April 29, 2019

ADDENDUM #1

NOTICE TO ALL BIDDERS FOR
CITY OF WINCHESTER
ITB #201918 – Construction of Pre-fabricated Metal Training Structure

This Addendum forms a part of the Contract Documents and modifies the original bidding documents for ITB #201918. *Bidders shall acknowledge receipt of the Addendum in the space provided on the Bid Form and return a signed copy with your bid.*

This Addendum consists of 11 total pages. The following information shall modify and clarify the Contract Documents:

1. The Site Plan Drawings have been revised and are attached this Addendum.

2. Electrical Drawings have been prepared and are attached to this Addendum. There is also a sprinkler connection detail on these drawings.

This Addendum must be signed and returned to the Finance Department – Purchasing Division, 1st Floor Rouss City Hall, 15 North Cameron Street, Winchester, VA 22601 by **2:00 p.m. local time on May 7, 2019** with your BID.

Receipt of Addendum #1 to Invitation to Bid #201918 is acknowledged by my signature below:

Company Name: _____

Authorized Representative: _____

Address: _____

Telephone: _____ FAX: _____

CITY OF WINCHESTER - DEPT. OF FIRE PROGRAMS
LIVE FIRE TRAINING STRUCTURE
1716 WOODSTOCK LANE
WINCHESTER, VIRGINIA 22602
SP: #14-16

GENERAL NOTES

1. The property delineated on this plan is owned by the City of Winchester, Virginia and is located at the end of Woodstock Lane just outside the limits of the City of Winchester, Virginia. The developer intends to construct a Prototype Burn Building for demonstrations and practice of fire fighting techniques on the site of the Fire Department training center.

2. Property Owner :
City of Winchester, Virginia — Contact: Mr. Perry Eisenach, P.E.
15 North Cameron Street
Winchester, Virginia 22601 — Telephone: (540) 667-1815

Project Representative:
Winchester Fire & Rescue Department — Contact: Mr. Scott E. Kensinger
231 East Piccadilly Street, Suite 330
Winchester, Virginia 22601 — Telephone: (540) 662-2298

3. Engineer: — Contact: Mr. Timothy G. Painter, P.E.
PAINTER-LEWIS, P.L.C.
817 Cedar Creek Grade, Suite 120
Winchester, Virginia 22601 — Telephone: (540) 662-5792

4. Surveyor: — Contact: Mr. David F. Spriggs, LS
PAINTER-LEWIS, P.L.C.
817 Cedar Creek Grade, Suite 120
Winchester, Virginia 22601 — Telephone: (540) 662-5792

5. Topographic information, shown on these plans, was taken from a field survey performed by the Survey Division of Painter-Lewis, P.L.C. and an aerial survey performed by Air Surveys to provide a general existing conditions plan for the design of this project.

6. Site Data:

Tax Map:	No.: 54-A-122
Parcel Area:	9.613 Acres
Zoning (Current):	RP Residential Performance District
Magisterial District:	Red Bud Magisterial District
Existing Use:	Fire Department: Winchester Regional Fire Training Center
Proposed Use:	Fire Department: Winchester Regional Fire Training Center
ZONING DISTRICT:	RP Residential Performance District
Use:	Non-residential Use Fire Department Station: Regional Fire Training Center

7. DEVELOPMENT DATA:

Project:	9.613 acres Fire Department Regional Fire Training Center Addition of the Live Fire Training Structure 1,007.22 Sq. Ft. of Gross Footprint Area (Area of Disturbance shall be less than 0.67 acre.)
Setbacks:	Front: 35' Rear: 50' Side: 15'
Building Height:	45'-0" Maximum
Greenspace:	Total Greenspace Required: 15% Min. (Non-Residential 2 Developments)

8. Off-Street Parking:

Fire Station:	Required:	1.5 spaces per On-site Employee Office Space: 1 space per 250 Sq. Ft. 1 space per company or stored vehicle
Parking Required:	Required:	1.5 spaces per On-site Employee 1.5 x 6 = 9 spaces => 9 Spaces Office Space: (None) => 0 Spaces Company or Stored Vehicle => 10 Spaces
Total Parking Required:		19 Spaces
Parking	Provided:	24 Regular Parking Spaces with 2 HDCP Spaces (Van Accessible)

Landscaping and Screening:

General Greenspace:	Required:	15% of land for Commercial Developments
Foundation Landscaping:	Required:	For each building
Parking Lot Landscaping:	Required:	1 tree per 2000 sq. ft. of parking area
Screening:	Required:	Headlight Vegetative Screening against adjacent parcels & Rights-of-Way. (See Plan)

General Greenspace:	15% Required	
Coverage:	Ex. Buildings:	2,912.84 Sq. Ft.
	Pr. Buildings:	1,007.22 Sq. Ft.
	Ex. Parking & Drive Aisles:	22,922.25 Sq. Ft.
	Pr. Parking & Drive Aisles:	8,855.75 Sq. Ft.
	Ex. Concrete & Gravel:	1,323.25 Sq. Ft.
	Pr. Concrete:	3,081.69 Sq. Ft.
	Total:	40,103.00 Sq. Ft. (0.921 Ac.)
Greenspace:	Provided:	8.692 Ac. (90.4%)
Foundation Landscaping:	Required:	None
Parking Lot Landscaping:	Required:	1 tree per 2000 sq. ft. of parking area
		8,855.75 Sq. Ft./2000 = 4.43 Trees
		=> 5 Trees
	Provided:	5 Trees
Screening:	Required:	Headlight Vegetative Screen
	Provided:	None Required
Buffering:	Required:	Evergreen Screening per Proffers
	Provided:	None Required

9. All water mains and sanitary sewer lines shall be connected to existing City of Winchester public utilities.

10. Storm water runoff shall be controlled by a proposed open air storm water management system. The area of disturbance is less than one acre so no storm water quality measures are required or proposed for this phase of the development.

11. All utilities connected to this development shall be underground.

12. No Dumpster is needed or proposed for this development.

13. No activities will occur at night and the site is locked when not in use, so no site lighting is needed or proposed for this development.

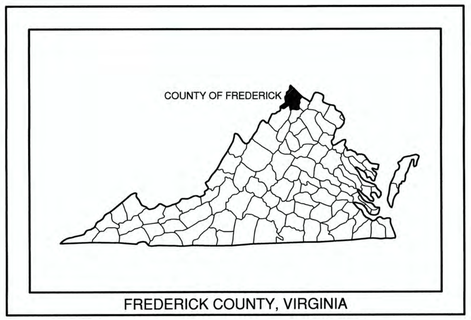
RESPONSIBLE LAND DISTURBER

NAME: _____

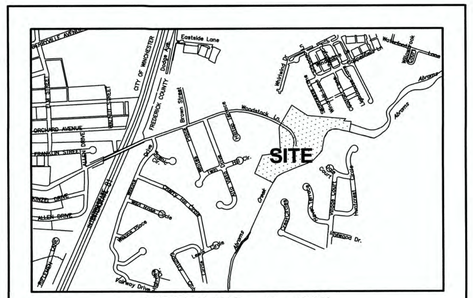
CERTIFICATION #: _____

DATE: _____

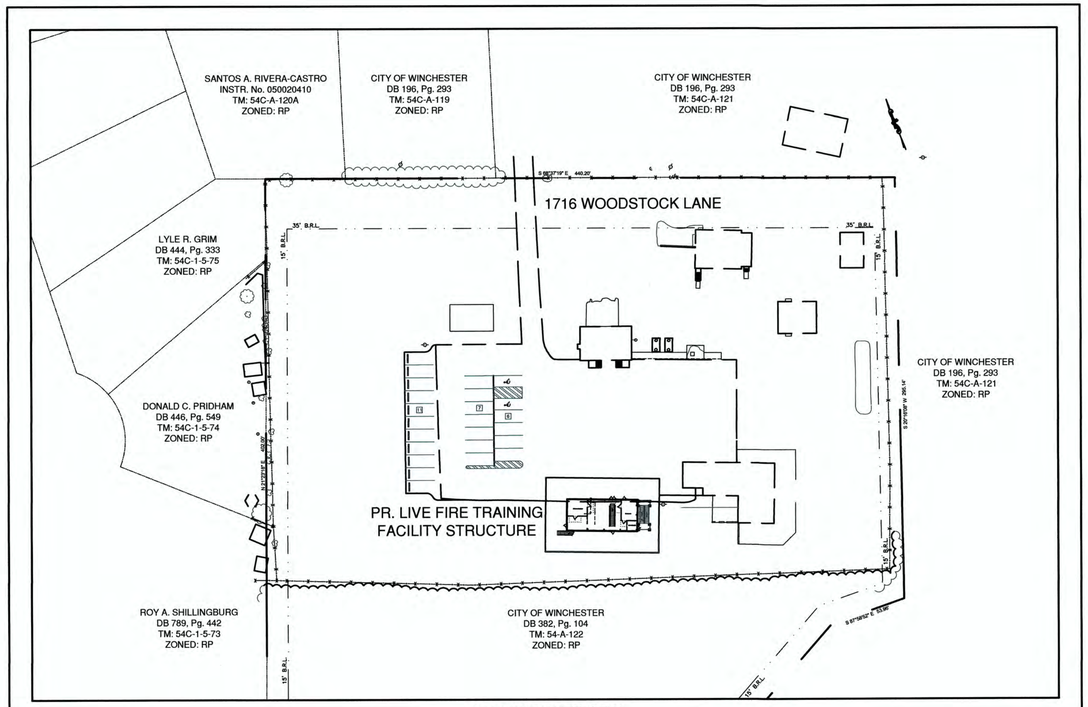
THE RESPONSIBLE LAND DISTURBER IS THE PARTY RESPONSIBLE FOR CONSTRUCTION & MAINTENANCE OF ALL THE LAND DISTURBING ACTIVITIES AS SET FORTH IN THESE PLANS.



FREDERICK COUNTY, VIRGINIA



VICINITY MAP 1" = 1000'



PROJECT OVERVIEW
1" = 50.0'

ABBREVIATIONS

ASSY.	ASSEMBLY
B.F.	BASEMENT FLOOR
BLK.	BLOCK
BC	BOTTOM OF CURB
BML	BUILDING MOUNTED LIGHT
BP	BREAK POINT
BSBD.	BASEBOARD
CG-2	VDOT CURB
CG-6	VDOT CURB & GUTTER
CIP	CAST IN PLACE CONCRETE
CL	CLASS
CMF	CONCRETE MONUMENT FOUND
CPP	CORRUGATED POLYETHYLENE PIPE
CMP	CORRUGATED METAL PIPE
CMPA	CORRUGATED METAL PIPE ARCH
CO	CLEAN OUT
DIA. or ø	DIAMETER
DS	DOWNSPOUT
EOP	EDGE OF PAVEMENT
EOG	EDGE OF GRAVEL
EX.	EXISTING
F.F.	FIRST FLOOR
F.F.E.	FINISHED FLOOR ELEVATION
FDC	FIRE DEPARTMENT CONNECTION
FG	FACE OF GUTTER
FH	FIRE HYDRANT
F.L.S.	FIRE LANE SIGN
F.LT.	FLOOD LIGHT
Ga.	GAUGE
GM	GAS METER
GV	GAS VALVE or GATE VALVE
HCR	HANDICAP RAMP
HB	HOSE BIB
HDR CURB	6" HEADER CURB
HP	HIGH POINT
HTR.	HEATER
INC	INCREASER
INV	INVERT
IPF	IRON PIPE FOUND
IPS	IRON PIPE SET
LP	LOW POINT
LT.	LIGHT
MLP	METAL LIGHT POLE
MPD	MULTI-PRODUCT DISPENSER
MP	METAL POST
MH	MANHOLE
NDC	NOSE DOWN CURB
N.P.S.	NO PARKING SIGN
NLT	NO LEFT TURN
NRT	NO RIGHT TURN
N.T.S.	NOT TO SCALE
OHE	OVERHEAD ELECTRIC
OHT	OVERHEAD TELEPHONE
PIV	POST INDICATOR VALVE
PL	PROPERTY LINE
PP	POWER POLE
PROP.	PROPOSED
PVMT	PAVEMENT
RCP	REINFORCED CONCRETE PIPE
R.D.	ROOF DRAIN
RED.	REDUCER
R.O.	ROCK OUTCROP
SAN.	SANITARY
SEW.	SEWER
STD.	STANDARD
T.B.D.	TO BE DEMOLISHED
T.B.R.	TO BE REMOVED or TO BE REMOVED & RELOCATED
T.B.P.	TO BE PRESERVED or PROTECTED
TB or T.B.	THRUST BLOCK
TC	TOP OF CURB
TEL.	TELEPHONE
TRB	TELEPHONE RISER BOX
TVRB	TELEVISION RISER BOX
TYP. or Typ.	TYPICAL
UGE	UNDERGROUND ELECTRIC
UGC	UNDERGROUND GAS
UG CATV	UNDERGROUND CABLE T.V.
UGT	UNDERGROUND TELEPHONE
XFMR	ELECTRIC TRANSFORMER
WL	WATERLINE
WM	WATER METER
WPP	WOOD POWER POLE
WTP	WOOD TELEPHONE POLE
WV	WATER VALVE
5'R	RADIUS IN FEET
*00.00	PROPOSED SPOT ELEVATION
x(00.00)	EXISTING SPOT ELEVATION
	HATCHING INDICATES REVERSED PITCH IN THE GUTTER: PITCH SHALL BE ¼":1'-0", TRANSITION GUTTER OVER A 10' LENGTH (Typ.)

LIST OF DRAWINGS:

ZONING ADMINISTRATOR DATE
APPROVED: COUNTY OF FREDERICK, VIRGINIA
SITE PLAN EXPIRES FIVE (5) YEARS FROM DATE OF APPROVAL

CITY OF WINCHESTER DEPARTMENT OF FIRE PROGRAMS
LIVE FIRE TRAINING STRUCTURE: SITE PLAN
1716 WOODSTOCK LANE
WINCHESTER, VIRGINIA 22602

COMMONWEALTH OF VIRGINIA
TIMOTHY G. PAINTER
Lic. No. 018260
04/09/19
PROFESSIONAL ENGINEER

CONSULTING ENGINEERS

PAINTER-LEWIS, P.L.C.
817 CEDAR CREEK GRADE, SUITE 120
WINCHESTER, VIRGINIA 22601
Telephone: (540) 662-5792
Facsimile: (540) 662-5793
Email: office@painterlewis.com

JOB NO.: 1511018
JANUARY 25, 2016
LATEST REVISION: MARCH 18, 2019

SHEET: 1/7

30 0 30 90

Scale 1" = 30 ft

REVISIONS

NO.	DATE	DESCRIPTION	BY
2	03-18-19	BURN BUILDING RELOCATION	TGP
1	05-16-16	AGENCY COMMENTS	TGP

TITLE:

EXISTING CONDITIONS and DEMOLITION PLAN

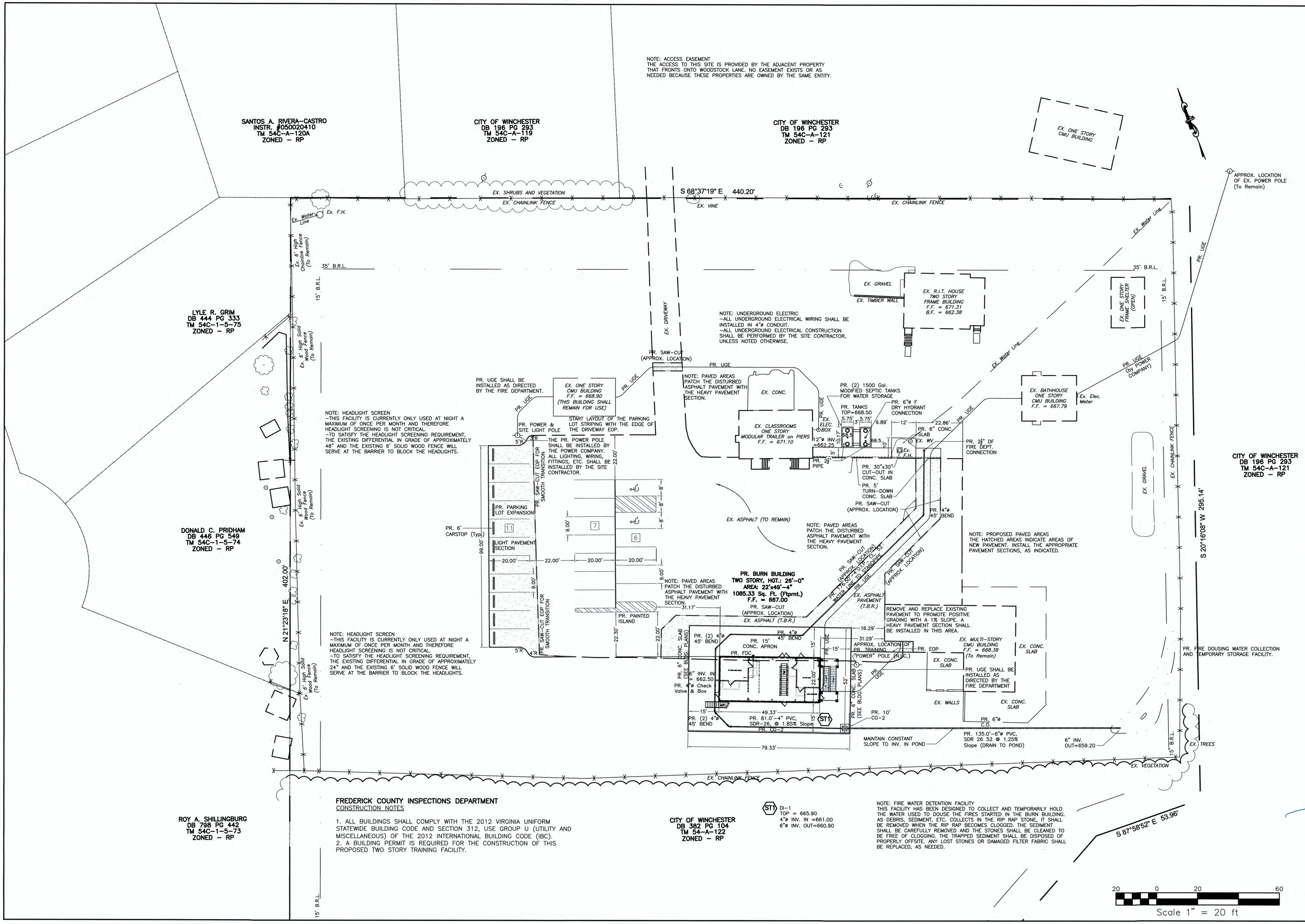
PROJECT:

CITY OF WINCHESTER
DEPARTMENT OF FIRE PROGRAMS
LIVE FIRE TRAINING STRUCTURE
1716 WOODSTOCK LANE
WINCHESTER, VIRGINIA 22602

PAINTER-LEWIS, P.L.C.
CONSULTING ENGINEERS
817 CEDAR CREEK GRADE, SUITE 120
WINCHESTER, VIRGINIA 22601
Telephone: (540) 662-5792
Facsimile: (540) 662-5793
Email: office@painterlewis.com

COMMONWEALTH OF VIRGINIA
TIMOTHY G. PAINTER
Lic. No. 018260
04/09/19
PROFESSIONAL ENGINEER

SURVEY:	C.I.:
PL--PLC	2'
DRAWN BY:	JOB NO.:
TGP	1511018
SCALE:	DATE:
1"=30.0'	01/25/16
SHEET:	2/7


NOTE: ACCESS EASEMENT
THE ACCESS TO THIS SITE IS PROVIDED BY THE ADJACENT PROPERTY THAT FRONTS ONTO WOODSTOCK LANE. NO EASEMENT EXISTS OR AS NEEDED BECAUSE THESE PROPERTIES ARE OWNED BY THE SAME ENTITY.
SANTOS A. RIVERA-CASTRO INSTR. #050020410 TM 54C-A-120A ZONED - RP
CITY OF WINCHESTER DB 196 PG 293 TM 54C-A-119 ZONED - RP
CITY OF WINCHESTER DB 196 PG 293 TM 54C-A-121 ZONED - RP
EX. ONE STORY CMU BUILDING
APPROX. LOCATION OF EX. POWER POLE (To Remain)
EX. SHRUBS AND VEGETATION
EX. CHAINLINK FENCE
S 68°37'19" E 440.20'
EX. VINE
Ex. Water Line
Ex. F.H.
Ex. 6' High Chainlink Fence (To Remain)
35' B.R.L.
15' B.R.L.
LYLE R. GRIM DB 444 PG 333 TM 54C-1-5-75 ZONED - RP
Ex. 6' High Solid Wood Fence (To Remain)
EX. DRIVEWAY
EX. GRAVEL
EX. TIMBER WALL
EX. R.I.T. HOUSE TWO STORY FRAME BUILDING F.F. = 671.31 B.F. = 662.38
EX. ONE STORY FRAME SHELTER (OPEN)
NOTE: UNDERGROUND ELECTRIC
-ALL UNDERGROUND ELECTRICAL WIRING SHALL BE INSTALLED IN 4"ø CONDUIT.
-ALL UNDERGROUND ELECTRICAL CONSTRUCTION SHALL BE PERFORMED BY THE SITE CONTRACTOR, UNLESS NOTED OTHERWISE.
PR. SAW-CUT (APPROX. LOCATION)
PR. UGE
PR. UGE SHALL BE INSTALLED AS DIRECTED BY THE FIRE DEPARTMENT.
EX. ONE STORY CMU BUILDING F.F. = 668.90 (THIS BUILDING SHALL REMAIN FOR USE)
NOTE: PAVED AREAS PATCH THE DISTURBED ASPHALT PAVEMENT WITH THE HEAVY PAVEMENT SECTION.
EX. CONC.
PR. (2) 1500 Gal. MODIFIED SEPTIC TANKS FOR WATER STORAGE
PR. TANKS TOP=668.50
PR. 6"ø F DRY HYDRANT CONNECTION
EX. BATHHOUSE ONE STORY CMU BUILDING F.F. = 667.79
Ex. Elec. Meter
PR. UGE (by POWER COMPANY)
NOTE: HEADLIGHT SCREEN
-THIS FACILITY IS CURRENTLY ONLY USED AT NIGHT A MAXIMUM OF ONCE PER MONTH AND THEREFORE HEADLIGHT SCREENING IS NOT CRITICAL.
-TO SATISFY THE HEADLIGHT SCREENING REQUIREMENT, THE EXISTING DIFFERENTIAL IN GRADE OF APPROXIMATELY 48" AND THE EXISTING 6' SOLID WOOD FENCE WILL SERVE AT THE BARRIER TO BLOCK THE HEADLIGHTS.
PR. POWER & SITE LIGHT POLE
START LAYOUT OF THE PARKING LOT STRIPING WITH THE EDGE OF THE DRIVEWAY EOP.
THE PR. POWER POLE SHALL BE INSTALLED BY THE POWER COMPANY. ALL LIGHTING, WIRING, FITTINGS, ETC. SHALL BE INSTALLED BY THE SITE CONTRACTOR.
EX. CLASSROOMS ONE STORY MODULAR TRAILER on PIERS F.F. = 671.10
EX. ELEC. BOX
12"ø INV. =662.25
PR. 2" PIPE
PR. 6" CONC. SLAB
EX. WV
Ex. F.H.
PR. 2" DF FIRE DEPT. CONNECTION
PR. 30"x30" CUT-OUT IN CONC. SLAB
PR. 5' TURN-DOWN CONC. SLAB
PR. SAW-CUT (APPROX. LOCATION)
PR. 4"ø 45' BEND
EX. GRAVEL
EX. CHAINLINK FENCE
CITY OF WINCHESTER DB 196 PG 293 TM 54C-A-121 ZONED - RP
S 20°16'08" W 295.14'
PR. SAW-CUT EOP FOR SMOOTH TRANSITION
PR. PARKING LOT EXPANSION
EX. ASPHALT (TO REMAIN)
NOTE: PAVED AREAS PATCH THE DISTURBED ASPHALT PAVEMENT WITH THE HEAVY PAVEMENT SECTION.
NOTE: PROPOSED PAVED AREAS THE HATCHED AREAS INDICATE AREAS OF NEW PAVEMENT. INSTALL THE APPROPRIATE PAVEMENT SECTIONS, AS INDICATED.
DONALD C. PRIDHAM DB 446 PG 549 TM 54C-1-5-74 ZONED - RP
PR. 6' CARSTOP (Typ.)
LIGHT PAVEMENT SECTION
N 21°23'18" E 402.00'
PR. BURN BUILDING TWO STORY, HGT.: 26'-0" AREA: 22'x49'-4" 1085.33 Sq. Ft. (Ftprnt.) F.F. = 667.00
PR. SAW-CUT (APPROX. LOCATION)
EX. ASPHALT (T.B.R.)
EX. ASPHALT PAVEMENT (T.B.R.)
PR. PAINTED ISLAND
REMOVE AND REPLACE EXISTING PAVEMENT TO PROMOTE POSITIVE GRADING WITH A 1% SLOPE. A HEAVY PAVEMENT SECTION SHALL BE INSTALLED IN THIS AREA.
NOTE: HEADLIGHT SCREEN
-THIS FACILITY IS CURRENTLY ONLY USED AT NIGHT A MAXIMUM OF ONCE PER MONTH AND THEREFORE HEADLIGHT SCREENING IS NOT CRITICAL.
-TO SATISFY THE HEADLIGHT SCREENING REQUIREMENT, THE EXISTING DIFFERENTIAL IN GRADE OF APPROXIMATELY 24" AND THE EXISTING 6' SOLID WOOD FENCE WILL SERVE AT THE BARRIER TO BLOCK THE HEADLIGHTS.
PR. (2) 4"ø 45' BEND
PR. 15' CONC. APRON
PR. FDC
APPROX. LOCATION OF PR. TRAINING "POWER" POLE (R.O.C.)
PR. EOP
EX. MULTI-STORY CMU BUILDING F.F. = 668.38 (To Remain)
EX. CONC. SLAB
PR. UGE SHALL BE INSTALLED AS DIRECTED BY THE FIRE DEPARTMENT
PR. FIRE DOUSING WATER COLLECTION AND TEMPORARY STORAGE FACILITY.
PR. 6" CONC. SLAB (SEE BLDG. PLANS)
6" INV. IN = 662.50
PR. 4"ø Check Valve & Box
PR. (2) 4"ø 45' BEND
PR. 81.0'-4" PVC, SDR-26, @ 1.85% Slope
PR. CG-2
PR. 10' CG-2
EX. WALLS
PR. 6"ø C.O.
PR. 135.0'-6"ø PVC, SDR 26 52 @ 1.25% Slope (DRAIN TO POND)
6" INV. OUT=659.20
MAINTAIN CONSTANT SLOPE TO INV. IN POND
EX. TREES
EX. VEGETATION
EX. CHAINLINK FENCE
ROY A. SHILLINGBURG DB 798 PG 442 TM 54C-1-5-73 ZONED - RP
CITY OF WINCHESTER DB 382 PG 104 TM 54-A-122 ZONED - RP
ST1 DI-1 TOP = 665.90 4"ø INV. IN =661.00 6"ø INV. OUT=660.90
S 87°58'52" E 53.96'
Scale 1" = 20 ft

FREDERICK COUNTY INSPECTIONS DEPARTMENT
CONSTRUCTION NOTES

1. ALL BUILDINGS SHALL COMPLY WITH THE 2012 VIRGINIA UNIFORM STATEWIDE BUILDING CODE AND SECTION 312, USE GROUP U (UTILITY AND MISCELLANEOUS) OF THE 2012 INTERNATIONAL BUILDING CODE (IBC).
2. A BUILDING PERMIT IS REQUIRED FOR THE CONSTRUCTION OF THIS PROPOSED TWO STORY TRAINING FACILITY.

NOTE: FIRE WATER DETENTION FACILITY
THIS FACILITY HAS BEEN DESIGNED TO COLLECT AND TEMPORARILY HOLD THE WATER USED TO DOUSE THE FIRES STARTED IN THE BURN BUILDING. AS DEBRIS, SEDIMENT, ETC. COLLECTS IN THE RIP RAP STONE, IT SHALL BE REMOVED WHEN THE RIP RAP BECOMES CLOGGED. THE SEDIMENT SHALL BE CAREFULLY REMOVED AND THE STONES SHALL BE CLEANED TO BE FREE OF CLOGGING. THE TRAPPED SEDIMENT SHALL BE DISPOSED OF PROPERLY OFFSITE. ANY LOST STONES OR DAMAGED FILTER FABRIC SHALL BE REPLACED, AS NEEDED.

REVISIONS

NO.	DATE	DESCRIPTION	BY
2	03-18-19	BURN BUILDING RELOCATION	TGP
1	05-16-16	AGENCY COMMENTS	TGP

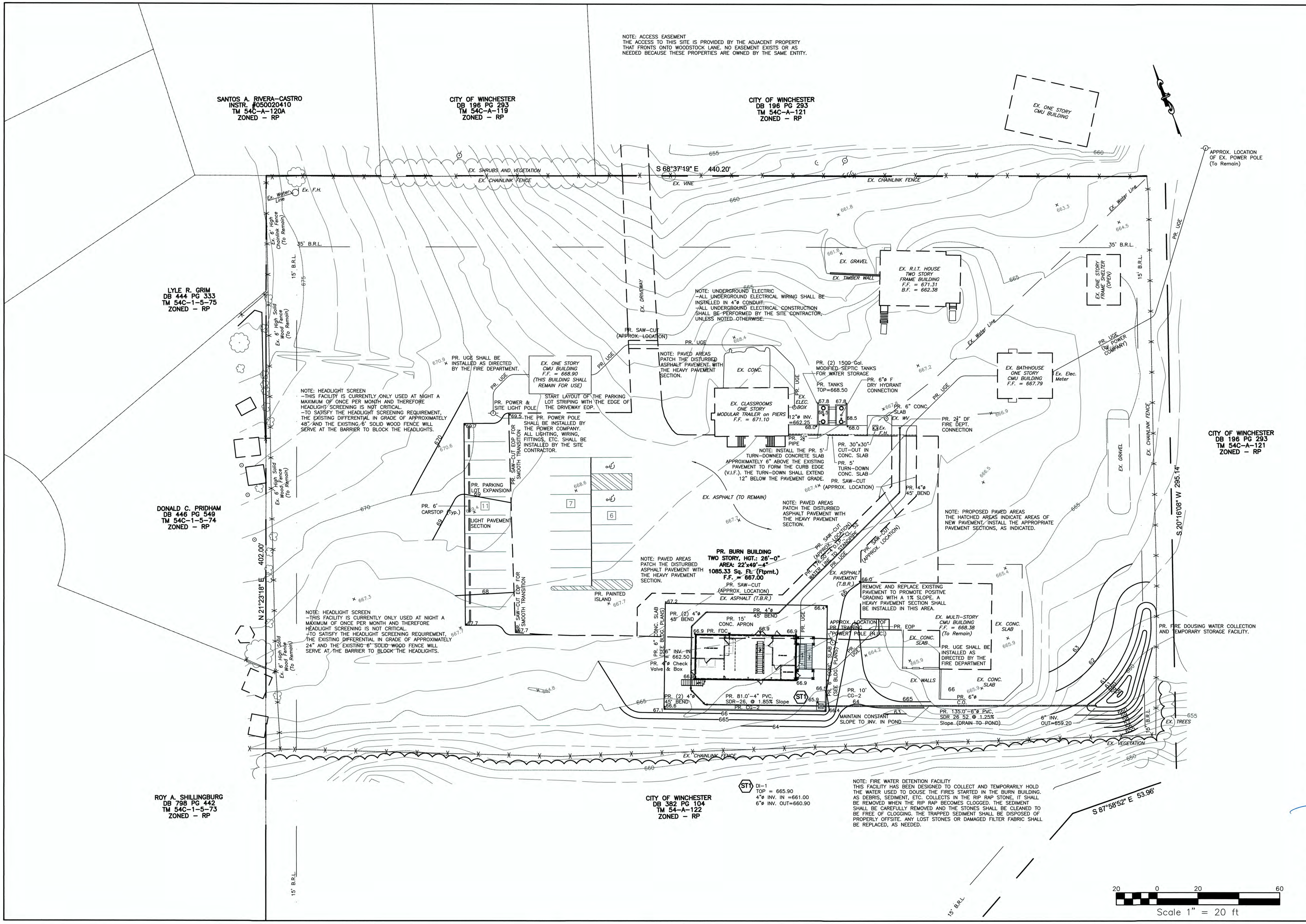
TITLE: SITE LAYOUT PLAN

PROJECT: CITY OF WINCHESTER DEPARTMENT OF FIRE PROGRAMS LIVE FIRE TRAINING STRUCTURE 1716 WOODSTOCK LANE WINCHESTER, VIRGINIA 22602

PAINTER-LEWIS, P.L.C.
817 CEDAR CREEK GRADE, SUITE 120
WINCHESTER, VIRGINIA 22601
Telephone: (540) 662-5792
Facsimile: (540) 662-5793
Email: office@painterlewis.com
CONSULTING ENGINEERS

COMMONWEALTH OF VIRGINIA — TIMOTHY G. PAINTER Lic. No. 018260 — PROFESSIONAL ENGINEER — 04/09/19

SURVEY: PL-PLC	C.I.: 2'
DRAWN BY: TGP	JOB NO.: 1511018
SCALE: 1"=20.0'	DATE: 01/25/16
SHEET:	3/7



REVISIONS

NO.	DATE	DESCRIPTION	BY
2	03-18-19	BURN BUILDING RELOCATION	TGP
1	05-16-16	AGENCY COMMENTS	TGP

TITLE:

SITE GRADING PLAN

PROJECT:

CITY OF WINCHESTER
DEPARTMENT OF FIRE PROGRAMS
LIVE FIRE TRAINING STRUCTURE
1716 WOODSTOCK LANE
WINCHESTER, VIRGINIA 22602

PAINTER-LEWIS, P.L.C.
817 CEDAR CREEK GRADE, SUITE 120
WINCHESTER, VIRGINIA 22601
Telephone: (540) 662-5792
Facsimile: (540) 662-5793
Email: office@painterlewis.com
CONSULTING ENGINEERS

COMMONWEALTH OF VIRGINIA
TIMOTHY G. PAINTER
Lic. No. 018260
04/09/19
PROFESSIONAL ENGINEER

SURVEY: PL-PLC	C.I.: 2'
DRAWN BY: TGP	JOB NO.: 1511018
SCALE: 1"=20.0'	DATE: 01/25/16
SHEET:	4/7

SANTOS A. RIVERA-CASTRO
INSTR. #050020410
TM 54C-A-120A
ZONED - RP

CITY OF WINCHESTER
DB 196 PG 293
TM 54C-A-119
ZONED - RP

CITY OF WINCHESTER
DB 196 PG 293
TM 54C-A-121
ZONED - RP

LYLE R. GRIM
DB 444 PG 333
TM 54C-1-5-75
ZONED - RP

DONALD C. PRIDHAM
DB 446 PG 549
TM 54C-1-5-74
ZONED - RP

ROY A. SHILLINGBURG
DB 798 PG 442
TM 54C-1-5-73
ZONED - RP

CITY OF WINCHESTER
DB 382 PG 104
TM 54-A-122
ZONED - RP

CITY OF WINCHESTER
DB 196 PG 293
TM 54C-A-121
ZONED - RP

EX. ONE STORY CMU BUILDING

EX. SHRUBS AND VEGETATION
EX. CHAINLINK FENCE
EX. VINE
S 68°37'19" E 440.20'
EX. CHAINLINK FENCE

Ex. Water Line
Ex. F.H.
Ex. 6' High Chainlink Fence (To Remain)
Ex. 6' High Solid Wood Fence (To Remain)
35' B.R.L.
15' B.R.L.

