302-A-6 **#2012-643**

236 Lane Avenue

Site Alteration

FEMA (Darcy Bingham

2012-643-

Put R-3 line on plan

PROJECT NAME: FEMA Emergency Radio Network - WGAN_Transmitter Site

PROPOSED DEVELOPMENT ADDRESS:

236 Lane Avenue, Portland, ME 04103

RECEIVED
NOV 21 2012
City of Portland
Planning Division

PROJECT DESCRIPTION:

Addition of a transmitter module, generator module, site generator and 6000 gallon fuel tank for critical power generation to operate the facility during situations of war, terrorist attack or natural disaster.

CHART/BLOCK/LOT: 302 A006001

CONTACT INFORMATION:

	Applicant's Contact for electronic plans Name: Mike Mullen e-mail: mike.mulllen2@kbr.com work #: 251-450-7896
Applicant – must be owner, Lessee or Buyer Name: Darcy Bingham Business Name, if applicable: FEMA Address: 500 C Street, SW City/State : Washington, DC Zip Code: 20472	**Applicant Contact Information** Work # 202-646-3839 Home# Cell # Fax# e-mail: darcy.bingham@fema.gov
Owner – (if different from Applicant) Name: Saga Communications of New England Inc Address: 420 Western Ave City/State : South Portland, ME Zip Code: 04106	**Owner Contact Information** Work # 207-771-4561 Home# Cell # Fax# e-mail: aarmstrong@portlandradiogroup.com
Agent/ Representative Name: KBR Address: 63 S. Royal Street, Suite 200 City/State : Mobile, AL Zip Code: 36602	**Agent/Representative Contact information** Work # 251-450-7896 Cell # e-mail: mike.mulllen2@kbr.com
Billing Information Name: KBR Address: 63 S. Royal Street, Suite 200 City/State: Mobile, AL Zip Code: 36602:	**Billing Information** Work # 251-450-7896 Cell # Fax# 251-450-7898 e-mail: mike.mulllen2@kbr.com

Engineer	Engineer Contact Information
Name: KBR	Work # 251-450-7920
Address: KBR 63 S. Royal Street, Suite 200	Cell # 251-656-7912 Fax# 251-450-7898
City/State : Mobile, AL Zip Code: 36602	e-mail: denise.brown@kbr.com
Surveyor	**Surveyor Contact Information**
Name: Sebago Technics, Inc.	Work # 207-200-2100
Address: 75 John Roberts Road, Suite 1A	Cell # Fax# 207-856-2206
City/State : South Portland, ME Zip Code: 04106	e-mail: CMarchese@sebagotechnics.com

APPLICATION FEES:

Check all reviews that apply. Payment may be made by Check or Cash addressed to the City of Portland.

Level I Site Alteration Site Plan _X_ Application Fee ($200.00) The City invoices separately for the following: • Notices ($.75 each) • Legal Ad (% of total Ad) • Planning Review ($40.00 hour) • Legal Review ($75.00 hour) Third party review is assessed separately.	**Fees Paid** (office use) —

Performance Guarantee: A performance guarantee is required to cover all public and private site improvements.	Required
Inspection Fee: An inspection fee of 2% of the performance guarantee is due prior to the release of permits	2% of the performance guarantee

Application Check List

Refer to the application checklist for a detailed list of submittal requirements.

All site plans and written application materials must be uploaded to a website for review. At the time of application, instructions for uploading the plans will be provided to the applicant. One paper set of the plans, written materials and application fee must be submitted to the Planning Division Office to start the review process.

Portland's development review process and requirements are outlined in the Land Use Code (Chapter 14), which includes the Subdivision Ordinance (Section 14-491) and the Site Plan Ordinance (Section 14-521).

I hereby certify that I am the Owner of record of the named property, or that the owner of record authorizes the proposed work and that I have been authorized by the owner to make this application as his/her authorized agent. I agree to conform to all applicable laws of this jurisdiction. In addition, if a permit for work described in this application is issued, I certify that the Planning Authority and Code Enforcement's authorized representative shall have the authority to enter all areas covered by this permit at any reasonable hour to enforce the provisions of the codes applicable to this permit.

This application is for a Site Plan review only, a Performance Guarantee, Inspection Fee, Building Permit Application and associated fees will be required prior to construction.

Signature of Applicant:	**Date:**
Darcy Bingham	11/13/2012

Please refer to Article V, Site Plan of the City of Portland Land Use Code for detailed information concerning the City's site plan review process, thresholds and standards. Should you have any questions regarding the submittal requirements or any other aspect of the site plan review process, please contact the Planning Division.

PROJECT DATA

The following information is required where applicable, in order complete the application

Total Area of Area (Property)	1.4 M sq. ft. (32.75 Ac)
Proposed Total Disturbed Area of the Site	3860 sq. ft.
IMPERVIOUS SURFACE AREA	
• Proposed Total Paved Area	0 sq. ft.
• Existing Total Impervious Area	2760 sq. ft.
• Proposed Total Impervious Area	3270 sq. ft.
• Proposed Impervious Net Change	510 sq. ft.
PARKING SPACES	
• Existing Number of Parking Spaces	**0**
• Proposed Number of Parking Spaces	**0**
TOTAL Number of Parking Spaces	**0**

General Submittal Requirements – Level I Site Alteration

Applicant Checklist	Planner Checklist	Number of Paper Copies	Submittal Requirement
×	€	1	Completed application form.
×	€	1	Application fees.
×	€	1	Written description of project.
×	€	1	Evidence of right, title and interest.
×	€	1	Copies of required state and/or federal permits.
×	€	1	Written assessment of proposed project's compliance with applicable zoning. requirements.
×	€	1	Written description of existing and proposed easements or other burdens.
×	€	1	Written requests for waivers from individual site plan and/or technical standards.
×	€	1	Evidence of financial and technical capacity.

Site Plans and Boundary Survey Requirements – Level I Site Alteration

Applicant Checklist	Planner Checklist	Number of Copies	Submittal Requirement
NA	☐	1	Boundary Survey meeting the requirements of Section 13 of the City of Portland Technical Manual.
×	☐	1	**Site Plan Including the following:**
×	☐		▪ *Existing structures with distance from property line (including location of proposed piers, docks or wharves if in Shoreland Zone)*
NA	☐		▪ *Location and dimension of existing and proposed paved areas.*
NA	☐		▪ *Location and details of proposed infrastructure improvements (e.g. - curb and sidewalk improvements, utility connections, roadway improvements).*
NA	☐		▪ *Identification of and proposed protection measures for any significant natural features on the site (including wetlands, ponds, watercourses, floodplains, significant wildlife habitats and fisheries or other important natural features listed in Section 14-526 (b)1. of the Land Use Code.*
NA	☐		▪ *Details of proposed pier rehabilitation (Shoreland areas only).*
×	☐		▪ *Existing utilities.*
×	☐		▪ *Existing and proposed grading and contours.*
×	☐		▪ *Proposed stormwater management and erosion controls.*
×	☐		▪ *Total area and limits of proposed land disturbance.*
NA	☐		▪ *Existing vegetation to be preserved and proposed site landscaping.*
NA	☐		▪ *Existing and proposed easements or public or private rights of way.*

Site Plan Standards for Review of Level I: Site Alteration

Level I: Site alteration plans shall only be subject to the following site plan standards, as applicable, as contained in section 14-526:

(a) Transportation standards:
1. Impact on surrounding street systems,
2. Access and circulation, and
4. Parking

(b) Environmental quality standards
1. Preservation of significant natural features,
2. Landscaping and landscape preservation, and
3. Water quality, stormwater management and erosion control.

(c) Public infrastructure and community safety standards.
1. Consistency with city master plans.

(d) Site design standards
5. Historic resources,
6. Exterior lighting,
8. Signage and wayfinding, and
9. Zoning related design standards.

Except as provided in article III, or to conditions imposed under section 14-526(e) only, or to those submission requirements set forth in section 14-527 as relate solely thereto.

PORTLAND FIRE DEPARTMENT
SITE REVIEW
FIRE DEPARTMENT CHECKLIST

A separate drawing[s] shall be provided to the Portland Fire Department for all site plan reviews.

1. Name, address, telephone number of applicant.
2. Name address, telephone number of architect
3. Proposed uses of any structures [NFPA and IBC classification]
4. Square footage of all structures [total and per story]
5. Elevation of all structures
6. Proposed fire protection of all structures
   - ***As of September 16, 2010 all new construction of one and two family homes are required to be sprinkled in compliance with NFPA 13D. This is required by City Code. (NFPA 101 2009 ed.)***
7. Hydrant locations

KBR | 63 South Royal Street, Suite 200
Mobile, AL 36602
Phone 251-450-7600 / Fax 251-450-7898

November 13, 2012

Dept. of Planning and Urban Development
Portland City Hall
Planning Division Office
389 Congress Street
Portland, ME 04101

RE: WGAN Transmitter Site
236 Lane Avenue
Portland, ME 04103
FEMA Emergency Radio Network Project
Level 1 Site Alteration Application

KBR, on behalf of FEMA, is applying for a Level 1 Site Alteration Development Review Permit for the FEMA Emergency Radio Network Project at the WGAN transmitter site. I have enclosed copies of the relevant site plans and sections. If copies of the structural, electrical or mechanical drawings are required, please let me know and I will forward those to you.

The following items are enclosed for your review:

- Level 1 Site Alteration Application
- Check for $200
- Attachment 1 - Documentation discussing application check list
- Attachment 2 – Property Deed
- Attachment 3 – ELA signed by FEMA and property owner
- Attachment 4 – Correspondence from USACE Portland office personnel
- Attachment 5 – USACE Category 1 Notification Form
- Attachment 6 – Correspondence from Maine DEP
- Attachment 7 – Topographical Survey Plan
- Three (3) copies of Drawings G-001, G-101, C-101, C-102 and C-301

Please let me know if you have any questions or need additional information for the submittal. You may also contact Mike Mullen at 251-450-7896.

Sincerely,

Denise Brown, P.E.
KBR
251-450-7920
denise.brown@kbr.com

Level I – Site Alteration
Development Review Application
Portland, Maine

Planning and Urban Development Department
Planning Division

Portland's Planning and Urban Development Department coordinates the development review process for site plan, subdivision and other applications under the City's Land Use Code. Attached is the application form for a Level I: Site Alteration site plan.

Level I: Site Alteration Development includes:

- Alteration of a watercourse or wetland as defined in Section 14-47 of the City Code.
- Alteration of a site. The disturbance of land areas of less than one (1) acre that are stripped, graded, grubbed, filled or excavated. The Planning Authority shall exempt from review the loam and seeding of lawns and the cumulative placement of less than fifteen (15) cubic yards of fill on any lot provided such loaming or placement does not alter a drainage course, swale, wetland or redirect water onto adjoining property and does not violate any other provision of the Portland City Code or state or federal law. "Disturbed area" does not include routine maintenance, but does include re-development and new impervious areas.
- The construction of any temporary or permanent parking area, paving of existing unpaved surface parking areas between 1,000 and 7,500 square feet, or creation of other impervious surface areas between 1,000 and 7,500 square feet.
- The rehabilitation or reconstruction, but not new construction, of piers, docks, wharves, bridges, retaining walls, and other structures located within the shoreland zone.
- A site alteration in which vehicle access is proposed from more than one (1) street;

The Land Use Code (including Article V), the Technical Manual, and the Design Manual are available on the City's web site at http://www.portlandmaine.gov/planning/default.asp or copies may be purchased at the Planning Division Office.

Planning Division
Fourth Floor, City Hall
389 Congress Street
(207) 874-8721 or (207) 874-8719

Office Hours
Monday thru Friday
8:00 a.m. – 4:30 p.m.

PORTLAND MAINE

Strengthening a Remarkable City, Building a Community for Life • *www.portlandmaine.gov*

Receipts Details:

Tender Information: Check , BusinessName: KBR, Check Number: 295152$200.00
Tender Amount: 200.00

Receipt Header:

Cashier Id: Ldobson
Receipt Date: 11/27/2012
Receipt Number: 50544

Receipt Details:

Referance ID:	1861	Fee Type:	PEZ-LEV1 SASP
Receipt Number:	0	Payment Date:	
Transaction Amount:	200.00	Charge Amount:	200.00
Job ID: Project ID: 2012-643 - Lane Avenue 236; Generator, Transmitter, Fuel Tank			
Additional Comments: 236 Lane PB			

Thank You for your Payment!

ATTACHMENT 6

Clement, Jay L NAE

From: Richardson, Marybeth [Marybeth.Richardson@maine.gov]
Sent: Friday, July 27, 2012 11:36 AM
To: Clement, Jay L NAE
Cc: Glasgow, Jim S
Subject: RE: WGAN Antenna Facility

Jay, I took a look at your attachments. I also checked our habitat map on GIS and, other than the NWI wetlands you mentioned, found no special habitats on the site. Based on this information, I don't believe the project would require any permits from the Department under the environmental laws we administer. Because the wetland does not appear to contain any feature that would render it a wetland of special significance, the proposed wetland alteration would be considered minor and would be exempt under the Natural Resources Protection Act. Furthermore, the amount of new impervious and/or developed area appears to be below the thresholds for stormwater management or Site Law review. I encourage you to check with City officials to determine whether or not local permits would be required.

Marybeth Richardson
Maine DEP, Bureau of Land and Water Quality
312 Canco Rd., Portland, ME 04103
Phone 207.592.1692
marybeth.richardson@maine.gov

-----Original Message-----
From: Clement, Jay L NAE [mailto:Jay.L.Clement@usace.army.mil]
Sent: Friday, July 27, 2012 10:26 AM
To: Richardson, Marybeth
Subject: WGAN Antenna Facility

This sheet is pretty self explanatory Marybeth. I've selected some photos from their CD which I think show the area behind the transmitter building where they'd put the new equipment.

Any guidance you can give on the need for DEP permits would be appreciated.

Jay

ATTACHMENT 4

Denise Brown

From: Duke Coate
Sent: Monday, September 10, 2012 3:10 PM
To: Mike Mullen - Mobile; Denise Brown
Subject: FW: FW: WGAN Antenna Array; Warren Ave; Portland (UNCLASSIFIED)

Attachments: G-101.pdf; ME GP - PN, GP (final).pdf; Level I Site Alteration Application 2012.doc


G-101.pdf


ME GP - PN, GP (final).pdf


Level I Site Alteration Applic...

-----Original Message-----
From: Winslow, Andrew L NWO [mailto:Andrew.L.Winslow@usace.army.mil]
Sent: Monday, September 10, 2012 12:58 PM
To: Duke Coate; Tom Farmer
Cc: Rector, Scott R NWO
Subject: FW: FW: WGAN Antenna Array; Warren Ave; Portland (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

It sounds like Portland ME might not be as involved as we once thought.

We can discuss after everyone has had a chance to go through this information from Jay.

Andy Winslow

-----Original Message-----
From: Clement, Jay L NAE
Sent: Monday, September 10, 2012 12:51 PM
To: Winslow, Andrew L NWO; Rector, Scott R NWO
Subject: FW: FW: WGAN Antenna Array; Warren Ave; Portland

Andy/Scott:

Here's the information we discussed this afternoon:

1. Based on a brief site walk and a review of the site plans, I estimate that wetland fills are somewhere around 575 s.f. (inside the fence). Outside the fence, there is probably a combination of minor fill and then security clearing that total approximately 768 s.f. The antenna facility property certainly contains a great deal of wetland but the existing facilities were built prior to state and federal wetland regulations. Therefore, you're only on the hook for any new impacts proposed for this project.

2. At approximately 1,343 s.f. of wetland impact, the only Corps permit that would be necessary would be a general permit. In Maine we have a regional general permit (attached) that allows us to permit this type of minimal impact project in a streamlined manner. The general permit is set up with two levels of review, Category 1 and Category 2. Category 1 eligible projects require the submission of a simple one-page notification form and you're done. Category 2 eligible projects require the submission of an application and a slightly longer review but still streamlined. Based on the low level of impact for this project, the work appears eligible for Category 1. I've attached a copy of the Maine General Permit. The Category 1 Notification Form is located at the back. The applicant or an authorized agent may fill it out, send it to us by email, and then they're done. No further action is necessary from the Corps.

3. I already forwarded to Scott the findings from the Maine Dept. of Environmental Protection. They have determined that permits are not required from their office.

4. Below I've captured email responses from the City of Portland. It appears that a building permit and a site permit will be necessary. Points of contact are embedded in their responses or otherwise noted. The Site application is attached. My guess is that WGAN or FEMA and/or their agent(s) will need to fill out the paperwork and get it into the city. The application looks pretty straight forward and as long as all of the checklist items are provided, you should be all set. Chances are you could cut and paste from the recon report. Call city staff if you have any questions. Looks like it will be an administrative decision, not something that requires public hearings or major review.

I think you should be all set with this information. If I can be of any further assistance at the local level, please let me know.

Jay Clement
Senior Project Manager
US Army Corps of Engineers
Maine Project Office
207-623-8367, Ex. 1

Jay, you do need building permits and site permits. I have included key staff people that help you with your questions. For my end, you need a building permit to install the antenna. It will need to be designed and stamped by an engineer and designed in accordance with the IBC 2009. Marge and Barbara can help answer any site questions you have. Marge Schmuckal - MES@portlandmaine.gov; and Barbara Barhydt - bab@portlandmaine.gov

Tammy M. Munson
Director of Inspections
City of Portland
389 Congress Street Rm 315
Portland, Maine 04101
Office: (207)874-8703
TMM@portlandmaine.gov

Hello:

I am including the application for a Level I site plan application. If you are altering a watercourse or wetland, then the project requires a Level I: site alteration site plan review. This is an administrative review.

The site plan ordinance is Article V, section 14-521-540, of the Land Use Code, which is available on line. http://www.portlandmaine.gov/citycode/chapter014.pdf

Thank you.

Barbara

Barbara Barhydt
Development Review Services Manager
Planning Division
389 Congress Street 4th Floor
Portland, ME 04101
(207) 874-8699
Fax: (207) 756-8256
bab@portlandmaine.gov

ATTACHMENT 5

KBR | 63 SOUTH ROYAL STREET, SUITE 200
Mobile, AL 36602
PHONE 251- 450-7600 / FAX 251-450-7898

November 1, 2012

Maine Project Office
U.S. Army Corps of Engineers
New England Office
675 Western Avenue #3
Manchester, ME 04351

RE: WGAN Transmitter Site
236 Lane Avenue
Portland, ME 04103
FEMA Emergency Radio Network Project
Category 1 Notification Form

To Whom it May Concern:

Please find enclosed the Category 1 Notification Form for the FEMA Emergency Radio Network Project at the WGAN Transmitter Site. We have been in touch with Mr. Jay Clement from the Maine Project Officer of USACE. Mr. Clement performed a cursory review of the project site drawing and informed us that the minimal wetland impacts would require a Category 1 notification only. I have enclosed a copy of the Site Plan and Civil Plan for your files.

Please let me know if you have any questions or need additional information for the submittal.

Sincerely,

Denise Brown, P.E.
KBR
251-450-7920
denise.brown@kbr.com

US Army Corps of Engineers
New England District

Appendix B: Category 1 Notification Form

(for all Inland and Navigable Water Projects in Maine subject to Corps jurisdiction)

Two (2) weeks **before** work commences, submit this to the following mailing address or complete the form at www.nae.usace.army.mil/reg, "State General Permits," "Maine." Call (207) 623-8367 with any questions.

Maine Project Office
U.S. Army Corps of Engineers
New England District
675 Western Avenue #3
Manchester, Maine 04351

State Permit Number: N/A
Date of State Permit: _____
State Project Manager: _____

Permittee: FEDERAL EMERGENCY MANAGEMENT AGENCY
Address, City, State & Zip: 500 C STREET, SW WASHINGTON DC 20472
Phone(s) and Email: 202-646-3839 darcy.bingham@fema.gov

Contractor: KELLOGG BROWN & ROOT SERVICES INC
Address, City, State & Zip: 2451 CRYSTAL DRIVE, ARLINGTON VA 22202
Phone(s) and Email: 703-526-7853 robert.tapscott@kbr.com

Consultant/Engineer/Designer: KBR
Address, City, State & Zip: 63 S. ROYAL STREET, SUITE 200 MOBILE AL 36602
Phone(s) and Email: 251-450-7920 denise.brown@kbr.com

Wetland/Vernal Pool Consultant: N/A
Address, City, State & Zip: _____
Phone(s) and Email: _____

Project Location/Description: FEMA EMERGENCY RADIO NETWORK - WGAN
Address, City, State & Zip: 836 LANE AVENUE, PORTLAND ME 04103
Latitude/Longitude Coordinates: N43°41'29.6" W70°19'02.0"
Waterway Name: N/A
Work Description: ADDITION OF EQUIPMENT (FUEL TANK, GENERATOR, 2 MODULES). LESS THAN 1500 SF OF WETLAND AREA TO BE IMPACTED BY FILL.
Provide any prior Corps permit numbers: _____
Proposed Work Dates: Start: MAY 13, 2013 Finish: JULY 01, 2013

Area of wetland impact: _____ SF (leave blank if work involves structures & no fill in Navigable Waters)
Area of waterway impact: _____ SF (leave blank if work involves structures & no fill in Navigable Waters)
Area of compensatory mitigation provided: 0 SF

Work will be done under the following Appendix A categories (circle all that apply):

I. Inland Waters and wetlands: (a) b c d e
II. Navigable Waters: a b c d e f g

Your name/signature below, as permittee, indicates that you accept and agree to comply with the terms, eligibility criteria, and general conditions of Category 1 of the Maine General Permit.

Permittee Printed Name: Darcy Bingham FEMA Branch Chief
Permittee Signature: Darcy Bingham Date: 11/1/2012

FEMA Emergency Radio Network
WGAN Transmitter Site - Portland, Maine
Level I Site Alteration Documentation
Attachment 1

Project Description

Under Executive Order 13407, FEMA is undertaking construction activities to establish an effective, reliable and integrated system to alert and warn the American people in situations of war, terrorist attack or natural disaster. These activities will provide selected radio stations with critical power generation, fuel storage and other provisions deemed necessary to operate and maintain their transmitter facilities for an extended period without the availability of commercial power.

The KDWN radio station is participating in this FEMA Emergency Radio Network Program. We are proposing to add equipment near the existing transmitter building including a transmitter module, a generator module housing a 35 kW generator, a 6000-gallon aboveground double-walled fuel storage tank and a 75 kW emergency generator. No towers are proposed or impacted as a part of this project.

Evidence of right, title and interest

The property is owned by Saga Communication of New England. A copy of the deed is attached (*Attachment 2*). Saga has agreed to participate in the FEMA Emergency Radio Network, allowing the equipment to be located at the WGAN transmitter site. Darcy Bingham from FEMA is the applicant for the Site Alteration permit. An Equipment Loan Agreement was signed by FEMA and Saga Communication of New England for this project and is attached (*Attachment 3*).

Copies of Required State and Federal permits

The Portland USACE office has informed us that Category 1 review under the General Permit is all that is required for wetlands permitting due to the limited amount of impact (see attached e-mail correspondence from Jay Clement – *Attachment 4*). A copy of the Category 1 Notification Form is attached. The form was submitted to USACE on November 1, 2012 (*Attachment 5*).

The Maine DEP Bureau of Land and Water Quality have communicated with USACE that the proposed wetland alteration would be considered minor and would be exempt under the Natural Resources Projection Act (see attached e-mail message from Marybeth Richardson – *Attachment 6*).

Zoning

The property is zoned B-4 Commercial Corridor Zone. The property is currently used for a radio transmitter site and this project does not change the use. The existing transmitter building was constructed in 1938 and the property has been used as a radio transmitter site since then. We are installing additional equipment only – towers/antenna will not be added or modified. A permitted use listed for B-4 properties in the Land Use Ordinance is "communications studios and broadcast receiving facilities".

Easements
No existing easements were found running through the proposed project site. No new easements are proposed for this project.

Waivers
In accordance with the Technical Manual, a boundary survey is required for Level 1 Site Alteration projects. However, since we are impacting less than one-tenth of an acre within a 32.75-acre site, we are requesting an exemption to this requirement.

Because the project site is located in a remote area, not easily seen from a public roadway, we ask for leniency in any requirements for driveway improvements, lighting improvements, sidewalks, landscaping, etc. No additional traffic is expected to the site due to the addition of the FEMA equipment.

We propose to use an 8-foot chain link fence surrounding the project area only and not along the property line. In accordance with section 4.5.7 of the Technical Manual, a 9-gauge fence fabric mounted on schedule 40 pipe posts will be used. However, because the project site is remotely located, we request a waiver to the fence requirements to allow the use of barbed wire and razor wire as additional protection for the fuel tank and equipment and to exempt the use of vinyl coating.

Evidence of Financial and Technical Capacity
The project is being funded by FEMA. The technical design was performed by KBR who has professional engineers licensed in Maine in the disciplines required for this project.

Boundary Survey
This project is expected to impact less than one-tenth of an acre within a 32.75-acre site. We are requesting an exemption to the requirement for a boundary survey for the entire property. A copy of the topographic survey for the project area is *Attachment 7*.

Site Plan
Copies of plan drawings G-101, C-101, C-102 and C-301 are included in this submittal.

- Distance from property line – The approximate distance from the project area to the property line is shown on G-101.
- Existing and proposed paved areas – There are no paved areas on the existing property and no proposed paving is included in this project. The proposed concrete foundations are shown on C-102.
- Proposed protection measures - No significant protection measures are planned for this project with the exception of the silt fencing proposed on drawing C-101.
- Proposed pier rehabilitation – Not applicable
- Existing utilities – Any existing utilities in the project area are shown on drawing C-102
- Existing and proposed grading and contours – Shown on drawing C-102
- Proposed stormwater management/erosion control – Shown on drawing C-101

- Total area and limits of proposed disturbance – Shown on drawings C-102 and C-301
- Existing vegetation to be preserved and proposed site landscaping – The main portion of the project site will be surfaced with crushed stone. The disturbed grassed area around the proposed generator will be seeded. No trees or shrubs are being removed during construction, except along the wetland brushline as shown on drawing C-102. No new landscaping is planned for the site since it is out of view of the public.
- Easements – No existing easements were noted in the project area and no new easements are proposed.

ATTACHMENT 3

U.S. Department of Homeland Security
Washington, DC 20472

FEMA

UNITED STATES OF AMERICA

DEPARTMENT OF HOMELAND SECURITY

FEDERAL EMERGENCY MANAGEMENT AGENCY

EQUIPMENT LOAN AGREEMENT

Loan Agreement number:

Station FCC Facility ID Number: 58544

Station Call Letters: WGAN

Equipment Loan Agreement between FEMA and:

Saga Communication of New England, LLC

420 Western Avenue, South Portland, Maine 04106

I. BACKGROUND

The Primary Entry Point Program was established to provide the President of the United States with a communications capability to address the people of the United States via the Emergency Alert System during conditions when all other means may not be available, and consists of a network of commercial broadcast stations in the continental United States, plus one each in Puerto Rico, St. Thomas US Virgin Islands, Alaska, and the Hawaii State Emergency Operations Center (EOC). The system has never been used for the intended purpose, but remains ready at all times to fulfill the requirements of the President. At the direction of the Federal Emergency Management Agency, the Primary Entry Point Advisory Committee, Inc. provides certain planning and consulting functions relating to the Primary Entry Point Program.

II. AUTHORITIES:

(a) 6 U.S.C § 314
(b) 47 U.S.C. § 606.
(c) 47 C.F.R. § 11, [Emergency Alert System]

(d) National Security Presidential Directive 51/ Homeland Security Presidential Directive 20, Continuity, May 4, 2007.

(e) Executive Order 13407 Public Alert and Warning System, June 2006

(f) Presidential Communications with the General Public during Periods of National Emergency, Statement of Requirements, September 15, 1995

(g) Executive Order 12656, November 18, 1988, Assignment of Emergency Preparedness Responsibilities, Section 201 (11)

(h) The Robert T. Stafford Disaster Relief and Emergency Assistance Act, Section 611(d) and (e), 42 USC. 5196(d) and (e), November 23, 1988

(i) Presidential Decision Directive 67

III. DEFINITIONS IN THIS AGREEMENT:

(a) "EAS" means the Emergency Alert System, as defined in 47 C.F.R. § 11.1 *et seq.*

(b) "ELA" means this Equipment Loan Agreement.

(c) "Equipment" means the EAS equipment identified on Appendix A. (See paragraph VI (c) below.)

(d) "FCC" means the Federal Communications Commission.

(e) "FCC Licensee" means the owner of the Station and any successor owner under common control with FCC Licensee.

(f) "FEMA" means the Federal Emergency Management Agency.

(g) "PEPAC" means the Primary Entry Point Administrative Council, Inc.

(h) "PEP Stations" means those broadcasters that are connected with government activation points pursuant to 47 C.F.R. § 11.14.

(i) "PEP System" means the Primary Entry Point system, a nationwide network of broadcast stations that is connected with United States Government activation points to distribute Emergency Activation Notifications, Emergency Action Terminations, EAS national test messages and other EAS messages.

(j) "Station" means the broadcast station identified by the FCC Facility ID number above.

IV. PURPOSE AND SCOPE:

FEMA has determined that the FCC Licensee satisfies the criteria for serving as a PEP Station, and that the loan to FCC Licensee of the Equipment identified on Appendix A hereto is necessary to prevent loss of life, health, and property in the event of a national emergency. This ELA sets forth the terms and conditions under which FEMA will loan the EAS Equipment to FCC Licensee. Terms and protections described by this agreement shall pertain only to FEMA provided Equipment, as defined by this agreement.

V. GENERAL - TERMS OF THE LOAN

The Equipment is loaned to FCC Licensee solely for the purpose of establishing or maintaining the Station as a PEP Station. FEMA and FCC Licensee agree that ownership of the Equipment remains vested in the United States Government. FEMA permits the FCC Licensee custody and possession of the Equipment, subject to the following terms and conditions:

(a) The term of this ELA shall be ten (10) years, with automatic renewals for successive 10-year periods unless otherwise terminated by FEMA or FCC Licensee in accordance with this ELA.

(b) FEMA agrees that FCC Licensee may make use of the Equipment during normal broadcast operations, provided that such use does not impair FCC Licensee's ability to activate the Equipment for its intended use as part of the PEP System immediately if required.

(c) When the PEP System is activated, FCC Licensee agrees to broadcast, in accordance with FCC's rules and without censorship, any and all program material furnished and delivered to the Station by the United States Government. Live broadcasts by the President of the United States during national emergencies must be broadcast by the Station.

(d) If Appendix A to this ELA includes loaned electric power generating equipment and loaned diesel fuel storage tanks, FEMA agrees to provide FCC Licensee with an initial supply of diesel fuel sufficient to enable the Station to operate for up to 60 days (or an amount equal to the capacity of the loaned diesel fuel storage facilities, whichever is less). Thereafter, FCC Licensee agrees to maintain sufficient diesel fuel to operate the Equipment for a continuous 30-day period without refueling. FEMA will reimburse FCC Licensee for the cost of up to 500 gallons of diesel fuel annually used during required operation and testing of the Equipment.

VI. RESPONSIBILITIES

(a) FEMA Responsibilities

(1) FEMA is responsible for the initial construction and installation of the Equipment at the FCC Licensee Station and all costs associated therewith, including but not limited to:

a. The replacement or restoration of the antenna ground system, to FCC Licensee's satisfaction, from any damage incurred by the installation of the Equipment.

b. The replacement or repair of any property fencing, property groundscape or other FCC Licensee personal property damage incurred by the installation of the Equipment.

(2) FEMA is responsible for the maintenance, repair and replacement of the Equipment and all costs associated therewith, including FEMA supplied fuel tanks and fuel system components and for the costs of any permits, registrations and licenses that relate directly and solely to the operation or installation of the Equipment. Other fees and costs incurred by FCC Licensee in connection with the operation of the Station in the normal course of business shall remain the responsibility of FCC Licensee.

(3) In consideration of FCC Licensee's agreement to enter into this ELA, FEMA, on behalf of the United States Government, shall indemnify, defend, and hold harmless FCC Licensee, its parent corporation, its affiliates and their respective officers, directors, employees and representatives, and the successors and assigns of any of them, from and against, and shall reimburse them for, all claims, damages, costs and expenses, including, without limitation, interest, penalties, court costs and reasonable attorneys' fees and expenses, resulting from or arising out of (i) any breach by FEMA of any of its

representations, warranties, covenants, obligations or other agreements contained in this ELA; or (ii) any failure by FEMA or its agents to comply with any applicable laws, statutes, ordinances or regulations. In addition, FEMA agrees to be responsible for any claim for personal injury or property damage or otherwise brought on behalf of any third party person, firm or corporation against FCC Licensee as a result of or in connection with FCC's Licensee's custody and operation of the Equipment or FCC Licensee's performance of its obligations under this ELA, including without limitation spills, discharges and other environmental impacts or damages, provided that such claim, damage, cost or expense does not result from the willful, knowing, or intentional acts or the negligence of FCC Licensee and is otherwise within the scope of, and subject to, the Federal Tort Claims Act or other specific federal law. The foregoing indemnities shall survive the termination of this Agreement.

(4) FEMA retains the right to periodically inspect and verify the operation and condition of the Equipment, upon reasonable notice to FCC Licensee at a minimum semi-annually. Diesel fuel tanks and associated systems are subject to periodic inspection by the United States Army Corps of Engineers (USACE) or its delegated agents.

(b) FCC Licensee Responsibilities

(1) FCC Licensee will use best efforts to provide space and services, including personnel services, to operate its broadcast facilities during national emergency conditions.

(2) FCC Licensee agrees to provide reasonable access to its facilities during normal business hours when requested in advance by FEMA or its designee to allow inspection of the Equipment, and the performance of associated work, as determined by FEMA or its designee; provided that a representative of FCC Licensee will be entitled to accompany FEMA or its designee at all times.

(3) FCC Licensee agrees to notify FEMA of any fuel spills, discharges or other environmental impacts or damages relating to the Equipment immediately upon becoming aware of them. FCC Licensee will grant immediate access to FEMA, PEPAC or their agents upon learning of the case of an incident involving fuel spills, discharges or other environmental impacts or damages relating to the Equipment.

(4) FCC Licensee agrees that the Equipment will be situated and maintained at the location specified in Appendix A and will not be removed from the site nor will any modifications or attachments be made to any FEMA supplied fuel tanks or fuel system components without prior written consent from FEMA, which consent will not be unreasonably withheld or delayed.

(5) FCC Licensee agrees not to publicize the installation or operation of the Equipment for the purpose of seeking competitive advantage during non-emergency conditions or situations.

(6) FCC Licensee agrees to inspect the Equipment on a monthly basis to verify the Equipment is available for use during an emergency; although FCC Licensee cannot guarantee that the Equipment will always be available. FCC Licensee further agrees to perform reasonable visual inspections, and as necessary, use commercially reasonable efforts to assist with providing reasonable access for FEMA and/or its contractors with replacement, repairs, maintenance, and testing of the FEMA owned equipment. FCC Licensee also agrees to maintain a log of all equipment visually inspected.

(7) FCC Licensee agrees to take reasonable precautions to secure the Equipment from damage, loss, or theft. FCC Licensee will not be held accountable for damage due to fire, flood, natural disaster or other force majeure event, or due to any other circumstances beyond the control of FCC Licensee. FCC Licensee agrees to promptly report any damage, loss, or theft of the Equipment to FEMA.

(8) It is the responsibility of each PEP Station to be prepared to immediately broadcast emergency messages and information when required by the President and/or FEMA. In order to meet this requirement, FCC Licensee agrees to use commercially reasonable efforts maintain the Equipment in operational order at all times.

(c) Joint FEMA and FCC Licensee Responsibilities

FEMA and FCC Licensee agree to execute a FEMA Custody Receipt for Government Property on Personal Charge Form 61-9 (Form 61-9) with respect to the Equipment, a copy of which is attached hereto at Appendix C. It is understood and agreed that the Form 61-9 is subject in all respects to the terms and conditions of this ELA, and that the execution of the Form 61-9 does not impose on FCC Licensee any obligations, responsibilities or potential liabilities beyond those expressly provided for in the ELA. Upon execution of each Form 61-9 items listed therein shall be appended to list of Equipment maintained in Appendix A. In the event that any Equipment is replaced or any new EAS equipment is installed at the Station, FEMA and FCC Licensee shall promptly amend this ELA to include an updated Form 61-9 at Appendix A that identifies any such new or replacement equipment. In the event that FCC Licensee learns of theft or damage to FEMA owned equipment, FCC Licensee will promptly notify FEMA and report the incident to local authorities and obtain an incident report.

