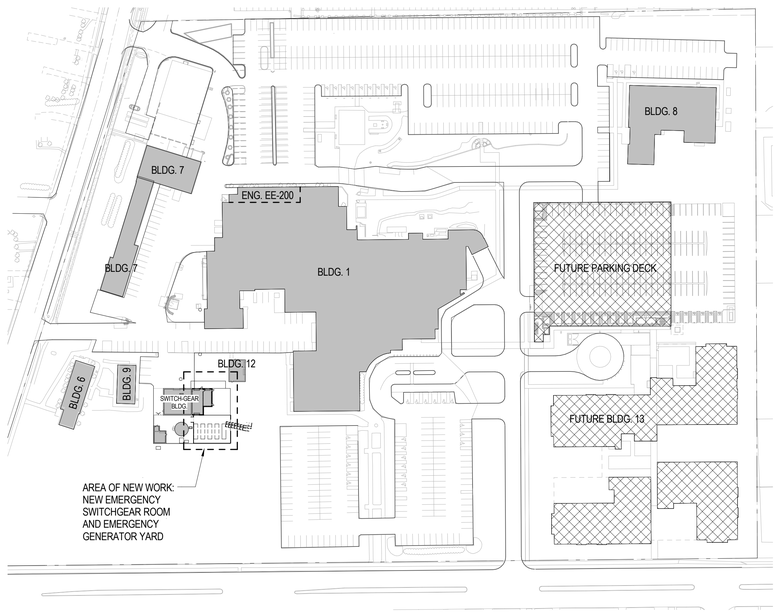
EXPAND EMERGENCY POWER GENERATION for the ERIE VAMC

PROJECT NO. 562-13-112

ERIE VA MEDICAL CENTER
135 E 38TH ST
ERIE, PA 16504
814-868-8661

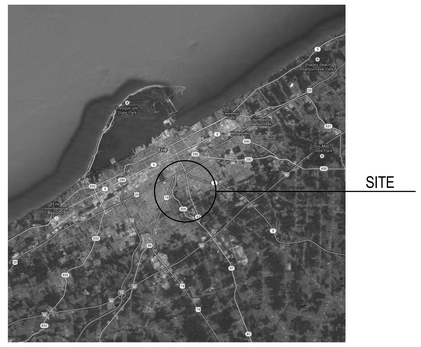
DRAWING INDEX	
SHEET #	SHEET NAME
GENERAL	
G001	COVER SHEET
G002	ENLARGED SITE PLAN
CIVIL	
C001	EXISTING CONDITIONS PLAN
C100	SITE PLAN
C101	STORMWATER MANAGEMENT AND GRADING PLAN
C102	UTILITY RELOCATION PLAN
C103	PROPOSED UTILITIES PLAN
C104	EROSION AND SEDIMENT CONTROL PLAN
C501	CONSTRUCTION DETAILS
C502	EROSION AND SEDIMENT CONTROL PLAN DETAILS
ARCHITECTURAL	
A001	ARCHITECTURAL SYMBOLS, ABBREVIATIONS AND GENERAL NOTES
A002	STRUCTURAL NOTES AND DUNNAGE DETAIL
A101	ARCHITECTURAL PLANS AND ELEVATIONS
A201	SECTIONS AND DETAILS
A301	DOOR SCHEDULE AND MISCELLANEOUS DETAILS
FIRE PROTECTION	
F001	FIRE PROTECTION PLANS, SYMBOLS, DETAILS AND NOTES
PLUMBING	
P001	PLUMBING PLANS, SYMBOLS AND ABBREVIATIONS, SCHEDULES & NOTES
MECHANICAL	
H001	HVAC SYMBOLS, ABBREVIATIONS AND GENERAL NOTES
HD101	HVAC - GENERATOR BLDG AND ROOM EE200 DEMOLITION PLANS
H101	HVAC - GENERATOR BLDG PLANS
H102	HVAC - ROOM EE200 PLANS (ALTERNATE #1)
H501	HVAC DETAILS
H801	HVAC CONTROL DIAGRAM
ELECTRICAL	
E001	ELECTRICAL SYMBOLS, ABBREVIATIONS AND NOTES
E100	ELECTRICAL SITE PLAN
ED101	ELECTRICAL DEMOLITION
E201	ELECTRICAL - ADDITION TO SWITCHGEAR BUILDING - POWER AND LIGHTING PLAN
E202	ELECTRICAL - GENERATOR BLDG ROOF - LIGHTING AND POWER PLAN
E203	ELECTRICAL - ROOM EE200 - POWER
E500	ELECTRICAL DETAILS
E600	ELECTRICAL RISER & CONTROLS DIAGRAM
E601	ELECTRICAL EMERGENCY SYSTEM SINGLE LINE - EXISTING CONDITIONS
E602	ELECTRICAL SINGLE LINE - NEW WORK
E603	ELECTRICAL SINGLE LINE - NEW WORK - BUILDING 1
E700	ELECTRICAL SCHEDULES
SYSTEMS	
EF001	FIRE ALARM SYMBOLS, ABBREVIATIONS AND NOTES
EF101	FIRE ALARM PLAN - SWITCHGEAR BLDG & EE200
ES001	SECURITY SYMBOLS AND NOTES
ES100	SECURITY - BUILDING 1 BASEMENT
ES101	SECURITY PLAN - SWITCHGEAR BLDG
ES102	SECURITY - BUILDING 1 LEVEL 1



1 OVERALL SITE PLAN
1" = 100'-0"

TRUE NORTH N

VICINITY MAP



LOCATION MAP

FULLY SPRINKLERED
CONSTRUCTION DOCUMENTS

Revisions:	Date

CONSULTANTS:

BARBER & HOFFMAN
215 EXECUTIVE DRIVE #202
CRANBERRY TWP, PA 16066

URBAN ENGINEERS, INC.
1 WILLIAMSBURG PLACE, SUITE 210
WARRENDALE, PA 15086

MOORE DESIGN ASSOCIATES
130 HEAVEN LANE
MARS, PA 16046

SEAL

ARCHITECTS/ENGINEERS:

AE WORKS

6587 Hamilton Avenue
Pittsburgh, Pennsylvania 15206
Ph: 412.287.7333 Fax: 412.287.7334
www.ae-works.com

AE Works Project Number: 13045

Approved: Director

Approved: Chief Operating Officer

Approved: Vice President, Facilities Management

Approved: Manager, Projects Section

Drawing Title: COVER SHEET

Approved: Site Manager

Approved: Project Manager

Project Title: EXPAND EMERGENCY POWER GENERATION for the ERIE VAMC

Location: 135 E 38TH ST, ERIE, PA 16504

Date: 03/17/2016 | Checked: PR | Drawn: SB

Project Number: 562-13-112

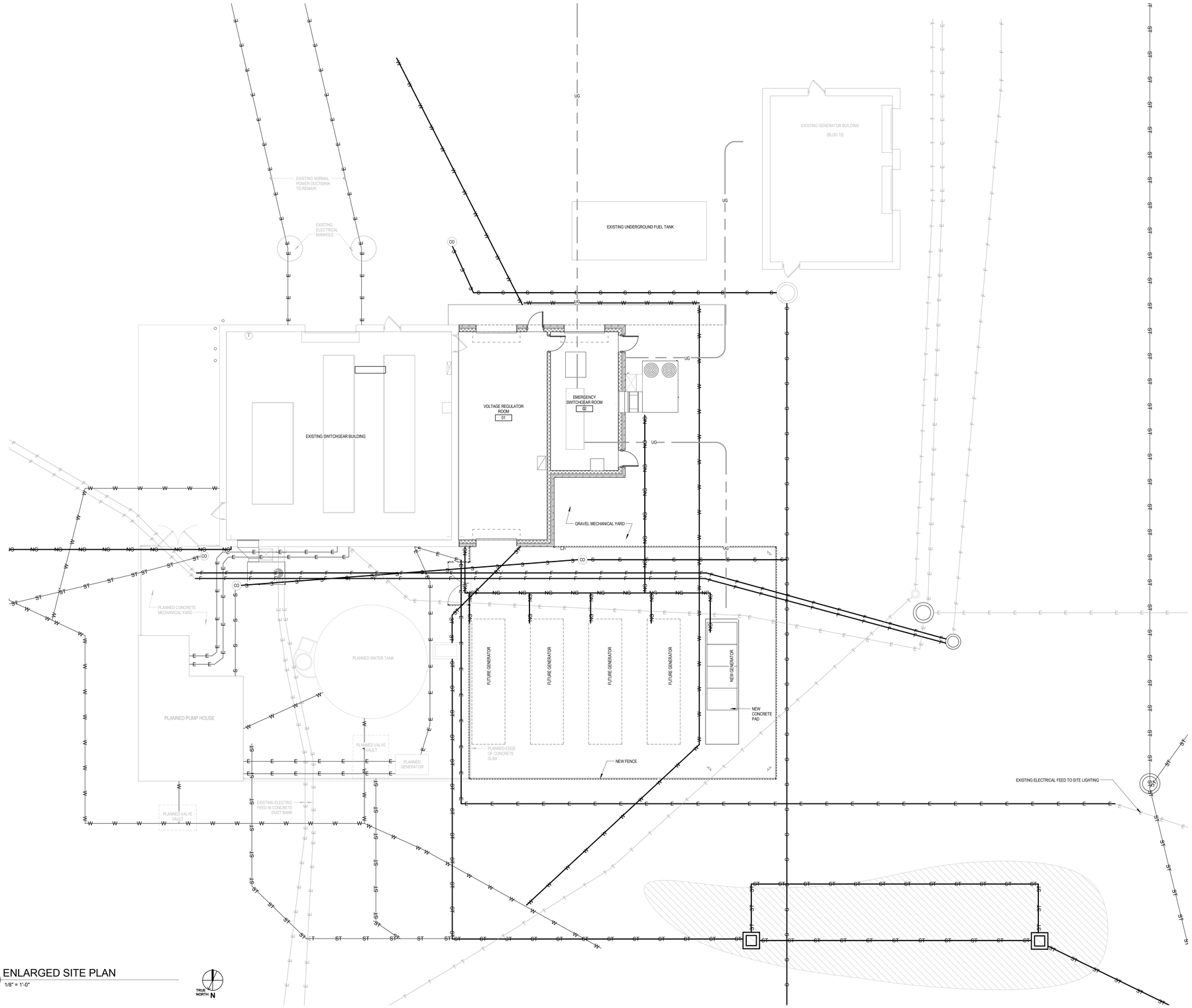
Building Number: 1

Drawing Number: G001

Office of Construction and Facilities Management

Department of Veterans Affairs

VA FORM 08-6231



1 ENLARGED SITE PLAN
1/8" = 1'-0"

SITE PLAN LEGEND

NG	EXISTING GAS LINE
NG	PLANNED GAS LINE (PROJ. #562-13-111)
NG	NEW GAS LINE
W	EXISTING WATER LINE
W	PLANNED WATER LINE (PROJ. #562-13-111)
W	NEW WATER LINE
E	EXISTING ELECTRIC LINE
E	PLANNED ELECTRIC LINE (PROJ. #562-13-111)
E	NEW ELECTRIC LINE
F	EXISTING FIRE ALARM LINE
F	PLANNED FIRE ALARM LINE (PROJ. #562-13-111)
F	NEW FIRE ALARM LINE
S	EXISTING SANITARY LINE
S	PLANNED SANITARY LINE (PROJ. #562-13-111)
S	NEW SANITARY LINE
ST	EXISTING STORM WATER LINE
ST	PLANNED STORMWATER LINE (PROJ. #562-13-111)
ST	NEW STORMWATER LINE
T	EXISTING TELECOM LINE
T	PLANNED TELECOM LINE (PROJ. #562-13-111)
T	NEW TELECOM LINE
UG	UNDERGROUND ELECTRICAL CONDUIT
CO	CLEAN OUT

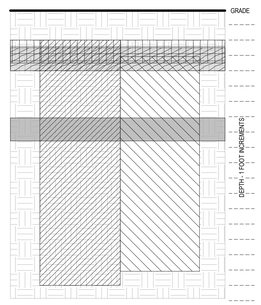
NOTE:

1. EXISTING UTILITY LOCATIONS HAVE BEEN CONFIRMED BY GROUND PENETRATING RADAR. CONTRACTOR SHALL VERIFY EXACT LOCATION OF UTILITIES PRIOR TO COMMENCING WORK.
2. CONTRACTOR SHALL VERIFY EXISTING UTILITY WORK DEPTHS DURING CONSTRUCTION. ADDITIONAL CARE MAY BE REQUIRED DURING INSTALLATION OF NEW UTILITY LINES.
3. STORM WATER MANAGEMENT HAS ONLY BEEN DESIGNED FOR THE NEW GENERATOR BUILDING AND YARD AS WELL AS THE FUTURE WATER TANK AND PUMPHOUSE. FUTURE SITE INTERVENTIONS WILL REQUIRE ADDITIONAL STORM WATER MANAGEMENT PRACTICES.

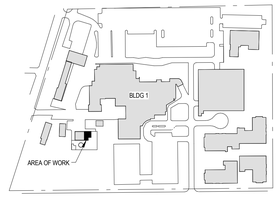
NOTE: SITE SURVEY DID NOT INCLUDE VERIFICATION OF DEPTHS OF EXISTING UTILITIES. TYPICAL ELECTRICAL, GAS, AND TELECOMMUNICATION DEPTHS ARE INDUSTRY STANDARDS ONLY. EXISTING ELECTRICAL DUCTBANK DEPTH PROVIDED BY OWNER. EXISTING STORM AND SANITARY DEPTHS ARE INTERPOLATED FROM VERIFIED INVERT ELEVATIONS. CONTRACTOR IS REQUIRED TO CAREFULLY EXCAVATE ON SITE TO AVOID DAMAGING EXISTING UTILITIES.

CONTRACTOR IS RESPONSIBLE FOR DETERMING UTILITY LINE DEPTHS PRIOR TO COMMENCING WORK. CONTRACTOR SHOULD PROVIDE VA UPDATED SITE PLAN WITH UTILITY DEPTHS MARKED.

- TYP. ELECTRICAL SERVICES KEEP 2.5 FEET OF COVER COVER CONDUITS AND BANKS
- EXISTING ELECTRICAL DUCTBANK RUNS NORTH FROM THE SWITCHGEAR BUILDING BETWEEN 7 FEET AND 8.5 FEET BELOW GRADE
- TYP. GAS SERVICES KEEP 2.5 FEET OF COVER OVER GAS LINES
- TYP. TELECOMMUNICATOIN SERVICES KEEP 2 FEET OF COVER
- EXISTING SANITARY SEWERS ARE FOUND BETWEEN 4 FEET AND 18 FEET AT OR NEAR THE PROJECT SITE
- EXISTING STORM SEWERS ARE FOUND BETWEEN 4 FEET AND 18 FEET AT OR NEAR THE PROJECT SITE



2 TYP. UTILITY DEPTHS
1/4" = 1'-0"



SITE KEY PLAN

FULLY SPRINKLERED CONSTRUCTION DOCUMENTS

Revisions:	Date

CONSULTANTS:

SEAL

ARCHITECTS/ENGINEERS:

AE WORKS

6587 Hamilton Avenue
Pittsburgh, Pennsylvania 15206
Ph: 412.287.7333 Fax: 412.287.7334
www.ae-works.com

AE Works Project Number: 13045

Drawing Title: ENLARGED SITE PLAN

Approved: Project Director

Project Title: EXPAND EMERGENCY POWER GENERATION for the ERIE VAMC

Location: 135 E 38TH ST, ERIE, PA 16504

Date: 03/17/2016 | Checked: PR | Drawn: PR

Project Number: 562-13-112

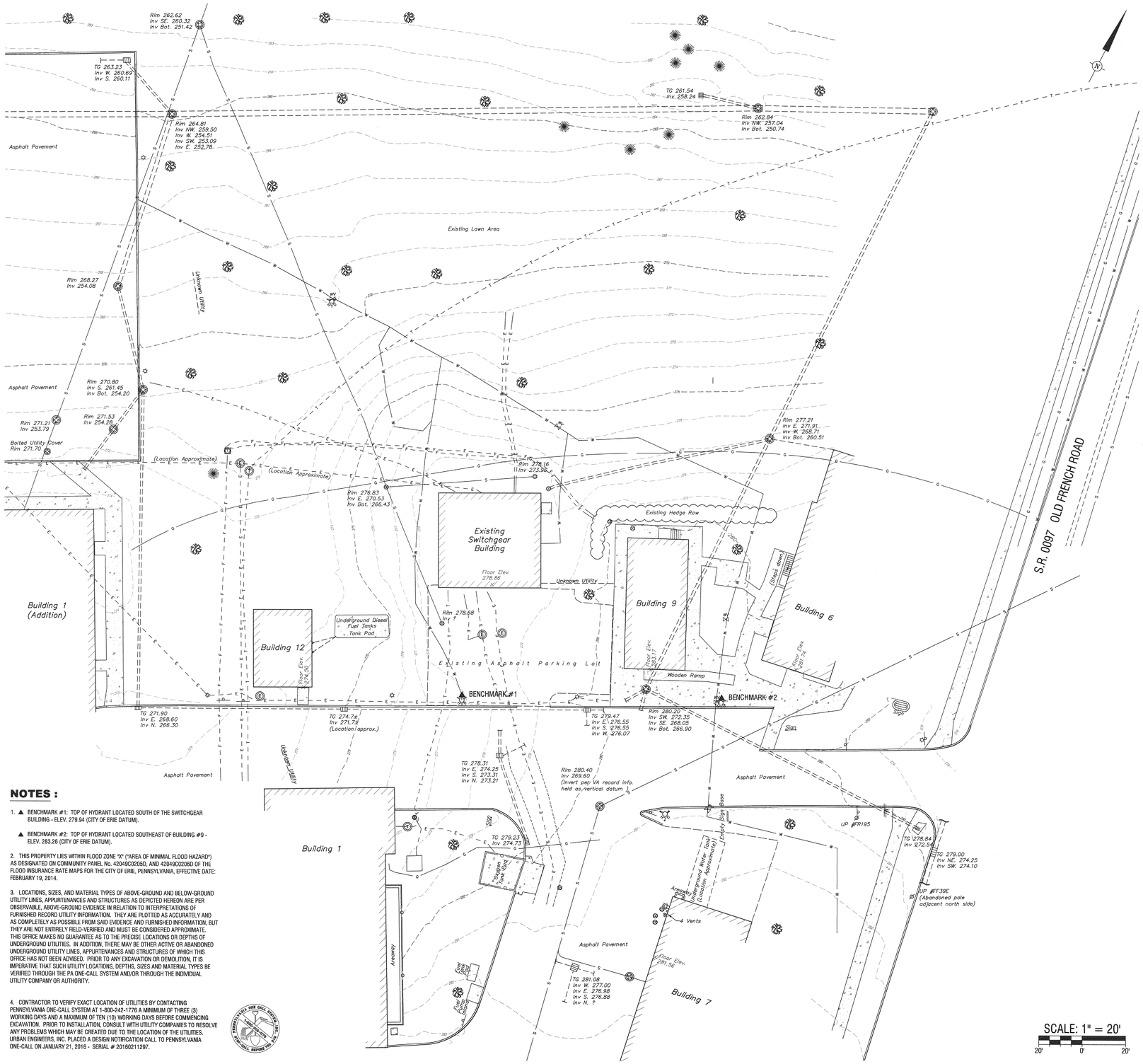
Building Number: 1

Drawing Number: G002

Office of Construction and Facilities Management

Department of Veterans Affairs

VA FORM 08-6231



LEGEND

	CENTERLINE		JUNCTION BOX
	BOUNDARY LINE		ELECTRIC METER
	PROPERTY LINE		ELECTRIC BOX
	RIGHT-OF-WAY LINE		SIGN
	CONTOUR LINE		HYDRANT
	ASPHALT PAVEMENT		EX. WATER VALVE
	EDGE OF GRAVEL		WATER METER
D.C.	CURB/DEPRESSED CURB		GAS VALVE
	WALL		GAS WELL
	CONCRETE		GAS METER
	BUILDING/DIMENSION		GAS MARKER
	OVERHEAD/BURIED ELEC.		GTE PEDESTAL
	OVERHEAD/BURIED CATV		MAILBOX
	OVERHEAD/BURIED TELECOMM	12"	TREE/EVERGREEN (AS NOTED)
	OVERHEAD TRAFFIC SIGNAL LINE		TREE LINE
	GAS LINE		BRUSH LINE/MOW LINE
	WATER MAIN, LATERAL	Landscaping	LANDSCAPING
	STORM SEWER LINE	Fnd. Mon.	FOUND MONUMENT
	SANITARY SEWER LINE, LATERAL	Fnd. IP	FOUND IRON PIPE
	FENCE LINE	Fnd. RB	FOUND REBAR
	CHAIN LINK FENCE LINE	Fnd. ISP	FOUND IRON SURVEY POINT
	BOTTOM OF DITCH	Fnd. Pin	FOUND IRON PIN
	TOP OF DITCH / TOP OF SLOPE	Fnd. Spike	FOUND SPIKE
	INLETS TG = TOP OF GRATE ELEV. INV = INVERT ELEV.	Fnd. DH	FOUND DRILLHOLE
	DOWNSPOUT	Fnd. PK	FOUND PK NAIL
	MANHOLE RIM = RIM ELEV. INV = INVERT ELEV.		
C.O.	CLEANOUT		
UP #19897	UTILITY POLE/GUY WIRE		
	TRAFFIC SIGNAL POLE		
	LIGHT POLE		
	BURIED FIRE ALARM CABLES		
	ELECTRIC MANHOLE		
	TELECOM / FIRE CABLE MANHOLE		

NOTES :

1. ▲ BENCHMARK #1: TOP OF HYDRANT LOCATED SOUTH OF THE SWITCHGEAR BUILDING - ELEV. 279.94 (CITY OF ERIE DATUM).

   ▲ BENCHMARK #2: TOP OF HYDRANT LOCATED SOUTHEAST OF BUILDING #9 - ELEV. 283.26 (CITY OF ERIE DATUM).

2. THIS PROPERTY LIES WITHIN FLOOD ZONE "X" ("AREA OF MINIMAL FLOOD HAZARD") AS DESIGNATED ON COMMUNITY PANEL No. 42049C0205D, AND 42049C0206D OF THE FLOOD INSURANCE RATE MAPS FOR THE CITY OF ERIE, PENNSYLVANIA, EFFECTIVE DATE: FEBRUARY 19, 2014.

3. LOCATIONS, SIZES, AND MATERIAL TYPES OF ABOVE-GROUND AND BELOW-GROUND UTILITY LINES, APPURTENANCES AND STRUCTURES AS DEPICTED HEREON ARE PER OBSERVABLE, ABOVE-GROUND EVIDENCE IN RELATION TO INTERPRETATIONS OF FURNISHED RECORD UTILITY INFORMATION. THEY ARE PLOTTED AS ACCURATELY AND AS COMPLETELY AS POSSIBLE FROM SAID EVIDENCE AND FURNISHED INFORMATION, BUT THEY ARE NOT ENTIRELY FIELD-VERIFIED AND MUST BE CONSIDERED APPROXIMATE. THIS OFFICE MAKES NO GUARANTEE AS TO THE PRECISE LOCATIONS OR DEPTHS OF UNDERGROUND UTILITIES. IN ADDITION, THERE MAY BE OTHER ACTIVE OR ABANDONED UNDERGROUND UTILITY LINES, APPURTENANCES AND STRUCTURES OF WHICH THIS OFFICE HAS NOT BEEN ADVISED. PRIOR TO ANY EXCAVATION OR DEMOLITION, IT IS IMPERATIVE THAT SUCH UTILITY LOCATIONS, DEPTHS, SIZES AND MATERIAL TYPES BE VERIFIED THROUGH THE PA ONE-CALL SYSTEM AND/OR THROUGH THE INDIVIDUAL UTILITY COMPANY OR AUTHORITY.

4. CONTRACTOR TO VERIFY EXACT LOCATION OF UTILITIES BY CONTACTING PENNSYLVANIA ONE-CALL SYSTEM AT 1-800-242-1776 A MINIMUM OF THREE (3) WORKING DAYS AND A MAXIMUM OF TEN (10) WORKING DAYS BEFORE COMMENCING EXCAVATION. PRIOR TO INSTALLATION, CONSULT WITH UTILITY COMPANIES TO RESOLVE ANY PROBLEMS WHICH MAY BE CREATED DUE TO THE LOCATION OF THE UTILITIES. URBAN ENGINEERS, INC. PLACED A DESIGN NOTIFICATION CALL TO PENNSYLVANIA ONE-CALL ON JANUARY 21, 2016 - SERIAL # 20160211297.

SCALE: 1" = 20'

20' 0' 20'

OWNER:

ERIE VA MEDICAL CENTER
135 EAST 38TH STREET BOULEVARD
ERIE, PA 16504

NORTH

CONSTRUCTION DOCUMENTS

Revisions:	Date

CONSULTANTS:

HERBERT, ROWLAND & GRUBIC, INC.
200 WEST KENSINGER DRIVE, SUITE 400
CRANBERRY TOWNSHIP, PA 16066

URBAN ENGINEERS, INC.
1319 SASSAFRAS STREET
ERIE, PA 16501

MOORE DESIGN ASSOCIATES
130 HEAVEN LANE
MARS, PA 16046

SEAL

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
TIMOTHY LAWRENCE POLASKI
ENGINEER
055836-E

ARCHITECTS/ENGINEERS:

AE WORKS

6587 Hamilton Avenue
Pittsburgh, Pennsylvania 15206
Ph: 412.287.7333 Fax: 412.287.7334
www.ae-works.com

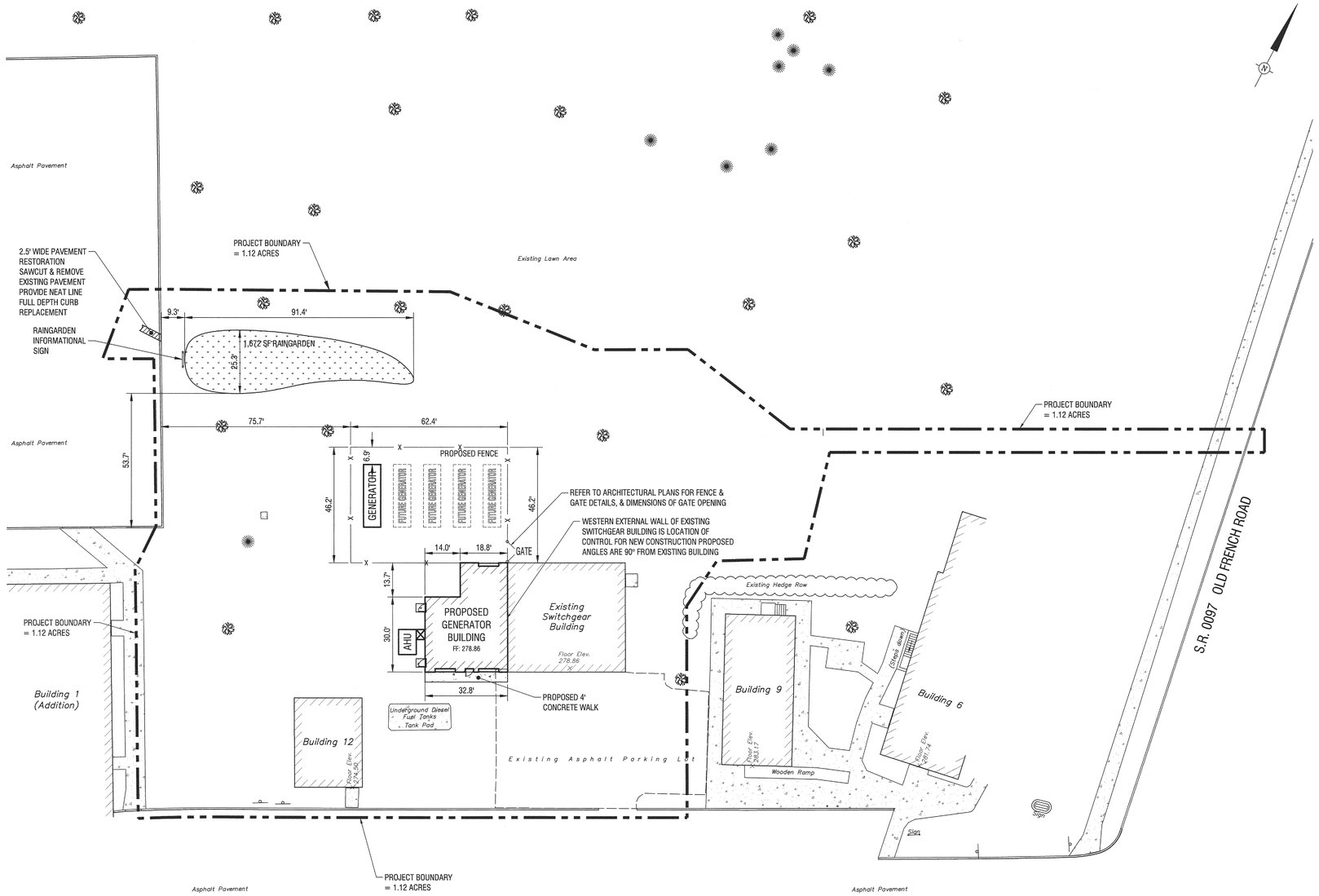
AE Works Project Number: 13045

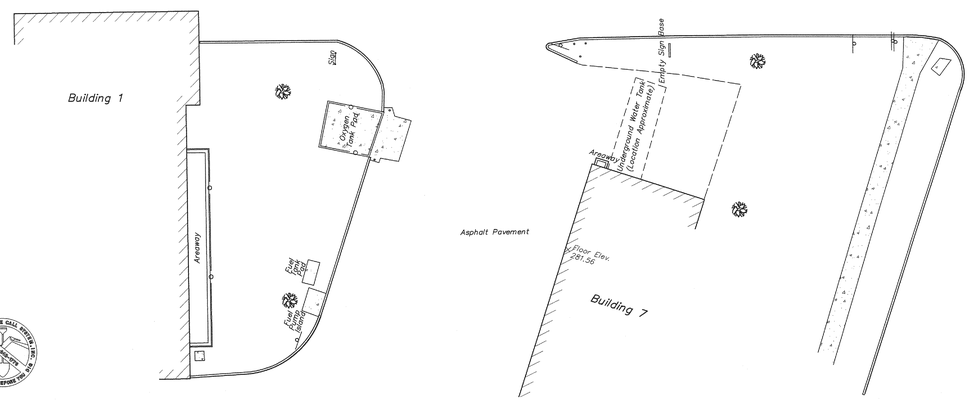
Drawing Title: EXISTING CONDITIONS PLAN	Project Title: EXPAND EMERGENCY POWER GENERATION FOR THE ERIE VAMC		Project Number: 562-13-112
Approved: Project Director	Location: 135 E 38TH ST, ERIE, PA 16504		Building Number: 1
	Date: 03/17/2016	Checked: TLP, TMP / Drawn: DJK, DGH	Drawing Number: C001

Office of Construction and Facilities Management

Department of Veterans Affairs

VA FORM 08-6231





LEGEND

	CENTERLINE		JUNCTION BOX
	BOUNDARY LINE		ELECTRIC METER
	PROPERTY LINE		ELECTRIC BOX
	RIGHT-OF-WAY LINE		SIGN
	CONTOUR LINE		HYDRANT
	ASPHALT PAVEMENT		WATER VALVE
	EDGE OF GRAVEL		WATER METER
D.C.	CURB/DEPRESSED CURB		GAS VALVE
	WALL		GAS WELL
	CONCRETE		GAS METER
bldg	BUILDING/DIMENSION		GAS MARKER
E	OVERHEAD/BURIED ELEC.		GTE PEDESTAL
C	OVERHEAD/BURIED CATV		MAILBOX
T	OVERHEAD/BURIED TELECOMM	12"	TREE/EVERGREEN (AS NOTED)
TS	OVERHEAD TRAFFIC SIGNAL LINE		TREE LINE
G	GAS LINE		BRUSH LINE/MOW LINE
W	WATER MAIN, LATERAL	Landscaping	LANDSCAPING
	STORM SEWER LINE	Fnd. Mon.	FOUND MONUMENT
S	SANITARY SEWER LINE, LATERAL	Fnd. IP	FOUND IRON PIPE
X	FENCE LINE	Fnd. RB	FOUND REBAR
	CHAIN LINK FENCE LINE	Fnd. ISP	FOUND IRON SURVEY POINT
	BOTTOM OF DITCH	Fnd. Pin	FOUND IRON PIN
	TOP OF DITCH / TOP OF SLOPE	Fnd. Spike	FOUND SPIKE
	INLETS TG = TOP OF GRATE ELEV. INV = INVERT ELEV.	Fnd. DH	FOUND DRILLHOLE
	DOWNSPOUT	Fnd. PK	FOUND PK NAIL
	MANHOLE RIM = RIM ELEV. INV = INVERT ELEV.		PROPOSED CONCRETE
C.O.	CLEANOUT		PROPOSED ASPHALT
UP #19897	UTILITY POLE/GUY WIRE		PROPOSED STORM SEWER
	TRAFFIC SIGNAL POLE	G	PROPOSED GAS LINE
	LIGHT POLE	W	PROPOSED WATER LINE
F	BURIED FIRE ALARM CABLES	S	PROPOSED SANITARY LINE
	ELECTRIC MANHOLE	F	PROPOSED FIRE COMMUNICATION LINE
	TELECOM / FIRE CABLE MANHOLE	275	PROPOSED CONTOUR
		X	PROPOSED FENCE

NOTES :

1. ▲ BENCHMARK #1: TOP OF HYDRANT LOCATED SOUTH OF THE SWITCHGEAR BUILDING - ELEV. 279.94 (CITY OF ERIE DATUM).

   ▲ BENCHMARK #2: TOP OF HYDRANT LOCATED SOUTHEAST OF BUILDING #9 - ELEV. 283.26 (CITY OF ERIE DATUM).

2. THIS PROPERTY LIES WITHIN FLOOD ZONE "X" ("AREA OF MINIMAL FLOOD HAZARD") AS DESIGNATED ON COMMUNITY PANEL No. 42049C0220D, AND 42049C0206D OF THE FLOOD INSURANCE RATE MAPS FOR THE CITY OF ERIE, PENNSYLVANIA, EFFECTIVE DATE: FEBRUARY 19, 2014.

3. LOCATIONS, SIZES, AND MATERIAL TYPES OF ABOVE-GROUND AND BELOW-GROUND UTILITY LINES, APPURTENANCES AND STRUCTURES AS DEPICTED HEREON ARE PER OBSERVABLE, ABOVE-GROUND EVIDENCE IN RELATION TO INTERPRETATIONS OF FURNISHED RECORD UTILITY INFORMATION. THEY ARE PLOTTED AS ACCURATELY AND AS COMPLETELY AS POSSIBLE FROM SAID EVIDENCE AND FURNISHED INFORMATION, BUT THEY ARE NOT ENTIRELY FIELD-VERIFIED AND MUST BE CONSIDERED APPROXIMATE. THIS OFFICE MAKES NO GUARANTEE AS TO THE PRECISE LOCATIONS OR DEPTHS OF UNDERGROUND UTILITIES. IN ADDITION, THERE MAY BE OTHER ACTIVE OR ABANDONED UNDERGROUND UTILITY LINES, APPURTENANCES AND STRUCTURES OF WHICH THIS OFFICE HAS NOT BEEN ADVISED. PRIOR TO ANY EXCAVATION OR DEMOLITION, IT IS IMPERATIVE THAT SUCH UTILITY LOCATIONS, DEPTHS, SIZES AND MATERIAL TYPES BE VERIFIED THROUGH THE PA ONE-CALL SYSTEM AND/OR THROUGH THE INDIVIDUAL UTILITY COMPANY OR AUTHORITY.

4. CONTRACTOR TO VERIFY EXACT LOCATION OF UTILITIES BY CONTACTING PENNSYLVANIA ONE-CALL SYSTEM AT 1-800-242-1776 A MINIMUM OF THREE (3) WORKING DAYS AND A MAXIMUM OF TEN (10) WORKING DAYS BEFORE COMMENCING EXCAVATION. PRIOR TO INSTALLATION, CONSULT WITH UTILITY COMPANIES TO RESOLVE ANY PROBLEMS WHICH MAY BE CREATED DUE TO THE LOCATION OF THE UTILITIES. URBAN ENGINEERS, INC. PLACED A DESIGN NOTIFICATION CALL TO PENNSYLVANIA ONE-CALL ON JANUARY 21, 2016 - SERIAL # 20160211297.

PENNSYLVANIA ONE CALL SYSTEM, INC. 1-800-242-1776 SERIAL NUMBER REQUIRED

OWNER:

ERIE VA MEDICAL CENTER
135 EAST 38TH STREET BOULEVARD
ERIE, PA 16504

SCALE: 1" = 20'
20' 0' 20'

NORTH

CONSTRUCTION DOCUMENTS

Revisions:	Date

CONSULTANTS:

HERBERT, ROWLAND & GRUBIC, INC.
200 WEST KENSINGER DRIVE, SUITE 400
CRANBERRY TOWNSHIP, PA 16066

URBAN ENGINEERS, INC.
1319 SASSAFRAS STREET
ERIE, PA 16501

MOORE DESIGN ASSOCIATES
130 HEAVEN LANE
MARS, PA 16046

SEAL

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
TIMOTHY LAWRENCE POLASKI
ENGINEER
055636-E

ARCHITECTS/ENGINEERS:

AE WORKS

6587 Hamilton Avenue
Pittsburgh, Pennsylvania 15206
Ph: 412.287.7333 Fax: 412.287.7334
www.ae-works.com

AE Works Project Number: 13045

Drawing Title
SITE PLAN

Approved: Project Director

Project Title:
EXPAND EMERGENCY POWER GENERATION FOR THE ERIE VAMC

Location:
135 E 38TH ST, ERIE, PA 16504

Date:	Checked:	Drawn:
03/17/2016	TLP, TMP	DJK, DGH

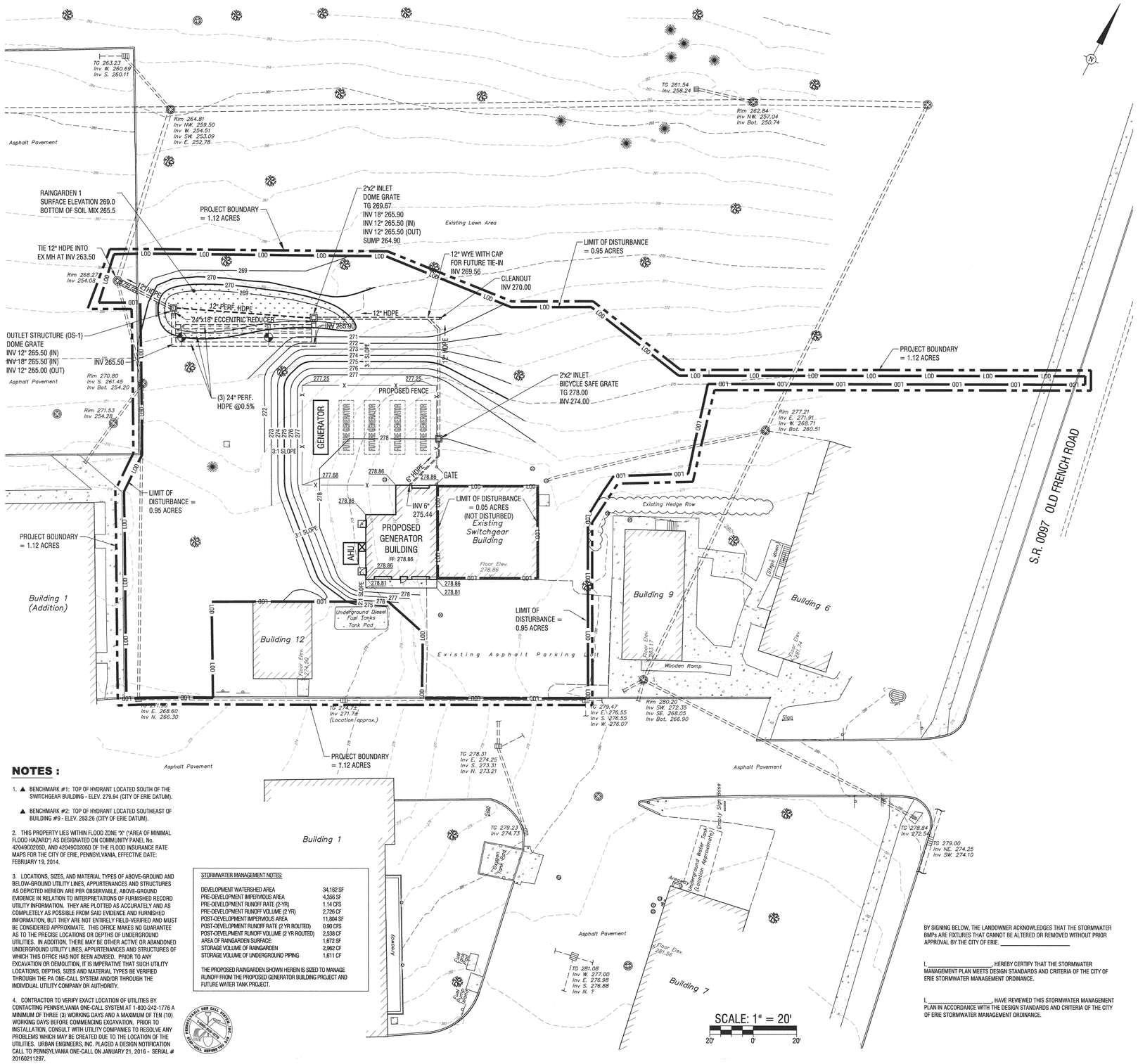
Project Number
562-13-112

Building Number
1

Drawing Number
C100

Office of Construction and Facilities Management
Department of Veterans Affairs

VA FORM 08-6231



LEGEND

CENTERLINE	JUNCTION BOX
BOUNDARY LINE	ELECTRIC METER
PROPERTY LINE	ELECTRIC BOX
RIGHT-OF-WAY LINE	SIGN
CONTOUR LINE	HYDRANT
ASPHALT PAVEMENT	WATER VALVE
EDGE OF GRAVEL	WATER METER
D.C. CURB/DEPRESSED CURB	GAS VALVE
WALL	GAS WELL
CONCRETE	GAS METER
BUILDING/DIMENSION	GAS MARKER
OVERHEAD/BURIED ELEC.	GTE PEDESTAL
OVERHEAD/BURIED CATV	MAILBOX
OVERHEAD/BURIED TELECOMM	12" TREE/EVERGREEN (AS NOTED)
OVERHEAD TRAFFIC SIGNAL LINE	TREE LINE
GAS LINE	BRUSH LINE/MOW LINE
WATER MAIN, LATERAL	Landscaping LANDSCAPING
STORM SEWER LINE	Fnd. Mon. FOUND MONUMENT
SANITARY SEWER LINE, LATERAL	Fnd. IP FOUND IRON PIPE
FENCE LINE	Fnd. RB FOUND REBAR
CHAIN LINK FENCE LINE	Fnd. ISP FOUND IRON SURVEY POINT
BOTTOM OF DITCH	Fnd. Pin FOUND IRON PIN
TOP OF DITCH / TOP OF SLOPE	Fnd. Spike FOUND SPIKE
INLETS TG = TOP OF GRATE ELEV. INV = INVERT ELEV.	Fnd. DH FOUND DRILLHOLE
DOWNSPOUT	Fnd. PK FOUND PK NAIL
MANHOLE RIM = RIM ELEV. INV = INVERT ELEV.	PROPOSED CONCRETE
C.O. CLEANOUT	PROPOSED ASPHALT
UP #19897 UTILITY POLE/GUY WIRE	PROPOSED STORM SEWER
TRAFFIC SIGNAL POLE	G PROPOSED GAS LINE
LIGHT POLE	W PROPOSED WATER LINE
BURIED FIRE ALARM CABLES	S PROPOSED SANITARY LINE
ELECTRIC MANHOLE	F PROPOSED FIRE COMMUNICATION LINE
TELECOM / FIRE CABLE MANHOLE	275 PROPOSED CONTOUR
	X PROPOSED FENCE
	PERCOLATION TEST PIT

NOTES :

1. ▲ BENCHMARK #1: TOP OF HYDRANT LOCATED SOUTH OF THE SWITCHGEAR BUILDING - ELEV. 279.94 (CITY OF ERIE DATUM).

   ▲ BENCHMARK #2: TOP OF HYDRANT LOCATED SOUTHEAST OF BUILDING #9 - ELEV. 283.26 (CITY OF ERIE DATUM).

2. THIS PROPERTY LIES WITHIN FLOOD ZONE "X" ("AREA OF MINIMAL FLOOD HAZARD") AS DESIGNATED ON COMMUNITY PANEL No. 42049C0205D, AND 42049C0206D OF THE FLOOD INSURANCE RATE MAPS FOR THE CITY OF ERIE, PENNSYLVANIA, EFFECTIVE DATE: FEBRUARY 19, 2014.

3. LOCATIONS, SIZES, AND MATERIAL TYPES OF ABOVE-GROUND AND BELOW-GROUND UTILITY LINES, APPURTENANCES AND STRUCTURES AS DEPICTED HEREON ARE PER OBSERVABLE, ABOVE-GROUND EVIDENCE IN RELATION TO INTERPRETATIONS OF FURNISHED RECORD UTILITY INFORMATION. THEY ARE PLOTTED AS ACCURATELY AND AS COMPLETELY AS POSSIBLE FROM SAID EVIDENCE AND FURNISHED INFORMATION, BUT THEY ARE NOT ENTIRELY FIELD-VERIFIED AND MUST BE CONSIDERED APPROXIMATE. THIS OFFICE MAKES NO GUARANTEE AS TO THE PRECISE LOCATIONS OR DEPTHS OF UNDERGROUND UTILITIES. IN ADDITION, THERE MAY BE OTHER ACTIVE OR ABANDONED UNDERGROUND UTILITY LINES, APPURTENANCES AND STRUCTURES OF WHICH THIS OFFICE HAS NOT BEEN ADVISED. PRIOR TO ANY EXCAVATION OR DEMOLITION, IT IS IMPERATIVE THAT SUCH UTILITY LOCATIONS, DEPTHS, SIZES AND MATERIAL TYPES BE VERIFIED THROUGH THE PA ONE-CALL SYSTEM AND/OR THROUGH THE INDIVIDUAL UTILITY COMPANY OR AUTHORITY.

4. CONTRACTOR TO VERIFY EXACT LOCATION OF UTILITIES BY CONTACTING PENNSYLVANIA ONE-CALL SYSTEM AT 1-800-242-1776 A MINIMUM OF THREE (3) WORKING DAYS AND A MAXIMUM OF TEN (10) WORKING DAYS BEFORE COMMENCING EXCAVATION. PRIOR TO INSTALLATION, CONSULT WITH UTILITY COMPANIES TO RESOLVE ANY PROBLEMS WHICH MAY BE CREATED DUE TO THE LOCATION OF THE UTILITIES. URBAN ENGINEERS, INC. PLACED A DESIGN NOTIFICATION CALL TO PENNSYLVANIA ONE-CALL ON JANUARY 21, 2016 - SERIAL # 20160211297.

STORMWATER MANAGEMENT NOTES:

DEVELOPMENT WATERSHED AREA	34,182 SF
PRE-DEVELOPMENT IMPERVIOUS AREA	4,356 SF
PRE-DEVELOPMENT RUNOFF RATE (2-YR)	1.14 CFS
PRE-DEVELOPMENT RUNOFF VOLUME (2 YR)	2,726 CF
POST-DEVELOPMENT IMPERVIOUS AREA	11,604 SF
POST-DEVELOPMENT RUNOFF RATE (2 YR ROUTED)	0.90 CFS
POST-DEVELPMENT RUNOFF VOLUME (2 YR ROUTED)	2,538 CF
AREA OF RAINGARDEN SURFACE:	1,672 SF
STORAGE VOLUME OF RAINGARDEN	2,962 CF
STORAGE VOLUME OF UNDERGROUND PIPING	1,811 CF

THE PROPOSED RAINGARDEN SHOWN HEREIN IS SIZED TO MANAGE RUNOFF FROM THE PROPOSED GENERATOR BUILDING PROJECT AND FUTURE WATER TANK PROJECT.

BY SIGNING BELOW, THE LANDOWNER ACKNOWLEDGES THAT THE STORMWATER BMP's ARE FIXTURES THAT CANNOT BE ALTERED OR REMOVED WITHOUT PRIOR APPROVAL BY THE CITY OF ERIE. _____

I, _____, HEREBY CERTIFY THAT THE STORMWATER MANAGEMENT PLAN MEETS DESIGN STANDARDS AND CRITERIA OF THE CITY OF ERIE STORMWATER MANAGEMENT ORDINANCE.

I, _____, HAVE REVIEWED THIS STORMWATER MANAGEMENT PLAN IN ACCORDANCE WITH THE DESIGN STANDARDS AND CRITERIA OF THE CITY OF ERIE STORMWATER MANAGEMENT ORDINANCE.

OWNERSHIP & MAINTENANCE PROGRAM

THE CONTRACTOR WILL BE RESPONSIBLE FOR THE REMOVAL OF ALL EXCAVATED MATERIALS AND DEBRIS, AS DEEMED NCESSARY BY THE OWNER'S REPRESENTATIVE. THIS MATERIAL WILL BE REMOVED FROM THE JOB SITE AND DISPOSED OF IN ACCORDANCE WITH ALL LOCAL, COUNTY, STATE AND FEDERAL REGULATIONS. THE CONTRACTOR THROUGHOUT THE CONSTRUCTION PERIOD WILL BE RESPONSIBLE FOR MAINTAINING ALL TEMPORARY CONTROL MEASURES. INSPECTION OF BMPS ON A WEEKLY BASIS AND AFTER EACH MEASURABLE RAINFALL EVENT WILL TAKE PLACE. DEFICIENCIES IN ANY OF THE EROSION CONTROL MEASURES WILL BE REPAIRED WITHIN ONE (1) DAY AFTER THEIR DETECTION. UPON COMPLETION OF THE PROJECT, THE OWNER WILL TAKE OVER THE MAINTENANCE OF ALL STORMWATER MANAGEMENT & PERMANENT EROSION CONTROL FACILITIES. AREAS WHICH ARE SEEDED WILL BE MAINTAINED BY THE OWNER ONCE IT IS DEEMED THAT A SATISFACTORY STAND OF SEEDING HAS TAKEN ROOT.

PERMANENT VEGETATIVE COVER CONSISTING OF A PENNDOT FORMULA B (OR EQUIVALENT) SEEDING WILL BE ESTABLISHED AND MAINTAINED. ACCUMULATED SEDIMENT IN STORMWATER FACILITIES WILL BE REMOVED ON A REGULAR BASIS. INSPECTION OF FACILITIES WILL BE ON A QUARTERLY BASIS, WITH ADDITIONAL INSPECTIONS MADE AFTER ALL MAJOR STORM EVENTS. AREAS THAT HAVE BEEN ERODED OR BECOME UNSTABLE WILL BE REPAIRED AND RESEEDED AS SOON AS POSSIBLE AFTER DETECTION. ALL POST CONSTRUCTION MAINTENANCE AND INSPECTION ACTIVITIES AND THEIR ASSOCIATED COSTS, WILL BE THE RESPONSIBILITY OF THE OWNER.

PERMANENT PCSM BMP MAINTENANCE PROCEDURE

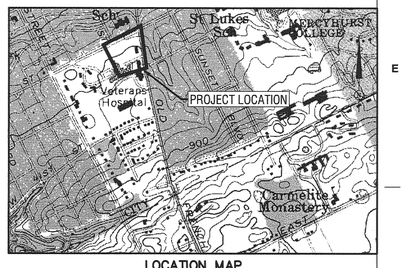
DEP BMP 5.9.1 STREET SWEEPING

1. ALL AREAS OF PROPOSED PAVEMENT ARE TO BE SWEPT BY MEANS OF EITHER MECHANICAL, REGENERATIVE AIR, OR VACUUM STYLE EQUIPMENT.
2. AREAS SUBJECT TO SWEEPING SHOULD BE SWEPT, AT A MINIMUM, ON A QUARTERLY BASIS.
3. ADDITIONAL APPLICATIONS MAY BE REQUIRED DURING TIMES OF HEAVY USE.

DEP BMP 6.4.5 RAIN GARDEN / BIORETENTION

1. WHILE VEGETATION IS BEING ESTABLISHED PRUNING AND WEEDING SHALL BE COMPLETED AS NEEDED.
2. DETRITUS MAY NEED TO BE REMOVED EACH YEAR. PERENNIAL PLANTINGS MAY BE CUT DOWN AT THE END OF THE GROWING SEASON.
3. MULCH SHALL BE RE-SPREAD WHEN EROSION IS EVIDENT AND BE REPLENISHED AS NEEDED. THE ENTIRE AREA MAY REQUIRE MULCH REPLACEMENT ONCE EVERY 2 TO 3 YEARS.
4. BIORETENTION AREAS SHALL BE INSPECTED TWICE A YEAR FOR SEDIMENT BUILDUP, EROSION, VEGETATIVE CONDITIONS, ETC.
5. DURING PERIODS OF EXTENDED DROUGHT, BIORETENTION AREAS SHALL BE WATERED.
6. TREES AND SHRUBS SHALL BE INSPECTED TWICE A YEAR TO EVALUATE HEALTH.

TOTAL NUMBER OF STORMWATER BMPS USED = 2



LOCATION MAP
SCALE : 1" = 1000'

OWNER:

ERIE VA MEDICAL CENTER
135 EAST 38TH STREET BOULEVARD
ERIE, PA 16504

NORTH

CONSTRUCTION DOCUMENTS

Revisions:	Date

CONSULTANTS:

HERBERT, ROWLAND & GRUBIC, INC.
200 WEST KENSINGER DRIVE, SUITE 400
CRANBERRY TOWNSHIP, PA 16066

URBAN ENGINEERS, INC.
1319 SASSAFRAS STREET
ERIE, PA 16501

MOORE DESIGN ASSOCIATES
130 HEAVEN LANE
MARS, PA 16046

SEAL

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
TIMOTHY LAWRENCE POLASKO
ENGINEER
055636-E
CERTIFICATE OF REGISTRATION

ARCHITECTS/ENGINEERS:

AE WORKS

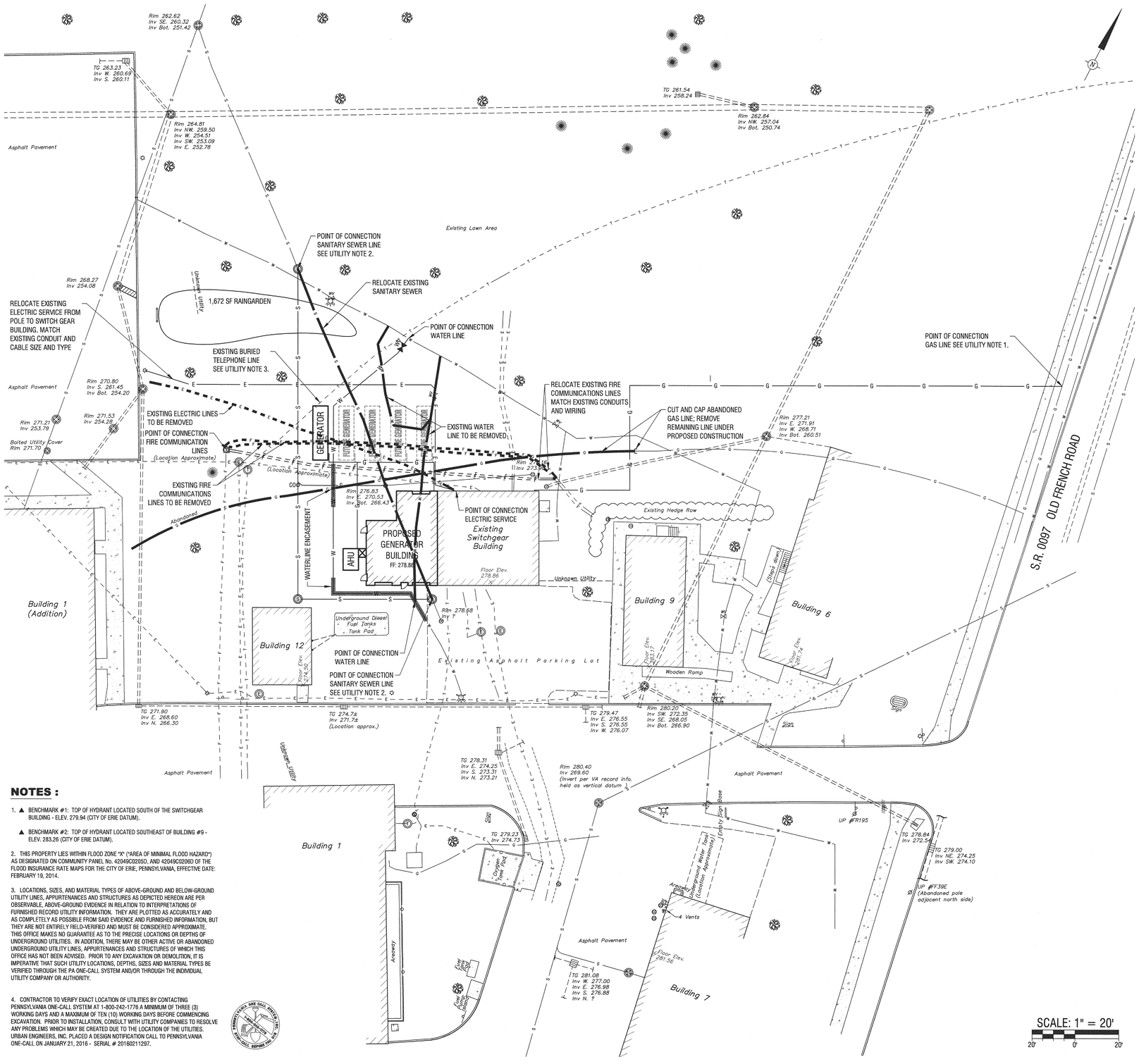
6587 Hamilton Avenue
Pittsburgh, Pennsylvania 15206
Ph: 412.287.7333 Fax: 412.287.7334
www.ae-works.com

AE Works Project Number: 13045

Drawing Title: STORMWATER MANAGEMENT AND GRADING PLAN	Project Title: EXPAND EMERGENCY POWER GENERATION FOR THE ERIE VAMC		Project Number: 562-13-112
			Building Number: 1
Approved: Project Director	Location: 135 E 38TH ST, ERIE, PA 16504		Drawing Number: C101
	Date: 03/17/2016	Checked: TLP, TMP	Drawn: DJK, DGH

Office of Construction and Facilities Management
Department of Veterans Affairs

VA FORM 08-6231



LEGEND

CENTERLINE	JUNCTION BOX
BOUNDARY LINE	ELECTRIC METER
PROPERTY LINE	ELECTRIC BOX
RIGHT-OF-WAY LINE	SIGN
CONTOUR LINE	HYDRANT
ASPHALT PAVEMENT	WATER VALVE
EDGE OF GRAVEL	WATER METER
D.C. CURB/DEPRESSED CURB	GAS VALVE
WALL	GAS WELL
CONCRETE	GAS METER
Bldg BUILDING/DIMENSION	GAS MARKER
OVERHEAD/BURIED ELEC.	GTE PEDESTAL
OVERHEAD/BURIED CATV	MAILBOX
OVERHEAD/BURIED TELECOMM	12" TREE/EVERGREEN (AS NOTED)
OVERHEAD TRAFFIC SIGNAL LINE	TREE LINE
GAS LINE	BRUSH LINE/MOW LINE
WATER MAIN, LATERAL	Landscaping LANDSCAPING
STORM SEWER LINE	Fnd. Mon. FOUND MONUMENT
SANITARY SEWER LINE, LATERAL	Fnd. IP FOUND IRON PIPE
FENCE LINE	Fnd. RB FOUND REBAR
CHAIN LINK FENCE LINE	Fnd. ISP FOUND IRON SURVEY POINT
BOTTOM OF DITCH	Fnd. Pin FOUND IRON PIN
TOP OF DITCH / TOP OF SLOPE	Fnd. Spike FOUND SPIKE
INLETS TG = TOP OF GRATE ELEV. INV = INVERT ELEV.	Fnd. DH FOUND DRILLHOLE
DOWNSPOUT	Fnd. PK FOUND PK NAIL
MANHOLE RIM = RIM ELEV. INV = INVERT ELEV.	PROPOSED CONCRETE
C.O. CLEANOUT	PROPOSED ASPHALT
UP #19897 UTILITY POLE/GUY WIRE	PROPOSED STORM SEWER
TRAFFIC SIGNAL POLE	PROPOSED GAS LINE
LIGHT POLE	PROPOSED WATER LINE
EXISTING UTILITIES TO BE RELOCATED, REMOVED, OR ABANDONED	PROPOSED WATER LINE ENCASEMENT AREA
BURIED FIRE ALARM CABLES	PROPOSED SANITARY LINE
ELECTRIC MANHOLE	PROPOSED FIRE COMMUNICATION LINE
TELECOM / FIRE CABLE MANHOLE	PROPOSED ELECTRIC LINE
	PROPOSED WATER GATE VALVE
	PROPOSED WATER POST INDICATOR VALVE

NOTES :

1. ▲ BENCHMARK #1: TOP OF HYDRANT LOCATED SOUTH OF THE SWITCHGEAR BUILDING - ELEV. 279.94 (CITY OF ERIE DATUM).

   ▲ BENCHMARK #2: TOP OF HYDRANT LOCATED SOUTHEAST OF BUILDING #9 - ELEV. 283.26 (CITY OF ERIE DATUM).

2. THIS PROPERTY LIES WITHIN FLOOD ZONE "X" ("AREA OF MINIMAL FLOOD HAZARD") AS DESIGNATED ON COMMUNITY PANEL No. 42049C0205D, AND 42049C0206D OF THE FLOOD INSURANCE RATE MAPS FOR THE CITY OF ERIE, PENNSYLVANIA, EFFECTIVE DATE: FEBRUARY 19, 2014.

3. LOCATIONS, SIZES, AND MATERIAL TYPES OF ABOVE-GROUND AND BELOW-GROUND UTILITY LINES, APPURTENANCES AND STRUCTURES AS DEPICTED HEREON ARE PER OBSERVABLE, ABOVE-GROUND EVIDENCE IN RELATION TO INTERPRETATIONS OF FURNISHED RECORD UTILITY INFORMATION. THEY ARE PLOTTED AS ACCURATELY AND AS COMPLETELY AS POSSIBLE FROM SAID EVIDENCE AND FURNISHED INFORMATION, BUT THEY ARE NOT ENTIRELY FIELD-VERIFIED AND MUST BE CONSIDERED APPROXIMATE. THIS OFFICE MAKES NO GUARANTEE AS TO THE PRECISE LOCATIONS OR DEPTHS OF UNDERGROUND UTILITIES. IN ADDITION, THERE MAY BE OTHER ACTIVE OR ABANDONED UNDERGROUND UTILITY LINES, APPURTENANCES AND STRUCTURES OF WHICH THIS OFFICE HAS NOT BEEN ADVISED. PRIOR TO ANY EXCAVATION OR DEMOLITION, IT IS IMPERATIVE THAT SUCH UTILITY LOCATIONS, DEPTHS, SIZES AND MATERIAL TYPES BE VERIFIED THROUGH THE PA ONE-CALL SYSTEM AND/OR THROUGH THE INDIVIDUAL UTILITY COMPANY OR AUTHORITY.

4. CONTRACTOR TO VERIFY EXACT LOCATION OF UTILITIES BY CONTACTING PENNSYLVANIA ONE-CALL SYSTEM AT 1-800-242-1776 A MINIMUM OF THREE (3) WORKING DAYS AND A MAXIMUM OF TEN (10) WORKING DAYS BEFORE COMMENCING EXCAVATION. PRIOR TO INSTALLATION, CONSULT WITH UTILITY COMPANIES TO RESOLVE ANY PROBLEMS WHICH MAY BE CREATED DUE TO THE LOCATION OF THE UTILITIES. URBAN ENGINEERS, INC. PLACED A DESIGN NOTIFICATION CALL TO PENNSYLVANIA ONE-CALL ON JANUARY 21, 2016 - SERIAL # 20160211297.

PENNSYLVANIA ONE CALL SYSTEM, INC. 1-800-242-1776 CALL BEFORE YOU DIG!

UTILITY NOTE(S):

1. GAS SERVICE FROM MAIN TO METER (INCLUDING METER) TO BE INSTALLED BY NATIONAL FUEL GAS (NFG). CONTACT NFG A MINIMUM OF 10 WEEKS PRIOR TO REQUIRED SERVICE CONNECTION DATE.
2. CONTRACTOR TO FIELD VERIFY LOCATION AND DEPTH OF EXISTING SANITARY SEWER AT EACH POINT OF CONNECTION. COORDINATE WITH ENGINEER AND OWNER FOR PLACEMENT OF MANHOLES, AND INVERT ELEVATIONS FOR THE PROPOSED SANITARY SEWER. IF NECESSARY PROVIDE PUMP BYPASS DURING CONSTRUCTION. CONTRACTOR SHALL PROVIDE POSITIVE DRAINAGE.
3. CONTRACTOR TO EXERCISE CAUTION DURING CONSTRUCTION TO NOT BREAK OR DISTURB THE EXISTING BURIED TELECOMM LINE.
4. SEE ALSO DRAWING # C-103.
5. ALL NEW WATER VALVES ARE TO BE PHYSICALLY LABELED IN THE FIELD.
6. REFER TO SHEET G002 FOR VALVE SCHEMATIC PLAN & SCHEDULE.

OWNER:
ERIE VA MEDICAL CENTER
135 EAST 38TH STREET BOULEVARD
ERIE, PA 16504

SCALE: 1" = 20'
20' 0' 20'

NORTH

CONSTRUCTION DOCUMENTS

Revisions:	Date

CONSULTANTS:

HERBERT, ROWLAND & GRUBIC, INC.
200 WEST KENSINGER DRIVE, SUITE 400
CRANBERRY TOWNSHIP, PA 16066

URBAN ENGINEERS, INC.
1319 SASSAFRAS STREET
ERIE, PA 16501

MOORE DESIGN ASSOCIATES
130 HEAVEN LANE
MARS, PA 16046

SEAL

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
TIMOTHY LAWRENCE POLASKO
ENGINEER
055636-E

ARCHITECTS/ENGINEERS:

AE WORKS

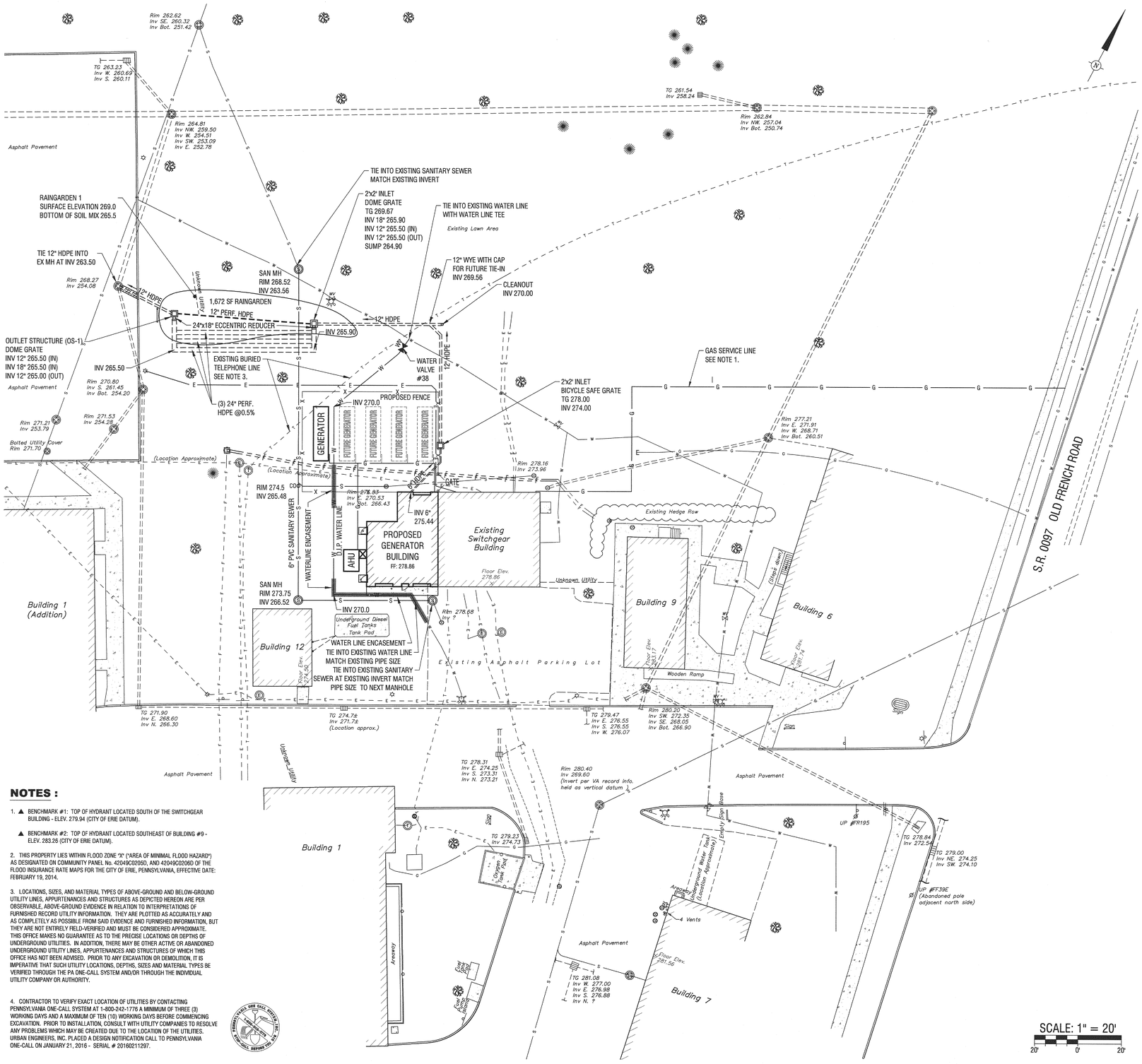
6587 Hamilton Avenue
Pittsburgh, Pennsylvania 15206
Ph: 412.287.7333 Fax: 412.287.7334
www.ae-works.com

AE Works Project Number: 13045

Drawing Title: UTILITY RELOCATION PLAN	Project Title: EXPAND EMERGENCY POWER GENERATION FOR THE ERIE VAMC		Project Number: 562-13-112
Approved: Project Director	Location: 135 E 38TH ST, ERIE, PA 16504		Building Number: 1
	Date: 03/17/2016	Checked: TLP, TMP / Drawn: DJK, DGH	Drawing Number: C102

Office of Construction and Facilities Management
Department of Veterans Affairs

VA FORM 08-6231



LEGEND

	CENTERLINE		JUNCTION BOX
	BOUNDARY LINE		ELECTRIC METER
	PROPERTY LINE		ELECTRIC BOX
	RIGHT-OF-WAY LINE		SIGN
	CONTOUR LINE		HYDRANT
	ASPHALT PAVEMENT		WATER VALVE
	EDGE OF GRAVEL		WATER METER
D.C.	CURB/DEPRESSED CURB		GAS VALVE
	WALL		GAS WELL
	CONCRETE		GAS METER
Bldg	BUILDING/DIMENSION		GAS MARKER
E	OVERHEAD/BURIED ELEC.	GTE / TP	GTE PEDESTAL
C	OVERHEAD/BURIED CATV		MAILBOX
T	OVERHEAD/BURIED TELECOMM	12"	TREE/EVERGREEN (AS NOTED)
TS	OVERHEAD TRAFFIC SIGNAL LINE		TREE LINE
G	GAS LINE		BRUSH LINE/MOW LINE
W	WATER MAIN, LATERAL	Landscaping	LANDSCAPING
	STORM SEWER LINE	Fnd. Mon.	FOUND MONUMENT
S	SANITARY SEWER LINE, LATERAL	Fnd. IP	FOUND IRON PIPE
X	FENCE LINE	Fnd. RB	FOUND REBAR
	CHAIN LINK FENCE LINE	Fnd. ISP	FOUND IRON SURVEY POINT
	BOTTOM OF DITCH	Fnd. Pin	FOUND IRON PIN
	TOP OF DITCH / TOP OF SLOPE	Fnd. Spike	FOUND SPIKE
	INLETS TG = TOP OF GRATE ELEV. INV = INVERT ELEV.	Fnd. DH	FOUND DRILLHOLE
	DOWNSPOUT	Fnd. PK	FOUND PK NAIL
	MANHOLE RIM = RIM ELEV. INV = INVERT ELEV.		PROPOSED CONCRETE
C.O.	CLEANOUT		PROPOSED ASPHALT
UP #19897	UTILITY POLE/GUY WIRE		PROPOSED STORM SEWER
	TRAFFIC SIGNAL POLE	G	PROPOSED GAS LINE
	LIGHT POLE	W	PROPOSED WATER LINE
G S W E T	EXISTING UTILITIES TO BE RELOCATED, REMOVED, OR ABANDONED	W	PROPOSED WATER LINE ENCASEMENT AREA
		S	PROPOSED SANITARY LINE
f	BURIED FIRE ALARM CABLES	F	PROPOSED FIRE COMMUNICATION LINE
E	ELECTRIC MANHOLE	E	PROPOSED ELECTRIC LINE
T	TELECOM / FIRE CABLE MANHOLE	WV	PROPOSED WATER GATE VALVE
		PIV	PROPOSED WATER POST INDICATOR VALVE

NOTES :

1. ▲ BENCHMARK #1: TOP OF HYDRANT LOCATED SOUTH OF THE SWITCHGEAR BUILDING - ELEV. 279.94 (CITY OF ERIE DATUM).

   ▲ BENCHMARK #2: TOP OF HYDRANT LOCATED SOUTHEAST OF BUILDING #9 - ELEV. 283.26 (CITY OF ERIE DATUM).

2. THIS PROPERTY LIES WITHIN FLOOD ZONE "X" ("AREA OF MINIMAL FLOOD HAZARD") AS DESIGNATED ON COMMUNITY PANEL No. 42049C0205D, AND 42049C0206D OF THE FLOOD INSURANCE RATE MAPS FOR THE CITY OF ERIE, PENNSYLVANIA, EFFECTIVE DATE: FEBRUARY 19, 2014.

3. LOCATIONS, SIZES, AND MATERIAL TYPES OF ABOVE-GROUND AND BELOW-GROUND UTILITY LINES, APPURTENANCES AND STRUCTURES AS DEPICTED HEREON ARE PER OBSERVABLE, ABOVE-GROUND EVIDENCE IN RELATION TO INTERPRETATIONS OF FURNISHED RECORD UTILITY INFORMATION. THEY ARE PLOTTED AS ACCURATELY AND AS COMPLETELY AS POSSIBLE FROM SAID EVIDENCE AND FURNISHED INFORMATION, BUT THEY ARE NOT ENTIRELY FIELD-VERIFIED AND MUST BE CONSIDERED APPROXIMATE. THIS OFFICE MAKES NO GUARANTEE AS TO THE PRECISE LOCATIONS OR DEPTHS OF UNDERGROUND UTILITIES. IN ADDITION, THERE MAY BE OTHER ACTIVE OR ABANDONED UNDERGROUND UTILITY LINES, APPURTENANCES AND STRUCTURES OF WHICH THIS OFFICE HAS NOT BEEN ADVISED. PRIOR TO ANY EXCAVATION OR DEMOLITION, IT IS IMPERATIVE THAT SUCH UTILITY LOCATIONS, DEPTHS, SIZES AND MATERIAL TYPES BE VERIFIED THROUGH THE PA ONE-CALL SYSTEM AND/OR THROUGH THE INDIVIDUAL UTILITY COMPANY OR AUTHORITY.

4. CONTRACTOR TO VERIFY EXACT LOCATION OF UTILITIES BY CONTACTING PENNSYLVANIA ONE-CALL SYSTEM AT 1-800-242-1776 A MINIMUM OF THREE (3) WORKING DAYS AND A MAXIMUM OF TEN (10) WORKING DAYS BEFORE COMMENCING EXCAVATION. PRIOR TO INSTALLATION, CONSULT WITH UTILITY COMPANIES TO RESOLVE ANY PROBLEMS WHICH MAY BE CREATED DUE TO THE LOCATION OF THE UTILITIES. URBAN ENGINEERS, INC. PLACED A DESIGN NOTIFICATION CALL TO PENNSYLVANIA ONE-CALL ON JANUARY 21, 2016 - SERIAL # 20160211297.

NOTES:

1. GAS SERVICE FROM MAIN TO METER (INCLUDING METER) TO BE INSTALLED BY NATIONAL FUEL GAS (NFG). CONTACT NFG A MINIMUM OF 10 WEEKS PRIOR TO REQUIRED SERVICE CONNECTION DATE.
2. CONTRACTOR TO FIELD VERIFY LOCATION AND DEPTH OF EXISTING SANITARY SEWER AT EACH POINT OF CONNECTION. COORDINATE WITH ENGINEER FOR FINAL INVERT ELEVATIONS BEFORE THE NEW CONSTRUCTION FOR THE PROPOSED SANITARY SEWER. IF NECESSARY PROVIDE PUMP BYPASS DURING CONSTRUCTION. CONTRACTOR SHALL PROVIDE POSITIVE DRAINAGE.
3. CONTRACTOR TO EXERCISE CAUTION DURING CONSTRUCTION TO NOT BREAK OR DISTURB THE EXISTING BURIED TELECOMM LINE.
4. SEE ALSO DRAWING # C-102.
5. ALL NEW WATER VALVES ARE TO BE PHYSICALLY LABELED IN THE FIELD.
6. REFER TO SHEET G002 FOR VALVE SCHEMATIC PLAN & SCHEDULE.

