS, AS MINIMUM STANDARDS, AS WELL AS THOSE OF THE WVWA. SEE DETAILS.

SURFACE & COVER: IN AREAS OF SEWER CONSTRUCTION, GRADES SHALL BE THREE (3) FEET OVER THE CROWN OF THE PIPE TO BE LAID OR WITHIN SIX (6) INCHES OF FINISHED SUBGRADE PRIOR TO THE COMMENCEMENT OF THIS WORK. MINIMUM CLEAR COVER OVER PROPOSED LINES SHALL BE THREE (3) FEET.

SEPARATION: THE CONTRACTOR SHALL COMPLY WITH THE STATE WATER WORKS REGULATIONS PERTAINING TO SEPARATION OF WATER AND SANITARY SEWER. WHEN THE SEWER CANNOT MAINTAIN TEN (10) FEET HORIZONTAL SEPARATION MEASURED EDGE TO EDGE OR EIGHTEEN (18) INCHES VERTICAL SEPARATION EDGE TO EDGE (BELOW WATERLINE), THE SEWER SHALL BE CONSTRUCTED OF AWWA APPROVED MECHANICAL JOINT WATER PIPE AND PRESSURE TESTED IN PLACE TO FIFTY (50) PSI WITHOUT LEAKAGE PRIOR TO BACKFILLING.

MATERIAL & BEDDING: PIPE AND FITTINGS SHALL BE POLYVINYL CHLORIDE (PVC) SDR-35 AND SHALL CONFORM TO ASTM D-3034. BEDDING SHALL BE PER VDOT STANDARD AND SPEC. (CLASS B MIN.). ALL TRENCHES SHALL BE COMPACTED ACCORDING TO VDOT STANDARDS.

TAPS: ALL CONNECTIONS TO EXISTING SANITARY SEWER MAINS SHALL BE MADE BY THE CONTRACTOR AND COORDINATED WITH THE WVWA.

MANHOLE CONNECTIONS: PIPE SHALL BE CONNECTED TO MANHOLES THROUGH PRECAST OPENINGS AND JOINED WITH EITHER A FLEXIBLE BOOT ADAPTER OR A PIPE SEAL GASKET. TRANSITIONS BETWEEN ALLOWABLE TYPES OF PIPE SHALL BE MADE WITH AN ADAPTER COUPLING APPROVED BY THE WVWA WITHIN THE RIGHT-OF-WAY.

FINISH GRADE: THE CONTRACTOR SHALL LOCATE AND UNCOVER ALL SEWER MANHOLES BEFORE PAVEMENT/SURFACE TREATMENT OF PAVED AREAS AND ADJUST THE TOPS TO ROAD GRADES, IF NECESSARY.

PARKING CALCULATIONS

MAXIMUM PARKING ALLOWED: 20 SPACES

EXISTING PARKING: 18 SPACES
EXISTING H/C PARKING: 1 SPACES (1 REQUIRED)
EXISTING ON-SITE LOADING SPACES: 0 SPACES

TOTAL PARKING PROPOSED: 18 SPACES
TOTAL H/C PARKING PROPOSED: 1 SPACES (1 REQUIRED)
TOTAL ON-SITE LOADING SPACES PROPOSED: 0 SPACES

IMPERVIOUS COVERAGE CALCULATIONS

EXISTING IMPERVIOUS COVERAGE: 0.72 AC, 58.7% (90% ALLOWED)
PROPOSED IMPERVIOUS COVERAGE: 0.73 AC, 59.8% (90% ALLOWED)

FLOOR AREA RATIO (FAR) CALCULATIONS

MAXIMUM FAR ALLOWED: NONE

SPECTRUM DESIGN
architects | engineers

Plaza Suite 1
10 Church Avenue, SE
Roanoke, VA 24011
540.342.6001
SPECTRUMPC.COM

CITY OF ROANOKE REFUELING CENTERS FIRE STATION #4

ROANOKE CITY PROJECT NO.: **RFP #24-10-66**
Spectrum Design Project No.: **23181**

COMMONWEALTH OF VIRGINIA
MICHAEL A. RAKES
Lic. No. 28199
10.10.2025
PROFESSIONAL ENGINEER

PROJ. MGR.: **MAR** CHECKED BY: **MAR** DRAWN BY: **AGA**

SHEET ISSUE DATE:
10.10.2025

PROJECT PHASE:
BID DOCUMENTS

SCALE:
AS SHOWN
24"x36" SHEET

KEY PLAN:

SHEET NAME:
GENERAL NOTES

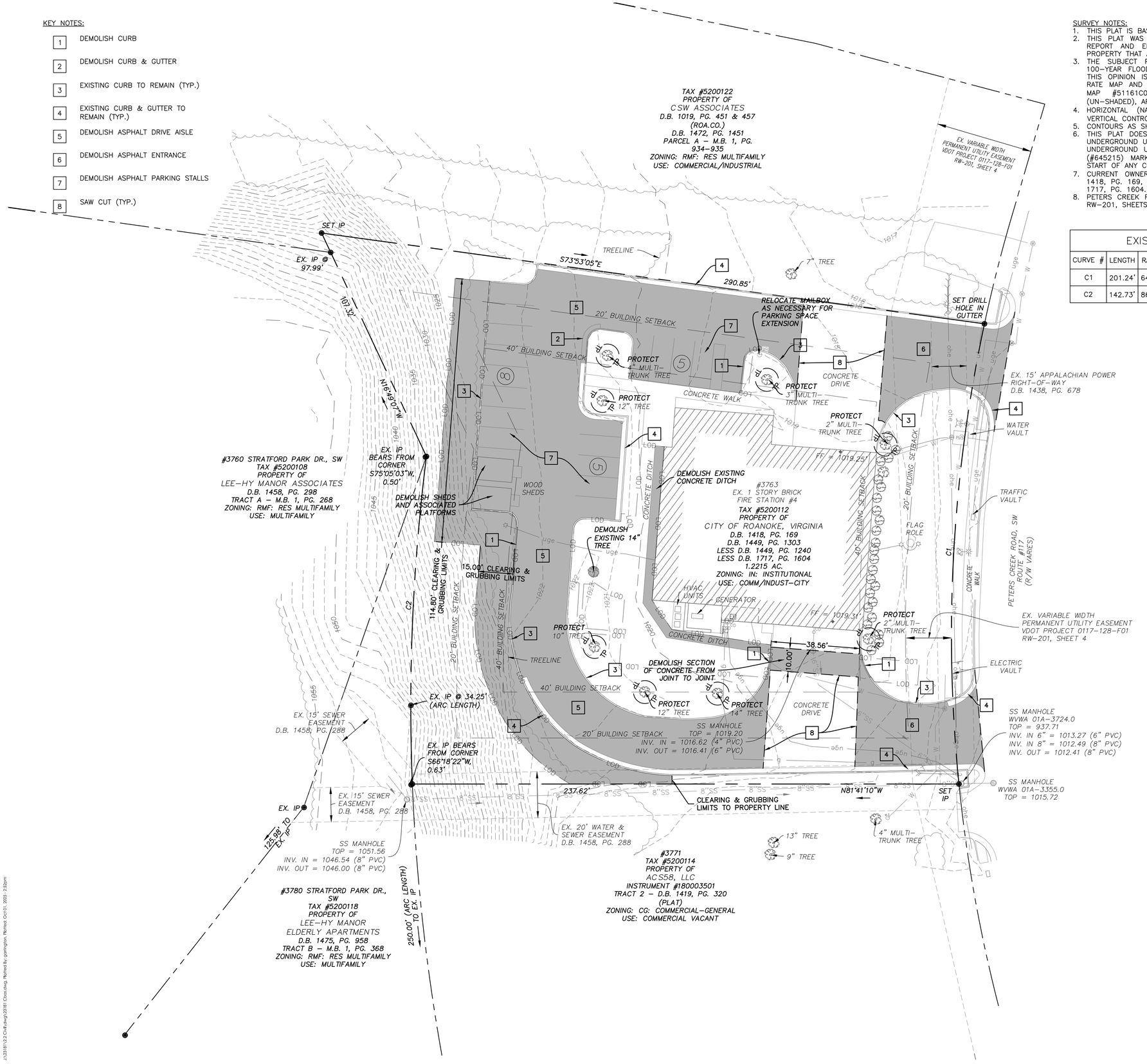
SHEET NUMBER:
C001-FS4

City of Roanoke
Planning, Building, & Development
COMPREHENSIVE DEVELOPMENT PLAN
APPROVED
by A.C. Cypher 10/20/2025
AHJ APPROVAL STAMP

J:\23181\2-Civil\dwg\23181 Cover.dwg, Plotted By: gamington, Plotted Oct 01, 2025 - 2:52pm

KEY NOTES:

1. DEMOLISH CURB
2. DEMOLISH CURB & GUTTER
3. EXISTING CURB TO REMAIN (TYP.)
4. EXISTING CURB & GUTTER TO REMAIN (TYP.)
5. DEMOLISH ASPHALT DRIVE AISLE
6. DEMOLISH ASPHALT ENTRANCE
7. DEMOLISH ASPHALT PARKING STALLS
8. SAW CUT (TYP.)



SURVEY NOTES:

1. THIS PLAT IS BASED ON A CURRENT FIELD SURVEY.
2. THIS PLAT WAS PREPARED WITHOUT THE BENEFIT OF A CURRENT TITLE REPORT AND ENCUMBRANCES MAY EXIST THAT AFFECT THE SUBJECT PROPERTY THAT ARE NOT SHOWN HEREON.
3. THE SUBJECT PROPERTY IS NOT LOCATED WITHIN THE LIMITS OF A 100-YEAR FLOOD BOUNDARY AS DESIGNATED BY CURRENT FEMA MAPS. THIS OPINION IS BASED ON AN INSPECTION OF THE FLOOD INSURANCE RATE MAP AND HAS BEEN VERIFIED BY ACTUAL FIELD ELEVATIONS. SEE MAP #51161C0144G, DATED SEPTEMBER 28, 2007. ZONE "X" (UN-SHADED), AREA OF MINIMAL FLOOD HAZARD.
4. HORIZONTAL (NAD 83 (VIRGINIA STATE PLANE, SOUTH ZONE)) AND VERTICAL CONTROL (NAVD88) TRIMBLE'S KEYNET VRS GPS NETWORK.
5. CONTOURS AS SHOWN HEREON ARE AT A 1-FOOT INTERVAL.
6. THIS PLAT DOES NOT GUARANTEE THE EXISTENCE OR LOCATION OF ANY UNDERGROUND UTILITIES. ALL SURFACE UTILITIES WERE FIELD LOCATED. ALL UNDERGROUND UTILITY LINES ARE APPROXIMATE PER GPRS WORK ORDER (#645215) MARKINGS AND SHOULD BE FIELD VERIFIED PRIOR TO THE START OF ANY CONSTRUCTION.
7. CURRENT OWNER: TAX #5200112, CITY OF ROANOKE, VIRGINIA – D.B. 1418, PG. 169, D.B. 1449, PG. 1303 LESS D.B. 1449, PG. 1240 & D.B. 1717, PG. 1604.
8. PETERS CREEK ROAD RIGHT-OF-WAY PER VDOT PROJECT 0117-128-F01, RW-201, SHEETS 3 & 4.

EXISTING BOUNDARY CURVE TABLE

CURVE #	LENGTH	RADIUS	DELTA	TANGENT	CHORD BEARING	CHORD DISTANCE
C1	201.24'	645.11'	017°52'24"	101.44'	S11°29'15"W	200.43'
C2	142.73'	862.96'	009°28'36"	71.53'	N10°46'47"E	142.57'

LEGEND

- TO BE DEMOLISHED BY CONTRACTOR
- EXISTING PROPERTY MONUMENT
- DEEDED CORNER
- PROPERTY LINE
- FENCE
- BENCHMARK
- UTILITY POLE
- SPOT ELEVATION
- SANITARY SEWER MANHOLE
- STORM SEWER MANHOLE
- WATER MANHOLE
- ELECTRICAL MANHOLE
- CLEANOUT
- LIGHTPOLE
- STREET LIGHT
- YARD HYDRANT
- GUY POLE
- GUY WIRE
- TELEPHONE VAULT
- TELEPHONE MANHOLE
- TP TELEPHONE PEDESTAL
- MW MONITORING WELL
- FP FUEL PUMP
- FC FUEL FILLER CAP
- ELECTRIC TRANSFORMER
- EB ELECTRIC BOX
- E ELECTRIC VAULT
- EH ELECTRIC HANDHOLE
- EM ELECTRIC METER
- BOLLARD
- SIGN
- FIRE HYDRANT
- WATER VALVE
- GAS VALVE
- WM WATER METER
- GAS METER
- WATER SPIGOT
- PIV POST INDICATOR VALVE
- TREE (DECIDUOUS)
- TREE (CONIFEROUS)
- SHRUB
- STORM SEWER LINE
- MB MAILBOX
- DS DOWNSPOUT

1" = 20'-0" (20' 10' 0 20' 40')

SPECTRUM DESIGN
architects | engineers

Plaza Suite 1
10 Church Avenue, SE
Roanoke, VA 24011
540.342.6001
SPECTRUMPC.COM

CITY OF ROANOKE REFUELING CENTERS FIRE STATION #4

ROANOKE CITY PROJECT NO.: **RFP #24-10-66**
Spectrum Design Project No.: **23181**

COMMONWEALTH OF VIRGINIA
MICHAEL A. RAKES
Lic. No. 28199
10.10.2025
PROFESSIONAL ENGINEER

PROJ. MGR.: **MAR** CHECKED BY: **MAR** DRAWN BY: **AGA**

SHEET ISSUE DATE:
10.10.2025

PROJECT PHASE:
BID DOCUMENTS

SCALE:
AS SHOWN
24"x36" SHEET

KEY PLAN:

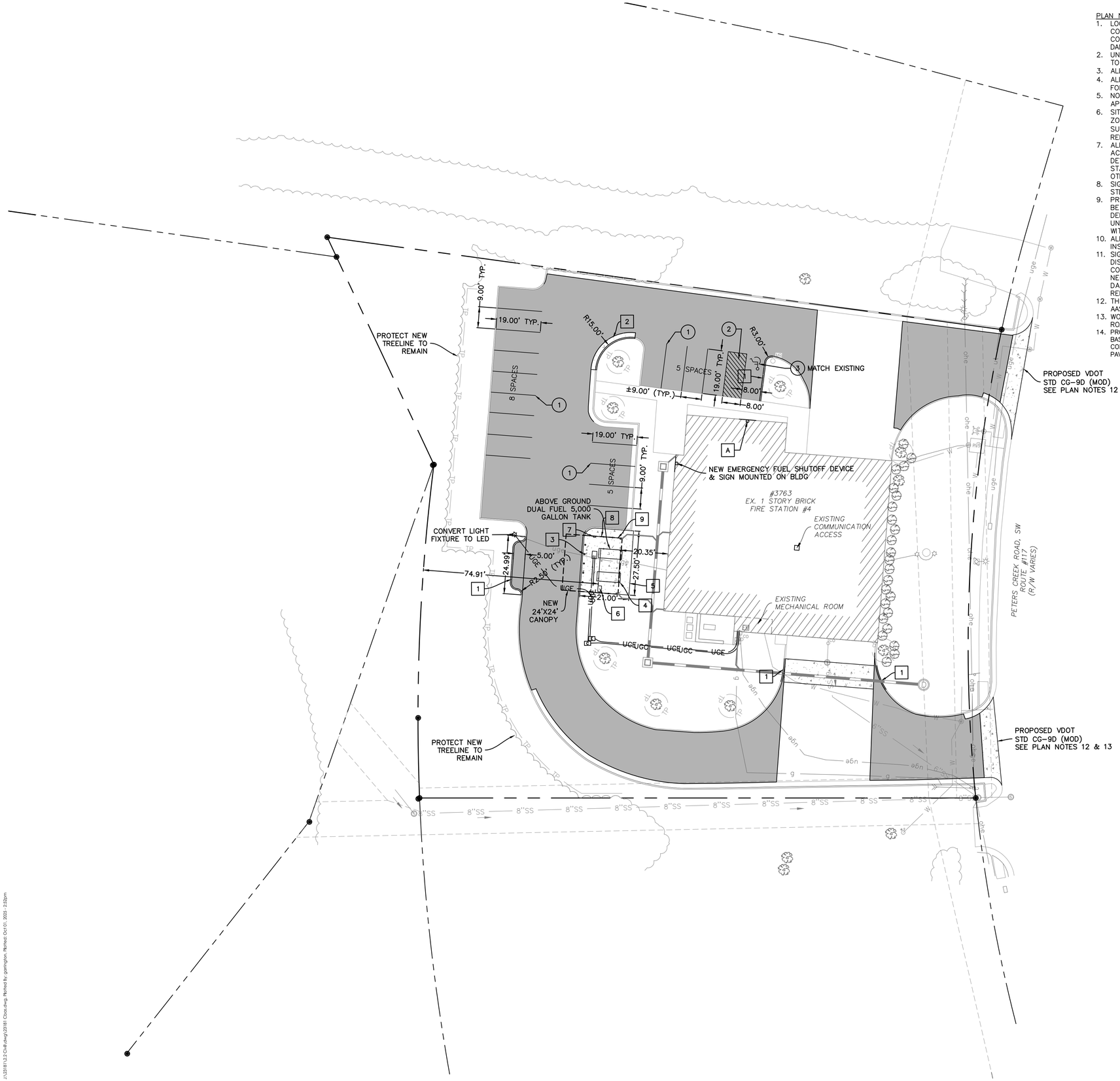
SHEET NAME:
EXISTING CONDITIONS & DEMOLITION PLAN

SHEET NUMBER:
C002-FS4

City of Roanoke
Planning, Building, & Development
COMPREHENSIVE DEVELOPMENT PLAN
APPROVED
by A.C. Cypher 10/20/2025

AHJ APPROVAL STAMP

J:\23181\2-2 Civil\dwg\23181 Closeout.dwg, Plotted By: jpennington, Plotted: Oct 10, 2025 - 2:52pm



PLAN NOTES

1. LOCATION OF EXISTING UTILITIES SHOWN TO BE VERIFIED BY CONTRACTOR PRIOR TO COMMENCEMENT OF CONSTRUCTION. CONTRACTOR IS RESPONSIBLE FOR REPAIR OR REPLACEMENT OF ANY DAMAGES TO EXISTING UTILITIES RESULTING FROM CONSTRUCTION.
2. UNLESS OTHERWISE NOTED, ALL LINEAR AND RADIAL DIMENSIONS ARE TO THE FACE OF CURB.
3. ALL CURB RADII 5' UNLESS NOTED OTHERWISE.
4. ALL CONCRETE JOINTS SHALL BE BEVELED. SEE DETAIL 9/C501–FS4 FOR JOINT CONDITIONS AT FUEL ISLAND.
5. NO CONSTRUCTION OR FIELD CHANGES ARE TO BE MADE WITHOUT APPROVAL FROM THE A/E, OWNER, AND CITY.
6. SITE LIGHTING SHALL BE IN CONFORMANCE WITH CITY OF ROANOKE ZONING ORDINANCE SEC. 36.2–625. SITE LIGHTING/POWER SUPPLY/COMMUNICATIONS INFRASTRUCTURE – FOR REFERENCE ONLY. REFER TO ELEC. SHEETS FOR MORE INFORMATION.
7. ALL PROPOSED SIGNING AND PAVEMENT MARKING SHALL BE IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, CURRENT EDITION, AND THE VDOT ROAD AND BRIDGE STANDARDS AND SPECIFICATIONS, CURRENT EDITIONS UNLESS NOTED OTHERWISE.
8. SIGN POSTS AND FOUNDATION SHALL BE IN ACCORDANCE WITH VDOT STD. STP–1.
9. PROPOSED SIGN LOCATIONS ARE APPROXIMATE. FINAL LOCATION TO BE DETERMINED BY CONTRACTOR. LOCATIONS SHALL BE MODIFIED, DEPENDING ON FIELD CONDITIONS, TO AVOID CONFLICT WITH UNDERGROUND UTILITIES OR OTHER OBSTRUCTIONS, AND TO COMPLY WITH THE STANDARDS IN NOTE 7.
10. ALL SIGNS AND PAVEMENT MARKINGS ARE TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR.
11. SIGNS THAT ARE TO REMAIN AND ARE LOCATED WITHIN THE DISTURBED AREA ARE TO BE REMOVED, STORED, AND REINSTALLED. CONTRACTOR SHALL BE RESPONSIBLE FOR STORAGE OF SIGNS, AS NECESSARY. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGES TO NEW OR EXISTING SIGNS BEING REPLACED OR REINSTALLED.
12. THE SIGHT DISTANCE AT PROPOSED ENTRANCES CONFORMS TO AASHTO GUIDELINES FOR INTERSECTION SIGHT DISTANCE.
13. WORK IN THIS AREA IS TO BE PERFORMED PER THE CITY OF ROANOKE RIGHT OF WAY EXCAVATION AND RESTORATION STANDARDS.
14. PROPOSED ASPHALT SECTION SHALL INCLUDE A PORTION OF THE EXISTING BASE STONE TO REMAIN. CONTRACTOR TO EXCAVATE TO PAVEMENT DEPTH, COMPACT EXISTING SUBBASE, AND ADD & COMPACT 21A STONE TO ACHIEVE PAVEMENT SECTIONS.

KEY NOTES:

1	PROPOSED CG–2 SEE DETAIL 3/C501–FS4
2	PROPOSED CG–6 SEE DETAIL 3/C501–FS4
3	(5) PROPOSED 6" BOLLARDS @ 4.00' O.C. (TYP.) SEE DETAIL 1/C501–FS4
4	PROPOSED TANK FOOTING (TYP. OF 2) SEE DETAIL 8/C501–FS4
5	PROPOSED FUEL ISLAND CONCRETE PAD SEE SHEET A100–FS4 FOR ISLAND EQUIPMENT AND SHEET A001–FS4 FOR SPECIFICATIONS
6	SEE DETAIL 1/C502–FS4 FOR FUEL EQUIPMENT LAYOUT
7	NEW "NO SMOKING" SIGN MOUNTED ON COLUMN FACING THE USER
8	NEW "SPILL KIT" SIGN MOUNTED ON FENCE ABOVE SPILL KIT
9	PROPOSED SCREEN FENCE PER CITY ZONING ORDINANCE SEC. 36.2–647 SEE SHEET A101–FS4 FOR DETAILS

PAVEMENT STRIPING AND MARKING

1	THERMOPLASTIC TYPE B, CLASS I ROAD MARKINGS AND STRIPING 4" WIDE, WHITE
2	NO PARKING THERMOPLASTIC TYPE B, CLASS I ROAD MARKINGS 4" WIDE, WHITE, 1' OFFSET ON CENTER
3	H/C SYMBOL SEE DETAIL 2/C501–FS4

SIGNS LEGEND

A	VAN ACCESSIBLE H/C PARKING SIGN MOUNTED ON BUILDING WALL SEE DETAIL 6/C501–FS4

LEGEND

- PROPOSED CONCRETE PAVEMENT SEE DETAIL 4/C501–FS4
- PROPOSED ASPHALT PAVEMENT SEE DETAIL 4/C501–FS4 & PLAN NOTE 14

SPECTRUM DESIGN
architects | engineers

Plaza Suite 1
10 Church Avenue, SE
Roanoke, VA 24011
540.342.6001
SPECTRUMPC.COM

CITY OF ROANOKE REFUELING CENTERS FIRE STATION #4

ROANOKE CITY PROJECT NO.: **RFP #24-10-66**
Spectrum Design Project No.: **23181**

COMMONWEALTH OF VIRGINIA
MICHAEL A. RAKES
Lic. No. 28199
10.10.2025
PROFESSIONAL ENGINEER

PROJ. MGR.:	CHECKED BY:	DRAWN BY:
MAR	MAR	AGA

SHEET ISSUE DATE:
10.10.2025

PROJECT PHASE:
BID DOCUMENTS

SCALE:
AS SHOWN
24"x36" SHEET

KEY PLAN:

SHEET NAME:
DIMENSIONAL LAYOUT & UTILITY PLAN

SHEET NUMBER:
C101-FS4

City of Roanoke
Planning, Building, & Development
COMPREHENSIVE DEVELOPMENT PLAN
APPROVED
by A.C. Cypher 10/20/2025
AHJ APPROVAL STAMP

J:\23181\2-Civil\dwg\23181 Closeout.dwg, Plotted By: gamington, Plotted: Oct 01, 2025 - 2:32pm

GRADING NOTES:

1. EXISTING AND PROPOSED CONTOURS SHOWN AT 1' INTERVAL.
2. CONTRACTOR SHALL ENSURE POSITIVE DRAINAGE AWAY FROM ALL STRUCTURES.
3. CONTRACTOR SHALL LOCATE ALL EXISTING UTILITIES PRIOR TO SITE GRADING.
4. CONTRACTOR SHALL NOTIFY A/E IMMEDIATELY WITH ANY DISCREPANCIES IN GRADING OR LOCATION OF EXISTING UTILITIES.
5. ALL SPOT ELEVATIONS AND PROPOSED CONTOURS REPRESENT THE FINISHED GRADE.
6. TOP OF CURB (TC) AND BOTTOM OF CURB (BC) ELEVATIONS REPRESENT 6" CURB.
7. REFER TO PROFILE SHEET C301–FS4 FOR ADDITIONAL STORM SEWER INFORMATION.
8. SIDEWALKS SHALL HAVE A MAXIMUM CROSS SLOPE OF 2%.
9. CONTRACTOR SHALL FURNISH A FIELD SURVEYED FINAL CORRECT SET OF AS–BUILT PLANS OF NEWLY CONSTRUCTED STORM DRAIN AND/OR STORMWATER MANAGEMENT FACILITIES SEALED BY A LICENSED PROFESSIONAL REGISTERED IN THE COMMONWEALTH OF VIRGINIA PRIOR TO FINAL ACCEPTANCE AND ISSUANCE OF A CERTIFICATE OF OCCUPANCY BY THE CITY. AS–BUILT PLANS SHALL BE PROVIDED IN THE STATE PLANE VIRGINIA SOUTH COORDINATE SYSTEM, NAD 1983, FIPS 4502 FEET, DATUM NAD 83, IN THE FORM OF A DIGITAL AUTOCAD FILE.
10. *ELEVATIONS REPRESENT BASE OF CANOPY COLUMN.
11. SOIL SHALL NOT BE USED AS BACKFILL BENEATH PAVED SURFACES ON SITE. SEE SPECIFICATIONS AND GRADING & TRENCHING NOTES ON SHEET C001.
12. DEPTH OF SURROUNDING UTILITIES UNKNOWN. DECISION TO CONNECT EXISTING DOWNSPOUT TO STORM SEWER TO BE DETERMINED BY OWNER DURING CONSTRUCTION.
13. PROPOSED DOWNSPOUT LATERALS ARE 4" PVC WITH AN ASSUMED SLOPE OF 1/4" PER 1'.