(d) Funding

FEMA provides funding for the operation of the PEP Program.

VII. TERMINATION

(a) Either party may terminate this ELA without penalty in the event the other party fails or refuses to comply with its terms.

(b) This ELA may be terminated at the convenience of the United States Government at any time. If terminated, FEMA agrees to remove the Equipment from FCC Licensee's premises at its own expense as soon as possible, but in no event later than one-hundred and eighty (180) calendar days following the date of termination, and shall promptly return FCC Licensee's property to its condition prior to the installation of the Equipment.

(c) FCC Licensee may terminate this ELA upon not less than one hundred twenty (120) calendar days advance written notice to FEMA at any time prior to expiration of the initial 10- year term. If FCC Licensee elects to terminate this ELA, and does so in accordance with these terms, the FCC Licensee will remove and return the Equipment within one-hundred and eighty (180) calendar days thereafter to such a location as FEMA may direct within a shipping radius of 300 miles. This return will be made at no cost to FEMA and the property will be returned in the condition as originally received, with the exception of reasonable wear and tear and damage by casualty. If FCC Licensee terminates this ELA subsequent to the initial 10 year period, FEMA agrees to remove the Equipment from the FCC Licensee's property as soon as possible, but in no event later than one-hundred and fifty (150) calendar days later, at its own expense, and shall

promptly return FCC Licensee's property to its condition prior to the installation of the Equipment.

VIII. OTHER MATTERS

1. This ELA supersedes any existing equipment loan agreements with FEMA or the FCC for the Licensee related to the Station. Existing ELAs entered into with the FCC have been transferred from the FCC to FEMA, including any and all benefits, responsibilities, rights, and liabilities the FCC may have by virtue to those agreements.
2. This ELA is effective as of the date of last signature by the parties below. Each signatory represents that he or she is duly authorized to enter into this ELA on behalf of its respective party.
3. Nothing in this ELA shall affect in any way FCC Licensee's compliance with regulations regarding the EAS at 47 C.F.R. Part 11 or any other obligation created by law or regulation.

IX. SIGNATURES

Federal Emergency Management Agency – FEMA:

By: _____ DATE: 05/14/12

Damon Penn, Assistant Administrator of the National Continuity Program Directorate

FCC Licensee: SAGA COMMUNICATIONS OF NEW ENGLAND, LLC.

By: _____ 05/09/2012

SIGNATURE DATE

WARREN S. LADA, EXEC. VP/OPS

Name and Title

420 WESTERN AVENUE

Address

SOUTH PORTLAND, ME 04106

Address

ATTACHMENT 2

BK12543PG308

29174

CONFIRMATORY DEED

SAGA COMMUNICATIONS MANAGEMENT, INC., a Delaware corporation, individually and as the sole general partner of Saga Communications Management, L.P., BOSTON VENTURES LIMITED PARTNERSHIP III, a Massachusetts limited partnership, individually and as a limited partner of Saga Communications Limited Partnership, BOSTON VENTURES III-A INVESTMENT CORP., a Massachusetts corporation, individually and as a limited partner of Saga Communications Limited Partnership and EDWARD K. CHRISTIAN, individually and as a limited partner of Saga Communications Management, L.P. (collectively, the "Grantors") for no monetary consideration hereby grant to SAGA COMMUNICATIONS of NEW ENGLAND, INC., a Delaware corporation, all the right, title and interest of the Grantors in the following property:

Beginning at a point marked by an iron rod set, which point is distant three hundred sixty-three and forty hundredths (363.40) feet on a course N 13° 53' 10" W from an iron in the northwesterly sideline of said Warren Avenue marking the southeasterly corner of land conveyed by Margaret O'Connor to Frank Sangollo, dated July 15, 1920, and recorded in the Cumberland County Registry of Deeds in Book 1057, Page 98;

Thence N 30° 47' E along land now or formerly of Your Home, Inc., a distance of eight hundred fifty and no hundredths (850.00) feet to an iron rod set;

Then N 59° 13' W along said land now or formerly of Your Home, Inc., a distance of three hundred thirty and no hundredths (330.00) feet to an iron rod set;

Thence N 30° 47' E along land now or formerly of Your Home, Inc., a distance of one hundred fifty and no hundredths (150.00) feet to an iron rod set;

Thence N 59° 07' W a distance of three hundred eighty-seven and seventy-five hundredths (387.75) feet to an iron rod set in the southeasterly line of a right of way conveyed by Lee H. Donnelly and Sabina D. O'Connor to Maine Turnpike Authority dated October 11, 1954, and recorded in said Registry of Deeds in Book 2206, Page 400;

Please Return To: CYNTHIA A. HAHN, ESQ.
EDWARDS & ANGELL
101 FEDERAL STREET
BOSTON, MA 02110

32069BOSAJC

Thence S 30° 58' W a distance of twenty-three and forty hundredths (23.40) feet to a railroad spike;

Thence N 59° 09' W a distance of three hundred eighty-seven and seventy-five hundredths (387.75) feet to an iron rod set in the southeasterly line of said Maine Turnpike Authority right of way;

Thence S 30° 58' W by said Maine Turnpike Authority right of way a distance of three hundred and no hundredths (300.00) feet to an iron rod set;

Thence N 59° 09' W a distance of three hundred forty-nine and thirty-six hundredths (349.36) feet to an iron rod set;

Thence S 30° 51' W a distance of seventy-seven and sixty-eight hundredths (77.68) feet to an iron rod set in the easterly line of land conveyed by Guy Gannett Broadcasting Services to Maine Turnpike Authority, by deed dated May 24, 1954, and recorded in said Registry of Deeds, Book 2186, Page 197;

Thence S 18° 06' W along said land of Maine Turnpike Authority a distance of eight hundred forty-seven and sixty-six hundredths (847.66) feet to an iron rod found marking the Northwesterly corner of land now or formerly of Warren Avenue Realty Corp.;

Thence S 64° 03' E along said land of Warren Avenue Realty Corp., other land of Guy Gannett Broadcasting Services and other land now or formerly of Warren Avenue Realty Corp. a distance of seven hundred seventeen and thirty-two hundredths (717.32) feet to an iron rod found marking the northeasterly corner of said land now or formerly of Warren Avenue Realty Corp.;

Thence N 84° 22' E by land conveyed by Guy Gannett Broadcasting Services to Goodwill of Maine, Inc., by deed dated April 29, 1983, and recorded in said Registry of Deeds, Book 6161, Page 100, distance of two hundred seventy-nine and seventy-three hundredths (279.73) feet to an iron rod set;

Thence continuing by other land now or formerly of Goodwill of Maine, Inc., S 59° 13' E a distance of three

hundred thirty and no hundredths (333.00) feet to the point of beginning.

Also conveying an easement for construction and maintenance of subsurface ground system to be used in connection with broadcasting activity as reserved by Guy Gannett Broadcasting Services in its deed to Goodwill of Maine, Inc., dated April 29, 1983, and recorded in said Registry of Deeds in Book 6161, Page 100.

Also conveying a right of way for passage of vehicles and pedestrians to be used in connection with the maintenance and repair of the antenna located on the premises as granted to Guy Gannett Broadcasting Services by Goodwill of Maine, Inc., by deed dated April 28, 1983, and recorded in said Registry of Deeds in Book 6161, Page 98.

Also conveying a right of way in Lane Avenue as established by Agreement between Helen F. Cushman, Alvin B. Lane and William A. Mitchell dated May 24, 1916, and recorded in said Registry of Deeds in Book 1287, Page 107, and conveyed to Portland Broadcasting System, Inc., by deed of Edith M. Taft dated July 19, 1940, and recorded in said Registry of Deeds in Book 1611, Page 410.

This Deed is given to confirm and ratify the Short Form Quitclaim Deed dated December 18, 1992 (the "Deed") pursuant to which SAGA COMMUNICATIONS LIMITED PARTNERSHIP, a Massachusetts limited partnership, granted to SAGA COMMUNICATIONS, INC., a Delaware corporation, the property described therein which is commonly known as 236 Lane Avenue, Cumberland County, Maine (the "Property").

The Deed was recorded in the Cumberland County Register of Deeds on 12/21/93 at Book 10470, Page 228.

This Confirmatory Deed is given to clarify the records and confirm and ratify the transfer of the Property by Saga Communications Limited Partnership to Saga Communications,

Inc. The undersigned constitute the general and limited partners of the Partnership and their respective successors and assigns who, as of the date hereof, possessed an ownership interest in the Property prior to its transfer to Saga Communications, Inc. pursuant to the Deed.

The conveyance effected hereby does not constitute a transfer of all or substantially all of the assets of the Grantors.

Said Deed was mistakenly executed by Saga Communications, Inc. as the general partner of Saga Communications Limited Partnership when the actual general partner of record of Saga Communications Limited Partnership at the time of such transfer was Saga Communications Management, L.P.

SAGA COMMUNICATIONS MANAGEMENT, INC., individually and as the sole general partner of Saga Communications Management, L.P.

By: _____
Edward K. Christian, President

By: _____
Norman L. McKee, Treasurer

_____
Edward K. Christian, individually and as a limited partner of Saga Communications Management, L.P.

BOSTON VENTURES LIMITED PARTNERSHIP III, individually and as a limited partner of Saga Communications Limited Partnership

By: Boston Ventures Company Limited Partnership III, its general partner

By: _____
A General Partner

BOSTON VENTURES III-A INVESTMENT CORP., individually and as a limited partner of Saga Communications Limited Partnership

By: _____
President

By: _____
Treasurer

STATE OF MICHIGAN
COUNTY OF WAYNE

On this 28th day of August, 1995, before me appeared Edward K. Christian, to me personally known, who, being by me duly sworn, did acknowledge that he is the President of Saga Communications Management, Inc. and that the seal affixed to said instrument is the corporate seal of said corporation and that the foregoing instrument was signed and sealed on behalf of said corporation by authority of its board of directors and he acknowledged said instrument to be his free act and deed and the free act and deed of said corporation.

Marcia K. Lobaito
Marcia K. Lobaito
Notary Public
My Commission Expires:

STATE OF MICHIGAN
COUNTY OF WAYNE

On this 28th day of August, 1995, before me appeared Norman L. McKee, to me personally known, who, being by me duly sworn, did acknowledge that he is the Treasurer of Saga Communications Management, Inc. and that the seal affixed to said instrument is the corporate seal of said corporation and that the foregoing instrument was signed and sealed on behalf of said corporation by authority of its board of directors and he acknowledged said instrument to be his free act and deed and the free act and deed of said corporation.

Marcia K. Lobaito
Marcia K. Lobaito
Notary Public
My Commission Expires:

STATE OF MICHIGAN
COUNTY OF WAYNE

The foregoing instrument was acknowledged before me on this 28th day of August, 1995 by Edward K. Christian.

Marcia K. Lobaito
Marcia K. Lobaito
Notary Public
My Commission Expires:

COMMONWEALTH OF MASSACHUSETTS
COUNTY OF SUFFOLK

On this 28th day of August, 1995, before me appeared Richard C. Wallace, to me personally known, who, being by me duly sworn, did acknowledge that he is a general partner of Boston Ventures Company Limited Partnership III which is the general partner of Boston Ventures Limited Partnership III and that the foregoing instrument was signed on behalf of Boston Ventures Limited Partnership III by authority of its general partner and he acknowledged said instrument to be his free act and deed and the free act and deed of said partnership.

Notary Public
My Commission Expires: 5-3-02

COMMONWEALTH OF MASSACHUSETTS
COUNTY OF SUFFOLK

SEAL

On this 28th day of August, 1995, before me appeared Richard C. Wallace, to me personally known, who, being by me duly sworn, did acknowledge that he is the President of Boston Ventures III-A Investment Corp. and that the seal affixed to said instrument is the corporate seal of said corporation and that the foregoing instrument was signed and sealed on behalf of said corporation by authority of its board of directors and he acknowledged said instrument to be his free act and deed and the free act and deed of said corporation.

Notary Public
My Commission Expires: 5-3-02

COMMONWEALTH OF MASSACHUSETTS
COUNTY OF SUFFOLK

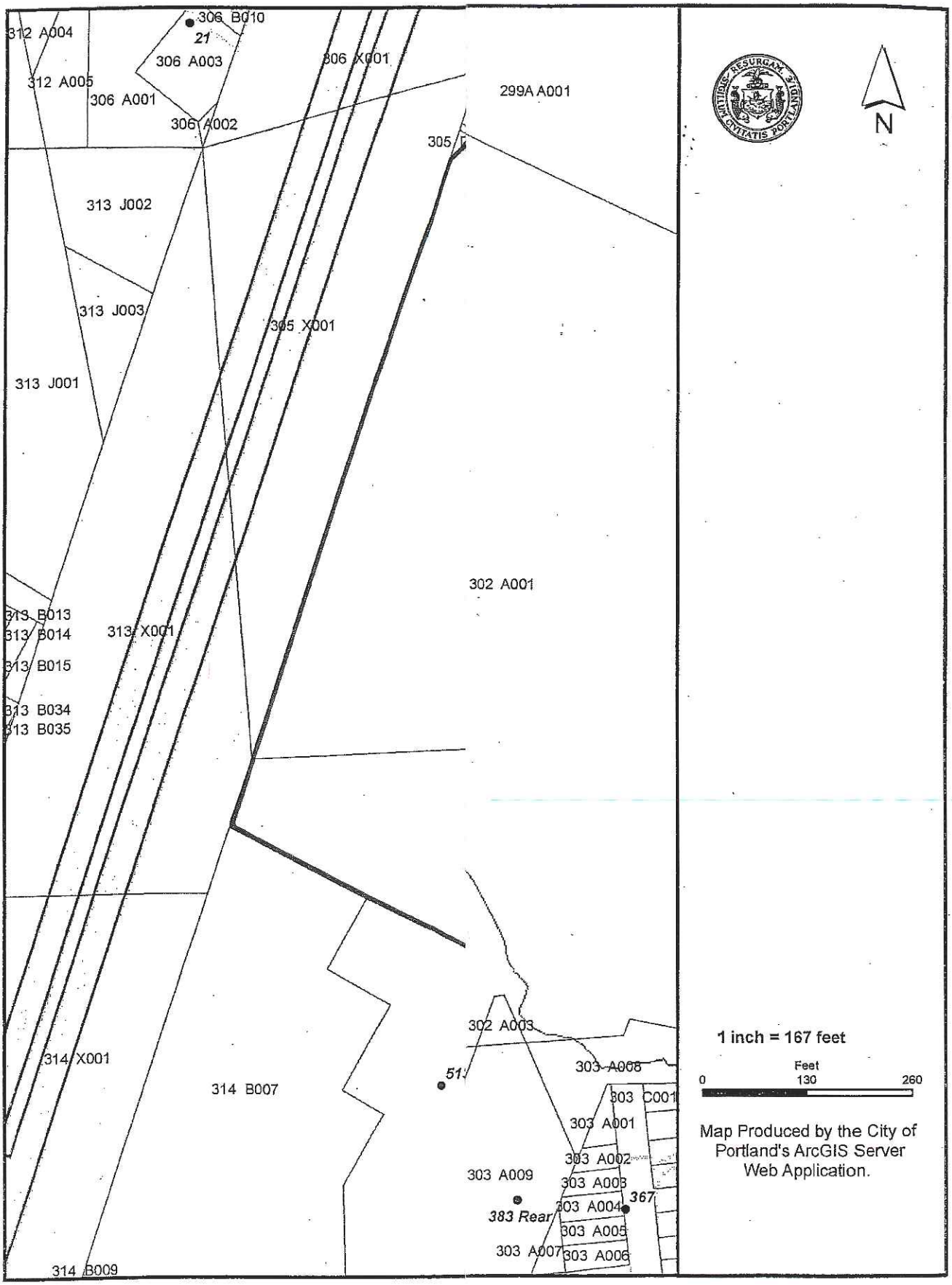
SEAL

On this 28th day of August, 1995, before me appeared Richard C. Wallace, to me personally known, who, being by me duly sworn, did acknowledge that he is the Treasurer of Boston Ventures III-A Investment Corp. and that the seal affixed to said instrument is the corporate seal of said corporation and that the foregoing instrument was signed and sealed on behalf of said corporation by authority of its board of directors and he acknowledged said instrument to be his free act and deed and the free act and deed of said corporation.

Notary Public
My Commission Expires: 5-3-02

[RECEIVED]
[RECORDED REGISTRY OF DEEDS]
96 JUN -5 AM 11:46
CUMBERLAND COUNTY
John B O'Brien

SEAL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367
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303 A007
303 A006
314 B009
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1 inch = 167 feet
Feet
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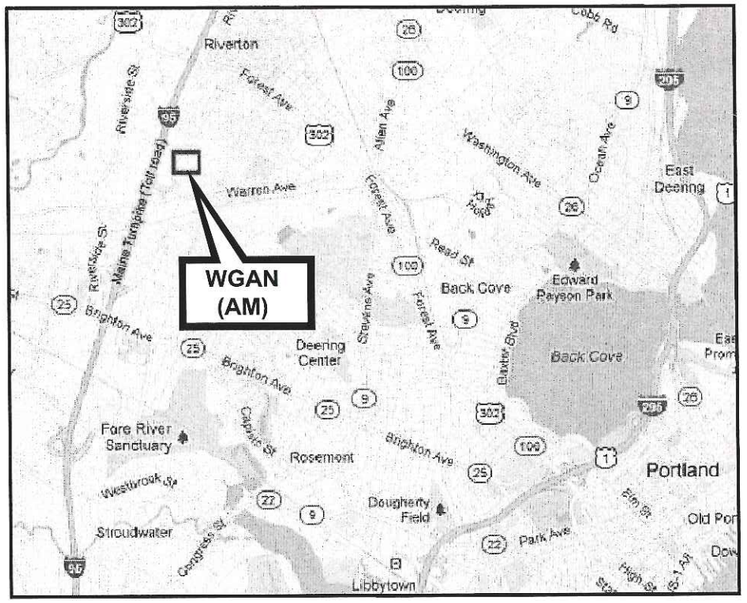
Map Produced by the City of Portland's ArcGIS Server Web Application.

FEMA EMERGENCY RADIO NETWORK
WGAN PORTLAND, MAINE



VICINITY MAP

PROJECT AERIAL VIEW

SEE SITE PLAN, DWG G-101

WGAN TRANSMITTER SITE
236 LANE AVENUE
PORTLAND, ME 04103
CUMBERLAND COUNTY

INDEX

REFERENCED BUILDING CODES

CITY OF PORTLAND TECHNICAL MANUAL 2010

MAINE UNIFORM BUILDING CODE 2010

INTERNATIONAL BUILDING CODE 2009

INTERNATIONAL MECHANICAL CODE 2009

ASCE 7-05

NFPA 30, 2008 EDITION

NATIONAL ELECTRIC CODE, 2008 EDITION

NFPA 101 LIFE SAFETY CODE, 2009 EDITION

Original Submission
some superceded as noted

superceded

US Army Corps of Engineers
OMAHA DISTRICT

PHASE REVIEW:
Project Manager
QC Reviewer
Architectural
Structural
Mechanical
Plumbing
Fire Prot
Civil

Mark	Description	Date	Appd
0	ISSUED FOR CONSTRUCTION	11/1/12	

Designed By: DCB
Drawn By: RAM
Checked By: MLM
Reviewed By: DCB
Date: 2012

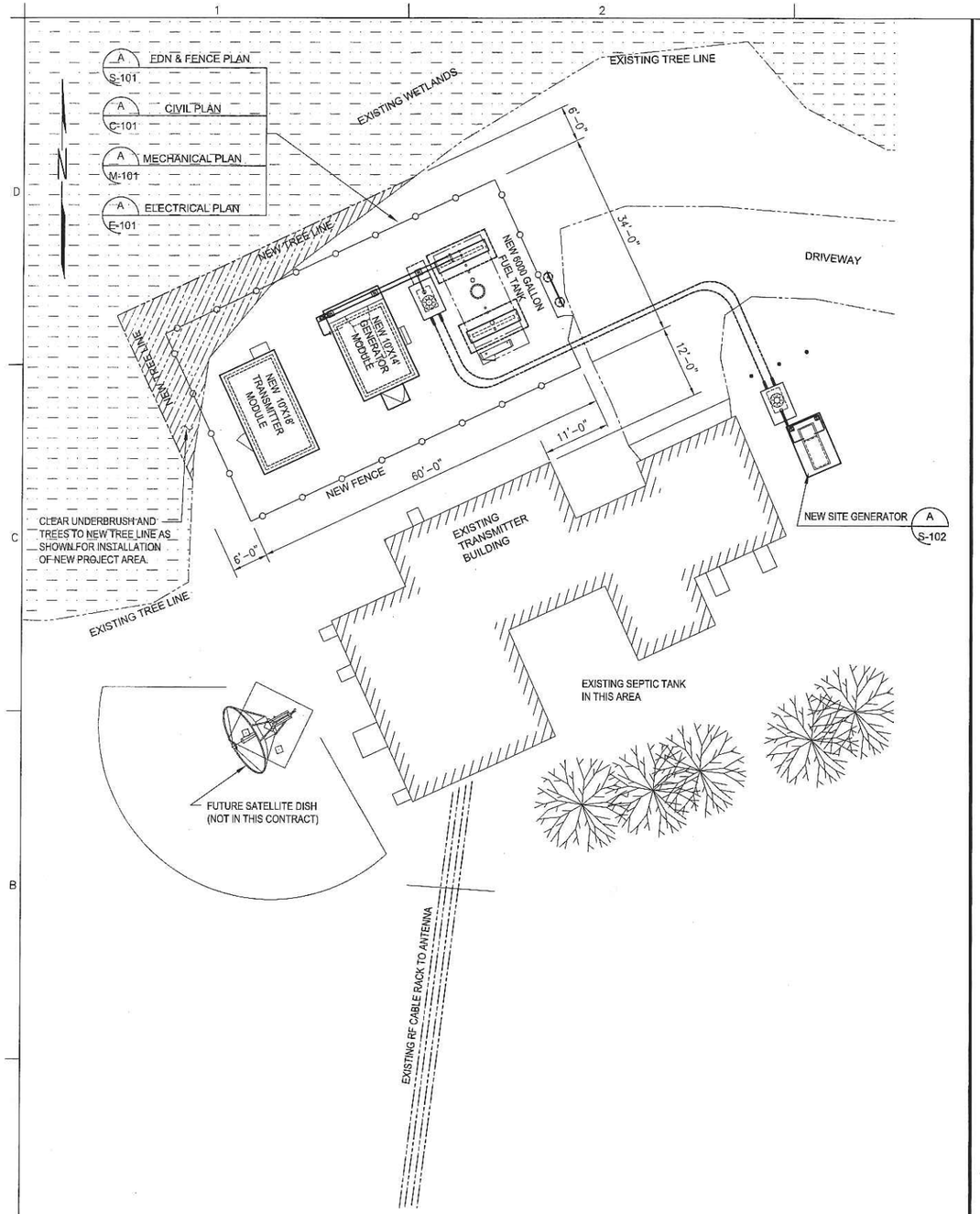
FEMA

KBR
83 SOUTH ROYAL STREET SUITE 200
MOBILE, AL 36602
PHONE: (251) 450-7900
FAX: (251) 450-7949
KBR Engineering Services by:
KBR Engineering Co., LLC

FEMA EMERGENCY RADIO NETWORK
ON WGAN PORTLAND, MAINE

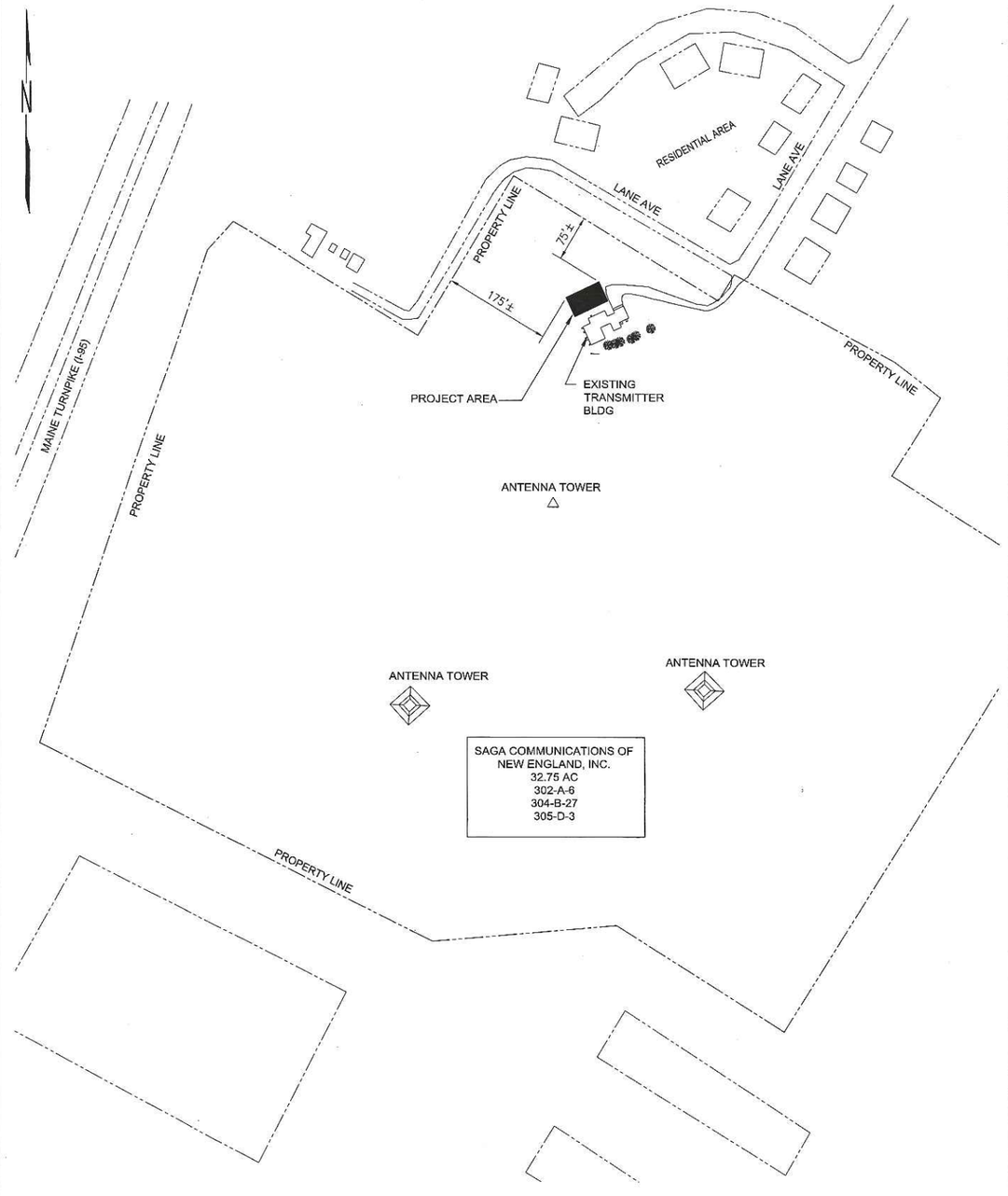
COVER SHEET
VICINITY MAP AND INDEX

Drawing Number:
G-001



1 G-001 STATION WGAN - SITE PLAN
SCALE: 1"=10'-0"

1"=10' 0' 10' 20' 30' 40' 50'



WGAN PROPERTY PLAN
SCALE: 1"=100'

1"=100' 0' 100' 200' 300' 400' 500'

US Army Corps of Engineers OMAHA DISTRICT

PHASE REVIEW:
Project Manager
Cost Engineer
Architectural
Structural
Mechanical
Plumbing
Electrical
Civil

Mark	Description	Date	Appvd
0	SBUD1 FOR CONSTRUCTION	11/1/12	

Designed by: DCB
Drawn by: RAM
Checked by: MLM
Reviewed by: DCB
Date: 2012

KBR
63 SOUTH ROYAL STREET SUITE 200
MOBILE, AL 36602
PHONE: (251) 435-7600
FAX: (251) 435-7868
KBR
Engineering Services by
KBR Engineering Co. LLC

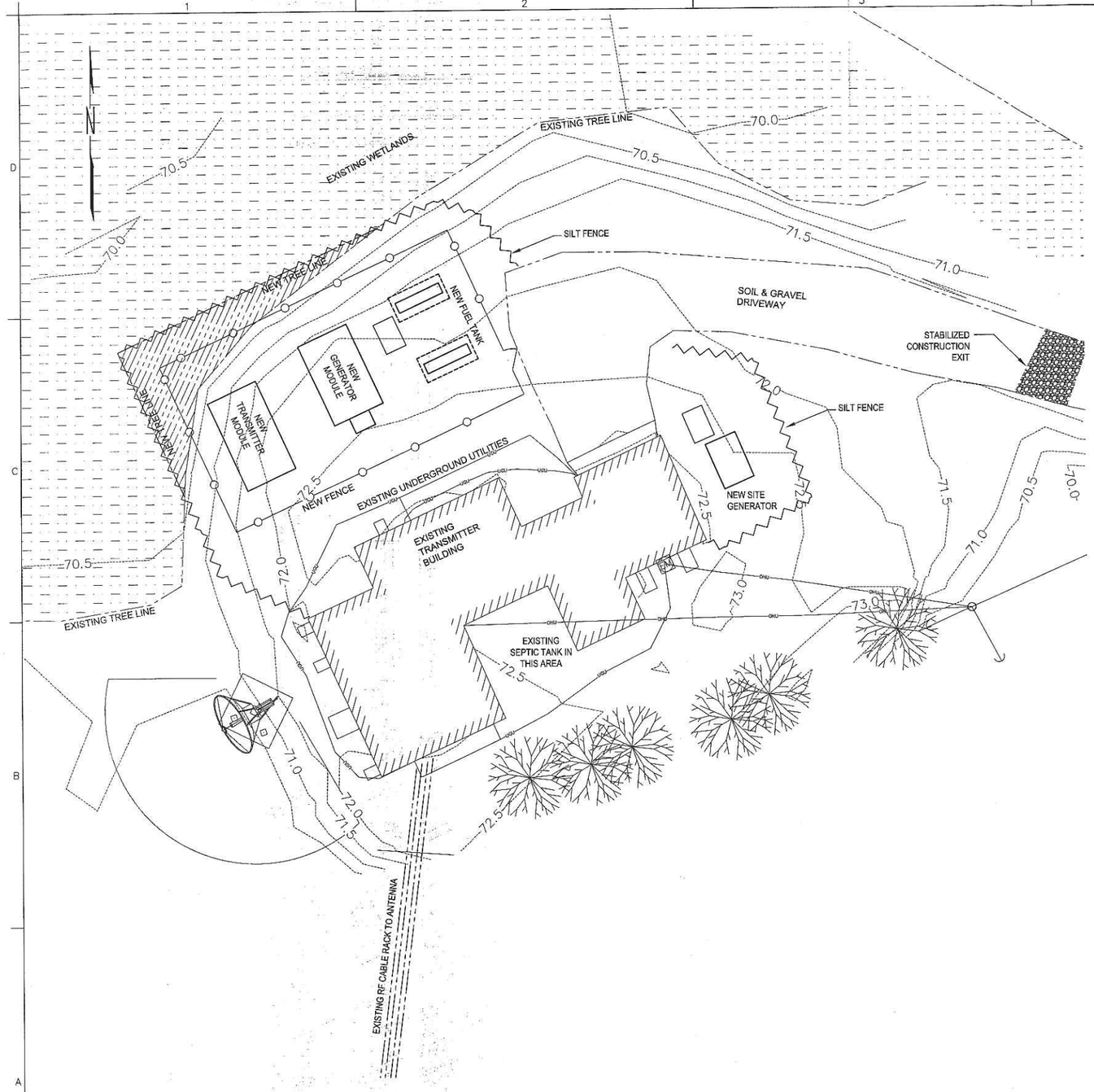
FEMA EMERGENCY RADIO NETWORK
ON WGAN PORTLAND, MAINE

SITE PLAN

Drawing Number:
G-101

STATE OF MAINE
DENISE COLEY BROWN
No. 12959
REGISTERED PROFESSIONAL ENGINEER
REV 0 11-01-12

Approved



1 G-001 STATION WGAN - SITE PLAN
SCALE: 1"=10'-0"

1"=10' 0' 10' 20' 30' 40' 50'

STORM WATER QUALITY NOTES - CONSTRUCTION BMP'S

1. THIS PROJECT SHALL COMPLY WITH ALL LOCAL, STATE AND FEDERAL REQUIREMENTS.
2. SUFFICIENT BMPS SHALL BE INSTALLED TO PREVENT SILT, MUD OR OTHER CONSTRUCTION DEBRIS FROM BEING TRACKED INTO THE ADJACENT STREET(S) OR STORM WATER CONVEYANCE SYSTEMS DUE TO CONSTRUCTION VEHICLES OR ANY OTHER CONSTRUCTION ACTIVITY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CLEARING ANY SUCH DEBRIS THAT MAY BE IN THE STREET AT THE END OF EACH WORK DAY OR AFTER A STORM EVENT THAT CAUSES A BREECH IN THE INSTALLED CONSTRUCTION BMPS.
3. ALL STOCK PILES OF UNCOMPACTED SOIL AND/OR BUILDING MATERIALS THAT ARE INTENDED TO BE LEFT UNPROTECTED FOR A PERIOD GREATER THAN SEVERAL CALENDAR DAYS ARE TO BE PROVIDED WITH EROSION AND SETTLEMENT CONTROLS. SUCH SOIL MUST BE PROTECTED EACH DAY WHEN THE PROBABILITY OF RAIN IS 40% OR GREATER.
4. CONTRACTOR SHALL FIELD ADJUST AND PROVIDE ADDITIONAL SEDIMENT CONTROL MEANS AT NO ADDITIONAL COST TO OWNER IF WARRANTED BY FIELD CONDITIONS.
5. ALL SLOPES THAT ARE CREATED OR DISTURBED BY CONSTRUCTION ACTIVITY MUST BE PROTECTED AGAINST EROSION AND SEDIMENT TRANSPORT AT ALL TIMES.
6. THE STORAGE OF ALL CONSTRUCTION MATERIALS AND EQUIPMENT MUST BE PROTECTED AGAINST ANY POTENTIAL RELEASE OF POLLUTANTS INTO THE ENVIRONMENT.
7. ALL GRADED, DISTURBED OR ERODED AREAS THAT WILL NOT BE PERMANENTLY PAVED, COVERED BY STRUCTURES OR COVERED BY WEED CONTROL FABRIC AND CRUSHED STONE, SHALL BE TREATED WITH HYDROSEED, SOD OR EQUIVALENT. ALL REQUIRED REVEGETATION AND EROSION CONTROL SHALL BE COMPLETED WITHIN 90 CALENDAR DAYS.
8. ALL EROSION / SETTLEMENT CONTROL FACILITIES SHALL BE MAINTAINED IN WORKING ORDER AND AS SPECIFIED BY THE STATE ENVIRONMENTAL AGENCY. THESE FACILITIES SHALL BE INSPECTED AFTER EVERY PRECIPITATION EVENT. ANY NECESSARY REPAIRS WILL BE MADE IMMEDIATELY. ACCUMULATED SEDIMENTS WILL BE REMOVED AS REQUIRED TO KEEP THE DEVICES FUNCTIONAL. IN ALL CASES, REMOVE DEPOSITS WHERE ACCUMULATIONS REACH 3" ABOVE GRADE. ALL UNDERCUTTING OR EROSION OF THE TOE ANCHOR WILL BE REPAIRED IMMEDIATELY WITH COMPACTED BACKFILL MATERIALS. ADHERE TO ANY MANUFACTURER'S RECOMMENDATIONS.
9. ANY CONTROL STRUCTURE DISTURBED DURING DAILY OPERATIONS SHALL BE REPAIRED, REPLACED OR RECONSTRUCTED AS REQUIRED UPON COMPLETION OF THE WORK DAY.
10. THE CONTRACTOR WILL BE RESPONSIBLE DURING CONSTRUCTION AND FOR ONE YEAR FOR MAINTAINING THE E&S MEASURES TO INSURE COMPLIANCE WITH THE APPROVED PLAN AND THE APPLICABLE REGULATIONS OF THE STATE.
11. ANY DISTURBED AREAS THAT WILL BE LEFT EXPOSED MORE THAN 13 DAYS AND NOT SUBJECT TO CONSTRUCTION TRAFFIC, WILL IMMEDIATELY RECEIVE A TEMPORARY SEEDING. IF THE SEASON PREVENTS THE ESTABLISHMENT OF A TEMPORARY COVER, THE DISTURBED AREA WILL BE MULCHED WITH STRAW OR EQUIVALENT MATERIAL, AT A RATE OF 2.5 TO 3 TONS PER ACRE. ANY STEEP SLOPES (GREATER THAN 3:1) SHALL BE STABILIZED DAILY.