OWNER:
ERIE VA MEDICAL CENTER
135 EAST 38TH STREET BOULEVARD
ERIE, PA 16504

NORTH

CONSTRUCTION DOCUMENTS

Revisions:	Date

CONSULTANTS:

HERBERT, ROWLAND & GRUBIC, INC.
200 WEST KENSINGER DRIVE, SUITE 400
CRANBERRY TOWNSHIP, PA 16066

URBAN ENGINEERS, INC.
1319 SASSAFRAS STREET
ERIE, PA 16501

MOORE DESIGN ASSOCIATES
130 HEAVEN LANE
MARS, PA 16046

SEAL

COMMONWEAL OF PENNSYLVANIA
REGISTERED PROFESSIONAL
TIMOTHY LAWRENCE POLASKI
ENGINEER
055636-E

ARCHITECTS/ENGINEERS:

AE WORKS

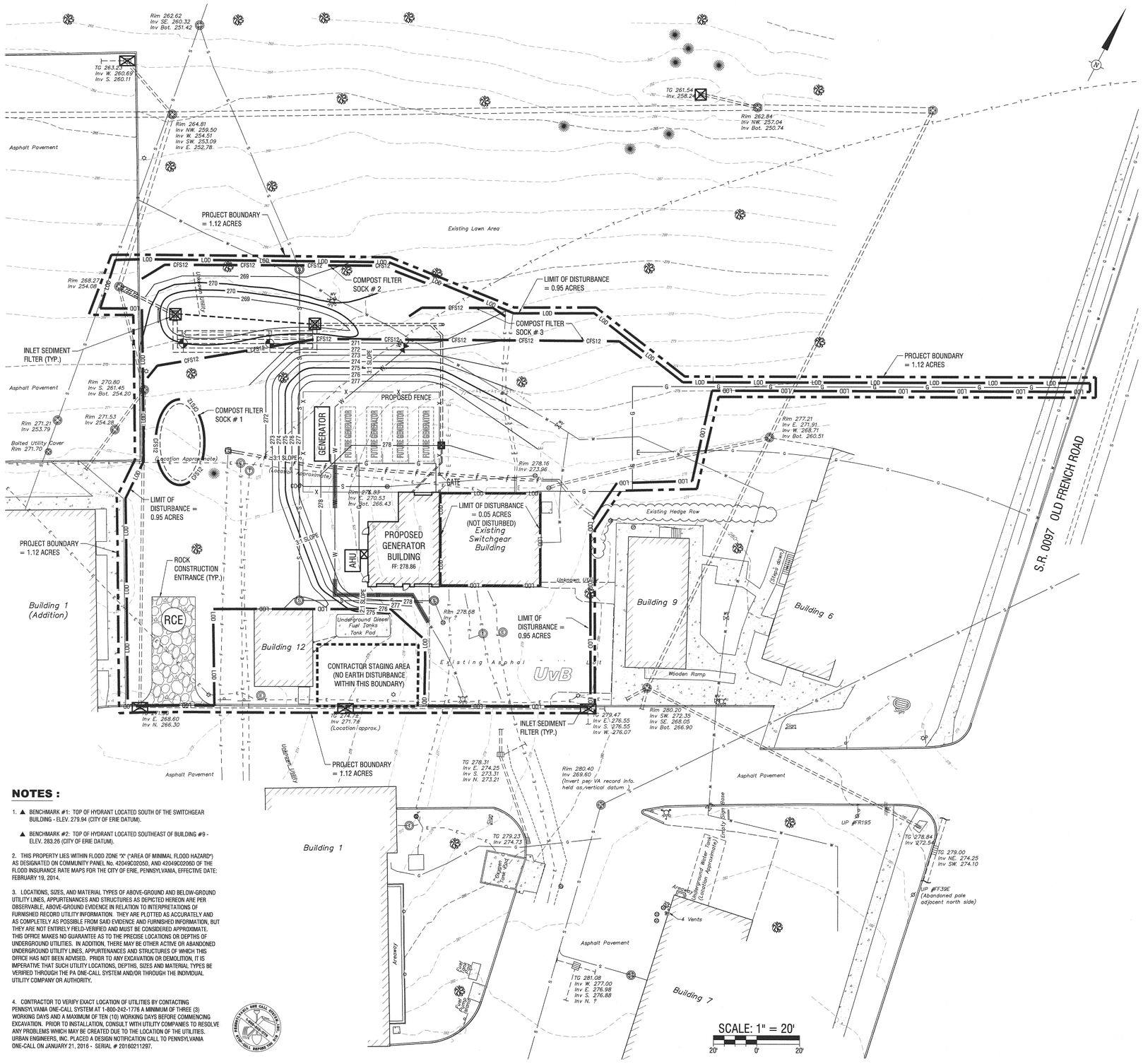
6587 Hamilton Avenue
Pittsburgh, Pennsylvania 15206
Ph: 412.287.7333 Fax: 412.287.7334
www.ae-works.com

AE Works Project Number: 13045

Drawing Title: COMBINED PROPOSED STORMWATER MANAGEMENT & UTILITIES PLAN	Project Title: EXPAND EMERGENCY POWER GENERATION FOR THE ERIE VAMC		Project Number: 562-13-112
			Building Number: 1
Approved: Project Director	Location: 135 E 38TH ST, ERIE, PA 16504		Drawing Number: C103
	Date: 03/17/2016	Checked: TLP, TMP / Drawn: DJK, DGH	

Office of Construction and Facilities Management
Department of Veterans Affairs

VA FORM 08-6231



LEGEND

CENTERLINE	JUNCTION BOX
BOUNDARY LINE	ELECTRIC METER
PROPERTY LINE	ELECTRIC BOX
RIGHT-OF-WAY LINE	SIGN
CONTOUR LINE	HYDRANT
ASPHALT PAVEMENT	WATER VALVE
EDGE OF GRAVEL	WATER METER
CURB/DEPRESSED CURB	GAS VALVE
WALL	GAS WELL
CONCRETE	GAS METER
BUILDING/DIMENSION	GAS MARKER
OVERHEAD/BURIED ELEC.	GTE PEDESTAL
OVERHEAD/BURIED CATV	MAILBOX
OVERHEAD/BURIED TELEPH.	TREE/EVERGREEN (AS NOTED)
OVERHEAD TRAFFIC SIGNAL LINE	TREE LINE
GAS LINE	BRUSH LINE/MOW LINE
WATER MAIN, LATERAL	LANDSCAPING
STORM SEWER LINE	FOUND MONUMENT
SANITARY SEWER LINE, LATERAL	FOUND IRON PIPE
FENCE LINE	FOUND REBAR
CHAIN LINK FENCE LINE	FOUND IRON SURVEY POINT
BOTTOM OF DITCH	FOUND IRON PIN
TOP OF DITCH / TOP OF SLOPE	FOUND SPIKE
INLETS TG = TOP OF GRATE ELEV. INV = INVERT ELEV.	FOUND DRILLHOLE
DOWNSPOUT	FOUND PK NAIL
MANHOLE RIM = RIM ELEV. INV = INVERT ELEV.	PROPOSED CONCRETE
CLEANOUT	PROPOSED ASPHALT
UTILITY POLE/GUY WIRE	PROPOSED STORM SEWER
TRAFFIC SIGNAL POLE	PROPOSED GAS LINE
LIGHT POLE	PROPOSED WATER LINE
BURIED FIRE ALARM CABLES	PROPOSED SANITARY LINE
ELECTRIC MANHOLE	PROPOSED FIRE COMMUNICATION LINE
TELECOM / FIRE CABLE MANHOLE	PROPOSED CONTOUR
USDA SOIL TYPE	PROJECT BOUNDARY
	LIMIT OF DISTURBANCE
	COMPOST FILTER SOCK
	TEMPORARY STAGING AREA
	TEMPORARY STAGING AREA
	INLET SEDIMENT FILTER
	PERCOLATION TEST PIT

NOTES :

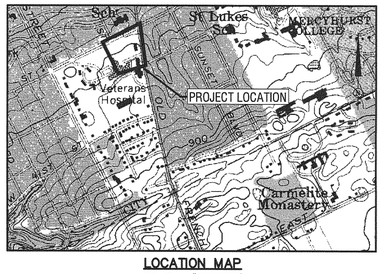
1. ▲ BENCHMARK #1: TOP OF HYDRANT LOCATED SOUTH OF THE SWITCHGEAR BUILDING - ELEV. 279.94 (CITY OF ERIE DATUM).

   ▲ BENCHMARK #2: TOP OF HYDRANT LOCATED SOUTHEAST OF BUILDING #9 - ELEV. 283.26 (CITY OF ERIE DATUM).

2. THIS PROPERTY LIES WITHIN FLOOD ZONE "X" ("AREA OF MINIMAL FLOOD HAZARD") AS DESIGNATED ON COMMUNITY PANEL No. 42049C0205D, AND 42049C0206D OF THE FLOOD INSURANCE RATE MAPS FOR THE CITY OF ERIE, PENNSYLVANIA, EFFECTIVE DATE: FEBRUARY 19, 2014.

3. LOCATIONS, SIZES, AND MATERIAL TYPES OF ABOVE-GROUND AND BELOW-GROUND UTILITY LINES, APPURTENANCES AND STRUCTURES AS DEPICTED HEREON ARE PER OBSERVABLE, ABOVE-GROUND EVIDENCE IN RELATION TO INTERPRETATIONS OF FURNISHED RECORD UTILITY INFORMATION. THEY ARE PLOTTED AS ACCURATELY AND AS COMPLETELY AS POSSIBLE FROM SAID EVIDENCE AND FURNISHED INFORMATION, BUT THEY ARE NOT ENTIRELY FIELD-VERIFIED AND MUST BE CONSIDERED APPROXIMATE. THIS OFFICE MAKES NO GUARANTEE AS TO THE PRECISE LOCATIONS OR DEPTHS OF UNDERGROUND UTILITIES. IN ADDITION, THERE MAY BE OTHER ACTIVE OR ABANDONED UNDERGROUND UTILITY LINES, APPURTENANCES AND STRUCTURES OF WHICH THIS OFFICE HAS NOT BEEN ADVISED. PRIOR TO ANY EXCAVATION OR DEMOLITION, IT IS IMPERATIVE THAT SUCH UTILITY LOCATIONS, DEPTHS, SIZES AND MATERIAL TYPES BE VERIFIED THROUGH THE PA ONE-CALL SYSTEM AND/OR THROUGH THE INDIVIDUAL UTILITY COMPANY OR AUTHORITY.

4. CONTRACTOR TO VERIFY EXACT LOCATION OF UTILITIES BY CONTACTING PENNSYLVANIA ONE-CALL SYSTEM AT 1-800-242-1776 A MINIMUM OF THREE (3) WORKING DAYS AND A MAXIMUM OF TEN (10) WORKING DAYS BEFORE COMMENCING EXCAVATION. PRIOR TO INSTALLATION, CONSULT WITH UTILITY COMPANIES TO RESOLVE ANY PROBLEMS WHICH MAY BE CREATED DUE TO THE LOCATION OF THE UTILITIES. URBAN ENGINEERS, INC. PLACED A DESIGN NOTIFICATION CALL TO PENNSYLVANIA ONE-CALL ON JANUARY 21, 2016 - SERIAL # 20160211297.



LOCATION MAP
SCALE : 1" = 1000'

OWNER:
ERIE VA MEDICAL CENTER
135 EAST 38TH STREET BOULEVARD
ERIE, PA 16504

NORTH

CONSTRUCTION DOCUMENTS

Revisions:	Date

CONSULTANTS:

HERBERT, ROWLAND & GRUBIC, INC.
200 WEST KENSINGER DRIVE, SUITE 400
CRANBERRY TOWNSHIP, PA 16066

URBAN ENGINEERS, INC.
1319 SASSAFRAS STREET
ERIE, PA 16501

MOORE DESIGN ASSOCIATES
130 HEAVEN LANE
MARS, PA 16046

SEAL

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
TIMOTHY LAWRENCE POLASKI
ENGINEER
055636-E

ARCHITECTS/ENGINEERS:

AE WORKS

6587 Hamilton Avenue
Pittsburgh, Pennsylvania 15206
Ph: 412.287.7333 Fax: 412.287.7334
www.ae-works.com

AE Works Project Number: 13045

Drawing Title
EROSION AND SEDIMENT CONTROL PLAN

Approved: Project Director

Project Title:
EXPAND EMERGENCY POWER GENERATION FOR THE ERIE VAMC

Location:
135 E 38TH ST, ERIE, PA 16504

Date: 03/17/2016 | **Checked:** TLP, TMP | **Drawn:** DJK, DGH

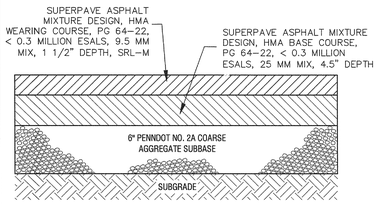
Project Number 562-13-112

Building Number 1

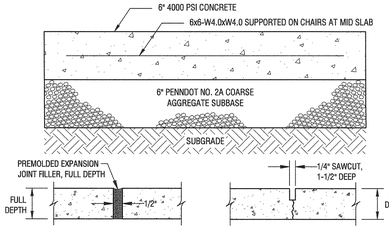
Drawing Number C104

Office of Construction and Facilities Management
Department of Veterans Affairs

VA FORM 08-6231

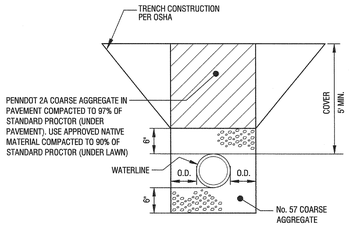


1 ASPHALT PAVING DETAIL
NOT TO SCALE

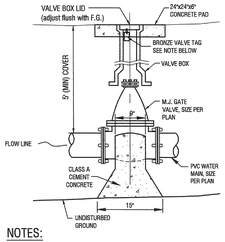


NOTES:
1. PROVIDE EXPANSION JOINTS ADJACENT TO ANY RIGID STRUCTURE OR FOUNDATION.
2. PROVIDE CONTRACTION JOINTS AT 15'-0" MAX. SPACING.

2 CONCRETE PAVING DETAIL
NOT TO SCALE

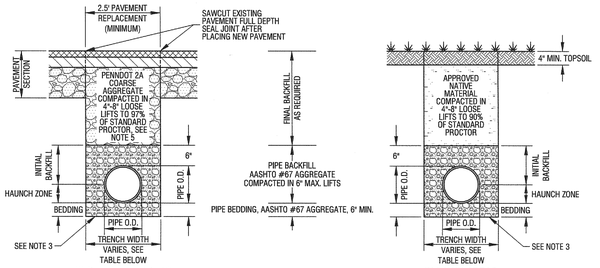


3 WATERLINE TRENCH DETAIL
NOT TO SCALE



NOTES:
1. A BRONZE TAG OR SUITABLE MARKING THAT SHALL BE PERMANENTLY ATTACHED TO THE UNDERSIDE OF THE COVER AND SHALL IDENTIFY THE VALVE TYPE, SIZE, NUMBER OF TURNS, AND DIRECTION TO OPEN.

4 GATE VALVE DETAIL
NOT TO SCALE

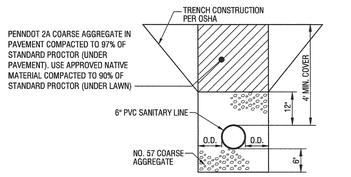


NOTES:
1. REFER TO THE PIPE MANUFACTURER'S AND ASTM D2321 SPECIFICATIONS FOR ADDITIONAL INFORMATION.
2. IN-PAVEMENT AREA DETAIL SHALL BE USED AS FOLLOWS:
   - WHEN EXCAVATION DEPTH IS FIVE (5) FEET OR LESS, THIS DETAIL SHALL BE USED WITHIN FIVE (5) HORIZONTAL FEET OF ANY PAVEMENT, BERM, SIDEWALK OR DRIVEWAY
   - WHEN EXCAVATION DEPTH IS GREATER THAN FIVE (5) FEET, THIS DETAIL SHALL BE USED WITHIN TEN (10) HORIZONTAL FEET OF ANY PAVEMENT, BERM, SIDEWALK OR DRIVEWAY.
3. UNSUITABLE MATERIAL BELOW THE EXCAVATED TRENCH BOTTOM SHALL BE REMOVED, WHERE DIRECTED, AND REPLACED WITH AASHTO No. 57 AGGREGATE.
4. INSTALLATION SHALL BE IN ACCORDANCE WITH ASTM D2321 "STANDING PRACTICE FOR UNDERGROUND INSTALLATION OF THERMOPLASTIC PIPE".
5. IN ADDITION TO THE APPROVED PIPE BACKFILL OF 2A, OTHER GRAVEL SOURCES MAY BE USED, PROVIDED THAT TEST DATA IS SUBMITTED TO AND APPROVED BY THE OWNER PRIOR TO USE OF THE ALTERNATE SOURCE.
6. FOR STORM SEWER BEDDING IN PAVEMENT AREAS REFER TO ASPHALT PAVING DETAIL # 2, ON SHEET C501.

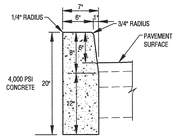
HDPE PIPE SIZES I.D.	O.D.*	TRENCH WIDTH VARIES, SEE TABLE BELOW
8",10",12"	-	30"
15"	17.6"	34"
18"	21.2"	39"
24"	27.8"	48"
30"	36.0"	56"
48"	52.7"	89"

* O.D. MAY VARY DEPENDING ON PIPE MANUFACTURER

8 STORM SEWER BEDDING AND BACKFILL DETAIL
(MILLCREEK TOWNSHIP STANDARD)

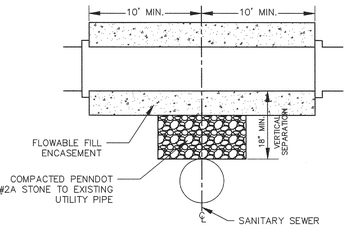


5 SANITARY SEWER TRENCH DETAIL
NOT TO SCALE

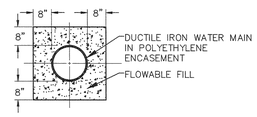


NOTES:
1. CAST IN PLACE 4,000 PSI CONCRETE CURB.
2. PLACE CONTRACTION JOINTS IN CURBING TO FORM INCREMENTS NOT EXCEEDING 25 LF
3. PLACE 3/4" PREMOLDED EXPANSION JOINT MATERIAL, FULL DEPTH, IN INTERVALS NOT EXCEEDING 75' AND AT STRUCTURES OR AT THE END OF THE WORK DAY.
   - CUT MATERIAL TO CONFORM TO AREA ADJACENT TO CURB OR TO CONFORM TO CROSS-SECTIONAL AREA OF CURB.
4. CURB FACE REVEAL SHALL TAPER FROM 6" TO EXISTING REVEAL IN FINAL 2' OF NEW CURB ADJACENT TO AN EXISTING CURB.

6 CONCRETE CURB SECTION
NOT TO SCALE

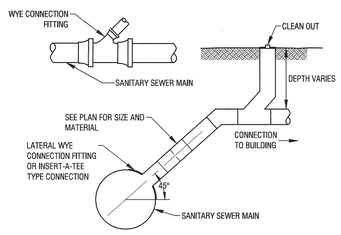


7 WATERMAIN CROSSING OVER SANITARY SEWER TYPICAL DETAIL
NOT TO SCALE

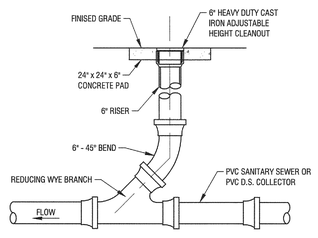


NOTE: ENCASE MAIN AT SANITARY CROSSINGS AS SHOWN ON THE PLAN AND PROFILE.

FLOWABLE FILL ENCASEMENT
NOT TO SCALE



9 SANITARY SERVICE CONNECTION
NOT TO SCALE



10 CLEANOUT DETAIL
NOT TO SCALE

THRUST BLOCK DIMENSIONS

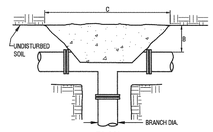
	BRANCH PIPE DIAMETER 4", 6"	8"	10"
A	1'-0"	2'-0"	3'-0"
B	1'-0"	1'-3"	1'-3"
C	1'-0"	2'-0"	3'-0"
D	0.10	0.20	0.40

D = APPROX. VOLUME OF CONCRETE IN CUBIC YARDS

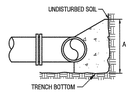
NOTES - FOR ALL THRUST BLOCKING:
1. USE PENNDOT CLASS A CONCRETE.
2. SOIL BEARING PRESSURE USED FOR DESIGN WAS 2,000 PSF. IF ACTUAL SOIL BEARING PRESSURE IS LESS THAN THE DESIGN VALUE, INCREASE THRUST BLOCK SIZE APPROPRIATELY.
3. CONCRETE MUST BEAR UPON UNDISTURBED SOIL.
4. WRAP FITTING WITH TAR PAPER BEFORE PLACING CONCRETE.
5. INSTALL JOINT RESTRAINTS AT ALL BENDS AND FITTINGS FOR WATER MAIN.
6. DO NOT COVER MECHANICAL JOINTS WITH CONCRETE.

		PIPE DIAMETER (INCHES) 4", 6"	10"
ANGLE OF BEND 1/8 45°	A	2.5'	2.5'
	B	1'8"	2'8"
	C	1'2"	1'9"
	D	0.02	0.07
1/16 22 1/2°	B	1'8"	2'8"
	C	9"	16"
	D	0.02	0.07
1/32 11 1/4°	B	1'8"	2'8"
	C	7"	13"
	D	0.02	0.06

D = APPROX. VOLUME OF CONCRETE IN CUBIC YARDS

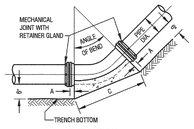


PLAN

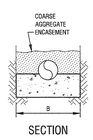


ELEVATION

THRUST BLOCKING AT TEES AND WYES



ELEVATION



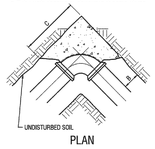
SECTION

THRUST BLOCKING FOR VERTICAL BENDS (BOTTOM)

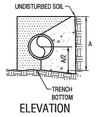
THRUST BLOCK DIMENSIONS

	PIPE DIAMETER 4", 6"	8"	10"
A	1'-0"	2'-0"	3'-0"
B	0'-9"	1'-0"	1'-0"
C	2'-0"	2'-6"	2'-6"
D	0.10	0.20	0.30

D = APPROX. VOLUME OF CONCRETE IN CUBIC YARDS



PLAN



ELEVATION

THRUST BLOCKING AT HORIZONTAL BENDS

1/8 BEND 45°

PIPE DIAMETER	THRUST BLOCK DIMENSIONS A	B	C	D	S	T	W
8"	2'-10"	2'-8"	2'-0"	0.65	3/4"	1/2"	4"
8"	4'-2"	2'-8"	3'-0"	1.47	3/4"	1/2"	4"
10"	4'-9"	3'-8"	3'-6"	2.80	1"	1/2"	5"

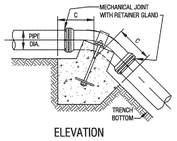
1/16 BEND 22 1/2°

PIPE DIAMETER	THRUST BLOCK DIMENSIONS A	B	C	D	S	T	W
8"	2'-0"	2'-8"	2'-0"	0.40	3/4"	1/2"	3"
8"	2'-0"	2'-8"	2'-8"	0.55	3/4"	1/2"	4"
10"	4'-0"	2'-8"	3'-0"	1.38	3/4"	1/2"	4"

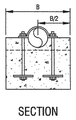
1/32 BEND 11 1/4°

PIPE DIAMETER	THRUST BLOCK DIMENSIONS A	B	C	D	S	T	W
8"	1'-8"	1'-8"	1'-8"	0.20	3/4"	1/2"	3"
8"	2'-0"	2'-0"	2'-0"	0.40	3/4"	1/2"	3"
10"	2'-8"	2'-8"	2'-8"	0.75	3/4"	1/2"	4"

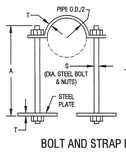
D = APPROX. VOLUME OF CONCRETE IN CUBIC YARDS
P = APPROX. WEIGHT IN POUNDS OF STEEL STRAPS, PLATES, AND BOLTS

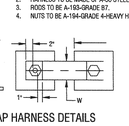


ELEVATION



SECTION





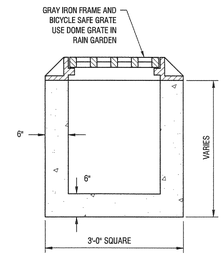
BOLT AND STRAP HARNESS DETAILS

NOTES:
1. CONCRETE SHALL HAVE A 2" MIN. CLEARANCE UNDER BELLS & GLANDS.
2. HARNESS TO BE MADE OF A-36 STEEL.
3. RODS TO BE A-193-GRADE B7.
4. NUTS TO BE A-194-GRADE 4-HEAVY HEXAGON.

THRUST BLOCKING FOR VERTICAL 1/8, 1/16, & 1/32 BENDS (TOP)

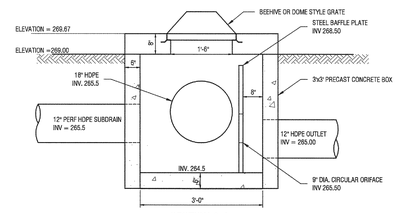
VERTICAL

13 WATER LINE THRUST BLOCKING DETAILS
NOT TO SCALE

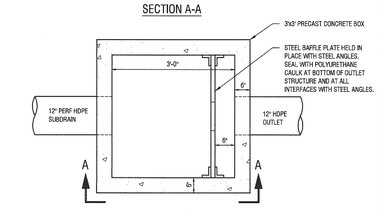


CONCRETE - 4000 PSI
REINFORCEMENT - ASTM A615 GRADE 60
ENTRAINED AIR - 5.0% - 8.0%

11 2'x2' INLET DETAIL
NOT TO SCALE



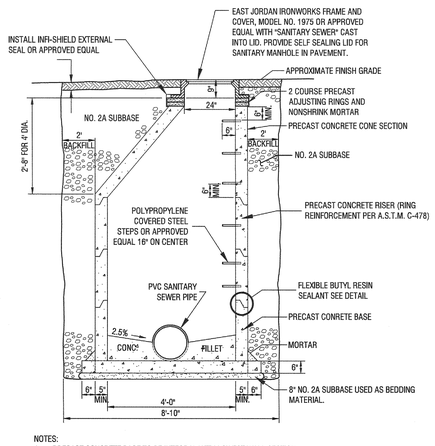
SECTION A-A



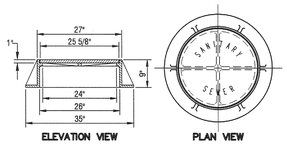
PLAN VIEW

CONCRETE - 4000 PSI
REINFORCEMENT - ASTM A615 GRADE 60
ENTRAINED AIR - 5.0% - 8.0%

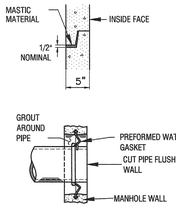
15 RAINGARDEN OUTLET STRUCTURE (OS-1) DETAIL
NOT TO SCALE



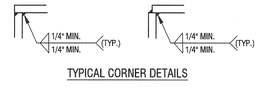
NOTES:
1. PRECAST CONCRETE BASE TO BE INTEGRAL WITH LOWEST WALL SECTION.
2. CONCRETE REINFORCEMENT SHALL BE BASED UPON THE ACI 350-06 ENVIRONMENTAL STRUCTURES CODE.
3. INSTALL FLAT SLAB TOP WHEN FINISHED GRADE ELEVATION PROHIBITS USE OF CONE.
4. CAST PIPE OPENINGS INTO WALL WITH A BOOT SEAL.
5. JOIN PRECAST SECTIONS WITH TONGUE AND GROOVE JOINTS SEALED WITH FLEXIBLE BUTYL RESIN SEALANT.
6. BITUMINOUS COAT EXTERIOR OF MANHOLE.
7. MINIMUM SLOPE THROUGH MANHOLE SHALL BE 0.1" PER 4' OR 2.50%.



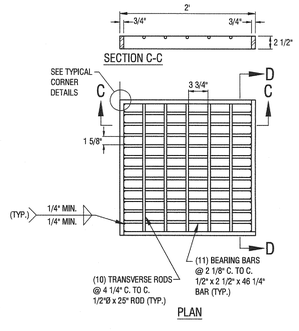
EAST JORDAN IRON WORKS FRAME AND COVER, MODEL NO. 1975, OR APPROVED EQUAL WITH "SANITARY SEWER" CAST INTO LID.



12 SANITARY MANHOLE DETAIL
NOT TO SCALE



TYPICAL CORNER DETAILS



SECTION C-C

PLAN

SECTION D-D

14 BICYCLE SAFE GRATE DETAIL
NOT TO SCALE

CONSTRUCTION DOCUMENTS

Revisions:	Date

CONSULTANTS:

HERBERT, ROWLAND & GRUBIC, INC.
200 WEST KENSINGER DRIVE, SUITE 400
CRANBERRY TOWNSHIP, PA 16066

URBAN ENGINEERS, INC.
1319 SASSAFRAS STREET
ERIE, PA 16501

MOORE DESIGN ASSOCIATES
130 HEAVEN LANE
MARS, PA 16046

SEAL

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
TIMOTHY LAWRENCE POLASKI
ENGINEER
055636-E

ARCHITECTS/ENGINEERS:

AE WORKS

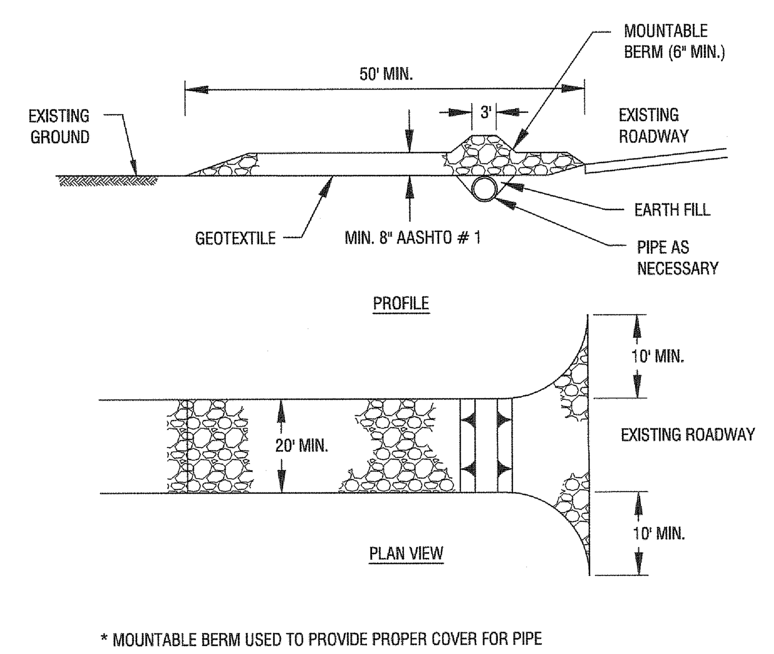
6587 Hamilton Avenue
Pittsburgh, Pennsylvania 15206
Ph: 412.287.7333 Fax: 412.287.7334
www.ae-works.com

AE Works Project Number: 13045

Drawing Title: CONSTRUCTION DETAILS	Project Title: EXPAND EMERGENCY POWER GENERATION FOR THE ERIE VAMC		Project Number: 562-13-112
			Building Number: 1
Approved: Project Director	Location: 135 E 38TH ST, ERIE, PA 16504		Drawing Number: C501
	Date: 03/17/2016	Checked: TLP, TMP / Drawn: DJK, DGH	

Office of Construction and Facilities Management
Department of Veterans Affairs

VA FORM 08-6231

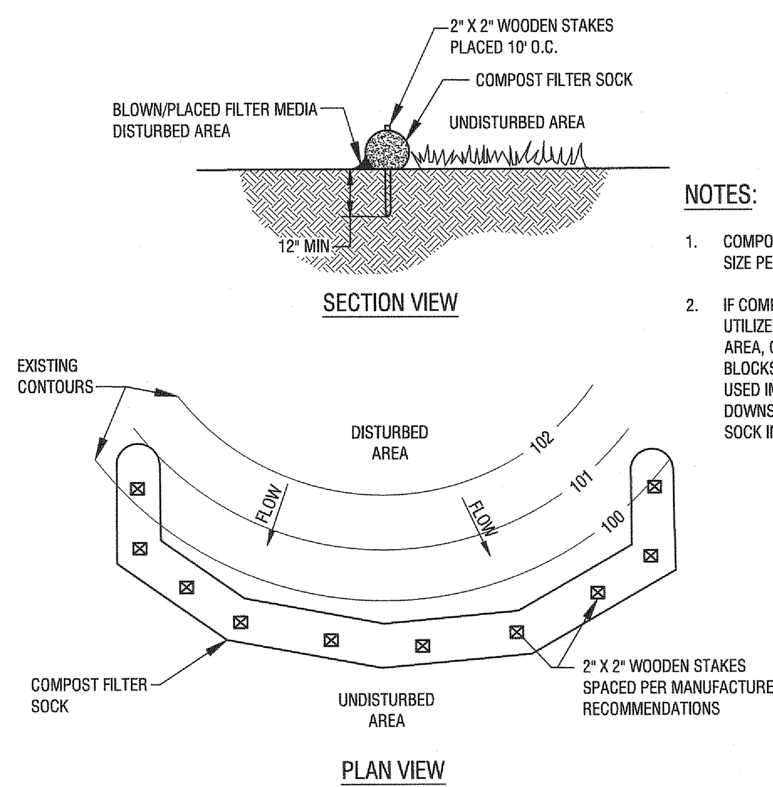


* MOUNTABLE BERM USED TO PROVIDE PROPER COVER FOR PIPE

NOTES:

MAINTENANCE: ROCK CONSTRUCTION ENTRANCE THICKNESS SHALL BE CONSTANTLY MAINTAINED TO THE SPECIFIED DIMENSIONS BY ADDING ROCK. A STOCKPILE SHALL BE MAINTAINED ON SITE FOR THIS PURPOSE. ALL SEDIMENT DEPOSITED ON PAVED ROADWAYS SHALL BE REMOVED AND RETURNED TO THE CONSTRUCTION SITE IMMEDIATELY. IF EXCESSIVE AMOUNTS OF SEDIMENT ARE BEING DEPOSITED ON ROADWAY, EXTEND LENGTH OF ROCK CONSTRUCTION ENTRANCE BY 50 FOOT INCREMENTS UNTIL CONDITION IS ALLEVIATED OR INSTALL WASH RACK. WASHING THE ROADWAY OR SWEEPING THE DEPOSITS INTO ROADWAY DITCHES, SEWERS, CULVERTS, OR OTHER DRAINAGE COURSES IS NOT ACCEPTABLE.

16 STANDARD CONSTRUCTION DETAIL # 3-1
ROCK CONSTRUCTION ENTRANCE
NOT TO SCALE



NOTES:

1. COMPOST FILTER SOCK SIZE PER PLAN.
2. IF COMPOST FILTER IS UTILIZED IN PAVED AREA, CONCRETE BLOCKS SHOULD BE USED IMMEDIATELY DOWNSLOPE TO HOLD SOCK IN PLACE.

TABLE 4.1
Compost Sock Fabric Minimum Specifications

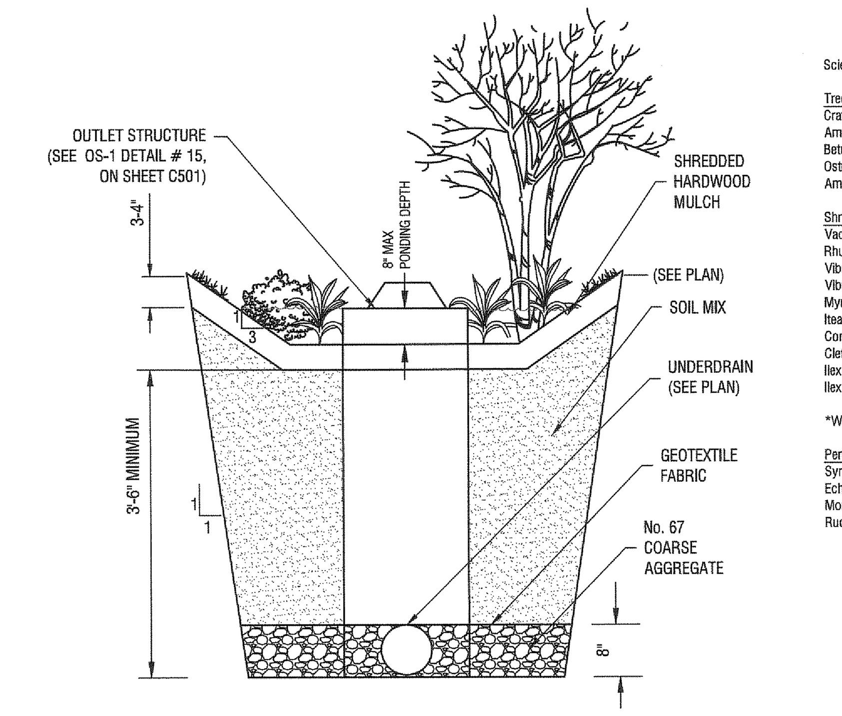
Material Type	3 mil HDPE	5 mil HDPE	5 mil HDPE	Multi-Filament Polypropylene (MFPP)	Heavy Duty Multi-Filament Polypropylene (HDMFPP)
Material Characteristics	Photo-degradable	Photo-degradable	Bio-degradable	Photo-degradable	Photo-degradable
Sock Diameters	12" 18"	12" 18" 24" 32"	12" 18" 24" 32"	12" 18" 24" 32"	12" 18" 24" 32"
Mesh Opening	3/8"	3/8"	3/8"	3/8"	1/8"
Tensile Strength		26 psi	26 psi	44 psi	202 psi
Ultraviolet Stability % Original Strength (ASTM G-155)	23% at 1000 hr.	23% at 1000 hr.		100% at 1000 hr.	100% at 1000 hr.
Minimum Functional Longevity	6 months	9 months	6 months	1 year	2 years
Two-ply systems					
Inner Containment Netting			HDPE biaxial net; Continuously wound; Fusion-welded junctures; 3/4" X 3/4" Max. aperture size		
Outer Filtration Mesh			Composite Polypropylene Fabric (Woven layer and non-woven fleece mechanically fused via needle punch); 3/16" Max. aperture size		
Sock fabrics composed of burlap may be used on projects lasting 6 months or less.					

Filtrexx & JMD

TABLE 4.2
COMPOST STANDARDS

ORGANIC MATTER CONTENT	25% – 100% (DRY DENSITY BASIS)
ORGANIC PORTION	FIBROUS AND ELONGATED
pH	5.5–8.0
MOISTURE CONTENT	30%–60%
PARTICLE SIZE	30%–50% PASS THROUGH 3/8"
SOLUBLE SALT CONCENTRATION	5.0 dS/m (mmhos/cm) MAXIMUM

17 STANDARD CONSTRUCTION DETAIL # 4-1
COMPOST FILTER SOCK INSTALLATION DETAIL
NOT TO SCALE



Bioretention / Raingarden Acceptable Plantings List

Scientific Name	Common Name	Potential Ht. / Spread
Trees		
Crataegus viridis	Winter King Hawthorn	20-25' ht. / 20-25'
Amelanchier arborea	Common Serviceberry	15-25' ht. / 12-15'
Betula nigra	River Birch	30-50' ht. / 15-35'
Ostrya virginiana	American Hophornbeam	25-30' ht. / 16-20'
Amelancier grandiflora	Autumn Brilliance Serviceberry	
Shrubs		
Vaccinum angustifolium	Lowbush Blueberry	6"-2' ht. / 2-4'
Rhus aromatica	Fragrant Sumac 'Gro-Lo'	2' ht. / 6-8'
Viburnum dentatum	Arrowwood Vibrnum	4' ht. / 4'
Viburnum tilobum	Cranberrybush Viburnum	4-6' ht. / 4-6'
Myrica pennsylvanica	Bayberry	5-7' ht. / 4-6'
Itea virginica	Sweetspire	6' ht. / 6'
Comus sericea	Red Osier Dogwood	7-10' ht. / 7-10'
Clethora alnifolia	White Summersweet	3' ht.
Ilex verticillata*	Winter Red Winterberry	
Ilex verticillata*	Southern Gentleman Winterberry	

*Winterberry to be planted at a ratio of 4 female variety to 1 male variety.

Scientific Name	Common Name	Potential Ht. / Spread
Perennials		
Symphyotrichum novae-angliae	New England Aster	1.5-2' ht.
Echinacea purpurea	Eastern Purple Coneflower	2' ht.
Monarda L.	Beebalm	2-3' ht.
Rudeneckia hirta	Black-eyed Susan	3' ht.

(NO MORE THAN 10% CLAY MATERIAL)
20% ORGANIC MATERIAL (SUCH AS COMPOST)
40% SAND, PEA GRAVEL OR CRUSHED SLAG
40% TOPSOIL (ALL ROCKS AND FOREIGN MATTER MUST BE REMOVED)

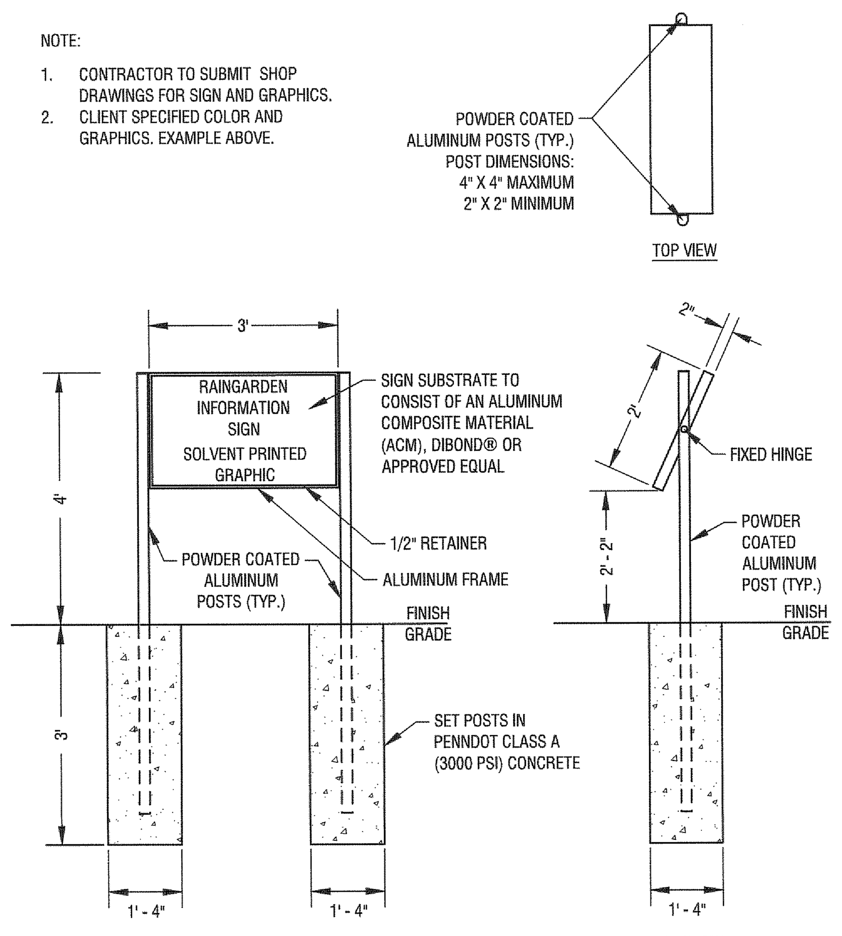
GENERAL NOTES:

1. SUBMIT MATERIAL TESTING DATA DEMONSTRATING THAT SELECT SOIL MIX AND AGGREGATE BED MATERIALS HAVE A MINIMUM 40% POROSITY.
2. THE RAIN GARDEN SHALL INCLUDE A MINIMUM OF 10 PLANTS PER EACH 1,000 SF OF BASIN AREA WITH A MINIMUM 2:1 RATIO OF SHRUBS TO TREES. THIS RATIO WILL BE PRO-RATED AS NECESSARY FOR EACH PORTION UNDER 1,000 SF OF BASIN AREA. FOR EXAMPLE: EACH 1,000 SF BASIN AREA REQUIRES APPROXIMATELY 3 TREES, AND 7 SHRUBS.
3. PLANTS SHOULD BE SPACED AT A MINIMUM DISTANCE EQUAL TO THEIR ANTICIPATED SPREAD.
4. THE RAINGARDEN FOOTPRINT SHALL CONTAIN 90% VEGETATIVE COVER THROUGH TREES, SHRUBS, AND PERENNIALS.

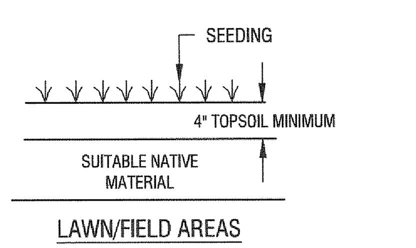
18 BIO RETENTION / RAINGARDEN DETAIL
NOT TO SCALE

NOTE:

1. CONTRACTOR TO SUBMIT SHOP DRAWINGS FOR SIGN AND GRAPHICS.
2. CLIENT SPECIFIED COLOR AND GRAPHICS. EXAMPLE ABOVE.



20 RAIN GARDEN INFORMATION SIGN
NOT TO SCALE



19 LAWN RESTORATION DETAIL
NOT TO SCALE

STANDARD E & S WORKSHEET # 21
Temporary and Permanent Vegetative Stabilization Specifications

SPECIFICATIONS: The Department recommends the use of the Penn State publication "EROSION CONTROL & Conservation Plantings on Noncropland" as the standard to use for the selection of species, seed specifications, mixtures, liming and fertilizing, time of seeding, and seeding methods. Specifications for these items may also be obtained from PennDOT's Publication # 408, Section 804 or by contacting the applicable county conservation district. Upon selection of a reference, that reference must be used to provide all specifications for seeding, mulching, and soil amendments. The following specification will be used for this project:

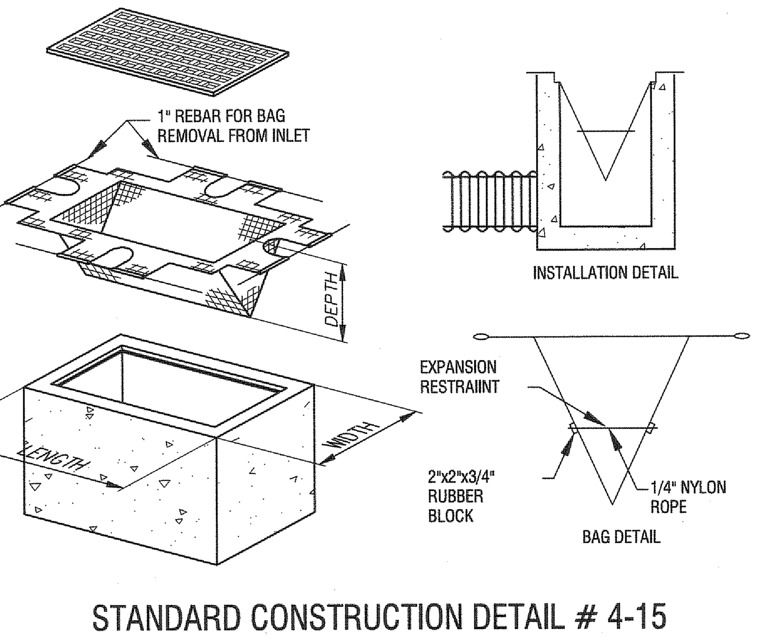
(TEMPORARY) SPECIES: Annual Ryegrass
% PURE LIVE SEED: 95 %
APPLICATION RATE: 40 LB./ACRE
FERTILIZER TYPE: 10-20-20 (X-X-X)
FERTILIZER APPL. RATE: 930 LB./ACRE
LIMING RATE: 1.0 T./ACRE
MULCH TYPE: Straw
MULCHING RATE: 3.0 T./ACRE

(PERMANENT) SPECIES: PennDOT Formula B (or equivalent)
% PURE LIVE SEED: 78 %
APPLICATION RATE 204 LB./ACRE
FERTILIZER TYPE: 10-20-20 (X-X-X)
FERTILIZER APPL. RATE: 678 LB./ACRE
LIMING RATE: 6.0 T./ACRE
MULCH TYPE: Straw
MULCHING RATE: 3.0 T./ACRE
ANCHOR MATERIAL: Recycled Cellulose Fiber
ANCHORING METHOD: Hydraulic Placement of Binder
RATE OF ANCHOR MATERIAL APPL.: 774 LB./ACRE
SEEDING SEASON DATES: March 15 to June 1 and August 1 to October 15

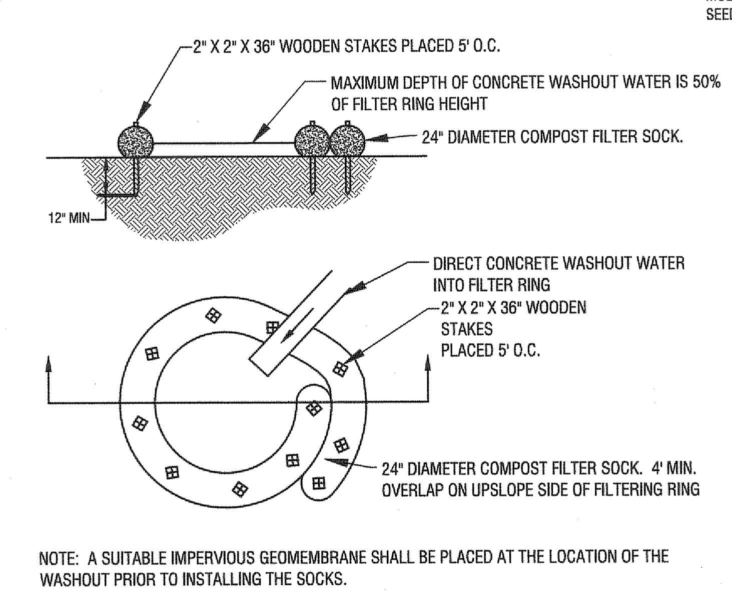
(PERMANENT - STEEP SLOPE)SPECIES: Slope Mix **
% PURE LIVE SEED: 100 %
Note: option for slopes > 3:1APPLICATION RATE: 70 LB./ACRE
FERTILIZER TYPE: 10-20-20 (X-X-X)
FERTILIZER APPL. RATE: 930 LB./ACRE
LIMING RATE: 4.0 T./ACRE
MULCH TYPE: Straw
MULCHING RATE: 3.0 T./ACRE
ANCHOR MATERIAL: Cellulose Fiber
ANCHORING METHOD:
RATE OF ANCHOR MATERIAL APPL.: 900 LB./ACRE
SEEDING SEASON DATES: March 15 to June 1 and August 1 to October 15

** Slope Mix consists of Creeping Red Fescue, Birdsfoot Trefoil 'Empire', and Perennial / Annual Ryegrass.

21 STANDARD WORKSHEET # 21
NOT TO SCALE



22 STANDARD CONSTRUCTION DETAIL # 4-15
INLET SEDIMENT FILTER DETAIL
NOT TO SCALE



NOTE: A SUITABLE IMPERVIOUS GEOMEMBRANE SHALL BE PLACED AT THE LOCATION OF THE WASHOUT PRIOR TO INSTALLING THE SOCKS.

23 TYPICAL COMPOST FILTER SOCK WASHOUT INSTALLATION
NOT TO SCALE

SOIL EROSION AND SEDIMENT POLLUTION CONTROL PLAN

THE CONTRACTOR IS REQUIRED TO FULLY COMPLY WITH ALL OF THE RULES AND STANDARDS OF THE PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION, INCLUDING THE CONSTRUCTION AND MAINTENANCE OF EROSION AND SEDIMENTATION CONTROLS AS SPECIFIED IN THE EROSION AND SEDIMENTATION CONTROL PROGRAM MANUAL (DEP TECHNICAL GUIDANCE NUMBER 363-2134-008- AS AMENDED) AND PREPARED BY THE BUREAU OF WATERWAYS ENGINEERING AND WETLANDS, DEPARTMENT OF ENVIRONMENTAL PROTECTION, COMMONWEALTH OF PENNSYLVANIA.

ANY SILT, SEDIMENT AND MUD LEAVING THE SITE WILL BE CONSTRUED AS DAMAGE TO ADJACENT AREAS AND IT WILL BE SOLELY THE RESPONSIBILITY OF THE CONTRACTOR TO CLEAN UP THE SEDIMENT AND RESTORE THE AREA TO ITS ORIGINAL CONDITION.

GENERAL EROSION AND SEDIMENT POLLUTION CONTROL NOTES

1. EROSION AND SEDIMENT POLLUTION CONTROLS MUST BE CONSTRUCTED, STABILIZED, AND FUNCTIONAL BEFORE GENERAL SITE DISTURBANCE WITHIN THE TRIBUTARY AREAS OF THOSE CONTROLS.
2. AFTER FINAL SITE STABILIZATION HAS BEEN ACHIEVED, TEMPORARY EROSION AND SEDIMENT POLLUTION CONTROLS MUST BE REMOVED. AREAS DISTURBED DURING REMOVAL OF THE CONTROLS MUST BE STABILIZED.
3. THE CONTRACTOR MUST DEVELOP, AND HAVE APPROVED BY THE ERIE COUNTY CONSERVATION DISTRICT, A SEPARATE EROSION AND SEDIMENT POLLUTION CONTROL PLAN FOR EACH SPOIL, BORROW, OR OTHER WORK AREA NOT DETAILED IN THE PERMITTED PLAN, WHETHER LOCATED INSIDE OR OUTSIDE OF THE CONSTRUCTION LIMITS.
4. THE CONTRACTOR MUST NOTIFY THE ERIE COUNTY CONSERVATION DISTRICT PRIOR TO ANY CEASE IN EARTHMOVING ACTIVITIES OF MORE THAN 20 DAYS.
5. SHOULD ANY MEASURES CONTAINED IN THIS PLAN PROVE INCAPABLE OF ADEQUATELY REMOVING SEDIMENT FROM ON-SITE RUNOFF PRIOR TO DISCHARGE, OR OF STABILIZING THE SURFACES INVOLVED, ADDITIONAL MEASURES MUST BE IMMEDIATELY IMPLEMENTED BY THE CONTRACTOR TO ELIMINATE ALL SUCH PROBLEMS.
6. THE CONTRACTOR IS TO MAINTAIN A COPY OF THE E&S PLAN AND NARRATIVE ON SITE.
7. THE CONTRACTOR WILL BE RESPONSIBLE FOR THE PROPER CONSTRUCTION, STABILIZATION, AND MAINTENANCE OF ALL EROSION AND SEDIMENT CONTROLS AND RELATED ITEMS INCLUDED IN THIS PLAN.

SEQUENCE OF BMP INSTALLATION AND EARTHMOVING ACTIVITIES

CONSTRUCTION OF THE EMERGENCY GENERATOR BUILDING

STAGE 1 - ALL INLET SEDIMENT CONTROL DEVICES WILL BE INSTALLED IN ACCORDANCE WITH STANDARD CONSTRUCTION DETAIL # 4-16, INCLUDED IN THE E&S PLAN NARRATIVE. ALL COMPOST FILTER SOCKS WILL BE INSTALLED IN ACCORDANCE WITH STANDARD WORKSHEET NO. 1 AND STANDARD CONSTRUCTION DETAIL # 4-1, INCLUDED IN THE E&S PLAN NARRATIVE. NOTE: ALL COMPOST FILTER SOCKS SHALL BE INSPECTED EVERY DAY REGARDLESS OF ANY STORM EVENT. ROCK CONSTRUCTION ENTRANCES WILL BE INSTALLED IN ACCORDANCE WITH THE STANDARD CONSTRUCTION DETAIL # 3-1, INCLUDED IN THE E&S PLAN NARRATIVE. PLACE A ROCK CONSTRUCTION ENTRANCE, AS INDICATED ON THE E&S PLAN, TO PROVIDE ACCESS TO THE PROPOSED SITE. THE CONTRACTOR MAY MOBILIZE EQUIPMENT AND TRAILERS AT THIS TIME.

STAGE 2 - UPON SATISFACTORY COMPLETION OF STAGE 1 WORK; CLEARING, GRUBBING, AND DEMOLITION ACTIVITIES MAY COMMENCE FOR THE PROPOSED IMPROVEMENTS. PLACE COMPOST FILTER SOCK DOWN GRADIENT OF DISTURBED AREAS, AS SHOWN ON THE E&S PLAN. SOIL STRIPPED FROM THE SITE SHALL BE TEMPORARILY STOCKPILED ON-SITE FOR FUTURE USE, OR PROPERLY TRANSPORTED / DISPOSED OF OFF-SITE. STOCKPILES SHALL HAVE SLOPES FLATTER THAN 2:1 HORIZONTAL TO VERTICAL AND SHALL NOT EXCEED 20 FEET IN HEIGHT. COMPOST FILTER SOCK WILL BE INSTALLED DOWN GRADIENT OF STOCKPILES, IN ACCORDANCE WITH STANDARD WORKSHEET NO. 1 AND STANDARD CONSTRUCTION DETAIL # 4-1. THE EROSION AND SEDIMENT CONTROLS SHALL BE MAINTAINED.

STAGE 3 - UPON SATISFACTORY COMPLETION OF STAGE 2 WORK; INITIAL GRADING, LEVELING, AND INSTALLATION OF PROPOSED STORMWATER CONTROLS MAY BEGIN. COMPOST FILTER SOCK SHALL BE INSTALLED AROUND THE UPSTREAM PERIMETER OF THE PROPOSED COLLECTION / CONVEYANCE SYSTEM, SUBSURFACE INFILTRATION BED / DETENTION BASIN, AND RAIN GARDEN, TO PREVENT SEDIMENTATION INTO THE EXCAVATION. CONTRACTOR SHALL TAKE NECESSARY MEASURES SUCH AS WORKING FROM THE OUTSIDE IN AND MINIMIZING TRAFFIC ON THE SUBGRADE SURFACE TO AVOID DISTURBANCE TO AND COMPACTION OF THE SUBGRADE OF THE SUBSURFACE INFILTRATION BED / DETENTION BASIN, AND RAIN GARDEN. INLET SEDIMENT CONTROL DEVICES SHALL BE INSTALLED. THE USE OF FILTER BAGS TO DRAIN STORMWATER / GROUNDWATER IN OPEN (EXPOSED) PIPE TRENCHES WILL BE UTILIZED IN ACCORDANCE WITH STANDARD CONSTRUCTION DETAIL # 3-16 INCLUDED IN THE E&S PLAN NARRATIVE (SEE NOTE-3). WHERE PERMANENT SEEDING IS NOT TO BE USED IMMEDIATELY AFTER BACKFILLING AND / OR GRADING, ANY AREA THAT WILL NOT BE DISTURBED AGAIN WITHIN 5 DAYS WILL BE TEMPORARILY SEEDED AND MULCHED (WHERE APPLICABLE) IN ACCORDANCE WITH STANDARD WORKSHEET # 21, INCLUDED IN THE PLAN NARRATIVE.

NOTE 1: EXISTING SOIL IN THIS AREA IS KNOWN TO HAVE CHARACTERISTICS OF CUTBANK SOIL LIMITATIONS. DUE TO THIS CONDITION, CUTBANK WILL BE ADDRESSED BY USING TRENCH BOXES FOR ANY WORK ASSOCIATED WITH EXCAVATION OF TRENCHES, UNLESS CONDITIONS WARRANT LAID BACK SLOPES. ALL SLOPES SHALL BE LESS THAN 3:1.

NOTE 2: MAINTENANCE OF INLET SEDIMENT FILTERS- INLET SEDIMENT FILTERS SHOULD BE INSPECTED ON A WEEKLY BASIS AND AFTER EACH RUNOFF EVENT; INLET SEDIMENT FILTERS SHOULD BE CLEANED AND/OR REPLACED WHEN THE FILTER IS ½ FULL; DAMAGED INLET FILTERS WILL BE REPLACED; NEEDED REPAIRS MUST BE INITIATED IMMEDIATELY AFTER INSPECTION.

NOTE 3: FILTER BAGS SHALL BE CAPABLE OF TRAPPING PARTICLES LARGER THAN 150 MICRONS; FILTER BAGS SHALL BE REPLACED WHEN THEY BECOME ½ FULL; A SUITABLE MEANS OF ACCESSING THE BAG WITH MACHINERY FOR DISPOSAL PURPOSES IS REQUIRED; BAGS SHALL BE LOCATED IN WELL-VEGETATED AREAS DOWN SLOPE OF DISTURBED AREAS. REFER TO STANDARD CONSTRUCTION DETAIL NO. 3-16 IN THE APPENDIX OF THIS PLAN FOR ADDITIONAL CONSTRUCTION AND MAINTENANCE CRITERIA. FILTER BAGS ARE TO BE RELOCATED ALONG THE TRENCHES AS WORK IN THESE AREAS PROGRESSES. THE LOCATIONS OF THE FILTER BAGS ON THE CONTRACT DRAWINGS ARE FOR DEPICTION OF THEIR USE AND ARE NOT TO BE CONSTRUED AS FIXED LOCATIONS FOR THE ENTIRE PROJECT.

NOTE 4: FROZEN AND EXCESSIVELY WET SOIL WILL NOT BE PERMITTED IN FILL AREAS.

NOTE 5: TEMPORARY AND PERMANENT SEEDING IS NOT PERMITTED DURING THE FOLLOWING TIMES: OCTOBER 15TH TO MARCH 15TH, AND JUNE 1ST TO AUGUST 1ST. DURING THESE PERIODS, DISTURBED AREAS WILL BE MULCHED IN ACCORDANCE WITH PENNDOT PUB 408, SECTION 805 AND STANDARD WORKSHEET NO. 21.

STAGE 4 - UPON SATISFACTORY COMPLETION OF STAGE 3 WORK; CONSTRUCTION MAY COMMENCE ON THE FOUNDATIONS, UTILITIES, AND IMPROVEMENTS FOR THE NEW GENERATOR BUILDING. THE EROSION AND SEDIMENT CONTROLS SHALL BE MAINTAINED.

STAGE 5 - UPON SATISFACTORY COMPLETION OF STAGE 4 WORK; GRADING ASSOCIATED WITH THE NEW GENERATOR BUILDING MAY BEGIN. THE WORK SHALL BE DONE SYSTEMATICALLY TO MINIMIZE THE AMOUNT OF DISTURBED AREA AT ANY GIVEN TIME. WHERE PERMANENT SEEDING IS NOT TO BE USED IMMEDIATELY AFTER GRADING, ANY AREA THAT WILL NOT BE DISTURBED AGAIN WITHIN 5 DAYS WILL BE TEMPORARILY SEEDED AND MULCHED (WHERE APPLICABLE) IN ACCORDANCE WITH STANDARD WORKSHEET # 21, INCLUDED IN THE PLAN NARRATIVE. THE EROSION AND SEDIMENT CONTROLS SHALL BE MAINTAINED.

STAGE 6 - UPON SATISFACTORY COMPLETION OF STAGE 5 WORK, TOPSOIL, PERMANENT SEEDING AND MULCH WILL BE PLACED IN ALL REMAINING DISTURBED AREAS WHICH HAVE NOT BEEN DEVELOPED. EXISTING EROSION AND SEDIMENT CONTROLS WILL BE MAINTAINED. SHOULD MINIMAL TOPSOIL BE LOCATED ON THE SITE, THE CONTRACTOR SHALL NEED TO IMPORT TOPSOIL TO PROVIDE ADEQUATE COVERAGE OF VEGETATED AREAS OF THE SITE TO ACHIEVE FINAL STABILIZATION.

STAGE 7 - UPON SATISFACTORY COMPLETION OF STAGE 6 WORK AND WHEN A UNIFORM 70% OF PERENNIAL VEGETATIVE COVER HAS BEEN ESTABLISHED IN THE DISTURBED AREAS, AND IF PHASE 2 DOES NOT IMMEDIATELY START, ALL EROSION SEDIMENT CONTROL DEVICES WILL BE REMOVED. THIS INCLUDES REMOVING THE REMAINING ROCK CONSTRUCTION ENTRANCE, INLET SEDIMENT FILTERS, AND COMPOST FILTER SOCK. AREAS DISTURBED BY THE REMOVAL OF EROSION AND SEDIMENT CONTROL DEVICES WILL BE STABILIZED WITH PERMANENT SEEDING AND MULCHING.

CRITICAL STAGES OF PCSM PLAN FOR WHICH A LICENSED PROFESSIONAL OR DESIGNEE SHALL BE PRESENT ON SITE

1. INSTALLATION OF STORMWATER SUBSURFACE INFILTRATION BED / DETENTION BASIN.
2. INSTALLATION OF THE RAIN GARDEN.

EROSION CONTROL MEASURES USED (BEFORE, DURING, AND AFTER THE DISTURBANCE ACTIVITIES)

- INLET SEDIMENT FILTERS, AND COMPOST FILTER SOCK HELP MAXIMIZE PROTECTION OF EXISTING DRAINAGE FEATURES, AND VEGETATION.
- THE PROPOSED EMERGENCY GENERATOR BUILDING, GENERATOR PAD, PUMP HOUSE, AND WATER TANK AREA WERE ANALYZED DURING SITE LAYOUT TO MINIMIZE LAND CLEARING AND GRADING.
- THIS PROJECT UTILIZES INFILTRATION BEST MANAGEMENT PRACTICES FOR STORMWATER MANAGEMENT, THEREFORE, THE CONTRACTOR IS RESPONSIBLE FOR MINIMIZING SOIL COMPACTION IN INFILTRATION AREAS.
- USING A RAIN GARDEN FOR STORMWATER MANAGEMENT HELPS REDUCE IMPERVIOUS AREAS.

TEMPORARY CONTROL MEASURES:

1. A ROCK CONSTRUCTION ENTRANCE WILL BE INSTALLED TO REDUCE VEHICLES TRACKING SOIL ONTO ADJACENT AREAS AND PAVED STREETS.
2. INLET SEDIMENT FILTERS AND COMPOST FILTER SOCK WILL BE INSTALLED AS INDICATED ON THE PLAN TO PREVENT SEDIMENT FROM LEAVING THE SITE.
3. STORMWATER RUNOFF WILL DRAIN FROM AREAS THAT HAVE BEEN DISTURBED BY MEANS OF OVERLAND FLOW AND BE COLLECTED IN THE NEWLY DEFINED COLLECTION AND CONVEYANCE SYSTEM. THE USE OF COMPOST FILTER SOCK AT THE EDGE OF DISTURBED AREAS, AS SHOWN IN THE EROSION AND SEDIMENT POLLUTION CONTROL DRAWING AND STANDARD WORKSHEET NO. 1, WILL REMOVE SEDIMENT FROM RUNOFF WATERS.
4. IF NOT IMMEDIATELY RECEIVING PERMANENT SEED AND MULCH, THE WORK SHALL BE TEMPORARILY SEEDED AND MULCHED WITHIN 5 DAYS (SEE STANDARD WORKSHEET NO.21). DURING THE TIME WHEN SEEDING IS NOT ALLOWED, THESE AREAS WILL BE MULCHED IN ACCORDANCE WITH THE SCHEDULE AND STANDARD WORKSHEET NO. 21 UNTIL SUCH TIME THAT THEY MAY BE SEEDED.
5. UPON COMPLETION OF ALL IMPROVEMENTS AND WHERE APPLICABLE, DISTURBED AREAS NOT STABILIZED WITH PAVING WILL RECEIVE PERMANENT SEED AND/OR MULCH TO PROVIDE VEGETATIVE STABILIZATION.
6. WATER PUMPED FROM EXCAVATED TRENCHES WILL BE DISCHARGED THROUGH FILTER BAGS ONTO VEGETATED AREAS TO REMOVE SEDIMENT FROM PUMPED WATER.
   NOTE: VEGETATED AREAS SHOULD BE LOCATED DOWN SLOPE OF ANY DISTURBED AREA.
7. UPON COMPLETION OF ALL DRAINAGE IMPROVEMENTS, STORMWATER WILL DRAIN FROM THE SITE BY OVERLAND FLOW TO NEWLY INSTALLED INLETS, AND CONVEYED TO THE NEWLY INSTALLED SUBSURFACE INFILTRATION BED / DETENTION BASIN; STORMWATER WILL ALSO DRAIN FROM THE SITE BY OVERLAND FLOW TO THE NEWLY INSTALLED RAIN GARDEN; RUNOFF WHICH IS NOT COLLECTED BY THE NEW INLETS OR RAIN GARDEN WILL BE SHEET FLOW OFFSITE AND BE COLLECTED BY THE CITY OF ERIE STORM SEWER SYSTEM. WHERE APPLICABLE, PERMANENT STABILIZATION WILL BE INSTALLED TO PROVIDE FINAL EROSION AND SEDIMENT CONTROL MEASURES.

PERMANENT CONTROL MEASURES:

ALL AREAS OF EARTH DISTURBED BY CONSTRUCTION WILL BE SEEDED AND MULCHED (WHERE APPLICABLE) IMMEDIATELY AFTER COMPLETION OF CONSTRUCTION, IN ACCORDANCE WITH THE SCHEDULE AND STANDARD WORKSHEET # 21 CONTAINED HEREIN. IN THE EVENT THAT SEEDING CANNOT TAKE PLACE IMMEDIATELY DUE TO TIME OF YEAR LIMITATIONS ON SEEDING, THE DISTURBED AREAS WILL BE MULCHED IN ACCORDANCE WITH PENNDOT PUB. 408, SECTION 805 AND WORKSHEET # 21 UNTIL SUCH TIME THAT THEY MAY BE PROPERLY SEEDED.

MAINTENANCE PROGRAM

THE CONTRACTOR WILL BE RESPONSIBLE FOR THE REMOVAL OF ALL EXCAVATED MATERIALS AND DEBRIS. THIS MATERIAL WILL BE REMOVED FROM THE JOB SITE AND DISPOSED OF IN ACCORDANCE WITH ALL LOCAL, COUNTY, STATE AND FEDERAL REGULATIONS. THE CONTRACTOR THROUGHOUT THE CONSTRUCTION PERIOD WILL BE RESPONSIBLE FOR MAINTAINING ALL TEMPORARY CONTROL MEASURES. INSPECTION OF BMP'S ON A WEEKLY BASIS AND AFTER EACH MEASURABLE RAINFALL EVENT WILL TAKE PLACE. DEFICIENCIES IN ANY OF THE EROSION CONTROL MEASURES WILL BE REPAIRED WITHIN ONE (1) DAY AFTER THEIR DETECTION. UPON COMPLETION OF THE PROJECT, THE OWNER WILL TAKE OVER THE MAINTENANCE OF ALL STORMWATER MANAGEMENT & PERMANENT EROSION CONTROL FACILITIES. AREAS WHICH ARE SEEDED WILL BE MAINTAINED BY THE OWNER ONCE IT IS DEEMED THAT A SATISFACTORY STAND OF SEEDING HAS TAKEN ROOT.

ALL TEMPORARY E&S AND STORMWATER CONTROL MEASURES SHALL BE MAINTAINED BY THE CONTRACTOR THROUGHOUT THE CONSTRUCTION PERIOD. UPON COMPLETION OF THE PROJECT, ALL PERMANENT EROSION AND STORMWATER CONTROL FACILITIES WILL BE MAINTAINED BY THE OWNER (ERIE VA MEDICAL CENTER). AREAS THAT HAVE BEEN RESEEDED WILL BE MAINTAINED BY THE OWNER ONCE A SATISFACTORY STAND OF SEEDING HAS TAKEN ROOT.

FILTER BAGS SHALL BE CAPABLE OF TRAPPING PARTICLES LARGER THAN 150 MICRONS; FILTER BAGS SHALL BE INSPECTED ON A WEEKLY BASIS AND AFTER EACH RUNOFF EVENT; FILTER BAGS SHALL BE CLEANED AND / OR REPLACED WHEN THEY BECOME ½ FULL; DAMAGED INLET FILTERS SHALL BE REPLACED; NEEDED REPAIRS MUST BE INITIATED IMMEDIATELY AFTER INSPECTION; A SUITABLE MEANS OF ACCESSING THE BAG WITH MACHINERY FOR DISPOSAL PURPOSES IS REQUIRED; BAGS SHALL BE LOCATED IN WELL-VEGETATED AREAS. REFER TO STANDARD CONSTRUCTION DETAIL # 3-16 IN THE APPENDIX OF THE NARRATIVE FOR ADDITIONAL CONSTRUCTION AND MAINTENANCE CRITERIA. FILTER BAGS ARE TO BE RELOCATED ALONG THE TRENCHES AS WORK IN THESE AREAS PROGRESSES. THE LOCATIONS OF THE FILTER BAGS ON THE CONTRACT DRAWINGS ARE FOR DEPICTION OF THEIR USE AND NOT TO BE CONSTRUED AS FIXED LOCATIONS FOR THE ENTIRE PROJECT.

THE ROCK CONSTRUCTION ENTRANCE'S THICKNESS WILL BE CONSTANTLY MAINTAINED TO THE SPECIFIED DIMENSION BY ADDING ROCK. A STOCKPILE OF ROCK MATERIAL WILL BE MAINTAINED ON THE SITE FOR THIS PURPOSE. AT THE END OF EACH CONSTRUCTION DAY, ALL SEDIMENT DEPOSITED ON PUBLIC ROADWAYS WILL BE REMOVED BY SWEEPING, OR OTHER MEANS. WASHING OF THE ROADWAY WITH WATER IS NOT PERMITTED.

COMPOST FILTER SOCKS SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT. DAMAGED SOCKS SHALL BE REPAIRED ACCORDING TO MANUFACTURER'S SPECIFICATIONS OR REPLACED WITHIN 24 HOURS OF INSPECTION. ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN IT REACHES HALF THE ABOVEGROUND HEIGHT OF THE SOCK AND DISPOSED IN THE MANNER DESCRIBED ELSEWHERE IN THE PLAN. BIODEGRADABLE FILTER SOCKS SHALL BE REPLACED AFTER 6 MONTHS; PHOTODEGRADABLE SOCKS AFTER 1 YEAR. POLYPROPYLENE SOCKS SHALL BE REPLACED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.

FROZEN AND EXCESSIVELY WET SOIL WILL NOT BE PERMITTED IN FILL AREAS.

PERMANENT VEGETATIVE COVER CONSISTING OF PENNDOT FORMULA B (OR EQUIVALENT) SEEDING WILL BE ESTABLISHED AND MAINTAINED (SEE TABLE BELOW). INSPECTION OF FACILITIES WILL BE ON A QUARTERLY BASIS, WITH ADDITIONAL INSPECTIONS MADE AFTER ALL MAJOR STORM EVENTS. AREAS THAT HAVE ERODED OR BECOME UNSTABLE WILL BE REPAIRED AND RESEEDED AS SOON AS POSSIBLE AFTER DETECTION. ALL POST CONSTRUCTION MAINTENANCE AND INSPECTION ACTIVITIES AND THEIR ASSOCIATED COSTS WILL BE THE RESPONSIBILITY OF THE OWNER.

ALL MAINTENANCE ACTIVITIES (INSPECTIONS/REPAIRS) SHALL BE DOCUMENTED WITH WRITTEN REPORTS. THE REPORTS SHALL DOCUMENT EACH INSPECTION, ANY BMP REPAIR OR REPLACEMENT, AND/OR ANY MAINTENANCE ACTIVITIES. THE CONTRACTOR SHALL COMPLETE THESE REPORTS AND HAVE THEM ON FILE AT THE JOBSITE.

PennDOT Formula B:

Formula and Species	% By Weight	Minimum % Purity	Minimum % Germination	Max % Weed Seed	Seeding Rate Lbs. Per 1000 SY
Formula B					42.0 Total
• Perennial Ryegrass Mixture (Lolium perenne). A combination of improved certified varieties with no one variety exceeding 50% of the total Ryegrass component.	20	97	90	0.10	8.5
• Creeping Red Fescue or Chewings Fescue (Festuca rubra or ssp commutate) (Improved and Certified)	30	97	85	0.10	12.5
• Kentucky Bluegrass Mixture (Poa pratensis). A combination of improved certified varieties with no one variety exceeding 50% of the total Bluegrass component.	50	97	80	0.15	21.0

Slope Mix

Creeping Red Fescue		25 lbs./acre
Birdsfoot Trefoil	'Empire'	30 lbs./acre
Perennial / Annual Ryegrass		15 lbs./acre
*Total Seeding		70 lbs./acre

* PLS Pure Live Seed 100%.

RECEIVING WATERS OF THE COMMONWEALTH AND THEIR CHAPTER 93 CLASSIFICATION

DURING CONSTRUCTION ACTIVITIES, STORMWATER WILL DISCHARGE TO WATERS OF THE COMMONWEALTH BY MEANS OF OVERLAND SHEET FLOW AND INTERMITTENT CHANNEL FLOW THROUGH EXISTING CATCH BASINS. THE WATERS OF THE COMMONWEALTH WHICH WILL RECEIVE STORMWATER DISCHARGE DURING CONSTRUCTION AND THEIR CHAPTER 93 CLASSIFICATION ARE LISTED BELOW.

RECEIVING WATERS	CHAPTER 93 IDENTIFICATION
MILLCREEK TO	WWF, MF
PRESQUE ISLE BAY	WWF

OFF-SITE BORROW AND DISPOSAL AREAS:

TOPSOIL:

WHERE REQUIRED, TOPSOIL WILL BE STRIPPED AND STORED ON-SITE UTILIZING APPROVED METHODS OF EROSION AND SEDIMENTATION CONTROLS. APPROVED METHODS OF EROSION AND SEDIMENTATION CONTROL FOR STOCKPILES WILL BE IMPLEMENTED AND COVERED UNDER A SEPARATE PLAN PREPARED BY THE CONTRACTOR.

OFF-SITE BORROW AND DISPOSAL AREAS:

IF OFF-SITE BORROW, STORAGE AND/OR DISPOSAL AREAS ARE UTILIZED FOR THIS PROJECT, THEY WILL BE COVERED UNDER SEPARATE EROSION AND SEDIMENT POLLUTION CONTROL PLANS PREPARED BY THE CONTRACTOR OR OWNER OF THE BORROW/SPOIL AREA.

ALL FILL MATERIALS BEING IMPORTED OR EXPORTED FROM PROPOSED SITE SHALL BE HANDLED IN ACCORDANCE WITH PA DEP BUREAU OF LAND RECYCLING AND WASTE MANAGEMENT, MANAGEMENT OF FILL POLICY DOCUMENT NUMBER 258-2182-7783. THE ABOVE REFERENCED DOCUMENT PROVIDES THE PA DEP'S PROCEDURES FOR DETERMINING WHETHER A MATERIAL IS A CLEAN FILL OR REGULATED FILL. THE PA DEP DEFINES CLEAN FILL AS UNCONTAMINATED, NONWATER-SOLUBLE, NONDECOMPOSABLE INERT SOLID MATERIAL. THE TERM INCLUDES SOIL, ROCK, STONE, DREDGED MATERIAL, USED ASPHALT, AND BRICK, BLOCK OR CONCRETE FROM CONSTRUCTION AND DEMOLITION ACTIVITIES THAT IS SEPARATE FROM OTHER WASTE AND RECOGNIZABLE AS SUCH. THE TERM DOES NOT INCLUDE MATERIALS PLACED IN OR ON THE WATERS OF THE COMMONWEALTH UNLESS OTHERWISE AUTHORIZED. THE PA DEP REQUIRES ENVIRONMENTAL DUE DILIGENCE BE USED IN DETERMINING THE NATURE OF THE SELECTED FILL MATERIALS. THE PA DEP DEFINES ENVIRONMENTAL DUE DILIGENCE AS INVESTIGATIVE TECHNIQUES, INCLUDING, BUT NOT LIMITED TO, VISUAL PROPERTY INSPECTIONS, ELECTRONIC DATA BASE SEARCHES, REVIEW OF OWNERSHIP AND USE HISTORY OF PROPERTY, SANBORN MAPS, ENVIRONMENTAL QUESTIONNAIRES, TRANSACTION SCREENS, ANALYTICAL TESTING, AND ENVIRONMENTAL ASSESSMENTS OR AUDITS.