SPECTRUM DESIGN
architects | engineers

Plaza Suite 1
10 Church Avenue, SE
Roanoke, VA 24011
540.342.6001
SPECTRUMPC.COM

CITY OF ROANOKE REFUELING CENTERS FIRE STATION #4

ROANOKE CITY PROJECT NO.: **RFP #24-10-66**
Spectrum Design Project No.: **23181**

COMMONWEALTH OF VIRGINIA
MICHAEL A. RAKES
Lic. No. 28199
10.10.2025
PROFESSIONAL ENGINEER

PROJ. MGR.:	CHECKED BY:	DRAWN BY:
MAR	MAR	AGA

SHEET ISSUE DATE:
10.10.2025

PROJECT PHASE:
BID DOCUMENTS

SCALE:
AS SHOWN
24"x36" SHEET

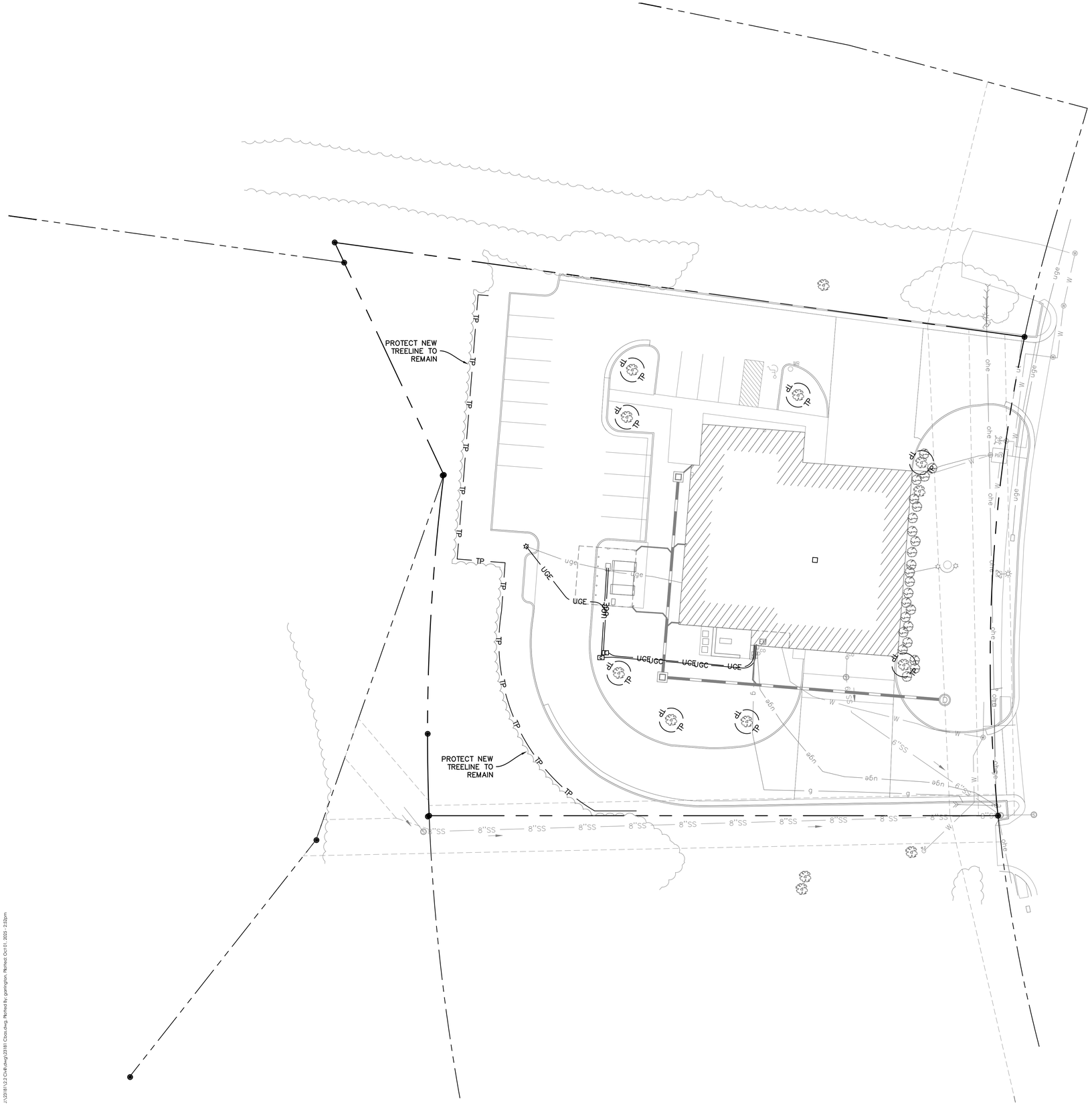
KEY PLAN:

SHEET NAME:
GRADING PLAN

SHEET NUMBER:
C102-FS4

City of Roanoke
Planning, Building, & Development
COMPREHENSIVE DEVELOPMENT PLAN
APPROVED
by A.C. Cypher 10/20/2025

AHJ APPROVAL STAMP



LANDSCAPE PLAN NOTES:

1. TREE PROTECTION AREAS SHALL BE CLEARLY MARKED PRIOR TO ANY LAND DISTURBANCE. GRADING, CLEARING, STORAGE OF MATERIALS, DUMPING OF MATERIALS, AND PARKING OR TRANSPORTING VEHICLES AND EQUIPMENT SHALL BE PROHIBITED INSIDE ANY TREE PROTECTION AREAS.
2. TREE PROTECTION DEVICES SHALL BE INSTALLED PRIOR TO ANY CLEARING OR GRADING ON THE SITE, SHALL BE MAINTAINED DURING CONSTRUCTION, AND SHALL REMAIN IN PLACE UNTIL COMPLETION OF ALL GUARANTEED IMPROVEMENTS SHOWN. SEE C202–FS4 FOR TREE PROTECTION DETAILS.

TREE CANOPY CALCULATIONS

PROJECT LOD = 0.17 AC
CANOPY REQUIREMENT (10%) = 0.017 AC (750 SF)

EXISTING TREE CANOPY = 0.254 AC (11064 SF, 149%)
PROPOSED TREE CANOPY = 0.199 AC (8659 SF, 115%)

1" = 20'–0" 20' 10' 0 20' 40'

SPECTRUM DESIGN
architects | engineers

Plaza Suite 1
10 Church Avenue, SE
Roanoke, VA 24011
540.342.6001
SPECTRUMPC.COM

CITY OF ROANOKE REFUELING CENTERS FIRE STATION #4

ROANOKE CITY PROJECT NO.: **RFP #24-10-66**
Spectrum Design Project No.: **23181**

COMMONWEALTH OF VIRGINIA
MICHAEL A. RAKES
Lic. No. 28199
10.10.2025
PROFESSIONAL ENGINEER

PROJ. MGR.:	CHECKED BY:	DRAWN BY:
MAR	MAR	AGA

SHEET ISSUE DATE:
10.10.2025

PROJECT PHASE:
BID DOCUMENTS

SCALE:
AS SHOWN
24"x36" SHEET

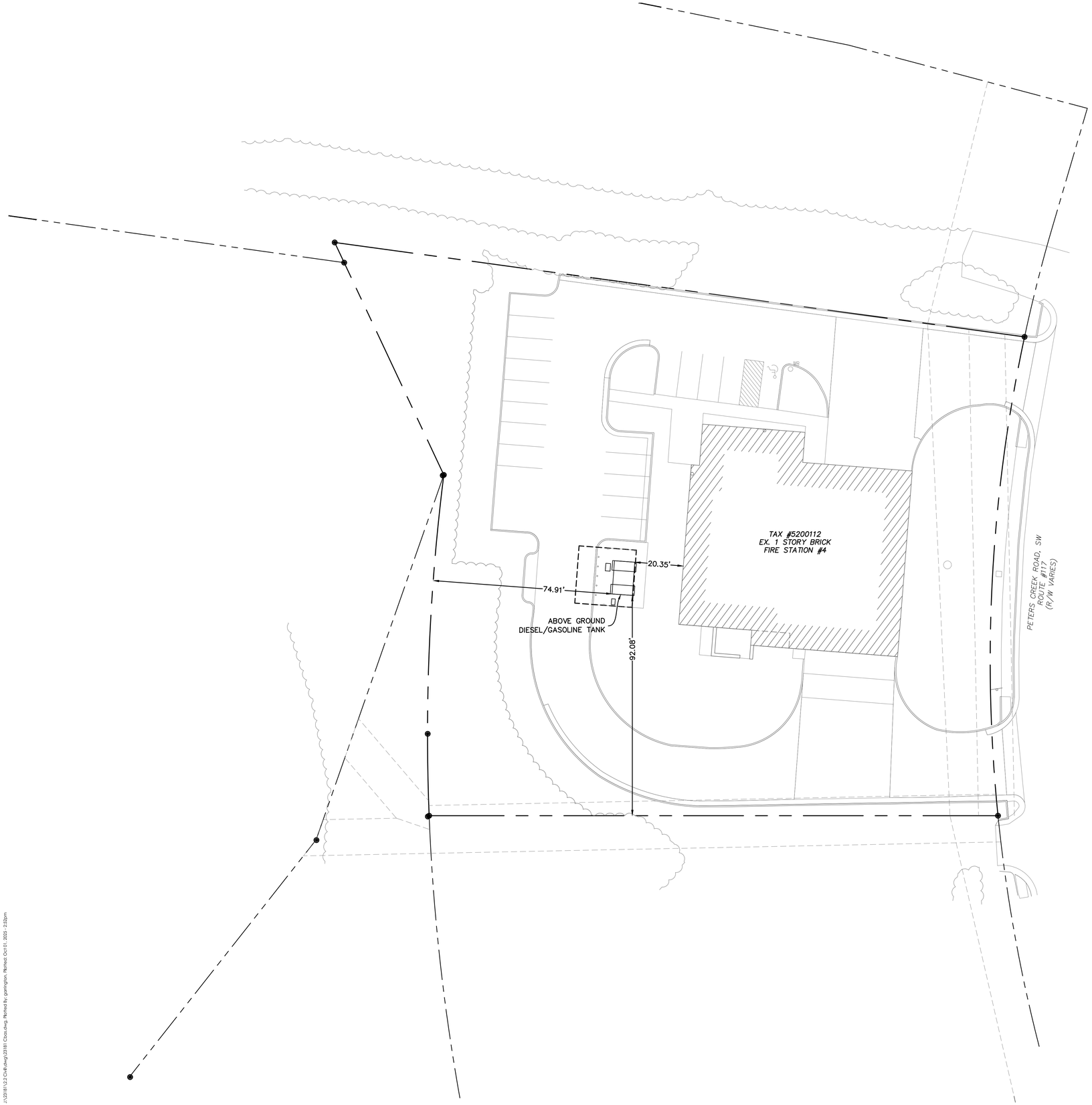
KEY PLAN:

SHEET NAME:
LANDSCAPE PLAN

SHEET NUMBER:
C103-FS4

City of Roanoke
Planning, Building, & Development
COMPREHENSIVE DEVELOPMENT PLAN
APPROVED
by A.C. Cypher 10/20/2025
AHJ APPROVAL STAMP

J:\23181\12-Civil\dwg\23181 Cover.dwg, Plotted By: gsemington, Plotted: Oct 01, 2025 - 2:52pm



1" = 20'-0" 20' 10' 0 20' 40'

SPECTRUM DESIGN
architects | engineers

Plaza Suite 1
10 Church Avenue, SE
Roanoke, VA 24011
540.342.6001
SPECTRUMPC.COM

CITY OF ROANOKE REFUELING CENTERS FIRE STATION #4

ROANOKE CITY PROJECT NO.: **RFP #24-10-66**
Spectrum Design Project No.: **23181**

COMMONWEALTH OF VIRGINIA
MICHAEL A. RAKES
Lic. No. 28199
10.10.2025
PROFESSIONAL ENGINEER

PROJ. MGR.: **MAR** CHECKED BY: **MAR** DRAWN BY: **AGA**

SHEET ISSUE DATE:
10.10.2025

PROJECT PHASE:
BID DOCUMENTS

SCALE:
AS SHOWN
24"x36" SHEET

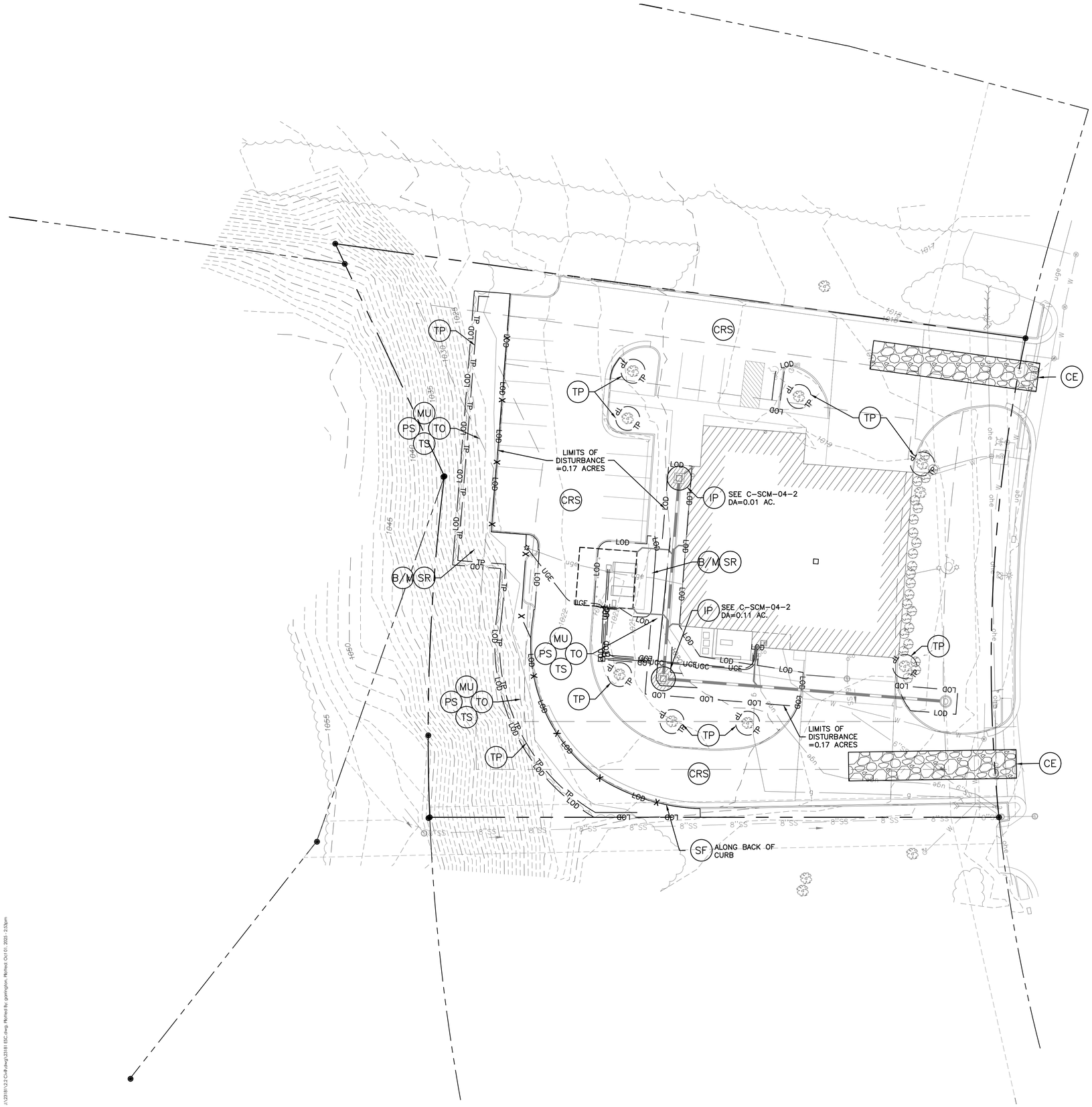
KEY PLAN:

SHEET NAME:
TANK PROXIMITY MAP FOR PERMITTING

SHEET NUMBER:
C104-FS4

City of Roanoke
Planning, Building, & Development
COMPREHENSIVE DEVELOPMENT PLAN
APPROVED
by A.C. Cypher 10/20/2025
AHJ APPROVAL STAMP

J:\23181\23 Civil-dwg\23181 Cover.dwg, Plotted By: gpennington, Plotted: Oct 01, 2025 - 2:52pm



SEQUENCE OF CONSTRUCTION

1. A PRECONSTRUCTION MEETING SHALL BE PERFORMED PRIOR TO ANY LAND DISTURBING ACTIVITIES.
2. ENSURE THERE IS NO EXISTING DAMAGE TO THE SITE AS A RESULT OF DEMOLITION. CONTRACTOR IS RESPONSIBLE FOR DAMAGES.
3. INSTALL CONSTRUCTION ENTRANCES. ALL CONSTRUCTION TRAFFIC IS TO ENTER AND EXIT THE SITE THROUGH THE CONSTRUCTION ENTRANCES. DURING WET WEATHER, WHEELS ARE TO BE WASHED BEFORE ENTERING PUBLIC ROADS.
4. CONTRACTOR TO PROVIDE STAGING AREA WITH PERIMETER FENCING.
5. INSTALL PERIMETER CONTROL MEASURES INCLUDING TREE PROTECTION AND ADJACENT INLET PROTECTION.
6. CLEAR TO THE LIMITS OF DISTURBANCE AS SHOWN BY THESE PLANS.
7. ROUGH GRADE THE SITE TO PAVEMENT BASE ELEVATIONS. ANY AREAS REACHING FINAL GRADE ARE TO BE PERMANENTLY SEEDED.
8. BEGIN TRENCHING OPERATIONS AND INSTALLATION OF UNDERGROUND UTILITIES. INSTALL ADDITIONAL INLET PROTECTION AS NECESSARY.
9. INSTALL BASE STONE FOR PAVED AREAS.
10. INSTALL REMAINING UTILITIES.
11. COMPLETE REMAINING CUT/FILL OPERATIONS.
12. INSTALL CURB AND GUTTER. BACKFILL AND SEED AREAS BEHIND CURB IMMEDIATELY AFTER INSTALLATION.
13. INSTALL ASPHALT PAVEMENT AND CONCRETE SURFACES.
14. TOPSOIL AND APPLY PERMANENT SEEDING TO ALL NON PAVED AREAS.
15. REMOVE SEDIMENT TRAPPING DEVICES WHEN SUFFICIENT UPSLOPE STABILIZATION IS REACHED.
16. REMOVE TEMPORARY CONTROL MEASURES WITH APPROVAL FROM ROANOKE CITY SITE INSPECTOR.

CONTRACTOR TO ENSURE ADEQUATE VEHICLE ACCESS TO GARAGE BAYS AND SITE IS MAINTAINED AT ALL TIMES.

ENSURE REQUIRED PROTECTIVE BARRIER (SIGNAGE, CHAIN LINK FENCE, ORANGE SAFETY FENCE, SNOW FENCE, OR OTHER PROTECTIVE BARRIER) IS INSTALLED AROUND THE PERIMETER OF CONSTRUCTION AREA, AS REQUIRED.

ESC LEGEND

PROPOSED	DESCRIPTION
SF	SILT FENCE VSMH C-PCM-04
CRS	CONSTRUCTION ROAD STABILIZATION VSMH C-SCM-02
CE	CONSTRUCTION ENTRANCE VSMH C-SCM-03
IP	INLET PROTECTION VSMH C-SCM-04
TO	TOPSOILING VSMH C-SSM-02
SR	SURFACE ROUGHENING VSMH C-SSM-03
B/M	SOIL STABILIZATION BLANKETS & MATTING VSMH C-SSM-05
TS	TEMPORARY SEEDING VSMH C-SSM-09
PS	PERMANENT SEEDING VSMH C-SSM-10
MU	MULCHING VSMH C-SSM-11
TP	TREE PRESERVATION & PROTECTION VSMH C-SSM-01
—— LOD ——	LIMITS OF DISTURBANCE

SEE VIRGINIA STORMWATER MANAGEMENT HANDBOOK, CURRENT VERSION

1" = 20'-0" 20' 10' 0 20' 40'

SPECTRUM DESIGN
architects | engineers

Plaza Suite 1
10 Church Avenue, SE
Roanoke, VA 24011
540.342.6001
SPECTRUMPC.COM

CITY OF ROANOKE REFUELING CENTERS FIRE STATION #4

ROANOKE CITY PROJECT NO.: **RFP #24-10-66**
Spectrum Design Project No.: **23181**

COMMONWEALTH OF VIRGINIA
MICHAEL A. RAKES
Lic. No. 28199
10.10.2025
PROFESSIONAL ENGINEER

PROJ. MGR.:	CHECKED BY:	DRAWN BY:
MAR	MAR	AGA

SHEET ISSUE DATE:
10.10.2025

PROJECT PHASE:
BID DOCUMENTS

SCALE:
AS SHOWN
24"x36" SHEET

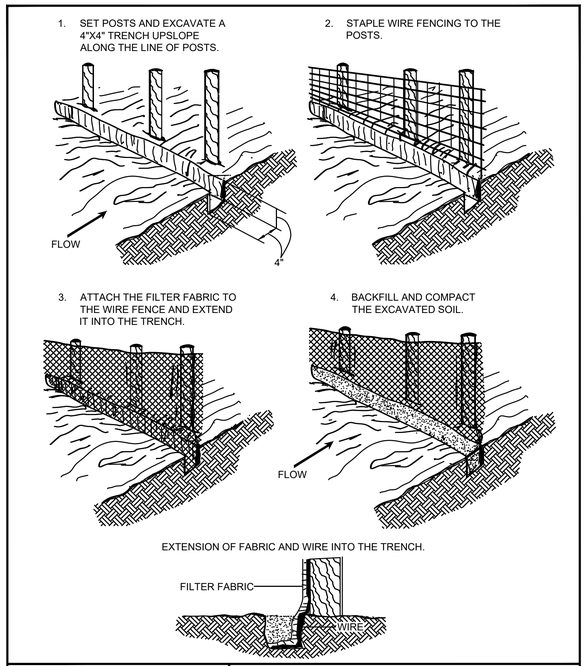
KEY PLAN:

SHEET NAME:
EROSION & SEDIMENT CONTROL PLAN

SHEET NUMBER:
C201-FS4

City of Roanoke
Planning, Building, & Development
COMPREHENSIVE DEVELOPMENT PLAN
APPROVED
by A.C. Cypher 10/20/2025
AHJ APPROVAL STAMP

J:\23181\2.2 Civil\dwg\23181 ESC.dwg, Plotted By: gpennington, Plotted: Oct 01, 2025 - 2:53pm

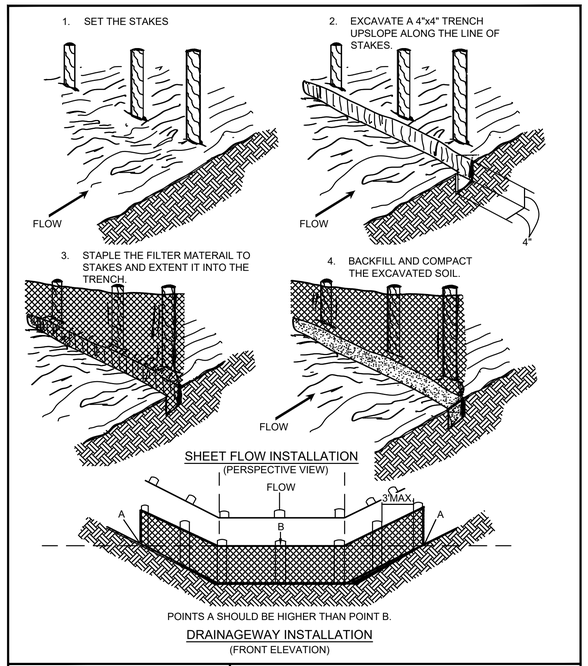


DEQ VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

CONSTRUCTION OF SILT FENCE WITH WIRE SUPPORT INSTALLATION

v1.1 SOURCE: ADAPTED FROM STRAW & FAB. BARRIERS, SHERWOOD & WYANT

C-PCM-04-2

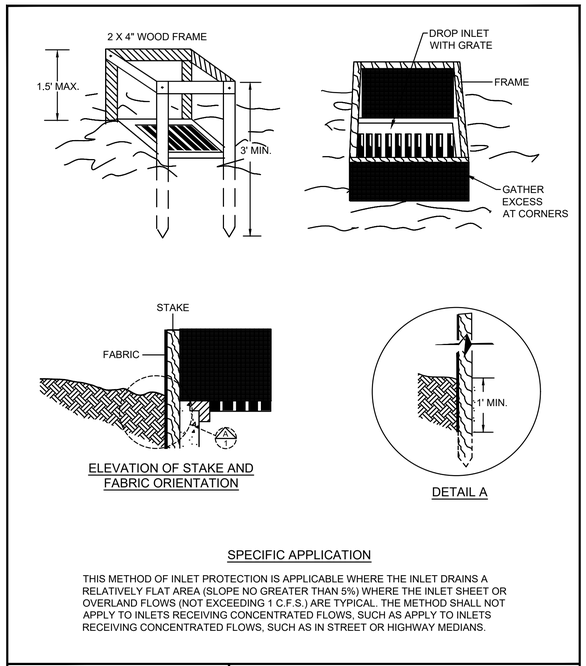


DEQ VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

CONSTRUCTION OF SILT FENCE WITHOUT WIRE SUPPORT

v1.1 SOURCE: ADAPTED FROM STRAW & FAB. BARRIERS, SHERWOOD & WYANT

C-PCM-04-2B

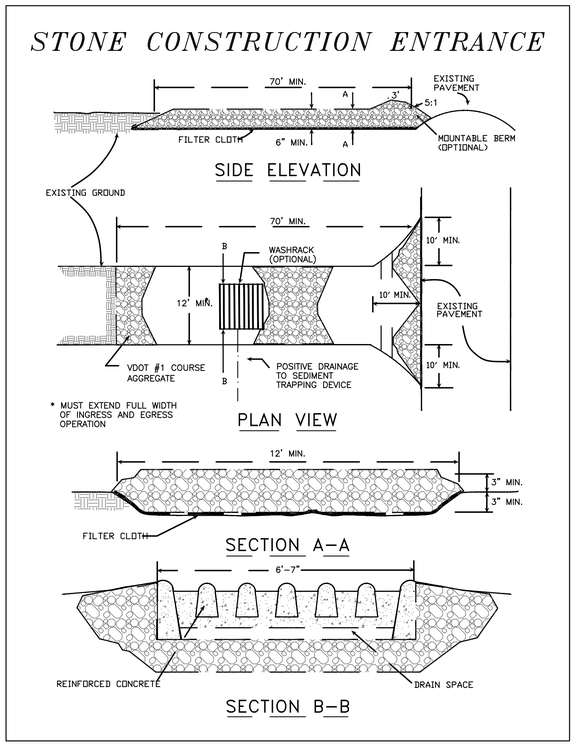


DEQ VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

SILT FENCE DROP INLET PROTECTION

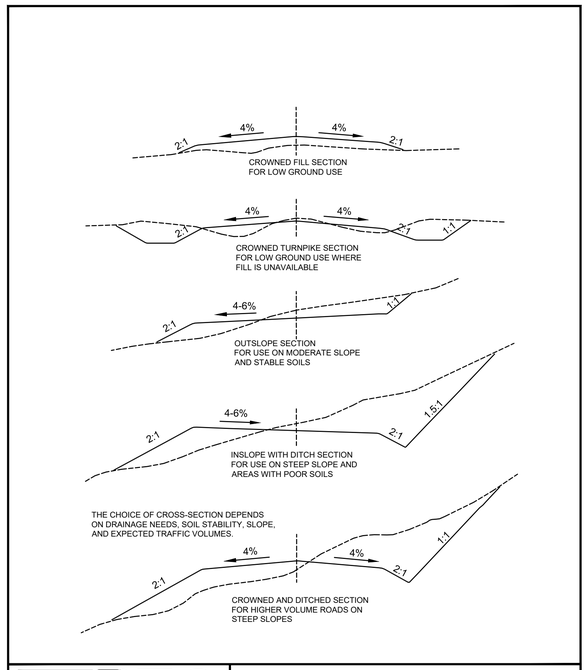
v1.1 SOURCE: NC ESC DESIGN MAN.