SITE AREA

THE PROPOSED CONSTRUCTION PROJECT SHALL IMPACT APPROXIMATELY 0.09 ACRES (510 SF OF CONCRETE, 2250 SF OF GRAVEL GROUND COVER AND 1100 SF OF GRASS). GRADING PROPOSED ON THIS SITE AND POTENTIAL WETLAND IMPACT WILL BE IN ACCORDANCE WITH DWG C-102.

ACCORDING TO THE FEMA FLOOD INSURANCE RATE MAP 2300510006C, THE SITE IS OUTSIDE THE 500-YEAR FLOODPLAIN.

PLANNING AND ORGANIZATION

DURING CONSTRUCTION, THE KBR SITE MANAGER WILL OVERSEE THE IMPLEMENTATION AND MAINTENANCE OF THE STORMWATER PLAN.

BEST MANAGEMENT PRACTICES

1. SILT FENCE - THE CONSTRUCTION SITE WILL BE SURROUNDED BY A SILT FENCE TO PREVENT RUNOFF OF SEDIMENT.
2. STABILIZED CONSTRUCTION EXIT - A GRAVEL CONSTRUCTION EXIT WILL PREVENT DISPERSION OF SEDIMENT ONTO NEARBY ROADS.

ALL BMPs SHALL BE IN ACCORDANCE WITH THE MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION PUBLICATION "MAINE EROSION AND SEDIMENT CONTROL BMPs".

STATE OF MAINE
DENISE COLEY BROWN
No. 12959
REGISTERED PROFESSIONAL ENGINEER

Rev 0 11-01-12

superseded

US Army Corps of Engineers
OMAHA DISTRICT

PHASE REVIEWS:
Project Manager
QC Reviewer
Architecture
Structural
Mechanical
Plumbing
Electrical
Civil

No.	Description	Date	Appvd
0	ISSUED FOR CONSTRUCTION	11/1/12	

Designed by: DCB
Drawn by: RAM
Checked by: MLM
Reviewed by: DCB
Date: 2012

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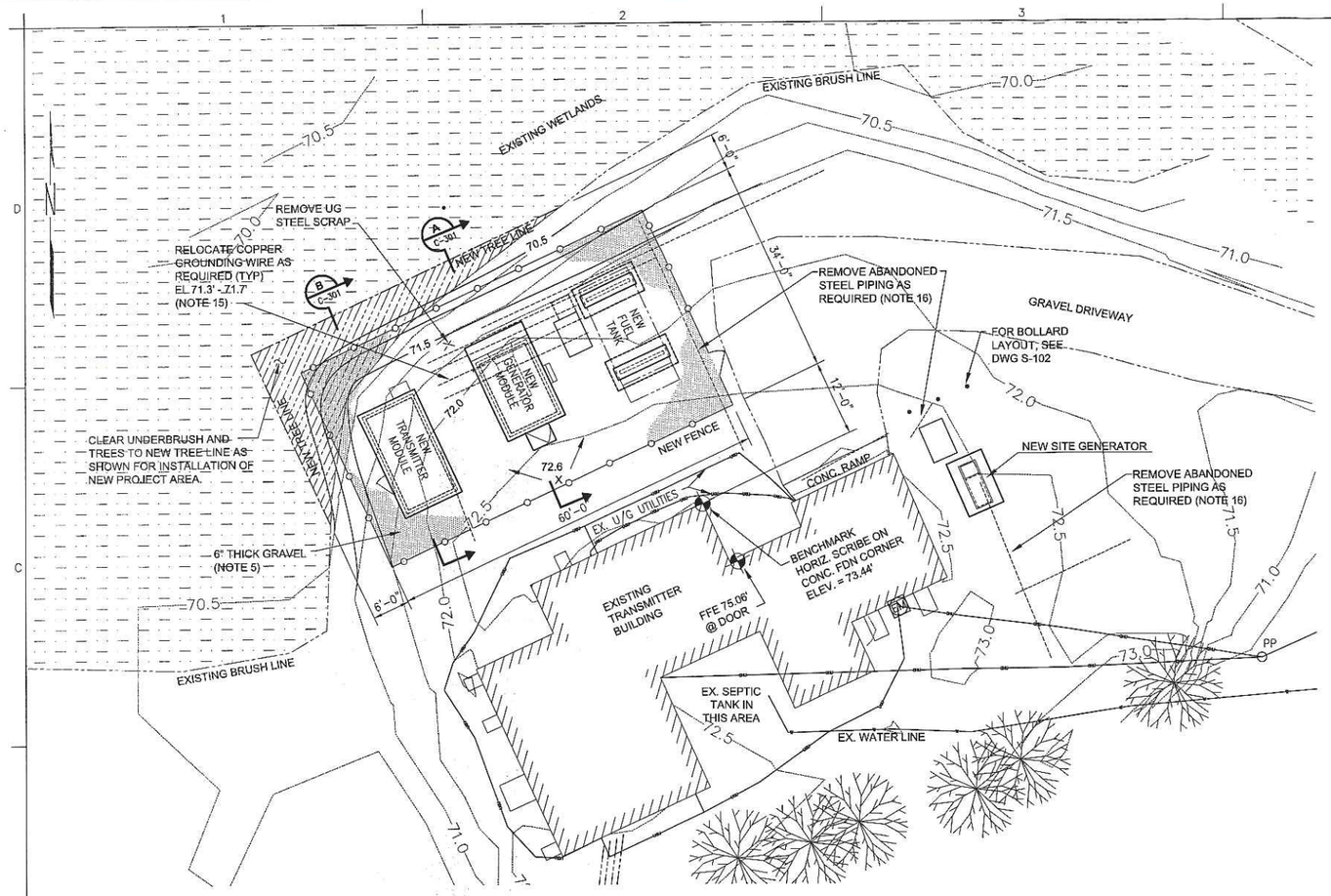
KBR
Engineering Services by
KBR Engineering Co. LLC

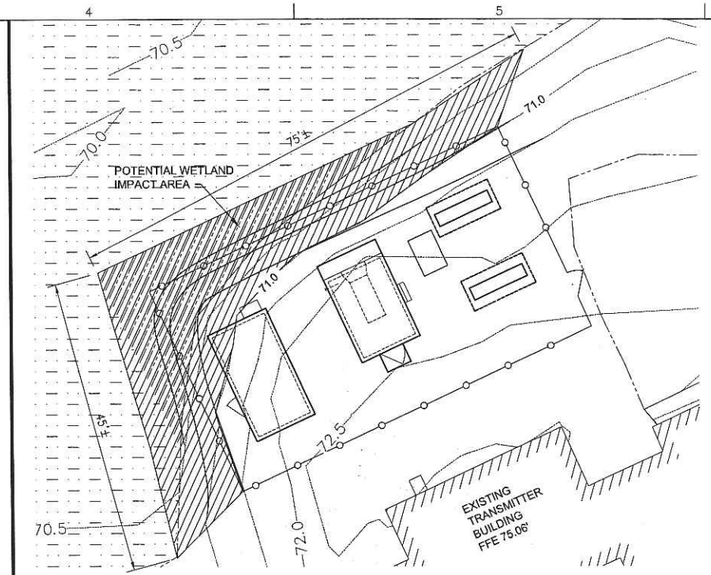
FEMA EMERGENCY RADIO NETWORK
ON WGAN PORTLAND, MAINE

STORMWATER MANAGEMENT PLAN

Drawing Number:
C-101



1 G-001 STATION WGAN - SITE PLAN
SCALE: 1"=10'-0"



2 G-001 WETLANDS IMPACT PLAN
SCALE: 1"=10'-0"

NOTE - THE LIMITS OF WETLANDS ARE CONSERVATIVELY ASSUMED TO BE ELEVATION 71.0 AND THE IMPACT AREA IS SHOWN ALONG THIS CONTOUR. THE APPROXIMATE TOTAL IMPACT TO THE WETLANDS = 1170 SQ FT.

NOTES:

1. SITE PREPARATION, EXCAVATION, AND BACKFILLING SHALL BE ACCOMPLISHED PER THE PLANS, SPECIFICATION 31 23 00.00 20, AND RECOMMENDATIONS IN THE GEOTECHNICAL REPORT BY SCHONEWALD ENGINEERING ASSOCIATES INC. DATED AUGUST 2012. GEOTECHNICAL SERVICES DURING CONSTRUCTION INCLUDING OBSERVATION AND TESTING OF THE EXCAVATIONS, BACKFILL AND COMPACTION, SHALL BE PERFORMED BY THE GEOTECHNICAL ENGINEER OF RECORD.
2. EXISTING SOILS SHOULD BE OVEREXCAVATED TO 2 FEET BELOW THE SPECIFIED BOTTOM OF FOOTING ELEVATION TO ACCOMMODATE FOR A LAYER OF 2 FEET THICK CRUSHED STONE BEDDING MATERIAL. THE STONE SHOULD BE WRAPPED IN A NON-WOVEN GEOTEXTILE FABRIC. SEE SPECIFICATION 31 23 00.00 20 FOR STONE AND FABRIC MATERIALS.
3. DURING DRILLING, GROUNDWATER WAS ENCOUNTERED AT AN APPROXIMATE DEPTH OF 9 FEET BELOW GRADE. POSITIVE DRAINAGE SHALL BE MAINTAINED DURING CONSTRUCTION. CONSTRUCTION DEWATERING MAY BE REQUIRED AND MUST BE PRESERVE THE UNDISTURBED CONDITION OFTHE SUBGRADE.
4. MAINTAIN UNIFORM MOISTURE CONDITIONS IN THE EXPOSED SUBGRADE SOILS PRIOR TO CONSTRUCTION OF THE FOUNDATION. A 3 INCH THICK SEAL SLAB IS REQUIRED OVER THE BASE OF THE EXCAVATION IF FOUNDATIONS ARE NOT PLACED THE SAME DAY THE EXCAVATION IS COMPLETED.
5. GRAVEL SHALL BE PLACED WITHIN FENCED AREA AS SHOWN ON THE DRAWINGS. GRAVEL SHALL BE CLEAN, COARSELY GRADED NATURAL GRAVEL, CRUSHED STONE, OR A COMBINATION CONFORMING TO ASTM C 33 COARSE AGGREGATE GRADING SIZE 57. WEED CONTROL FABRIC SHALL BE PLACED UNDER THE GRAVEL, AND EXTEND 1 FOOT BEYOND FENCE LINE TO ALLOW GRAVEL TO TAPER TO EXISTING GRADE.
6. WHERE THE PROPOSED DUCTBANK OR FUEL LINE CROSSES THE EXISTING DRIVEWAY/PARKING AREA, 4 INCHES OF GRAVEL SHALL BE PLACED OVER THE BACKFILLED TRENCHES. WHERE THE DUCTBANK AND FUEL LINE CROSS AN EXISTING GRASSED AREA, TOPSOIL AND SEEDING SHALL BE PLACED OVER THE COMPACTED BACKFILL. DISTURBED AREAS AROUND THE PROPOSED GENSET AND SUMP SHALL BE SEEDED OR SODDED WITH 3" MINIMUM TOPSOIL. FOR DUCTBANK SECTION, SEE DWG E-504. FOR FUEL LINE TRENCH DETAIL, SEE DWG M-501. FOR TRENCH BACKFILL, SEE SPECIFICATION 31 23 00.00 20.
7. FOLLOWING CONSTRUCTION OF FOUNDATIONS, THE SITE ELEVATION SHALL BE REPLACED TO EXISTING GRADE EXCEPT WHERE NOTED ON DRAWINGS. AREA MUST BE GRADED TO DRAIN WITH NO AREAS OF STANDING WATER PRIOR TO INSTALLATION OF GRAVEL.
8. THE PROPOSED ELEVATIONS SHOWN ARE TOP OF GRADE. THE CRUSHED STONE WILL BE PLACED OVER THIS GRADE.
9. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL INSTALLATION AND MAINTENANCE OF EROSION AND SEDIMENT CONTROL DEVICES REQUIRED BY STATE AND LOCAL CODES, LAWS AND REGULATIONS. REFER TO DWG C-101.
10. WETLANDS ARE LOCATED ON THE SUBJECT PROPERTY. THE WETLANDS ARE NOT TO BE IMPACTED IN ANY WAY DURING CONSTRUCTION EXCEPT AS NOTED. THE WETLANDS SHOWN ARE NOT DELINEATED AND ARE BASED ON THE U.S. FISH AND WILDLIFE WETLANDS INVENTORY, ELEVATION AND THE EXISTING BRUSH LINE.
11. TOPOGRAPHIC SURVEY DATA FOR PROJECT SITE PROVIDED BY SEBAGO TECHNICS, INC. SEE SURVEY PLAN DATED JULY 2012. COORDINATES AND BEARINGS ARE REFERENCED TO GRID NORTH, MAINE STATE PLANE COORDINATE SYSTEM, WEST ZONE 1802 (NAD 83). THE VERTICAL DATUM SHOWN IS NAVD 88.
12. GEOPHYSICAL DATA FOR THE PROJECT PROVIDED BY HAGER-RICHTER GEOSCIENCE, INC. SEE REPORT DATED JULY 2012 IN APPENDIX D OF THE GEOTECHNICAL REPORT.
13. FOR FOUNDATION ELEVATIONS, SEE DWG S-301.
14. FENCE TO BE IN ACCORDANCE WITH DETAIL ON DWG S-502 AND SPECIFICATION 32 31 13.53.
15. CONTRACTOR TO COORDINATE WITH STATION ENGINEER AND ON-SITE PROJECT MANAGER ON LOCATION OF EXISTING ANTENNA GROUNDING SYSTEMS IN ADDITION TO THOSE SHOWN ON THIS DRAWING. GROUNDING WIRES AND/OR CONDUCTORS TO BE RELOCATED AS SHOWN ON THE ELECTRICAL DRAWINGS PRIOR TO EXCAVATION ACTIVITIES.
16. CONTRACTOR RESPONSIBLE FOR VERIFYING EXISTING UNDERGROUND PIPING SHOWN IS NO LONGER IN SERVICE PRIOR TO REMOVAL.

LEGEND

EXISTING GRADE

NEW FINISHED GRADE

72.6 X FINISHED GRADE EL.

1"=10' 0' 10' 20' 30' 40' 50'

STATE OF MAINE
DENISE COLEY BROWN
No. 12959
REGISTERED PROFESSIONAL ENGINEER
Rev 0 11-01-12

Superseded

US Army Corps of Engineers
OMAHA DISTRICT

PRIME REVIEW:
Project Manager
QC Reviewer
Architectural
Structural
Mechanical
Plumbing
Electrical
Civil

No.	Work	Description	Date	Approved
0		ISSUED FOR CONSTRUCTION	11/1/12	

Designed by DCB
Drawn by RAM
Checked by MLM
Reviewed by DCB
Date 2012

KBR
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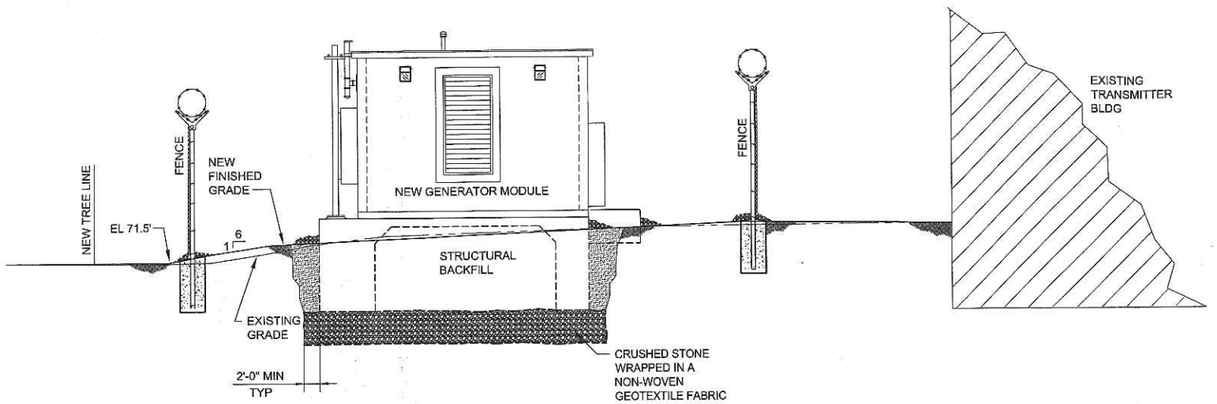
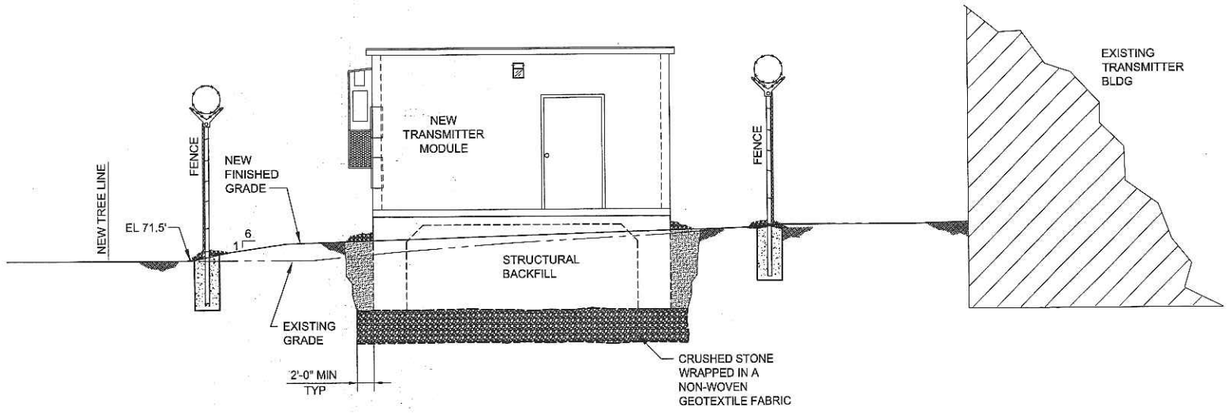
FEMA EMERGENCY RADIO NETWORK
ON WGAN PORTLAND, MAINE

CIVIL PLAN

Drawing Number:
C-102



A C-102 CROSS SECTION
SCALE: 1/4"=10'



B C-102 CROSS SECTION
SCALE: 1/4"=10'

NOTES:

1. FOR CIVIL GENERAL NOTES AND PLAN, SEE DWG C-102.
2. FOR EXCAVATION & BACKFILL REQUIREMENTS, SEE GEOTECHNICAL REPORT AND SPECIFICATION 31 23 00 .00 20.
3. FOR TOP OF CONCRETE ELEVATIONS, SEE DWG S-301.

US Army Corps of Engineers
OMAHA DISTRICT

FHWE APVDR:
Project Manager
QC Reviewer
Architectural
Structural
Mechanical
Plumbing
Electrical
Civil

Mark	Description	Date	Hgrvd
0	ISSUED FOR CONSTRUCTION	11/1/12	

Designed by: DCB
Drawn by: RAM
Checked by: DCB
Reviewed by: CHB
Date: 2012

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FEMA EMERGENCY RADIO NETWORK
ON WOAN PORTLAND, MAINE

CIVIL SECTIONS

Drawing Number:
C-301

STATE OF MAINE
DENISE COUEY BROWN
No. 12959
REGISTERED PROFESSIONAL ENGINEER

Rev 0 11-01-12

GENERAL NOTES

CONCRETE MATERIALS

1. UNLESS OTHERWISE NOTED ON DRAWINGS, CAST-IN-PLACE CONCRETE MIXES SHALL BE AS SHOWN IN SPEC 03 30 53.
2. REINFORCING BARS SHALL BE DEFORMED AND SHALL CONFORM TO ASTM A615, GRADE 60 AND SPECIFICATION 03 30 53.
3. ANCHOR BOLT MATERIAL SHALL BE AS SHOWN ON THE DRAWINGS.
4. EMBEDDED STEEL MATERIAL SHALL CONFORM TO ASTM A36 UNLESS NOTED OTHERWISE ON DRAWINGS.
5. EMBEDDED PIPE SLEEVES SHALL BE ASTM A53 GRADE B UNLESS OTHERWISE NOTED ON DRAWINGS.
6. GROUT UNDER ALL STRUCTURAL COLUMNS, EQUIPMENT BASES AND AROUND ANCHOR BOLTS, SHALL BE PREPACKAGED, CEMENTITIOUS NON-SHRINK, NON-METALLIC. GROUT SHALL HAVE MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 5,000 PSI AND CONFORM TO ASTM C 1107.

CONCRETE CONSTRUCTION METHODS

1. SITE PREPARATION, EXCAVATION, AND BACKFILLING SHALL BE ACCOMPLISHED PER THE PLANS, SPECIFICATION 31 23 00.00 20, AND THE RECOMMENDATIONS IN THE GEOTECHNICAL REPORT. GEOTECHNICAL SERVICES DURING CONSTRUCTION INCLUDING OBSERVATION AND TESTING OF THE EXCAVATIONS, BACKFILL AND COMPACTION, SHALL BE PERFORMED BY THE GEOTECHNICAL ENGINEER OF RECORD. SEE CIVIL DRAWING C-102.
2. COORDINATE CONCRETE WORK WITH PIPING, ELECTRICAL AND MECHANICAL WORK PRIOR TO PLACING CONCRETE.
3. EXPOSED EDGES OF CONCRETE SHALL HAVE 3/4 INCH CHAMFER.
4. ALL CONCRETE REINFORCEMENT DETAILING SHALL BE IN ACCORDANCE WITH ACI 318-08.
5. CONCRETE COVER FOR REINFORCING BARS FOR CAST-IN-PLACE CONCRETE SHALL CONFORM TO THE MINIMUM CONCRETE COVER SPECIFIED IN ACI 318-08, UNLESS SHOWN OTHERWISE ON DRAWINGS.
6. TENSION SPLICES IN REINFORCING BARS SHALL BE CLASS "B" (ACI 318-08) UNLESS SHOWN OTHERWISE ON THE DRAWINGS AND COMPRESSION SPLICES SHALL BE IN ACCORDANCE WITH ACI 318-08, SECTION 12.16, UNLESS OTHERWISE SHOWN ON DRAWINGS.
7. SURFACE FINISHES ARE DESCRIBED IN THE CONCRETE CONSTRUCTION SPECIFICATIONS. FINISH FOR SLABS AND PADS SHALL BE BROOM FINISHED UNLESS INDICATED OTHERWISE ON THE DRAWINGS.
8. CONCRETE INDICATED ON THE DRAWINGS TO BE "ROUGHENED" SHALL BE CLEAN, FREE OF LAITANCE AND ROUGHENED TO A FULL AMPLITUDE OF APPROXIMATELY 1/4 INCH.

STRUCTURAL STEEL

1. STRUCTURAL STEEL "W" SHAPES SHALL CONFORM TO ASTM A 992, GRADE 50. ALL CHANNELS, ANGLES, AND PLATES SHALL CONFORM TO ASTM A 36 UNLESS NOTED OTHERWISE.
2. HIGH STRENGTH BOLTS, NUTS, AND HARDENED WASHERS SHALL CONFORM TO ASTM A 325, ASTM A 563 DH, AND ASTM F 436 RESPECTIVELY. BOLTS, NUTS, AND WASHERS SHALL BE MECHANICALLY GALVANIZED.
3. WELDING ELECTRODES SHALL CONFORM TO AWS A5.1, WITH A MINIMUM ELECTRODE TENSILE STRENGTH OF 70 KSI.
4. ALL STRUCTURAL AND MISCELLANEOUS STEEL SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH THE APPLICABLE PROVISIONS OF ASTM A 123, A 143, A 384, AND A 385. ALL DAMAGED HOT-DIP GALVANIZED AREAS SHALL BE COATED WITH ZRC COLD GALVANIZING COMPOUND, OR APPROVED EQUAL.
5. STRUCTURAL STEEL FABRICATION AND ERECTION SHALL BE IN ACCORDANCE WITH SPECIFICATION 05 12 00.

FOUNDATION DESIGN LOAD DATA:

DESIGN WIND, SNOW AND SEISMIC LOADING VALUES ARE GREATER THAN THE VALUES REQUIRED BY IBC SITE SPECIFIC DATA

GEOTECHNICAL:

ALLOWABLE SOIL BEARING LOAD = 3000 PSF

6,000 GALLON DOUBLE WALL FUEL TANK (UL-2085):
8'-0" DIAMETER, 16'-0" LENGTH

DEAD LOAD:

TANK, SADDLES, PLATFORM, ETC. = 22,900 LBS

FLUID LOAD:

DIESEL FUEL = 51,200 LBS

WIND LOAD:

V = 156 MPH
Iw = 1.15
EXPOSURE = C

SEISMIC LOAD:

I_E = 1.5
S_S = 1.25
S_1 = 0.40
SITE CLASS = D
S_{DS} = 0.83
S_{D1} = 0.43
SEISMIC DESIGN CATEGORY = D
BASE SHEAR = 31,100 LBS
C_S = 0.42
R = 3
ANALYSIS METHOD = EQUIVALENT LATERAL FORCE - NON BUILDING STRUCTURE

TRANSMITTER MODULE:
10'-0" WIDE, 18'-0" LONG

DEAD LOAD:

PRE-CAST BLDG AND CONTENTS = 45,000 LBS

LIVE LOAD:

9,000 LBS

WIND LOAD:

V = 156 MPH
Iw = 1.15
ENCLOSED BLDG.
EXPOSURE = C

SNOW LOAD:

Pg = 80 LB/SF
Pf = 72.6 LB/SF
Ce = 0.9
I = 1.2
Ct = 1.2

SEISMIC LOAD:

I_E = 1.5
S_S = 1.25
S_1 = 0.40
SITE CLASS = D
S_{DS} = 0.83
S_{D1} = 0.43
SEISMIC DESIGN CATEGORY = D
BASE SHEAR = 14,630 LBS
C_S = 0.25
R = 5
ANALYSIS METHOD = EQUIVALENT LATERAL FORCE - BUILDING STRUCTURE

GENERATOR MODULE:
10'-0" WIDE, 14'-0" LONG

DEAD LOAD:

PRE-CAST BLDG AND CONTENTS = 37,000 LBS

LIVE LOAD:

7,000 LBS

WIND LOAD:

V = 156 MPH
Iw = 1.15
ENCLOSED BLDG.
EXPOSURE = C

SNOW LOAD:

Pg = 80 LB/SF
Pf = 72.6 LB/SF
Ce = 0.9
I = 1.2
Ct = 1.2

SEISMIC LOAD:

I_E = 1.5
S_S = 1.25
S_1 = 0.40
SITE CLASS = D
S_{DS} = 0.83
S_{D1} = 0.43
SEISMIC DESIGN CATEGORY = D
BASE SHEAR = 12,000 LBS
C_S = 0.25
R = 5
ANALYSIS METHOD = EQUIVALENT LATERAL FORCE - BUILDING STRUCTURE

SITE GENERATOR, WEATHER ENCLOSURE & SUBBASE FUEL TANK:

DEAD LOAD:

GENSET, ENCLOSURE, AND TANK = 4,300 LBS

FLUID LOAD:

NOMINAL CAPACITY = 215 GALLONS
DIESEL FUEL = 1,800 LBS

WIND LOAD:

V = 156 MPH
Iw = 1.15
EXPOSURE = C

SEISMIC LOAD:

I_E = 1.5
S_S = 1.40
S_1 = 0.42
SITE CLASS = D
S_{DS} = 0.94
S_{D1} = 0.45
SEISMIC DESIGN CATEGORY = D
BASE SHEAR = 3,200 LBS
C_S = 0.56
R = 2.5
ANALYSIS METHOD = EQUIVALENT LATERAL FORCE - NON BUILDING STRUCTURE

HOLD FOR GENSET VENDOR DATA

STATE OF MAINE
DENISE COUEY BROWN
No. 12959
REGISTERED PROFESSIONAL ENGINEER

REV 0 11-01-12

US Army Corps of Engineers
OMAHA DISTRICT

PAGE REVIEW:
Project Manager
QC Reviewer
Architectural
Structural
Mechanical
Electrical
Plumbing
Civil

Mark	Description	Date	Appd
0	ISSUED FOR CONSTRUCTION	11/7/12	

Designed by: DCB
Drawn by: RAM
Checked by: MLM
Reviewed by: DCB
Date: 2012

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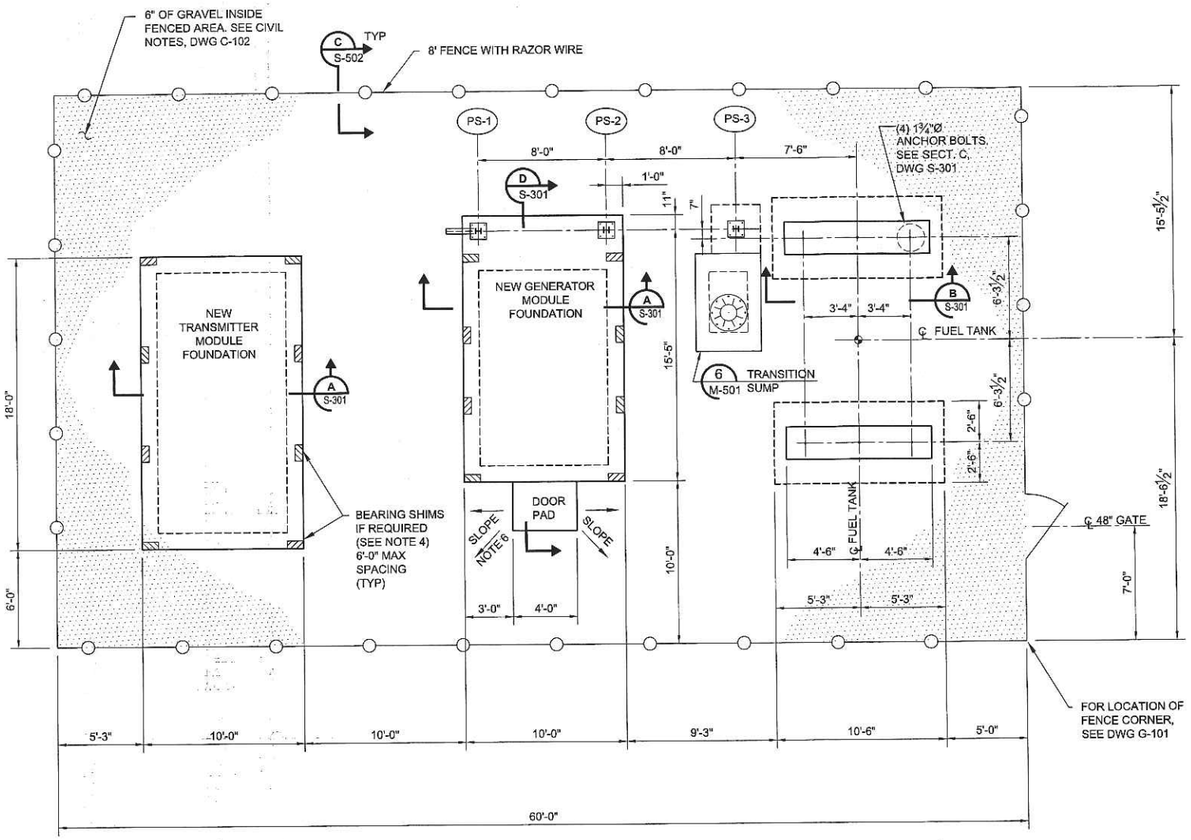
FEMA

FEMA EMERGENCY RADIO NETWORK
ON WCAN PORTLAND, MAINE

STRUCTURAL GENERAL NOTES

Drawing Number:
S-001



A G-101 FOUNDATION AND FENCE PLAN

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

1' 0' 1' 5' 10' 15'

1/4"=1'-0"

NOTES:

1. FOR STRUCTURAL GENERAL NOTES, SEE DWG S-001. FOR CIVIL NOTES, SEE DWG C-102.
2. (PS-1) PIPE SUPPORT DESIGNATOR. SEE DWG S-501.
3. SEE ELECTRICAL DRAWINGS FOR GROUNDING.
4. BEARING SHIMS SHALL BE USED AS REQUIRED TO ASSURE PERIMETER BEARING OF GENERATOR AND TRANSMITTER MODULES. BEARING SHIMS PROVIDED WITH MODULE.
5. CONTRACTOR TO CONTACT ENGINEER IF WEIGHT OF EQUIPMENT PURCHASED EXCEEDS THE DEAD AND FLUID LOADS SHOWN ON DWG S-001.
6. SLOPE FINISHED GRADE AND GRAVEL AWAY FROM DOOR PAD AS SHOWN.

US Army Corps of Engineers OMAHA DISTRICT

PRIME REVIEW: Project Manager, QC Reviewer, Architectural, Structural, Mechanical, Plumbing, Electrical, Civil

Mark	Description	Date	Appvd
0	ISSUED FOR CONSTRUCTION	11/7/12	

Designed by: DCB | Drawn by: RAM | Checked by: MLM | Reviewed by: DCB | Date: 2012

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FEMA EMERGENCY RADIO NETWORK
ON WGAN PORTLAND, MAINE

FOUNDATION AND FENCE PLAN

Drawing Number: **S-101**

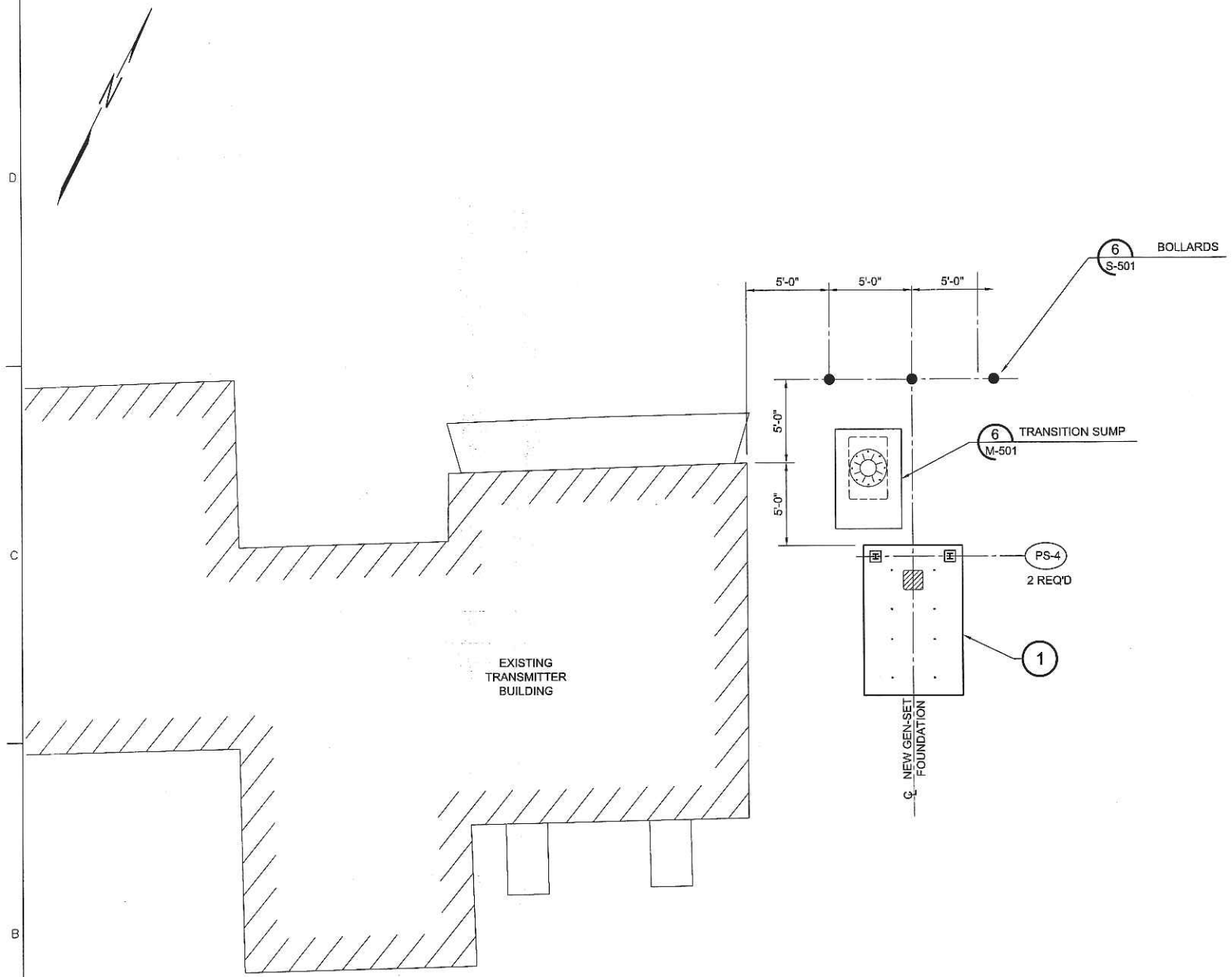
STATE OF MAINE
DENISE COUEY BROWN
No. 12259
REGISTERED PROFESSIONAL ENGINEER

Rev 0 11-01-12

Superceded

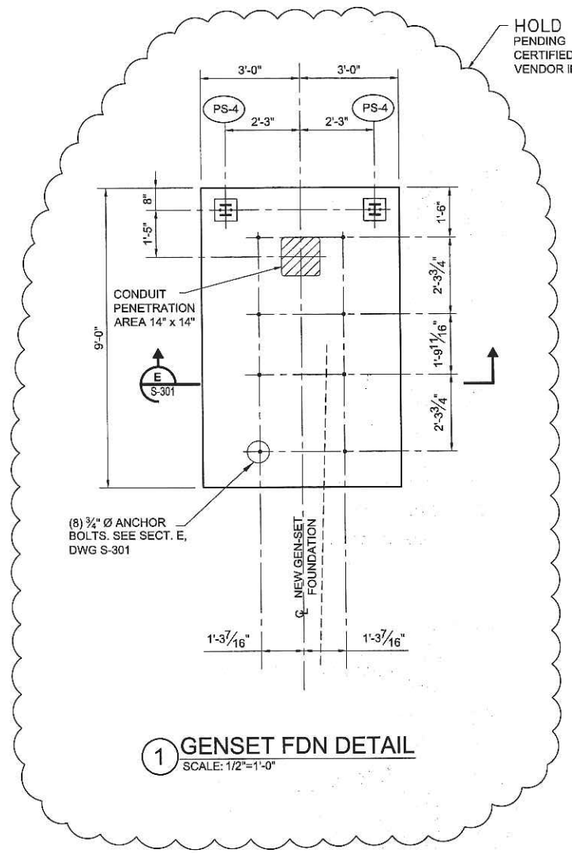
NOTES:

1. FOR STRUCTURAL GENERAL NOTES, SEE DWG S-001. FOR CIVIL NOTES, SEE DWG C-102.
2. (PS-1) PIPE SUPPORT DESIGNATOR. SEE DWG S-501.
3. SEE ELECTRICAL DRAWINGS FOR GROUNDING.