EX. GRAVEL
EX. TIMBER WALL
EX. R.I.T. HOUSE
TWO STORY
FRAME BUILDING
F.F. = 671.31
B.F. = 662.38
EX. DRIVEWAY
EX. ONE STORY FRAME SHELTER (OPEN)
Ex. Water Line
PR. UGE
(by POWER COMPANY)

PR. UGE SHALL BE INSTALLED AS DIRECTED BY THE FIRE DEPARTMENT.
EX. ONE STORY CMU BUILDING
F.F. = 668.90
(THIS BUILDING SHALL REMAIN FOR USE)
PR. UGE
EX. CONC.
EX. ELEC. BOX
EX. CLASSROOMS
ONE STORY
MODULAR TRAILER on PIERS
F.F. = 671.10
EX. BATHHOUSE
ONE STORY
CMU BUILDING
F.F. = 667.79
Ex. Elec. Meter
EX. WV
Ex. F.H.
EX. GRAVEL
EX. CHAINLINK FENCE

NOTE: CONSTRUCTION ENTRANCE
USE THE EXISTING PAVEMENT STRUCTURE AS THE CONSTRUCTION ENTRANCE IN THIS AREA. SWEEP, CLEAN, AND WASH, AS NEEDED, TO PREVENT TRACKING OF MUD AND SOILS.
EX. ASPHALT (TO REMAIN)

PR. BURN BUILDING
TWO STORY, HGT.: 26'-0"
AREA: 22'x49'-4"
1085.33 Sq. Ft. (Ftprnt.)
F.F. = 667.00

EX. ASPHALT (T.B.R.)
EX. ASPHALT PAVEMENT (T.B.R.)
EX. MULTI-STORY CMU BUILDING
F.F. = 668.38
(To Remain)
EX. CONC. SLAB
EX. WALLS
PR. UGE SHALL BE INSTALLED AS DIRECTED BY THE FIRE DEPARTMENT

NOTE: WATER DETENTION FACILITY INSTALL FILTER CLOTH UNDERLINER AND RIPRAP IN THE BOTTOM OF THE POND TO 660.50 CONTOUR.

EX. TREES
EX. VEGETATION
EX. CHAINLINK FENCE

S 20°16'08" W 295.14'
S 87°58'52" E 53.96'
N 21°23'18" E 402.00'
70.00'
20.00'

EROSION & SEDIMENT CONTROL KEY

3.02	TEMPORARY STONE CONSTRUCTION ENTRANCE	CE
3.05	SILT FENCE	SF
3.07	STORM DRAIN INLET PROTECTION	IP
3.19	RIPRAP	RR
3.30	TOPSOILING	TO
3.32	PERMANENT SEEDING	PS
3.35	MULCHING	MU
3.38	TREE PRESERVATION and PROTECTION	TP

20 0 20 60
Scale 1" = 20 ft

REVISIONS

NO.	DATE	DESCRIPTION	BY
2	03-18-19	BURN BUILDING RELOCATION	TGP
1	05-16-16	AGENCY COMMENTS	TGP

TITLE:
SITE EROSION AND SEDIMENT CONTROL PLAN

PROJECT:
CITY OF WINCHESTER
DEPARTMENT OF FIRE PROGRAMS
LIVE FIRE TRAINING STRUCTURE
1716 WOODSTOCK LANE
WINCHESTER, VIRGINIA 22602

PAINTER-LEWIS, P.L.C.
817 CEDAR CREEK GRADE, SUITE 120
WINCHESTER, VIRGINIA 22601
Telephone: (540) 662-5792
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Email: office@painterlewis.com
CONSULTING ENGINEERS

COMMONWEALTH OF VIRGINIA
TIMOTHY G. PAINTER
Lic. No. 018260
04/09/19
PROFESSIONAL ENGINEER

SURVEY: PL-PLC	C.I.: 2'
DRAWN BY: TGP	JOB NO.: 1511018
SCALE: 1"=20.0'	DATE: 01/25/16
SHEET:	5/7

9VAC25-840-40. MINIMUM STANDARDS 1-19:
A VESCP must be consistent with the following criteria, techniques and methods:

1. 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 140 days. Permanent stabilization shall be applied to areas that are to be left dormant for more than one year.

2. 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.

3. 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.

4. 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.

5. Stabilization measures shall be applied to earthen structures such as dams, dikes and diversions immediately after installation.

6. 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 25-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.

7. 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.

8. Concentrated runoff shall not flow down cut or fill slopes unless contained within an adequate temporary or permanent channel, flume or slope drain structure.

9. Whenever water seeps from a slope face, adequate drainage or other protection shall be provided.
10. 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.

10. 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.

11. 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.

12. 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. Non-erodible material shall be used for the construction of causeways and cofferdams. Earthen fill may be used for these structures if armored by non-erodible cover materials.

13. 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 non-erodible material shall be provided.

14. All applicable federal, state and local regulations pertaining to working in or crossing live watercourses shall be met.

15. The bed and banks of a watercourse shall be stabilized immediately after work in the watercourse is completed.

16. 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.
b. Excavated material shall be placed on the uphill side of trenches.
c. 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.
d. Material used for backfilling trenches shall be properly compacted in order to minimize erosion and promote stabilization.
e. Restabilization shall be accomplished in accordance with these regulations.
f. Applicable safety regulations shall be complied with.

17. 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.

18. 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 VESCP. Trapped sediment and the disturbed soil areas resulting from the disposition of temporary measures shall be permanently stabilized to prevent further erosion and sedimentation.

19. Properties and waterways downstream from development sites shall be protected from sediment deposition, erosion and damage due to increases in volume, velocity and peak flow rate of stormwater runoff for the stated frequency storm of 24-hour duration in accordance with the following standards and criteria. Stream restoration and relocation projects that incorporate natural channel design concepts are not man-made channels and shall be exempt from any flow rate capacity and velocity requirements for natural or man-made channels:

a. Concentrated stormwater runoff leaving a development site shall be discharged directly into an adequate natural or man-made receiving channel, pipe or storm sewer system. For those sites where runoff is discharged into a pipe or pipe system, downstream stability analyses at the outfall of the pipe or pipe system shall be performed.
b. Adequacy of all channels and pipes shall be verified in the following manner:
(1) The applicant shall demonstrate that the total drainage area to the point of analysis within the channel is one hundred times greater than the contributing drainage area of the project in question; or
(2) (a) Natural channels shall be analyzed by the use of a two-year storm to verify that stormwater will not overtop channel banks nor cause erosion of channel bed or banks.
(b) All previously constructed man-made channels shall be analyzed by the use of a ten-year storm to verify that stormwater will not overtop its banks and by the use of a two-year storm to demonstrate that stormwater will not cause erosion of channel bed or banks; and
(c) Pipes and storm sewer systems shall be analyzed by the use of a ten-year storm to verify that stormwater will be contained within the pipe or system.
c. If existing natural receiving channels or previously constructed man-made channels or pipes are not adequate, the applicant shall:
(1) Improve the channels to a condition where a ten-year storm will not overtop the banks and a two-year storm will not cause erosion to the channel bed or banks; or
(2) Improve the pipe or pipe system to a condition where the ten-year storm is contained within the appurtenances;
(3) Develop a site design that will not cause the pre-development peak runoff rate from a two-year storm to increase when runoff outfalls into a natural channel or will not cause the pre-development peak runoff rate from a ten-year storm to increase when runoff outfalls into a man-made channel; or
(4) Provide a combination of channel improvement, stormwater detention or other measures which is satisfactory to the VESCP authority to prevent downstream erosion.
d. The applicant shall provide evidence of permission to make the improvements.
e. All hydrologic analyses shall be based on the existing watershed characteristics and the ultimate development of the subject project.
f. If the applicant chooses an option that includes stormwater detention, he shall obtain approval from the VESCP of a plan for maintenance of the detention facilities. The plan shall set forth the maintenance requirements of the facility and the person responsible for performing the maintenance.
g. Outfall from a detention facility shall be discharged to a receiving channel, and energy dissipators shall be placed at the outfall of all detention facilities as necessary to provide a stabilized transition from the facility to the receiving channel.
h. All on-site channels must be verified to be adequate.
i. Increased volumes of sheet flows that may cause erosion or sedimentation on adjacent property shall be diverted to a stable outlet, adequate channel, pipe or pipe system, or to a detention facility.
j. In applying these stormwater management criteria, individual lots or parcels in a residential, commercial or industrial development shall not be considered to be separate development projects. Instead, the development, as a whole, shall be considered to be a single development project. Hydrologic parameters that reflect the ultimate development condition shall be used in all engineering calculations.
k. All measures used to protect properties and waterways shall be employed in a manner which minimizes impacts on the physical, chemical and biological integrity of rivers, streams and other waters of the state.
l. Any plan approved prior to July 1, 2014, that provides for stormwater management that addresses any flow rate capacity and velocity requirements for natural or man-made channels shall satisfy the flow rate capacity and velocity requirements for natural or man-made channels if the practices are designed to (i) detain the water quality volume and to release it over 48 hours; (ii) detain and release over a 24-hour period the expected rainfall resulting from the one year, 24-hour storm; and (iii) reduce the allowable peak flow rate resulting from the 1.5, 2, and 10-year, 24-hour storms to a level that is less than or equal to the peak flow rate from the site assuming it was in a good forested condition, achieved through multiplication of the forested peak flow rate by a reduction factor that is equal to the runoff volume from the site when it was in a good forested condition divided by the runoff volume from the site in its proposed condition, and shall be exempt from any flow rate capacity and velocity requirements for natural or man-made channels as defined in any regulations promulgated pursuant to 62.1-44.15:54 or 62.1-44.15:65 of the Act.
m. For plans approved on and after July 1, 2014, the flow rate capacity and velocity requirements of 62.1-44-15:52A of the Act and this subsection shall be satisfied by compliance with water quantity requirements in the Stormwater Management Act (62.1-44.15:24 et seq. of the Code of Virginia) and attendant regulations, unless such land disturbing activities are in accordance with 9VAC25-870-48 of the Virginia Stormwater Management Program (VSMP) Regulations.
n. Compliance with the water quality standards set out in 9VAC25-870-66 of the Virginia Stormwater Management Program (VSMP) Regulations shall be deemed to satisfy the requirements of subdivision 19 of this subsection.

EROSION AND SEDIMENT CONTROL GENERAL NOTES:

1. All work shall be done in accordance with the current edition of the Virginia Erosion and Sediment Control Handbook and the standards and specifications of the County of Frederick, Virginia.

2. A Frederick County Grading Permit and permit fee are required for this project. A pre-construction meeting with the local program administrator is required prior to commencement of construction of this project.

3. The local program administrator shall be given a one (1) week notice prior to the pre-construction conference, the commencement of any land disturbing activity, and to the final inspection.

4. The contractor is responsible for the installation of any additional erosion control measures as may be deemed necessary by the local program administrator.

SEDIMENT AND EROSION CONTROL NARRATIVE:

1. Project Description:

The development of this 9.613 acre tract consists of an addition to the existing fire training facility. This phase of the site development will include the construction of a Prototype I Burn Building, an expansion of the existing parking lot, and fire line extension utilities related to the Burn Building, and related site landscaping. The work shall include layout of the building and the parking facility, grading, erosion and sediment control, extension of the water mains for fire training, and installation of the site landscaping.

2. Existing Conditions:

This project consists of a partially developed, open lot consisting of 9.613 acres, that is irregularly shaped. The parcel has been developed with several small buildings and a relatively small parking lot and vehicle storage area. The remainder of the lot is natural or maintained grass with a few sparse trees and shrubs on the site. This lot has no direct road frontage on Woodstock Lane. A driveway access has been established to provide access to the site. The existing parcel is moderately sloped in the area of the current and proposed development. The remainder of the site is rolling and moderately to steeply sloped. The grading of the site breaks in the general area of the proposed Burn Building and existing parking lot. The proposed areas of disturbance for this site are adjacent to the existing parking parking. The Burn Building will be located to the eastern site of the parking area and the parking lot expansion shall be installed on the western side of the existing paved area. The total area of disturbance shall be approximately 0.67 acre. With the disturbed are being less than one acre, no storm water quality measures are proposed.

3. Adjacent Areas:

The site is bounded on north by an existing Volvo car dealership. An undeveloped lot lies to the east of this lot and western boundary is coincident with the Valley Pike right-of-way. The southern boundary is bound by the existing bank facility.

4. Soils:

The soils map of Frederick County indicates the following soil types exist within this project area. On-site soils have been disturbed previously by the development of the existing development.

1B: Berks channery silt loam: (2%-7% slopes).
Hydrologic soil group C, Class III Soils.
(Approx. 25% of this site)

41D: Weikert-Berks channery silt loam: (15%-25% slopes).
Hydrologic soil group C, Class III Soils.
(Approx. 15% of this site)

41E: Weikert-Berks channery silt loam: (25%-65% slopes).
Hydrologic soil group C/D, Class III Soils.
(Approx. 60% of this site)

5. Erosion and Sediment Control Measures:

a. Erosion and Sediment Control Measures shall be installed prior to any land disturbing activities. The work shall be confined to the designated limits of construction. For this project, the limits of construction are defined as the fence lines along the property boundaries and through the site.

b. No disturbed areas shall be denuded for more than thirty (30) days. The contractor shall stabilize all exposed areas within seven (7) days after the end of construction of that phase of the work. If possible, all natural vegetation and/or mulching shall be used to protect areas exposed during development of the site. The existing vegetation along the property lines shall remain in place and be protected during the construction process to the greatest possible extent.

c. Soil stockpiles must be stabilized or protected with sediment trapping measures to prevent soil loss. Utility trenches located outside of paved areas shall be seeded and mulched within two (2) weeks of backfilling.

d. Upon completion of construction, all permanent erosion and sediment control measures shall be installed. After stabilization, the temporary erosion control measures shall be removed, as approved by the local program administrator. All vegetative cover shall be checked regularly and any damaged areas shall be repaired, fertilized, replanted, and mulched, as needed.

e. All properties adjacent to the site shall be protected from sediment deposition. This shall be accomplished by installing perimeter controls such as silt fence barriers, diversion dikes, filters or check dams, the silt traps, or a combination of such measures, as indicated on the plans.

f. The contractor shall be responsible for the installation and maintenance of all erosion and sediment control measures.

6. Construction Sequencing:

PHASE I:
1. Site Preparation:
Hand dig test pits over existing utilities to determine their depth and actual locations.

Phase I Controls:
2. Installation of Erosion and Sediment Control Measures:
a. Construction of the construction entrance using the existing paved driveways and the new construction entrance at the Burn Building.
b. Installation of the silt fence along the adjacent property lines, as indicated on the plans.

PHASE II:
3. Site Construction Sequencing:
a. Removal and on-site disposal of the existing topsoil to its full depth, as needed.
b. Rough grading of site to the appropriate finish and subgrade elevations, as indicated on these plans.
c. Building construction.
d. Installation of the proposed utilities.
e. If necessary, installation of the inlet protection measures.

Phase II Controls.
f. Finish grading of site.
g. Stabilization of all lawn and slope areas.
h. Installation of subbase, base, and surface course bituminous concrete materials.
i. Restoration and stabilization of unpaved areas.
j. Removal of all temporary erosion and sediment control measures, as directed by the inspector.

7. Maintenance:

The contractor shall be responsible for the installation and maintenance of all erosion and sediment control measures. Erosion and Sediment Control Measures shall be installed prior to any land disturbing activities. The work shall be confined to the designated limits of clearing and grading. For this project, the limits of clearing and grading are defined as the fence lines along the property boundaries and through the property. All perimeter sediment control devices shall be erected prior to any land disturbing activities and shall remain in place until the site is fully stabilized. All measures shall be inspected daily and after each significant rainfall by the site superintendent or his representative. Any damaged structures shall be repaired or replaced by the end of work that day.

a. The construction entrance shall be maintained so as to control the amount of soil materials that may get caught in the stone bed. If the stone becomes clogged with soil and mud, it shall be cleaned, or removed and replaced, as may be necessary. A trash rack shall be installed as part of the construction entrance construction. If this measure fails to properly clean the construction vehicles, then a wash rack must be installed as directed by the local program administrator.

b. All properties adjacent to the site shall be protected from sediment deposition. This shall be accomplished by installing perimeter controls such as silt fence barriers, diversion dikes, filters or check dams, or a combination of such measures, as indicated on the plans.

c. Soil stockpiles must be stabilized or protected with sediment trapping measures to prevent soil loss. Utility trenches located outside of paved areas shall be seeded and mulched within two (2) weeks of backfilling.

d. The contractor shall perform overlot grading to provide positive drainage and preclude ponding of water. All off site grading and construction is to be done with the property owner's consent.

e. Cut and fill slopes shall be graded at a maximum of 3 horizontal to 1 vertical unless otherwise indicated on these plans.

f. Upon completion of construction, all permanent erosion and sediment control measures shall be installed. After stabilization, the temporary erosion control measures shall be removed, as approved by the local program administrator.

g. All seeded and sodded areas shall be checked regularly to ensure that a good strand of grass is maintained. Areas shall be repaired, fertilized, and reseeded or resodded, as required.

8. Erosion and Sediment Control Measures:

3.02 A 20'w by 70'l temporary stone construction entrance will be constructed off of Valley Pike (U. S. Route 11). The entrance shall be maintained in a condition which will prevent tracking or flow of soil or mud onto the public rights-of-way. This may require periodic top dressing with additional stone or the washing and reworking of existing stone, as conditions demand, and repair or cleanout of any structures used to trap sediment. All materials spilled, dropped, washed, or tracked from vehicles onto roadways or into storm drains must be removed immediately. The use of water trucks to remove materials dropped, washed, or tracked onto roadways will not be permitted under any circumstances.

3.05 Silt fence will be installed in selected locations downstream from the construction areas as a first measure of construction. Silt fence will be installed around the downstream side of topsoil stockpiles. Silt fences shall be inspected after each rainfall and at least daily during prolonged rainfall. Any required repairs shall be made immediately. Damaged, decomposed or otherwise ineffective silt fence shall be replaced immediately. Sediment deposits should be removed after each storm event. They must be removed when deposits reach approximately one-half the height of the barrier. Any sediment deposits remaining in place after the silt fence is no longer needed shall be dressed to conform with the existing grade and stabilized.