THE CONTRACTOR MUST FILL OUT FORM FP-001 CERTIFICATION OF ORIGIN OF CLEAN FILL FOR EACH SOURCE OF CLEAN FILL, AND HAVE FORMS AVAILABLE IF REQUESTED BY THE MUNICIPAL OR COUNTY AGENCIES. A COPY OF THE FP-001 IS FOUND IN APPENDIX- B OF THE E&S NARRATIVE

RECYCLING / DISPOSAL OF WASTE MATERIALS:

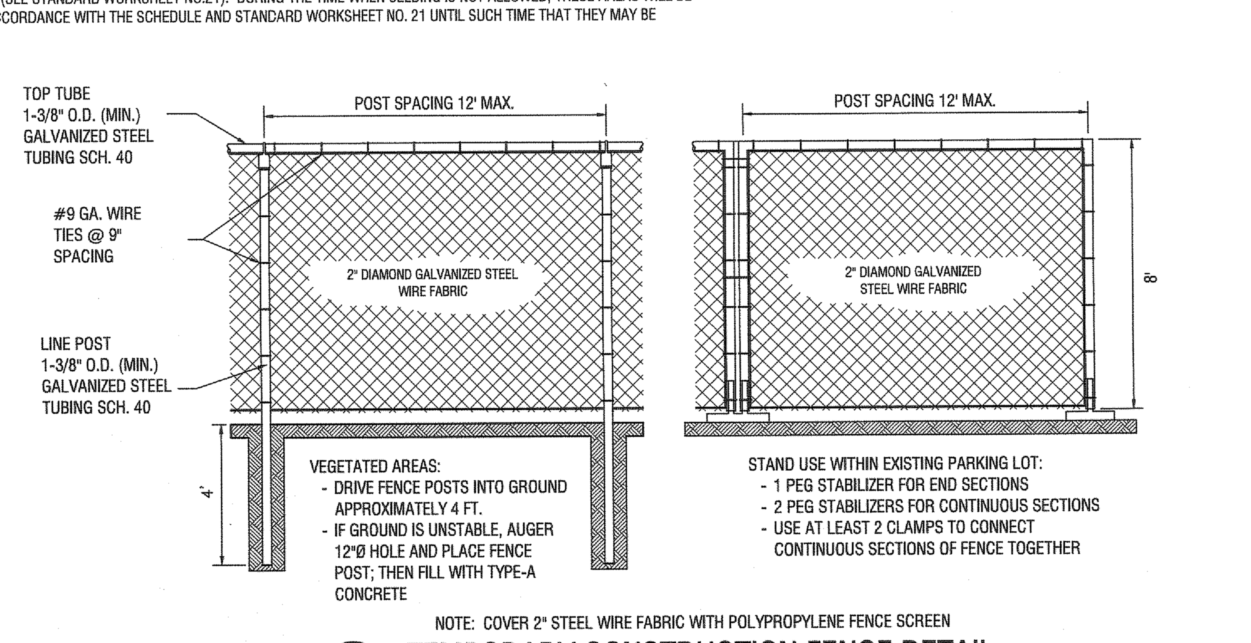
WHEN FEASIBLE, THE CONTRACTOR SHALL RECYCLE EXCESS MATERIALS RATHER THAN DISPOSE OF THEM. ANTICIPATED CONSTRUCTION WASTES INCLUDE, BUT ARE NOT LIMITED TO: EXCESS SOIL MATERIALS; BUILDING MATERIALS FROM DEMOLITION AND NEW CONSTRUCTION; AND CONCRETE WASH WATER.

- ALL BUILDING MATERIALS AND WASTES SHALL BE REMOVED FROM THE SITE AND RECYCLED OR DISPOSED OF IN ACCORDANCE WITH THE PA DEP'S SOLID WASTE MANAGEMENT REGULATIONS AT 25 PA. CODE 260.1 ET SEQ., 271.1, AND 287.1 ET. SEQ. NO BUILDING MATERIALS OR WASTES OR UNUSED BUILDING MATERIALS SHALL BE BURNED, DUMPED, OR DISCHARGED AT THE SITE. (STANDARD E&S PLAN NOTE # 10; PA DEP E&S MANUAL, PG. 394)
- ALL OFF-SITE WASTE AND BORROW AREAS MUST HAVE AN E&S PLAN APPROVED BY THE LOCAL CONSERVATION DISTRICT OR THE PA DEP, AND BE FULLY IMPLEMENTED PRIOR TO BEING ACTIVATED. (STANDARD E&S PLAN NOTE #11; PA DEP E&S MANUAL, PG. 394)
- CONCRETE WASH WATER- CONCRETE WASH WATER WILL BE PROPERLY DISPOSED OF IN ACCORDANCE WITH THE DEPARTMENT OF ENVIRONMENTAL PROTECTION: EROSION AND SEDIMENT POLLUTION CONTROL PROGRAM MANUAL, TECHNICAL GUIDANCE NUMBER 363-2134-008, MARCH 2012, COMPOST SOCK WASHOUT. PLEASE REFER TO THE DETAIL SHEET, AND APPENDIX- B FOR FIGURE 3.18- TYPICAL COMPOST SOCK WASHOUT INSTALLATION. COMPOST SOCK WASHOUT LOCATIONS WILL BE DETERMINED BY THE CONTRACTOR, AND IN ACCORDANCE WITH THE PA DEP REGULATIONS.

STANDARD E&S PLAN NOTES

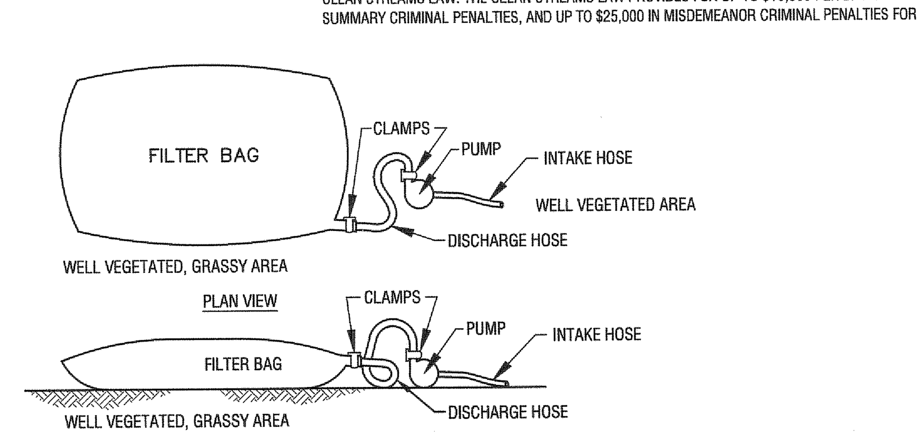
(AS LISTED IN APPENDIX C, PAGE 394-398, OF THE PADEP EROSION & SEDIMENT POLLUTION CONTROL MANUAL, TECHNICAL GUIDANCE#363-2134-008, MARCH 2012)

1. ALL EARTH DISTURBANCES, INCLUDING CLEARING AND GRUBBING AS WELL AS CUTS AND FILLS SHALL BE DONE IN ACCORDANCE WITH THE APPROVED E&S PLAN. A COPY OF THE APPROVED DRAWINGS (STAMPED, SIGNED AND DATED BY THE REVIEWING AGENCY) MUST BE AVAILABLE AT THE PROJECT SITE AT ALL TIMES. THE REVIEWING AGENCY SHALL BE NOTIFIED OF ANY CHANGES TO THE APPROVED PLAN PRIOR TO IMPLEMENTATION OF THOSE CHANGES. THE REVIEWING AGENCY MAY REQUIRE A WRITTEN SUBMITTAL OF THOSE CHANGES FOR REVIEW AND APPROVAL AT ITS DISCRETION.
2. AT LEAST 7 DAYS PRIOR TO STARTING ANY EARTH DISTURBANCE ACTIVITIES, INCLUDING CLEARING AND GRUBBING, THE OWNER AND/OR OPERATOR SHALL INVITE ALL CONTRACTORS, THE LANDOWNER, APPROPRIATE MUNICIPAL OFFICIALS, THE E&S PLAN PREPARER, THE PCSM PLAN PREPARER, THE LICENSED PROFESSIONAL RESPONSIBLE FOR OVERSIGHT OF CRITICAL STAGES OF IMPLEMENTATION OF THE PCSM PLAN, AND A REPRESENTATIVE FROM THE LOCAL CONSERVATION DISTRICT TO AN ON-SITE PRECONSTRUCTION MEETING.
3. AT LEAST 3 DAYS PRIOR TO STARTING ANY EARTH DISTURBANCE ACTIVITIES, OR EXPANDING INTO AN AREA PREVIOUSLY UNMARKED, THE PENNSYLVANIA ONE CALL SYSTEM INC. SHALL BE NOTIFIED AT 1-800-242-1776 FOR THE LOCATION OF EXISTING UNDERGROUND UTILITIES.
4. ALL EARTH DISTURBANCE ACTIVITIES SHALL PROCEED IN ACCORDANCE WITH THE SEQUENCE PROVIDED ON THE PLAN DRAWINGS. DEVIATION FROM THAT SEQUENCE MUST BE APPROVED IN WRITING FROM THE LOCAL CONSERVATION DISTRICT OR BY THE DEPARTMENT PRIOR TO IMPLEMENTATION.
5. AREAS TO BE FILLED ARE TO BE CLEARED, GRUBBED, AND STRIPPED OF TOPSOIL TO REMOVE TREES, VEGETATION, ROOTS AND OTHER OBJECTIONABLE MATERIAL.
6. CLEARING, GRUBBING, AND TOPSOIL STRIPPING SHALL BE LIMITED TO THOSE AREAS DESCRIBED IN EACH STAGE OF THE CONSTRUCTION SEQUENCE. GENERAL SITE CLEARING, GRUBBING AND TOPSOIL STRIPPING MAY NOT COMMENCE IN ANY STAGE OR PHASE OF THE PROJECT UNTIL THE E&S BMPS SPECIFIED BY THE BMP SEQUENCE FOR THAT STAGE OR PHASE HAVE BEEN INSTALLED AND ARE FUNCTIONING AS DESCRIBED IN THIS E&S PLAN.
7. AT NO TIME SHALL CONSTRUCTION VEHICLES BE ALLOWED TO ENTER AREAS OUTSIDE THE LIMIT OF DISTURBANCE BOUNDARIES SHOWN ON THE PLAN MAPS. THESE AREAS MUST BE CLEARLY MARKED AND FENCED OFF BEFORE CLEARING AND GRUBBING OPERATIONS BEGIN.
8. TOPSOIL REQUIRED FOR THE ESTABLISHMENT OF VEGETATION SHALL BE STOCKPILED AT THE LOCATION(S) SHOWN ON THE PLAN MAPS(S) IN THE AMOUNT NECESSARY TO COMPLETE THE FINISH GRADING OF ALL EXPOSED AREAS THAT ARE TO BE STABILIZED BY VEGETATION. EACH STOCKPILE SHALL BE PROTECTED IN THE MANNER SHOWN ON THE PLAN DRAWINGS. STOCKPILE HEIGHTS SHALL NOT EXCEED 20 FEET. STOCKPILE SLOPES SHALL BE 2H:1V OR FLATTER.
9. IMMEDIATELY UPON DISCOVERING UNFORESEEN CIRCUMSTANCES POSING THE POTENTIAL FOR ACCELERATED EROSION AND/OR SEDIMENT POLLUTION, THE OPERATOR SHALL IMPLEMENT APPROPRIATE BEST MANAGEMENT PRACTICES TO MINIMIZE THE POTENTIAL FOR EROSION AND SEDIMENT POLLUTION AND NOTIFY THE LOCAL CONSERVATION DISTRICT AND/OR THE REGIONAL OFFICE OF THE DEPARTMENT.
10. ALL BUILDING MATERIALS AND WASTES SHALL BE REMOVED FROM THE SITE AND RECYCLED OR DISPOSED OF IN ACCORDANCE WITH THE DEPARTMENT'S SOLID WASTE MANAGEMENT REGULATIONS AT 25 PA. CODE 260.1 ET SEQ., 271.1, AND 287.1 ET. SEQ. NO BUILDING MATERIALS OR WASTES OR UNUSED BUILDING MATERIALS SHALL BE BURNED, BURIED, DUMPED, OR DISCHARGED AT THE SITE.
11. ALL OFF-SITE WASTE AND BORROW AREAS MUST HAVE AN E&S PLAN APPROVED BY THE LOCAL CONSERVATION DISTRICT OR THE DEPARTMENT FULLY IMPLEMENTED PRIOR TO BEING ACTIVATED.
12. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT ANY MATERIAL BROUGHT ON SITE IS CLEAN FILL. FORM FP-001 MUST BE RETAINED BY THE PROPERTY OWNER FOR ANY FILL MATERIAL AFFECTED BY A SPILL OR RELEASE OF A REGULATED SUBSTANCE BUT QUALIFYING AS CLEAN FILL DUE TO ANALYTICAL TESTING.
13. ALL PUMPING OF WATER FROM ANY WORK AREA SHALL BE DONE ACCORDING TO THE PROCEDURE DESCRIBED IN THIS PLAN, OVER UNDISTURBED VEGETATED AREAS.
14. NOTE NOT APPLICABLE.
15. UNTIL THE SITE IS STABILIZED, ALL EROSION AND SEDIMENT BMPS SHALL BE MAINTAINED PROPERLY. MAINTENANCE SHALL INCLUDE INSPECTIONS OF ALL EROSION AND SEDIMENT BMPS AFTER EACH RUNOFF EVENT AND ON A WEEKLY BASIS. ALL PREVENTATIVE AND REMEDIAL MAINTENANCE WORK, INCLUDING CLEAN OUT, REPAIR, REPLACEMENT, REGRADING, RESEEDING, REMULCHING AND RENETTING MUST BE PERFORMED IMMEDIATELY. IF THE E&S BMPS FAIL TO PERFORM AS EXPECTED, REPLACEMENT BMPS, OR MODIFICATIONS OF THOSE INSTALLED WILL BE REQUIRED.
16. A LOG SHOWING DATES THAT E&S BMPS WERE INSPECTED AS WELL AS ANY DEFICIENCIES FOUND AND THE DATE THEY WERE CORRECTED SHALL BE MAINTAINED ON THE SITE AND BE MADE AVAILABLE TO REGULATORY AGENCY OFFICIALS AT THE TIME OF INSPECTION.
17. SEDIMENT TRACKED ONTO ANY PUBLIC ROADWAY OR SIDEWALK SHALL BE RETURNED TO THE CONSTRUCTION SITE BY THE END OF EACH WORK DAY AND DISPOSED IN THE MANNER DESCRIBED IN THIS PLAN. IN NO CASE SHALL THE SEDIMENT BE WASHED, SHOVELED, OR SWEPT INTO ANY ROADSIDE DITCH, STORM SEWER, OR SURFACE WATER.
18. ALL SEDIMENT REMOVED FROM BMPS SHALL BE DISPOSED OF IN THE MANNER DESCRIBED ON THE PLAN DRAWINGS.
19. AREAS WHICH ARE TO BE TOPSOILED SHALL BE SCARIFIED TO A MINIMUM DEPTH OF 3 TO 5 INCHES - 6 TO 12 INCHES ON COMPACTED SOILS - PRIOR TO PLACEMENT OF TOPSOIL. AREAS TO BE VEGETATED SHALL HAVE A MINIMUM 4 INCHES OF TOPSOIL IN PLACE PRIOR TO SEEDING AND MULCHING. FILL OUTSLOPES SHALL HAVE A MINIMUM OF 2 INCHES OF TOPSOIL.
20. ALL FILLS SHALL BE COMPACTED AS REQUIRED TO REDUCE EROSION, SLIPPAGE, SETTLEMENT, SUBSIDENCE OR OTHER RELATED PROBLEMS. FILL INTENDED TO SUPPORT BUILDINGS, STRUCTURES AND CONDUITS, ETC. SHALL BE COMPACTED IN ACCORDANCE WITH LOCAL REQUIREMENTS OR CODES.
21. ALL EARTHEN FILLS SHALL BE PLACED IN COMPACTED LAYERS NOT TO EXCEED 9 INCHES IN THICKNESS.
22. FILL MATERIALS SHALL BE FREE OF FROZEN PARTICLES, BRUSH, ROOTS, SOD, OR OTHER FOREIGN OR OBJECTIONABLE MATERIALS THAT WOULD INTERFERE WITH OR PREVENT CONSTRUCTION OF SATISFACTORY FILLS.
23. FROZEN MATERIALS OR SOFT, MUCKY, OR HIGHLY COMPRESSIBLE MATERIALS SHALL NOT BE INCORPORATED INTO FILLS.
24. FILL SHALL NOT BE PLACED ON SATURATED OR FROZEN SURFACES.
25. SEEPS OR SPRINGS ENCOUNTERED DURING CONSTRUCTION SHALL BE HANDLED IN ACCORDANCE WITH THE STANDARD AND SPECIFICATION FOR SUBSURFACE DRAIN OR OTHER APPROVED METHOD.
26. ALL GRADED AREAS SHALL BE PERMANENTLY STABILIZED IMMEDIATELY UPON REACHING FINISHED GRADE. CUT SLOPES IN COMPETENT BEDROCK AND ROCK FILLS NEED NOT BE VEGETATED. SEEDED AREAS WITHIN 50 FEET OF A SURFACE WATER, OR AS OTHERWISE SHOWN ON THE PLAN DRAWINGS, SHALL BE BLANKETED ACCORDING TO THE STANDARDS OF THIS PLAN.
27. IMMEDIATELY AFTER EARTH DISTURBANCE ACTIVITIES CEASE IN ANY AREA OR SUBAREA OF THE PROJECT, THE OPERATOR SHALL STABILIZE ALL DISTURBED AREAS. DURING NON-GERMINATING MONTHS, MULCH OR PROTECTIVE BLANKETING SHALL BE APPLIED AS DESCRIBED IN THE PLAN. AREAS NOT AT FINISHED GRADE, WHICH WILL BE REACTIVATED WITHIN 1 YEAR, MAY BE STABILIZED IN ACCORDANCE WITH THE TEMPORARY STABILIZATION SPECIFICATIONS. THOSE AREAS WHICH WILL NOT BE REACTIVATED WITHIN 1 YEAR SHALL BE STABILIZED IN ACCORDANCE WITH THE PERMANENT STABILIZATION SPECIFICATIONS.
28. PERMANENT STABILIZATION IS DEFINED AS A MINIMUM UNIFORM, PERENNIAL 70% VEGETATIVE COVER OR OTHER PERMANENT NON-VEGETATIVE COVER WITH A DENSITY SUFFICIENT TO RESIST ACCELERATED EROSION. CUT AND FILL SLOPES SHALL BE CAPABLE OF RESISTING FAILURE DUE TO SLUMPING, SLIDING, OR OTHER MOVEMENTS.
29. E&S BMPS SHALL REMAIN FUNCTIONAL AS SUCH UNTIL ALL AREAS TRIBUTARY TO THEM ARE PERMANENTLY STABILIZED OR UNTIL THEY ARE REPLACED BY ANOTHER BMP APPROVED BY THE LOCAL CONSERVATION DISTRICT OR THE DEPARTMENT.
30. NOTE NOT APPLICABLE.
31. AFTER FINAL SITE STABILIZATION HAS BEEN ACHIEVED, TEMPORARY EROSION AND SEDIMENT BMPS MUST BE REMOVED OR CONVERTED TO PERMANENT POST CONSTRUCTION STORMWATER MANAGEMENT BMPS. AREAS DISTURBED DURING REMOVAL OR CONVERSION OF THE BMPS SHALL BE STABILIZED IMMEDIATELY. IN ORDER TO ENSURE RAPID REVEGETATION OF DISTURBED AREAS, SUCH REMOVAL/CONVERSIONS ARE TO BE DONE ONLY DURING THE GERMINATING SEASON.
32. NOTE NOT APPLICABLE.
33. FAILURE TO CORRECTLY INSTALL E&S BMPS, FAILURE TO PREVENT SEDIMENT-LADEN RUNOFF FROM LEAVING THE CONSTRUCTION SITE, OR FAILURE TO TAKE IMMEDIATE CORRECTIVE ACTION TO RESOLVE FAILURE OF E&S BMPS MAY RESULT IN ADMINISTRATIVE, CIVIL, AND/OR CRIMINAL PENALTIES BEING INSTITUTED BY THE DEPARTMENT AS DEFINED IN SECTION 602 OF THE PENNSYLVANIA CLEAN STREAMS LAW. THE CLEAN STREAMS LAW PROVIDES FOR UP TO $10,000 PER DAY IN CIVIL PENALTIES, UP TO $10,000 IN SUMMARY CRIMINAL PENALTIES, AND UP TO $25,000 IN MISDEMEANOR CRIMINAL PENALTIES FOR EACH VIOLATION.



NOTE: COVER 2" STEEL WIRE FABRIC WITH POLYPROPYLENE FENCE SCREEN

24 TEMPORARY CONSTRUCTION FENCE DETAIL
NOT TO SCALE



NOTE: ALL PUMP WATER FILTER BAGS TO BE LOCATED IN VEGETATED AREAS DOWNSLOPE OF DISTURBED AREAS.

25 STANDARD CONSTRUCTION DETAIL # 3-16
PUMPED WATER FILTER BAG DETAIL
NOT TO SCALE

CONSTRUCTION DOCUMENTS

Revisions:	Date

CONSULTANTS:

HERBERT, ROWLAND & GRUBIC, INC.
200 WEST KENSINGER DRIVE, SUITE 400
CRANBERRY TOWNSHIP, PA 16066

URBAN ENGINEERS, INC.
1319 SASSAFRAS STREET
ERIE, PA 16501

MOORE DESIGN ASSOCIATES
130 HEAVEN LANE
MARS, PA 16046

SEAL

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
TIMOTHY LAWRENCE POLASKI
ENGINEER
055636-E

ARCHITECTS/ENGINEERS:

AE WORKS
6587 Hamilton Avenue
Pittsburgh, Pennsylvania 15206
Ph: 412.287.7333 Fax: 412.287.7334
www.ae-works.com
AE Works Project Number: 13045

Drawing Title
EROSION AND SEDIMENT CONTROL PLAN DETAILS

Approved: Project Director

Project Title:
EXPAND EMERGENCY POWER GENERATION FOR THE ERIE VAMC

Location:
135 E 38TH ST, ERIE, PA 16504

Date:	Checked:	Drawn:
03/17/2016	TLP, TMP	DJK, DGH

Project Number
562-13-112

Building Number
1

Drawing Number
C502

Office of Construction and Facilities Management
Department of Veterans Affairs

ABBREVATION LEGEND

&	AND
A	AIR (CLINICAL)
AAP	ALARM ANNUNCIATOR PANEL
AAV	AUTOMATIC AIR VENT
AB	ANCHOR BOLT
ABV	ABOVE
ACC DR	ACCESS DOOR
ACFL	ACCESS
ACOUS	ACOUSTICAL
ACT	ACOUSTICAL CEILING TILE
AD	AREA DRAIN
ADA	AMERICAN DISABILITIES ACT
ADD	ADDENDUM
ADDL	ADDITIONAL
ADJ	ADJUSTABLE
ADMIN	ADMINISTRATION
AFF	ABOVE FINISH FLOOR
AFG	ABOVE FINISHED GRADE
AFMD	AIR FLOW MEASURING DEVICE
AHU	AIR HANDLING UNIT
AL	ALIGN
ALT	ALTERNATE
ALUM	ALUMINUM
AMP	AMPERE
AP	ACCESS PANEL
APC	ARCHITECTURAL PRECAST CONCRETE
APPROX	APPROXIMATE
ARCH	ARCHITECTURAL
ASY	ASYMMETRIC
ATC	AUTOMATIC TEMPERATURE CONTROL
ATS	AUTOMATIC TRANSFER SWITCH
AUTO	AUTOMATIC
AWT	AVERAGE WATER TEMPERATURE
BAT	BATTERY
BC	BALANCING COCK OR BARE COPPER
BDD	BACKDRAFT DAMPER
BFC	BELOW FINISH CEILING
BFE	BOTTOM FOOTING ELEVATION
BFG	BELOW FINISHED GRADE
BG	BUMPER GUARD
BLDG	BUILDING
BLKG	BLOCKING
BLT	BORROWED LIGHT
BLW	BELOW
BM	BEAM
BO	BY OWNER
BOF	BY OWNER FUTURE
BOT	BOTTOM
BR	BRICK
BRG	BEARING
BRKR	BREAKER
BSMT	BASEMENT
BTWN	BETWEEN
BUR	BUILT UP ROOFING
C	CONDUIT
CAB	CABINET
CANTL	CANTILEVER
CAP	CAPACITY
CATV	CABLE TELEVISION
CCT	CUBICLE CURTAIN TRACK
CCTV	CLOSED CIRCUIT TELEVISION
CFH	CUBIC FEET / HOUR
CFM	CUBIC FEET / MINUTE
CH	CHANNEL
CHK V	CHECK VALVE
CHWR	CHILLED WATER RETURN
CHWS	CHILLED WATER SUPPLY
CHWS&R	CHILLED WATER SUPPLY AND RETURN
CJ	CONTROL JOINT
CKT	CIRCUIT
CKT BRKR	CIRCUIT BREAKER
CL	CENTERLINE
CLG	CEILING
CLG MTD	CEILING MOUNTED
CLR	CLR
CMU	CONCRETE MASONRY UNIT
CO	CLEAN OUT
COL	COLUMN
COMM	COMMUNICATION
CONC	CONCRETE
CONN	CONNECTION
CONST	CONSTRUCTION
CONT	CONTINUE / CONTINUOUS
CONTR	CONTRACTOR
CONV	CONVECTOR
COORD	COORDINATE
CORR	CORRIDOR
CPT	CARPET OR CONTROL POWER TRANSFORMER
CT	CERAMIC TILE
CTR	CENTER
CU	COPPER
CV	CONTROL VALVE
CW	COLD WATER
D	DEPTH OR DEEP
DB	DRY BULB
dB	DECIBEL
DCW	DOMESTIC COLD WATER
DEMO	DEMOLITION
DEPT	DEPARTMENT
DET	DETAILS
DF	DRINKING FOUNTAIN
DHW	DOMESTIC HOT WATER
DIA	DIAMETER
DIAG	DIAGONAL OR DIAGRAM
DIFF	DIFFUSER
DIM	DIMENSION
DISC	DISCONNECT
DISCH	DISCHARGE
DISP	DISPENSER
DIST	DISTRIBUTION
DIV	DIVISION
DL	DOWN LIGHT
DN	DOWN
DP	DISTRIBUTION PANEL
DPR	DAMPER
DR	DRAIN
DS	DOWNSPOUT
DWG	DRAWING
DX	DIRECT EXPANSION
EA	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
EC	ELECTRICAL CONTRACTOR
EDB	ENTERING DRY BULB
EF	EXHAUST FAN
EIFS	EXTERIOR INSULATION AND FINISHING SYSTEM
EJ	EXPANSION JOINT
EL	ELEVATION
ELEC	ELECTRICAL

ELEC CAB	ELECTRICAL CABINET
ELEV	ELEVATOR
EMER	EMERGENCY
ENCL	ENCLOSURE
ENTR	ENTRANCE
EO	ELECTRICAL OUTLET
EQ	EQUAL
EQUIP	EQUIPMENT
ERD	EMERGENCY ROOF DRAIN
ETR	EXISTING TO REMAIN
EWC	ELECTRIC WATER COOLER
EWT	ENTERING WATER TEMPERATURE
EX	EXAUST AIR
EXH	EXHAUST
EXIST	EXISTING
EXP	EXPANSION
EXT	EXTERIOR
XP	EXPLOSION PROOF
F/S	FIRE / SMOKE DAMPER
FA	FIRE ALARM
FAAP	FIRE ALARM ANNUNCIATOR PANEL
FACP	FIRE ALARM CONTROL PANEL
FAT	FINAL AIR TEMPERATURE
FB	FIRE BLANKET
FC	FLEXIBLE CONNECTION OR FOOTCANDLE
FD	FLOOR DRAIN OR FIRE DAMPER
FDN	FOUNDATION
FDV	FIRE DEPARTMENT VALVE
FE	FIRE EXTINGUISHER
FEC	FIRE EXTINGUISHER CABINET
FH	FIRE HOSE
FHC	FIRE HOSE CABINET
FHP	FULL HEIGHT PARTITION
FHV	FIRE HOSE VALVE
FIN	FINISH
FIXT	FIXTURE
FL	FLOW LINE
FLA	FULL LOAD AMPERES
FLASH	FLASHING
FLEX	FLEXIBLE
FLG	FLANGE
FLG C	FLANGE CONNECTION
FLR	FLOOR
FLUOR	FLUORESCENT
FP	FIRE PROOFING
FRMG	FRAMING
FS	FLOOR SINK
FSTOP	FIRESTOPPING
FT	FOOT / FEET
FT HD	FEET OF HEAD
FTC	FOOTCANDLES
FTG	FOOTING
FUR	FURRING
G	GAS OR ELECTRICAL GROUND
GA	GAUGE
GAL	GALLONS
GALV	GALVANIZED
GB	GRAB BAR
GC	GENERAL CONTRACTOR
GEN	GENERATOR
GENL	GENERAL
GFCI	GROUND FAULT CIRCUIT INTERRUPTOR
GL	GLASS
GLV	GLOBE VALVE
GND	GROUND
GPM	GALLONS PER MINUTE
GR	GRADE
GRAV	GRAVITY
GRD BM	GRADE BEAM
GV	GATE VALVE
GWB	GYPSUM BOARD
H	HIGH
HB	HOSE BIB
HC	HEATING CONTRACTOR
HDCP	HANDICAP
HDR	HEADER
HDW	HARDWARE
HID	HIGH INTENSITY DISCHARGE
HM	HOLLOW METAL
HORIZ	HORIZONTAL
HP	HORSE POWER
HPD	HIGH PRESSURE DRIP
HPF	HIGH POWER FACTOR
HR	HANDRAIL
HSKP	HOUSEKEEPING
HT	HEIGHT
HTG	HEATING
HTR	HEATER
HV	HIGH VELOCITY
HVAC	HEATING, VENTILATING, AIR CONDITIONING
HW	HOT WATER
HWD	HARD WOOD
HWR	HOT WATER RETURN
HWS	HOT WATER SUPPLY
HWS&R	HOT WATER SUPPLY AND RETURN
HZ	HERTZ
ID	INSIDE DIAMETER
IER	INVERTED ECCENTRIC REDUCER
IG	ISOLATED GROUND
IME	INSULATED METAL ENCLOSURE
IN	INCH
INCAND	INCANDESCENT
INCL	INCLUDED
INSUL	INSULATION
INT	INTERIOR
INTERL	INTERLOCK
INV	INVERT
ISO	ISOLATION
IVS	ISOLATED VALVE STATION
J-BOX	JUNCTION BOX
JST	JOIST
JT	JOINT
KO	KNOCK OUT
kVA	KILOVOLT AMPERE
kVAR	KILOVAR (REACTANCE)
kW	KILOWATT
kWH	KILOWATT HOUR METER
LAT	LEAVING AIR TEMPERATURE
LAV	LAVATORY
LB	POUND
LDB	LEAVING DRY BULB
LED	LIGHT EMITTING DIODE
LF	LINEAR FEET
LIN	LINEAR
LOC	LOCATION OR LOCATE
LPT	LOW POINT
LSDC	LINEAR SUPPLY DIFFUSER CEILING
LT	LIGHT

LTG	LIGHTING
LV	LOW VOLTAGE
LVR	LOUVER
LWB	LEAVING WET BULB
LWC	LINEAR WOOD CEILING
LWT	LEAVING WATER TEMPERATURE
MAN	MANUAL
MAT	MIXED AIR TEMPERATURE
MATL	MATERIAL
MAV	MANUAL AIR VENT
MAX	MAXIMUM
MBH	ONE THOUSAND BTU / HOUR
MC	MECHANICAL CONTRACTOR
MC	METAL CLAD CABLE
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MDP	MAIN DISTRIBUTION PANEL
MECH	MECHANICAL
MEMB	MEMBRANE
MET	METAL
MFR	MANUFACTURER
MH	MANHOLE
MIN	MINIMUM
MISC	MISCELLANEOUS
MLO	MAIN LUGS ONLY
MO	MASONRY OPENING
MOD	MOTOR OPERATED DAMPER
MONO	MONOLITHIC
MTD	MOUNTED
MTG HT	MOUNTING HEIGHT
MTL	METAL
MTLH	METAL HALIDE
MTR	MOTOR
MTS	MANUAL TRANSFER SWITCH
MV	MEDIUM VOLTAGE
N/A	NOT APPLICABLE
NEC	NATIONAL ELECTRIC CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURER ASSOCIATION
NIC	NOT IN CONTRACT
NL	NIGHT LIGHT
NO	NUMBER OR NORMALLY OPEN
NOM	NOMINAL
NTS	NOT TO SCALE
O	OXYGEN
OA	OUTSIDE AIR
OBD	OPPOSED BLADE DAMPER
OC	ON CENTER
OD	OUTSIDE DIAMETER
OPER	OPERATED
OPNG	OPENING
OPP	OPPOSITE
ORD	OVERFLOW ROOF DRAIN
PB	PULL BOX
PC	PLUMBING CONTRACTOR
PD	PUMP DISCHARGE
PG	PRESSURE GAUGE WITH COCK
PL	PROPERTY LINE
PLAM	PLASTIC LAMINATE
PLBG	PLUMBING
PNL	PANEL
PR	PAIR
PRD	PRESSURE DIFFERENTIAL VALVE
PRELIM	PRELIMINARY
PRT	PRESSURE TAP
PRV	PRESSURE REDUCING VALVE
PT	PAINT OR POTENTIAL TRANSFORMER
RO	ROUGH OPENING
QT	QUARRY TILE
R	RADIUS
RA	RETURN AIR / RELIEF AIR
RB	RUBBER BASE
RC	REMOVE COMPLETELY
RD	ROOF DRAIN
RE	RELOCATE EXISTING
REC	RECESSED
RECPT	RECEPTACLE
REF	REFERENCE
REFL	REFLECTOR
REG	REGISTER
REINF	REINFORCING
REM	REMOVE
REQD	REQUIRED
RET	RETURN
REV	REVISE
REX	REMOVE EXISTING
RF	RESILIENT FLOOR
RFI	REQUEST FOR INFORMATION
RGS	RIGID GALVANIZED STEEL CONDUIT
RH	ROOF HATCH
RM	ROOM
RN	REMOVE AND REPLACE WITH NEW
RR	REMOVE AND REPLACE
RS	RAPID START
RV	RELIEF VALVE
RWC	RAIN WATER CONDUCTOR
SA	SUPPLY AIR
SAN	SANITARY SEWER ABOVE GROUND
SAN-BXR	SANITARY SEWER - BURIED EXISTING TO REMAIN
SAN-XR	SANITARY SEWER ABOVE GROUND - EXISTING TO REMAIN
SCHED	SCHEDULE
SD	SMOKE DAMPER OR SMOKE DETECTOR
SDISP	SOAP DISPENSER
SF	SQUARE FOOT
SHT	SHEET
SHT MTL	SHEET METAL
SHTG	SHEATHING
SIM	SIMILAR
SM	SURFACE MOUNTED
SNC	SANITARY NAPKIN CABINET
SND	SANITARY NAPKIN DISPOSER
SP	STANDPIPE OR STATIC PRESSURE
SPC	SPECIMEN PASS-THRU CABINET
SPEC	SPECIFICATIONS
SPS	STATIC PRESSURE SENSOR
SR	SERVICE RECEPTOR
SS	SOIL STACK
ST PR	STATIC PRESSURE
ST STL	STAINLESS STEEL
STD	STANDARD
STER	STERILIZER
STL	STEEL
STOR	STORAGE
STR	STRAINER
STRUCT	STRUCTURAL
SUSP	SUSPENDED
SW	SWITCH

SWBD	SWITCHBOARD
SWGR	SWITCHGEAR
SYM	SYMMETRICAL TOP
T	TOP
TA	THROWAWAY
TAN	TANGENT
TC	TELECOMMUNICATIONS CONTRACTOR
TCV	TEMPERATURE CONTROL VALVE
TDV	TRIPLE DUTY VALVE
TEL	TELEPHONE
TEMP	TEMPERATURE
TER	TERRAZZO
TG	TONGUE & GROOVE
TH	THERMOMETER
THRES	THRESHOLD
TR	TEMPERATURE RISE
TRANS	TRANSITION
TRANSFR	TRANSFORMER
TSTAT	THERMOSTAT
TV	TURNING VANES OR TELEVISION
TYP	TYPICAL
UC	UNDER CABINET OR UNDER CUT
UFD	UNDER FLOOR DUCT
UG	UNDERGROUND
UH	UNIT HEATER
UL	UNDERWRITER'S LABORATORIES
UNFIN	UNFINISHED
UNO	UNLESS NOTED OTHERWISE
UPS	UNINTERRUPTIBLE POWER SUPPLY
UTIL	UTILITY
V	VOLT
VAL	VALVE
VD	VOLUME DAMPER
VENT	VENTILATION
VERT	VERTICAL
VFS	VENTURI FLOW STATION
VIF	VERIFY IN FIELD
VL	VENT LINE
VR	VAPOR RETARDER
VS	VENT STACK
VTR	VENT THROUGH ROOF
W	WATT
W/	WITH
W/O	WITHOUT
WB	WET BULB
WC	WALL COVERING
WCL	WATER CLOSET
WD	WOOD
WF	WIDE FLANGE
WFMD	WATER FLOW MEASURING DEVICE
WG	WALL GUARD OR WATER GAUGE
WHCH	WHEEL CHAIR
WIN	WINDOW
WMS	WIRE MESH SCREEN
WP	WEATHERPROOF
WPS	WALL PROTECTION SYSTEM
WSCT	WAINSCOT
WT	WINDOW TREATMENT
WTD	WATER TEMPERATURE DROP
WWF	WELDED WIRE FABRIC
X	DEMO
XN	TO BE RELOCATED / NEW LOCATION
XR	EXISTING TO REMAIN
ZVB	ZONE VALVE BOX
ZVC	ZONE VALVE CABINET

SYMBOLS LEGEND

DESCRIPTION	SYMBOL
DRAWING BLOCK TITLE MARK	ITEM NUMBER / LETTER; ITEM TITLE / DESCRIPTION; 1 PLAN VIEW 1/8" = 1'-0"; ITEM SCALE
WALL SECTION MARK	SECTION IDENTIFIER; 1 A101; SHEET NUMBER
BUILDING SECTION MARK	SECTION IDENTIFIER; 1 A101; SHEET NUMBER
DETAIL INDICATOR	1 A101; DETAIL IDENTIFIER; SHEET NUMBER; LEADER; DETAIL BOUNDARY
EXTERIOR ELEVATION MARK	1 A100; ELEVATION IDENTIFIER; SHEET NUMBER
INTERIOR ELEVATION MARK (SINGLE VIEW)	1 A100; ELEVATION IDENTIFIER; SHEET NUMBER
INTERIOR ELEVATION MARK (MULTIPLE VIEWS)	1 4 A100 2 3; ELEVATION IDENTIFIER; SHEET NUMBER
NORTH ARROW	PROJECT NORTH
ROOM NAME INDICATOR	ROOM NAME; ROOM NAME 000; ROOM NUMBER
COLUMN GRID IDENTIFICATION	00; GRID LINE IDENTICATION; COLUMN GRID LINE; 00
DOOR IDENTIFICATION	101; DOOR NUMBER
WINDOW IDENTIFICATION	WW; WINDOW / CURTAINWALL TYPE
WALL TYPE IDENTIFICATION	MB; WALL TYPE INDICATOR; WALL
KEYED NOTE IDENTIFICATION	02.01; KEYED NOTE NUMBER
REVISION IDENTIFICATION	1; REVISION CLOUD; REVISION NUMBER
DATUM POINT IDENTIFICATION	LEVEL 10'-0"; ELEVATION RELATIVE TO FIRST FLOOR TOP OF SLAB
WALL FINISH	PT8; FINISH; EXTENT OF FINISH

GENERAL PROJECT NOTES:

1. ALL CONSTRUCTION WORK SHALL CONFORM WITH THE APPLICABLE CODES AND ORDINANCES OF THE LOCAL JURISDICTION, THE COMMONWEALTH OF PENNSYLVANIA, AND THE CURRENT ADOPTED VERSION OF THE INTERNATIONAL BUILDING CODE FAMILY. THE CONTRACTOR SHALL POST NOTICES AND COMPLY WITH THE GOVERNING LAWS OF THE JURISDICTION.
2. INSTALLATIONS PERFORMED IN CONNECTION WITH THESE DRAWINGS SHALL COMPLY WITH THE MOST RECENT NFPA EDITION.
3. THE SITE WORK SHALL BE PROPERLY SUPERVISED BY THE CONTRACTOR'S JOB SITE SUPERINTENDENT. SUFFICIENT PERSONNEL SHALL BE EMPLOYED TO COMPLETE THE WORK WITHIN THE CONTRACTED TIME. PERSONNEL SHALL BE SKILLED IN THE TASK ASSIGNED.
4. THE CONTRACTOR SHALL, AT ALL TIMES, MAINTAIN ADEQUATE PROTECTION TO SAFEGUARD THE PUBLIC AND ALL PERSONS ENGAGED IN THE PERFORMANCE OF THE WORK.
5. THE DRAWINGS REFLECT CONDITIONS AS CAN BE INFERRED FROM VISIBLE CONDITIONS, OR FROM DRAWINGS AND INFORMATION FURNISHED BY THE OWNER, BUT CANNOT BE GUARANTEED. THE OWNER SHALL VERIFY ALL GRADES, LINES, LEVELS AND DIMENSIONS INDICATED ON THE DRAWINGS AND SHALL REPORT ALL INCONSISTENCIES TO THE ARCHITECT PRIOR TO THE EXECUTION OF THE WORK. RECHECK ALL DIMENSIONS PRIOR TO ORDERING MANUFACTURED AND/OR FABRICATED ITEMS.
6. PLAN DIMENSIONS, UNLESS NOTED OTHERWISE, ARE TO THE FACE OF THE WALL FINISH OR CENTERLINE OF COLUMN.
7. ALL INDICATIONS OF MASONRY ARE SHOWN IN ACTUAL DIMENSIONS (NOT NOMINAL), UNLESS NOTED OTHERWISE.
8. THE CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR PROTECTION AND SAFEKEEPING OF PRODUCTS PURCHASED FOR THIS PRODUCT AND STORED ON THE PROJECT SITE. THE CONTRACTOR SHALL COORDINATE WITH THE OWNER ON PREFERRED LOCATIONS FOR STORED MATERIALS ON THE PROJECT SITE, IF ALLOWED AS PART OF THE REQUIREMENTS OF THIS PROJECT.
9. THE CONTRACTOR SHALL MAINTAIN AREAS UNDER THE CONTRACTOR'S CONTROL TO BE FREE OF WASTE MATERIALS, DEBRIS, AND RUBBISH. CONTAINERS FOR DEPOSIT OF DEBRIS AND RUBBISH SHALL BE PROVIDED BY THE CONTRACTOR. COORDINATE LOCATION OF CONTAINERS WITH THE OWNER'S REPRESENTATIVE PRIOR TO PLACEMENT. REMOVE AND DISPOSE OF DEMOLITION MATERIAL OFF SITE IN ACCORDANCE WITH APPLICABLE CODES AND/OR SPECIFICATIONS.
10. EXTRANEOUS MATERIALS SHALL BE PERIODICALLY REMOVED, AND AT THE CONCLUSION OF THE PROJECT.
11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND INSTALLING ALL FIRESAFING/FIRESTOPPING MATERIALS AT ALL THROUGH-WALL AND THROUGH-CEILING PENETRATIONS AS REQUIRED FOR THE CONSTRUCTION WORK AND TO MAINTAIN FIRE RATINGS OF FLOORS AND WALLS. MATERIALS AND INSTALLATION DETAILS SHALL CONFORM TO UNDERWRITER LABORATORIES LISTING FOR RATED ASSEMBLIES.
12. ALL WOOD FRAMING AND SHEATHING SHALL BE FIRE RETARDANT TREATED AS REQUIRED BY THE BUILDING CODE CLASSIFICATION OF 'NONCOMBUSTIBLE'.
13. DO NOT SCALE DRAWINGS. FIELD VERIFY ALL DIMENSIONS AND CONDITIONS PRIOR TO CONSTRUCTION. NOTIFY THE OWNER OF ANY DEVIATIONS OR DISCREPANCIES FOUND & RECEIVE DIRECTION BEFORE PROCEEDING.
14. CONTRACTOR SHALL PROVIDE TEMPORARY DUST ENCLOSURES DURING ALL DEMOLITION AND CONSTRUCTION ACTIVITIES. CONTRACTOR TO COORDINATE LOCATIONS WITH CONTRACTING OFFICER. IF EXISTING WALLS ARE USED, PENETRATIONS MUST BE SEALED TO CREATE A DUST PROOF ENCLOSURE.
15. MODIFICATIONS TO THE EXISTING MEP SYSTEMS WILL IMPACT ADJACENT SPACES OUTSIDE THE GENERAL SCOPE OF WORK. ANY DISTURBANCE OF EXISTING CONDITIONS AND FINISHES MUST BE REPAIRED TO MATCH THE CONDITIONS PRIOR TO CONSTRUCTION IMPACTS.
16. THE FACILITY IS OPERATIONAL. CONTRACTOR SHALL MAKE PROVISIONS FOR OWNER AND PUBLIC USE OF THE BUILDING AROUND THE CONSTRUCTION AREA. DELIVERIES, STAGING, STORAGE OF MATERIALS AND OTHER CONSTRUCTION RELATED ACTIVITIES SHALL BE COORDINATED WITH THE CONTRACTING OFFICER SO AS TO NOT ADVERSELY AFFECT THE BUILDING OPERATIONS.
17. ASBESTOS AND LEAD ARE NOT ANTICIPATED TO EXIST IN THE WORK AREA. HOWEVER, IF ASBESTOS-CONTAINING MATERIAL IS DISCOVERED OR SUSPECTED, STOP WORK IN THE AREA IMMEDIATELY AND CONTACT THE CONTRACTING OFFICER.
18. ALL REVISIONS TO THE DRAWINGS MUST PROCEED THROUGH THE OWNER. OWNER REVISIONS MAY BE CONSIDERED INVALID.
19. ALL EXPOSED GYPSUM WALL BOARD EDGES TO HAVE METAL EDGE TRIM.
20. THE CONTRACTOR IS RESPONSIBLE FOR COMPARING AND COORDINATING ALL DRAWINGS FOR PROPER FIT AND ATTACHMENT OF ALL PARTS. DETAILS NOT SHOWN OR DESCRIBED IN THESE NOTES SHALL BE CONSTRUCTED TO SAME SIZE AND CHARACTER AS FOR SIMILAR CONDITIONS WHICH ARE SHOWN, SPECIFIED, OR COMMONLY CONSTRUCTED IN THE INDUSTRY.
21. NO STRUCTURAL MEMBER SHALL BE OMITTED, NOTCHED, CUT, BLOCKED OUT, OR RELOCATED WITHOUT PRIOR APPROVAL BY THE ARCHITECT OR ENGINEER.
22. PROTECTIVE MEASURES SHALL BE TAKEN BY THE CONTRACTOR TO PROTECT ADJACENT PROPERTY AT ALL TIMES DURING CONSTRUCTION.
23. ALL TEMPORARY BRACING AND SHORING SHALL BE DESIGNED TO SUSTAIN ALL CONSTRUCTION LOADS, SOIL PRESSURE, LATERAL AND OTHER LOADS TO WHICH THE STRUCTURE MAY BE SUBJECTED.
24. CONTRACTOR SHALL COORDINATE LOCATIONS OF LIGHT FIXTURES, SPRINKLER HEADS, REGISTERS, ETC. WITH THE REFLECTED CEILING PLAN LAYOUT.
25. ALL SPRINKLER HEADS, DIFFUSERS AND REGISTERS SHALL BE CENTERED WITH SUSPENDED ACOUSTICAL PANELS, UNLESS NOTED OTHERWISE ON DRAWINGS.
26. ALL VOIDS IN MASONRY, CONCRETE AND OTHER ASSEMBLIES CREATED AROUND PENETRATIONS SHALL BE FILLED/PATCHED WITH CONSTRUCTION TO MATCH SURROUNDING CONDITIONS.
27. CONTRACTOR IS RESPONSIBLE FOR PAINTING ALL EXPOSED STEEL, DECKING, PIPING, CONDUIT, SPRINKLER PIPING AND DUCTS WHICH ARE EXPOSED IN AREAS WITH NO CEILINGS AND SCHEDULED TO RECEIVE PAINT FINISH AS INDICATED ON THE FINISH SCHEDULE.

MATERIALS LEGEND:

- BRICK
- CONCRETE
- CONCRETE BLOCK
- EARTH - COMPACTED FILL
- GRAVEL, CRUSHED STONE
- GYPSUM BOARD, PLASTER
- PLYWOOD
- RIGID INSULATION
- SAND, GROUT, LIMESTONE
- STEEL
- TAPERED INSULATION
- WOOD, FINISH
- WOOD, FRAMING THROUGH MEMBER
- WOOD, FRAMING INTERRUPTED MEMBER

FULLY SPRINKLERED CONSTRUCTION DOCUMENTS

Revisions:	Date

CONSULTANTS:

SEAL

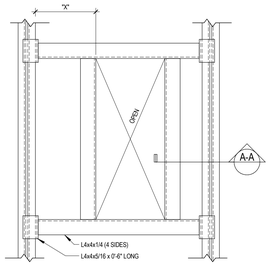
ARCHITECTS/ENGINEERS:

AE WORKS
6587 Hamilton Avenue
Pittsburgh, Pennsylvania 15206
Ph: 412.287.7333 Fax: 412.287.7334
www.ae-works.com
AE Works Project Number: 13045

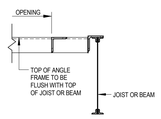
Drawing Title	ARCHITECTURAL SYMBOLS, ABBREVIATIONS AND GENERAL NOTES
Project Title:	EXPAND EMERGENCY POWER GENERATION for the ERIE VAMC
Project Number	562-13-112
Building Number	1
Approved: Project Director	
Location:	135 E 38TH ST, ERIE, PA 16504
Date:	03/17/2016
Checked:	PR
Drawn:	SB
Drawing Number	A001

Office of Construction and Facilities Management
Department of Veterans Affairs

VA FORM 08-6231



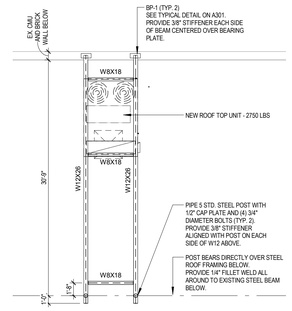
PLAN



SECTION A-A

NOTES:
1. IF "X" IS 4" OR LESS, ELIMINATE ANGLE PARALLEL TO JOIST OR BEAM.
2. PROVIDE ANGLE FRAME FOR ALL OPENINGS GREATER THAN 10" DIA. OR 10" SQUARE.
3. CONTRACTOR TO VERIFY SIZE AND LOCATION OF ALL OPENINGS. SEE ARCHITECTURAL, MECHANICAL, ETC. DRAWINGS FOR OPENINGS NOT SHOWN ON A002.

2 ROOF DECK OPENING DETAIL
3/4" = 1'-0"



1 BLDG 1 ROOF - EE200
1/8" = 1'-0"

GENERAL DEMOLITION NOTES:

1. CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS AND COORDINATE ALL DEMOLITION ACTIVITIES WITH ANY NEW CONSTRUCTION AS INDICATED WITHIN THE CONSTRUCTION DOCUMENTS. DO NOT SCALE DRAWINGS.

2. CONTRACTOR SHALL PERFORM ALL NECESSARY DEMOLITION ACTIVITIES AS REQUIRED FOR INSTALLATION OF NEW CONSTRUCTION AS INDICATED WITHIN THE CONSTRUCTION DOCUMENTS. COORDINATE WITH THOSE DOCUMENTS FOR EXACT DIMENSIONS AND LOCATIONS OF FINISHED WORK.

3. ALL DEMOLITION NOT SPECIFICALLY INDICATED, BUT NECESSARY TO COMPLETE THE PROJECT AS INDICATED ON THE CONSTRUCTION DOCUMENTS, SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

4. THE CONTRACTOR SHALL INSPECT AND ACCESS EACH SPACE AND FULFILL THE INTENT OF THE WORK REQUIRED BY THE CONTRACT DOCUMENTS. DEVIATIONS REQUIRED BY EXISTING FIELD CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT PRIOR TO PROCEEDING WITH THE WORK.

5. ANY CUTTING AND REMOVAL INDICATED ON THE CONSTRUCTION DOCUMENTS ARE GENERAL INDICATIONS ONLY AND MAY NOT NECESSARILY SHOW THE FULL EXTENT OF CUTTING AND REMOVAL NECESSARY.

6. THROUGHOUT THE COURSE OF DEMOLITION ACTIVITIES, PROPERLY PROTECT ANY EXISTING CONSTRUCTION INDICATED TO REMAIN. EXERCISE CARE WHEN REMOVING ADJACENT CONSTRUCTION AND PROPERLY REPAIR (TO ORIGINAL CONDITION) ANY AREAS SCHEDULED TO REMAIN THAT SUSTAIN DAMAGE AS A RESULT OF DEMOLITION ACTIVITIES.

7. CONTRACTOR SHALL CONSTRUCT DUST PROOF PROTECTIVE BARRIERS AS NECESSARY AT AREAS OF INTERIOR DEMOLITION TO PROTECT EXISTING CONSTRUCTION AND EQUIPMENT SCHEDULED TO REMAIN.

8. PERFORM ALL WORK REQUIRED TO PROTECT BUILDING OCCUPANTS AND EXISTING BUILDING UTILITIES. THE BUILDING WILL REMAIN IN OPERATION THROUGHOUT THE COURSE OF DEMOLITION AND CONSTRUCTION ACTIVITIES.

9. THE CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE ALL NECESSARY TEMPORARY BRACING AND SHORING AS REQUIRED TO MAINTAIN THE INTEGRITY AND STRUCTURAL STABILITY OF THE BUILDING AND ITS INDIVIDUAL ELEMENTS.

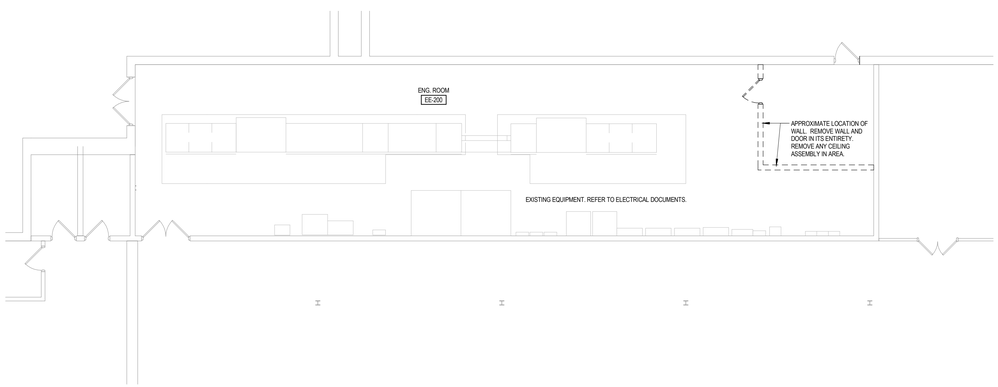
10. EXCEPT AS NOTED OTHERWISE, REMOVE ALL DEMOLISHED MATERIALS FROM THE SITE AND DISPOSE OF IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL LAWS REGULATIONS. DO NOT BURN, BURY, OR SELL MATERIALS ON THE PROJECT SITE. AT THE COMPLETION OF EACH WORK DAY, CLEAN THE ENTIRE WORK AREA AND LEAVE IN A NEAT CONDITION FREE OF DEBRIS AND RUBBISH.

11. STRUCTURAL, MECHANICAL, PLUMBING, ELECTRICAL, TELECOMMUNICATION, AND CIVIL DOCUMENTS PROVIDE ADDITIONAL DEMOLITION REQUIREMENTS FOR EACH PRIME CONTRACT. ALL PRIME CONTRACTORS ARE RESPONSIBLE FOR FAMILIARIZING THEMSELVES WITH THOSE DOCUMENTS THAT MAY PROVIDE ADDITIONAL DEMOLITION REQUIREMENTS BEYOND THOSE SPECIFICALLY INDICATED ON THE ARCHITECTURAL DEMOLITION PLANS.

12. THROUGHOUT THE COURSE OF DEMOLITION ACTIVITIES, THE CONTRACTOR SHALL PATCH, REPAIR AND PREPARE EXISTING EXPOSED SURFACES AND/OR ADJACENT MATERIAL AS REQUIRED TO RECEIVE NEW FINISHES.

13. CAREFULLY REMOVE AND DELIVER TO THE OWNER ANY EXISTING FIRE EXTINGUISHERS FOUND WITHIN THE LIMIT OF DEMOLITION ACTIVITIES.

14. THE OWNER RESERVES THE RIGHT TO REMOVE AND ITEMS SCHEDULED FOR DEMOLITION PRIOR TO THE START OF DEMOLITION ACTIVITIES AND CLAIM ANY ITEMS REMOVED BY THE CONTRACTOR THROUGHOUT THE COURSE OF DEMOLITION.



3 ELECTRICAL ROOM EE-200 - DEMO PLAN - BUILDING 1
1/8" = 1'-0"

CODES AND STANDARDS

1. Building has been designed to, and shall be constructed in accordance with the following building codes and standards:
   A. Pennsylvania Uniform Construction Code
   B. 2009 International Building Code (IBC 2009)
   C. ASCE 7-05, Minimum Design Loads for Buildings and Other Structures
2. Unless explicitly modified in the Contract Drawings and Specifications, the Contractor shall comply with provisions of:
   A. ACI 301-08, Specifications for Structural Concrete
   B. ACI 318-08, Building Code Requirements for Structural Concrete
   C. ACI 530-08, Building Code Requirements for Masonry Structures
   D. ACI 530.1-08, Specification for Masonry Structures
   E. AISC 341-05, Seismic Provisions for Structural Steel Buildings
   F. AISC 360-05, Specification for Structural Steel Buildings
   G. AWS D1.1-04, Structural Welding Code - Steel
   H. SDI Design Manual for Composite Decks, Form Decks and Roof Decks - No. 31

DESIGN LOADS

Floor live load (unless otherwise noted)

Slab on ground	150 psf

Roof live load

Roof live load	30 psf min.
Rain Load (ASCE 7, Section 8.3) ponded water	not critical (1)
Allowance for hanging loads for roofs over:	
Mechanical equipment room	20 psf

(1) Architect has provided scuppers and/or secondary drainage system

Roof snow load

Ground snow load (ASCE 7, Figure 7-1)	P_g = 40 psf
Flat-roof snow load (ASCE 7, 7.3)	P_f = 34 psf (2)
Snow exposure factor (ASCE 7, Table 7-2)	C_e = 1.0
Snow importance factor (ASCE 7, Table 7-4)	I_s = 1.2
Thermal factor (ASCE 7, Table 7-3)	C_t = 1.0

(2) Supplier to increase for snow buildup / unbalanced per ASCE 7, 7.6 to 7.9

Wind design data

Basic wind speed (3-second gust) (ASCE 7, Figure 6-1)	V = 90 mph
Wind importance factor (ASCE 7, Table 6-1)	I_w = 1.15
Occupancy category (ASCE 7, Table 1-1)	IV
Wind exposure category (ASCE 7, Section 6.5.6)	B
Internal pressure coefficient (ASCE 7, Fig. 6-5) Encl.	GC_{pi} = ±0.18
Components and cladding	
Effective Wind Area	10 ft^2 (3)
Zone 1 (Roof Interior)	+10.0, -16.8 psf
Zone 2 (Roof Edge)	+10.0, -28.1 psf
Zone 3 (Roof Corner)	+10.0, -42.3 psf
Zone 4 (Wall Interior)	+16.8, -18.2 psf
Zone 5 (Wall Corner)	+16.8, -22.4 psf

(+) Indicates pressure acting toward the surface
(-) Indicates pressure acting away from the surface
Edge and corner zones are defined as areas within 4'-0" of edge or corners

(3) Components and cladding engineer may calculate wind loads based on actual effective wind area per ASCE 7

Earthquake design data

Seismic importance factor (ASCE 7, Table 11.5-1)	I_e = 1.5
Occupancy category (ASCE 7, Table 1-1)	IV
Mapped spectral response accelerations	
Short period	S_s = 0.164 g
1-second period	S_1 = 0.049 g
Site class (per Geotechnical Report)	
Spectral response coefficients	
Short period	S_{ds} = 0.175 g
1-second period	S_{d1} = 0.078 g
Seismic design category	C
Basic seismic-force-resisting system (ASCE 7, Table 12.2-1)	
A. Bearing Wall Systems	
9. Ordinary reinforced masonry shear walls	
Design base shear (ASCE 7, 12.8.1)	V = 66 Kips
Seismic response coefficient (ASCE 7, 12.8.1.1)	C_s = 0.13
Response modification factor (ASCE 7, Table 12.2-1)	R = 2
Analysis procedure	Equivalent lateral force procedure

Flood design data

Building is not in a flood hazard area (IBC 1612.3)

DESIGN STRESSES

Concrete (strength design) minimum compressive strength in 28 days:	
Footings	f'_c = 3,000 psi
Interior slabs on ground	f'_c = 4,000 psi
Concrete subject to freezing and thawing	f'_c = 5,000 psi
Reinforcing bars (ASTM A615, Grade 60)	F_y = 60,000 psi
Welded wire reinforcement (ASTM A185)	f_y = 30,000 psi
Structural steel W and S shapes (ASTM A992 or ASTM A572/50)	F_y = 50,000 psi
Structural steel other shapes (ASTM A36)	F_y = 36,000 psi
Steel Pipe (ASTM A53, Grade B)	F_y = 35,000 psi
Anchor rods (F1554, Grade 36) unless otherwise noted	F_y = 36,000 psi
Metal decks	f_y = 20,000 psi
Masonry	f'_m = 1,500 psi
Load-bearing CMU (ASTM C55 or C90)	
Brick (ASTM C216 Grade SW)	
Mortar (ASTM C270)	Type M or S
Grout (ASTM C476)	2,000 psi
Soil bearing pressure for foundations bearing strata	1,500 psf

GENERAL

1. All new construction shall comply with the Contract Documents and the Building Code.
2. General notes apply to all parts of the work except where specifically detailed or unless otherwise noted.
3. Drawings are not to be scaled.
4. The Contractor shall verify and be responsible for all dimensions and conditions which impact the work. Field verify sizes, elevations, hole locations, etc., prior to fabrication.
5. The Contractor shall carefully review the drawings to identify the scope of work required, visit the site to relate the scope of work to existing conditions and determine the extent to which those conditions and physical surroundings will impact the work.
6. Existing conditions as shown on these plans are for reference only. The Contractor is required to field verify all existing conditions prior to construction.
7. The Contractor shall resolve any conflicts on the drawings or in the specifications with the Architect/Engineer before proceeding with the work.
8. Any deviation, modification, or substitution from the approved set of drawings shall be submitted to the Owner, Architect, and Engineer for review/approval prior to its use or inclusion on the shop drawings.
9. The Contractor shall provide all necessary shores, braces, and guys required to support all loads to which the building structure and components, soils, other structures, and utilities may be subjected during construction.
10. The Contractor shall provide means, method, techniques, sequence, and procedure of construction as required.
11. The Contractor shall protect all work, materials, and equipment from damage and shall provide proper storage facilities for materials and equipment during construction.
12. Site visits performed by the Architect/Engineer do not constitute inspections of means and methods of construction performed by the Contractor.
13. The Contractor shall review shop drawings for completeness and compliance with contract documents. The Contractor shall stamp shop drawings prior to submission to the Architect and Engineer.
14. Review of the shop drawings by the Architect/Engineer shall not be construed as an authorization to deviate from the Contract Documents.
15. Shop drawings will not be processed if they are incomplete, lack coordination with relevant portion of contract documents, lack calculations if required, or if deviations, modifications, and substitutions are indicated without prior written approval from the Architect/Engineer.
16. No pipes or ducts shall be embedded into structural members unless so shown on the plans or approved by the Engineer.

DEMOLITION

1. The Contractor is to obtain and pay for all necessary permits for the demolition and removal work.
2. Notify all local agencies having jurisdiction.
3. Locate existing underground utilities in areas of construction. Coordinate with utility companies for any shut-off requirements of still active lines. Call the PA One-Call Center at 800-242-1776.
4. Demolition procedures, shoring requirements, sequence techniques, etc., either given in or implied by these drawings, are suggestions only. Contractor shall be solely responsible for the protection, stability, etc., of existing and new structures during execution of the work.
5. Contractor shall perform all work in such a manner as to protect existing and adjacent structures and be responsible to properly repair any damage that occurs as a result of his work. Contractor shall repair all damage to streets, sidewalks, utility lines, or any other public or private properties resulting from the execution of the work at no cost to the Owner.
6. Cease operations and notify Owner and Engineer immediately if safety or integrity of structure appears to be endangered. Properly brace and support structure before resuming operations.
7. Notify Owner and Engineer immediately if any portion of existing structure which is not to be demolished is damaged. Contractor shall pay for all repair costs, including design and inspection expenses.
8. Do not cut or alter any structural members without written authorization of the Engineer unless indicated on the structural drawings.
9. Do not allow resulting debris to accumulate. Dispose of this material in a legal manner.

ROOF, FLOOR, OR WALL OPENINGS

1. The Contractor shall verify and coordinate the number, size, and location of all sleeves and openings required for mechanical or electrical items.
2. Sleeves and openings shall be located in a manner that will maintain the structural integrity of the roof, floor, or wall system.
3. No structural elements are to be cut unless specifically approved by the Engineer.

FOUNDATIONS, SLABS ON GROUND, RAMPS, AND STEPS

1. Foundations for this project are designed in accordance with the recommendations made by Urban Engineers, Inc., Geotechnical Engineers. All the work regarding site preparation, earth fill construction, backfill requirements, foundation preparations, etc., shall be in strict conformance to the requirements and recommendations of the Geotechnical Engineer's report. The report is part of the Contract Documents.
2. All footings must be supported on undisturbed soil capable of achieving the design soil bearing pressure without appreciable settlement. Where additional excavation is required to attain the design bearing pressure, backfill the overexcavated area with lean concrete up to the design bearing elevation.
3. Unless otherwise noted in the geotechnical report or specifications, compact all fill under slabs on ground to 98% of optimum laboratory density in accordance with ASTM D698 Standard Proctor Method. Place fill in 6" to 8" layers and compact with vibratory tamping equipment.
4. Unless otherwise noted in the geotechnical report or specifications, compact all engineered fills under foundations to 95% of the maximum dry density per ASTM D1557 Modified Proctor Method.
5. In granular soils (sands and gravel) the soil shall be mechanically tamped to a hard surface immediately prior to placing footing.
6. Existing foundations:
   A. Existing foundations shown on drawings are approximate. Exact conditions must be verified at time of construction.
   B. When new footings meet existing footings, they shall be stepped at a ratio of 2 horizontal to 1 vertical.
   C. Unless otherwise noted, new footings shall not bear below existing footings.
7. When excavations approach the ground water level, the water level shall be lowered by an acceptable dewatering system so that the water level is maintained continuously a minimum of 2'-0" below the excavation.
8. The bottom of foundations shall be protected against freezing until backfill or other permanent protective cover is in place.

CONCRETE CONSTRUCTION

1. All concrete construction shall be in accordance with the latest Building Code Requirements for Structural Concrete ACI 318 and ACI Detailing Manual, except that construction and removal of forms and reshoring shall be inspected by the Contractor's engineer.
2. Reinforcing steel shall have the following minimum coverage. Place bars as near to the concrete surface as these minima permit wherever possible, unless noted otherwise:
   A. Concrete poured against earth: 3"
   B. Formed concrete in contact with earth: 2"
   C. Exterior face of walls: 2"
   D. All other wall faces, slabs, joists: 3/4" (#11 and smaller), 1 1/2" (#14 and #18)
   E. Beams, columns: 1 1/2" (2" for exterior)
3. Welded wire reinforcement for slabs on ground shall have a minimum top coverage of 1" and a maximum top coverage of 1 1/2", unless otherwise noted. Reinforcement shall be positively supported and maintained in this position during placement of concrete.
4. Furnish bar supports where necessary during construction.
5. Provide pipe sleeves and inserts in concrete work where required. See mechanical drawings.
6. Construction joints shall be positioned so as not to change the structural design requirements. The location and size of all construction joints shall be approved by the Engineer. Submit proposed pour layout for Engineer's review and approval two weeks prior to placing concrete.
7. Welding of reinforcing bars (including tack welding) is not permitted without permission of Engineer in writing. Where and when permitted, welded rebars shall comply with ASTM A706 (F_y=60 ksi) and welding shall conform to AWS D1.4. Welding shall be performed by certified welders.
8. Provide horizontal keyways in construction joints in wall footings; minimum 1 1/2" depth with height equal to one-third of member depth, unless otherwise shown or noted.
9. Unless noted otherwise in project specifications or drawings, all exposed concrete subjected to freezing and thawing shall have a minimum cement content of 610 pounds per yard, a maximum water/cement ratio of 0.40, and 6%±1% of entrained air.
10. At footing corners, innermost reinforcing shall have 1'-0" long hook at far face. For outer reinforcing, provide corner bars with lap length of 36 bar diameters (2'-0" minimum).
11. Provide foundation dowels for all walls, piers, and columns same size and spacing as vertical steel.
12. Bar bends shall be made cold. Bars shall not be bent after any portion of the bar is encased in concrete.
13. Splices (grade 60 deformed bars): Lap all splices 48 bar diameters of the larger bar.

MASONRY CONSTRUCTION

1. Masonry walls have been designed in accordance with ACI 530, Building Code Requirements for Masonry Structures.
2. Masonry walls shall be constructed in accordance with ACI 530.1, Specifications for Masonry Structures, and the project specifications.
3. Determine compressive strength of masonry (f'm) by the unit strength method (Section 1.4.B.2 of ACI 530.1).
   A. Mortar shall meet the Property Specifications' requirements of ASTM C270, and shall be field tested according to ASTM C780.
   B. The strength of grout shall be determined by tests in accordance with ASTM C1019.
4. The use of masonry cement shall not be permitted.
5. Intersecting bearing walls shall be anchored by one of the following methods (does not apply at control joints or where non-load-bearing partitions abut bearing walls):
   A. Fifty percent of the units at the intersection shall be laid in an overlapping masonry bonding pattern, with alternate units having a bearing of not less than 3" on the unit below.
   B. Walls shall be tied by galvanized steel straps 1 1/2" x 1/4" x 24" with 2" bend at 90° each end. Grout straps solid into cores of block at 24" maximum vertical spacing.
5. Corners of bearing walls shall be built in running bond.
6. Provide corner bars in bond beams at wall intersections and corners to match bond beam reinforcing.
7. Provide a minimum of 24" depth of solid masonry under the bearing ends of all beams.
8. Provide horizontal joint reinforcement per ASTM A82, galvanized, at 16" on center vertically. Unless otherwise noted, provide a galvanized ladder type joint reinforcement.
9. Welding of reinforcing bars (including tack welding) is not permitted without permission of Engineer in writing.
10. Provide shop drawings which indicate size, spacing, bending details, and type of all reinforcing bars placed in masonry walls.
11. Provide dowels from supporting member (footing, beam, or slab) for all reinforced walls same size, location, and spacing as wall reinforcing.
12. Wall reinforcing shall be held in position during grouting.
13. Splices (grade 60 deformed bars, f'm=1,500psi): Lap all splices 48 bar diameters of the larger bar.

STEEL CONSTRUCTION

1. Steel detailing, fabrication, and erection shall conform to the AISC Specification for Structural Steel Buildings and Code of Standard Practice, and the AWS Structural Welding Code.
2. The Contractor shall be responsible for the control of all erection procedures and sequences with relation to temperature differentials and weld shrinkage.
3. All additional steel required for erection purposes shall be provided at no additional cost and shall be removed unless approved by the Owner in writing.
4. Connections - welded or high strength bolted:
   A. High-strength bolts shall be installed in accordance with "Specifications for Structural Joints Using ASTM A325 or A490 Bolts".
   B. A325SC or A490SC with hardened washers: use for all moment connections, wind connections, hangers, and other connections as noted on drawings.
   C. A325N or A490N with hardened washers: use for all connections other than slip critical connections.
   D. Provide hardened washers under nuts at all high-strength bolts, except where plate washers are used per AISC Specifications.
   E. Unless snug tight connections are noted on the drawings as being permitted, all bolts should be tightened to full pretensioning load.
   F. Use standard holes with the following exceptions: oversize holes are permitted when bolts are loaded in tension; short slotted holes are permitted for shear loading perpendicular to the slot.
   G. Provide beveled washers on all connections to sloping flanges of I sections and channels where slope exceeds 1:20.
   H. Where minimum AISC fillet weld thickness requirement exceeds welds shown on details, or weld size is not specified, provide minimum AISC weld.
   I. Wherever possible, use framed beam connections as listed in Tables 10-1 to 10-3 of AISC Manual of Steel Construction, 13th edition. The length of connection shall not be less than one-half of the T distance of the beam web.
   J. Where reaction is noted, develop same. Where not noted, for non-composite beams, connections shall develop one-half of the total uniform load capacity of the beam.
6. Welding electrodes shall be E70XX except where other electrodes are required for compatibility with material being welded.
7. All slip connections shall be provided with a means of preventing the nuts from unthreading.
8. Shop drawings are required and shall note type of electrodes, size of all welds, and type and size of all bolts. Shop drawings shall be prepared under the supervision of a professional engineer licensed in the jurisdiction where the project is located.
10. Beams bearing on masonry shall have angle wall anchors and bear a minimum of 8" onto the wall. Masonry shall be built tightly around beam unless otherwise noted.
11. See all contract drawings for miscellaneous steel requirements.
12. All shop and field welding shall be performed by a recently certified welder.
13. At roof beam bearing plates, provide a minimum of 3/4" grout with (2) 3/4" diameter anchor bolts with 1'-0" embedment.
14. Miscellaneous hanging loads such as stair stringers, pipes, mechanical units, etc., supported by steel members shall be applied in such a manner that no torsional forces are induced in the steel members, i.e., loads shall pass through the centerline of wide flange sections and through the shear center of channels.

STRUCTURAL STEEL WELDING

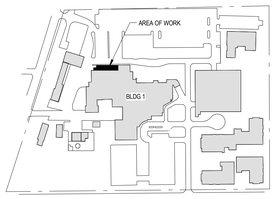
1. All welding shall be in strict conformance with the latest building code and AWS D1.1.
2. All welding electrodes (filler metal) shall be E70XX (70 ksi), unless otherwise noted.
3. Lengths of welds are effective lengths. Where length of weld is not shown, it shall be full length of joint. All butt welds shall be full penetration unless otherwise noted.
4. Welders shall be qualified and certified for the work they will be performing and shall have current certifications.
5. Faces of fillet welds exposed to view shall have as-welded surfaces that are reasonably smooth and uniform. No finishing or grinding shall be required, except where clearances or fit of other items may so necessitate.
6. Welds shall be terminated at the end of a joint in a manner that will ensure sound welds. Whenever necessary, this shall be done by the use of extension bars and run-off tabs.

STEEL DECK

1. The metal decking shall be of the type and gauge as indicated on the drawings. Decking and all accessories shall be formed from steel sheets conforming to ASTM A653. The steel shall be zinc coated conforming to ASTM A924, Class G60 as required in the specifications. Deck units shall be continuous over three or more spans where possible.
2. Diaphragm action shall be provided for in all areas with welding pattern in accordance with manufacturer's recommendations.
3. All welding of metal deck shall be in accordance with AWS D1.3.
4. All metal deck shall be welded to structural steel by qualified welders experienced in welding light-gauge steel, and using prequalified procedures. The erector shall establish a welding procedure for the arc spot welding weld of the steel decking to the structural steel of a particular gauge used.
5. Section properties shall be determined according to the Light Gauge Steel Institute.
6. Comply with Steel Deck Institute Specifications for deck attachment and connectors.
7. Steel deck shall be erected and fastened in accordance with the manufacturer's specifications and erection layouts.

ADHESIVE AND EXPANSION ANCHORS

1. For connections to existing concrete or solid masonry, use wedge type expansion bolts (HILTI KWIK BOLT 3, or other approved) or adhesive anchors (HILTI HAS-E rods or rebar with HILTI HY 150 adhesive, or other approved), with diameter and embedment length as noted on the drawings.
2. For connections to existing hollow masonry or brick, use sleeve anchors (HILTI HLC, or other approved) or adhesive anchors (HILTI HIT-A rods with screen tube with HILTI HY 20 adhesive, or other approved), with diameter and embedment length as noted on the drawings.
3. Locate existing reinforcing by means of a rebar detector prior to drilling. Adjust the connection as required to avoid damaging any reinforcing.
4. Notify the Architect or Engineer if the existing concrete or masonry is cracked in the vicinity of the anchors prior to drilling.