A G-101 SITE GENERATOR FOUNDATION PLAN
SCALE: 1/4"=1'-0"

1' 0' 1' 5' 10' 15'
1/4"=1'-0"



1 GENSET FDN DETAIL
SCALE: 1/2"=1'-0"

US Army Corps of Engineers
OMAHA DISTRICT

FINAL REVIEW
Project Manager
Civil Engineer
Architectural
Structural
Mechanical
Plumbing
Electrical
Civil

No.	Description	Date	Appvd
0	ISSUED FOR CONSTRUCTION	11/1/12	

Designed by: DCB
Drawn by: RAM
Checked by: MLM
Reviewed by: CHB
Date: 2012

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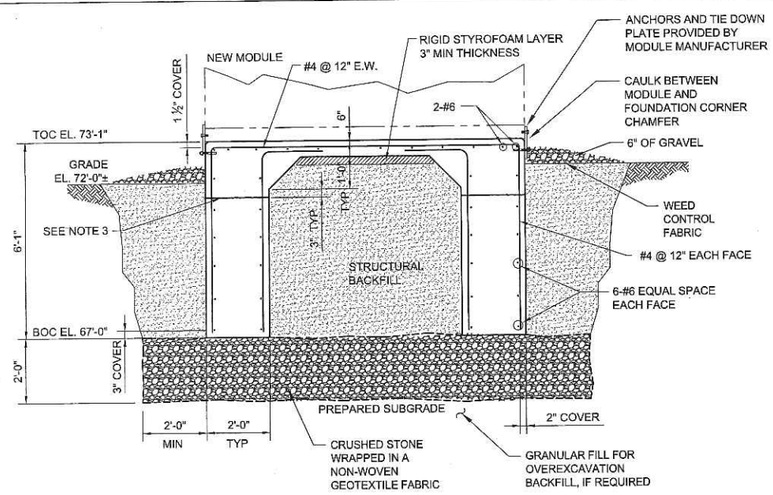
FEMA EMERGENCY RADIO NETWORK
ON WGAN PORTLAND, MAINE

SITE GENERATOR FOUNDATION PLAN

Drawing Number:
S-102

STATE OF MAINE
DENISE COUEY BROWN
No. 12959
REGISTERED PROFESSIONAL ENGINEER
11-01-12

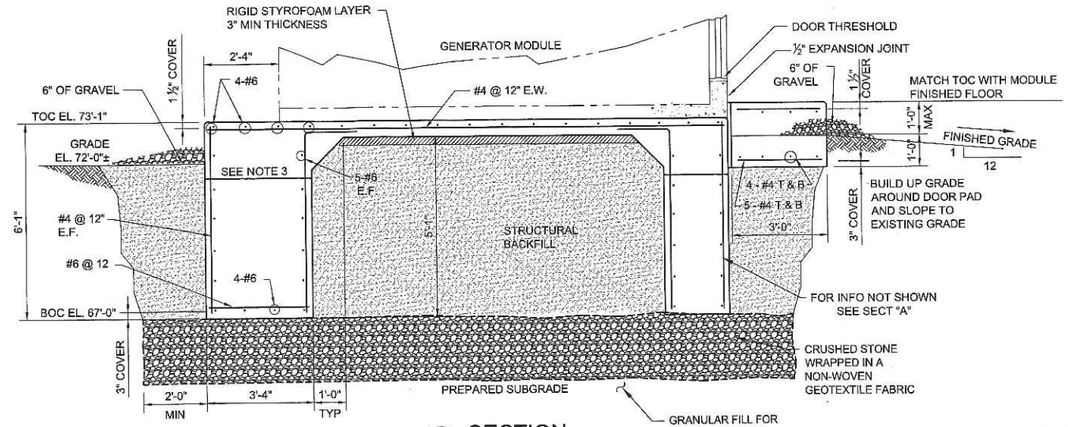
Superseded



A SECTION
S-101 SCALE: 1/2"=1'-0"

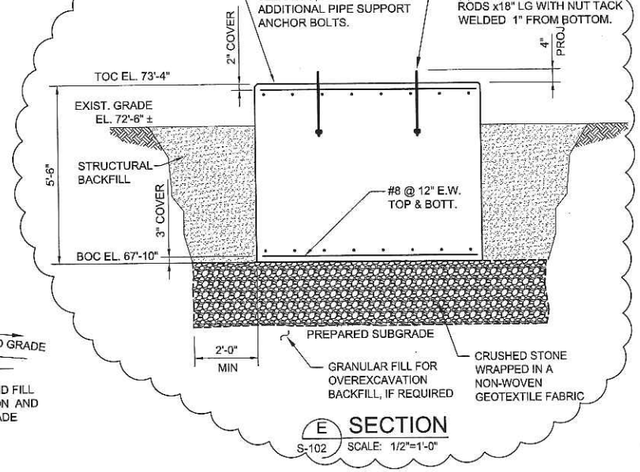
NOTES:

1. GRAVEL LIMITS SHOWN ON DWG C-102 (SEE NOTE 5).
2. WEED CONTROL TO EXTEND TO LIMITS OF GRAVEL.
3. CONTRACTOR HAS THE OPTION TO BREAK FOUNDATION INTO TWO CONCRETE POURS. VERTICAL REBAR SHALL BE CONTINUOUS THROUGH JOINT. ROUGHEN AND APPLY EPOXY BONDING AGENT PER MANUFACTURER'S RECOMMENDATIONS PRIOR TO SECOND POUR.
4. FOR REBAR COVER, USE 2" WHEN CONCRETE POURED USING FORMS. USE 3" WHEN CONCRETE CAST AGAINST EARTH.
5. SEE ELECTRICAL DRAWINGS FOR GROUNDING ATTACHMENTS.
6. FOR EARTHWORK MATERIALS, SEE DWG C-102 AND SPECIFICATION 31 23 00.00 20.

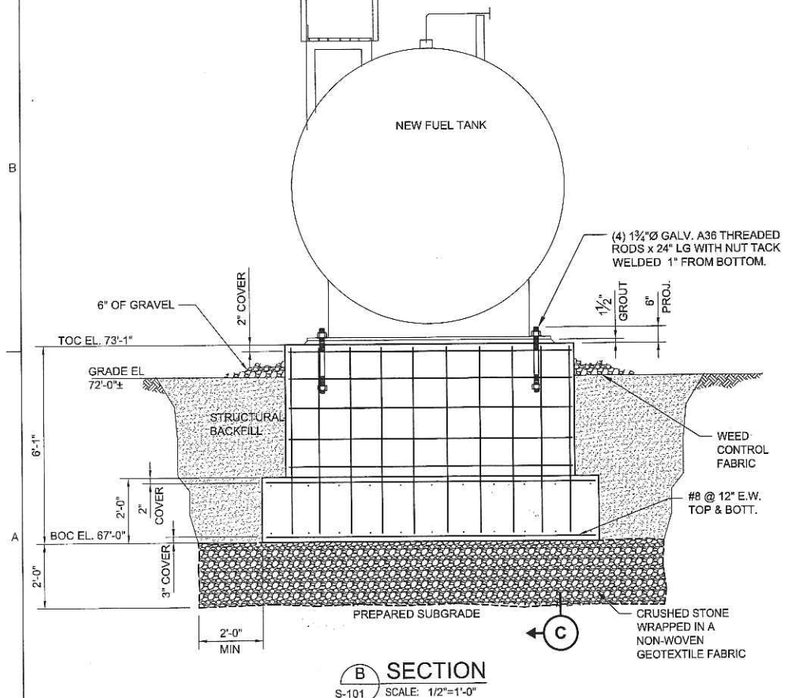


D SECTION
S-101 SCALE: 1/2"=1'-0"

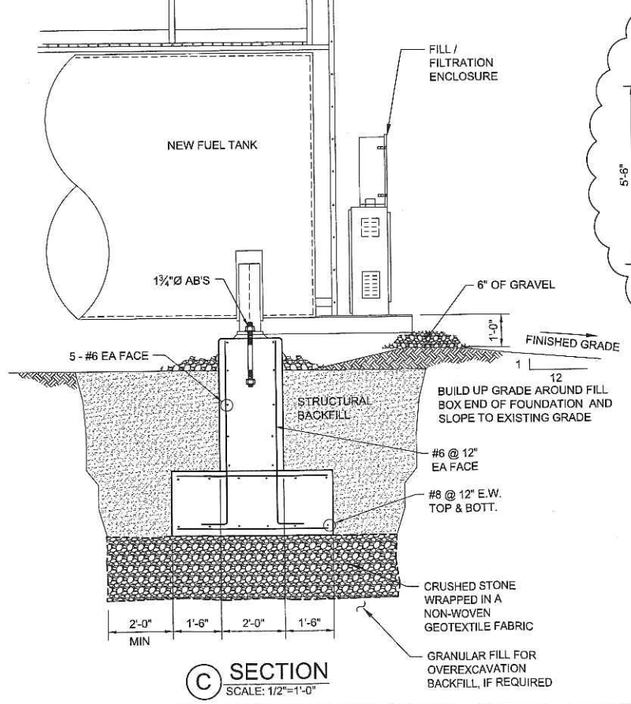
HOLD FOR GENERATOR
VENDOR DATA



E SECTION
S-102 SCALE: 1/2"=1'-0"



B SECTION
S-101 SCALE: 1/2"=1'-0"



C SECTION
SCALE: 1/2"=1'-0"

US Army Corps of Engineers
OMAHA DISTRICT

FRAME ROOMS	
Project Manager	
QC Reviewer	
Architectural	
Structural	
Mechanical	
Plumbing	
Electrical	
Civil	

No.	Date	Description	By
0	11/7/12	Issued for Construction	Alpine

Designed by: DCB
Drawn by: RAM
Reviewed by: DCB
Date: 2012

FEMA

KBR
63 SOUTH ROYAL STREET SUITE 200
MOBILE, AL 36602
PHONE (251) 450-7400
FAX: (251) 450-7999
Engineering Services by
KBR Engineering Co., LLC

FEMA EMERGENCY RADIO NETWORK
ON WGAN PORTLAND, MAINE

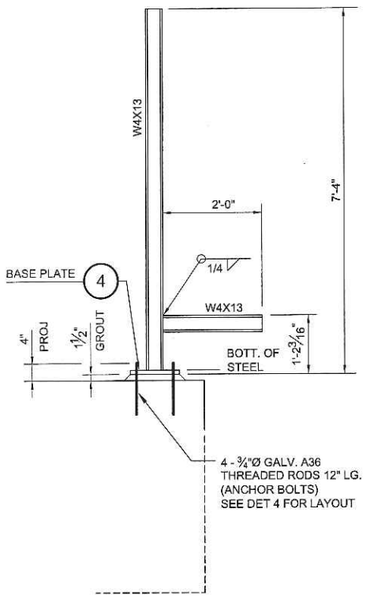
MISCELLANEOUS SECTIONS

Drawing Number:
S-301

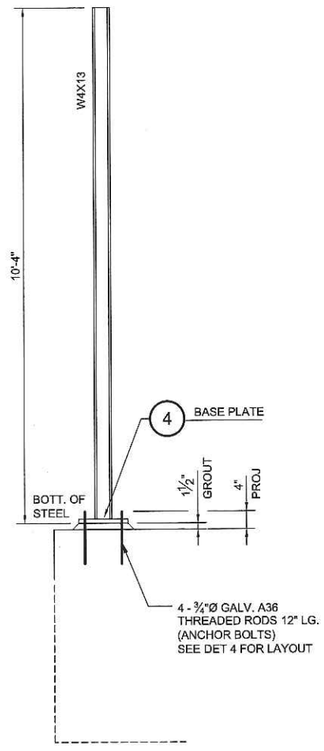
STATE OF MAINE
DENISE COVEY BROWN
No. 11950
REGISTERED PROFESSIONAL ENGINEER

11-01-12

Superseded



1 PIPE SUPPORT PS-1
S-101 SCALE: 3/4"=1'-0"



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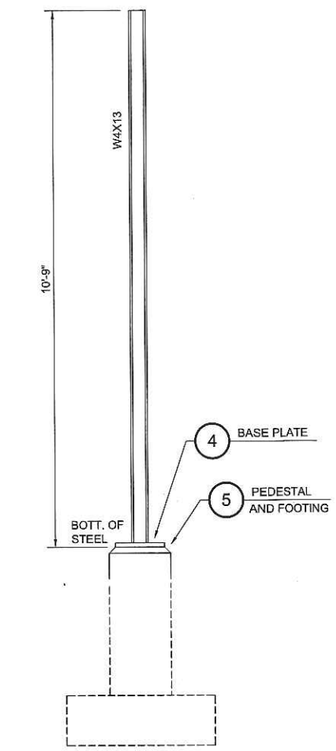

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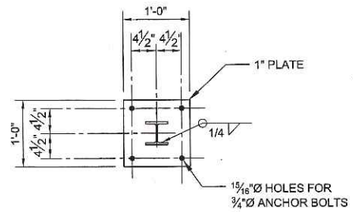
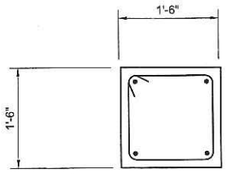
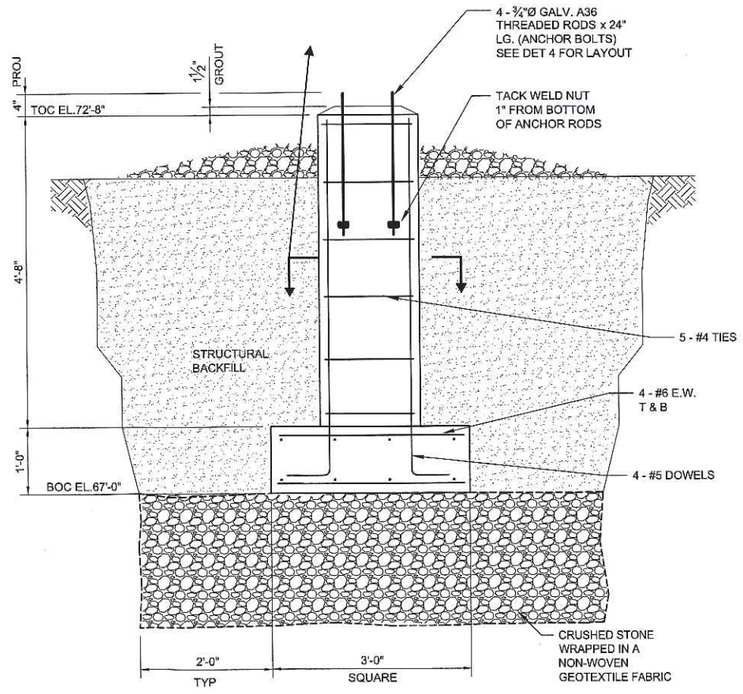
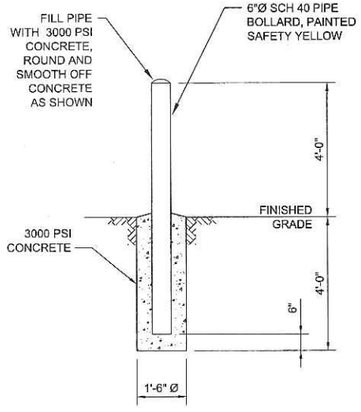


4 DETAIL
SCALE: 1"=1'-0"

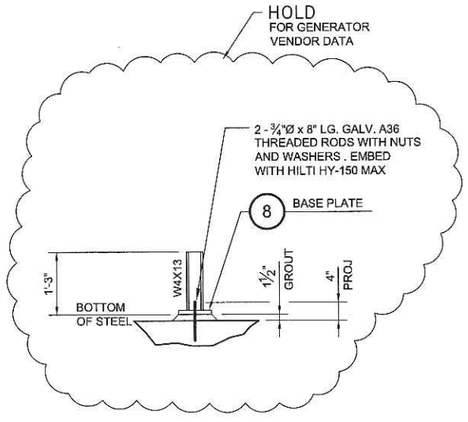




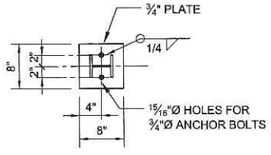
5 DETAIL
SCALE: 1"=1'-0"



6 TYP BOLLARD DETAIL
S-102 SCALE: 1/2"=1'-0"



7 PIPE SUPPORT PS-4
S-102 SCALE: 3/4"=1'-0" 2 REQUIRED



8 DETAIL
SCALE: 1"=1'-0"

US Army Corps of Engineers
OMAHA DISTRICT

FEMA REVIEW:
Project Manager
QC Reviewer
Architectural
Structural
Mechanical
Plumbing
Electrical
Civil

No.	Mark	Description	Date	Appvd
0		ISSUED FOR CONSTRUCTION	11/7/12	

Designed by: DCB
Drawn by: RAM
Checked by: MLM
Reviewed by: DCB
Date: 2012

KBR
63 SOUTH ROYAL STREET SUITE 300
MOBILE, AL 36602
PHONE: (251) 450-7500
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Engineering Services by
KBR Engineering Co., LLC

FEMA EMERGENCY RADIO NETWORK
ON WOAN PORTLAND, MAINE

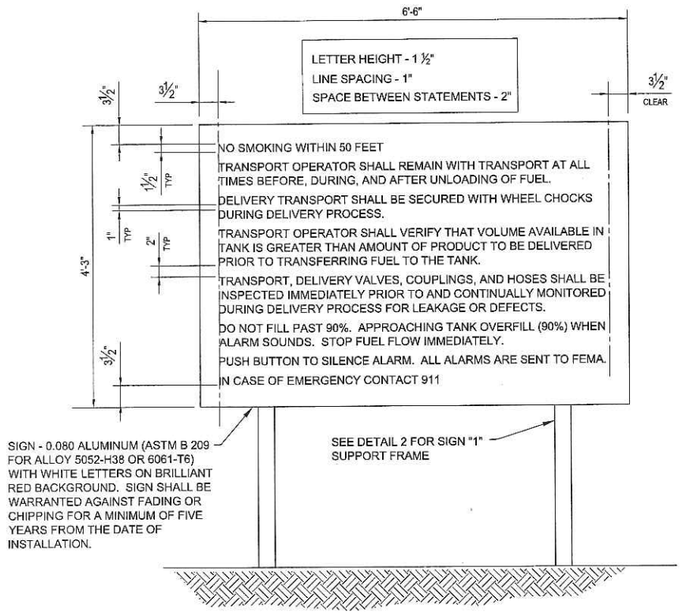
MISCELLANEOUS DETAILS

Drawing Number:
S-501

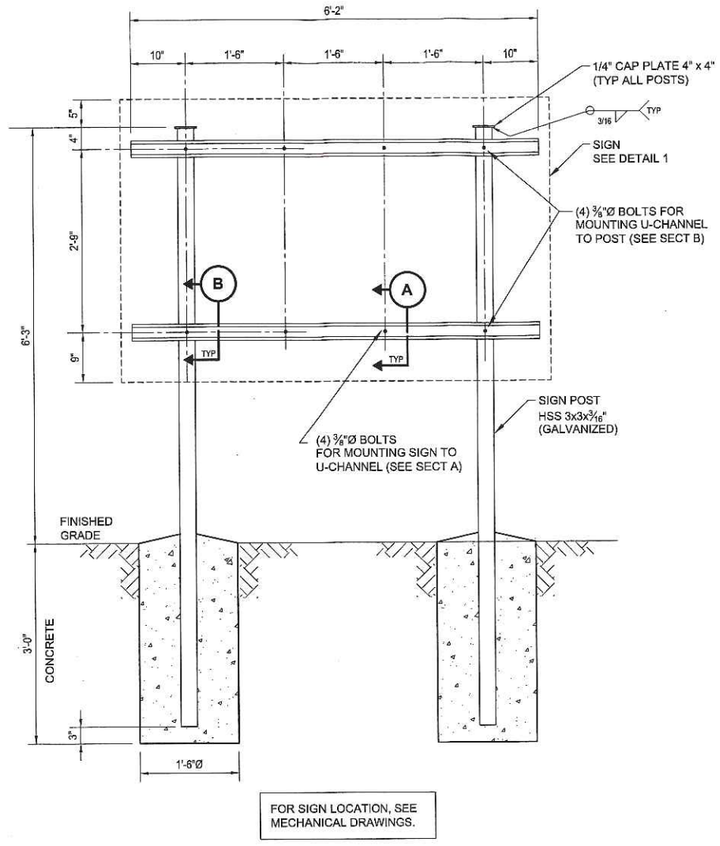
STATE OF MAINE
DENISE COUEY BROWN
No. 12959
REGISTERED PROFESSIONAL ENGINEER
11-01-12

Rev 0

Superseded

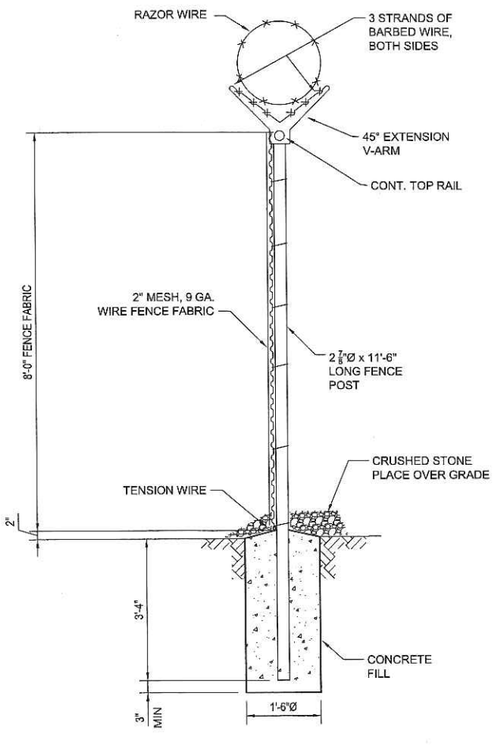


1 SIGN "1" DETAIL
M-101 SCALE: 1"=1'-0"



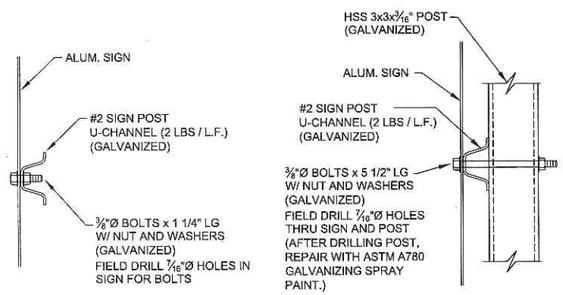
FOR SIGN LOCATION, SEE MECHANICAL DRAWINGS.

2 SIGN "1" SUPPORT FRAME DETAIL
SCALE: 1"=1'-0"



C TYP FENCE SECTION
S-101 SCALE: 3/4"=1'-0"

INSTALLATION CONTRACTOR TO TOUCH UP ALL DAMAGED GALVANIZING WITH ZRC COLD GALVANIZING COMPOUND, OR APPROVED EQUAL.



A SECTION
SCALE: 3"=1'-0"

B SECTION
SCALE: 3"=1'-0"

US Army Corps of Engineers OMAHA DISTRICT

PHASE BIDDEN: Project Manager, DC Reviewer, Architectural, Structural, Mechanical, Plumbing, Electrical, Civil

No.	Description	Date	Appvd
0	ISSUED FOR CONSTRUCTION	1/17/12	

Designed by: MLM
Drawn by: RAM
Checked by: DCB
Reviewed by: CHB
Date: 2012

KBR
63 SOUTH ROYAL STREET SUITE 200
MOBILE, AL 36602
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Engineering Services by KBR Engineering Co., LLC

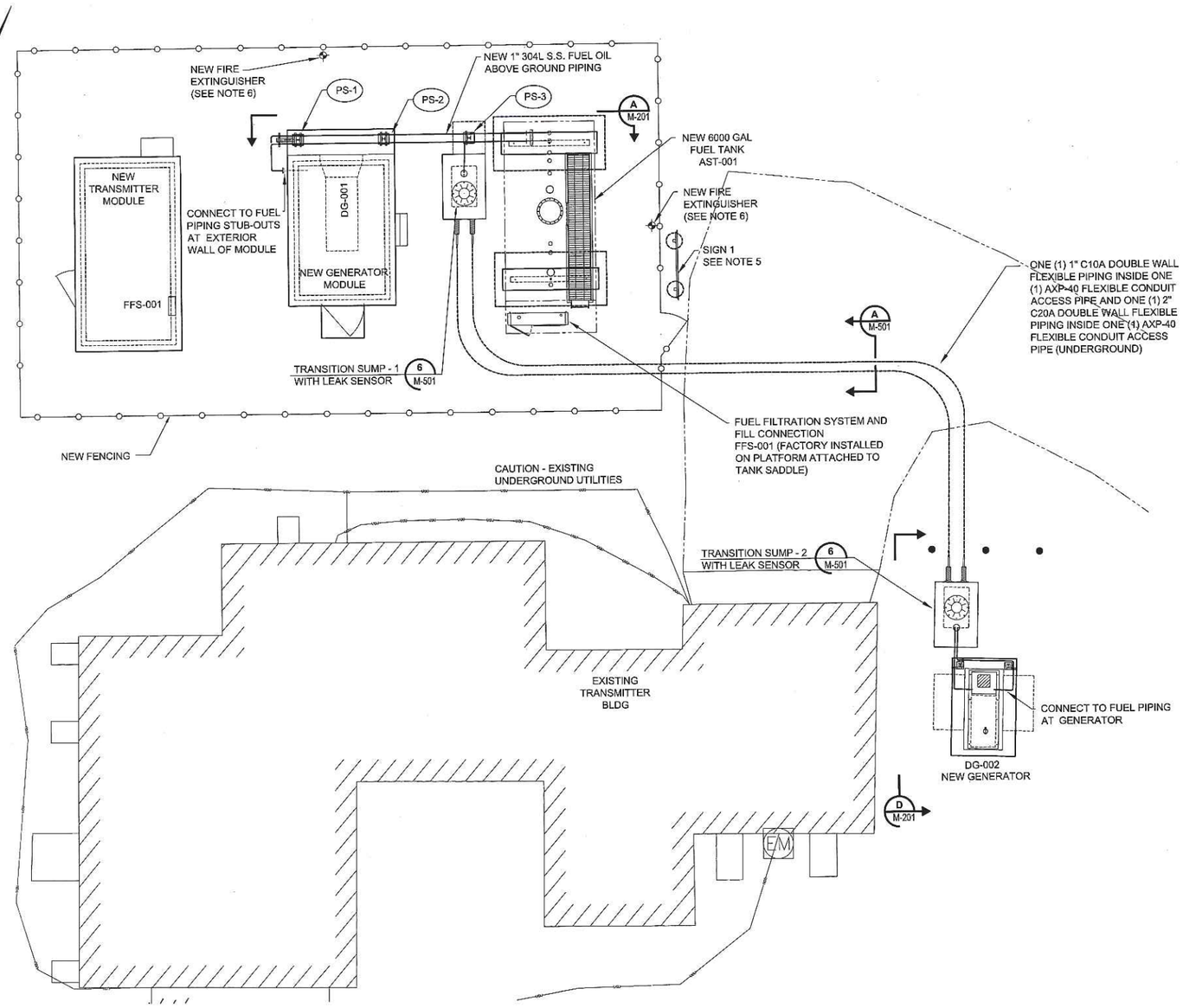
FEMA EMERGENCY RADIO NETWORK
ON WOAN PORTLAND, MAINE

SIGN AND FENCE DETAILS

Drawing Number:
S-502

STATE OF MAINE
DENISE COLEY BROWN
No. 12959
REGISTERED PROFESSIONAL ENGINEER
Rev 0
01-01-12

superseded



EQUIPMENT SCHEDULE

TAG	ITEM	FURNISHED BY	INSTALLED BY	DESCRIPTION	REMARKS
AST-001	ABOVEGROUND STORAGE TANK	OWNER	CONTRACTOR	6,000 GAL. DBL-WALL, UL-2085	PART OF FUEL SYSTEM PACKAGE
DG-001	FEMA GEN-SET	OWNER	OWNER	35 KW IN HEMP SHLD MODULE	PART OF HEMP MODULE PACKAGE
DG-002	NEW GEN-SET	OWNER	CONTRACTOR	75 KW W/ ENCLOSURE & SUB BASE TANK	OWNER TO FURNISH CONTRACTOR TO INSTALL
FFS-001	FUEL FILL/FILTRATION SYSTEM	OWNER	CONTRACTOR	FILL PORT W/ FILTRATION	PART OF FUEL SYSTEM PACKAGE (ON PLATFORM ATTACHED TO TANK)
FSCP-001	FUEL SYSTEM CONTROL PANEL	OWNER	OWNER (SEE ELECTRICAL DWGS & SPECS)	FUEL MONITORING SYSTEM	PART OF FUEL SYSTEM PKG (INSTALLED INSIDE TRANSMITTER MODULE)

A G-101 MECHANICAL PLAN
SCALE: 3/16"=1'-0"

0' 5' 10' 20'
3/16"=1'-0"

NOTES:

1. THE FUEL TANK, APPURTENANCES, AND ASSOCIATED PIPING SHALL MEET ALL U.S. EPA, STATE OF MAINE DEQ, STATE FIRE MARSHAL, NFPA, NEC, MANUFACTURER'S INSTRUCTIONS, LOCAL FIRE DEPARTMENT AND LOCAL REQUIREMENTS, CODES AND GUIDELINES.
2. ABOVEGROUND PIPING SHALL COMPLY WITH NFPA 30, "FLAMMABLE AND COMBUSTIBLE LIQUIDS CODE" AND ASME B31.9, "BUILDING SERVICES PIPING," FOR FUEL OIL PIPING MATERIALS, INSTALLATION, INSPECTION, AND TESTING. STAINLESS STEEL PIPING SHALL CONFORM TO ASTM A312, PIPE, 304L, STAINLESS STEEL, SCHEDULE 40S. STAINLESS STEEL PIPING SHALL HAVE SOCKET WELD FITTINGS AND SOCKET WELD 150# RF FLANGES. ON GEN-SET FUEL LINE CONNECTIONS WITH MNPT STUB-OUTS, CONTRACTOR SHALL INSTALL A THREADED 150# RF FLANGE OF THE SAME MATERIAL AS THE PIPING THE FLANGE IS BEING THREADED TO. FLANGE INSULATING GASKET KITS SHALL BE USED IN CASES WHERE A CARBON STEEL FLANGE IS BEING MATED TO A STAINLESS STEEL FLANGE. ANY REMAINING CARBON STEEL PIPING THAT IS EXPOSED SHALL BE PAINTED AS PER THE SPECIFICATION. GALVANIZED PIPE IS NOT PERMITTED FOR USE FOR FUEL OIL PIPING OR VENT PIPING.
3. (PS-1) PIPE SUPPORT DESIGNATOR. SEE DWG S-501.
4. SEE DRAWING M-601 AND SPECIFICATION SECTION 23 10 20 FOR FULL SCOPE OF WORK FOR THE FUEL OIL SYSTEM.
5. SEE DRAWING S-502 FOR SIGN DETAILS. INSTALLATION CONTRACTOR SHALL DETERMINE EXACT LOCATION TO CLEAR UNDERGROUND ELECTRICAL.
6. PROVIDE A 4A-40BC (MINIMUM RATING) 10 LB FIRE EXTINGUISHER CONFORMING TO NFPA 10. AND APPLICABLE SECTIONS OF NFPA 1, 13.6. PROVIDE LOCKABLE OUTDOOR CABINET WITH BREAKER BAR, SIGNS AND ACCESSORIES AS REQUIRED. VERIFY LOCAL REQUIREMENTS WITH FIRE MARSHAL PRIOR TO PURCHASE. INSTALL FIRE EXTINGUISHERS WHERE INDICATED ON THE DRAWING. COMPLY WITH THE MANUFACTURER'S RECOMMENDATIONS FOR ALL INSTALLATIONS. PROVIDE EXTINGUISHERS COMPLETE WITH MANUFACTURER'S WARRANTY WITH INSPECTION TAG ATTACHED. EXTINGUISHER SHALL BE INSTALLED, INSPECTED, AND TAGGED BY A LICENSED FIRE EXTINGUISHER COMPANY.
7. UNDERGROUND FLEXIBLE PIPING AND CONTAINMENT SYSTEM ARE IDENTIFIED WITH OPW FLEXWORKS MODEL NUMBERS. SYSTEM SHALL BE OPW FLEXWORKS OR APPROVED EQUAL.
8. UNDERGROUND DOUBLE CONTAINMENT SYSTEM SHALL BE PROVIDED BY CONTRACTOR AS A COMPLETE SYSTEM DESIGNED AND FABRICATED BY THE CONTAINMENT SYSTEM MANUFACTURER WITH RESPECT TO THE DRAWINGS, SPECIFICATIONS, AND THE CONDITIONS OF THE SITE. INSTALLATION OF UNDERGROUND DOUBLE CONTAINMENT SYSTEM SHALL BE IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

US Army Corps of Engineers OMAHA DISTRICT

PHASE ROVER: Project Manager | QC Reviewer | Architectural | Structural | Mechanical | Plumbing | Electrical | CMX

Mark	Description	Date	Appvd
0	ISSUED FOR CONSTRUCTION	11/1/12	

Designed by: DBH | Checked by: DBH
Drawn by: RAM | Reviewed by: CHB
Date: 2012

FEMA KBR 63 SOUTH ROYAL STREET SUITE 200 MOBILE, AL 36602 PHONE: (251) 450-7400 FAX: (251) 450-7588
Engineering Services by KBR Engineering Co. LLC