C-SCM-04-1



SOURCE: ADAPTED FROM 1983 MARYLAND STANDARDS FOR SOIL EROSION AND SEDIMENT CONTROL, AND VA. DSWC

PLATE. 3.02-1

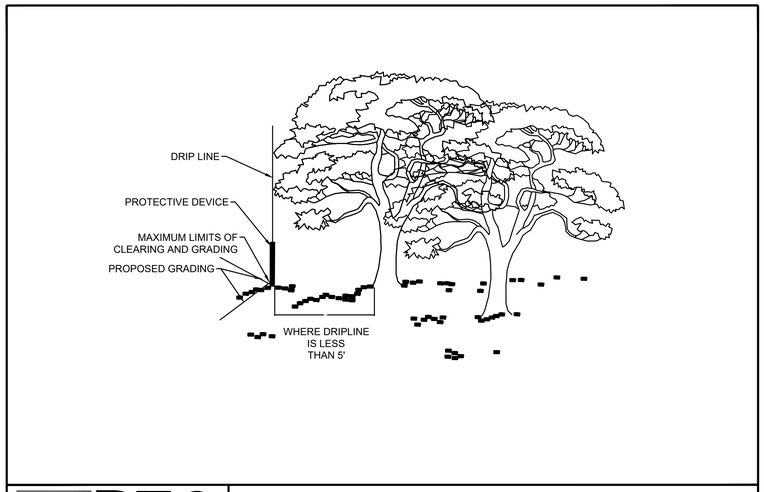


DEQ VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

TYPES OF CROSS ROAD SECTIONS

v1.1 SOURCE: USFS & MICHIGAN DNR

C-SCM-02-1



DEQ VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

CONSTRUCTION OPERATIONS RELATIVE TO THE LOCATION OF PROTECTED TREES

v1.1 SOURCE: FAIRFAX CO., VA. PUBLIC FACILITIES MANUAL

C-SSM-01-1

SPECTRUM DESIGN
architects | engineers

Plaza Suite 1
10 Church Avenue, SE
Roanoke, VA 24011
540.342.6001
SPECTRUMPC.COM

CITY OF ROANOKE REFUELING CENTERS FIRE STATION #4

ROANOKE CITY PROJECT NO.: **RFP #24-10-66**
Spectrum Design Project No.: **23181**

COMMONWEALTH OF VIRGINIA
MICHAEL A. RAKES
Lic. No. 28199
10.10.2025
PROFESSIONAL ENGINEER

PROJ. MGR.:	CHECKED BY:	DRAWN BY:
MAR	MAR	AGA

SHEET ISSUE DATE:
10.10.2025

PROJECT PHASE:
BID DOCUMENTS

SCALE:
AS SHOWN
24"x36" SHEET

KEY PLAN:

SHEET NAME:
EROSION & SEDIMENT CONTROL DETAILS

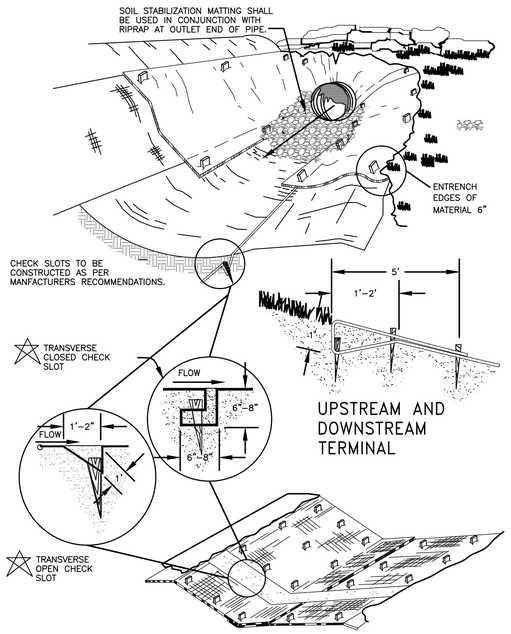
SHEET NUMBER:
C202-FS4

City of Roanoke
Planning, Building, & Development
COMPREHENSIVE DEVELOPMENT PLAN
APPROVED
by A.C. Cypher 10/20/2025

AHJ APPROVAL STAMP

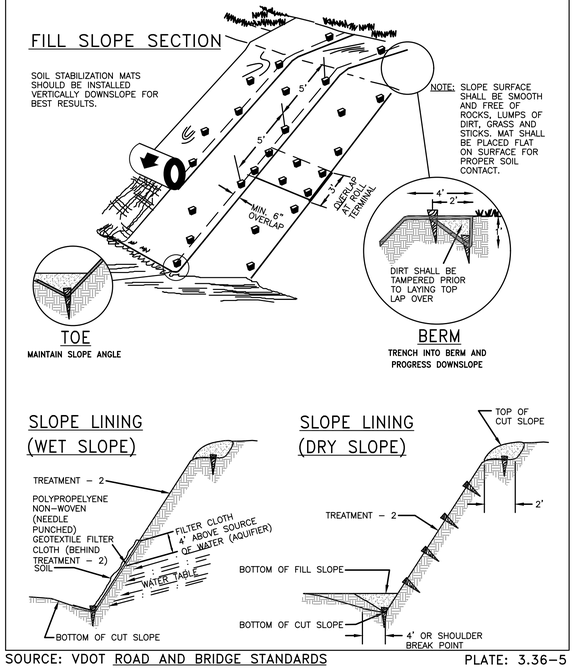
J:\23181\2-Civil\dwg\23181 ESC.dwg, Plotted By: gamington, Plotted Oct 01, 2025 - 2:53pm

TYPICAL TREATMENT–2 SOIL STABILIZATION MATTING INSTALLATION



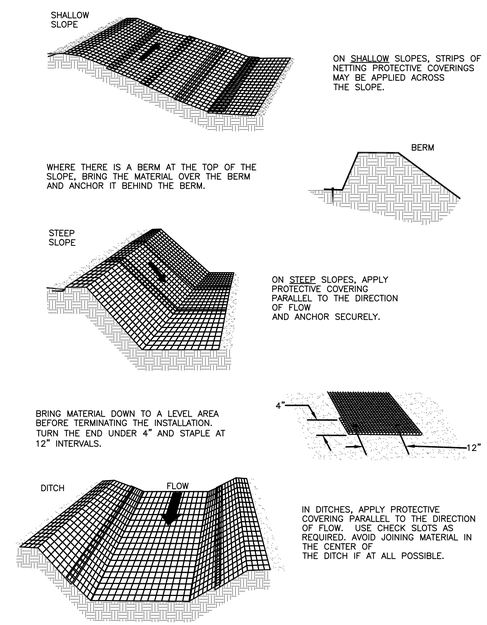
SOURCE: VDOT ROAD AND BRIDGE STANDARDS PLATE: 3.36–4

TYPICAL TREATMENT – 2 SOIL STABILIZATION MATTING SLOPE INSTALLATION



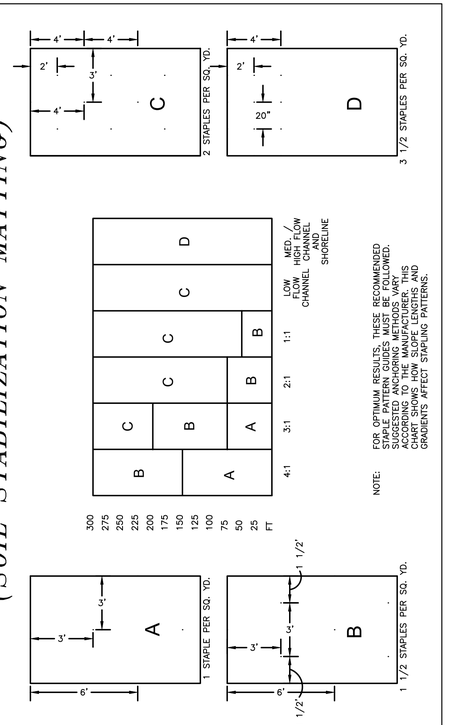
SOURCE: VDOT ROAD AND BRIDGE STANDARDS PLATE: 3.36–5

TYPICAL ORIENTATION OF TREATMENT – 1 (SOIL STABILIZATION BLANKET)



SOURCE: ADAPTED FROM LUDLOW PRODUCTS BROCHURE PLATE: 3.36–1

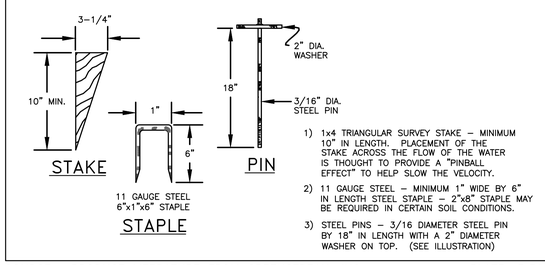
GENERAL STAPLE PATTERN GUIDE AND RECOMMENDATIONS FOR TREATMENT – 2 (SOIL STABILIZATION MATTING)



NOTE: FOR OPTIMUM RESULTS, THESE RECOMMENDED STAPLE PATTERNS MUST BE FOLLOWED. SUGGESTED ANCHORING METHODS VARY ACCORDING TO THE MANUFACTURER. THIS CHART DOES NOT ADDRESS SLOPES AND GRADIENTS AFFECT STAPLING PATTERNS.

SOURCE: PRODUCT LITERATURE FROM NORTH AMERICAN GREEN PLATE: 3.36–6

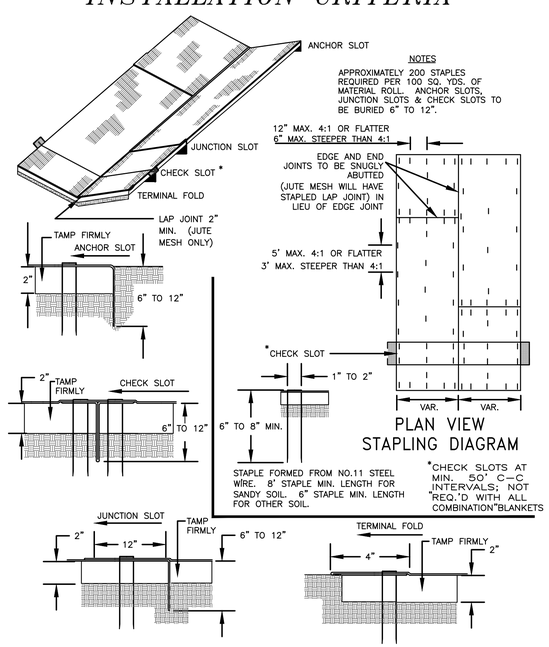
STAKES, STAPLES, & PINS FOR INSTALLATION OF TREATMENT – 2 SOIL STABILIZATION MATTING



1) 1x4 TRIANGULAR SURVEY STAKE – MINIMUM 10" IN LENGTH. PLACEMENT OF THE STAKE ACROSS THE FLOW OF THE WATER IS THOUGHT TO PROVIDE A "PINBALL EFFECT" TO HELP SLOW THE VELOCITY.
2) 11 GAUGE STEEL – MINIMUM 1" WIDE BY 6" IN LENGTH STEEL STAPLE – 2"x8" STAPLE MAY BE REQUIRED IN CERTAIN SOIL CONDITIONS.
3) STEEL PINS – 3/16 DIAMETER STEEL PIN BY 18" IN LENGTH WITH A 2" DIAMETER WASHER ON TOP. (SEE ILLUSTRATION)

SOURCE: PRODUCT LITERATURE FROM GREENSTREAK, INC. PLATE: 3.36–3

TYPICAL TREATMENT – 1 (SOIL STABILIZATION BLANKET) INSTALLATION CRITERIA



SOURCE: VDOT ROAD AND BRIDGE STANDARDS PLATE: 3.36–2

SPECTRUM DESIGN
architects | engineers

Plaza Suite 1
10 Church Avenue, SE
Roanoke, VA 24011
540.342.6001
SPECTRUMPC.COM

CITY OF ROANOKE REFUELING CENTERS FIRE STATION #4

ROANOKE CITY PROJECT NO.: **RFP #24-10-66**
Spectrum Design Project No.: **23181**

COMMONWEALTH OF VIRGINIA
MICHAEL A. RAKES
Lic. No. 28199
10.10.2025
PROFESSIONAL ENGINEER

PROJ. MGR.:	CHECKED BY:	DRAWN BY:
MAR	MAR	AGA

SHEET ISSUE DATE:
10.10.2025

PROJECT PHASE:
BID DOCUMENTS

SCALE:
AS SHOWN
24"x36" SHEET

KEY PLAN:

SHEET NAME:
EROSION & SEDIMENT CONTROL DETAILS

SHEET NUMBER:
C203-FS4

City of Roanoke
Planning, Building, & Development
COMPREHENSIVE DEVELOPMENT PLAN
APPROVED
by A.C. Cypher 10/20/2025
AHJ APPROVAL STAMP

J:\23181\2-Civil\Dwg\23181 ESC.dwg, Plotted By: gamington, Plotted: Oct 01, 2025 - 2:53pm

Erosion and Sediment Control Criteria, Techniques, and Methods: Minimum Standards

NOTE:
✓• CHECKMARK INDICATES ITEM IS APPLICABLE TO PROJECT.
N/A• N/A – NOT APPLICABLE.

MS–1 STABILIZATION OF DENUDED AREAS
✓ Permanent or temporary soil stabilization shall be applied to denuded areas within seven days after final grade is reached on any portion of the site. Temporary soil stabilization shall be applied within seven days to denuded areas that may not be at final grade but will remain dormant for longer than 14 days. Permanent stabilization shall be applied to areas that are to be left dormant for more than one year.

MS–2 STABILIZATION OF SOIL STOCKPILES
✓ During construction of the project, soil stockpiles and borrow areas shall be stabilized or protected with sediment trapping measures. The applicant is responsible for the temporary protection and permanent stabilization of all soil stockpiles on site as well as borrow areas and soil intentionally transported from the project site.

MS–3 PERMANENT VEGETATION
✓ A permanent vegetative cover shall be established on denuded areas not otherwise permanently stabilized. Permanent vegetation shall not be considered established until a ground cover is achieved that, is uniform, mature enough to survive and will inhibit erosion.

MS–4 TIMING AND STABILIZATION OF SEDIMENT TRAPPING MEASURES
✓ Sediment basins and traps, perimeter dikes, sediment barriers and other measures intended to trap sediment shall be constructed as a first step in any land–disturbing activity and shall be made functional before upslope land disturbance takes place.

MS–5 STABILIZATION OF EARTHEN STRUCTURES
✓ Stabilization measures shall be applied to earthen structures such as dams, dikes and diversions immediately after installation.

MS–6 SEDIMENT BASINS
✓ Sediment traps and sediment basins shall be designed and constructed based upon the total drainage area to be served by the trap or basin.
A. The minimum storage capacity of a sediment trap shall be 134 cubic yards per acre of drainage area and the trap shall only control drainage areas less than three acres.
B. Surface runoff from disturbed areas that is comprised of flow from drainage areas greater than or equal to three acres shall be controlled by a sediment basin. The minimum storage capacity of a sediment basin shall be 134 cubic yards per acre of drainage area. The outfall system shall, at a minimum, maintain the structural integrity of the basin during a twenty–five year storm of 24–hour duration. Runoff coefficients used in runoff calculations shall correspond to a bare earth condition or those conditions expected to exist while the sediment basin is utilized.

MS–7 CUT AND FILL SLOPES
✓ Cut and fill slopes shall be designed and constructed in a manner that will minimize erosion. Slopes that are found to be eroding excessively within one year of permanent stabilization shall be provided with additional slope stabilizing measures until the problem is corrected.

MS–8 CONCENTRATED RUNOFF FLOW DOWN CUT OR FILL SLOPES
✓ Concentrated runoff shall not flow down cut or fill slopes unless contained within an adequate temporary or permanent channel, flume or slope drain structure.

MS–9 WATER SEEPS FROM A SLOPE FACE
✓ Whenever water seeps from a slope face, adequate drainage or other protection shall be provided.

MS–10 STORM SEWER INLET PROTECTION
✓ All storm sewer inlets that are made operable during construction shall be protected so that sediment–laden water cannot enter the conveyance system without first being filtered or otherwise treated to remove sediment.

MS–11 STABILIZATION OF OUTLETS
✓ Before newly constructed stormwater conveyance channels or pipes are made operational, adequate outlet protection and any required temporary or permanent channel lining shall be installed in both the conveyance channel and receiving channel.

MS–12 WORK IN LIVE WATERCOURSES
N/A When work in a live watercourse is performed, precautions shall be taken to minimize encroachment, control sediment transport and stabilize the work area to the greatest extent possible during construction. Nonerodible material shall be used for the construction of causeways and cofferdams. Earthen fill may be used for these structures if armored by nonerodible cover materials.

MS–13 CROSSING A LIVE WATERCOURSE
N/A When a live watercourse must be crossed by construction vehicles more than twice in any six–month period, a temporary vehicular stream crossing constructed of nonerodible material shall be provided.

MS–14 APPLICABLE REGULATIONS
N/A All applicable federal, state and local regulations pertaining to working in or crossing live watercourses shall be met.

MS–15 STABILIZATION OF BED AND BANKS
N/A The bed and banks of a watercourse shall be stabilized immediately after work in the watercourse is completed.

MS–16 UTILITY CONSTRUCTION
✓ Underground utility lines shall be installed in accordance with the following standards in addition to other applicable criteria:
a. No more than 500 linear feet of trench may be opened at one time.
C. Excavated material shall be placed on the uphill side of trenches.
D. Effluent from dewatering operations shall be filtered or passed through an approved sediment trapping device, or both, and discharged in a manner that does not adversely affect flowing streams or off–site property.
E. Material used for backfilling trenches shall be properly compacted in order to minimize erosion and promote stabilization.
F. Restabilization shall be accomplished in accordance with these regulations.
G. Applicable safety regulations shall be complied with.

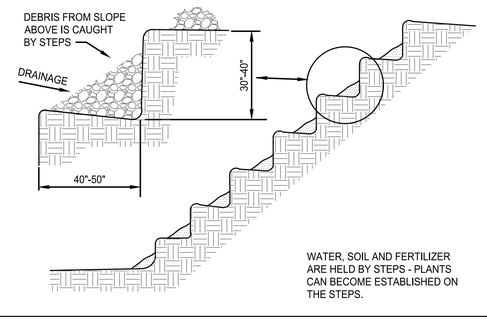
MS–17 CONSTRUCTION ACCESS ROUTES
✓ Where construction vehicle access routes intersect paved or public roads, provisions shall be made to minimize the transport of sediment by vehicular tracking onto the paved surface. Where sediment is transported onto a paved or public road surface, the road surface shall be cleaned thoroughly at the end of each day. Sediment shall be removed from the roads by shoveling or sweeping and transported to a sediment control disposal area. Street washing shall be allowed only after sediment is removed in this manner. This provision shall apply to individual development lots as well as to larger land–disturbing activities.

MS–18 TEMPORARY EROSION & SEDIMENT CONTROL MEASURE REMOVAL
✓ All temporary erosion and sediment control measures shall be removed within 30 days after final site stabilization or after the temporary measures are no longer needed, unless otherwise authorized by the local program authority. Trapped sediment and the disturbed soil areas resulting from the disposition of temporary measures shall be permanently stabilized to prevent further erosion and sedimentation.

GENERAL EROSION & SEDIMENT CONTROL NOTES

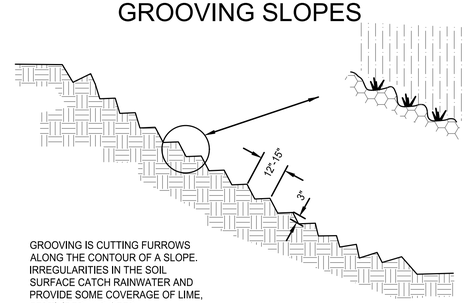
1. Unless otherwise indicated, all vegetative and structural erosion and sediment control practices will be constructed and maintained according to minimum standards and specifications of the Virginia Stormwater Management Handbook and Virginia Regulations (9VAC25-875) *Virginia Erosion and Stormwater Management Regulations*.
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 activities, and one week prior to final inspection.
3. All erosion and sediment control measures are to be placed prior to or as the first step in clearing.
4. A copy of the approved erosion and sediment control plan shall be maintained on the site at all times.
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.
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.
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.
8. During dewatering operations, water will be pumped into an approved filtering device.
9. The contractor shall inspect all erosion control 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.

STAIR STEPPING CUT SLOPES

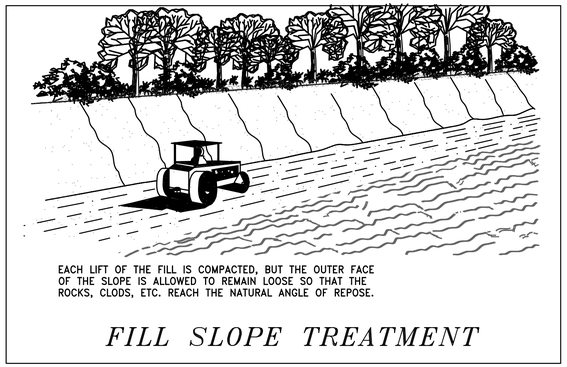


SOURCE: VA. DSWC PLATE 3.29-1

GROOVING SLOPES

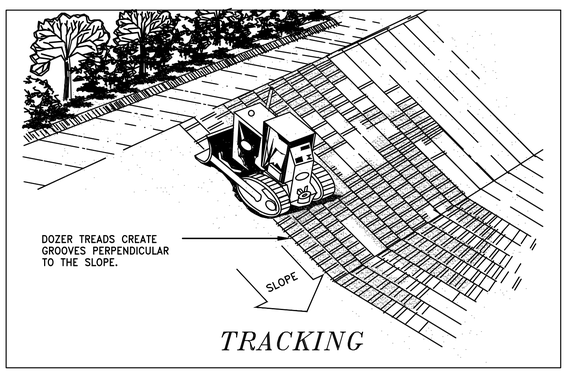


SOURCE: VA. DSWC PLATE 3.29-2



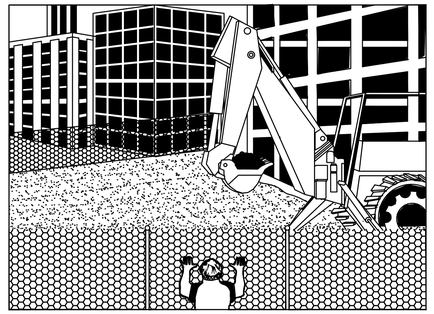
FILL SLOPE TREATMENT

SOURCE: VA. DSWC PLATE. 3.29–3

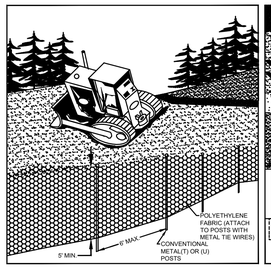


TRACKING

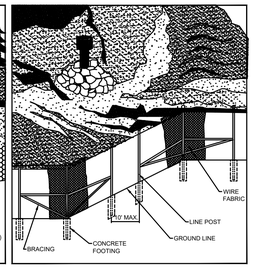
SOURCE: MICHIGAN SOIL EROSION AND SEDIMENTATION GUIDE PLATE. 3.29–4



PERSPECTIVE VIEW



PERSPECTIVE VIEW
PLASTIC FENCE



PERSPECTIVE VIEW
METAL FENCE

DEQ
VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

v1.1

SAFETY FENCE

SOURCE: VDOT STDS., VA DSWC, CONWED PLASTICS

C-PCM-01-1

MULCHING TABLE

SEEDING AREA REQUIREMENTS (UNLESS OTHERWISE DIRECTED BY LANDSCAPE PLANS)

MULCHES	RATE (LBS/1000 SF)	NOTES
STRAW OR HAY	70 – 90	FREE FROM WEEDS AND COARSE MATTER. MUST BE ANCHORED. SPREAD BY MULCH BLOWER OR BY HAND. USE MIN. 2 TONS PER ACRE FOR WINTER COVER
FIBER MULCH	35 (MIN.)	DO NOT USE FIBER MULCH FOR WINTER COVER OR DURING HOT, DRY PERIODS. APPLY AS SLURRY. WHEN FIBER MULCH IS THE ONLY AVAILABLE MULCH DURING PERIODS WHEN STRAW SHOULD BE USED, APPLY AT A MIN. RATE OF 2000 LBS/ACRE OR 45 LBS/1,000 SF

HARDWOOD MULCH REQUIREMENTS (UNLESS OTHERWISE DIRECTED BY LANDSCAPE PLANS)

MULCHES	RATE (CY/1000 SF)	NOTES
SHREDDED HARDWOOD BARK	1 – 2	MUST BE FREE OF WEEDS, DEBRIS, AND COARSE MATTER. AIR–DRIED. DO NOT USE IN FINE TURF AREAS. APPLY WITH MULCH BLOWER, CHIP HANDLER, OR BY HAND.

SEEDING TABLE

PLANT MATERIAL FOR TEMPORARY SEEDING REQUIREMENTS*

PLANTING DATES	ACCEPTABLE PLANT SPECIES	SCIENTIFIC NAME	SEEDING RATE (LBS/ACRE)
SEPT 1 – FEB 15	50/50 MIX OF ANNUAL RYEGRASS AND WINTER RYE	LOLIUM MULTIFLORUM AND SECALE CEREALE	50–100
FEB 16– APR 30**	ANNUAL RYEGRASS	LOLIUM MULTIFLORUM	60–100
MAY 1** – AUG 31	GERMAN MILLET	SETARIA ITALICA	50

SOIL pH	LIMING RATE (TON/ACRE)
BELOW 4.2	3
4.2 TO 5.2	2
5.2 TO 6	1

*MULCH IMMEDIATELY IN ACCORDANCE WITH MULCHING TABLE ON THIS SHEET AND VA STORMWATER MANAGEMENT HANDBOOK.
**THE SHIFT DATE FOR ANNUAL RYE TO GERMAN MILLET SHOULD BE APRIL 15 FOR THE PIEDMONT AND COASTAL PLAIN, RATHER THAN MAY 1.

PERMANENT SEEDING MIXTURE REQUIREMENTS*

SEED SPECIES	PERCENT OF TOTAL	SEEDING RATE (LBS/ACRE)
TURF–TYPE TALL FESCUE	95–100%	150–200
KENTUCKY BLUEGRASS	0–5%	
IMPROVED PERENNIAL RYEGRASS	0–5%	

*MULCH IMMEDIATELY IN ACCORDANCE WITH MULCHING TABLE ON THIS SHEET AND VA STORMWATER MANAGEMENT HANDBOOK.

SEED MIXES ARE SUGGESTIONS FOUND IN THE VA STORMWATER MANAGEMENT HANDBOOK AND ARE SUBJECT TO MODIFICATION BASED ON SITE–SPECIFIC CONDITIONS BY AN AGRONOMIST OR OTHER QUALIFIED REVEGETATION PROFESSIONALS. ALL SEED RATES ARE EXPRESSED AS PURE LIVE SEED (PLS) AS SHOWN IN TABLE C–SSM–10–9 OF THE VA STORMWATER MANAGEMENT HANDBOOK.

SPECTRUM DESIGN
architects | engineers

Plaza Suite 1
10 Church Avenue, SE
Roanoke, VA 24011
540.342.6001
SPECTRUMPC.COM

CITY OF ROANOKE REFUELING CENTERS FIRE STATION #4

ROANOKE CITY PROJECT NO.: **RFP #24-10-66**
Spectrum Design Project No.: **23181**

COMMONWEALTH OF VIRGINIA
MICHAEL A. RAKES
Lic. No. 28199
10.10.2025
PROFESSIONAL ENGINEER

PROJ. MGR.: CHECKED BY: DRAWN BY:

SHEET ISSUE DATE:
10.10.2025

PROJECT PHASE:
BID DOCUMENTS

SCALE:
AS SHOWN
24"x36" SHEET

KEY PLAN:

SHEET NAME:
EROSION & SEDIMENT CONTROL NOTES AND DETAILS

SHEET NUMBER:
C204-FS4

City of Roanoke
Planning, Building, & Development
COMPREHENSIVE DEVELOPMENT PLAN
APPROVED
by A.C. Cypher 10/20/2025
AHJ APPROVAL STAMP

J:\23181\23 Civil\dwg\23181 ESC.dwg, Plotted By: gsemington, Plotted: Oct 01, 2025 - 3:33pm

EROSION AND SEDIMENT CONTROL NARRATIVE

RESPONSIBLE LAND DISTURBER

Upon award of the Construction Contract, the Contractor shall employ a Responsible Land Disturber, who is certified by the Department of Environmental Quality (DEQ), to assume this responsibility for the project. The name of this person is to be designated in writing by the Contractor to the State ESC plan approving authority, the A/E, and the Owner along with copies of their certification prior to any land disturbance. The Responsible Land Disturber for this project shall be in charge of and is responsible for carrying out the land-disturbing activities on this project. Should the certified Land Disturber change at any time during the life of this project then the Land Disturbing Permit will become void, and a new Permit must be obtained. Hereinafter RLD shall be interpreted as the Responsible Land Disturber. Relative to the SWPP Plan the RLD shall be the "Operator".

STORM WATER POLLUTION PREVENTION PLAN & REGISTRATION STATEMENT

A Virginia Pollutant Discharge Elimination System (VPDES) Permit for the Discharge of Stormwater from Construction Activities is required for projects disturbing one (1) acre or greater. Disturbance for this project is less than 1 acre (0.17 acres) and is exempt from the requirements of the VPDES Permit.

PROJECT DESCRIPTION

The purpose of this project is for the addition of a fueling station at the City of Roanoke's Fire Station #4. Site improvements include a new concrete pad for the fuel tanks, dispensing and associated items, replacement of a portion of the existing access road around the station, and drainage improvements. Fire Station #4 is located at 3763 Peters Creek Road. The disturbance for this project is 0.17 acres. The construction will increase the net impervious cover of the site by 0.004 acres. For the purposes of this narrative, the "site" shall be defined as the area to be disturbed on the subject property.

EXISTING SITE CONDITIONS

The area of construction is on a portion of Tax #5200112. The existing site contains the City of Roanoke Fire Station #4 along with off street parking and two access points to Peters Creek Road. All existing utilities serving the Fire Station are underground. Existing water and sanitary connections to the Fire Station are from mains along Peters Creek Road. The entirety of the site drains from West to East to a curb and gutter along Peters Creek Road, and ultimately to a City of Roanoke underground conveyance to Peters Creek. A steep, wooded slope exists on the Western side of the property.