SITE KEY PLAN

PROJECT NORTH

FULLY SPRINKLERED CONSTRUCTION DOCUMENTS

Revisions:	Date

CONSULTANTS:

SEAL

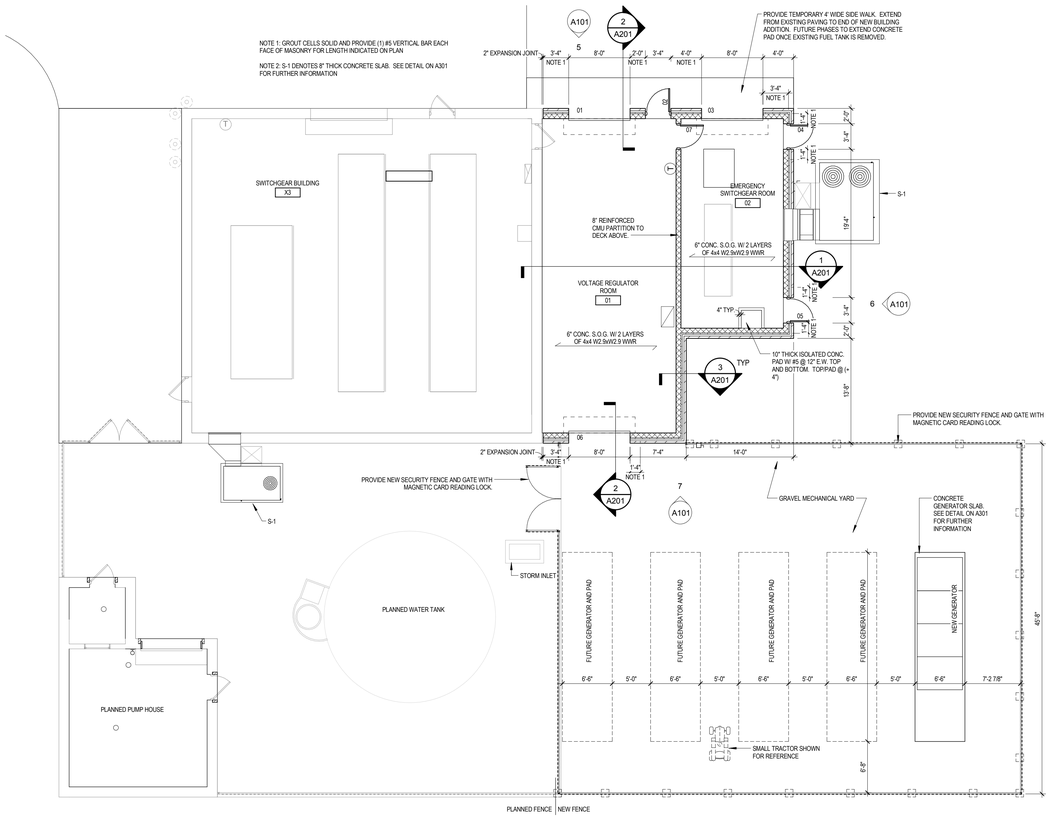
ARCHITECTS/ENGINEERS:

AE WORKS
6587 Hamilton Avenue
Pittsburgh, Pennsylvania 15206
Ph: 412.287.7333 Fax: 412.287.7334
www.ae-works.com
AE Works Project Number: 13045

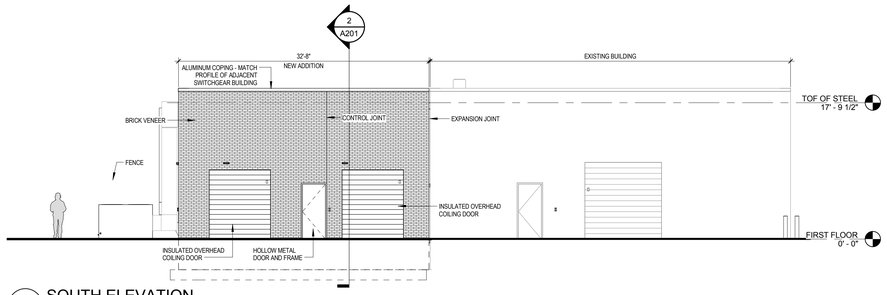
Drawing Title	STRUCTURAL NOTES AND DUNNAGE DETAIL
Approved: Project Director	
Project Title:	EXPAND EMERGENCY POWER GENERATION for the ERIE VAMC
Location:	135 E 38TH ST, ERIE, PA 16504
Date:	03/17/2016
Checked:	PR
Drawn:	PR
Project Number	562-13-112
Building Number	1
Drawing Number	A002

Office of Construction and Facilities Management
Department of Veterans Affairs

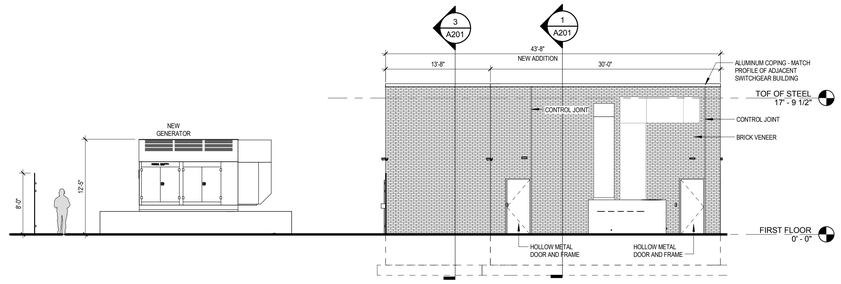
VA FORM 08-6231



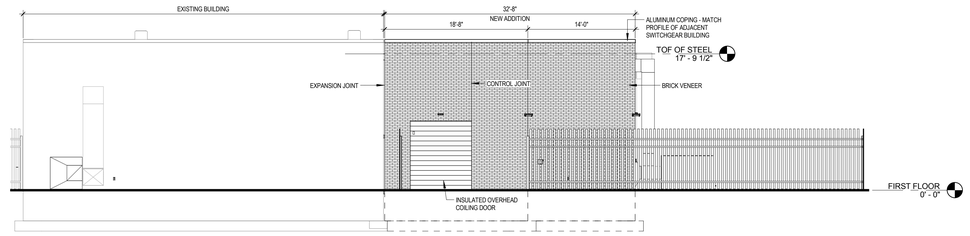
1 EMERGENCY SWITCHGEAR ROOM - FLOOR PLAN
1/8" = 1'-0"



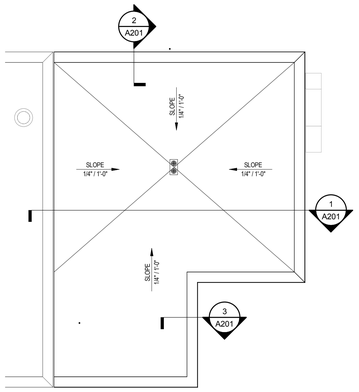
5 SOUTH ELEVATION
1/8" = 1'-0"



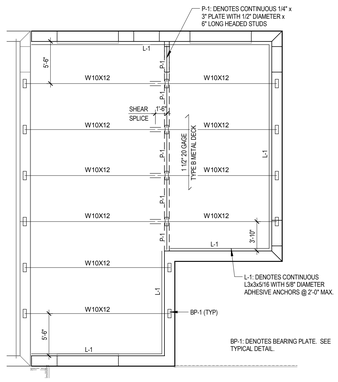
6 WEST ELEVATION
1/8" = 1'-0"



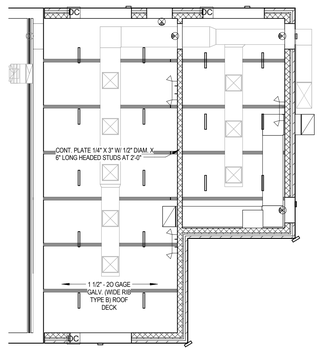
7 NORTH ELEVATION
1/8" = 1'-0"



2 ROOF PLAN
1/8" = 1'-0"

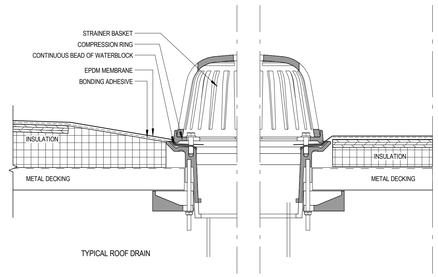


3 ROOF FRAMING PLAN
1/8" = 1'-0"

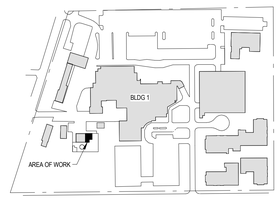


4 REFLECTED CEILING PLAN
1/8" = 1'-0"

REFLECTED CEILING PLAN SYMBOL LEGEND	
	DIFFUSER
	WALL MOUNTED EMERGENCY LIGHTING
	PENDANT LIGHT FIXTURE
	EXIT SIGN



8 ROOF DRAIN DETAIL
3" = 1'-0"



SITE KEY PLAN

PROJECT NORTH

FULLY SPRINKLERED CONSTRUCTION DOCUMENTS

Revisions: | Date

CONSULTANTS:

SEAL

ARCHITECTS/ENGINEERS:

AE WORKS
6587 Hamilton Avenue
Pittsburgh, Pennsylvania 15206
Ph: 412.287.7333 Fax: 412.287.7334
www.ae-works.com
AE Works Project Number: 13045

Drawing Title
ARCHITECTURAL PLANS AND ELEVATIONS

Approved: Project Director

Project Title:
EXPAND EMERGENCY POWER GENERATION for the ERIE VAMC

Location:
135 E 38TH ST, ERIE, PA 16504

Date: 03/17/2016 | **Checked:** PR | **Drawn:** SB

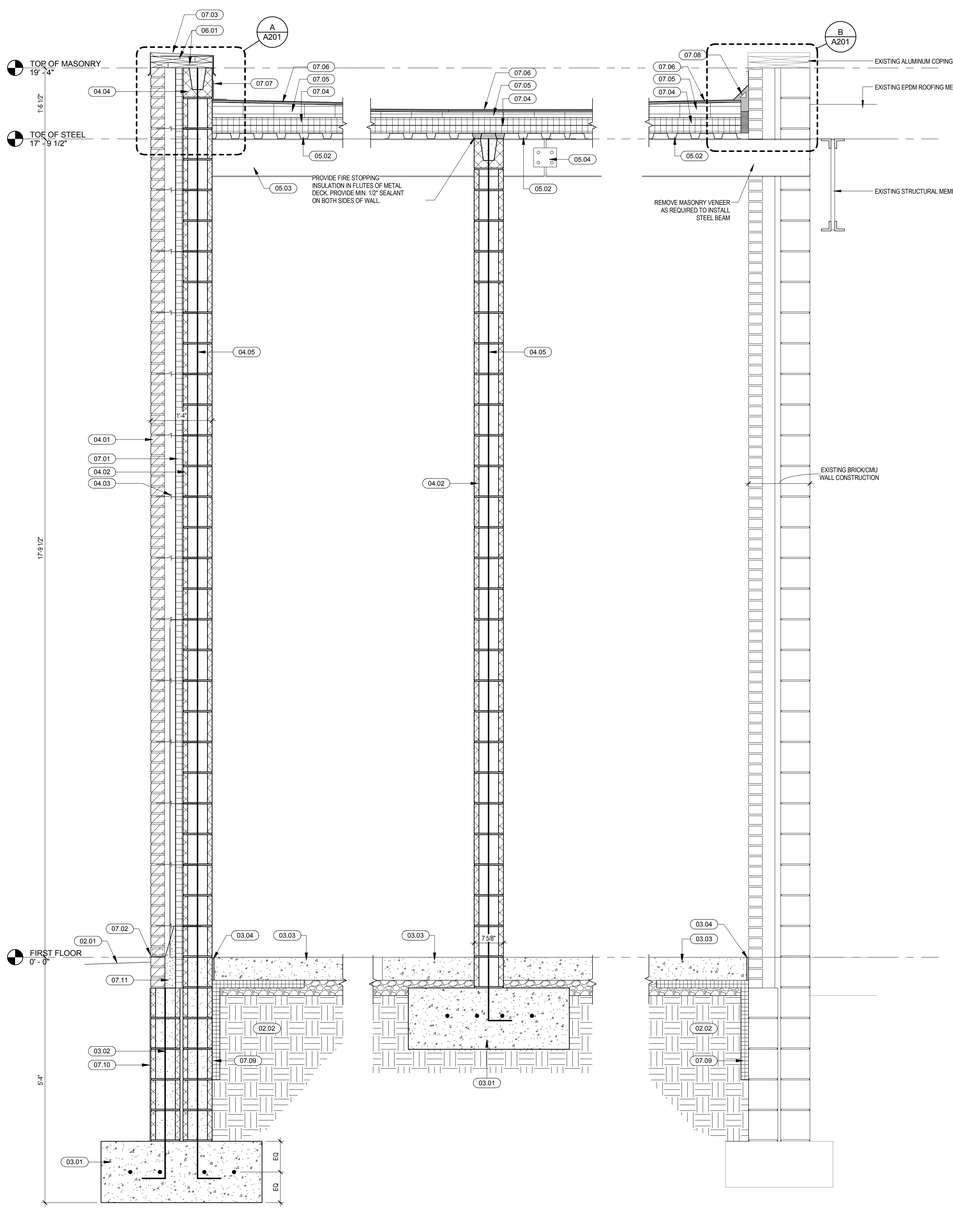
Project Number 562-13-112

Building Number 1

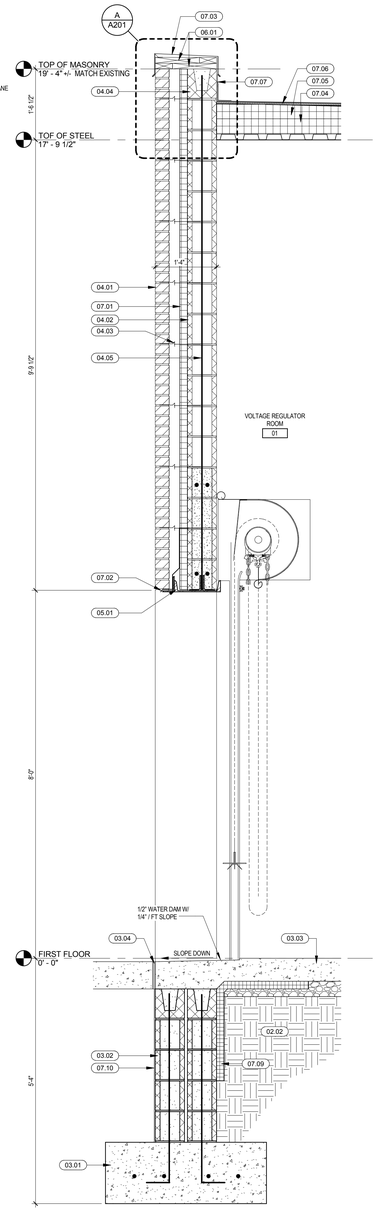
Drawing Number A101

Office of Construction and Facilities Management
Department of Veterans Affairs

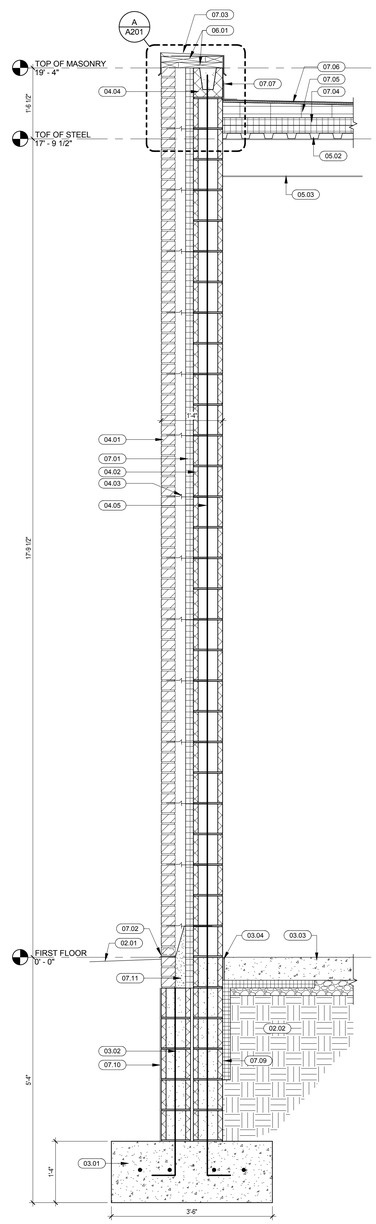
VA FORM 08-6231



1 WALL SECTION
3/4" = 1'-0"



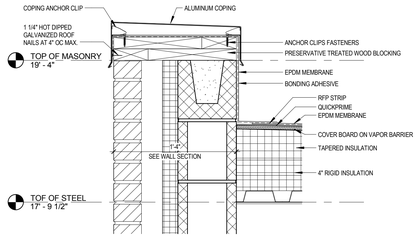
2 WALL SECTION
3/4" = 1'-0"



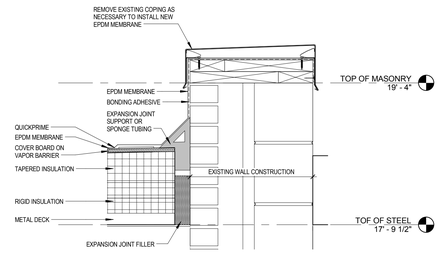
3 TYPICAL WALL SECTION
3/4" = 1'-0"

WALL SECTION KEYNOTES:

KEYNOTE	DESCRIPTION
02.01	FINISH GRADE
02.02	UNDISTURBED/COMPACTED EARTH
03.01	3'-6" X 1'-4" REINFORCED CONCRETE FOOTING W/ (4) #5 BARS (TYP.)
03.02	REINFORCED CONCRETE MASONRY UNIT (CMU) FOUNDATION
03.03	REINFORCED SEALED CONCRETE SLAB ON GRADE OVER VAPOR RETARDER OVER GRAVEL BASE. (R-VALUE MIN. 15)
03.04	1/2" COMPRESSIBLE FILLER WITH SEALANT
04.01	BRICK VENEER
04.02	8x8x16 CONCRETE MASONRY UNIT (CMU)
04.03	HORIZONTAL WALL REINFORCING AT 16" O.C.
04.04	8x8x16 CONCRETE MASONRY UNIT BOND BEAM (CMU)
04.05	#5 @ 16" TYP. U.N.O.
05.01	STEEL LINTEL
05.02	1 1/2" METAL DECKING
05.03	STEEL BEAM (SEE PLAN)
05.04	SHEAR SPLICE @ 1'-6"
06.01	PRESERVATIVE TREATED WOOD BLOCKING
07.01	2" RIGID CAVITY INSULATION
07.02	CONTINUOUS THRU-WALL FLASHING, MORTAR NET, AND OPEN HEAD WEEP HOLES AT 24" OC
07.03	ALUMINUM COPING SYSTEM. MATCH EXISTING SWITCHGEAR BUILDING HEIGHT AND COLOR.
07.04	4" RIGID INSULATION
07.05	TAPERED RIGID INSULATION
07.06	FULLY ADHERED EPDM ROOFING MEMBRANE ON COVER BOARD AND VAPOR BARRIER
07.07	FULLY ADHERED EPDM MEMBRANE FLASHING
07.08	EXPANSION JOINT SUPPORT WITH JOINT FILLER
07.09	2" PERIMETER INSULATION (EXTEND DOWN TO FOOTING AND 24" INWARD)
07.10	DAMPPROOFING
07.11	FILL CELL WITH MORTAR. PROVIDE 15" FELT PAPER BETWEEN GROUT AND INSULATION



A TOP OF WALL DETAIL
1 1/2" = 1'-0"



B TOP OF WALL DETAIL
1 1/2" = 1'-0"

PROJECT NORTH

FULLY SPRINKLERED CONSTRUCTION DOCUMENTS

Revisions:	Date

CONSULTANTS:

SEAL

ARCHITECTS/ENGINEERS:

AE WORKS
6587 Hamilton Avenue
Pittsburgh, Pennsylvania 15206
Ph: 412.287.7333 Fax: 412.287.7334
www.ae-works.com
AE Works Project Number: 13045

Drawing Title
SECTIONS AND DETAILS

Approved: Project Director

Project Title:
EXPAND EMERGENCY POWER GENERATION for the ERIE VAMC

Location:
135 E 38TH ST, ERIE, PA 16504

Date: 03/17/2016 **Checked:** PR **Drawn:** SB

Project Number 562-13-112

Building Number 1

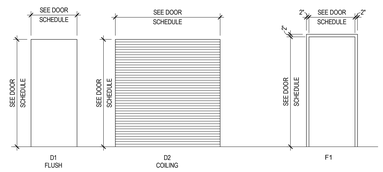
Drawing Number A201

Office of Construction and Facilities Management
Department of Veterans Affairs

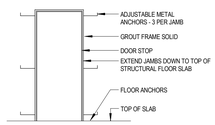
VA FORM 08-6231

DOOR SCHEDULE												
			DOOR			FRAME						
DOOR NUMBER	HEIGHT	WIDTH	TYPE	MATERIAL	FIRE RATING	TYPE	MATERIAL	HEAD	JAMB	SILL	HARDWARE SET	COMMENTS
01	9' - 0"	8' - 0"	D2	STEEL	-	-	STEEL	SEE 2/A201	J3	-	SEE SPEC. 08 33 00	INSULATED
02	7' - 2"	3' - 0"	D1	HM	-	F1	HM	H1	J1	S1	SH-4B	INSULATED, WEATHER STRIPPING
03	9' - 0"	8' - 0"	D2	STEEL	-	-	STEEL	SEE 2/A201	J3	-	SEE SPEC. 08 33 00	INSULATED
04	7' - 2"	3' - 0"	D1	HM	-	F1	HM	H1	J1	S1	SH-4B	INSULATED, WEATHER STRIPPING
05	7' - 2"	3' - 0"	D1	HM	-	F1	HM	H1	J1	S1	SH-4B	INSULATED, WEATHER STRIPPING
06	9' - 0"	8' - 0"	D2	STEEL	-	-	STEEL	SEE 2/A201	J3	-	SEE SPEC. 08 33 00	INSULATED
07	7' - 2"	3' - 0"	D1	HM	-	F1	HM	H1	J1	S1	SH-3F	INSULATED, WEATHER STRIPPING

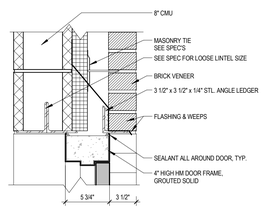
NOTE: VERIFY ALL HARDWARE MEETS VA PACS GUIDELINES



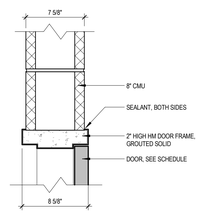
1 DOOR & FRAME TYPES
1/4" = 1'-0"



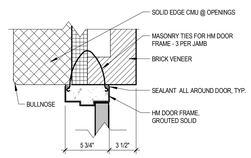
2 DOOR INSTALLATION DETAIL
1/4" = 1'-0"



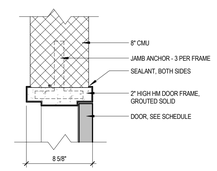
3 DOOR HEAD - H1
1 1/2" = 1'-0"



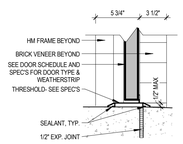
6 DOOR HEAD - H2
1 1/2" = 1'-0"



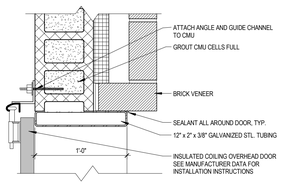
4 DOOR JAMB - J1
1 1/2" = 1'-0"



7 DOOR JAMB -J2
1 1/2" = 1'-0"

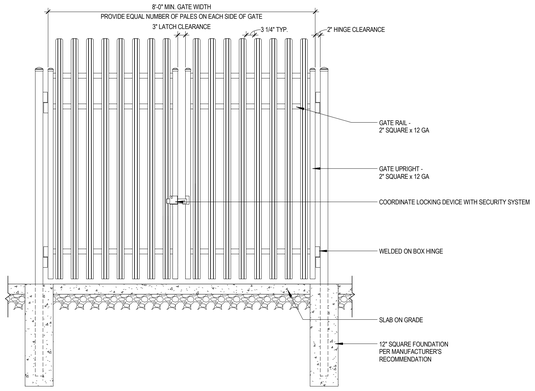


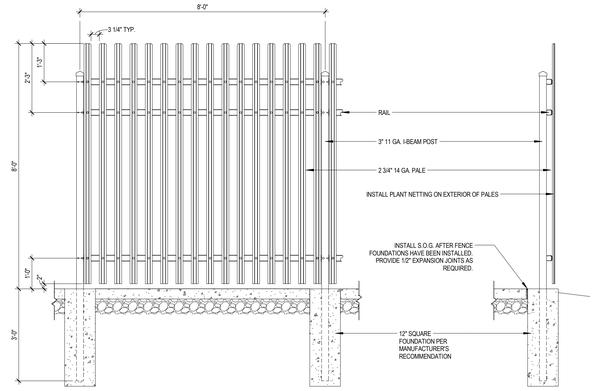
5 DOOR SILL - S1
1 1/2" = 1'-0"



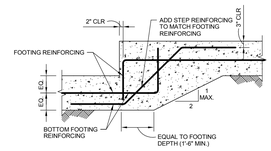
8 DOOR JAMB - J3
1 1/2" = 1'-0"

NOTE: ALL MATERIALS HIGH-TENSILE PRE-GALVANIZED G90 STEEL. SEE SPECIFICATIONS.

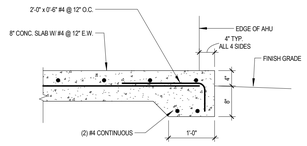




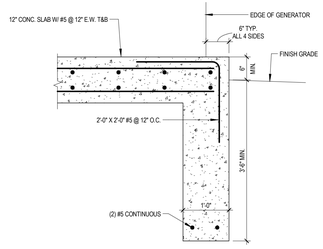
9 ANTI-SCALE FENCE DETAILS
1/2" = 1'-0"



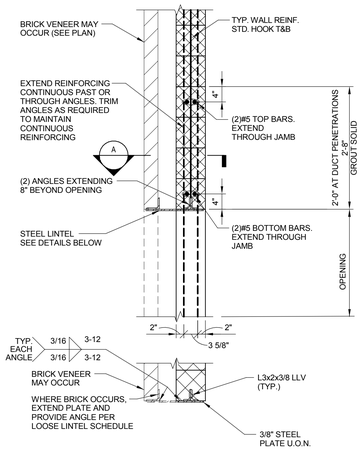
10 STEPPED FOOTING DETAIL (TYP).
3/8" = 1'-0"



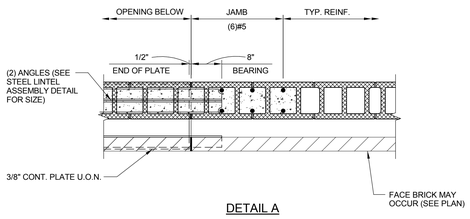
11 S-1 CONCRETE SLAB DETAIL
3/4" = 1'-0"



12 CONCRETE GENERATOR SLAB DETAIL
3/4" = 1'-0"



13 STEEL LINTEL DETAILS
3/4" = 1'-0"



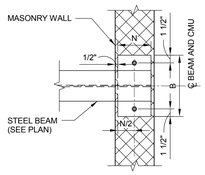
DETAIL A

LOOSE LINTEL SCHEDULE

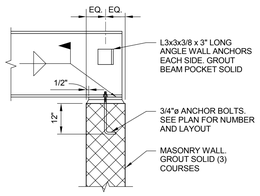
PROVIDE ONE ANGLE WITH 3 1/2" LEG HORIZONTAL AS FOLLOWS:

SPAN LIMITS	ANGLE SIZE
0'-0" TO 4'-0"	L3 x 3 1/2 x 3/8
7'-7" TO 9'-6"	L6 x 3 1/2 x 3/8

NOTES:
1. INTERIOR LINTELS SHALL BE SHOP PAINTED. LINTELS EXPOSED TO WEATHER SHALL BE HOT-DIP GALVANIZED.
2. STEEL LINTELS AND LINTEL PLATES IN EXTERIOR WALLS SHALL BE FABRICATED, FOLLOWED BY HOT-DIP GALVANIZING OF THE COMPLETE ASSEMBLY.
3. LINTELS SHALL HAVE 8" MINIMUM SOLID MASONRY BELOW BEARING POINTS AND SHALL EXTEND BEYOND THE FULL BEARING AREA.



PLAN DETAIL

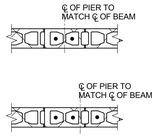


ELEVATION DETAIL

TYPICAL BEAM BEARING PLATE DETAILS

BEARING PLATE SCHEDULE (SIZE & REINFORCING)		
MARK	SIZE (THICKNESSxNxB)	MASONRY PIER REINFORCING*
BP-1	3/4"x6"x14"	TYPICAL WALL REINFORCING

* GROUT REINFORCED CELLS SOLID FOR FULL HEIGHT OF WALL -TYPICAL



CMU WALL PIER REINFORCING DETAILS UNDER BEARING PLATES

(FULL HEIGHT OF CMU WALL BELOW PLATE U.O.N. IN PLAN)

14 TYP. BEAM BEARTING PLATE DETAILS
1/2" = 1'-0"

FULLY SPRINKLERED CONSTRUCTION DOCUMENTS

Revisions: | Date

CONSULTANTS:

SEAL

ARCHITECTS/ENGINEERS:

AE WORKS

6587 Hamilton Avenue
Pittsburgh, Pennsylvania 15206
Ph: 412.287.7333 Fax: 412.287.7334
www.ae-works.com

AE Works Project Number: 13045

Drawing Title: DOOR SCHEDULE AND MISCELLANEOUS DETAILS

Approved: Project Director

Project Title: EXPAND EMERGENCY POWER GENERATION for the ERIE VAMC

Location: 135 E 38TH ST, ERIE, PA 16504

Date: 03/17/2016 | Checked: PR | Drawn: SB

Project Number: 562-13-112

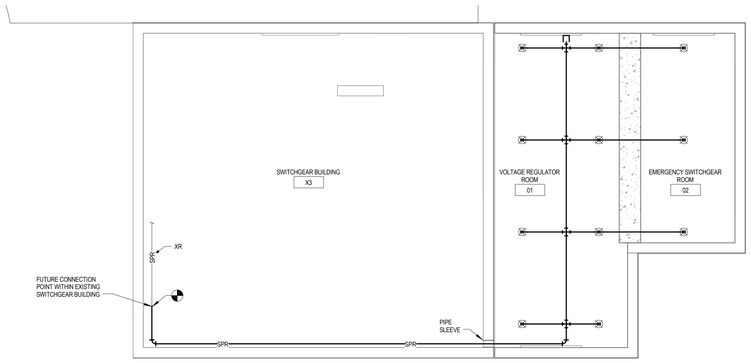
Building Number: 1

Drawing Number: A301

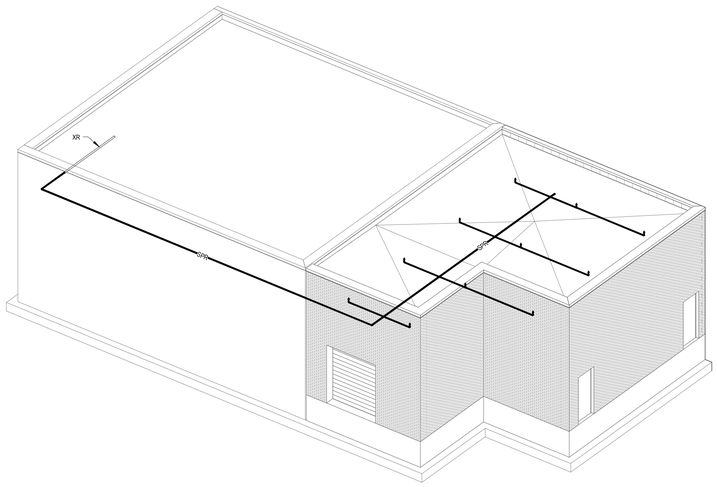
Office of Construction and Facilities Management

Department of Veterans Affairs

VA FORM 08-6231



1 FIRE PROTECTION FLOOR PLAN
1/8" = 1'-0"



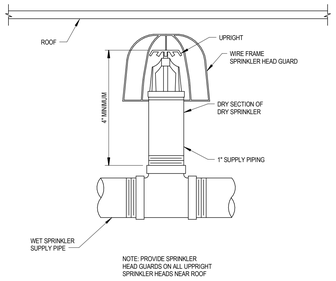
2 FIRE PROTECTION ISOMETRIC

FIRE PROTECTION SYMBOLS

F	FIRE LINE
F-DM	FIRE LINE TO BE DEMOLISHED
FDC	FIRE DEPARTMENT CONNECTION
D	DRAIN LINE
	SEMI-RECESSED SPRINKLER
	UPRIGHT SPRINKLER
	UPRIGHT SPRINKLER W/ GUARD
	ZONE CONTROL VALVE
TS	TAMPER SWITCH
FDHV	FIRE DEPARTMENT HOSE VALVE
XR	EXISTING TO REMAIN
	RISE
	DROP
	CAP
1	DRAWING KEYNOTE - PLAN / ELEVATION DEMO
1	DRAWING KEYNOTE - PLAN / ELEVATION NEW WORK
	CONNECT TO EXISTING PIPING THIS POINT
	REMOVE EXISTING PIPING TO THIS POINT

SPRINKLER HEAD LEGEND

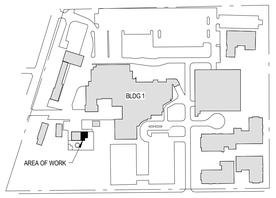
SYMBOL	MANUFACTURER OR APPROVED EQUAL	TYPE	MODEL	ORIFICE	TEMP. RATING (°F)
	VIKING	UPRIGHT W/ GUARD	MICROFAST MODEL M	1/2"	155°



3 UPRIGHT SPRINKLER DETAIL
NTS

FIRE PROTECTION GENERAL NOTES

1. ALL WORK SHOWN IS NEW UNLESS INDICATED OTHERWISE.
2. COORDINATE ALL WORK WITH OTHER TRADES AND EXISTING CONDITIONS PRIOR TO THE FABRICATION OR INSTALLATION OF ANY PIPING.
3. THE DRAWINGS ARE DIAGRAMMATIC. THE CONTRACTOR MUST FIELD VERIFY ACTUAL CONDITIONS AT THE SITE PRIOR TO PROCEEDING WITH THE WORK.
4. ALL EXISTING SERVICES ARE SHOWN IN THEIR APPROXIMATE LOCATIONS.
5. ALL NEW PIPING SHALL BE INSTALLED IN SUCH A WAY THAT IT DOES NOT HAMPER ACCESS TO NEW OR EXISTING VALVES, ACCESS DOORS OR EQUIPMENT.
6. SPRINKLER PIPING SHALL BE HYDRAULICALLY DESIGNED BY THE SPRINKLER CONTRACTOR AND SHALL BE APPROVED BY ALL AUTHORITIES HAVING JURISDICTION. VELOCITIES OF WATER IN HYDRAULICALLY DESIGNED SPRINKLER PIPING SHALL NOT EXCEED TWENTY FEET PER SECOND.
7. ALL SPRINKLER HEADS INSTALLED IN LAY-IN CEILINGS SHALL HAVE THE HEADS LOCATED IN THE CENTER OF TILES. IF FOR ANY REASON HEADS CANNOT BE LOCATED IN THE CENTER OF TILES, THEN THE ARCHITECT/ENGINEER SHALL BE CONTACTED FOR NEW LOCATIONS BEFORE INSTALLING ANY HEAD OR PIPING.
8. CONTRACTOR SHALL INCLUDE IN HIS BID A WATER FLOW TEST/FIRE PUMP TEST. THE RESULTS OF WHICH SHALL BE USED TO PERFORM HYDRAULIC CALCULATIONS.
9. ENTIRE SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH NFPA 13 LATEST EDITION.
10. ALL WORK SHALL BE STRICTLY COORDINATED AMONG ALL INDIVIDUAL CONTRACTORS BEFORE ANY WORK IS PERFORMED.
11. DO NOT ROUTE PIPING THROUGH ELEVATOR SHAFT(S), ELEVATOR EQUIPMENT ROOM(S) & ELECTRICAL ROOMS, PIPING TO TERMINATE AT SPRINKLER HEAD.
12. PIPES 2-1/2" & LARGER TO BE SCHEDULE 10 STEEL PIPE WITH GROOVED END PREP.
13. PIPES 2" & SMALLER TO SCHEDULE 40 STEEL PIPE WITH THREADED END PREP OR AS NEEDED.
14. PIPES TO BE SIZED PER HYDRAULIC CALCULATIONS.
15. VERIFY ALL CEILING HEIGHTS AT SITE PRIOR TO INSTALLATION. REFER TO ARCHITECTURAL DRAWINGS FOR LOCATIONS OF CEILINGS AND CEILING TYPES.
16. IN ROOMS WHICH ARE INDICATED AS BEING MECHANICAL AND ELECTRICAL ROOMS, THE SPRINKLER CONTRACTOR SHALL COORDINATE THE LOCATION OF HIS PIPING AND SPRINKLER HEADS TO AVOID INSTALLATION OVER ELECTRICAL PANELS OR EQUIPMENT. PROVIDE ADDITIONAL SPRINKLER HEADS AS NECESSARY, AT NO ADDITIONAL COST TO THE OWNER. REFER TO HVAC AND ELECTRICAL DRAWINGS.
17. DESIGN DENSITIES: A. LIGHT HAZARD: .10/1500 ALL AREAS.
18. FIRE PROTECTION HYDRAULIC CALCULATIONS FOR AUTOMATIC SPRINKLER SYSTEMS SHALL INCORPORATE A MINIMUM 10 PSI SAFETY FACTOR.
19. PRESSURE TEST OF THE AUTOMATIC SPRINKLER SYSTEM SHALL BE WITNESSED BY THE FIRE DEPARTMENT UNLESS SPECIFICALLY WAIVED. TWO (2) WEEKS WRITTEN ADVANCE NOTICE OF TEST SHALL BE GIVEN.
20. FIRE PROTECTION CONTRACTOR SHALL COORDINATE HIS WORK WITH MECHANICAL, ELECTRICAL AND ALL OTHER DISCIPLINES TO AVOID INTERFERENCES PRIOR TO FABRICATION OF ANY PIPE. INTERFERENCES SHALL INCLUDE ROOF OPENINGS, BUS DUCTS, GANGED CONDUIT, DUCT, RUNS, ETC.
21. ALL PIPE PENETRATIONS THROUGH FLOORS OR WALLS SHALL BE SLEEVED AND SEALED TO MAKE WATERTIGHT AND MAINTAIN FIRE RATING.
22. ALL VALVE SUPERVISORY SWITCHES AND WATER FLOW SWITCHES SHALL BE PROVIDED AND INSTALLED BY THE FIRE PROTECTION CONTRACTOR AND WIRED BY THE ELECTRICAL CONTRACTOR.
23. FIRE PROTECTION CONTRACTOR SHALL BE CERTIFIED BY STATE OF PENNSYLVANIA FOR SPRINKLER SYSTEM INSTALLATION.
24. PER NFPA 13 SECTION 8.15.10 ELECTRICAL EQUIPMENT - SPRINKLERS WILL BE PROVIDED IN BUILDING ADDITIONS.



SITE KEY PLAN

PROJECT NORTH

FULLY SPRINKLERED CONSTRUCTION DOCUMENTS

Revisions:	Date

CONSULTANTS:

BARBER & HOFFMAN
215 EXECUTIVE DRIVE #202
CRANBERRY TWP, PA 16066

URBAN ENGINEERS, INC.
1 WILLIAMSBURG PLACE, SUITE 210
WARRENDALE, PA 15086

MOORE DESIGN ASSOCIATES
130 HEAVEN LANE
MARS, PA 16046

SEAL

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
SCOTT P. LIZOTTE
ENGINEER
PE061443

ARCHITECTS/ENGINEERS:

AE WORKS

6587 Hamilton Avenue
Pittsburgh, Pennsylvania 15206
Ph: 412.287.7333 Fax: 412.287.7334
www.ae-works.com

AE Works Project Number: 13045

Drawing Title
FIRE PROTECTION PLANS, SYMBOLS, DETAILS AND NOTES

Approved: Project Director

Project Title:
EXPAND EMERGENCY POWER GENERATION for the ERIE VAMC

Location:
135 E 38TH ST, ERIE, PA 16504

Date:	Checked:	Drawn:
3/17/2016	MEW	RAN

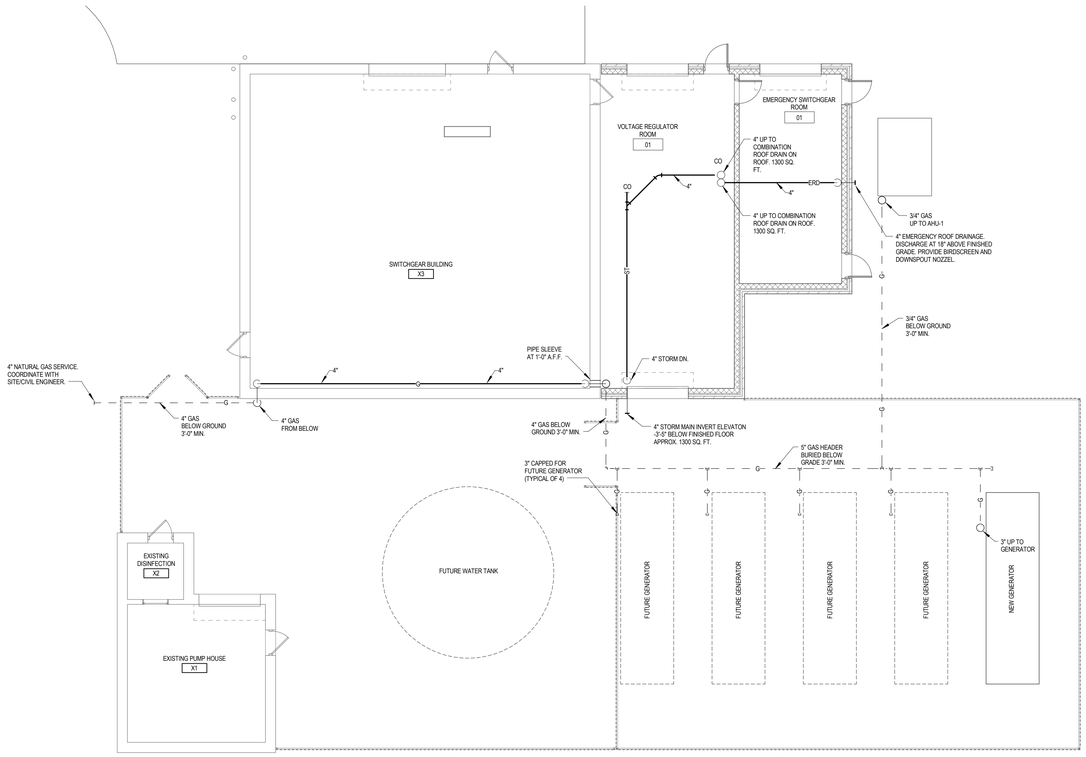
Project Number
562-13-112

Building Number
1

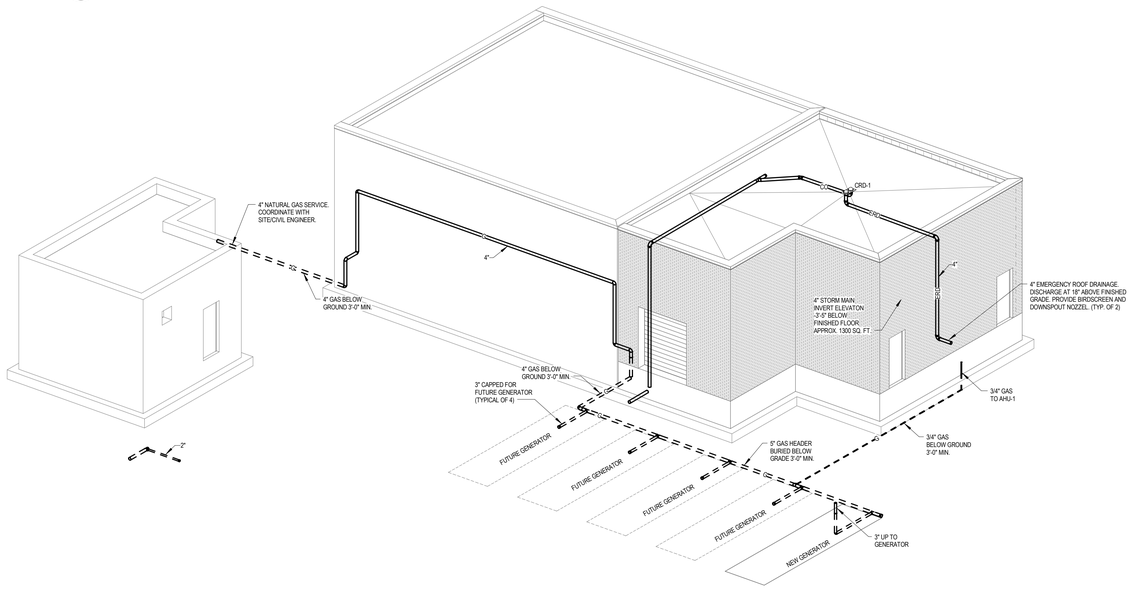
Drawing Number
F001

Office of Construction and Facilities Management
Department of Veterans Affairs

VA FORM 08-6231

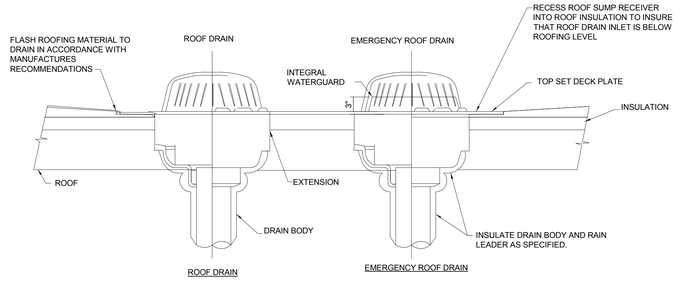


1 PLUMBING FLOOR PLAN
1/8" = 1'-0"

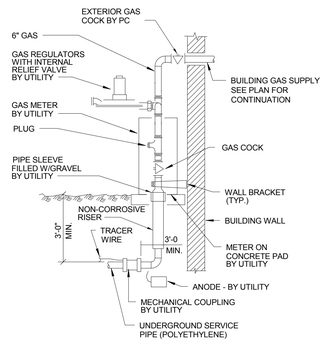


2 PLUMBING ISOMETRIC

PLUMBING FIXTURE SCHEDULE	
MARK	DESCRIPTION
CRD-1	COMBINATION ROOF DRAIN AND SECONDARY OVERFLOW



3 ROOF AND OVERFLOW DRAIN DETAIL
12" = 1'-0"



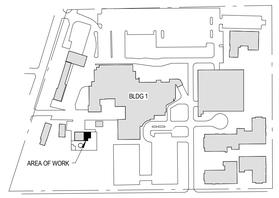
4 GAS SERVICE
N.T.S.

GENERAL PLUMBING NOTES

1. ALL WORK SHOWN IS NEW UNLESS INDICATED OTHERWISE.
2. ALL EXISTING SERVICES ARE SHOWN IN THEIR APPROXIMATE LOCATIONS.
3. CONTRACTOR SHALL DETERMINE THE EXACT LOCATIONS OF ALL UTILITIES BEFORE COMMENCING WORK AND SHALL BE FULLY RESPONSIBLE FOR ANY DAMAGE WHICH MIGHT OCCUR DUE TO THEIR FAILURE TO EXACTLY LOCATE AND PRESERVE ANY SERVICES, INCLUDING WORK IN EXISTING PIPE CHASES.
4. ALL EXISTING PLUMBING LINES, RISERS, ETC. ENCOUNTERED DURING ALTERATIONS, WHETHER INDICATED OR NOT, SHALL BE DETERMINED TO BE ACTIVE OR INACTIVE BY THIS CONTRACTOR, PRIOR TO COMMENCING ANY WORK. IF LINES ARE ACTIVE THEY SHALL BE OFFSET AS REQUIRED AND RECONNECTED AT THEIR ORIGINAL LOCATIONS. OFFSETS SHALL BE OF THE SAME SIZE AND MATERIAL AS EXISTING, INCLUDING ANY INSULATION. REMOVE ALL USELESS AND INACTIVE PIPING BACK TO THE MAIN, STACK OR RISER, AND CAP. ALL USELESS HOLES IN WALLS AND CEILINGS SHALL BE PATCHED TO MAINTAIN FIRE RATING. ALL SUCH WORK SHALL BE RECORDED ON THE "RECORD" DRAWINGS.
5. THE DRAWINGS ARE DIAGRAMMATIC. THE CONTRACTOR MUST FIELD VERIFY ACTUAL CONDITIONS AT THE SITE PRIOR TO PROCEEDING WITH THE WORK. COORDINATE INSTALLATION OF ALL NEW PIPING, EQUIPMENT, ETC. WITH ALL OTHER TRADES.
6. PATCH ALL OPENINGS IN EXISTING CONSTRUCTION WHERE PLUMBING PIPING HAS BEEN REMOVED, OR WHERE PLUMBING PIPING TO REMAIN IS NOT SEALED. MAINTAIN EXISTING RATING.
7. THE PLUMBING DRAWINGS DO NOT INDICATE ALL STRUCTURAL BEAMS, COLUMNS OR EXACT SIZES. SOME DEVIATIONS TO THE PIPING LAYOUT MAY BE REQUIRED. COORDINATE ACTUAL LOCATIONS OF THE PLUMBING LINES DURING CONSTRUCTION.
8. NATURAL GAS TO BE RUN AT 2 PSI AND REGULATED FOR EACH PIECE OF EQIUPMENT.

PLUMBING SYMBOLS AND ABBREVIATION LEGEND

SAN	SANITARY SEWER ABOVE GROUND
SAN	BURIED SANITARY SEWER
ST	BURIED STORM SEWER
V	VENT LINE
RWC	RAIN WATER CONDUCTOR
G	NATURAL GAS PIPING
	BALL VALVE
G	GAS LINE
	PLUG VALVE
CO	CLEANOUT AT CEILING (CO) OR WALL (WCO)
FCO	CLEANOUT AT FLOOR (FCO)
	STRAINER
	DRAIN WITH P-TRAP
	UNION
	CHECK VALVE
	HOSE BIBB (HB)
	WALL HYDRANT (WH)
N.T.S.	NOT TO SCALE
G.C.	GENERAL CONTRACTOR
CW	COLD WATER
VTR	VENT THRU ROOF
I.E.	INVERT ELEVATION
	SQUARE FEET
CO	CLEANOUT TO FINISHED FLOOR
A.F.F.	ABOVE FINISHED FLOOR
ADA	AMERICAN DISABILITIES ACT
TYP	TYPICAL
	DROP
	RISE
F-1, F-2, ETC.	PLUMBING FIXTURE TYPE- SEE SPECIFICATION
1 2 ETC.	KEYED PLUMBING NOTE DESCRIBING WORK TO BE DONE



SITE KEY PLAN

PROJECT NORTH

FULLY SPRINKLERED CONSTRUCTION DOCUMENTS

Revisions:	Date

CONSULTANTS:

BARBER & HOFFMAN
215 EXECUTIVE DRIVE #202
CRANBERRY TWP., PA 16066

URBAN ENGINEERS, INC.
1 WILLIAMSBURG PLACE, SUITE 210
WARRENDALE, PA 15086

MOORE DESIGN ASSOCIATES
130 HEAVEN LANE
MARS, PA 16046

SEAL

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
SCOTT P. LIZOTTE
ENGINEER
PE061443

ARCHITECTS/ENGINEERS:

AE WORKS

6587 Hamilton Avenue
Pittsburgh, Pennsylvania 15206
Ph: 412.287.7333 Fax: 412.287.7334
www.ae-works.com

AE Works Project Number: 13045

Drawing Title
PLUMBING PLANS, SYMBOLS AND ABBREVIATIONS, SCHEDULES & NOTES

Approved: Project Director

Project Title:
EXPAND EMERGENCY POWER GENERATION for the ERIE VAMC

Location:
135 E 38TH ST, ERIE, PA 16504

Date: 3/17/2016
Checked: MEW
Drawn: RAN

Project Number 562-13-112
Building Number 1
Drawing Number P001

Office of Construction and Facilities Management
Department of Veterans Affairs

VA FORM 08-6231

ABBREVIATION LEGEND

Abbreviation	Description
&	AND
A	AIR (CLINICAL)
AAP	ALARM ANNUNCIATOR PANEL
AAV	AUTOMATIC AIR VENT
AB	ANCHOR BOLT
ABV	ABOVE
ACC DR	ACCESS DOOR
ACFL	ACCESS
ACOUS	ACOUSTICAL
ACT	ACOUSTICAL CEILING TILE
AD	AREA DRAIN
ADA	AMERICAN DISABILITIES ACT
ADD	ADDENDUM
ADDL	ADDITIONAL
ADJ	ADJUSTABLE
ADMIN	ADMINISTRATION
AFF	ABOVE FINISH FLOOR
AFG	ABOVE FINISHED GRADE
AFMD	AIR FLOW MEASURING DEVICE
AHU	AIR HANDLING UNIT
AL	ALIGN
ALT	ALTERNATE
ALUM	ALUMINUM
AMP	AMPERE
AP	ACCESS PANEL
APC	ARCHITECTURAL PRECAST CONCRETE
APPROX	APPROXIMATE
ARCH	ARCHITECTURAL
ASY	ASYMMETRIC
ATC	AUTOMATIC TEMPERATURE CONTROL
ATS	AUTOMATIC TRANSFER SWITCH
AUTO	AUTOMATIC
AWT	AVERAGE WATER TEMPERATURE
BAT	BATTERY
BC	BALANCING COCK OR BARE COPPER
BDD	BACKDRAFT DAMPER
BFC	BELOW FINISH CEILING
BFE	BOTTOM FOOTING ELEVATION
BFG	BELOW FINISHED GRADE
BG	BUMPER GUARD
BLDG	BUILDING
BLKG	BLOCKING
BLT	BORROWED LIGHT
BLW	BELOW
BM	BEAM
BO	BY OWNER
BOF	BY OWNER FUTURE
BOT	BOTTOM
BR	BRICK
BRG	BEARING
BRKR	BREAKER
BSMT	BASEMENT
BTWN	BETWEEN
BUR	BUILT UP ROOFING
C	CONDUIT
CAB	CABINET
CANTL	CANTILEVER
CAP	CAPACITY
CATV	CABLE TELEVISION
CCT	CUBICLE CURTAIN TRACK
CCTV	CLOSED CIRCUIT TELEVISION
CFH	CUBIC FEET / HOUR
CFM	CUBIC FEET / MINUTE
CH	CHANNEL
CHK V	CHECK VALVE
CHWR	CHILLED WATER RETURN
CHWS	CHILLED WATER SUPPLY
CHWS&R	CHILLED WATER SUPPLY AND RETURN
CJ	CONTROL JOINT
CKT	CIRCUIT
CKT BRKR	CIRCUIT BREAKER
CL	CENTERLINE
CLG	CEILING
CLG MTD	CEILING MOUNTED
CLR	CLR
CMU	CONCRETE MASONRY UNIT
CO	CLEAN OUT
COL	COLUMN
COMM	COMMUNICATION
CONC	CONCRETE
CONN	CONNECTION
CONST	CONSTRUCTION
CONT	CONTINUE / CONTINUOUS
CONTR	CONTRACTOR
CONV	CONVECTOR
COORD	COORDINATE
CORR	CORRIDOR
CPT	CARPET OR CONTROL POWER TRANSFORMER
CT	CERAMIC TILE
CTR	CENTER
CU	COPPER
CV	CONTROL VALVE
CW	COLD WATER
D	DEPTH OR DEEP
DB	DRY BULB
dB	DECIBEL
DCW	DOMESTIC COLD WATER
DEMO	DEMOLITION
DEPT	DEPARTMENT
DET	DETAILS
DF	DRINKING FOUNTAIN
DHW	DOMESTIC HOT WATER
DIA	DIAMETER
DIAG	DIAGONAL OR DIAGRAM
DIFF	DIFFUSER
DIM	DIMENSION
DISC	DISCONNECT
DISCH	DISCHARGE
DISP	DISPENSER
DIST	DISTRIBUTION
DIV	DIVISION
DL	DOWN LIGHT
DN	DOWN
DP	DISTRIBUTION PANEL
DPR	DAMPER
DR	DRAIN
DS	DOWNSPOUT
DWG	DRAWING
DX	DIRECT EXPANSION
EA	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
EC	ELECTRICAL CONTRACTOR
EDB	ENTERING DRY BULB
EF	EXHAUST FAN
EIFS	EXTERIOR INSULATION AND FINISHING SYSTEM
EJ	EXPANSION JOINT
EL	ELEVATION
ELEC	ELECTRICAL
ELEC CAB	ELECTRICAL CABINET
ELEV	ELEVATOR
EMER	EMERGENCY
ENCL	ENCLOSURE
ENTR	ENTRANCE
EO	ELECTRICAL OUTLET
EQ	EQUAL
EQUIP	EQUIPMENT
ETR	EXISTING TO REMAIN
EWB	ENTERING WET BULB
EWC	ELECTRIC WATER COOLER
EWT	ENTERING WATER TEMPERATURE
EX	EXAUST AIR
EXH	EXHAUST
EXIST	EXISTING
EXP	EXPANSION
EXT	EXTERIOR
XP	EXPLOSION PROOF
F/S	FIRE / SMOKE DAMPER
FA	FIRE ALARM
FAAP	FIRE ALARM ANNUNCIATOR PANEL
FACP	FIRE ALARM CONTROL PANEL
FAT	FINAL AIR TEMPERATURE
FB	FIRE BLANKET
FC	FLEXIBLE CONNECTION OR FOOTCANDLE
FD	FLOOR DRAIN OR FIRE DAMPER
FDN	FOUNDATION
FDV	FIRE DEPARTMENT VALVE
FE	FIRE EXTINGUISHER
FEC	FIRE EXTINGUISHER CABINET
FH	FIRE HOSE
FHC	FIRE HOSE CABINET
FHP	FULL HEIGHT PARTITION
FHV	FIRE HOSE VALVE
FIN	FINISH
FIXT	FIXTURE
FL	FLOW LINE
FLA	FULL LOAD AMPERES
FLASH	FLASHING
FLEX	FLEXIBLE
FLG	FLANGE
FLG C	FLANGE CONNECTION
FLR	FLOOR
FLUOR	FLUORESCENT
FP	FIRE PROOFING
FRMG	FRAMING
FS	FLOOR SINK
FSTOP	FIRESTOPPING
FT	FOOT / FEET
FT HD	FEET OF HEAD
FTC	FOOTCANDLES
FTG	FOOTING
FUR	FURRING
G	GAS OR ELECTRICAL GROUND
GA	GAUGE
GAL	GALLONS
GALV	GALVANIZED
GB	GRAB BAR
GC	GENERAL CONTRACTOR
GEN	GENERATOR
GENL	GENERAL
GFCI	GROUND FAULT CIRCUIT INTERRUPTOR
GL	GLASS
GLV	GLOBE VALVE
GND	GROUND
GPM	GALLONS PER MINUTE
GR	GRADE
GRAV	GRAVITY
GRD BM	GRADE BEAM
GV	GATE VALVE
GWB	GYPSUM BOARD
H	HIGH
HB	HOSE BIB
HC	HEATING CONTRACTOR
HDCP	HANDICAP
HDR	HEADER
HDW	HARDWARE
HID	HIGH INTENSITY DISCHARGE
HM	HOLLOW METAL
HORIZ	HORIZONTAL
HP	HORSE POWER
HPD	HIGH PRESSURE DRIP
HPF	HIGH POWER FACTOR
HR	HANDRAIL
HSKP	HOUSEKEEPING
HT	HEIGHT
HTG	HEATING
HTR	HEATER
HV	HIGH VELOCITY
HVAC	HEATING, VENTILATING, AIR CONDITIONING
HW	HOT WATER
HWD	HARD WOOD
HWR	HOT WATER RETURN
HWS	HOT WATER SUPPLY
HWS&R	HOT WATER SUPPLY AND RETURN
HZ	HERTZ
ID	INSIDE DIAMETER
IER	INVERTED ECCENTRIC REDUCER
IG	ISOLATED GROUND
IME	INSULATED METAL ENCLOSURE
IN	INCH
INCAND	INCANDESCENT
INCL	INCLUDED
INSUL	INSULATION
INT	INTERIOR
INTERL	INTERLOCK
INV	INVERT
ISO	ISOLATION
IVS	ISOLATED VALVE STATION
J-BOX	JUNCTION BOX
JST	JOIST
JT	JOINT
KO	KNOCK OUT
kVA	KILOVOLT AMPERE
kVAR	KILOVAR (REACTANCE)
kW	KILOWATT
kWH	KILOWATT HOUR METER
LAT	LEAVING AIR TEMPERATURE
LAV	LAVATORY
LB	POUND
LDB	LEAVING DRY BULB
LED	LIGHT EMITTING DIODE
LF	LINEAR FEET
LIN	LINEAR
LOC	LOCATION OR LOCATE
LPT	LOW POINT
LSDC	LINEAR SUPPLY DIFFUSER CEILING
LT	LIGHT
LTG	LIGHTING
LV	LOW VOLTAGE
LVR	LOUVER
LWB	LEAVING WET BULB
LWC	LINEAR WOOD CEILING
LWT	LEAVING WATER TEMPERATURE
MAN	MANUAL
MAT	MIXED AIR TEMPERATURE
MATL	MATERIAL
MAV	MANUAL AIR VENT
MAX	MAXIMUM
MBH	ONE THOUSAND BTU / HOUR
MC	MECHANICAL CONTRACTOR
MC	METAL CLAD CABLE
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MDP	MAIN DISTRIBUTION PANEL
MECH	MECHANICAL
MEMB	MEMBRANE
MET	METAL
MFR	MANUFACTURER
MH	MANHOLE
MIN	MINIMUM
MISC	MISCELLANEOUS
MLO	MAIN LUGS ONLY
MO	MASONRY OPENING
MOD	MOTOR OPERATED DAMPER
MONO	MONOLITHIC
MTD	MOUNTED
MTG HT	MOUNTING HEIGHT
MTL	METAL
MTLH	METAL HALIDE
MTR	MOTOR
MTS	MANUAL TRANSFER SWITCH
MV	MEDIUM VOLTAGE
N/A	NOT APPLICABLE
NEC	NATIONAL ELECTRIC CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURER ASSOCIATION
NIC	NOT IN CONTRACT
NL	NIGHT LIGHT
NO	NUMBER OR NORMALLY OPEN
NOM	NOMINAL
NTS	NOT TO SCALE
O	OXYGEN
OA	OUTSIDE AIR
OBD	OPPOSED BLADE DAMPER
OC	ON CENTER
OD	OUTSIDE DIAMETER
OPER	OPERATED
OPNG	OPENING
OPP	OPPOSITE
ORD	OVERFLOW ROOF DRAIN
PB	PULL BOX
PC	PLUMBING CONTRACTOR
PD	PUMP DISCHARGE
PG	PRESSURE GAUGE WITH COCK
PL	PROPERTY LINE
PLAM	PLASTIC LAMINATE
PLBG	PLUMBING
PNL	PANEL
PR	PAIR
PRD	PRESSURE DIFFERENTIAL VALVE
PRELIM	PRELIMINARY
PRT	PRESSURE TAP
PRV	PRESSURE REDUCING VALVE
PT	PAINT OR POTENTIAL TRANSFORMER
RO	ROUGH OPENING
QT	QUARRY TILE
R	RADIUS
RA	RETURN AIR / RELIEF AIR
RB	RUBBER BASE
RC	REMOVE COMPLETELY
RD	ROOF DRAIN
RE	RELOCATE EXISTING
REC	RECESSED
RECPT	RECEPTACLE
REF	REFERENCE
REFL	REFLECTOR
REG	REGISTER
REINF	REINFORCING
REM	REMOVE
REQD	REQUIRED
RET	RETURN
REV	REVISE
REX	REMOVE EXISTING
RF	RESILIENT FLOOR
RFI	REQUEST FOR INFORMATION
RGS	RIGID GALVANIZED STEEL CONDUIT
RH	ROOF HATCH
RM	ROOM
RN	REMOVE AND REPLACE WITH NEW
RR	REMOVE AND REPLACE
RS	RAPID START
RV	RELIEF VALVE
RWC	RAIN WATER CONDUCTOR
SA	SUPPLY AIR
SAN	SANITARY SEWER ABOVE GROUND
SAN-BXR	SANITARY SEWER - BURIED EXISTING TO REMAIN
SAN-XR	SANITARY SEWER ABOVE GROUND - EXISTING TO REMAIN
SCHED	SCHEDULE
SD	SMOKE DAMPER OR SMOKE DETECTOR
SDISP	SOAP DISPENSER
SF	SQUARE FOOT
SHT	SHEET
SHT MTL	SHEET METAL
SHTG	SHEATHING
SIM	SIMILAR
SM	SURFACE MOUNTED
SNC	SANITARY NAPKIN CABINET
SND	SANITARY NAPKIN DISPOSER
SP	STANDPIPE OR STATIC PRESSURE
SPC	SPECIMEN PASS-THRU CABINET
SPEC	SPECIFICATIONS
SPS	STATIC PRESSURE SENSOR
SR	SERVICE RECEPTOR
SS	SOIL STACK
ST PR	STATIC PRESSURE
ST STL	STAINLESS STEEL
STD	STANDARD
STER	STERILIZER
STL	STEEL
STOR	STORAGE
STR	STRAINER
STRUCT	STRUCTURAL
SUSP	SUSPENDED
SW	SWITCH
SWBD	SWITCHBOARD
SWGR	SWITCHGEAR
SYM	SYMMETRICAL TOP
T	TOP
TA	THROWAWAY
TAN	TANGENT
TC	TELECOMMUNICATIONS CONTRACTOR
TCV	TEMPERATURE CONTROL VALVE
TDV	TRIPLE DUTY VALVE
TEL	TELEPHONE
TEMP	TEMPERATURE
TER	TERRAZZO
TG	TONGUE & GROOVE
TH	THERMOMETER
THRES	THRESHOLD
TR	TEMPERATURE RISE
TRANS	TRANSITION
TRANSR	TRANSFORMER
TSTAT	THERMOSTAT
TV	TURNING VANES OR TELEVISION
TYP	TYPICAL
UC	UNDER CABINET OR UNDER CUT
UFD	UNDER FLOOR DUCT
UG	UNDERGROUND
UH	UNIT HEATER
UL	UNDERWRITER'S LABORATORIES
UNFIN	UNFINISHED
UNO	UNLESS NOTED OTHERWISE
UPS	UNINTERRUPTIBLE POWER SUPPLY
UTIL	UTILITY
V	VOLT
VAL	VALVE
VD	VOLUME DAMPER
VENT	VENTILATION
VERT	VERTICAL
VFS	VENTURI FLOW STATION
VIF	VERIFY IN FIELD
VL	VENT LINE
VR	VAPOR RETARDER
VS	VENT STACK
VTR	VENT THROUGH ROOF
W	WATT
W/	WITH
W/O	WITHOUT
WB	WET BULB
WC	WALL COVERING
WCL	WATER CLOSET
WD	WOOD
WF	WIDE FLANGE
WFMD	WATER FLOW MEASURING DEVICE
WG	WALL GUARD OR WATER GAUGE
WHCH	WHEEL CHAIR
WIN	WINDOW
WMS	WIRE MESH SCREEN
WP	WEATHERPROOF
WPS	WALL PROTECTION SYSTEM
WSCT	WAINSCOT
WT	WINDOW TREATMENT
WTD	WATER TEMPERATURE DROP
WWF	WELDED WIRE FABRIC
X	DEMO
XN	TO BE RELOCATED / NEW LOCATION
XR	EXISTING TO REMAIN
ZVB	ZONE VALVE BOX
ZVC	ZONE VALVE CABINET

PIPELINE ABBREVIATIONS

SYMBOLS	DESCRIPTION
CD	CONDENSATE DRAIN LINE
CTD	COOLING TOWER DRAIN LINE
DTS	DUAL TEMPERATURE WATER SUPPLY
DTR	DUAL TEMPERATURE WATER RETURN
CWS	CONDENSER WATER SUPPLY
CWR	CONDENSER WATER RETURN
HWHS	HOT WATER HEATING SUPPLY
HWHR	HOT WATER HEATING RETURN
LPS	LOW PRESSURE STEAM SUPPLY
LPCR	LOW PRESSURE CONDENSATE RETURN
MPS	MEDIUM PRESSURE STEAM SUPPLY
MPCR	MEDIUM PRESSURE CONDENSATE RETURN
HPS	HIGH PRESSURE STEAM SUPPLY
HPCR	HIGH PRESSURE CONDENSATE RETURN
PC	PUMPED CONDENSATE
HRS	ENERGY (HEAT) RECOVERY SUPPLY
HRR	ENERGY (HEAT) RECOVERY RETURN
RL	REFRIGERANT LINE
RS	REFRIGERANT SUCTION
NAME	PIPE TO BE REMOVED
NAME	EXISTING PIPING TO REMAIN

PIPELINE SYMBOLS

SYMBOLS	DESCRIPTION
	BALL VALVE
	GATE VALVE
	BUTTERFLY VALVE
	GLOBE VALVE
	PLUG VALVE
	RELIEF VALVE
	ECCENTRIC REDUCER
	INVERTED ECCENTRIC REDUCER
	STRAINER
	UNION
	THERMOMETER
	PRESSURE GAUGE
	WATER FLOW MEASURING DEVICE (VENTURI FLOW STATION) BALANCING COCK
	PRESSURE TAP
	PRESSURE REDUCING VALVE
	TWO-WAY MODULATING CONTROL VALVE
	THREE-WAY MODULATING CONTROL VALVE
	SAFETY VALVE OR PRESSURE RELIEF
A	AUTOMATIC AIR VENT
M	MANUAL AIR VENT
	TWO-WAY CONTROL VALVE (TWO POSITION TYPE)
	MOTORIZED VALVE
	AQUASTAT
	FUNNEL DRAIN
	PIPING TURNED UP
	PIPING TURNED DOWN
	TEE - OUTLET UP
	TEE- OUTLET
	SIDE CONNECTION
	CAPPED OUTLET
	DIRECTION OF FLOW
	PIPE BREAK (SINGLE LINE)
	FLEXIBLE CONNECTION
	BACKFLOW PREVENTION DEVICE

HVAC SYMBOLS

DOUBLE LINE SHEETMETAL

SYMBOLS	DESCRIPTION
12"X12"	RECTANGULAR SUPPLY, RETURN OR RELIEF DUCT WIDTH (SHOWN)XDEPTH
12"/12"	OVAL SUPPLY, RETURN OR RELIEF DUCT WIDTH (SHOWN)XDEPTH
12"Ø	ROUND SUPPLY, RETURN OR DUCT W/TURNING VANES (DUCT WIDTH OVER 18")
	STAINLESS STEEL DUCTWORK
	DUCT W/ TURNING VANES
	DUCT W/O TURNING VANES
	RADIUS ELBOW (DUCT WIDTH 17" AND LOWER)
	LOW LOSS TAKE OFF (ARROW INDICATES DIRECTION OF AIR FLOW)
	CONICAL SPIN-IN FITTING
	BOOT CONNECTION WITH MANUAL VD (ARROW INDICATES AIR FLOW DIRECTION)
	RETURN AIR DUCT UP
	SUPPLY DUCT UP
	EXHAUST AIR DUCT UP
	RETURN AIR DUCT DN
	SUPPLY DUCT DN
	EXHAUST AIR DUCT DN
12"X12"	MANUAL VOLUME CONTROL DAMPER (VD)
24"X24" 24"X24"	RISE/DROP IN DUCTWORK (ARROW SHOWS DIRECTION OF DROP)
S	DUCT/SPACE STATIC PRESSURE SENSOR
WS	WALL SWITCH
T	DUCT/WALL TEMPERATURE SENSOR, ELECTRIC
T	DUCT/WALL TEMPERATURE SENSOR, ELECTRIC
SD	DUCT MOUNTED SMOKE DETECTOR PROVIDED BY EC, INSTALLED BY HC
M	MOTORIZED DAMPER
B	BACKDRAFT DAMPER
FD	FIRE DAMPER AT FIRE WALL (PROVIDE ACCESS PANEL IN DUCT AND CEILING)
	SMOKE DAMPER/DETECTOR DETECTOR BY E.C. DAMPER BY H.C.
F/SD	COMBINATION FIRE/SMOKE DAMPER
FD FD	FIRE DAMPER IN VERTICAL DUCT THRU FLOOR OR HORIZONTAL DUCT ABOVE CEILING (PROVIDE ACCESS PANEL IN DUCT AND WALL OR CEILING)
	ACCESS DOOR ON BOTTOM OF DUCT (HINGED & GASKETED)
	ACCESS DOOR ON SIDE OF DUCT (HINGED & GASKETED)
AD	SUPPLY AIR DIFFUSER
TF	THERMAL VAV DIFFUSER
	RETURN AIR REGISTER
	EXHAUST REGISTER
	EXHAUST/RETURN AIR REGISTER (DUCT OR WALL)
	SUPPLY AIR REGISTER (DUCT OR WALL)

SINGLE LINE - SHEET METAL

SYMBOLS	DESCRIPTION
24X12	DUCT SIZE (WIDTH X DEPTH)
24"Ø	ROUND DUCT SIZE (DIAMETER)
24"Ø	FLEXIBLE DUCT (DIAMETER SIZE)
	SUPPLY DUCT CROSS SECTION UP
	SUPPLY DUCT CROSS SECTION DN
	RETURN CROSS SECTION UP
	RETURN CROSS SECTION DN
	EXHAUST CROSS SECTION UP
	SQUARE ELBOW WITH TURNING VANES
	RADIUS TURN ELBOW
	DUCT END CAP

HVAC GENERAL NOTES

1. NOT ALL SYMBOLS ARE NECESSARILY USED.
2. COORDINATE FINAL LOCATIONS OF DIFFUSERS AND GRILLES WITH ELECTRICAL EQUIPMENT.
3. DRAWINGS ARE DIAGRAMMATIC. CONTRACTOR TO FIELD VERIFY DUCT AND PIPE ROUTING AND COORDINATE INTERFERENCE BETWEEN TRADES PRIOR TO INSTALLATION.
4. ROOF OPENINGS, FLASHING, AND COUNTER FLASHING BY GENERAL CONTRACTOR. LOCATION OF OPENINGS BY HEATING CONTRACTOR.
5. DUCTWORK TO BE INSTALLED TIGHT TO UNDERSIDE OF STRUCTURE ABOVE UNLESS NOTED OTHERWISE.
6. PROVIDE ALL MATERIALS, EQUIPMENT AND PERFORM ALL LABOR REQUIRED TO INSTALL COMPLETE AND OPERABLE MECHANICAL SYSTEMS AS INDICATED ON THE DRAWINGS, AS SPECIFIED, AND AS REQUIRED BY CODE.
7. CONTRACT DOCUMENT DRAWINGS FOR MECHANICAL WORK ARE DIAGRAMMATIC AND ARE INTENDED TO CONVEY SCOPE AND GENERAL ARRANGEMENT ONLY. CONTRACTOR SHALL BE RESPONSIBLE TO FIELD SURVEY ACTUAL SITE CONDITIONS AND ACCOMMODATE ACTUAL SITE CONDITIONS AS PART OF SCOPE OF WORK AT NO COST TO OWNER.
8. INSTALL ALL MECHANICAL EQUIPMENT AND APPURTENANCES IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS, CONTRACT DOCUMENTS, APPLICABLE BUILDING, STATE, AND LOCAL CODES, SEISMIC REQUIREMENTS, ENERGY CODES, AND INSURANCE UNDERWRITER REQUIREMENTS.
9. COORDINATE CONSTRUCTION OF ALL MECHANICAL WORK WITH ARCHITECTURAL, STRUCTURAL, CIVIL, AND ELECTRICAL WORK, ETC. SHOWN ON OTHER CONTRACT DOCUMENT DRAWINGS.
10. MAINTAIN A MINIMUM OF 6'-8" CLEARANCE TO UNDERSIDE OF PIPES, DUCTS, CONDUITS, SUSPENDED EQUIPMENT, SUPPORTS, ETC., THROUGHOUT ACCESS ROUTES IN MECHANICAL ROOMS.
11. ALL TESTS SHALL BE COMPLETED AND ACCEPTED BY THE INSPECTOR BEFORE ANY MECHANICAL EQUIPMENT OR PIPING INSULATION IS APPLIED.
12. LOCATE ALL TEMPERATURE, PRESSURE AND FLOW MEASURING DEVICES IN ACCESSIBLE LOCATIONS WITH A STRAIGHT SECTION OF PIPE OR DUCT UPSTREAM AND DOWNSTREAM, AS RECOMMENDED BY THE MANUFACTURER FOR ACCURACY.
13. TESTING ADJUSTING AND BALANCING (TAB) AGENCY SHALL BE A MEMBER OF THE ASSOCIATED AIR BALANCING COUNCIL (AABC) OR THE NATIONAL ENVIRONMENTAL BALANCING BUREAU (NEBB). TAB FIRM SHALL HAVE A MINIMUM OF 5 YEARS EXPERIENCE ON SIMILAR PROJECTS. PERFORM TAB IN ACCORDANCE WITH THE REQUIREMENTS OF THE TAB PROCEDURAL STANDARD RECOMMENDED BY THE TAB TRADE ASSOCIATION THAT APPROVED THE TAB FIRM'S QUALIFICATIONS.
14. WHERE TWO OR MORE ITEMS OF THE SAME TYPE OF EQUIPMENT ARE REQUIRED, THE PRODUCTS OF A SINGLE MANUFACTURER SHALL BE USED.
15. COORDINATE ALL FINAL EQUIPMENT CONNECTIONS WITH MANUFACTURERS' CERTIFIED DRAWINGS. COORDINATE AND PROVIDE ALL DUCTWORK AND PIPING TRANSITIONS REQUIRED FOR FINAL EQUIPMENT CONNECTIONS TO FURNISHED EQUIPMENT. FIELD VERIFY AND COORDINATE ALL DUCTWORK AND PIPING DIMENSIONS BEFORE FABRICATION.
16. ALL CONTROL WIRE AND CONDUIT SHALL COMPLY WITH THE NATIONAL ELECTRIC CODE, DIVISION 26 OF THE SPECIFICATIONS, ALL LOCAL CODES, AND OWNER'S INSURANCE UNDERWRITER REQUIREMENTS.
17. THE LOCATIONS AND SIZES OF ALL ITEMS SHOWN ON THE DRAWINGS OR CALLED FOR IN THE SPECIFICATIONS THAT ARE NOT DEFINITELY FIXED BY DIMENSIONS ARE APPROXIMATE ONLY. THE EXACT LOCATIONS AND SIZES NECESSARY TO SECURE THE BEST CONDITIONS AND RESULTS SHALL BE DETERMINED BY THE PROJECT SITE CONDITIONS AND SHALL HAVE THE APPROVAL OF THE ENGINEER BEFORE BEING INSTALLED. DO NOT SCALE DRAWINGS.
18. PLAN DRAWINGS AND SECTION CUTS WHICH SPECIFICALLY IDENTIFY SERVICE ROUTE OFFSETS, ELEVATION CHANGES, OBSTRUCTIONS, ACCESS DOORS, BALANCING DEVICES, ETC. ARE SHOWN FOR CLARITY WHERE SPECIFIC KNOWN CONDITIONS EXIST. MECHANICAL CONTRACTOR SHALL COORDINATE EQUIPMENT, DUCTWORK, AND PIPING ROUTINGS WITH ALL OTHER TRADES. REQUIREMENTS NOT SPECIFICALLY IDENTIFIED SHALL NOT BE INTERPRETED AS EXCLUSION FROM CONTRACTOR'S SCOPE OF WORK. CONTRACTOR SHALL BE RESPONSIBLE FOR ACTUAL SITE CONDITIONS AND SHALL INCLUDE SUCH CONDITIONS IN SCOPE OF WORK AT NO ADDITIONAL COST TO THE OWNER.
19. ALL MISCELLANEOUS STEEL REQUIRED TO ENSURE PROPER INSTALLATION AND SUPPORT OF MECHANICAL WORK AS SHOWN IN DETAILS FOR PIPING, DUCTWORK AND EQUIPMENT (UNLESS OTHERWISE NOTED) SHALL BE FURNISHED AND INSTALLED BY THE MECHANICAL CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
20. ALL EQUIPMENT, PIPING, DUCTWORK, ETC., SHALL BE SUPPORTED AS DETAILED, SPECIFIED AND AS REQUIRED TO PROVIDE A VIBRATION FREE INSTALLATION.
21. ALL OPENINGS IN FIRE RATED WALLS AND SMOKE PARTITIONS DUE TO DUCTWORK, PIPING, CONDUIT, ETC., SHALL BE FIRE STOPPED WITH APPROVED FIRESTOPPING MATERIALS.
22. REFER TO TYPICAL DETAILS FOR DUCTWORK, PIPING AND EQUIPMENT INSTALLATION.
23. UNLESS OTHERWISE SHOWN, LOCATE ALL ROOM THERMOSTATS WITH TOP AT 48" ABOVE FINISHED FLOOR IN ACCORDANCE WITH ADA REQUIREMENTS. NOTIFY THE ENGINEER OF ANY ROOMS WHERE THE ABOVE LOCATION CAN NOT BE MAINTAINED OR WHERE THERE IS A QUESTION ON LOCATION. COORDINATE FINAL LOCATIONS WITH OWNER.
24. PROVIDE FLEXIBLE CONNECTIONS IN ALL DUCTWORK SYSTEMS (SUPPLY, RETURN AND EXHAUST) CONNECTED TO FANS AND OTHER EQUIPMENT WHICH REQUIRE VIBRATION ISOLATION. FLEXIBLE CONNECTIONS SHALL BE PROVIDED AT THE POINT OF CONNECTION TO THE EQUIPMENT UNLESS OTHERWISE INDICATED.
25. PROVIDE VIBRATION ISOLATION FOR ALL MECHANICAL EQUIPMENT TO PREVENT VIBRATION TRANSMISSION TO BUILDING STRUCTURE.
26. CONCRETE HOUSEKEEPING PADS SHALL BE FURNISHED AND INSTALLED BY THE GENERAL CONTRACTOR. MECHANICAL CONTRACTOR SHALL PROVIDE EQUIPMENT WEIGHTS, SIZES, AND LOCATION TO GENERAL CONTRACTOR. MINIMUM CONCRETE PAD THICKNESS SHALL BE IN ACCORDANCE WITH STRUCTURAL DETAILS. PAD SHALL EXTEND BEYOND THE EQUIPMENT FOOTPRINT A MINIMUM OF 6 INCHES ON EACH SIDE.
27. ALL DUCTWORK, PIPING, AND EQUIPMENT SUPPORTED FROM STRUCTURAL STEEL SHALL BE COORDINATED WITH GENERAL CONTRACTOR. ALL ATTACHMENTS TO STEEL MEMBERS, BAR JOISTS, TRUSSES, OR JOIST GIRDERS SHALL BE APPROVED BY STRUCTURAL ENGINEER. WELDING TO STRUCTURAL MEMBERS SHALL NOT BE PERMITTED.
28. MECHANICAL EQUIPMENT, DUCTWORK, AND PIPING SHALL NOT BE SUPPORTED FROM ROOF OR DECK ASSEMBLY. SUPPORTS SHALL ATTACH TO STRUCTURAL MEMBERS. COORDINATE WITH STRUCTURAL DRAWINGS.
29. PROVIDE MANUFACTURER'S MATCHING ROOF CURBS FOR ALL ROOF MOUNTED EQUIPMENT. COORDINATE ACTUAL ROOF PITCH AND CONSTRUCTION DETAILS WITH GENERAL CONTRACTOR. PROVIDE SLOPED CURBS PER MANUFACTURER'S RECOMMENDATIONS. GENERAL CONTRACTOR SHALL INSTALL ROOF CURBS AND FLASHING PER ROOFING MANUFACTURER'S INSTALLATION REQUIREMENTS.
30. UNLESS OTHERWISE NOTED, ALL PIPING AND DUCTWORK IS OVERHEAD, TIGHT TO UNDERSIDE OF STRUCTURE OR SLAB, WITH SPACE FOR INSULATION.
31. ALL PIPING AND DUCTWORK SHALL CLEAR DOORS, WINDOWS, EQUIPMENT CLEARANCES, MAINTENANCE REQUIREMENTS, CODE SETBACKS, ETC. TO ASSURE PROPER OPERATION, INSPECTION, AND MAINTENANCE.
32. PROVIDE ALL 90 DEGREE SQUARE ELBOWS WITH DOUBLE RADIUS TURNING VANES UNLESS OTHERWISE INDICATED OR SPECIFIED. PROVIDE ACCESS DOORS UPSTREAM OF ALL ELBOWS CONTAINING TURNING VANES.
33. ALL DUCTS SHALL BE BONDED ACROSS FLEXIBLE CONNECTIONS WITH FLEXIBLE COPPER GROUNDING STRAPS. GROUNDING STRAPS SHALL BE BOLTED OR SOLDERED TO BOTH THE EQUIPMENT AND THE DUCT.
34. ALL EQUIPMENT SUBMITTALS AND SHOP DRAWINGS REQUIRED BY THE SPECIFICATIONS SHALL BE APPROVED BY ENGINEER PRIOR TO PURCHASE, FABRICATION, AND INSTALLATION.
35. ALL HEATING DEVICES AND SURFACES WITH ELEVATED TEMPERATURES WHICH CAN BE ACCESSED OR COME IN CONTACT WITH OWNER PERSONNEL SHALL BE PROTECTED, INSULATED, OR CONTROLLED TO REMAIN BELOW 120°F.