FEMA EMERGENCY RADIO NETWORK ON WCAN PORTLAND, MAINE

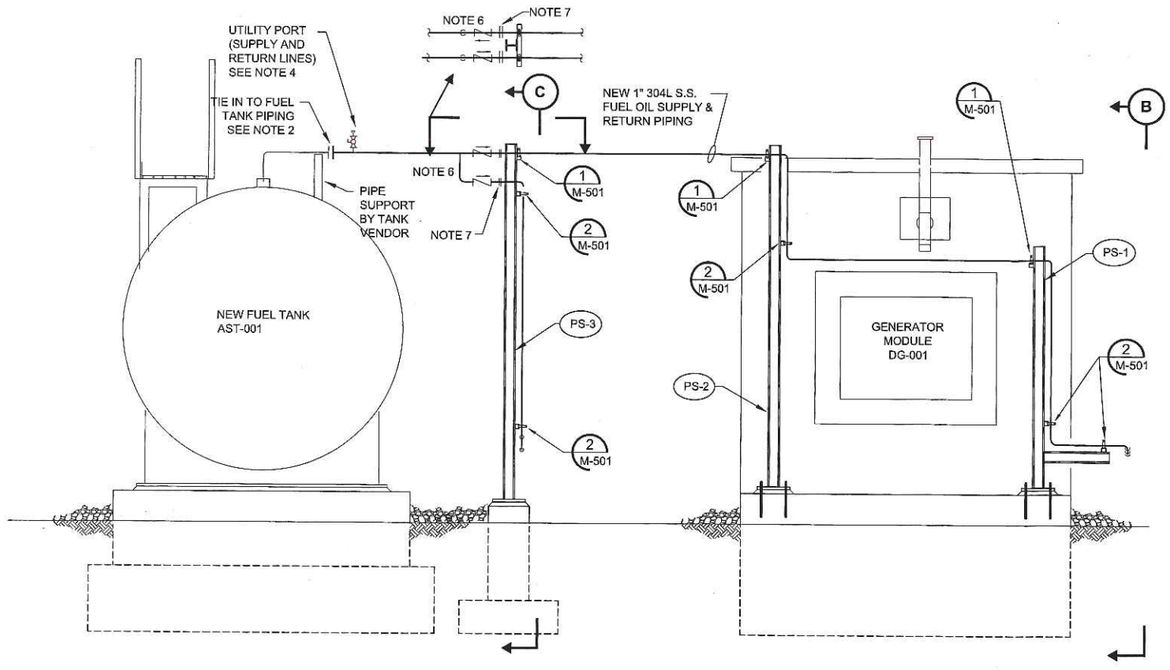
MECHANICAL PLAN

STATE OF MAINE DAVID BLACKWELL HARRIS No. 12960 REGISTERED PROFESSIONAL ENGINEER

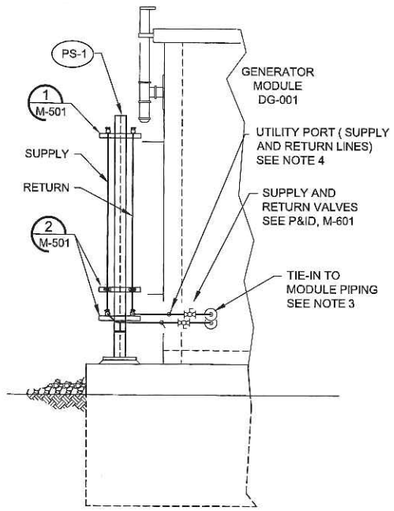
Rev. 0 11/01/12

Superseded

Drawing Number: M-101



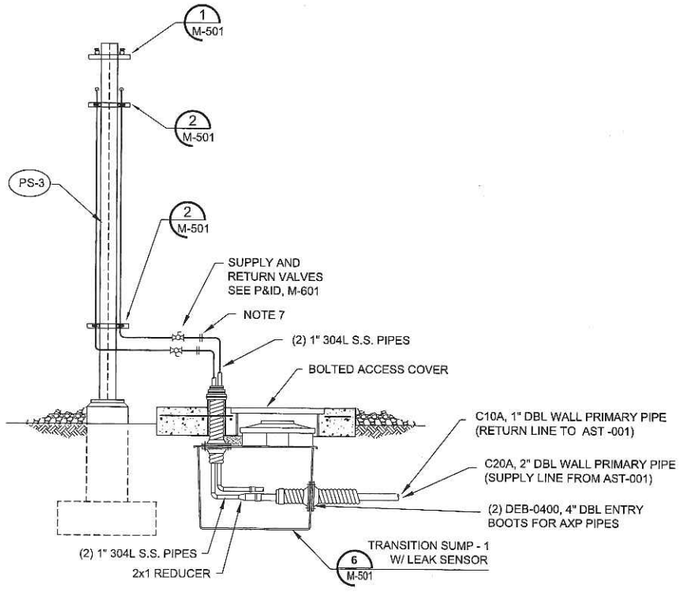
A FUEL PIPING ELEVATION
M-101 SCALE: 1/2"=1'-0"



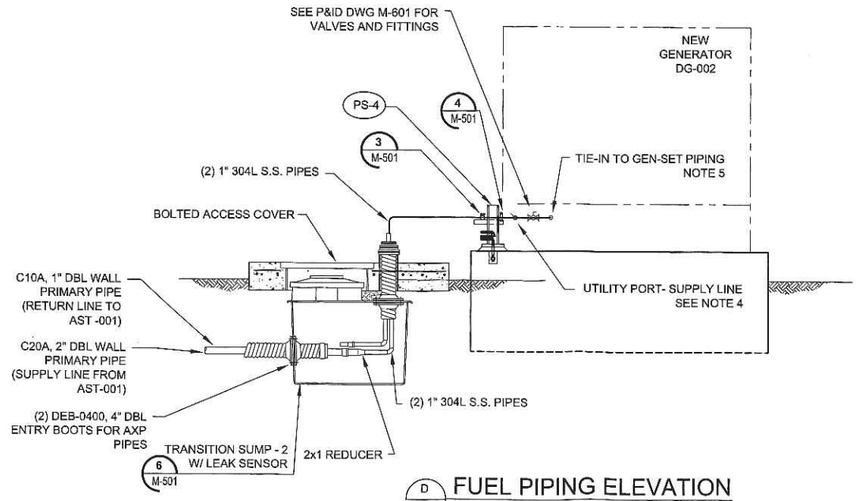
B ELEVATION
SCALE: 1/2"=1'-0"

NOTES:

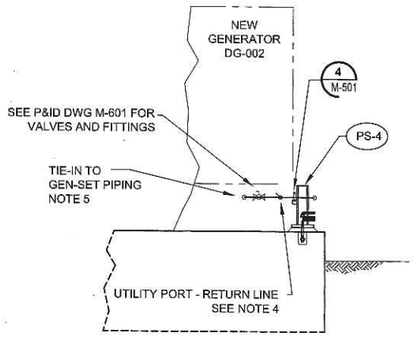
1. SEE NOTES DRAWING M-101.
2. MAKE STAINLESS STEEL FLANGE TO FLANGE CONNECTIONS. INSTALL SOCKET WELD STAINLESS STEEL FLANGES ON PIPING SYSTEM SIDE. (TANK FUEL LINES COME EQUIPPED WITH STAINLESS STEEL FLANGES.)
3. MAKE STAINLESS STEEL FLANGE TO FLANGE CONNECTIONS. INSTALL THREADED STAINLESS STEEL FLANGES ON THE MODULE GEN-SET FUEL LINE STUB-OUTS. IF NECESSARY TO ALLOW FOR PROPER CLEARANCES, INSTALL A COUPLING AND PIPE NIPPLE TO ONE OF THE STUB-OUTS TO STAGGER FLANGES. INSTALL SOCKET WELD STAINLESS STEEL FLANGES ON PIPING SYSTEM SIDE.
4. UTILITY PORT SHALL CONSIST OF A SOCKET WELD TEE, POE/TOE PIPE NIPPLE, THREADED BALL VALVE (LOCKABLE) AND PLUG. ALL 1" 304L STAINLESS STEEL. UTILITY PORT TO BE USED AS A UTILITY CONNECTION FOR TESTING, PRIMING, DRAINING, AND VENTING. THE HIGH POINT PORTS SHALL BE INSTALLED IN THE VERTICAL POSITION, AND THE LOW POINT PORTS SHALL BE INSTALLED IN THE HORIZONTAL POSITION.
5. MAKE FLANGE TO FLANGE CONNECTIONS. INSTALL THREADED CARBON STEEL FLANGES ON THE SITE GEN-SET FUEL LINE STUB-OUTS. IF NECESSARY TO ALLOW FOR PROPER CLEARANCES, INSTALL A COUPLING AND PIPE NIPPLE TO ONE OF THE STUB-OUTS TO STAGGER FLANGES . INSTALL SOCKET WELD STAINLESS STEEL FLANGES ON PIPING SYSTEM SIDE. USE FLANGE INSULATING GASKET KITS.
6. LOCATE THESE CHECK VALVES IN SUPPLY AND RETURN LINES AND AS NEAR AS POSSIBLE TO THE TEE. CHECK VALVES TO BE OPW 175B WITH INTERNAL PRESSURE RELIEF, OR APPROVED EQUAL. CONTRACTOR SHALL VERIFY PROPER DIRECTION OF CHECK VALVES PRIOR TO INSTALLATION
7. FURNISH AND INSTALL SOCKET WELD STAINLESS STEEL FLANGES TO PROVIDE ACCESS FOR VALVE REMOVAL. ALSO SHOWN ON DRAWING M-601.



C ELEVATION
SCALE: 1/2"=1'-0"



D FUEL PIPING ELEVATION
M-101 SCALE: 1/2"=1'-0"



E FUEL PIPING ELEVATION
M-101 SCALE: 1/2"=1'-0"

US Army Corps of Engineers
OMAHA DISTRICT

PHASE REVIEW:	
Project Manager	
QC Reviewer	
Architectural	
Structural	
Mechanical	
Plumbing	
Electrical	
Civil	

Mark	Description	Date	Appvd
0	ISSUED FOR CONSTRUCTION	11/1/12	

Designed by: DBH
Drawn by: RAM
Checked by: DBH
Reviewed by: CHB
Date: 2012

KBR
63 SOUTH ROYAL STREET SUITE 200
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Engineering Services by KBR Engineering Co. LLC

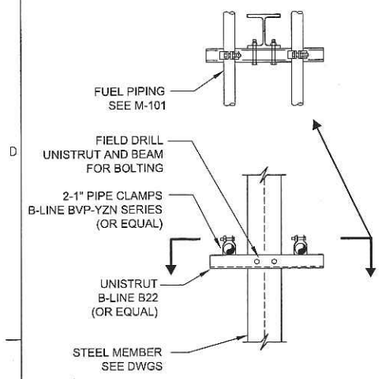
FEMA EMERGENCY RADIO NETWORK ON WOAN PORTLAND, MAINE

FUEL PIPING SYSTEM ELEVATIONS

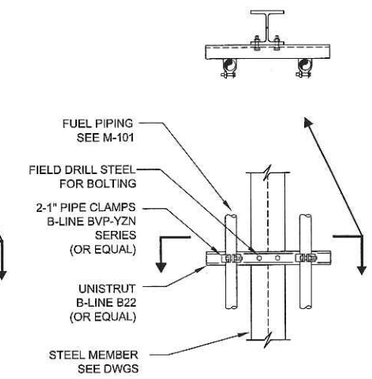
Drawing Number:
M-201

STATE OF MAINE
DAVID BLACKWELL HARRIS
No. 12950
REGISTERED PROFESSIONAL ENGINEER

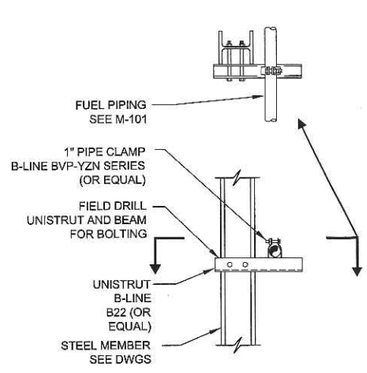
Rev.0
11/01/12



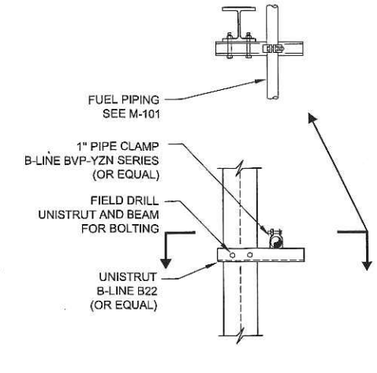
1 DETAIL
SCALE: 1 1/2"=1'-0"



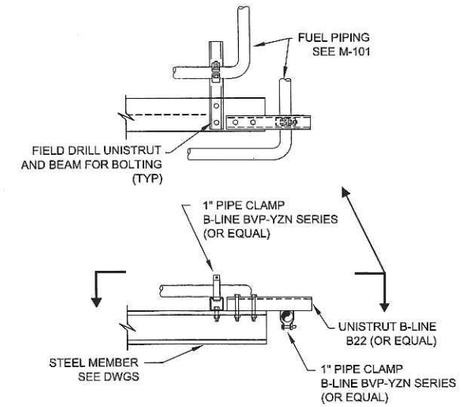
2 DETAIL
SCALE: 1 1/2"=1'-0"



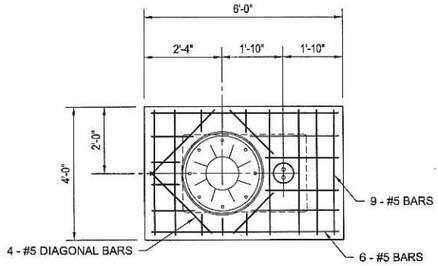
3 DETAIL
SCALE: 1 1/2"=1'-0"



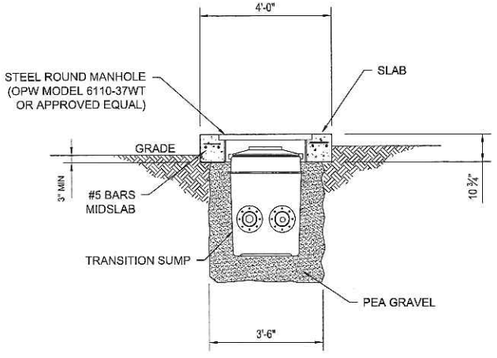
4 DETAIL
SCALE: 1 1/2"=1'-0"



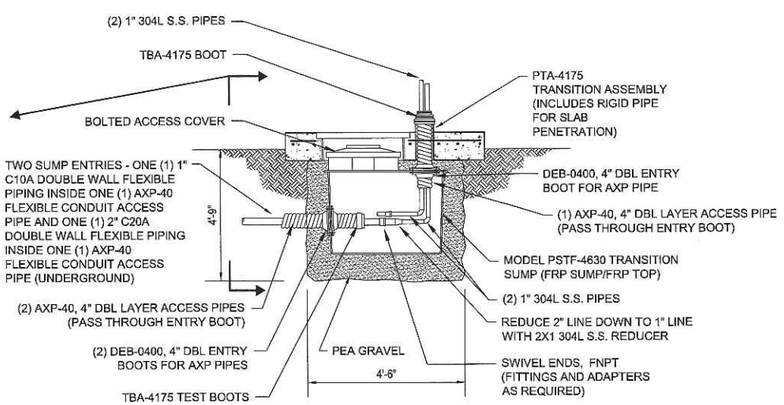
5 DETAIL
SCALE: 1 1/2"=1'-0"



PLAN

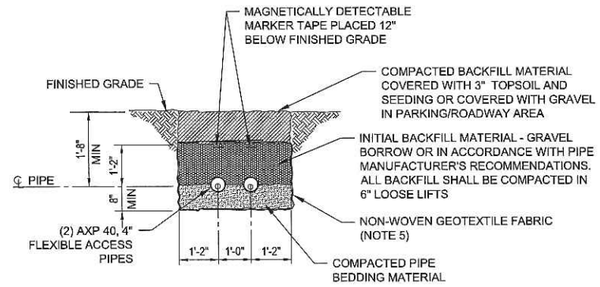


SECTION



6 DETAIL
SCALE: 1/2"=1'-0"

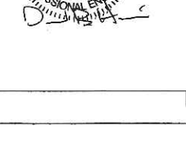
TYPICAL TRANSITION SUMP INSTALLATION
PIPING MAY VARY FROM SITE TO SITE;
SEE DRAWINGS FOR ACTUAL PIPING



A TYP FUEL PIPING BEDDING
M-101 SCALE: 1/2"=1'-0"

BEDDING NOTES:

1. ALL BEDDING AND BACKFILL MATERIALS SHALL BE IN ACCORDANCE WITH PIPE MANUFACTURER'S SPECIFICATIONS AND INSTRUCTIONS.
2. COMPACTION SHALL BE IN ACCORDANCE WITH PROJECT SPECIFICATIONS.
3. MAINTAIN 12" MINIMUM SEPARATION FROM UNDERGROUND POWER AND COMMUNICATION LINES OR AS REQUIRED BY NATIONAL ELECTRIC SAFETY CODE AND LOCAL CODES.
4. CONTRACTOR SHALL SOD OR SEED ALL DISTURBED AREAS OR INSTALL GRAVEL AS DIRECTED ON DRAWING C-102.
5. DUE TO FROST SUSCEPTIBLE SOILS, GRANULAR BEDDING MATERIALS MUST BE SEPARATED FROM SURROUNDING SOILS BY A NON-WOVEN GEOTEXTILE FABRIC.



US Army Corps of Engineers
OMAHA DISTRICT

FEMA ROOTs
Project Manager
QC Reviewer
Architectural
Structural
Mechanical
Plumbing
Electrical
Civil

Mark	Description	Date	Appvd
0	ISSUED FOR CONSTRUCTION	11/1/12	

Designed by: DBH
Drawn by: RAM
Checked by: DBH
Reviewed by: CHB
Date: 2012

KBR
63 SOUTH ROYAL STREET SUITE 300
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Engineering Services by
KBR Engineering Co., LLC

FEMA EMERGENCY RADIO NETWORK
ON WIGAN PORTLAND, MAINE

MECHANICAL
FUEL PIPING DETAILS

Drawing Number:
M-501

LEGEND

- BALL VALVE
- CHECK VALVE
- GATE VALVE
- SOLENOID VALVE
- OVERFILL PROTECTION VALVE (SET AT 95%)
- EMERGENCY VENT
- PRESSURE / VACUUM RELIEF
- LEAK DETECTION SENSOR (LD)
- MECHANICAL LEVEL GAUGE (LG)
- MAGNETOSTRICTIVE PROBE (MP)
- LOW FUEL ALARM (LF)
- ASV — ANTI-SIPHON VALVE
- STRAINER
- POSITIVE DISPLACEMENT FUEL TRANSFER PUMP (P)
- HAND PUMP (A)
- QUICK DISCONNECT HOSE COUPLING W/ DUST PLUG
- 7 GAL AST SPILL CONTAINER
- PS — PIPE SUPPORT
- TIE IN TO EXISTING
- SCOPE OF WORK DIVISION
- TRANSITION FROM FLEXIBLE HOSE (SWIVEL) TO CARBON STEEL PIPE
- PRESSURE RELIEF VALVE
- DI — DIELECTRIC UNION
- UNION
- SW — SOCKET WELD FLANGE
- TSS — THREADED STAINLESS STEEL FLANGE
- TCS — THREADED CARBON STEEL FLANGE
- U.P. 1" — UTILITY PORT
- SW^2 — PIPE JOINT W/ MATING SOCKET WELD FLANGES

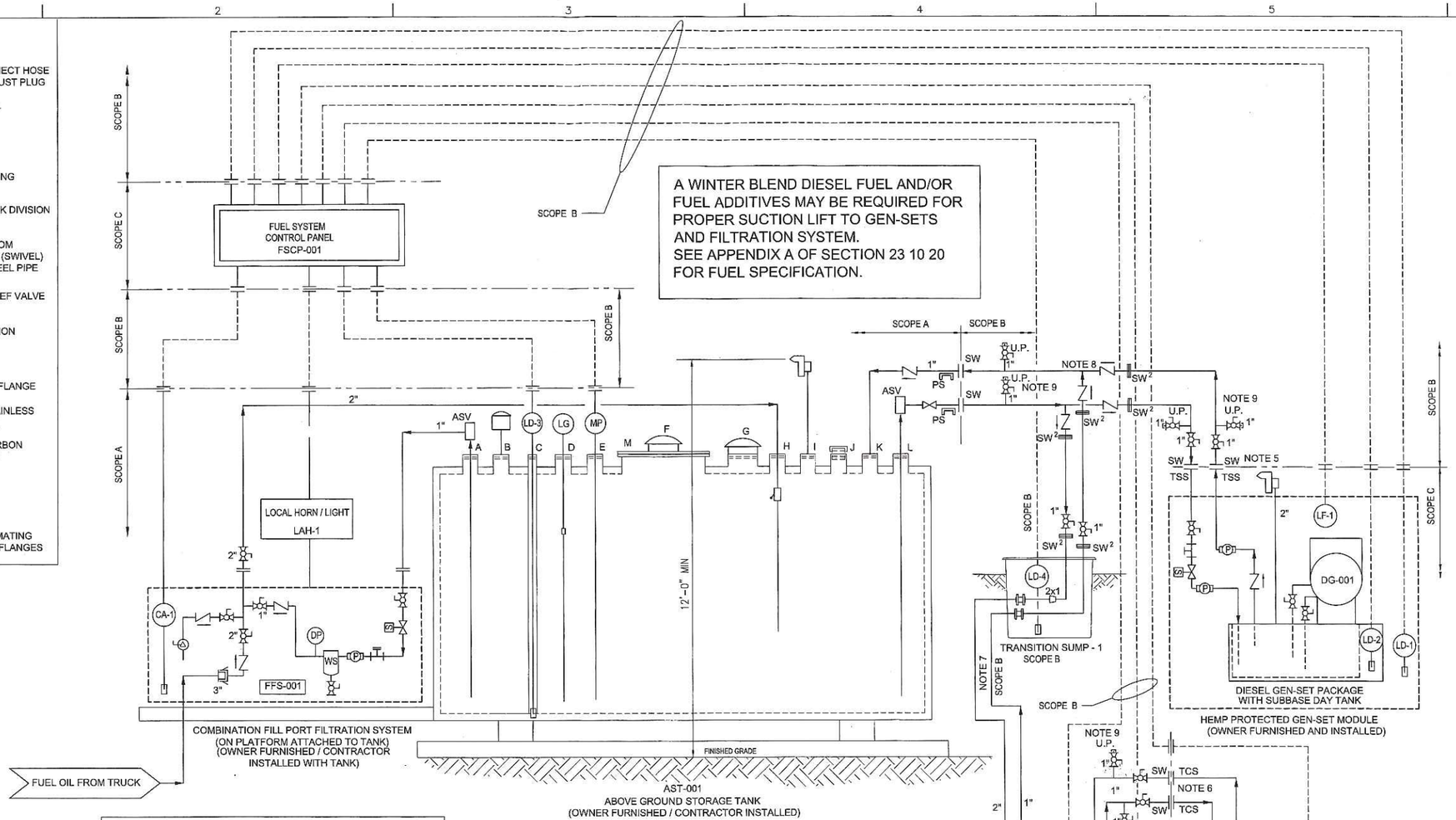
CONTRACTOR SCOPE OF WORK NOTES

A. FURNISHED UNDER FUEL STORAGE SYSTEM PACKAGE BY OWNER, RECEIVED AND INSTALLED BY SITE CONTRACTOR.

B. FURNISHED AND INSTALLED BY SITE CONTRACTOR.

C. FURNISHED AND INSTALLED UNDER HEMP SHIELDED MODULE PACKAGE BY OWNER.

D. FURNISHED BY OWNER. RECEIVED AND INSTALLED BY SITE CONTRACTOR.



AST NOZZLE SCHEDULE

NOZZLE TAG	SIZE (INCH)	DESCRIPTION
A	4"	SUPPLY TO FUEL PURIFIER WITH ANTI-SIPHON VALVE
B	4"	SERVICE POINT FOR MANUAL CLEANING AND FILTRATION WITH 7 GALLON SPILL CONTAINER WITH LOCKABLE HINGED COVER
C	2"	INTERSTITIAL LEAK DETECTION
D	4"	MECHANICAL LEVEL GAUGE
E	4"	ELECTRONIC LEVEL SENSOR
F	8"	PRIMARY - EMERGENCY RELIEF
G	8"	SECONDARY - EMERGENCY RELIEF (INTERSTITIAL)
H	4"	FUEL FILL / RETURN FROM FUEL PURIFIER DROP TUBE WITH ANTI-SYPHON BLEED HOLE AND OVERFILL PROTECTION VALVE
I	4"	PRIMARY - NORMAL VENT (PRESSURE / VACUUM RELIEF)
J	4"	SPARE WITH PIPE NIPPLE AND LOCKABLE INSPECTION CAP
K	4"	RETURN FROM DAY TANK
L	4"	SUPPLY TO DAY TANK
M	24"	MANWAY WITH COVER PLATE, BOLTS AND GASKET

NOTES:
1. ALL NOZZLES SHALL BE FPT COUPLINGS EXCEPT FOR THE FLANGED MANWAY.

FUEL MONITORING SYSTEM SCHEDULE

INPUT	REMOTE MONITOR REPORTING
LD-1	LEAK DETECTION GENERATOR MODULE FLOOR
LD-2	LEAK DETECTION MODULE SUBBASE TANK
LD-3	LEAK DETECTION PRIMARY TANK
LD-4	LEAK DETECTION UG PIPING SUMP - 1
LD-5	LEAK DETECTION SUB-BASE TANK - SITE GENSET
LD-6	LEAK DETECTION UG PIPING SUMP - 2
LF-1	LOW FUEL ALARM SUBBASE TANK - MODULE GEN-SET
LF-2	LOW FUEL ALARM SUB-BASE TANK - SITE GENSET
LAH-1	LEVEL ALARM HIGH - LOCAL
MP	TANK LOW -LOW FUEL LEVEL (50%)
	TANK LOW FUEL LEVEL (60% - ORDER FUEL)
	TANK HIGH FUEL LEVEL (90% - TANK FULL / STOP FILL)
	TANK HIGH-HIGH LEVEL (92.5% - ALARM MESSAGE SENT)
	TANK FUEL VOLUME
	TANK WATER VOLUME
	TANK FUEL VOLUME WITHDRAWAL
CA-1	COMMON ALARM FUEL FILTRATION SYS. CABINET

NOTES:

1. REFERENCE SUPPLIER SUBMITTAL DATA FOR INFORMATION REGARDING THE FUEL STORAGE SYSTEM, THE HEMP PROTECTED GEN-SET MODULE, AND THE SITE GEN-SET. THESE ITEMS WILL BE OWNER FURNISHED AS INDICATED.
2. THE FUEL STORAGE SYSTEM SHALL BE FACTORY ASSEMBLED BY SUPPLIER AND THEN SHIPPED TO SITE. SITE INSTALLATION CONTRACTOR SHALL INSTALL THE SYSTEM AT THE SITE IN ACCORDANCE WITH SYSTEM SUPPLIER'S INSTRUCTIONS.
3. PROVIDE INTERCONNECTING FUEL OIL PIPING AND SIGNAL CABLES AS INDICATED. (SEE ELECTRICAL DRAWINGS)
4. SEE DRAWING M-101 AND SPECIFICATION SECTION 23 10 20, FOR FULL SCOPE OF WORK FOR THE FUEL OIL SYSTEM.
5. CONNECT FUEL PIPING TO HEMP PROTECTED GEN-SET USING FLANGES. FURNISH AND INSTALL THREADED STAINLESS STEEL FLANGES ON EQUIPMENT FUEL LINE STUB-OUTS.
6. CONNECT FUEL PIPING TO SITE GEN-SET USING FLANGES. FURNISH AND INSTALL THREADED CARBON STEEL FLANGES ON EQUIPMENT FUEL LINE STUB-OUTS. USE FLANGE INSULATING GASKET KIT.
7. ONE (1) 1" C10A DOUBLE WALL FLEXIBLE PIPING INSIDE ONE (1) AXP-40 FLEXIBLE CONDUIT ACCESS PIPE AND ONE (1) 2" C20A DOUBLE WALL FLEXIBLE PIPING INSIDE ONE (1) AXP-40 FLEXIBLE CONDUIT ACCESS PIPE (UNDERGROUND)
8. LOCATE ALL FOUR OF THESE CHECK VALVES AS NEAR AS POSSIBLE TO TEES. CHECK VALVES TO BE OPW 175B WITH INTERNAL PRESSURE RELIEF, OR APPROVED EQUAL.
9. UTILITY PORT (U.P.) SHALL CONSIST OF A SOCKET WELD TEE, POE/TOE PIPE NIPPLE, THREADED BALL VALVE (LOCKABLE) AND PLUG. ALL 1" 304L STAINLESS STEEL. UTILITY PORT TO BE USED AS A UTILITY CONNECTION FOR TESTING, PRIMING, DRAINING, AND VENTING. THE HIGH POINT PORTS SHALL BE INSTALLED IN THE VERTICAL POSITION, AND THE LOW POINT PORTS SHALL BE INSTALLED IN THE HORIZONTAL POSITION.

STATE OF MAINE
DAVID BLACKWELL HARRIS
No. 12960
REGISTERED PROFESSIONAL ENGINEER
Rev. 0
11/01/12

US Army Corps of Engineers
OMAHA DISTRICT

PM/QC REVIEW: Project Manager, QC Reviewer, Architectural, Structural, Mechanical, Plumbing, Electrical, Civil

Mark	Description	Date	Appvd
0	ISSUED FOR CONSTRUCTION	11/1/12	

Designed by: DBH
Drawn by: RAM
Checked by: DBH
Reviewed by: CHB
Date: 2012

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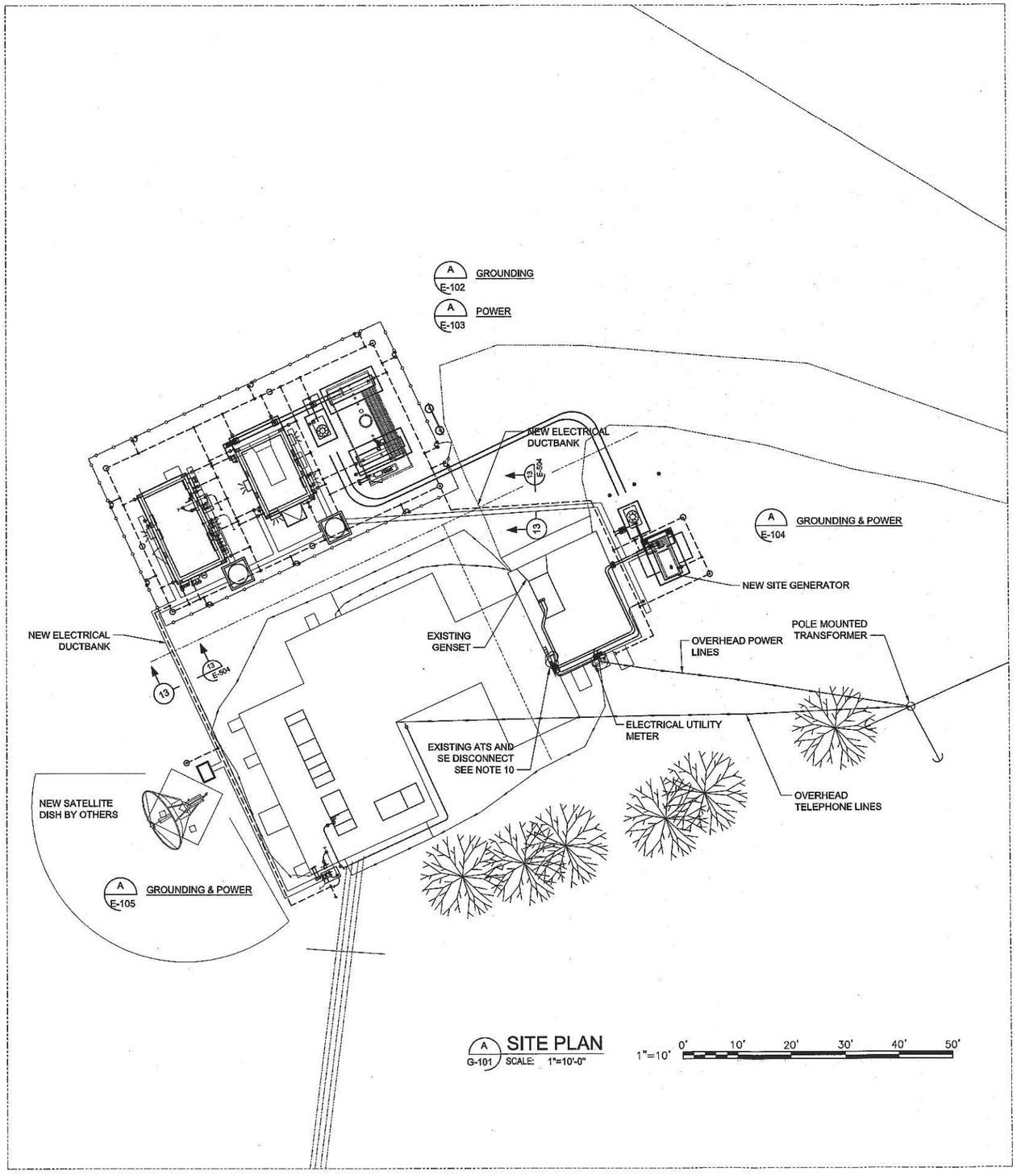
FEMA

FEMA EMERGENCY RADIO NETWORK
ON WGAN PORTLAND, MAINE

FUEL SYSTEM P&ID

Drawing Number:
M-601



NOTES:

1. ALL ELECTRICAL INSTALLATIONS SHALL BE IN ACCORDANCE WITH THE 2011 EDITION OF THE NATIONAL ELECTRICAL CODE (NEC NFPA 70) AND THE OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA) AND PROJECT SPECIFICATIONS AND APPLICABLE CODES AND STANDARDS.
2. ALL BUILDING PENETRATIONS SHALL BE SEALED WITH A FIRE BLOCK SEALANT TO PREVENT WATER FROM ENTERING THE INTERIOR. ALL PANEL ENTRY PENETRATIONS SHALL UTILIZE MYERS HUBS WITH GROUNDING BUSHINGS.
3. ALL CONDUIT / CABLE ROUTING IS SHOWN DIAGRAMMATIC, CONTRACTOR SHALL VERIFY LOCATION AND ROUTING BEFORE INSTALLATION. COORDINATE INSTALLATION WITH OTHER CRAFTS BEFORE INSTALLING CONDUITS, PULL BOXES AS REQUIRED, PANELS, AND DEVICES.
4. ALL SHUT DOWN WORK REQUIRED SHALL BE PLANNED AND APPROVED BY THE STATION BEFORE PROCEEDING. PROVISIONS SHALL BE PROVIDED FOR ELECTRICAL POWER DURING SHUTDOWN PERIODS. INCLUDING TEMPORARY GENERATOR, DAY TANK, REQUIRED FUEL AND OPERATOR TECHNICIAN AS REQUIRED.
5. AFTER ALL TERMINATIONS, SOLDERING AND TESTING ALL EXPOSED COPPER CONDUCTORS SHALL BE PAINTED TO MATCH SURFACES ON WHICH THEY ARE INSTALLED. WHERE PAINT IS NOT PRACTICAL THE COPPER CONDUCTOR SHALL BE COVERED IN ELECTRICAL TAPE.
6. CONTRACTOR SHALL VERIFY ELECTRICAL PHASE ARRANGEMENTS / CONNECTIONS, MAKING ADJUSTMENTS AS REQUIRED, MATCHING THE NEW INSTALLED SYSTEM(S) TO THE EXISTING FACILITIES SYSTEM. NEW PANEL CONNECTIONS TO EXISTING EQUIPMENT SHALL BE VERIFIED BEFORE APPLICATION OF POWER. FACILITIES ENGINEER SHALL BE PRESENT UPON ENERGIZING EQUIPMENT.
7. CONDUITS INSTALLED UNDERGROUND SHALL BE PVC COATED RIGID GALVANIZED STEEL. ABOVE GRADE EXTERIOR CONDUITS SHALL BE RIGID GALVANIZED STEEL (RGS), INTERIOR CONDUITS MAY BE ELECTRICAL METALLIC TUBING (EMT).
8. CONTRACTOR SHALL COVER COPPER ELECTRICAL GROUNDING BUS BARS AND EXPOSED GROUNDING CABLES ON THE OUTSIDE OF PRECAST MODULES AND THE EXISTING TRANSMITTER BUILDING WITH FIELD FABRICATED SHROUDS. CONTRACTOR SHALL PAINT SHROUDS TO MATCH THE COLOR OF THE BUILDING ON WHICH IT IS MOUNTED. SEE DETAIL 9 ON SHEET E-503.
9. CONTRACTOR SHALL INSTALL SURFACE MOUNTED CONDUIT AND WIRING FROM ALL EXTERIOR MODULE LIGHTING FIXTURES TO A SINGLE WIRING POINT PER MODULE. CONDUITS SHALL BE PAINTED TO MATCH THE MODULE COLOR. THE SINGLE POINT CONNECTION FOR THE GENERATOR MODULE SHALL NOT BE LOCATED BELOW THE EMP POWER FILTER ENCLOSURE.
10. DEMO EXISTING AUTOMATIC TRANSFER SWITCH , SERVICE ENTRANCE DISCONNECT SWITCH, AND TVSS UNIT. SEE DRAWING E-401. REMOVE CONDUITS AND WIRE BACK TO SOURCE(S) INSTALLING NEW CONDUIT AND WIRE ARE SHOWN ON E-401 AND E-403.
11. INSTALL NEW 400 AMPERES ATS WITH INTERNAL TVS. INSTALL A NEW 400 AMPERE DISTRIBUTION POWER PANEL ON REAR WALL AS SHOWN INSURING PROPER CLEARANCES.
12. ON THE EXTERIOR REMOVE THE EXISTING SERVICE ENTRANCE CONDUIT BOXES AND CABLING. INSTALL A NEW RISER CONDUIT FOR A 400 AMPERE SERVICE INSTALLING A CT CABINET AND ADJOINING METER BASE. INSTALL A NEW 400 AMPERE SERVICE ENTRANCE DISCONNECT SWITCH