ADJACENT PROPERTY

Generally, the site is surrounded by commercial and multifamily properties within the Greater Deyerle neighborhood. The site is directly bound by Peters Creek Road to the East, a wooded buffer between the site and the Norfolk Southern Railroad to the North, Leehy Manor multifamily properties to the West and a vacant commercial property to the South.

OFF-SITE AREAS

No off-site disturbance is anticipated by these plans.

Should land disturbance at any off-site area be needed, the Contractor shall submit to City of Roanoke Planning, Building and Development a copy of plans, land disturbing permit, and/or agreement in lieu of approved by the appropriate Federal, State, or local authorities.

Should some material be wasted off-site to a site owned by others or the Contractor, it is the Contractor's responsibility to assure that said source has a current, approved Erosion Control Plan in accordance with the Virginia Stormwater Management Handbook, current version.

Should borrow, excavation waste or spoil areas proposed not have a current approved ESC Plan, an ESC Plan shall be submitted and approved by the Department of Environmental Quality and local authorities prior to any land disturbance in accordance with the Erosion Control notes in these plans and Virginia State Laws.

SOILS

No formal subsurface exploration has been completed for this construction.

CRITICAL EROSION AREAS

The existing site consists of stabilized grass and paved areas that may become disturbed during construction activities. Site runoff is to be controlled with erosion, perimeter, sediment, and surface stabilization measures in accordance with local standards and the DEQ Virginia Stormwater Management Handbook, current version.

EROSION AND SEDIMENT CONTROL MEASURES

Unless otherwise indicated, all vegetative and structural erosion and sediment control practices will be constructed and maintained in accordance with the minimum standards and specifications to the Virginia Stormwater Managment Handbood, current version. References to VDOT refer to the Virginia Department of Transportation "Road and Bridge Standards and Specifications," latest edition. A copy of the approved ESC Plan and Narrative and the Virginia Stormwater Management Handbook shall be maintained at the jobsite at all times.

EROSION CONTROL MEASURES

1. Outlet Protection (C-ECM-15): Structurally lined aprons or other forms of energy-dissipating devices placed at the outlets of pipes, curb openings, ditch turnouts, or paved channel sections to slow discharge velocity from the outlet to prevent an erosive condition.
   Sequence of Installation: Installed prior to conveyance accepting flow.
   Removal Event: Permanent practice and shall not to be removed.

PERIMETER CONTROL MEASURES

1. Silt Fence (C-PCM-04): Temporary sediment barrier consisting of a synthetic filter fabric entrenched and stretched across and attached to supporting posts.
   Sequence of Installation: Prior to any land disturbance.
   Removal Event: Following permanent stabilization of the contributing drainage area.

SEDIMENT CONTROL MEASURES

1. Temporary Stone Construction Entrance (C-SCM-03): A pad with a fabric filter liner underneath the stone located at points of vehicular ingress and egress on a construction site to minimize the amount of sediment, such as dirt or mud, leaving or being tracked from outside the construction site attached to vehicles.
   Sequence of Installation: Prior to any land disturbance.
   Removal Event: Immediately prior to paving.

2. Inlet Protection (C-SCM-04): Sediment filter or an excavated impoundment around a storm drain inlet or curb inlet. Protects inlets of storm sewers from erosion and sedimentation during construction. All storm sewer inlets that are made operable during construction shall be protected so that sediment-laden water cannot enter the conveyance system without first being filtered or otherwise treated to remove sediment.
   Sequence of Installation: Immediately following structure installation or before land disturbance of a contributing drainage are to an existing structure.
   Removal Event: Following permanent stabilization of the contributing drainage area.

SURFACE STABILIZATION MEASURES

1. Topsoiling (C-SSM-02): As a BMP, entails preserving and using the surface layer of undisturbed soil, often enriched in organic matter, to obtain a more desirable planting growth medium and enhance final site stabilization.
   Sequence of Installation: Following final grading/surface roughening where applicable.
   Maintenance: Areas which fail to establish vegetative cover adequate to prevent rill erosion are to be reseeded.
   Removal Event: Permanent practice and shall not be removed.

2. Surface Roughening (C-SSM-03): The practice of providing a rough soil surface with horizontal depressions to reduce runoff velocity, increase infiltration, aid the establishment of vegetation, and reduce erosion.
   Sequence of Installation: Following grading activities where applicable.
   Maintenance: Reseed as needed areas which fail to establish adequate vegetative cover. Fill, regrade, and seed in areas with visible rill erosion.
   Removal Event: As needed until final grade is achieved. Permanent practice once final grade is met.

3. Soil Stabilization Blankets & Matting (C-SSM-05): Protective blankets on a prepared planting area of a steep slope, channel, or shoreline.
   Sequence of Installation: Following establishment of final grade and placement of lime, fertilizer, and seed.
   Removal Event: Not Applicable.

4. Temporary Seeding (C-SSM-09): Establishment of a temporary vegetative cover on disturbved areas by seeding with appropriate rapidly growing annual plants.
   Sequence of Installation: Within 7 days of land disturbing activity when cleared areas will not be brought to final grade within 14 days.
   Maintenance: Areas which fail to establish vegetative cover adequate to prevent rill erosion are to be reseeded.
   Removal Event: As needed for final grading.

5. Permanent Seeding (C-SSM-10): Establishment of a perennial vegetative cover on disturbed areas by planting seed.
   Sequence of Installation: Within 7 days of achieving final grade or as noted above.
   Maintenance: Areas which fail to establish vegetative cover adequate to prevent rill erosion are to be reseeded, following identification of the cause of poor germination. Contractor is responsible for establishment of permanent seed.
   Removal Event: Not Applicable.

6. Mulching (C-SSM-11): Application of a protective blanket of straw or other plan residues/materials to the soil surface during the establishment of temporary and permanent seeding.
   Sequence of Installation: Following establishment of final grade and placement of lime, fertilizer, and seed or in areas which cannot be seeded because of the season.
   Removal Event: Not Applicable, unless used for temporary cover in areas which cannot be seeded because of the season.

MANAGEMENT STRATEGIES

1. The RLD shall amend the SWPP Plan whenever there is a change in design, construction, operation, or maintenance, which has a significant effect on the potential for the discharge of pollutants to surface waters and which has not otherwise been addressed in the plan or if the plan proves to be ineffective in eliminating or significantly minimizing pollutants from sources identified in the permit, or in otherwise achieving the general objectives of controlling pollutants in storm water discharges from construction activities. Also amend to identify any new contractor that will implement a measure of the plan.
2. The RLD shall be responsible for the installation and maintenance of all erosion and sediment control practices maintaining them in good and effective operating condition.
3. The RLD shall notify the Architect/Engineer when the local governing official has inspected and approved all in-place erosion and sediment control devices, required by local ordinances to be in place prior to land disturbance.
4. Construction shall be sequenced so that the duration of grading operations is as brief as possible.
5. Maintenance of inlet and outlet protection shall be given high priority.
6. Temporary seeding or other stabilization shall follow within 7 days after grading, or installation if a temporary measure.
7. Areas which are not to be disturbed shall be clearly marked by flags, signs, etc.
8. No solid materials, including building materials, garbage, and debris shall be discharged to surface waters of the State, except as authorized by a Section 404 permit.
9. Where construction vehicle access routes intersect paved or public roads, provisions shall be made to minimize the transport of sediment by vehicular tracking onto the paved surface. Where sediment is transported onto a paved or public road surface, the road surface shall be cleaned thoroughly at the end of each day. Sediment shall be removed from the roads by shoveling or sweeping and transported to a sediment control disposal area. Street washing shall be allowed only after sediment is removed in this manner. This provision shall apply to individual development lots as well as to larger land-disturbing activities. The generation of dust shall be minimized.
10. Ensure and demonstrate compliance with applicable State and/or local waster disposal, sanitary sewer or septic system regulations.
11. All sediment removed from sediment trapping measures or cleaning operations shall be appropriately wasted so as not to become a dust or sediment problem elsewhere.
12. After achieving adequate stabilization, the temporary E&S controls will be cleaned up and removed.

MAINTENANCE

The contractor shall inspect all erosion control measures immediately after each run-off producing rainfall event, at least daily during prolonged rainfall, at least weekly when no rainfall occurs, and in accordance with any permit regulations. The following items shall be checked in particular:

1. Inlet protection shall be checked regularly for sediment cleanout. Remove sediment prior to it reaching ½ the design depth of the trap.
2. Silt fences shall be checked regularly for structural/functional integrity. Remove any sediment deposits – do not allow buildup.
3. All seeded areas shall be checked regularly to see that a good stand is maintained. Areas should be fertilized and reseeded as needed.

POTENTIAL POLLUTION SOURCES & STORED MATERIALS

The RLD shall prepare a list of all potential sources of pollution and all construction and waste materials expected to be stored on-site and update as appropriate. Examples would be vehicle fueling area, fuel delivery vehicle, fertilizer, chemicals, temp. sanitary waste facilities, concrete washouts, etc. For each listed item list its location and describe necessary controls to reduce pollutants from these materials including storage practices to minimize exposure to storm water as well as spill prevention and response, schedule of implementation and maintenance necessary for effectiveness.

INSPECTIONS

The RLD shall inspect disturbed areas of the construction site and areas used for storage of materials that are exposed to precipitation, structural control measures, and locations where vehicles enter or exit the site. The inspections shall be conducted at least once every four (4) days and within forty-eight (48) hours after a rain event greater than 0.25" inches.

Disturbed areas and areas used for storage of materials that are exposed to precipitation shall be inspected for evidence of, or the potential for, pollutants entering the drainage system. ESC measures identified in the plan shall be observed to ensure that they are operating correctly. Where discharge locations or points are accessible, they shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters. Locations where vehicles enter or exit the site shall be inspected for evidence of off-site sediment tracking.

Based on the results of the inspection, the site description identified in the plan and pollution prevention measures shall be revised as appropriate, within seven (7) calendar days following the inspection. Such modifications shall provide for timely implementation of any changes to the plan within seven (7) calendar days following the inspection and before next anticipated storm event, if practical.

REPORTING

A report summarizing the scope of the inspection, names and qualifications of personnel making the inspection, the date of the inspection, major observations, and actions taken as a result of the inspection shall be made and retained by the Contractor. Where no incidents of noncompliance are reported, report shall certify that facility is in compliance plans and any permits; keep reports with this narrative. The report shall be certified in accordance with the permit.

STORM WATER MANAGEMENT

All runoff from the site will be released in accordance with current Commonwealth of Virginia Standards and Regulations as set forth in the Virginia Stormwater Management Handbook, current version. Site disturbance is less than 10,000 sf and is exempt from the water quality and quantity requirements set forth in 9VAC25-875-590 and 9VAC25-875-600 of the Virginia Stormwater Management Handbook, current version.

Structure #3 to be inspected annually to maintain adequate performance. At a minimum, debris is to be removed from the top grate of the structure. Any visible debris inside the structure is to be removed. Stone is to be washed and replaced as needed if sediment accumulation is found at time of inspeciton.

UNDERGROUND UTILITY INSTALLATION

Underground utility lines are to be installed with this plan. See Electrical Plan sheets for details.

PROHIBITION OF NON-STORM WATER DISCHARGES

1. The following non-storm water discharges are allowed: discharges from fire fighting activities; fire hydrant flushing; waters used to wash vehicles where detergents are not used; water used to control dust; potable water sources including waterline flushing; hydrostatic testing; routine external building washdown which does not use detergents; pavement washwaters where spills or leaks of toxic or hazardous materials have not occurred (unless all spill material has been removed) and where detergents are not used; air conditioning condensate; uncontaminated compressor condensate; uncontaminated ground water or spring water; and foundation or footing drains where flows are not contaminated with process materials such as solvents.
2. Except for allowed discharges listed above, sources of non-storm water that are combined with storm water discharges from the construction site must be identified on the plan. The plan shall identify and ensure the implementation of appropriate pollution prevention measures for the non-storm water components.

CONTRACTORS

Identify for each measure identified in the plan, the Contractor/subcontractor that will implement the measure. All contractors identified above must sign the following certification statement. All certifications must be included in the SWPP Plan.

"I certify under penalty of law that I understand the terms and conditions of this Virginia Pollutant Discharge Elimination System (VPDES) general permit that authorizes the storm water discharges from the construction activity identified as part of this certification."

Name & title of signatory (Responsible Corporate Official, General Partner, or Sole Proprietor)

Name, address & phone of contracting firm

Address of other identifying description of the site

Date certification made

DISPLAY & STATUS OF PLAN

Plan with a copy of the permit must be maintained on-site and kept available for DEQ and City inspectors at all times from the date of commencement of construction to the date of final stabilization. Note that this narrative and RLD's log of inspection reports and all certifications are part of the plan (keep with this narrative).

The Plan with all attachments, reports, etc. shall be retained by the contractor for at least three (3) years from the date that the site is finally stabilized.

SCHEDULE

Record of the dates when major grading activities occur, when construction activities temporarily or permanently cease on a portion of the site, and when stabilization measures are initiated.

Perimeter controls shall be installed after clearing and grubbing necessary for installation of the measure, but before the clearing and grubbing for the remaining portions of the site. The perimeter controls shall be actively maintained until final stabilization of those portions of the site upward of the perimeter control. Temporary perimeter controls may be removed after final stabilization.

Stabilization measures shall be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, but in no case more than seven (7) days after the construction activities have temporarily or permanently ceased, unless construction activity will resume within twenty-one (21) days after ceasing. Permanent seeding shall be done within 30 days if construction has permanently ceased.

Whenever water seeps from a slope face, adequate subsurface interception (french drain) shall be provided discharging to the nearest suitable stabilized channel.

All temporary ESC measures shall be removed within 30 days after final site stabilization or after the temporary measures are no longer needed, unless otherwise authorized by the local program administrator. Trapped sediment and other disturbed soil areas resulting from the disposition of temporary measures shall be permanently stabilized to prevent further erosion and sedimentation.

NOTICE OF TERMINATION

When the site has been finally stabilized and all the storm water discharges from construction activities that are authorized by the permit are eliminated, the permit holder must submit a Notice of Termination that is certified in accordance with permit. The terms and conditions of the permit shall remain in effect until a completed Notice of Termination is submitted to DEQ. Also, coordinate project close out with City of Roanoke Planning, Building, and Development and utilize the VSMP Project Completion Form.

J:\23181\2-Civil\dwg\23181 ESC.dwg Plotted By: gpennington, Plotted: Oct 01, 2025, 2:53pm

SPECTRUM DESIGN
architects | engineers

Plaza Suite 1
10 Church Avenue, SE
Roanoke, VA 24011
540.342.6001
SPECTRUMPC.COM

CITY OF ROANOKE REFUELING CENTERS FIRE STATION #4

ROANOKE CITY PROJECT NO.: **RFP #24-10-66**
Spectrum Design Project No.: **23181**

COMMONWEALTH OF VIRGINIA
MICHAEL A. RAKES
Lic. No. 28199
10.10.2025
PROFESSIONAL ENGINEER

PROJ. MGR.: CHECKED BY: DRAWN BY:

SHEET ISSUE DATE:
10.10.2025

PROJECT PHASE:
BID DOCUMENTS

SCALE:
AS SHOWN
24"x36" SHEET

KEY PLAN:

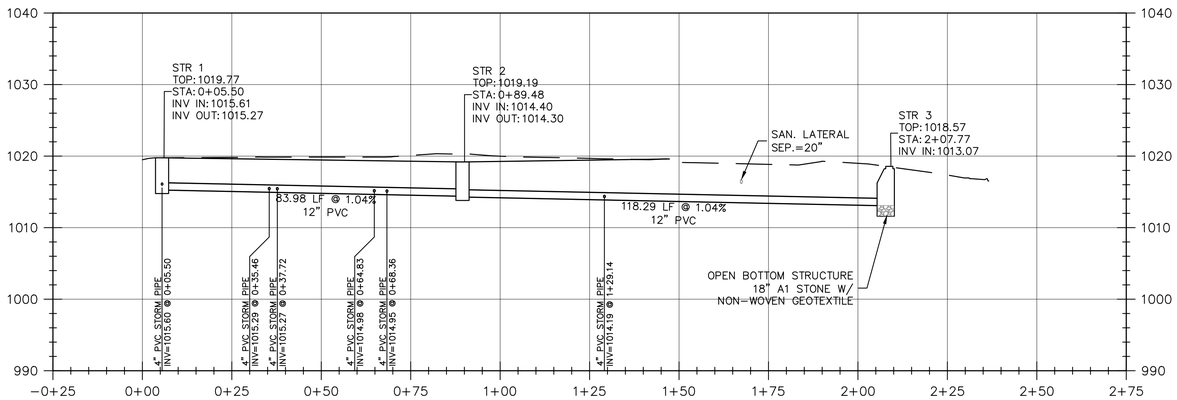
SHEET NAME:
EROSION & SEDIMENT CONTROL NOTES

SHEET NUMBER:
C205-FS4

City of Roanoke
Planning, Building, & Development
COMPREHENSIVE DEVELOPMENT PLAN
APPROVED
by A.C. Cypher 10/20/2025

AHJ APPROVAL STAMP

STORM SEWER 'A' PROFILE



STORM SCHEDULE

- (1) DI−1, TOP=1019.77, H=4.50'
  4" INV. IN=1015.61
  15" INV. OUT=1015.27
- (1) (2) 83.98 LF OF 12" PVC @ 1.04%
  INV. UPPER=1015.27 INV. LOWER=1014.40
- (2) DI−1, TOP=1019.19, H=4.36'
  12" INV. IN=1014.40
  12" INV. OUT=1014.30
- (2) (3) 118.29 LF OF 12" PVC @ 1.04%
  INV. UPPER=1014.30 INV. LOWER=1013.07
- (3) 48" MH−2 W/ GRATE TOP, TOP=1018.57, H=5.50'
  12" INV. IN=1013.07

*PROVIDE INLET SHAPING FOR ALL STRUCTURES.
SEE DETAIL 3/C502−FS4.

LEGEND

- EXISTING SURFACE PROFILE
- PROPOSED SURFACE PROFILE
- AREA OF FILL

HORIZONTAL: 1" = 20'−0" (20' 10' 0 20' 40')

VERTICAL: 1" = 10'−0" (10' 5' 0 10' 20')

SPECTRUM DESIGN
architects | engineers

Plaza Suite 1
10 Church Avenue, SE
Roanoke, VA 24011
540.342.6001
SPECTRUMPC.COM

CITY OF ROANOKE REFUELING CENTERS FIRE STATION #4

ROANOKE CITY PROJECT NO.: **RFP #24-10-66**
Spectrum Design Project No.: **23181**

COMMONWEALTH OF VIRGINIA
MICHAEL A. RAKES
Lic. No. 28199
10.10.2025
PROFESSIONAL ENGINEER

PROJ. MGR.: **MAR** CHECKED BY: **MAR** DRAWN BY: **AGA**

SHEET ISSUE DATE:
10.10.2025

PROJECT PHASE:
BID DOCUMENTS

SCALE:
AS SHOWN
24"x36" SHEET

KEY PLAN:

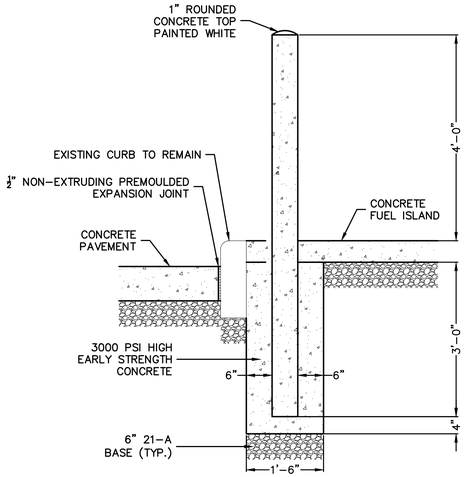
SHEET NAME:
STORM SEWER PROFILES

SHEET NUMBER:
C301-FS4

City of Roanoke
Planning, Building, & Development
COMPREHENSIVE DEVELOPMENT PLAN
APPROVED
by A.C. Cypher 10/20/2025

AHJ APPROVAL STAMP

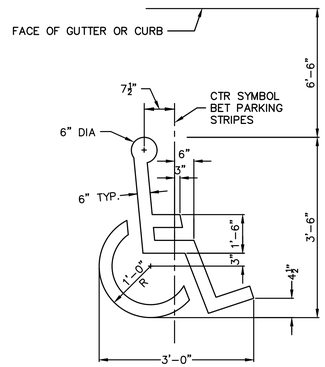
J:\23181\2.2 Civil\dwg\23181 Pipe Networks.dwg, Plotted By: gartrington, Plotted: Oct 01, 2025 - 2:53pm



1 C101 C501 TRAFFIC BOLLARD DETAIL (6" DIA)

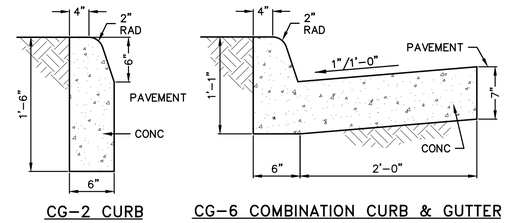
NO SCALE

NOTE:
6" DIAMETER SCH 40 STEEL PIPE BOLLARD FILLED WITH 3000 PSI CONCRETE. PAINT WITH RUST PROHIBITIVE PRIMER AND ENAMEL INTERNATIONAL YELLOW (TOP SHALL BE WHITE).



2 C101 C501 HANDICAPPED SYMBOL

NO SCALE

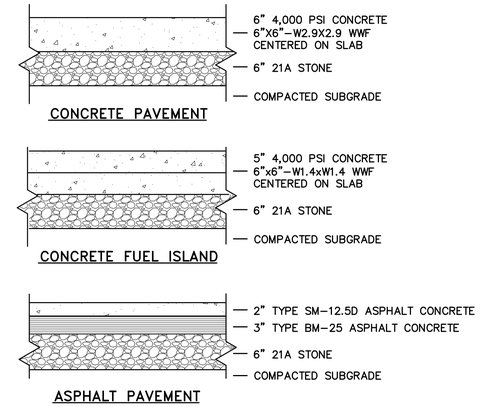


CG-2 CURB

CG-6 COMBINATION CURB & GUTTER

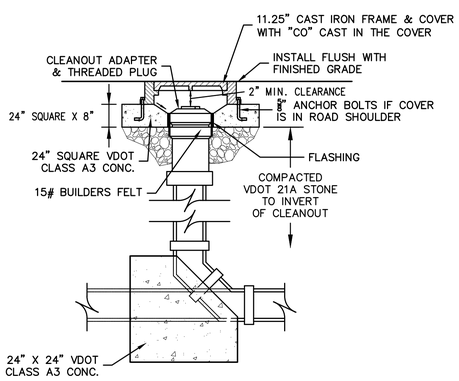
3 C101 C501 CURBING

NO SCALE
NOTE: BASE AND SUBGRADE PER VDOT STDS.

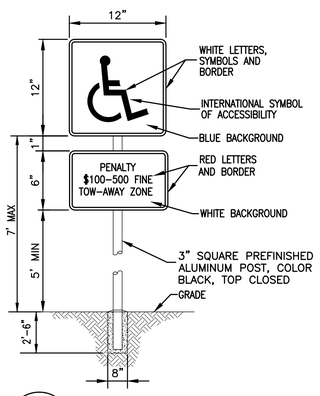


4 C101 C501 PAVEMENT SECTIONS

NO SCALE



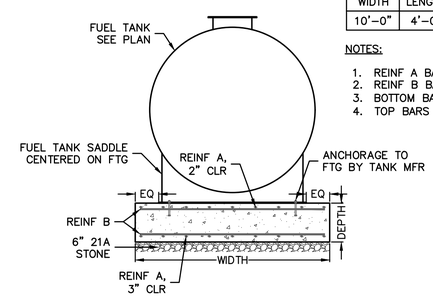
TRAFFIC BEARING OR GRASS



12" X 18" VAN ACCESSIBLE SIGN WHERE ADJACENT TO 8' OR GREATER AISLE

6 C101 C501 H/C VAN ACCESSIBLE PARKING SIGN

NO SCALE



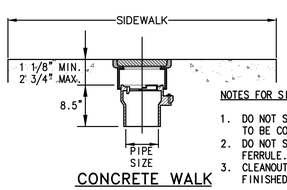
FOOTING SCHEDULE				
WIDTH	LENGTH	DEPTH	REINF A	REINF B
10'-0"	4'-0"	2'-0"	(9)#7	(4)#7

NOTES:

1. REINF A BARS ARE PARALLEL TO THE LENGTH.
2. REINF B BARS ARE PARALLEL TO THE WIDTH.
3. BOTTOM BARS SHALL HAVE 3" CLEAR COVER.
4. TOP BARS SHALL HAVE 2" CLEAR COVER.

8 C101 C501 TANK FOOTING DETAIL

NO SCALE



CONCRETE WALK

NOTES FOR SIDEWALK APPLICATIONS:

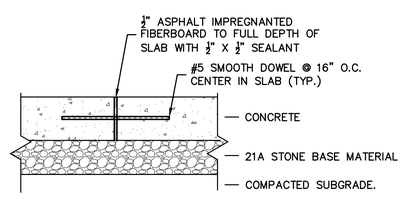
1. DO NOT STRIKE SHAPE OF COLLAR WITHIN CONC. WALK, ALLOW WALK TO BE COLLAR.
2. DO NOT STRIKE WALK JOINT THRU OR WITHIN 5" OF CLEANOUT FERRULE.
3. CLEANOUT: CAST IRON WITH DUCTILE IRON TOP, MOUNT FLUSH WITH FINISHED GRADE.

NOTES FOR PAVEMENT & GRASS APPLICATIONS:

1. FOR INSTALLATION WITHIN EXISTING PAVEMENT, PATCH SHALL MATCH EXISTING PAVEMENT SECTION UNLESS PRIME AND SEAL THEN USE SM-12.5D PATCH (3" MIN.)
2. PVC CLEANOUT WITH 11.25" TRAFFIC BEARING CLEANOUT FRAME AND COVER.

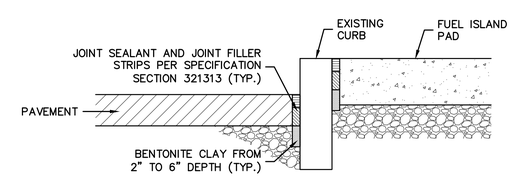
5 C101 C501 CLEANOUT DETAIL

NO SCALE



7 C101 C501 EXPANSION JOINT DETAIL

NO SCALE



9 C101 C501 BENTONITE SEAL @ FUEL ISLANDS

NO SCALE

SPECTRUM DESIGN
architects | engineers

Plaza Suite 1
10 Church Avenue, SE
Roanoke, VA 24011
540.342.6001
SPECTRUMPC.COM

CITY OF ROANOKE REFUELING CENTERS FIRE STATION #4

ROANOKE CITY PROJECT NO.: RFP #24-10-66
Spectrum Design Project No.: 23181

COMMONWEALTH OF VIRGINIA
MICHAEL A. RAKES
Lic. No. 28199
10.10.2025
PROFESSIONAL ENGINEER

PROJ. MGR.: MAR
CHECKED BY: MAR
DRAWN BY: AGA

SHEET ISSUE DATE:
10.10.2025

PROJECT PHASE:
BID DOCUMENTS

SCALE:
AS SHOWN
24"x36" SHEET

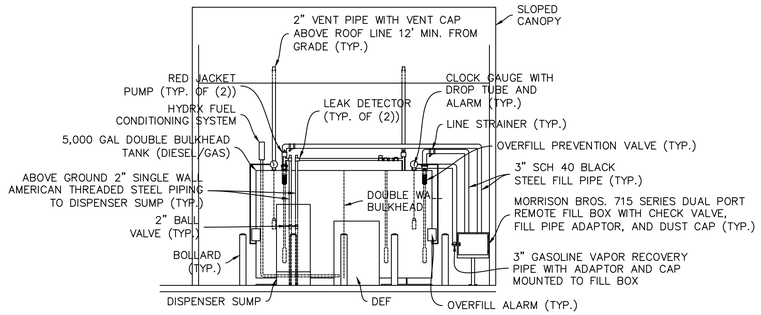
KEY PLAN:

SHEET NAME:
SITE DETAILS

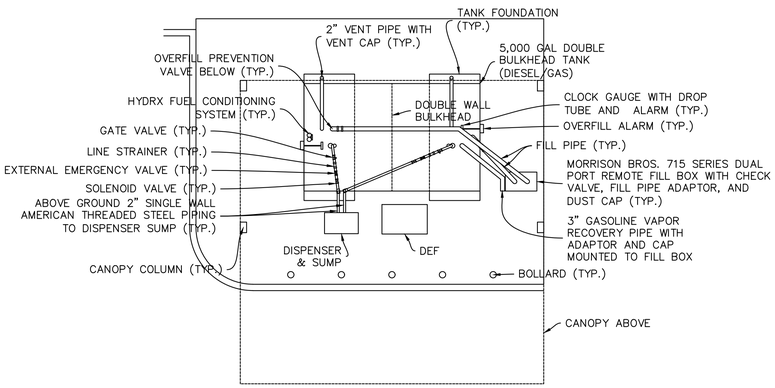
SHEET NUMBER:
C501-FS4

City of Roanoke
Planning, Building, & Development
COMPREHENSIVE DEVELOPMENT PLAN
APPROVED
by A.C. Cypher 10/20/2025
AHJ APPROVAL STAMP

J:\23181\2-Civil\dwg\23181 Details.dwg, Plotted By: gbarrington, Plotted: Oct 01, 2025 - 3:53pm



ELEVATION VIEW



PLAN VIEW

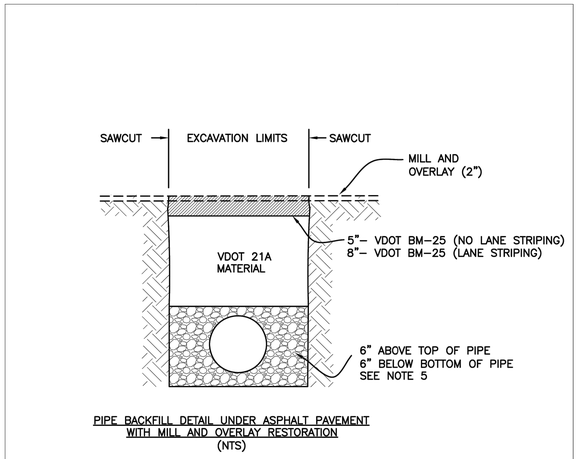
1 TANK EQUIPMENT DETAIL

C103 C502

NO SCALE

NOTES:

1. CONTRACTOR RESPONSIBLE FOR ALL COORDINATION WITH FUEL MANAGEMENT SYSTEM.
2. ALL EXPOSED METALLIC PIPE FITTINGS SHALL BE PAINTED WITH RUST PROHIBITIVE PAINT, COLOR BLACK.
3. TANK SHALL HAVE "NO SMOKING" & "NO OPEN FLAME" SIGNS VISIBLE ON ALL SIDES OF TANK.