3.07 A gravel and wire mesh drop inlet sediment filter will be installed around each of the existing storm water drop inlets. The structures shall be inspected after each rain and repairs made as needed. Sediment shall be removed and the trap restored to its original dimensions when the sediment has accumulated to one half the design depth of the trap. Removed sediment shall be deposited in a suitable area and in such a manner that it will not erode. Structures shall be removed and the area stabilized when the remaining drainage area has been properly stabilized.

3.31 Temporary seeding, as indicated below, will be applied to the topsoil stock pile and all areas which will not be brought to final grade within 30 days. Embankment or excavated slopes denuded for a period of greater than 30 days shall be temporarily seeded and mulched.. All temporary seeding areas will be mulched in accordance with the schedule included herein.

3.32 All disturbed areas will be stabilized by permanent seeding in accordance with the schedule included herein. The anticipated time for construction is Fall 2015.

3.35 All seeded areas will be mulched in accordance with the schedule included herein.

3.36 If applicable, all cut slopes and fill slopes along the proposed road will be stabilized with matting to promote the establishment of a vegetative cover. The mat areas will be inspected after each significant rainfall event and repairs will be made as required.

Temporary Seeding:

SEED TYPE	RATE	MIN. PURITY(%)	MIN. GERM.(%)
Sept 1 – Feb 15:			
Annual Ryegrass	50 lb/ac	98	85
Winter Rye	50 lb/ac	98	85
May 1 – Aug 31:			
German Millet	50 lb/ac	98	85
or			
Feb 16 – Apr 30:			
Annual ryegrass	75 lb/ac	98	85
Mulch:	1.5 ton/ac small grain straw		
Fertilizer:	1000 lb/ac 10-10-10		

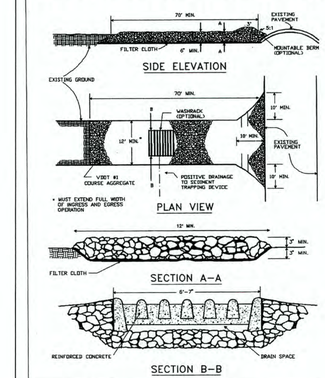
Permanent Stabilization:
The contractor shall stabilize all denuded land within 7 days after the end of construction. Permanent stabilization shall be applied to areas that are to be left dormant for more than one year. During construction of the project, soil stockpiles shall be stabilized or protected with sediment trapping measures. The contractor is responsible for the temporary protection and permanent stabilization of all soil stockpiles on site as well as soil intentionally transported from the project site. No soil testing is required. The contractor shall establish vegetation on all areas not otherwise stabilized according the following specification:

Seedbed Preparation:
a. Scarify top 1" to 2" of soil after final grades have been achieved.
b. Add 3 tons per acre pulverized agricultural limestone(140lb/1000sf)

SEED TYPE	RATE	MIN. PURITY(%)	MIN. GERM.(%)
Tall fescue	60 lb/ac	97	85
Red clover	8 lb/ac	95	65
Ladino clover	8 lb/ac	95	65
Nurse Grass (season dependent)			
Sept 1 – Feb 15:			
Annual Ryegrass	12 lb/ac	98	85
Winter Rye	12 lb/ac	98	85
May 1 – Aug 31:			
German Millet	12 lb/ac	98	85
or			
Feb 16 – Apr 30:			
Annual ryegrass	12 lb/ac	98	85
Mulch:	1.5 ton/ac small grain straw		
Fertilizer:	1000 lb/ac 10-10-10		

1992 3.02

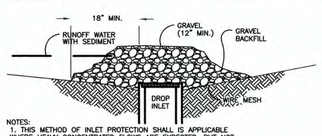
STONE CONSTRUCTION ENTRANCE



Source: Adapted from 1983 Maryland Standards for Soil Erosion and Sediment Control, and Va. DSWC

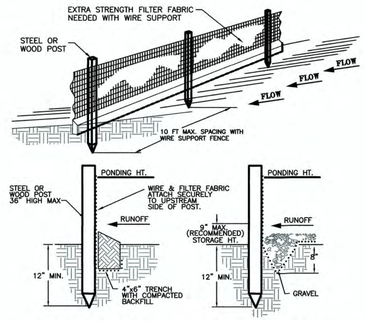
Plate 3.02-1

III - 9



NOTES:
1. THIS METHOD OF INLET PROTECTION SHALL IS APPLICABLE WHERE HEAVY CONCENTRATED FLOWS ARE EXPECTED, BUT NOT WHERE PONDING AROUND THE STRUCTURE MIGHT CAUSE EXCESSIVE INCONVENIENCE OR DAMAGE TO ADJACENT STRUCTURES AND UNPROTECTED AREAS.
2. GRAVEL SHALL BE VDOT #3, #357, OR #5 COARSE AGGREGATE.

(IP) GRAVEL AND WIRE MESH DROP INLET SEDIMENT BARRIER



STANDARD DETAIL
TRENCH WITH NATIVE BACKFILL

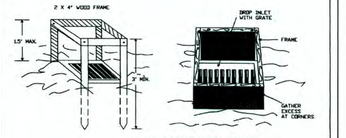
ALTERNATE DETAIL
TRENCH WITH GRAVEL

NOTE:
1. INSPECT AND REPAIR FENCE AFTER EACH STORM EVENT AND REMOVE SEDIMENT WHEN NECESSARY.
2. REMOVED SEDIMENT SHALL BE DEPOSITED TO AN AREA THAT WILL NOT CONTRIBUTE SEDIMENT OFF-SITE AND CAN BE PERMANENTLY STABILIZED.
3. SILT FENCE SHALL BE PLACED ON SLOPE CONTOURS TO MAXIMIZE PONDING EFFICIENCY.
4. SET POSTS AND EXCAVATE A 4"x4" TRENCH UPSLOPE ALONG THE LINE OF POSTS.
5. STAPLE WIRE FENCING TO THE POSTS.
6. ATTACH WIRE FILTER FABRIC TO THE WIRE FENCING AND EXTEND IT INTO THE TRENCH.
7. BACKFILL AND COMPACT THE EXCAVATED SOIL.

(SF) SILT FENCE DETAIL WITH WIRE SUPPORT
NOT TO SCALE ADAPTED FROM: 1992 VA E&S CONTROL HANDBOOK 3.05

1992 3.07

(IP) SILT FENCE DROP INLET PROTECTION



SPECIFIC APPLICATION

THIS METHOD OF INLET PROTECTION IS APPLICABLE WHERE THE INLET DRAINS A RELATIVELY FLAT AREA (SLOPE NO GREATER THAN 5%) WHERE THE INLET SHEET OR OVERLAND FLOWS (NOT EXCEEDING 1 C.F.S.) ARE TYPICAL. THE METHOD SHALL NOT APPLY TO INLETS RECEIVING CONCENTRATED FLOWS, SUCH AS IN STREET OR HIGHWAY MEDIANS.

Source: N.C. Erosion and Sediment Control Planning and Design Manual, 1988

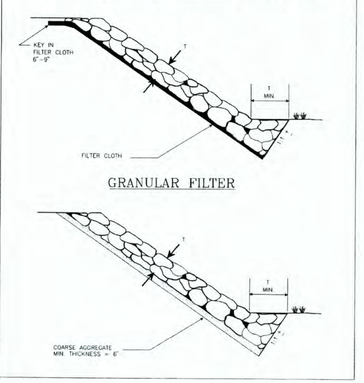
Plate 3.07-1

III - 35

1992 3.19

TOE REQUIREMENTS FOR BANK STABILIZATION

FILTER CLOTH UNDERLINER (PREFERRED)



Source: Adapted from VDOT Drainage Manual

Plate 3.19-1

FOR EROSION AND SEDIMENT CONTROLS ONLY!

REVISIONS			
NO.	DATE	DESCRIPTION	BY
2	03-18-19	BURN BUILDING RELOCATION	TGP
1	05-16-16	AGENCY COMMENTS	TGP

TITLE: EROSION AND SEDIMENT CONTROL NARRATIVE and DETAILS

PROJECT: CITY OF WINCHESTER
DEPARTMENT OF FIRE PROGRAMS
LIVE FIRE TRAINING STRUCTURE
1716 WOODSTOCK LANE
WINCHESTER, VIRGINIA 22602

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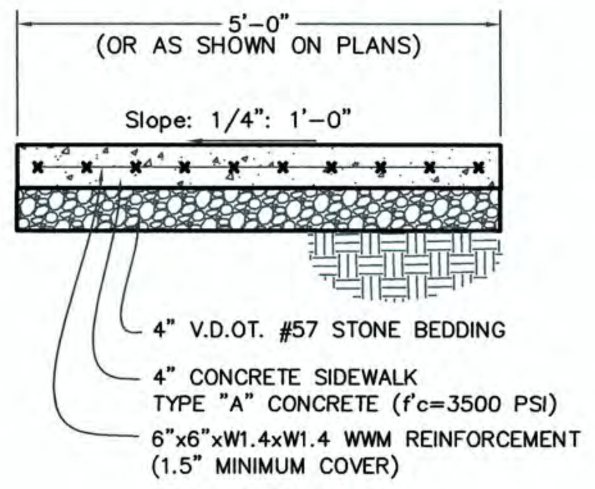
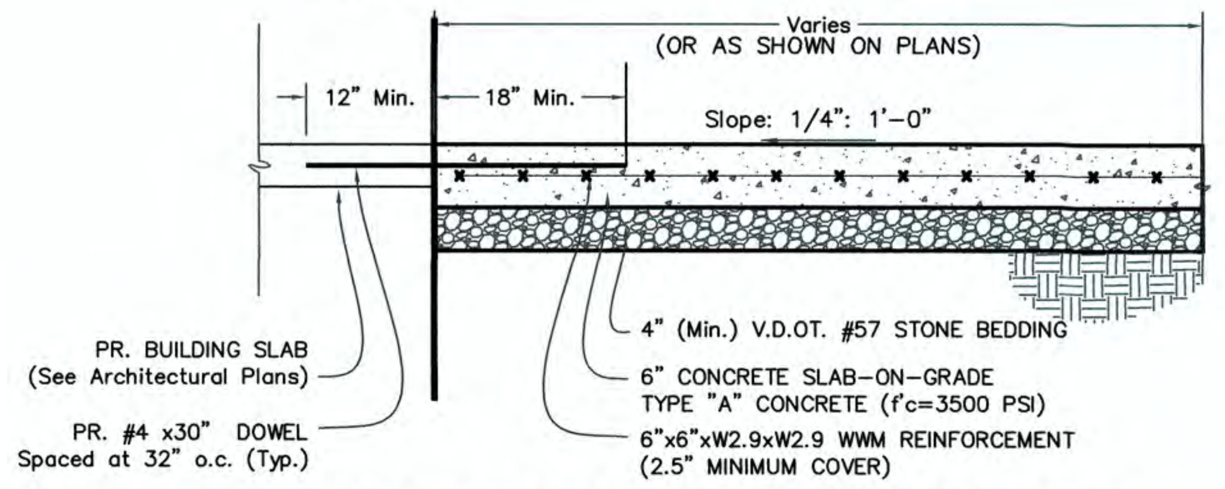
CONSULTING ENGINEERS

COMMONWEALTH OF VIRGINIA
TIMOTHY C. PAINTER
Lic. No. 018260
04/09/19
PROFESSIONAL ENGINEER

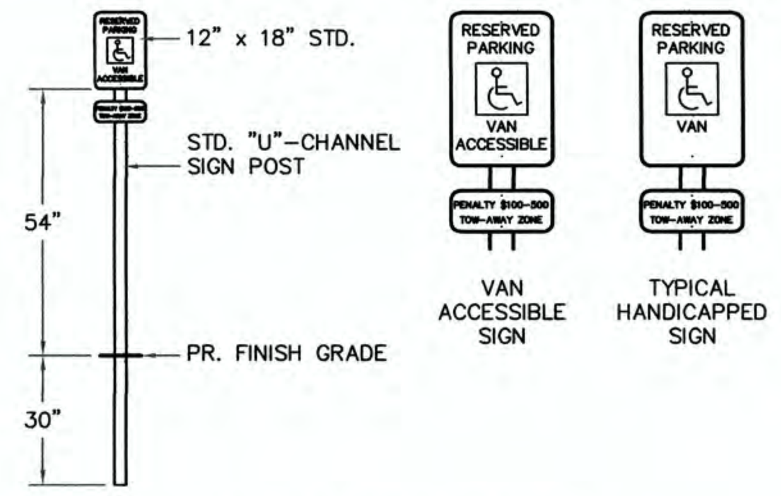
SURVEY:	C.I.:
PL-PLC	2'
DRAWN BY:	JOB NO.:
TGP	1511018
SCALE:	DATE:
1"=20.0'	01/25/16
SHEET:	6/7



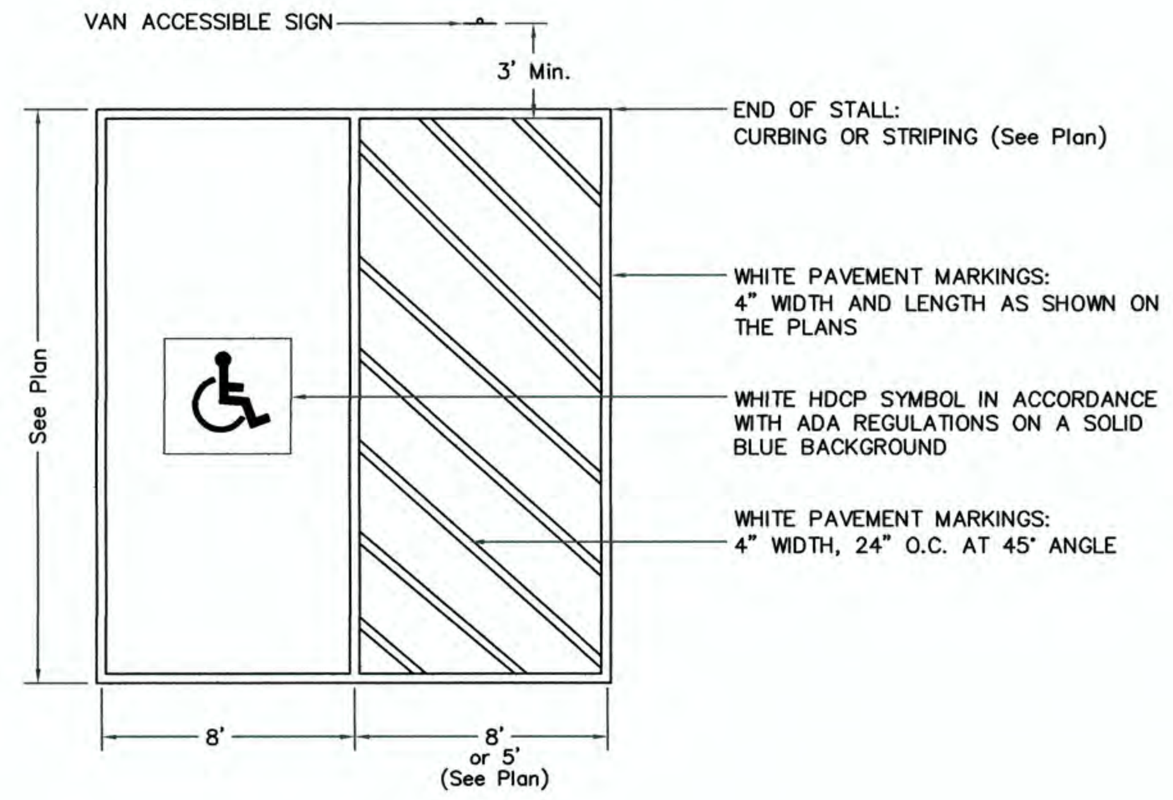
4" CONCRETE SIDEWALK DETAIL
N.T.S.



BUILDING APRON: 6" CONCRETE SLAB-ON-GRADE DETAIL
N.T.S.



HANDICAP SIGN DETAIL
N.T.S.