STATE OF MAINE
MICHAEL A. CARTER
No. 11379
LICENSED PROFESSIONAL ENGINEER

US Army Corps of Engineers
OMAHA DISTRICT

FIRST REVIEW	
Project Manager	
QC Reviewer	
Architectural	
Structural	
Mechanical	
Plumbing	
Electrical	
Civil	

Mark	Description	Date	Approved
0	ISSUED FOR CONSTRUCTION	11/7/12	

Designed by:
Drawn by:
Checked by:
Reviewed by:
Date: 2012

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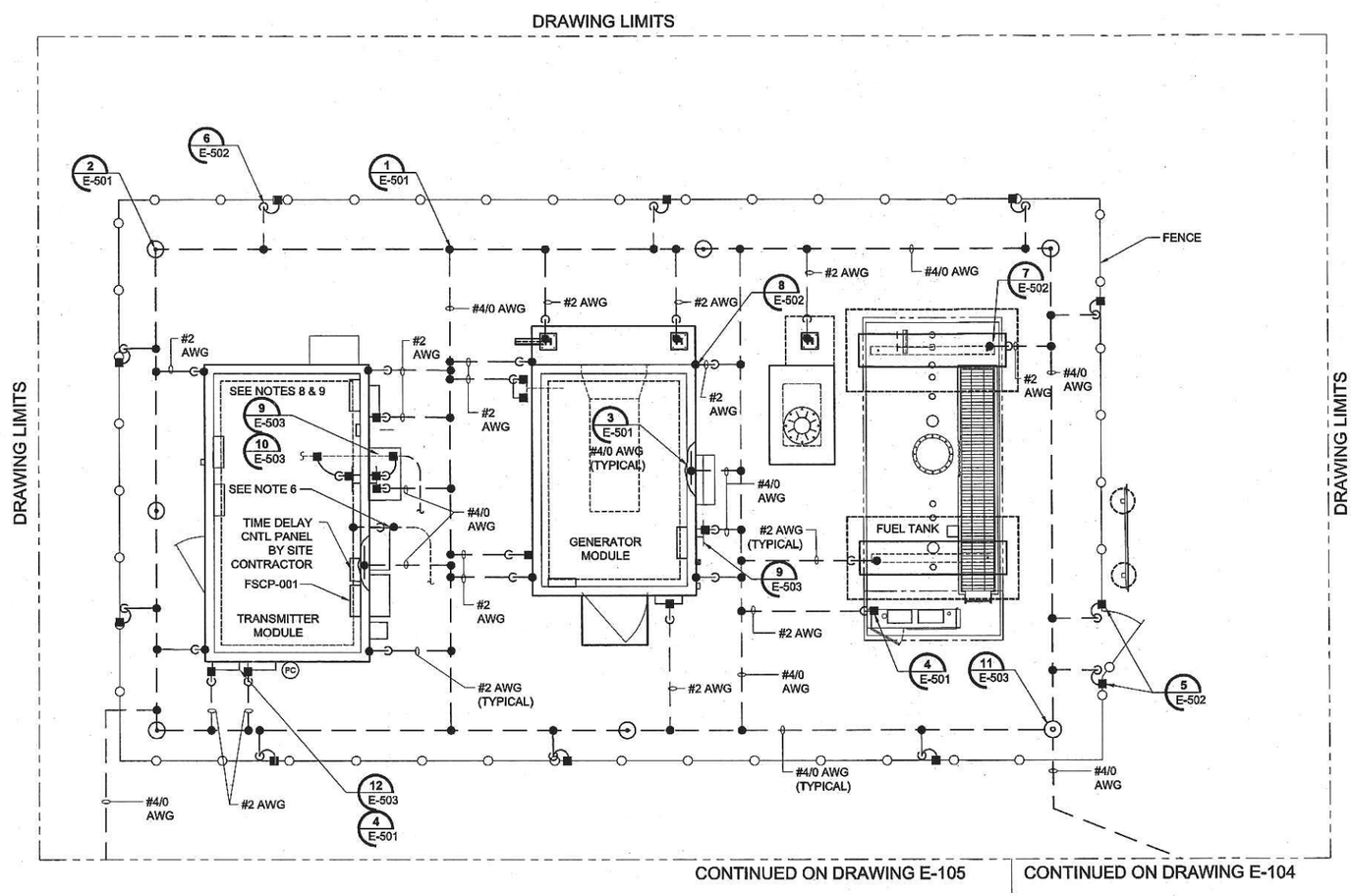
Engineering Services by
KBR Engineering Co., LLC

FEMA

FEMA EMERGENCY RADIO NETWORK
ON WGAN PORTLAND, MAINE

ELECTRICAL SITE PLAN

Drawing Number:
E-101



A E-101 GROUNDING PLAN
SCALE: 1/4"=1'-0"

1' 0' 1' 5' 10' 15'
1/4"=1'-0"

NOTES:

1. ALL ELECTRICAL INSTALLATIONS SHALL BE IN ACCORDANCE WITH THE 2011 EDITION OF THE NATIONAL ELECTRICAL CODE (NEC NFPA 70) AND THE OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA) AND PROJECT SPECIFICATIONS AND APPLICABLE CODES AND STANDARDS.
2. GROUND CONDUCTORS / TOWER GROUND RADIALS DAMAGED OR CUT DURING CONSTRUCTION SHALL BE REPAIRED BEFORE CONTINUING CONSTRUCTION ACTIVITIES. REROUTING OF GROUND CONDUCTORS AROUND IMPACTED AREAS SHALL BE COMPLETED BEFORE CONTINUING.
3. ALL GROUNDING CONNECTIONS SHALL BE EXOTHERMIC, NO COMPRESSION CONNECTIONS PERMITTED. MECHANICAL CONNECTIONS SHALL BE PERMITTED FOR EQUIPMENT UTILIZING BOLTED TYPE CONNECTIONS WHICH MAY REQUIRE REMOVAL FOR MAINTENANCE.
4. MODULE GROUND CONNECTIONS SHALL BE LOCATED AT ALL PENETRATION AREAS IN ADDITION TO THE PROVIDED GROUNDING PADS AT THE GENERATOR MODULE CORNERS. A MECHANICAL CONNECTION SHALL BE ATTACHED TO THE CONDUIT / PIPING EXITING THE MODULE UTILIZING A BURNDY CONNECTOR TYPE GAR-BU OR APPROVED EQUAL. SIZE AS REQUIRED.
5. CONTRACTOR SHALL TIE INTO EXISTING GROUND LOOP TO ENSURE CONTINUITY OF THE OVERALL GROUNDING SYSTEM.
6. CONTRACTOR SHALL CONNECT THE INTERIOR RF 4" COPPER BONDING TAPE (PROVIDED BY SABRE INDUSTRIES) TO THE RF GROUND TAPE ROUTED WITH THE RF COAXIAL CABLE (PROVIDED BY SITE CONTRACTOR). SILVER SOLDER ALL RF 4" WIDE TAPE CONNECTIONS.
7. WHERE THE GROUNDING ELECTRODE CONDUCTOR EXITS FROM BELOW GRADE IT SHALL BE ROUTED IN A SCHEDULE 80 PVC CONDUIT FROM 18" BELOW GRADE UP TO 8'-0" ABOVE GRADE.
8. THE RF COAX CABLE SHALL BE BONDED TO THE GROUNDING BUS BARS BELOW THE BULK HEAD PENETRATION BOTH EXTERIOR AND INTERIOR. ANDREWS GROUNDING KIT(S) NO. 241088-2 OR APPROVED EQUAL
9. CONTRACTOR SHALL CONNECT THE EXTERIOR RF GROUND BUS BAR TO THE GROUND LOOP UTILIZING A # 4/0 AWG INSULATED GROUNDING CONDUCTOR.
10. MODULE GROUND CONNECTIONS ARE LOCATED ON THE SIDES OF THE MODULE BUILDING. SEE CELLXION DRAWINGS FOR EXACT LOCATIONS FOR GROUNDING STUB-UPS. TYPICAL BOTH MODULES

LEGEND:

- UNDERGROUND CONDUIT
- ABOVE GROUND CONDUIT
- GROUND ROD, 3/4" X 10' SECTIONAL COPPER CLAD
- EXOTHERMIC WELD, SEE DETAIL FOR TYPE
- MECHANICAL GROUND CONNECTION, SEE DETAIL FOR TYPE
- GROUNDING TEST WELL
- GROUNDING CONDUCTOR (BURIAL DEPTH 30")
- 4" WIDE (.016" TO .022") COPPER RF BONDING TAPE
- 3"C 7/8" RF COAXIAL CABLE
- CONDUIT / CABLE TURNED DOWN
- CONDUIT / CABLE TURNED UP
- GROUNDING BUS BAR
- GROUND CONNECTION TO FOUNDATION REBAR LOCATION AT LOWEST LEVEL (UFER GROUND)
- XX / E-5XX DETAIL/SHEET #

STATE OF MAINE
MICHAEL A. CARTER
No. 11379
LICENSED PROFESSIONAL ENGINEER

US Army Corps of Engineers
OMAHA DISTRICT

PHASE REVIEW: Project Manager, QC Reviewer, Architectural, Structural, Mechanical, Plumbing, Electrical, Civil

Mark	Description	Date	Appvd
0	ISSUED FOR CONSTRUCTION	11/1/12	

Designed by:
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Date: 2012

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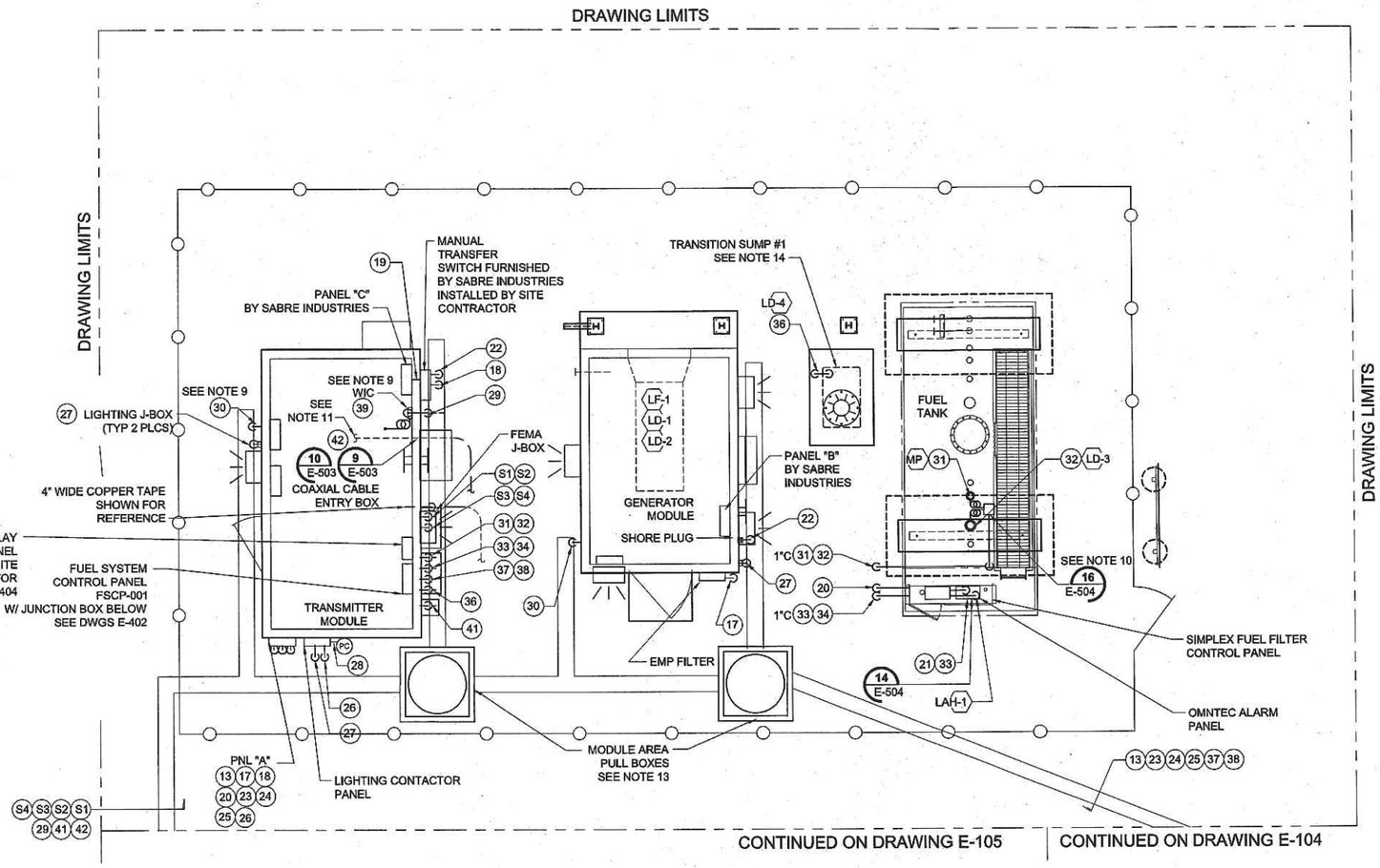
FEMA EMERGENCY RADIO NETWORK
ON WOAH PORTLAND, MAINE

ELECTRICAL GROUNDING PLAN

Drawing Number:
E-102



A E-101 POWER PLAN SCALE: 1/4"=1'-0"

1' 0' 1' 5' 10' 15'
1/4"=1'-0"

NOTES:

1. ALL ELECTRICAL INSTALLATIONS SHALL BE IN ACCORDANCE WITH THE 2011 EDITION OF THE NATIONAL ELECTRICAL CODE (NEC NFPA 70) AND THE OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA) AND PROJECT SPECIFICATIONS AND APPLICABLE CODES AND STANDARDS.
2. ALL BUILDING PENETRATIONS SHALL BE SEALED WITH A FIRE BLOCK SEALANT TO PREVENT WATER FROM ENTERING THE INTERIOR. ALL PANEL ENTRY PENETRATIONS SHALL UTILIZE MYERS HUBS WITH GROUNDING BUSHINGS.
3. ALL CONDUIT/DUCTBANK ROUTING IS SHOWN DIAGRAMMATIC, CONTRACTOR SHALL VERIFY LOCATION, ROUTING, AND PULL BOX REQUIREMENTS BEFORE INSTALLATION. COORDINATE INSTALLATION WITH OTHER CRAFTS BEFORE INSTALLING CONDUITS, PULL BOXES AS REQUIRED, PANELS, AND DEVICES.
4. ALL SHUT DOWN WORK REQUIRED SHALL BE PLANNED AND APPROVED BY THE STATION BEFORE PROCEEDING. PROVISIONS SHALL BE PROVIDED FOR ELECTRICAL POWER DURING SHUTDOWN PERIODS. INCLUDING TEMPORARY GENERATOR, DAY TANK, REQUIRED FUEL AND OPERATOR TECHNICIAN AS REQUIRED.
5. CONTRACTOR SHALL VERIFY ELECTRICAL PHASE ARRANGEMENTS / CONNECTIONS, MAKING ADJUSTMENTS AS REQUIRED, MATCHING THE NEW INSTALLED SYSTEM(S) TO THE EXISTING FACILITIES SYSTEM. NEW PANEL CONNECTIONS TO EXISTING EQUIPMENT SHALL BE VERIFIED BEFORE APPLICATION OF POWER. FACILITIES ENGINEER SHALL BE PRESENT UPON ENERGIZING EQUIPMENT.
6. CONDUITS INSTALLED UNDERGROUND SHALL BE PVC COATED RIGID GALVANIZED STEEL. ABOVE GRADE EXTERIOR CONDUITS SHALL BE RIGID GALVANIZED STEEL (RGS), INTERIOR CONDUITS MAY BE ELECTRICAL METALLIC TUBING (EMT).
7. CONTRACTOR SHALL INSTALL SURFACE MOUNTED CONDUIT AND WIRING FROM ALL EXTERIOR MODULE LIGHTING FIXTURES TO A SINGLE WIRING POINT PER MODULE. CONDUITS SHALL BE PAINTED TO MATCH THE MODULE COLOR. THE SINGLE POINT CONNECTION FOR THE GENERATOR MODULE SHALL NOT BE LOCATED BELOW THE EMP POWER FILTER ENCLOSURE. SEE CELLXION DRAWINGS FOR FIXTURE LOCATIONS.
8. SEE CELLXION MODULE DRAWINGS SKBR01 & SKBR02 FOR BUILDING PENETRATION LOCATIONS TO COORDINATE CONDUITS STUB-UPS CONNECTIONS.
9. CONTRACTOR SHALL PROVIDE FIBER OPTIC JUMPERS (PIGTAILS) AS REQUIRED FOR CONNECTION TO THE PROGRAMMING EQUIPMENT. CONNECTING TO THE OSP FIBER OPTIC CABLING TO THE FIBER OPTIC WALL MOUNT INTERCONNECTION CENTER BY SABRE INDUSTRIES. CONTRACTOR SHALL FURNISH ST STYLE CONNECTORS INSTALLING FAN OUT KITS AS REQUIRED FOR THE 6 FIBER 62.5 / 125 MULTI-MODE OUTSIDE PLANT RATED F/O CABLE.
10. CONTRACTOR SHALL INSTALL THE INSTRUMENT JUNCTION BOX ON TOP OF THE FUEL TANK BETWEEN THE FIELD DEVICES TO ALLOW FOR INSTALLATION / CHECKING OF INSTRUMENT CONNECTIONS. JUNCTION BOX SHOULD BE LOCATED ADJACENT TO THE CATWALK.

NOTES CONTINUED:

11. CONTRACTOR SHALL INSTALL A COAXIAL EIA FLANGE CONNECTOR (ANDREWS CAT NO. AL5E78-PS) ON THE NEW CABLE WITH THE CABLE END LOCATED ABOVE THE NEW TRANSMITTER CABINET. A MINIMUM OF 12 LF EXCESS CABLE SHALL BE PROVIDED TO FACILITATE CONNECTION WITH THE CABINET DOOR REMOVED.
12. CONTRACTOR SHALL TERMINATE ALL 25 PAIRS OF THE OSP COMMUNICATION CABLE IN THE TRANSMITTER MODULE TO THE PROVIDED PUNCH DOWN BLOCK. ALL WIRING FROM WITHIN THE MODULE TO THE PUNCH DOWN BLOCK IS BY OTHERS. TWO PAIRS OF THE 25 PAIR CABLE SHALL BE IDENTIFIED BY THE CONTRACTOR FOR SIGNALS FROM THE TRANSMITTER MODULE. THE FIRST PAIR IS FOR THE ENDEC PROGRAMMING EQUIPMENT. THE SECOND PAIR WILL SERVE ALL REMAINING DEVICES IN THE TRANSMITTER BUILDING; PHONE OUTLETS, INCON FUEL SYSTEM, AND VIKING AUTO DIALER.
13. CONTRACTOR SHALL PROVIDE PULL BOXES OR MANHOLES AS REQUIRED TO MEET NEC REQUIREMENTS FOR PULL POINTS. PULL BOX / MANHOLE SHALL HAVE A TRAFFIC RATING "H20" DUE TO GROUNDS MAINTENANCE EQUIPMENT. HUBBLE QUAZITE #PG4848BA48 W/ COVER #PG4848HH00 OR APPROVED EQUAL.
14. CONDUIT ENTERING THE TRANSITION SUMP SHALL BE MADE UTILIZING A STTTB TYPE BULK HEAD FITTING. A SEALED FITTING SHALL BE UTILIZED ABOVE THE CONCRETE CAP TO PREVENT THE ENTRANCE OF WATER INTO THE SUMP WHEN ENTERING THE TOP OF THE SUMP. COORDINATE CONDUIT PLACEMENT WITH MECHANICAL AND STRUCTURAL DRAWINGS.

LEGEND:

- UNDERGROUND CONDUIT
- ABOVE GROUND CONDUIT
- 3"C 7//8" RF COAXIAL CABLE
- CONDUIT / CABLE TURNED DOWN
- CONDUIT / CABLE TURNED UP
- HIGH PRESSURE SODIUM WALL MOUNTED FIXTURE,70 WATT, 120 VAC, FURNISHED WITH MODULES. CONTRACTOR SHALL MOUNT LIGHTS AND DISCONNECT THE INTERGAL PHOTO ELECTRIC CELL(S). T.O.F. ELEVATION 9'-0" A.F.G.
- (XX) CABLE NUMBER (SEE E-403)
- XXX-X INSTRUMENT TAG
- XX / E-5XX DETAIL/SHEET #

STATE OF MAINE — MICHAEL A. CARTER — No. 11378 — LICENSED PROFESSIONAL ENGINEER

US Army Corps of Engineers OMAHA DISTRICT

PHASE REVIEW: Project Manager; QC Reviewer; Architecture; Structural; Mechanical; Plumbing; Electrical; Date

No.	Description	Date	Approval
0	ISSUED FOR CONSTRUCTION	11/1/12	

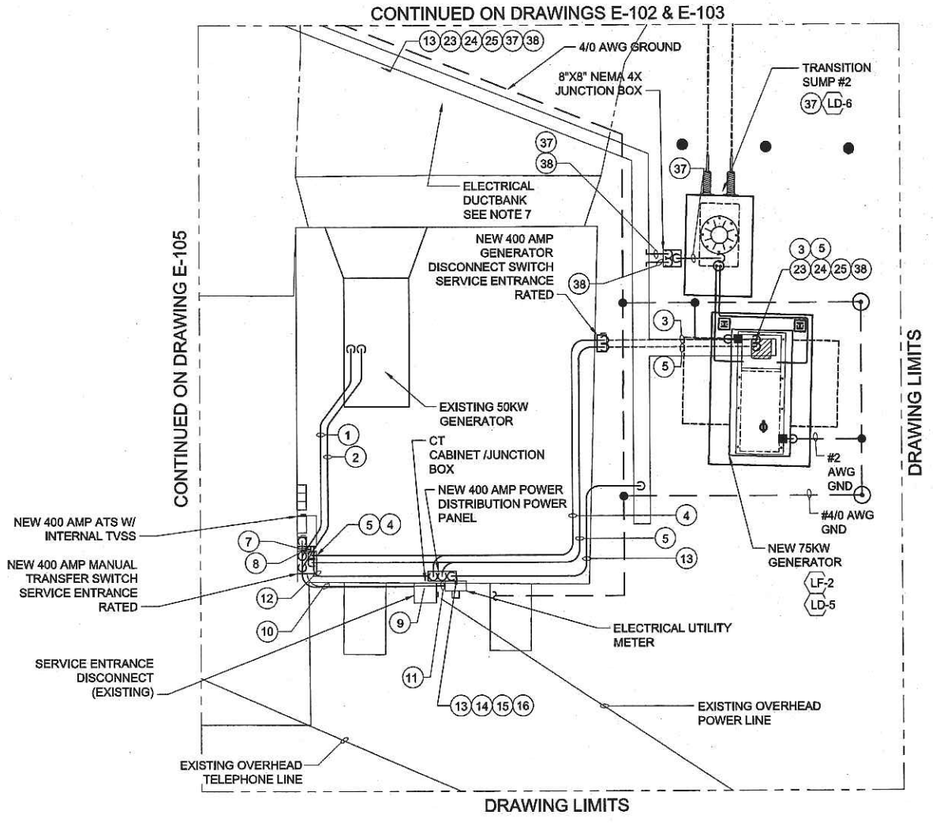
Designed by: Checked by: Drawn by: Reviewed by: Date: 2012

KBR — 81 SOUTH ROYAL STREET SUITE 300 MOBILE, AL 36602 PHONE: (251) 459-7900 FAX: (251) 459-7999 — Engineering Services by KBR Engineering Co., LLC

FEMA EMERGENCY RADIO NETWORK ON WGAN PORTLAND, MAINE

ELECTRICAL POWER PLAN

Drawing Number: E-103



A E-101 GROUNDING & POWER PLAN

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

1' 0' 1' 5' 10' 15'

1/4"=1'-0"

NOTES:

1. ALL ELECTRICAL INSTALLATIONS SHALL BE IN ACCORDANCE WITH THE 2011 EDITION OF THE NATIONAL ELECTRICAL CODE (NEC NFPA 70) AND THE OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA) AND PROJECT SPECIFICATIONS AND APPLICABLE CODES AND STANDARDS..
2. ALL BUILDING PENETRATIONS SHALL BE SEALED WITH A FIRE BLOCK SEALANT TO PREVENT WATER FROM ENTERING THE INTERIOR. ALL PANEL ENTRY PENETRATIONS SHALL UTILIZE MYERS HUBS WITH GROUNDING BUSHINGS.
3. ALL CONDUIT ROUTING IS SHOWN DIAGRAMMATIC, CONTRACTOR SHALL VERIFY LOCATION AND ROUTING BEFORE INSTALLATION. COORDINATE INSTALLATION WITH OTHER CRAFTS BEFORE INSTALLING CONDUITS, PULL BOXES AS REQUIRED, PANELS, AND DEVICES.
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5. CONTRACTOR SHALL VERIFY ELECTRICAL PHASE ARRANGEMENTS / CONNECTIONS, MAKING ADJUSTMENTS AS REQUIRED, MATCHING THE NEW INSTALLED SYSTEM(S) TO THE EXISTING FACILITIES SYSTEM. NEW PANEL CONNECTIONS TO EXISTING EQUIPMENT SHALL BE VERIFIED BEFORE APPLICATION OF POWER. FACILITIES ENGINEER SHALL BE PRESENT UPON ENERGIZING EQUIPMENT.
6. CONDUITS INSTALLED UNDERGROUND SHALL BE PVC COATED RIGID GALVANIZED STEEL. ABOVE GRADE EXTERIOR CONDUITS SHALL BE RIGID GALVANIZED STEEL (RGS), INTERIOR CONDUITS MAY BE ELECTRICAL METALLIC TUBING (EMT).
7. DUE TO UNDERGROUND INSTALLATION OBSTRUCTIONS HAND EXCAVATION IS REQUIRED FOR AREA ADJACENT TO THE STATION BUILDING. NO EXCAVATORS OR POWERED EQUIPMENT SHALL BE UTILIZED.

LEGEND:

- UNDERGROUND CONDUIT
- ABOVE GROUND CONDUIT
- GROUND ROD, 3/4" X 10' SECTIONAL COPPER CLAD
- EXOTHERMIC WELD, SEE DETAIL FOR TYPE
- MECHANICAL GROUND CONNECTION, SEE DETAIL FOR TYPE
- GROUNDING TEST WELL
- GROUNDING CONDUCTOR (BURIAL DEPTH 30")
- 4" WIDE (.016" TO .022") COPPER RF BONDING TAPE
- 3"C 7/8" RF COAXIAL CABLE
- CONDUIT / CABLE TURNED DOWN
- CONDUIT / CABLE TURNED UP
- GROUNDING BUS BAR
- GROUND CONNECTION TO FOUNDATION REBAR LOCATION AT LOWEST LEVEL (UFER GROUND)
- HIGH PRESSURE SODIUM WALL MOUNTED FIXTURE,70 WATT, 120 VAC, FURNISHED WITH MODULES. CONTRACTOR SHALL MOUNT LIGHTS AND DISCONNECT THE INTERGAL PHOTO ELECTRIC CELL(S). T.O.F. ELEVATION 9'-0" A.F.G.
- XX — CABLE NUMBER (SEE E-403)
- XXX-X — INSTRUMENT TAG
- XX / E-5XX — DETAIL/SHEET #

STATE OF MAINE
MICHAEL A. CARTER
No. 11379
REGISTERED PROFESSIONAL ENGINEER

US Army Corps of Engineers
OMAHA DISTRICT

PHASE REVIEWS:
Project Manager
QC Reviewer
Architectural
Structural
Mechanical
Plumbing
Electrical
QAR

Mark	Description	Date	Approved
0	ISSUED FOR CONSTRUCTION	11/1/12	

Designed by:
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Checked by:
Reviewed by:
Date: 2012

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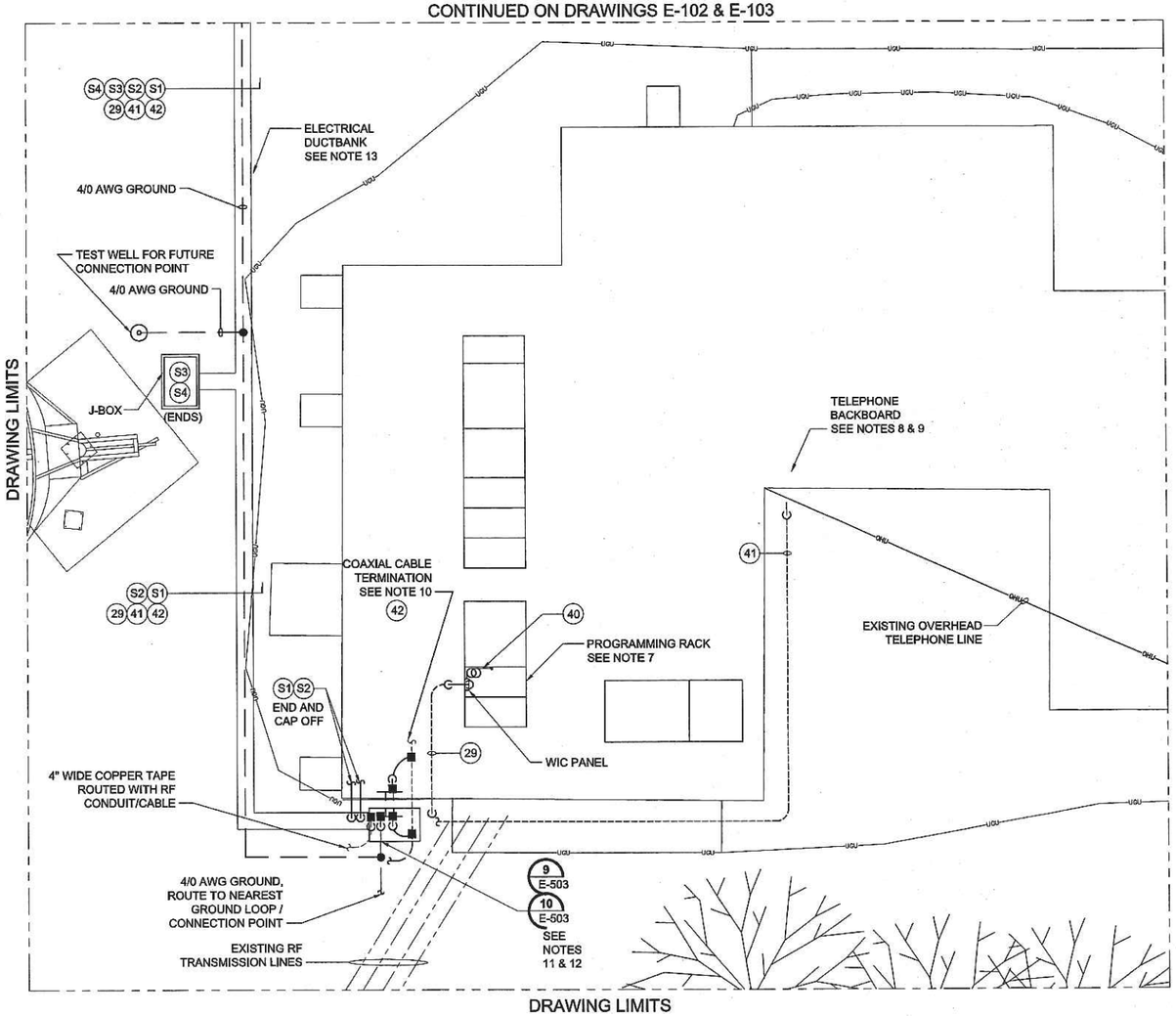
FEMA

FEMA EMERGENCY RADIO NETWORK
ON WOAN PORTLAND, MAINE

GROUNDING & POWER PLAN

Drawing Number:
E-104



A E-101 GROUNDING & POWER PLAN
SCALE: 3/8"=1'-0"

1' 0 1' 5' 10'
3/8"=1'-0"

NOTES:

1. ALL ELECTRICAL INSTALLATIONS SHALL BE IN ACCORDANCE WITH THE 2011 EDITION OF THE NATIONAL ELECTRICAL CODE (NEC NFPA 70) AND THE OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA) AND PROJECT SPECIFICATIONS AND APPLICABLE CODES AND STANDARDS..
2. ALL BUILDING PENETRATIONS SHALL BE SEALED WITH A FIRE BLOCK SEALANT TO PREVENT WATER FROM ENTERING THE INTERIOR. ALL PANEL ENTRY PENETRATIONS SHALL UTILIZE MYERS HUBS WITH GROUNDING BUSHINGS.
3. ALL CONDUIT ROUTING IS SHOWN DIAGRAMMATIC, CONTRACTOR SHALL VERIFY LOCATION AND ROUTING BEFORE INSTALLATION. COORDINATE INSTALLATION WITH OTHER CRAFTS BEFORE INSTALLING CONDUITS, PULL BOXES AS REQUIRED, PANELS, AND DEVICES.
4. ALL SHUT DOWN WORK REQUIRED SHALL BE PLANNED AND APPROVED BY THE STATION BEFORE PROCEEDING. PROVISIONS SHALL BE PROVIDED FOR ELECTRICAL POWER DURING SHUTDOWN PERIODS. INCLUDING TEMPORARY GENERATOR, DAY TANK, REQUIRED FUEL AND OPERATOR TECHNICIAN AS REQUIRED.
5. CONTRACTOR SHALL VERIFY ELECTRICAL PHASE ARRANGEMENTS / CONNECTIONS, MAKING ADJUSTMENTS AS REQUIRED, MATCHING THE NEW INSTALLED SYSTEM(S) TO THE EXISTING FACILITIES SYSTEM. NEW PANEL CONNECTIONS TO EXISTING EQUIPMENT SHALL BE VERIFIED BEFORE APPLICATION OF POWER. FACILITIES ENGINEER SHALL BE PRESENT UPON ENERGIZING EQUIPMENT.
6. CONDUITS INSTALLED UNDERGROUND SHALL BE PVC COATED RIGID GALVANIZED STEEL. ABOVE GRADE EXTERIOR CONDUITS SHALL BE RIGID GALVANIZED STEEL (RGS), INTERIOR CONDUITS MAY BE ELECTRICAL METALLIC TUBING (EMT).
7. CONTRACTOR SHALL PROVIDE FIBER OPTIC JUMPERS (PIGTAILS) AS REQUIRED FOR CONNECTION TO THE PROGRAMMING EQUIPMENT. CONNECTING TO THE OSP FIBER OPTIC CABLING TO THE FIBER OPTIC WALL MOUNT INTERCONNECTION CENTER BY SABRE INDUSTRIES. CONTRACTOR SHALL FURNISH ST STYLE CONNECTORS INSTALLING FAN OUT KITS AS REQUIRED FOR THE 6 FIBER 62.5 / 125 MULTI-MODE OUTSIDE PLANT RATED F/O CABLE.
8. CONTRACTOR SHALL INSTALL A NEW COMMUNICATION BACKBOARD UTILIZING 3/4" PLYWOOD. ROUTE THE 25 PAIR OSP COMMUNICATION CABLE TO THE NEW COMMUNICATION BACKBOARD AND SHALL PROVIDE AND INSTALL A NEW SURGE PROTECTED 66 BLOCK (CIRCA TELECOM 2625QC-3B1E OR EQUAL) WITH ANALOG GAS TUBE SURGE PROTECTORS IN THE TELEPHONE CLOSET. ALL 25 PAIRS SHALLBE TERMINATED TO THE 66 BLOCK WITH THE (2) UTILIZED PAIRS IDENTIFIED/NOTED. CONTRACTOR SHALL INSTALL ALL JUMPERS /CROSS CONNECTION FOR THE TWO UTILIZED LINES AS REQUIRED FOR TERMINATION TO THE PHONE COMPANY DEMARCATION POINT. CONTRACTOR SHALL BOND THE 66 BLOCK TO THE EXISTING GROUNDING TERMINAL, WHERE THIS ISN'T IN PLACE THE CONTRACTOR SHALL ROUTE A INSULATED #4 AWG GROUND CONDUCTOR TO THE NEAREST GROUNDING POINT.
9. CONTRACTOR SHALL ROUTE A 4-PAIR TELEPHONE CABLE IN THE EXISTING FLOOR TRENCH TO THE TELEPHONE DEMARCATION BOX.
10. ROUTE COAX RF CABLE INTO PHASOR ROOM. STATION ENGINEER WILL TERMINATE CABLE.
11. THE RF COAX CABLE SHALL BE BONDED TO THE GROUNDING BUS BARS BELOW THE BULK HEAD PENETRATION BOTH EXTERIOR AND INTERIOR. ANDREWS GROUNDING KIT(S) NO. 241088-2 OR APPROVED EQUAL.
12. CONTRACTOR SHALL CONNECT TO THE EXTERIOR GROUND BUS BAR TO THE GROUND LOOP WITH A #4/0 AWG INSULATED GROUND CONDUCTOR.
13. DUE TO UNDERGROUND INSTALLATION OBSTRUCTIONS HAND EXCAVATION IS REQUIRED FOR AREA ADJACENT TO THE STATION BUILDING. NO EXCAVATORS OR POWERED EQUIPMENT SHALL BE UTILIZED.