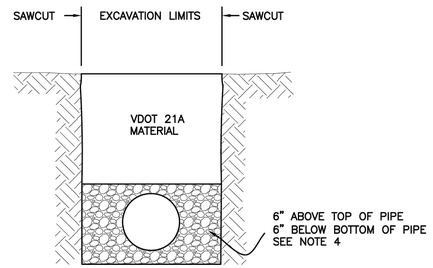


PIPE BACKFILL DETAIL UNDER ASPHALT PAVEMENT WITH MILL AND OVERLAY RESTORATION
(NTS)

NOTES:

1. VDOT 21A SHALL BE COMPACTED TO 95% (ASTM D698).
2. THE BM–25 SHALL BE INSTALLED TO THE TOP OF THE TRENCH AS A TEMPORARY RIDING SURFACE. AS PART OF THE FINAL RESTORATION THE MILL AND OVERLAY OPERATION WILL MILL OFF THE TOP 2" OF BM–25 AND OVERLAY WITH SURFACE MIX.
3. BM–25 SHALL BE INSTALLED IN TWO LIFTS AND COMPACTED TO VDOT RBS.
4. DISPOSE OF EXCESS EXCAVATED SOIL/MATERIAL AT AN OFF–SITE LOCATION IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL LAWS. STOCKPILING ON–SITE SHALL BE LIMITED.
5. IF PIPE IS GREATER THAN OR EQUAL TO 6" IN DIAMETER THEN BEDDING SHALL BE VDOT NO. 57 AGGREGATE. IF PIPE IS LESS THAN 6" IN DIAMETER THEN BEDDING SHALL BE VDOT NO. 10 SCREENINGS COMPACTED TO 95% (ASTM D698).

D1–PIPEBACKFILL.DWG

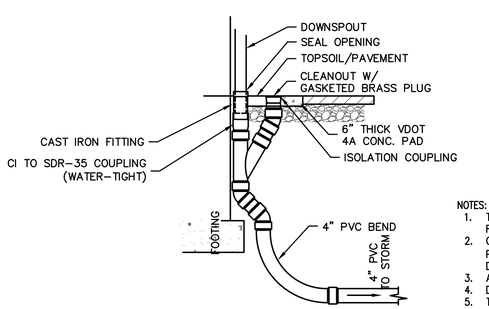


PIPE BACKFILL DETAIL UNDER CURB, GUTTER, SIDEWALK AND FOUNDATION
(NTS)

NOTES:

1. VDOT 21A SHALL BE COMPACTED TO 95% (ASTM D698).
2. THIS DETAIL ALSO APPLIES TO ANY AREA WITHIN 5' OF CURB, GUTTER OR SIDEWALK.
3. DISPOSE OF EXCESS EXCAVATED SOIL/MATERIAL AT AN OFF–SITE LOCATION IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL LAWS. STOCKPILING ON–SITE SHALL BE LIMITED.
4. IF PIPE IS GREATER THAN OR EQUAL TO 6" IN DIAMETER THEN BEDDING SHALL BE VDOT NO. 57 AGGREGATE. IF PIPE IS LESS THAN 6" IN DIAMETER THEN BEDDING SHALL BE VDOT NO. 10 SCREENINGS COMPACTED TO 95% (ASTM D698).

D3–PIPEBACKFILL.DWG



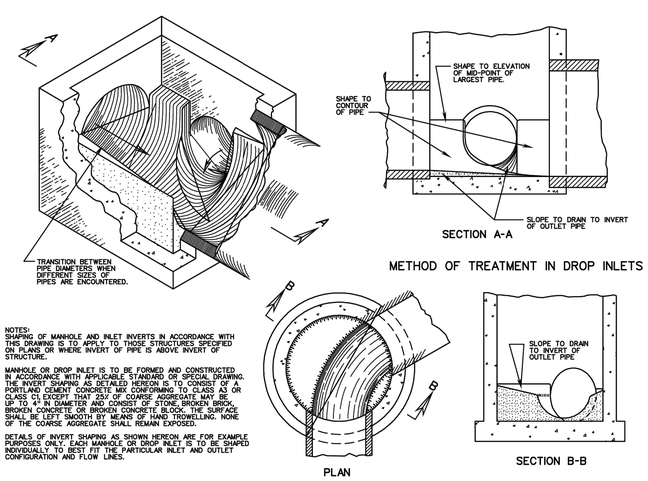
NOTES:

1. TOP OF COUPLING SHALL BE 2–3 INCHES ABOVE THE FINISHED GRADE OR PAVEMENT.
2. CAST IRON FITTING NEENAH R–4927A OR APPROVED EQUAL, PRIMED AND POINTED TO MATCH EXISTING/PROPOSED DOWNSPOUT.
3. AN ISOLATION COUPLING IS REQUIRED ON ALL CLEANOUTS.
4. DUCTILE IRON PIPE FITTINGS SHALL BE BLACK.
5. THE DUCTILE IRON PIPE SHALL BE PLUMB AND A MAXIMUM 1" OFF THE OUTSIDE FACE OF THE STRUCTURE.

2 COMBINATION DOWNSPOUT/CLEANOUT

C102 C502

NO SCALE



NOTES:
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.

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.

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.

3 INLET SHAPING

C301 C502

NO SCALE

SPECTRUM DESIGN
architects | engineers

Plaza Suite 1
10 Church Avenue, SE
Roanoke, VA 24011
540.342.6001
SPECTRUMPC.COM

CITY OF ROANOKE REFUELING CENTERS FIRE STATION #4

ROANOKE CITY PROJECT NO.: RFP #24-10-66
Spectrum Design Project No.: 23181

COMMONWEALTH OF VIRGINIA
MICHAEL A. RAKES
Lic. No. 28199
10.10.2025
PROFESSIONAL ENGINEER

PROJ. MGR.:	CHECKED BY:	DRAWN BY:
MAR	MAR	AGA

SHEET ISSUE DATE:
10.10.2025

PROJECT PHASE:
BID DOCUMENTS

SCALE:
AS SHOWN
24"x36" SHEET

KEY PLAN:

SHEET NAME:
SITE DETAILS

SHEET NUMBER:
C502-FS4

City of Roanoke
Planning, Building, & Development
COMPREHENSIVE DEVELOPMENT PLAN
APPROVED
by A.C. Cypher 10/20/2025

AHJ APPROVAL STAMP

J:\23181\2.2 Civil\dwg\23181 Details.dwg, Plotted by gannington, Plotted: Oct 01, 2025 - 2:53pm

Typical Traffic Control

Outside Lane Closure Operation on a Four-Lane Roadway

(Figure TTC-16.2)

NOTES

Standard:

1. **On divided highways having a median wider than 8', right and left sign assemblies shall be required.**

Guidance:

2. *Sign spacing should be 1300'-1500' for Limited Access highways. For all other roadways, the sign spacing should be 500'-800' where the posted speed limit is greater than 45 mph, and 350'-500' where the posted speed limit is 45 mph or less.*
3. *When closing a lane, a PCMS should be used in advance of the first warning sign if all of the left side signs cannot be installed.*[2]
4. *Care should be exercised when establishing the limits of the work zone to insure maximum possible sight distance in advance of the transition, based on the posted speed limit and at least equal to or greater than the values in Table 6H-3. For Limited Access highways a minimum of 1000' is desired.*
5. *All vehicles, equipment, workers, and their activities should be restricted to one side of the pavement.*

Standard:

6. **Taper length (L) and channelizing device spacing shall be at the following:**

Taper Length L

Speed Limit (mph)	Lane Width (Feet) 9	10	11	12	Remarks	Speed Limit (mph)	Lane Width (Feet) 9	10	11	12	Remarks
25	95	105	115	125	$L=S^2W/60$	50	450	500	550	600	L=SW
30	135	150	165	180	$L=S^2W/60$	55	495	550	605	660	L= SW
35	185	205	225	245	$L=S^2W/60$	60	540	600	660	720	L=SW
40	240	270	295	320	$L=S^2W/60$	65	585	650	715	780	L=SW
45	405	450	495	540	L=SW	70	630	700	770	840	L=SW
Limited Access highways shall use a 1000' merging taper regardless of the posted speed.											
Shifting Tapers see Table 6H-2.[2]						Shoulder Taper = ⅓ L Minimum					

7. **Channelizing device spacing shall be at the following:**

Channelizing Device Spacing

Location Spacing	Speed Limit (mph) 0 -35	36 +	Location Spacing	Speed Limit (mph) 0 -35	36 +	Location Spacing	Speed Limit (mph) 0 -35	36 +
Transition	20'	40'	Travelway	40'	80'	* Construction Access	80'	120'

*Construction access spacing may be increased to this distance, but shall not exceed one access per ¼ mile.

8. **An arrow board shall be used when a lane is closed. When more than one lane is closed, a separate arrow board shall be used for each closed lane (see Figure TTC-18).**
9. **The buffer space length shall be shown in Table 6H-3 on Page 6H-5 for the posted speed limit.**
10. **A shadow vehicle with either a Type B or C arrow board operating in the caution mode, or at least one high intensity amber rotating, flashing, or[1] oscillating light shall be parked 80'-120' in advance of the first work crew. When the posted speed limit is 45 mph or greater, a truck-mounted attenuator shall be used.**
11. **Vehicle hazard warning signals shall not be used instead of the vehicle's high-intensity amber rotating, flashing, or[1] oscillating lights but can be used to supplement the amber rotating, flashing, or[1] oscillating lights.**
12. **When a side road intersects the highway within the TTC zone, additional TTC devices shall be placed as needed.**

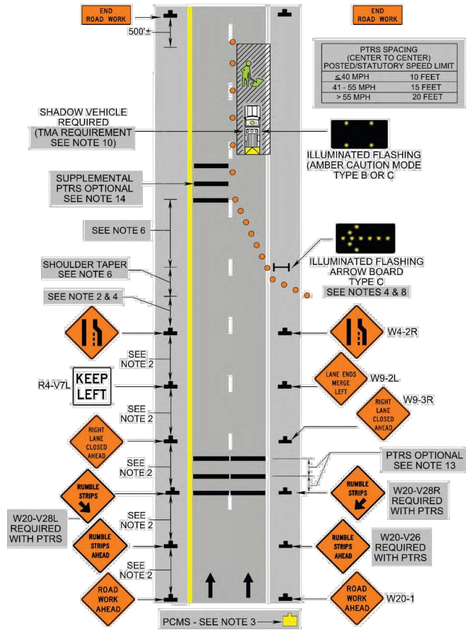
Option:[2]

13. PTRS and their supporting signs may be used, see Sections 6F.99 and 6G.25. Long-term transverse rumble strips may be used in long-term situations, see Section 6F.99 and TTC-20.[2]
14. The supplemental PTRS may be eliminated.[2]

1: Revision 1 – 4/1/2015
2: Revision 2 – 9/1/2019

Outside Lane Closure Operation on a Four-Lane Roadway

(Figure TTC-16.2)



2: Revision 2 – 9/1/2019
3: Revision 2.1 -11/1/2020

Typical Traffic Control

Sidewalk Closure and Bypass Sidewalk Operation

(Figure TTC-35.1)

NOTES

Standard:

1. **When crosswalks or other pedestrian facilities are closed or relocated, temporary facilities shall be detectable and shall include accessibility features consistent with the features present in the existing pedestrian facility.**

Guidance:

2. *Where high speeds are anticipated, a temporary traffic barrier and, if necessary, a crash cushion should be used to separate the temporary sidewalks from vehicular traffic.*
3. *Audible information devices should be considered where midblock closings and changed crosswalk areas cause inadequate communication to be provided to pedestrians who have visual disabilities.*
4. *Temporary markings should be considered for operations exceeding three days in duration.*

Option:

5. Only the TTC devices related to pedestrians are shown. Other devices, such as lane closure signing or ROAD NARROWS (W5-1) signs, may be used to control vehicular traffic.
6. For nighttime closures, Type A Flashing warning lights may be used on barricades that support signs and close sidewalks.
7. Signs, such as KEEP RIGHT (R4-V7R) and KEEP LEFT (R4-V7L), may be placed along a temporary sidewalk to guide or direct pedestrians.

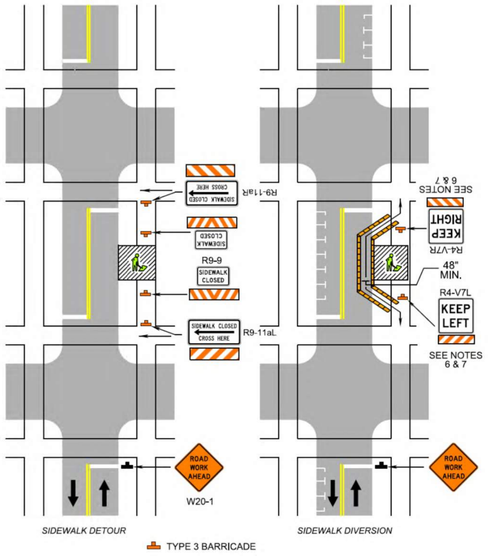
Standard:

8. **All sidewalk closures shall be closed with Type 3 Barricades. The SIDEWALK CLOSED (R9-9) sign and the SIDEWALK CROSS HERE (R9-11) sign shall be installed above the Type 3 barricade. The KEEP RIGHT sign can cover the top rail of the Type 3 Barricade.**[2]

2: Revision 2 – 9/1/2019

Sidewalk Closure and Bypass Sidewalk Operation

(Figure TTC-35.1)



2: Revision 2 – 9/1/2019

Typical Traffic Control

Crosswalk Closure and Pedestrian Detour Operation

(Figure TTC-36.2)

NOTES

Standard:

1. **When crosswalks or other pedestrian facilities are closed or relocated, temporary facilities shall be detectable and shall include accessibility features consistent with the features present in the existing pedestrian facility.**
2. **Curb parking shall be prohibited for at least 50 feet in advance of the midblock crosswalk.**

Guidance:

3. *Audible information devices should be considered where midblock closings and changed crosswalk areas cause inadequate communication to be provided to pedestrians who have visual disabilities.*
4. *Pedestrian traffic signal displays controlling closed crosswalks should be covered or deactivated.*
5. *Temporary markings should be considered for operations exceeding three days in duration.*

Option:

6. Only the TTC devices related to pedestrians are shown. Other devices, such as lane closure signing or ROAD NARROWS (W5-1) signs, may be used to control vehicular traffic.
7. For nighttime closures, Type A Flashing warning lights may be used on barricades supporting signs and closing sidewalks.

Standard:

8. **In order to maintain the systematic use of the fluorescent yellow-green background for school warning signs in a jurisdiction, the fluorescent yellow-green background for school warning signs shall be used in TTC zones.**[2]
9. **All sidewalk closures shall be closed with Type 3 Barricades. The SIDEWALK CLOSED (R9-9) sign and the SIDEWALK CROSS HERE (R9-11) sign shall be installed above the Type 3 Barricade. The KEEP RIGHT sign can cover the top rail of the Type 3 Barricade.**[2]

Support:

10. Refer to Sections 3B-16 through 3B-18 of the 2009 MUTCD and the Virginia Supplement to the MUTCD[1] for crosswalk[1] lines, yield lines and other related TTC devices that may be used to control vehicular traffic at midblock crosswalks.

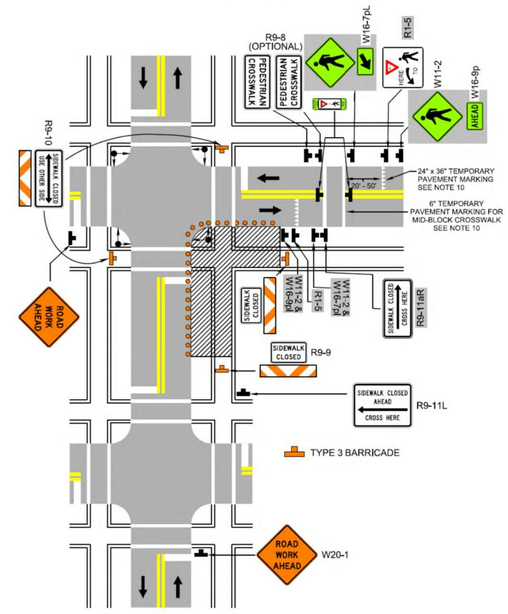
Standard:[2]

11. **The YIELD HERE TO PEDESTRIANS (R1-5) sign shall be placed at the Yield Line.**
12. **Fluorescent yellow-green PEDESTRIAN TRAFFIC (W11-2) symbol sign, AHEAD (W16-9p) plaque and ARROW (W16-7p) plaque shall be used to identify the work zone crosswalk.**

1: Revision 1 – 4/1/2015
2: Revision 2 – 9/1/2019

Crosswalk Closure and Pedestrian Detour Operation

(Figure TTC-36.2)



1: Revision 1 – 4/1/2015
2: Revision 2 – 7/1/2018

SPECTRUM DESIGN
architects | engineers

Plaza Suite 1
10 Church Avenue, SE
Roanoke, VA 24011
540.342.6001
SPECTRUMPC.COM

CITY OF ROANOKE REFUELING CENTERS FIRE STATION #4

ROANOKE CITY PROJECT NO.: **RFP #24-10-66**
Spectrum Design Project No.: **23181**

COMMONWEALTH OF VIRGINIA
MICHAEL A. RAKES
Lic. No. 28199
10.10.2025
PROFESSIONAL ENGINEER

PROJ. MGR.: **MAR** CHECKED BY: **MAR** DRAWN BY: **AGA**

SHEET ISSUE DATE:
10.10.2025

PROJECT PHASE:
BID DOCUMENTS

SCALE:
AS SHOWN
24"x36" SHEET

KEY PLAN:

SHEET NAME:
SITE DETAILS

SHEET NUMBER:
C503-FS4

City of Roanoke
Planning, Building, & Development
COMPREHENSIVE DEVELOPMENT PLAN
APPROVED
by A.C. Cypher 10/20/2025

AHJ APPROVAL STAMP

J:\23181\2-Civil\Dwg\23181 Details.dwg Plotted By: jpamington Plotted: Oct 10, 2025 - 2:53pm

A. GENERAL

1. THE DESIGN, CONSTRUCTION, QUALITY AND SAFETY OF ALL WORK PERFORMED ON THE PROJECT SHALL CONFORM TO THE FOLLOWING GOVERNING BUILDING CODES, INCLUDING ALL REFERENCED STANDARDS WITHIN:
   A. VIRGINIA UNIFORM STATEWIDE BUILDING CODE (VUSBC) - 2021.
   B. INTERNATIONAL BUILDING CODE (IBC) - 2021.
   C. MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES, ASCE 7-22.

2. THE STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH THE PROJECT SPECIFICATIONS AND OTHER DISCIPLINE DRAWINGS. THE CONTRACTOR SHALL COORDINATE AND VERIFY THE REQUIREMENTS OF OTHER DISCIPLINES AND TRADES AS TO THE LOCATION, SIZE, AND DIMENSIONS OF ALL ANCHORS, SLEEVES, OPENINGS, CHASES, HANGERS, AND ADDITIONAL ITEMS WITH THE STRUCTURAL WORK. ANY REFERENCE TO ARCHITECTURAL OR OTHER DISCIPLINE MATERIALS, SYSTEMS, OR CONCEPTS IS FOR GENERAL REFERENCE AND CLARITY ONLY.

3. THE CONTRACTOR SHALL PROVIDE TEMPORARY SHORING AND BRACING REQUIRED TO ERECT AND MAINTAIN THE STRUCTURE IN PROPER ALIGNMENT UNTIL PERMANENT SUPPORTS AND LATERAL BRACING ARE IN PLACE. THE DESIGN, ADEQUACY, AND SAFETY OF ERECTION BRACING, SHORING, TEMPORARY SUPPORTS, ETC. IS THE RESPONSIBILITY OF THE CONTRACTOR.

4. OPEN WEB STEEL JOISTS SHOWN ON THE FRAMING PLANS ARE LOCATED SCHEMATICALLY UNLESS SPECIFICALLY DIMENSIONED. ACTUAL LAYOUT SHALL BE SPECIFIED BY THE MANUFACTURER AND COORDINATED BY THE CONTRACTOR. SPACING SHALL NOT EXCEED MAXIMUM INDICATED ON THE STRUCTURAL DRAWINGS. LAYOUTS SHALL BE COORDINATED WITH OTHER TRADES INCLUDING, BUT NOT LIMITED TO: HVAC EQUIPMENT, PIPING, DUCTWORK, AND ARCHITECTURAL PARTITION WALLS.

5. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS, ETC. NECESSARY FOR THE PROPER CONSTRUCTION AND ALIGNMENT OF THE NEW PORTIONS OF THE STRUCTURE TO THE EXISTING STRUCTURE. THE CONTRACTOR SHALL VERIFY ALL MEASUREMENTS NECESSARY FOR PROPER FABRICATION AND ERECTION OF ALL STRUCTURAL MEMBERS.

6. THE STRUCTURAL FRAMING HAS BEEN CONFIGURED AND DESIGNED TO ACCOMMODATE THE MECHANICAL UNITS SPECIFIED IN THE CONTRACTOR DOCUMENTS. THE CONTRACTOR SHALL COORDINATE ALL DIMENSIONS RELATED TO THE MECHANICAL UNITS. IF MECHANICAL UNITS OTHER THAN THOSE SPECIFIED ARE APPROVED AND USED, THE CONTRACTOR SHALL CONTACT THE STRUCTURAL ENGINEER TO REVIEW ALL SUBSTITUTIONS AND MAKE CHANGES TO THE STRUCTURAL FRAMING AS REQUIRED. THE COSTS ASSOCIATED WITH THIS WORK; INCLUDING FEES FOR REVIEW AND REDESIGN, SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

7. REFER TO ARCHITECTURAL DRAWINGS FOR LOCATIONS OF STRUCTURAL STEEL FRAMING, STEEL JOISTS, STEEL DECK, AND THEIR ASSOCIATED CONNECTIONS THAT REQUIRE SPRAYED ON FIRE PROOFING. THESE ITEMS SHALL NOT BE SHOP OR FIELD PRIMED.

8. THIS PROJECT IS SUBJECT TO VUSBC CHAPTER 17 SPECIAL INSPECTIONS. REFER TO STATEMENT OF SPECIAL INSPECTIONS FOR REQUIREMENTS. OWNER SHALL RETAIN A QUALIFIED TESTING AND INSPECTION AGENCY. CONTRACTOR SHALL COORDINATE TESTING AND INSPECTIONS AND PROVIDE ACCESS TO THE WORK.

B. DESIGN CRITERIA

1. UNLESS NOTED OTHERWISE, ALL DESIGN LOADS ARE BASED ON THE FOLLOWING DATA IN ACCORDANCE WITH THE VUSBC.

2. RISK CATEGORY IV

3. FLOOR LIVE LOADS:
   A. SLABS-ON-GRADE, VEHICLE 250 PSF
   B. AREAS NOT OTHERWISE SPECIFIED 100 PSF

4. FLOOR LIVE LOAD REDUCTIONS ALLOWED PER THE VUSBC HAVE BEEN APPLIED TO THE REACTIONS AND LOADS INDICATED ON THE DRAWINGS. NO FURTHER REDUCTION IS PERMITTED.

5. ROOF LIVE LOAD (UNREDUCIBLE), L_R = 20 PSF

6. SNOW LOADS:
   A. GROUND SNOW LOAD, P_g = 61 PSF
   B. EXPOSURE FACTOR, C_E = 1.0
   C. THERMAL FACTOR, C_T = 1.2
   D. FLAT ROOF SNOW LOAD, $P_F = 0.7*C_e*C_t*P_G$ = 51.2 PSF
   E. SNOW LOADS SHALL BE INCREASED FOR PARTIAL LOADING, UNBALANCED, DRIFTING, AND SLIDING CONDITIONS AS REQUIRED BY ASCE 7-22.

7. WIND LOADS:
   A. ULTIMATE DESIGN WIND SPEED = V_{ULT} = 120 MPH
   B. NOMINAL DESIGN WIND SPEED = $V_{NOM} = V_{ULT} * 0.775$ = 93 MPH
   C. EXPOSURE CATEGORY B
   D. OPEN, LOW-RISE SIMPLE DIAPHRAGM BUILDING
   E. INTERNAL PRESSURE COEFFICIENT, G_{CPI} = +/- 0.18
   F. THE DESIGN WIND PRESSURE FOR EXTERIOR COMPONENTS AND CLADDING SHALL BE DETERMINED IN ACCORDANCE WITH ASCE 7-22.

8. TORNADO LOADS:
   A. EFFECTIVE PLAN AREA, A_E = 576 SF
   B. TORNADO WIND SPEED, V_T = 50 MPH < 60 MPH. TORNADO LOADS NOT REQUIRED.

9. SEISMIC LOADS:
   A. SEISMIC IMPORTANCE FACTOR, I_E = 1.5
   B. MAPPED SPECTRAL RESPONSE ACCELERATIONS
      a. S_S = 0.23
      b. S_1 = 0.07
   C. SITE CLASS D
   D. SPECTRAL REPONSE COEFFICIENTS
      a. S_{DS} = 0.18
      b. S_{D1} = 0.098
   E. SEISMIC DESIGN CATEGORY C
   F. BASIC SEISMIC-FORCE RESISTING SYSTEM:
      a. STEEL SYSTEMS NOT SPECIFICALLY DESIGNED FOR SEISMIC RESISTANCE, R = 3.0,
   G. SEISMIC RESPONSE COEFFICIENT, C_S = 0.09
   H. ANALYSIS PROCEDURE: EQUIVALENT LATERAL FORCE

C. FOUNDATIONS AND BUILDING EARTHWORK

1. ALL BUILDING PAD EARTHWORK AND FOUNDATION CONSTRUCTION SHALL CONFORM TO THE FOLLOW:
   A. DIVISION 31 SPECIFICATIONS
   B. "REPORT OF SUBSURFACE EXPLORATION AND GEOTECHNICAL ENGINEERING EVALUATION" PREPARED BY FROEHLING & ROBERTSON, DATED JANUARY 16, 2025. THE RECOMMENDATIONS OF THIS REPORT ARE HEREIN MADE A PART OF THE REQUIREMENTS OF THESE CONTRACT DOCUMENTS. THE ALLOWABLE DESIGN SOIL BEARING PRESSURE SHALL BE 2,000 PSF.