HVAC DEMOLITION NOTES

1. THE CONTRACTOR SHALL THOROUGHLY EXAMINE THE SITE PRIOR TO SUBMITTING THEIR BID. DUE TO THE NATURE OF THIS PROJECT AND THE STATE OF THE EXISTING BUILDING, IT IS IMPOSSIBLE TO COMPLETELY RELATE THE SCOPE OF THE DEMOLITION REQUIRED TO THE CONTRACTOR THROUGH THE CONTRACT DOCUMENTS. FAILURE TO VISIT THE SITE WILL NOT RELIEVE THE CONTRACTOR OF THEIR DEMOLITION RESPONSIBILITIES UNDER THIS CONTRACT. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE AND COORDINATE THE EXACT EXTENT OF DEMOLITION NECESSARY TO PROVIDE A RENOVATED AND UPGRADED S PACE AND TO FACILITATE NEW WORK.
2. INFORMATION REGARDING THE EXISTING CONDITIONS WAS GATHERED FROM AVAILABLE EXISTING DRAWINGS, SURVEY, AND CORRESPONDENCE WITH UTILITY, STAFF, AND FACILITIES PERSONNEL. THERE ARE NO GUARANTEES AS TO THE ACCURACY OF THIS INFORMATION AND IT IS OFFERED FOR INFORMATION ONLY.
3. VERIFY EXISTING LOCATIONS OF EQUIPMENT, DUCTWORK, PIPING AND SYSTEM COMPONENTS PRIOR TO DEMOLITION. IF EXISTING CONDITIONS ARE DIFFERENT THAN WHAT IS INDICATED ON THE CONTRACT DOCUMENTS, THE CONTRACTOR SHALL NOTIFY THE COR AND ARCHITECT PRIOR TO PROCEEDING WITH THE WORK.
4. MINIMIZE DISTURBANCE AND / OR DAMAGE TO EXISTING FINISHED SURFACES AND FINISHES. WHERE DEMOLITION OF MECHANICAL SYSTEM COMPONENTS DAMAGES EXISTING SURFACES TO REMAIN, RESTORE THOSE SURFACES TO THE SAME CONDITION AS THE ADJACENT SURFACES. RESTORATION MUST BE PERFORMED BY WORKMEN SKILLED IN PERFORMING SUCH WORK. ALL FIRE AND SMOKE RATINGS SHALL BE RETAINED AS PART OF THE REPAIRS. PATCH / SEAL HOLES WEATHERTIGHT. ALL PATCHES AND REPAIRS ARE SUBJECT TO THE REVIEW AND APPROVAL OF THE ARCHITECT.
5. ALL AREAS OF EGRESS SHALL BE KEPT OPEN AND FREE FROM DEBRIS AT ALL TIMES.
6. DO NOT REMOVE ITEMS SUPPORTING OTHER ITEMS WITHOUT PROVIDING TEMPORARY OR PERMANENT SUPPORT. PROPERLY SUPPORT ALL EXISTING ITEMS TO REMAIN. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING REQUIRED SUPPORTS FOR AFFECTED ITEMS.
7. VERIFY EXTENT OF PIPING, EQUIPMENT, COMPONENTS, AND CONTROLS TO BE RETAINED OR REUSED PRIOR TO THE DEMOLITION OF SPECIFIC SYSTEM. PROTECT ITEMS WHICH ARE TO BE REUSED ON SITE TO MINIMIZE POST-CONSTRUCTION REPAIRS. ALL ITEMS WHICH ARE DAMAGED SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE REPAIRED OR REPLACED AT NO COST TO THE CONTRACT.
8. REFER TO PLANS FOR EXISTING PIPING, DUCTWORK, EQUIPMENT, AND SYSTEM COMPONENTS TO BE REUSED.
9. THE OWNER RETAINS FIRST RIGHT OF REFUSAL TO ALL EQUIPMENT AND SYSTEM COMPONENTS DEMOLISHED FROM THE PROJECT PRIOR TO DISPOSAL. ALL ITEMS NOT RETAINED BY THE OWNER SHALL BE PROMPTLY AND PROPERLY DISPOSED OF OR REMOVED FROM SITE.
10. VERIFY ALL EXISTING STRUCTURAL CONDITIONS AND NOTIFY THE STRUCTURAL ENGINEER FOR APPROVAL TO PENETRATING EXISTING BUILDING STRUCTURAL SYSTEMS.
11. NO DEMOLITION SHALL OCCUR WHICH LEAVES THE BUILDING INTERIOR WITHOUT WEATHER PROTECTION. ALL DEMOLITION OF EXTERIOR OR EXTERIOR SURFACES SHALL BE FOLLOWED IMMEDIATELY BY PROTECTIVE CONSTRUCTION. CONTRACTOR SHALL PROVIDE AND INSTALL TEMPORARY PROTECTION IN ALL OPENINGS WHERE LOUVERS, WINDOWS, OR EXTERIOR DOORS HAVE BEEN REMOVED.
12. THE DEMOLITION OF THE MECHANICAL SYSTEMS MUST BE PERFORMED TO CORRESPOND TO THE PHASED NATURE OF THE PROJECT. REFER TO ARCHITECTURAL PHASING PLANS FOR PROJECT PHASING. THE CONTRACTOR IS RESPONSIBLE FOR ALL TEMPORARY WORK AND EQUIPMENT NECESSARY TO KEEP REQUIRED SYSTEMS OPERATIONAL UNTIL THEY ARE NO LONGER NEEDED. THIS MAY INCLUDE BUT IS NOT LIMITED TO: RELOCATION OF EQUIPMENT AND ALL APPURTENANCES AND CONTROLS, RE-PIPING OF EQUIPMENT, AND RE-DUCTING OF EQUIPMENT.

HVAC PHASING NOTES

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL CONNECTIONS TO EXISTING AND NEW SYSTEMS AS REQUIRED TO FACILITATE PROPER CONTINUAL OPERATION OF ALL SYSTEMS AND EQUIPMENT, EXISTING OR NEW, EXCEPT WHERE IN THE CURRENT PHASE OF CONSTRUCTION.
2. THE CONTRACTOR IS RESPONSIBLE FOR ALL TEMPORARY WORK AND EQUIPMENT NECESSARY TO KEEP REQUIRED SYSTEMS OPERATIONAL UNTIL THEY ARE FULLY RENOVATED AND OPERATING OR UNTIL THEY ARE NO LONGER NEEDED AND DEMOLISHED. THIS MAY INCLUDE BUT IS NOT LIMITED TO: RELOCATION OF EQUIPMENT AND ALL APPURTENANCES AND CONTROLS, RE-PIPING OF EQUIPMENT, AND RE-DUCTING OF EQUIPMENT.
3. IF THE NEED FOR TEMPORARY SERVICE(S) OR CONNECTIONS DICTATES WORK BE DONE OUT OF PHASE, THIS WORK SHALL BE APPROVED BY THE ARCHITECT AND THE OWNER. WORK SHALL TAKE PLACE IN SUCH A MANNER SO AS NOT TO INTERFERE WITH THE DAY-TO-DAY OPERATIONS OF THE FACILITY AS DETERMINED BY THE OWNER.
4. REFER TO THE PROJECT SPECIFICATIONS AND ARCHITECTURAL PHASING PLANS TO DETERMINE THE PHASING OF DEMOLITION AND INSTALLATION OF MECHANICAL SYSTEM COMPONENTS. ALTHOUGH PORTIONS OF A MECHANICAL SYSTEM MAY LIE OUTSIDE A PHASED AREA ON PLAN, THOSE COMPONENTS ARE CONSIDERED TO BE "IN PHASE" IF THEIR INSTALLATION AND OPERATION IS REQUIRED FOR THE OCCUPANCY AND USE OF THE PHASED AREA. ALL "IN PHASE" MECHANICAL COMPONENTS SHALL BE INSTALLED AND MADE OPERATIONAL PRIOR TO THE COMPLETION OF THAT PHASE. COORDINATE ALL PHASING REQUIREMENTS WITH THE GENERAL CONTRACTOR'S SCHEDULE TO ENSURE CONTINUITY OF SYSTEM OPERATION.
5. THE CONTRACTOR SHALL BE AWARE THAT THE EXISTING BUILDING(S) AND ADJACENT SITE WILL BE OCCUPIED AND IN USE 24 HOURS PER DAY, 7 DAYS A WEEK. THE CONTRACTOR SHALL CONDUCT THEIR OPERATIONS SO THAT THERE WILL BE MINIMAL INTERFERENCE WITH THE CONTINUED OPERATION OF THE EXISTING BUILDING(S) AND STAFF. ANY INTERFERENCE OR INCONVENIENCE TO BUILDING OPERATIONS SHALL BE REVIEWED WITH THE COR AND ARCHITECT PRIOR TO COMMENCEMENT.
6. CONTRACTOR SHALL MINIMIZE SHUTDOWN TIMES DURING MECHANICAL SYSTEM SWITCHOVERS. ALL SHUTDOWN TIMES AND THEIR DURATIONS SHALL BE COORDINATED WITH THE COR.

EQUIPMENT TAG ABBREVIATIONS

ACC	AIR COOLED CHILLER
ACCU	AIR COOLED CONDENSING UNIT
ACCUM	ACCUMULATOR
AHU	AIR HANDLING UNIT
ASHP	AIR SOURCE HEAT PUMP
B	BOILER
BB	BASEBOARD HEATER
BD	BAROMETRIC DAMPER
BDD	BACK DRAFT DAMPER
CC	CHILLED WATER COOLING COIL
CD	CONDENSATE DRAIN
CIRC	CIRCULATOR
CMPR	COMPRESSOR
CONV	CONVECTOR
CP	CONDENSATE PUMP
CUH	CABINET UNIT HEATER
DC	DRY COOLER
EF	EXHAUST FANS
ER	EXHAUST REGISTER
ERW	EXHAUST REGISTER WALL
ET	EXPANSION TANK
ECUH	ELECTRIC CABINET UNIT HEATER
EUH	ELECTRIC UNIT HEATER
EWH	ELECTRIC WALL HEATER
EVAP	EVAPORATOR
FT	FINNED TUBE RADIATION
FCU	FAN COIL UNIT
FPB	FAN POWERED BOX
FU	FURNACE
GIV	GRAVITY INTAKE VENTILATOR
GRV	GRAVITY ROOF VENTILATOR
H	HUMIDIFIER
HC	HOT WATER HEATING COIL
HUH	HORIZONTAL UNIT HEATER
P	PUMP
PTAC	PACKAGED TERMINAL AIR CONDITIONING UNIT
RG	RETURN GRILLE
RR	RETURN REGISTER
RAG	RETURN AIR GRILLE
RCP	RADIANT CEILING PANEL
RTU	ROOF TOP UNIT
SF	SUPPLY FAN
SSAC	SPLIT SYSTEM AIR CONDITIONING UNIT
SSDC	SECURITY SUPPLY DIFFUSER CEILING
SSEF	SECURITY SMOKE EXHAUST FAN
SSGW	SECURITY SUPPLY SUPPLY GRILLE WALL
SLSD	SUPPLY LINEAR SLOT DIFFUSER
UH	UNIT HEATER
UV	UNIT VENTILATOR
UCD	UNDER CUT DOOR
VAV	VARIABLE AIR VOLUME

DRAWING SYMBOLS

Symbol	Description
AHU / 1	POWERED EQUIPMENT; EQUIPMENT NUMBER
RHC / 1	NON-POWERED EQUIPMENT; EQUIPMENT NUMBER
1 / H100	DETAIL NUMBER; DRAWING NUMBER WHERE DRAWN
1 / H200	SECTION LETTER; DRAWING NUMBER WHERE DRAWN
	CONNECT TO EXISTING AT THIS POINT
	DEMO/REMOVE TO THIS POINT
CD-# / #	DIFFUSER/REGISTER/GRILLE TYPE; AIRFLOW QUANTITY
1	DRAWING KEYNOTE - DEMOLITION
1	DRAWING KEYNOTE - PLAN / ELEVATION NEW WORK

FULLY SPRINKLERED
CONSTRUCTION DOCUMENTS

Revisions: | Date

CONSULTANTS:

BARBER & HOFFMAN
215 EXECUTIVE DRIVE #202
CRANBERRY TWP, PA 16066

URBAN ENGINEERS, INC.
1 WILLIAMSBURG PLACE, SUITE 210
WARRENDALE, PA 15086

MOORE DESIGN ASSOCIATES
130 HEAVEN LANE
MARS, PA 16046

SEAL

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
SCOTT P. LIZOTTE
ENGINEER
PE061443

ARCHITECTS/ENGINEERS:

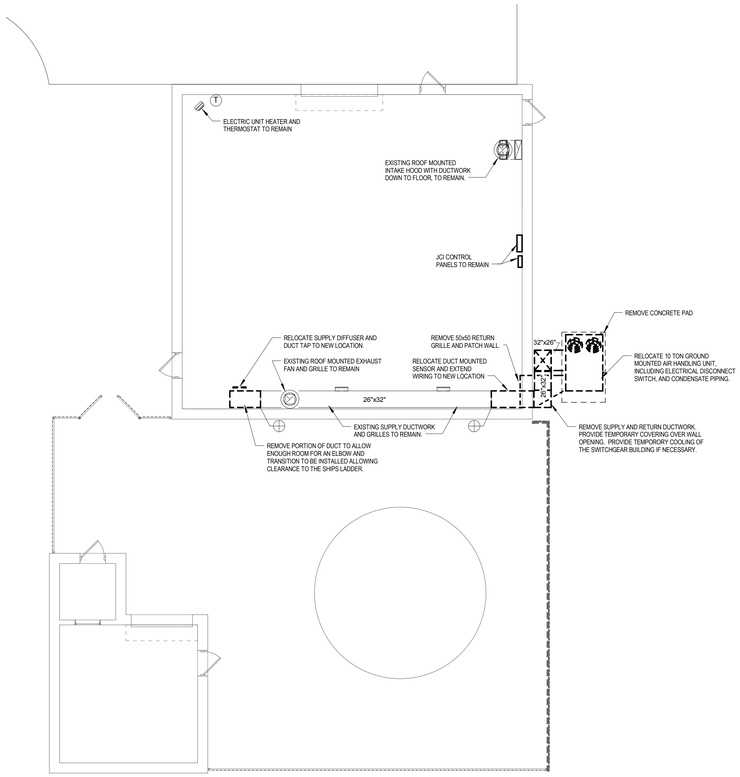
AE WORKS

6587 Hamilton Avenue
Pittsburgh, Pennsylvania 15206
Ph: 412.287.7333 Fax: 412.287.7334
www.ae-works.com

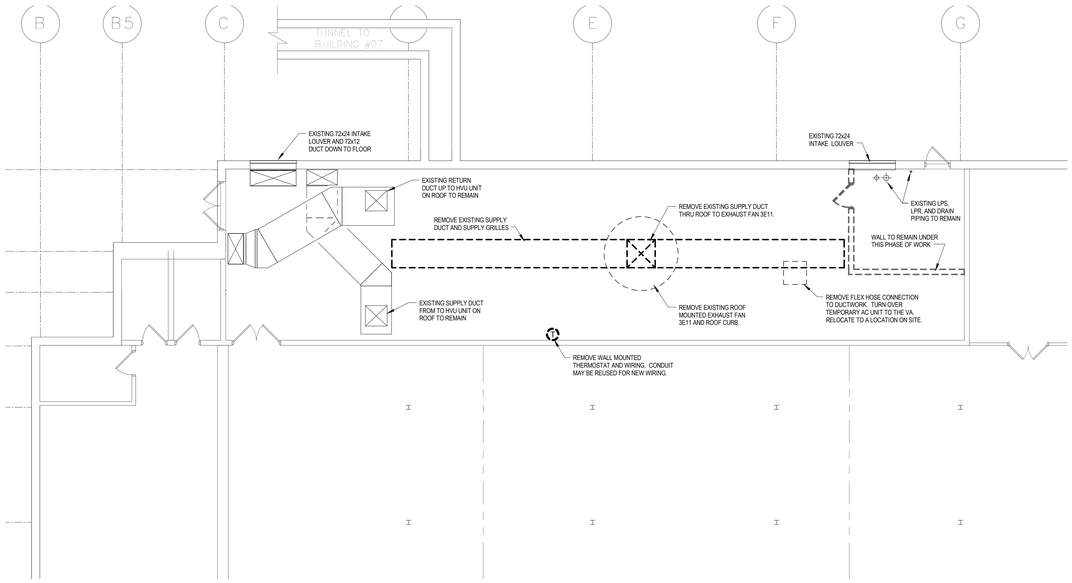
AE Works Project Number: 13045

Drawing Title	Project Title:	Project Number	
HVAC SYMBOLS, ABBREVIATIONS AND GENERAL NOTES	EXPAND EMERGENCY POWER GENERATION for the ERIE VAMC	562-13-112	Office of Construction and Facilities Management
		Building Number: 1	
Approved: Project Director	Location: 135 E 38TH ST, ERIE, PA 16504	Drawing Number: H001	Department of Veterans Affairs
	Date: 3/17/2016 / Checked: SPL / Drawn: SPL		

VA FORM 08-6231

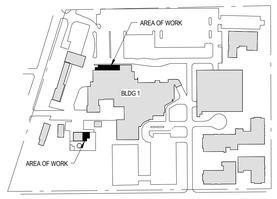


1 GENERATOR BUILDING DEMOLITION PLAN
1/8" = 1'-0"



ALTERNATE #1:
THE RTU FOR RM EE200 IS ADD ALTERNATE #1 (ALL WORK IN THIS VIEW). BASE SCOPE SHALL NOT HAVE ANY OF THIS WORK INDICATED. REFER TO GENERAL CONDITIONS SPECIFICATION FOR MORE INFORMATION.

2 ROOM EE200 DEMOLITION PLAN (ALTERNATE #1)
1/8" = 1'-0"



SITE KEY PLAN

PROJECT NORTH

FULLY SPRINKLERED CONSTRUCTION DOCUMENTS

Revisions:	Date

CONSULTANTS:

BARBER & HOFFMAN
215 EXECUTIVE DRIVE #202
CRANBERRY TWP, PA 16066

URBAN ENGINEERS, INC.
1 WILLIAMSBURG PLACE, SUITE 210
WARRENDALE, PA 15086

MOORE DESIGN ASSOCIATES
130 HEAVEN LANE
MARS, PA 16046

SEAL

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
SCOTT P. LIZOTTE
ENGINEER
PE041443

ARCHITECTS/ENGINEERS:

AE WORKS

6587 Hamilton Avenue
Pittsburgh, Pennsylvania 15206
Ph: 412.287.7333 Fax: 412.287.7334
www.ae-works.com

AE Works Project Number: 13045

Drawing Title
HVAC - GENERATOR BLDG AND ROOM EE200 DEMOLITION PLANS

Approved: Project Director

Project Title:
EXPAND EMERGENCY POWER GENERATION for the ERIE VAMC

Location:
135 E 38TH ST, ERIE, PA 16504

Date:	Checked:	Drawn:
3/17/2016	SPL	SPL

Project Number 562-13-112

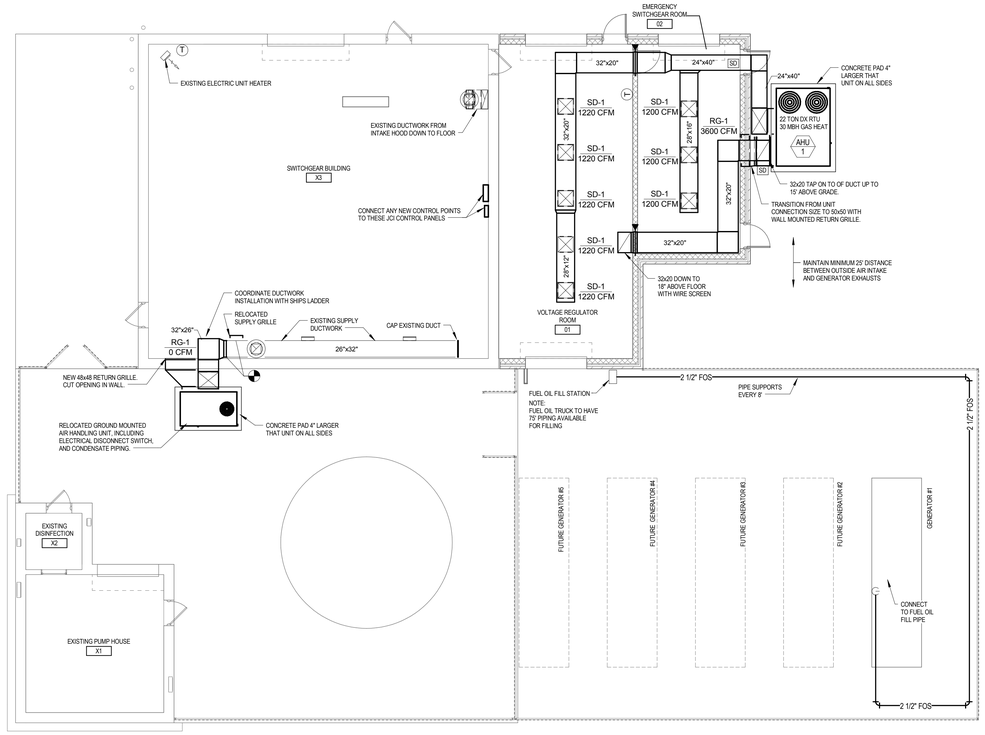
Building Number 1

Drawing Number HD101

Office of Construction and Facilities Management

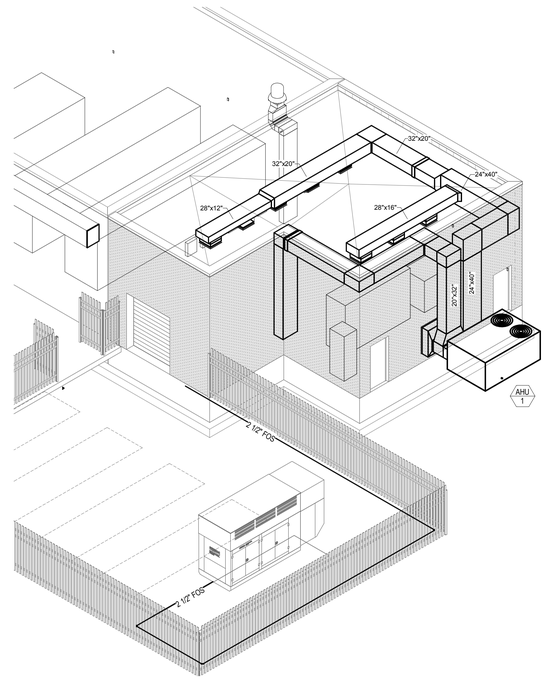
Department of Veterans Affairs

VA FORM 08-6231

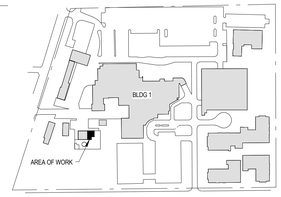


1 GENERATOR BUILDING NEW WORK PLAN

1/8" = 1'-0"



2 GENERATOR BUILDING - ISOMETRIC VIEW



SITE KEY PLAN

PROJECT NORTH

FULLY SPRINKLERED CONSTRUCTION DOCUMENTS

Revisions:	Date

CONSULTANTS:

BARBER & HOFFMAN
215 EXECUTIVE DRIVE #202
CRANBERRY TWP, PA 16066

URBAN ENGINEERS, INC.
1 WILLIAMSBURG PLACE, SUITE 210
WARRENDALE, PA 15086

MOORE DESIGN ASSOCIATES
130 HEAVEN LANE
MARS, PA 16046

SEAL

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
SCOTT P. LIZOTTE
ENGINEER
PE061443

ARCHITECTS/ENGINEERS:

AE WORKS

6587 Hamilton Avenue
Pittsburgh, Pennsylvania 15206
Ph: 412.287.7333 Fax: 412.287.7334
www.ae-works.com

AE Works Project Number: 13045

Drawing Title
HVAC - GENERATOR BLDG PLANS

Approved: Project Director

Project Title:
EXPAND EMERGENCY POWER GENERATION for the ERIE VAMC

Location:
135 E 38TH ST, ERIE, PA 16504

Date:	Checked:	Drawn:
3/17/2016	SPL	SPL

Project Number 562-13-112

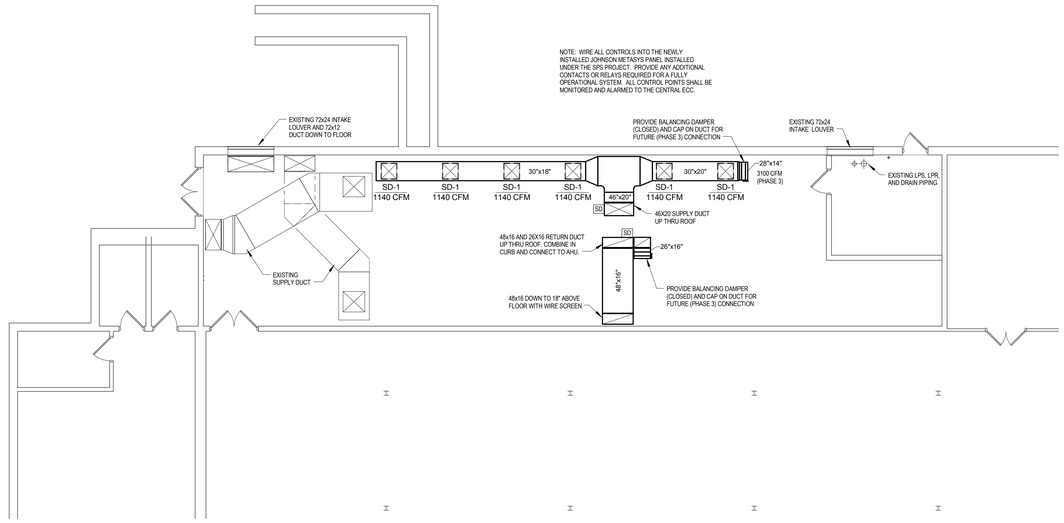
Building Number 1

Drawing Number H101

Office of Construction and Facilities Management

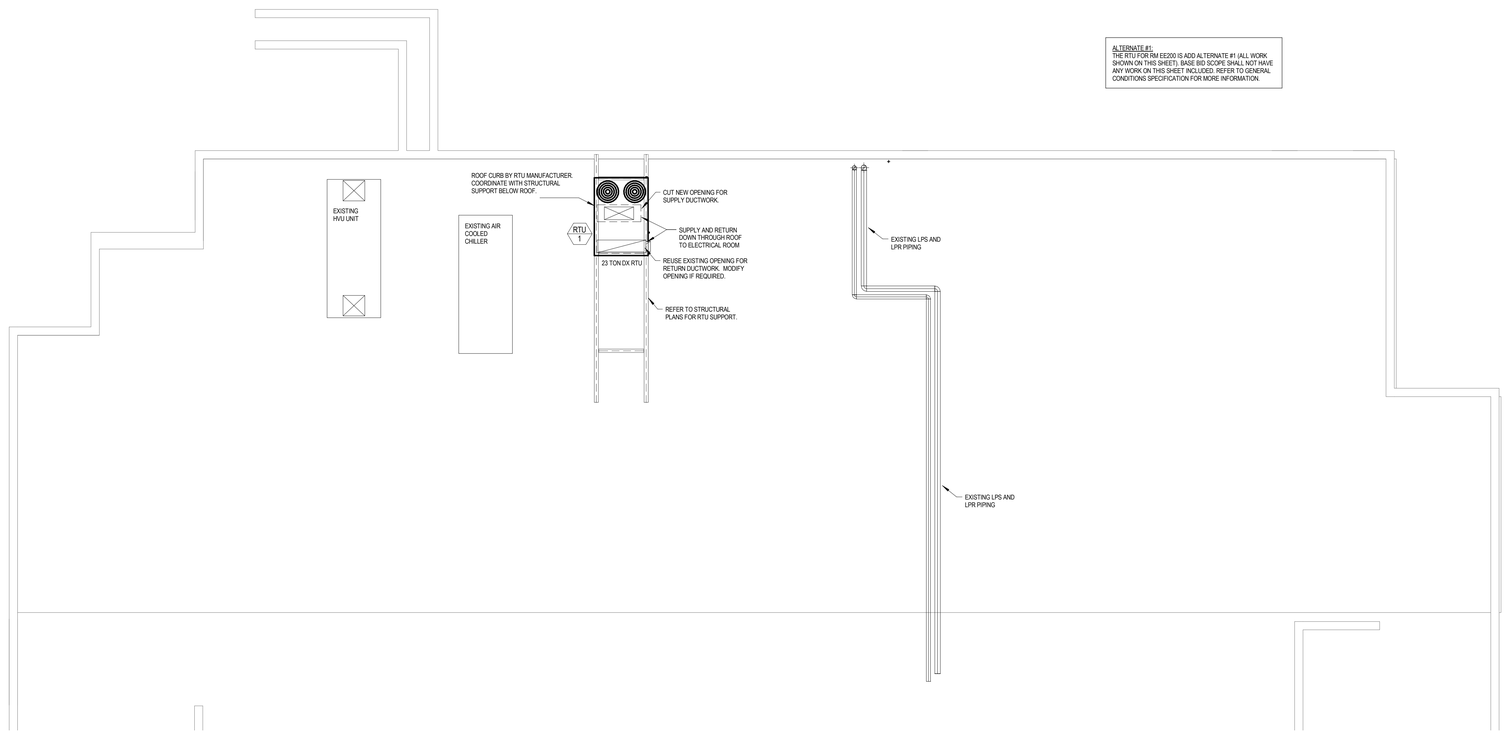
Department of Veterans Affairs

VA FORM 08-6231

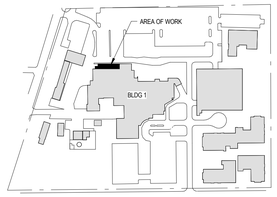


1 ROOM EE200 NEW WORK PLAN (ALTERNATE #1)
1/8" = 1'-0"

ALTERNATE #1:
THE RTU FOR RM EE200 IS ADD ALTERNATE #1 (ALL WORK SHOWN ON THIS SHEET). BASE BID SCOPE SHALL NOT HAVE ANY WORK ON THIS SHEET INCLUDED. REFER TO GENERAL CONDITIONS SPECIFICATION FOR MORE INFORMATION.



2 ROOM EE200 ROOF PLAN (ALTERNATE #1)
1/8" = 1'-0"



SITE KEY PLAN

PROJECT NORTH

FULLY SPRINKLERED CONSTRUCTION DOCUMENTS

Revisions:	Date

CONSULTANTS:

BARBER & HOFFMAN
215 EXECUTIVE DRIVE #202
CRANBERRY TWP, PA 16066

URBAN ENGINEERS, INC.
1 WILLIAMSBURG PLACE, SUITE 210
WARRENDALE, PA 15086

MOORE DESIGN ASSOCIATES
130 HEAVEN LANE
MARS, PA 16046

SEAL

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
SCOTT P. LIZOTTE
ENGINEER
PE061443

ARCHITECTS/ENGINEERS:

AE WORKS

6587 Hamilton Avenue
Pittsburgh, Pennsylvania 15206
Ph: 412.287.7333 Fax: 412.287.7334
www.ae-works.com

AE Works Project Number: 13045

Drawing Title
HVAC - ROOM EE200 PLANS (ALTERNATE #1)

Approved: Project Director

Project Title:
EXPAND EMERGENCY POWER GENERATION for the ERIE VAMC

Location:
135 E 38TH ST, ERIE, PA 16504

Date: 3/17/2016
Checked: SPL
Drawn: SPL

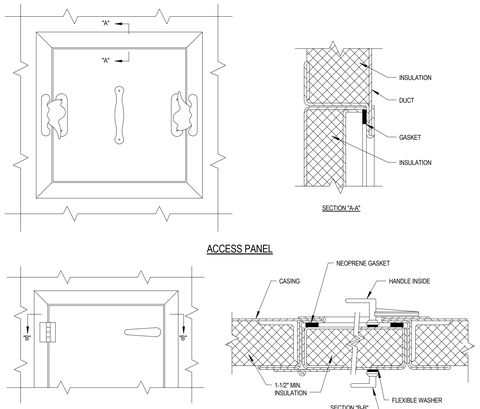
Project Number 562-13-112

Building Number 1

Drawing Number H102

Office of Construction and Facilities Management
Department of Veterans Affairs

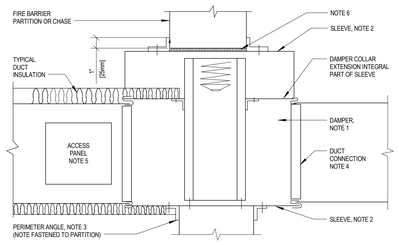
VA FORM 08-6231



NOTES:

1. LATCHES SHALL BE OF THE WEDGE TYPE TO CLOSE DOORS TIGHTLY.
2. HINGES ON THE ACCESS DOORS SHALL HAVE NON-CORROSIVE PINS.
3. SEE SMACNA 2005, FIGURE 9-15

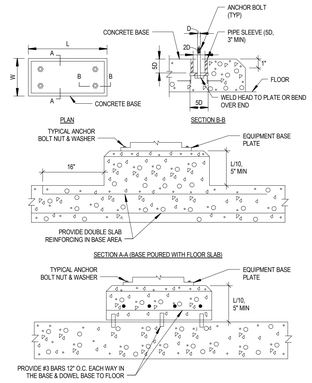
1 ACCESS PANEL & DOOR DETAIL
NTS



NOTE:

1. A VERTICAL DAMPER IS SHOWN. HORIZONTAL DAMPER INSTALLATION, 1S SIMILAR. FOLLOW DAMPER MANUFACTURER'S INSTRUCTIONS, INCLUDING FASTENER OPTIONS AND GAGES FOR SLEEVE AND PERIMETER ANGLES. FIRE DAMPERS MUST BE INSTALLED IN THE PARTITION OR FLOOR AND NOT OUTSIDE THE PENETRATION.
2. GALVANIZED SLEEVE: GAGE NOT LESS THAN CONNECTING DUCT. FASTEN SLEEVE TO DAMPER FRAME AND TO PERIMETER ANGLES.
3. PERIMETER ANGLES: GALVANIZED STEEL, NOT LESS THAN 1 1/2"x1 1/2" [40x40mm], 14 GAGE, TO PROVIDE 1" [25mm] MINIMUM OVERLAP OF OPENING ON ALL 4 SIDES.
4. BREAKAWAY DUCT CONNECTION: CONTRACTOR'S OPTION OF TYPES SHOWN IN SMACNA.
5. ACCESS PANELS: SIZE AND LOCATION TO PERMIT SERVICING THE FUSIBLE LINK OR LINKS.
6. PROVIDE 1/4" TO 1/2" [6 TO 15mm] CLEARANCE ON HEIGHT AND WIDTH. FILL OPEN SPACE WITH ROCK WOOL FIRESTOP FIBER.
7. ALL DUCT WORK RISERS WHICH ARE RUN EXPOSED, SUCH AS THRU ATTIC FLOORS AND MECHANICAL ROOM FLOORS, SHALL BE PROVIDED WITH 3" [75mm] HIGH CONCRETE CURB AROUND OPENING FOR DUCT.

2 SECTION THRU FIRE DAMPER INSTALLATION
NTS

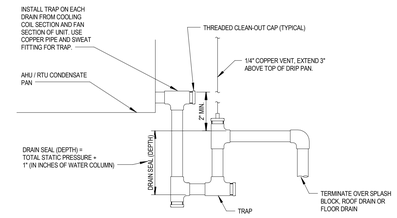


NOTES:
1) THIS DETAIL APPLIES TO EQUIPMENT NOT SPECIFIED TO BE MOUNTED ON SPRING ISOLATED BASES.

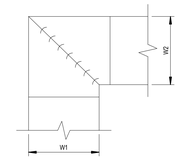
2) L&W DIMENSIONS SHALL BE 6" GREATER THAN THE EQUIPMENT BASE PLATE.

CONCRETE EQUIPMENT BASES

3 CONCRETE EQUIPMENT BASES
NTS



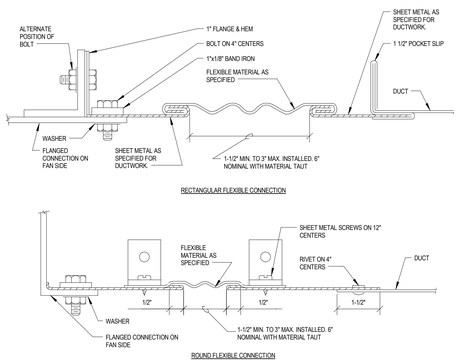
4 DRAIN CONNECTION FOR ROOFTOP UNITS
NTS



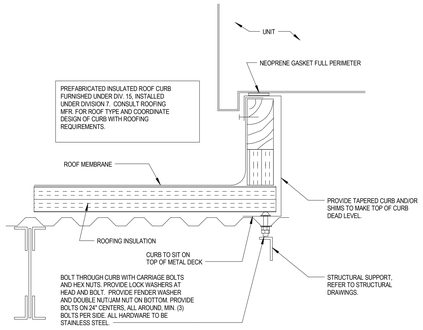
NOTES:

1. ALL VANE ELBOWS SHALL BE CONSTRUCTED AND INSTALLED AS DETAILED BY SMACNA.
2. WHEN W1 DOES NOT EQUAL W2, VANE SHALL BE SINGLE THICKNESS VANE TYPE REGARDLESS OF W DIMENSION.
3. ALL SINGLE THICKNESS VANES SHALL HAVE A 2" RADIUS. 1 1/2" MAXIMUM SPACE BETWEEN VANES AND A 3/4" TRAILING EDGE.
4. WHEN W EQUALS W2 AND W1 IS GREATER THAN 20" VANES SHALL BE DOUBLE VANE TYPE.

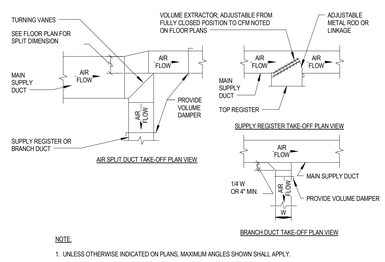
5 DUCTWORK SQUARE VANE ELBOWS
NTS



6 FLEXIBLE DUCT CONNECTIONS
NTS



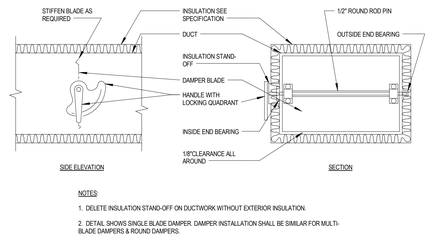
7 ROOFTOP UNIT CURB DETAIL
NTS



NOTE:

1. UNLESS OTHERWISE INDICATED ON PLANS, MAXIMUM ANGLES SHOWN SHALL APPLY.

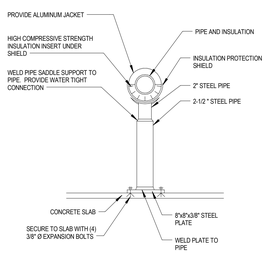
8 SUPPLY DUCTWORK TAKE-OFFS
NTS



NOTES:

1. DELETE INSULATION STAND-OFF ON DUCTWORK WITHOUT EXTERIOR INSULATION.
2. DETAIL SHOWS SINGLE BLADE DAMPER. DAMPER INSTALLATION SHALL BE SIMILAR FOR MULTI-BLADE DAMPERS & ROUND DAMPERS.

9 VOUME DAMPER
NTS



NOTES:
PROVIDE RESTRAINING CLAMPS 8'-0" O.C.

10 PIPE SUPPORT DETAIL
NTS

FULLY SPRINKLERED CONSTRUCTION DOCUMENTS

Revisions:	Date

CONSULTANTS:

BARBER & HOFFMAN
215 EXECUTIVE DRIVE #202
CRANBERRY TWP, PA 16066

URBAN ENGINEERS, INC.
1 WILLIAMSBURG PLACE, SUITE 210
WARRENDALE, PA 15086

MOORE DESIGN ASSOCIATES
130 HEAVEN LANE
MARS, PA 16046

SEAL

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
SCOTT P. LIZOTTE
ENGINEER
PE061443

ARCHITECTS/ENGINEERS:

AE WORKS

6587 Hamilton Avenue
Pittsburgh, Pennsylvania 15206
Ph: 412.287.7333 Fax: 412.287.7334
www.ae-works.com

AE Works Project Number: 13045

Drawing Title
HVAC DETAILS

Approved: Project Director

Project Title:
EXPAND EMERGENCY POWER GENERATION for the ERIE VAMC

Location:
135 E 38TH ST, ERIE, PA 16504

Date:	Checked:	Drawn:
3/17/2016	SPL	SPL

Project Number 562-13-112

Building Number 1

Drawing Number H501

Office of Construction and Facilities Management

Department of Veterans Affairs

VA FORM 08-6231

AIR-HANDLING UNIT SCHEDULE - DX COOLING & GAS HEATING

		DESIGN			SUPPLY FAN					FILTERS		COOLING COIL									NATURAL GAS HEATING COIL				ELECTRICAL DATA						BASIS OF DESIGN		
															EAT		LAT																
MARK	SERVICE	SUPPLY CFM	HEATING CFM	DESIGN OA CFM	MOTOR BHP	MOTOR HP	ESP (IN)	SUPPLY VFD QTY	RPM	MERV	MAX DP (IN W.C.)	TOTAL CAP (MBH)	SENS CAP (MBH)	MAX FACE VEL (FPM)	DB	WB	DB	WB	MAX APD (IN)	MIN EER	OUTPUT (MBH)	MAX FACE VEL (FPM)	EAT	LAT	APD (IN)	MCA	MOCP	VOLTAGE	PHASE	FREQ	WEIGHT (LB)	MANUFACTURER	MODEL	Remarks
AHU-1	VOLTAGE REGULATORS AND EMERGENCY POWER	9,700	9700 CFM	100 CFM	13.1 hp	15	0.90	1	1133	8	0.5	286.9 Btu/h	254.3 Btu/h	500 FPM	82 °F	65 °F	57 °F	55 °F	0.20 in-wg	10.10	108.0 Btu/h	500 FPM	68 °F	75 °F	0.20 in-wg	74 A	90 A	480 V	3	60 Hz	3200	CARRIER	48 LCE 026	

NOTES:
1. LOW AMBIENT KIT FOR WINTER COOLING
2. ROOF CURB
3. ECONOMIZER - SENSIBLE CONTROL
4. SINGLE POINT ELECTRICAL CONNECTION
5. POWERED EXHAUST
6. VARIABLE FREQUENCY DRIVE

ROOF TOP UNIT - HEAT PUMP (ALTERNATE #1)

		DESIGN			SUPPLY FAN					FILTERS		COOLING COIL									HEATING COIL					ELECTRICAL DATA						BASIS OF DESIGN		
															EAT		LAT																	
MARK	SERVICE	SUPPLY CFM	HEATING CFM	DESIGN OA CFM	RPM	ESP (IN)	MOTOR BHP	MOTOR HP	SUPPLY VFD QTY	MERV	MAX DP (FILTERS)	TOTAL CAP (MBH)	SENS CAP (MBH)	MAX FACE VEL (FPM)	DB	WB	DB	WB	MAX APD (IN)	MIN EER	OUTPUT (MBH)	MAX FACE VEL (FPM)	EAT	LAT	APD (IN)	MCA	MOCP	VOLTAGE	PHASE	FREQ	WEIGHT (LB)	MANUFACTURER	MODEL	Remarks
RTU-1	ROOM EE200	9,950	9950 CFM	150 CFM	958	1.00	7.3 hp	10	1	8	0.50 in-wg	258.0 Btu/h	242.0 Btu/h	500 FPM	82 °F	65 °F	57 °F	55 °F	0.20 in-wg	10.60	106.0 Btu/h	500 FPM	70 °F	80 °F	0.20 in-wg	111 A	125 A	208 V	3	60 Hz	2750	CARRIER	50 TCQD 24	

NOTES:
1. LOW AMBIENT KIT FOR WINTER COOLING
2. ECONOMIZER - SENSIBLE CONTROL
3. SINGLE POINT ELECTRICAL CONNECTION
4. SINGLE POINT ELECTRICAL CONNECTION
5. POWERED EXHAUST
6. VARIABLE FREQUENCY DRIVE

ALTERNATE #1:
THE RTU FOR RM EE200 IS ADD ALTERNATE #1. BASE BID SCOPE SHALL NOT HAVE ANY WORK REGARDING SHEET H102. REFER TO GENERAL CONDITIONS SPECIFICATION FOR MORE INFORMATION.

DIFFUSER, REGISTER, AND GRILLE SCHEDULE

TAG	SERVICE	TYPE	AIRFLOW RANGE	NECK SIZE (IN)	INTERNAL DAMPER	MATERIAL	NOTES	BASIS OF DESIGN	
								MANUF.	MODEL
SG-1	SUPPLY	DUCT MOUNTED	0-1300	24x24	YES	ALUMINUM	3/4" BLADE SPACING, DOUBLE DEFLECTION	TITUS	300 FL
RG-1	RETURN	SIDEWALL	0-3600	48x48	NO	ALUMINUM	3/4" BLADE SPACING, DOUBLE DEFLECTION	TITUS	350 FL

NOTES:
1. VERIFY LOCATION WITH LIGHTS, SPRINKLER HEADS, ETC.
2. COORDINATE AIR DEVICE FRAME TYPE AND MOUNTING WITH WALL TYPES INDICATED ON ARCHITECTURAL PLANS.

FULLY SPRINKLERED
CONSTRUCTION DOCUMENTS

Revisions: | Date

CONSULTANTS:

BARBER & HOFFMAN
215 EXECUTIVE DRIVE #202
CRANBERRY TWP, PA 16066

URBAN ENGINEERS, INC.
1 WILLIAMSBURG PLACE, SUITE 210
WARRENDALE, PA 15086

MOORE DESIGN ASSOCIATES
130 HEAVEN LANE
MARS, PA 16046

SEAL

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
SCOTT P. LIZOTTE
ENGINEER
PE041443

ARCHITECTS/ENGINEERS:

AE WORKS

6587 Hamilton Avenue
Pittsburgh, Pennsylvania 15206
Ph: 412.287.7333 Fax: 412.287.7334
www.ae-works.com

AE Works Project Number: 13045

Drawing Title: HVAC SCHEDULES

Approved: Project Director

Project Title: EXPAND EMERGENCY POWER GENERATION for the ERIE VAMC

Location: 135 E 38TH ST, ERIE, PA 16504

Date: 3/17/2016 | Checked: SPL | Drawn: SPL

Project Number: 562-13-112

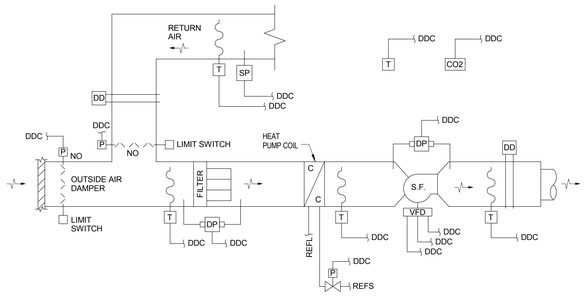
Building Number: 1

Drawing Number: H700

Office of Construction and Facilities Management

Department of Veterans Affairs

VA FORM 08-6231



1 AIR HANDLING UNIT CONTROLS
NTS

CONTROL DIAGRAM ABBREVIATIONS:

AFM	AIRFLOW MEASUREMENT STATION
CC	COOLING COIL
CO2	CARBON DIOXIDE SENSOR
CHWR	CHILLED WATER RETURN
CHWS	CHILLED WATER SUPPLY
DD	DUCT MOUNTED SMOKE DETECTOR
DDC	DIRECT DIGITAL CONTROLS (WIRE TO PANEL)
DP	DIFFERENTIAL PRESSURE
EF	EXHAUST FAN
H	HUMIDITY SENSOR
HC	HEATING COIL
HWR	HOT WATER RETURN
HWS	HOT WATER SUPPLY
LPS	LOW PRESSURE STEAM
LPR	LOW PRESSURE CONDENSATE RETURN
MSC	MOTORIZED DAMPER - FIRE/SMOKE
MPCR	MEDIUM PRESSURE CONDENSATE RETURN
MPS	MEDIUM PRESSURE STEAM
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
P	PNEUMATIC OPERATED ACTUATOR
RF	RETURN FAN
SF	SUPPLY FAN
SP	STATIC PRESSURE
SW	TEMPERATURE SWITCH
T	TEMPERATURE SENSOR
VFD	VARIABLE FREQUENCY DRIVE

1.1 SINGLE ZONE VAV AIR HANDLING UNIT CONTROL SEQUENCES

A. GENERAL. The following paragraphs describe control sequences for independent control loops for the air handling units. General Graphic Points:
1. Outside air temperature
2. Outside air humidity
3. Mixed air temperature
4. Low temperature alarm

B. SUPPLY FAN VFD SPEED CONTROL. The adjustable frequency drive shall be modulated to maintain space temperature at set point in cooling mode. In heating mode for units with gas heat the VFD shall modulate to a set value determined by T&B to provide the scheduled heating airflow. If the measured outside air flow falls below the minimum scheduled value and the dampers have modulated to the maximum outside air position, modulate the VFD to maintain outside airflow at set point. Provide the following additional control connections: binary input for VFD alarm, analog input for VFD speed monitoring, analog input for VFD kW power consumption. The kW power consumption shall be used for proof of flow. Graphic Points:
1. Supply Fan Start/Stop
2. VFD commanded speed
3. VFD speed feedback
4. VFD status
5. Amps/kW – Bar graph with marks identifying normal with new and loaded filters
6. Minimum SF Amps
7. Fan Proof of flow – Graphic showing fan rotating
8. Mixed Air Temperature
9. Low Temperature Alarm
10. Outside Airflow
11. Outside Airflow set point

C. DX COOLING AND HEATING COIL. The DX cooling coil shall be staged to maintain the supply air temperature of the air handling unit at set point. Set point varies based upon reset schedule. Provide a minimum setpoint value to prevent the user from lowering the supply air temperature below the designed value. Graphic Points:
1. Pre Heat Coil Leaving Air Temp if applicable, else Mixed Air Temperature
2. Supply Air Temperature
3. Supply Air Temperature Set Point
4. DX Stages Operating

E. OUTSIDE AIR & RETURN AIR DAMPERS: The outside air and return air dampers shall be modulated to maintain the outside air flow rate at the scheduled value during the occupied periods. The dampers shall actuate separately and not physically linked. On a need for additional outside air, the outside air damper shall open. Once it has reached 100% open, the return air damper shall modulate closed. The return air damper shall not be modulated closed more than 3% to maintain flow over the return air temperature sensors. Graphic Points:
1. Outside Airflow
2. Outside Airflow set point
3. Outside Air Damper commanded position
4. Outside Air Damper feedback
5. Return Air Damper commanded position
6. Return Air Damper feedback

F. FILTERS: Provide differential pressure sensors for all individual filter sections, pre and final. Contractor to record and include the 'clean' filter pressure drops as a displayed value. The 'dirty' pressure drop shall be twice the clean value. Graphic Points:
1. Current Filter Pressure Drop for Each Bank
2. Dirty Limit for Each Bank
3. Dirty Filter Alarm for Each Bank

G. ACTUATOR FEEDBACK. Provide BAS monitoring of position feedback of air handler valve and damper actuators. A feedback alarm shall be generated if the feedback differs from the commanded position by more than 15% for 5 minutes. Graphic points:
1. Commanded Position.
2. Position Feedback.
3. Feedback Alarm.

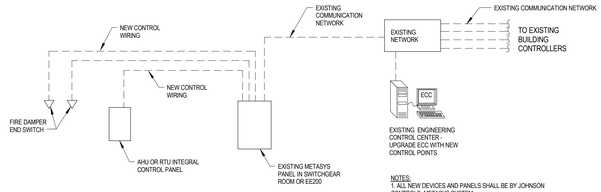
H. FIRE ALARM SHUTDOWN. Division 26 shall provide a fire alarm shut down relay to be installed in the AHU starter control circuit which shuts down the AHU on a call from the fire alarm system.

I. DUCT SMOKE DETECTORS. Duct smoke detectors shall be furnished by Division 26. Install duct smoke detectors in the supply and return duct (prior to any branch ducts) of air handling units with capacity greater than 2,000 cfm.

J. FREEZE PROTECTION – FREEZESTAT. A low temperature cutoff type switch shall be used to stop the fan when the sensing element senses temperatures below the setpoint. The setpoint shall initially be 35F. The device shall be manually reset. The sensing element shall not be less than one linear foot per square foot of coil surface area. The sensing element shall be installed on the downstream side of the coil.

K. TRENDING. Set up the following trends for the AHU. For each trend group, provide trend durations as indicated.
1. Temperature Performance. Daily and Monthly
   a. Outside air temp
   b. Return air temp
   c. Mixed air temp
   d. Return air humidity
   e. Pre-heat coil leaving air temp
   f. Cooling coil leaving air temp

L. ALARMS. Provide low priority alarms for the following items in addition to the standard high and low priority alarms listed in the alarm requirements.
1. 'Low supply duct static pressure.' When the fan is on and the measured supply duct static pressure is more than 0.2" below the setpoint for more than 30 minutes.
2. 'High leaving cooling coil temperature' when the leaving refrigerant temperature is higher than 64°F for more than 30 minutes, and the compressor is enabled.



NOTES:
1. ALL NEW DEVICES AND PANELS SHALL BE BY JOHNSON CONTROLS, METASYS SYSTEM.

2. THE NEW EQUIPMENT AND DEVICES SHALL BE WIRED BACK TO THE EXISTING CONTROL PANEL IN THE SWITCHGEAR ROOM. THIS PANEL IS CONNECTED TO THE EXISTING CENTRAL BAS ECC.

3. ALL NEW MONITORING AND ALARMS SHALL BE READABLE AND ADDRESSIBLE FROM THE ECC

4. ANY NEW VISUAL ALARMS SHALL BE INSTALLED AT THE BOILER PLANT FOR 24 HR MONITORING.

5. ALL DEVICES OR RELAYS REQUIRED TO TIE INTO THE EXISTING METASYS SYSTEM SHALL BE PROVIDED FOR A FULLY OPERATING SYSTEM.

2 CONTROLS CONNECTION TO EXISTING DIAGRAM
NTS

FULLY SPRINKLERED
CONSTRUCTION DOCUMENTS

Revisions: | Date

CONSULTANTS:

BARBER & HOFFMAN
215 EXECUTIVE DRIVE #202
CRANBERRY TWP, PA 16066

URBAN ENGINEERS, INC.
1 WILLIAMSBURG PLACE, SUITE 210
WARRENDALE, PA 15086

MOORE DESIGN ASSOCIATES
130 HEAVEN LANE
MARS, PA 16046

SEAL

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
SCOTT P. LIZOTTE
ENGINEER
PE041443

ARCHITECTS/ENGINEERS:

AE WORKS

6587 Hamilton Avenue
Pittsburgh, Pennsylvania 15206
Ph: 412.287.7333 Fax: 412.287.7334
www.ae-works.com

AE Works Project Number: 13045

Drawing Title
HVAC CONTROL DIAGRAM

Approved: Project Director

Project Title:
EXPAND EMERGENCY POWER GENERATION for the ERIE VAMC

Location:
135 E 38TH ST, ERIE, PA 16504

Date: 3/17/2016
Checked: SPL
Drawn: SPL

Project Number 562-13-112
Building Number 1
Drawing Number H801

Office of Construction and Facilities Management
Department of Veterans Affairs

VA FORM 08-6231

ABBREVIATION LEGEND

&	AND
A	AIR (CLINICAL)
AAP	ALARM ANNUNCIATOR PANEL
AAV	AUTOMATIC AIR VENT
AB	ANCHOR BOLT
ABV	ABOVE
ACC DR	ACCESS DOOR
ACFL	ACCESS
ACOUS	ACOUSTICAL
ACT	ACOUSTICAL CEILING TILE
AD	AREA DRAIN
ADA	AMERICAN DISABILITIES ACT
ADD	ADDENDUM
ADDL	ADDITIONAL
ADJ	ADJUSTABLE
ADMIN	ADMINISTRATION
AFF	ABOVE FINISH FLOOR
AFG	ABOVE FINISHED GRADE
AFMD	AIR FLOW MEASURING DEVICE
AHU	AIR HANDLING UNIT
AL	ALIGN
ALT	ALTERNATE
ALUM	ALUMINUM
AMP	AMPERE
AP	ACCESS PANEL
APC	ARCHITECTURAL PRECAST CONCRETE
APPROX	APPROXIMATE
ARCH	ARCHITECTURAL
ASY	ASYMMETRIC
ATC	AUTOMATIC TEMPERATURE CONTROL
ATS	AUTOMATIC TRANSFER SWITCH
AUTO	AUTOMATIC
AWT	AVERAGE WATER TEMPERATURE
BAT	BATTERY
BC	BALANCING COCK OR BARE COPPER
BDD	BACKDRAFT DAMPER
BFC	BELOW FINISH CEILING
BFE	BOTTOM FOOTING ELEVATION
BFG	BELOW FINISHED GRADE
BG	BUMPER GUARD
BLDG	BUILDING
BLKG	BLOCKING
BLT	BORROWED LIGHT
BLW	BELOW
BM	BEAM
BO	BY OWNER
BOF	BY OWNER FUTURE
BOT	BOTTOM
BR	BRICK
BRG	BEARING
BRKR	BREAKER
BSMT	BASEMENT
BTWN	BETWEEN
BUR	BUILT UP ROOFING
C	CONDUIT
CAB	CABINET
CANTL	CANTILEVER
CAP	CAPACITY
CATV	CABLE TELEVISION
CCT	CUBICLE CURTAIN TRACK
CCTV	CLOSED CIRCUIT TELEVISION
CFH	CUBIC FEET / HOUR
CFM	CUBIC FEET / MINUTE
CH	CHANNEL
CHK V	CHECK VALVE
CHWR	CHILLED WATER RETURN
CHWS	CHILLED WATER SUPPLY
CHWS&R	CHILLED WATER SUPPLY AND RETURN
CJ	CONTROL JOINT
CKT	CIRCUIT
CKT BRKR	CIRCUIT BREAKER
CL	CENTERLINE
CLG	CEILING
CLG MTD	CEILING MOUNTED
CLR	CLR
CMU	CONCRETE MASONRY UNIT
CO	CLEAN OUT
COL	COLUMN
COMM	COMMUNICATION
CONC	CONCRETE
CONN	CONNECTION
CONST	CONSTRUCTION
CONT	CONTINUE / CONTINUOUS
CONTR	CONTRACTOR
CONV	CONVECTOR
COORD	COORDINATE
CORR	CORRIDOR
CPT	CARPET OR CONTROL POWER TRANSFORMER
CT	CERAMIC TILE
CTR	CENTER
CU	COPPER
CV	CONTROL VALVE
CW	COLD WATER
D	DEPTH OR DEEP
DB	DRY BULB
dB	DECIBEL
DCW	DOMESTIC COLD WATER
DEMO	DEMOLITION
DEPT	DEPARTMENT
DET	DETAILS
DF	DRINKING FOUNTAIN
DHW	DOMESTIC HOT WATER
DIA	DIAMETER
DIAG	DIAGONAL OR DIAGRAM
DIFF	DIFFUSER
DIM	DIMENSION
DISC	DISCONNECT
DISCH	DISCHARGE
DISP	DISPENSER
DIST	DISTRIBUTION
DIV	DIVISION
DL	DOWN LIGHT
DN	DOWN
DP	DISTRIBUTION PANEL
DPR	DAMPER
DR	DRAIN
DS	DOWNSPOUT
DWG	DRAWING
DX	DIRECT EXPANSION
EA	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
EC	ELECTRICAL CONTRACTOR
EDB	ENTERING DRY BULB
EF	EXHAUST FAN
EIFS	EXTERIOR INSULATION AND FINISHING SYSTEM
EJ	EXPANSION JOINT
EL	ELEVATION
ELEC	ELECTRICAL

ELEC CAB	ELECTRICAL CABINET
ELEV	ELEVATOR
EMER	EMERGENCY
ENCL	ENCLOSURE
ENTR	ENTRANCE
EO	ELECTRICAL OUTLET
EQ	EQUAL
EQUIP	EQUIPMENT
ETR	EXISTING TO REMAIN
EWB	ENTERING WET BULB
EWC	ELECTRIC WATER COOLER
EWT	ENTERING WATER TEMPERATURE
EX	EXAUST AIR
EXH	EXHAUST
EXIST	EXISTING
EXP	EXPANSION
EXT	EXTERIOR
XP	EXPLOSION PROOF
F/S	FIRE / SMOKE DAMPER
FA	FIRE ALARM
FAAP	FIRE ALARM ANNUNCIATOR PANEL
FACP	FIRE ALARM CONTROL PANEL
FAT	FINAL AIR TEMPERATURE
FB	FIRE BLANKET
FC	FLEXIBLE CONNECTION OR FOOTCANDLE
FD	FLOOR DRAIN OR FIRE DAMPER
FDN	FOUNDATION
FDV	FIRE DEPARTMENT VALVE
FE	FIRE EXTINGUISHER
FEC	FIRE EXTINGUISHER CABINET
FH	FIRE HOSE
FHC	FIRE HOSE CABINET
FHP	FULL HEIGHT PARTITION
FHV	FIRE HOSE VALVE
FIN	FINISH
FIXT	FIXTURE
FL	FLOW LINE
FLA	FULL LOAD AMPERES
FLASH	FLASHING
FLEX	FLEXIBLE
FLG	FLANGE
FLG C	FLANGE CONNECTION
FLR	FLOOR
FLUOR	FLUORESCENT
FP	FIRE PROOFING
FRMG	FRAMING
FS	FLOOR SINK
FSTOP	FIRESTOPPING
FT	FOOT / FEET
FT HD	FEET OF HEAD
FTC	FOOTCANDLES
FTG	FOOTING
FUR	FURRING
G	GAS OR ELECTRICAL GROUND
GA	GAUGE
GAL	GALLONS
GALV	GALVANIZED
GB	GRAB BAR
GC	GENERAL CONTRACTOR
GEN	GENERATOR
GENL	GENERAL
GFCI	GROUND FAULT CIRCUIT INTERRUPTOR
GL	GLASS
GLV	GLOBE VALVE
GND	GROUND
GPM	GALLONS PER MINUTE
GR	GRADE
GRAV	GRAVITY
GRD BM	GRADE BEAM
GV	GATE VALVE
GWB	GYPSUM BOARD
H	HIGH
HB	HOSE BIB
HC	HEATING CONTRACTOR
HDCP	HANDICAP
HDR	HEADER
HDW	HARDWARE
HID	HIGH INTENSITY DISCHARGE
HM	HOLLOW METAL
HORIZ	HORIZONTAL
HP	HORSE POWER
HPD	HIGH PRESSURE DRIP
HPF	HIGH POWER FACTOR
HR	HANDRAIL
HSKP	HOUSEKEEPING
HT	HEIGHT
HTG	HEATING
HTR	HEATER
HV	HIGH VELOCITY
HVAC	HEATING, VENTILATING, AIR CONDITIONING
HW	HOT WATER
HWD	HARD WOOD
HWR	HOT WATER RETURN
HWS	HOT WATER SUPPLY
HWS&R	HOT WATER SUPPLY AND RETURN
HZ	HERTZ
ID	INSIDE DIAMETER
IER	INVERTED ECCENTRIC REDUCER
IG	ISOLATED GROUND
IME	INSULATED METAL ENCLOSURE
IN	INCH
INCAND	INCANDESCENT
INCL	INCLUDED
INSUL	INSULATION
INT	INTERIOR
INTERL	INTERLOCK
INV	INVERT
ISO	ISOLATION
IVS	ISOLATED VALVE STATION
J-BOX	JUNCTION BOX
JST	JOIST
JT	JOINT
KO	KNOCK OUT
kVA	KILOVOLT AMPERE
kVAR	KILOVAR (REACTANCE)
kW	KILOWATT
kWH	KILOWATT HOUR METER
LAT	LEAVING AIR TEMPERATURE
LAV	LAVATORY
LB	POUND
LDB	LEAVING DRY BULB
LED	LIGHT EMITTING DIODE
LF	LINEAR FEET
LIN	LINEAR
LOC	LOCATION OR LOCATE
LPT	LOW POINT
LSDC	LINEAR SUPPLY DIFFUSER CEILING
LT	LIGHT

LTG	LIGHTING
LV	LOW VOLTAGE
LVR	LOUVER
LWB	LEAVING WET BULB
LWC	LINEAR WOOD CEILING
LWT	LEAVING WATER TEMPERATURE
MAN	MANUAL
MAT	MIXED AIR TEMPERATURE
MATL	MATERIAL
MAV	MANUAL AIR VENT
MAX	MAXIMUM
MBH	ONE THOUSAND BTU / HOUR
MC	MECHANICAL CONTRACTOR
MC	METAL CLAD CABLE
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MDP	MAIN DISTRIBUTION PANEL
MECH	MECHANICAL
MEMB	MEMBRANE
MET	METAL
MFR	MANUFACTURER
MH	MANHOLE
MIN	MINIMUM
MISC	MISCELLANEOUS
MLO	MAIN LUGS ONLY
MO	MASONRY OPENING
MOD	MOTOR OPERATED DAMPER
MONO	MONOLITHIC
MTD	MOUNTED
MTG HT	MOUNTING HEIGHT
MTL	METAL
MTLH	METAL HALIDE
MTR	MOTOR
MTS	MANUAL TRANSFER SWITCH
MV	MEDIUM VOLTAGE
N/A	NOT APPLICABLE
NEC	NATIONAL ELECTRIC CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURER ASSOCIATION
NIC	NOT IN CONTRACT
NL	NIGHT LIGHT
NO	NUMBER OR NORMALLY OPEN
NOM	NOMINAL
NTS	NOT TO SCALE
O	OXYGEN
OA	OUTSIDE AIR
OBD	OPPOSED BLADE DAMPER
OC	ON CENTER
OD	OUTSIDE DIAMETER
OPER	OPERATED
OPNG	OPENING
OPP	OPPOSITE
ORD	OVERFLOW ROOF DRAIN
PB	PULL BOX
PC	PLUMBING CONTRACTOR
PD	PUMP DISCHARGE
PG	PRESSURE GAUGE WITH COCK
PL	PROPERTY LINE
PLAM	PLASTIC LAMINATE
PLBG	PLUMBING
PNL	PANEL
PR	PAIR
PRD	PRESSURE DIFFERENTIAL VALVE
PRELIM	PRELIMINARY
PRT	PRESSURE TAP
PRV	PRESSURE REDUCING VALVE
PT	PAINT OR POTENTIAL TRANSFORMER
RO	ROUGH OPENING
QT	QUARRY TILE
R	RADIUS
RA	RETURN AIR / RELIEF AIR
RB	RUBBER BASE
RC	REMOVE COMPLETELY
RD	ROOF DRAIN
RE	RELOCATE EXISTING
REC	RECESSED
RECPT	RECEPTACLE
REF	REFERENCE
REFL	REFLECTOR
REG	REGISTER
REINF	REINFORCING
REM	REMOVE
REQD	REQUIRED
RET	RETURN
REV	REVISE
REX	REMOVE EXISTING
RF	RESILIENT FLOOR
RFI	REQUEST FOR INFORMATION
RGS	RIGID GALVANIZED STEEL CONDUIT
RH	ROOF HATCH
RM	ROOM
RN	REMOVE AND REPLACE WITH NEW
RR	REMOVE AND REPLACE
RS	RAPID START
RV	RELIEF VALVE
RWC	RAIN WATER CONDUCTOR
SA	SUPPLY AIR
SAN	SANITARY SEWER ABOVE GROUND
SAN-BXR	SANITARY SEWER - BURIED EXISTING TO REMAIN
SAN-XR	SANITARY SEWER ABOVE GROUND - EXISTING TO REMAIN
SCHED	SCHEDULE
SD	SMOKE DAMPER OR SMOKE DETECTOR
SDISP	SOAP DISPENSER
SF	SQUARE FOOT
SHT	SHEET
SHT MTL	SHEET METAL
SHTG	SHEATHING
SIM	SIMILAR
SM	SURFACE MOUNTED
SNC	SANITARY NAPKIN CABINET
SND	SANITARY NAPKIN DISPOSER
SP	STANDPIPE OR STATIC PRESSURE
SPC	SPECIMEN PASS-THRU CABINET
SPEC	SPECIFICATIONS
SPS	STATIC PRESSURE SENSOR
SR	SERVICE RECEPTOR
SS	SOIL STACK
ST PR	STATIC PRESSURE
ST STL	STAINLESS STEEL
STD	STANDARD
STER	STERILIZER
STL	STEEL
STOR	STORAGE
STR	STRAINER
STRUCT	STRUCTURAL
SUSP	SUSPENDED
SW	SWITCH

SWBD	SWITCHBOARD
SWGR	SWITCHGEAR
SYM	SYMMETRICAL TOP
T	TOP
TA	THROWAWAY
TAN	TANGENT
TC	TELECOMMUNICATIONS CONTRACTOR
TCV	TEMPERATURE CONTROL VALVE
TDV	TRIPLE DUTY VALVE
TEL	TELEPHONE
TEMP	TEMPERATURE
TER	TERRAZZO
TG	TONGUE & GROOVE
TH	THERMOMETER
THRES	THRESHOLD
TR	TEMPERATURE RISE
TRANS	TRANSITION
TRANSR	TRANSFORMER
TSTAT	THERMOSTAT
TV	TURNING VANES OR TELEVISION
TYP	TYPICAL
UC	UNDER CABINET OR UNDER CUT
UFD	UNDER FLOOR DUCT
UG	UNDERGROUND
UH	UNIT HEATER
UL	UNDERWRITER'S LABORATORIES
UNFIN	UNFINISHED
UNO	UNLESS NOTED OTHERWISE
UPS	UNINTERRUPTIBLE POWER SUPPLY
UTIL	UTILITY
V	VOLT
VAL	VALVE
VD	VOLUME DAMPER
VENT	VENTILATION
VERT	VERTICAL
VFS	VENTURI FLOW STATION
VIF	VERIFY IN FIELD
VL	VENT LINE
VR	VAPOR RETARDER
VS	VENT STACK
VTR	VENT THROUGH ROOF
W	WATT
W/	WITH
W/O	WITHOUT
WB	WET BULB
WC	WALL COVERING
WCL	WATER CLOSET
WD	WOOD
WF	WIDE FLANGE
WFMD	WATER FLOW MEASURING DEVICE
WG	WALL GUARD OR WATER GAUGE
WHCH	WHEEL CHAIR
WIN	WINDOW
WMS	WIRE MESH SCREEN
WP	WEATHERPROOF
WPS	WALL PROTECTION SYSTEM
WSCT	WAINSCOT
WT	WINDOW TREATMENT
WTD	WATER TEMPERATURE DROP
WWF	WELDED WIRE FABRIC
X	DEMO
XN	TO BE RELOCATED / NEW LOCATION
XR	EXISTING TO REMAIN
ZVB	ZONE VALVE BOX
ZVC	ZONE VALVE CABINET

ELECTRICAL SYMBOLS LEGEND

THIS IS A STANDARD SYMBOL LIST. ALL SYMBOLS MAY NOT APPEAR ON THIS PROJECT.