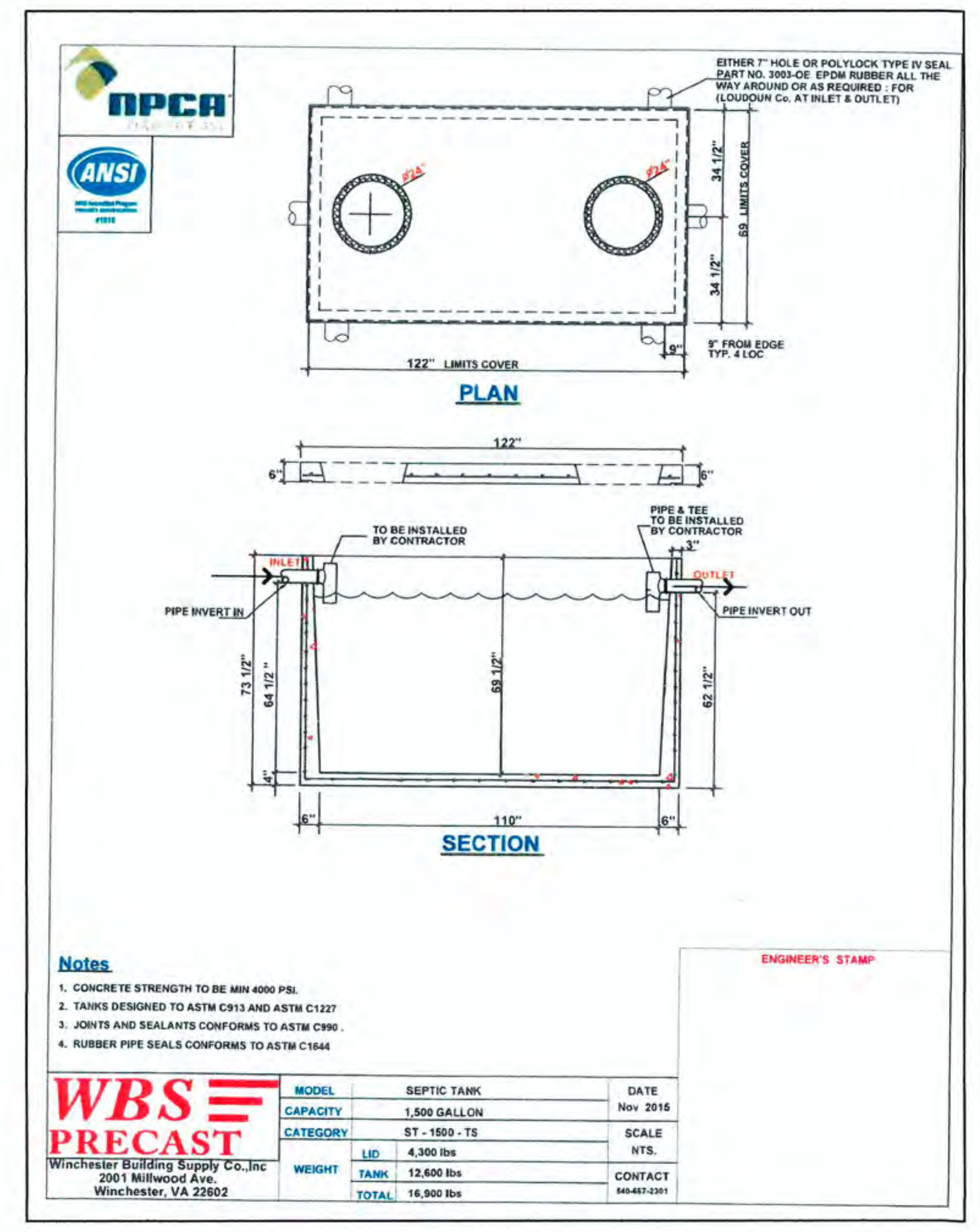
NOTES:
ALL CONSTRUCTION SHALL BE DONE IN ACCORDANCE WITH THE ADA ACCESSIBILITY REGULATIONS FOR BUILDINGS AND FACILITIES

THE PAINT SHALL BE NON-REFLECTORIZED, ACRYLIC LATEX, TYPE 442XX TRAFFIC MARKING PAINT BY DEVOE, LOUISVILLE, KY, OR APPROVED EQUAL.

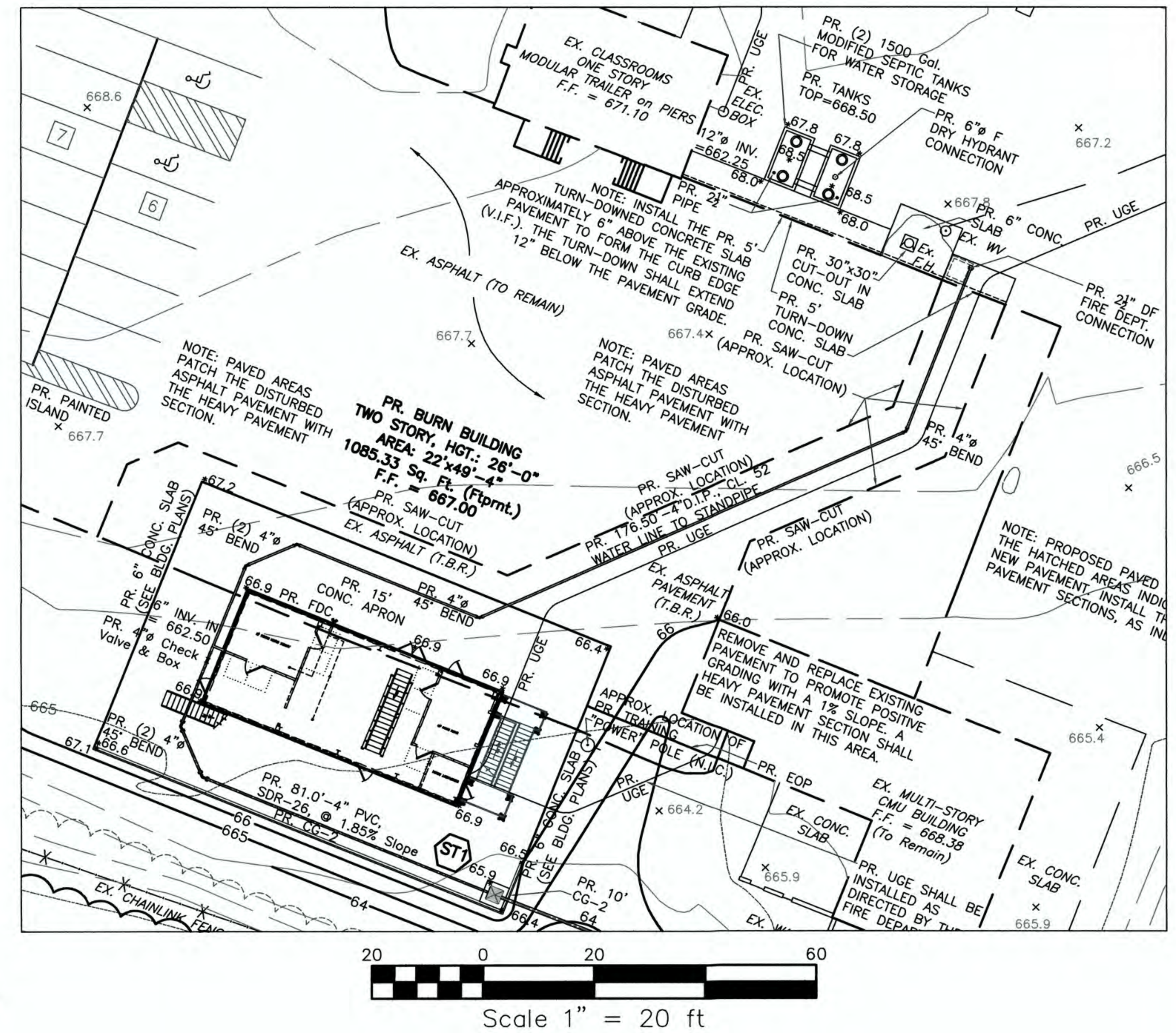
THE SIGNAGE MAY BE INSTALLED ON THE BUILDINGS WILL PROPER APPROVAL FROM THE LOCAL BUILDING OFFICIAL.

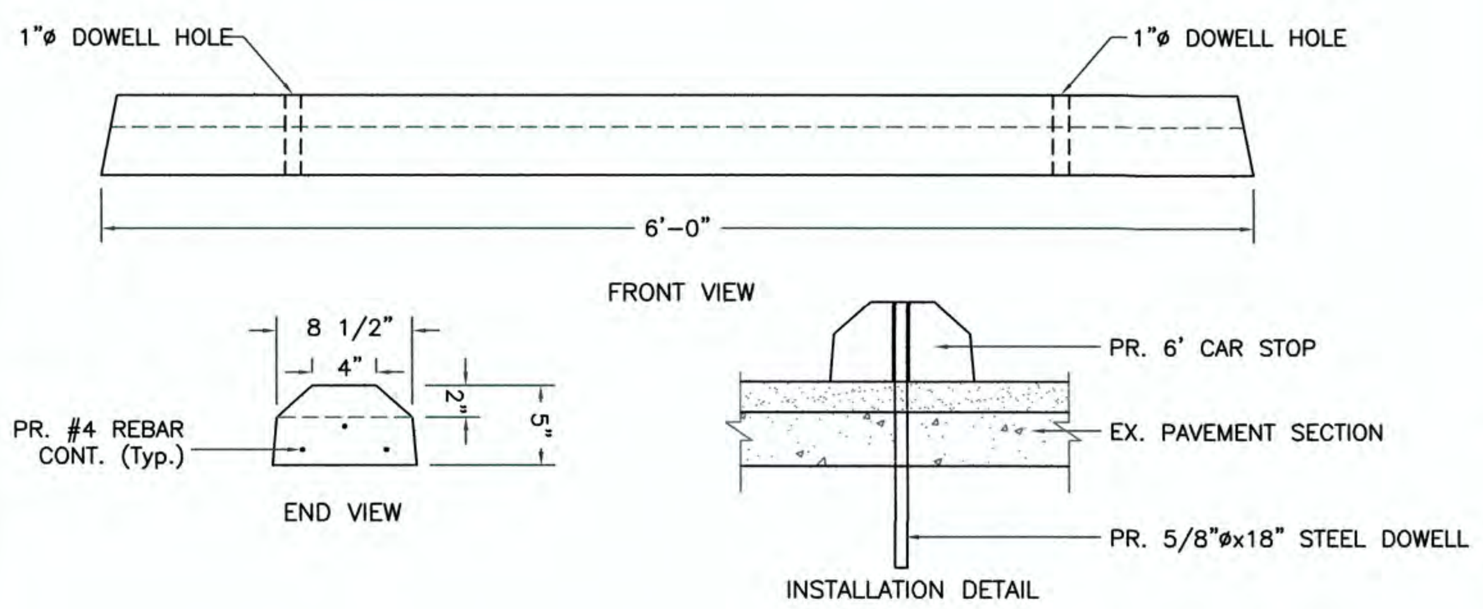
PLEASE REFER TO THE SITE PLAN FOR THE PROPOSED LAYOUT AND ORIENTATION OF THE ACCESSIBLE PARKING AREAS.

HANDICAPPED SPACES: PARKING LOT STRIPING DETAILS
N.T.S.

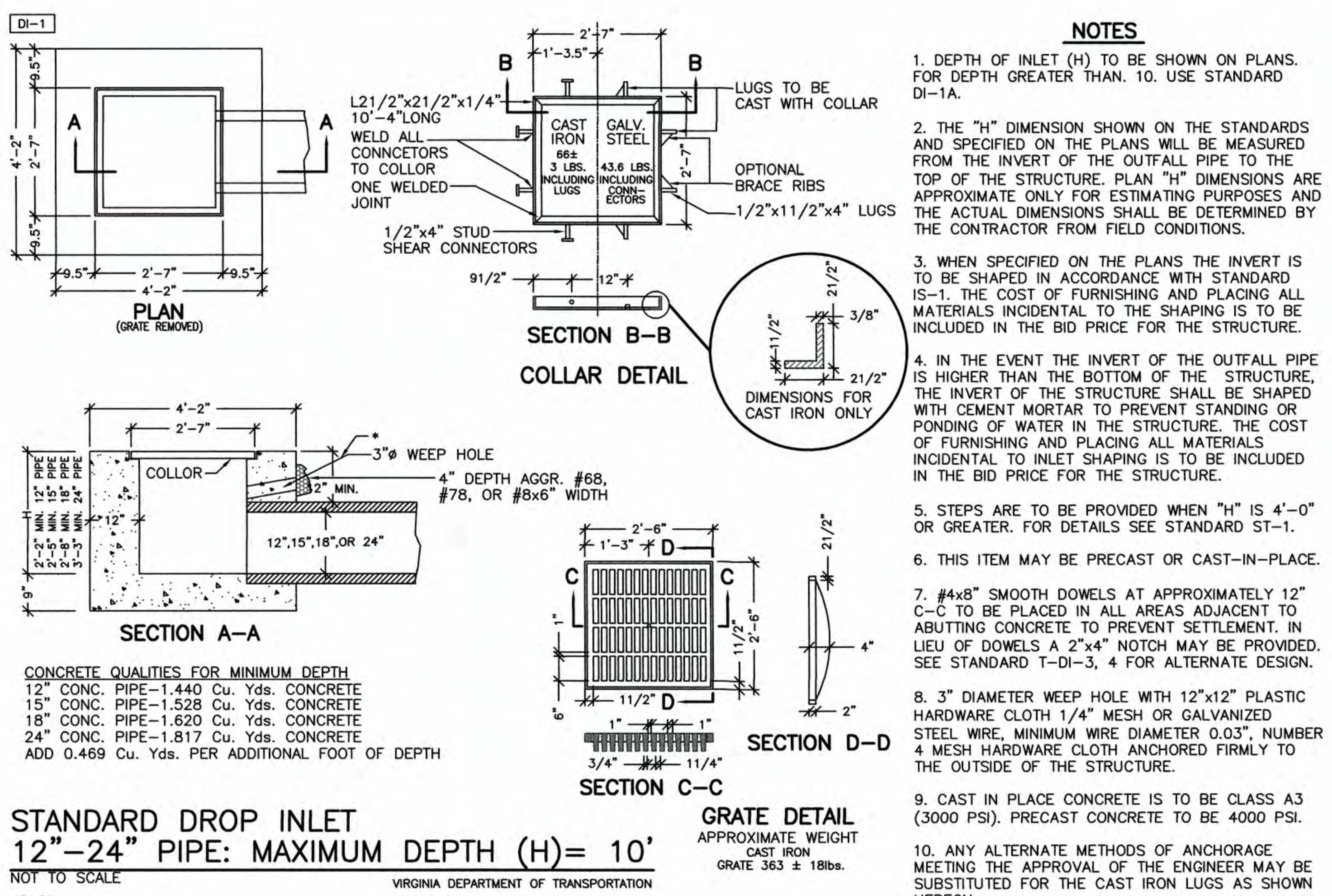


WATER STORAGE TANKS: TYPICAL DETAIL
N.T.S.





PRE-CAST CONCRETE WHEEL STOP DETAIL
N.T.S.



CONCRETE QUALITIES FOR MINIMUM DEPTH
12" CONC. PIPE-1.440 Cu. Yds. CONCRETE
15" CONC. PIPE-1.528 Cu. Yds. CONCRETE
18" CONC. PIPE-1.620 Cu. Yds. CONCRETE
24" CONC. PIPE-1.817 Cu. Yds. CONCRETE
ADD 0.469 Cu. Yds. PER ADDITIONAL FOOT OF DEPTH

STANDARD DROP INLET 12"-24" PIPE: MAXIMUM DEPTH (H)= 10'
NOT TO SCALE
VIRGINIA DEPARTMENT OF TRANSPORTATION
104.01

NOTES
1. DEPTH OF INLET (H) TO BE SHOWN ON PLANS. FOR DEPTH GREATER THAN. 10. USE STANDARD DI-1A.

2. THE "H" DIMENSION SHOWN ON THE STANDARDS AND SPECIFIED ON THE PLANS WILL BE MEASURED FROM THE INVERT OF THE OUTFALL PIPE TO THE TOP OF THE STRUCTURE. PLAN "H" DIMENSIONS ARE APPROXIMATE ONLY FOR ESTIMATING PURPOSES AND THE ACTUAL DIMENSIONS SHALL BE DETERMINED BY THE CONTRACTOR FROM FIELD CONDITIONS.

3. WHEN SPECIFIED ON THE PLANS THE INVERT IS TO BE SHAPED IN ACCORDANCE WITH STANDARD IS-1. THE COST OF FURNISHING AND PLACING ALL MATERIALS INCIDENTAL TO THE SHAPING IS TO BE INCLUDED IN THE BID PRICE FOR THE STRUCTURE.

4. IN THE EVENT THE INVERT OF THE OUTFALL PIPE IS HIGHER THAN THE BOTTOM OF THE STRUCTURE, THE INVERT OF THE STRUCTURE SHALL BE SHAPED WITH CEMENT MORTAR TO PREVENT STANDING OR PONDING OF WATER IN THE STRUCTURE. THE COST OF FURNISHING AND PLACING ALL MATERIALS INCIDENTAL TO INLET SHAPING IS TO BE INCLUDED IN THE BID PRICE FOR THE STRUCTURE.

5. STEPS ARE TO BE PROVIDED WHEN "H" IS 4'-0" OR GREATER. FOR DETAILS SEE STANDARD ST-1.

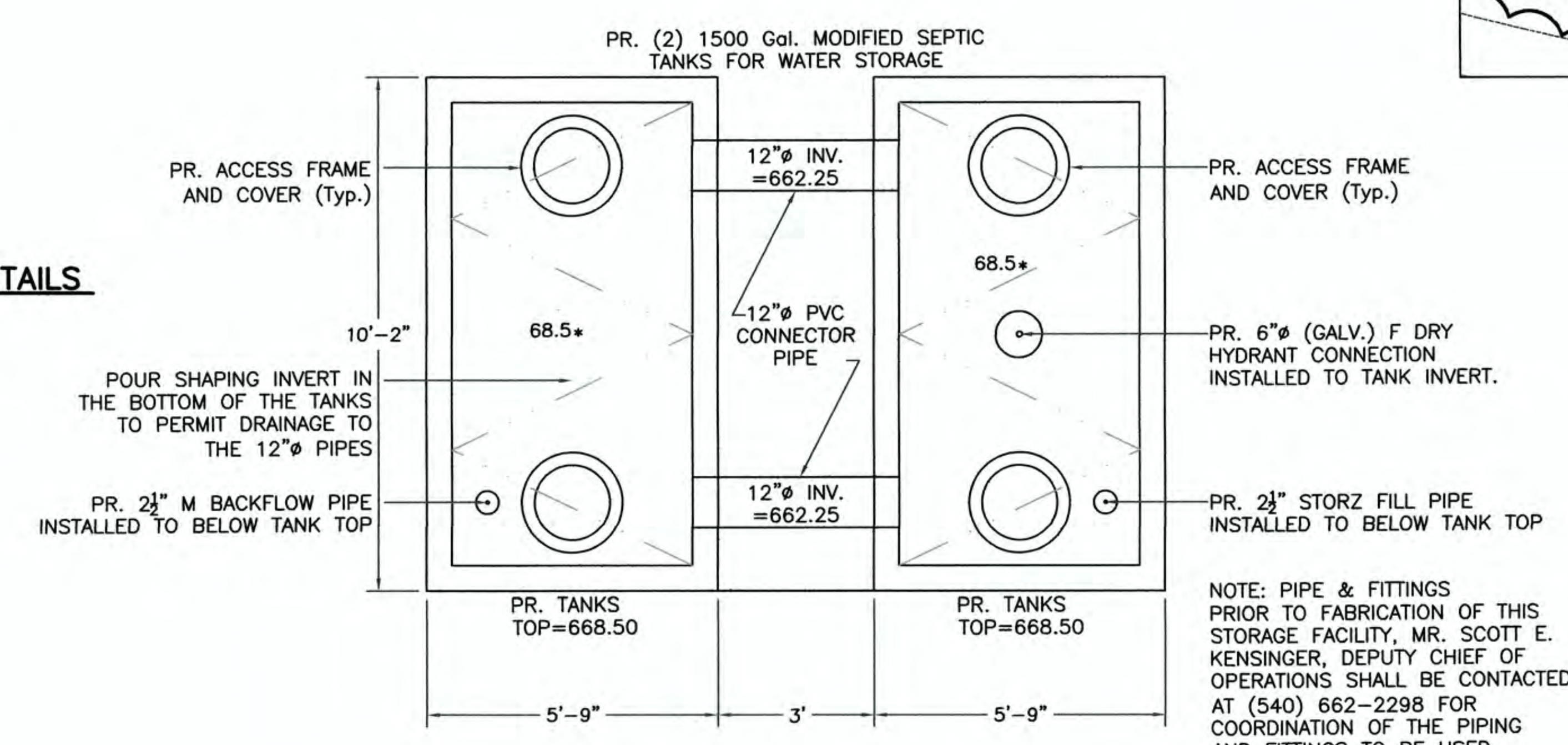
6. THIS ITEM MAY BE PRECAST OR CAST-IN-PLACE.