2. THE OWNER SHALL RETAIN A TESTING AGENCY STAFFED WITH A QUALIFIED GEOTECHNICAL ENGINEER LICENSED IN THE COMMONWEALTH OF VIRGINIA TO INSPECT AND APPROVE THE SUBGRADE INCLUDING FILL AND BACKFILL MATERIALS AND OPERATIONS.

3. ALL FILL AND BACKFILL MATERIAL SHALL BE SELECTED IN ACCORDANCE WITH THE GEOTECHNICAL REPORT AND APPROVED BY THE GEOTECHNICAL ENGINEER. ALL FILL AND BACKFILL MATERIAL SHALL BE PLACED IN LOOSE LIFTS NOT EXCEEDING 8 INCHES IN THICKNESS AND COMPACTED TO A MINIMUM OF 95 PERCENT STANDARD PROCTOR (ASTM D-698).

4. ALL PIERS AND FOOTINGS ARE LOCATED ON COLUMN CENTERLINES OR GRID LINES UNLESS NOTED OTHERWISE.

5. FOUNDATION WALLS OR GRADE BEAMS HAVING EARTH PLACED ON EACH SIDE SHALL HAVE BOTH SIDES BACKFILLED SIMULTANEOUSLY. NO UNBALANCED FILL OR BACKFILL SHALL BE PLACED AGAINST BASEMENT WALLS UNLESS THE WALLS ARE BRACED EITHER BY TEMPORARY BRACING OR BY PERMANENT FLOOR CONSTRUCTION INCLUDING BASEMENT SLABS-ON-GRADE WHERE APPLICABLE.

6. NO FOUNDATION CONCRETE SHALL BE INSTALLED UNTIL ALL FOUNDATION WORK HAS BEEN COORDINATED WITH UNDERGROUND UTILITIES. FOOTINGS SHALL BE LOWERED WHERE REQUIRED TO AVOID UTILITIES. PROVIDE SLEEVES THROUGH FOUNDATION WALLS THAT ALLOW A MINIMUM OF 1" CLEAR AROUND THE PIPE OR CONDUIT.

CAST-IN-PLACE CONCRETE

1. ALL CAST-IN-PLACE CONCRETE CONSTRUCTION SHALL CONFORM TO THE FOLLOWING:
   A. ACI 318-19 "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE."
   B. ACI 301 "SPECIFICATIONS FOR STRUCTURAL CONCRETE."
   C. CRSI "MANUAL OF STANDARD PRACTICE"
   D. DIVISION 3 SPECIFICATIONS

2. MATERIALS
   A. REINFORCING STEEL: ASTM A615, GRADE 60
   B. WELDED WIRE FABRIC (WWF): ASTM A185, Fy = 65 KSI

3. PROVIDE THE FOLLOWING CONCRETE MIXES FOR THE STRUCTURES INDICATED WITH THE 28-DAY COMPRESSIVE STRENGTH (f'c) AND ENTRAINED AREA SPECIFIED. ALL MIXES SHALL BE NORMAL WEIGHT.

USE	f'c	ENTRAINED AIR
FOOTINGS	4000 PSI	6% +/- 1.5%

4. DO NOT PROVIDE AIR ENTRAINING ADMIXTURES IN MIXES FOR INTERIOR SLABS-ON-GRADE OR SLABS ON STEEL DECK.

5. REFER TO CIVIL FOR EXTERIOR CONCRETE PAVEMENT.

6. PROVIDE WELDED WIRE FABRIC IN SHEETS, ROLLS WILL NOT BE ACCEPTED.

7. FIELD BENDING OF CONCRETE REINFORCING STEEL IS NOT PERMITTED UNLESS APPROVED BY THE STRUCTURAL ENGINEER.

8. UNLESS NOTED OTHERWISE, CLEAR CONCRETE COVER OVER REINFORCING SHALL BE:

UNFORMED SURFACES CAST AGAINST EARTH:	3"
EXTERIOR FORMED SURFACES:	2"
INTERIOR FORMED SURFACES:	1-1/2"

9. CONTINUOUS REINFORCING IN WALLS AND SLABS MAY BE SPLICED, AS REQUIRED, PROVIDING BARS ARE OF THE LONGEST PRACTICAL LENGTH AND ALL SPLICES ARE SHOWN ON THE SHOP DRAWINGS. WHEREVER POSSIBLE, SPLICES SHALL BE STAGGERED. UNLESS NOTED OTHERWISE, PROVIDE CONTACT TENSION LAP SPLICES PER THE FOLLOWING SCHEDULE.

BAR SIZE	LAP SPLICE (IN) TOP	OTHER
#3	24	19
#4	32	25
#5	40	31
#6	48	37
#7	70	54
#8	80	62
#9	91	70

10. UNLESS OTHERWISE NOTED OR SHOWN, PROVIDE DOWELS WITH ACI STANDARD 90 DEG HOOKS IN FOOTINGS TO MATCH REINFORCEMENT IN WALL, PIERS, AND COLUMNS. PROVIDE LAP SPLICES WITH VERTICAL AS SCHEDULED.

11. SEE ARCHITECTURAL, PLUMBING, MECHANICAL, AND ELECTRICAL DRAWINGS FOR LOCATIONS OF PENETRATIONS AND EMBEDDED ITEMS. PROVIDE SLEEVES TO ALLOW DIFFERENTIAL SETTLEMENT BETWEEN THE FOUNDATION WALL AND THE PENETRATION CONDUIT. COORDINATE PENETRATIONS AND EMBEDDED ITEMS WITH REINFORCING. SLIGHTLY SPREAD REINFORCEMENT WHERE POSSIBLE. REFER TO TYPICAL DETAILS WHERE REINFORCING MUST BE CUT.

12. REFER TO AND COORDINATE WITH OTHER DISCIPLINE DRAWINGS FOR ITEMS TO BE INCORPORATED IN THE CONCRETE WORK INCLUDING, BUT NOT LIMITED TO FLOOR DRAINS, CONDUIT, PIPE SLEEVES, FLOOR OUTLETS, ANCHOR BOLTS, ETC.

13. BASE PLATES, ANCHOR BOLTS, SUPPORT ANGLES AND OTHER STEEL EXPOSED TO EARTH OR GRANULAR FILL SHALL BE COVERED WITH A MINIMUM OF 3 INCHES OF CONCRETE.

14. UNLESS OTHERWISE SHOWN ON THE ARCHITECTURAL DRAWINGS, PROVIDE 3/4" CHAMFERS AT ALL CONCRETE EDGES THAT ARE EXPOSED TO VIEW IN THE FINISHED CONDITION.

15. SLOPE SLABS-ON-GRADE AND SLABS ON STEEL DECK AS INDICATED ON THE STRUCTURAL AND / OR THE ARCHITECTURAL DRAWINGS. COORDINATE SLAB-ON-GRADE DEPRESSIONS WITH FINISH FLOOR MATERIALS, ENTRANCE MATS, AND OTHER ITEMS. REFER TO TYPICAL DETAILS.

STRUCTURAL ABBREVATIONS

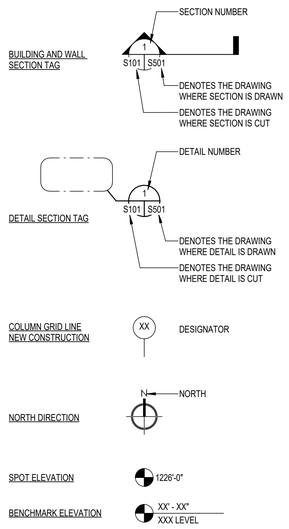
AR	ANCHOR ROD
BRG	BEARING
B/, BOT	BOTTOM
B.O.	BOTTOM OF
BTWN	BETWEEN
CLR	CLEAR
CL	CENTER LINE
COL	COLUMN
CMU	CONCRETE MASONRY UNIT
CONT	CONTINUOUS
CJ	CONSTRUCTION OR CONTROL JOINT
DIA	DIAMETER
ELEV	ELEVATION
EMB	EMBEDMENT
EXIST, (E)	EXISTING
EW	EACH WAY
EF	EACH FACE
EJ	EXPANSION JOINT
FTG	FOOTING
FNDN	FOUNDATION
F.O.	FACE OF
FS	FOOTING STEP
GA	GAGE
GALV	GALVANIZED
HP	HIGH POINT
ID	INSIDE DIAMETER
I.F.O.	INSIDE FACE OF
K	KIPS (KILOPOUNDS)
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LP	LOW POINT
MAX	MAXIMUM
MIN	MINIMUM
MISC	MISCELLANEOUS
NS	NEAR SIDE
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
NO, #	NUMBER
O.C.	ON CENTER
OD	OUTSIDE DIAMETER
O.F.O.	OUTSIDE FACE OF
OPNG	OPENING
OPP	OPPOSITE
PL	PLATE
PT	PRESERVATIVE TREATED
R	RADIUS
REINF	REINFORCEMENT
REQ'D	REQUIRED
SPEC	SPECIFICATION
SIM	SIMILAR
T/	TOP
T.O.	TOP OF
T.O.S.	TOP OF STEEL
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
VIF	VERIFY IN FIELD
WWF	WELDED WIRE FABRIC
W/	WITH
WP	WORK POINT

LEGENDS

MATERIAL LEGEND

STEEL
CONCRETE
CONCRETE MASONRY
GRANULAR FILL
BRICK
SAND, GROUT
EARTH

SYMBOL LEGEND



SPECTRUM DESIGN
architects | engineers

Plaza Suite 1
10 Church Avenue, SE
Roanoke, VA 24011
540.342.6001
SPECTRUMPC.COM

CITY OF ROANOKE REFUELING CENTERS FIRE STATION #4

ROANOKE CITY PROJECT NO.: **RFP #24-10-66**
SPECTRUM DESIGN PROJECT NO.: **23181**

COMMONWEALTH OF VIRGINIA
JACQUELINE MAYROSH
Lic. No. 43345
06.19.2025
PROFESSIONAL ENGINEER

PROJ. MGR.:	CHECKED BY:	DRAWN BY:
MAR	JM	HFR

SHEET ISSUE DATE:
06.19.2025

PROJECT PHASE:
CONSTRUCTION DOCUMENTS

SCALE:
AS SHOWN
24"x36" SHEET

SHEET REVISIONS:
REV 1 09.04.2025 CBLD REVIEW 1

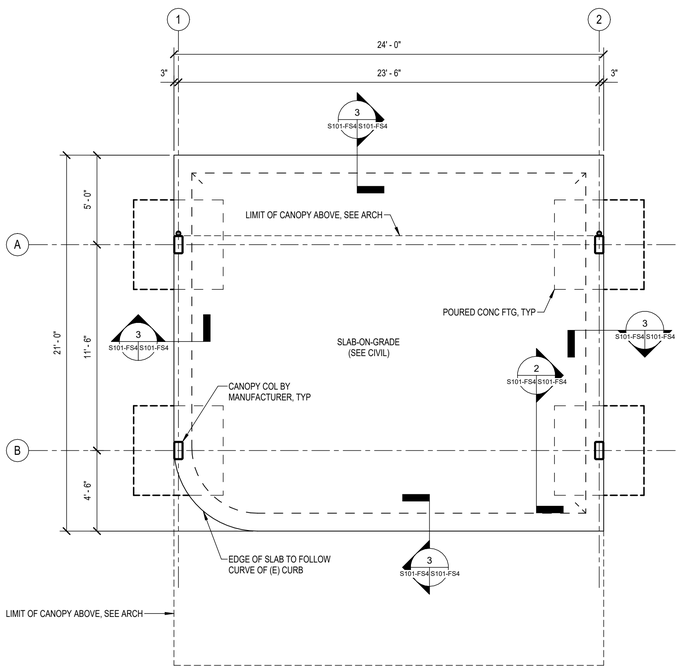
SHEET NAME:
GENERAL NOTES

SHEET NUMBER:
S001-FS4

ROANOKE
Reviewed for Code Compliance
This copy of Approved Plans must remain on work-site.
This Plan Review does not relieve the Permit Holder of their responsibility to comply with all applicable codes
The Building Official, or any authorized representatives, may require revised plans based on field inspections, or subsequent plan reviews, that discover code violations, or deviations from Approved Plans.
APPROVED by: plth1
09/17/2025 6:56:12 AM

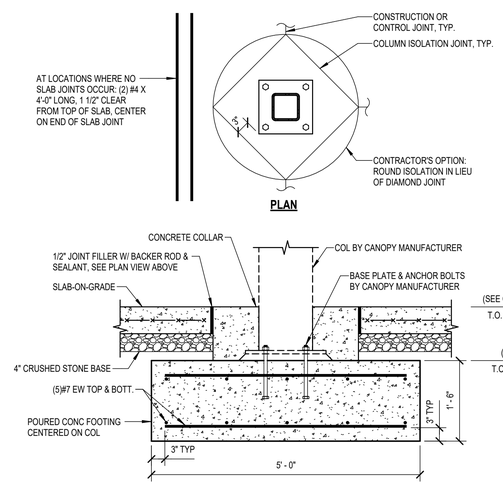
AHJ APPROVAL STAMP

ORIGINAL SIZE: ARCH E1 (30X42) | 9/4/2025 3:07:54 PM
J:\23181\23-1 Structural\Revit\23181 Structural Fire Station 4.rvt



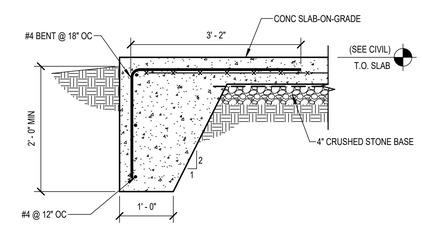
1 FOUNDATION PLAN - FUEL ISLAND

S101-FS4 SCALE: 1/4" = 1'-0"



2 SECTION

S101-FS4 SCALE: 3/4" = 1'-0"
REF: S101-FS4

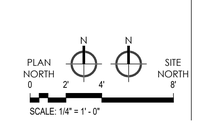


3 SECTION

S101-FS4 SCALE: 3/4" = 1'-0"
REF: S101-FS4

FOUNDATION PLAN GENERAL NOTES:

1. REFER TO GENERAL NOTES ON SHEET S001.
2. REFER TO ARCHITECTURAL DRAWINGS AND STRUCTURAL SECTIONS AND DETAILS FOR DIMENSIONS, ELEVATIONS, AND OFFSETS NOT INDICATED.
3. SEE CIVIL FOR REFERENCE ELEVATION (+0'-0"). ALL ELEVATIONS ARE NOTED THUS: (+/- X'-X") RELATIVE TO THE REFERENCE ELEVATION.



SPECTRUM DESIGN
architects | engineers

Plaza Suite 1
10 Church Avenue, SE
Roanoke, VA 24011
540.342.6001
SPECTRUMPC.COM

CITY OF ROANOKE REFUELING CENTERS FIRE STATION #4

ROANOKE CITY PROJECT NO.: **RFP #24-10-66**
SPECTRUM DESIGN PROJECT NO.: **23181**

COMMONWEALTH OF VIRGINIA
JACQUELINE MAYROSH
Lic. No. 43345
06.19.2025
PROFESSIONAL ENGINEER

PROJ. MGR.:	CHECKED BY:	DRAWN BY:
MAR	JM	HFR

SHEET ISSUE DATE:
06.19.2025

PROJECT PHASE:
CONSTRUCTION DOCUMENTS

SCALE:
AS SHOWN
24"x36" SHEET

SHEET REVISIONS:
REV 1 09.04.2025 CBLD REVIEW 1

SHEET NAME:
FUEL ISLAND FOUNDATION PLAN

SHEET NUMBER:
S101-FS4

ROANOKE
Reviewed for Code Compliance
This copy of Approved Plans must remain on work-site.
This Plan Review does not relieve the Permit Holder of their responsibility to comply with all applicable codes
The Building Official, or any authorized representatives, may require revised plans based on field inspections, or subsequent plan reviews, that discover code violations, or deviations from Approved Plans.
APPROVED by: plth1
09/17/2025 6:56:13 AM
AHJ APPROVAL STAMP

ORIGINAL SIZE - ARCH E1 (30X42) | 9/4/2025 3:07:57 PM
J:\23181\23 Structural\Part\S23181 Struct Fr Fnd #2.rvt

EQUIPMENT SPECIFICATIONS: ITEMS AND QUANTITIES LISTED BELOW ARE INTENDED TO BE A BASIS OF DESIGN, BUT NOT INCLUSIVE OF ALL COMPONENTS REQUIRED FOR A FUNCTIONING, CODE COMPLIANT, SYSTEM, UNLESS NOTED AS OWNER FURNISHED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INCLUDING ALL QUANTITIES AND COMPONENTS REQUIRED FOR A FUNCTIONING, CODE COMPLIANT SYSTEM THAT ARE NOT LISTED BELOW. SUBSTITUTIONS ALLOWED PER SPECIFICATION DIV 01.

	QTY.	PART #	DESCRIPTION	OWNER FURNISHED/CONTRACTOR INSTALLED	OWNER FURNISHED/OWNER INSTALLED*
	DISPENSERS				
	DEF				
	1	2335101862	ROTH 275 GALLON DOUBLE-WALL DEF STORAGE TANK EQUIPPED WITH 120V DEF PUMP SYSTEM, 35' DEF HOSE REEL, DEF NOZZLE, 4PIN COUPLERS, CUSTOM DIP TUBE, ROTH TANK GAUGE, LOCKABLE FILL CAP, AND ROTH TANK REEL BRACKET.	X	
	DIESEL/GASOLINE				
	1	9853GXTW2DF	MASTER: TWO PRODUCT STANDARD FLOW GASBOY ATLASX PRIME DISPENSER WITH FRONT NOZZLE, (1) SINGLE SIDE PRIME OPTION (Z-ATO-PRME01), (1) INTERNAL DISPENSER CONTROLLER (Z-ATO-INDSPC), (1) CATLOW 3/4" X 15' COMPLETE HOSE ASSEMBLY (Z-HHC-HAG809: FOR GASOLINE), (1) CATLOW 3/4" X 15' COMPLETE HOSE ASSEMBLY (Z-HHC-HAD810: FOR DIESEL). CITY OF ROANOKE DESIRES USE OF DEDICATED FUEL MAGNETIC STRIPE CARDS AND KEY FOBS FOR AUTHORIZATION.	X	
	1	–	2500 GALLON DIESEL FUEL		X
	1	–	2500 GALLON GASOLINE		X
	1	A0718	FULLY CONTAINED, LEAK-PROOF ABOVE GROUND STAINLESS STEEL DISPENSER SUMP		
	FUEL MANAGEMENT SYSTEMS				
	1	TLS-450PLUS	AUTOMATIC TANK GAUGE	X	
	1	0881115-880	880 US RADAR LEVEL SENSOR CAT-M1 VEEDER-ROOT 1NCE (TO BE INSTALLED WITH DEF TANK)	X	
	1	HYDRX	HYDRX FUEL CONDITIONING SYSTEM	X	
	2	RED JACKET	2 HP SUBMERSIBLE TURBINE PUMP		
	TANKS				
	1	–	5,000 GALLON UL-2085 FIREGUARD HORIZONTAL DOUBLE BULKHEAD TANK		
	ISLAND EQUIPMENT				
	1		HEAVY DUTY, BRIGHT YELLOW, WEATHER RESISTANT STORAGE BIN FOR SPILL RESPONSE WITH HINGED LID CAPABLE OF STORING (10) BAGS OF GRANULAR OIL/FUEL ABSORBENT		
	EQUIPMENT				
		FEC	FIRE EXTINGUISHER (2A20BC) AND CABINET		

SPECTRUM DESIGN
architects | engineers

Plaza Suite 1
10 Church Avenue, SE
Roanoke, VA 24011
540.342.6001
SPECTRUMPC.COM

CITY OF ROANOKE REFUELING CENTERS FIRE STATION #4

ROANOKE CITY PROJECT NO.: **RFP #24-10-66**
Spectrum Design Project No.: **23181**

COMMONWEALTH OF VIRGINIA
TRAVIS ROOKSTOOL
Lic. No. 17288
06.19.2025
ARCHITECT

PROJ. MGR.: **MAR**
CHECKED BY: **MAR**
DRAWN BY: **AGA**

SHEET ISSUE DATE:
06.19.2025

PROJECT PHASE:
CONSTRUCTION DOCUMENTS

SCALE:
AS SHOWN
24"x36" SHEET

SHEET REVISIONS:
REV 1 09.04.2025 CBLD REVIEW 1

KEY PLAN:

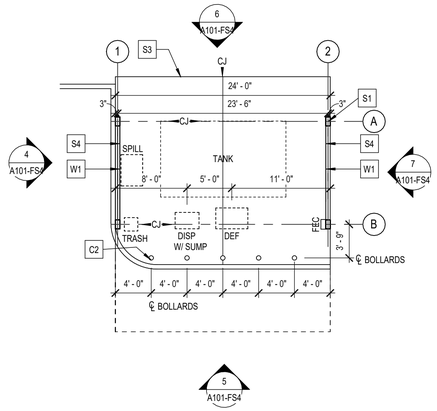
SHEET NAME:
NOTES & SPECIFICATIONS

SHEET NUMBER:
A001-FS4

ROANOKE
Reviewed for Code Compliance
This copy of Approved Plans must remain on work-site.
This Plan Review does not relieve the Permit Holder of their responsibility to comply with all applicable codes
The Building Official, or any authorized representatives, may require revised plans based on field inspections, or subsequent plan reviews, that discover code violations, or deviations from Approved Plans.
APPROVED by: gilh1
09/17/2025 6:56:13 AM

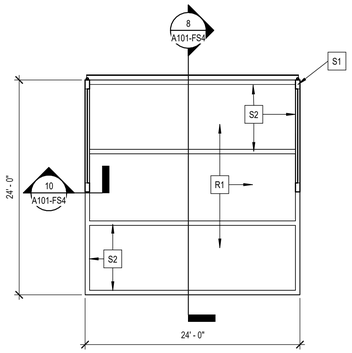
AHJ APPROVAL STAMP

J:\23181\2.4 Arch\R5 4\23181 A001-FS4.dwg, Plotted by gainington, Plotted Sep 04, 2025 - 8:33am



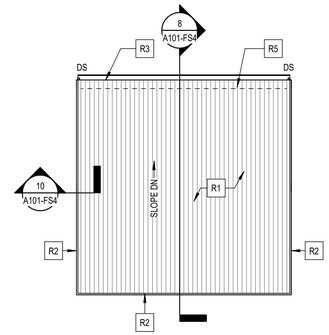
1 FLOOR PLAN

A101-FS4 SCALE: 1/8" = 1'-0"
REF: A101-FS4



2 REFLECTED CEILING PLAN

A101-FS4 SCALE: 1/8" = 1'-0"
REF: A101-FS4



3 ROOF PLAN

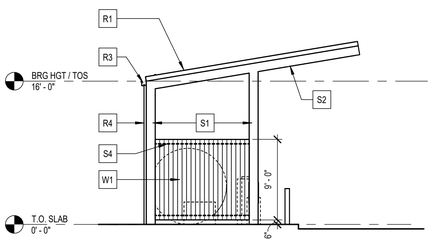
A101-FS4 SCALE: 1/8" = 1'-0"
REF: A101-FS4

GENERAL NOTES

GN-1: DIMENSION GUIDELINES:
- NEW CONSTRUCTION = PLAN DIMENSIONS ARE TO FACE OF FRAMING MEMBERS AT GWB, FACE OF MASONRY, AND CENTERLINE OF STRUCTURAL GRID U.N.O.
- EXISTING CONSTRUCTION = PLAN DIMENSIONS ARE TO FACE OF FINISH OF EXISTING WALLS TO REMAIN U.N.O.
- PLUMBING FIXTURES = PLAN DIMENSIONS ARE FROM FACE OF FINISH (GWB, TILE, ETC) TO CENTERLINE OF FIXTURE.
- "CLEAR" = DIMENSIONS ARE TO FACE OF FINISH (GWB, TILE, ETC).

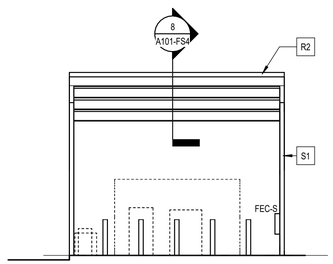
XX SHEET KEYNOTES

C2	BOLLARD - SEE CIVIL (TYP. OF 5)
R1	PREFINISHED METAL ROOF DECK BY CANOPY MANUFACTURER. BASIS OF DESIGN = "FS SERIES" BY PEACHTREE PROTECTIVE COVERS
R2	PREFINISHED METAL ROOF FASCIA BY CANOPY MANUFACTURER.
R3	PREFINISHED METAL GUTTER W/ GUTTER GUARD
R4	PREFINISHED METAL DOWNSPOUT - SEE CIVIL FOR TIE IN TO UNDERGROUND CONNECTION
R5	ONE ROW SNOW GUARDS - NON PENETRATING, STANDING SEAM CLAMPING, CONTINUOUS BAR. S-5 COLORGARD 2.0 SNOW SYSTEM OR APPROVED EQUAL
S1	METAL COLUMN BY CANOPY MANUFACTURER.
S2	METAL BEAM BY CANOPY MANUFACTURER.
S3	CONCRETE SLAB - SEE CIVIL
S4	HIGH AND LOW METAL BEAM BY CANOPY MANUFACTURER TO SUPPORT ROOF DECK PANEL USED AS WALL SCREEN.
W1	PREFINISHED METAL DECK PANEL BY CANOPY MANUFACTURER. INSTALL VERTICALLY TO PROVIDE VISUAL SCREEN. BASIS OF DESIGN = "300 SERIES" DECK BY PEACHTREE PROTECTIVE COVERS



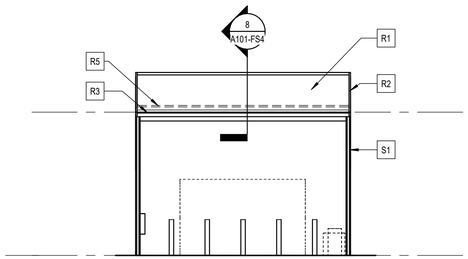
4 LEFT ELEVATION

A101-FS4 SCALE: 1/8" = 1'-0"
REF: A101-FS4



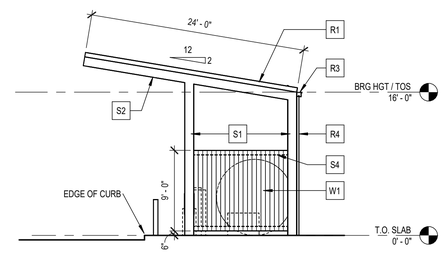
5 FRONT ELEVATION

A101-FS4 SCALE: 1/8" = 1'-0"
REF: A101-FS4



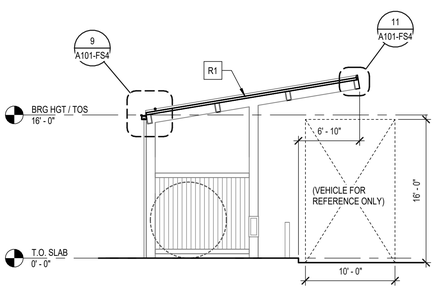
6 REAR ELEVATION

A101-FS4 SCALE: 1/8" = 1'-0"
REF: A101-FS4



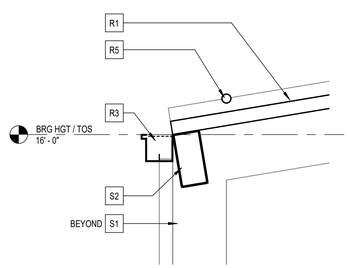
7 RIGHT ELEVATION

A101-FS4 SCALE: 1/8" = 1'-0"
REF: A101-FS4



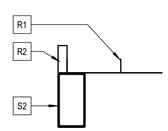
8 SECTION

A101-FS4 SCALE: 1/8" = 1'-0"
REF: A101-FS4



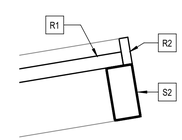
9 EAVE DETAIL

A101-FS4 SCALE: 3/4" = 1'-0"
REF: A101-FS4



10 RAKE DETAIL

A101-FS4 SCALE: 3/4" = 1'-0"
REF: A101-FS4



11 RIDGE DETAIL

A101-FS4 SCALE: 3/4" = 1'-0"
REF: A101-FS4

0 4' 8' 16'
SCALE: 1/8" = 1' - 0"

SPECTRUM DESIGN
architects | engineers

Plaza Suite 1
10 Church Avenue, SE
Roanoke, VA 24011
540.342.6001
SPECTRUMPC.COM

CITY OF ROANOKE REFUELING CENTERS FIRE STATION #4

ROANOKE CITY PROJECT NO.: **RFP #24-10-66**
SPECTRUM DESIGN PROJECT NO.: **23181**

COMMONWEALTH OF VIRGINIA
TRAVIS ROOKSTOOL
Lic. No. 17288
06.19.2025
ARCHITECT

PROJ. MGR.:	CHECKED BY:	DRAWN BY:
MAR	DCV	TLR

SHEET ISSUE DATE:
06.19.2025

PROJECT PHASE:
CONSTRUCTION DOCUMENTS

SCALE:
AS SHOWN
24"x36" SHEET

SHEET REVISIONS:
REV 1 09.04.2025 CBLD REVIEW 1

SHEET NAME:
PLAN, SECTIONS, ELEVATIONS, DETAILS

SHEET NUMBER:
A101-FS4

ROANOKE
Reviewed for Code Compliance
This copy of Approved Plans must remain on work-site.
This Plan Review does not relieve the Permit Holder of their responsibility to comply with all applicable codes
The Building Official, or any authorized representatives, may require revised plans based on field inspections, or subsequent plan reviews, that discover code violations, or deviations from Approved Plans.
APPROVED by: plth1
09/17/2025 6:56:13 AM

AHJ APPROVAL STAMP

ORIGINAL SIZE: ARCH E1 (30X42) | 9/4/2025 2:51:09 PM
J:\23181 CA ROOKSTOOL\CAD\23181 A101-FS4 #24x36.rvt

LEGEND/SYMBOLS - SECTION A	
POWER	
	DUPLEX RECEPTACLE
	DUPLEX RECEPTACLE WITH GROUND FAULT INTERRUPTER
E	EMERGENCY PUSH BUTTON
DATA COMMUNICATIONS	
	DATA WALL OUTLET
WAP	WIRELESS ACCESS POINT
LIGHT FIXTURES - (SYMBOL SHAPE MAY VARY. REFER TO SCHEDULE)	
	LIGHTING FIXTURE

LEGEND/SYMBOLS - SECTION B	
SECURITY/ACCESS CONTROL	
	SECURITY CAMERA CAMERA
CRKP	CARD READER AND KEYPAD COMBINATION
POWER DISTRIBUTION AND EQUIPMENT	
	PANELBOARD
CONDUIT AND WIRING	
E	UG ELECTRICAL
C	UG COMMUNICATIONS
1	NUMBERED CONSTRUCTION NOTES
1	NUMBERED DEMOLITION NOTES

ELECTRICAL SPECIFICATIONS:

1. PROVIDE SURGE PROTECTION DEVICE (SPD) SPD UNITS SHALL BE COMPLETE WITH DISCONNECTING MEANS AND SHALL BE LOCATED AS CLOSE AS POSSIBLE TO THE SERVICE EQUIPMENT OR WITHIN IT. SPD UNITS SHALL BE RATED FOR 250KA SURGE CURRENT PER PHASE OR 125KA SURGE CURRENT PER MODE, L-G, L-N, N-G.