LIGHTING SYMBOLS

- FX 1 a — RECESSED MOUNTED TROFFER, (1X4, 2X2, 2X4) FX = FIXTURE TYPE (REFER TO LIGHTING FIXTURE SCHEDULE FOR DETAILS). 1 = CIRCUIT NUMBER (TO PANEL REFERRED TO IN PLANS) a = SWITCH GROUP.
- FX — RECESSED DOWNLIGHT, SURFACE MOUNTED, OR DECORATIVE PENDANT MOUNT FX = FIXTURE TYPE
- FX-Y — PENDANT MOUNTED LINEAR DIRECT/INDIRECT FX = FIXTURE TYPE, Y = FIXTURE LENGTH (REFER TO LIGHTING FIXTURE SCHEDULE FOR DETAILS)
- FX-Y — STRIP FIXTURE FX = FIXTURE TYPE, Y = FIXTURE LENGTH (REFER TO LIGHTING FIXTURE SCHEDULE FOR DETAILS)
- POLE MOUNTED LIGHT FIXTURE
- EX — LED EXIT SIGN, AND BATTERY BACKUP.
- EX — LED EXIT SIGN, WITH EMERGENCY HEADS, AND BATTERY BACKUP.
- BATTERY PACK EMERGENCY LIGHT
- DENOTES FIXTURE IS CONNECTED TO EMERGENCY POWER
- DENOTES AIMING DIRECTION OF LIGHT FIXTURE
- DENOTES WALL MOUNT ARM OF LIGHT FIXTURE

LIGHTING CONTROL SYMBOLS

- OS X — CEILING MOUNTED OCCUPANCY SENSOR, X INDICATES: D=DUAL TECHNOLOGY, P=PASSIVE INFRARED, U=ULTRA SONIC
- OS X — WALL MOUNTED OCCUPANCY SENSOR, X INDICATES: D=DUAL TECHNOLOGY, P=PASSIVE INFRARED, U=ULTRA SONIC (ARROWS INDICATE AIMING DIRECTION)
- DS — DAYLIGHT SENSOR
- PP — OCCUPANCY SENSOR POWER PACK, INSTALL IN A JUNCTION BOX ABOVE WALL SWITCH.
- PC — PHOTOCELL
- S X — WALL SWITCH, CONTROL: X=
  - 3: 3 WAY
  - 4: 4 WAY
  - P: PILOT LIGHT
  - M: MOTOR SWITCH
  - T: TIMER,
  - LV: LOW VOLTAGE (REFER TO LIGHTING DETAILS FOR BUTTON TYPES)
  - O1=SINGLE BUTTON DUAL TECH
  - O2=DOUBLE BUTTON DUAL TECH
  - V1=SINGLE BUTTON VACANCY
  - V2=DOUBLE BUTTON VACANCY
- GTD — UL924 EMERGENCY TRANSFER DEVICE

POWER SYMBOLS

- XX — DUPLEX RECEPTACLE IN A 4" SQUARE BOX WITH PLASTER RING (IN DRYWALL) SINGLE GANG BOX IN MASONRY. XX: WP=WEATHERPROOF, SS=SURGE SUPPRESSOR, GFI= GROUND FAULT INTERRUPTER, TR=TAMPER RESISTANT, S=SURFACE MTD
- XX — DOUBLE DUPLEX RECEPTACLE IN A 4" SQUARE BOX XX: WP=WEATHERPROOF, SS=SURGE SUPPRESSOR, GFI= GROUND FAULT INTERRUPTER, TR=TAMPER RESISTANT, S=SURFACE MTD
- SINGLE RECEPTACLE IN A 4" SQUARE BOX WITH PLASTER RING (IN DRYWALL) SINGLE GANG. BOX IN MASONRY.
- 50A — SPECIAL RECEPTACLE IN A 4" SQUARE BOX WITH NEMA CONFIGURATION INDICATED.
- STANCHION MOUNTED DEVICE
- COMBINATION POKE THRU DEVICE W/ (2) DUPLEX RECEPTACLES (REFER TO ET SERIES DRAWINGS FOR LOW VOLTAGE REQUIREMENTS)
- MULTI-SERVICE FLOOR BOX W/ (2) DUPLEX RECEPTACLES (REFER TO ET SERIES DRAWINGS FOR LOW VOLTAGE REQUIREMENTS)
- DOUBLE GANG BACKBOX W/ SINGLE GANG DEVICE RING. 1 1/4" EMT CONDUIT W/ PULL STRING TO ABOVE ACCESSIBLE CEILING
- NON-FUSED DISCONNECT SWITCH
- XX/YY/Z — FUSED DISCONNECT SWITCH (XX=SWITCH SIZE, YY=FUSE SIZE, Z=# OF POLES)
- COMBINATION MOTOR STARTER
- VFD — VARIABLE FREQUENCY DRIVE
- M XX — SINGLE PHASE MOTOR CONNECTION XX=HORSE POWER
- M XX — THREE PHASE MOTOR CONNECTION XX=HORSE POWER
- X — PUSHBUTTON: E=EMERGENCY STOP, A=AUTO DOOR PUSH BUTTON
- EXISTING / NEW — SURFACE MOUNTED ELECTRICAL PANELBOARD
- EXISTING / NEW — RECESSED MOUNTED ELECTRICAL PANELBOARD
- J — JUNCTION BOX - WALL MOUNTED
- J — JUNCTION BOX - CEILING OR EQUIPMENT MOUNTED
- GROUND PER NATIONAL ELECTRIC CODE
- WALL MOUNTED GROUND BUS BAR (COPPER)

ANNOTATION SYMBOLS

- 1 — DRAWING KEYNOTE - DEMOLITION
- 1 — DRAWING KEYNOTE - PLAN / ELEVATION NEW WORK
- 1 — EQUIPMENT TAG
- 2 — REVISION TRIANGLE WITH REVISION CLOUD
- INDICATED MOUNTED ABOVE COUNTERTOP (REFER TO STANDARD MOUNTING HEIGHTS DETAIL ON THIS SHEET)
- X - Y — RECEPTACLE TAG: X= PANEL NAME Y= CIRCUIT NUMBER

RISER DIAGRAM/SINGLE LINE SYMBOLS

- N E NE — AUTOMATIC TRANSFER SWITCH REFER TO DRAWINGS FOR AMPACITY, POLES, BYPASS, ETC.
- PANEL VOLTAGE AMPACITY MCB OR MLO — ELECTRICAL PANELBOARD REFER TO DRAWINGS FOR VOLTAGE, AMPACITY, CIRCUIT QUANTITY, RATINGS, AND SPECIAL FEATURES
- OR T — STEP-DOWN TRANSFORMER REFER TO DRAWINGS FOR VOLTAGE, SIZE, TYPE AND SPECIAL REQUIREMENTS
- TAG AMPACITY FSS NEMA — FUSED SAFETY SWITCH
- TAG AMPACITY NFSS NEMA — NON-FUSED SAFETY SWITCH
- TAG AMPACITY CB NEMA — ENCLOSED CIRCUIT BREAKER
- M — THREE PHASE MOTOR REFER TO DRAWINGS FOR VOLTAGE, SIZE, TYPE AND SPECIAL REQUIREMENTS
- M — SINGLE PHASE MOTOR REFER TO DRAWINGS FOR VOLTAGE, SIZE, TYPE AND SPECIAL REQUIREMENTS
- UTILITY METER, M, CT CABINET — UTILITY METER REFER TO DRAWINGS FOR VOLTAGE, SIZE, TYPE AND SPECIAL REQUIREMENTS
- XXXA — FUSED SWITCH
- NON-FUSED SWITCH
- XXXA — FUSED SWITCH W/ AUXILIARY CONTACTS
- NON-FUSED SWITCH W/ AUXILIARY CONTACTS
- XXXA/3P — MOLDED CASE CIRCUIT BREAKER
- XXXA/3P, ST — MOLDED CASE CIRCUIT BREAKER W/ SHUNT TRIP
- XXXA/3P, ST — MOLDED CASE CIRCUIT BREAKER W/ SHUNT TRIP & AUXILIARY CONTACT
- XXXA — FUSED DOUBLE THROW SWITCH
- XXXA, 52 — DRAW-OUT MEDIUM VOLTAGE CIRCUIT BREAKER
- XXXA/3P XXXAF LSIG — DRAW-OUT LOW VOLTAGE CIRCUIT BREAKER
- X, SIZE 1 FVNR — COMBINATION MOTOR STARTER

ELECTRICAL DEMOLITION

ETR EXISTING TO REMAIN - DEVICE SHALL REMAIN IN WORKING ORDER.

RN REMOVE AND REPLACE WITH NEW - EXISTING BACKBOX AND WIRING SHALL REMAIN, RECONNECT NEW DEVICE TO EXISTING CIRCUIT.

RR REMOVE AND RELOCATE - DISCONNECT DEVICE, MODIFY AND EXTEND FEED TO NEW LOCATION.

RC REMOVE COMPLETELY - REMOVE DEVICE, CONDUIT, AND WIRING BACK TO SOURCE.

EXISTING TO REMAIN
NEW WORK
DEMOLITION

UTILITY SHUTDOWNS

1. THIS PROJECT WILL REQUIRE SHUT-DOWNS TO THE NORMAL AND EMERGENCY POWER SYSTEM OF THE HOSPITAL, WHICH WILL REQUIRE SECOND OR THIRD SHIFT WORK, AS WELL AS WEEKEND WORK. THE CONTRACTOR SHALL COORDINATE THIS WORK WITH THE COR, AND PLAN HIS/HER WORK ACCORDINGLY.
2. COORDINATE TEMPORARY POWER TO ANY LOAD CENTERS DEEMED CRITICAL BY THE COR THAT WILL BE AFFECTED BY THE SHUT DOWN OF THE VARIOUS PIECES OF SWITCHGEAR TO TIE IN THE NEW LOADS ADDED IN THIS PROJECT.

   CONNECTION OF THE NEW GENERATOR INTO THE EXISTING EMERGENCY POWER SYSTEM SHALL REQUIRE A COORDINATED SHUTDOWN OF THE EMERGENCY POWER SYSTEM. COORDINATE SHUT DOWN WITH THE COR NO LESS THAN ONE MONTH IN ADVANCE, SUBMIT A WORKPLAN DETAILING THE PROPOSED SEQUENCE OF WORK FOR REVIEW AND SIGN OFF BY THE COR PRIOR TO SCHEDULING ANY WORK. DO NOT PROCEED WITHOUT WRITTEN NOTICE TO PROCEED FROM THE COR.

LABELING CONVENTION FOR PANELS, OUTLET COVERS, JUNCTION BOXES, DISCONNECTS AND GEAR.

XXX	B#	F#	P###	C###	P####
CODE	BLDG#	FLOOR#	PANEL#	CIRCUIT#	POINT# (IF APPLICABLE)

ALL LABELING SHALL BE WEATHER DURABLE, VISIBLE IN HIGH CONTRACT TO BACKGROUND COLOR. OUTDOOR LABELS SHALL BE ENGRAVED PLACARD OR APPROVED SUBSTITUTE. ALL CONDUIT LEAVING/ENTERING A JUNCTION BOX OR A STRUCTURAL PENETRATION SHALL HAVE A LABEL AS INDICATED ABOVE, WITHIN 36".

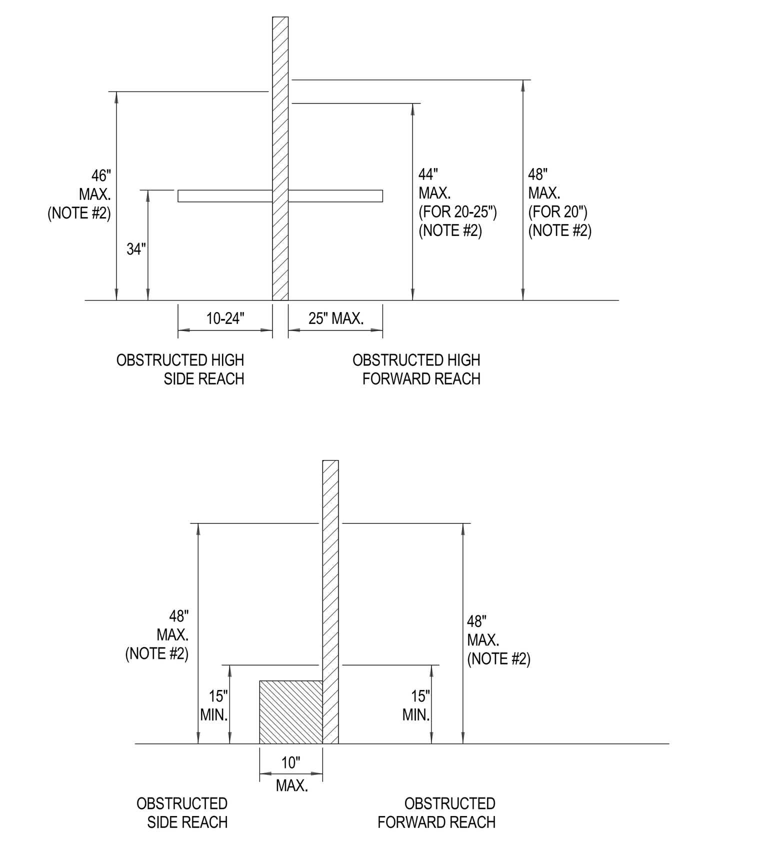
CODE:
LS - LIFE SAFETY
EE - ESSENTIAL EQUIPMENT
CC - CRITICAL CARE
N - NORMAL POWER

STANDARD MOUNTING HEIGHTS

CEILING	RECESSED LIGHTING FIXTURES, CEILING MOUNTED RECEPTACLES, INDICATING LIGHTS, ETC.
7'-0" A.F.F.	WALL MOUNTED LIGHTS IN STAIRS, MECH ROOMS, ETC.
6'-6" A.F.F.	TOP MOST PORTION OF OPERATING HANDLE OF DISCONNECT SWITCHES / CIRCUIT BREAKERS
6'-0" A.F.F.	TOP OF PANELBOARDS (<6'-0" TALL)
4'-0" A.F.F.	WALL SWITCHES, THERMOSTATS, CONTROL DEVICES, TO CENTER OF BOX
3'-6" A.F.F.	ABOVE COUNTER DEVICES, GFI RECEPTACLES IN RESTROOMS.
1'-5" A.F.F.	RECEPTACLES, FURNITURE FEEDS
0'-0"	IN FLOOR JUNCTION BOXES FLUSH TO FINISHED FLOOR (FF)

1. IN MASONRY CONSTRUCTION THE MOUNTING HEIGHTS SHALL BE USED FOR REFERENCE TO THE NEAREST BLOCK OR BRICK COURSING.
2. THE ABOVE MOUNTING ELEVATIONS ARE TO CENTER OF DEVICE AND SHALL BE ADHERED TO UNLESS SPECIFICALLY NOTED OR DETAILED OTHERWISE ON THE DRAWINGS AND/OR SPECIFICATIONS.
3. COORDINATE THE INSTALLATION AND MOUNTING ELEVATIONS OF ALL EQUIPMENT, DEVICES, CONTROLS AND APPURTENANCES WITH ARCHITECT AND ALL AFFECTED TRADES PRIOR TO INSTALLATION. DOCUMENT ALL MOUNTING ELEVATIONS FOR ALL EQUIPMENT, DEVICES, CONTROLS AND APPURTENANCES AT THE TIME OF SHOP DRAWING SUBMITTAL.

ADA INSTALLATION GUIDELINES



NOTES:
1. THESE GUIDELINES SHALL BE USED FOR THE INSTALLATION OF THE FOLLOWING DEVICES:
   - WALL SWITCHES
   - CONTROL SWITCHES
   - RECEPTACLES
   - VISUAL DISPLAY TOUCH PANELS
2. NOTE THAT THIS HEIGHT IS TO THE TOP-MOST PART OF THE DEVICE THAT AN OCCUPANT REQUIRES ACCESS TO.

WIRING CONVENTION

1. THE COMPLETE BRANCH WIRING SYSTEM IS NOT SHOWN ON THE DRAWINGS. AN ABBREVIATED FORMAT IS USED TO INDICATE WHICH FIXTURES / DEVICES ARE CONNECTED TO A COMMON CIRCUIT OR SWITCH. THIS IS PROVIDED AS A GUIDE TO THE CONTRACTOR TO ILLUSTRATE CIRCUITS AND CONTROL INTENT. ACTUAL WIRING MAY BE DIFFER DUE TO FIELD CONDITIONS.
2. ALL CIRCUITS SHALL CONTAIN AN INDIVIDUAL NEUTRAL WIRE. SHARING OF NEUTRALS IS PROHIBITED. ALL CIRCUITS SHALL CONTAIN AN INDIVIDUAL GROUND WIRE. USE OF THE CONDUIT SYSTEM FOR THE GROUND PATH IS PROHIBITED.
3. ALL CIRCUITS IN PATIENT AREAS SHALL HAVE A REDUNDANT GREEN GROUND CONDUCTOR. CONDUCTOR SHALL BE BONDED TO THE GROUND BUS IN THE PANELBOARD AND THE METAL BOX AT THE DEVICE PER NEC 517.
4. IF THE CONTRACTOR CHOOSES TO RUN MULTIPLE CURRENT CARRYING CONDUCTORS IN A COMMON CONDUIT, THE NEC DERATING RULES SHALL BE FOLLOWED, AND CONDUCTORS/CONDUIT SHALL BE UPSIZED ACCORDINGLY INCLUDING THE GROUND WIRE.
5. CONDUCTORS INSTALLED ON ROOFTOPS SHALL HAVE THEIR SIZES INCREASED PER NEC SECTION 310.15 DERATING FACTORS. UPSIZE CONDUCTORS AND CONDUIT ACCORDINGLY, INCLUDING THE GROUND WIRE.
6. CONDUCTOR SIZES ARE BASED ON NEC SECTION 310.16, 75 DEGREE C TEMPERATURE RATING, AND 90 DEGREE C LUGS.
7. COLOR CODING OF CONDUCTORS SHALL BE AS FOLLOWS (AS APPLICABLE):

120 / 208 VOLT SYSTEM	277 / 480 VOLT SYSTEM
PHASE A = BLACK	PHASE A = BROWN
PHASE B = RED	PHASE B = ORANGE
PHASE C = BLUE	PHASE C = YELLOW
NEUTRAL = WHITE	NEUTRAL = GREY
GROUND = GREEN	GROUND = GREEN

WIRING SYMBOLOGY

- HOMERUN TO PANELBOARD
- BRANCH CIRCUIT WIRING - INDICATES #12 CONDUCTORS UNLESS NOTED OTHERWISE
- UG — BRANCH CIRCUIT WIRING - INDICATES UNDERGROUND WIRING

GENERAL ELECTRICAL INSTALLATION NOTES:

1. THE FOLLOWING GENERAL NOTES AS LISTED BELOW SHALL APPLY TO ALL ELECTRICAL REQUIREMENTS AS INDICATED ON ALL E SERIES CONTRACT DRAWINGS.
2. THE CONTRACTOR IS RESPONSIBLE FOR THE ENTIRE DOCUMENT SET I.E. IF WORK SHOWN I.E. IF WORK IS SHOWN ON OTHER DRAWINGS AS "BY CONTRACTOR" THE CONTRACTOR IS RESPONSIBLE FOR THAT WORK.
3. DRAWINGS FOR THIS WORK ARE DIAGRAMMATIC AND INTENDED TO CONVEY THE EXTENT, GENERAL ARRANGEMENT AND LOCATIONS OF THE WORK. BECAUSE OF THE SCALE OF THE DRAWINGS, CERTAIN BASIC ITEMS SUCH AS ACCESS PANELS, CONDUITS, CABINET SIZES, PENETRATION SLEEVES, PULL BOXES, BACKBOXES AND JUNCTION BOXES MAY NOT BE SHOWN. INCLUDE ALL ITEMS WHERE REQUIRED BY CODE, MANUFACTURER AND RELATED SPECIFICATION SECTIONS FOR THE PROPER INSTALLATION OF ALL WORK.
4. DUE TO SCALE OF THE DRAWINGS, ALL ELECTRICAL DEVICE SYMBOLS ARE SHOWN ON DRAWINGS AS CLOSE AS POSSIBLE TO THEIR INTENDED LOCATION. CONTRACTOR SHALL COORDINATE IN THE FIELD THE PROPER INSTALLATION OF ALL EQUIPMENT, DEVICES, CONTROLS AND CONDUITS. REFER TO RELATED SPECIFICATION SECTIONS FOR ADDITIONAL REQUIREMENTS.
5. COORDINATE WITH ALL TRADES AND SYSTEM INTEGRATORS ANY CONDITIONS RELATED TO THE INSTALLATION OF ALL SYSTEMS. THE CONTRACTOR SHALL COORDINATE WITH THE APPROPRIATE TRADE ALL INSTALLATION REQUIREMENTS IMPACTING THE PLACEMENT OF ALL SYSTEM COMPONENTS TO THE SATISFACTION OF ALL CONCERNED TRADES.
6. COORDINATE EXACT LOCATION OF ALL DESK OR COUNTER MOUNTED EQUIPMENT WITH OWNER AND ARCHITECT AND ALL AFFECTED TRADES PRIOR TO THE INSTALLATION OF ANY EQUIPMENT AND/OR BOXES.
7. COORDINATE EXACT LOCATION(S) OF ALL DATA AND TELEPHONE OUTLETS, ELECTRICAL RECEPTACLES WITH THE ARCHITECTURAL PLANS, FURNITURE PLANS AND ALL AFFECTED TRADES PRIOR TO INSTALLATION.
8. ALL CONDUITS SHALL BE SIZED AND INSTALLED IN ACCORDANCE WITH NFPA 70 AND PROJECT SPECIFICATIONS. ALL CONDUITS SHALL BE A MINIMUM OF 3/4" UNLESS OTHERWISE NOTED.
9. PROVIDE ALL EQUIPMENT CLEARANCES IN ACCORDANCE WITH NEC REQUIREMENTS. ARRANGE EQUIPMENT TO FACILITATE UNRESTRICTED ACCESS FOR MAINTENANCE AND SERVICE AROUND ALL EQUIPMENT, COMPONENTS AND/OR CABLE TERMINATIONS.
10. WHERE EQUIPMENT AND/OR JUNCTION BOXES ARE INSTALLED ABOVE FINISHED CEILINGS, THE CONTRACTOR SHALL PROVIDE ACCESS HATCHES LISTED FOR THE INTENDED APPLICATION. ACCESS HATCHES SHALL BE LOCATED SO THAT SERVICE ACCESS TO THE EQUIPMENT AND/OR JUNCTION BOXES IS UNIMPEDED.
11. ALL PENETRATIONS OF WALLS AND/OR FLOORS SHALL BE FIRE STOPPED IN ACCORDANCE WITH THE ASTM AND NFPA REQUIREMENTS. REFER TO RELATED SPECIFICATION SECTIONS FOR ADDITIONAL INFORMATION. INSTALLATION OF FIRE-STOPS SHALL BE PERFORMED BY APPLICATOR/INSTALLER QUALIFIED AND TRAINED BY THE MANUFACTURER. INSTALLATION SHALL BE PERFORMED IN STRICT ACCORDANCE WITH MANUFACTURER'S DETAILED INSTALLATION PROCEDURES.
12. ALL EQUIPMENT ENCLOSURES LOCATED OUTSIDE OR IN ALL AREAS WITH HIGH MOISTURE OR A RELATIVE HUMIDITY OF 75% OR GREATER SHALL BE NEMA 4X STAINLESS STEEL AND RATED FOR THAT APPLICATION.
13. ALL DEVICES, COMPONENTS OR EQUIPMENT INSTALLED ON THE EXTERIOR OF THE FACILITY SHALL BE PROVIDED IN ACCORDANCE WITH ALL MANUFACTURERS' REQUIREMENTS TO ENSURE THE PROPER OPERATION WHEN EXPOSED TO THE ENVIRONMENTAL CONDITIONS AND/OR AVERAGE ANNUAL LOWEST TEMPERATURE THAT CAN BE ANTICIPATED FOR THE GEOGRAPHIC REGION OF THE FACILITY.
14. ALL INTERIOR AND/OR EXTERIOR COMPONENTS, DEVICES OR SYSTEMS EQUIPMENT EXPOSED TO THE GENERAL POPULATION SHALL BE INSTALLED IN SECURED EQUIPMENT ENCLOSURES WITH TAMPER SWITCHES AND INSTALLED IN SUCH A MANNER THAT RESISTS TAMPERING AND/OR REMOVAL WITHOUT THE USE OF SPECIALIZED TOOLS.
15. FOR EQUIPMENT INSTALLATIONS REQUIRING COORDINATION WITH OTHER TRADES THE CONTRACTOR SHALL PROVIDE ALL TEMPLATES, BACKBOXES AND EQUIPMENT ANCHOR BOLTS FOR MOUNTING OR FLUSH MOUNTING PREPARATION, (E.G. PEDESTALS OR OTHER DEVICES REQUIRING MOUNTING ON WALLS, CONCRETE PADS OR OTHER MATERIALS). COORDINATE DELIVERY OF TEMPLATES AND EQUIPMENT WITH ALL AFFECTED CONTRACTORS.
16. ALL ELECTRICAL WORK SHALL BE DONE IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE (LATEST VERSION BEING ENFORCED), AND ALL OTHER APPLICABLE CODES AND STANDARDS BEING ENFORCED BY THE AUTHORITY HAVING JURISDICTION.
17. THESE DRAWINGS DO NOT INCLUDE NECESSARY COMPONENTS OR INSTRUCTIONS FOR CONSTRUCTION SAFETY. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR ANY WORKMAN'S OR TRANSIENT'S SAFETY, OR FOR THE ADEQUACY OF EQUIPMENT, BUILDING COMPONENTS, WORK AIDS, OR ANY NECESSITY TO WORK ON ENERGIZED ELECTRICAL COMPONENTS. FURTHER, NO SUPERINTENDENCE IS INCLUDED OR IMPLIED.
18. ALL SYSTEMS AND EQUIPMENT SHALL BE INSTALLED AND WIRED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.
19. ALL ELECTRICAL MATERIALS, DEVICES, APPLIANCES, AND EQUIPMENT SHALL BE TESTED AND LISTED BY A NATIONALLY RECOGNIZED TESTING LABORATORY.
20. THE CONTRACTOR SHALL COORDINATE CONDUIT ROUTING (PLAN AND ELEVATION) WITH THE LIGHTING (NEW AND EXISTING), CEILING ELEVATION, STRUCTURE, DUCTWORK, PIPING, ETC. REQUIRED FOR THE COMPLETION OF THE PROJECT, PRIOR TO INSTALLATION.
21. THE CONTRACTOR SHALL SECURE AND PROTECT THE BUILDING AND/OR WORK AREA WITH FIRE RETARDANT TEMPORARY PLYWOOD PARTITIONS (WITH LOCKING DOORS), ETC. CLOSE ALL EXISTING OPENINGS AS REQUIRED. COORDINATE THIS WORK WITH THE OWNERS REPRESENTATIVE PRIOR TO STARTING. IF TEMPORARY PARTITIONS IMPEDE THE FLOW OF EGRESS TO REQUIRED EGRESS DOORS AND STAIRS, THE CONTRACTOR SHALL PROVIDE EXIT SIGNS, AND SIGNAGE INDICATING SUCH.
22. THE CONTRACTOR SHALL CAULK ALL JOINTS BETWEEN METAL FRAMES AND EXISTING CONDITIONS. THIS APPLIES TO BOTH INTERIOR AND EXTERIOR INSTALLATIONS.
23. THE DIMENSIONS SHOWN ON THE DRAWINGS ARE FOR THE CONVENIENCE OF THE CONTRACTOR ONLY. VERIFY ALL DIMENSIONS IN THE FIELD PRIOR TO PERFORMING ANY WORK.
24. THE CONTRACTOR SHALL INSTALL ALL CONDUITS CONCEALED UNLESS NOTED OTHERWISE. EXPOSED CONDUIT SHALL ONLY BE INSTALLED IN CHASES, EXPOSED CEILING AREAS, JANITOR CLOSETS, AND MECHANICAL/ELECTRICAL ROOMS.
25. ALL ELECTRICAL EQUIPMENT SHALL BE GROUNDED AND/OR BONDED PER THE REQUIREMENTS OF THE NATIONAL ELECTRIC CODE. PROVIDE ALL GROUNDING AND/OR BONDING COMPONENTS NOT EXPLICITLY SHOWN ON THE DOCUMENTS.
26. THE CONTRACTOR SHALL PROVIDE TYPEWRITTEN PANELBOARD DIRECTORIES, INDICATING THE LOADS SERVED BY THE RESPECTIVE PANELS. AMEND AS REQUIRED FOR AS-BUILT CONDITIONS. PROVIDE ELECTRONIC VERSIONS OF THE PANELBOARD SCHEDULES FOR FUTURE USE BY THE OWNER.
27. THE CONTRACTOR SHALL COORDINATE ALL WORK WITH THE OWNER PRIOR TO STARTING ALL PHASES OF THE PROJECT. THE CONTRACTOR SHALL COORDINATE WITH THE OWNER WHAT WORK, IF ANY, HAS TO BE COMPLETED DURING SECOND OR THIRD SHIFT.
28. THE CONTRACTOR SHALL PROVIDE ALL TEMPORARY POWER CONNECTIONS TO KEEP AREAS UP AND OPERATIONAL DURING THE CONSTRUCTION. THE CONTRACTOR SHALL COORDINATE THESE REQUIREMENTS WITH THE OWNER.
29. THE VERBIAGE ON THE DRAWINGS INDICATING TYPES OF MATERIALS TO BE ENCOUNTERED IS INTENDED TO AID THE ELECTRICAL CONTRACTOR IN UNDERSTANDING THE VARIOUS CONDITIONS LIKELY TO BE ENCOUNTERED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING QUANTITIES OF MATERIALS REQUIRED TO COMPLETE THE PROJECT.
30. THE LOCATIONS OF EXISTING UTILITIES, STRUCTURE AND OTHER CONDITIONS SHOWN ON THE PLANS ARE APPROXIMATE. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY AND REPORT ANY DISCREPANCIES TO THE ENGINEER PRIOR TO BEGINNING ANY WORK.
31. THE CONTRACTOR SHALL PROVIDE ALL NEW OPENINGS IN EXISTING PARTITIONS, EXTERIOR WALLS, FLOORS, AND ROOFS FOR THE INSTALLATION OF ANY NEW ELECTRICAL WORK. FURNISH AND INSTALL ALL REQUIRED LINTELS AND SLEEVES FOR THIS NEW WORK. ALL CONDUITS SHALL HAVE SLEEVES INSTALLED. ALL SLEEVES INSTALLED THROUGH EXTERIOR WALLS SHALL HAVE LINK SEALS INSTALLED.
32. THE CONTRACTOR SHALL PROTECT ALL EXISTING MATERIALS THAT ARE TO REMAIN IN PLACE FROM DAMAGE. ANY DAMAGE TO EXISTING FINISHES, MATERIALS, ETC., SHALL BE REPLACED BY THE CONTRACTOR TO MATCH THE ADJACENT FINISH.
33. THE CONTRACTOR SHALL MAINTAIN THE BUILDING IN WEATHERTIGHT AND WATERPROOF CONDITION THROUGHOUT THE DURATION OF THEIR WORK. DO NOT LEAVE HOLES THROUGH WALLS AND/OR ROOFS OPEN TO THE ELEMENTS WHEN NO WORK IS OCCURRING IN THOSE AREAS.
34. THE CONTRACTOR SHALL PROVIDE ALL TRAFFIC CONTROL, FLAGMEN, SIGNAGE, ETC. WHEN DOING WORK THAT INTERFERES WITH PUBLIC RIGHT-OF-WAY.
35. THE CONTRACTOR SHALL CONTACT THE NATIONAL "811-CALL BEFORE YOU DIG" SYSTEM PRIOR TO PERFORMING ANY UNDERGROUND INSTALLATION WORK. THE CONTRACTOR SHALL HAVE ALL UTILITIES VERIFIED IN AND AROUND THE EXCAVATION AREA.
36. THE CONTRACTOR SHALL GENERATE A DETAILED METHOD OF PROCEDURE (MOP) DOCUMENT INDICATING HOW HE/SHE INTENDS TO PERFORM EACH STEP IN THE PROJECT. THIS MOP SHALL BE PRESENTED TO THE OWNER AND ENGINEER PRIOR TO STARTING THE PROJECT, FOR SIGN OFF. THE MOP MAY BE REVISED BASED ON CHANGES IN THE PROJECT CONSTRUCTION, ETC. AT ALL POINTS IN THE PROJECT THE OWNER SHALL BE MADE AWARE OF CHANGES TO THE MOP, AND A REVISED MOP SHALL BE PRESENTED TO THE OWNER AND ENGINEER FOR SIGN OFF.

FULLY SPRINKLERED
CONSTRUCTION DOCUMENTS

Revisions: | Date

CONSULTANTS:

BARBER & HOFFMAN
215 EXECUTIVE DRIVE #202
CRANBERRY TWP, PA 16066

URBAN ENGINEERS, INC.
1 WILLIAMSBURG PLACE, SUITE 210
WARRENDALE, PA 15086

MOORE DESIGN ASSOCIATES
130 HEAVEN LANE
MARS, PA 16046

SEAL

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
SCOTT P. LIZOTTE
ENGINEER
PE061443

ARCHITECTS/ENGINEERS:

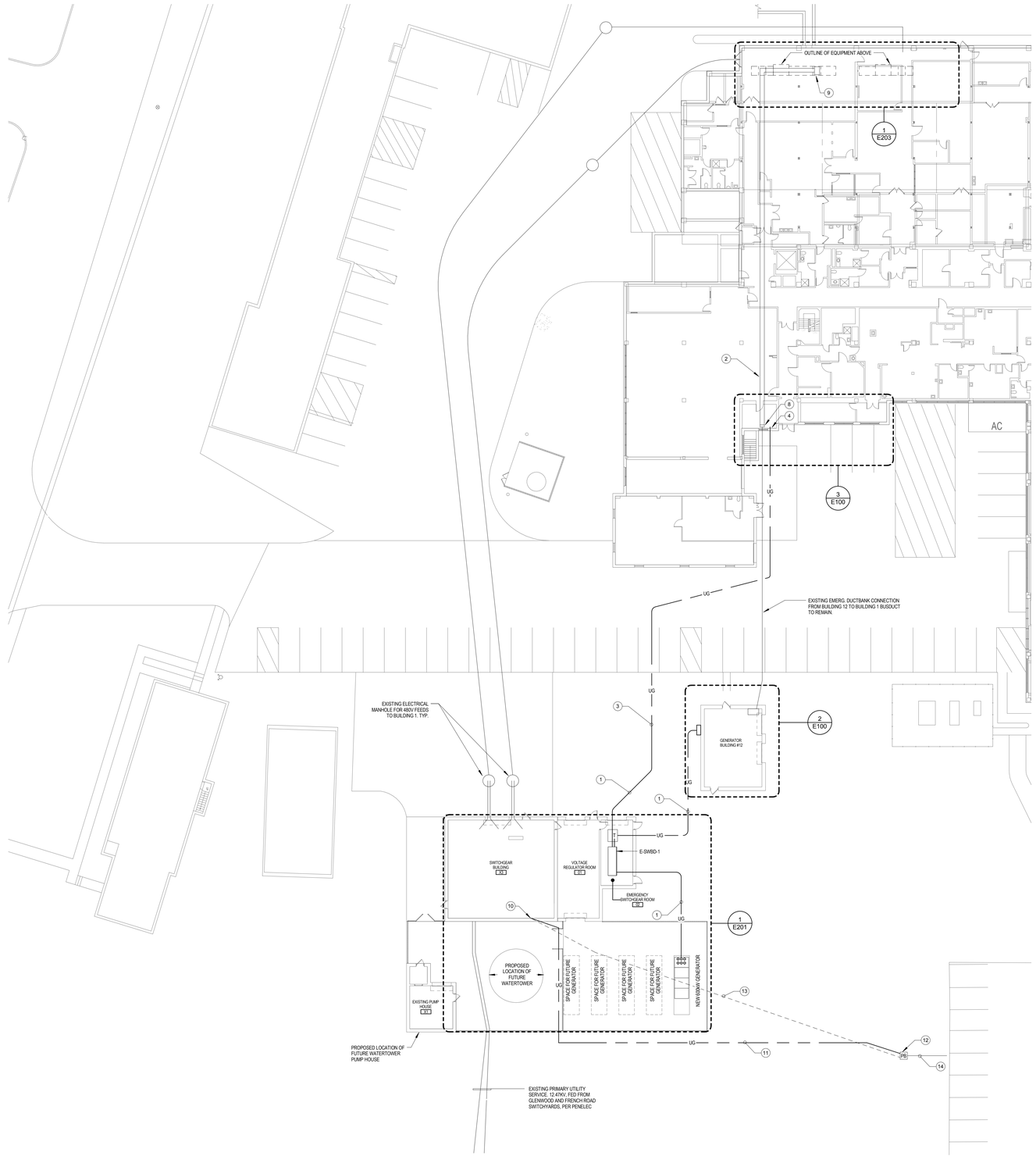
AE WORKS
6587 Hamilton Avenue
Pittsburgh, Pennsylvania 15206
Ph: 412.287.7333 Fax: 412.287.7334
www.ae-works.com
AE Works Project Number: 13045

Drawing Title	ELECTRICAL SYMBOLS, ABBREVIATIONS AND NOTES
Approved: Project Director	
Project Title:	EXPAND EMERGENCY POWER GENERATION for the ERIE VAMC
Location:	135 E 38TH ST, ERIE, PA 16504
Date:	3/17/2016
Checked:	TA
Drawn:	IT
Project Number	562-13-112
Building Number	1
Drawing Number	E001

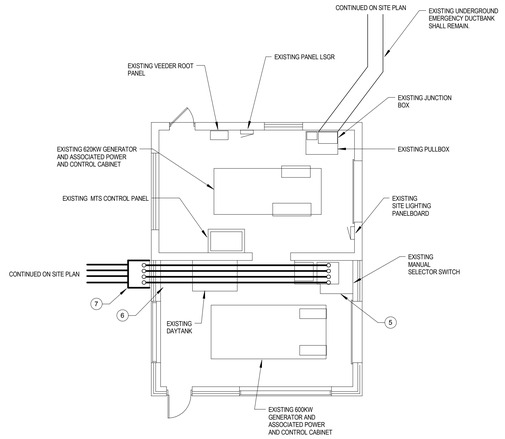
Office of Construction and Facilities Management

Department of Veterans Affairs

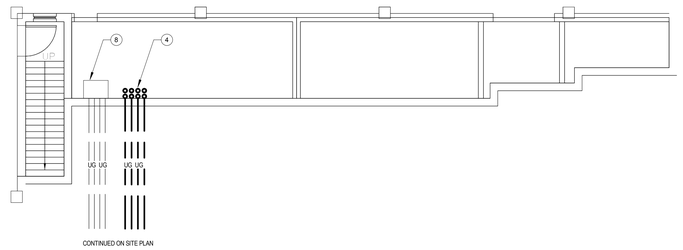
VA FORM 08-6231



1 ELECTRICAL SITE PLAN
1" = 20'-0"



2 BUILDING 12
1/8" = 1'-0"



3 BASEMENT BUILDING 1 ENLARGED
1/8" = 1'-0"

KEYNOTES:

1. REFER TO E201 FOR CONDUIT SIZING INFORMATION.

2. EXISTING TO REMAIN EMERGENCY BUSDUCT. APPROXIMATE ROUTE SHOWN.

3. NEW UNDERGROUND DUCT BANK TO BUILDING 1 FOR FUTURE TIE IN OF NEW EMERGENCY SWITCHBOARD TO EXISTING EMERGENCY BUSDUCT. PROVIDE CONDUIT AND PULLSTRINGS ONLY FOR POWER CONDUITS. PROVIDE INNERDUCTS AND PULL FIBRE FOR TELECOMS AS PER ES SERIES DRAWINGS. PROVIDE PULLSTRINGS IN SPARE INNERDUCTS.

4. STUB CONDUITS UP INSIDE AND CAP FOR FUTURE CONDUCTOR INSTALLATION. COORDINATE STUB UP LOCATION IN FIELD BASED ON EXISTING CONDITIONS.

5. PROVIDE PLAQUE STATING: "ADDITIONAL EMERGENCY GENERATOR LOCATED IN GENERATOR YARD AND CONNECTED TO SAME TRANSFER SWITCH TERMINAL AS <INSERT GENERATOR DESIGNATION>. TO CONNECT ADDITIONAL GENERATOR: LOCK OUT <INSERT GENERATOR DESIGNATION> AND CLOSE DISCONNECT LOCATED IN EMERGENCY POWER ROOM OF SWITCHGEAR BUILDING."

6. EXISTING 20A/120V BRANCH CIRCUIT FOR FUEL OIL PUMP CONFLICTS WITH NEW CONDUIT PENETRATION LOCATION. INTERCEPT CIRCUIT OUTSIDE OF CONDUIT ZONE AND REROUTE AROUND CONDUIT TO ENABLE INSTALLATION. EXTEND CIRCUITS BY METHODS COMPATIBLE WITH EXISTING CIRCUIT.

7. CONDUITS FROM GENERATOR TURN AND ENTER PULLBOX FROM BELOW. CONDUITS THEN RISE INSIDE BUILDING AND TURN TO HIGH LEVEL.

8. BUSDUCT CABLE TAP BOX. BUSDUCT RISES TO FIRST FLOOR AND RUNS HORIZONTALLY ON LEVEL 1 TO UNDERNEATH RM200.

9. EXISTING CABLE TAP BOX FOR CABLE ENTRY INTO RM200 ON FLOOR ABOVE.

10. EXISTING SITE LIGHTING CONDUIT CONFLICTS WITH NEW GENERATOR PAD LOCATION. INTERCEPT EXISTING SITE LIGHTING CIRCUITS AT A SUITABLE LOCATION INSIDE THE SWITCHGEAR BUILDING AND EXTEND VIA ROUTE SHOWN. FIELD VERIFY LIGHTING CIRCUIT REQUIREMENTS AND PROVIDE EXTENSIONS TO MATCH EXISTING INSTALLATION.

11. NEW 1" SCH80 PVC CONDUIT TO REFEED (3) THREE SITE LIGHTING CIRCUITS. PROVIDE #10 XHHW-2 CONDUCTORS.

12. PROVIDE NEW WEATHERPROOF PULLBOX TO SPLICE NEW CONDUCTORS INTO EXISTING CIRCUITS. COORDINATE PULLBOX LOCATION WITH SITE CONDITIONS. SEE E500 DETAIL 13 FOR MORE DETAIL.

13. REMOVE CONDUCTORS AND CONDUIT FOR PORTION OF SITE LIGHTING CIRCUIT INDICATED. CIRCUIT TO BE REROUTED AS PER KEYNOTE 11.

14. EXISTING TO REMAIN CONDUIT AND CONDUCTORS TO SITE LIGHTING.

GENERAL NOTES:

1. COORDINATE EQUIPMENT LOCATIONS WITH CIVIL DRAWINGS PRIOR TO ROUGH IN. WHERE EQUIPMENT IS LOCATED ON THESE DRAWINGS AND THE CIVIL DRAWINGS, THE CIVIL DRAWING LOCATIONS SHALL BE USED.

2. ALL EXTERIOR BRANCH CIRCUIT WIRING SHALL BE XHHW-2.

3. WHERE 120V BRANCH CIRCUITS ARE OVER 75', UPSIZE TO #10 WIRES. WHERE 120V BRANCH CIRCUITS ARE OVER 150', UPSIZE TO #8 WIRES. WHERE 277V BRANCH CIRCUITS ARE OVER 150', UPSIZE TO #10 WIRES. WHERE 277V BRANCH CIRCUITS ARE OVER 300', UPSIZE TO #8 WIRES.

4. BRANCH CIRCUIT CONDUITS FOR EXTERIOR EQUIPMENT SHALL BE 1" PVC

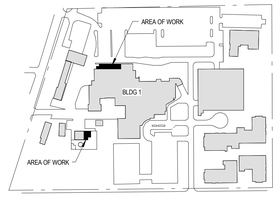
5. ALL CONDUIT RUNS UNDER ROADWAYS & HARDSCAPING SHALL BE CONCRETE ENCASED.

6. ALL NORMAL LIGHTING CIRCUITS SHOWN TO PANEL PBL1. ALL EMERGENCY LIGHTING CIRCUITS SHOWN TO PANEL EPBL1, ALL RECEPTACLES TO PANEL PBP1, U.O.N.

7. MANHOLE LOCATIONS APPROXIMATED FROM GOOGLE EARTH. DUCT BANK LOCATIONS NOT VERIFIED, ROUTE SHOWN IS TO IDENTIFY MANHOLE TO MANHOLE CONECTIVITY ONLY. FIELD VERIFY ALL EXISTING CONDITIONS WITHIN THE AREA OF WORK.

8. PROVIDE QTY OF PULLBOXES AS REQUIRED BY FIELD CONDITIONS TO EASILY PULL NEW CONDUCTORS.

9. REFER TO CALLED OUT ENLARGED PLANS FOR ADDITIONAL INFORMATION.



SITE KEY PLAN

PROJECT NORTH

FULLY SPRINKLERED CONSTRUCTION DOCUMENTS

Revisions:	Date

CONSULTANTS:

BARBER & HOFFMAN
215 EXECUTIVE DRIVE #202
CRANBERRY TWP, PA 16066

URBAN ENGINEERS, INC.
1 WILLIAMSBURG PLACE, SUITE 210
WARRENDALE, PA 15086

MOORE DESIGN ASSOCIATES
130 HEAVEN LANE
MARS, PA 16046

SEAL

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
SCOTT P. LIZOTTE
ENGINEER
PE061443

ARCHITECTS/ENGINEERS:

AE WORKS

6587 Hamilton Avenue
Pittsburgh, Pennsylvania 15206
Ph: 412.287.7333 Fax: 412.287.7334
www.ae-works.com

AE Works Project Number: 13045

Drawing Title
ELECTRICAL SITE PLAN

Approved: Project Director

Project Title:
EXPAND EMERGENCY POWER GENERATION for the ERIE VAMC

Location:
135 E 38TH ST, ERIE, PA 16504

Date:	Checked:	Drawn:
3/17/2016	TA	IT

Project Number 562-13-112

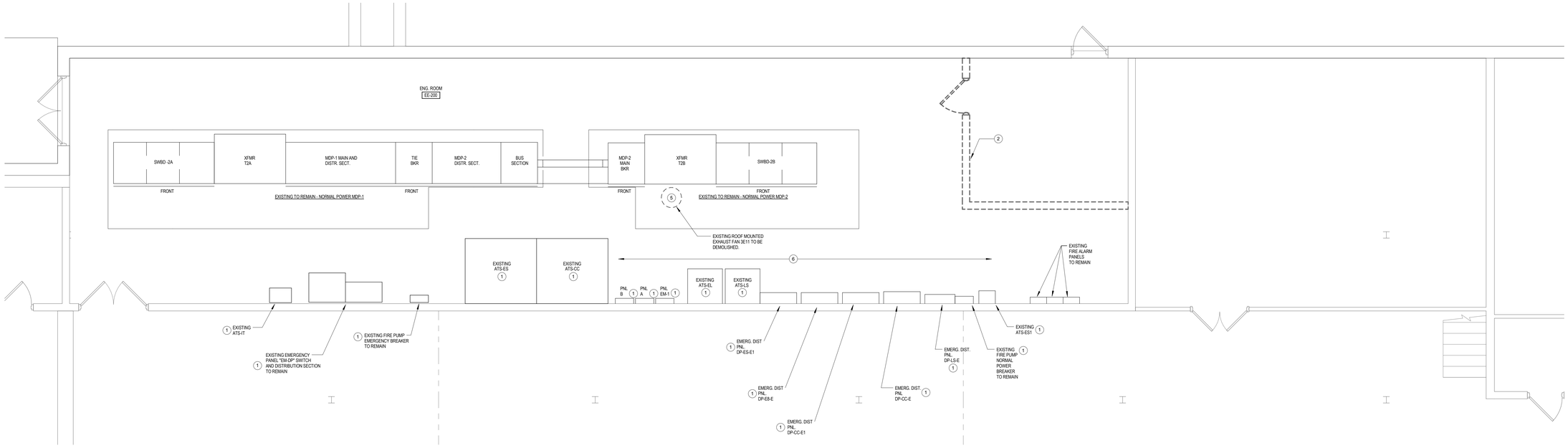
Building Number 1

Drawing Number E100

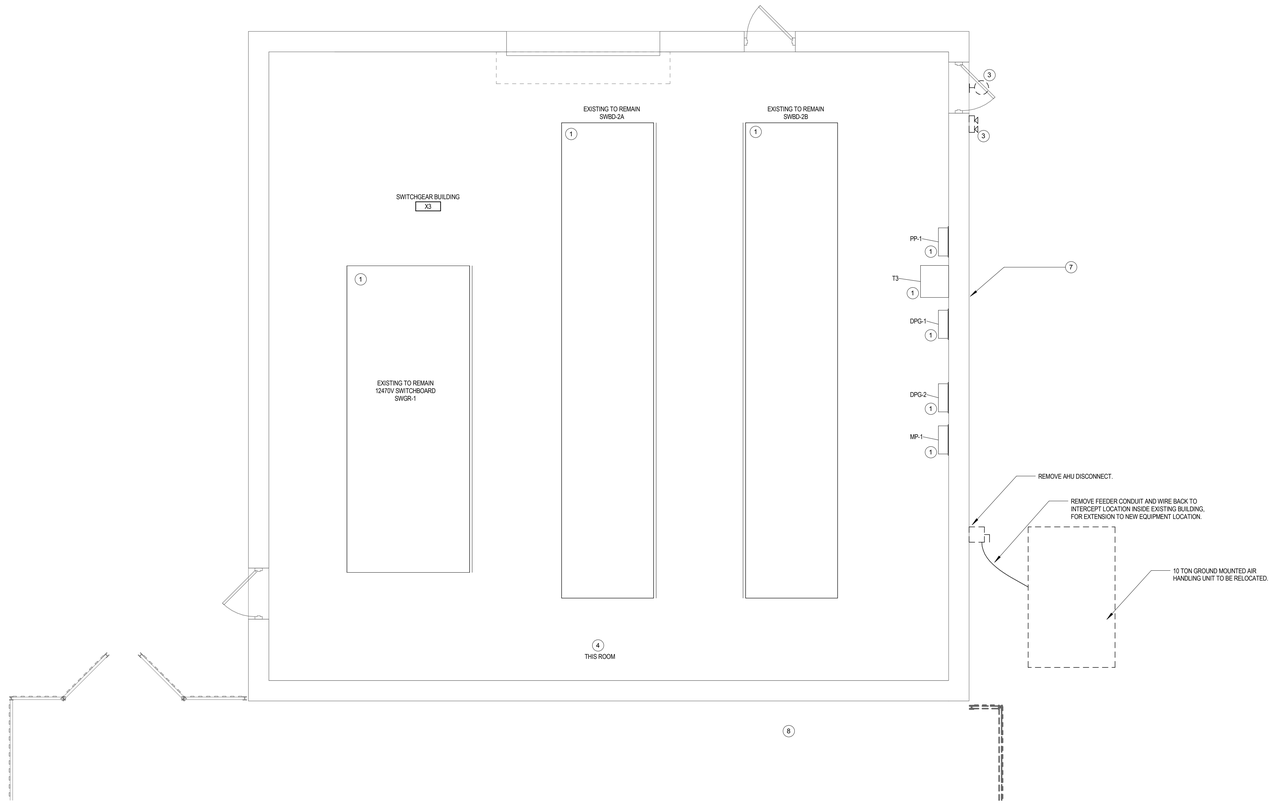
Office of Construction and Facilities Management

Department of Veterans Affairs

VA FORM 08-6231



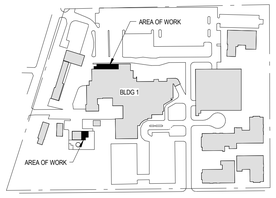
1 ROOM EE-200 - ELECTRICAL DEMOLITION
1/4" = 1'-0"



2 SWITCHGEAR BUILDING DEMOLITION PLAN - POWER
1/4" = 1'-0"

KEYNOTES

1. EXISTING TO REMAIN EQUIPMENT.
2. REMOVE ALL ELECTRICAL DEVICES FROM WALLS TO BE DEMOLISHED. WHERE DEVICES ARE REMOVED FROM A CIRCUIT NO LONGER IN USE, REMOVE ALL CONDUIT AND WIRING BACK TO THE PANEL/SOURCE. WHERE DEVICES ARE REMOVED FROM AN EXISTING TO REMAIN CIRCUIT, REPAIR CIRCUIT BY WIRING METHODS COMPATIBLE WITH THE EXISTING INSTALLATION. NO EXISTING TO REMAIN DEVICES ARE TO BE LEFT NON FUNCTIONAL.
3. REMOVE LIGHT FIXTURE, CONDUIT AND WIRE. REPAIR EXISTING LIGHTING CIRCUIT TO MAINTAIN OPERATION OF OTHER EXTERIOR LIGHT FIXTURES.
4. EXISTING LIGHTING, POWER, FIRE ALARM AND SECURITY DEVICES TO REMAIN.
5. EXISTING EXHAUST FAN TO BE DEMOLISHED. REMOVE CONDUIT AND WIRING BACK TO PANEL. REMOVE DISCONNECT, STARTERS AND OTHER ASSOCIATED ELECTRICAL DEVICES.
6. CRITICAL CARE, LEGALLY REQUIRED, ESSENTIAL AND OPTIONAL POWER FEEDERS AND LOADS ARE MIXED IN THIS ROOM. PHASE 3 (FUTURE) WORK SHALL INCLUDE SEPERATION OF FEEDERS AS PER NEC REQUIREMENTS, AS WELL AS DISCONNECTING AND MOVING LOADS TO THE CORRECT LOAD CENTER.
7. EXTERIOR WALL SHALL BECOME INTERIOR WALL OF SWITCHGEAR BUILDING ADDITION. REMOVE ALL EXTERIOR ELECTRICAL DEVICES SUCH AS EXTERIOR LIGHTING, EXTERIOR RECEPTACLES, HVAC DISCONNECTS AND REMOVE CIRCUITRY AND CONDUIT BACK TO THE PANELBOARD THEY ARE SERVED FROM.
8. REFER TO DRAWING E100 FOR ADDITIONAL SITE BRANCH CIRCUIT DEMOLITION NOT INDICATED ON THIS DRAWING.



SITE KEY PLAN

PROJECT NORTH

FULLY SPRINKLERED CONSTRUCTION DOCUMENTS

Revisions:	Date

CONSULTANTS:

BARBER & HOFFMAN
215 EXECUTIVE DRIVE #202
CRANBERRY TWP, PA 16066

URBAN ENGINEERS, INC.
1 WILLIAMSBURG PLACE, SUITE 210
WARRENDALE, PA 15086

MOORE DESIGN ASSOCIATES
130 HEAVEN LANE
MARS, PA 16046

SEAL

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
SCOTT P. LIZOTTE
ENGINEER
PE061443

ARCHITECTS/ENGINEERS:

AE WORKS

6587 Hamilton Avenue
Pittsburgh, Pennsylvania 15206
Ph: 412.287.7333 Fax: 412.287.7334
www.ae-works.com

AE Works Project Number: 13045

Drawing Title
ELECTRICAL DEMOLITION

Approved: Project Director

Project Title:
EXPAND EMERGENCY POWER GENERATION for the ERIE VAMC

Location:
135 E 38TH ST, ERIE, PA 16504

Date:	Checked:	Drawn:
3/17/2016	TA	IT

Project Number
562-13-112

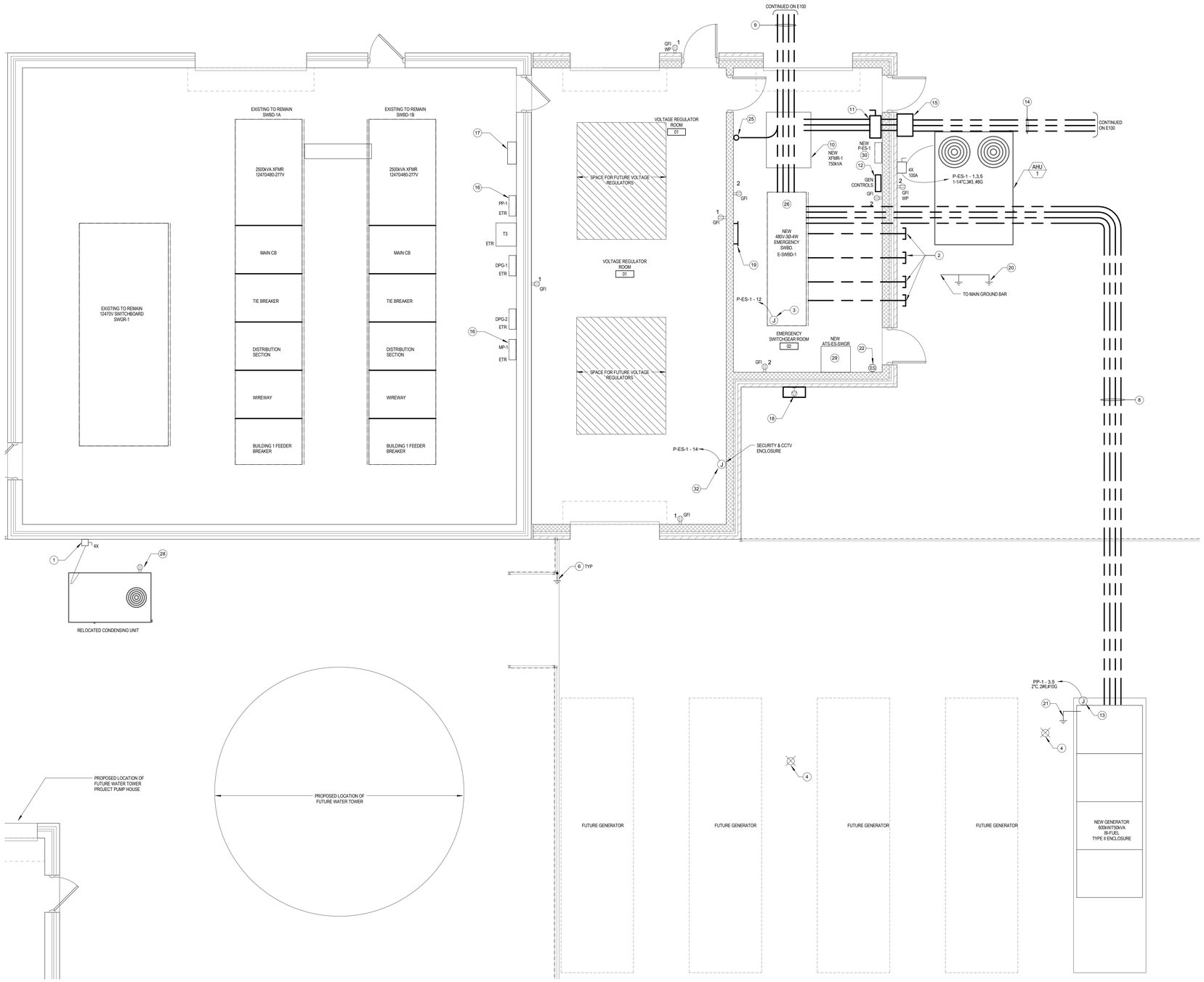
Building Number
1

Drawing Number
ED101

Office of Construction and Facilities Management

Department of Veterans Affairs

VA FORM 08-6231



1 PARTIAL ELECTRICAL SITE - POWER PLAN
1/4" = 1'-0"

KEYNOTES:

1. EXTEND WIRING FROM INTERCEPT LOCATION OF PREVIOUS LOCATION TO NEW LOCATION. PROVIDE FINAL EQUIPMENT CONNECTION & NEW 100A NEMA 3R DISCONNECT, LOCKABLE. FIELD VERIFY WIRE SIZE AND PROVIDE MATCHING CONDUCTORS. ASSUME 1-1/4"C,3#4,#8G.

2. 4 SETS OF (4) 4" CONDUITS (FEEDERS) STUBBED UP FOR CONNECTION TO FUTURE GENERATORS. STUB CONDUITS UP 18", CAP AND TAG.

3. SWITCHBOARD CONNECTION FOR INTEGRAL UPS SYSTEM. POWERS ELECTRICALLY OPERATED BREAKERS AND INTERLOCKING CONTROLS.

4. F3 FLOOD LIGHT AIMING POINT. AIM PEAK FIXTURE INTENSITY TO THIS POINT. REFER TO DETAIL 2 ON THIS SHEET FOR FIXTURE INFORMATION AND E500 DETAIL 12 FOR MOUNTING INFORMATION.

5. TYPE LV1 SWITCH CONTROLS F3 FLOOD LIGHTS. YARD LIGHTS TO TURN ON FOR 1 HOUR UPON PRESSING THE SWITCH. PROVIDE ENGRAVED SIGNAGE ABOVE SWITCH STATING "GENERATOR YARD FLOOD LIGHTS - 1 HOUR TIMER". LIGHTS TO BLINK 5 MINUTES PRIOR TO SHUTDOWN AS A WARNING. BASIS OF DESIGN AS PER WATT STOPPER TS-400 OR EQUAL.

6. GROUND NEW FENCE AS PER SPEC SECTION 260523 REQUIREMENTS

7. EMERGENCY BATTERY UNITS AND EXIT SIGN FIXTURES SHALL BE WIRED "HOT".

8. 4 SETS OF (4) 4" CONDUITS (FEEDERS) + (2) 2" CONDUITS (AUX & CONTROLS) FOR CONNECTION TO NEW GENERATOR. FEEDER CONDUITS TO STUB UP UNDER SWITCHBOARD. CONTROLS AND AUX CONDUITS TO STUB UP AGAINST INTERIOR WALL AND RISE TO HIGH LEVEL.

9. (8) 4" FEEDER CONDUITS +& (1)4" CONTROLS CONDUIT TO BUILDING 1 BUS DUCT TAP BOX LOCATION. (8) FEEDER AND (1) GENERATOR & ATS CONTROLS CONDUIT (SEE KEYNOTE 25 THIS SHEET).

10. 750kVA TRANSFORMER TO BE INSTALLED IN PHASE 1. RELOCATED IN FUTURE PHASE. UTILIZE OVERHEAD CABLING METHODS AND INSTALL CONDUIT WITH FUTURE REMOVAL IN MIND (DO NOT BLOCK IN BEHIND/ABOVE OTHER SYSTEMS WHEREVER POSSIBLE).

11. TRANSFORMER SECONDARY FUSED DISCONNECT SWITCH. FUSED AT 1600A. MOUNT WITHIN 25' SECONDARY CONDUCTOR LENGTH. PROVIDE UNISTRUT TO MOUNT BY TRANSFORMER IF REQUIRED. PROVIDE PLAQUE STATING "GENERATOR CONNECTED TO SHARED LUGS ON MANUAL TRANSFER SWITCH LOCATED IN BUILDING 12. LOCK OUT GENERATOR SHARING TRANSFER SWITCH LUGS IN BUILDING 12 PRIOR TO CLOSING THIS DISCONNECT.".

12. MASTER GENERATOR SYSTEM CONTROLLER. PANEL POWERED FROM GENERATOR 1 BATTERY CONNECTION. PROVIDE ALL INTERCONNECTING WIRING AS PER MANUFACTURERS INSTRUCTIONS.

13. 60A/3P GENERATOR AUXILIARY SYSTEMS CONNECTION. POWERS SPACE HEATER, CONTROLS AND BATTERY CHARGER.

14. 5 SETS OF 4" PVC CONDUITS TO TIE NEW GENERATOR INTO EXISTING MANUAL TRANSFER SWITCH IN BUILDING 12. SEE E602 FOR ADDITIONAL FEEDER INFORMATION.

15. CONDUITS TO EXIT BUILDING AT HIGH LEVEL, TURN AND ENTER PULLBOX. CONDUITS EXIT PULLBOX AND DROP INTO DUCTBANK AS SHOWN.

16. NEW CIRCUITS TO BE ADDED TO EXISTING PANELBOARD. PROVIDE BREAKERS COMPATIBLE WITH EXISTING INSTALLATION. CONTRACTOR TO FIELD SURVEY PANELBOARD PRIOR TO ORDERING EQUIPMENT. METER EXISTING PANELBOARD FOR 30 DAYS MINIMUM PRIOR TO ORDERING PANELBOARD EQUIPMENT. COMPLY WITH NEC 220.87 REQUIREMENTS.

17. EXISTING JOHNSON CONTROLS BMS PANEL. TIE GENERATOR CONTROLLER INTO BMS. COORDINATE GENERATOR CONTROLLER TO BMS POINT EXCHANGE WITH CONTROLS CONTRACTOR.

18. GENERATOR LOAD BANK CONNECTION POINT. WALL MOUNTED, 1600A, FEMALE E1016 SERIES CAM-LOK SNAP-COVER CONNECTORS, POWDER COAT GRAY FINISH. PROVIDE QTY OF CAM-LOK CONNECTORS BASED ON 400A PER CONNECTOR.

19. MAIN EMERGENCY SYSTEM GROUND BAR. REFER TO DETAILS SHEET E500 FOR MORE INFORMATION.

20. COORDINATE GROUND ELECTRODE LOCATIONS WITH FIELD CONDITIONS. PROVIDE QTY OF ELECTRODES TO ACHIEVE 25 OHMS MAXIMUM EARTH LOOP IMPEDANCE. PROVIDE 2 MINIMUM SPACED PER NEC. SUBMIT GROUND RESISTANCE TEST REPORT.

21. GENERATOR GROUND ELECTRODE. COORDINATE LOCATION WITH EQUIPMENT AND FIELD CONDITIONS.

22. GENERATOR SYSTEM EMERGENCY STOP BUTTON. REFER TO E600 DETAIL 2 FOR ADDITIONAL REQUIREMENTS.

23. TIE NEW REMOTE BATTERY UNIT HEAD INTO NEAREST EM1. SIZE EM1 BATTERIES FOR ADDITIONAL HEADS.

24. TIE NEW ABOVE DOOR NORMAL LIGHTING INTO EXISTING ABOVE DOOR LIGHTING CIRCUIT SERVING EXISTING BUILDING LIGHTING. FIXTURES TO BE CONTROLLED AS PER EXISTING FIXTURES.

25. (1) 4" CONTROLS/TELECOMS CONDUITS STUBBED UP HERE. PROVIDE (3) 1", 2 HOUR FIRE RATED INNERDUCTS THROUGH ENTIRE LENGTH OF CONDUIT.

26. COORDINATE ALL CONDUIT STUB UP LOCATIONS FOR MAIN SWITCHBOARD WITH SWITCHBOARD MANUFACTURER PRIOR TO CONDUIT INSTALLATION. CONDUIT STUBS TO MATCH CORRECT BREAKER/LUG POSITION ON SWITCHBOARD.

27. PROVIDE HIGH AND LOW LEVEL EXIT SIGNS AS PER IBC REQUIREMENTS.

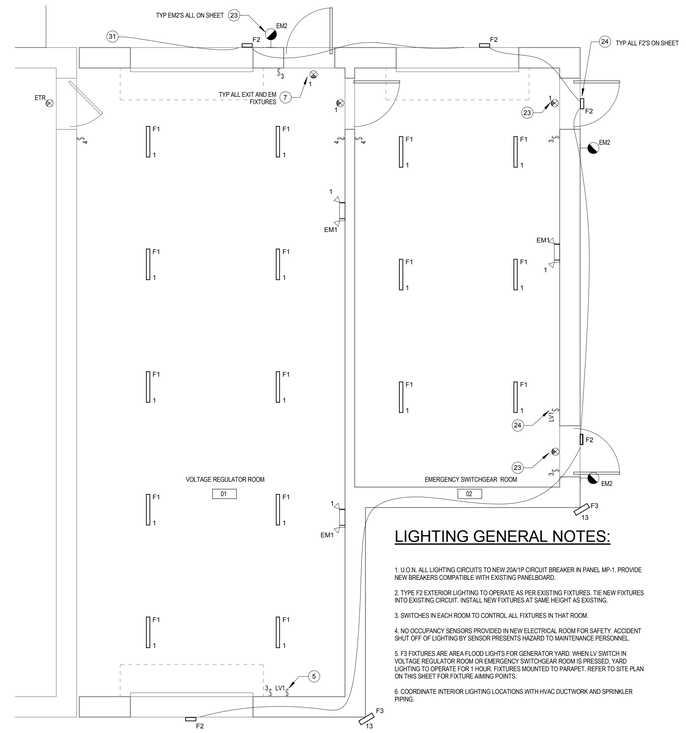
28. PREWIRED UNIT MOUNTED OUTLET TO REMAIN. PROVIDE 120V/20A CIRCUIT FROM NEAREST RECEPTACLE CIRCUIT IF REQUIRED (OUTLET MAY BE FED FROM PREWIRED STEP DOWN TRANSFORMER INSIDE UNIT).

29. NEW BYPASS ISOLATION, 4 POLE TRANSFER SWITCH FOR ESSENTIAL EQUIPMENT POWER TO NEW SWITCHGEAR ADDITION.

30. NEW 480/277V, 125A, 42 CCT PANELBOARD FOR ESSENTIAL EQUIPMENT POWER.

31. TO EXISTING EXTERIOR LIGHTING CIRCUIT. INTERCEPT AND EXTEND CIRCUIT TO ADD ADDITIONAL FIXTURES AS SHOWN. PROVIDE WIRING METHODS COMPATIBLE WITH EXISTING INSTALLATION.

32. PROVIDE 277/120V 1KVA STEP DOWN AUTO TRANSFORMER. MOUNT TRANSFORMER BESIDE ENCLOSURE.



2 EMERGENCY SWITCHGEAR ROOM - LIGHTING PLAN
1/4" = 1'-0"

LIGHTING GENERAL NOTES:

1. U.O.N. ALL LIGHTING CIRCUITS TO NEW 20A/1P CIRCUIT BREAKER IN PANEL MP-1. PROVIDE NEW BREAKERS COMPATIBLE WITH EXISTING PANELBOARD.

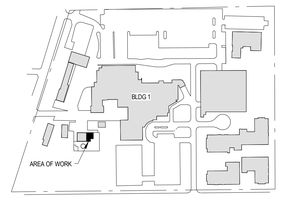
2. TYPE F2 EXTERIOR LIGHTING TO OPERATE AS PER EXISTING FIXTURES. TIE NEW FIXTURES INTO EXISTING CIRCUIT. INSTALL NEW FIXTURES AT SAME HEIGHT AS EXISTING.

3. SWITCHES IN EACH ROOM TO CONTROL ALL FIXTURES IN THAT ROOM.

4. NO OCCUPANCY SENSORS PROVIDED IN NEW ELECTRICAL ROOM FOR SAFETY. ACCIDENT SHUT OFF OF LIGHTING BY SENSOR PRESENTS HAZARD TO MAINTENANCE PERSONNEL.

5. F3 FIXTURES ARE AREA FLOOD LIGHTS FOR GENERATOR YARD. WHEN LV SWITCH IN VOLTAGE REGULATOR ROOM OR EMERGENCY SWITCHGEAR ROOM IS PRESSED, YARD LIGHTING TO OPERATE FOR 1 HOUR. FIXTURES MOUNTED TO PARAPET. REFER TO SITE PLAN ON THIS SHEET FOR FIXTURE AIMING POINTS.

6. COORDINATE INTERIOR LIGHTING LOCATIONS WITH HVAC DUCTWORK AND SPRINKLER PIPING.



SITE KEY PLAN

PROJECT NORTH

POWER PLAN GENERAL NOTES:

1. U.O.N. ALL POWER BRANCH CIRCUITS TO NEW CIRCUIT BREAKERS INSTALLED IN EXISTING PANEL PP-1. PROVIDE NEW BREAKERS COMPATIBLE WITH EXISTING PANELBOARD.

2. REFER TO HVAC DRAWINGS FOR LOCATIONS AND POWER REQUIREMENTS FOR MECHANICAL EQUIPMENT.

3. IT IS THE ELECTRICAL CONTRACTORS RESPONSIBILITY TO REVIEW THE DRAWINGS OF OTHER TRADES AND PROVIDE ELECTRICAL CONNECTIONS TO ALL EQUIPMENT REQUIRING A 120V OR GREATER (LINE VOLTAGE) CONNECTION. ALL LINE VOLTAGE WIRING SHALL BE BY THE ELECTRICAL CONTRACTOR UNLESS OTHERWISE NOTES.

4. FOR ALL 120V/20A BRANCH CIRCUITS PROVIDE:
0-75' - #12
76-150' - #10
>150' - #8

5. ALL CIRCUITS SHALL HAVE A DEDICATED NEUTRAL.

6. WHERE MORE THAN 4 CURRENT CARRYING CONDUCTORS ARE INSTALLED IN A RACEWAY, DERATE CURRENT CARRYING CAPACITY BY APPROPRIATE NEC FACTOR.

7. ALL CIRCUITS GREATER THAN 20A, OR GREATER THAN SINGLE PHASE SHALL HAVE A DEDICATED CONDUIT.

8. ALL EQUIPMENT SIZES AND LOCATIONS SHOWN ARE NOTIONAL. DO NOT SCALE OR LAYOUT FROM THESE PLANS. THE CONTRACTOR SHALL PRODUCE COORDINATED INSTALLATION DRAWINGS, AND THEN COORDINATE THE EQUIPMENT INSTALLATION AND REQUIREMENTS BASED ON PURCHASED EQUIPMENT DIMENSIONS PROVIDED FROM THE EQUIPMENT MANUFACTURER.

FULLY SPRINKLERED CONSTRUCTION DOCUMENTS

Revisions:	Date

CONSULTANTS:

BARBER & HOFFMAN
215 EXECUTIVE DRIVE #202
CRANBERRY TWP, PA 16066

URBAN ENGINEERS, INC.
1 WILLIAMSBURG PLACE, SUITE 210
WARRENDALE, PA 15086

MOORE DESIGN ASSOCIATES
130 HEAVEN LANE
MARS, PA 16046

SEAL

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
SCOTT P. LIZOTTE
ENGINEER
PE061443

ARCHITECTS/ENGINEERS:

AE WORKS

6587 Hamilton Avenue
Pittsburgh, Pennsylvania 15206
Ph: 412.287.7333 Fax: 412.287.7334
www.ae-works.com

AE Works Project Number: 13045

Drawing Title
ELECTRICAL - ADDITION TO SWITCHGEAR BUILDING - POWER AND LIGHTING PLAN

Approved: Project Director

Project Title:
EXPAND EMERGENCY POWER GENERATION for the ERIE VAMC

Location:
135 E 38TH ST, ERIE, PA 16504

Date:	Checked:	Drawn:
3/17/2016	TA	IT

Project Number 562-13-112

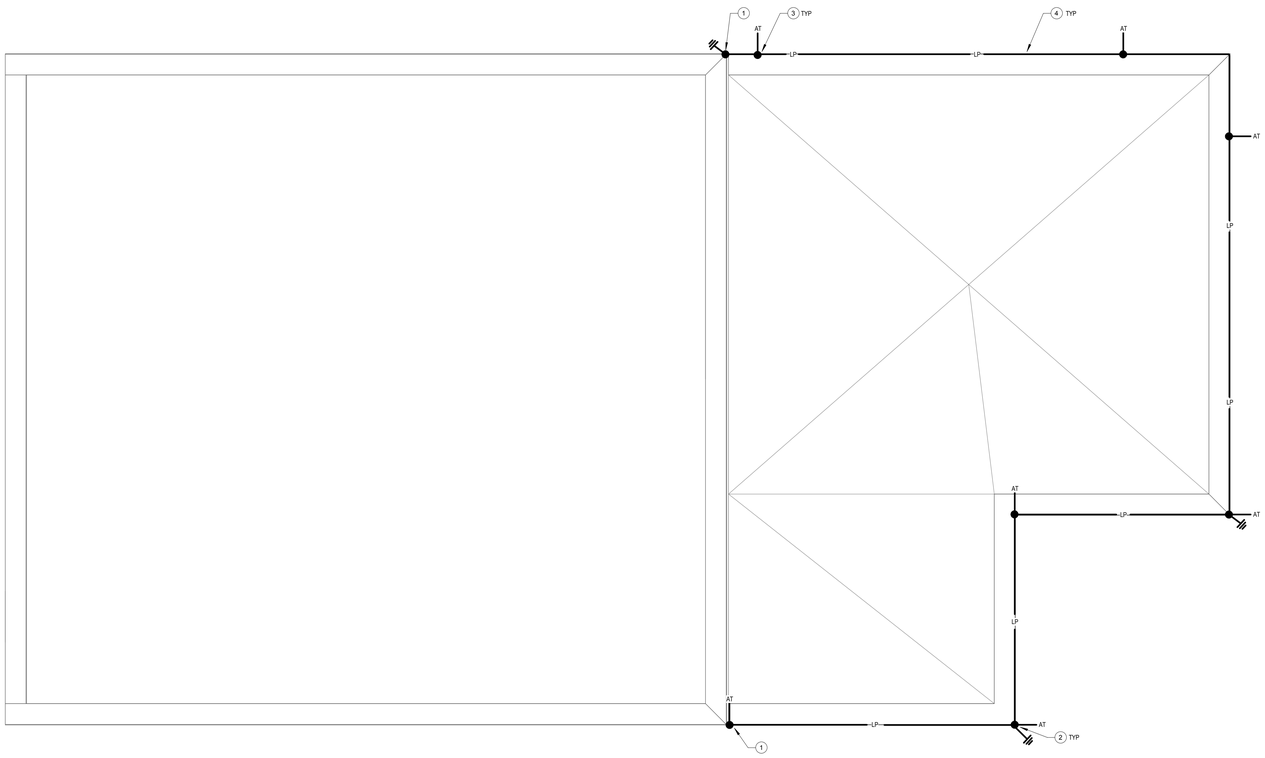
Building Number 1

Drawing Number E201

Office of Construction and Facilities Management

Department of Veterans Affairs

VA FORM 08-6231



1 GENERATOR BUILDING ROOF PLAN POWER
1/4" = 1'-0"

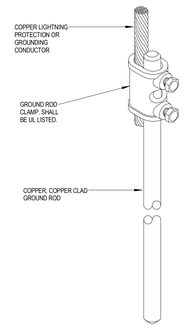
KEYNOTES

1. CONNECT NEW LIGHTNING PROTECTION SYSTEM INTO EXISTING SYSTEM.

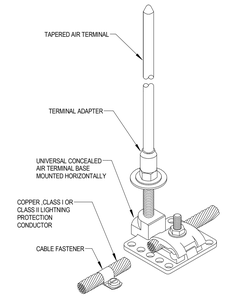
2. LIGHTNING PROTECTION DOWN CONDUCTOR, RUN IN 1" PVC CONDUIT CONSEALED INSIDE WALL. TERMINATE IN NEW GROUND ROD ON BUILDING EXTERIOR. REFER TO DETAIL 2 THIS SHEET.

3. 24" HIGH COPPER AIR TERMINAL ON ROOF. REFER TO DETAIL 3 THIS SHEET.

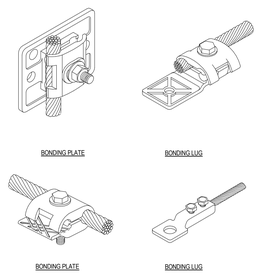
4. CLASS I COPPER LIGHTNING PROTECTION CABLE RUN ON ROOF. REFER TO DETAILS 4 & 5 THIS SHEET.



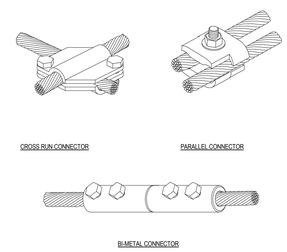
2 STYLE 1 GROUND ROD DETAIL
NTS



3 STYLE HORIZONTAL AIR TERMINAL BASE
NTS



4 TYPICAL BONDING LUGS & PLATES
NTS



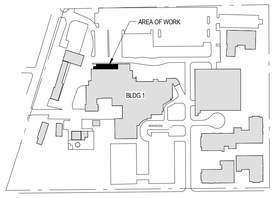
5 TYPICAL CABLE CONNECTORS
NTS

GENERAL NOTES

1. LIGHTNING PROTECTION SYSTEM TO TIE INTO EXISTING SYSTEM. FIELD SURVEY SYSTEM PRIOR TO ENGAGING UL MASTER LABEL CERTIFIED INSTALLER.

2. NEW PORTION OF SYSTEM TO BE UL MASTER LABEL CERTIFIED.

3. SYSTEM SHOWN HERE IS TYPICAL. CONTRACTOR TO ENGAGE UL LISTED MASTER LABEL CONTRACTOR AND SUBMIT LAYOUT DRAWING ALONG WITH EQUIPMENT SUBMITTALS.