7. #4x8" SMOOTH DOWELS AT APPROXIMATELY 12" C-C TO BE PLACED IN ALL AREAS ADJACENT TO ABUTTING CONCRETE TO PREVENT SETTLEMENT. IN LIEU OF DOWELS A 2"x4" NOTCH MAY BE PROVIDED. SEE STANDARD T-DI-3, 4 FOR ALTERNATE DESIGN.

8. 3" DIAMETER WEEP HOLE WITH 12"x12" PLASTIC HARDWARE CLOTH 1/4" MESH OR GALVANIZED STEEL WIRE, MINIMUM WIRE DIAMETER 0.03", NUMBER 4 MESH HARDWARE CLOTH ANCHORED FIRMLY TO THE OUTSIDE OF THE STRUCTURE.

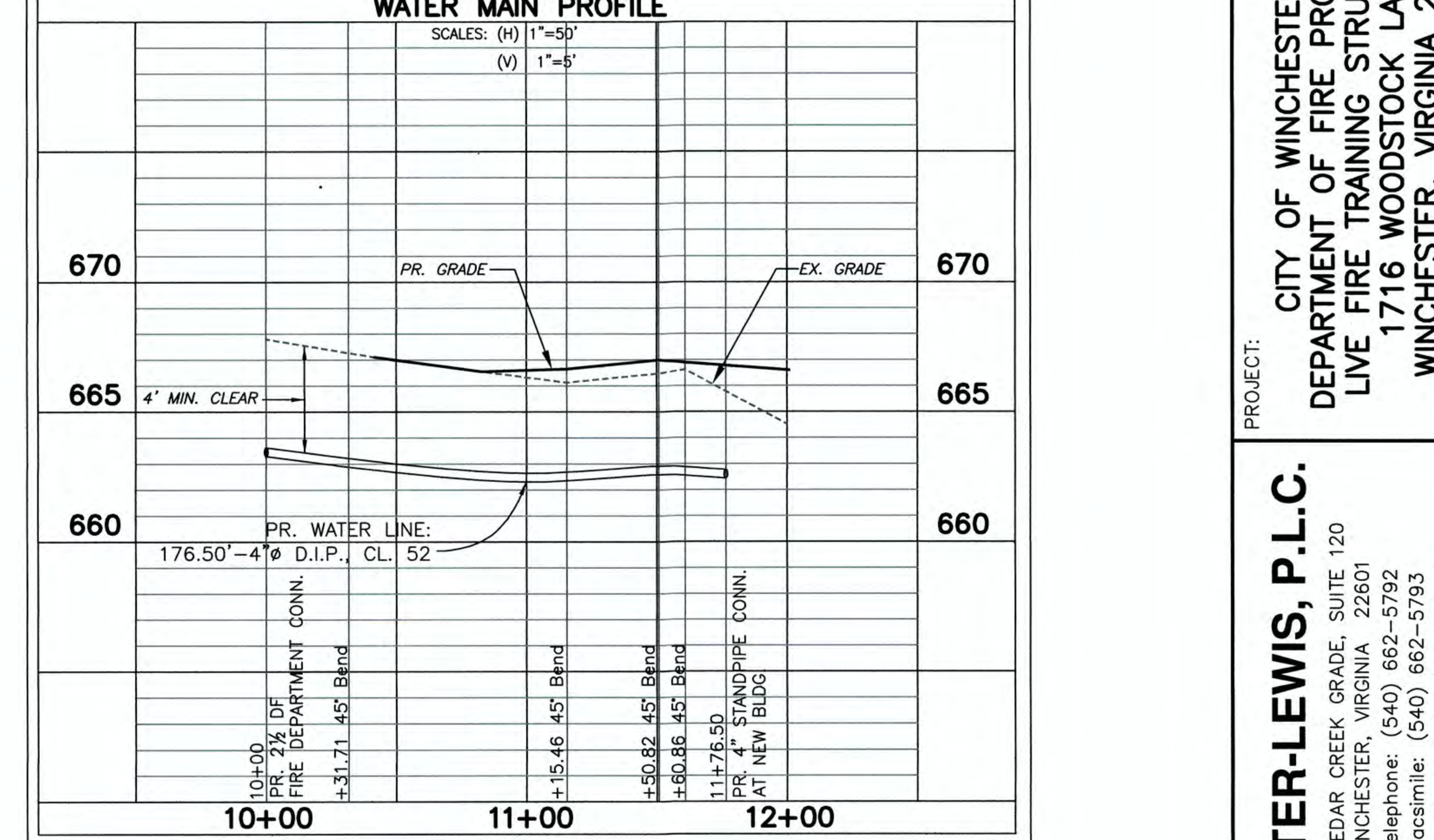
9. CAST IN PLACE CONCRETE IS TO BE CLASS A3 (3000 PSI). PRECAST CONCRETE TO BE 4000 PSI.

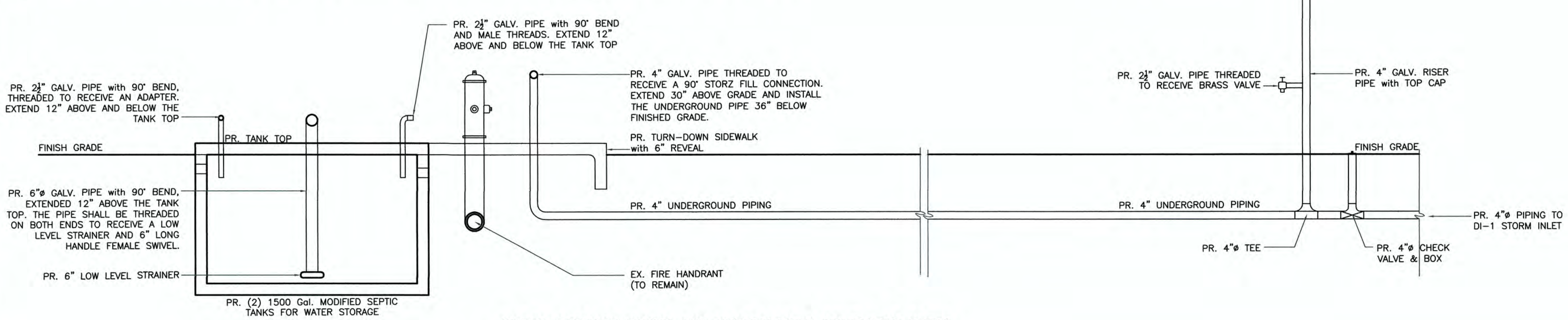
10. ANY ALTERNATE METHODS OF ANCHORAGE MEETING THE APPROVAL OF THE ENGINEER MAY BE SUBSTITUTED FOR THE CAST IRON LUGS AS SHOWN HEREON.



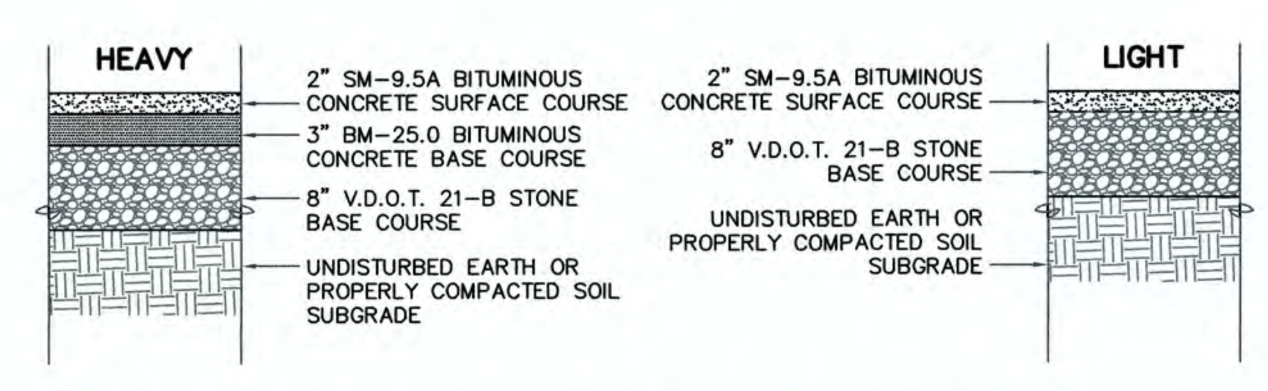
NOTE: PIPE & FITTINGS PRIOR TO FABRICATION OF THIS STORAGE FACILITY, MR. SCOTT E. KENSINGER, DEPUTY CHIEF OF OPERATIONS SHALL BE CONTACTED AT (540) 662-2298 FOR COORDINATION OF THE PIPING AND FITTINGS TO BE USED.

WATER STORAGE TANKS DETAIL: PLAN VIEW
N.T.S.

WATER MAIN PROFILE




WATER STORAGE TANKS AND SUPPLY LINES SCHEMATIC DETAIL
N.T.S.



NOTE:
-THE HEAVY PAVEMENT SECTION SHALL BE APPLIED TO THE TRUCK ACCESS AISLES AND DEMONSTRATION AREAS, AS INDICATED ON THE PLANS.
-THE LIGHT PAVEMENT SECTION SHALL BE APPLIED TO THE PROPOSED PARKING LOT EXPANSION, AS INDICATED ON THESE PLANS.
(SEE THE LAYOUT PLAN FOR ADDITIONAL INFORMATION)

ON-SITE PAVEMENT DETAILS
N.T.S.

REVISIONS

NO.	DATE	DESCRIPTION	BY
2	03-18-19	BURN BUILDING RELOCATION	TGP
1	05-16-16	AGENCY COMMENTS	TGP

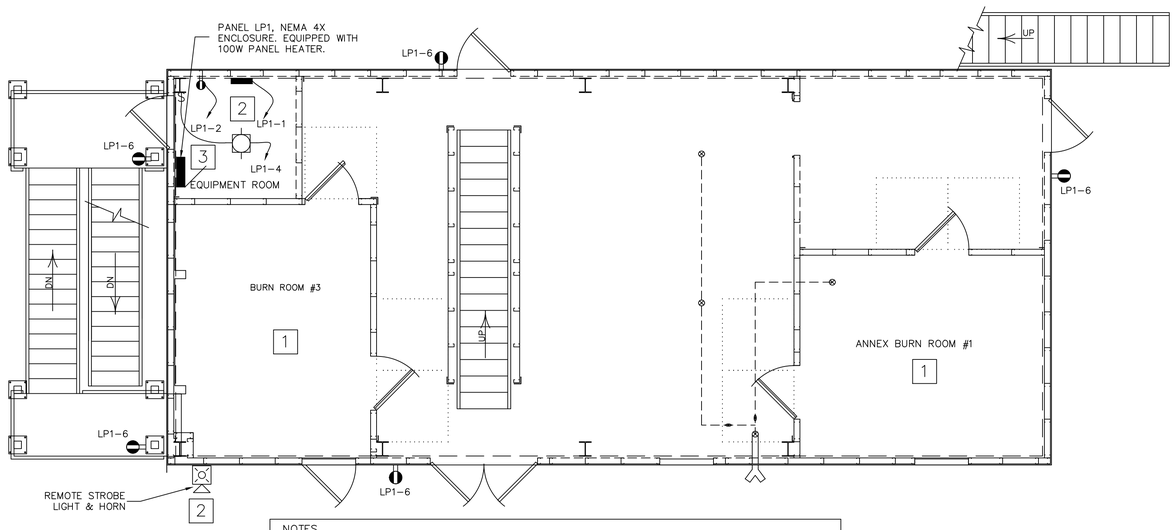
TITLE: MISCELLANEOUS CONSTRUCTION DETAILS

PROJECT: CITY OF WINCHESTER
DEPARTMENT OF FIRE PROGRAMS
LIVE FIRE TRAINING STRUCTURE
1716 WOODSTOCK LANE
WINCHESTER, VIRGINIA 22602

PAINTER-LEWIS, P.L.C.
817 CEDAR CREEK GRADE, SUITE 120
WINCHESTER, VIRGINIA 22601
Telephone: (540) 662-5792
Facsimile: (540) 662-5793
Email: office@painterlewis.com
CONSULTING ENGINEERS

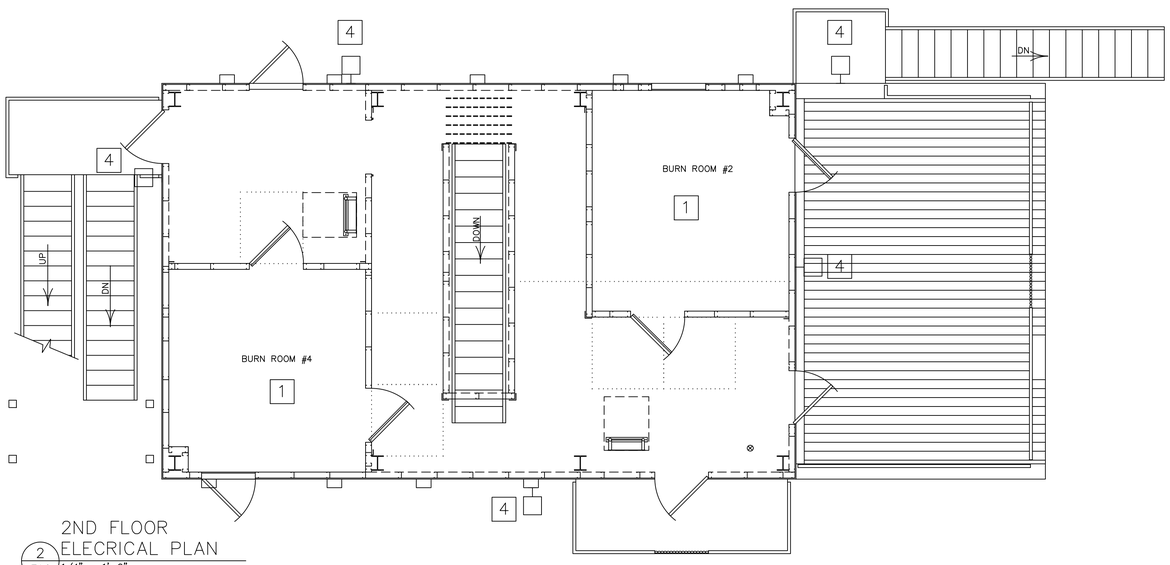
COMMONWEALTH OF VIRGINIA
TIMOTHY G. PAINTER
Lic. No. 018260
04/09/19
PROFESSIONAL ENGINEER

SURVEY: PL-PLC	C.I.: 2'
DRAWN BY: TGP	JOB NO.: 1511018
SCALE: 1"=20.0'	DATE: 01/25/16
SHEET:	7/7



1 E1.0 1ST FLOOR ELECRICAL PLAN
1/4" = 1'-0"

NOTES	
KEY	NOTE
1	REFER TO 'FIRE FACILITIES' DRAWING SET FOR ADDITIONAL ELECTRICAL REQUIREMENTS, INCLUDING PYROMETER PROBE LOCATIONS, WIRING, AND INSTALLATION DETAILS
2	REFER TO 'FIRE FACILITIES' DRAWING SET PYROMETER PROBE CONTROL PANEL AND ALARM WIRING AND INSTALLATION DETAILS
3	ELECTRICAL PANEL "LP1" SHALL BE 120/208 VOLT 3 PHASE, 4 WIRE 200 AMP MAIN CIRCUIT BREAKER, 30 POLE PANEL.
4	CIRCUIT LP1-3, CONTROLLED VIA SWITCH IN EQUIPMENT ROOM
SYMBOLS	
	SURFACE LIGHT, BASIS OF DESIGN: HE WILLIAMS VG1-L30/750-T5-SM-DBZ-DIM-UNV
	WALL MOUNTED FLOODLIGHT, BASIS OF DESIGN: HE WILLIAMS WPTZS-L20/750-PC-DIM-120. COORDINATE FINAL LOCATION WITH CLIENT
	GFCI OUTLET WITH HEAVY DUTY IN USE WEATHERPROOF COVER



2 E1.0 2ND FLOOR ELECRICAL PLAN
1/4" = 1'-0"

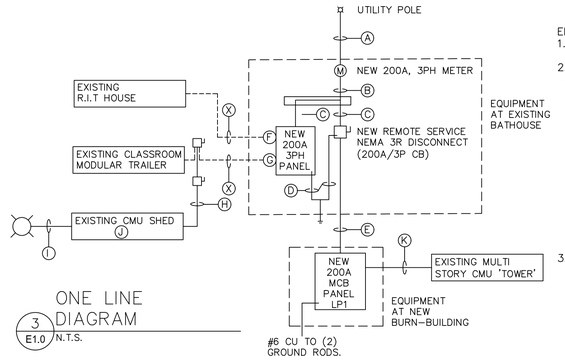
PANELBOARD SCHEDULE — LP-1

LOCATION: UTILITY ROOM
SERVICE: 208Y/120V, 3PH, 4W
BUS RATING 100A : 200A
MAIN CIRCUIT BREAKER : 200A
INTERRUPT RATING: 5,000 AIC

FED FROM: FIELD DETERMINE
NEUTRAL BUS: 100%
GROUND BUS: STANDARD
MOUNTING: SURFACE
ENCLOSURE: NEMA 4X

SERVICE ENTRANCE RATED.