LEGEND:

- UNDERGROUND CONDUIT
- ABOVE GROUND CONDUIT
- GROUND ROD, 3/4" X 10' SECTIONAL COPPER CLAD
- EXOTHERMIC WELD, SEE DETAIL FOR TYPE
- MECHANICAL GROUND CONNECTION, SEE DETAIL FOR TYPE
- GROUNDING TEST WELL
- GROUNDING CONDUCTOR (BURIAL DEPTH 30")
- 4" WIDE (.016" TO .022") COPPER RF BONDING TAPE
- 3"C 7/8" RF COAXIAL CABLE
- CONDUIT / CABLE TURNED DOWN
- CONDUIT / CABLE TURNED UP
- GROUNDING BUS BAR
- GROUND CONNECTION TO FOUNDATION REBAR LOCATION AT LOWEST LEVEL (UFER GROUND)
- HIGH PRESSURE SODIUM WALL MOUNTED FIXTURE,70 WATT, 120 VAC, FURNISHED WITH MODULES. CONTRACTOR SHALL MOUNT LIGHTS AND DISCONNECT THE INTERGAL PHOTO ELECTRIC CELL(S). T.O.F. ELEVATION 9'-0" A.F.G.
- XX — CABLE NUMBER (SEE E-403)
- XXX-X — INSTRUMENT TAG
- XX / E-5XX — DETAIL/SHEET #

STATE OF MAINE
MICHAEL A. CARTER
No. 11379
REGISTERED PROFESSIONAL ENGINEER

US Army Corps of Engineers
OMAHA DISTRICT

PHASE REVIEW	
Project Manager	
QC Reviewer	
Architectural	
Structural	
Mechanical	
Plumbing	
Electrical	
Civil	

No.	Mark	Description	Date	Appvd
0		ISSUED FOR CONSTRUCTION	11/1/12	

Designed: kjc | Checked: kjc
Drawn: kjc | Reviewed: kjc
Date: 2012

KBR
63 SOUTH ROYAL STREET SUITE 200
MOBILE, ALABAMA 36602
PHONE (251) 405-7800
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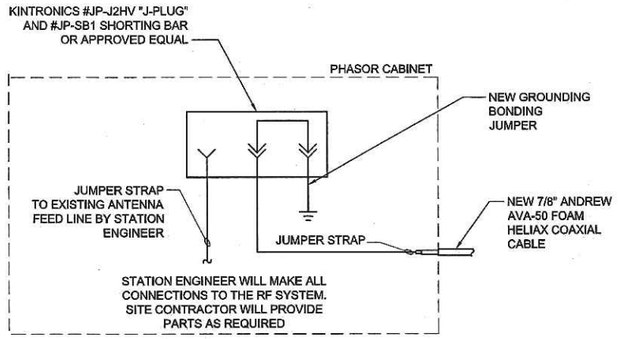
Engineering Services by
KBR Engineering Co. LLC

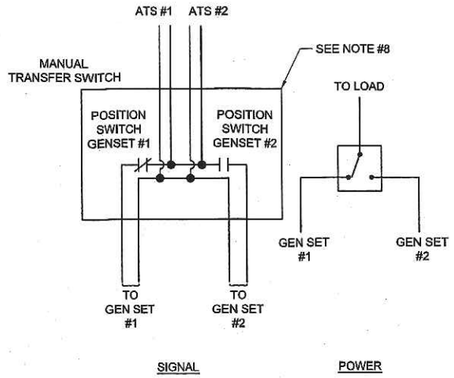
FEMA EMERGENCY RADIO NETWORK
ON WCAN PORTLAND, MAINE

GROUNDING & POWER PLAN

Drawing Number:
E-105



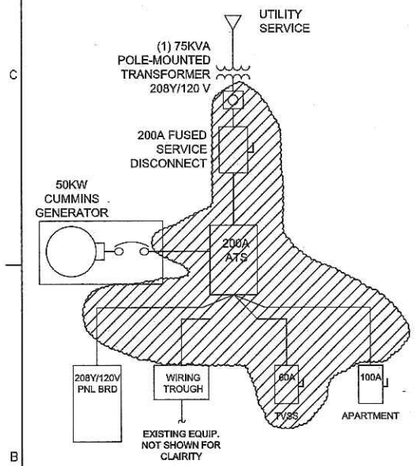
RF CONNECTION DIAGRAM



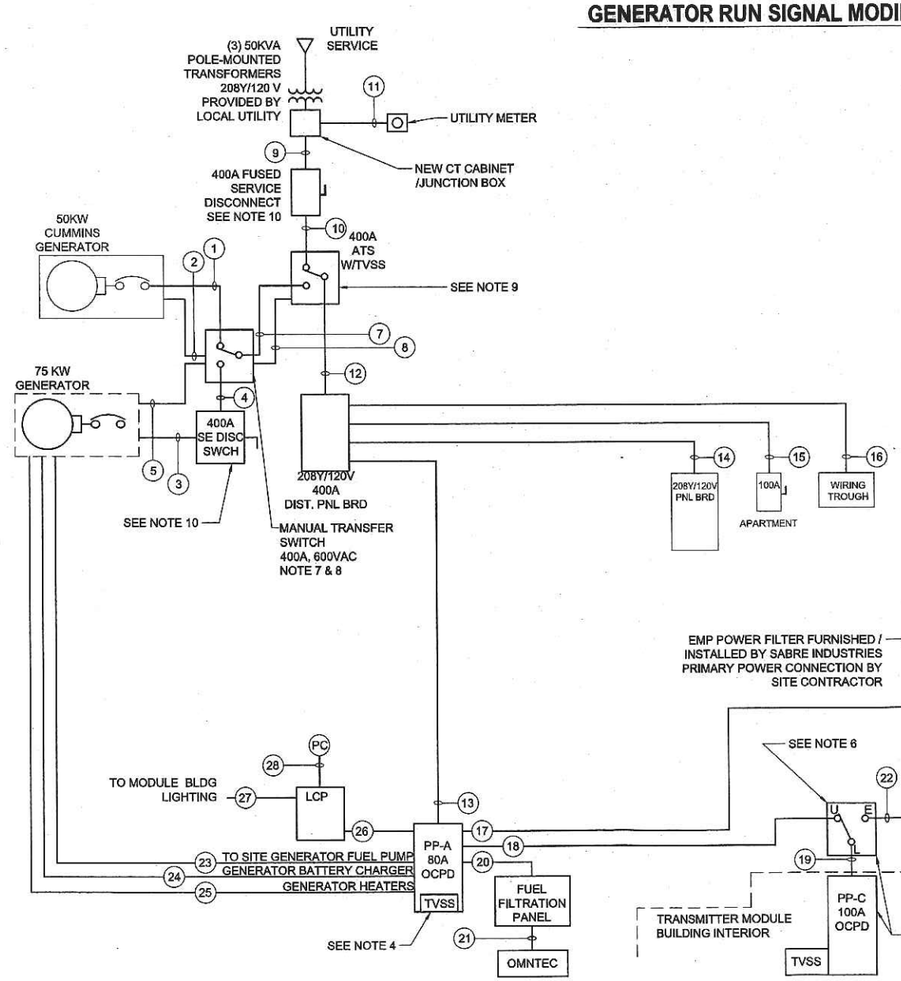
GENERATOR RUN SIGNAL MODIFICATION

NOTES:

1. ALL ELECTRICAL INSTALLATIONS SHALL BE IN ACCORDANCE WITH THE 2011 EDITION OF THE NATIONAL ELECTRICAL CODE (NEC NFPA 70) AND THE OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA) AND PROJECT SPECIFICATIONS AND APPLICABLE CODES AND STANDARDS.
2. POWER PLUG FED FROM GENERATOR MODULE POWER PANEL "B". SEE CELLXION DRAWINGS FOR SHORE PLUG /RECEPTACLE CIRCUIT AND CONNECTIONS.
3. ALL SHUT DOWN WORK REQUIRED SHALL BE PLANNED AND APPROVED BY THE STATION ENGINEER BEFORE PROCEEDING. PROVISIONS SHALL BE PROVIDED TO MAINTAIN SERVICE DURING SHUTDOWN PERIODS.
4. CONTRACTOR SHALL PROVIDE AND INSTALL TVSS-SURGE SUPPRESSOR INC. ADVANTAGE MODEL CDLA3Y1-XS OR APPROVED EQUAL.
5. THE NEUTRAL BONDING JUMPER FURNISHED WITH THE GENERATOR SHALL BE REMOVED. THE GENERATOR SHALL NOT BE CONSIDERED A SEPARATELY DERIVED SYSTEM.
6. CONTRACTOR SHALL VERIFY POSITION OF BY-PASS SWITCH HANDLE MATCHING POSITIONS WITH THE GENERATOR MODULE TRANSFER SWITCH.
7. THE AUTOMATIC START/RUN SIGNAL TO THE EXISTING GENERATOR SHALL BE MODIFIED AND ROUTED THROUGH THE NEW MANUAL TRANSFER SWITCH POSITION SWITCHES.
8. CONTRACTOR SHALL FURNISH AND INSTALL A DOUBLE THROW SWITCH 600 VAC 400 AMP NEMA 12 SIEMENS CAT NO. NF355HDTR WITH HN678 NEUTRAL KIT, HG656 GROUND KIT, AND 2 EACH HA165678 AUX CONTACTS. SWITCH SHALL BE SERVICE ENTRANCE RATED.
9. CONTRACTOR SHALL PROVIDE AND INSTALL A NEW 400 AMPERE AUTOMATIC TRANSFER SWITCH 208Y/120 VAC SERVICE ENTRANCE RATED WITH INTERNAL TVSS 3 PHASE 4 WIRE. ASCO CATALOG NUMBER 3AUS-B-3-400-C-1-X-C-11BG-14AA/14BA-73A-208V/60 OR APPROVED EQUAL. CONTRACTOR SHALL VERIFY LUG SIZE AND CAPACITY DURING PURCHASE TO ENSURE COMPATABILITY WITH SYSTEM DESIGN REQUIREMENTS.
10. CONTRACTOR SHALL FURNISH AND INSTALL SERVICE ENTRANCE RATED DISCONNECT SWITCHES, 240VAC, 400 AMP, 3 PHASE,4 WIRE, FUSABLE, NEMA 3R/3S EMCLOSURES WITH 400 AMP FUSES. EATON CAT NO. DH325NRK-N OR APPROVED EQUAL



EXISTING POWER RISER DIAGRAM



MODIFIED POWER RISER DIAGRAM

LEGEND:

* DENOTES WIRE / CABLE ONLY (EXISTING CONDUIT)

EXISTING SYSTEM

NEW MODIFICATION(S)

US Army Corps of Engineers
OMAHA DISTRICT

PHASE REVIEW: Project Manager | QC Reviewer | Architectural | Structural | Mechanical | Electrical | Plumbing | Fire Prot | Civil

Mark	Description	Date	Approved
0	ISSUED FOR CONSTRUCTION	11/1/12	

Designed by: SDJ
Drawn by: SDJ
Checked by: TCG
Reviewed by: TCG
Date: 2012

FEMA

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KBR
63 SOUTH ROYAL STREET SUITE 200
MOBILE, AL 36602
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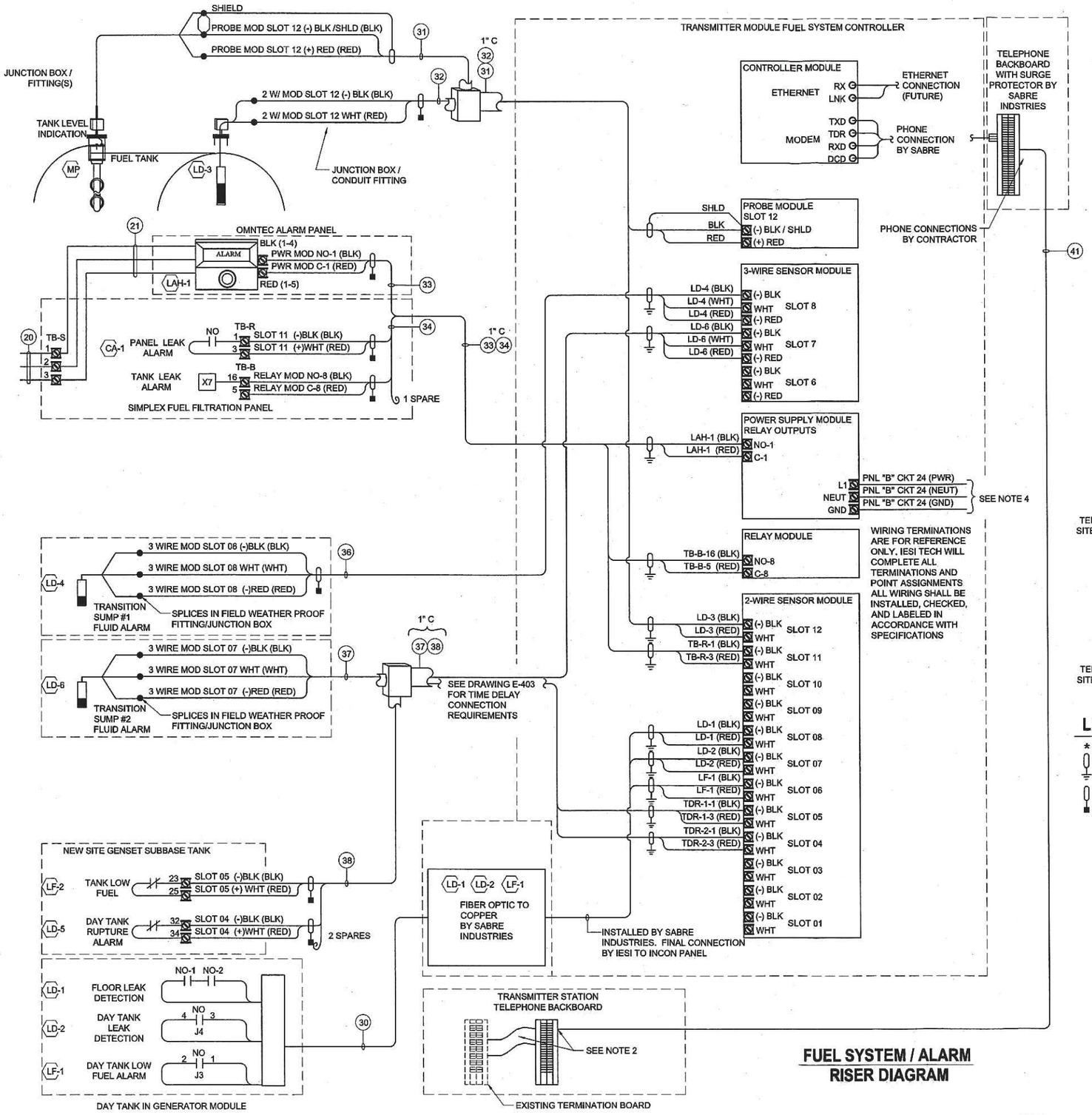
Engineering Services by
KBR Engineering Co. LLC

FEMA EMERGENCY RADIO NETWORK
ON WGAN PORTLAND, MAINE

TRANSMITTER / GENERATOR ELECTRICAL PANEL SCHEDULES

STATE OF MAINE
MICHAEL A. CARTER
No. 11379
LICENSED PROFESSIONAL ENGINEER

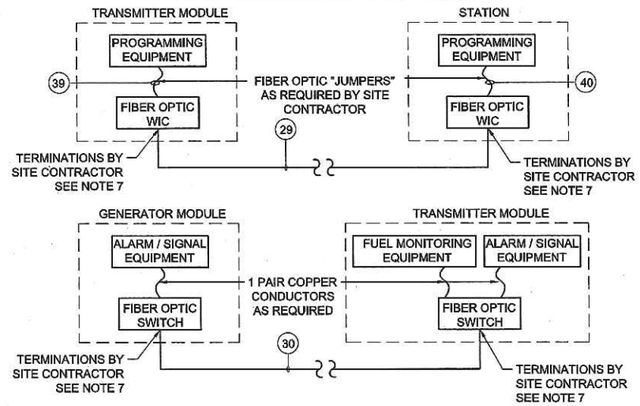
Drawing Number:
E-401



NOTES:

1. ALL ELECTRICAL INSTALLATIONS SHALL BE IN ACCORDANCE WITH THE 2011 EDITION OF THE NATIONAL ELECTRICAL CODE (NEC NFPA 70) AND THE OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA) AND PROJECT SPECIFICATIONS AND APPLICABLE CODES AND STANDARDS.
2. CONTRACTOR SHALL ROUTE A 25 PAIR OSP COMMUNICATION CABLE TO THE EXISTING COMMUNICATION BACKBOARD INSTALLING A NEW SURGE PROTECTED 66 BLOCK CIRCA TELECOM 2625QC-3B1E OR EQUAL WITH ANALOG GAS TUBE SURGE PROTECTORS IDENTIFYING CONDUCTORS TO BE UTILIZED FOR CROSS CONNECTION. ALL PAIRS SHALL BE TERMINATED TO THE 66 BLOCKS WITH UTILIZED PAIRS IDENTIFIED / NOTED. SEE NOTE 8 ON DRAWING E-105 AND SABRE INDUSTRIES DRAWING SKBR02 SHT 5-4 FOR UTILIZED PAIR NUMBERS.
3. ALL INSTRUMENT / CONTROL CABLES SHALL BE INDIVIDUALLY SHIELDED DUE TO HIGH RF SIGNALS. SHIELDS SHALL BE BONDED AT THE CONTROLLER AND TAPED AT THE DEVICES. UNLESS SHOWN DIFFERENTLY BY MANUFACTURER TERMINATION DRAWINGS.
4. SEE CONTROLLER SUPPLIER DRAWINGS FOR WIRING TERMINATIONS AND WIRING REQUIREMENTS. FUEL SYSTEM RISER DIAGRAM IS DIAGRAMMATIC CABLING SIZE AND QUANTITY MAY VARY DEPENDING ON FURNISHED EQUIPMENT REQUIREMENTS.
5. ALL CONTACTS ARE SHOWN IN DE-ENERGIZED POSITIONS CONSIDERED "FAIL SAFE" WHICH WILL ALSO INDICATED AN ALARM STATE OF THE DEVICE.
6. CONTRACTOR SHALL INSTALL WIRING FROM TERMINAL BLOCK TB-S IN THE SIMPLEX CONTROLLER TO THE OMNTEC ANNUNCIATOR.
7. FIBER OPTIC FAN OUT KITS SHALL BE INSTALLED AT TERMINATION POINTS FOR FIELD TERMINATIONS. TYE-RAPS SHALL BE LEFT LOOSE AND LONG RADIUS LOOPS FORMED FOR ROUTING THE FIBERS WITHIN THE PANELS. CONNECTOR SHALL BE INSTALLED ON ALL FIBERS AND OPTICAL LOSE TEST PREFORMED ON THE SYSTEM AT A MINIMUM .

FIBER OPTIC RISER DIAGRAM



LEGEND:

- * DENOTES WIRE / CABLE ONLY WITHIN CONTROLLER / ENCLOSURE
- CABLE SHIELD TERMINATED TO GROUNDING POINT
- CABLE SHIELD SHOWN CUT AND TAPED NOT TERMINATED

STATE OF MAINE — MICHAEL A. CARTER — No. 11379 — REGISTERED PROFESSIONAL ENGINEER

US Army Corps of Engineers OMAHA DISTRICT

PHASE REVIEW: Project Manager, QC Reviewer, Architectural, Structural, Mechanical, Plumbing, Electrical, Civil

No.	Description	Date	Appvd
a	issued for construction	11/7/12	

Designed by: SDJ
Drawn by: SDJ
Checked by: TCG
Reviewed by:
Date: 2012

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KBR Engineering Services, KBR Engineering Co. LLC

FEMA EMERGENCY RADIO NETWORK ON MOAN PORTLAND, MAINE

TRANSMITTER / GENERATOR ELECTRICAL RISER DIAGRAMS

Drawing Number: E-402

CONDUIT AND CABLE SCHEDULE

CABLE NUMBER	CONDUIT SIZE	WIRE & CABLE	FROM	TO	REMARKS
1	2-3"	2 EA 4-1/C #4/0AWG W/#2 AWG GND	EXISTING SITE GENERATOR	MANUAL TRANSFER SWITCH (STATION POWER)	PARALLEL FEEDERS
2	1"	5/C #14 AWG CONTROL CONDUCTORS	EXISTING SITE GENERATOR	MANUAL TRANSFER SWITCH (STATION POWER)	CONTROLS-RUN CIRCUIT
3	2-3"	2 EA 4-1/C #4/0AWG W/#2 AWG GND	NEW SITE GENERATOR	SERVICE ENTRANCE DISCONNECT	PARALLEL FEEDERS
4	2-3"	2 EA 4-1/C #4/0AWG W/#2 AWG GND	SERVICE ENTRANCE DISCONNECT	MANUAL TRANSFER SWITCH (STATION POWER)	PARALLEL FEEDERS
5	1"	5/C #14 AWG CONTROL CONDUCTORS	NEW SITE GENERATOR	MANUAL TRANSFER SWITCH (STATION POWER)	CONTROLS-RUN CIRCUIT
6	1"	5/C #14 AWG CONTROL CONDUCTORS	NEW SITE GENERATOR	E-STOP	EMERGENCY STOP
7	2-3"	2 EA 4-1/C #4/0AWG W/#2 AWG GND	MANUAL TRANSFER SWITCH (STATION POWER)	ATS	PARALLEL FEEDERS
8	1"	5/C #14 AWG CONTROL CONDUCTORS	MANUAL TRANSFER SWITCH (STATION POWER)	ATS	CONTROLS-RUN CIRCUIT
9	2-3"	2 EA 4-1/C #4/0AWG W/#2 AWG GND	SERVICE ENTRANCE FEEDER	FUSED DISCONNECT	PARALLEL FEEDERS
10	2-3"	2 EA 4-1/C #4/0AWG W/#2 AWG GND	FUSED DISCONNECT	ATS	PARALLEL FEEDERS
11	1 1/2"	6-1/C # 14	CT CABINET /JUNCTION BOX	METER BOX	CT LEADS
12	2-3"	2 EA 4-1/C #4/0AWG W/#2 AWG GND	ATS	400 A DISTRIBUTION POWER PANEL	
13	1-1/2"	4-1/C #2 AWG W/#6 AWG GND	400 A DISTRIBUTION POWER PANEL	POWER PANEL "A"	POWER PANEL "A" MOUNTED ON TRANSMITTER MODULE
14	1-1/2"	4-1/C #2 AWG W/#6 AWG GND	400 A DISTRIBUTION POWER PANEL	EXISTING PANELBOARD	
15	1-1/2"	4-1/C #2 AWG W/#6 AWG GND	400 A DISTRIBUTION POWER PANEL	EXISTING DISCONNECT	
16	1-1/2"	4-1/C #2 AWG W/#6 AWG GND	400 A DISTRIBUTION POWER PANEL	WIRING TROUGH	
17	1"	4-1/C #8 AWG W/#10 AWG GND	POWER PANEL "A"	EMP FILTER	MOUNTED ON GENERATOR MODULE-FEED TO PANEL "B"
18	1-1/2"	4-1/C #2 AWG W/#6 AWG GND	POWER PANEL "A"	MANUAL TRANSFER SWITCH	MOUNTED ON TRANSMITTER MODULE-FEED TO PANEL "C"
19	1-1/2"	4-1/C #2 AWG W/#6 AWG GND	MANUAL TRANSFER SWITCH	POWER PANEL "C"	CONDUIT BY SABRE INDUSTRIES
20	1"	2-1/C #10 AWG W/#10 AWG GND/	POWER PANEL "A"	SIMPLEX FUEL FILTRATION PANEL	FUEL FILTRATION PANEL POWER/ OMNTEC CONTROL POWER (LAH-1)
21	3/4"	2-1/C #12 AWG W/#12 AWG GND	SIMPLEX FUEL FILTRATION PANEL	OMNTEC ALARM PANEL	LAH-1 CONTROL POWER
22	1-1/2"	4-1/C #2 AWG W/#6 AWG GND	MANUAL TRANSFER SWITCH	SHORE PLUG RECEPTACLE ON GENERATOR MODULE	MOUNTED ON TRANSMITTER MODULE
23	1"	2-1/C #10 AWG W/#10 AWG GND	POWER PANEL "A"	SITE GENERATOR FUEL CONTROLLER	GENSET FUEL PUMP /CONTROLLER
24	1"	2-1/C #10 AWG W/#10 GND	POWER PANEL "A"	BATTERY CHARGER	NEW SITE GENSET
25	1"	2-1/C #10 AWG W/#10 AWG GND	POWER PANEL "A"	BLOCK AND ALTERNATOR HEATERS	NEW SITE GENSET
26	1"	2-1/C #10 AWG W/#10 AWG GND/ 2-1/C #12 AWG W/#12 AWG GND	POWER PANEL "A"	LIGHTING CONTACTOR	CONTROL POWER / AREA LTG CKT'S
27	1"	2-1/C #10 AWG W/#10 AWG GND	LIGHTING CONTACTOR	AREA LIGHTING AT MODULES	TO J-BOX ON EACH BLDG.
28	3/4"	3-1/C #14 AWG	LIGHTING CONTACTOR	PHOTO ELECTRIC CELL	MOUNTED ON TRANSMITTER MODULE
29	1"	6 FIBER, 62.5/125	WIC AT STATION PROGRAMMING RACK	WIC IN TRANSMITTER MODULE	FIBER TERMINATIONS BY CONTRACTOR
30	1"	6 FIBER, 62.5/125	FIBER PANEL IN GENERATOR MODULE	FIBER PANEL IN TRANSMITTER MODULE	FIBER TERMINATIONS BY CONTRACTOR (LF-1,LD-1,LD-2)
31	3/4"	1/PR #18 SHLD (BELDEN 87760 OR EQUAL)	FUEL SYSTEM CONTROL PANEL FSCP-001	FUEL TANK	TANK LEVEL (MP)
32	3/4"	1/PR #18 SHLD (BELDEN 87760 OR EQUAL)	FUEL SYSTEM CONTROL PANEL FSCP-001	FUEL TANK	TANK LEAK DETECTOR (LD-3)
33	3/4"	1/PR #18 SHLD (BELDEN 87760 OR EQUAL)	FUEL SYSTEM CONTROL PANEL FSCP-001	OMNTEC ALARM PANEL	HIGH LEVEL ALARM (LAH-1)
34	1"	3 EA-1/PR #18 SHLD (BELDEN 87760 OR EQUAL)	FUEL SYSTEM CONTROL PANEL FSCP-001	SIMPLEX FUEL FILTRATION PANEL	COMMON ALARM (CA-1)
35					
36	1"	1 EA TRIAD #18 SHLD(BELDEN 9365 OR EQUAL)	FUEL SYSTEM CONTROL PANEL FSCP-001	TRANSITION SUMP #1	LEAK DETECTOR (LD-4)
37	3/4"	1 EA TRIAD #18 SHLD(BELDEN 9365 OR EQUAL)	FUEL SYSTEM CONTROL PANEL FSCP-001	TRANSITION SUMP #2	LEAK DETECTOR (LD-6)
38	1"	4 EA 1/PR #18 SHLD	FUEL SYSTEM CONTROL PANEL FSCP-001	NEW OUTDOOR DAY TANK	LOW FUEL (LF-2), LEAK DETECTION (LD-5)
39	1"	62.5/125 FIBER OPTIC "JUMPER"	TRANSMITTER MODULE WIC PANEL	EQUIPMENT RACK	JUMPERS WITH PRE-INSTALLED "ST" TYPE CONNECTORS
40	1"	62.5/125 FIBER OPTIC "JUMPER"	STATION WIC PANEL	EQUIPMENT RACK	JUMPERS WITH PRE-INSTALLED "ST" TYPE CONNECTORS
41	2"	25 PAIR OSP #22 AWG TELEPHONE CABLE	TRANSMITTER MODULE	STATION TELEPHONE DEMARK BACKBOARD	
42	3"	7/8" COAXIAL CABLE (ANDREW AVA5-50)	TRANSMITTER MODULE	STATION RF TIE POINT	COAX CABLE-USE 24" RADIUS MINIMUM CONDUIT FITTINGS
S1	2"	PULL STRING	FEMA SATELLITE JUNCTION BOX	STATION	JUNCTION BOX MOUNTED ON TRANSMITTER MODULE
S2	2"	PULL STRING	FEMA SATELLITE JUNCTION BOX	STATION	JUNCTION BOX MOUNTED ON TRANSMITTER MODULE
S3	2"	PULL STRING	FEMA SATELLITE JUNCTION BOX	SATELLITE AREA PULLBOX	JUNCTION BOX MOUNTED ON TRANSMITTER MODULE
S4	2"	PULL STRING	FEMA SATELLITE JUNCTION BOX	SATELLITE AREA PULLBOX	JUNCTION BOX MOUNTED ON TRANSMITTER MODULE

1°C
1°C
1°C

PANEL NAME: PANEL "A"

						VOLTAGE:	208	/	120			MAIN BREAKER:	Y			
						PHASE:	3					LUGS ONLY:				
						WIRE:	4					SURFACE:	Y			
						BUS AMPS:	100		100	:MAIN CB AMPS		FLUSH:				
						SUPPLY AMPS:	100					GROUND BUS:	Y			
					MIN. SHORT CIRCUIT RATING:		10000					ISOLATED GROUND BUS:				
												NEUTRAL BUS:	Y			

SQUARE D PANEL BOARD
TYPE NQOD
NEMA 3R /3S
KEYED LOCKABLE DOOR
INCLUDE SPARE CAP. - Y/N: N

NOTES:

SERVES	LTG	RCPT	PWR	MOT	CB *	CKT	PH	CKT	CB *	LTG	RCPT	PWR	MOT	SERVES	NOTES:
EXTERIOR LIGHTING	704				20	1	A	2	20			782		FUEL FILTTRATION PUMP	
DAYTANK FUEL SYSTEM PUMPS			2400		25	3	B	4	20			1200		SITE GENERATOR HEATERS	
SUBBASE TANK FUEL SYSTEM PUMPS			2400		25	5	C	6							
SITE GENSET BATTERY CHARGER			600		15	7	A	8	25			1760		GENERATOR MODULE POWER FILTER	2
SPARE					15	9	B	10	[			1316		GENERATOR MODULE POWER FILTER	2
TVSS			60		30	11	C	12	[			1506		GENERATOR MODULE POWER FILTER	2
TVSS			60		[	13	A	14	15					SPARE	
TVSS			60		[	15	B	16	50			4140		TRANSMITTER MODULE MTS	3
						17	C	18	[			4200		TRANSMITTER MODULE MTS	3
						19	A	20	[			4020		TRANSMITTER MODULE MTS	3
						21	B	22							
						23	C	24							
						25	A	26							
						27	B	28							
						29	C	30							

CONNECTED VA: A: 7,926 B: 9,116 C: 8,166

			AMPS	KVA	
CONNECTED KVA:		D.F. DEMAND KVA:	100.0	36.0	DESIGN (BASED ON SUPPLY)
LIGHTING LOAD:	0.7	1.25 0.9	70.0	25.2	CONNECTED
RECEPT. LOAD - FIRST 10 KVA:	0.0	1.00 0.0	70.5	25.4	DEMAND
RECEPT. LOAD - REMAINDER:	0.0	0.50 0.0	29.5	10.6	**SPARE**
POWER LOAD:	24.5	1.00 24.5 AVG			
MOTOR LOAD EXCEPT LARGEST:	0.0	1.00 0.0 KVA	AMPS	KVA	CONNECTED
LARGEST MOTOR:	0.0	1.25 0.0 8.4	66	7.9	PHASE A
20% SPARE CAPACITY:	0.0	1.00 0.0	76	9.1	PHASE B
TOTAL CONNECTED LOAD:	25.2	TOTAL DEMAND LOAD: 25.4	68	8.2	PHASE C

INSTRUCTIONS:
* - ALL BRANCH CIRCUIT BREAKERS ARE 1P20 UNLESS OTHERWISE SHOWN
[- DENOTES ADDITIONAL POLES OF MULTI-POLE CIRCUIT BREAKERS

PHASE		
LOAD		PHASE BALANCE
66%	94%	PHASE A
76%	108%	PHASE B
68%	97%	PHASE C

NOTES:
1 LOADS SHOWN ARE PRE EMP, FED FROM UTILITY POWER SOURCE
This panel will not be on-line during Post EMP event.
2 FED THROUGH THE EMP POWER FILTER ON THE MODULE EXTERIOR
3 FED THROUGH THE TRANSFER SWITCH ON THE MODULE EXTERIOR

PANEL NAME: DISTRIBUTION PANEL

						VOLTAGE:	208	/	120			MAIN BREAKER:	Y			
						PHASE:	3					LUGS ONLY:				
						WIRE:	4					SURFACE:	Y			
						BUS AMPS:	400		400	:MAIN CB AMPS		FLUSH:				
						SUPPLY AMPS:	400					GROUND BUS:	Y			
					MIN. SHORT CIRCUIT RATING:		22000					ISOLATED GROUND BUS:				
												NEUTRAL BUS:	Y			

POST HEMP LOADING
INCLUDE SPARE CAP. - Y/N: N

NOTES:

	SERVES	LTG	RCPT	PWR	MOT	CB *	CKT	PH	CKT	CB *	LTG	RCPT	PWR	MOT	SERVES	NOTES:
1	EXISTING PANEL BOARD					100	1	A	2							
	EXISTING PANEL BOARD					[	3	B	4							
	EXISTING PANEL BOARD					[	5	C	6							
1	EXISTING 100A DISCONNECT					100	7	A	8							
	EXISTING 100A DISCONNECT					[	9	B	10							
	EXISTING 100A DISCONNECT					[	11	C	12							
1	WIRNG TROUGH					100	13	A	14							
	WIRNG TROUGH					[	15	B	16							
	WIRNG TROUGH					[	17	C	18							
	POWER PANEL "A"			7926		100	19	A	20							
	POWER PANEL "A"			9116		[	21	B	22							
	POWER PANEL "A"			8422		[	23	C	24							
							25	A	26							
							27	B	28							
							29	C	30							

CONNECTED VA: A: 7,926 B: 9,116 C: 8,422

			AMPS	KVA	
CONNECTED KVA:		D.F. DEMAND KVA:	400.0	144.1	DESIGN (BASED ON SUPPLY)
LIGHTING LOAD:	0.0	1.25 0.0	70.7	25.5	CONNECTED
RECEPT. LOAD - FIRST 10 KVA:	0.0	1.00 0.0	70.7	25.5	DEMAND
RECEPT. LOAD - REMAINDER:	0.0	0.50 0.0	329.3	118.6	**SPARE**
POWER LOAD:	25.5	1.00 25.5 AVG			
MOTOR LOAD EXCEPT LARGEST:	0.0	1.00 0.0 KVA	AMPS	KVA	CONNECTED
LARGEST MOTOR:	0.0	1.25 0.0 8.5	66	7.9	PHASE A
20% SPARE CAPACITY:	0.0	1.00 0.0	76	9.1	PHASE B
TOTAL CONNECTED LOAD:	25.5	TOTAL DEMAND LOAD: 25.5	70	8.4	PHASE C

INSTRUCTIONS:
* - ALL BRANCH CIRCUIT BREAKERS ARE 1P20 UNLESS OTHERWISE SHOWN
[- DENOTES ADDITIONAL POLES OF MULTI-POLE CIRCUIT BREAKERS

PHASE		
LOAD		PHASE BALANCE
17%	93%	PHASE A
19%	107%	PHASE B
18%	99%	PHASE C

NOTES:
1 CONTRACTOR SHALL VERIFY EXISTING INSTALLATION AND ADJUST BREAKER AND CABLE SIZE TO MATCH

NOTES:

1. ALL ELECTRICAL INSTALLATIONS SHALL BE IN ACCORDANCE WITH THE 2011 EDITION OF THE NATIONAL ELECTRICAL CODE (NEC NFPA 70) AND THE OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA) AND PROJECT SPECIFICATIONS AND APPLICABLE CODES AND STANDARDS.
2. ALL CONDUIT / CABLE ROUTING IS SHOWN DIAGRAMMATIC, CONTRACTOR SHALL VERIFY LOCATION AND ROUTING BEFORE INSTALLATION. COORDINATE INSTALLATION WITH OTHER CRAFTS BEFORE INSTALLING CONDUITS, PULL BOXES AS REQUIRED, PANELS, AND DEVICES.
3. ALL SHUT DOWN WORK REQUIRED SHALL BE PLANNED AND APPROVED BY THE STATION BEFORE PROCEEDING. PROVISIONS SHALL BE PROVIDED TO MAINTAIN SERVICE DURING SHUTDOWN PERIODS.
4. CONTRACTOR SHALL NOTE ELECTRICAL PHASE ARRANGEMENTS / CONNECTIONS. (ADJUSTING CONNECTIONS AS REQUIRED) NEW PANEL CONNECTIONS TO EXISTING EQUIPMENT SHALL BE VERIFIED BEFORE APPLICATION OF POWER. THE STATION ENGINEER SHALL BE PRESENT UPON ENERGIZING EQUIPMENT.