SITE KEY PLAN

PROJECT NORTH

FULLY SPRINKLERED CONSTRUCTION DOCUMENTS

Revisions:	Date

CONSULTANTS:

BARBER & HOFFMAN
215 EXECUTIVE DRIVE #202
CRANBERRY TWP, PA 16066

URBAN ENGINEERS, INC.
1 WILLIAMSBURG PLACE, SUITE 210
WARRENDALE, PA 15086

MOORE DESIGN ASSOCIATES
130 HEAVEN LANE
MARS, PA 16046

SEAL

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
SCOTT P. LIZOTTE
ENGINEER
PE061443

ARCHITECTS/ENGINEERS:

AE WORKS

6587 Hamilton Avenue
Pittsburgh, Pennsylvania 15206
Ph: 412.287.7333 Fax: 412.287.7334
www.ae-works.com

AE Works Project Number: 13045

Drawing Title
ELECTRICAL - GENERATOR BLDG ROOF - LIGHTING AND POWER PLAN

Approved: Project Director

Project Title:
EXPAND EMERGENCY POWER GENERATION for the ERIE VAMC

Location:
135 E 38TH ST, ERIE, PA 16504

Date:	Checked:	Drawn:
3/17/2016	TA	IT

Project Number 562-13-112

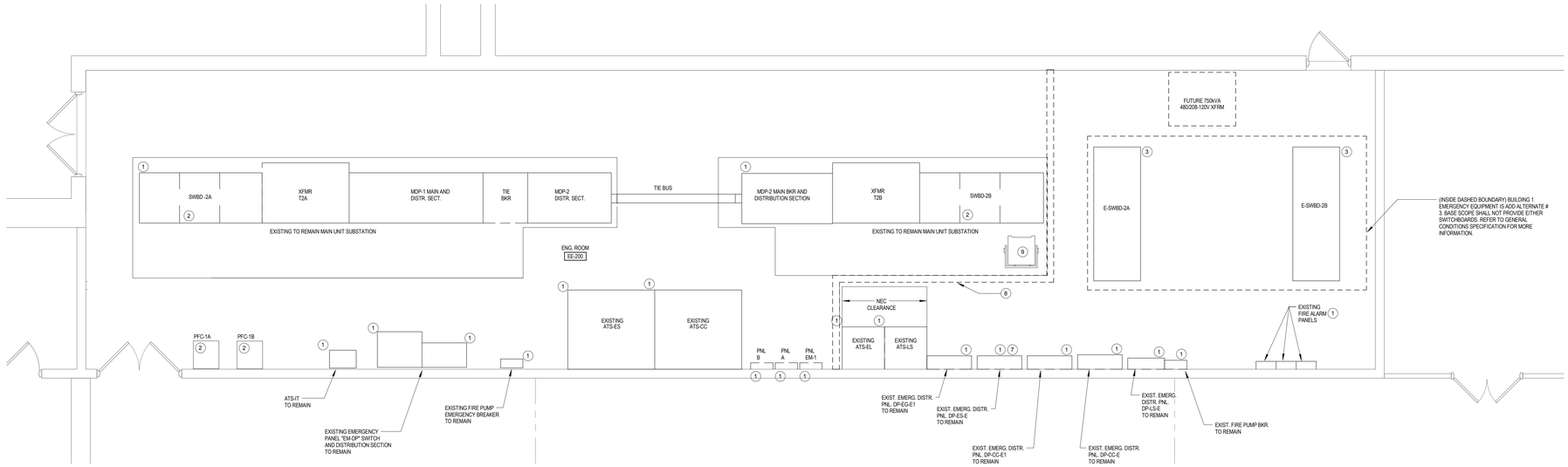
Building Number 1

Drawing Number E202

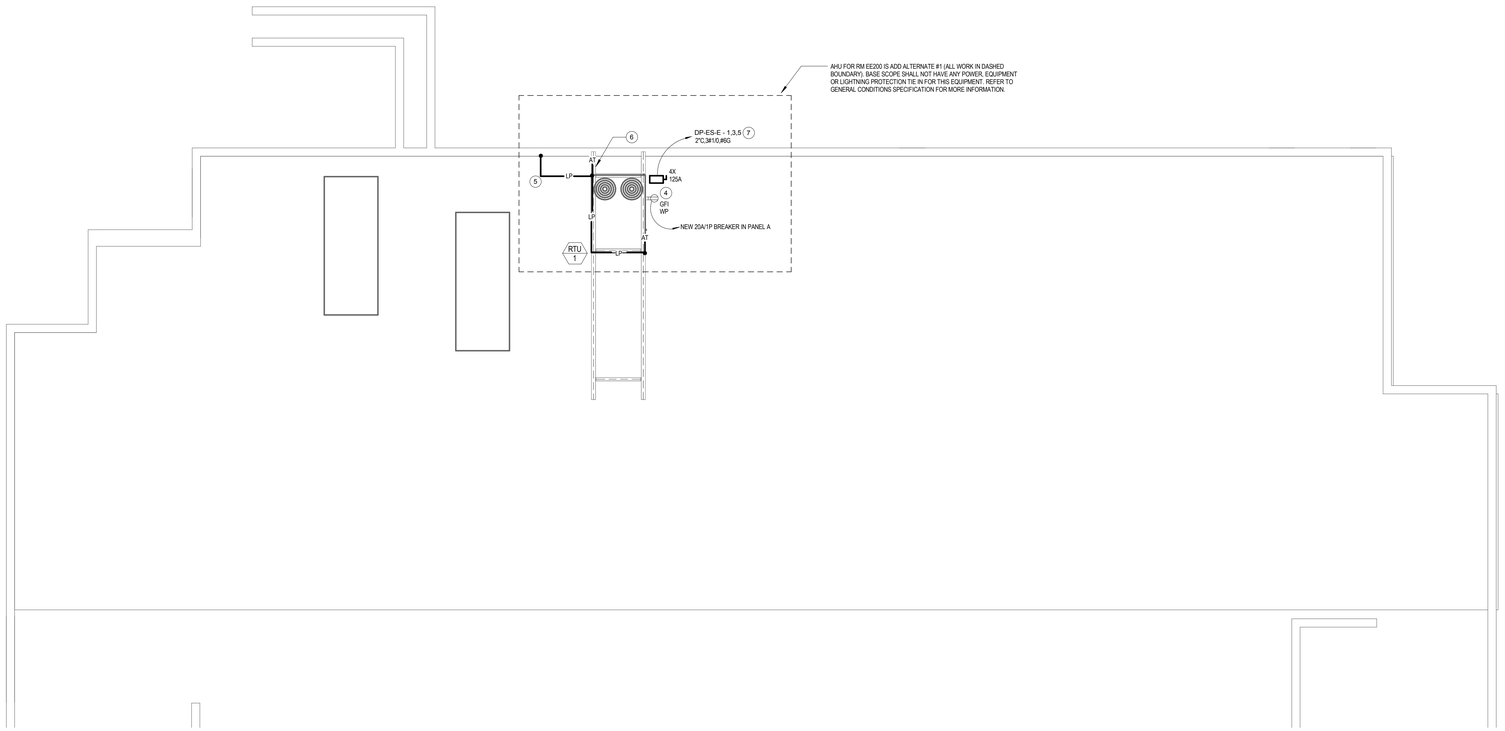
Office of Construction and Facilities Management

Department of Veterans Affairs

VA FORM 08-6231



1 ROOM EE200 - POWER PLAN
1/4" = 1'-0"



2 ROOM EE200 ROOF PLAN - POWER
1/8" = 1'-0"

KEYNOTES:

1. EXISTING TO REMAIN EQUIPMENT.
2. NEW POWER FACTOR CORRECTION CAPACITORS TO BE CONNECTED TO EXISTING SWITCHBOARD. PROVIDE NEW CIRCUIT BREAKER IN EXISTING SWITCHBOARD. CONTRACTOR TO FIELD SURVEY SWITCHBOARD TO ENSURE COMPATIBLE BREAKER IS PROVIDED. BOARD IS 69kA RATED AND MANUFACTURED BY SQUARE D.
3. NEW EMERGENCY POWER EQUIPMENT PROVIDED THIS PHASE, WIRED IN A FUTURE PHASE. PROTECT AND STORE EQUIPMENT FOR INSTALLATION IN FUTURE PHASE. LOCATION SHOWN IS NOTIONAL. CONTRACTOR TO COORDINATE STORAGE LOCATION WITH COR. THIS EQUIPMENT IS PART OF ADD ALTERNATE #3. BASE SCOPE IS NOT PROVIDING EITHER SWITCHBOARD.
4. ROOFTOP MAINTENANCE RECEPTACLE. PROVIDE UNISTRUT MOUNTING SYSTEM.
5. CONNECT NEW ROOFTOP UNIT INTO EXISTING LIGHTNING PROTECTION SYSTEM. REFER TO DETAILS 2.3 & 4 ON E202 FOR MORE INFORMATION.
6. EQUIPMENT TO BE PROTECTED BY UL MASTER LABEL CERTIFIED LIGHTNING PROTECTION SYSTEM.
7. ADD ALTERNATE #1 IS TO PROVIDE NEW 200A CIRCUIT BREAKER IN EXISTING DISTRIBUTION PANEL. REMOVE EXISTING SPARE 100A BREAKER TO MAKE ROOM FOR NEW BREAKER. PROVIDE ADJUSTABLE TRIP THERMAL-MAGNETIC BREAKER. CONTRACTOR TO FIELD SURVEY PANEL AND PROVIDE BREAKER COMPATIBLE WITH EXISTING INSTALLATION. METER PANEL FOR 30 DAYS PRIOR TO ORDERING EQUIPMENT. SUBMIT METERING REPORT. COMPLY WITH NEC 220.87 REQUIREMENTS. BASE SCOPE IS NO 200A BREAKER AND NO FEED TO NEW AHU.
8. PROPOSED LOCATION OF WALL BUILT IN PHASE 3. FINAL LOCATION AND DESIGN TO BE DECIDED IN PHASE 3 PROJECT.
9. APPROXIMATE SIZE OF MOBILE BREAKER HOIST.

POWER PLAN GENERAL NOTES:

1. REFER TO HVAC DRAWINGS FOR LOCATIONS AND POWER REQUIREMENTS FOR MECHANICAL EQUIPMENT.

2. IT IS THE ELECTRICAL CONTRACTORS RESPONSIBILITY TO REVIEW THE DRAWINGS OF OTHER TRADES AND PROVIDE ELECTRICAL CONNECTIONS TO ALL EQUIPMENT REQUIRING A 120V OR GREATER (LINE VOLTAGE) CONNECTION. ALL LINE VOLTAGE WIRING SHALL BE BY THE ELECTRICAL CONTRACTOR UNLESS OTHERWISE NOTES.

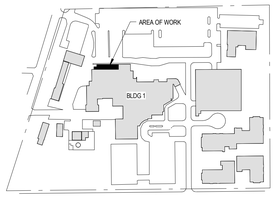
3. FOR ALL 120V/20A BRANCH CIRCUITS PROVIDE:
0-75' - #12
76-150' - #10
>150' - #8

4. ALL CIRCUITS SHALL HAVE A DEDICATED NEUTRAL.

5. WHERE MORE THAN 4 CURRENT CARRYING CONDUCTORS ARE INSTALLED IN A RACEWAY, DERATE CURRENT CARRYING CAPACITY BY APPROPRIATE NEC FACTOR.

6. ALL CIRCUITS GREATER THAN 20A, OR GREATER THAN SINGLE PHASE SHALL HAVE A DEDICATED CONDUIT.

7. ALL EQUIPMENT SIZES AND LOCATIONS SHOWN ARE NOTIONAL. DO NOT SCALE OR LAYOUT FROM THESE PLANS. THE CONTRACTOR SHALL PRODUCE COORDINATED INSTALLATION DRAWINGS, AND THEN COORDINATE THE EQUIPMENT INSTALLATION AND REQUIREMENTS BASED ON PURCHASED EQUIPMENT DIMENSIONS PROVIDED FROM THE EQUIPMENT MANUFACTURER.



SITE KEY PLAN

PROJECT NORTH

FULLY SPRINKLERED CONSTRUCTION DOCUMENTS

Revisions:	Date

CONSULTANTS:

BARBER & HOFFMAN
215 EXECUTIVE DRIVE #202
CRANBERRY TWP, PA 16066

URBAN ENGINEERS, INC.
1 WILLIAMSBURG PLACE, SUITE 210
WARRENDALE, PA 15086

MOORE DESIGN ASSOCIATES
130 HEAVEN LANE
MARS, PA 16046

SEAL

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
SCOTT P. LIZOTTE
ENGINEER
PE041443

ARCHITECTS/ENGINEERS:

AE WORKS

6587 Hamilton Avenue
Pittsburgh, Pennsylvania 15206
Ph: 412.287.7333 Fax: 412.287.7334
www.ae-works.com

AE Works Project Number: 13045

Drawing Title
ELECTRICAL - ROOM EE200 - POWER

Approved: Project Director

Project Title:
EXPAND EMERGENCY POWER GENERATION for the ERIE VAMC

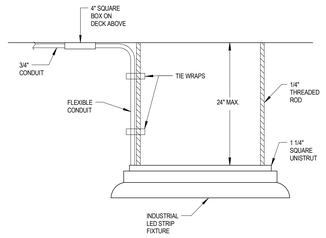
Location:
135 E 38TH ST, ERIE, PA 16504

Date: 3/17/2016
Checked: TA
Drawn: IT

Project Number 562-13-112
Building Number 1
Drawing Number E203

Office of Construction and Facilities Management
Department of Veterans Affairs

VA FORM 08-6231

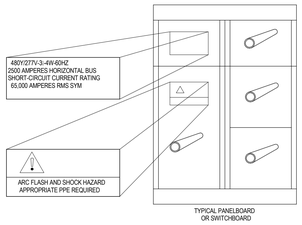


NOTE

1. LIGHT FIXTURES INSTALLED IN PLANT SPACES SHALL BE COORDINATED WITH ALL SERVICES INSTALLED WITHIN THESE SPACES. CONTRACTOR TO COORDINATE WITH PROPOSED CONDUIT RUNS, AS WELL AS DUCTWORK, PIPING, FIRE PROTECTION, STRUCTURE AND ALL OTHER PLANNED WORK WITHIN THESE SPACES.

1 INDUSTRIAL LIGHT FIXTURE MOUNTING

NTS

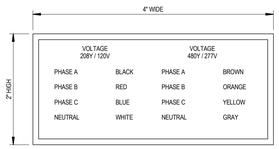


NOTES:

1. THE PROSPECTIVE SYMMETRICAL FAULT CURRENT AT A NOMINAL VOLTAGE TO WHICH AN APPARATUS OR SYSTEM IS ABLE TO BE CONNECTED WITHOUT SUSTAINING DAMAGE EXCEEDING ACCEPTANCE CRITERIA, SHALL BE DISPLAYED ON THE EXTERIOR OF THE STRUCTURE, OR ON THE INSIDE COVER OF A PANELBOARD.
2. ALL A/C AND ARC FLASH LABELING TO BE BASED ON THE OUTCOME OF THE CONTRACTORS OVER CURRENT PROTECTIVE DEVICE COORDINATION STUDY. MATCH EXISTING LABELING FORMAT IN FACILITY AS CLOSELY AS POSSIBLE.

2 EQUIPMENT LABELING REQUIREMENTS

NTS

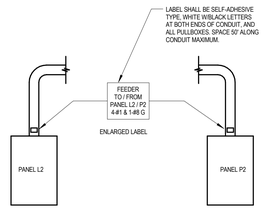


NOTES

1. LABEL SHALL BE DISPLAYED ON ALL SWITCHBOARDS, PANELBOARDS, TRANSFER SWITCHES AND PULLBOXES (MULTIPLE VOLTAGES)
2. NAMEPLATE SHALL BE WHITE LETTERING ON BLACK MICARTA
3. IF ONLY ONE VOLTAGE IS PRESENT, LABEL SHALL INDICATE ONLY THAT RESPECTIVE VOLTAGE

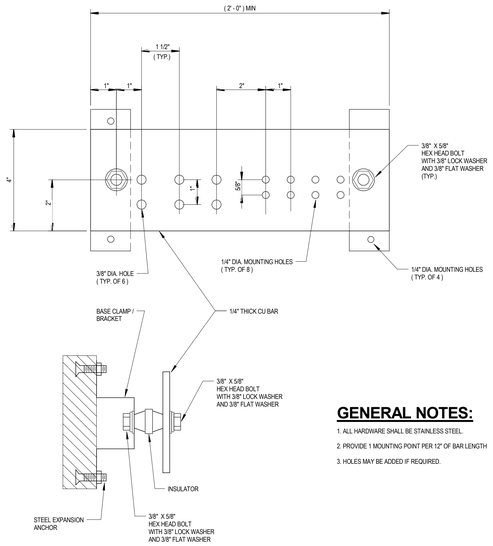
3 BRANCH WIRING IDENTIFICATION

NTS



4 FEEDER LABELING DETAIL

NTS



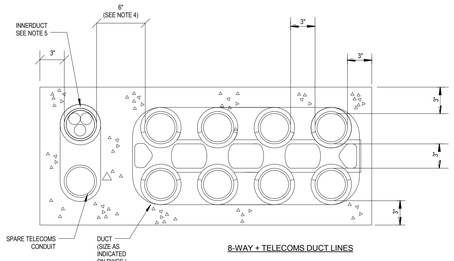
SECTION

GENERAL NOTES:

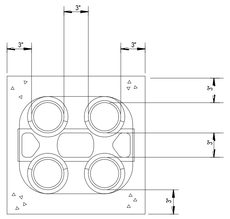
1. ALL HARDWARE SHALL BE STAINLESS STEEL.
2. PROVIDE 1 MOUNTING POINT PER 12" OF BAR LENGTH
3. HOLES MAY BE ADDED IF REQUIRED.

7 GROUNDING BAR DETAIL

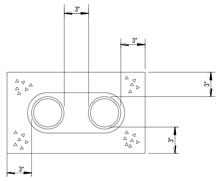
NTS



8-WAY + TELECOMS DUCT LINES



4-WAY DUCT LINE



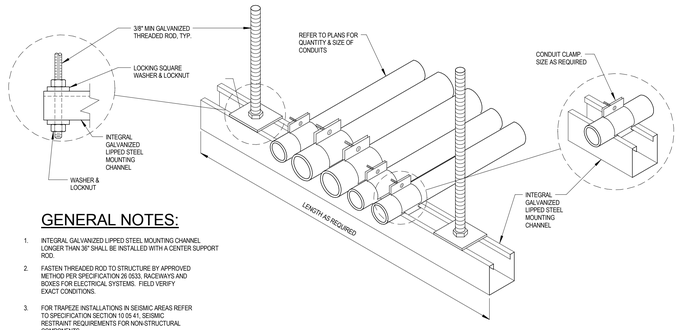
2-WAY DUCT LINE

GENERAL NOTES:

1. CONCRETE SHALL BE 2000 PSI @ 28 DAYS, OR AS SPECIFIED.
2. PROVIDE #4 REINFORCING RODS ON TOP AND BOTTOM OF DUCTS WHEN CROSSING OR PLACED IN ROADWAYS.
3. MINIMUM COVER TO TOP OF ENVELOPE SHALL BE 24" OR AS OTHERWISE SPECIFIED IN SECTION 26 05 41.
4. PROVIDE MINIMUM 6" SPACE BETWEEN POWER AND TELECOMMUNICATION DUCTS. INCREASE SIZE AS REQUIRED.
5. PROVIDE 1" FIRE RATED INNERDUCTS. PROVIDE FIRE RATED INNERDUCT FOR GENERATOR CONTROLS, LIFE SAFETY ATS START SIGNALS AND FIBRE CONNECTION .
6. OTHER DUCTBANK CONFIGURATIONS WHERE SHOWN IN THE DOCUMENTS SHALL FOLLOW THESE INSTALLATION METHODS, ADAPTED FOR THE NUMBER AND SIZE OF CONDUITS INDICATED. INFORMATION HERE SHOWS TYPICAL ARRANGEMENTS. CONTROLS CONDUITS FROM GENERATOR CONTROLLER TO GENERATOR UNITS SHALL BE 6" MINIMUM FROM ALL POWER CONDUITS.

5 DUCT BANK DETAILS

NTS

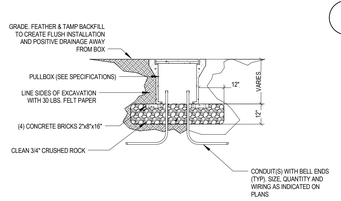


GENERAL NOTES:

1. INTEGRAL GALVANIZED LIPPED STEEL MOUNTING CHANNEL LONGER THAN 36" SHALL BE INSTALLED WITH A CENTER SUPPORT ROD.
2. FASTEN THREADED ROD TO STRUCTURE BY APPROVED METHOD PER SPECIFICATION 26 0533, RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS. FIELD VERIFY EXACT CONDITIONS.
3. FOR TRAPEZE INSTALLATIONS IN SEISMIC AREAS REFER TO SPECIFICATION SECTION 10 05 41, SEISMIC RESTRAINT REQUIREMENTS FOR NON-STRUCTURAL COMPONENTS.

6 CONDUIT TRAPEZE MOUNTING DETAIL

NTS



13 UNDERGROUND CONCRETE PULLBOX DETAIL

NTS

APPLIES TO PULLBOXES REQUIRED FOR ALL NEW EXTERIOR BRANCH CIRCUITS RUN UNDERGROUND.
PROVIDE QTY OF PULLBOXES AS REQUIRED FOR AN EASY CABLE PULL.

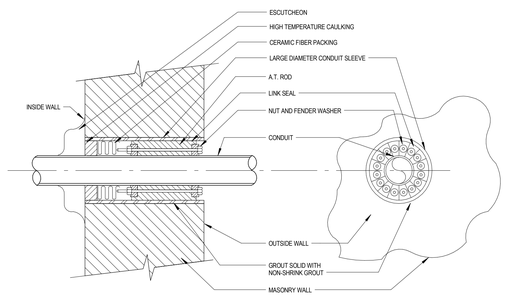
ELECTRICAL SYSTEM	BREAKER/PANEL ABBREVIATION CODE	COVER/CONDUIT COLOR TAPE**	AS-BUILT/DRAWING LINE COLOR
FIRE ALARM	FA	RED	RED
SECURITY	SC	DARK BLUE	DARK BLUE
COMMUNICATION (TELECOMM)	TC	GREEN	GREEN
SOUND SYSTEM (INTERCOMM)	INT	GRAY	GRAY
NURSE CALL/CODE BLUE	NC	YELLOW	YELLOW
HVAC LOW VOLTAGE (NON-DDC)	LV	PURPLE	PURPLE
DDC (JOHNSON METASYS CONTROLS)	JC	ORANGE	ORANGE
LIFE SAFETY	LS	WHITE	BLACK (BOLD, DASHED)
CRITICAL CARE	CC	PINK	PINK
EMERGENCY (ESSENTIAL EQUIP)*	ES/ES1	BROWN	BROWN
UNUSED (RESERVED)		LIGHT BLUE	LIGHT BLUE
UNUSED (RESERVED)		LIGHT GREEN	LIGHT GREEN
NORMAL POWER	NP	UNCOLORED - NOT TO MATCH ABOVE COLORS	BLACK

* ES AND ES1 ARE BOTH USED FOR THIS CIRCUIT. PLEASE VERIFY WHICH CIRCUIT IS APPROPRIATE.
** ALL CONDUIT LEAVING/ENTERING A JUNCTION BOX OR A STRUCTURAL PENETRATION SHALL HAVE A COLORED TAPE RING LABEL AS INDICATED ABOVE. WITHIN 36".

THIS COLOR CODING SCHEME IS USED THROUGHOUT THE FACILITY FOR ALL NEW PROJECTS. COLOR ALL JUNCTION BOX COVERS AND TAGS ALL CONDUITS AS PER THE COLOR CODING SCHEME ABOVE.
REFER TO E001 FOR ADDITIONAL LABELLING REQUIREMENTS.

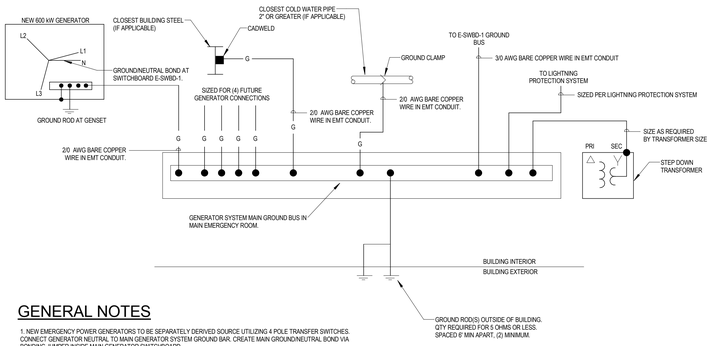
11 ERIE VA COLOR CODING REQUIREMENTS

NTS



8 EXTERIOR WALL PENETRATION

NTS

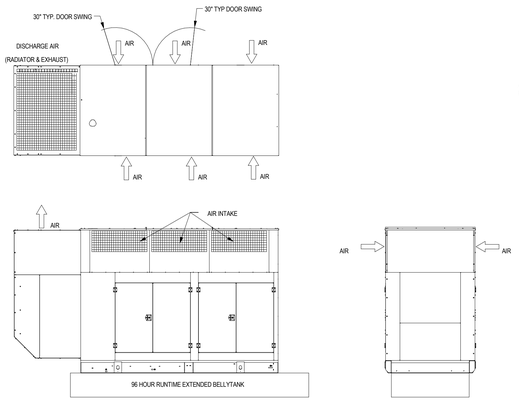


GENERAL NOTES

1. NEW EMERGENCY POWER GENERATORS TO BE SEPARATELY DERIVED SOURCE UTILIZING 4 POLE TRANSFER SWITCHES. CONNECT GENERATOR NEUTRAL TO MAIN GENERATOR SYSTEM GROUND BAR. CREATE MAIN GROUND/NEUTRAL BOND VIA BONDING JUMPER INSIDE MAIN GENERATOR SWITCHBOARD.
2. LABEL MAIN GENERATOR SWITCHBOARD WITH SIGN STATING: "WARNING SHOCK HAZARD EXISTS IF GROUNDING ELECTRODE CONDUCTOR OR BONDING JUMPER CONNECTION IN THIS EQUIPMENT IS REMOVED WHILE ALTERNATE SOURCE(S) IS ENERGIZED"
3. PROVIDE 200% OF REQUIRED PHASE ONE BAR LENGTH SHOWN HERE FOR FUTURE CONNECTIONS
4. VERIFY EXISTING GROUNDING TOPOLOGY FOR CONNECTION TO EXISTING GENERATOR SYSTEM IN PHASE ONE. IF GROUND NEUTRAL BOND IS DERIVED ELSE WHERE IN THE EXISTING SYSTEM, REMOVE E-SWBD-1 GROUND NEUTRAL BOND AND LABEL SWITCHBOARD STATING "GROUND NEUTRAL BOND DERIVED AT <INSERT PANEL NAME>". GROUNDING SYSTEM REQUIRES MODIFICATION WHEN THIS SWITCHBOARD IS TIED DIRECTLY INTO BUILDING 1 EMERGENCY POWER SYSTEM".

9 GROUNDING DETAIL

NTS

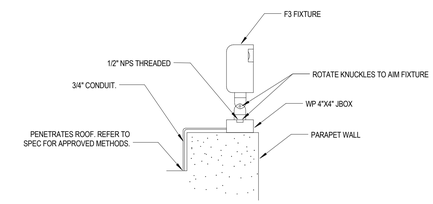


GENERAL NOTES

1. GENERATOR ENCLOSURE TO BE TYPE II ACOUSTIC TYPE.
2. REFER TO MANUFACTURERS DIMENSIONS AND INSTALLATION DETAILS.
3. PROVIDE 96 HOUR RUN TIME BELLY TANK WITH EXTENDED FILL FOR HEADER FILL APPLICATION.
4. THIS DRAWING SHOWS TYPICAL APPEARANCE AND AIRFLOW AROUND GENSET. CONSULT MANUFACTURER FOR DIMENSIONED INSTALLATION DRAWING.

10 GENERATOR ENCLOSURE DETAIL

NTS



12 F3 FLOODLIGHT DETAIL

NTS

APPLIES TO F3 FLOOD LIGHT FIXTURES AS SHOWN ON E201. AIM FIXTURES AT AIM POINTS INDICATED ON E201. PROVIDE ALL COMPONENTS REQUIRED FOR A FULL AND COMPLETE LIGHTING SYSTEM. ADJUST FIXTURE AIMING ON SITE AS DIRECTED BY ENGINEER, ARCHITECT OR COR.

FULLY SPRINKLERED CONSTRUCTION DOCUMENTS

Revisions: | Date

CONSULTANTS:

BARBER & HOFFMAN
215 EXECUTIVE DRIVE #202
CRANBERRY TWP, PA 16066

URBAN ENGINEERS, INC.
1 WILLIAMSBURG PLACE, SUITE 210
WARRENDALE, PA 15086

MOORE DESIGN ASSOCIATES
130 HEAVEN LANE
MARS, PA 16046

SEAL

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
SCOTT P. LIZOTTE
ENGINEER
PE061442

ARCHITECTS/ENGINEERS:

AE WORKS

6587 Hamilton Avenue
Pittsburgh, Pennsylvania 15206
Ph: 412.287.7333 Fax: 412.287.7334
www.ae-works.com

AE Works Project Number: 13045

Drawing Title: ELECTRICAL DETAILS

Approved: Project Director

Project Title: EXPAND EMERGENCY POWER GENERATION for the ERIE VAMC

Location: 135 E 38TH ST, ERIE, PA 16504

Date: 3/17/2016 | Checked: TA | Drawn: IT

Project Number: 562-13-112

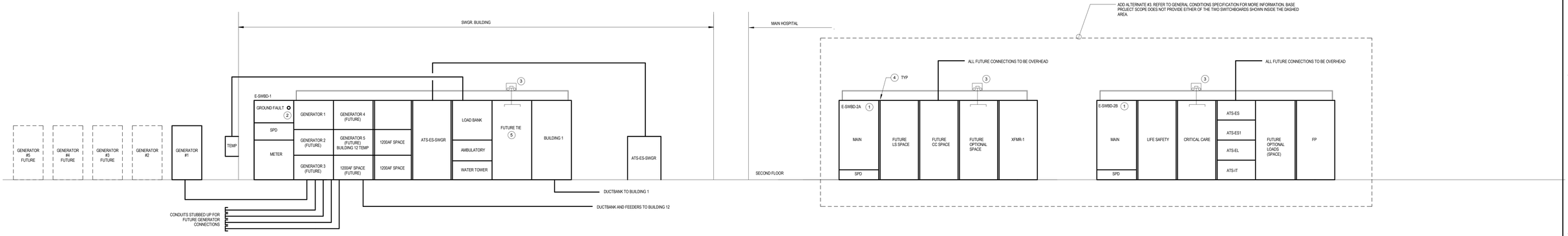
Building Number: 1

Drawing Number: E500

Office of Construction and Facilities Management

Department of Veterans Affairs

VA FORM 08-6231



KEY NOTES

1. EQUIPMENT BOUGHT BUT NOT CONNECTED IN THIS PROJECT. STORE EQUIPMENT IN EXISTING BUILDING 1 ELECTRICAL ROOM AND PROTECT.

2. EQUIPMENT TO HAVE GROUND FAULT DETECTION & ALARM SYSTEM. GROUND FAULT SYSTEM TO ACTIVATE INDICATOR LIGHT, SOUND AUDIBLE ALARM AND INTERFACE WITH BMS TO SEND CONTROL POINT INTO ALARM. COORDINATE BMS PROGRAMMING WITH CONTROLS CONTRACTOR. PROVIDE ALL HARDWARE TO INTERFACE GROUND FAULT DETECTION WITH BMS.

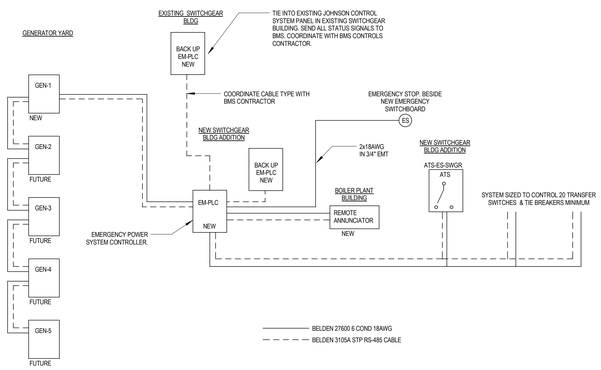
3. PROVIDE BOARD MOUNTED DRAW OUT BREAKER REMOVAL HOIST. TOP MOUNTED RAIL TO SPAN THE LENGTH OF BOARD REQUIRED TO REMOVE ALL CURRENT AND FUTURE DRAW OUT BREAKERS.

4. BARRIER BETWEEN SECTIONS TO COMPLY WITH NEC SEPARATION OF LOAD TYPES (ARTICLE 700,701 AND 702 LOADS).

5. 3000A NORMAL POWER BACK FEED MOTORIZED BREAKER IS ADD ALTERNATE #2. BASE PROJECT SCOPE, SPACE FOR BREAKER ONLY.

1 EMERGENCY POWER RISER

NTS



NOTES

1. MASTER CONTROLLER SHALL BE CAPABLE OF 50 STEP CONTROL LOGIC, AND CAPABLE OF PRIORITY BASED LOAD SHEDDING.

2. BMS SYSTEM SHALL BE PROGRAMMED TO REPORT ALL GENERATOR STATUS SIGNALS. COORDINATE REPROGRAMMING BMS SYSTEM WITH THE VA COR AND THE BMS CONTROLS CONTRACTOR.

3. GENERATOR CONTROLLER SYSTEM SHALL BE PROVIDED BY THE SAME MANUFACTURER AS THE GENERATORS.

4. GENERATORS SHALL BE CAPABLE OF SYNCHRONIZING WITHOUT MASTER CONTROL FROM THE PLC CONTROLLER. GENERATORS SHALL BE INTERCONNECTED AS SHOWN.

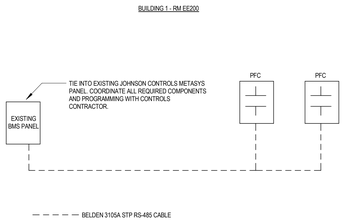
5. SYSTEM SHALL BE SIZED FOR THE ABILITY TO CONTROL 10 GENERATORS. ONE UNIT WILL BE ADDED IN THIS PHASE OF THE PROJECT, WITH 4 MORE ADDED IN A LATER PHASE.

6. PROVIDE EMERGENCY STOP BUTTON LOCATED IN AN ACCESSIBLE LOCATION IN THE NEW EMERGENCY SWITCHGEAR ROOM. BUTTON TO BE PROVIDED WITH LIFT UP COVER, FLIP AND PRESS STYLE BUTTON. LABEL "GENERATOR SYSTEM EMERGENCY STOP BUTTON". GENERATORS REQUIRE MANUAL RESET.

7. SYSTEM SHALL HAVE THE ABILITY TO COMMUNICATE WITH THE EXISTING SWBD-1 UTILITY INTERLOCKING SYSTEM CONTROLLER. PHASE 3 SHALL INCLUDE THE CONNECTION OF THE GENERATOR SYSTEM TO THE MAIN SWITCHBOARDS VIA ELECTRICALLY OPERATED TIE BREAKERS. INTENT IS THAT THE PROTECTIVE DEVICES ARE INTERLOCKED SUCH THAT THE GENERATOR SYSTEM SHALL NEVER BE ABLE TO PARALLEL WITH UTILITY.

2 GENERATOR CONTROLS DIAGRAM

NTS



NOTES

1. POWER FACTOR CORRECTION CAPACITORS SHALL COME WITH MODBUS-485 CONTROLLER CARD AND SHALL BE INTERFACED WITH THE EXISTING BMS SYSTEM.

2. THE CONTROL INTENT IS THAT IN THE EVENT OF THE GENERATOR SYSTEM BEING CONNECTED TO BACKFEED THE MAIN BUILDING 1 SWITCHBOARD VIA THE FUTURE TIE BREAKER INSTALLED IN PHASE 3, THE PFC CAPACITORS BANKS SHALL EITHER BE DISCONNECTED, OR THE TARGET POWER FACTOR CHANGED TO 0.8 LAGGING TO AVOID DAMAGE TO THE GENERATOR ALTERNATOR. THE PFC SYSTEM SHALL BE CONNECTED INTO THE BMS SYSTEM IN THIS PHASE, AND PROGRAMMED ALONG WITH THE BACK FEED BREAKER SEQUENCE OF OPERATION IN PHASE 3.

3. PROVIDE ALL INTERFACE UNITS, CABLING, PROGRAMMING AND ALL OTHER EQUIPMENT OR SOFTWARE REQUIRED TO TIE THE POWER FACTOR CORRECTION CAPACITORS INTO THE EXISTING BMS SYSTEM.

4. IN ADDITION TO CONTROLLING THE PFC CAPACITORS: THE BMS SYSTEM SHALL READ THE INFORMATION PROVIDED BY THE PFC CONTROLLER E.G. POWER FACTOR, VOLTAGE, CURRENT.

5. COORDINATE ALL BMS PROGRAMMING AND INTERFACE WITH THE CONTROLS CONTRACTOR.

6. IF DIRECT CONTROL OF THE PFC CAPACITOR BANKS IS NOT POSSIBLE WITH THE SELECTED EQUIPMENT, THE CONTRACTOR SHALL PROVIDE ADDITIONAL SUITABLY RATED CONTACTORS THAT SHALL BE CONTROLLED VIA THE BMS SYSTEM.

7. PFC BANKS TO COME WITH HAND/OFF/AUTO CONTROLS FOR MANUAL OVER RIDE.

8. PFC BANKS TO HAVE 14 SWITCHING STEPS AND SHALL AUTOMATICALLY SWITCH ON AND OFF CAPACITOR BANKS TO MEET THE TARGET POWER FACTOR.

9. UNDER NORMAL CONDITIONS, THE TARGET POWER FACTOR SHALL BE 0.97 LAGGING OR HIGHER.

3 PFC CONTROLS DIAGRAM

NTS

FULLY SPRINKLERED CONSTRUCTION DOCUMENTS

Revisions:	Date

CONSULTANTS:

BARBER & HOFFMAN
215 EXECUTIVE DRIVE #202
CRANBERRY TWP, PA 16066

URBAN ENGINEERS, INC.
1 WILLIAMSBURG PLACE, SUITE 210
WARRENDALE, PA 15086

MOORE DESIGN ASSOCIATES
130 HEAVEN LANE
MARS, PA 16046

SEAL

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
SCOTT P. LIZOTTE
ENGINEER
PE041443

ARCHITECTS/ENGINEERS:

AE WORKS

6587 Hamilton Avenue
Pittsburgh, Pennsylvania 15206
Ph: 412.287.7333 Fax: 412.287.7334
www.ae-works.com

AE Works Project Number: 13045

Drawing Title
ELECTRICAL RISER & CONTROLS DIAGRAM

Approved: Project Director

Project Title:
EXPAND EMERGENCY POWER GENERATION for the ERIE VAMC

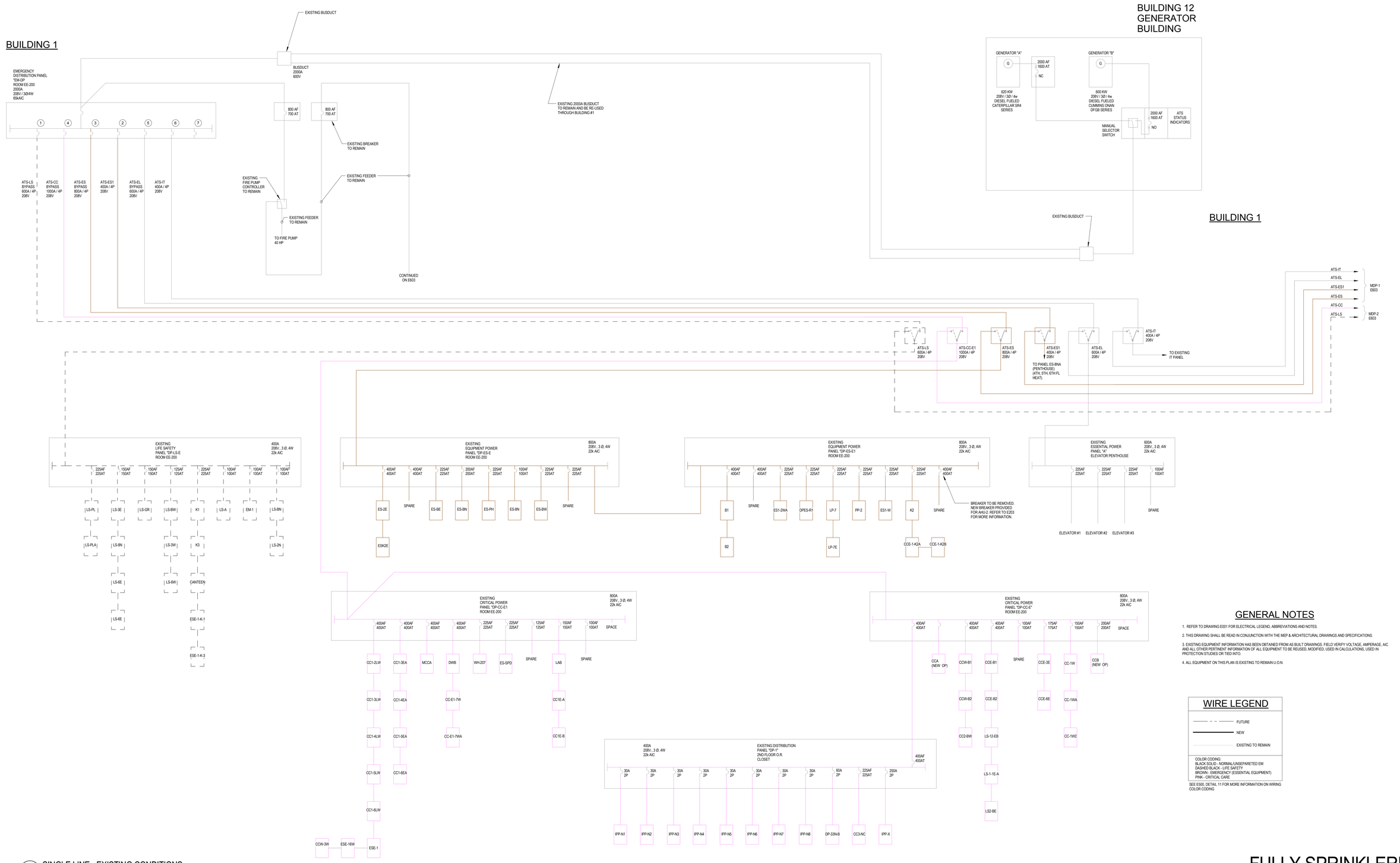
Location:
135 E 38TH ST, ERIE, PA 16504

Date: 3/17/2016
Checked: TA
Drawn: IT

Project Number 562-13-112
Building Number 1
Drawing Number E600

Office of Construction and Facilities Management
Department of Veterans Affairs

VA FORM 08-6231



1 SINGLE LINE - EXISTING CONDITIONS
NTS

GENERAL NOTES

1. REFER TO DRAWING E001 FOR ELECTRICAL LEGEND, ABBREVIATIONS AND NOTES.
2. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE MEP & ARCHITECTURAL DRAWINGS AND SPECIFICATIONS.
3. EXISTING EQUIPMENT INFORMATION HAS BEEN OBTAINED FROM AS BUILT DRAWINGS. FIELD VERIFY VOLTAGE, AMPERAGE, AIC AND ALL OTHER PERTINENT INFORMATION OF ALL EQUIPMENT TO BE REUSED, MODIFIED, USED IN CALCULATIONS, USED IN PROTECTION STUDIES OR TIED INTO.
4. ALL EQUIPMENT ON THIS PLAN IS EXISTING TO REMAIN U.O.N.

WIRE LEGEND

- FUTURE
- NEW
- EXISTING TO REMAIN

COLOR CODING:
BLACK SOLID - NORMAL/UNSEPARETED EM
DASHED BLACK - LIFE SAFETY
BROWN - EMERGENCY (ESSENTIAL EQUIPMENT)
PINK - CRITICAL CARE

SEE E500, DETAIL 11 FOR MORE INFORMATION ON WIRING COLOR CODING

FULLY SPRINKLERED CONSTRUCTION DOCUMENTS

Revisions:	Date

CONSULTANTS:

BARBER & HOFFMAN
215 EXECUTIVE DRIVE #202
CRANBERRY TWP, PA 16066

URBAN ENGINEERS, INC.
1 WILLIAMSBURG PLACE, SUITE 210
WARRENDALE, PA 15086

MOORE DESIGN ASSOCIATES
130 HEAVEN LANE
MARS, PA 16046

SEAL

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
SCOTT P. LIZOTTE
ENGINEER
RE081443

ARCHITECTS/ENGINEERS:

AE WORKS
6587 Hamilton Avenue
Pittsburgh, Pennsylvania 15206
Ph: 412.287.7333 Fax: 412.287.7334
www.ae-works.com
AE Works Project Number: 13045

Drawing Title
ELECTRICAL EMERGENCY SYSTEM SINGLE LINE - EXISTING CONDITIONS

Approved: Project Director

Project Title:
EXPAND EMERGENCY POWER GENERATION for the ERIE VAMC

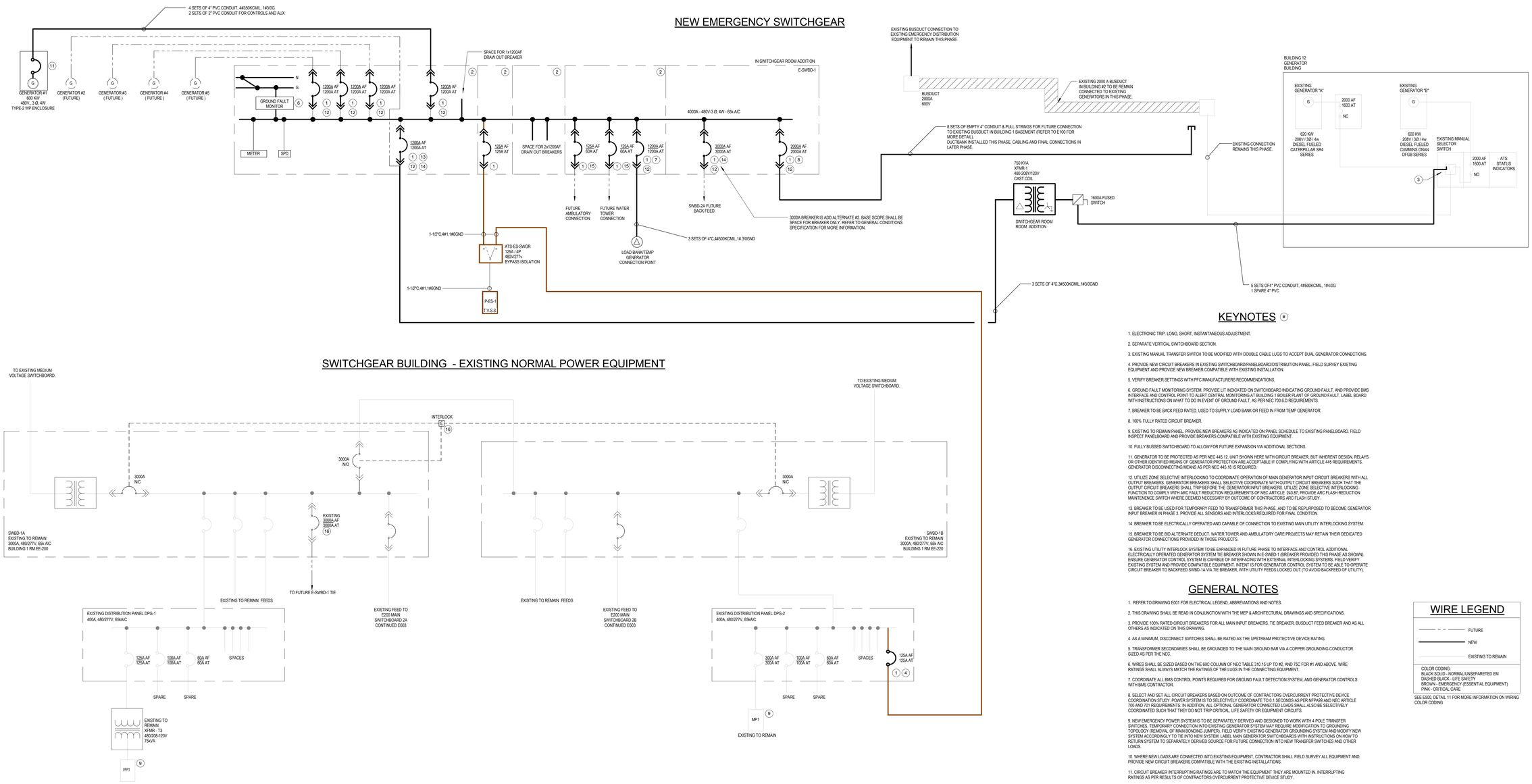
Location:
135 E 38TH ST, ERIE, PA 16504

Date: 3/17/2016
Checked: TA
Drawn: TA

Project Number 562-13-112
Building Number 1
Drawing Number E601

Office of Construction and Facilities Management
Department of Veterans Affairs

VA FORM 08-6231



1 SINGLE LINE - NEW WORK - SWITCHGEAR BUILDING
NTS

KEYNOTES

1. ELECTRONIC TRIP. LONG, SHORT, INSTANTANEOUS ADJUSTMENT.

2. SEPARATE VERTICAL SWITCHBOARD SECTION.

3. EXISTING MANUAL TRANSFER SWITCH TO BE MODIFIED WITH DOUBLE CABLE LUGS TO ACCEPT DUAL GENERATOR CONNECTIONS.

4. PROVIDE NEW CIRCUIT BREAKERS IN EXISTING SWITCHBOARD/PANELBOARD/DISTRIBUTION PANEL. FIELD SURVEY EXISTING EQUIPMENT AND PROVIDE NEW BREAKER COMPATIBLE WITH EXISTING INSTALLATION.

5. VERIFY BREAKER SETTINGS WITH PFC MANUFACTURERS RECOMMENDATIONS.

6. GROUND FAULT MONITORING SYSTEM. PROVIDE LIT INDICATED ON SWITCHBOARD INDICATING GROUND FAULT, AND PROVIDE BMS INTERFACE AND CONTROL POINT TO ALERT CENTRAL MONITORING AT BUILDING 1 BOILER PLANT OF GROUND FAULT. LABEL BOARD WITH INSTRUCTIONS ON WHAT TO DO IN EVENT OF GROUND FAULT, AS PER NEC 700.6.D REQUIREMENTS.

7. BREAKER TO BE BACK FEED RATED. USED TO SUPPLY LOAD BANK OR FEED IN FROM TEMP GENERATOR.

8. 100% FULLY RATED CIRCUIT BREAKER.

9. EXISTING TO REMAIN PANEL. PROVIDE NEW BREAKERS AS INDICATED ON PANEL SCHEDULE TO EXISTING PANELBOARD. FIELD INSPECT PANELBOARD AND PROVIDE BREAKERS COMPATIBLE WITH EXISTING EQUIPMENT.

10. FULLY BUSSED SWITCHBOARD TO ALLOW FOR FUTURE EXPANSION VIA ADDITIONAL SECTIONS.

11. GENERATOR TO BE PROTECTED AS PER NEC 445.12. UNIT SHOWN HERE WITH CIRCUIT BREAKER, BUT INHERENT DESIGN, RELAYS OR OTHER IDENTIFIED MEANS OF GENERATOR PROTECTION ARE ACCEPTABLE IF COMPLYING WITH ARTICLE 445 REQUIREMENTS. GENERATOR DISCONNECTING MEANS AS PER NEC 445.18 IS REQUIRED.

12. UTILIZE ZONE SELECTIVE INTERLOCKING TO COORDINATE OPERATION OF MAIN GENERATOR INPUT CIRCUIT BREAKERS WITH ALL OUTPUT BREAKERS. GENERATOR BREAKERS SHALL SELECTIVE COORDINATE WITH OUTPUT CIRCUIT BREAKERS SUCH THAT THE OUTPUT CIRCUIT BREAKERS SHALL TRIP BEFORE THE GENERATOR INPUT BREAKERS. UTILIZE ZONE SELECTIVE INTERLOCKING FUNCTION TO COMPLY WITH ARC FAULT REDUCTION REQUIREMENTS OF NEC ARTICLE 240.87. PROVIDE ARC FLASH REDUCTION MAINTENENCE SWITCH WHERE DEEMED NECESSARY BY OUTCOME OF CONTRACTORS ARC FLASH STUDY.

13. BREAKER TO BE USED FOR TEMPORARY FEED TO TRANSFORMER THIS PHASE, AND TO BE REPURPOSED TO BECOME GENERATOR INPUT BREAKER IN PHASE 3. PROVIDE ALL SENSORS AND INTERLOCKS REQUIRED FOR FINAL CONDITION.

14. BREAKER TO BE ELECTRICALLY OPERATED AND CAPABLE OF CONNECTION TO EXISTING MAIN UTILITY INTERLOCKING SYSTEM.

15. BREAKER TO BE BID ALTERNATE DEDUCT. WATER TOWER AND AMBULATORY CARE PROJECTS MAY RETAIN THEIR DEDICATED GENERATOR CONNECTIONS PROVIDED IN THOSE PROJECTS.

16. EXISTING UTILITY INTERLOCK SYSTEM TO BE EXPANDED IN FUTURE PHASE TO INTERFACE AND CONTROL ADDITIONAL ELECTRICALLY OPERATED GENERATOR SYSTEM TIE BREAKER SHOWN IN E-SWBD-1 (BREAKER PROVIDED THIS PHASE AS SHOWN). ENSURE GENERATOR CONTROL SYSTEM IS CAPABLE OF INTERFACING WITH EXTERNAL INTERLOCKING SYSTEMS. FIELD VERIFY EXISTING SYSTEM AND PROVIDE COMPATIBLE EQUIPMENT. INTENT IS FOR GENERATOR CONTROL SYSTEM TO BE ABLE TO OPERATE CIRCUIT BREAKER TO BACKFEED SWBD-1A VIA TIE BREAKER, WITH UTILITY FEEDS LOCKED OUT (TO AVOID BACKFEED OF UTILITY).

GENERAL NOTES

1. REFER TO DRAWING E001 FOR ELECTRICAL LEGEND, ABBREVIATIONS AND NOTES.

2. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE MEP & ARCHITECTURAL DRAWINGS AND SPECIFICATIONS.

3. PROVIDE 100% RATED CIRCUIT BREAKERS FOR ALL MAIN INPUT BREAKERS, TIE BREAKER, BUSDUCT FEED BREAKER AND AS ALL OTHERS AS INDICATED ON THIS DRAWING.

4. AS A MINIMUM, DISCONNECT SWITCHES SHALL BE RATED AS THE UPSTREAM PROTECTIVE DEVICE RATING.

5. TRANSFORMER SECONDARIES SHALL BE GROUNDED TO THE MAIN GROUND BAR VIA A COPPER GROUNDING CONDUCTOR SIZED AS PER THE NEC.

6. WIRES SHALL BE SIZED BASED ON THE 60C COLUMN OF NEC TABLE 310.15 UP TO #2, AND 75C FOR #1 AND ABOVE. WIRE RATINGS SHALL ALWAYS MATCH THE RATINGS OF THE LUGS IN THE CONNECTING EQUIPMENT.

7. COORDINATE ALL BMS CONTROL POINTS REQUIRED FOR GROUND FAULT DETECTION SYSTEM, AND GENERATOR CONTROLS WITH BMS CONTRACTOR.

8. SELECT AND SET ALL CIRCUIT BREAKERS BASED ON OUTCOME OF CONTRACTORS OVERCURRENT PROTECTIVE DEVICE COORDINATION STUDY. POWER SYSTEM IS TO SELECTIVELY COORDINATE TO 0.1 SECONDS AS PER NFPA99 AND NEC ARTICLE 700 AND 701 REQUIREMENTS. IN ADDITION, ALL OPTIONAL GENERATOR CONNECTED LOADS SHALL ALSO BE SELECTIVELY COORDINATED SUCH THAT THEY DO NOT TRIP CRITICAL, LIFE SAFETY OR EQUIPMENT CIRCUITS.

9. NEW EMERGENCY POWER SYSTEM IS TO BE SEPARATELY DERIVED AND DESIGNED TO WORK WITH 4 POLE TRANSFER SWITCHES. TEMPORARY CONNECTION INTO EXISTING GENERATOR SYSTEM MAY REQUIRE MODIFICATION TO GROUNDING TOPOLOGY (REMOVAL OF MAIN BONDING JUMPER). FIELD VERIFY EXISTING GENERATOR GROUNDING SYSTEM AND MODIFY NEW SYSTEM ACCORDINGLY TO TIE INTO NEW SYSTEM. LABEL MAIN GENERATOR SWITCHBOARDS WITH INSTRUCTIONS ON HOW TO RETURN SYSTEM TO SEPARATELY DERIVED SOURCE FOR FUTURE CONNECTION INTO NEW TRANSFER SWITCHES AND OTHER LOADS.

10. WHERE NEW LOADS ARE CONNECTED INTO EXISTING EQUIPMENT, CONTRACTOR SHALL FIELD SURVEY ALL EQUIPMENT AND PROVIDE NEW CIRCUIT BREAKERS COMPATIBLE WITH THE EXISTING INSTALLATIONS.

11. CIRCUIT BREAKER INTERRUPTING RATINGS ARE TO MATCH THE EQUIPMENT THEY ARE MOUNTED IN. INTERRUPTING RATINGS AS PER RESULTS OF CONTRACTORS OVERCURRENT PROTECTIVE DEVICE STUDY.

12. ARC FLASH ANALYSIS TO BE CARRIED OUT AS PART OF PROTECTIVE DEVICE STUDY. LABEL ALL EQUIPMENT WITH REQUIRED NEC ARC FLASH LABELING. FIELD VERIFY LABEL TYPES INSTALLED ON EXISTING EQUIPMENT AND PROVIDE MATCHING FORMAT LABELS ON ALL NEW EQUIPMENT IN THIS PROJECT.

13. EXISTING EQUIPMENT INFORMATION HAS BEEN OBTAINED FROM AS BUILT DRAWINGS. FIELD VERIFY VOLTAGE, AMPERAGE, AIC AND ALL OTHER PERTINENT INFORMATION OF ALL EQUIPMENT TO BE REUSED, MODIFIED, USED IN CALCULATIONS, USED IN PROTECTION STUDIES OR TIED INTO.

WIRE LEGEND

- FUTURE
- NEW
- EXISTING TO REMAIN

COLOR CODING:
BLACK SOLID - NORMAL/UNSEPARETED EM
DASHED BLACK - LIFE SAFETY
BROWN - EMERGENCY (ESSENTIAL EQUIPMENT)
PINK - CRITICAL CARE

SEE E500, DETAIL 11 FOR MORE INFORMATION ON WIRING COLOR CODING

FULLY SPRINKLERED CONSTRUCTION DOCUMENTS

Revisions:	Date

CONSULTANTS:

BARBER & HOFFMAN
215 EXECUTIVE DRIVE #202
CRANBERRY TWP, PA 16066

URBAN ENGINEERS, INC.
1 WILLIAMSBURG PLACE, SUITE 210
WARRENDALE, PA 15086

MOORE DESIGN ASSOCIATES
130 HEAVEN LANE
MARS, PA 16046

SEAL

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
SCOTT P. LIZOTTE
ENGINEER
PE061443

ARCHITECTS/ENGINEERS:

AE WORKS

6587 Hamilton Avenue
Pittsburgh, Pennsylvania 15206
Ph: 412.287.7333 Fax: 412.287.7334
www.ae-works.com

AE Works Project Number: 13045

Drawing Title
ELECTRICAL SINGLE LINE - NEW WORK

Approved: Project Director

Project Title:
EXPAND EMERGENCY POWER GENERATION for the ERIE VAMC

Location:
135 E 38TH ST, ERIE, PA 16504

Date: 3/17/2016 **Checked:** TA **Drawn:** IT

Project Number 562-13-112

Building Number 1

Drawing Number E602

Office of Construction and Facilities Management
Department of Veterans Affairs

VA FORM 08-6231

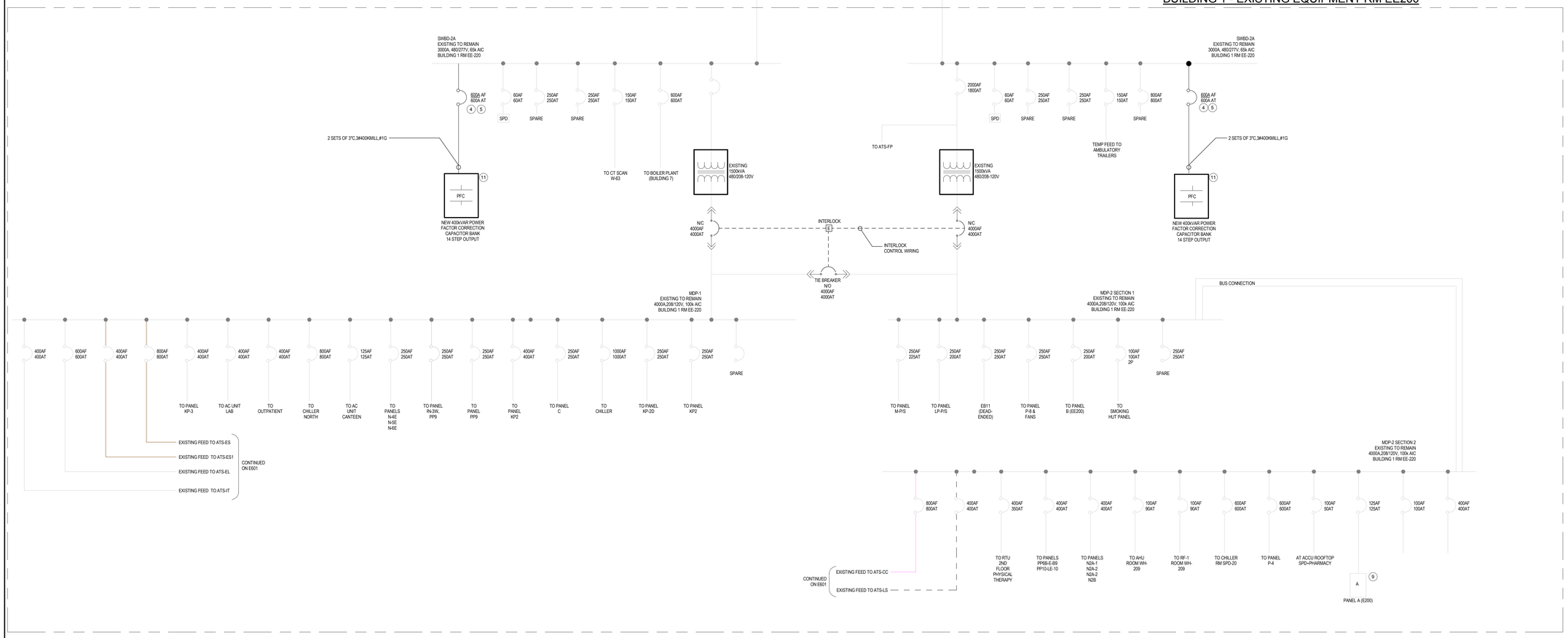
WIRE LEGEND

- FUTURE
- NEW
- EXISTING TO REMAIN

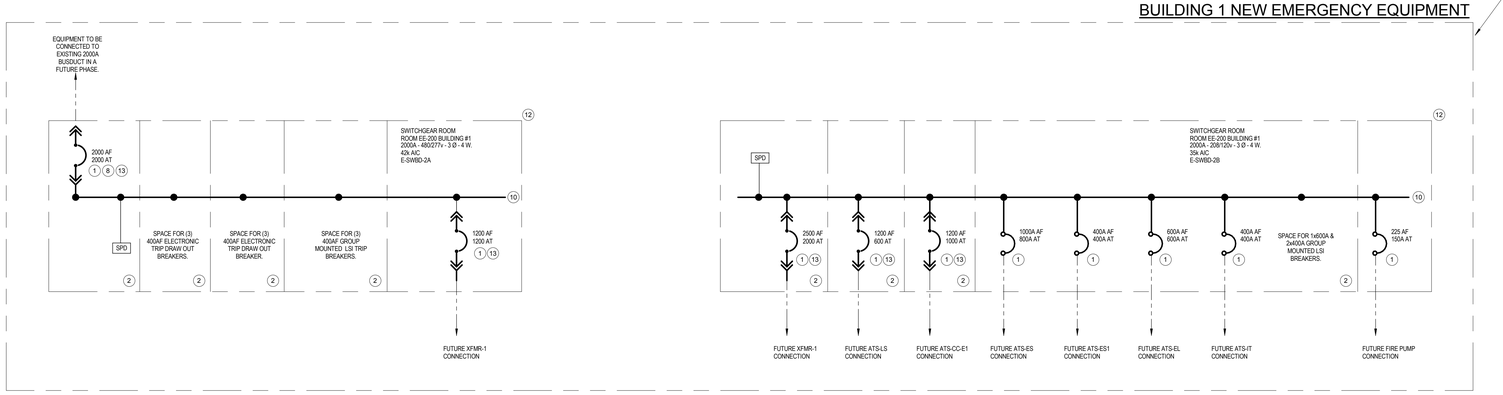
COLOR CODING:
BLACK SOLID - NORMAL/UNSEPARETED EM
DASHED BLACK - LIFE SAFETY
BROWN - EMERGENCY (ESSENTIAL EQUIPMENT)
PINK - CRITICAL CARE

SEE E500, DETAIL 11 FOR MORE INFORMATION ON WIRING COLOR CODING

BUILDING 1 - EXISTING EQUIPMENT RM EE200



BUILDING 1 NEW EMERGENCY EQUIPMENT



BUILDING 1 EMERGENCY EQUIPMENT IS ADD ALTERNATE #3. BASE SCOPE SHALL NOT PROVIDE EITHER SWITCHBOARD. REFER TO GENERAL CONDITIONS SPECIFICATION FOR MORE INFORMATION.

KEYNOTES

1. ELECTRONIC TRIP. LONG, SHORT, INSTANTANEOUS ADJUSTMENT.

2. SEPARATE VERTICAL SWITCHBOARD SECTION.

3. EXISTING MANUAL TRANSFER SWITCH TO BE MODIFIED WITH DOUBLE CABLE LUGS TO ACCEPT DUAL GENERATOR CONNECTIONS.

4. PROVIDE NEW CIRCUIT BREAKERS IN EXISTING SWITCHBOARD/PANELBOARD/DISTRIBUTION PANEL. FIELD SURVEY EXISTING EQUIPMENT AND PROVIDE NEW BREAKER COMPATIBLE WITH EXISTING INSTALLATION.

5. VERIFY BREAKER SETTINGS WITH PFC MANUFACTURERS RECOMMENDATIONS.

6. GROUND FAULT MONITORING SYSTEM. PROVIDE LIT INDICATED ON SWITCHBOARD INDICATING GROUND FAULT, AND PROVIDE BMS INTERFACE AND CONTROL POINT TO ALERT CENTRAL MONITORING AT BUILDING 1 BOILER PLANT OF GROUND FAULT. LABEL BOARD WITH INSTRUCTIONS ON WHAT TO DO IN EVENT OF GROUND FAULT, AS PER NEC 700.6.D REQUIREMENTS.

7. BREAKER TO BE BACK FEED RATED. USED TO SUPPLY LOAD BANK OR FEED IN FROM TEMP GENERATOR.

8. 100% FULLY RATED CIRCUIT BREAKER.

9. EXISTING TO REMAIN PANEL. PROVIDE NEW BREAKERS AS INDICATED ON PANEL SCHEDULE TO EXISTING PANELBOARD. FIELD INSPECT PANELBOARD AND PROVIDE BREAKERS COMPATIBLE WITH EXISTING EQUIPMENT.

10. FULLY BUSSED SWITCHBOARD TO ALLOW FOR FUTURE EXPANSION VIA ADDITIONAL SECTIONS.

11. POWER FACTOR CORRECTION CAPACITOR BANK TO HAVE MODBUS RS-485 COMMUNICATION CARD AND BE TIED INTO BMS SYSTEM SUCH THAT WHEN THE GENERATORS ARE RUNNING, THE TARGET POWER FACTOR IS EITHER CHANGED TO 0.8 LAGGING, OR THE CAPAITTOR BANKS DISCONNECT ENTIRELY. CAPACITOR BANKS TO HAVE HAND/OFF/AUTO CONTROLS FOR MANUAL OVER RIDE. REFER TO DETAIL 3 ON E600 FOR MORE INFORMATION.

12. THIS EQUIPMENT IS AN ADD ALTERNATE. ADD ALTERNATE SCOPE IS THIS EQUIPMENT TO BE PURCHASED IN THIS PHASE AND STORED ON SITE (TO BE INSTALLED IN A LATER PHASE).

13. UTILIZE ZONE SELECTIVE INTERLOCKING TO COORDINATE OPERATION OF MAIN CIRCUIT BREAKER WITH ALL OUTPUT BREAKERS. MAIN BREAKER SHALL SELECTIVE COORDINATE WITH OUTPUT CIRCUIT BREAKERS SUCH THAT THE OUTPUT CIRCUIT BREAKERS SHALL TRIP BEFORE THE MAIN BREAKERS, AND EACH OUTPUT BREAKER SHALL SELECTIVLY COORDINATE WITH EACH OTHER TO 0.1 SECONDS. UTILIZE ZONE SELECTIVE INTERLOCKING FUNCTION TO COMPLY WITH ARC FAULT REDUCTION REQUIREMENTS OF NEC ARTICLE 240.87. PROVIDE ARC FLASH REDUCTION MAINTENENCE SWITCH WHERE DEEMED NECESSARY BY OUTCOME OF CONTRACTORS ARC FLASH STUDY.

GENERAL NOTES

1. REFER TO DRAWING E001 FOR ELECTRICAL LEGEND, ABBREVIATIONS AND NOTES.

2. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE MEP & ARCHITECTURAL DRAWINGS AND SPECIFICATIONS.

3. PROVIDE 100% RATED CIRCUIT BREAKERS FOR ALL MAIN SWITCHBOARD BREAKERS, AND ALL OTHER BREAKERS 400A OR LARGER.

4. AS A MINIMUM, DISCONNECT SWITCHES SHALL BE RATED AS THE UPSTREAM PROTECTIVE DEVICE RATING.

5. TRANSFORMER SECONDARIES SHALL BE GROUNDED TO THE MAIN GROUND BAR VIA A COPPER GROUNDING CONDUCTOR SIZED AS PER THE NEC.

6. WIRES SHALL BE SIZED BASED ON THE 60C COLUMN OF NEC TABLE 310.15 UP TO #2, AND 75C FOR #1 AND ABOVE. WIRE RATINGS SHALL ALWAYS MATCH THE RATINGS OF THE LUGS IN THE CONNECTING EQUIPMENT.

7. COORDINATE ALL BMS CONTROL POINTS REQUIRED FOR GROUND FAULT DETECTION SYSTEM, AND GENERATOR CONTROLS WITH BMS CONTRACTOR.

8. SET ALL CIRCUIT BREAKERS BASED ON OUTCOME OF CONTRACTORS OVERCURRENT PROTECTIVE DEVICE COORDINATION STUDY. POWER SYSTEM IS TO SELECTIVELY COORDINATE TO 0.1 SECONDS AS PER NFPA99 AND NEC ARTICLE 700 AND 701 REQUIREMENTS. IN ADDITION, ALL OPTIONAL GENERATOR CONNECTED LOADS SHALL ALSO BE SELECTIVELY COORDINATED SUCH THAT THEY DO NOT TRIP CRITICAL, LIFE SAFETY OR EQUIPMENT CIRCUITS.

9. NEW EMERGENCY POWER SYSTEM IS TO BE SEPARATELY DERIVED AND DESIGNED TO WORK WITH 4 POLE TRANSFER SWITCHES. TEMPORARY CONNECTION INTO EXISTING GENERATOR SYSTEM MAY REQUIRE MODIFICATION TO GROUNDING TOPOLOGY (REMOVAL OF MAIN BONDING JUMPER). FIELD VERIFY EXISTING GENERATOR GROUNDING SYSTEM AND MODIFY NEW SYSTEM ACCORDINGLY TO TIE INTO NEW SYSTEM. LABEL MAIN GENERATOR SWITCHBOARDS WITH INSTRUCTIONS ON HOW TO RETURN SYSTEM TO SEPARATELY DERIVED SOURCE FOR FUTURE CONNECTION INTO NEW TRANSFER SWITCHES AND OTHER LOADS.

10. WHERE NEW LOADS ARE CONNECTED INTO EXISTING EQUIPMENT, CONTRACTOR SHALL FIELD SURVEY ALL EQUIPMENT AND PROVIDE NEW CIRCUIT BREAKERS COMPATIBLE WITH THE EXISTING INSTALLATIONS.

11. CIRCUIT BREAKER INTERRUPTING RATINGS ARE TO MATCH THE EQUIPMENT THEY ARE MOUNTED IN. INTERRUPTING RATINGS AS PER RESULTS OF CONTRACTORS OVERCURRENT PROTECTIVE DEVICE STUDY.

12. ARC FLASH ANALYSIS TO BE CARRIED OUT AS PART OF PROTECTIVE DEVICE STUDY. LABEL ALL EQUIPMENT WITH REQUIRED NEC ARC FLASH LABELING. FIELD VERIFY LABEL TYPES INSTALLED ON EXISTING EQUIPMENT AND PROVIDE MATCHING FORMAT LABELS ON ALL NEW EQUIPMENT IN THIS PROJECT.

13. EXISTING EQUIPMENT INFORMATION HAS BEEN OBTAINED FROM AS BUILT DRAWINGS. FIELD VERIFY VOLTAGE, AMPERAGE, AIC AND ALL OTHER PERTINENT INFORMATION OF ALL EQUIPMENT TO BE REUSED, MODIFIED, USED IN CALCULATIONS, USED IN PROTECTION STUDIES OR TIED INTO.

1 SINGLE LINE - NEW WORK - BUILDING 1
NTS

FULLY SPRINKLERED CONSTRUCTION DOCUMENTS

Revisions:	Date

CONSULTANTS:

BARBER & HOFFMAN
215 EXECUTIVE DRIVE #202
CRANBERRY TWP, PA 16066

URBAN ENGINEERS, INC.
1 WILLIAMSBURG PLACE, SUITE 210
WARRENDALE, PA 15086

MOORE DESIGN ASSOCIATES
130 HEAVEN LANE
MARS, PA 16046

SEAL

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
SCOTT P. LIZOTTE
ENGINEER
PE041443

ARCHITECTS/ENGINEERS:

AE WORKS

6587 Hamilton Avenue
Pittsburgh, Pennsylvania 15206
Ph: 412.287.7333 Fax: 412.287.7334
www.ae-works.com

AE Works Project Number: 13045

Drawing Title
ELECTRICAL SINGLE LINE - NEW WORK - BUILDING 1

Approved: Project Director

Project Title:
EXPAND EMERGENCY POWER GENERATION for the ERIE VAMC

Location:
135 E 38TH ST, ERIE, PA 16504

Date: 3/17/2016
Checked: TA
Drawn: IT

Project Number 562-13-112
Building Number 1
Drawing Number E603

Office of Construction and Facilities Management
Department of Veterans Affairs

VA FORM 08-6231

(EXISTING) Branch Panel: PP-1

Location: SWITCHGEAR BUILDING X3
Supply From: DPG-1
Mounting: SURFACE

Volts: 120/208 Wye
Phases: 3
Wires: 4

A.I.C. Rating: 10k
Mains Type: MCB
Panel Size: 225 A
MCB Rating: 225 A

Notes:
EXISTING TO REMAIN PANEL

CKT	Circuit Description	Trip	Poles	A		B		C		Poles	Trip	Circuit Description	CKT
1	RECEPTACLE	20 A	1	0.7 kW	0.7 kW					1	20 A	RECEPTACLE	2
3	POWER - GENERATOR AUX	60 A	2			3.0 kW	0.0 kW			--	--	EXISTING	4
5								3.0 kW	0.0 kW	--	--	EXISTING	6
7	EXISTING	--	--	0.0 kW	0.0 kW					--	--	EXISTING	8
9	EXISTING	--	--			0.0 kW	0.0 kW			--	--	EXISTING	10
11	EXISTING	--	--					0.0 kW	0.0 kW	--	--	EXISTING	12
13	EXISTING	--	--	0.0 kW	0.0 kW					--	--	EXISTING	14
15	EXISTING	--	--			0.0 kW							16
17													18
19													20
21													22
23													24
25													26
27													28
29													30
31													32
33													34
35													36
37													38
39													40
41													42
			Total Load:	1440 VA		3000 VA		3000 VA					
			Total Amps:	12 A		27 A		27 A					

Legend:

(EXISTING) Branch Panel: MP-1

Location: SWITCHGEAR BUILDING X3
Supply From: DPG-2
Mounting: SURFACE

Volts: 480/277 Wye
Phases: 3
Wires: 4

A.I.C. Rating: 14k
Mains Type: MLO
Panel Size: 300 A
MCB Rating:

Notes:
EXISTING TO REMAIN PANEL

CKT	Circuit Description	Trip	Poles	A		B		C		Poles	Trip	Circuit Description	CKT
1	LIGHTING	20 A	1	0.5 kW	0.0 kW					--	--	EXISTING	2
3	EXISTING	--	--			0.0 kW	0.0 kW			--	--	EXISTING	4
5	EXISTING	--	--					0.0 kW	0.0 kW	--	--	EXISTING	6
7	EXISTING	--	--	0.0 kW	0.0 kW					--	--	EXISTING	8
9	EXISTING	--	--			0.0 kW	0.0 kW			--	--	EXISTING	10
11	EXISTING	--	--					0.0 kW	0.0 kW	--	--	EXISTING	12
13	LIGHTING	20 A	1	0.1 kW									14
15													16
17													18
19													20
21													22
23													24
25													26
27													28
29													30
31													32
33													34
35													36
37													38
39													40
41													42
			Total Load:	506 VA		0 VA		0 VA					
			Total Amps:	2 A		0 A		0 A					

Legend:

LIGHTING FIXTURE SCHEDULE

TYPE	DESCRIPTION	MOUNTING	BASIS OF DESIGN		LAMP		BALLAST/DRIVER		WATTAGE	VOLTAGE	COMMENTS
			MANUFACTURER	SERIES	TYPE	LUMENS	TYPE	BF/MA			
EXIT	THERMOPLASTIC LED EXIT SIGN	UNIVERSAL	LITHONIA	LQM-S-W-X-R-EL N-SD	RED LED	N/A	---	---	5W	120/277V	COORDINATE CHEVRONS & DOUBLE OR SINGLE SIDED W/ FLOOR PLANS
F1	SUSPENDED 4' LINEAR LED STRIP LIGHT	SUSPENDED	LITHONIA	ZL2-L46-4600L-D75-LP835	LED	4600	0-10V LED		38W	120/277V	SUSPENDED. HEIGHT BASED ON FIELD CONDITIONS.
F2	EXTERIOR ABOVE DOOR WALLPACK	SURFACE WALL	LITHONIA	CSXWLED-30-700-T2M MVOLT-PE-DBLXD	LED	6695	LED		69W	120/277V	MATCH HEIGHT OF EXISTING BUILDING MOUNTED FIXTURES
F3	SURFACE MOUNTED AIMABLE LED FLOOD	WP JBOX	LITHONIA	DSXF2-3-A530/40K-MFL-277 -THK-DBLXD	LED	3416	LED		54W	120/277V	AIM FIXTURE IN FIELD. PROVIDE LV CONTROLS FOR 1 HOUR TIMED OPERATION WITH ABILITY TO BE REPROGRAMMED. BASIS OF DESIGN CONTROLS WATT STOPPER TS-400.
EM1	WALL BATTERY UNIT	SURFACE WALL	LITHONIA	EU2-LED-M12	LED	-	LED		1.8W	120/277V	
EM2	BATTERY UNIT REMOTE HEAD	SURFACE WALL	LITHONIA	ELA-LED-WP-M12	LED	-	LED		1.8W	FROM EM1	CONNECTED TO CLOSEST EM1. SIZE BATTERY OF EM1 SUFFICIENTLY FOR FIXTURES AND CONNECTED HEADS. PROVIDE ADDITIONAL BATTERIES IF REQUIRED.