DESCRIPTION	CCT. NO.	CIRCUIT BREAKER	CIRCUIT LOAD	CONNECTED LOAD (VA) A	B	C	CIRCUIT LOAD	CIRCUIT BREAKER	CCT. NO.	DESCRIPTION
PYROMETER PANEL	1	20A-1P	500	680			180	20A-1P	2	RECEPTACLE
FLOOD LIGHTS	3	20A-1P	50		86		36	20A-1P	4	LIGHT
TOWER	5	60A-2P	1500			1680	1080	20A-1P	6	OUTSIDE RECEPTACLE
FEEDER	7							20A-1P	8	SPARE
SPARE	9	20A-1P						20A-1P	10	SPARE
SPARE	11	20A-1P						20A-1P	12	SPARE
SPARE	13	20A-1P						20A-1P	14	SPARE
SPARE	15	20A-1P						20A-1P	16	SPARE
SPARE	17	20A-1P						20A-1P	18	SPARE
SPARE	19	20A-1P						20A-1P	20	SPARE
SPARE	21	20A-1P						20A-1P	22	SPARE
SPARE	23	20A-1P						20A-1P	24	SPARE
SPARE	25	20A-1P						20A-1P	26	SPARE
SPARE	27	20A-1P						20A-1P	28	SPARE
SPARE	29	20A-1P						20A-1P	30	SPARE
				680	86	2580				
				TOTAL VA PER PHASE						



3 E1.0 ONE LINE DIAGRAM
N.T.S.

ELECTRICAL WORK AT BATH HOUSE:
1. EXISTING 1PH SERVICE BEING UPGRADED TO 200A, 3PH SERVICE BY UTILITY.
2. UPGRADE SERVICE EQUIPMENT TO:
   - 2.1. ADD SERVICE TAPS FROM NEW METER TO NEW SERVICE EQUIPMENT BELOW.
   - 2.1.1. REPLACE EXISTING 1PH PANEL WITH NEW 200A 3PH PANEL.
   - 2.1.1.1. RECONNECT EXISTING BRANCH AND SUB-FEED CIRCUITS.
   - 2.1.2. ADD NEW 200A ENCLOSED CIRCUIT BREAKER TO SUPPLY NEW 200A, 3PH, 4W FEEDER TO NEW BURN BUILDING
   - 2.1.3. REVISE GROUNDING ELECTRODE SYSTEM TO SERVE NEW CONFIGURATION.
3. ADD NEW 200A, 3PH, 4W FEEDER TO REMOTE BUILDING (BURN BLDG).

ELECTRICAL DISTRIBUTION NOTES	
KEY	NOTE
A	NEW 208Y/120V, 3PH, 4W UTILITY SERVICE INSTALLED BY OTHERS. COORDINATE WITH UTILITY FOR TERMINATION.
B	NEW 200A 3PH SERVICE ENTRANCE: 4 X 3/0 CU THHN IN 2" EMT
C	NEW 200A 3PH SERVICE TAP: 4 X 3/0 CU THHN IN 2" EMT
D	GROUNDING ELECTRODE SYSTEM: MBJ- #4 CU, GEC- #4 CU, INTERSYSTEM GROUNDING TIE- 3/0 CU, GEC TO EXISTING GROUND RODS- #6 CU.
E	200A, 3PH, 4W REMOTE BLDG. FEEDER: 4 X #3/0 CU THWN & #6 CU EGC IN 2-1/2" SCH 80 PVC
F	RE-CONNECT EXISTING SINGLE PHASE FEEDER TO EXISTING R.I.T TWO STORY HOUSE.
G	RE-CONNECT EXISTING SINGLE PHASE FEEDER TO EXISTING CLASSROOM ONE STORY MODULAR TRAILER.
H	TAP EXISTING CLASSROOM FEEDER, INSTALL 60A/2P FEEDER DISCONNECT ADJACENT TO CLASSROOM DISCONNECT, AND EXTEND 60A, SINGLE PHASE FEEDER [3 X#4 CU THWN & #10 CU EGC IN 1-1/2" SCHD 80 PVC] TO EXISTING CMU SHED. INSTALL NEW 60A, 120/240V, 12 POLE, MCB LOADCENTER IN SHED.
I	INSTALL LED PARKING LIGHT FIXTURE (BASIS OF DESIGN KE WILLIAMS VA1-L160/750-T4-F-S-DBZ-PCR-DIM-UNV) ON POLE PROVIDED BY OTHERS, FED BY 15A, 120V BRANCH CIRCUIT FROM SHED.
J	INSTALL THE FOLLOWING IN EXISTING SHED: 60A, SINGLE PHASE LOAD CENTER; (2) INDOOR GFCI RECEPTACLES AND (2) OUTDOOR GFCI WP RECEPTACLES WITH WP COVERS, (4) LED FIXTURES WITHIN THE SHED [BASIS OF DESIGN: HW WILLIAMS 96-4-L40/850-HIAFR-DRV-UNV], AND ASSOCIATED WIRING AND SWITCHES. COORDINATE LOCATIONS WITH CLIENT.
K	INSTALL 60A/2P CB IN PANEL LP-1 AND EXTEND 60A, SINGLE PHASE FEEDER [3 X#6 CU THWN & #10 CU EGC IN 1-1/2" SCHD 80 PVC] TO EXISTING CMU TOWER. INSTALL NEW 60A, 120/240V, 12 POLE, MCB LOADCENTER IN TOWER AND PROVIDE BRANCH CIRCUITS FOR INTERIOR LIGHTING, EXTERIOR LIGHTING, AND RECEPTACLES.
X	EXISTING WIRING TO REMAIN AND/OR BE RECONNECTED

CDi Comfort Design Mechanical & Electrical Engineers
620 Pennsylvania Ave
Winchester, VA 22601
Phone 540-665-2846
Fax 540-667-3284

REVISIONS			
NO.	DATE	DESCRIPTION	BY
2	03-18-19	BURN BUILDING RELOCATION	TGP
1	05-16-16	AGENCY COMMENTS	TGP

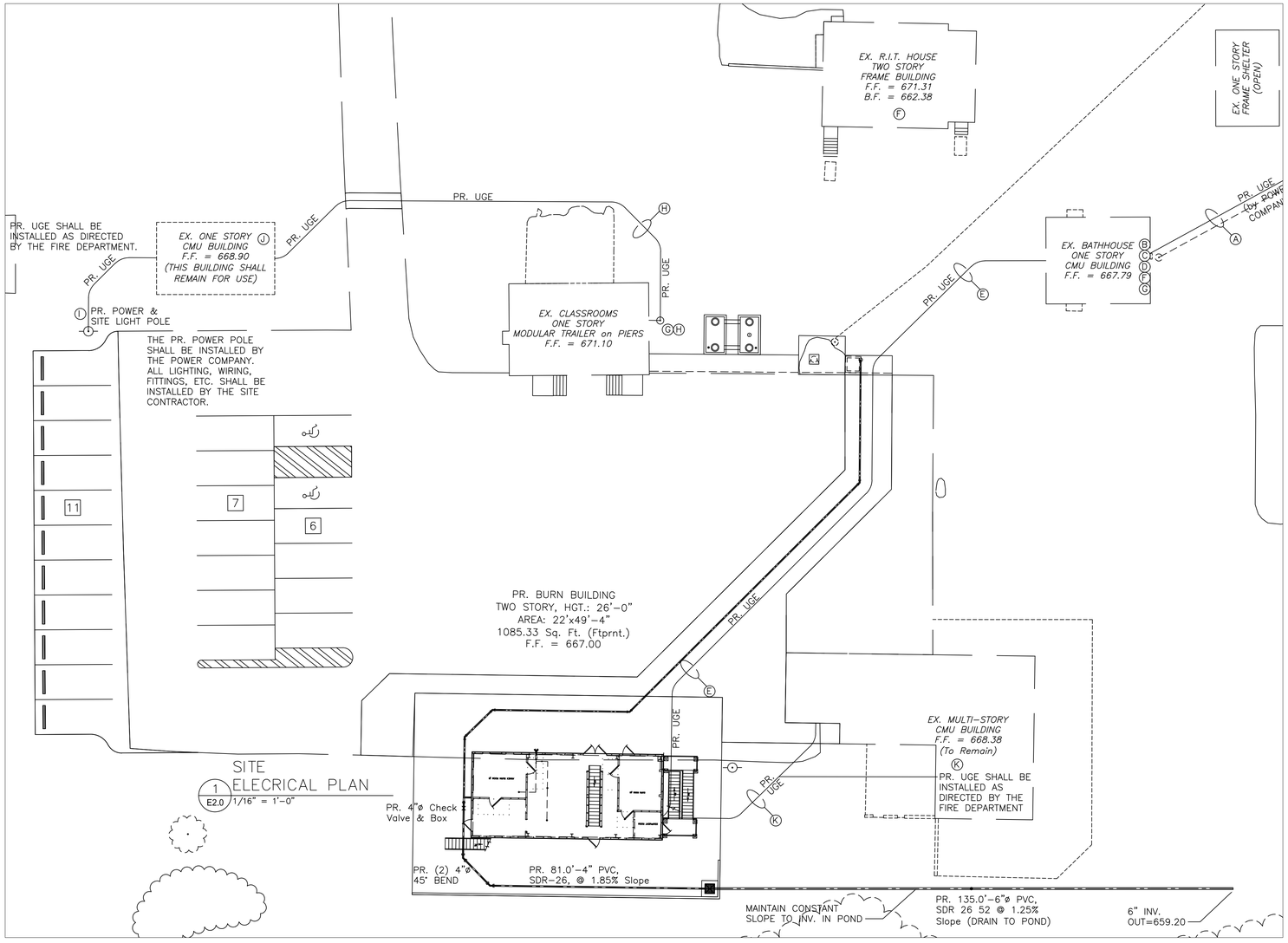
TITLE: ELECTRICAL PLAN

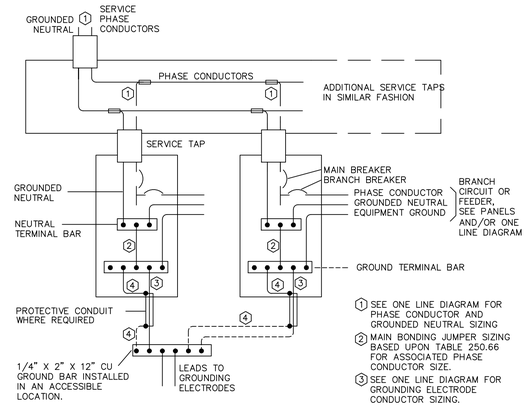
PROJECT: CITY OF WINCHESTER
DEPARTMENT OF FIRE PROGRAMS
LIVE FIRE TRAINING STRUCTURE
1716 WOODSTOCK LANE
WINCHESTER, VIRGINIA 22602

PAINTER-LEWIS, P.L.C.
817 CEDAR CREEK GRADE, SUITE 120
WINCHESTER, VIRGINIA 22601
Telephone: (540) 662-5792
Facsimile: (540) 662-5793
Email: office@painterlewis.com
CONSULTING ENGINEERS

COMMONWEALTH OF VIRGINIA
M. Howell
MICHAEL F. HOWELL
No. 008875
23 APR 2019
PROFESSIONAL ENGINEER

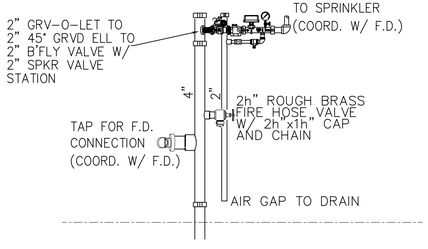
SURVEY:	C.I.:
PL-PLC	2'
DRAWN BY:	JOB NO.:
MFH	1511018
SCALE:	DATE:
AS NOTED	04/23/19
SHEET:	E1.0



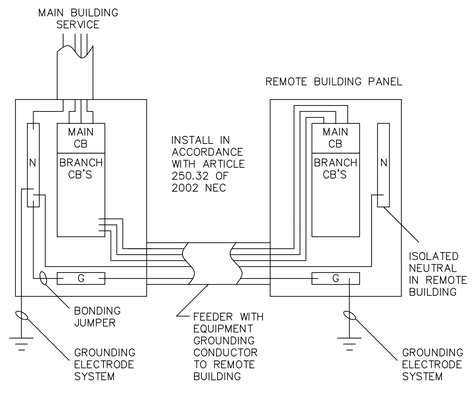


MULTIPLE DISCONNECT
SERVICE GROUNDING/BONDING
DETAIL

ELECTRICAL DISTRIBUTION NOTES	
KEY	NOTE
Ⓐ	NEW 208Y/120V, 3PH, 4W UTILITY SERVICE INSTALLED BY OTHERS. COORDINATE WITH UTILITY FOR TERMINATION.
Ⓑ	NEW 200A 3PH SERVICE ENTRANCE: 4 X 3/0 CU THHN IN 2" EMT
Ⓒ	NEW 200A 3PH SERVICE TAP: 4 X 3/0 CU THHN IN 2" EMT
Ⓓ	GROUNDING ELECTRODE SYSTEM: MBJ– #4 CU, GEC– #4 CU, INTERSYSTEM GROUNDING TIE– 3/0 CU, GEC TO EXISTING GROUND RODS– #6 CU.
Ⓔ	200A, 3PH, 4W REMOTE BLDG. FEEDER: 4 X #3/0 CU THWN & #6 CU EGC IN 2–1/2" SCH 80 PVC
Ⓕ	RE–CONNECT EXISTING SINGLE PHASE FEEDER TO EXISTING R.I.T TWO STORY HOUSE.
Ⓖ	RE–CONNECT EXISTING SINGLE PHASE FEEDER TO EXISTING CLASSROOM ONE STORY MODULAR TRAILER.
Ⓗ	TAP EXISTING CLASSROOM FEEDER, INSTALL 60A/2P FEEDER DISCONNECT ADJACENT TO CLASSROOM DISCONNECT, AND EXTEND 60A, SINGLE PHASE FEEDER [3 X#4 CU THWN & #10 CU EGC IN 1–1/2" SCHD 80 PVC] TO EXISTING CMU SHED. INSTALL NEW 60A, 120/240V, 12 POLE, MCB LOADCENTER IN SHED.
Ⓘ	INSTALL LED PARKING LIGHT FIXTURE (BASIS OF DESIGN KE WILLIAMS VA1–L160/750–T4–F–S–DBZ–PCR–DIM–UNV) ON POLE PROVIDED BY OTHERS, FED BY 15A, 120V BRANCH CIRCUIT FROM SHED.
Ⓙ	INSTALL THE FOLLOWING IN EXISTING SHED: 60A, SINGLE PHASE LOAD CENTER; (2) INDOOR GFCI RECEPTACLES AND (2) OUTDOOR GFCI WP RECEPTACLES WITH WP COVERS, (4) LED FIXTURES WITHIN THE SHED [BASIS OF DESIGN: HW WILLIAMS 96–4–L40/850–HIAFR–DRV–UNV], AND ASSOCIATED WIRING AND SWITCHES. COORDINATE LOCATIONS WITH CLIENT.
Ⓚ	INSTALL 60A/2P CB IN PANEL LP–1 AND EXTEND 60A, SINGLE PHASE FEEDER [3 X#6 CU THWN & #10 CU EGC IN 1–1/2" SCHD 80 PVC] TO EXISTING CMU TOWER. INSTALL NEW 60A, 120/240V, 12 POLE, MCB LOADCENTER IN TOWER AND PROVIDE BRANCH CIRCUITS FOR INTERIOR LIGHTING, EXTERIOR LIGHTING, AND RECEPTACLES.
Ⓧ	EXISTING WIRING TO REMAIN AND/OR BE RECONNECTED



TYPICAL SPRINKLER RISER:
CONTRACTOR SHALL COORDINATE WITH F.D. FOR FINAL LOCATION AND CONFIGURATION OF SPRINKLER RISER.