2. ALL SAFETY SWITCHES SHALL BE SIMILAR OR EQUAL TO SQUARE-D, HEAVY DUTY H SERIES WITH PADLOCK CAPABILITY. COORDINATE WITH EQUIPMENT SUPPLIER AND WITH SPECIFICATIONS. PROVIDE NEMA-1 SWITCHES INDOORS AND NEMA-3R SWITCHES OUTDOORS AND IN WET OR DAMP LOCATIONS. PROVIDE FUSIBLE TYPE UNLESS NOTED OTHERWISE.

3. COMBINATION FUSIBLE MOTOR STARTERS SHALL BE GENERAL PURPOSE CLASS-A MAGNETIC CONTROLLER COMPLETE WITH FUSIBLE DISCONNECT IN A COMMON NEMA-1 ENCLOSURE WITH EXTERNAL PADLOCK HANDLE. PROVIDE FUSE CLIPS FOR CLASS-R FUSES.

4. DUPLEX 120V RECEPTACLES SHALL BE 20 AMP, FEDERAL SPEC GRADE DUPLEX RECEPTACLES, COLOR GREY, WITH STAINLESS STEEL PLATES. WHERE QUADPLEX RECEPTACLES ARE NOTED, PROVIDE TWO DUPLEX RECEPTACLES ON A COMMON PLATE. FLUSH RECEPTACLES ON CMU WALL MAY USE OVERSIZED PLATES.

5. DUPLEX GROUND FAULT RECEPTACLES INDOORS SHALL BE 20 AMP DUPLEX GFI TYPE WITH FEED THROUGH AND STANDARD COVER.

6. NEW WEATHERPROOF GROUND FAULT DUPLEX RECEPTACLES SHALL BE 20 AMP DUPLEX GFI TYPE WITH LEXAN WEATHERPROOF WHILE-IN-USE COVER.

7. ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR BELOW GRADE EXCAVATION REQUIRED FOR INSTALLATION OF CONDUIT AND WIRING IN ACCORDANCE WITH THE FOLLOWING:

   A. TRENCHES TO BE GRADED TO UNIFORM PITCH AND NO WIDER THAN NECESSARY AND FREE FORM LOOSE EARTH.
   B. CLEAN BACKFILL SHALL BE USED AND THOROUGHLY TAMPED IN LAYERS NOT EXCEEDING 6" TO A MINIMUM DEPTH OF 1' OVER TOP OF CONDUIT.
   C. USE COMPACTED BACKFILL FOR ENTIRE DEPTH OF EXCAVATION UNDER SLAB ON GRADE.

8. INSTALLATION OF DIRECT BURIAL CONDUIT

   A. PROVIDE EXCAVATION AND SHAPING OF TRENCH BOTTOMS TO PROVIDE UNIFORM BEARING AND SUPPORT OF CONDUIT(S). SHAPE SUB-GRADE TO PROVIDE CONTINUOUS SUPPORT FOR JOINTS, FITTINGS AND BODIES OF CONDUITS. REMOVE PROJECTING STONES AND SHARP OBJECTS ALONG TRENCH SUBGRADE. EXCAVATE TRENCHES 6 INCHES DEEPER THAN ELEVATION REQUIRES IN ROCK OR OTHER UNYIELDING BEARING MATERIAL TO ALLOW FOR BEDDING COURSE IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACTION: PLACE BACKFILL OR SUB-GRADES FREE OF MUD, FROST, SNOW, OR ICE. PLACE AND COMPACT BEDDING COURSE ON TRENCH BOTTOMS AND WHERE INDICATED. SHAPE BEDDING COURSE TO PROVIDE CONTINUOUS SUPPORT FOR JOINTS, FITTINGS, AND BODIES OF CONDUITS. BACKFILL TRENCHES EXCAVATED UNDER FOOTING AND WITHIN 18 INCHES OF BOTTOM OF FOOTINGS,PLACE AND COMPACT INITIAL BACKFILL UP ON BOTH SIDES AND ALONG THE FULL LENGTH OF CONDUIT TO AVOID DAMAGE OR DISPLACEMENT. FIRMLY HAND-TAMP BACKFILL AROUND CONDUIT TO PROVIDE MAXIMUM SUPPORTING STRENGTH. AFTER PLACING CONTROLLED BACKFILL TO WITHIN 12" OF FINISHED GRADE, MAKE FINAL CONDUIT CONNECTIONS AT END OF RUN AND COMPLETE BACKFILLING WITH NORMAL COMPACTION TO 85 PERCENT OR TO MATCH CIVIL COMPACTIONS REQUIREMENTS FOR THAT AREA WHICHEVER IS GREATER.

   B. PROVIDE MANUFACTURED DUCT ELBOWS AND STUB UPS AT POLES, EQUIPMENT AND AT BUILDING ENTRANCES THROUGH THE FLOOR, UNLESS OTHERWISE INDICATED. ENCASE ELBOWS FOR STUB UP DUCTS THROUGHOUT THE LENGTH OF THE ELBOW.
   C. PROVIDE MANUFACTURED RIGID STEEL CONDUIT ELBOWS FOR STUB-UPS AT POLES, EQUIPMENT, AND AT BUILDING ELECTRIC ENTRANCES THROUGH THE FLOOR. COUPLE STEEL CONDUITS TO DUCTS WITH ADAPTERS DESIGNED FOR THIS PURPOSE AND ENCASE COUPLING WITH 3 INCHES OF CONCRETE. FOR STUB-UPS AT EQUIPMENT MOUNTED ON OUTDOOR CONCRETE BASES, EXTEND STEEL CONDUIT HORIZONTALLY A MINIMUM OF 60 INCHES FROM THE EDGE OF THE EQUIPMENT PAD OR FOUNDATION. INSTALL INSULATED GROUNDING BUSHINGS ON TERMINATION AT EQUIPMENT. WARNING TAPE: BURY UNDERGROUND WARNING TAPE APPROXIMATELY 12" ABOVE DIRECT BURIED CONDUITS. ALIGN TAPE ALONG THE WIDTH AND ALONG THE CENTERLINE OF CONDUIT.

9. GROUNDING

   A. PROVIDE GROUNDING IN ACCORDANCE WITH NATIONAL ELECTRICAL CODE AND ADDITIONALLY AS INDICATED.
   B. PROVIDE TRIAD GROUND USING 10'X3/4" COPPER CLAD GROUND RODS AS INDICATED, PLACE RODS NO LESS THAN 36 INCHES FROM METER STRUCTURE. CONNECT GROUND RODS TO GROUND SYSTEM USING MINIMUM 2/0 COPPER CABLE. BURIED UNDERGROUND CONNECTIONS TO GROUND RODS SHALL USE EXOTHERMICALLY WELDED CONNECTIONS. ACCESSIBLE GROUND ROD CONNECTIONS SHALL USE CLAMPS. USE EXOTHERMIC CONNECTIONS FOR ALL UNDERGROUND SPLICES.
   C. TEST GROUND SYSTEM RESISTANCE AND PROVIDE ADDITIONAL GROUND RODS TO BRING GROUND SYSTEM RESISTANCE TO LESS THAN 5 OHMS FOR BOTH TRIAD GROUND SYSTEM AND GENERATOR GROUND SYSTEM. PROVIDE A MININIMUM OF 10 FEET SEPARATION FROM EXISTING RODS FOR SUPPLEMENTAL GROUND RODS.

10. GRADE AND ABOVE GRADE BOXES

   B. GENERAL REQUIREMENTS: BOXES INSTALLED IN DAMP OR WET LOCATIONS SHALL BE LISTED FOR USE IN WET LOCATIONS. ALL BOXES SHALL BE LISTED AND LABELED AS DEFINED IN NFPA 70, BY A QUALIFIED TESTING AGENCY, AND MARKED FOR INTENDED LOCATION AND APPLICATION.
   C. METAL FLOOR BOXES: MATERIAL: CAST METAL OR PVC COATED GALVANIZED METAL TYPE: FULLY ADJUSTABLE, SHAPE RECTANGULAR. PROVIDE DIVIDER AS SEPARATOR BETWEEN DATA/COMMUNICATIONS AND POWER WHEN INDICATED.
   D. METAL CEILING AND WALL BOXES: GALVANIZED METAL COMPLYING WITH NEMA OS1 AND UL 514A. PROVIDE WITH DIVIDER BETWEEN POWER AND LOW VOLTAGE SECTION WHEN INDICATED.
   E. CAST METAL OUTLET AND DEVICE BOXES COMPLY WITH NEMA FB 1, FERROUS ALLOY, TYPE FD, WITH GASKETED COVER.

11. HANDHOLES AND BOXES FOR EXTERIOR UNDERGROUND WIRING

   A. BOXES AND HAND HOLES FOR USE IN UNDERGROUND SYSTEMS SHALL BE DESIGNED AND IDENTIFIED AS DEFINED IN NFPA 70, FOR INTENDED LOCATION AND APPLICATION. BOXES INSTALLED IN WET AREAS SHALL BE LISTED AND LABELED AS DEFINED IN NFPA 70, BY A QUALIFIED TESTING AGENCY, AND MARKED FOR INTENDED LOCATION AND APPLICATION.
   B. POLYMER-CONCRETE HAND HOLES AND BOXES WITH POLYMER-CONCRETE COVER: MOLDED OF SAND AND AGGREGATE, BOUND TOGETHER WITH POLYMER RESIN, AND REINFORCED WITH STEEL, FIBERGLASS, OR A COMBINATION OF THE TWO. COMPLY WITH SCTE 77 STANDARD. CONFIGURATION: DESIGN FOR FLUSH BURIAL CONFIGURATION WITH INTEGRAL CLOSED BOTTOM UNLESS OTHERWISE INDICATED.
   C. COVER: WEATHERPROOF. SECURED BY TAMPER-RESISTANT LOCKING DEVICES AND HAVING STRUCTURAL LOAD RATING CONSISTENT WITH ENCLOSURE AND HANDHOLE LOCATION.
   D. COVER FINISH: NONSKID FINISH SHALL HAVE A MINIMUM COEFFICIENT OF FRICTION OF 0.50.
   E. COVER LEGEND: MOLDED LETTERING, "ELECTRIC."
   F. CONDUIT ENTRANCE PROVISIONS: CONDUIT-TERMINATING FITTINGS SHALL MATE WITH ENTERING DUCTS FOR SECURE, FIXED INSTALLATION IN ENCLOSURE WALL.
   G. HAND HOLES: FOR 12 INCHES WIDE BY 24 INCHES LONG AND LARGER: HAVE INSERTS FOR CABLE RACKS AND PULLING-IN IRONS INSTALLED BEFORE CONCRETE IS POURED.
   H. INSTALL HAND HOLES AND BOXES LEVEL AND PLUMB AND WITH ORIENTATION AND DEPTH COORDINATED WITH CONNECTING CONDUITS TO MINIMIZE BENDS AND DEFLECTIONS REQUIRED FOR PROPER ENTRANCES.
   I. UNLESS OTHERWISE INDICATED, SUPPORT UNITS ON A LEVEL BED OF CRUSHED STONE OR GRAVEL, GRADED FROM 1/2-INCH SIEVE TO NO. 4 SIEVE AND COMPACTED TO SAME DENSITY AS ADJACENT UNDISTURBED EARTH.
   J. ELEVATION: IN PAVED AREAS, SET SO COVER SURFACE WILL BE FLUSH WITH FINISHED GRADE. SET COVERS OF OTHER ENCLOSURES 1 INCH ABOVE FINISHED GRADE.
   K. INSTALL HAND HOLES WITH BOTTOM BELOW FROST LINE AT 24" MINIMUM BELOW GRADE.
   L. FIELD-CUT OPENINGS FOR CONDUITS ACCORDING TO ENCLOSURE MANUFACTURER'S WRITTEN INSTRUCTIONS. CUT WALL OF ENCLOSURE WITH A TOOL DESIGNED FOR MATERIAL TO BE CUT. SIZE HOLES FOR TERMINATING FITTINGS TO BE USED, AND SEAL AROUND PENETRATIONS AFTER FITTINGS ARE INSTALLED.

12. CONNECTORS AND SPLICES

   A. DESCRIPTION: FACTORY-FABRICATED CONNECTORS AND SPLICES OF SIZE, AMPACITY RATING, MATERIAL, TYPE, AND CLASS FOR APPLICATION AND SERVICE INDICATED; LISTED AND LABELED AS DEFINED IN NFPA 70, BY A QUALIFIED T ESTING AGENCY, AND MARKED FOR INTENDED LOCATION AND APPLICATION. USE SINGLE OR MULTI-TAP INSULATED CONNECTORS TO FIT THE APPLICATION. FOR BELOW GRADE SPLICES PROVIDE WATERPROOF CONNECTIONS RATED FOR DIRECT BURIAL.
   B. MAKE SPLICES, TERMINATIONS, AND TAPS THAT ARE COMPATIBLE WITH CONDUCTOR MATERIAL AND THAT POSSESS EQUIVALENT OR BETTER MECHANICAL STRENGTH AND INSULATION RATINGS THAN UNSPLICED CONDUCTORS. USE OXIDE INHIBITOR IN EACH SPLICE, TERMINATION, AND TAP FOR SPLICING INVOLVING ALUMINUM CONDUCTORS.
   C. TIGHTEN ELECTRICAL CONNECTORS AND TERMINALS ACCORDING TO MANUFACTURER'S PUBLISHED TORQUE-TIGHTENING VALUES. IF MANUFACTURER'S TORQUE VALUES ARE NOT INDICATED, USE THOSE SPECIFIED IN UL 486A-486B.

13. EXCAVATIONS

   B. CONTACT MISS UTILITY AT 811, 1-800-552-7001, OR HTTP://WWW.MISSUTILITYOFVIRGINIA.COM NO LESS THAN 72 HOURS PRIOR TO EXCAVATION AND DO NOT DISTURB THE SOIL UNTIL THE DIG TICKET HAS BEEN PROCESSED.
   C. MISS UTILITY WILL NOT MARK PRIVATE UTILITIES WHICH MAY BE PRESENT ON THIS SITE. ENSURE THAT ALL UTILITIES, PUBLIC AND PRIVATE, ARE MARKED PRIOR TO EXCAVATION.

14. SECURITY SYSTEM

   A. PROVIDE ROUGH IN FOR SECURITY DEVICES AND CARD READERS AS INDICATED. PROVIDE BOXES, CONDUITS, FITTINGS AND PULL STRINGS. INSTALLATION OF SECURITY DEVICES ARE OUTSIDE OF THE CONTRACT BY OWNER SELECTED VENDOR. CAMERA ROUGH IN IS INCLUDED IN THE CONTRACT. CONTRACTOR TO COORDINATE WITH OWNER SELECTED VENDOR AND PROVIDE MARK UP DRAWINGS THAT INDICATE ROUGH IN REQUIREMENTS THAT ARE DEVIATIONS FROM CONTRACT DOCUMENTS.

15. LOW VOLTAGE CONTROL WIRING

   A. PROVIDE LOW VOLTAGE CONTROL WIRING AND CONDUIT FOR A COMPLETE AND OPERATIONAL FUELING SYSTEM. CONTRACTOR TO COORDINATE WITH OWNER SELECTED VENDOR(S).

16. ELECTRICAL IDENTIFICATION SHALL BE PROVIDED IN ACCORDANCE WITH THE FOLLOWING PROVISIONS:

   A. ENGRAVING STOCK MELAMINE PLASTIC LAMINATE LABELS, BLACK WITH WHITE CORE, FASTENED WITH PAN-HEAD SCREWS AND EXPANSION SHIELDS ON BLOCK WALLS OR CONTACT TYPE PERMANENT ADHESIVE FOR DIRECT FASTENING TO EQUIPMENT FOR ALL MAJOR PIECES OR ELECTRICAL EQUIPMENT INCLUDING AS A MINIMUM BUT NOT LIMITED TO ALL SAFETY DISCONNECT SWITCHES, ENCLOSED BREAKERS, EMERGENCY POWER SYSTEM INVERTERS, METER ENCLOSURES, CURRENT TRANSFORMER CABINETS, PANEL BOARDS AND SWITCH BOARDS.
   B. PROVIDE MANUFACTURERS STANDARD VINYL CLOTH SELF ADHESIVE CABLE/ CONDUCTOR MARKERS OR WRAP-AROUND TYPE NUMBERED TO SHOW CIRCUIT IDENTIFICATION IN EACH BOX/ENCLOSURE/CABINET WHERE WIRES OF MORE THAN ONE CIRCUIT OR SYSTEM ARE PRESENT. MATCH IDENTIFICATION WITH OTHER MARKING SYSTEMS USED.
   C. PERMANENT BRIGHT COLORED CONTINUOUS PRINTED PLASTIC UNDERGROUND LINE MARKERS SHALL BE BURIED ABOVE ALL UNDERGROUND ELECTRICAL CONDUCTOR RUNS 8" BELOW GRADE.

17. WIRING

   ALL WIRING SHALL BE IN CONDUIT. RIGID METAL WHERE EXPOSED OUTDOORS AND BELOW SWITCH HEIGHT OR SUBJECT TO DAMAGE; PVC SCHEDULE 40 WHERE BELOW GRADE OR UNDER NON TRAFFIC AREAS OR CONCRETE ENCASED AND PVC SCHEDULE 80 WHERE BELOW DRIVEWAYS OR OTHER TRAFFICKED AREAS. FLEXIBLE FOR EQUIPMENT CONNECTIONS AND EMT OTHERWISE. A SEPARATE GREEN INSULATED GROUND WIRE SHALL BE INSTALLED IN ALL CONDUITS. ALL CONDUIT SHALL BE NEATLY RUN AND SUPPORTED PER NATIONAL ELECTRIC CODE.

18. BUILDING WIRE SHALL BE SINGLE CONDUCTORS IN CONDUIT OR RACEWAY. CONDUCTORS SHALL BE COPPER, #12 MINIMUM CONDUCTOR SIZE, SOLID FOR #10 AWG AND SMALLER, STRANDED FOR #8 AWG AND LARGER. FOR ABOVE-GROUND APPLICATIONS USE THHN-THWN, 600VAC INSULATION. FOR CIRCUITS WHERE ANY PART OF THE CIRCUIT IS BELOW GRADE USE CONDUCTORS WITH XHHW-2, 600 VAC RATED INSULATION.

19. SUPPORT AND ANCHORAGE

   A. PROVIDE SUPPORT AND ANCHORAGE THAT ARE ADEQUATE IN TENSION, SHEAR, AND PULLOUT FORCE TO RESIST MAXIMUM LOADS CALCULATED OR IMPOSED WITH A MINIMUM STRUCTURAL SAFETY FACTOR OF FIVE.
   B. STEEL SLOTTED SUPPORT SYSTEMS. COMPLY WITH MFMA-3 FACTORY FABRICATED COMPONENTS FOR FIELD ASSEMBLY WITH FINISH SUITABLE FOR THE ENVIRONMENT.
   C. FOR ATTACHMENT TO CONCRETE AND SOLID MASONRY, USE WEDGE-TYPE, ZINC-COATED STEEL EXPANSION ANCHOR FASTENERS. DRILL HOLES AT LOCATIONS AND DEPTHS THAT AVOID REINFORCING BARS. FOR CONNECTIONS TO HOLLOW MASONRY USE ALL-STEEL SPRINGHEAD TYPE TOGGLE BOLTS.
   D. FOR CLAMPING TO STEEL STRUCTURAL ELEMENTS USE WELDED STEEL STUDS, BEAM CLAMPS OR SPRING-TENSION CLAMPS.
   E. FOR CONNECTIONS TO WOOD USE LAG SCREWS OR THROUGH BOLTS.
   F. HANGER RODS TO BE THREADED STEEL.
   G. FOR CONNECTIONS TO LIGHT STEEL USE SHEET METAL SCREWS.
   H. FOR ITEMS MOUNTED ON HOLLOW WALLS AND NONSTRUCTURAL BUILDING SURFACES USE SLOTTED-CHANNEL RACKS ATTACHED TO SUBSTRATE.
   I. FASTEN HANGERS AND SUPPORTS SECURELY IN PLACE WITH PROVISIONS FOR STRUCTURAL AND THERMAL MOVEMENT.
   J. SEPARATE DISSIMILAR METALS AND METAL PRODUCTS FROM CONTACT WITH WOOD OR CEMENTITIOUS MATERIALS BY PAINTING EACH METAL SURFACE IN AREA OF CONTACT WITH A BITUMINOUS COATING OR BY OTHER PERMANENT SEPARATION.
   K. EMT AND RSC MAY BE SUPPORTED BY OPENINGS THROUGH STRUCTURAL MEMBERS AS PERMITTED IN NFPA-70.
   L. RACEWAY SUPPORT INTERVALS

RACEWAY TYPE	MAX DISTANCE TO FIRST SUPPORT	MAX SUPPORT INTERVAL	MAX LENGTH OF RUN
MC CABLE	12 INCHES	54 INCHES	NONE
FMC, LFMC	12 INCHES	54 INCHES	72 INCHES
RSC/RAC <1" DIA	36 INCHES	120 INCHES	NONE
RSC/RAC 1" DIA	3 6 INCHES	144 INCHES	NONE
RSC/RAC >1" DIA	36 INCHES	PER NEC	NONE
EMT	36 INCHES	120 INCHES	NONE

RNC C 388-30 "ACCORDING TO MANUFACTURER'S INSTALLATION INSTRUCTIONS.

EMERGENCY POWER OFF (EPO)

MOTOR FUEL DISPENSING FACILITIES:
INSTALLATION SHALL COMPLY WITH NEC 514.11 MOTOR FUEL DISPENSING FACILITIES.

EMERGENCY TELEPHONE

INDUSTRIAL, WEATHERPROOF TELEPHONE, SINGLE LINE, AUTO-DIAL, GRAY, SURFACE MOUNT. DETACHABLE PROGRAMMING KEYPAD, HINGE DOOR, PROXIMITY DETECTING HOOK SWITCH WITH NO MOVING PARTS, SIX FOOT HYTREL CORD WITH NOISE CANCELING AND VOLUME CONTROL HANDSET ASSEMBLY

SPECTRUM DESIGN
architects | engineers

Plaza Suite 1
10 Clayton Avenue, SE
Roanoke, VA 24011
540.342.6001
SPECTRUMPC.COM

CITY OF ROANOKE REFUELING CENTERS FIRE STATION #4

ROANOKE CITY PROJECT NO.: **RFP #24-10-66**
Spectrum Design Project No.: **23181**

COMMONWEALTH OF VIRGINIA
MICHAEL A. RAKES
Lic. No. 28199
06.19.2025
PROFESSIONAL ENGINEER

PROJ. MGR.:	CHECKED BY:	DRAWN BY:
MAR	MAR	CLH

SHEET ISSUE DATE:
06.19.2025

PROJECT PHASE:
CONSTRUCTION DOCUMENTS

SCALE:
AS SHOWN
24"x36" SHEET

SHEET REVISIONS:

REV 1	09.04.2025	CBLD REVIEW 1

KEY PLAN:

SHEET NAME:
ELECTRICAL - LEGEND AND GENERAL NOTES

SHEET NUMBER:
E001-FS4

ROANOKE
Reviewed for Code Compliance
This copy of Approved Plans must remain on work-site.
This Plan Review does not relieve the Permit Holder of their responsibility to comply with all applicable codes
The Building Official, or any authorized representatives, may require revised plans based on field inspections, or subsequent plan reviews, that discover code violations, or deviations from Approved Plans.
APPROVED by: plth1
09/17/2025 6:56:13 AM

AHJ APPROVAL STAMP

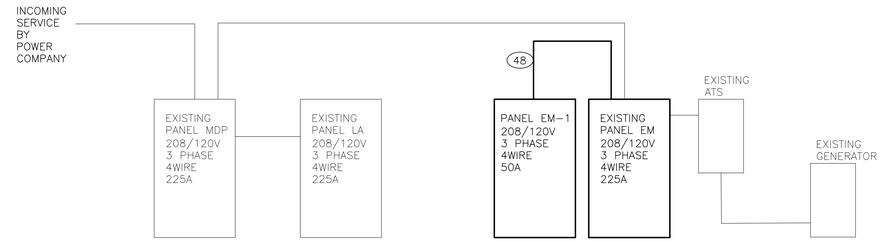
J:\23181\2.8.Elec\123181 Elec Class.dwg, Plotted By: garrington, Plotted: Sep 04, 2025 - 8:33am

GENERAL NOTES:

1. SEE SHEET E001–FS4 FOR LEGEND AND GENERAL NOTES.
2. SEE SHEET E501–FS4 FOR ELECTRICAL DETAILS.

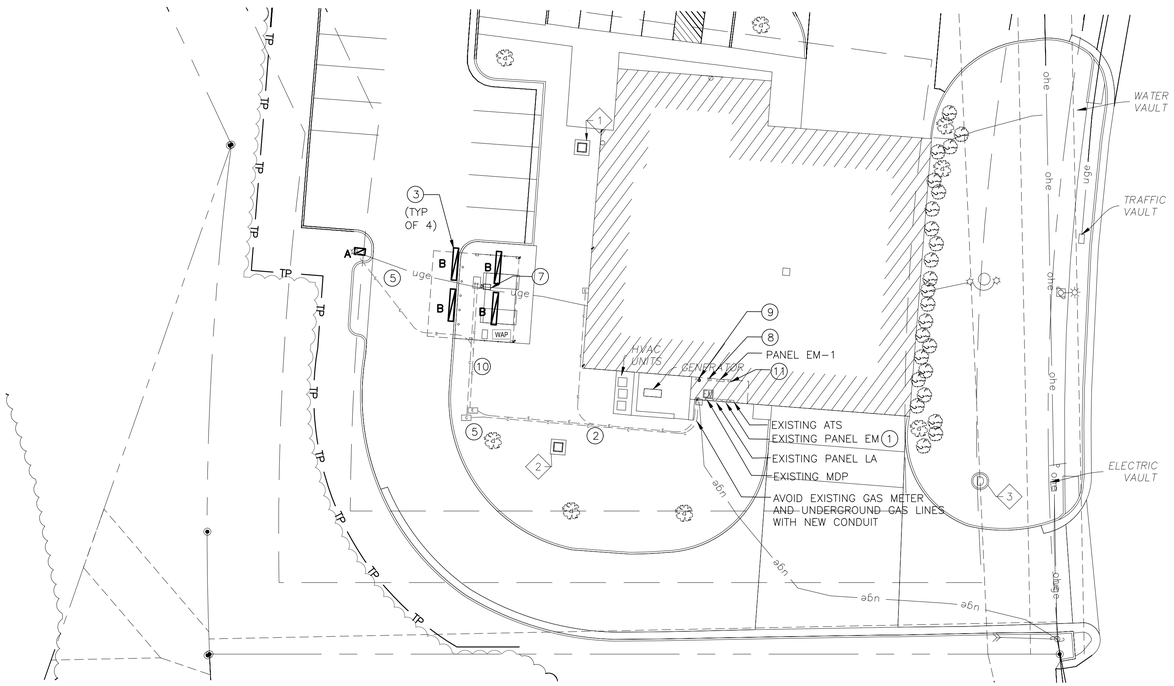
SHEET NOTES:

1. EXISTING EMERGENCY PANEL EM TO BE REWORKED. ENABLE FEED THRU LUGS FOR CONNECTION TO NEW PANEL EM–1.
2. DUCTBANK (2) 2" CONDUITS FOR ELECTRICAL/COMMUNICATIONS CONDUIT TO PULL BOXES. TYPICAL. SEE SHEET E501–FS4 FOR DETAILS.
3. SURFACE MOUNTED LIGHTING FIXTURE TO BE MOUNTED TO UNDERNEATH OF ROOF DECKING. SEE LIGHTING FIXTURE SCHEDULE THIS SHEET FOR FIXTURE TYPE.
4. POLE MOUNTED FIXTURE AT EXISTING POLE, SEE LIGHTING FIXTURE SCHEDULE THIS SHEET.
5. DEMOLISH EXISTING CONDUIT AND CIRCUITRY TO EXISTING LIGHT POLE. REROUTE EXISTING CIRCUITRY FOR CONNECTION TO NEW EXTERIOR LIGHTING FIXTURE AT EXISTING POLE IN 3/4" CONDUIT. CKT PANEL LA–26.
6. ELECTRICAL / COMMUNICATIONS PULL BOXES, SEE DETAIL SHEET E501–FS4.
7. SECURITY CAMERA BY OTHERS, PROVIDE 1" CONDUIT WITH PULL STRING ONLY. COORDINATE EXACT LOCATION WITH OWNERS SECURITY CONTRACTOR.
8. VEEDER ROOT FUEL MANAGEMENT SYSTEM.
9. PROVIDE DUPLEX RECEPTACLE AND DATA OUTLET FOR NETWORK VIDEO RECORDER. COORDINATE EXACT LOCATION WITH OWNERS SECURITY CONTRACTOR.
10. DUCTBANK 3/4" ELECTRICAL/COMMUNICATIONS CONDUITS AS REQUIRED FROM PULL BOXES AND STUB UP AT EQUIPMENT LOCATIONS. COORDINATE EXACT NUMBER AND LOCATIONS WITH TANK EQUIPMENT DETAIL 1 SHEET C502–FS4. COORDINATE WITH PANEL EM–1 FOR CIRCUITRY.
11. LIGHTING CONTACTOR, FOR CANOPY LIGHTING CONTROL, SEE SHEET E501 FOR DETAILS.