NOTES:
1. ALL INTERIOR FIXTURES TO BE 4000 OR GREATER KELVIN COLOR TEMPERATURE (EMERGENCY ONLY FIXTURES MAY BE 3000-4000K).
2. ALL DIODES WITHIN A FIXTURE ARE TO BE WITHIN 3 MACADAM ELIPSES OF EACH OTHER TO ENSURE COLOR CONSISTANCY.
3. ALL FIXTURES OF THE SAME TYPE SHALL BE WITHIN 2 MACADAM ELIPSES OF EACH OTHER TO ENSURE COLOR CONSISTANCY.
4. PROVIDE ALL MOUNTING HARDWARE AND OTHER PARTS, PIECES AND PROGRAMMING REQUIRED FOR A COMPLETE LIGHTING SYSTEM.
5. ALL EXTERIOR LIGHT FIXTURES SHALL BE 4000K.

LEGEND:
PRS = PROGRAMMED RAPID START
STEP DIM = DIMMABLE FROM 100% TO 50%
LED = LED DRIVER (STANDARD 0-10V DIMMING)
BF = BALLAST FACTOR (FOR FLUORESCENT BALLASTS ONLY)
MA = MILIAMPS (FOR LED DRIVERS ONLY)

EMERGENCY GENERATOR SCHEDULE

POWER RATING (KW)	VOLTAGE (V)	ALTERNATOR TOPOLOGY	POWER FACTOR	FUEL TYPE	ACOUSTIC ENCLOSURE TYPE	COMMENTS
600	480/277	WYE	0.8	DIESEL + NATRUAL GAS (BI-FUEL)	TYPE II	1. INTEGRAL ENCLOSURE HEATER 2. INTEGRAL ENCLOSURE LIGHTING 3. 60A/3P/208 AUX CONNECTION 4. PROVIDE CONTROLLERS CAPABLE OF OPERATING FUTURE ADDITIONAL GENERATORS.

REFER TO SPECIFICATION SECTION 263213 FOR FULL GENERATOR REQUIREMENTS

(EXISTING) Branch Panel: DP-ES-E

Location: BLDG1: EE220
Supply From: ATS-ES
Mounting: SURFACE

Volts: 120/208 Wye
Phases: 3
Wires: 4

A.I.C. Rating: 22k
Mains Type: MCB
Panel Size: 800 A
MCB Rating: 800 A

Notes:
EXISTING TO REMAIN EQUIPMENT POWER DISTRIBUTION PANEL.

CKT	Circuit Description	Trip	Poles	A		B		C		Poles	Trip	Circuit Description	CKT
1				10.7 kW	0.0 kW					--	--	EXISTING	2
3	HVAC - RTU1	125 A	3			10.7 kW	0.0 kW			--	--	EXISTING	4
5								10.7 kW	0.0 kW	--	--	EXISTING	6
7	EXISTING	--	--	0.0 kW	0.0 kW					--	--	EXISTING	8
9	EXISTING	--	--			0.0 kW	0.0 kW			--	--	EXISTING	10
11	EXISTING	--	--					0.0 kW	0.0 kW	--	--	EXISTING	12
13	EXISTING	--	--	0.0 kW	0.0 kW					--	--	EXISTING	14
15	EXISTING	--	--			0.0 kW	0.0 kW			--	--	EXISTING	16
17	EXISTING	--	--					0.0 kW	0.0 kW	--	--	EXISTING	18
19	EXISTING	--	--	0.0 kW	0.0 kW					--	--	EXISTING	20
21	EXISTING	--	--			0.0 kW	0.0 kW			--	--	EXISTING	22
23	EXISTING	--	--					0.0 kW	0.0 kW	--	--	EXISTING	24
			Total Load:	10667 VA		10667 VA		10667 VA					
			Total Amps:	89 A		89 A		89 A					

Legend:

(NEW) Branch Panel: P-ES-1

Location: EMERGENCY SWITCHGEAR ROOM 02
Supply From: ATS-ES-SWGR
Mounting: SURFACE

Volts: 480/277 Wye
Phases: 3
Wires: 4

A.I.C. Rating: 35k
Mains Type: MCB
Panel Size: 125 A
MCB Rating: 125 A

Notes:
NEW PANEL. INTEGRAL T.V.S.S. DEVICE.

CKT	Circuit Description	Trip	Poles	A		B		C		Poles	Trip	Circuit Description	CKT
1				16.5 kW	0.0 kW					1	20 A	Spare	2
3	HVAC - AHU-1	90 A	3			16.5 kW	0.0 kW			1	20 A	Spare	4
5								16.5 kW	0.0 kW	1	20 A	Spare	6
7	Spare	20 A	1	0.0 kW	0.0 kW					1	20 A	Spare	8
9	Spare	20 A	1			0.0 kW	0.0 kW			1	20 A	Spare	10
11	Spare	20 A	1					0.0 kW	0.1 kW	1	20 A	POWER	12
13	Spare	20 A	1	0.0 kW	0.4 kW					1	20 A	POWER	14
15	Spare	20 A	1			0.0 kW							16
17													18
19													20
21													22
23													24
25													26
27													28
29													30
31													32
33													34
35													36
37													38
39													40
41													42
			Total Load:	16860 VA		16500 VA		16600 VA					
			Total Amps:	61 A		60 A		60 A					

Legend:

PANELBOARD NOTES:

1. REFER TO LABELLING REQUIREMENTS ON E601 AND DETAIL 11 ON E500.

2. METER EXISTING TO BE REUSED PANELBOARDS FOR 30 DAYS MINIMUM AS PER NEC 220.87 REQUIRMENTS. SUBMIT METERING REPORT TO COR AND ENGINEER PRIOR TO ORDERING ANY EQUIPMENT.

3. PROVIDE NEW BREAKERS AS INDICATED IN EXISTING PANELBOARDS. BREAKERS SHALL BE COMPATIBLE WITH EXISTING EQUIPMENT AND AIC RATED AS PER THE PANELBOARD RATING MINIMUM.

FULLY SPRINKLERED
CONSTRUCTION DOCUMENTS

Revisions:	Date

CONSULTANTS:

BARBER & HOFFMAN
215 EXECUTIVE DRIVE #202
CRANBERRY TWP, PA 16066

URBAN ENGINEERS, INC.
1 WILLIAMSBURG PLACE, SUITE 210
WARRENDALE, PA 15086

MOORE DESIGN ASSOCIATES
130 HEAVEN LANE
MARS, PA 16046

SEAL

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
SCOTT P. LIZOTTE
ENGINEER
PE041443

ARCHITECTS/ENGINEERS:

AE WORKS

6587 Hamilton Avenue
Pittsburgh, Pennsylvania 15206
Ph: 412.287.7333 Fax: 412.287.7334
www.ae-works.com

AE Works Project Number: 13045

Drawing Title
ELECTRICAL SCHEDULES

Approved: Project Director

Project Title:
EXPAND EMERGENCY POWER GENERATION for the ERIE VAMC

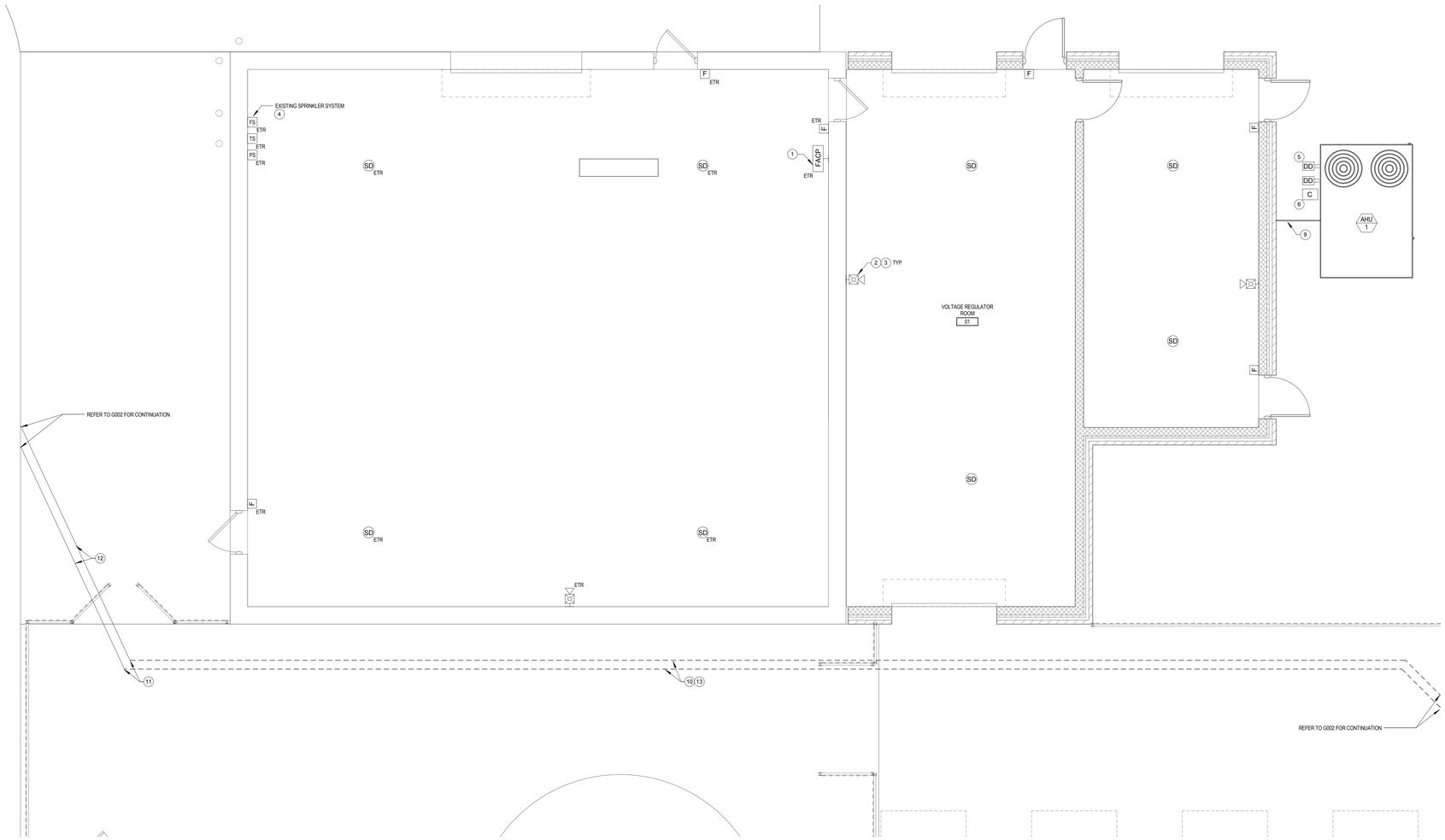
Location:
135 E 38TH ST, ERIE, PA 16504

Date: 3/17/2016
Checked: TA
Drawn: IT

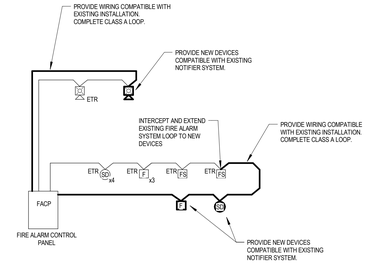
Project Number 562-13-112
Building Number 1
Drawing Number E700

Office of Construction and Facilities Management
Department of Veterans Affairs

VA FORM 08-6231



1 EMERGENCY SWITCHGEAR ROOM - SYSTEMS PLAN
1/4" = 1'-0"



2 FIRE ALARM RISER
NTS

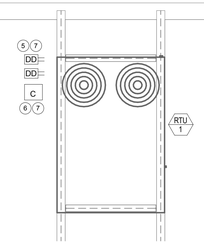
1. PROVIDE NEW DEVICES AS SHOWN ON THE PLANS AND TIE INTO EXISTING FIRE ALARM SYSTEM. SWITCHGEAR BUILDING IS NEW NOTIFIER NFS-320 FIRE ALARM SYSTEM. FIELD VERIFY IM E200 SYSTEM PANEL LOCATIONS AND SYSTEM TYPE AND PROVIDE DEVICES COMPATIBLE WITH EXISTING SYSTEM.
2. MODIFY EXISTING SYSTEM TO ACCEPT NEW DEVICES. PROVIDE ADDITIONAL WIRING, BOOSTER POWER SUPPLIES, NAC CARDS AND ALL OTHER COMPONENTS REQUIRED TO PROVIDE A FULLY FUNCTIONAL FIRE ALARM SYSTEM.
3. COORDINATE FIRE ALARM SYSTEM DOWNTIME WITH COR PRIOR TO SHUTDOWN. SUBMIT WORKPLAN FOR APPROVAL PRIOR TO CARRYING OUT ANY WORK.
4. SYSTEM WIRING IS CLASS-A. ENSURE CLASS A SYSTEM LOOP IS COMPLETED AFTER SYSTEM HAS BEEN MODIFIED.
5. FIRE ALARM SEQUENCE OF OPERATION AS PER EXISTING SYSTEM.
6. FOR BATTERY SIZING CALCULATIONS, ASSUME EACH SPEAKER IS TAPPED AT 2W. FIELD SET SPEAKERS BASED ON AUDIBILITY TESTING.

KEYNOTES:

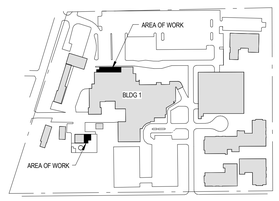
1. EXISTING NOTIFIER NFS-320 FIRE ALARM CONTROL PANEL. CONNECT NEW DEVICES AS INDICATED INTO EXISTING FIRE ALARM SYSTEM LOOPS. PROVIDE ADDITIONAL BOOSTER POWER SUPPLIES, NAC EXTENDERS, SYSTEM REPROGRAMING AND ALL OTHER COMPONENTS AND SERVICES REQUIRED TO CONNECT NEW DEVICES INTO THE EXISTING SYSTEM. FIRE ALARM SEQUENCE OF OPERATION TO BE AS PER EXISTING DEVICES.
2. SET NEW STROBES TO 75CD.
3. FOR BATTERY SIZING CALCULATIONS, ASSUME EACH SOUNDED IS TAPPED AT 2W. FIELD ADJUST ACTUAL SETTING BASED ON AUDIBILITY TESTING.
4. SPRINKLER SYSTEM WILL BE IMPACTED BY FIRE ALARM SHUTDOWN. COORDINATE SHUTDOWN WITH COR.
5. DUCT DETECTOR FOR AHU UNIT SHUTDOWN. PROVIDED BY EC, INSTALLED BY MC, WIRED BY EC.
6. FIRE ALARM CONTROL MODULE FOR AHU UNIT SHUTDOWN.
7. TIE NEW DEVICES INTO EXISTING MAIN SWITCHGEAR ROOM FIRE ALARM SYSTEM ON FLOOR BELOW. PROVIDE ALL ADDITIONAL POWER SUPPLIES, NAC EXTENDERS, BATTERIES OR OTHER COMPONENTS OR PROGRAMMING REQUIRED FOR A FULLY FUNCTIONAL SYSTEM.
8. REFER TO ED301 FOR LOCATION OF FIRE ALARM PANELS SERVING THIS AREA ON FLOOR BELOW.
9. PROVIDE DEDICATED 1" CONDUIT FOR FIRE ALARM TO UNIT. RUN UNDERGROUND TO CROSS GRADE TO UNIT.
10. RELOCATED FIRE ALARM CIRCUIT IN NEW UNDERGROUND CONDUIT. CIRCUIT IS 2 CONDUCTORS, #16 GUAGE. ASSUME RUN IS IN M COPPER CABLE BUT FIELD VERIFY EXISTING CABLING AND MATCH EXISTING WITH NEW. PROVIDE 2"C. CONCRETE ENCASED. REMOVE EXISTING CONDUCTOR RUN AND REPLACE WITH NEW. NO SPLICES ARE PERMITTED IN THE FIRE ALARM CIRCUIT.
11. TIE NEW CONDUIT INTO EXISTING AT THIS LOCATION.
12. EXISTING FA CONDUIT RUN TO REMAIN. REPLACE CONDUCTORS AS PER KEYNOTE 10.
13. REFER TO G002 FOR ADDITIONAL INFORMATION AND LOCATION OF RELOCATED AND EXISTING FIRE ALARM CONDUIT RUNS.

SOLE SOURCE:

ALL SYSTEM PARTS MUST BE HONEYWELL NOTIFIER ONLY (SOLE SOURCE) AS PER EXISTING SYSTEM - NO OTHER MANUFACTURER ALLOWED.



3 ROOM EE200 ROOF PLAN FIRE ALARM
1/4" = 1'-0"



SITE KEY PLAN

PROJECT NORTH

FULLY SPRINKLERED CONSTRUCTION DOCUMENTS

Revisions:	Date

CONSULTANTS:

BARBER & HOFFMAN
215 EXECUTIVE DRIVE #202
CRANBERRY TWP, PA 16066

URBAN ENGINEERS, INC.
1 WILLIAMSBURG PLACE, SUITE 210
WARRENDALE, PA 15086

MOORE DESIGN ASSOCIATES
130 HEAVEN LANE
MARS, PA 16046

SEAL

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
SCOTT P. LIZOTTE
ENGINEER
PE061443

ARCHITECTS/ENGINEERS:

AE WORKS

6587 Hamilton Avenue
Pittsburgh, Pennsylvania 15206
Ph: 412.287.7333 Fax: 412.287.7334
www.ae-works.com

AE Works Project Number: 13045

Drawing Title
FIRE ALARM PLAN - SWITCHGEAR BLDG & EE200

Approved: Project Director

Project Title:
EXPAND EMERGENCY POWER GENERATION for the ERIE VAMC

Location:
135 E 38TH ST, ERIE, PA 16504

Date:	Checked:	Drawn:
3/17/2016	TA	IT

Project Number 562-13-112

Building Number 1

Drawing Number EF101

Office of Construction and Facilities Management

Department of Veterans Affairs

VA FORM 08-6231

ABBREVIATION LEGEND

&	AND
A	AIR (CLINICAL)
AAP	ALARM ANNUNCIATOR PANEL
AAV	AUTOMATIC AIR VENT
AB	ANCHOR BOLT
ABV	ABOVE
ACC DR	ACCESS DOOR
ACFL	ACCESS
ACOUS	ACOUSTICAL
ACT	ACOUSTICAL CEILING TILE
AD	AREA DRAIN
ADA	AMERICAN DISABILITIES ACT
ADD	ADDENDUM
ADDL	ADDITIONAL
ADJ	ADJUSTABLE
ADMIN	ADMINISTRATION
AFF	ABOVE FINISH FLOOR
AFG	ABOVE FINISHED GRADE
AFMD	AIR FLOW MEASURING DEVICE
AHU	AIR HANDLING UNIT
AL	ALIGN
ALT	ALTERNATE
ALUM	ALUMINUM
AMP	AMPERE
AP	ACCESS PANEL
APC	ARCHITECTURAL PRECAST CONCRETE
APPROX	APPROXIMATE
ARCH	ARCHITECTURAL
ASY	ASYMMETRIC
ATC	AUTOMATIC TEMPERATURE CONTROL
ATS	AUTOMATIC TRANSFER SWITCH
AUTO	AUTOMATIC
AWT	AVERAGE WATER TEMPERATURE
BAT	BATTERY
BC	BALANCING COCK OR BARE COPPER
BDD	BACKDRAFT DAMPER
BFC	BELOW FINISH CEILING
BFE	BOTTOM FOOTING ELEVATION
BFG	BELOW FINISHED GRADE
BG	BUMPER GUARD
BLDG	BUILDING
BLKG	BLOCKING
BLT	BORROWED LIGHT
BLW	BELOW
BM	BEAM
BO	BY OWNER
BOF	BY OWNER FUTURE
BOT	BOTTOM
BR	BRICK
BRG	BEARING
BRKR	BREAKER
BSMT	BASEMENT
BTWN	BETWEEN
BUR	BUILT UP ROOFING
C	CONDUIT
CAB	CABINET
CANTL	CANTILEVER
CAP	CAPACITY
CATV	CABLE TELEVISION
CCT	CUBICLE CURTAIN TRACK
CCTV	CLOSED CIRCUIT TELEVISION
CFH	CUBIC FEET / HOUR
CFM	CUBIC FEET / MINUTE
CH	CHANNEL
CHK V	CHECK VALVE
CHWR	CHILLED WATER RETURN
CHWS	CHILLED WATER SUPPLY
CHWS&R	CHILLED WATER SUPPLY AND RETURN
CJ	CONTROL JOINT
CKT	CIRCUIT
CKT BRKR	CIRCUIT BREAKER
CL	CENTERLINE
CLG	CEILING
CLG MTD	CEILING MOUNTED
CLR	CLR
CMU	CONCRETE MASONRY UNIT
CO	CLEAN OUT
COL	COLUMN
COMM	COMMUNICATION
CONC	CONCRETE
CONN	CONNECTION
CONST	CONSTRUCTION
CONT	CONTINUE / CONTINUOUS
CONTR	CONTRACTOR
CONV	CONVECTOR
COORD	COORDINATE
CORR	CORRIDOR
CPT	CARPET OR CONTROL POWER TRANSFORMER
CT	CERAMIC TILE
CTR	CENTER
CU	COPPER
CV	CONTROL VALVE
CW	COLD WATER
D	DEPTH OR DEEP
DB	DRY BULB
dB	DECIBEL
DCW	DOMESTIC COLD WATER
DEMO	DEMOLITION
DEPT	DEPARTMENT
DET	DETAILS
DF	DRINKING FOUNTAIN
DHW	DOMESTIC HOT WATER
DIA	DIAMETER
DIAG	DIAGONAL OR DIAGRAM
DIFF	DIFFUSER
DIM	DIMENSION
DISC	DISCONNECT
DISCH	DISCHARGE
DISP	DISPENSER
DIST	DISTRIBUTION
DIV	DIVISION
DL	DOWN LIGHT
DN	DOWN
DP	DISTRIBUTION PANEL
DPR	DAMPER
DR	DRAIN
DS	DOWNSPOUT
DWG	DRAWING
DX	DIRECT EXPANSION
EA	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
EC	ELECTRICAL CONTRACTOR
EDB	ENTERING DRY BULB
EF	EXHAUST FAN
EIFS	EXTERIOR INSULATION AND FINISHING SYSTEM
EJ	EXPANSION JOINT
EL	ELEVATION
ELEC	ELECTRICAL

ELEC CAB	ELECTRICAL CABINET
ELEV	ELEVATOR
EMER	EMERGENCY
ENCL	ENCLOSURE
ENTR	ENTRANCE
EO	ELECTRICAL OUTLET
EQ	EQUAL
EQUIP	EQUIPMENT
ETR	EXISTING TO REMAIN
EWB	ENTERING WET BULB
EWC	ELECTRIC WATER COOLER
EWT	ENTERING WATER TEMPERATURE
EX	EXAUST AIR
EXH	EXHAUST
EXIST	EXISTING
EXP	EXPANSION
EXT	EXTERIOR
XP	EXPLOSION PROOF
F/S	FIRE / SMOKE DAMPER
FA	FIRE ALARM
FAAP	FIRE ALARM ANNUNCIATOR PANEL
FACP	FIRE ALARM CONTROL PANEL
FAT	FINAL AIR TEMPERATURE
FB	FIRE BLANKET
FC	FLEXIBLE CONNECTION OR FOOTCANDLE
FD	FLOOR DRAIN OR FIRE DAMPER
FDN	FOUNDATION
FDV	FIRE DEPARTMENT VALVE
FE	FIRE EXTINGUISHER
FEC	FIRE EXTINGUISHER CABINET
FH	FIRE HOSE
FHC	FIRE HOSE CABINET
FHP	FULL HEIGHT PARTITION
FHV	FIRE HOSE VALVE
FIN	FINISH
FIXT	FIXTURE
FL	FLOW LINE
FLA	FULL LOAD AMPERES
FLASH	FLASHING
FLEX	FLEXIBLE
FLG	FLANGE
FLG C	FLANGE CONNECTION
FLR	FLOOR
FLUOR	FLUORESCENT
FP	FIRE PROOFING
FRMG	FRAMING
FS	FLOOR SINK
FSTOP	FIRESTOPPING
FT	FOOT / FEET
FT HD	FEET OF HEAD
FTC	FOOTCANDLES
FTG	FOOTING
FUR	FURRING
G	GAS OR ELECTRICAL GROUND
GA	GAUGE
GAL	GALLONS
GALV	GALVANIZED
GB	GRAB BAR
GC	GENERAL CONTRACTOR
GEN	GENERATOR
GENL	GENERAL
GFCI	GROUND FAULT CIRCUIT INTERRUPTOR
GL	GLASS
GLV	GLOBE VALVE
GND	GROUND
GPM	GALLONS PER MINUTE
GR	GRADE
GRAV	GRAVITY
GRD BM	GRADE BEAM
GV	GATE VALVE
GWB	GYPSUM BOARD
H	HIGH
HB	HOSE BIB
HC	HEATING CONTRACTOR
HDCP	HANDICAP
HDR	HEADER
HDW	HARDWARE
HID	HIGH INTENSITY DISCHARGE
HM	HOLLOW METAL
HORIZ	HORIZONTAL
HP	HORSE POWER
HPD	HIGH PRESSURE DRIP
HPF	HIGH POWER FACTOR
HR	HANDRAIL
HSKP	HOUSEKEEPING
HT	HEIGHT
HTG	HEATING
HTR	HEATER
HV	HIGH VELOCITY
HVAC	HEATING, VENTILATING, AIR CONDITIONING
HW	HOT WATER
HWD	HARD WOOD
HWR	HOT WATER RETURN
HWS	HOT WATER SUPPLY
HWS&R	HOT WATER SUPPLY AND RETURN
HZ	HERTZ
ID	INSIDE DIAMETER
IER	INVERTED ECCENTRIC REDUCER
IG	ISOLATED GROUND
IME	INSULATED METAL ENCLOSURE
IN	INCH
INCAND	INCANDESCENT
INCL	INCLUDED
INSUL	INSULATION
INT	INTERIOR
INTERL	INTERLOCK
INV	INVERT
ISO	ISOLATION
IVS	ISOLATED VALVE STATION
J-BOX	JUNCTION BOX
JST	JOIST
JT	JOINT
KO	KNOCK OUT
kVA	KILOVOLT AMPERE
kVAR	KILOVAR (REACTANCE)
kW	KILOWATT
kWH	KILOWATT HOUR METER
LAT	LEAVING AIR TEMPERATURE
LAV	LAVATORY
LB	POUND
LDB	LEAVING DRY BULB
LED	LIGHT EMITTING DIODE
LF	LINEAR FEET
LIN	LINEAR
LOC	LOCATION OR LOCATE
LPT	LOW POINT
LSDC	LINEAR SUPPLY DIFFUSER CEILING
LT	LIGHT

LTG	LIGHTING
LV	LOW VOLTAGE
LVR	LOUVER
LWB	LEAVING WET BULB
LWC	LINEAR WOOD CEILING
LWT	LEAVING WATER TEMPERATURE
MAN	MANUAL
MAT	MIXED AIR TEMPERATURE
MATL	MATERIAL
MAV	MANUAL AIR VENT
MAX	MAXIMUM
MBH	ONE THOUSAND BTU / HOUR
MC	MECHANICAL CONTRACTOR
MC	METAL CLAD CABLE
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MDP	MAIN DISTRIBUTION PANEL
MECH	MECHANICAL
MEMB	MEMBRANE
MET	METAL
MFR	MANUFACTURER
MH	MANHOLE
MIN	MINIMUM
MISC	MISCELLANEOUS
MLO	MAIN LUGS ONLY
MO	MASONRY OPENING
MOD	MOTOR OPERATED DAMPER
MONO	MONOLITHIC
MTD	MOUNTED
MTG HT	MOUNTING HEIGHT
MTL	METAL
MTLH	METAL HALIDE
MTR	MOTOR
MTS	MANUAL TRANSFER SWITCH
MV	MEDIUM VOLTAGE
N/A	NOT APPLICABLE
NEC	NATIONAL ELECTRIC CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURER ASSOCIATION
NIC	NOT IN CONTRACT
NL	NIGHT LIGHT
NO	NUMBER OR NORMALLY OPEN
NOM	NOMINAL
NTS	NOT TO SCALE
O	OXYGEN
OA	OUTSIDE AIR
OBD	OPPOSED BLADE DAMPER
OC	ON CENTER
OD	OUTSIDE DIAMETER
OPER	OPERATED
OPNG	OPENING
OPP	OPPOSITE
ORD	OVERFLOW ROOF DRAIN
PB	PULL BOX
PC	PLUMBING CONTRACTOR
PD	PUMP DISCHARGE
PG	PRESSURE GAUGE WITH COCK
PL	PROPERTY LINE
PLAM	PLASTIC LAMINATE
PLBG	PLUMBING
PNL	PANEL
PR	PAIR
PRD	PRESSURE DIFFERENTIAL VALVE
PRELIM	PRELIMINARY
PRT	PRESSURE TAP
PRV	PRESSURE REDUCING VALVE
PT	PAINT OR POTENTIAL TRANSFORMER
RO	ROUGH OPENING
QT	QUARRY TILE
R	RADIUS
RA	RETURN AIR / RELIEF AIR
RB	RUBBER BASE
RC	REMOVE COMPLETELY
RD	ROOF DRAIN
RE	RELOCATE EXISTING
REC	RECESSED
RECPT	RECEPTACLE
REF	REFERENCE
REFL	REFLECTOR
REG	REGISTER
REINF	REINFORCING
REM	REMOVE
REQD	REQUIRED
RET	RETURN
REV	REVISE
REX	REMOVE EXISTING
RF	RESILIENT FLOOR
RFI	REQUEST FOR INFORMATION
RGS	RIGID GALVANIZED STEEL CONDUIT
RH	ROOF HATCH
RM	ROOM
RN	REMOVE AND REPLACE WITH NEW
RR	REMOVE AND REPLACE
RS	RAPID START
RV	RELIEF VALVE
RWC	RAIN WATER CONDUCTOR
SA	SUPPLY AIR
SAN	SANITARY SEWER ABOVE GROUND
SAN-BXR	SANITARY SEWER - BURIED EXISTING TO REMAIN
SAN-XR	SANITARY SEWER ABOVE GROUND - EXISTING TO REMAIN
SCHED	SCHEDULE
SD	SMOKE DAMPER OR SMOKE DETECTOR
SDISP	SOAP DISPENSER
SF	SQUARE FOOT
SHT	SHEET
SHT MTL	SHEET METAL
SHTG	SHEATHING
SIM	SIMILAR
SM	SURFACE MOUNTED
SNC	SANITARY NAPKIN CABINET
SND	SANITARY NAPKIN DISPOSER
SP	STANDPIPE OR STATIC PRESSURE
SPC	SPECIMEN PASS-THRU CABINET
SPEC	SPECIFICATIONS
SPS	STATIC PRESSURE SENSOR
SR	SERVICE RECEPTOR
SS	SOIL STACK
ST PR	STATIC PRESSURE
ST STL	STAINLESS STEEL
STD	STANDARD
STER	STERILIZER
STL	STEEL
STOR	STORAGE
STR	STRAINER
STRUCT	STRUCTURAL
SUSP	SUSPENDED
SW	SWITCH

SWBD	SWITCHBOARD
SWGR	SWITCHGEAR
SYM	SYMMETRICAL TOP
T	TOP
TA	THROWAWAY
TAN	TANGENT
TC	TELECOMMUNICATIONS CONTRACTOR
TCV	TEMPERATURE CONTROL VALVE
TDV	TRIPLE DUTY VALVE
TEL	TELEPHONE
TEMP	TEMPERATURE
TER	TERRAZZO
TG	TONGUE & GROOVE
TH	THERMOMETER
THRES	THRESHOLD
TR	TEMPERATURE RISE
TRANS	TRANSITION
TRANSR	TRANSFORMER
TSTAT	THERMOSTAT
TV	TURNING VANES OR TELEVISION
TYP	TYPICAL
UC	UNDER CABINET OR UNDER CUT
UFD	UNDER FLOOR DUCT
UG	UNDERGROUND
UH	UNIT HEATER
UL	UNDERWRITER'S LABORATORIES
UNFIN	UNFINISHED
UNO	UNLESS NOTED OTHERWISE
UPS	UNINTERRUPTIBLE POWER SUPPLY
UTIL	UTILITY
V	VOLT
VAL	VALVE
VD	VOLUME DAMPER
VENT	VENTILATION
VERT	VERTICAL
VFS	VENTURI FLOW STATION
VIF	VERIFY IN FIELD
VL	VENT LINE
VR	VAPOR RETARDER
VS	VENT STACK
VTR	VENT THROUGH ROOF
W	WATT
W/	WITH
W/O	WITHOUT
WB	WET BULB
WC	WALL COVERING
WCL	WATER CLOSET
WD	WOOD
WF	WIDE FLANGE
WFMD	WATER FLOW MEASURING DEVICE
WG	WALL GUARD OR WATER GAUGE
WHCH	WHEEL CHAIR
WIN	WINDOW
WMS	WIRE MESH SCREEN
WP	WEATHERPROOF
WPS	WALL PROTECTION SYSTEM
WSCT	WAINSCOT
WT	WINDOW TREATMENT
WTD	WATER TEMPERATURE DROP
WWF	WELDED WIRE FABRIC
X	DEMO
XN	TO BE RELOCATED / NEW LOCATION
XR	EXISTING TO REMAIN
ZVB	ZONE VALVE BOX
ZVC	ZONE VALVE CABINET

SECURITY SYMBOLS LEGEND

THIS IS A STANDARD SYMBOL LIST. ALL SYMBOLS MAY NOT APPEAR ON THIS PROJECT.

DOOR SECURITY SYMBOLS

- A111 — DOOR NUMBER
- DC — DOOR CONTACT
- ES — ELECTRIC STRIKE
- EL — ELECTRIC LOCK
- EML — ELECTRO MAGNETIC LOCK
- KP XX — LCD ALARM KEYPAD. XX = SUBTEXT; WG = PROTECTIVE LEXAN COVER
- CR — CARD READER. XX = SUBTEXT; 1 = BARCODE READER; 2 = MAG STRIP READER; 3 = PROXIMITY READER; 4 = BIO-METRIC READER
- RX XX — REQUEST TO EXIT DEVICE. XX = SUBTEXT; M = PIR MOTION; P = PUSHBUTTON; I = INTERGRATED LOCKSET/PANIC BAR

SECURITY CAMERA SYMBOLS

- EXTERIOR CAMERA. XX = SUBTEXT; D = DOME TYPE; B = BULLET TYPE
- PTZ — EXTERIOR PAN/TILT/ZOOM CAMERA, XX = SUBTEXT; D = DOME TYPE; B = BULLET TYPE
- INTERIOR CAMERA. XX = SUBTEXT; D = DOME TYPE; B = BULLET TYPE

GENERAL SECURITY SYMBOLS

- REMOTE DOOR RELEASE REQUEST PUSHBUTTON
- M — PIR MOTION DETECTOR - WALL MOUNTED (60° COVERAGE)
- M — PIR MOTION DETECTOR - CEILING MOUNTED (360° COVERAGE)
- I — INTERCOM STATION - PEDASTAL MOUNTED; IM = MASTER STATION; IS = SLAVE STATION
- I — INTERCOM STATION - WALL MOUNTED; IM = MASTER STATION; IS = SLAVE STATION
- PB — DURESS/MAN DOWN/PANI ALARM STATION, XX = SUBTEXT; W = WALL MOUNTED; D = UNDER DESK; RF = WIRELESS RECEIVER
- G — GLASS BREAK DETECTOR; W = WALL MOUNTED; C = CEILING MOUNTED
- AIM — ADDRESSABLE INPUT MODULE
- LA — LOCAL ALARM
- CRC — CARD READER CONTROLLER

ANNOTATION SYMBOLS

- 1 — DRAWING KEYNOTE
- 1 — EQUIPMENT TAG
- 2 — REVISION TRIANGLE WITH REVISION CLOUD
- ABOVE GRADE/SLAB HOMERUN (MIN #12AWG WIRE)
- INDICATED MOUNTED ABOVE COUNTERTOP (REFER TO STANDARD MOUNTING HEIGHTS DETAIL ON THIS SHEET)
- EXISTING TO REMAIN
- NEW WORK
- DEMOLITION

GENERAL ELECTRONIC SECURITY SYSTEM NOTES:

1. THE FOLLOWING GENERAL NOTES AS LISTED BELOW SHALL APPLY TO ALL ELECTRONIC SECURITY SYSTEM REQUIREMENTS AS INDICATED ON ALL ES SERIES CONTRACT DRAWINGS.
2. DUE TO SCALE OF THE DRAWINGS, ALL SECURITY SYSTEM EQUIPMENT SYMBOLS ARE SHOWN ON DRAWINGS AS CLOSE AS POSSIBLE TO THEIR INTENDED LOCATION. CONTRACTOR SHALL COORDINATE IN THE FIELD THE PROPER INSTALLATION OF ALL EQUIPMENT, DEVICES, CONTROLS AND CABLING. REFER TO RELATED SPECIFICATION SECTIONS FOR ADDITIONAL REQUIREMENTS.
3. COORDINATE WITH ALL SYSTEM PROVIDERS ALL CONDITIONS RELATED TO THE INSTALLATION OF ALL SYSTEMS. THE CONTRACTOR SHALL COORDINATE WITH THE APPROPRIATE TRADE ALL INSTALLATION REQUIREMENTS IMPACTING THE PLACEMENT OF ALL SYSTEM COMPONENTS TO THE SATISFACTION OF ALLCONCERNED TRADES.
4. COORDINATE EXACT LOCATION OF ALL DESK OR COUNTER MOUNTED EQUIPMENT WITH VA CONTRACTING OFFICER, GOVERNMENT, DESIGN PROFESSIONAL AND ALL AFFECTED TRADES PRIOR TO THE INSTALLATION OF ANY EQUIPMENT AND/OR CABLING.
5. COORDINATE EXACT LOCATION(S) OF ALL CEILING MOUNTED CABLE, CONDUITS, EQUIPMENT AND/OR DEVICES WITH ALL ARCHITECTURAL PLANS, REFLECTED CEILING PLANS AND ALL AFFECTED TRADES PRIOR TO INSTALLATION.
6. CCTV CAMERAS SHALL BE INSTALLED IN SUCH MANOR THAT ALL SURVEILLANCE VIEWS SHALL BE FREE FROM ALL OBSTRUCTIONS IN ORDER TO PROVIDE UNRESTRICTED VIEWING ANGLES.
7. ALL CCTV CAMERA "FIELDS OF VIEW" AS INDICATED ON THE DRAWINGS ARE A REPRESENTATION OF THE DESIRED FIELD OF SURVEILLANCE BY THE ASSOCIATED CAMERA. THE CONTRACTOR SHALL BE RESPONSIBLE FOR: PROVIDING THE TYPE OF CAMERA AND APPROPRIATE LENS AS NECESSARY TO MEET THE REQUIRED CAMERA VIEWING AREA. ALL CAMERAS SHALL BE INSTALLED IN SUCH A MANNER IN ORDER TO ACHIEVE THE DESIGNATED FIELDS OF VIEW.
8. CCTV CAMERAS INSTALLED IN AREAS WITH NON-FINISHED CEILINGS SHALL BE MOUNTED DIRECTLY TO WALLS, STRUCTURAL SUPPORTS OR THE UNDERSIDE OF ROOF DECK OF THE FACILITY. NO CAMERAS SHALL BE MOUNTED TO ANY PIPING AND/OR CONDUITS OR BLOCK ANY ACCESS HATCHES, EQUIPMENT OR ENTRANCES. COORDINATE WITH ALL AFFECTED TRADE CONTRACTORS PRIOR TO INSTALLATION.
9. ALL INTERIOR CCTV CAMERAS SHALL BE INSTALLED IN LOW PROFILE, MINIMUM FOOTPRINT DETECTION GRADE TYPE ENCLOSURES AND SHALL BE INSTALLED BASED ON THE OPTIMUM CAMERA PLACEMENT TO OBTAIN THE MAXIMUM VISIBLE SURVEILLANCE OF THE AREA AS INDICATED ON THE CONTRACT DRAWINGS. COORDINATE EACH CAMERA LOCATION WITH REFLECTED CEILING PLANS AND AFFECTED TRADES PRIOR TO INSTALLATION. REVIEW ALL SURVEILLANCE COVERAGE AREAS AND ALARM PRE-SETS WITH OWNER AND ARCHITECT PRIOR TO FINAL PROGRAMMING.
10. ALL EXTERIOR CAMERAS SHALL BE RATED FOR THE ENVIRONMENTAL APPLICATION AND BE PROVIDED AS, PENDANT, POLE, PARAPET OR WALL MOUNTED DOME HOUSINGS AS INDICATED. ALL EXTERIOR CAMERAS SHALL BE MEET IP65 (NEMA 4) SEALING REQUIREMENTS AND SHALL BE SUPPLIED WITH AN INTERNAL HEATER AND BLOWER. ALL EXTERIOR CAMERAS SHALL BE INSTALLED BASED ON THE OPTIMUM CAMERA PLACEMENT TO OBTAIN THE MAXIMUM VISIBLE SURVEILLANCE OF THE AREA AS INDICATED ON THE CONTRACT DRAWINGS. REVIEW ALL SURVEILLANCE COVERAGE AREAS AND ALARM PRE-SETS WITH OWNER AND ARCHITECT PRIOR TO FINAL PROGRAMMING.
11. ALL SECURITY SYSTEM CABLING SHALL BE INSTALLED IN DEDICATED CONDUITS. CONDUITS SHALL BE SIZED AND INSTALLED IN ACCORDANCE WITH NFPA 70 AND PROJECT SPECIFICATIONS. ALL CONDUITS SHALL BE A MINIMUM OF 3/4" UNLESS OTHERWISE NOTED.
12. ALL CONDUITS/RACEWAYS SHALL BE INSTALLED IN A MANNER THAT PREVENTS TAMPERING OR REMOVAL WHEN INSTALLED IN AREAS EXPOSED TO THE GENERAL POPULATION. PROVIDE TAMPER-RESISTANT INSTALLATION UTILIZING "TORX WITH PEG" SECURITY-FASTENING DEVICES FOR ALL CONDUITS/RACEWAYS, EQUIPMENT, DEVICES AND APPURTENANCES IN ALL AREAS ACCESSIBLE TO THE GENERAL POPULATION AND/OR AREAS SUBJECTED TO TAMPERING OR VANDALISM.
13. ALL INTERIOR CCTV SURVEILLANCE CAMERA CABLING SHALL CATEGORY 6 UTP PLENUM RATED CABLE AND SHALL BE BUNDLED AND ROUTED THROUGH THE FACILITY AND TERMINATED AT THE APPROPRIATE COMMUNICATIONS EQUIPMENT RACKS AS INDICATED. ALL CCTV CABLE BUNDLES SHALL NOT CONTAIN ANY DATA, TELEPHONE OR AC CONDUCTING CABLING. ALL CCTV CABLE RUNS SHALL NOT EXCEED 294' FROM PATCH PANEL TO CAMERA TERMINATION AND SHALL BE TESTED AND CERTIFIED IN ACCORDANCE WITH ALL REQUIREMENTS OF THE CONTRACT DOCUMENTS. REFER TO RELATED DIVISION 28 SPECIFICATIONS SECTIONS FOR ADDITIONAL INFORMATION RELATED TO THE INSTALLATION OF ALL CCTV CAMERA CABLING AND TESTING.
14. ALL SYSTEM WIRING, CONDUITS AND EQUIPMENT INSTALLATION SHALL BE IN ACCORDANCE WITH GOOD ENGINEERING PRACTICES AND BY ALL IEEE, EIA, NEC AND MANUFACTURER'S REQUIREMENTS. ALL WIRING SHALL COMPLY WITH ALL STATE AND LOCAL ELECTRICAL CODES AND SHALL TEST FREE FROM ALL GROUNDS, SHORTS STRAY VOLTAGES AND EMI.
15. PROVIDE ALL EQUIPMENT CLEARANCES IN ACCORDANCE WITH NEC REQUIREMENTS. ARRANGE EQUIPMENT TO FACILITATE UNRESTRICTED ACCESS FOR MAINTENANCE AND SERVICE AROUND ALL EQUIPMENT, COMPONENTS AND/OR CABLE TERMINATIONS.
16. PROPERLY GROUND ALL EQUIPMENT, RACKS, CABINETS, CONDUITS AND CABLE SHIELDS IN ACCORDANCE WITH ALL REQUIREMENTS OF THE NFPA 70 AND EQUIPMENT MANUFACTURER. ALL EXTERIOR CCTV CAMERAS SHALL BE PROPERLY SURGE PROTECTED AND GROUNDED TO MINIMIZE DAMAGE DUE TO LIGHTENING STRIKES, SNEAK CURRENTS AND OTHER TRANSIENT VOLTAGE SPIKES. ALL SURGE PROTECTION AND GROUNDING SHALL BE IN ACCORDANCE WITH ALL REQUIREMENTS OF THE EQUIPMENT MANUFACTURER. NEC, IEEE AND TIA/EIA.
17. WHERE EQUIPMENT AND/OR JUNCTION BOXES ARE INSTALLED ABOVE FINISHED CEILINGS, THE CONTRACTOR SHALL PROVIDE ACCESS HATCHES LISTED FOR THE INTENDED APPLICATION. ACCESS HATCHES SHALL BE LOCATED SO THAT SERVICE ACCESS TO THE EQUIPMENT AND/OR JUNCTION BOX SHALL BE WITHIN 3 FEET OF ACCESS HATCH ACCESS TO ALL JUNCTION BOXES AND EQUIPMENT IS UNIMPEDED.
18. ALL PENETRATIONS OF WALLS AND/OR FLOORS SHALL BE FIRE STOPPED IN ACCORDANCE WITH THE ASTM AND NFPA REQUIREMENTS. REFER TO RELATED SPECIFICATION SECTIONS FOR ADDITIONAL INFORMATION. INSTALLATION OF FIRE-STOPS SHALL BE PERFORMED BY AN APPLICATOR/INSTALLER QUALIFIED AND TRAINED BY THE MANUFACTURER. INSTALLATION SHALL BE PERFORMED IN STRICT ACCORDANCE WITH MANUFACTURER'S DETAILED INSTALLATION PROCEDURES.
19. PROVIDE THE PROPER INTERFACE BETWEEN THE BUILDING FIRE ALARM SYSTEMS AND ALL ACCESS CONTROLLED DOORS AS REQUIRED BY APPLICABLE LIFE SAFETY CODES AND IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. SUB-CONTRACT AND COORDINATE WITH THE STATION'S FIRE ALARM SYSTEM PROVIDER (JOHNSON CONTROLS) FOR ALL REQUIRED SYSTEM INTEGRATION REQUIREMENTS.
20. ALL EQUIPMENT ENCLOSURES LOCATED OUTSIDE OR IN ALL AREAS WITH HIGH MOISTURE OR A RELATIVE HUMIDITY OF 75% OR GREATER SHALL BE NEMA 4X ENCLOSURES AND SHALL BE RATED FOR THAT APPLICATION.
21. ALL DEVICES, COMPONENTS OR EQUIPMENT INSTALLED ON THE EXTERIOR OF THE FACILITY SHALL BE PROVIDED IN ACCORDANCE WITH ALL MANUFACTURERS' REQUIREMENTS TO ENSURE THE PROPER OPERATION WHEN EXPOSED TO THE ENVIRONMENTAL CONDITIONS AND/OR AVERAGE ANNUAL LOWEST TEMPERATURE THAT CAN BE ANTICIPATED FOR THE GEOGRAPHIC REGION OFTHE FACILITY.
22. ALL INTERIOR AND/OR EXTERIOR COMPONENTS, DEVICES OR SYSTEMS EQUIPMENT EXPOSED TO THE GENERAL POPULATION SHALL BE INSTALLED IN SECURED EQUIPMENT ENCLOSURES WITH TAMPER SWITCHES AND INSTALLED IN SUCH A MANNER THAT RESISTS TAMPERING AND/OR REMOVAL WITHOUT THE USE OF SPECIALIZED TOOLS.
23. FOR EQUIPMENT INSTALLATIONS REQUIRING COORDINATION WITH OTHER TRADES THE CONTRACTOR SHALL PROVIDE ALL TEMPLATES, BACKBOXES AND EQUIPMENT ANCHOR BOLTS FOR MOUNTING OR FLUSH MOUNTING PREPARATION, (E.G. PEDESTALS OR OTHER DEVICES REQUIRING MOUNTING ON WALLS, CONCRETE PADS OR OTHER MATERIALS). COORDINATE DELIVERY OF TEMPLATES AND EQUIPMENT WITH ALL AFFECTED CONTRACTORS.
24. ALL CONTROL EQUIPMENT AND EXTERIOR DEVICES MUST HAVE TRANSIENT PROTECTION TO COMPLY WITH UL AND NFPA 70 REQUIREMENTS. WHERE ANY CIRCUITS LEAVE THE BUILDING, ADDITIONAL TRANSIENT PROTECTION MUST BE PROVIDED FOR EACH CIRCUIT. ALL TRANSIENT PROTECTION DEVICES MUST BE UL LISTED UNDER STANDARD #497B (ISOLATED LOOP PROTECTORS).
25. REFER TO ALL RELATED CONTRACT DRAWINGS AND SPECIFICATIONS FOR ADDITIONAL INFORMATION AND/OR REQUIREMENTS RELATED TO THE INSTALLATION, PROGRAMMING, TESTING, COMMISSIONING AND CERTIFICATION OF ALL ELECTRONIC SECURITY SYSTEMS.

PROJECT NORTH

FULLY SPRINKLERED CONSTRUCTION DOCUMENTS

Revisions: | Date

CONSULTANTS:

BARBER & HOFFMAN
215 EXECUTIVE DRIVE #202
CRANBERRY TWP, PA 16066

URBAN ENGINEERS, INC.
1 WILLIAMSBURG PLACE, SUITE 210
WARRENDALE, PA 15086

MOORE DESIGN ASSOCIATES
130 HEAVEN LANE
MARS, PA 16046

SEAL

COMMONWEALTH OF PENNSYLVANIA — REGISTERED PROFESSIONAL — SCOTT P. LIZOTTE — ENGINEER — PE041443

ARCHITECTS/ENGINEERS:

AE WORKS

6587 Hamilton Avenue
Pittsburgh, Pennsylvania 15206
Ph: 412.287.7333 Fax: 412.287.7334
www.ae-works.com

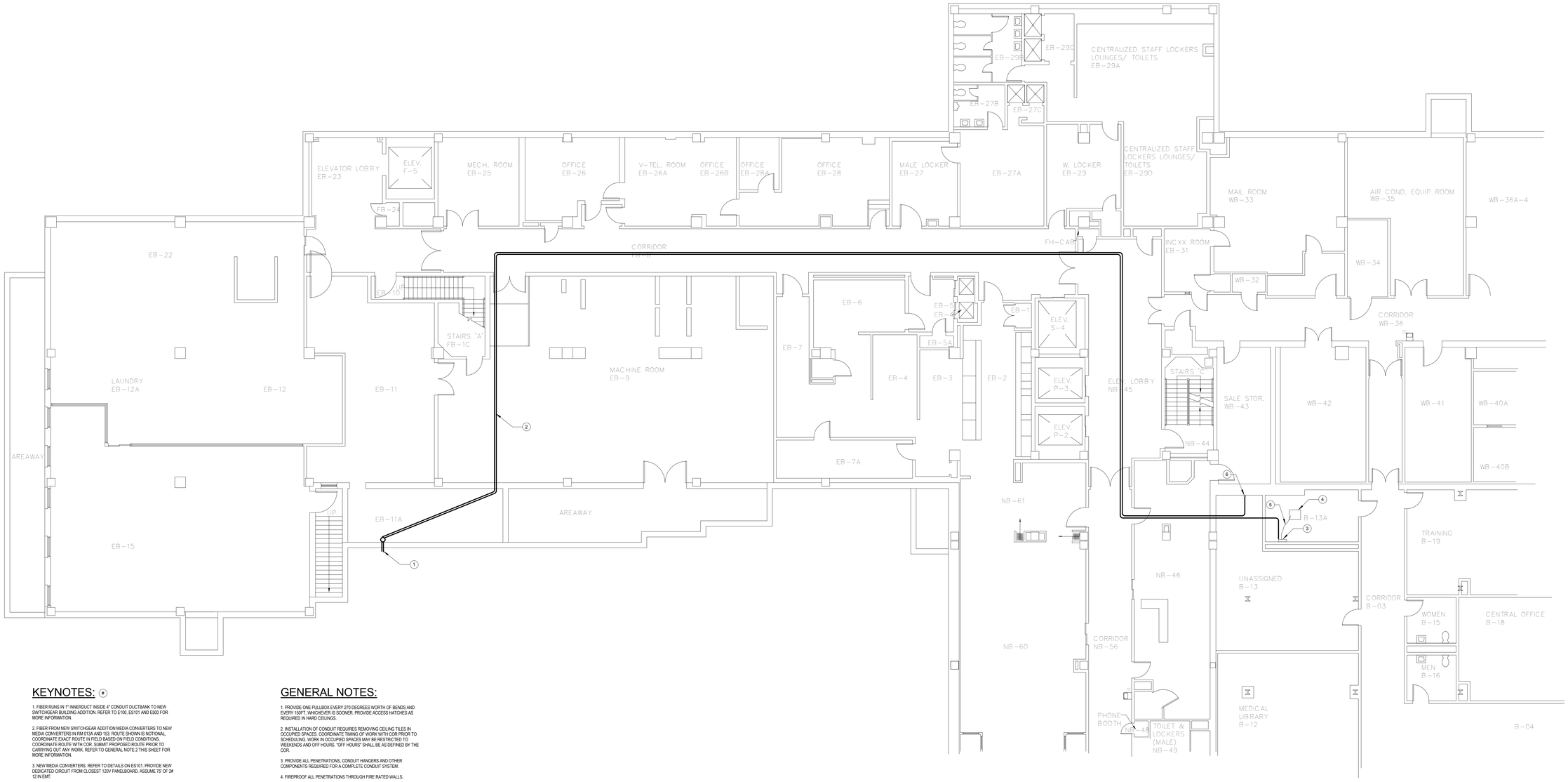
AE Works Project Number: 13045

Drawing Title: SECURITY SYMBOLS AND NOTES	Project Title: EXPAND EMERGENCY POWER GENERATION for the ERIE VAMC		Project Number: 562-13-112
			Building Number: 1
Approved: Project Director	Location: 135 E 38TH ST, ERIE, PA 16504		Drawing Number: ES001
	Date: 3/17/2016	Checked: JA / Drawn: IT	

Office of Construction and Facilities Management

Department of Veterans Affairs

VA FORM 08-6231



KEYNOTES:

1. FIBER RUNS IN 1" INNERDUCT INSIDE 4" CONDUIT DUCTBANK TO NEW SWITCHGEAR BUILDING ADDITION. REFER TO E100, ES101 AND ES50 FOR MORE INFORMATION.

2. FIBER FROM NEW SWITCHGEAR ADDITION MEDIA CONVERTERS TO NEW MEDIA CONVERTERS IN RM 013A AND 153. ROUTE SHOWN IS NOTIONAL. COORDINATE EXACT ROUTE IN FIELD BASED ON FIELD CONDITIONS. COORDINATE ROUTE WITH COR. SUBMIT PROPOSED ROUTE PRIOR TO CARRYING OUT ANY WORK. REFER TO GENERAL NOTE 2 THIS SHEET FOR MORE INFORMATION.

3. NEW MEDIA CONVERTERS. REFER TO DETAILS ON ES101. PROVIDE NEW DEDICATED CIRCUIT FROM CLOSEST 120V PANELBOARD. ASSUME 75' OF 2# 12 IN EMT.

4. EXISTING RACK. PROVIDE CAT6 CABLES FROM MEDIA CONVERTER TO TIE INTO EXISTING RACK. PROVIDE PATCH CORDS FOR FINAL TERMINATION TO SWITCHING EQUIPMENT BY VA IT DEPT.

5. COORDINATE ROUTING OF CABLING INSIDE ROOM WITH EXISTING CABLE MANAGEMENT SYSTEM.

6. ACCESS CONTROL CONDUIT & FIBER RISES TO FLOOR ABOVE AND RUNS TO ROOM 153. CONTRACTOR TO COORDINATE LOCATION OF RISE TO LEVEL ABOVE IN THE FIELD. CONTRACTOR MAY SELECT ANOTHER LOCATION BASED ON FIELD CONDITIONS AND COORDINATION WITH THE VA COR. SEE ES102 FOR CONTINUATION.

GENERAL NOTES:

1. PROVIDE ONE PULLBOX EVERY 270 DEGREES WORTH OF BENDS AND EVERY 150FT., WHICHEVER IS SOONER. PROVIDE ACCESS HATCHES AS REQUIRED IN HARD CEILINGS.

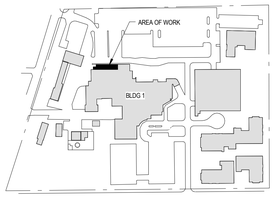
2. INSTALLATION OF CONDUIT REQUIRES REMOVING CEILING TILES IN OCCUPIED SPACES. COORDINATE TIMING OF WORK WITH COR PRIOR TO SCHEDULING. WORK IN OCCUPIED SPACES MAY BE RESTRICTED TO WEEKENDS AND OFF HOURS. "OFF HOURS" SHALL BE AS DEFINED BY THE COR.

3. PROVIDE ALL PENETRATIONS, CONDUIT HANGERS AND OTHER COMPONENTS REQUIRED FOR A COMPLETE CONDUIT SYSTEM.

4. FIREPROOF ALL PENETRATIONS THROUGH FIRE RATED WALLS.

5. REMOVE AND REINSTALL ALL CEILING TILES REQUIRED FOR ACCESS TO INSTALL NEW CONDUITS INDICATED. COORDINATE SCHEDULING OF WORK THROUGH ALL OCCUPIED SPACES WITH THE VA. WORK MAY REQUIRE NIGHT TIME OR WEEKEND INSTALLATION TO AVOID DISRUPTION. COORDINATE SCHEDULING OF WORK WITH VA COR PRIOR TO CARRYING OUT ANY WORK.

1 SECURITY PLAN - BASEMENT
1/8" = 1'-0"



SITE KEY PLAN

PROJECT NORTH

FULLY SPRINKLERED CONSTRUCTION DOCUMENTS

Revisions:	Date

CONSULTANTS:

BARBER & HOFFMAN
215 EXECUTIVE DRIVE #202
CRANBERRY TWP, PA 16066

URBAN ENGINEERS, INC.
1 WILLIAMSBURG PLACE, SUITE 210
WARRENDALE, PA 15086

MOORE DESIGN ASSOCIATES
130 HEAVEN LANE
MARS, PA 16046

SEAL

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
SCOTT P. LIZOTTE
ENGINEER
PE041443

ARCHITECTS/ENGINEERS:

AE WORKS

6587 Hamilton Avenue
Pittsburgh, Pennsylvania 15206
Ph: 412.287.7333 Fax: 412.287.7334
www.ae-works.com

AE Works Project Number: 13045

Drawing Title
SECURITY - BUILDING 1 BASEMENT

Approved: Project Director

Project Title:
EXPAND EMERGENCY POWER GENERATION for the ERIE VAMC

Location:
135 E 38TH ST, ERIE, PA 16504

Date:	Checked:	Drawn:
3/17/2016	JG	ICT

Project Number
562-13-112

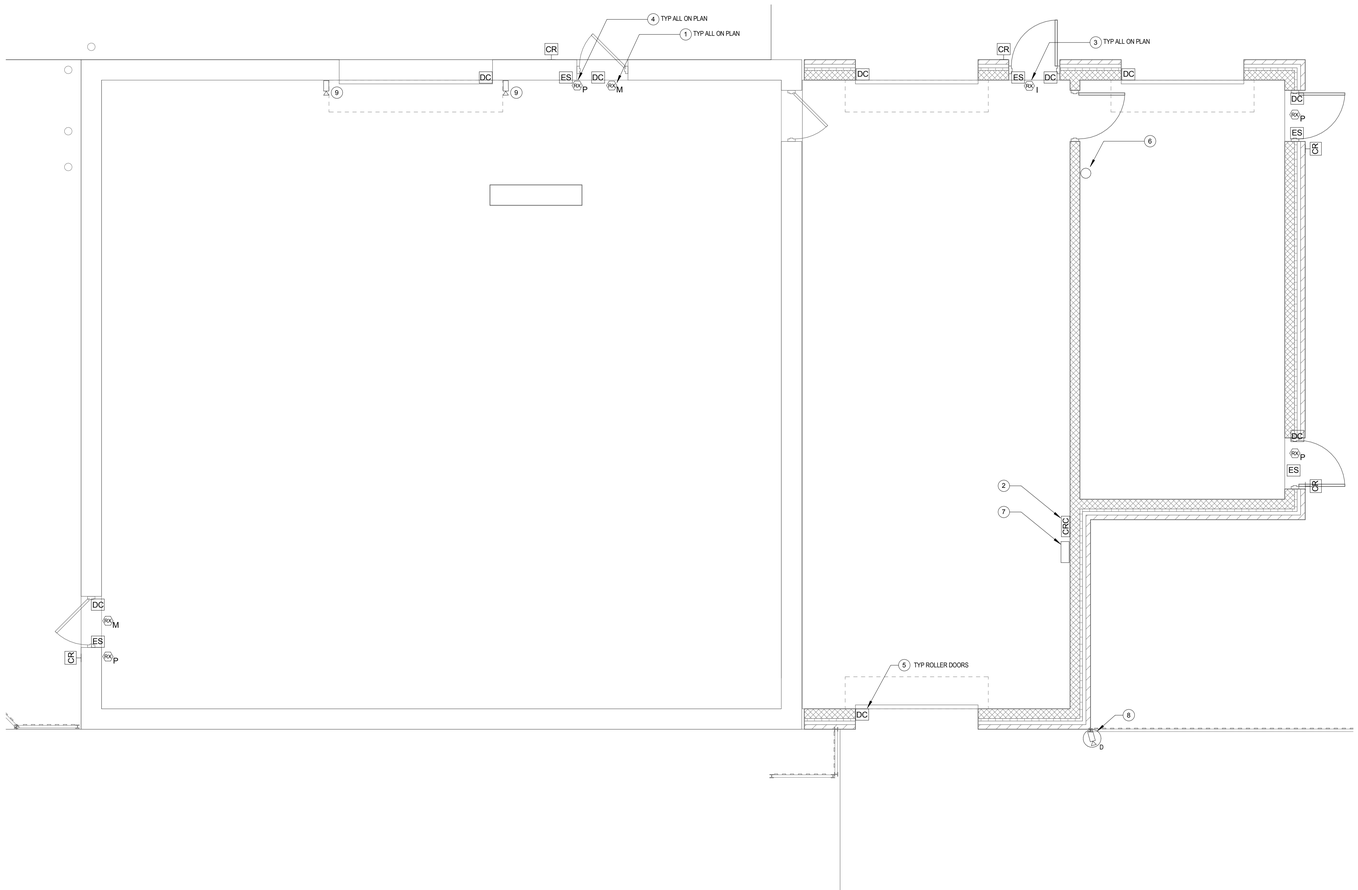
Building Number
1

Drawing Number
ES100

Office of Construction and Facilities Management

Department of Veterans Affairs

VA FORM 08-6231

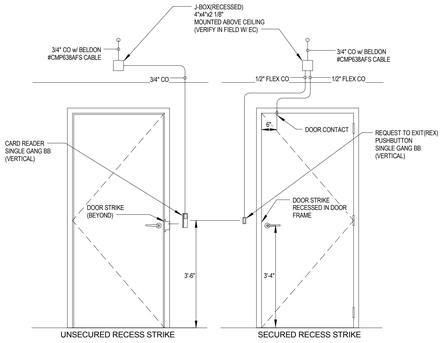


KEYNOTES

1. COORDINATE INSTALLATION WITH DOOR HARDWARE VENDOR.
2. MOUNT NEW ACCESS CONTROL SYSTEM CONTROLLER IN SUITABLE, ACCESSABLE LOCATION. COORDINATE WITH FIELD CONDITIONS. PROVIDE 4'x4' FIRE RATED PLYWOOD BACKBOARD.
3. REQUEST TO EXIT DEVICE INTEGRATED WITH NEW DOOR HARDWARE.
4. MOTION ACTIVATED AND PUSH BUTTON REQUEST TO EXIT DEVICES FOR EXISTING DOORS.
5. NEW CONTACTS FOR ROLLER DOOR. COORDINATE ALARM/DISARM SCHEDULE FOR SYSTEM ALERTING WITH COR.
6. CONNECTION TO MAIN BUILDING 1 SECURITY SYSTEM VIA 4" CONDUIT (WITH 1" INNERDUCTS). REFER TO E201 AND ES01 FOR MORE INFORMATION.
7. MEDIA CONVERTERS FOR ACCESS CONTROL SYSTEM & SECURITY CAMERAS.
8. WALL MOUNTED 15' FROM GRADE.
9. EXISTING BOSCH IP CAMERAS TO BE CONNECTED AS PART OF THIS PROJECT. PROVIDE CAT6 CABLE, MEDIA CONVERTER AND FIBER CONNECTIONS AS SHOWN ON DETAIL 5. CAMERAS MOUNTED APPROX 12' AFF.

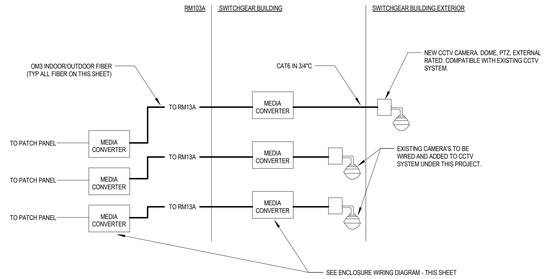
1 EMERGENCY SWITCHGEAR ROOM - SECURITY PLAN

1/4" = 1'-0"



3 SECURITY DOOR ASSEMBLY

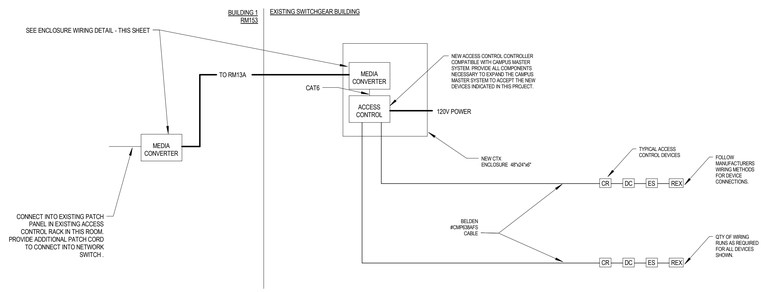
NOT TO SCALE



4 TYPICAL CCTV WIRING DIAGRAM

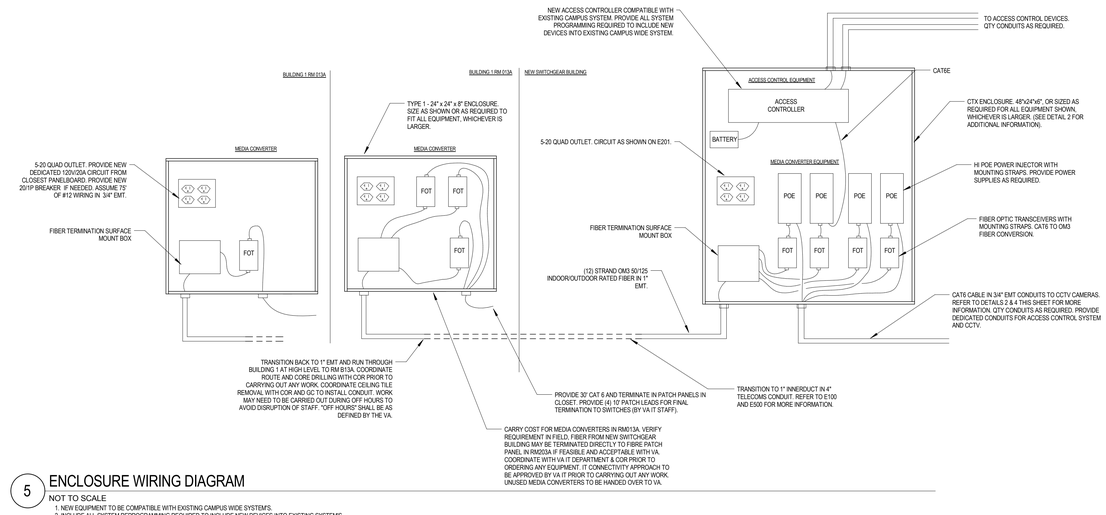
NOT TO SCALE

1. NEW CCTV EQUIPMENT TO BE COMPATIBLE WITH EXISTING CAMPUS WIDE SYSTEM
2. INCLUDE ALL SYSTEM REPROGRAMMING REQUIRED TO INCLUDE NEW DEVICES INTO EXISTING SYSTEM.



2 TYPICALCARD READER WIRING DIAGRAM

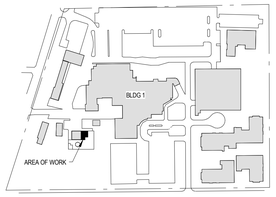
NOT TO SCALE



5 ENCLOSURE WIRING DIAGRAM

NOT TO SCALE

1. NEW EQUIPMENT TO BE COMPATIBLE WITH EXISTING CAMPUS WIDE SYSTEM'S.
2. INCLUDE ALL SYSTEM REPROGRAMMING REQUIRED TO INCLUDE NEW DEVICES INTO EXISTING SYSTEM'S.
3. THE DETAIL SHOWS TYPICAL CONNECTIVITY, PROVIDE ALL PARTS AND PIECES FOR A FULLY FUNCTIONING ACCESS CONTROL AND CCTV SYSTEM.



SITE KEY PLAN

PROJECT NORTH

FULLY SPRINKLERED CONSTRUCTION DOCUMENTS

Revisions:	Date

CONSULTANTS:

BARBER & HOFFMAN
215 EXECUTIVE DRIVE #202
CRANBERRY TWP, PA 16066

URBAN ENGINEERS, INC.
1 WILLIAMSBURG PLACE, SUITE 210
WARRENDALE, PA 15086

MOORE DESIGN ASSOCIATES
130 HEAVEN LANE
MARS, PA 16046

SEAL

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
SCOTT P. LIZOTTE
ENGINEER
PE041443

ARCHITECTS/ENGINEERS:

AE WORKS

6587 Hamilton Avenue
Pittsburgh, Pennsylvania 15206
Ph: 412.287.7333 Fax: 412.287.7334
www.ae-works.com

AE Works Project Number: 13045

Drawing Title
SECURITY PLAN - SWITCHGEAR BLDG

Approved: Project Director

Project Title:
EXPAND EMERGENCY POWER GENERATION for the ERIE VAMC

Location:
135 E 38TH ST, ERIE, PA 16504

Date: 3/17/2016 **Checked:** TA **Drawn:** IT

Project Number 562-13-112

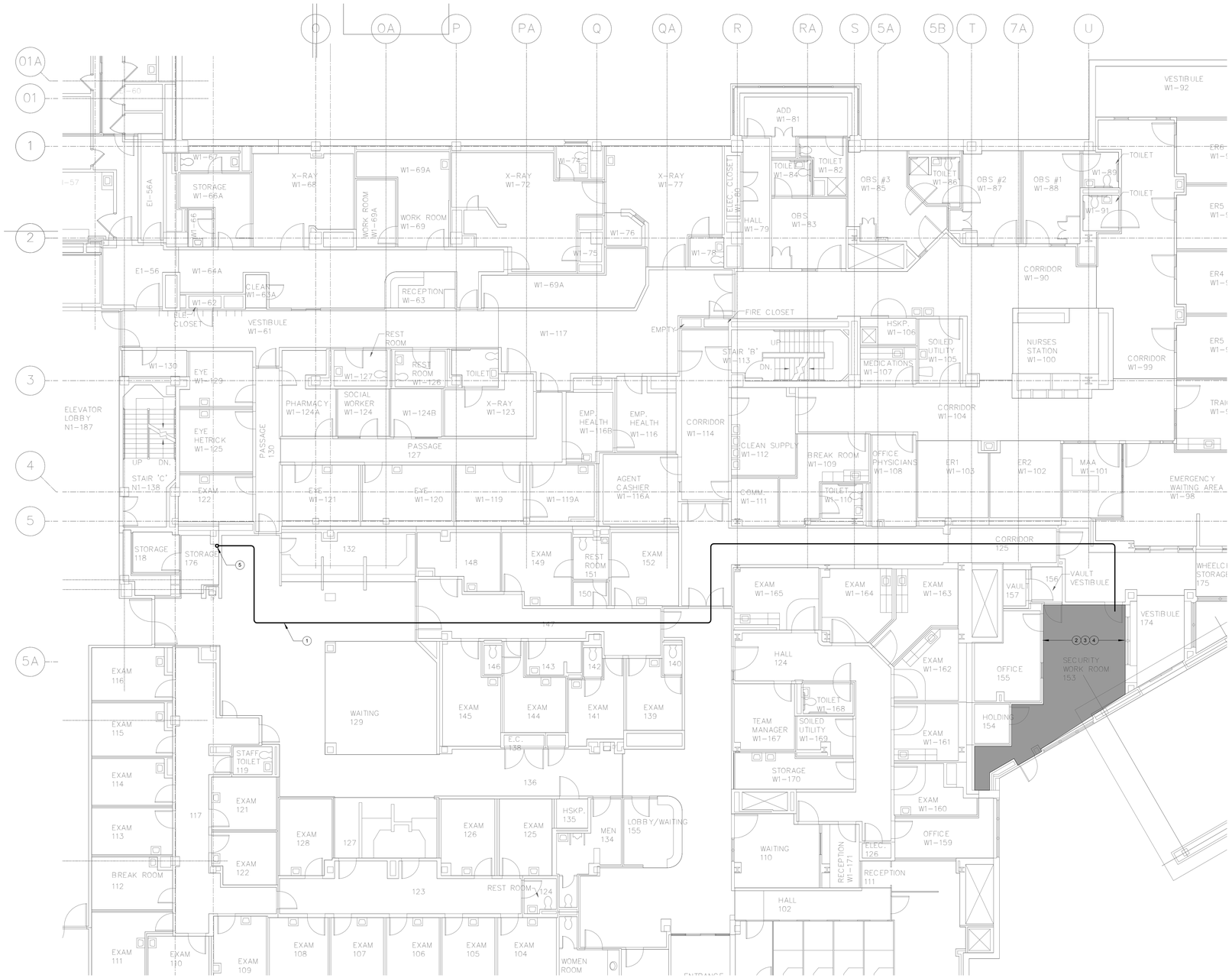
Building Number 1

Drawing Number ES101

Office of Construction and Facilities Management

Department of Veterans Affairs

VA FORM 08-6231



1 SECURITY-LEVEL 1
1/8" = 1'-0"

KEYNOTES:

1. FIBER FROM NEW SWITCHGEAR ADDITION MEDIA CONVERTER TO NEW MEDIA CONVERTER IN RM 153. ROUTE SHOWN IS NOTIONAL. COORDINATE EXACT ROUTE IN FIELD BASED ON FIELD CONDITIONS. COORDINATE ROUTE WITH COR. SUBMIT PROPOSED ROUTE PRIOR TO CARRYING OUT ANY WORK. REFER TO GENERAL NOTE 2 THIS SHEET FOR MORE INFORMATION.

2. PROVIDE NEW MEDIA CONVERTER IN THIS ROOM. REFER TO DETAILS ON ES101. PROVIDE NEW DEDICATED CIRCUIT FROM CLOSEST GENERATOR MAINTAINED 120V PANELBOARD. ASSUME 75' OF 2#12 IN EMT. COORDINATE EQUIPMENT LOCATION IN FIELD.

3. EXISTING SECURITY RACK LOCATED IN THIS ROOM. PROVIDE CAT6 CABLES FROM MEDIA CONVERTER TO TIE INTO EXISTING ACCESS CONTROL RACK. PROVIDE PATCH CORDS FOR FINAL TERMINATION TO SWITCHING EQUIPMENT BY VA IT DEPT.

4. COORDINATE ROUTING OF CABLING INSIDE ROOM WITH EXISTING CABLE MANAGEMENT SYSTEM.

5. CONDUIT DROPS TO FLOOR BELOW. REFER TO ES100 FOR MORE INFORMATION. LOCATION OF DROP TO FLOOR BELOW TO BE DETERMINED IN THE FIELD AND COORDINATED WITH THE COR. CORE DRILL FLOOR AND PROVIDE FIRE RATED SLEEVE.

GENERAL NOTES:

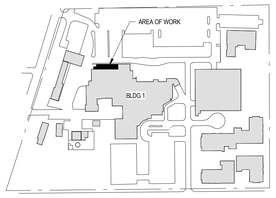
1. PROVIDE ONE PULLBOX EVERY 270 DEGREES WORTH OF BENDS AND EVERY 150FT. WHICHEVER IS SOONER. PROVIDE ACCESS HATCHES AS REQUIRED IN HARD CEILINGS.

2. INSTALLATION OF CONDUIT REQUIRES REMOVING CEILING TILES IN OCCUPIED SPACES. COORDINATE TIMING OF WORK WITH COR PRIOR TO SCHEDULING. WORK IN OCCUPIED SPACES MAY BE RESTRICTED TO WEEKENDS AND OFF HOURS. "OFF HOURS" SHALL BE AS DEFINED BY THE COR.

3. PROVIDE ALL PENETRATIONS, CONDUIT HANGERS AND OTHER COMPONENTS REQUIRED FOR A COMPLETE CONDUIT SYSTEM.

4. FIREPROOF ALL PENETRATIONS THROUGH FIRE RATED WALLS.

5. REMOVE AND REINSTALL ALL CEILING TILES REQUIRED FOR ACCESS TO INSTALL NEW CONDUITS INDICATED. COORDINATE SCHEDULING OF WORK THROUGH ALL OCCUPIED SPACES WITH THE VA. WORK MAY REQUIRE NIGHT TIME OR WEEKEND INSTALLATION TO AVOID DISRUPTION. COORDINATE SCHEDULING OF WORK WITH VA COR PRIOR TO CARRYING OUT ANY WORK.



SITE KEY PLAN

PROJECT NORTH

FULLY SPRINKLERED CONSTRUCTION DOCUMENTS

Revisions:	Date

CONSULTANTS:

BARBER & HOFFMAN
215 EXECUTIVE DRIVE #202
CRANBERRY TWP, PA 16066

URBAN ENGINEERS, INC.
1 WILLIAMSBURG PLACE, SUITE 210
WARRENDALE, PA 15086

MOORE DESIGN ASSOCIATES
130 HEAVEN LANE
MARS, PA 16046

SEAL

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
SCOTT P. LIZOTTE
ENGINEER
PE061443

ARCHITECTS/ENGINEERS:

AE WORKS

6587 Hamilton Avenue
Pittsburgh, Pennsylvania 15206
Ph: 412.287.7333 Fax: 412.287.7334
www.ae-works.com

AE Works Project Number: 13045

Drawing Title: SECURITY - BUILDING 1 LEVEL 1

Approved: Project Director

Project Title: EXPAND EMERGENCY POWER GENERATION for the ERIE VAMC

Location: 135 E 38TH ST, ERIE, PA 16504

Date: 3/17/2016 | Checked: JG | Drawn: ICT

Project Number: 562-13-112

Building Number: 1

Drawing Number: ES102

Office of Construction and Facilities Management

Department of Veterans Affairs

VA FORM 08-6231