SUB–FEED TO REMOTE BUILDING

NO.	DATE	DESCRIPTION	BY
2	03–18–19	BURN BUILDING RELOCATION	TGP
1	05–16–16	AGENCY COMMENTS	TGP

REVISIONS

TITLE:
SITE ELECTRICAL PLAN
& DETAILS

PROJECT:
CITY OF WINCHESTER
DEPARTMENT OF FIRE PROGRAMS
LIVE FIRE TRAINING STRUCTURE
1716 WOODSTOCK LANE
WINCHESTER, VIRGINIA 22602

PAINTER-LEWIS, P.L.C.
817 CEDAR CREEK GRADE, SUITE 120
WINCHESTER, VIRGINIA 22601
Telephone: (540) 662-5792
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Email: office@painterlewis.com
CONSULTING ENGINEERS

CDi Comfort Design Mechanical & Electrical Engineers
620 Pennsylvania Ave
Winchester, VA 22601
Phone 540-665-2846
Fax 540-667-3284

COMMONWEALTH OF VIRGINIA
M. Howell
MICHAEL F. HOWELL
No. 008875
23 APR 2019
PROFESSIONAL ENGINEER

SURVEY: PL–PLC	C.I.: 2'
DRAWN BY: MFH	JOB NO.: 1511018
SCALE: AS NOTED	DATE: 04/23/19
SHEET:	E2.0

ELECTRICAL NOTES:

BASIC METHODS AND REQUIREMENTS:

1. The Electrical Contractor shall provide all labor, material, equipment, tools and services required to construct, install, complete, test, and commission the operation of the electrical systems identified within the construction documents. It is the intent of these contract documents to call for finished work, tested, and ready for operation.
2. Wherever the work "provide" is used it shall mean to furnish and install complete and ready for use.
   a. Provide all materials, bracing, hangers, connectors, and components as required to provide a complete operational electrical system.
   b. All items not specifically shown in the design documents, but which are necessary for a complete working installation in compliance with code requirements shall be provided at no additional cost.
3. The installation shall comply with applicable requirements of the International Building Code (IBC), NFPA 70 (NEC), NFPA 101 (Life Safety Code), ADA, and all local codes in effect at the project location at the time of contract award.
4. The drawings indicate the extent, general location and arrangement of equipment, components, and wiring. The contractor shall review all project requirements and coordinate the electrical installation with all trades.
   a. The Contractor shall become familiar with the work and verify all dimensions and locations so that the outlets, devices, raceways and equipment will be properly located and accessible. Actual field measurements shall prevail over any scaled measurements taken from these drawings.
   b. The Contractor shall confirm the location of all equipment that requires electrical connections with the trade installing the equipment prior to rough in of the associated electrical devices, disconnects, raceways, and wiring.
   c. The contractor shall confirm the electrical requirements and configuration (including overcurrent protective device ratings and conductor sizing) of circuits required for all equipment that requires electrical connection with the installer of such equipment prior to rough-in or installation of related electrical items.
   d. Rework required that results from failure to coordinate shall be done at the contractor's expense.
5. The drawings are diagrammatic only, intending to show general location of circuits, equipment, fixtures, and devices; and do not show all required details. All work shall be accurately laid out with reference to the drawings and in cooperation with other trades to avoid conflicts and to obtain a neat and workable installation which will afford maximum accessibility for operation, maintenance, and headroom. The electrical contractor is responsible for determining optimal routing of circuits and field investigations required to complete the installation in a professional workmanship manner. Refer to architectural drawings for exact dimensions and to mechanical drawings for locations of mechanical equipment. The contractor shall field determine final locations for outlets to comply with distance and spacing requirements of the NEC.
6. The drawings are not intended to be rigid in specific details. In the event they are in conflict with requirements of other drawings, codes, or recommendations of the manufacturers of equipment furnished, the Electrical Contractor shall inform the General Contractor and make recommendations as required to insure that equipment is installed and connected in conformance with codes and manufacturer's recommendations for safe, proper, and efficient operation. The General Contractor shall issue a Request for Information with the proposed recommendation to the Architect.
7. The contractor, by accepting the work, represents that it is qualified to successfully accomplish the work without additional direction by the design engineer. The design engineer is not responsible for means, methods, techniques, or procedures used by the contractor during construction.
8. By submitting a proposal, contractor agrees it is satisfied from its own investigation of the conditions and requirements to be met, that it fully understands its obligation, and that it will not make any claim for or have the right to cancellation of or relief from the Contract because of any misunderstanding or lack of information. A submission of a bid for this work acknowledges that the contractor has read all terms and conditions for the work and that all terms and conditions are acceptable.
9. In the event of conflict between various parts of the contract documents, including but not limited to drawings and general conditions, the more stringent (more costly) of the conditions shall apply for bidding purposes. The contractor shall request clarification for all conflicts prior to construction. The contractor shall make a thorough examination of the site and the contract documents. No claim for extra compensation will be recognized if difficulties are encountered which an examination of site conditions and contract documents prior to executing the contract would have revealed. Failure to request clarification shall not relieve the contractor of the requirement to provide the more costly implementation. If any conflicts occur necessitating departures from the drawings, details of and reasons for departures shall be submitted and approved prior to implementing any change.
10. All wiring not furnished and installed by others but which is required to provide a complete and operational system for equipment indicated on the drawings shall be furnished and installed by the electrical contractor. Except as otherwise noted, automatic control wiring, signaling, and protective devices for mechanical equipment shall be furnished and installed by the mechanical contractor. Each motor or group of motors requiring a single control shall be provided by others with a suitable controller. The electrical contractor shall install and connect the motor controllers furnished by others. Low voltage control devices (thermostats, limit switches, etc.) and wiring (24 Volts max.) will be installed by others. Control devices and wiring above 24 Volts shall be installed by the electrical contractor. Each motor shall be provided with a disconnecting means where required by NFPA 70, even if not shown on the drawings.
11. Procure and pay for all permits and certificates necessary to construct and place in operation all electrical work. Pay for all legally imposed charges made by the local authorities for full inspection and approval services of the bureaus administering applicable codes and regulations. This shall include the cost and back charge of installing any portion of the work where performed by utility departments, and utility companies such as for trenching and installation on conduit. Capital improvement costs that may be imposed by the utility for new or upgraded service (such as extending primary wiring to transformers or upgrading transformers) shall be paid by the owner.

MATERIALS

1. Material and equipment shall be new and shall be the standard specification grade products of established manufacturers. Materials, equipment, and installation shall conform to the requirements of ANSI, IEEE, NEMA, and UL as applicable
2. Submit for approval catalog information for: Lighting Fixtures, Lighting Controls, Panelboards, and Fire Alarm System (when shown on drawings).
3. Equipment and material shall be protected during shipment and storage against physical damage, dirt, moisture, cold and rain.
4. Unless otherwise indicated, wiring shall consist of insulated conductors installed in conduit or tubing. Unless shown otherwise, minimum conduit size shall be 3/4". All conductors shall be copper with type THWN/THHN insulation rated 90C. Conductor sizing is based upon use of terminals rated 75C. Aluminum conductors of equivalent ampacity may be used for circuits 100 Amps or larger. The Contractor shall make all required changes to conduit sizes, terminals, and sizing for voltage drop for conductor substitutions at no additional cost. Conductors shall be color coded: Black (A), Red (B), Blue (C) , White (neutral), for 208/120 and Brown (A), Orange (B), Yellow(C), Gray (Neutral) for 480/277. Ground (EGC) conductors shall be Green or Green/Yellow striped.
5. Where wiring type is shown as MC, NEC compliant installation of MC cable will be permitted. For projects that include patient care areas, exam rooms, and medical equipment circuits, cable shown as MC for these areas shall be type HCF-MC-AP and the installation shall comply with NEC 517.
6. Where wiring type is shown as NM, NEC compliant installation of type NM cable will be permitted.
7. Wire sizes, including equipment grounding conductors, shall be adjusted for voltage drop based upon actual circuit lengths of installed wiring to achieve 3% voltage drop for branch circuits and 2% voltage drop for feeders. Raceway sizes shall be revised as needed for upsized conductors.
8. Nonmetallic conduit and tubing shall be used in damp, wet, or corrosive locations. EMT may be installed only within buildings. EMT may be installed in concrete and grout in dry locations. EMT shall not be installed in damp or wet locations, or in the air space of exterior masonry cavity walls. Aluminum conduit may be used only where installed exposed in dry locations. Non-aluminum sleeves shall be used where aluminum conduit passes through concrete floors and fire walls. Conduit used in areas subject to damage shall be rigid steel up to a height of 10 ft. above finished floor. Flexible metallic cable (Type MC) may be used where allowed by NFPA 70. Non-metallic cable (Type NM-B) may only be used where allowed by NFPA 70 and when wiring type is shown as NM in panel schedules Bushings shall be of the insulating type
9. Panelboards shall be completely factory assembled with molded case circuit breakers. Short circuit interrupting ratings (AIR) of all provided components shall be coordinated with the ratings of all new and any existing electrical gear. Series rated assemblies are not permitted. Panelboards and loadcenters shall be equipped with arc fault circuit interrupter, combination type, circuit breakers to provide AFCI protection per NEC requirements.
10. Lighting controls shall be provided in accordance with IECC or ASHRAE requirements as enforced by state building codes. Control schemes shown on the drawings are diagrammatical only and the contractor shall finalize design details and component selection to achieve the required operational performance. Refer to functional testing requirements later in these notes.
11. Receptacles and switches shall be specification grade. Standard duplex receptacles shall be single phase, 15 Ampere, 120 volts, 2 pole, 3 wire, and conform to the NEMA 5-15R in dwellings and 5-20R in commercial applications. GFCI outlets shall be provided in all locations required by the NEC whether noted on plans or not. AFCI protection is required per the NEC. Devices and cover-plates shall be of the color and material determined by the architect. Outlets shall be hospital grade in patient bed areas of health care facilities per NEC. Dimmer switches shall be specification grade and be matched to the load being served (incandescent, fluorescent, or LED)

INSTALLATION

1. The work shall be laid out in advance, and where cutting, channeling, chasing, or drilling of floors, walls, partitions, ceilings, or other surfaces is necessary for the proper installation, support, or anchorage of the conduit, raceways, or other electrical work, this work shall be done and any damage to building, piping, or equipment shall be repaired by skilled tradesmen of the trades involved at no additional cost to the owner.
2. During installation, enclosures, equipment, controls, controllers, circuit protective devices, and other like items, shall be protected against entry of foreign matter; and be vacuum cleaned both inside and outside before testing, operating and painting.
   a. Damaged equipment shall be placed in first class operating condition or be returned to the source of supply for repair or replacement
   b. Painted surfaces shall be protected with factory installed removable heavy protective paper, sheet vinyl, or equivalent covering.
   c. Damaged paint on equipment and materials shall be refinished with the same quality of paint and workmanship as used by the manufacturer so that repaired areas are not obvious.
3. The contractor shall perform all temporary work necessary to maintain continuity of electrical service when connection is made to existing systems and facilities. Existing services shall not be interrupted without prior consent of the owner's authorized representative and may be interrupted only at and for the specified time designated by the owner's representative.
4. Electrical service entrance equipment, including arrangements for temporary power, shall conform to the serving power company's requirements. Coordinate routing, trenching, and conduit requirements with the power company.
5. The electrical contractor shall obtain available short circuit information from the supplying utility and perform a short circuit analysis of the available short circuit at the service equipment using the information obtained from the utility. The analysis shall include the impact of the service entrance conductors (size, material, distance) either installed by the utility or installed as part of the project. Based upon this information, the electrical contractor shall install a NEC compliant label on the service equipment stating:
   a. The available fault current at the service equipment.
   b. The nominal system voltage of the service equipment.
   c. The clearing time of the service protection device (based upon manufacturer's date for the actual equipment installed).
   d. Date that the label was installed.
6. The contractor shall provide product finishes and constructions compatible with wall and ceiling types based upon the contractor's review of all project requirements.
7. Penetrations of above grade floor slabs, time-rated partitions, and fire walls shall be fire stopped. Penetrations of fire rated floors, walls, and ceilings shall be installed in accordance with listed UL applications. See architectural drawings for location of fire rated assemblies. Materials and equipment shall be installed in accordance with recommendations of the manufacturer. At floor, exterior wall, and roof conduit penetrations, completely seal clearances around the conduit and make watertight
8. Raceways shall be kept 6 inches away from parallel runs of flues and hot-water pipes. Raceways shall be concealed within finished walls, ceilings, and floors of finished areas. Raceways may be run exposed in non-finished areas, such as utility rooms. Install conduit in complete runs before pulling in cables or wires. Independently support conduit. Do not use other supports i.e., (suspended ceilings, suspended ceiling supporting members, lighting fixtures, mechanical piping, or mechanical ducts).
9. All electrical wiring below slab on grade shall be protected by a PVC conduit system. Raceways crossing structural expansion joints shall have expansion fittings. Changes in direction of runs shall be made with symmetrical bends or fittings. Crushed or deformed raceways shall not be installed. Trapped raceways in damp and wet locations shall not be installed. Clogged raceways shall be entirely free of obstructions or shall be replaced.
10. Panelboards shall be flush when installed on finished wall surfaces. Panelboards shall be surface mount when installed in unfinished rooms. Where designated on panel schedule as "space" or "spare", include all necessary bussing, device support and connections. Provide blank cover for each space.
11. Placement of lighting fixtures, outlets, panelboards, transformers, disconnect switches and other items shall be located to avoid interference with mechanical or structural features.
12. Lighting fixtures shall be symmetrically placed in rooms.
    a. Lighting fixtures that are non-IC rated shall be installed such that no insulation is within 3 inches of the fixture and none on top so as to trap heat. Non-IC lighting fixtures shall not be installed within 1/2 inch of combustible material.
    b. Lighting fixtures installed in fire rated ceilings shall be rated for equivalent fire resistance, or equipped with a boot or box-out to maintain the ceiling system fire rating.
    c. The contractor shall field confirm all new and existing ceiling types to identify mounting requirements prior to order of lighting fixtures. All accessories and options required to successfully install the fixtures in the ceilings shall be provided, including those needed for fire rated applications.
    d. All open bay and similar lighting fixtures shall be supported by unistrut that spans structural joists. Unistrut shall be supported by the top cord of the structural joists only. Alternative suppporting schemes must be approved.
    e. Connect recessed lighting fixtures to conduit runs with maximum six feet of flexible metal conduit extending from a junction box to the fixture.
    f. At completion of project, re-lamp/re-ballast fixtures which have failed lamps/ballasts. Clean fixtures, lenses, diffusers and louvers that have accumulated dust/dirt/fingerprints during construction. Replace damaged lenses, diffusers and louvers with new.
12. Where light switches are shown grouped together they shall be mounted under a multi-gang cover-plate. Where dimmer switched are used, the mounting box size shall be based upon thermal de-rating requirements of the dimmers.
13. Outlets shall be mounted not less than 15" above finished floor per ADA guidelines. Switches shall be mounted not more than 48" above finished floor per ADA guidelines. Outlets and switches at counter top locations shall be mounted not more than 44"-46" above finished floor per ADA guidelines. Field coordinate location of counter mounted devises with counter installer.
14. The Electrical contractor shall coordinate with the Mechanical contractor for the installation of electrical components required to serve mechanical equipment. The contractor shall confirm equipment circuit requirements with the Mechanical contractor prior to rough-in of electrical circuits. Any re-work required to provide the electrical installation needed for compliance with actual nameplate requirements for equipment shall be accomplished at no additional cost. Nameplate data of actual equipment supplied shall be used for final circuit configurations. Adjustments from values shown on panel schedules shall be made as part of the contract.
15. The electrical contractor shall review the hardware schedule and coordinate with the door hardware installer and provide 120V electrical power at locations required for proper operation of door openers, power supplies, and controls. Low voltage wiring by door installers.
16. Make final connections to equipment supplied by others. Controls and starters related to mechanical equipment shall be supplied by the mechanical contractor. Controls and starters for owner furnished equipment shall be supplied by others. Electrical contractor shall make electrical connections to equipment from point of electrical circuit shown on drawings for equipment. Electrical contractor shall make connections to owner furnished equipment serviced by either hard wiring or service cord drops. Electrical contractor shall provide means of disconnection of equipment from electrical circuit if starter or controller supplied with equipment does not meet NEC requirements for disconnect.
17. Install green grounding conductors with feeders and branch circuits as indicated in panel schedules and one line diagram. Bond the grounding wires to each pullbox, junction box, outlet box, cabinets, and other enclosures through which the ground wires pass. Bond all conductive piping systems in the building to the electrical system ground. Bonding connections shall be made as close as practical to the water pipe ground or service equipment ground bus.
18. Major pieces of electrical equipment shall be permanently marked with an identification nameplate. All panelboards shall have removable typewritten panel directories inserted into plastic sleeves mounted on the inside face of the panelboard door. The directory shall describe the as-built circuit configurations of the panel per NEC requirements. Marking directly on the panelboard is not permitted. All junction boxes and outlets shall have a mechanically printed permanent label attached indicating which circuit and panel serves the junction box or outlet.
19. Duct smoke detector requirements shall be installed per local code requirements. The Electrical contractor shall coordinate with the Mechanical contractor for control interface requirements.
20. After the electrical installation is completed, the Electrical Contractor shall conduct a safety and an operating test of the electrical system. The electrical contractor shall furnish all instruments and personnel required for the tests. No part of the electrical distribution system shall be energized prior to the testing of the grounding system. Resistance tests shall be made for service entrances and feeders installed as part of this project. Proper phase rotation shall be confirmed for all 3 phase motors.
21. Functional testing or lighting controls shall be performed in accordance with IECC or ASHRAE requirements locally enforced. The testing shall demonstrate controls are calibrated, adjusted, programmed and in proper working condition. Testing shall confirm proper operation of occupancy sensors, photo sensors, and time switches. The contractor shall instruct the client as to the proper operation and programming requirements of the system. The functional testing must be made by an independent party, such as a representative of the lighting control manufacturer, who is not part of the building design engineering firm or a member of the construction contractor's team. The testing party shall provide documentation certifying operational compliance with energy code requirements.
22. All work shall pass inspection by proper authorities prior to acceptance by the owner. Costs for permits, certificates, and inspections required for completion of the work shall be paid by the Electrical Contractor.
23. The contractor shall warrant the complete electrical installation at the time of completion for a period of one year. During the warranty period the contractor shall replace or repair any components or work which develop defects beyond normal wear and tear. The electrical contractor shall be responsible for, and shall incur financial responsibility for any damages caused by or resulting from defects in his work.
24. The contractor shall provide as-built and record drawings indicating all changes in equipment, devices, and conduit locations to the general contractor for delivery to the owner as part of the project close-out

END OF NOTES

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REVISIONS

NO.	DATE	DESCRIPTION	BY
2	03-18-19	BURN BUILDING RELOCATION	TGP
1	05-16-16	AGENCY COMMENTS	TGP

TITLE: ELECTRICAL NOTES

PROJECT: CITY OF WINCHESTER
DEPARTMENT OF FIRE PROGRAMS
LIVE FIRE TRAINING STRUCTURE
1716 WOODSTOCK LANE
WINCHESTER, VIRGINIA 22602

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CONSULTING ENGINEERS

COMMONWEALTH OF VIRGINIA
MICHAEL F. HOWELL
No. 008875
23 APR 2019
PROFESSIONAL ENGINEER

SURVEY: PL-PLC	C.I.: 2'
DRAWN BY: MFH	JOB NO.: 1511018
SCALE: AS NOTED	DATE: 04/23/19
SHEET: E3.0	