ONE–LINE DIAGRAM – FS4

NOT TO SCALE



COPPER FEEDER SCHEDULE											
TYPE	CONDUIT SIZE	CONDUCTORS	75° AMP RATING	TYPE	CONDUIT SIZE	CONDUCTORS	75° AMP RATING	TYPE	CONDUIT SIZE	CONDUCTORS	75° AMP RATING
212	3/4"	2–#12	25	21	1–1/4"	2–#1	130	235	2"	2–#350KCMIL	310
312	3/4"	3–#12		31	1–1/4"	3–#1		335	2–1/2"	3–#350KCMIL	
412	3/4"	4–#12		41	1–1/2"	4–#1		435	3"	4–#350KCMIL	
20	3/4"	2–#10	35	21X	1–1/4"	2–#1/0	150	240	2"	2–#400KCMIL	335
30	3/4"	3–#10		31X	1–1/2"	3–#1/0		340	2–1/2"	3–#400KCMIL	
40	3/4"	4–#10		41X	1–1/2"	4–#1/0		440	3"	4–#400KCMIL	
28	3/4"	2–#8	50	22X	1–1/4"	2–#2/0	175	250	2–1/2"	2–#500KCMIL	380
38	3/4"	3–#8		32X	1–1/2"	3–#3/0		350	3"	3–#500KCMIL	
48	3/4"	4–#8		42X	2"	4–#4/0		450	4"	4–#500KCMIL	
26	3/4"	2–#6	65	23X	1–1/2"	2–#3/0	200	260	2–1/2"	2–#600KCMIL	420
36	3/4"	3–#6		33X	2"	3–#3/0		360	3–1/2"	3–#600KCMIL	
46	1"	4–#6		43X	2"	4–#3/0		460	4"	4–#600KCMIL	
24	3/4"	2–#4	85	24X	1–1/2"	2–#4/0	230	EQUIPMENT GROUNDING CONDUCTORS SCHEDULE			
34	1"	3–#4		34X	2"	3–#4/0		OCP		COPPER	
44	1–1/4"	4–#4		44X	2–1/2"	4–#4/0		15		14	
23	1"	2–#3	100	225	2"	2–#250KCMIL	255	20		12	
33	1"	3–#3		325	2"	3–#250KCMIL		30		10	
43	1–1/4"	4–#3		425	3"	4–#250KCMIL		40		10	
22	1"	2–#2	115	230	2"	2–#300KCMIL	285	60		10	
32	1–1/4"	3–#2		330	2–1/2"	3–#300KCMIL		100		8	
42	1–1/4"	4–#2		430	3"	4–#300KCMIL		200		6	
								300		4	
								400		3	
								500		2	
								600		1	
								800		1/0	

NOTES:
1. SEE EQUIPMENT GROUND CONDUCTOR SCHEDULES OR SERVICE GROUNDING DETAIL FOR GROUND CONDUCTORS RATING.
2. ALL INSULATION SHALL BE THHN (ABOVE GRADE) OR THWN (BELOW GRADE) UNLESS NOTED OTHERWISE.
3. CONDUIT SIZE IS BASED ON SCHEDULE 40 PVC. PVC & THWN ARE APPROVED FOR UNDERGROUND FEEDERS ONLY.

Rating	120/208	Bus Rating	225	Panel Designation	NOTES:
Phases	3	Lug Rating	225	PANEL EM	
wires	4	Pole Spacing	42		
main breaker	YES	AIC Rating			
breaker rating		Mounting	SURF		

Load Served	WIRE SIZE	CB	CKT	kVA/PHASE A	kVA/PHASE B	kVA/PHASE C	CKT	CB	WIRE SIZE	Load Served
EXST. LIGHTS	12	20	1	0.492			2	20	12	EXST BAY LIGHT
				1.05						
EXST. GEN. BATT. CHRG.	12	20	3		0.648		4	20	12	EXST BAY LIGHT
					1.05					
EXST. GEN. BLANK HTR.	2	20	5			0.9	6	20	12	EXST BAY LIGHT
						1.05				
EXST. RECEPT.	12	20	7	0.72			8	20	12	EXST. RECEPT.
				1.2						
EXST. RECEPT.	12	20	9		0.72		10	20	12	EXST. RECEPT.
					0.48					
EXST. RECEPT.	12	20	11			1.2	12	20	12	EXST. RECEPT.
						0.48				
EXST. RECEPT.	12	20	13	1.4			14	20	12	EXST. RECEPT.
				1.4						
EXST WATER COOLER	12	20	15		0.36		16	20	12	EXST COMM RECEPT.
					0.48					
EXST KITC. RECEPTS.	12	20	17			0.84	18	20	12	EXST COMM RECEPT.
						0.48				
EXST LIGHTS	12	20	19	1.2			20	20	12	EXST COMM RECEPT.
				0.48						
EXST BAY DOOR	12	20	21		0.684		22	20	12	EXST FACP
					1.2					
EXST BAY DOOR	12	20	23			0.684	24	20	12	EXST BUNK AREA
						0.9				
EXST BAY DOOR	12	20	25	0.684			26	20	12	EXST SPARE
				0						
EXST PRINTER	12	20	27		0.5		28	20	12	EXST LTG MENS ROOM
					1.1					
EXST NITE LIGHTS	12	20	29			0.7	30	20	12	EXST BAY DOOR
						0.7				
EXST AH # 1	12	20	31	1.3			32	20	12	EXST EXHAUST FAN
				0.684						
EXST AH # 2	12	20	33		1.3		34			
					0.684					
EXST AH # 3	12	20	35			1.3	36			
						0.684				
EXST KITC. HOOD FAN	12	20	37	0.9			38	20	12	EXST. WATER HTR
				1.3						
			39		0.9		40	20	12	EXST MINI SPLIT
					1.4					
EXST CORD REEL # 4	12	20	41			0.72	42	20	12	EXST DAY RM KITC.
						0.9				
				TOTAL LOAD:	12.81	11.51	11.54			
				amps/phase:	106.8	95.88	96.15			

LUMINAIRE SCHEDULE/LEGEND									
CALLOUT	SYMBOL	LAMP	DESCRIPTION	DRIVER	MOUNTING	BASIS OF DESIGN (BOD)	INPUT WATTS	VOLTS	LUMENS
A		(1) LED 4000K	RSX AREA LUMINARIES SIZE 3 P2 LUMEN PACKAGE 4000K CCT TYPE R2 DISTRIBUTION WITH EGS SHIELD WITH INTEGRAL PHOTOCELL.	ELECTRONIC	POLE	LITHONIA RSX3-LED-P2-40K-R2 -EGS	222	UNIVERSAL VOLTAGE	27570
B		(1) LED 5000K	96" LOW PROFILE ENCLOSED AND GASKETED INDUSTRIAL FIXTURE, SURFACE MOUNTED WITH MOTION SENSOR	ELECTRONIC	SURFACE	LITHONIA FEM-L96-12000LM-LPAFL- WD- MVOLT GZ10 5000K 80CRI SBDR10 D 3V	75	UNIVERSAL VOLTAGE	12073

LIGHTING FIXTURE SCHEDULE NOTES:

BASIS OF DESIGN: THE LIGHTING DESIGN SHOWN IS BASIS OF DESIGN AND IS INTENDED ONLY TO SHOW GENERAL SIZE, CONFIGURATION AND DESCRIPTION OF FIXTURES.

POLE FIXTURE CONTROLS: ALL POLE FIXTURES SHALL BE DUSK TO DAWN FIXTURES. ON AT 100%.

CANOPY FIXTURE CONTROLS: ALL CANOPY FIXTURES SHALL BE CONTROLLED LIGHTING CONTACTOR. TIMER TO BE SET BY OWNER. ON AT 50% & 100% WHEN MOTION IS DETECTED.

Rating	120/208	Bus Rating	50	Panel Designation	NOTES:
Phases	3	Lug Rating	50	PANEL EM-1	
wires	4	Pole Spacing	24		
main breaker	YES	AIC Rating			
breaker rating		Mounting	SURF		

Load Served	WIRE SIZE	CB	CKT	kVA/PHASE A	kVA/PHASE B	kVA/PHASE C	CKT	CB	WIRE SIZE	Load Served
DEISEL TANK PUMP	12	20	1	1.2			2	20	12	CANOPY CAMERA
				0.6						
CANOPY LIGHTS	12	20	3		0.3		4	20	12	GAS TANK PUMP
					1.2					
DEF PUMP	2	20	5			0.75	6	20	12	VEEDR ROOT SYSTEM
						0.6				
SPARE		20	7				8	20	12	NETWORK VIDEO RECOREDER
				0.5						
SPARE		20	9				10	20		SPARE
SPARE		20	11				12	20		SPARE
SPARE		20	13				14	20		SPARE
SPARE		20	15				16	20		SPARE
SPACE			17				18			SPACE
SPACE			19				20			SPACE
SPACE			21				22			SPACE
SPACE			23				24			SPACE
			TOTAL LOAD:	2.3	1.5	1.35				
			amps/phase:	19.17	12.5	11.25				

1" = 20'–0" 20' 10' 0 20' 40'

SPECTRUM DESIGN
architects | engineers

Plaza Suite 1
10 Church Avenue, SE
Roanoke, VA 24011
540.342.6001
SPECTRUMPC.COM

CITY OF ROANOKE REFUELING CENTERS FIRE STATION #4

ROANOKE CITY PROJECT NO.: **RFP #24-10-66**
Spectrum Design Project No.: **23181**

COMMONWEALTH OF VIRGINIA
MICHAEL A. RAKES
Lic. No. 28199
06.19.2025
PROFESSIONAL ENGINEER

PROJ. MGR.: **MAR** CHECKED BY: **MAR** DRAWN BY: **CLH**

SHEET ISSUE DATE:
06.19.2025

PROJECT PHASE:
CONSTRUCTION DOCUMENTS

SCALE:
AS SHOWN
24"x36" SHEET

SHEET REVISIONS:
REV 1 09.04.2025 CBLD REVIEW 1

KEY PLAN:

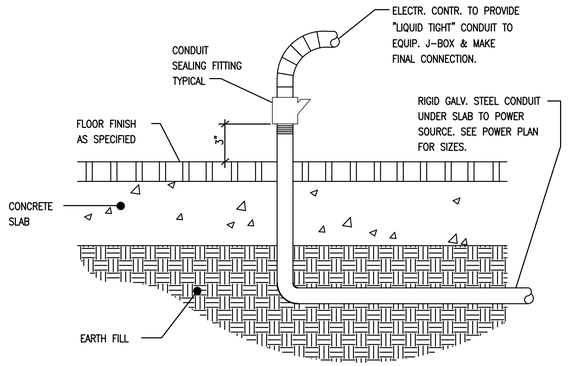
SHEET NAME:
ELECTRICAL - SITE PLAN - SCHEDULES AND DIAGRAMS

SHEET NUMBER:
E101-FS4

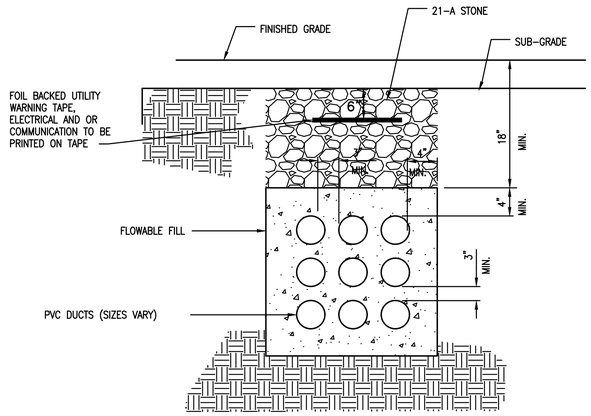
ROANOKE
Reviewed for Code Compliance
This copy of Approved Plans must remain on work-site.
This Plan Review does not relieve the Permit Holder of their responsibility to comply with all applicable codes
The Building Official, or any authorized representatives, may require revised plans based on field inspections, or subsequent plan reviews, that discover code violations, or deviations from Approved Plans.
APPROVED by: plth1
09/17/2025 6:56:13 AM

AHJ APPROVAL STAMP

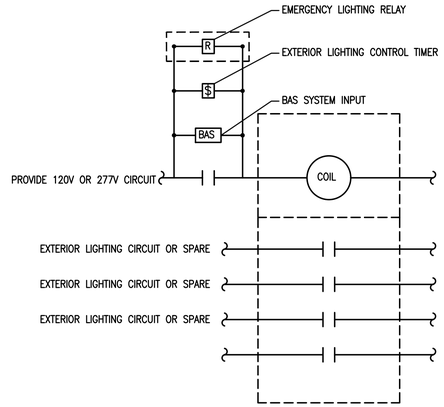
J:\23181\Z.B Elec\23181 Elec Cdoc.dwg Plotted by: cpenington, Plotted: Sep 04, 2025 - 8:33am



TYPICAL CONDUIT STUB-UP
NOT TO SCALE



TYPICAL SECTION – DUCT BANK
NOT TO SCALE



LIGHTING CONTACTOR NOTES:

A. EACH CONTACTOR SHALL BE ELECTRICALLY HELD WITH 30A CONTACTS, 120/277V RATED. PROVIDE WITH HAND-OFF-AUTO SELECTOR AND NEMA 1 ENCLOSURE.

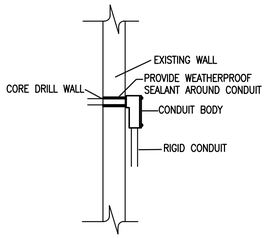
B. PROVIDE 120V OR 277V CIRCUIT FOR CONTROL OF LIGHTING CONTACTOR.

C. ROUTE CIRCUITS TO EXTERIOR CANOPY LIGHTING FIXTURES VIA LIGHTING CONTACTOR AS INDICATED ON THE SITE PLAN AND LIGHTING FLOOR PLANS.

D. PROVIDE LIGHTING CONTACTORS WITH UL 924 LISTED EMERGENCY RELAY CAPABLE OF SWITCHING CONTACTOR ON AND TURNING ASSOCIATED LIGHTING CIRCUITS ON UPON LOSS OF NORMAL POWER REGARDLESS OF BAS SYSTEM OR LIGHTING CONTROL SWITCH INPUT. RELAY SHALL SENSOR NORMAL POWER IN AREA SERVED BY EMERGENCY LIGHTING CIRCUITS.

E. CONTACTOR SHALL BE CAPABLE OF BEING ENGAGED BY INPUT FROM EITHER THE BAS SYSTEM INPUT OR THE EXTERIOR LIGHTING CONTROL TIMER (OR EMERGENCY RELAY FOR EMERGENCY CONTACTORS). PROVIDE ALL WIRING AND CONNECTIONS REQUIRED FOR SYSTEM OPERATION.

TYPICAL LIGHTING CONTACTOR DETAIL
NOT TO SCALE



TYPICAL CONDUIT PENETRATION
NOT TO SCALE

NOTES:

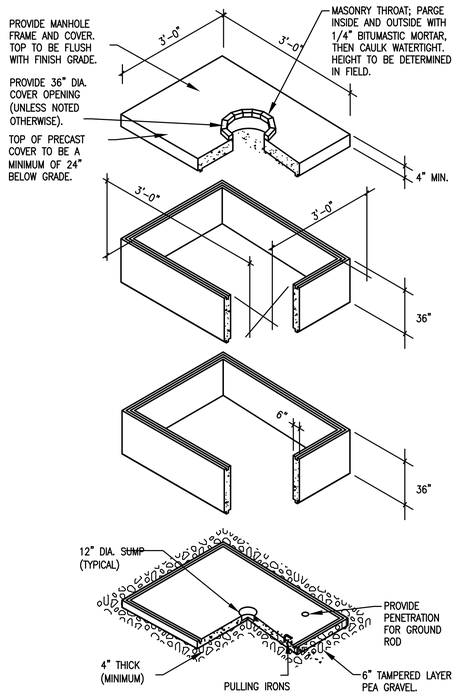
1) CONDUITS NOT TERMINATING IN OR AT PULLBOXES NEED NOT RUN THROUGH PULLBOXES UNLESS REQUIRED FOR PULLING NEC.

2) INSIDE DIMENSIONS TO BE:
10 1/2" x 17 1/4"
13" x 24"
17" x 28"

3) COVER TO BE PROVIDED:
CAST IRON TRAFFIC COVER
CONCRETE PEDESTRIAN COVER

4) PROVIDE EXTENSIONS AS REQUIRED.

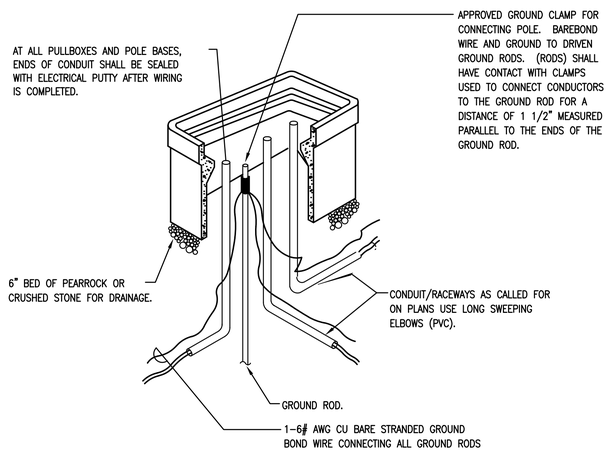
5) PULLBOX TO BE PRECAST; BROOKS, A.C. MILLER, OR HUGHES SUPPLY



INSTALLATION NOTES:

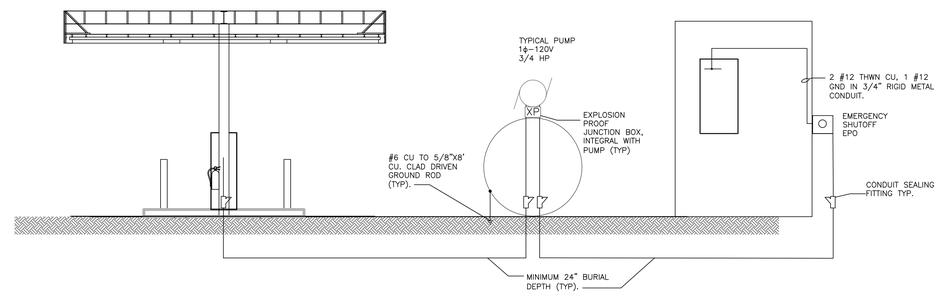
A. REINFORCEMENT FOR H-20 BRIDGE LOADING.
B. PROVIDE KNOCKOUTS, PULLING IRONS, AND INSERTS AS REQUIRED.
C. ALL METAL SUPPORTS, CABLE RACKS, AND CABLE SHIELD TO BE CONNECTED TO GROUND ROD.
D. ALL JOINTS TO BE SEALED WATER TIGHT, COAT ALL SIDES, TOP AND BOTTOM WITH 1/4" BITUMASTIC PRIOR TO INSTALLATION.
E. ALL PENETRATIONS TO BE CAULKED WATER TIGHT.

PRECAST PULL BOX INSTALLATION DETAIL
NOT TO SCALE



TOGETHER. GROUND WIRE TO BE 3" DIRECTLY ABOVE CONDUIT.

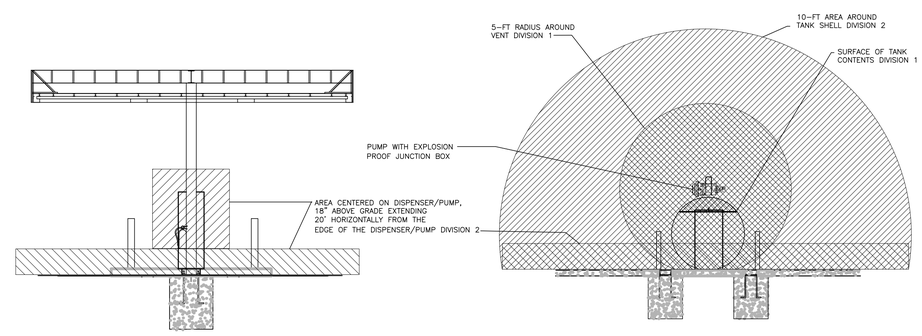
ELECTRICAL PULL BOX DETAIL
NOT TO SCALE



TYPICAL ONE-LINE DIAGRAM
PUMP CONNECTION
NTS.

NOTES

1. EXTERIOR MOUNTED EMERGENCY SHUTOFF (EPO) SHALL BE NON FUSED WITH A NEMA 3R RATING. EPO SHALL BE MOUNTED OUT OF THE HAZARDOUS AREA, BUT NO FURTHER THAN 100 FEET FROM THE DISPENSER(S). EPO SHALL BE CAPABLE OF BEING LOCKED IN THE OPEN POSITION. EMERGENCY SHUTOFF DEVICES OR ELECTRICAL DISCONNECTS SHALL DISCONNECT POWER TO ALL DISPENSING DEVICES; TO ALL REMOTE PUMPS SERVING THE DISPENSING DEVICES; TO ALL ASSOCIATED POWER, CONTROL, AND SIGNAL CIRCUITS; AND TO ALL OTHER ELECTRICAL EQUIPMENT IN THE HAZARDOUS (CLASSIFIED) LOCATIONS SURROUNDING THE FUEL DISPENSING DEVICES.
2. THE EPO SHALL BE CLEARLY IDENTIFIED AS THE SHUTOFF FOR THE PUMP(S). EPO MUST BE CAPABLE OF DISCONNECTING ALL CIRCUIT CONDUCTORS SIMULTANEOUSLY, INCLUDING THE GROUNDED CONDUCTOR.
3. WIRING SHALL BE INSTALLED IN THREADED RIGID METAL CONDUIT OR THREADED STEEL INTERMEDIATE METAL CONDUIT. ANY PORTION OF CONDUIT INSTALLED UNDER THE HAZARDOUS AREA SHALL BE SEALED WITHIN 10 FEET OF THE POINT OF EMERGENCE. THERE SHALL BE NO UNION, COUPLING, BOX, OR FITTING BETWEEN THE CONDUIT SEAL AND THE POINT OF EMERGENCE ABOVE GRADE.
4. ALL METAL RACEWAYS AND ALL NON-CURRENT CARRYING METAL PARTS OF ELECTRICAL EQUIPMENT SHALL BE GROUNDED AND BONDED. LOCKNUT-BUSHING AND DOUBLE LOCKNUT TYPES OF CONTACTS SHALL NOT BE DEPENDED ON FOR BONDING PURPOSES. BONDING JUMPERS WITH PROPER FITTINGS SHALL BE USED. NEC 250.92(B)(2)-(B)(4)
5. JUNCTION BOXES AT PUMPS SHALL BE RATED NEMA 3R AND NEMA 7D-EXPLOSION PROOF.



CLASS 1, DIVISION 1

CLASS 1, DIVISION 2

NOTES

1. IF A DIKE IS USED, AND THE DIKE HEIGHT IS GREATER THAN THE DISTANCE FROM THE CONTAINER TO THE DIKE, THE AREA BETWEEN THE CONTAINER AND THE DIKE SHALL BE CONSIDERED A CLASS 1 DIVISION 1 LOCATION.
2. AREA WITHIN 3' OF ANY EDGE OF FUEL PUMP EXTENDING IN ALL DIRECTIONS SHALL BE A CLASS 1 DIVISION 2 LOCATION.

FUEL STORAGE
NTS.

HAZARDOUS AREA DETAIL – CLASS 1, DIVISION 1 & 2
NOT TO SCALE

SPECTRUM DESIGN
architects | engineers

Plaza Suite 1
10 Church Avenue, SE
Roanoke, VA 24011
540.342.6001
SPECTRUMPC.COM

CITY OF ROANOKE REFUELING CENTERS FIRE STATION #4

ROANOKE CITY PROJECT NO.: **RFP #24-10-66**
Spectrum Design Project No.: **23181**

COMMONWEALTH OF VIRGINIA
MICHAEL A. RAKES
Lic. No. 28199
06.19.2025
PROFESSIONAL ENGINEER

PROJ. MGR.:	CHECKED BY:	DRAWN BY:
MAR	MAR	CLH

SHEET ISSUE DATE:
06.19.2025

PROJECT PHASE:
CONSTRUCTION DOCUMENTS

SCALE:
AS SHOWN
24"x36" SHEET

SHEET REVISIONS:

REV 1	09.04.2025	CBLD REVIEW 1

KEY PLAN:

SHEET NAME:
ELECTRICAL - DETAILS

SHEET NUMBER:
E501-FS4

Reviewed for Code Compliance
This copy of Approved Plans must remain on work-site.
This Plan Review does not relieve the Permit Holder of their responsibility to comply with all applicable codes
The Building Official, or any authorized representatives, may require revised plans based on field inspections, or subsequent plan reviews, that discover code violations, or deviations from Approved Plans.
APPROVED by: pilth1
09/17/2025 6:56:13 AM

AHJ APPROVAL STAMP

J:\23181\12.8.Elec\23181 Elec Class.dwg, Plotted By: pamington, Plotted: Sep 04, 2025 - 8:36am