STATE OF MAINE
MICHAEL A. CARTER
No. 11379
PROFESSIONAL ENGINEER

US Army Corps of Engineers
OMAHA DISTRICT

PHASE REVIEW:
Project Manager
QC Reviewer
Architectural
Structural
Mechanical
Electrical
Electrical
Cost

No.	Description	Date	Appvd
5	ISSUED FOR CONSTRUCTION	11/1/12	

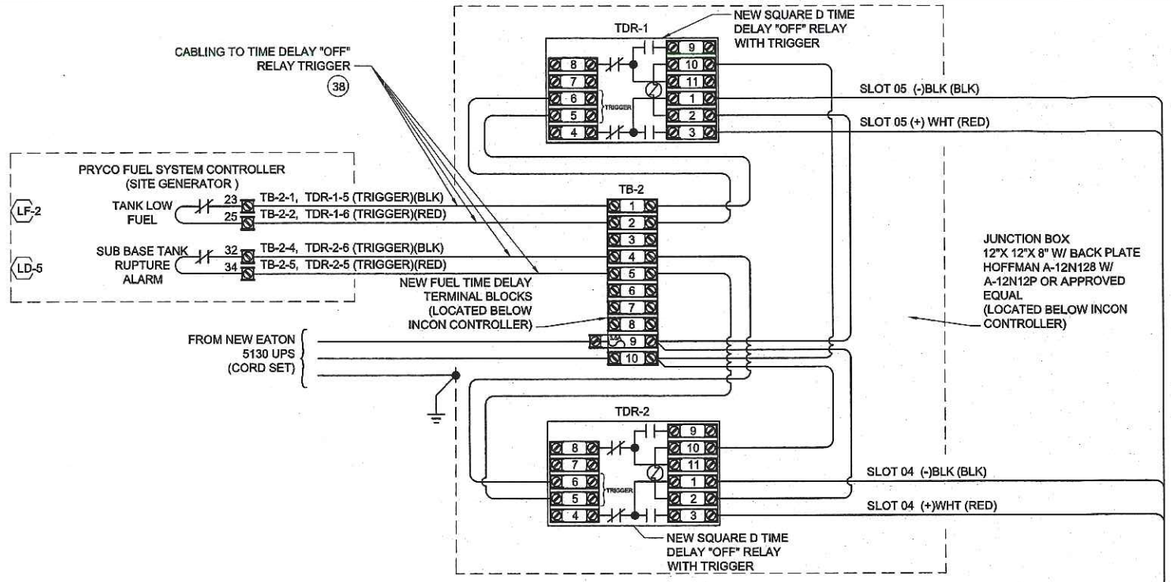
Designed by:
Drawn by:
Checked by:
Reviewed by:
Date: 2012

KBR
63 SOUTH ROYAL STREET SUITE 200
MOBILE, AL 36602
PHONE (251) 405-7500
FAX (251) 405-7588
Engineering Services by
KBR Engineering Co. LLC

FEMA EMERGENCY RADIO NETWORK
ON MOAN PORTLAND, MAINE

ELECTRICAL SCHEDULES

Drawing Number:
E-403



FUEL SYSTEM / ALARM RELAY CONNECTION DIAGRAM

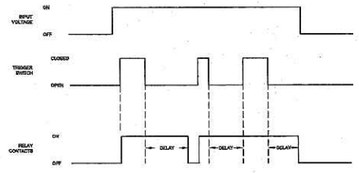
DEVICE DATA:

1. ELECTRONIC TIMING RELAY - OFF DELAY SWITCH - CLASS 9050 TYPE JCK2 2 V20 SQUARE D
2. SNAPMOUNT SOCKETS -SCREW TERMINAL - 11 PIN TUBULAR SINGLE TIER - 8501NR61 SQUARE D
3. 35 mm DIN 3 TRACK MOUNTING RAIL
4. TERMINAL BLOCKS - 300VAC RATED - #12AWG - #18AWG DIN RAIL MOUNTING
5. FUSED TERMINAL - 300VAC RATED - 10 AMP MAX RATING

RELAY OPERATIONAL DATA:

INPUT VOLTAGE MUST BE APPLIED CONTINUOUSLY. WHEN THE TRIGGER SWITCH CLOSES, THE RELAY CONTACTS CHANGE STATE. WHEN THE TRIGGER SWITCH OPENS, THE TIME DELAY BEGINS. WHEN THE DELAY IS COMPLETE, THE CONTACTS RETURN TO THEIR SHELF STATE. IF THE TRIGGER SWITCH CLOSES BEFORE THE TIME DELAY IS COMPLETE, THEN THE TIMING IS RESET. WHEN THE TRIGGER SWITCH OPENS, THE DELAY BEGINS AGAIN, AND THE RELAY CONTACTS REMAIN IN THE ENERGIZED STATE. IF THE INPUT VOLTAGE IS REMOVED, THE RELAY CONTACTS RETURN TO THEIR SHELF STATE.

TIMING DIAGRAM



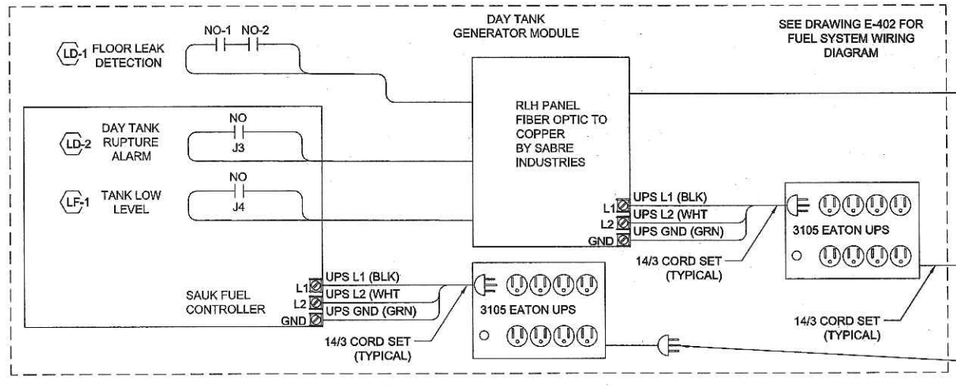
OFF DELAY SWITCH AND POWER TRIGGER FUNCTION

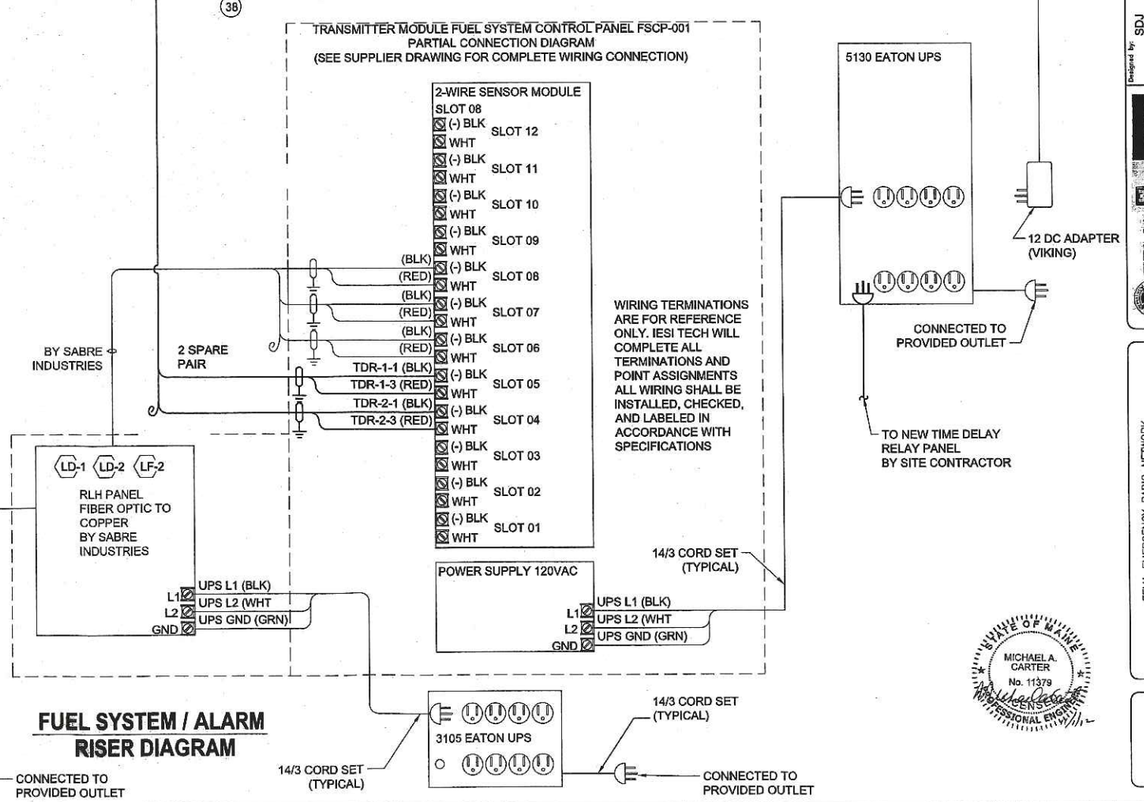
NOTES:

1. ALL ELECTRICAL INSTALLATIONS SHALL BE IN ACCORDANCE WITH THE 2011 EDITION OF THE NATIONAL ELECTRICAL CODE (NEC NFPA 70) AND THE OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA) AND ALL SPECIFICATIONS AND APPLICABLE CODES AND STANDARDS.
2. ALL INSTRUMENT / CONTROL CABLES SHALL BE INDIVIDUALLY SHIELDED DUE TO HIGH RF SIGNALS. SHIELDS SHALL BE BONDED AT THE CONTROLLER AND TAPED AT THE DEVICES UNLESS SHOWN DIFFERENTLY BY MANUFACTURER TERMINATION DRAWINGS.
3. SEE CONTROLLER SUPPLIER DRAWINGS FOR WIRING TERMINATIONS AND WIRING REQUIREMENTS. FUEL SYSTEM RISER DIAGRAM IS DIAGRAMMATIC. CABLING SIZE AND QUANTITY MAY VARY DEPENDING ON FURNISHED EQUIPMENT REQUIREMENTS.
4. ALL CONTACTS ARE SHOWN IN DE-ENERGIZED POSITIONS CONSIDERED "FAIL SAFE" WHICH WILL ALSO INDICATE AN ALARM STATE OF THE DEVICE.
5. REMOTE ALARM CIRCUITS WILL BE ROUTED THROUGH TIME DELAY RELAYS, THIS WILL ALLOW TIME FOR THE SITE GENERATOR TO COME ON LINE AND RESTORE POWER PREVENTING NUISANCE ALARMS DUE TO POWER OUTAGES. TIME DELAY OFF RELAYS SHALL BE SET AT 30 SECONDS TO ALLOW THE SITE POWER GENERATOR TO COME ON LINE AND PROVIDE POWER.
6. THE FOLLOWING PANELS WILL BE BACKED UP UTILIZING UPS:
   GENERATOR MODULE - RLH FIBER OPTIC TRANSMITTER PANEL
   - GENERATOR FUEL SYSTEM CONTROLLER "SAUK"
   TRANSMITTER MODULE - RLH FIBER OPTIC RECEIVER PANEL
   - INCON FUEL SYSTEM CONTROL PANEL FSCP-001
   - VIKING ALARM AUTO DIALER
7. UPS INSTALLATION IS BY SABRE INDUSTRIES AND IS SHOWN FOR REFERENCE.

LEGEND:

- * DENOTES WIRE / CABLE ONLY WITHIN CONTROLLER / ENCLOSURE
- CABLE SHIELD TERMINATED TO GROUNDING POINT
- CABLE SHIELD SHOWN CUT AND TAPED NOT TERMINATED
- —— INSTALLATION (BY SABRE INDUSTRIES)
- —— NEW INSTALLATION (BY SITE CONTRACTOR)





FUEL SYSTEM / ALARM RISER DIAGRAM

US Army Corps of Engineers OMAHA DISTRICT

PHASE REVIEWS: Project Manager / QC Reviewer / Architectural / Structural / Mechanical / Plumbing / Electrical / Civil

No.	Description	Date
0	ISSUED FOR CONSTRUCTION	11/1/12

Designed by: SDJ | Drawn by: SDJ | Checked by: | Released by: | Date: 2012

KBR — 63 SOUTH ROYAL STREET, SUITE 300, MOBILE, AL 36602, PHONE: (251) 459-7500, FAX: (251) 460-7555

FEMA

KBR Engineering Services Ltd. KBR Engineering Co. Ltd.

FEMA, EMERGENCY RADIO NETWORK ON MOUNT FORTLAND, MAINE

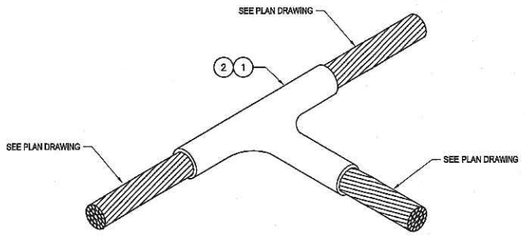
TRANSMITTER / GENERATOR UPS /TIME DELAY DIAGRAM

STATE OF MAINE — MICHAEL A. CARTER — No. 11379 — REGISTERED PROFESSIONAL ENGINEER

Drawing Number:

E-404

MATERIAL DESCRIPTION			
ITEM NO.	QTY.	UNIT	DESCRIPTION
1	1	EA	CABLE TO CABLE TAP, #4/0 TO #2/0, TAP
			CADWELD CAT. #TAC-2Q2G
2	1	EA	WELD METAL CARTRIDGE #90
3	1	EA	CABLE TO CABLE TAP, #4/0 TO #2, TAP
			CADWELD CAT. #TAC-2Q1V
4	1	EA	WELD METAL CARTRIDGE #90
5	1	EA	CABLE TO CABLE TAP, #4/0 TO #4/0, TAP
			CADWELD CAT. #TAC-2Q2Q
6	1	EA	WELD METAL CARTRIDGE #150
7	1	EA	CABLE TO CABLE TAP, #2 TO #2, SPLICE
			CADWELD CAT. #SSC-2Q
8	1	EA	WELD METAL CARTRIDGE #90
9	1	EA	CABLE TO CABLE TAP, #4/0 TO #4/0, SPLICE
			CADWELD CAT. #TAC-2Q2Q
10	1	EA	WELD METAL CARTRIDGE #90

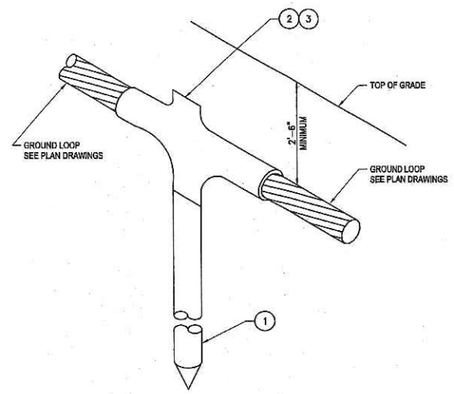


1 GROUND CONNECTION – CABLE TO CABLE
SCALE: NONE

MATERIAL DESCRIPTION			
ITEM NO.	QTY.	UNIT	DESCRIPTION
1	1	EA	3/4" COPPER CLAD GROUND ROD 10'-0" LONG
			BLACKBURN #75105
2	1	EA	#4/0 TO 3/4" GROUND ROD, THRU FEED, WELDED
			CADWELD CAT. #GTC-182Q
3	1	EA	WELD METAL CARTRIDGE #115
			MODEL NO. #115
4	1	EA	GROUND ROD COUPLING
			BLACKBURN # 70C

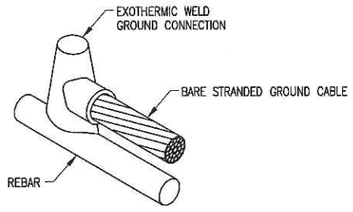
NOTE:

1. ALL MATERIALS CAN BE SUBSTITUTED WITH A CLIENT APPROVED EQUAL.



2 GROUND CONNECTION – CABLE TO GROUND ROD
SCALE: NONE

CADWELD MATERIAL DESCRIPTION				
REBAR SIZE	CABLE SIZE	MOLD PART NO.	WELD METAL	PACKING PART NO.
4	4	RRA-521L	32	B-143A
	2	RRA-521V	45	B-143A
	2/0	RRC-522G	90	B-141A
	4/0	RRC-522Q	115	B-141A
5	4	RRA-531L	32	B-143A
	2	RRA-531V	45	B-143A
	2/0	RRC-532G	90	B-141A
	4/0	RRC-532Q	115	B-141A
6	4	RRA-541L	32	B-143B
	2	RRA-541V	45	B-143B
	2/0	RRH-542G	90	B-144C
	4/0	RRH-542Q	115	B-144C
7	4	RRA-551L	32	B-143B
	2	RRA-551V	45	B-143B
	2/0	RRH-552G	90	B-144C
	4/0	RRH-552Q	115	B-144A
8	2	RRA-561V	45	B-143B
	2/0	RRH-562G	90	B-144C
	4/0	RRH-562Q	115	B-144A

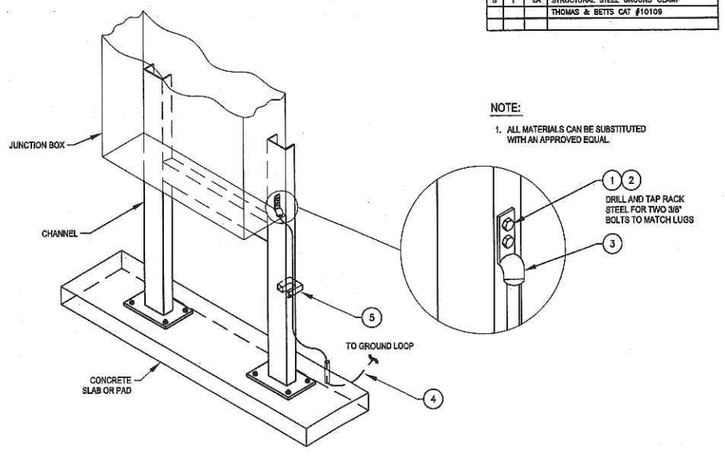


NOTES:

1. ALL MATERIALS CAN BE SUBSTITUTED WITH AN APPROVED EQUAL.

3 GROUND CONNECTION – CABLE TO REBAR
SCALE: NONE

MATERIAL DESCRIPTION			
ITEM NO.	QTY.	UNIT	DESCRIPTION
1	2	EA	EVERDUR BOLT 3/8" x 1" LONG
2	2	EA	3/8" SHAKEPROOF OUTSIDE STAR
			LOCKWASHERS
3	1	EA	COMPRESSION LUG
			BURNDY TYPE CAT #YGHA2C-2N
4	A/R	LF	#2 THHN GREEN COPPER GND. WIRE
5	1	EA	STRUCTURAL STEEL GROUND CLAMP
			THOMAS & BETTS CAT #10109



NOTE:

1. ALL MATERIALS CAN BE SUBSTITUTED WITH AN APPROVED EQUAL.

4 GROUND CABLE TO JUNCTION BOXES
SCALE: NONE

NOTES:

1. ALL ELECTRICAL INSTALLATIONS SHALL BE IN ACCORDANCE WITH THE 2011 EDITION OF THE NATIONAL ELECTRICAL CODE (NEC NFPA 70) AND THE OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA) AND PROJECT SPECIFICATIONS AND APPLICABLE CODES AND STANDARDS.

STATE OF MAINE
MICHAEL A. CARTER
No. 11379
LICENSED
PROFESSIONAL ENGINEER

US Army Corps of Engineers
OMAHA DISTRICT

PHASE REVIEW:
Project Manager
QC Reviewer
Architectural
Structural
Mechanical
Plumbing
Electrical
Civil

Mark	Description	Date	Appvd
0	ISSUED FOR CONSTRUCTION	11/1/13	

Designed by: SDJ
Drawn by: SDJ
Checked by: TCG
Reviewed by: MAC
Date: 2012

FEMA

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63 SOUTH ROYAL STREET SUITE 300
MOBILE, AL 36602
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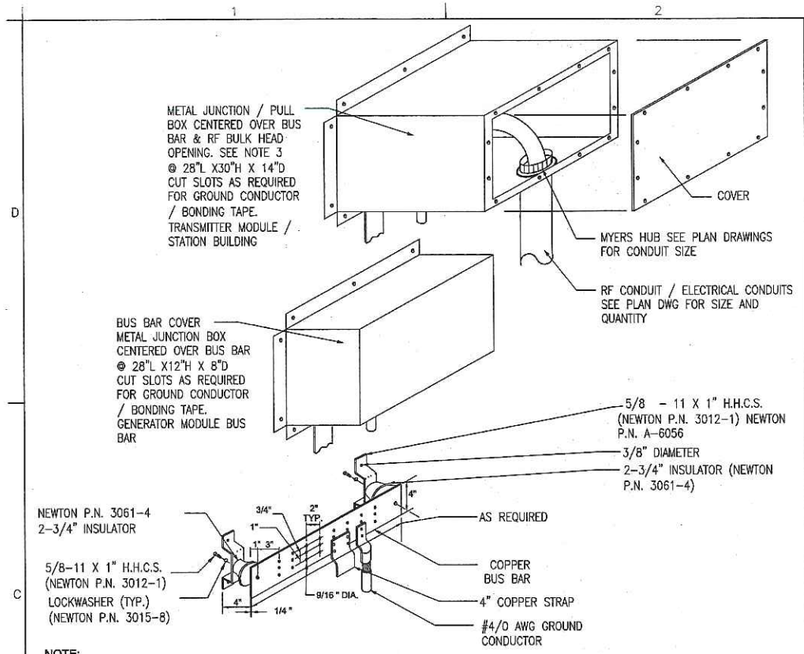
KBR
Engineering Services by
KBR Engineering Co. LLC

FEMA EMERGENCY RADIO NETWORK
ON MIGAN PORTLAND, MAINE

INSTALLATION DETAILS

Drawing Number:
E-501



NOTE:

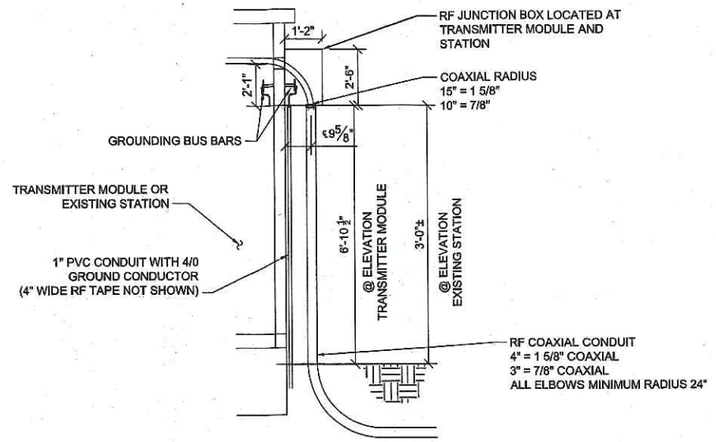
1) BUS BAR SHALL BE MOUNTED / LOCATED AT BOTTOM ENCLOSURE TO ALLOW FOR RF CABLE INSTALLATION. 15" MINIMUM BENDING RADIUS FOR 1 5/8" CABLE AND 10" MINIMUM BENDING RADIUS FOR 7/8" RF CABLE AT THE TRANSMITTER MODULE AND STATION.

2) THE ENCLOSURE SHALL BE INSTALLED OVER THE BUS BAR TO CONCEAL IT AT THE GENERATOR MODULE.

3) THE RF BULK HEAD "BOOT" IS NOT REQUIRED FOR THIS APPLICATION DUE THE THE ADDITIONAL PROTECTION GIVEN BY THE ENCLOSURE.

4) SEAL ALL OPENINGS AT CABLES AND COPPER TAPE ENCLOSURE MATERIAL – 12 GAUGE STEEL PAINTED ANSI 61 "LIGHT GRAY".

(9) 4" GROUND BUS BAR / RF PENETRATION ENCLOSURE
SCALE: NONE



(10) RF CABLE BUILDING ENTRANCE DETAIL
SCALE: NONE

NOTES:

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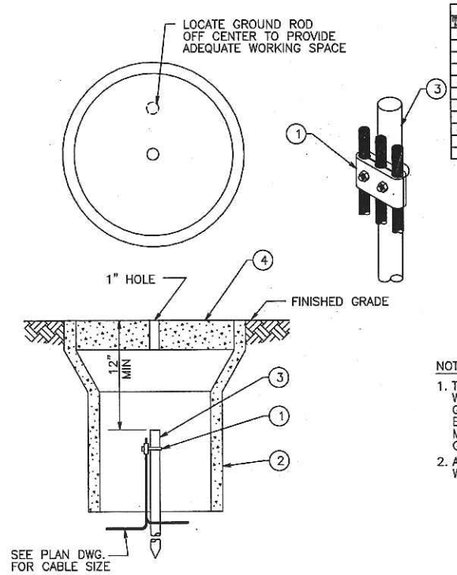
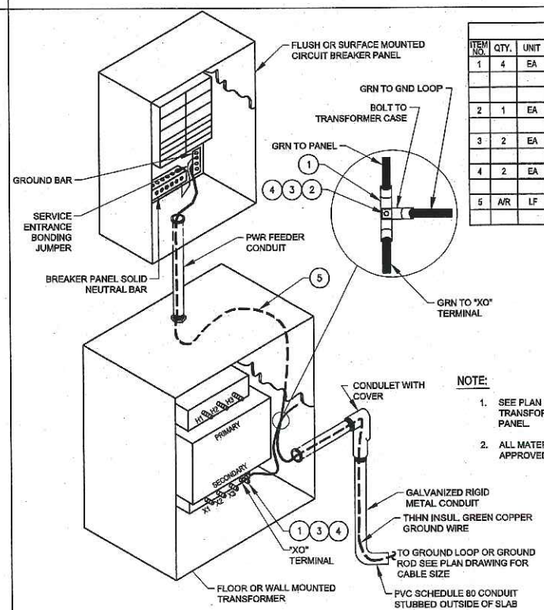


MATERIAL DESCRIPTION			
ITEM NO.	QTY.	UNIT	DESCRIPTION
1	1	EA	MECHANICAL GROUND CLAMP CONNECTOR
			CABLES TO ROD BURNDY TYPE
			CAT. #GK6428
2	1	EA	BELL & SPIGOT CONCRETE PIPE
3	1	EA	3/4" COPPER CLAD GROUND ROD 10'-0" LG.
4	1	EA	PRECAST CONCRETE COVER W/LIFTING PROVISIONS

NOTES:

1. TOP OF TEST STATION TO BE FLUSH WITH SLAB OR FIN. GRADE. TOP OF GROUND ROD TO BE AT LEAST 12" BELOW SLAB OR FIN. GRADE. (FOR MORE THAN 3 CONNECTIONS TO GROUND ROD, USE ADDITIONAL CLAMP).
2. ALL MATERIALS CAN BE SUBSTITUTED WITH AN APPROVED EQUAL.

(11) GROUND TEST WELL
SCALE: NONE



MATERIAL DESCRIPTION			
ITEM NO.	QTY.	UNIT	DESCRIPTION
1	4	EA	COMPRESSION LUG
			BURNDY TYPE CAT. #YA2C-L4
2	1	EA	EVERDUR BOLT, 3/8"-16 X 1 1/4" LONG
3	2	EA	3/8" SHAKEPROOF OUTSIDE STAR LOCKWASHERS
4	2	EA	3/8" EVERDUR NUT
5	A/R	LF	#2 THHN GREEN COPPER WIRE

NOTE:

1. SEE PLAN DRAWING FOR CONDUIT & CABLE SIZES. TRANSFORMER MAY BE WALL MOUNTED ABOVE BREAKER PANEL.
2. ALL MATERIALS CAN BE SUBSTITUTED WITH A CLIENT APPROVED EQUAL.

(12) TRANSFORMER & PWR PANEL GROUNDING
SCALE: NONE

US Army Corps of Engineers OMAHA DISTRICT

PHASE REVIEW: Project Manager | QC Reviewer | Architectural | Structural | Mechanical | Plumbing | Electrical | Date

Mark	Description	Date	Approved
0	ISSUED FOR CONSTRUCTION	11/1/12	

Designed by: SDJ | Checked by: TCG
Drawn by: SDJ | Reviewed by: TCG
Date: 2012

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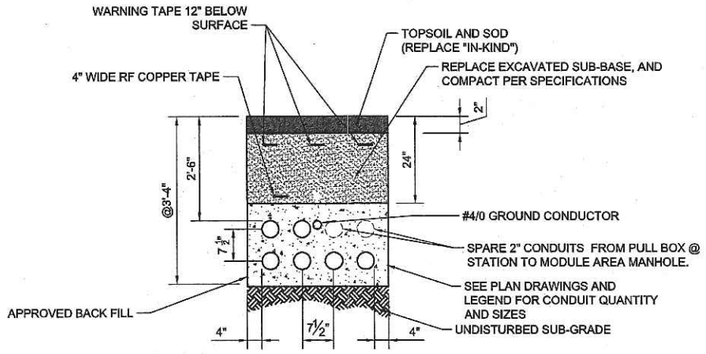
FEMA EMERGENCY RADIO NETWORK ON WGAN PORTLAND, MAINE

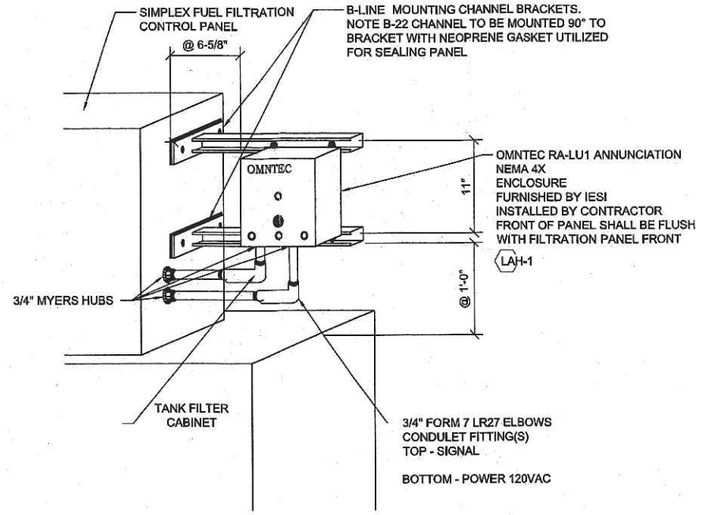
INSTALLATION DETAILS

STATE OF MAINE
MICHAEL A. CARTER
No. 11379
LICENSED PROFESSIONAL ENGINEER

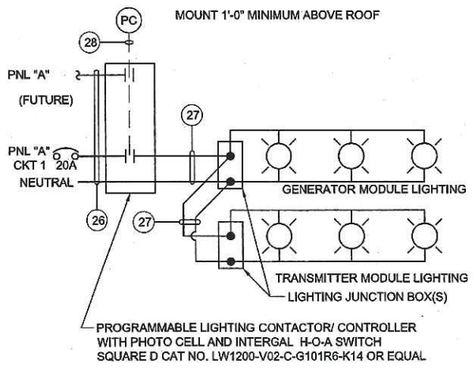
Drawing Number:
E-503



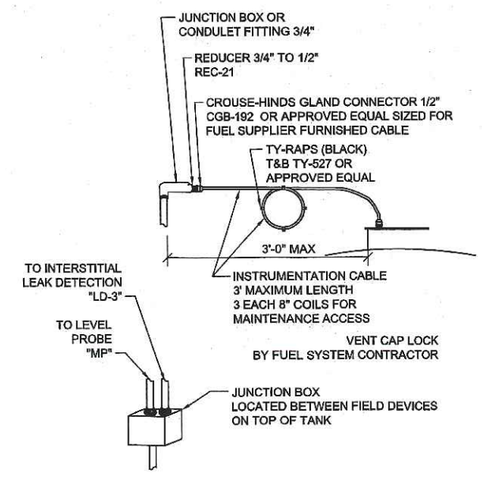
13 TYPICAL ELECTRICAL DUCT SECTION
SCALE: NONE



14 LOCAL ANNUNCIATOR MOUNTING
SCALE: NONE



15 LIGHTING CONTACTOR DETAIL
SCALE: NONE



16 TANK DEVICE CONNECTION
SCALE: NONE

NOTES:

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US Army Corps of Engineers
OMAHA DISTRICT

PHASE REVIEW:
Project Manager
DC Reviewer
Architectural
Structural
Mechanical
Plumbing
Electrical
Civil

Mark	Description	Date	Approved
0	ISSUED FOR CONSTRUCTION	11/7/12	

Designed by: SDJ
Drawn by: SDJ
Checked by: TCG
Reviewed by: MAC
Date: 2012

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KBR Engineering Services by KBR Engineering Co. LLC

FEMA EMERGENCY RADIO NETWORK
ON WGAN PORTLAND, MAINE

INSTALLATION DETAILS

Drawing Number:
E-504

STATE OF MAINE
MICHAEL A. CARTER
No. 11379
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PROFESSIONAL ENGINEER